Appendix A

Notice of Preparation and Public Scoping

New Bullards Bar Dam Secondary Spillway Project

The Yuba County Water Agency (YCWA), as Lead Agency under the California Environmental Quality Act (CEQA), publicly announces its intent to prepare an Environmental Impact Report (EIR) for the construction, operation and maintenance of the New Bullards Bar Dam Secondary Spillway Project (project or proposed project). In accordance with State CEQA Guidelines, 14 CCR Section 15000 et seq., YCWA is requesting written comments from public agencies, stakeholders, and interested organizations and individuals on the scope and content of environmental information that should be addressed in the EIR, and suggested alternatives to the proposed project that may be considered in the EIR.

CEQA specifies that a public agency must prepare an EIR on any project that it proposes to carry out or approve that may have a potentially significant or significant direct, indirect, or cumulative effect on the physical environment. YCWA is proposing to construct and operate a secondary spillway to improve flood management in the Yuba-Feather River systems and provide public safety benefits, by reducing flood risk and increasing operational flexibility for managing outflow at New Bullards Bar Dam (Dam). YCWA has determined that constructing and operating the proposed project may result in potentially significant and significant effects on the physical environment. Therefore, YCWA will prepare a project-level EIR that evaluates the potentially significant environmental effects of the proposed project.

Project Location

The project site is located 35 miles northeast of the City of Marysville, near the intersection of Marysville Road and County Road 169 in unincorporated Yuba County, California (**Figure 1**). The Secondary Spillway is proposed at the left abutment of the Dam adjacent to the Primary Spillway. Marysville Road crosses the Dam and passes through the project site.

Project Description

New Bullards Bar Reservoir (Reservoir) and Dam is the primary facility of the multipurpose Yuba River Development Project (YRDP). The YRDP is a hydroelectric project that operates pursuant to a license issued by the Federal Energy Regulatory Commission (FERC). In 2014, YCWA filed an application for a new/extended license with FERC. FERC is reviewing and considering that license application and in 2019 FERC approved a Final Environmental Impact Statement (FEIS) for the license application under the National Environmental Policy Act. FERC now is undertaking consultation with federal fish and wildlife agencies under the Endangered Species Act (ESA).

The Reservoir and Dam is located on the North Yuba River but also receives water diverted from Oregon Creek (via the Camptonville Tunnel originating near the Log Cabin Diversion Dam) and the Middle Fork Yuba River (via the Lohman Ridge Tunnel originating near Our House Diversion Dam, which flows to Oregon Creek for further diversion to the Reservoir). The Reservoir and Dam is operated by YCWA, which follows United States Army Corps of Engineers (USACE) flood rules that dictate the amount of seasonal flood space that must be maintained in the Reservoir (i.e., Master Manual of Reservoir Regulation, Sacramento River Basin, California, and specifically the New Bullards Bar Reservoir Flood Control Manual (the Manual)).

The Yuba-Feather River system has a long history of catastrophic flood events. To better manage future floods and provide public safety benefits, the proposed Secondary Spillway would allow for releases from the Dam at a lower Reservoir water elevation than is currently provided from the Primary Spillway. Releases from the Secondary Spillway would be made in anticipation of large storms to provide increased capacity in the Reservoir during high-precipitation events. The Secondary Spillway would have a discharge capacity of 35,000 cubic-feet-per second and operate conjunctively with the Primary Spillway and New Colgate Powerhouse to meet the Dam's overall target releases. The primary benefit of the proposed project is operational flexibility for managing flood-related outflow at the Dam, which would significantly reduce flood stage downstream at Marysville and the Feather-Yuba River confluence.

The Secondary Spillway may be used during small- and medium-sized flood events to maintain the designated flood space as well as during larger floods to evacuate a portion of the conservation storage (i.e., reservoir storage space below USACE-mandated flood space) to manage flood flows. During smaller flood events, flood releases may be made using only the Primary Spillway or only the Secondary Spillway. The proposed project does not include any changes to the existing New Bullards Bar Reservoir Flood Control Manual; the new Secondary Spillway would be operated under the existing Manual's requirements to meet project objectives. However, YCWA expects that the USACE will update and amend the Manual following construction of the Secondary Spillway.

The proposed project includes the following components (**Figure 2**):

- Design and construction of the following facilities:
    - An excavated approach channel in the Reservoir at the left Dam abutment to guide water into the Secondary Spillway.
    - A control structure with gates to control water releases from the approach channel.
    - An open-cut concrete-lined spillway chute with an outlet structure (flip bucket) designed to withstand the force of water as it exits the spillway chute.
    - An excavated discharge channel extending from the outlet structure down to the North Yuba River channel.
    - An operations platform and building to house equipment and monitoring systems for operating the Secondary Spillway.
    - Relocating the Dam Overlook Observation Site at the left abutment of the Dam.
    - Relocating a small segment of Marysville Road over the Secondary Spillway.

- Operation and maintenance of the Secondary Spillway and related facilities pursuant to the Manual and other applicable rules and guidelines.

Project construction would occur over approximately 3 years and is currently anticipated to begin in 2023. Soil and surplus rock resulting from excavation activities during construction would be permanently disposed of on YCWA-owned lands adjacent to the project site (**Figure 2**). Staging and additional construction areas would be located nearby the Secondary Spillway and soil and rock disposal area. Existing roads and temporary access routes would be used to access different portions of the project site and staging areas.

Issues to Be Addressed in the EIR

The EIR will address potential environmental impacts of the proposed project, including construction, operation, and maintenance and will propose feasible mitigation measures to address any potentially significant or significant impacts that are identified. Based on preliminary evaluations, the proposed project's probable environmental effects are as follows:

- **Aesthetics** – effects to the area's visual character and existing views including temporary and short-term changes from construction activities and permanent changes from the Secondary Spillway and soil and rock disposal on nearby lands.

- **Agriculture and Forestry Resources** – permanent effects related to conversion of forestlands from the Secondary Spillway and soil disposal on nearby lands.

- **Air Quality, Greenhouse Gas Emissions, and Energy** – temporary and short-term increases in pollutant emissions and energy demand associated with project construction; increase in permanent energy use and associated emissions.

- **Biological Resources** – potential impacts to special-status or migratory species or their habitats from project construction or modified flood flows downstream; effects related to tree removal.

- **Cultural and Tribal Cultural Resources** - potential disturbance or destruction of unknown historic, archaeological, or Tribal cultural resources during construction.

- **Geology and Soils** – potential increases in erosion during and after construction; potential disturbance or destruction of known or unknown paleontological resources during construction.

- **Hazards and Hazardous Materials** – potential accidental spills or exposure to hazardous materials during construction.

- **Hydrology and Water Quality** – potential transport of sediments and other pollutants into water courses; occasional temporary downstream changes to hydrology downstream in the North Yuba River from releasing water in the Secondary Spillway at lower reservoir elevations.

- **Noise** – temporary and short-term increases in noise and vibration levels near sensitive receptors and along haul routes during construction.

- **Recreation** – temporary and short-term disturbance of land- and water-based recreational activities and access in areas adjacent to the construction site; long-term impacts to the existing Dam Overlook Observation Site which requires relocation to accommodate project construction; temporary closure of parking areas and trailheads in the project vicinity.

- **Transportation** – temporary and short-term disruption of traffic circulation or emergency access during construction; potential disruption of service or delays in emergency response times during project construction on Marysville Road.

- **Public Services and Utilities and Service Systems** – potential disruption of service during construction; need for permanent relocation of utilities within the project construction area.

The EIR will also address cumulative impacts, growth-inducing impacts, and other issues required by CEQA. The EIR will also examine a reasonable range of alternatives to the proposed project, including the CEQA-mandated No Project Alternative, and other potential alternatives that may avoid or substantially reduce any of the potentially significant effects of the project. The proposed project is subject to adjustment based on information gathered during the scoping and environmental review processes, as well as through the continuing refinement of the engineering design and construction planning.

The construction and operation of the project are evaluated in the 2019 FERC FEIS for the new license application and are expected to be authorized by and a condition of the new license to be issued by FERC. YCWA therefore expects and intends for the project construction and operation to be covered by the new FERC license, which FERC is expected to issue following completion of the pending ESA consultation. At this time, the precise timing of the new license issuance is uncertain. If the issuance of the new license is unexpectedly delayed due to the ESA consultation, YCWA may need to later request an amendment to the existing FERC license to authorize the project.

How to Comment

This Notice of Preparation is being circulated for a period of 30 days, **beginning November 10, 2020, and ending December 10, 2020**. Comments regarding the scope of the environmental analysis to be conducted for the proposed project may be submitted during this timeframe. When submitting a comment please ensure your email includes "New Bullards Bar Dam Secondary Spillway Project NOP Comments" in the subject line, and the name and mailing address of the commenter, agency, or organization in the body of the email. Additionally, agencies that will need to consider the EIR when deciding whether to issue permits or other approvals for the project should provide the name of a contact person. Comments may be submitted by mail or e-mail to the address below:

John James
Yuba County Water Agency
1220 F Street
Marysville, CA 95901
jjames@yubawater.org

All comments must be received by December 3, 2020. YCWA will also host a virtual scoping meeting from **4:00 pm to 6:00 pm on November 17, 2020, via zoom virtual meeting,** where interested persons may also submit verbal comments. Prior to the virtual scoping meeting, you can register to join the meeting at the following link: **https://bit.ly/31Q5jsJ**. After registration, you will receive a confirmation email containing information about joining the meeting.

Figure 1. Project Location

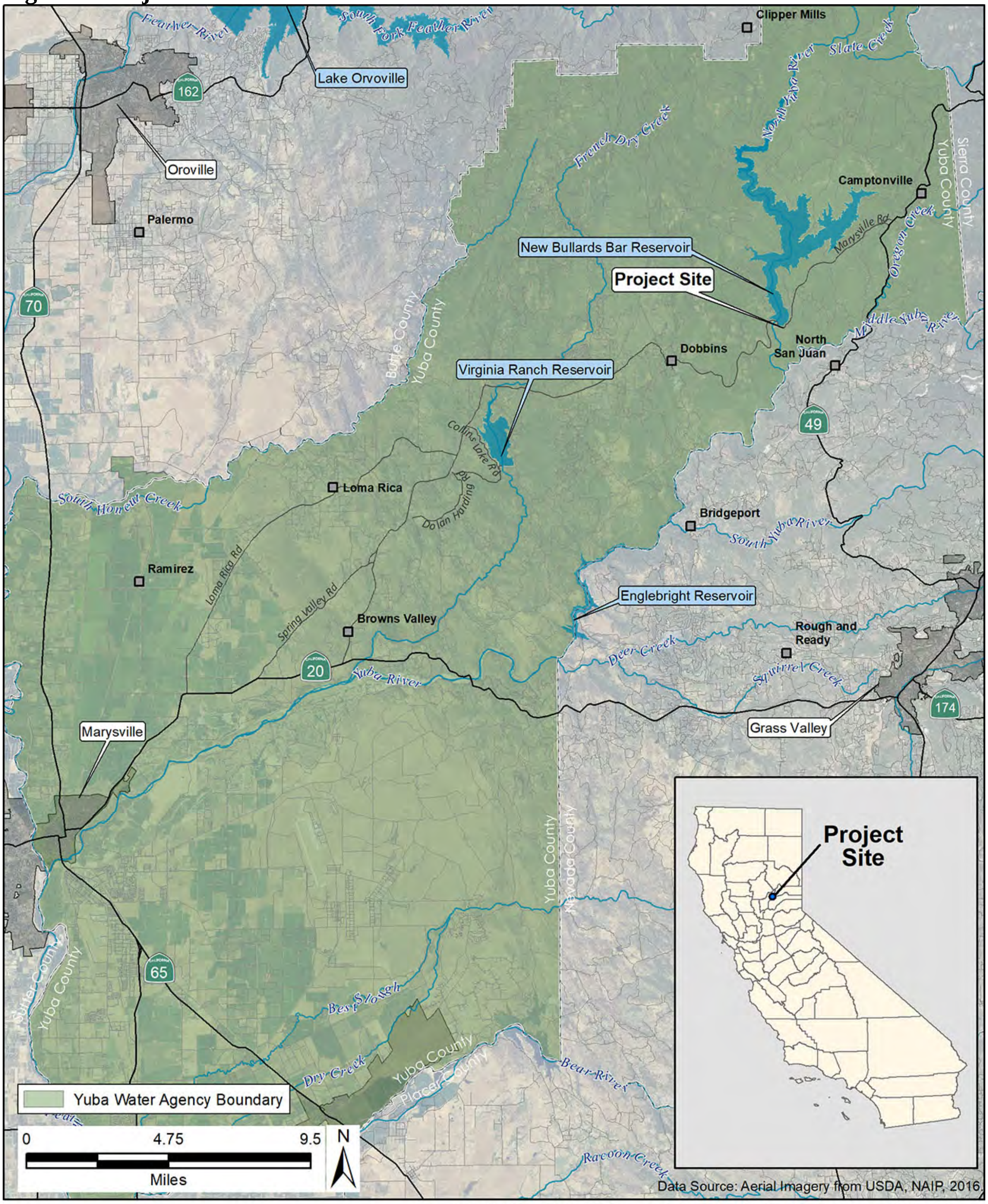

Figure Source: GEI Consultants, Inc. 2020.

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Figure 2. Project Site

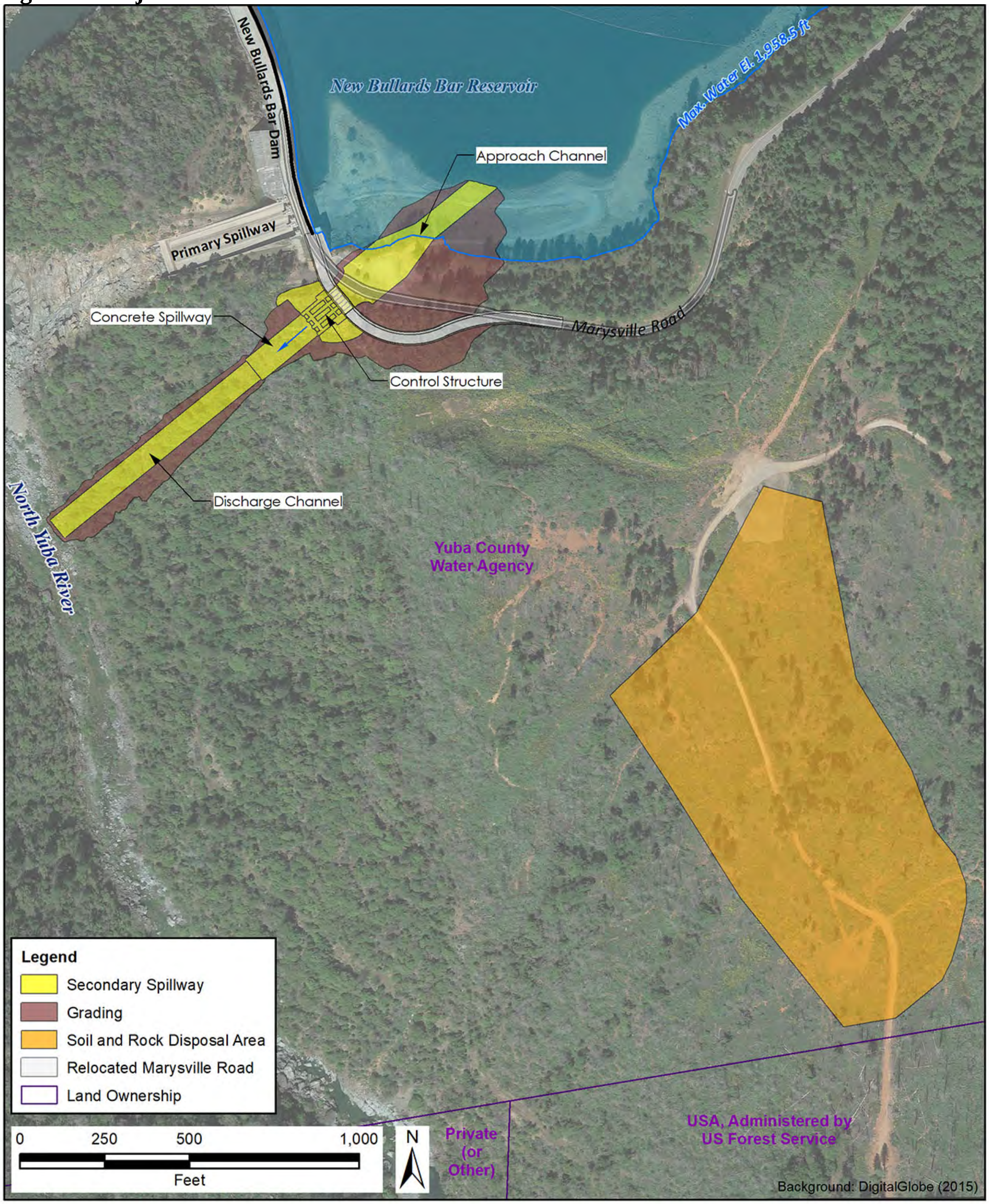

Figure Source: GEI Consultants, Inc.2020.

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CHARLTON H. BONHAM, Director

December 7, 2020

John James
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Subject: NEW BULLARDS BAR DAM SECONDARY SPILLWAY PROJECT NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT SCH# 2020110163

Dear Mr. James:

The California Department of Fish and Wildlife (CDFW) has received and reviewed the Notice of Preparation of a Draft Environmental Impact Report (DEIR) from the Yuba County Water Agency (YCWA) for the New Bullards Bar Dam Secondary Spillway Project (Project) in Yuba County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that may fall under CDFW's regulatory authority.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines, § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802). As a Trustee Agency, CDFW provides biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

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1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CDFW may also act as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381) if the Project requires any discretionary actions from CDFW, such as the execution of a Lake or Streambed Alteration Agreement (Fish & G. Code, § 1600 et seq.) and/or a California Endangered Species Act (CESA) Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (Fish & G. Code, § 2050 et seq.). CDFW also administers the Native Plant Protection Act (Fish & G. Code, § 1900 et seq.), Natural Community Conservation Program (Fish & G. Code, § 2800 et seq.), and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

The Project site is located at the New Bullards Bar Dam (Dam), approximately 35 miles northeast of the City of Marysville, near the intersection of Marysville Road and Country Road 169 in unincorporated Yuba County, California.

The Project consists primarily of the construction, operation, and ongoing maintenance of a proposed secondary spillway that would be built at the left abutment of the Dam adjacent to the existing Primary Spillway. Several associated facilities, including an excavated approach channel, a gated control structure, a spillway chute, an excavated discharge channel, and an operations platform with a building to house equipment and monitoring systems will also be constructed. In addition, the Project proposes to relocate the existing Dam Overlook Observation Site and a small segment of Marysville Road.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations presented below to assist YCWA in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. CDFW recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW staff to adequately review and comment on the Project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends that the DEIR specifically include:

1. An assessment of all habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al.

2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of wildlife species that are present or have the potential to be present on-site and within adjacent areas that could be affected by the Project. CDFW recommends that the California Natural Diversity Database (CNDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. A nine United States Geologic Survey (USGS) 7.5-minute quadrangle search is recommended to determine what may occur in the region, larger if the Project area extends past one quad (see *Data Use Guidelines* at www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data). Please review the webpage for information on how to access the CNDDB to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the Project.

   Please note that CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. Records in the CNDDB exist only where species have been detected and reported. This means there is a bias in the database towards locations that have had more development pressures, and thus more survey work. A lack of records in a certain area does not mean that no special-status species exist in that area, just that no observations have been submitted to the CNDDB in that area. CDFW recommends using the CNDDB QuickView tool to generate a list of special-status species in the nine United States Geologic Survey (USGS) 7.5-minute quadrangles surrounding the Project as a starting point in determining what species may be present in the area (see Data Use Guidelines at https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data).

3. A complete and recent inventory of rare, threatened, endangered, and other sensitive species with the potential to occur within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code, § 3511) and any other species meeting the CEQA definition of endangered or rare (CEQA Guidelines, § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. CDFW recommends that the DEIR include the results of recently conducted focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable. Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be impacted by Project activities. Survey and monitoring protocols and guidelines are available at: www.wildlife.ca.gov/Conservation/Survey-Protocols. Please note that negative survey results do not guarantee that the species in question will not be impacted by future project activities, as species that are absent from a site at one time may

move into the area in the future. Some aspects of the Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, in phases, or if surveys are completed during periods of unusual environmental conditions such as drought.

4. A thorough, recent, floristic-based assessment of special-status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see www.wildlife.ca.gov/Conservation/Plants).

5. Any other information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines, § 15125, subd. (c)).

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. To ensure that Project impacts on biological resources are fully analyzed, the following information should be included in the DEIR:

1. The DEIR should define the threshold of significance for each impact and describe the criteria used to determine whether the impacts are significant (CEQA Guidelines, § 15064, subd. (f)). The DEIR must demonstrate that the significant environmental impacts of the Project were adequately investigated and discussed and it must permit the significant effects of the Project to be considered in the full environmental context.

2. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by Project activities especially those adjacent to natural areas, exotic and/or invasive species occurrences, and drainages. The DEIR should address Project-related changes to drainage patterns and water quality within, upstream, and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

3. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Conservation or Recovery Plan, or other conserved lands).

4. A cumulative effects analysis developed as described under CEQA Guidelines section 15130. The DEIR should discuss the Project's cumulative impacts to

natural resources and determine if that contribution would result in a significant impact. The DEIR should include a list of present, past, and probable future projects producing related impacts to biological resources or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis should include analysis of vegetation and habitat reductions within the area and their potential cumulative effects. Please include all potential direct and indirect Project-related impacts to riparian areas, wetlands, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and/or special-status species, open space, and adjacent natural habitats in the cumulative effects analysis.

Mitigation Measures for Project Impacts to Biological Resources

The DEIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all potentially significant impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. For individual projects, mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4, subd. (a)(4)(B), 15064, 15065, and 16355). For mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Several Fully Protected Species (Fish & G. Code, § 3511) have the potential to occur within or adjacent to the Project area, including, but not limited to: golden eagle (*Aquila chrysaetos*), bald eagle (*Haliaeetus leucocephalus*), and American peregrine falcon (*Falco peregrinus anatum*). American peregrine falcons in particular have been observed nesting on the Dam face in the past, and CDFW recommends that the DEIR include the results of nesting surveys for these species on and around the Project site. Fully protected species may not be taken or possessed at any time. Project activities described in the DEIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the DEIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. The analysis should include a discussion of how the proposed mitigation measures will reduce impacts to fully protected species.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include

measures to avoid, minimize, and mitigate for Project impacts on sensitive plant communities.

3. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration, enhancement, or permanent protection should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

4. *Habitat Revegetation/Restoration Plans*: Plans for restoration and revegetation should be prepared by persons with expertise in the regional ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

   CDFW recommends that local onsite propagules from the Project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be appropriately timed to ensure the viability of the seeds when planted and to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various Project components as appropriate. Restoration objectives should include protecting special habitat elements or re-creating them in areas affected by the Project. Examples may include retention of woody material, logs, snags, rocks, and brush piles. Fish and Game Code sections 1002, 1002.5 and 1003 authorize CDFW to issue permits for the take or possession of plants and wildlife for scientific, educational, and propagation purposes. Please see our website for more information on Scientific Collecting Permits at www.wildlife.ca.gov/Licensing/Scientific-Collecting#53949678-regulations-.

5. *Nesting Birds:* It is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Sections 3503, 3503.5, and 3513 of the Fish and Game Code afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto; section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto; and section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

   Potential habitat for nesting birds and birds of prey is present within the Project area. The Project should disclose all potential activities that may incur a direct or indirect take to nesting birds within the Project footprint and its vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the DEIR.

   CDFW recommends that the DEIR include specific avoidance and minimization measures to ensure that impacts to nesting birds or their nests do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that the Project will implement should a nest be located within the Project site. In addition to larger, protocol level survey efforts (e.g. Swainson's hawk surveys) and scientific assessments, CDFW recommends a final preconstruction survey be required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted earlier.

6. *Moving out of Harm's Way:* The Project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, the lead agency may condition the DEIR to require that a qualified biologist with the proper permits be retained to be onsite prior to and during all ground- and habitat-disturbing activities. The qualified biologist with the proper permits may move out of harm's way special-status (except for CESA-listed) species or other wildlife of low or limited mobility that would otherwise be injured or killed from Project-related activities. CESA-listed species may only be moved if there is current take authorization for the Project (such as a CESA Incidental Take Permit as described below). Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far as necessary to ensure their safety (i.e., CDFW does not recommend relocation to other areas). It should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for habitat loss.

7. *Translocation of Species*: CDFW generally does not support the use of relocation, salvage, and/or transplantation as the sole mitigation for impacts to rare, threatened, or endangered species as these efforts are often experimental in nature and may be unsuccessful.

The DEIR should incorporate mitigation performance standards that would ensure that impacts are reduced to a less-than-significant level. Mitigation measures proposed in the DEIR should be made a condition of approval of the Project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time. To avoid deferring mitigation in this way, the DEIR should describe avoidance, minimization and mitigation measures that would be implemented should the impact occur.

California Endangered Species Act

CESA (Fish & G. Code, § 2050 et seq.) prohibits the import, export, sale, and take (Fish & G. Code, § 86) of state-listed endangered (Fish & G. Code, § 2062), threatened (Fish & G. Code, § 2067), and candidate (Fish & G. Code, § 2068) species without proper authorization. If Project activities have the potential to cause incidental take of State-listed species, a CESA Incidental Take Permit (ITP) may be obtained to authorize take in the event that incidental take occurs. A CESA ITP may also be obtained to provide coverage for rare and endangered plants listed under the Native Plant Protection Act (Fish & G. Code, § 1900 et seq.).

The DEIR should disclose the potential of the Project to take State-listed species and how the impacts will be avoided, minimized, and mitigated. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be adequate for the issuance of an ITP. To issue an ITP, CDFW must demonstrate that the impacts of the authorized take will be minimized and fully mitigated (Fish & G. Code §2081 (b)). To facilitate the issuance of an ITP, if applicable, CDFW recommends the DEIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both State and federally listed species may be present within the Project vicinity.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) (Fish & G. Code, § 1900 et seq.) prohibits the take or possession of State-listed rare and endangered plants, including any part or product thereof, unless authorized by CDFW or in certain limited circumstances. Take of State-listed rare and/or endangered plants due to Project activities may only be permitted through an ITP or other authorization issued by CDFW pursuant to California Code of Regulations, Title 14, section 786.9 subdivision (b).

Lake and Streambed Alteration Program

The DEIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including utilities, access and staging areas). The DEIR should analyze all potential temporary, permanent, direct, indirect and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats that may occur because of the Project. If it is determined that the Project will result in significant impacts to these resources the DEIR shall propose appropriate avoidance, minimization and/or mitigation measures to reduce impacts to a less-than-significant level.

Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If CDFW determines that the Project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA. (See Pub. Resources Code, § 21065). To facilitate issuance of a LSA Agreement, if one is necessary, The DEIR should identify all perennial, intermittent, and ephemeral rivers, streams, lakes, other hydrologically connected aquatic features, and any associated biological resources/habitats present within the entire Project footprint (including access and staging areas). Early consultation with CDFW is recommended, since modification of the Project may avoid or reduce impacts to fish and wildlife resources. To notify for an LSA and for more information about the notification process, please go to https://www.wildlife.ca.gov/Conservation/LSA.

Please note that the fish and wildlife resources that may be impacted by activities subject to Notification under Fish and Game Code section 1602 are not synonymous with Waters of the United States as defined by the U.S. Army Corps of Engineers (USACE), and a wetland delineation prepared for the USACE may not include all needed information for CDFW to determine the extent of the impacts to fish and wildlife resources. Therefore, CDFW does not recommend relying solely on methods developed specifically for delineating areas subject to other agencies' jurisdiction (such as USACE) when mapping lakes, streams, wetlands, floodplains, riparian areas, etc. in preparation for submitting a Notification of a LSA.

CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. CDFW recommends lead agencies coordinate with us as early as possible, since potential modification of the proposed Project may avoid or reduce impacts to fish and wildlife resources and expedite the Project approval process.

The following information will be required for the processing of an LSA Notification and CDFW recommends incorporating this information into any forthcoming CEQA document(s) to avoid subsequent documentation and Project delays:

1. Mapping and quantification of lakes, streams, and associated fish and wildlife habitat (e.g., riparian habitat, freshwater wetlands, etc.) that will be temporarily and/or permanently impacted by the Project, including impacts from access and staging areas. Please include an estimate of impact to each habitat type.

2. Discussion of specific avoidance, minimization, and mitigation measures to reduce Project impacts to fish and wildlife resources to a less-than-significant level. Please refer to section 15370 of the CEQA Guidelines.

Based on review of Project materials and aerial photography, the Project as currently proposed will impact the New Bullards Bar Reservoir and the North Yuba River. CDFW recommends that the DEIR fully identify the Project's potential impacts to these waterbodies as well as any other waterbodies or their associated riparian and/or wetland habitats.

ENVIRONMENTAL DATA

It is the policy of the state that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. written notifications may be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the Notice of Preparation of a DEIR for the New Bullards Bar Dam Secondary Spillway Project and recommends that YCWA address CDFW's comments and concerns in the forthcoming DEIR. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter or wish to schedule a meeting and/or site visit, please contact Gabriele Quillman, Environmental Scientist at (916) 358-2955 or gabriele.quillman@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Kelley Barker
778EDA8AE45F4C9...

Kelley Barker
Environmental Program Manager

ec: Tanya Sheya, Senior Environmental Scientist (Supervisory)
Gabriele Quillman, Environmental Scientist
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Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

Literature Cited

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

FOOTHILLS WATER NETWORK

December 10, 2020

Mr. John James
Yuba County Water Agency
1220 F Street
Marysville, CA 95901

Sent via email to jjames@yubawater.org and via U.S. mail

Re: Comments on the Notice of Preparation for the New Bullards Bar Dam Secondary Spillway Project

Dear Mr. James:

The Foothills Water Network (FWN or Network) and its individual member organizations respectfully respond to the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) as required by the California Environmental Quality Act (CEQA) for the New Bullards Bar (NBB) Dam Secondary Spillway Project (Project) prepared by the Yuba County Water Agency (YCWA). The Foothills Water Network represents a broad group of non-governmental organizations and water resource stakeholders in the Yuba River, Bear River, and American River watersheds.[1] The overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American rivers.

The Network participated in the relicensing of the Yuba River Development Project (YRDP) and, as part of that process, has some understanding of the proposed Project. Over the years, Network members have also worked with YCWA and regional interests on flood control improvements to the Yuba and Feather systems.

The NOP elaborates on the procedural history of the Project, stating that,

> "The construction and operation of the project are evaluated in the 2019 FERC FEIS for the new license application and are expected to be authorized by and a condition of the new license to be issued by FERC. YCWA therefore expects and intends for the project construction and operation *to be covered by the new FERC license*, which FERC is expected to issue following completion of the pending ESA consultation. At this time, the

[1] Foothills Water Network, American Rivers, American Whitewater, California Outdoors, California Sportfishing Protection Alliance, Friends of the River, Gold Country Fly Fishers, Northern California Council Federation of Fly Fishers, Save Auburn Ravine Salmon and Steelhead, Sierra Club, Sierra Foothills Audubon Society, South Yuba River Citizens League, and Trout Unlimited.

precise timing of the new license issuance is uncertain. *If the issuance of the new license is unexpectedly delayed due to the ESA consultation, YCWA may need to later request an amendment to the existing FERC license to authorize the project*."[2]

In December 2019, HDR consultants for YCWA notified YRDP relicensing participants, including the Network, that the agency would be filing a Non-Capacity Amendment to their existing license and filing an Environmental Assessment (EA) for the proposed Project with the Federal Energy Regulatory Commission (FERC) in an effort to include the Project as part of the existing license for YRDP.[3] As of December 2020, the Network is not aware of those filings, but will remain engaged as this Project moves forward as part of the existing license or as part of the new license for YRDP.

The Network thanks YCWA for the decision to prepare a full EIR for this Project and the opportunity to submit public comment. The purpose of an EIR is "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided," before a project is approved.[4] The lead agency for the project, in this case YCWA, must mitigate or avoid the significant effects on the environment from projects that it carries out or approves whenever feasible.[5] Moreover, the "purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment."[6] Finally, the draft EIR must describe a range of alternatives of the proposed Project and its location that will feasibly attain the Project's basic objectives while avoiding or substantially lessening the Project's significant impacts.[7]

The Network requests the draft EIR address, analyze, and include mitigation for the following potential issues and impacts:

- Construction of the Secondary Spillway
- Flood Control and Management of Spillway
- Recreational Access below New Bullards Bar Dam

In general, the Network is supportive of this Project to improve floodwater management, operational security, community safety and help prepare the Yuba and Feather River watersheds for the impacts of climate change.

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[2] NOP, p. 4.
[3] The Network was notified of these planned procedural steps through numerous emails from HDR consultants as well as a conference call December 11, 2019. As of December 9, 2020, the Network is unable to locate copies of these documents on the FERC docket for YRDP and is assuming they were not filed.
[4] Cal. Pub. Res. Code § 21000 et seq., at 21002.1(a).
[5] *Id*. at 21002.1(b).
[6] Cal. Code Regs. tit. 14, § 15201 ("CEQA Guidelines").
[7] Pub. Res. Code § 21100(b)(4); CEQA Guidelines § 15126(d).

Construction Impacts

The Network requests the DEIR analyze short- and long-term stabilization mitigation measures to reduce risk of construction impacts in the riparian and Project areas as part of the potentially significant impacts to Geology and Soils.[8]

The Network has concerns about the stabilization of the removed material during the construction of the spillway. Logging roads along ridges, such as the construction area, have been shown to be a significant cause of increased erosion leading to higher turbidity and more frequent debris flows.[9] The permanent placement of excavated material, without proper stabilization, has the potential to trigger similar impacts to the North Yuba. The Project Site area, as shown in Figure 2 of the NOP, was recently logged and will be covered in new soil and rock when construction begins in 2023.[10] Without a short-term and long-term soil stabilization plan, such as hydromulching and planting, there is the potential for much of the excavated material to end up in the river. FWN requests that the draft EIR address such a potential impact from the construction of the Project.

Floodwater Management

Some member organizations of the Network were actively involved in the Yuba Feather Work Group, which identified a need for a secondary spillway at NBB for better flood control and management. Working with YCWA, the group's primary objective was to identify opportunities for better floodwater management in the Yuba and Feather River watersheds. One focus area was the limited NBB flood reservation, only 17 percent of total reservoir space. The Work Group recognized that additional floodwater management outlets that could make floodwater releases low in the flood reservation, or from the existing conservation pool, would provide better abilities to make releases before or early in the flood inflow events. This would result in better management of flood reservation space, use of downstream levees, and avoidance of backwater effects with the Feather River.

The Network recognizes that the Project must involve at least two basic elements: (1) better floodwater management outlets at NBB and (2) an update of the U.S. Army Corps of Engineers (USACE) reservoir regulation manual and YCWA's floodwater operations policies. The Network thanks YCWA for noting in the NOP that the USACE will "update and amend the Flood Control Manual following the construction of the Secondary Spillway."[11] The Network looks forward to this necessary update.

In addition, the Network requests that the draft EIR address the following:

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[8] NOP, p. 3.
[9] Jakob, M. (2000). The impacts of logging on landslide activity at Clayoquot Sound, British Columbia. Catena, 38(4), 279-300.
[10] NOP, pp. 2-3.
[11] NOP, p. 2.

- The new outlets should be able to make significant releases at low levels in the flood reservation. The objective release should be reached low in the flood reservation.
- An alternative that can make significant releases from the top area of the conservation pool would also be helpful in mitigating the relatively small flood reservation at NBB.
- YCWA should offer draft reservoir regulation manual update alternatives. This could help the USACE and the California Department of Water Resources (DWR) as they undertake work on the Yuba and Feather (USACE) and Feather River (DWR) reservoir regulation manuals. It also would provide some operational scenarios to evaluate the effects of the physical project or projects.

Finally, the Network requests the draft EIR analyze any potential impacts to the river channel due to spillway operations resulting in bedrock erosion and the subsequent downstream transport of the newly eroded material. Based on aerial imagery, there is a sizeable plunge pool at the base of the existing spillway. This alluvium appears to be deposited in the channel just downstream of the existing plunge pool. Presumably, a second spillway will erode a second plunge pool generating additional unconsolidated alluvium. During high flow events, there is potential for this material being transported further downstream burying additional channel. FWN requests the draft EIR address this potential riparian impact from secondary spillway operations.

Access Below New Bullards Bar Dam

The Network notes that there is no new road construction listed in the NOP associated with the Secondary Spillway. The Recreation Flow Study for YRDP highlighted the fact that the North Fork Yuba River from to the Colgate Powerhouse is a high-quality whitewater boating reach. This reach is also of interest to hikers and anglers. The only existing access to the North Yuba downstream of New Bullards Bar Dam is via the access road to the base of the dam. New license conditions negotiated as part of the YRDP will provide additional whitewater boating opportunities in this reach. Improved base flows and habitat measures will improve conditions for fish and angling opportunities.

For these reasons, the California Department of Fish and Wildlife (CDFW), United States Forest Service (USFS), and the National Park Service all recommended or supported requiring vehicular and public access below New Bullards Bar.[12]

FERC's draft Environmental Impact Statement (DEIS) very clearly described the rationale for requiring vehicular access to the North Yuba River downstream of New Bullards Bar Dam:

> "Providing vehicular access as the agencies and FWN recommend would be reasonable because it appears that: (1) access is likely constraining river-based recreation; (2) providing public vehicular use on the access road can be provided concurrent with

[12] CDFW 10(j) Condition 2.22 to require public access for angling. Forest Service 10(a) Recommendation 17. The National Park Service also supported recreational access below New Bullards Bar Dam.

> providing security at project infrastructure; and (3) improved access is necessary to support whitewater boating and other river-based recreation uses downstream of New Bullards Bar Dam."[13]

The Network continues to support this analysis and feels that this description accurately depicts the reality on the ground.

YCWA opposed this staff recommendation citing several concerns, including:

- The existing road is narrow and unsuitable for public access.
- Allowing public access near the base of New Bullards Bar Dam creates an unacceptable safety risk for project facilities.
- Paddlers and anglers would be at significant risk in passing the existing spillway when it is in operation.

In the Network's comments on the REA, we recognized YCWA's concerns regarding use of the existing road for public access and recommended the following:

> "In the event that the Licensee determines that it is unacceptable to provide public access at the base of New Bullards Bar Dam using the existing access road, the *Licensee shall build an alternative access point* that provides security for Project facilities and parking and access for whitewater boaters at the top of the run."[14]

The Network's recommendation is still relevant here when fashioning project alternatives and considering the environmental impacts of the Project.

The Network requests the draft EIR analyze options to provide river access to boaters, anglers, and other river recreationists. Construction of a Secondary Spillway will necessitate new roads and access down the river-left side of the dam. This new road could alleviate the concerns previously raised by YCWA. The draft EIR should analyze this option and other feasible alternatives that will provide pedestrian and vehicular access.

Conclusion

Thank you for your consideration of the Network's comments on the Notice of Preparation for the New Bullards Bar Dam Secondary Spillway Project. Please contact Traci Van Thull, Coordinator, Foothills Water Network, if you have any questions.

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[13] DEIS, pp. 3-324 and 3-325.
[14] Foothills Water Network, Comments and Recommendations Ready for Environmental Analysis for the Yuba River Development Project (P-2246), eLibrary no. 20170825-5257 (FWN REA Comments), p. 83 (emphasis added).

Respectfully submitted,

Foothills Water Network

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STATE OF CALIFORNIA — Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

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nahc@nahc.ca.gov
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NOV 1 6 2020

November 10, 2020

John James
Yuba County Water Agency
1220 F Street
Marysville, CA 95901

Re: 2020110163, New Bullards Bar Dam Secondary Spillway Project, Yuba County

Dear Mr. James:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

- **a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
- **b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

- **a.** Avoidance and preservation of the resources in place, including, but not limited to:
  - **i.** Planning and construction to avoid the resources and protect the cultural and natural context.
  - **ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- **b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - **i.** Protecting the cultural character and integrity of the resource.
  - **ii.** Protecting the traditional use of the resource.
  - **iii.** Protecting the confidentiality of the resource.
- **c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- **d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).
- **e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
- **f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

- **a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
- **b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
- **c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
  - **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
  - **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
  - **a.** If part or all of the APE has been previously surveyed for cultural resources.
  - **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
  - **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
  - **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
  - **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
  - **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

December 10, 2020

Mr. John James
Yuba County Water Agency
1220 F Street
Marysville, CA 95901
Via e-mail: jjames@yubawater.org

COMMENTS ON NOTICE OF PREPERATION FOR THE NEW BULARDS BAR DAM SECONDARY SPILLWAY PROJECT, PART OF THE YUBA RIVER DEVELOPMENT PROJECT, FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 2246

Dear Mr. James:

On November 9, 2020, Yuba County Water Agency (YCWA) filed a Notice of Preparation (NOP) for the New Bullards Bar Dam Secondary Spillway Project (Spillway Project). Per YCWA's final license application and amendments thereto the Federal Energy Regulatory Commission (FERC) for the Yuba River Development Project (YRDP), the Spillway Project is part of the broader YRDP. The NOP contained an overview of the Spillway Project description and discusses items that will be addressed in the Environmental Impact Report (EIR).

Filing of the NOP on November 9, 2020, started a 30-day comment period that provides public agencies, stakeholders, and interested organizations and individuals the opportunity to comment on the scope and content of environmental information that should be addressed in the EIR. (See Pub. Resources Code, § 15082, subds. (b), (d); Cal. Code Regs., tit. 14, § 15103.) This comment period ends on December 10, 2020. (See https://ceqanet.opr.ca.gov/2020110163/2.)

State Water Board staff hereby submits the enclosed attachment (State Water Resources Control Board Staff Comments on Notice of Preparation for the New Bullards Bar Dam Secondary Spillway Project), which provides information and comments pertaining to YCWA's NOP on the Spillway Project.

During the current Coronavirus-19 emergency, most State Water Board staff are working from home. Accordingly, if you have questions regarding this letter, please contact Parker Thaler by email at: Parker.Thaler@waterboards.ca.gov. Written correspondence should be addressed as follows:

State Water Resources Control Board
Division of Water Rights – Water Quality Certification Program
Attn: Parker Thaler
P.O Box 2000
Sacramento, CA 95812-2000

Sincerely,

Parker Thaler, Senior Environmental Scientist
Water Quality Certifications Program
Division of Water Right

Enclosure: State Water Resources Control Board Staff Comments on Notice of Preparation for the New Bullards Bar Dam Secondary Spillway Project

cc (w/ enclosure):

Mr. Tomas Torres
U.S. Environmental Protection Agency
Region 9, Water Division
75 Hawthorne Street
San Francisco, CA 94105

Ms. Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Mr. Patrick Pulupa
Central Valley Regional Water Quality Control Board
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Rancho Cordova, CA 95670

Ms. Briana Seapy
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Mr. Chris Shutes
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Mr. Willie Whittlesey
General Manager
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1220 F Street
Marysville, CA 95901-4226

Mr. Curt Aikens
Executive Advisor
Yuba Water Agency
1220 F Street
Marysville, CA 95901-4226

The following comments are provided by State Water Resources Control Board (State Water Board) staff on the Notice of Preparation (NOP) issued by Yuba County Water Agency (YCWA) for the New Bullards Bar Dam Secondary Spillway Project (Spillway Project), which is part of the Yuba River Development Project (YRDP) and also referred to as Federal Energy Regulatory Commission (FERC) Project No. 2246.

Clean Water Act Section 401 Certification

Section 401 of the Clean Water Act requires any applicant for a federal license or permit for an activity that may result in any discharge to navigable waters, to obtain certification from the State that the discharge will comply with the applicable water quality requirements, including the requirements of section 303 of the Clean Water Act for water quality standards and implementation plans. Clean Water Act section 401 directs that certifications shall prescribe effluent limitations and other conditions necessary to ensure compliance with the Clean Water Act and with any other appropriate requirements of state law. Conditions of certification shall become a condition of any federal license or permit subject to certification. The Spillway Project will result in a discharge to navigable waters and must obtain certification from the State Water Board prior to its construction, operation, and maintenance and would be subject to Section 401 of the Clean Water Act.

On July 17, 2020, the State Water Board issued water quality certification for the relicensing of the YRDP, which includes certification for the Spillway Project if FERC's finding of waiver is overturned. The certification was issued under a statutory provision providing the State Water Board with authority to issue a certification prior to the completion of California Environmental Quality Act (CEQA) review under certain conditions (Wat. Code, § 13160, subd. (b)(2)), and YCWA has challenged the use of this authority. (E.g., YCWA, Petition for Reconsideration (Aug. 14, 2020), p. 6.) Should the State Water Board's certification ultimately be found to be invalid, a new certification would be necessary for any Clean Water Act Section 404 permit issued by the United States Army Corps of Engineers.

Responsible Agency

As a Responsible Agency, the State Water Board recommends YCWA analyze the potential environmental effects of YRDP relicensing, which would include the Spillway Project. YCWA should fully analyze the potential environmental impacts associated with operation of the YRDP as compared to water quality standards identified in the *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* and the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*. Water quality standards analysis should include examination of potential impacts to beneficial uses of surface water, and to narrative as well as to quantitative water quality objectives. Additionally, the EIR should consider the potential impacts of the YRDP and alternatives vis-à-vis state and federal anti-degradation requirements. The Environmental Impact Report (EIR) should include analysis of the terms of State Water Board's July 17, 2020 water quality certification for the YRDP, at the project or program level, as appropriate for each condition.

Specifically regarding the spillway changes at New Bullards Bar Dam described in the NOP, State Water Board staff recommend YCWA analyze potential impacts that could occur downstream associated with increased flood-control related discharges in addition to the hydrology and water quality issues discussed in the NOP. The Spillway Project has the potential to increase discharge capacity by 35,000 cubic feet per second (cfs) in order to increase storage capacity in New Bullards Bar Reservoir during flood events. Discharges of this magnitude could result in significant impacts downstream such as increased scour, flooding, and changes in channel morphology.

Scope of Environmental Review

State Water Board staff is concerned that stand-alone environmental review of the Spillway Project could constitute piecemealing, which is impermissible under CEQA. Staff is further concerned that the Spillway Project description as presented in the NOP would not provide the State Water Board with a full analysis of the impacts of related activities associated with YRDP relicensing and alternatives that could support existing certification requirements or provide information for any future certification (e.g., should FERC's waiver finding not be overturned). State Water Board staff encourages YCWA to comply with all CEQA requirements and review the environmental impacts of the entire YRDP.

"There is no dispute that CEQA forbids 'piecemeal' review of the significant environmental impacts of a project. This rule derives, in part, from [California Code of Regulations, title 14,] section 21002.1, subdivision (d), which requires the lead agency . . . to 'consider[] the effects, both individual and collective, of all activities involved in [the] project.'" (*Berkeley Keep Jets Over the Bay Com. v. Board of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1358.) "The requirements of CEQA cannot be avoided by piecemeal review which results from 'chopping a large project into many little ones—each with a minimal potential impact on the environment—which cumulatively may have disastrous consequences.'" (*Rio Vista Farm Bur. Center v. County of Solano* (1992) 5 Cal.App.4th 351, 370 [quoting *Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284].) Moreover, the CEQA Guidelines define the term "Project" to mean "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment . . . ." (Cal. Code Regs., tit. 14, § 15378, subd. (a).)

The NOP identifies YCWA as the lead agency under CEQA and states that YCWA "will prepare a project-level EIR that evaluates the potentially significant environmental effects of the [New Bullards Bar Dam Secondary Spillway Project]." Page one of the NOP further states that New Bullards Bar Reservoir and Dam are part of the YRDP, a hydroelectric project for which YCWA has applied for a new FERC license. Page four of the NOP states:

> The construction and operation of the project are evaluated in the 2019 FERC [Final Environmental Impact Statement] for the new license application and are expected to be authorized by and a condition of the

From:	Russo, Chrissy
To:	Jolley, Ryan
Subject:	NBB scoping meeting comments
Date:	Tuesday, November 17, 2020 4:38:54 PM

Hi Ryan,

I just wanted to shoot over the comments we received from the scoping meeting.

Traci Sheehan: "Does the forest service have land within the project area? Where is the nearest non-YCWA land?"
Answer: The project location figure included in the scoping meeting presentation shows the parcel lines and identifies non-YCWA land.

Kevin Perkins: Yuba County is interested in the temporary impacts to Marysville Road. He stated that during the preparation of the EIR, if any land use questions come up he can be the point of contact to answer any questions.

I will also go ahead and save these comments within the project folder.

Best,
Chrissy

GEI50
CHRISSY RUSSO
Environmental Planner
916.912.4931 cell: 530.680.7875
2868 Prospect Park Drive, Suite 400, Rancho Cordova, CA 95670

> new license to be issued by FERC. YCWA therefore expects and intends for the project construction and operation to be covered by the new FERC license, which FERC is expected to issue following completion of the pending [Endangered Species Act] consultation.

In YCWA's Amended Final License Application to FERC, the Project Description document describes the YRDP as composed of existing YRDP facilities as well as changes proposed by YCWA, including the "New Bullards Bar Dam Auxiliary Flood Control Outlet." (YCWA, Amended Application for New License, Exhibit A (June 2017), pp. A-49, A55-A57.) In addition, YCWA's Project Operations document states that the "[A]ddition of the . . . New Bullards Bar Dam Auxiliary Flood Control Outlet would have an effect on New Bullards Bar Reservoir operations during flood operations." (YCWA, Amended Application for New License, Exhibit B (June 2017), p. B-78.)

Appendix B

Water Balance Operations Modeling

New Bullards Bar Dam ARC Spillway Project Water Balance and Operations Model

Overview

Yuba County Water Agency (YCWA) developed a model to simulate operations of YCWA's Yuba River Development Project (YRDP) and the New Bullards Bar Dam Atmospoheric River Control (ARC) Spillway Project (project or proposed project). The Water Balance and Operations Model (Operations Model) is used to simulate current and future operations of the YRDP using historical hydrology to define a representative range of hydrological conditions. A complete description of the Operations Model's representation of Project operations can be found in in Yuba County Water Agency 2022[1]. Detailed modeling results are provided in **Attachment 1** to this appendix. A memorandum on hourly flood operations modeling conducted for the project in provided in **Attachment 2** to this appendix.

The Operations Model simulates YRDP operations on a daily timestep for a user-designated period of record. Using historic hydrology, the model simulates user-defined operations using a consistent set of operational and physical constraints to determine the YRDP's response to a wide range of hydrology. The Operations Model platform is Microsoft® Excel, with almost all logic and computations written in Microsoft® Visual Basic for Applications. The Operations Model uses the United States Army Corps of Engineers' (USACE's) Hydrologic Engineering Center Data Storage System (HEC-DSS) as a platform for input and output timeseries storage and management. The model has the capability to simulate time periods from as long as 48 years of hydrology (i.e., WYs 1970 through 2017) to as short as a single day.

The Operations Model's lower geographic boundary is the Yuba River confluence with the Feather River. The model's upper geographic boundaries are the normal-maximum water-surface elevations (NMWSEs) of New Bullards Bar Reservoir on the North Yuba River, Log Cabin Diversion Dam on Oregon Creek, Our House Diversion Dam on the Middle Yuba River, and Englebright Reservoir on the South Yuba River.

Modeled YRDP facilities include the New Bullards Bar Dam and Reservoir, Log Cabin and Our House diversion dams, New Colgate Powerhouse, Narrows 1 Powerhouse, and Narrows 2 Powerhouse. In addition, the following non-YRDP facilities and features are modeled: 1) Englebright Dam and Reservoir; and 2) agricultural diversions from the Yuba River near Daguerre Point Dam.[2]

Input hydrology to the Operations Model is a combination of historic gaged flow and synthesized hydrology. Model output includes flows on the North Yuba River, Middle Yuba River, Oregon Creek, and Yuba River downstream of YRDP facilities. Output also includes reservoir storage

[1] Yuba Count Water Agency, 2022. *Yuba River Development Project Water Balance/Operations Model Documentation.* December

[2] All daily deliveries are aggregated into a single daily diversion within the model.

and elevation for New Bullards Bar and Englebright Reservoirs,[3] generation from the New Colgate, Narrows 1, and Narrows 2 powerhouses, and agricultural deliveries to YCWA's Member Units.

YCWA currently operates the YRDP to meet New Bullards Bar Reservoir storage targets, USACE flood control requirements[4], FERC-required flow requirements, agricultural water supply demands, and YCWA's water rights.

Modeling of ARC Spillway Operations

While modeling of operations using the Primary Spillway follows USACE's flood control requirements closely, modeling of the ARC Spillway includes pre-releases ahead of high-flow events. The ARC Spillway would not be used for routine flood management releases that may be necessary because of relatively small encroachments into the flood reservation pool.

A high-flow event is defined in the model based on forecasted encroachment of the New Bullards Bar Reservoir flood reservation pool assuming the 7-day 25 percent exceedance forecast of New Bullards Bar Reservoir inflow volume.

The forecasted encroachment percentage is computed each day using the following formula:

Encroachment percentage = Encroachment Volume / Flood Pool Volume

Where:

Encroachment Volume = 7-day 25 percent inflow forecast + beginning of day New Bullards Bar Reservoir storage – current day's top-of-conservation storage

Flood Pool Volume = Gross pool storage – current day's top-of-conservation storage

The specific relationship between forecasted encroachment percentage and pre-release is shown in **Table B-1**.

[3] The model does not output storage of Our House and Log Cabin diversion dams since these impoundments are small and do not store water.

[4] United States Army Corps of Engineers. 1972. *Reservoir Regulation for Flood Control, New Bullards Bar Reservoir, North Yuba River, California.*

Table B-1. Relationship between Forecasted Encroachment Percentage and Maximum Pre-Release

Forecasted Encroachment Percentage	Maximum Pre-Release Flow at Marysville Gage (cubic feet per second)
0%	0
100%	0
110%	15,000
125%	40,000
135%	50,000
150%	60,000
250%	120,000

This function allows the model to make prereleases using either the ARC Spillway or Primary Spillway ahead of a storm up to 7 days in advance. The number of forecast days, forecast exceedance probability, and relationship between encroachment and pre-release flow are defined by the model user. Pre-releases are be made using the Primary Spillway and powerhouse capacities under the existing conditions scenario.

Twelve flood events were identified for detailed simulation in the hourly reservoir operations model. These events were the largest winter and spring events likely to trigger pre-releases. Only events prior to April 21st were considered, which corresponds to a flood reservation at New Bullards Bar Reservoir greater than 100,000 acre-feet. Additionally, if the initial storage of an event started below the top of conservation storge, combined starting storage volume, and forecast inflow exceeding 110 percent of the flood reservation was used to select an event. If the starting storage was greater than or equal to seasonal top of conservation storage, a threshold of 200 percent of the flood reservation was used. **Table B-2** lists the subset of events that were selected for hourly flood operation modeling.

Table B-2. Flood events simulated by the hourly flood model.

Event ID	Water Year	Start Date	End Date
1970	1970	January 10, 1970	January 30, 1970
1974	1974	January 11, 1974	January 26, 1974
1980	1980	January 7, 1980	January 22, 1980
1982a	1982	December 15, 1981	January 6, 1982
1982b	1982	April 15, 1982	April 21, 1982
1984	1984	December 20,1983	January 5, 1984
1986	1986	February 9, 1986	February 28, 1986
1995	1995	March 1, 1995	March 21, 1995
1997	1997	December 23, 1996	January 10, 1997
2006	2006	December 25, 2005	January 8, 2006
2017a	2017	January 2, 2017	January 14, 2017
2017b	2017	February 1, 2017	February 16, 2017

Hourly flood events were simulated for ARC Spillway modeling using an hourly reservoir operations model (Attachment 2), which includes a representation of both the Oroville and New Bullards Bar Reservoirs. The hourly operations model includes rules representing the Water Control Plan as described in the Water Cotnrol Manual for each reservoir. At each timestep, releases are determined by a prioritization of rules representing the release schedule as depicted on the Water Control Diagram, minimum instream flow, seasonally varying flood reserve and conservation space, maximum release limits for downstream control flows, rate of increase and decrease limitations, and the minimum required release per the Emergency Spillway Release Diagram[5,6]. New Bullards Bar Reservoir outflows from the hourly reservoir operations model for the ARC Spillway and Primary Spillway were post-processed to develop daily average outflows for use as inputs to the daily operations model for a final simulation.

Modeling Results Summary

This section provides a summary and evaluation of mean daily flow results. Refer to Attachment 1 for detailed flow results.

North Yuba River below New Bullards Bar Dam

Table B-3 shows a comparison of modeled mean daily flow results during each of the 12 events for existing conditions and the proposed project in the North Yuba River below New Bullards Bar Dam. **Figure B-3** shows the probability of exceedance distribution of modeled average daily flows in the North Yuba River below New Bullards Bar Dam.

Table B-3. Modeled Mean Daily Flow time-series in the North Yuba River Below New Bullards Bar Dam During Each ARC Spillway Event

Event #1				
Date	North Yuba River below NBBD (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/10/1970	1,219	7	1,212	17,308
1/11/1970	5,336	7	5,329	76,134
1/12/1970	7,303	7	7,296	104,228
1/13/1970	1,695	69	1,626	2,358
1/14/1970	2,871	2,295	575	25
1/15/1970	13,869	7,316	6,553	90
1/16/1970	17,055	13,574	3,481	26
1/17/1970	22,038	22,643	-605	-3
1/18/1970	26,936	28,975	-2,038	-7
1/19/1970	22,979	21,639	1,340	6
1/20/1970	20,481	15,673	4,809	31
1/21/1970	21,232	20,975	256	1
1/22/1970	23,226	33,185	-9,959	-30

[5] United States Army Corps of Engineers. 1970. *Oroville Dam and Reservoir, Feather River, California: Reservoir Regulation for Flood Control.*

[6] United States Army Corps of Engineers. 1972. *Reservoir Regulation for Flood Control, New Bullards Bar Reservoir, North Yuba River, California.*

1/23/1970	31,172	32,848	-1,676	-5
1/24/1970	13,288	25,759	-12,471	-48
1/25/1970	4,357	11,463	-7,106	-62
1/26/1970	617	7	610	8,716
Event #2				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
1/9/1974	975	975	0	0
1/10/1974	3,001	3,001	0	0
1/11/1974	4,471	4,471	0	0
1/12/1974	4,715	4,715	0	0
1/13/1974	6,176	4,736	1,440	30
1/14/1974	2,048	860	1,188	138
1/15/1974	7	7	0	0
1/16/1974	6,510	7,927	-1,417	-18
1/17/1974	543	873	-330	-38
1/18/1974	8,922	9,001	-79	-1
1/19/1974	16,958	16,977	-19	0
1/20/1974	15,994	16,003	-9	0
Event #3				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
1/7/1980	2,186	7	2,179	31,135
1/8/1980	2,479	7	2,472	35,315
1/9/1980	1,455	7	1,448	20,692
1/10/1980	1,063	7	1,056	15,090
1/11/1980	994	7	987	14,100
1/12/1980	7	7	0	0
1/13/1980	10,239	19,393	-9,154	-47
1/14/1980	17,459	32,457	-14,998	-46
1/15/1980	18,734	23,648	-4,914	-21
1/16/1980	18,777	12,100	6,677	55
1/17/1980	15,347	10,513	4,834	46
1/18/1980	9,361	6,997	2,364	34
1/19/1980	4,291	4,146	146	4
Event #4				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/15/1981	6,881	2,892	3,988	138
12/16/1981	8,442	2,679	5,762	215
12/17/1981	7,763	1,794	5,969	333
12/18/1981	5,986	1,059	4,927	465
12/19/1981	7	2,972	-2,965	-100
12/20/1981	10,422	11,903	-1,481	-12
12/21/1981	23,617	30,232	-6,615	-22
12/22/1981	9,751	23,525	-13,774	-59
12/23/1981	5,262	6,233	-971	-16
12/24/1981	3,488	3,548	-60	-2
Event #5				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**

	Proposed Project	Existing Conditions		
4/5/1982	2,778	2,778	0	0
4/6/1982	5,458	5,458	0	0
4/7/1982	6,475	6,475	0	0
4/8/1982	10,936	9,817	1,119	11
4/9/1982	9,955	6,124	3,831	63
4/10/1982	4,092	3,048	1,045	34
4/11/1982	7	7	0	0
4/12/1982	6,906	15,202	-8,296	-55
4/13/1982	6,429	7,244	-815	-11
4/14/1982	6,411	6,519	-108	-2
4/15/1982	6,795	6,807	-12	0
Event #6				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/17/1983	449	449	0	0
12/18/1983	987	987	0	0
12/19/1983	4,245	4,245	0	0
12/20/1983	6,737	6,737	0	0
12/21/1983	8,201	8,141	60	1
12/22/1983	8,699	5,802	2,897	50
12/23/1983	7,457	3,131	4,326	138
12/24/1983	7	902	-895	-99
12/25/1983	7	146	-139	-95
12/26/1983	6,418	11,463	-5,045	-44
12/27/1983	13,922	14,178	-255	-2
12/28/1983	12,804	12,984	-179	-1
12/29/1983	12,918	11,246	1,672	15
Event #7				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/10/1986	4,039	7	4,032	57,601
2/11/1986	6,551	7	6,544	93,484
2/12/1986	4,996	7	4,989	71,273
2/13/1986	4,132	7	4,125	58,934
2/14/1986	4,570	7	4,563	65,185
2/15/1986	6,848	4,687	2,161	46
2/16/1986	7,760	14,854	-7,094	-48
2/17/1986	456	7,441	-6,985	-94
2/18/1986	18,488	32,798	-14,310	-44
2/19/1986	49,651	50,000	-349	-1
2/20/1986	49,531	50,000	-470	-1
2/21/1986	41,274	47,208	-5,934	-13
2/22/1986	11,836	11,836	0	0
2/23/1986	5,734	5,734	0	0
2/24/1986	4,183	4,183	0	0
2/25/1986	3,352	3,352	0	0
Event #8				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		

3/1/1995	314	314	0	0
3/2/1995	1,401	1,401	0	0
3/3/1995	6	6	0	0
¾/1995	6	6	0	0
3/5/1995	3,586	3,586	0	0
3/6/1995	7,850	6,711	1,140	17
3/7/1995	8,038	4,132	3,906	95
3/8/1995	7,250	2,185	5,064	232
3/9/1995	6	6	0	0
3/10/1995	13,434	13,804	-371	-3
3/11/1995	12,805	16,295	-3,489	-21
3/12/1995	10,050	14,598	-4,548	-31
3/13/1995	10,318	14,598	-4,280	-29
3/14/1995	10,324	14,598	-4,274	-29
3/15/1995	10,617	12,653	-2,036	-16
3/16/1995	10,677	8,131	2,546	31
3/17/1995	8,584	4,360	4,224	97
3/18/1995	3,743	3,743	0	0
3/19/1995	3,743	3,743	0	0
Event #9				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/23/1996	434	434	0	0
12/24/1996	3,017	3,017	0	0
12/25/1996	5,006	5,006	0	0
12/26/1996	13,274	6,897	6,377	92
12/27/1996	22,706	7,110	15,596	219
12/28/1996	16,020	8,871	7,149	81
12/29/1996	13,693	9,434	4,259	45
12/30/1996	17,784	15,900	1,884	12
12/31/1996	26,789	30,729	-3,940	-13
1/1/1997	10,831	22,222	-11,391	-51
½/1997	34,796	51,901	-17,105	-33
1/3/1997	50,000	50,000	0	0
¼/1997	46,786	47,834	-1,048	-2
1/5/1997	22,871	21,316	1,555	7
1/6/1997	5,982	5,893	89	2
1/7/1997	3,595	3,589	5	0
1/8/1997	1,977	1,977	0	0
1/9/1997	1,211	1,211	0	0
Event #10				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/27/2005	3,767	3,449	318	9
12/28/2005	5,170	5,363	-193	-4
12/29/2005	10,566	8,720	1,847	21
12/30/2005	9,920	6,719	3,201	48
12/31/2005	11,931	13,089	-1,159	-9
1/1/2006	30,208	35,132	-4,924	-14
½/2006	27,343	28,598	-1,255	-4

1/3/2006	11,155	8,996	2,159	24
¼/2006	4,651	4,631	20	0
1/5/2006	3,349	3,348	1	0
1/6/2006	2,369	2,369	0	0
Event #11				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
½/2017	609	609	0	0
1/3/2017	5,553	5,396	157	3
¼/2017	10,061	6,423	3,639	57
1/5/2017	14,917	5,287	9,629	182
1/6/2017	10,092	3,704	6,388	172
1/7/2017	116	1,758	-1,642	-93
1/8/2017	7	7	0	0
1/9/2017	16,259	22,453	-6,194	-28
1/10/2017	22,903	30,346	-7,442	-25
1/11/2017	26,500	30,457	-3,958	-13
1/12/2017	26,664	29,252	-2,588	-9
1/13/2017	12,432	10,545	1,887	18
1/14/2017	4,953	4,395	559	13
Event #12				
Date	**North Yuba River below NBBD (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/1/2017	2,591	2,591	0	0
2/2/2017	3,742	3,742	0	0
2/3/2017	7	7	0	0
2/4/2017	1,127	1,127	0	0
2/5/2017	23,377	15,987	7,390	46
2/6/2017	19,386	12,603	6,783	54
2/7/2017	7	3,690	-3,683	-100
2/8/2017	22,823	25,535	-2,712	-11
2/9/2017	33,303	34,130	-828	-2
2/10/2017	36,820	37,298	-478	-1
2/11/2017	36,820	37,298	-478	-1
2/12/2017	20,616	23,174	-2,558	-11
2/13/2017	975	975	0	0

Notes: cfs=cubic feet per second

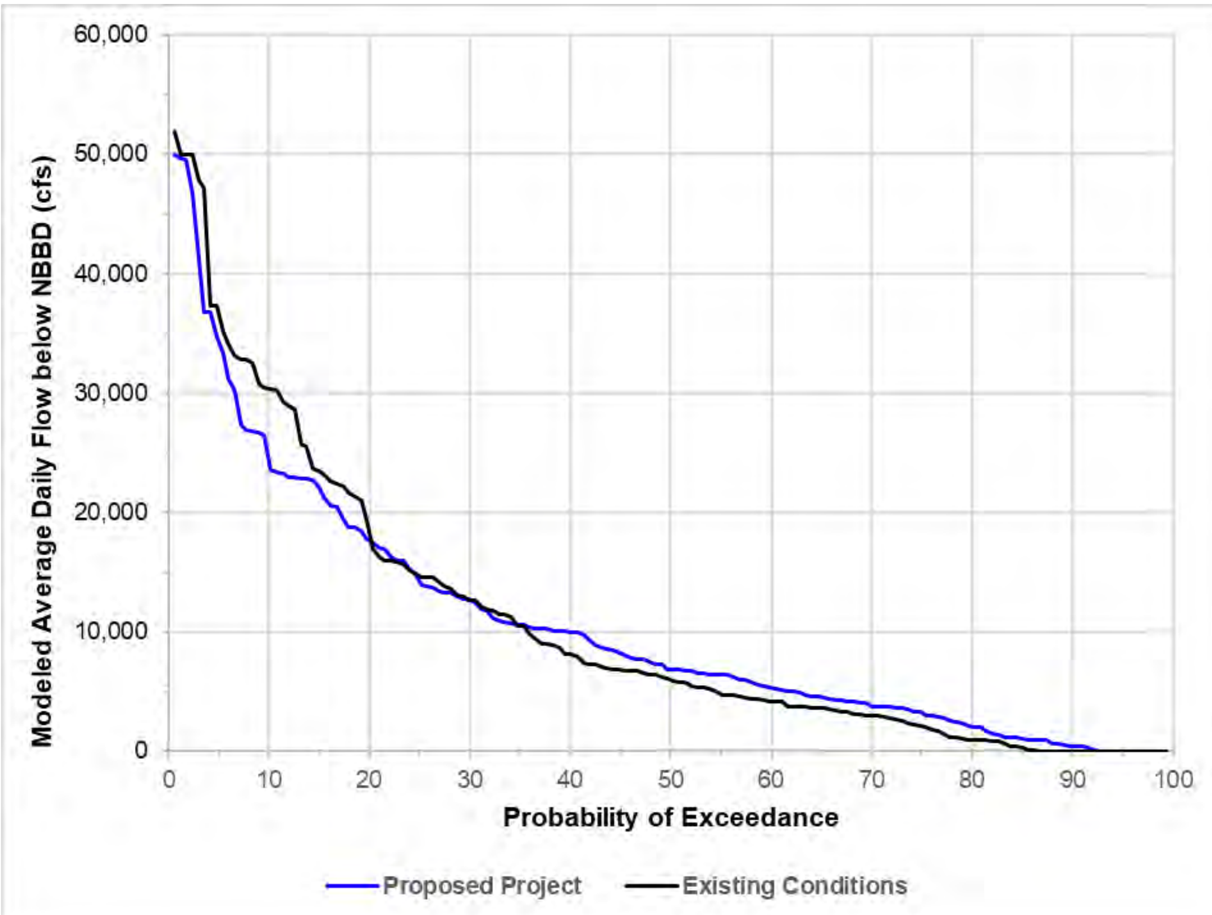


Figure B-3. Probability of Exceedance Distribution of Modeled Average Daily Flows in the North Yuba River below New Bullards Bar Dam

Upper Yuba River below New Colgate Powerhouse

Table B-4 shows a comparison of modeled mean daily flow results during each of the 12 events for existing conditions and the proposed project in the upper Yuba River below New Colgate Powerhouse. **Figure B-4** shows the probability of exceedance distribution of modeled average daily flows in the upper Yuba River below New Colgate Powerhouse.

Table B-4. Modeled Mean Daily Flow time-series in the Upper Yuba River Below New Colgate Powerhouse During Each ARC Spillway Event

Event #1				
Date	Upper Yuba River below Colgate (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/10/1970	5,347	3,106	2,241	72
1/11/1970	9,137	2,778	6,358	229
1/12/1970	11,154	2,829	8,325	294
1/13/1970	7,513	5,887	1,626	28
1/14/1970	12,814	12,239	575	5
1/15/1970	20,968	14,415	6,553	45
1/16/1970	27,376	23,895	3,481	15
1/17/1970	28,437	29,043	-605	-2
1/18/1970	30,632	32,671	-2,038	-6
1/19/1970	25,856	24,515	1,340	5
1/20/1970	23,801	22,423	1,379	6
1/21/1970	33,480	33,224	256	1
1/22/1970	34,589	44,548	-9,959	-22
1/23/1970	36,619	38,294	-1,676	-4
1/24/1970	20,092	32,563	-12,471	-38
1/25/1970	11,316	18,422	-7,106	-39
1/26/1970	6,178	4,453	1,724	39
Event #2				
Date	Upper Yuba River below Colgate (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/9/1974	4611	4611	0	0
1/10/1974	6623	6623	0	0
1/11/1974	8086	8086	0	0
1/12/1974	8416	8416	0	0
1/13/1974	10029	8588	1,440	17
1/14/1974	6723	5535	1,188	21
1/15/1974	6038	6038	0	0
1/16/1974	13644	15061	-1,417	-9
1/17/1974	8841	9172	-330	-4
1/18/1974	16162	16241	-79	0
1/19/1974	21688	21707	-19	0
1/20/1974	22415	22424	-9	0
Event #3				
Date	Upper Yuba River below Colgate (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/7/1980	5,790	1,690	4,100	243
1/8/1980	6,077	1,695	4,382	259

1/9/1980	5,271	1,902	3,369	177
1/10/1980	5,119	2,334	2,785	119
1/11/1980	5,518	2,495	3,023	121
1/12/1980	16,826	14,425	2,401	17
1/13/1980	28,966	38,120	-9,154	-24
1/14/1980	26,635	41,634	-14,998	-36
1/15/1980	23,577	28,490	-4,914	-17
1/16/1980	23,834	20,588	3,247	16
1/17/1980	22,482	17,649	4,834	27
1/18/1980	14,882	12,518	2,364	19
1/19/1980	8,788	8,642	146	2
Event #4				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/15/1981	10827	6839	3,988	58
12/16/1981	12343	6581	5,762	88
12/17/1981	11569	5600	5,969	107
12/18/1981	9841	4914	4,927	100
12/19/1981	12117	18512	-6,395	-35
12/20/1981	28438	29920	-1,481	-5
12/21/1981	30974	37589	-6,615	-18
12/22/1981	16883	27227	-10,344	-38
12/23/1981	10855	11826	-971	-8
12/24/1981	8279	8339	-60	-1
Event #5				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
4/5/1982	6,629	6,629	0	0
4/6/1982	9,253	9,253	0	0
4/7/1982	10,232	10,232	0	0
4/8/1982	14,677	13,558	1,119	8
4/9/1982	13,710	9,879	3,831	39
4/10/1982	8,716	7,672	1,045	14
4/11/1982	13,251	13,728	-477	-3
4/12/1982	18,876	23,741	-4,866	-20
4/13/1982	15,172	15,987	-815	-5
4/14/1982	14,276	14,385	-108	-1
4/15/1982	13,584	13,597	-12	0
Event #6				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/17/1983	4,440	4,440	0	0
12/18/1983	4,786	4,786	0	0
12/19/1983	8,000	8,000	0	0
12/20/1983	10,462	10,462	0	0
12/21/1983	11,887	11,827	60	1
12/22/1983	12,365	9,468	2,897	31
12/23/1983	11,137	6,811	4,326	64
12/24/1983	2,220	6,545	-4,325	-66
12/25/1983	7,281	10,850	-3,569	-33

12/26/1983	19,575	21,190	-1,615	-8
12/27/1983	21,841	22,096	-255	-1
12/28/1983	21,348	21,527	-179	-1
12/29/1983	19,590	17,918	1,672	9
Event #7				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/10/1986	7723	2721	5,003	184
2/11/1986	10235	2655	7,580	285
2/12/1986	8778	2703	6,075	225
2/13/1986	9309	3638	5,670	156
2/14/1986	12913	7321	5,592	76
2/15/1986	18178	16017	2,161	13
2/16/1986	23264	26928	-3,664	-14
2/17/1986	27320	34305	-6,985	-20
2/18/1986	34719	49029	-14,310	-29
2/19/1986	56529	56878	-349	-1
2/20/1986	52567	53037	-470	-1
2/21/1986	43563	49497	-5,934	-12
2/22/1986	16955	16955	0	0
2/23/1986	10488	10488	0	0
2/24/1986	8594	8594	0	0
2/25/1986	7496	7496	0	0
Event #8				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
3/1/1995	3,901	3,901	0	0
3/2/1995	5,083	5,083	0	0
3/3/1995	1,913	1,913	0	0
¾/1995	2,216	2,216	0	0
3/5/1995	7,511	7,511	0	0
3/6/1995	11,684	10,545	1,140	11
3/7/1995	11,808	7,902	3,906	49
3/8/1995	10,990	5,925	5,064	85
3/9/1995	6,944	4,825	2,119	44
3/10/1995	22,009	22,379	-371	-2
3/11/1995	20,020	23,510	-3,489	-15
3/12/1995	18,437	22,985	-4,548	-20
3/13/1995	18,027	22,307	-4,280	-19
3/14/1995	18,482	22,756	-4,274	-19
3/15/1995	18,204	20,240	-2,036	-10
3/16/1995	16,263	13,717	2,546	19
3/17/1995	13,429	9,204	4,224	46
3/18/1995	8,859	8,859	0	0
3/19/1995	8,589	8,589	0	0
Event #9				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/23/1996	4,133	4,133	0	0
12/24/1996	6,686	6,686	0	0

12/25/1996	8,630	8,630	0	0
12/26/1996	17,530	11,153	6,377	57
12/27/1996	27,322	15,156	12,166	80
12/28/1996	22,859	15,710	7,149	46
12/29/1996	20,865	16,606	4,259	26
12/30/1996	26,604	24,720	1,884	8
12/31/1996	42,191	46,131	-3,940	-9
1/1/1997	41,259	52,650	-11,391	-22
½/1997	64,341	81,446	-17,105	-21
1/3/1997	60,839	60,839	0	0
¼/1997	52,241	53,290	-1,048	-2
1/5/1997	26,295	24,740	1,555	6
1/6/1997	11,552	11,463	89	1
1/7/1997	8,623	8,618	5	0
1/8/1997	6,433	6,432	0	0
1/9/1997	5,344	5,344	0	0
Event #10				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/27/2005	7,678	7,360	318	4
12/28/2005	13,221	13,414	-193	-1
12/29/2005	16,206	14,359	1,847	13
12/30/2005	18,171	14,970	3,201	21
12/31/2005	31,020	32,179	-1,159	-4
1/1/2006	38,256	43,180	-4,924	-11
½/2006	32,178	33,432	-1,255	-4
1/3/2006	17,437	15,278	2,159	14
¼/2006	9,575	9,555	20	0
1/5/2006	7,799	7,798	1	0
1/6/2006	6,616	6,616	0	0
Event #11				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
½/2017	4,153	4,153	0	0
1/3/2017	9,082	8,924	157	2
¼/2017	14,591	10,952	3,639	33
1/5/2017	19,323	9,693	9,629	99
1/6/2017	13,952	7,564	6,388	84
1/7/2017	3,970	5,613	-1,642	-29
1/8/2017	14,900	15,416	-516	-3
1/9/2017	33,148	39,343	-6,194	-16
1/10/2017	35,326	42,769	-7,442	-17
1/11/2017	36,230	40,188	-3,958	-10
1/12/2017	29,802	32,390	-2,588	-8
1/13/2017	17,483	15,595	1,887	12
1/14/2017	9,353	8,795	559	6
Event #12				
Date	**Upper Yuba River below Colgate (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/1/2017	6,403	6,403	0	0

2/2/2017	7,552	7,552	0	0
2/3/2017	1,505	1,505	0	0
2/4/2017	8,283	8,283	0	0
2/5/2017	26,434	22,474	3,960	18
2/6/2017	24,422	21,069	3,353	16
2/7/2017	20,087	20,339	-253	-1
2/8/2017	38,707	41,419	-2,712	-7
2/9/2017	50,191	51,019	-828	-2
2/10/2017	51,429	51,907	-478	-1
2/11/2017	44,593	45,071	-478	-1
2/12/2017	25,005	27,563	-2,558	-9
2/13/2017	6,951	6,951	0	0

Notes: cfs=cubic feet per second

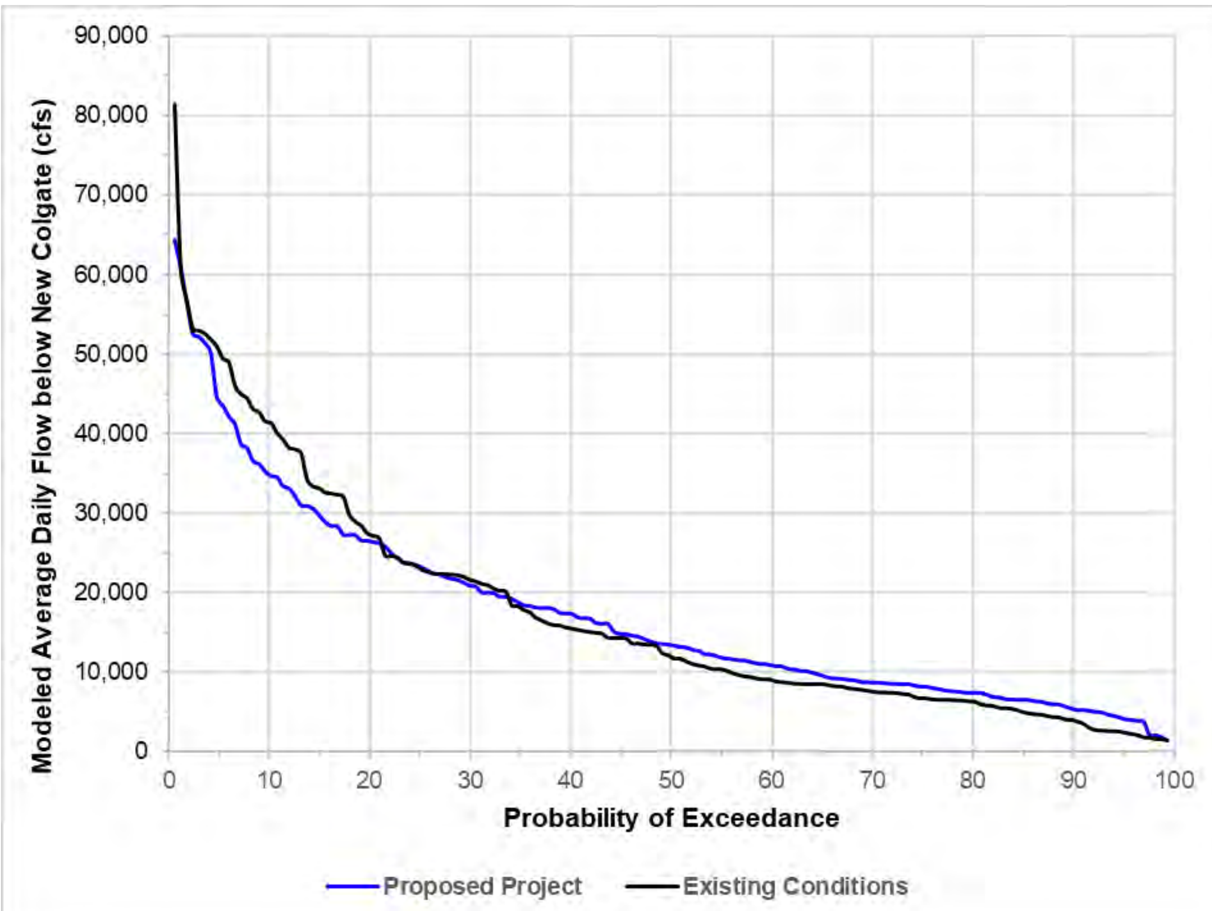


Figure B-4. Probability of Exceedance Distribution of Modeled Average Daily Flows in the Yuba River below New Colgate Powerhouse

Lower Yuba River at Smartsville

Table B-5 shows a comparison of modeled mean daily flow results during each of the 12 events for existing conditions and the proposed project in the lower Yuba River at Smartsville. Figure B-3 shows the probability of exceedance distribution of modeled average daily flows in the in the lower Yuba River at Smartsville.

Table B-5. Modeled Mean Daily Flow Time-series in the Lower Yuba River at Smartsville During Each ARC Spillway Event

Event #1				
Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/10/1970	4,100	4,100	0	0
1/11/1970	10,286	4,100	6,186	151
1/12/1970	12,217	4,100	8,117	198
1/13/1970	10,018	5,770	4,247	74
1/14/1970	19,002	18,426	575	3
1/15/1970	24,006	17,453	6,553	38
1/16/1970	33,051	29,570	3,481	12
1/17/1970	30,972	31,577	-605	-2
1/18/1970	32,698	34,736	-2,038	-6
1/19/1970	27,468	26,128	1,340	5
1/20/1970	25,836	24,457	1,379	6
1/21/1970	40,373	40,117	256	1
1/22/1970	56,956	66,915	-9,959	-15
1/23/1970	43,239	44,914	-1,676	-4
1/24/1970	35,448	47,919	-12,471	-26
1/25/1970	17,822	24,928	-7,106	-29
1/26/1970	9,228	7,504	1,724	23
Event #2				
Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/9/1974	5,303	5,303	0	0
1/10/1974	7,363	7,363	0	0
1/11/1974	8,809	8,809	0	0
1/12/1974	9,418	9,418	0	0
1/13/1974	11,386	9,946	1,440	14
1/14/1974	9,010	7,823	1,188	15
1/15/1974	11,711	11,711	0	0
1/16/1974	16,978	18,395	-1,417	-8
1/17/1974	13,935	14,265	-330	-2
1/18/1974	19,840	19,920	-79	0
1/19/1974	26,011	26,030	-19	0
1/20/1974	24,110	24,119	-9	0
Event #3				
Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
1/7/1980	4,100	2,069	2,031	98
1/8/1980	5,634	2,043	3,592	176

1/9/1980	6,077	2,708	3,369	124
1/10/1980	6,885	4,100	2,785	68
1/11/1980	7,186	4,100	3,086	75
1/12/1980	28,968	23,771	5,197	22
1/13/1980	42,511	51,665	-9,154	-18
1/14/1980	40,851	55,849	-14,998	-27
1/15/1980	30,067	34,981	-4,914	-14
1/16/1980	30,219	26,973	3,247	12
1/17/1980	27,306	22,473	4,834	22
1/18/1980	18,079	15,715	2,364	15
1/19/1980	11,294	11,148	146	1

Event #4

Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
12/15/1981	8,751	4,763	3,988	84
12/16/1981	13,106	7,344	5,762	78
12/17/1981	12,152	6,183	5,969	97
12/18/1981	10,583	5,656	4,927	87
12/19/1981	21,122	27,517	-6,395	-23
12/20/1981	50,527	52,008	-1,481	-3
12/21/1981	39,764	46,379	-6,615	-14
12/22/1981	21,280	31,624	-10,344	-33
12/23/1981	13,589	14,560	-971	-7
12/24/1981	10,031	10,091	-60	-1

Event #5

Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
4/5/1982	8,975	8,975	0	0
4/6/1982	10,920	10,920	0	0
4/7/1982	11,970	11,970	0	0
4/8/1982	15,908	14,789	1,119	8
4/9/1982	14,879	11,048	3,831	35
4/10/1982	10,610	9,566	1,045	11
4/11/1982	24,536	25,012	-477	-2
4/12/1982	25,951	30,817	-4,866	-16
4/13/1982	19,391	20,205	-815	-4
4/14/1982	17,313	17,421	-108	-1
4/15/1982	15,176	15,189	-12	0

Event #6

Date	Lower Yuba River at Smartsville (cfs)		Difference (cfs)	Difference (%)
	Proposed Project	Existing Conditions		
12/17/1983	5,824	5,824	0	0
12/18/1983	5,922	5,922	0	0
12/19/1983	8,666	8,666	0	0
12/20/1983	11,082	11,082	0	0
12/21/1983	12,411	12,351	60	0
12/22/1983	12,868	9,971	2,897	29
12/23/1983	11,889	7,563	4,326	57
12/24/1983	5,952	10,277	-4,325	-42
12/25/1983	17,324	20,893	-3,569	-17

12/26/1983	28,537	30,152	-1,615	-5
12/27/1983	29,000	29,255	-255	-1
12/28/1983	23,331	23,510	-179	-1
12/29/1983	20,761	19,089	1,672	9
Event #7				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/10/1986	5,255	3,111	2,143	69
2/11/1986	10,593	3,013	7,580	252
2/12/1986	9,430	3,355	6,075	181
2/13/1986	11,643	4,100	7,543	184
2/14/1986	16,122	9,544	6,578	69
2/15/1986	24,878	22,717	2,161	10
2/16/1986	32,645	36,309	-3,664	-10
2/17/1986	51,907	58,892	-6,985	-12
2/18/1986	66,646	80,956	-14,310	-18
2/19/1986	85,691	86,041	-349	0
2/20/1986	62,105	62,575	-470	-1
2/21/1986	49,531	55,465	-5,934	-11
2/22/1986	21,695	21,695	0	0
2/23/1986	14,030	14,030	0	0
2/24/1986	11,715	11,715	0	0
2/25/1986	10,512	10,512	0	0
Event #8				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
3/1/1995	4,100	4,100	0	0
3/2/1995	4,100	4,100	0	0
3/3/1995	4,100	4,100	0	0
¾/1995	4,100	4,100	0	0
3/5/1995	8,097	8,097	0	0
3/6/1995	12,749	11,609	1,140	10
3/7/1995	12,652	8,746	3,906	45
3/8/1995	11,735	6,671	5,064	76
3/9/1995	12,969	10,851	2,119	20
3/10/1995	33,504	33,874	-371	-1
3/11/1995	29,256	32,746	-3,489	-11
3/12/1995	23,753	28,301	-4,548	-16
3/13/1995	23,377	27,657	-4,280	-15
3/14/1995	23,715	27,989	-4,274	-15
3/15/1995	22,826	24,862	-2,036	-8
3/16/1995	20,051	17,505	2,546	15
3/17/1995	16,468	12,243	4,224	35
3/18/1995	11,903	11,903	0	0
3/19/1995	11,292	11,292	0	0
Event #9				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/23/1996	5,231	5,231	0	0
12/24/1996	7,596	7,596	0	0

12/25/1996	9,285	9,285	0	0
12/26/1996	19,297	12,920	6,377	49
12/27/1996	30,286	18,121	12,166	67
12/28/1996	27,844	20,695	7,149	35
12/29/1996	24,378	20,119	4,259	21
12/30/1996	33,461	31,577	1,884	6
12/31/1996	56,132	60,072	-3,940	-7
1/1/1997	81,718	93,109	-11,391	-12
½/1997	115,684	132,789	-17,105	-13
1/3/1997	81,966	81,966	0	0
¼/1997	62,941	63,990	-1,048	-2
1/5/1997	31,705	30,150	1,555	5
1/6/1997	15,320	15,232	89	1
1/7/1997	11,870	11,865	5	0
1/8/1997	9,601	9,600	0	0
1/9/1997	7,523	7,523	0	0
Event #10				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
12/27/2005	9,347	9,029	318	4
12/28/2005	20,123	20,316	-193	-1
12/29/2005	20,921	19,075	1,847	10
12/30/2005	22,068	18,867	3,201	17
12/31/2005	59,082	60,241	-1,159	-2
1/1/2006	45,728	50,652	-4,924	-10
½/2006	38,555	39,810	-1,255	-3
1/3/2006	21,559	19,400	2,159	11
¼/2006	12,408	12,388	20	0
1/5/2006	9,933	9,932	1	0
1/6/2006	8,246	8,245	0	0
Event #11				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
½/2017	4,100	4,100	0	0
1/3/2017	8,460	8,303	157	2
¼/2017	19,654	16,016	3,639	23
1/5/2017	22,526	12,896	9,629	75
1/6/2017	16,062	9,673	6,388	66
1/7/2017	6,043	7,685	-1,642	-21
1/8/2017	29,024	29,539	-516	-2
1/9/2017	56,294	62,488	-6,194	-10
1/10/2017	54,449	61,892	-7,442	-12
1/11/2017	47,314	51,272	-3,958	-8
1/12/2017	36,497	39,085	-2,588	-7
1/13/2017	22,291	20,404	1,887	9
1/14/2017	12,840	12,282	559	5
Event #12				
Date	**Lower Yuba River at Smartsville (cfs)**		**Difference (cfs)**	**Difference (%)**
	Proposed Project	**Existing Conditions**		
2/1/2017	7,956	7,956	0	0

2/2/2017	9,282	9,282	0	0
2/3/2017	4,317	4,317	0	0
2/4/2017	11,680	11,680	0	0
2/5/2017	29,367	25,407	3,960	16
2/6/2017	29,116	25,763	3,353	13
2/7/2017	32,417	32,670	-253	-1
2/8/2017	56,215	58,927	-2,712	-5
2/9/2017	73,002	73,830	-828	-1
2/10/2017	71,198	71,676	-478	-1
2/11/2017	53,596	54,074	-478	-1
2/12/2017	32,148	34,707	-2,558	-7
2/13/2017	11,207	11,206	0	0

Notes: cfs=cubic feet per second

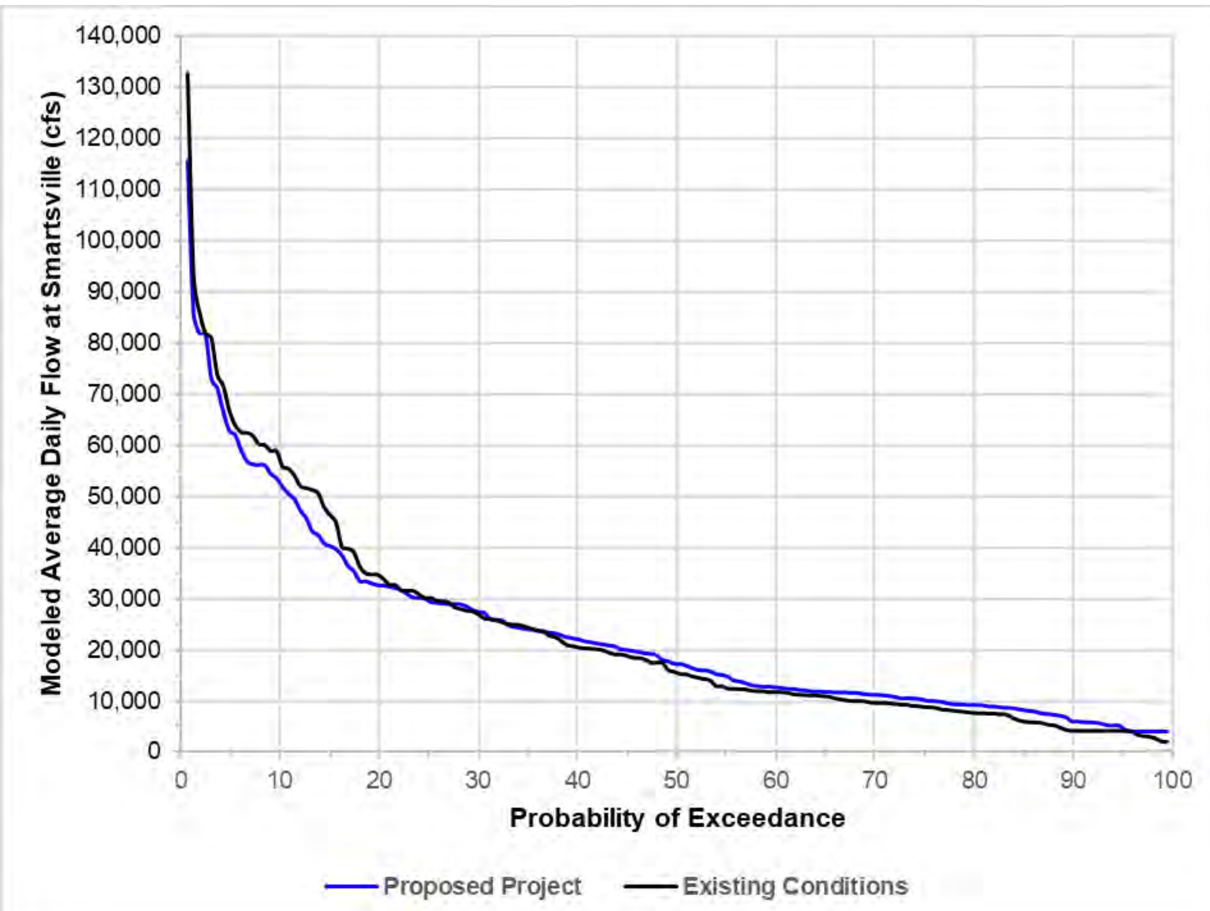
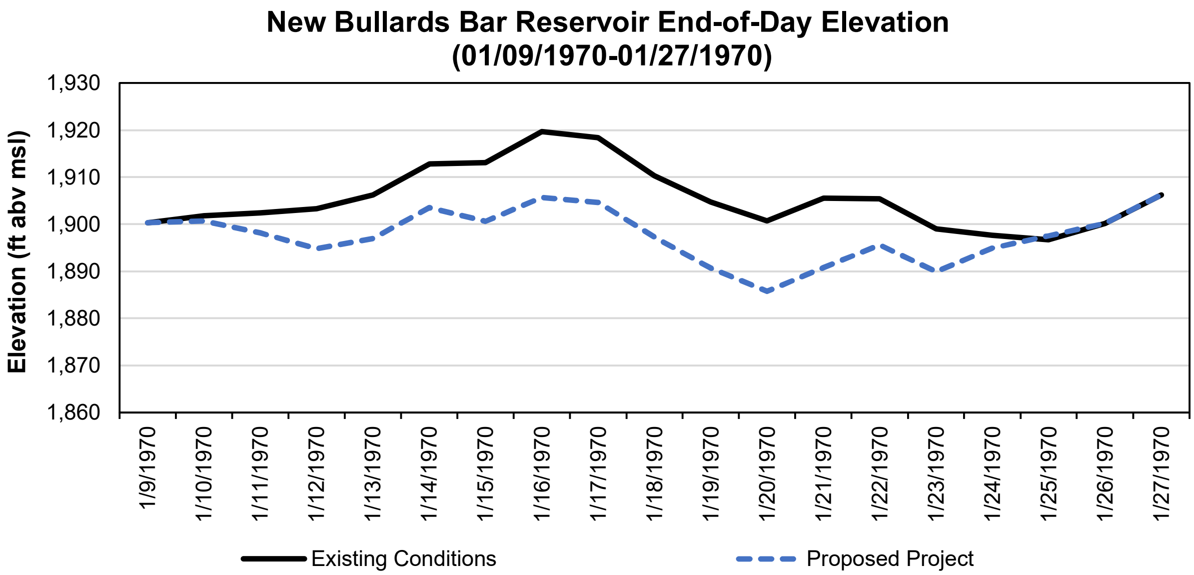


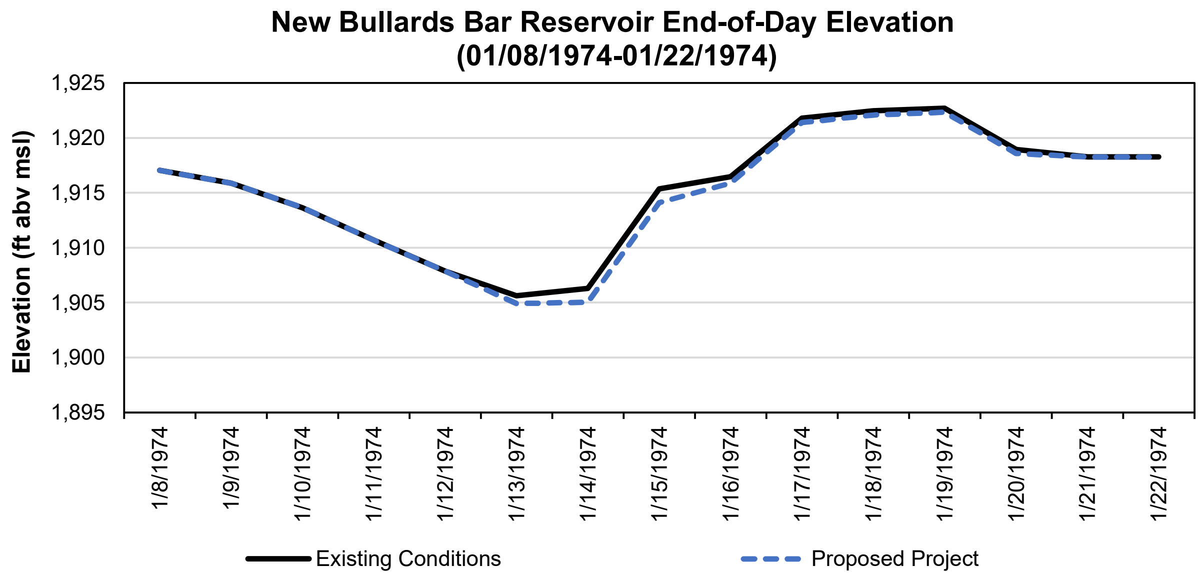
Figure B-5. Probability of Exceedance Distribution of Modeled Average Daily Flows in the Lower Yuba River at Smartsville

Attachment 1

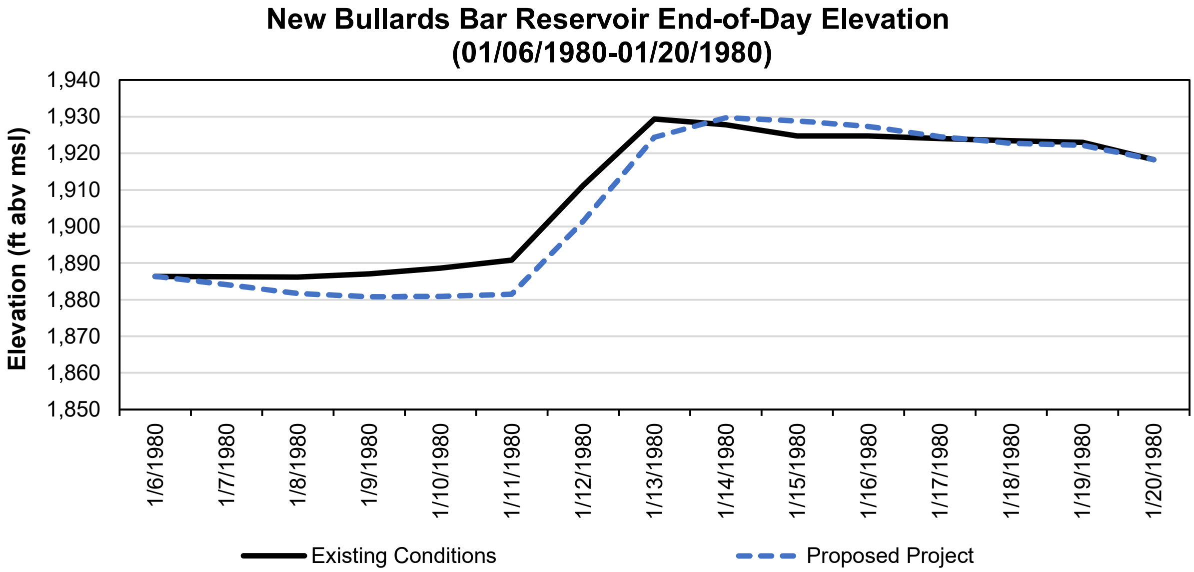
Detailed Water Balance/Operations Model Results



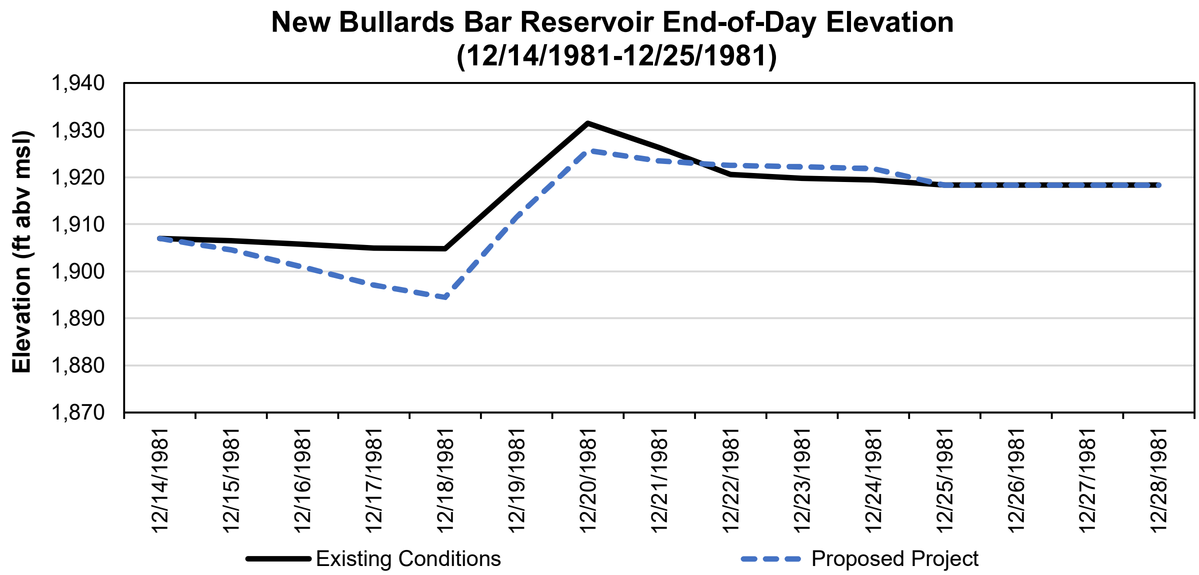
Date	Existing Conditions (ft)	Proposed Project (ft)
1/9/1970	1,900.3	1,900.3
1/10/1970	1,901.8	1,900.7
1/11/1970	1,902.4	1,898.1
1/12/1970	1,903.3	1,894.8
1/13/1970	1,906.2	1,897.0
1/14/1970	1,912.8	1,903.5
1/15/1970	1,913.1	1,900.6
1/16/1970	1,919.7	1,905.7
1/17/1970	1,918.4	1,904.7
1/18/1970	1,910.4	1,897.3
1/19/1970	1,904.7	1,890.7
1/20/1970	1,900.7	1,885.7
1/21/1970	1,905.6	1,890.8
1/22/1970	1,905.4	1,895.6
1/23/1970	1,899.0	1,889.9
1/24/1970	1,897.7	1,895.0
1/25/1970	1,896.7	1,897.6
1/26/1970	1,900.2	1,900.2
1/27/1970	1,906.2	1,906.2



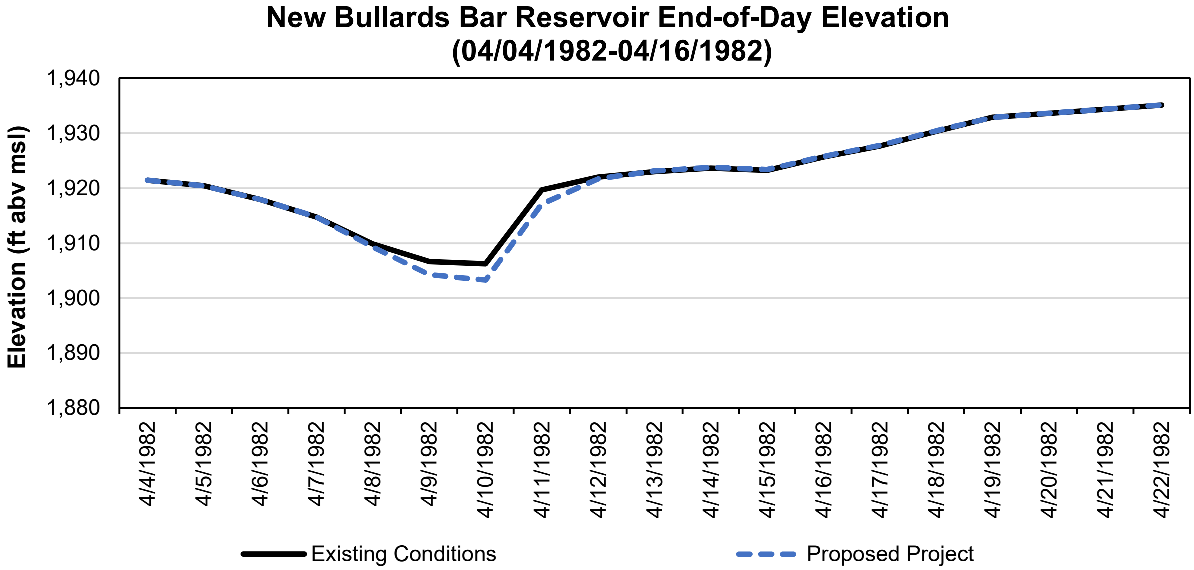
Date	Existing Conditions (ft)	Proposed Project (ft)
1/8/1974	1,917.1	1,917.1
1/9/1974	1,915.9	1,915.9
1/10/1974	1,913.7	1,913.7
1/11/1974	1,910.7	1,910.7
1/12/1974	1,907.9	1,907.9
1/13/1974	1,905.6	1,904.9
1/14/1974	1,906.3	1,905.0
1/15/1974	1,915.4	1,914.1
1/16/1974	1,916.5	1,915.9
1/17/1974	1,921.8	1,921.4
1/18/1974	1,922.5	1,922.1
1/19/1974	1,922.7	1,922.3
1/20/1974	1,919.0	1,918.6
1/21/1974	1,918.3	1,918.3
1/22/1974	1,918.3	1,918.3



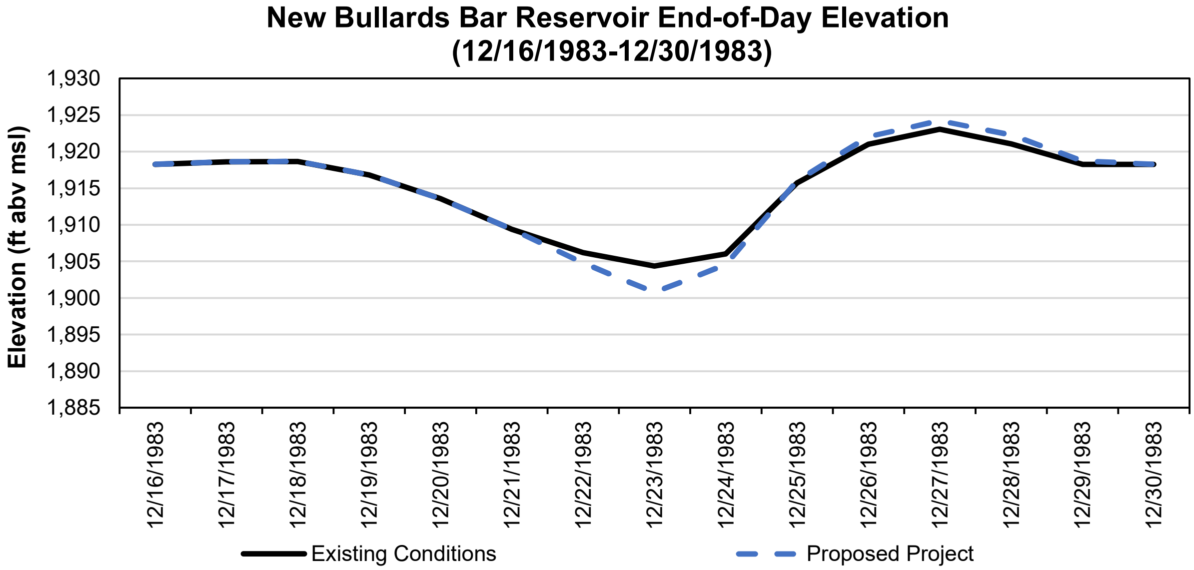
Date	Existing Conditions (ft)	Proposed Project (ft)
1/6/1980	1,886.4	1,886.4
1/7/1980	1,886.3	1,884.1
1/8/1980	1,886.2	1,881.7
1/9/1980	1,887.1	1,880.8
1/10/1980	1,888.6	1,880.9
1/11/1980	1,890.8	1,881.5
1/12/1980	1,911.2	1,901.4
1/13/1980	1,929.4	1,924.4
1/14/1980	1,927.8	1,929.7
1/15/1980	1,924.7	1,928.8
1/16/1980	1,924.7	1,927.3
1/17/1980	1,924.1	1,924.5
1/18/1980	1,923.4	1,922.7
1/19/1980	1,922.9	1,922.2
1/20/1980	1,918.3	1,918.3



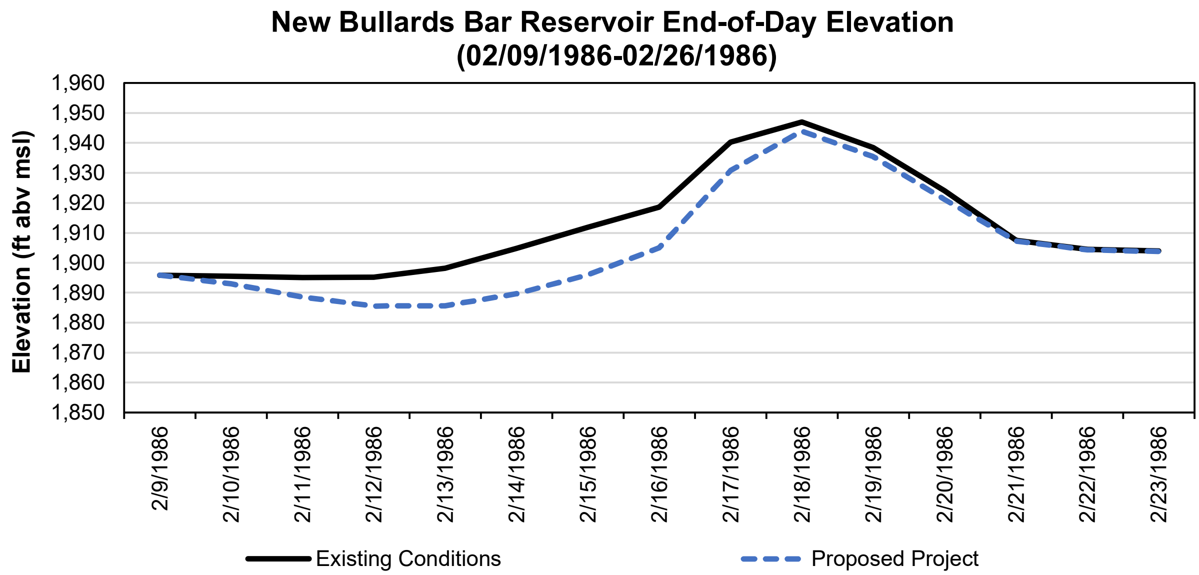
Date	Existing Conditions (ft)	Proposed Project (ft)
12/14/1981	1,907.0	1,907.0
12/15/1981	1,906.5	1,904.5
12/16/1981	1,905.7	1,900.9
12/17/1981	1,904.9	1,897.1
12/18/1981	1,904.8	1,894.5
12/19/1981	1,918.3	1,911.5
12/20/1981	1,931.5	1,925.7
12/21/1981	1,926.3	1,923.5
12/22/1981	1,920.6	1,922.5
12/23/1981	1,919.8	1,922.2
12/24/1981	1,919.4	1,921.8
12/25/1981	1,918.3	1,918.3
12/26/1981	1,918.3	1,918.3
12/27/1981	1,918.3	1,918.3
12/28/1981	1,918.3	1,918.3



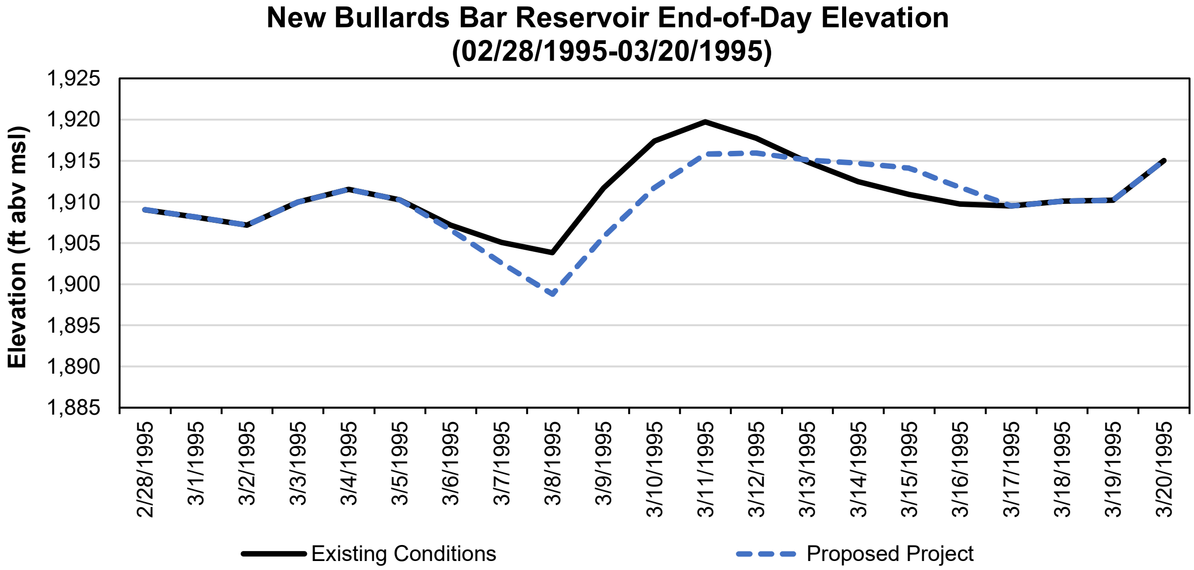
Date	Existing Conditions (ft)	Proposed Project (ft)
4/4/1982	1,921.4	1,921.4
4/5/1982	1,920.4	1,920.4
4/6/1982	1,917.9	1,917.9
4/7/1982	1,914.8	1,914.8
4/8/1982	1,909.8	1,909.3
4/9/1982	1,906.7	1,904.2
4/10/1982	1,906.2	1,903.2
4/11/1982	1,919.7	1,917.1
4/12/1982	1,922.0	1,921.7
4/13/1982	1,923.0	1,923.1
4/14/1982	1,923.6	1,923.8
4/15/1982	1,923.2	1,923.4
4/16/1982	1,925.7	1,925.8
4/17/1982	1,927.7	1,927.8
4/18/1982	1,930.4	1,930.5
4/19/1982	1,932.9	1,932.9
4/20/1982	1,933.6	1,933.6
4/21/1982	1,934.4	1,934.4
4/22/1982	1,935.1	1,935.1



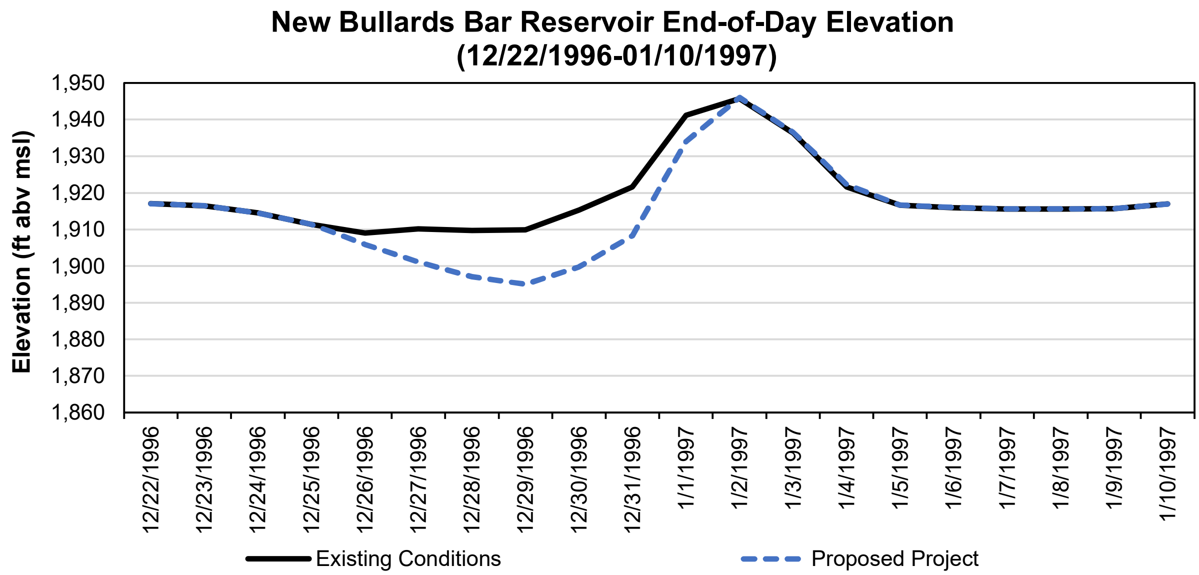
Date	Existing Conditions (ft)	Proposed Project (ft)
12/16/1983	1,918.3	1,918.3
12/17/1983	1,918.6	1,918.6
12/18/1983	1,918.7	1,918.7
12/19/1983	1,916.8	1,916.8
12/20/1983	1,913.6	1,913.6
12/21/1983	1,909.4	1,909.4
12/22/1983	1,906.2	1,904.8
12/23/1983	1,904.4	1,900.8
12/24/1983	1,906.0	1,904.6
12/25/1983	1,915.7	1,916.0
12/26/1983	1,921.0	1,922.0
12/27/1983	1,923.1	1,924.2
12/28/1983	1,921.1	1,922.3
12/29/1983	1,918.3	1,918.7
12/30/1983	1,918.3	1,918.3



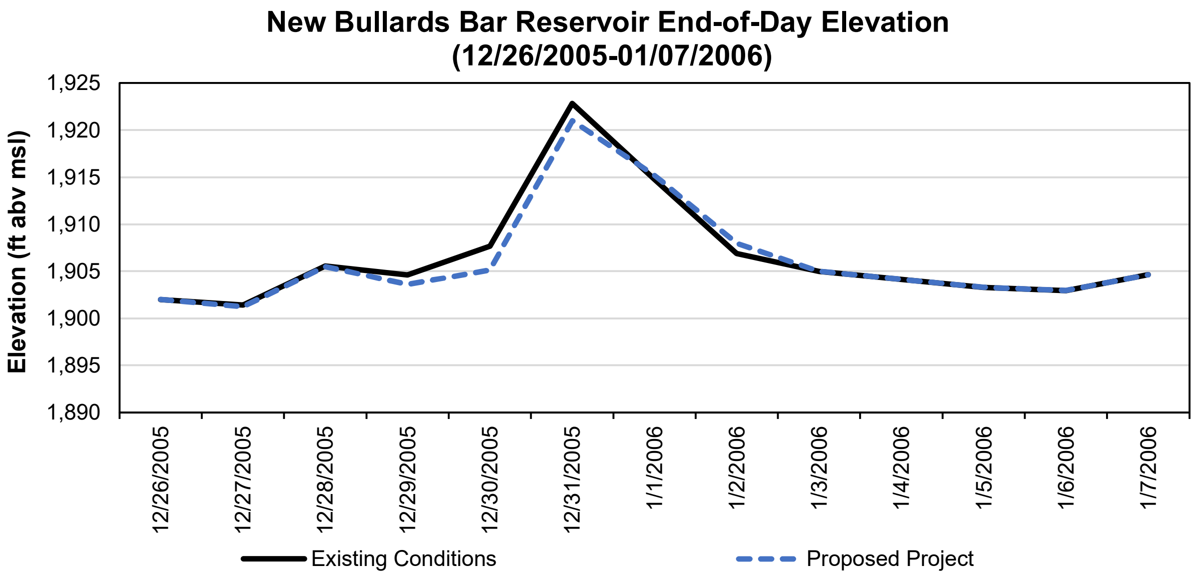
Date	Existing Conditions (ft)	Proposed Project (ft)
2/9/1986	1,895.8	1,895.8
2/10/1986	1,895.5	1,892.9
2/11/1986	1,895.1	1,888.6
2/12/1986	1,895.2	1,885.6
2/13/1986	1,898.2	1,885.7
2/14/1986	1,904.8	1,889.7
2/15/1986	1,911.8	1,895.9
2/16/1986	1,918.6	1,905.0
2/17/1986	1,940.3	1,930.8
2/18/1986	1,947.0	1,944.0
2/19/1986	1,938.4	1,935.5
2/20/1986	1,924.0	1,921.1
2/21/1986	1,907.4	1,907.2
2/22/1986	1,904.5	1,904.4
2/23/1986	1,903.9	1,903.7



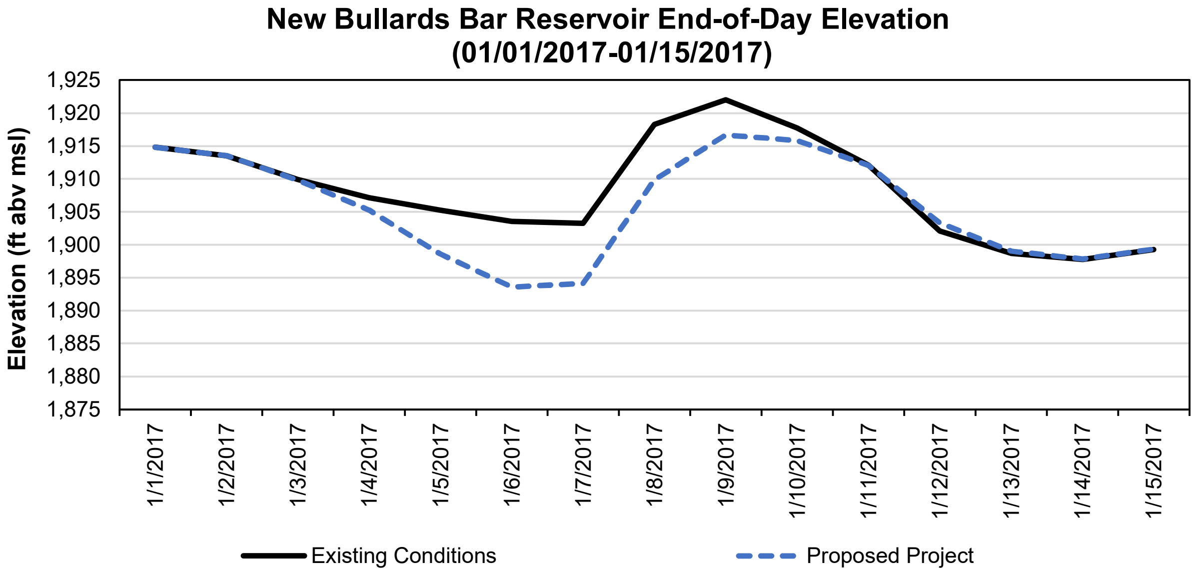
Date	Existing Conditions (ft)	Proposed Project (ft)
2/28/1995	1,909.0	1,909.0
3/1/1995	1,908.2	1,908.2
3/2/1995	1,907.2	1,907.2
3/3/1995	1,910.0	1,910.0
3/4/1995	1,911.5	1,911.5
3/5/1995	1,910.3	1,910.3
3/6/1995	1,907.2	1,906.6
3/7/1995	1,905.1	1,902.6
3/8/1995	1,903.8	1,898.8
3/9/1995	1,911.7	1,905.7
3/10/1995	1,917.4	1,911.8
3/11/1995	1,919.7	1,915.8
3/12/1995	1,917.7	1,915.9
3/13/1995	1,914.9	1,915.1
3/14/1995	1,912.4	1,914.7
3/15/1995	1,910.9	1,914.1
3/16/1995	1,909.7	1,911.8
3/17/1995	1,909.5	1,909.5
3/18/1995	1,910.1	1,910.1
3/19/1995	1,910.2	1,910.2
3/20/1995	1,915.0	1,915.0



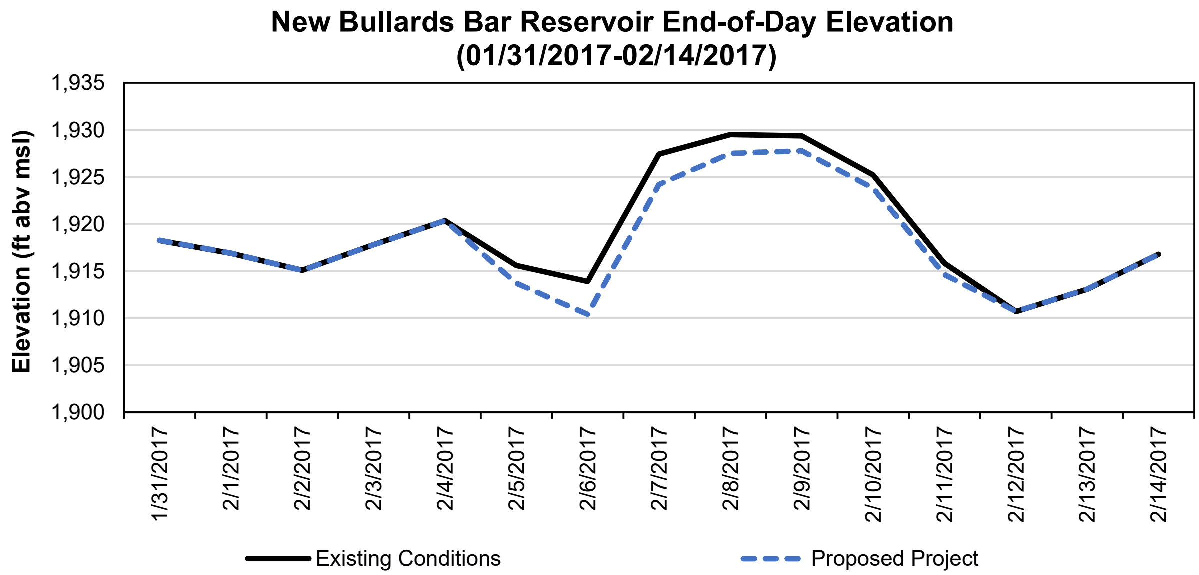
Date	Existing Conditions (ft)	Proposed Project (ft)
12/22/1996	1,917.1	1,917.1
12/23/1996	1,916.5	1,916.5
12/24/1996	1,914.5	1,914.5
12/25/1996	1,911.4	1,911.4
12/26/1996	1,909.0	1,905.9
12/27/1996	1,910.2	1,901.1
12/28/1996	1,909.7	1,897.0
12/29/1996	1,909.9	1,895.0
12/30/1996	1,915.3	1,899.7
12/31/1996	1,921.6	1,908.3
1/1/1997	1,941.3	1,934.0
1/2/1997	1,945.8	1,946.0
1/3/1997	1,936.3	1,936.6
1/4/1997	1,921.6	1,922.3
1/5/1997	1,916.6	1,916.7
1/6/1997	1,916.0	1,916.0
1/7/1997	1,915.6	1,915.6
1/8/1997	1,915.6	1,915.6
1/9/1997	1,915.7	1,915.7
1/10/1997	1,916.9	1,916.9



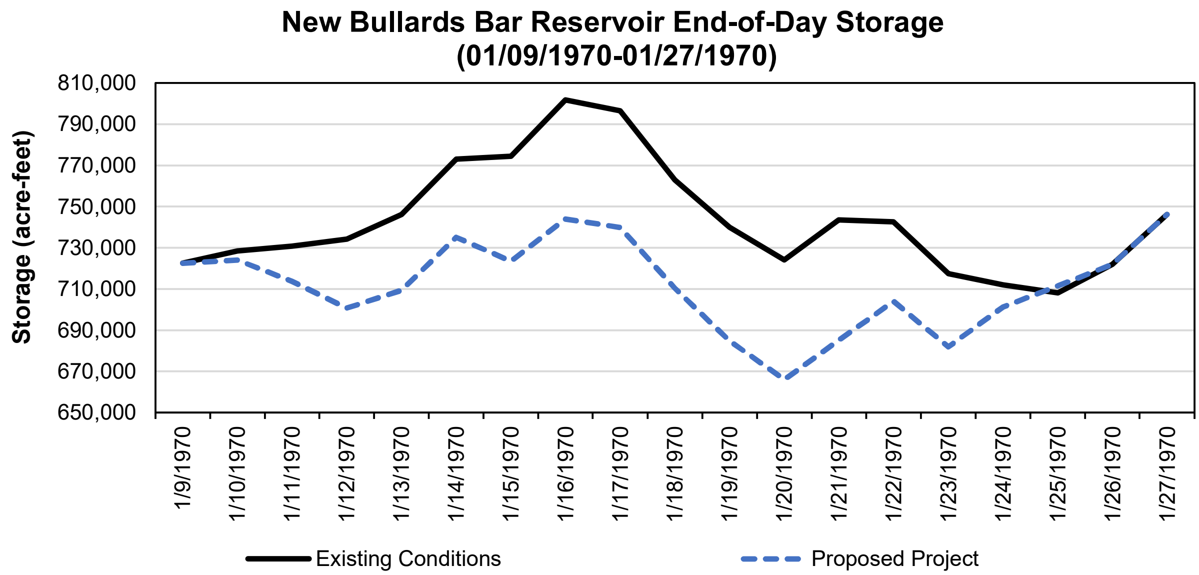
Date	Existing Conditions (ft)	Proposed Project (ft)
12/26/2005	1,902.0	1,902.0
12/27/2005	1,901.4	1,901.2
12/28/2005	1,905.6	1,905.5
12/29/2005	1,904.6	1,903.6
12/30/2005	1,907.7	1,905.1
12/31/2005	1,922.8	1,921.0
1/1/2006	1,914.8	1,915.2
1/2/2006	1,906.9	1,908.0
1/3/2006	1,905.0	1,905.0
1/4/2006	1,904.1	1,904.1
1/5/2006	1,903.3	1,903.3
1/6/2006	1,903.0	1,903.0
1/7/2006	1,904.6	1,904.6



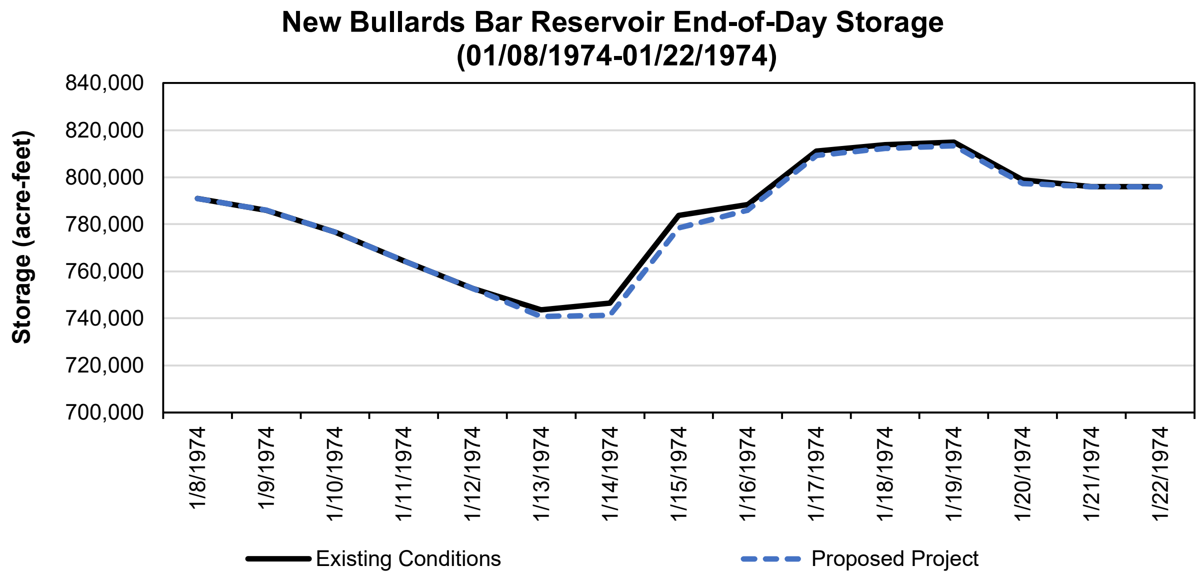
Date	Existing Conditions (ft)	Proposed Project (ft)
1/1/2017	1,914.8	1,914.8
1/2/2017	1,913.5	1,913.5
1/3/2017	1,909.9	1,909.8
1/4/2017	1,907.1	1,905.3
1/5/2017	1,905.3	1,898.6
1/6/2017	1,903.6	1,893.6
1/7/2017	1,903.3	1,894.1
1/8/2017	1,918.3	1,909.9
1/9/2017	1,922.0	1,916.7
1/10/2017	1,917.7	1,915.8
1/11/2017	1,912.1	1,912.1
1/12/2017	1,902.1	1,903.3
1/13/2017	1,898.7	1,899.0
1/14/2017	1,897.8	1,897.8
1/15/2017	1,899.3	1,899.3



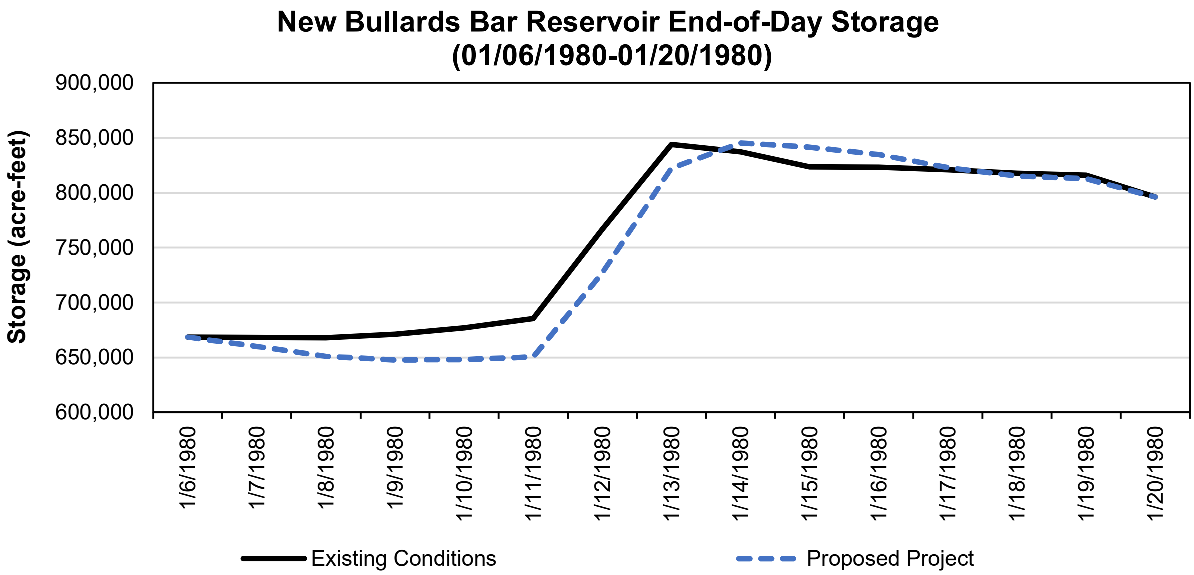
Date	Existing Conditions (ft)	Proposed Project (ft)
1/31/2017	1,918.3	1,918.3
2/1/2017	1,916.9	1,916.9
2/2/2017	1,915.1	1,915.1
2/3/2017	1,917.8	1,917.8
2/4/2017	1,920.4	1,920.4
2/5/2017	1,915.6	1,913.7
2/6/2017	1,913.9	1,910.4
2/7/2017	1,927.4	1,924.2
2/8/2017	1,929.5	1,927.5
2/9/2017	1,929.4	1,927.8
2/10/2017	1,925.2	1,923.8
2/11/2017	1,915.9	1,914.7
2/12/2017	1,910.7	1,910.7
2/13/2017	1,913.1	1,913.1
2/14/2017	1,916.8	1,916.8



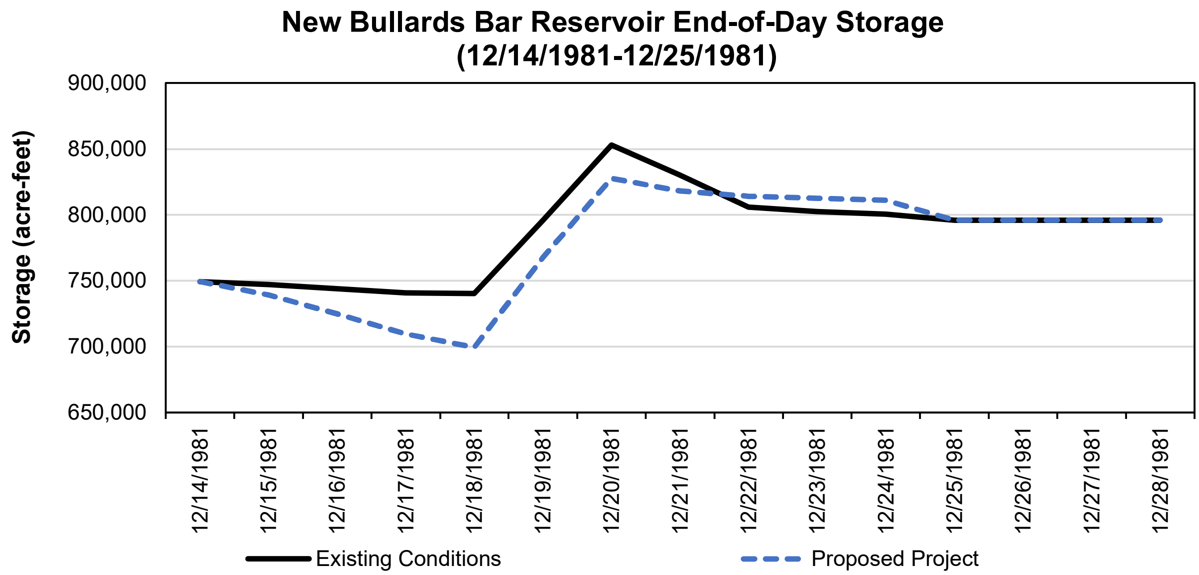
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
1/9/1970	722,456	722,456
1/10/1970	728,441	723,997
1/11/1970	730,809	713,754
1/12/1970	734,217	700,649
1/13/1970	746,145	709,352
1/14/1970	773,081	735,147
1/15/1970	774,475	723,544
1/16/1970	801,856	744,021
1/17/1970	796,458	739,825
1/18/1970	762,941	710,351
1/19/1970	740,022	684,775
1/20/1970	724,011	666,030
1/21/1970	743,581	685,092
1/22/1970	742,628	703,893
1/23/1970	717,351	681,940
1/24/1970	712,005	701,330
1/25/1970	708,087	711,507
1/26/1970	721,873	721,873
1/27/1970	746,169	746,169



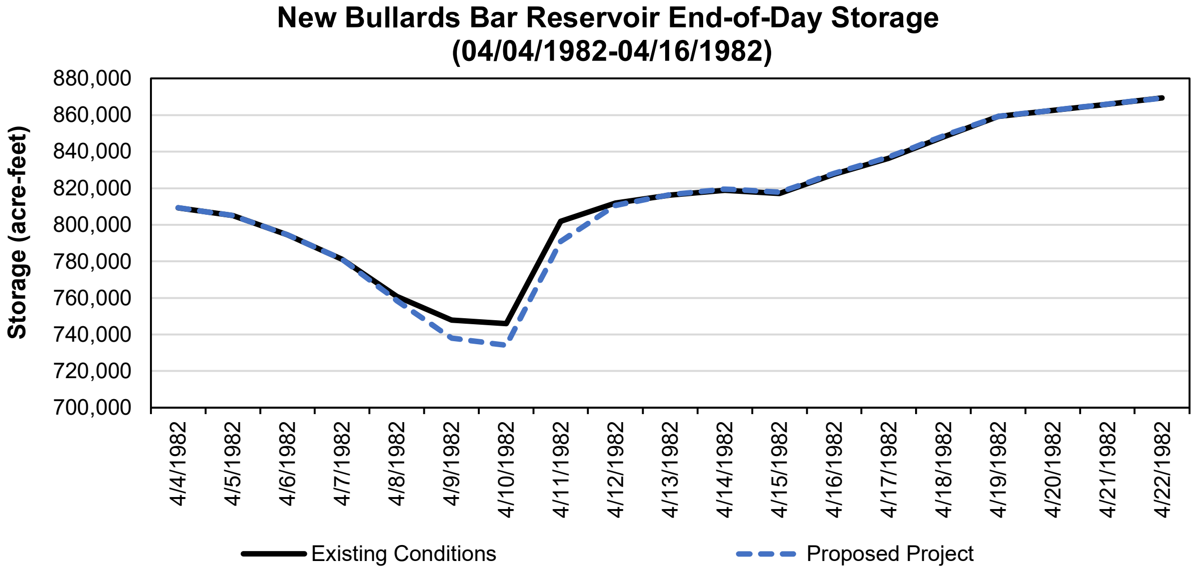
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
1/8/1974	790,859	790,859
1/9/1974	785,897	785,897
1/10/1974	776,670	776,670
1/11/1974	764,381	764,381
1/12/1974	752,786	752,786
1/13/1974	743,661	740,804
1/14/1974	746,454	741,241
1/15/1974	783,680	778,467
1/16/1974	788,350	785,948
1/17/1974	811,028	809,281
1/18/1974	813,842	812,252
1/19/1974	814,874	813,322
1/20/1974	798,882	797,347
1/21/1974	796,000	796,000
1/22/1974	796,000	796,000



Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
1/6/1980	668,391	668,391
1/7/1980	668,093	659,961
1/8/1980	667,720	650,898
1/9/1980	671,138	647,634
1/10/1980	676,978	647,949
1/11/1980	685,377	650,353
1/12/1980	766,454	726,667
1/13/1980	843,757	822,127
1/14/1980	837,102	845,221
1/15/1980	823,458	841,323
1/16/1980	823,296	834,721
1/17/1980	820,877	822,715
1/18/1980	817,845	814,994
1/19/1980	815,822	812,682
1/20/1980	796,000	796,000

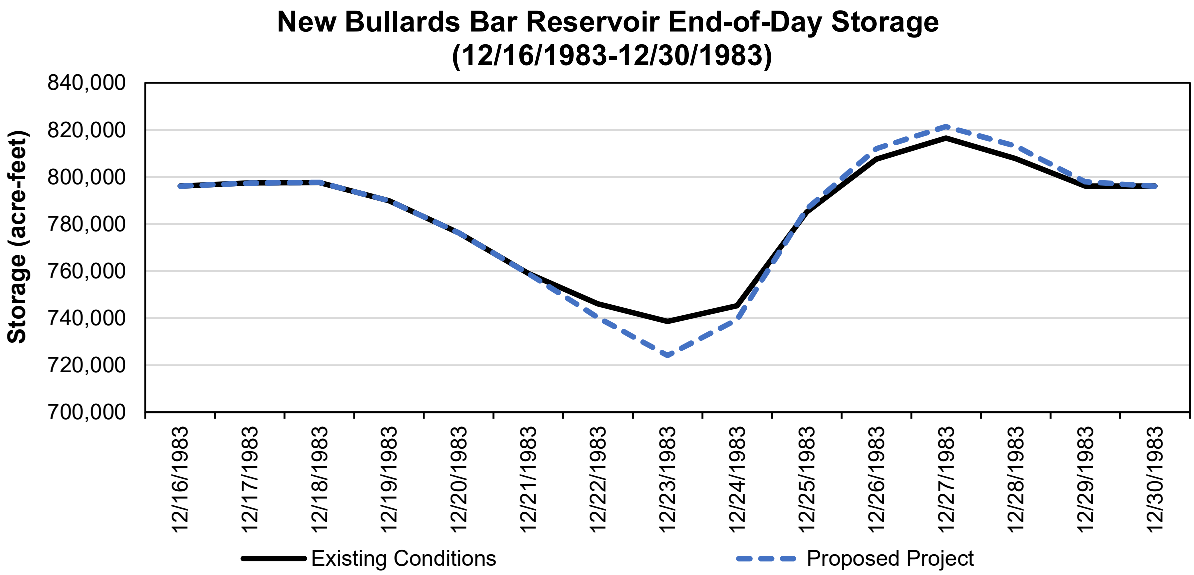


Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
12/14/1981	749,261	749,261
12/15/1981	747,193	739,282
12/16/1981	744,147	724,807
12/17/1981	740,804	709,625
12/18/1981	740,377	699,426
12/19/1981	796,000	767,733
12/20/1981	853,009	827,681
12/21/1981	830,265	818,057
12/22/1981	805,836	814,145
12/23/1981	802,338	812,572
12/24/1981	800,730	811,083
12/25/1981	796,000	796,000
12/26/1981	796,000	796,000
12/27/1981	796,000	796,000
12/28/1981	796,000	796,000

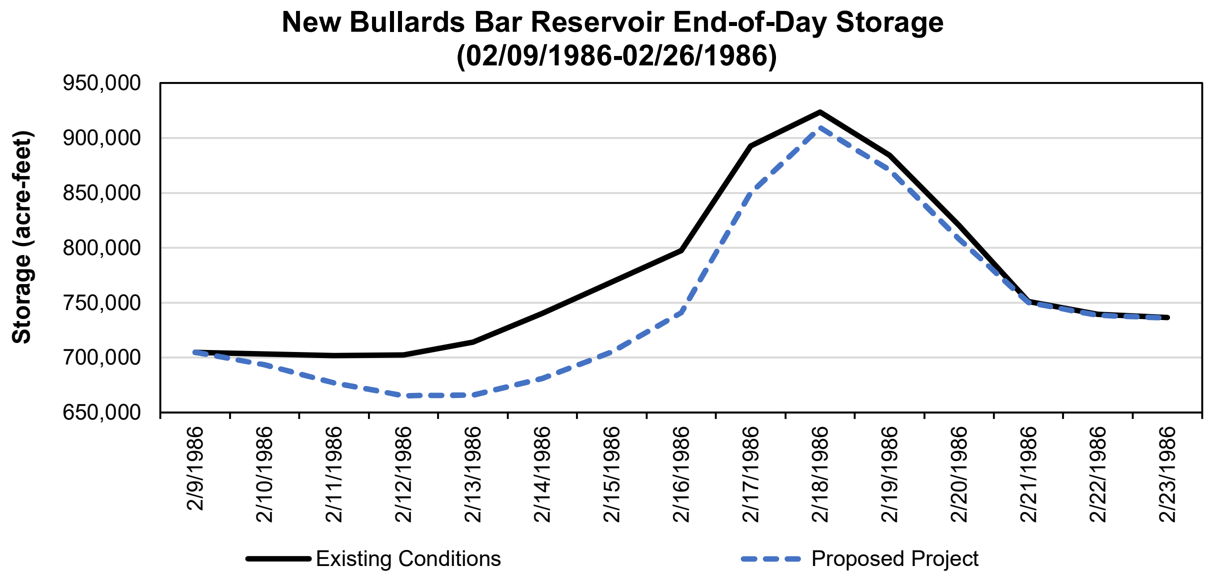


Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
4/4/1982	809,333	809,333
4/5/1982	805,095	805,095
4/6/1982	794,513	794,513
4/7/1982	781,181	781,181
4/8/1982	760,799	758,580
4/9/1982	747,850	738,032
4/10/1982	745,998	734,108
4/11/1982	801,874	790,930
4/12/1982	811,915	810,622
4/13/1982	816,250	816,573
4/14/1982	818,902	819,440
4/15/1982	817,192	817,754
4/16/1982	827,586	828,103
4/17/1982	836,438	836,956
4/18/1982	848,061	848,578
4/19/1982	859,333	859,333
4/20/1982	862,667	862,667
4/21/1982	866,000	866,000
4/22/1982	869,333	869,333

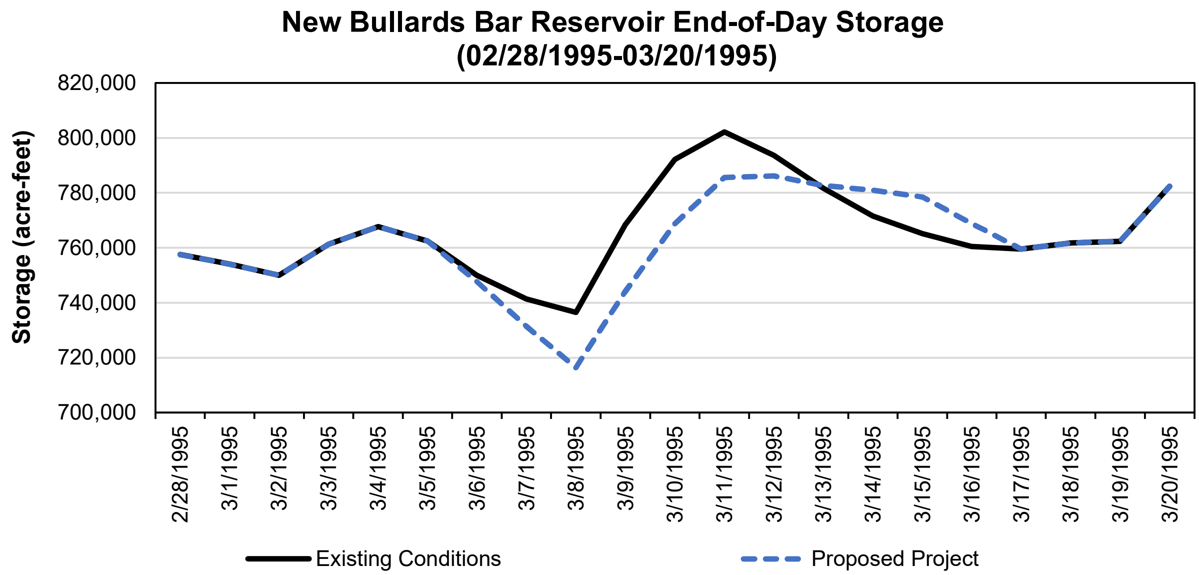
New Bullards Bar Reservoir End-of-Day Storage (12/16/1983-12/30/1983)



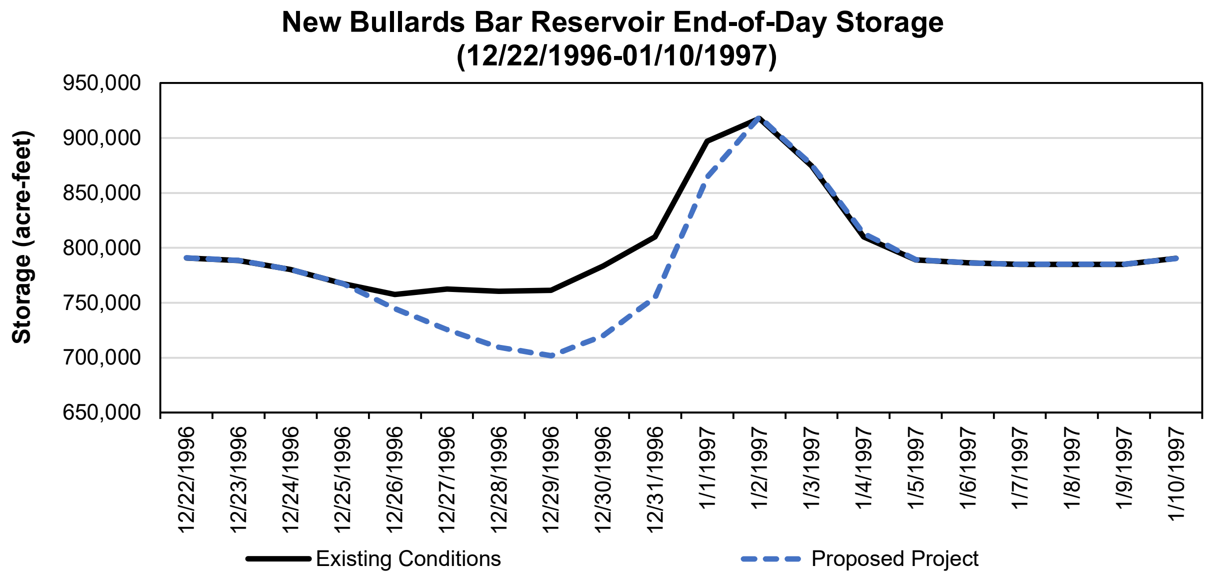
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
12/16/1983	796,000	796,000
12/17/1983	797,475	797,475
12/18/1983	797,693	797,693
12/19/1983	789,840	789,840
12/20/1983	776,227	776,227
12/21/1983	759,055	758,937
12/22/1983	746,107	740,242
12/23/1983	738,595	724,150
12/24/1983	745,223	739,357
12/25/1983	785,180	786,392
12/26/1983	807,585	812,000
12/27/1983	816,478	821,399
12/28/1983	807,833	813,110
12/29/1983	796,000	797,960
12/30/1983	796,000	796,000



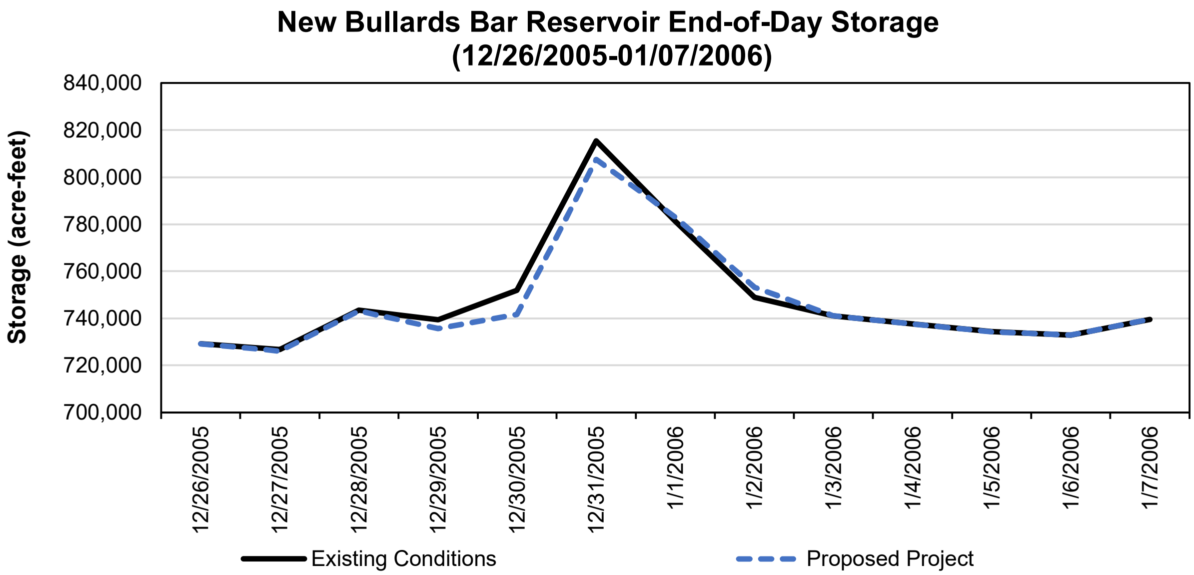
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
2/9/1986	704,720	704,720
2/10/1986	703,310	693,388
2/11/1986	701,899	676,943
2/12/1986	702,324	665,318
2/13/1986	714,109	665,858
2/14/1986	740,227	680,885
2/15/1986	768,808	705,180
2/16/1986	797,369	741,011
2/17/1986	892,481	849,979
2/18/1986	923,527	909,410
2/19/1986	884,227	870,803
2/20/1986	820,492	808,000
2/21/1986	750,965	750,243
2/22/1986	739,302	738,580
2/23/1986	736,715	735,993



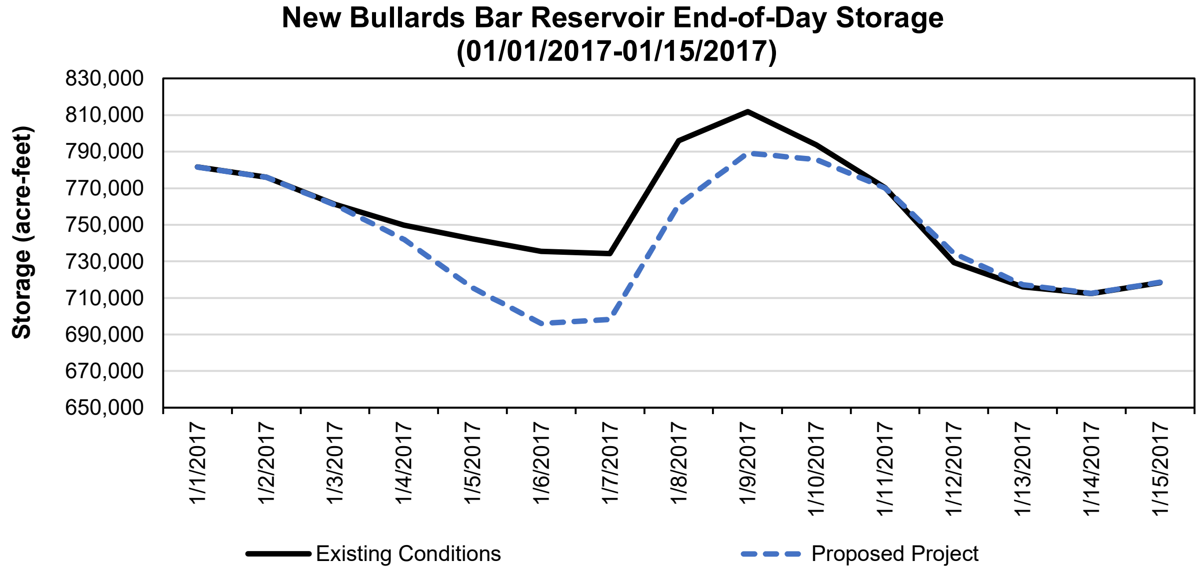
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
2/28/1995	757,572	757,572
3/1/1995	753,995	753,995
3/2/1995	749,989	749,989
3/3/1995	761,339	761,339
3/4/1995	767,755	767,755
3/5/1995	762,546	762,546
3/6/1995	749,937	747,677
3/7/1995	741,438	731,430
3/8/1995	736,422	716,370
3/9/1995	768,396	744,141
3/10/1995	792,253	768,735
3/11/1995	802,193	785,596
3/12/1995	793,739	786,164
3/13/1995	781,739	782,655
3/14/1995	771,555	780,947
3/15/1995	765,120	778,550
3/16/1995	760,444	768,824
3/17/1995	759,557	759,558
3/18/1995	761,738	761,739
3/19/1995	762,445	762,446
3/20/1995	782,316	782,316



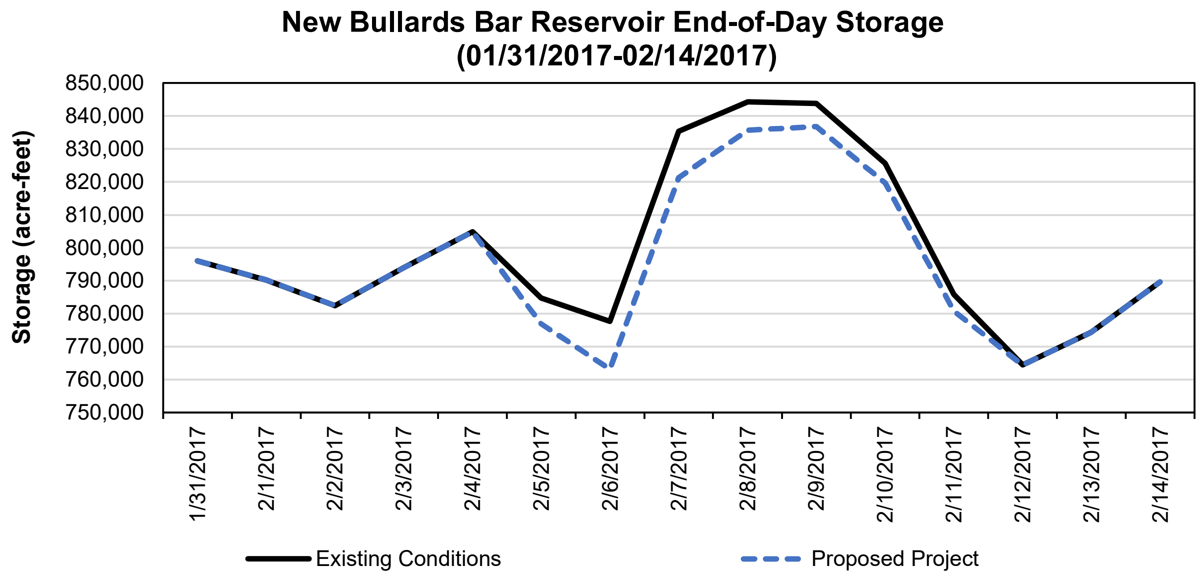
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
12/22/1996	790,951	790,951
12/23/1996	788,375	788,375
12/24/1996	780,140	780,140
12/25/1996	767,378	767,378
12/26/1996	757,372	744,724
12/27/1996	762,413	725,634
12/28/1996	760,454	709,496
12/29/1996	761,040	701,635
12/30/1996	783,280	720,138
12/31/1996	809,975	754,649
1/1/1997	897,079	864,346
1/2/1997	917,875	919,070
1/3/1997	874,528	875,723
1/4/1997	809,938	813,212
1/5/1997	788,991	789,182
1/6/1997	786,283	786,297
1/7/1997	784,886	784,889
1/8/1997	784,912	784,914
1/9/1997	785,123	785,126
1/10/1997	790,380	790,383



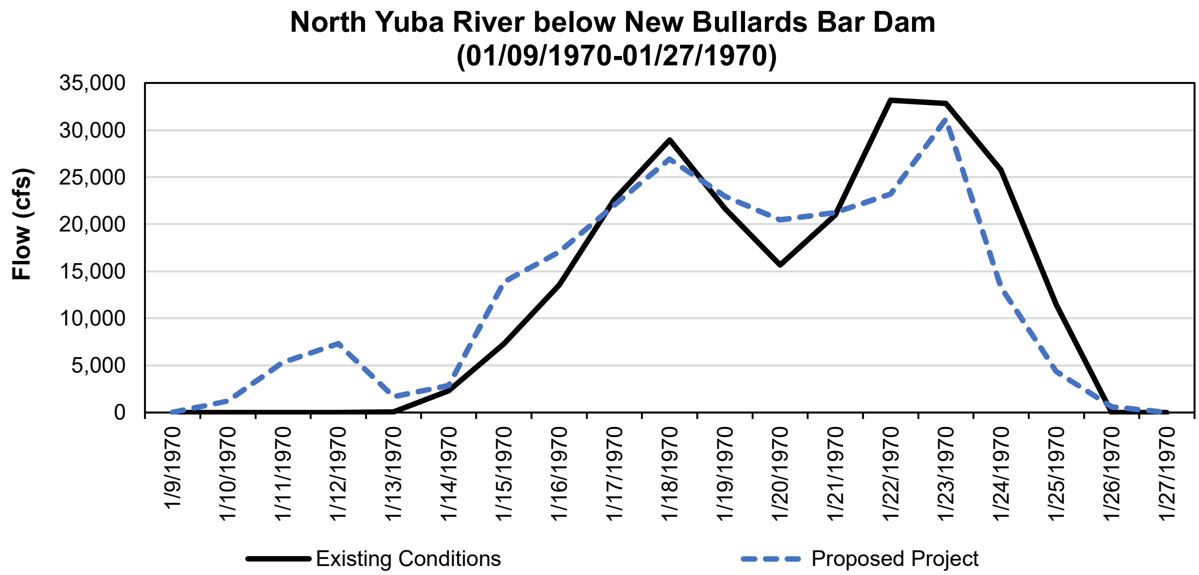
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
12/26/2005	729,191	729,191
12/27/2005	726,735	726,105
12/28/2005	743,448	743,200
12/29/2005	739,536	735,626
12/30/2005	751,959	741,699
12/31/2005	815,468	807,507
1/1/2006	781,265	783,071
1/2/2006	748,892	753,186
1/3/2006	741,077	741,090
1/4/2006	737,674	737,647
1/5/2006	734,340	734,310
1/6/2006	732,970	732,941
1/7/2006	739,651	739,621



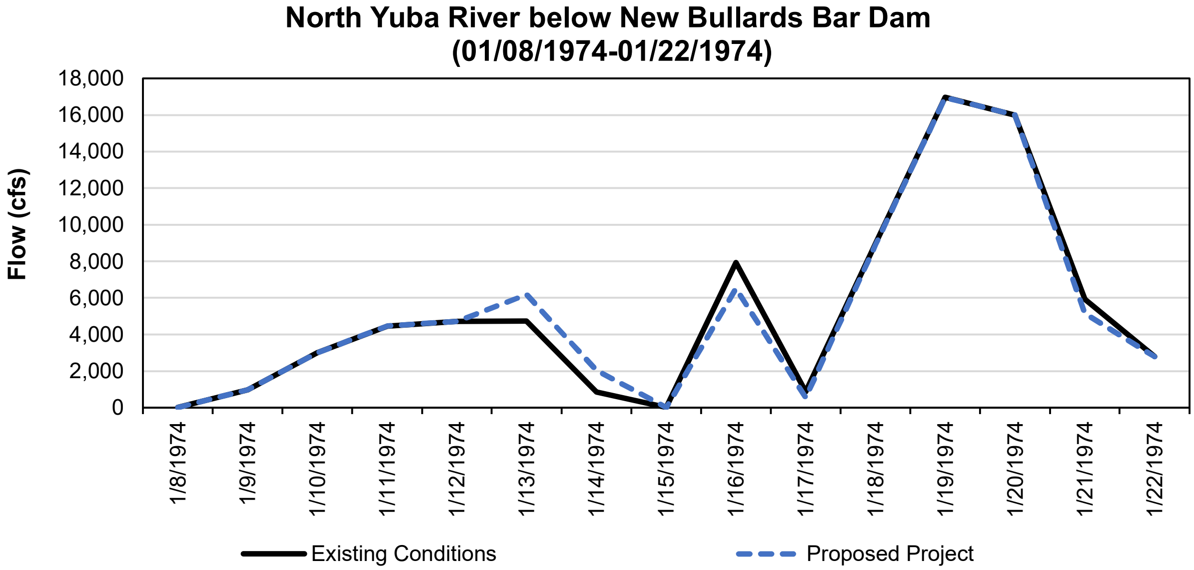
Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
1/1/2017	781,489	781,489
1/2/2017	776,033	776,033
1/3/2017	761,111	760,799
1/4/2017	749,692	742,164
1/5/2017	742,172	715,544
1/6/2017	735,354	696,054
1/7/2017	734,230	698,188
1/8/2017	796,000	760,981
1/9/2017	811,914	789,182
1/10/2017	793,714	785,744
1/11/2017	770,255	770,135
1/12/2017	729,408	734,421
1/13/2017	716,006	717,276
1/14/2017	712,396	712,558
1/15/2017	718,376	718,530



Date	Existing Conditions (acre-feet)	Proposed Project (acre-feet)
1/31/2017	796,000	796,000
2/1/2017	790,228	790,228
2/2/2017	782,457	782,457
2/3/2017	793,985	793,985
2/4/2017	804,842	804,842
2/5/2017	784,752	776,898
2/6/2017	777,661	763,156
2/7/2017	835,284	821,281
2/8/2017	844,270	835,646
2/9/2017	843,773	836,791
2/10/2017	825,704	819,671
2/11/2017	785,836	780,752
2/12/2017	764,419	764,408
2/13/2017	774,333	774,322
2/14/2017	789,662	789,652

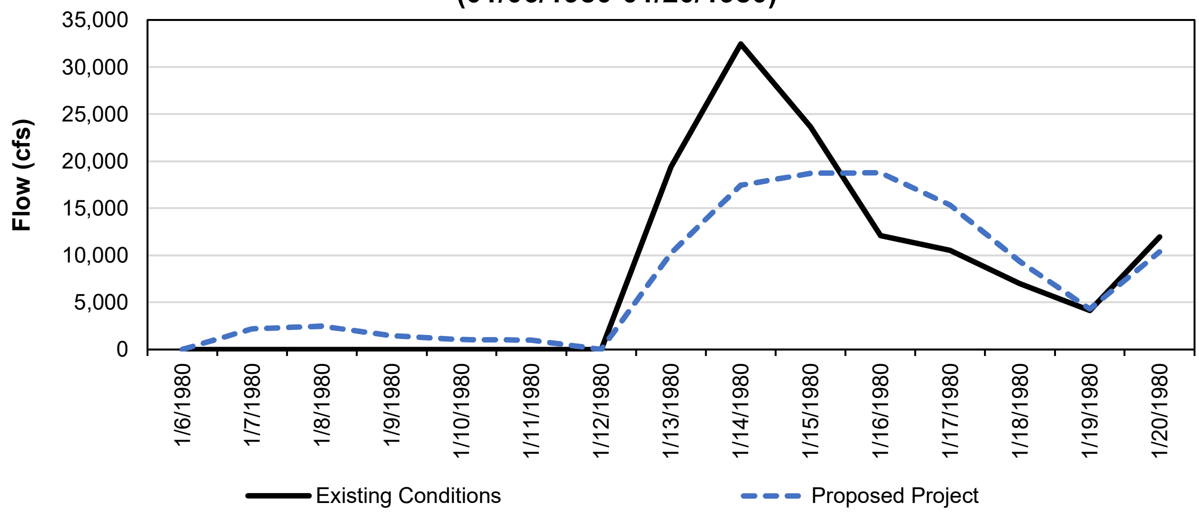


Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/9/1970	7	7
1/10/1970	7	1,219
1/11/1970	7	5,336
1/12/1970	7	7,303
1/13/1970	69	1,695
1/14/1970	2,295	2,871
1/15/1970	7,316	13,869
1/16/1970	13,574	17,055
1/17/1970	22,643	22,038
1/18/1970	28,975	26,936
1/19/1970	21,639	22,979
1/20/1970	15,673	20,481
1/21/1970	20,975	21,232
1/22/1970	33,185	23,226
1/23/1970	32,848	31,172
1/24/1970	25,759	13,288
1/25/1970	11,463	4,357
1/26/1970	7	617
1/27/1970	7	7

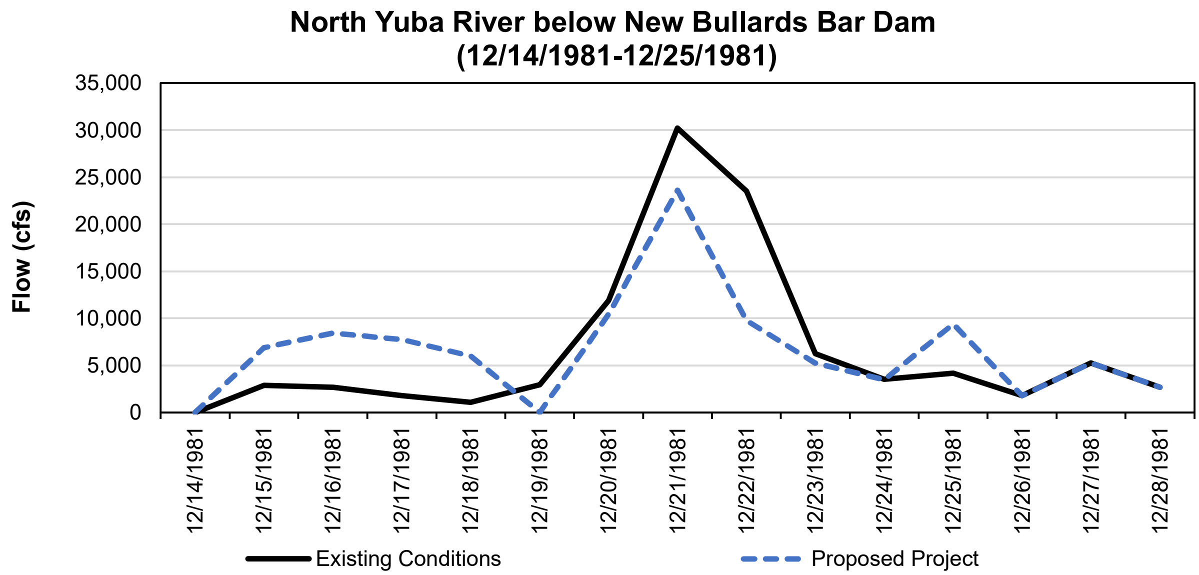


Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/8/1974	7	7
1/9/1974	975	975
1/10/1974	3,001	3,001
1/11/1974	4,471	4,471
1/12/1974	4,715	4,715
1/13/1974	4,736	6,176
1/14/1974	860	2,048
1/15/1974	7	7
1/16/1974	7,927	6,510
1/17/1974	873	543
1/18/1974	9,001	8,922
1/19/1974	16,977	16,958
1/20/1974	16,003	15,994
1/21/1974	5,922	5,148
1/22/1974	2,787	2,787

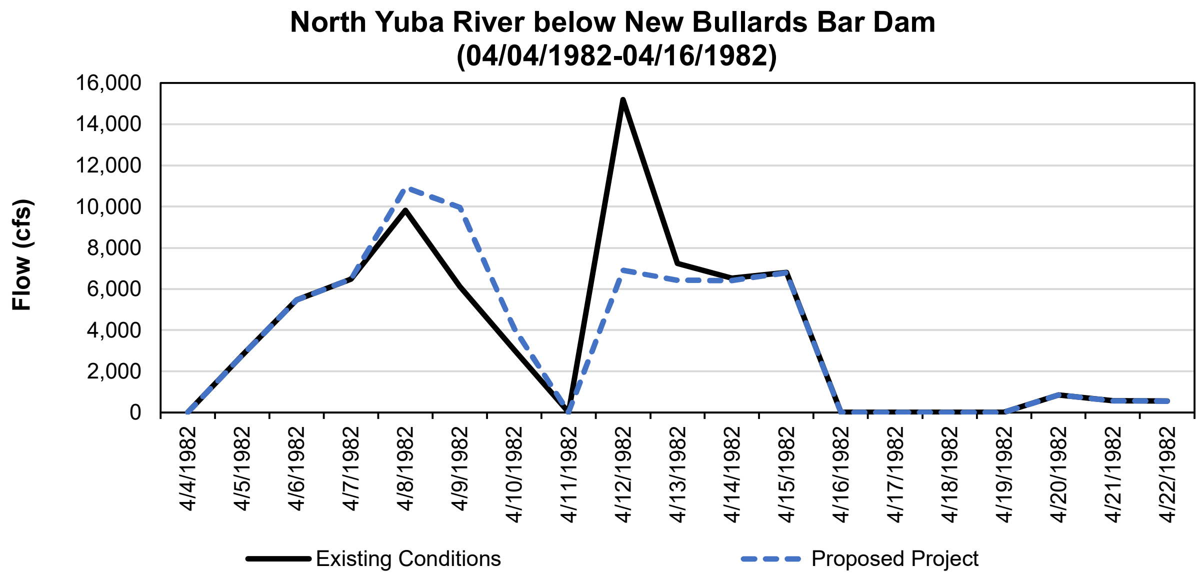
North Yuba River below New Bullards Bar Dam (01/06/1980-01/20/1980)



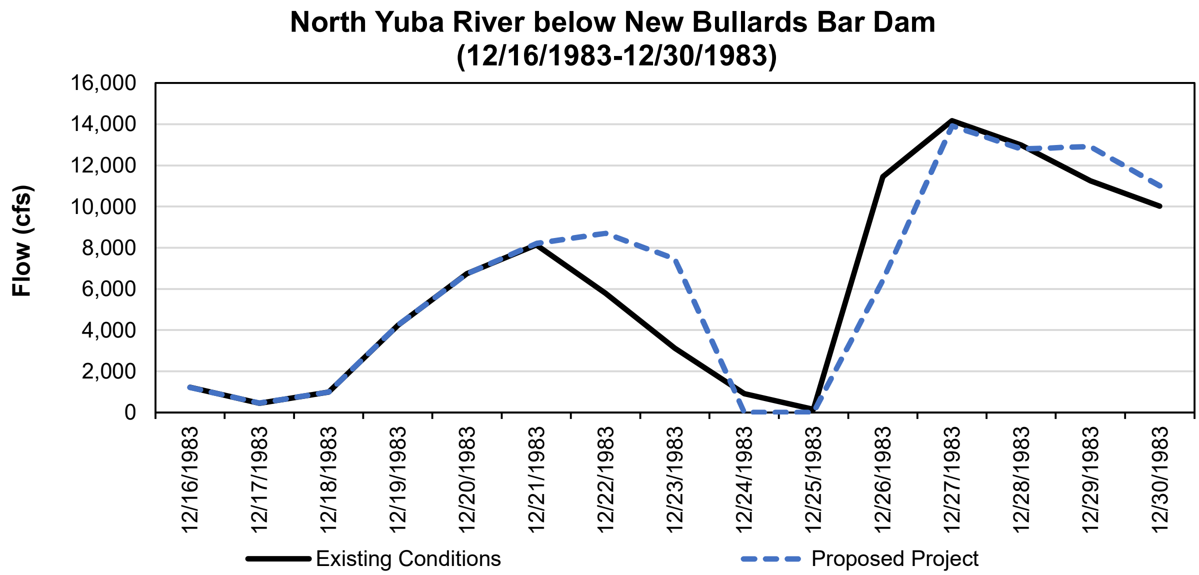
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/6/1980	7	7
1/7/1980	7	2,186
1/8/1980	7	2,479
1/9/1980	7	1,455
1/10/1980	7	1,063
1/11/1980	7	994
1/12/1980	7	7
1/13/1980	19,393	10,239
1/14/1980	32,457	17,459
1/15/1980	23,648	18,734
1/16/1980	12,100	18,777
1/17/1980	10,513	15,347
1/18/1980	6,997	9,361
1/19/1980	4,146	4,291
1/20/1980	11,948	10,365



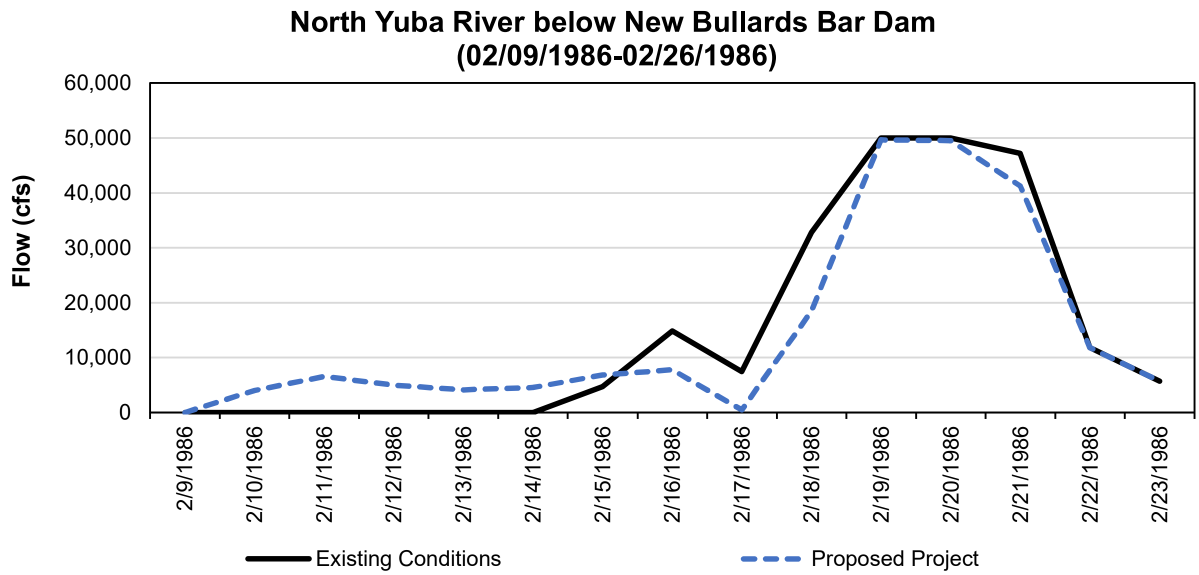
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/14/1981	7	7
12/15/1981	2,892	6,881
12/16/1981	2,679	8,442
12/17/1981	1,794	7,763
12/18/1981	1,059	5,986
12/19/1981	2,972	7
12/20/1981	11,903	10,422
12/21/1981	30,232	23,617
12/22/1981	23,525	9,751
12/23/1981	6,233	5,262
12/24/1981	3,548	3,488
12/25/1981	4,172	9,392
12/26/1981	1,772	1,772
12/27/1981	5,240	5,240
12/28/1981	2,677	2,677



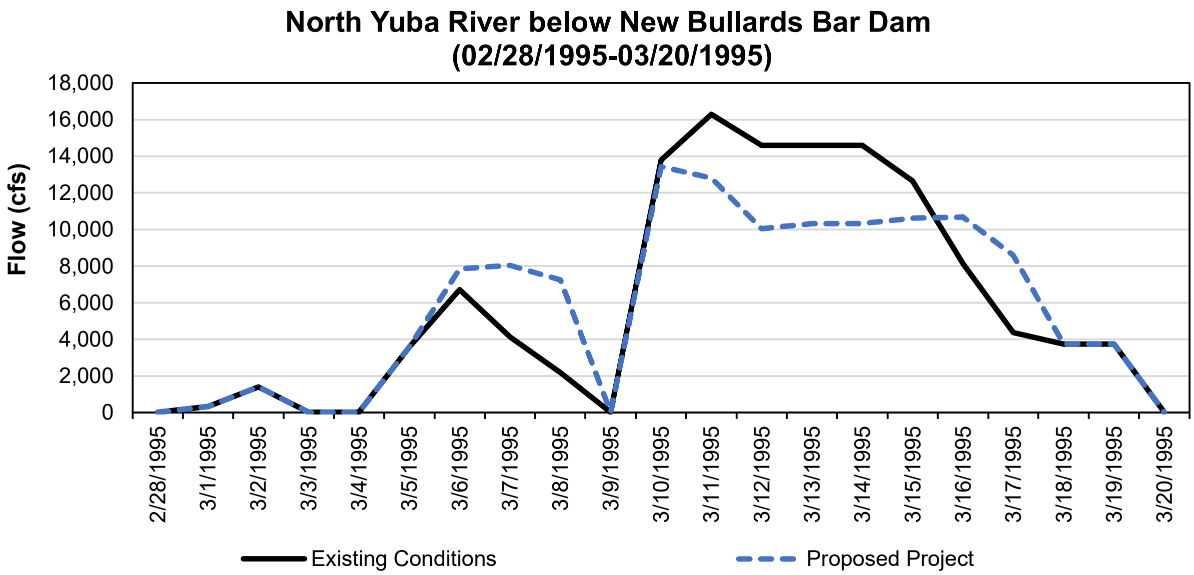
Date	Existing Conditions (cfs)	Proposed Project (cfs)
4/4/1982	7	7
4/5/1982	2,778	2,778
4/6/1982	5,458	5,458
4/7/1982	6,475	6,475
4/8/1982	9,817	10,936
4/9/1982	6,124	9,955
4/10/1982	3,048	4,092
4/11/1982	7	7
4/12/1982	15,202	6,906
4/13/1982	7,244	6,429
4/14/1982	6,519	6,411
4/15/1982	6,807	6,795
4/16/1982	7	7
4/17/1982	7	7
4/18/1982	7	7
4/19/1982	7	7
4/20/1982	847	847
4/21/1982	568	568
4/22/1982	552	552



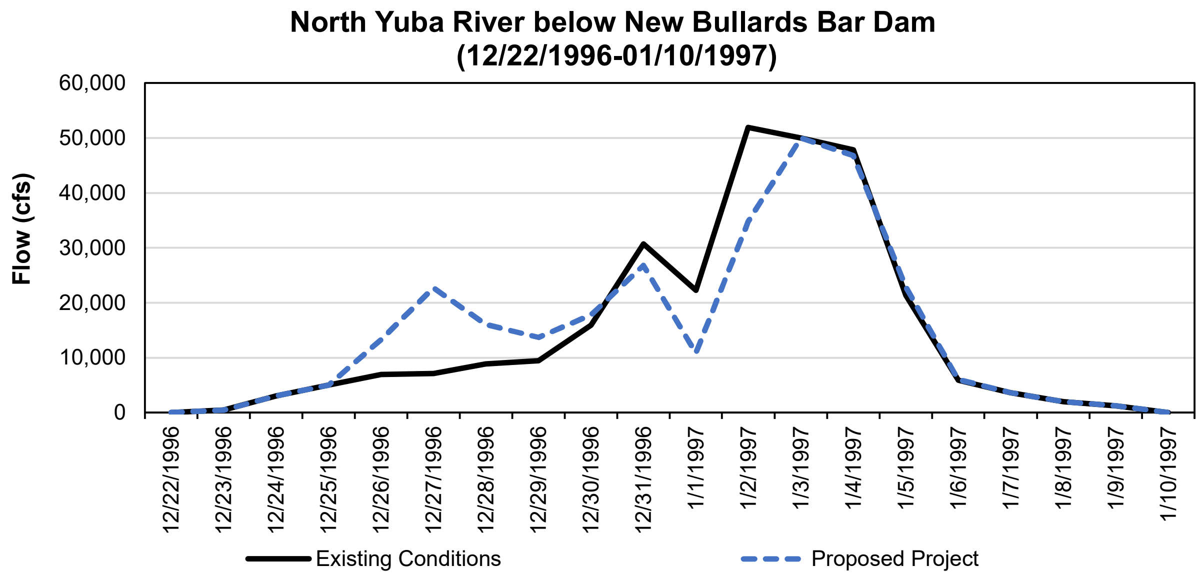
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/16/1983	1,225	1,225
12/17/1983	449	449
12/18/1983	987	987
12/19/1983	4,245	4,245
12/20/1983	6,737	6,737
12/21/1983	8,141	8,201
12/22/1983	5,802	8,699
12/23/1983	3,131	7,457
12/24/1983	902	7
12/25/1983	146	7
12/26/1983	11,463	6,418
12/27/1983	14,178	13,922
12/28/1983	12,984	12,804
12/29/1983	11,246	12,918
12/30/1983	10,013	11,001



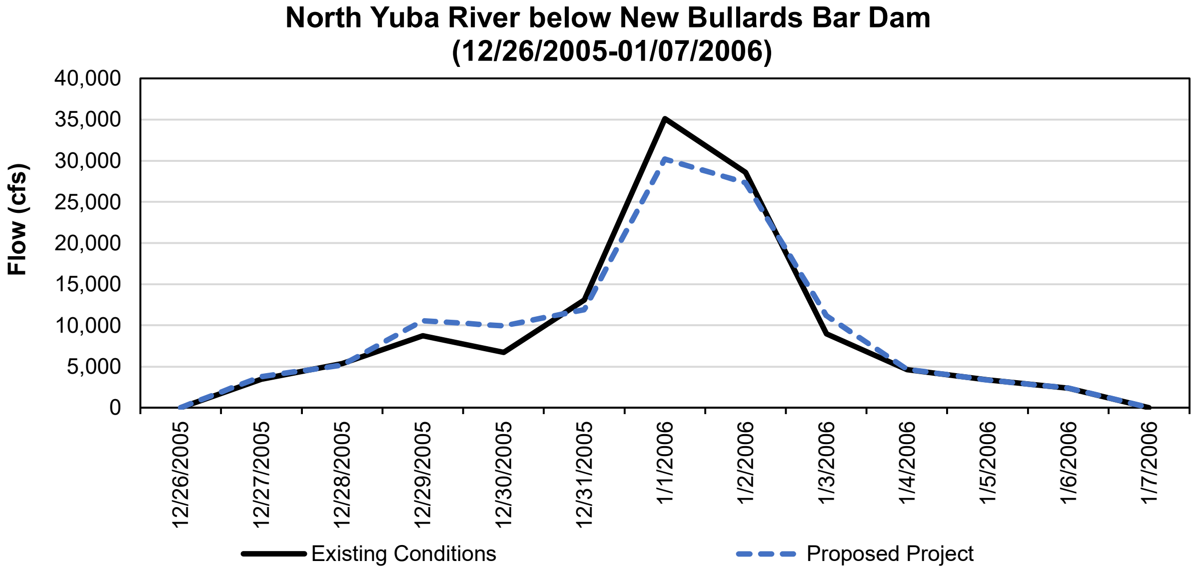
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/9/1986	7	7
2/10/1986	7	4,039
2/11/1986	7	6,551
2/12/1986	7	4,996
2/13/1986	7	4,132
2/14/1986	7	4,570
2/15/1986	4,687	6,848
2/16/1986	14,854	7,760
2/17/1986	7,441	456
2/18/1986	32,798	18,488
2/19/1986	50,000	49,651
2/20/1986	50,000	49,530
2/21/1986	47,207	41,273
2/22/1986	11,836	11,836
2/23/1986	5,734	5,734



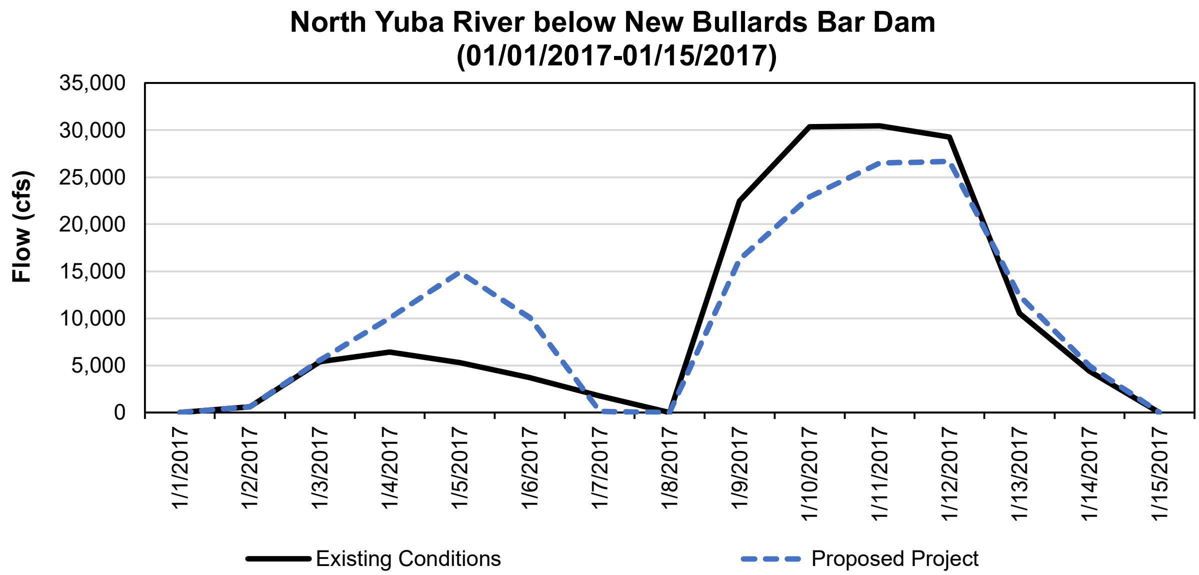
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/28/1995	6	6
3/1/1995	314	314
3/2/1995	1,401	1,401
3/3/1995	6	6
3/4/1995	6	6
3/5/1995	3,586	3,586
3/6/1995	6,711	7,850
3/7/1995	4,132	8,038
3/8/1995	2,185	7,250
3/9/1995	6	6
3/10/1995	13,804	13,434
3/11/1995	16,295	12,805
3/12/1995	14,598	10,050
3/13/1995	14,598	10,318
3/14/1995	14,598	10,324
3/15/1995	12,653	10,617
3/16/1995	8,131	10,677
3/17/1995	4,360	8,584
3/18/1995	3,743	3,743
3/19/1995	3,743	3,743
3/20/1995	6	6



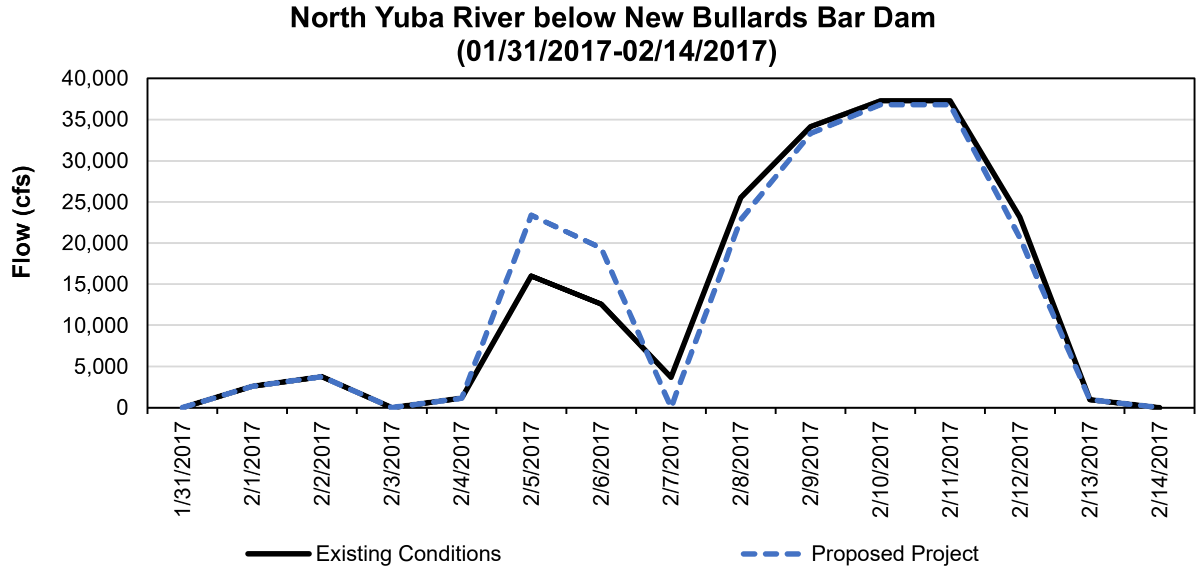
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/22/1996	7	7
12/23/1996	434	434
12/24/1996	3,017	3,017
12/25/1996	5,006	5,006
12/26/1996	6,897	13,274
12/27/1996	7,110	22,706
12/28/1996	8,871	16,020
12/29/1996	9,434	13,693
12/30/1996	15,900	17,784
12/31/1996	30,729	26,789
1/1/1997	22,222	10,831
1/2/1997	51,901	34,796
1/3/1997	50,000	50,000
1/4/1997	47,834	46,786
1/5/1997	21,316	22,871
1/6/1997	5,893	5,982
1/7/1997	3,589	3,595
1/8/1997	1,977	1,977
1/9/1997	1,211	1,211
1/10/1997	7	7



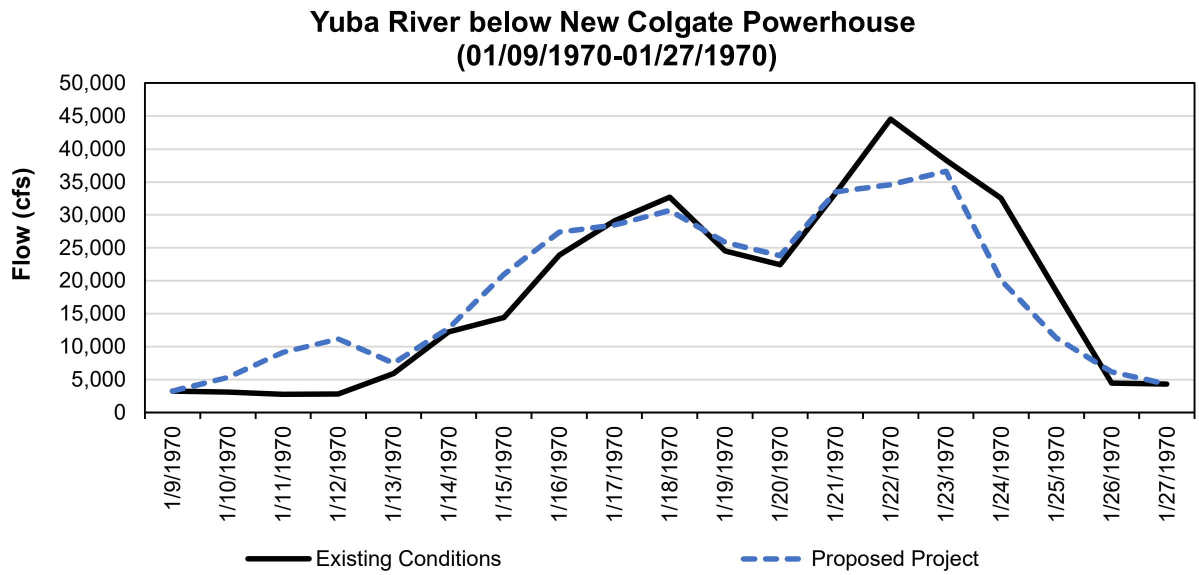
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/26/2005	7	7
12/27/2005	3,449	3,767
12/28/2005	5,363	5,170
12/29/2005	8,720	10,566
12/30/2005	6,719	9,920
12/31/2005	13,089	11,931
1/1/2006	35,132	30,208
1/2/2006	28,597	27,343
1/3/2006	8,996	11,155
1/4/2006	4,631	4,651
1/5/2006	3,348	3,349
1/6/2006	2,369	2,369
1/7/2006	7	7



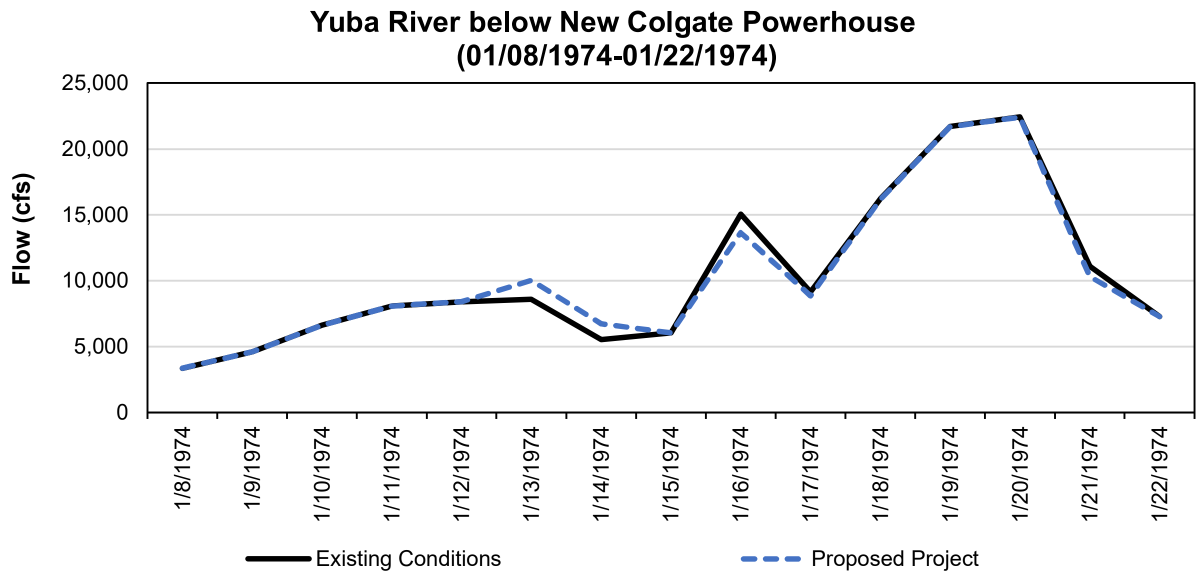
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/1/2017	7	7
1/2/2017	609	609
1/3/2017	5,396	5,553
1/4/2017	6,423	10,061
1/5/2017	5,287	14,917
1/6/2017	3,704	10,092
1/7/2017	1,758	116
1/8/2017	7	7
1/9/2017	22,453	16,259
1/10/2017	30,346	22,903
1/11/2017	30,457	26,500
1/12/2017	29,252	26,664
1/13/2017	10,545	12,432
1/14/2017	4,395	4,953
1/15/2017	7	7



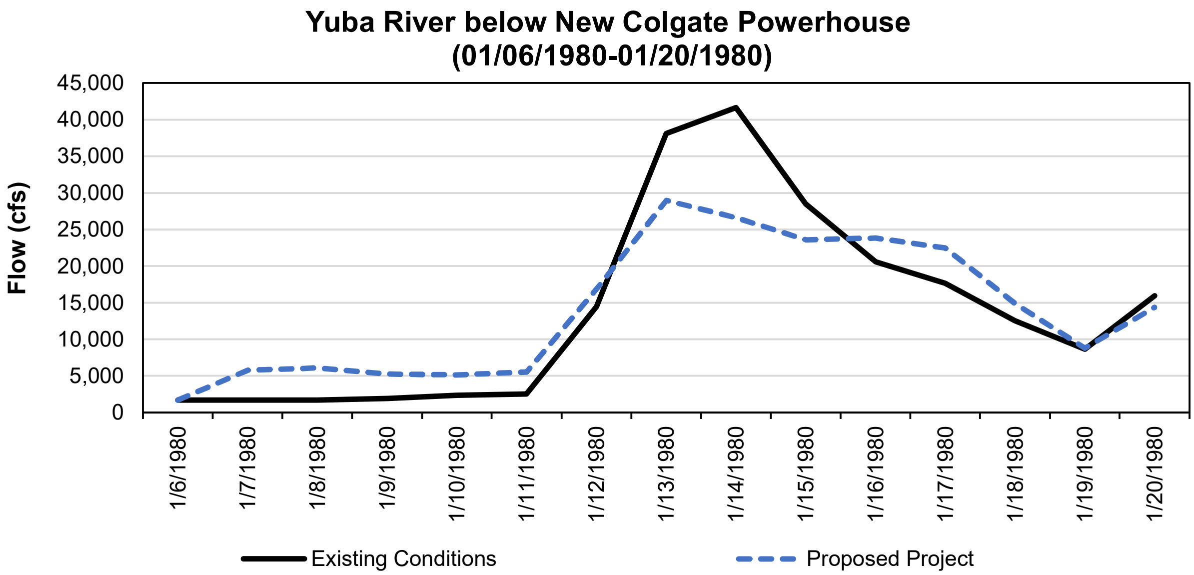
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/31/2017	7	7
2/1/2017	2,591	2,591
2/2/2017	3,742	3,742
2/3/2017	7	7
2/4/2017	1,127	1,127
2/5/2017	15,987	23,377
2/6/2017	12,603	19,386
2/7/2017	3,690	7
2/8/2017	25,535	22,823
2/9/2017	34,130	33,303
2/10/2017	37,298	36,819
2/11/2017	37,298	36,819
2/12/2017	23,174	20,616
2/13/2017	975	975
2/14/2017	7	7



Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/9/1970	3,251	3,251
1/10/1970	3,106	5,347
1/11/1970	2,778	9,137
1/12/1970	2,829	11,154
1/13/1970	5,887	7,513
1/14/1970	12,239	12,814
1/15/1970	14,415	20,968
1/16/1970	23,895	27,376
1/17/1970	29,043	28,437
1/18/1970	32,671	30,632
1/19/1970	24,515	25,855
1/20/1970	22,423	23,801
1/21/1970	33,224	33,480
1/22/1970	44,548	34,589
1/23/1970	38,294	36,619
1/24/1970	32,563	20,092
1/25/1970	18,422	11,316
1/26/1970	4,453	6,178
1/27/1970	4,301	4,301

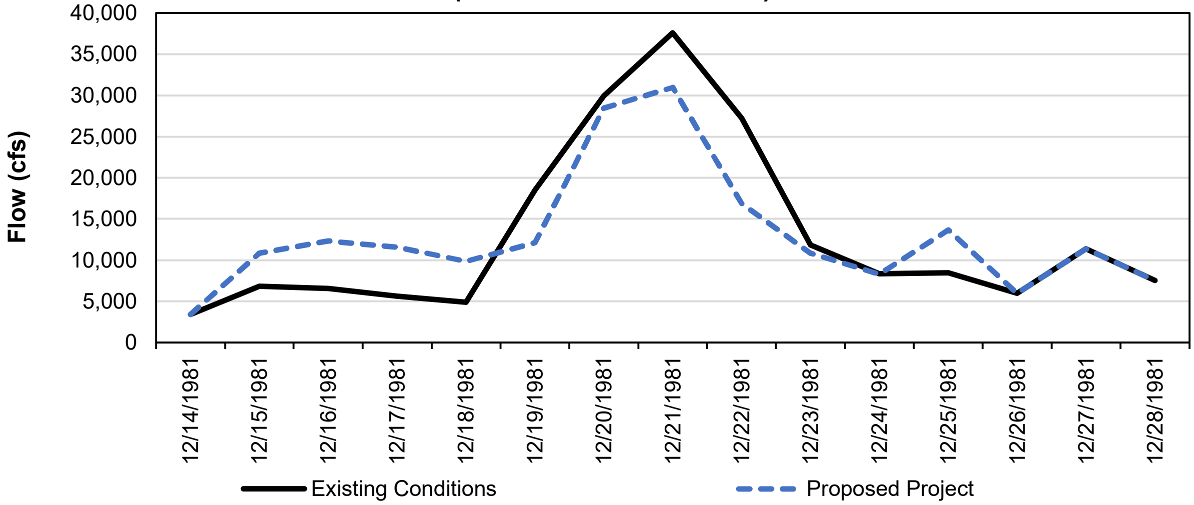


Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/8/1974	3,356	3,356
1/9/1974	4,611	4,611
1/10/1974	6,624	6,624
1/11/1974	8,086	8,086
1/12/1974	8,416	8,416
1/13/1974	8,588	10,029
1/14/1974	5,535	6,723
1/15/1974	6,038	6,038
1/16/1974	15,061	13,644
1/17/1974	9,172	8,841
1/18/1974	16,241	16,162
1/19/1974	21,707	21,688
1/20/1974	22,424	22,415
1/21/1974	11,083	10,309
1/22/1974	7,276	7,276

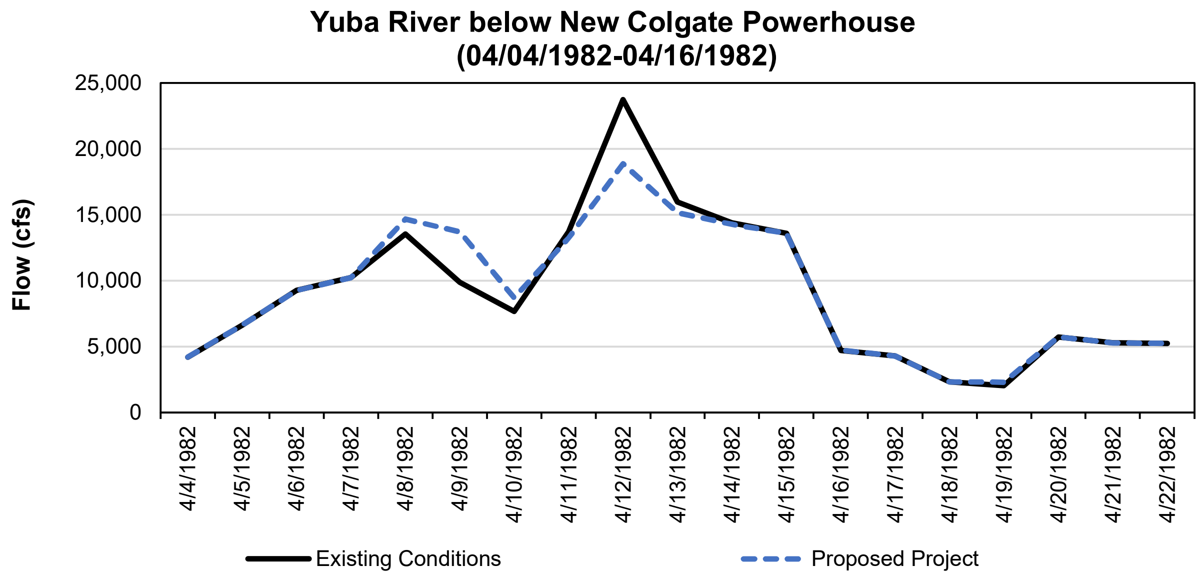


Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/6/1980	1,697	1,697
1/7/1980	1,690	5,790
1/8/1980	1,695	6,077
1/9/1980	1,902	5,271
1/10/1980	2,334	5,119
1/11/1980	2,495	5,518
1/12/1980	14,425	16,826
1/13/1980	38,120	28,966
1/14/1980	41,633	26,635
1/15/1980	28,490	23,576
1/16/1980	20,588	23,834
1/17/1980	17,649	22,482
1/18/1980	12,518	14,882
1/19/1980	8,642	8,788
1/20/1980	15,948	14,365

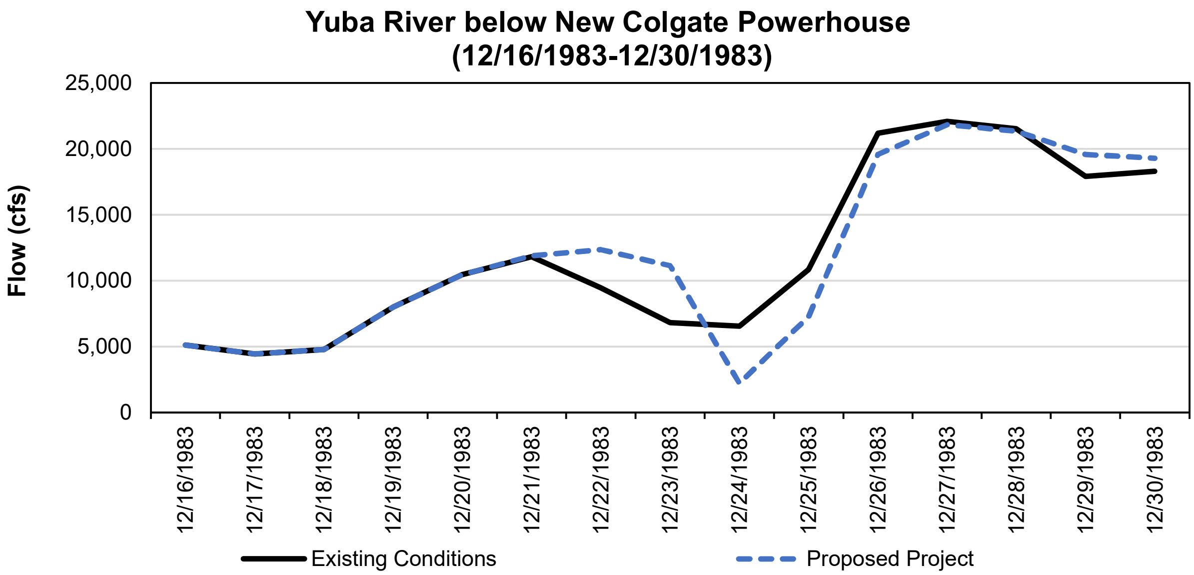
Yuba River below New Colgate Powerhouse
(12/14/1981-12/25/1981)



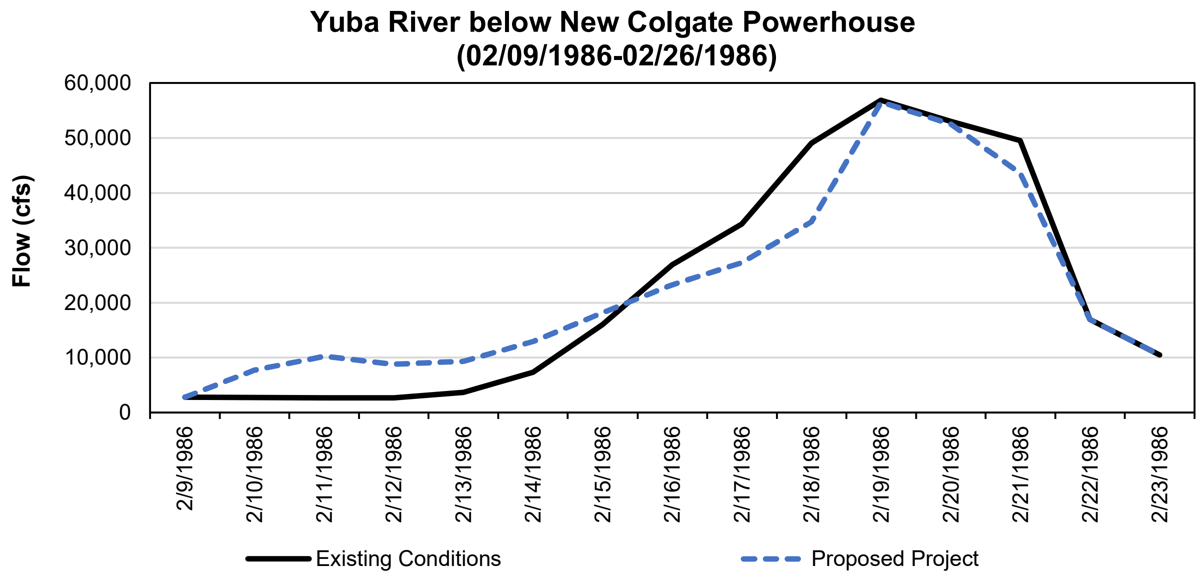
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/14/1981	3,401	3,401
12/15/1981	6,839	10,827
12/16/1981	6,581	12,343
12/17/1981	5,600	11,569
12/18/1981	4,914	9,841
12/19/1981	18,512	12,117
12/20/1981	29,920	28,438
12/21/1981	37,589	30,974
12/22/1981	27,227	16,883
12/23/1981	11,826	10,855
12/24/1981	8,339	8,279
12/25/1981	8,461	13,680
12/26/1981	5,980	5,980
12/27/1981	11,362	11,362
12/28/1981	7,525	7,525



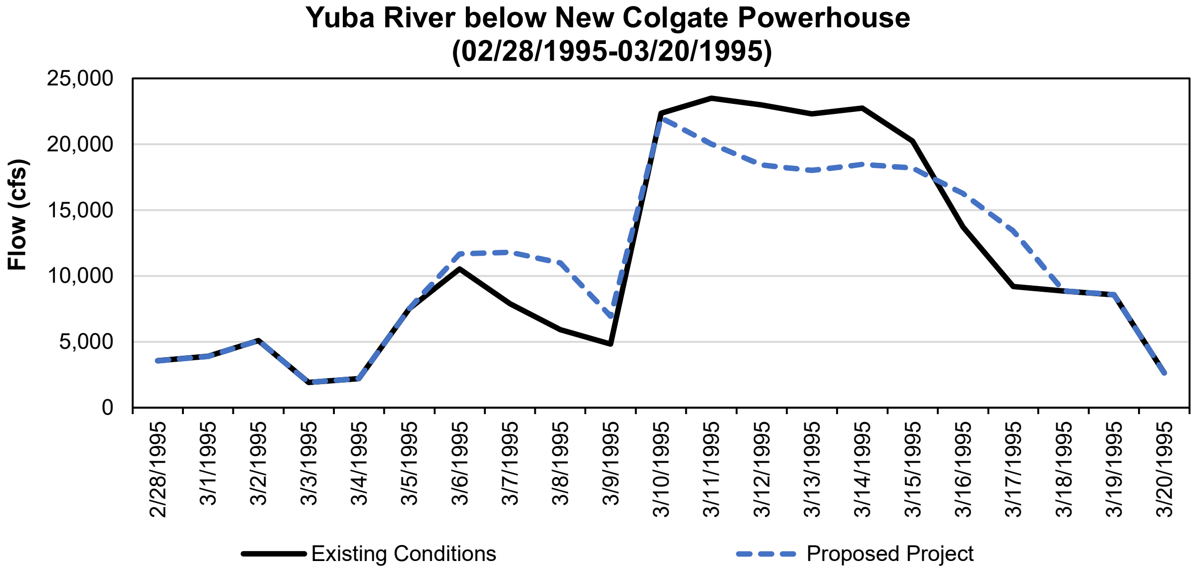
Date	Existing Conditions (cfs)	Proposed Project (cfs)
4/4/1982	4,205	4,205
4/5/1982	6,629	6,629
4/6/1982	9,253	9,253
4/7/1982	10,232	10,232
4/8/1982	13,558	14,677
4/9/1982	9,879	13,710
4/10/1982	7,672	8,716
4/11/1982	13,728	13,251
4/12/1982	23,741	18,876
4/13/1982	15,987	15,172
4/14/1982	14,385	14,276
4/15/1982	13,597	13,584
4/16/1982	4,713	4,736
4/17/1982	4,297	4,297
4/18/1982	2,321	2,321
4/19/1982	2,039	2,300
4/20/1982	5,716	5,716
4/21/1982	5,282	5,282
4/22/1982	5,230	5,230



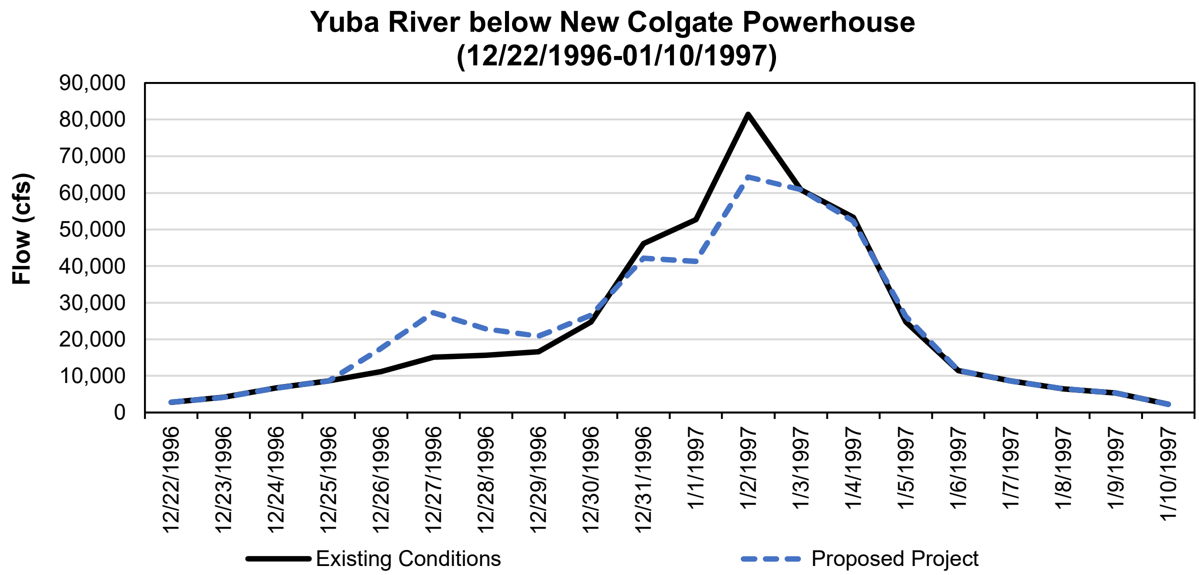
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/16/1983	5,102	5,102
12/17/1983	4,440	4,440
12/18/1983	4,786	4,786
12/19/1983	8,000	8,000
12/20/1983	10,462	10,462
12/21/1983	11,827	11,887
12/22/1983	9,468	12,365
12/23/1983	6,811	11,137
12/24/1983	6,545	2,220
12/25/1983	10,850	7,281
12/26/1983	21,190	19,575
12/27/1983	22,096	21,841
12/28/1983	21,527	21,348
12/29/1983	17,918	19,590
12/30/1983	18,312	19,300



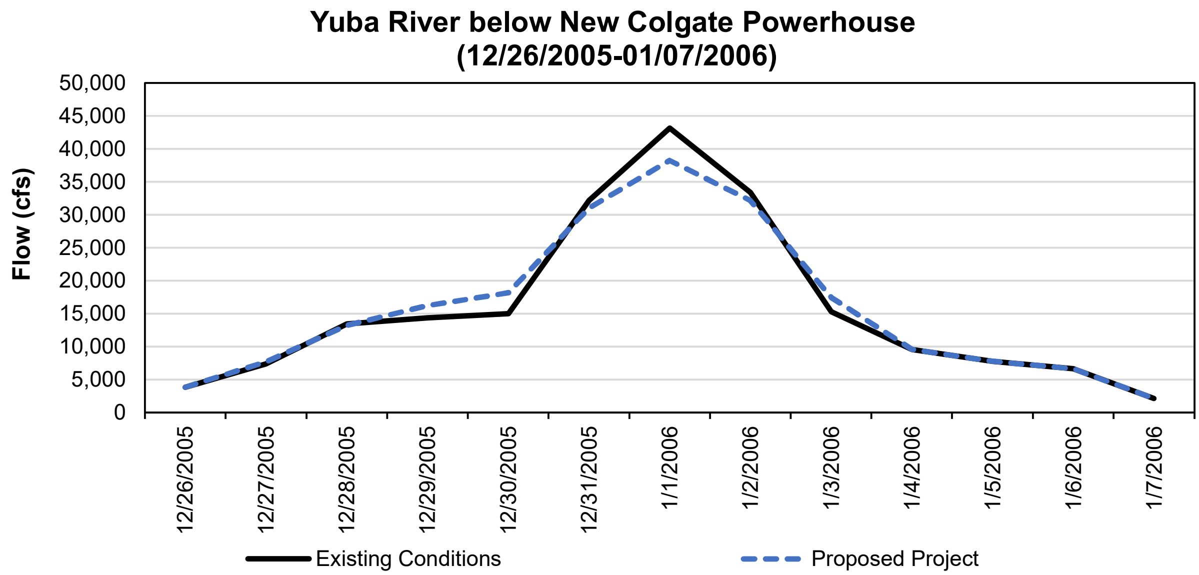
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/9/1986	2,795	2,795
2/10/1986	2,721	7,723
2/11/1986	2,655	10,235
2/12/1986	2,703	8,778
2/13/1986	3,638	9,309
2/14/1986	7,321	12,913
2/15/1986	16,017	18,178
2/16/1986	26,928	23,264
2/17/1986	34,305	27,320
2/18/1986	49,029	34,719
2/19/1986	56,878	56,529
2/20/1986	53,037	52,567
2/21/1986	49,497	43,563
2/22/1986	16,955	16,955
2/23/1986	10,488	10,488



Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/28/1995	3,568	3,568
3/1/1995	3,901	3,901
3/2/1995	5,083	5,083
3/3/1995	1,913	1,913
3/4/1995	2,216	2,216
3/5/1995	7,511	7,511
3/6/1995	10,545	11,684
3/7/1995	7,902	11,808
3/8/1995	5,925	10,990
3/9/1995	4,825	6,944
3/10/1995	22,379	22,009
3/11/1995	23,510	20,020
3/12/1995	22,985	18,437
3/13/1995	22,307	18,027
3/14/1995	22,756	18,482
3/15/1995	20,240	18,204
3/16/1995	13,717	16,263
3/17/1995	9,204	13,429
3/18/1995	8,859	8,859
3/19/1995	8,589	8,589
3/20/1995	2,639	2,639

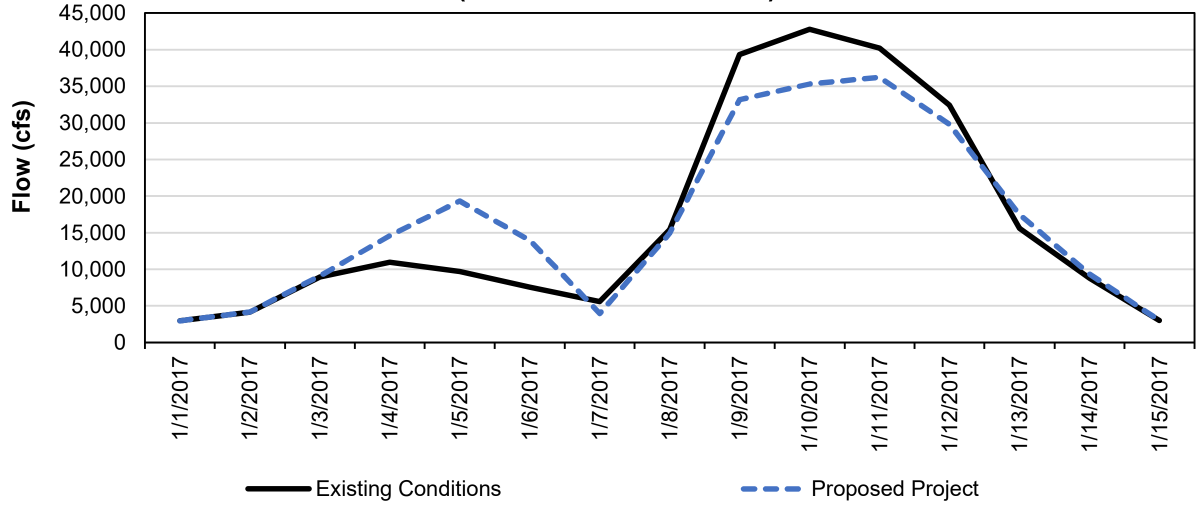


Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/22/1996	2,779	2,779
12/23/1996	4,133	4,133
12/24/1996	6,686	6,686
12/25/1996	8,630	8,630
12/26/1996	11,153	17,530
12/27/1996	15,156	27,322
12/28/1996	15,710	22,859
12/29/1996	16,606	20,865
12/30/1996	24,720	26,604
12/31/1996	46,131	42,191
1/1/1997	52,650	41,259
1/2/1997	81,446	64,341
1/3/1997	60,839	60,839
1/4/1997	53,290	52,241
1/5/1997	24,740	26,295
1/6/1997	11,463	11,552
1/7/1997	8,618	8,623
1/8/1997	6,432	6,433
1/9/1997	5,344	5,344
1/10/1997	2,228	2,228

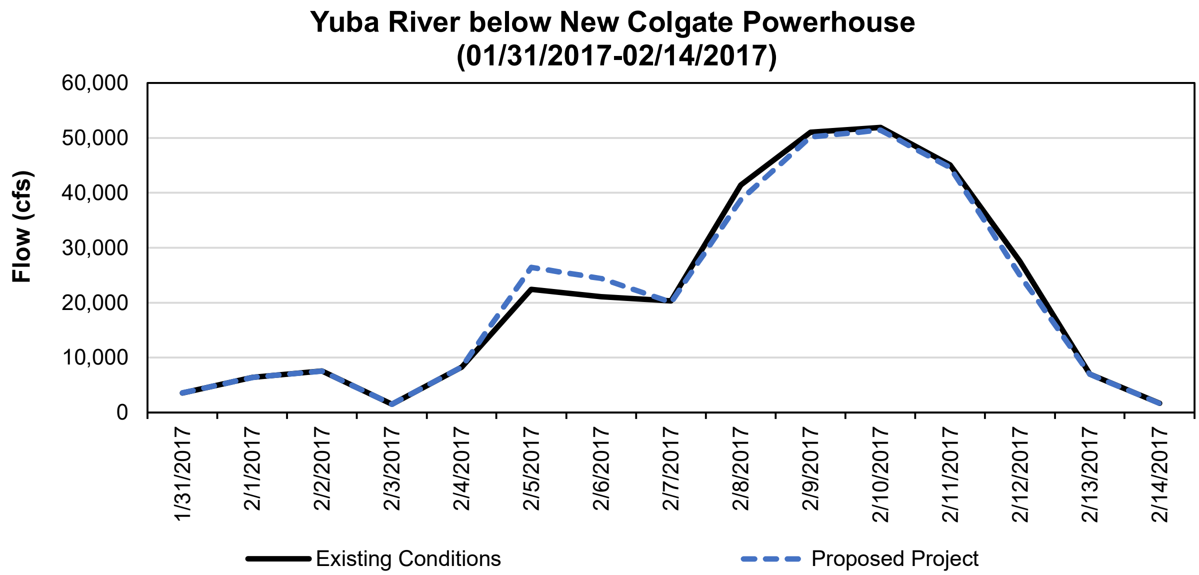


Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/26/2005	3,825	3,825
12/27/2005	7,360	7,678
12/28/2005	13,414	13,221
12/29/2005	14,359	16,206
12/30/2005	14,970	18,171
12/31/2005	32,179	31,020
1/1/2006	43,180	38,256
1/2/2006	33,432	32,178
1/3/2006	15,278	17,437
1/4/2006	9,555	9,575
1/5/2006	7,798	7,799
1/6/2006	6,616	6,616
1/7/2006	2,139	2,139

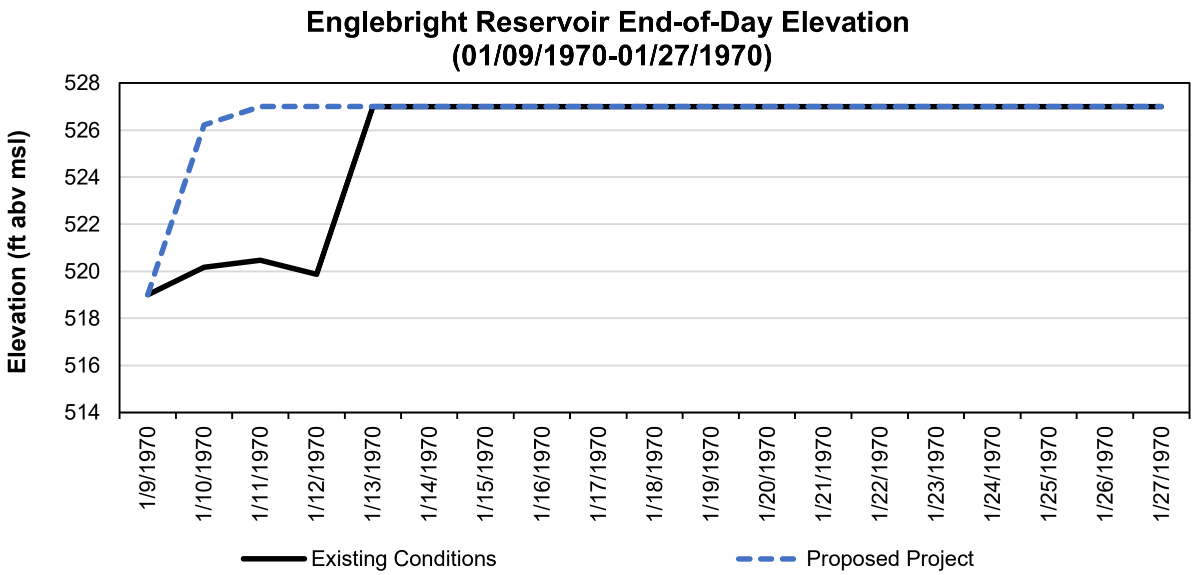
Yuba River below New Colgate Powerhouse (01/01/2017-01/15/2017)



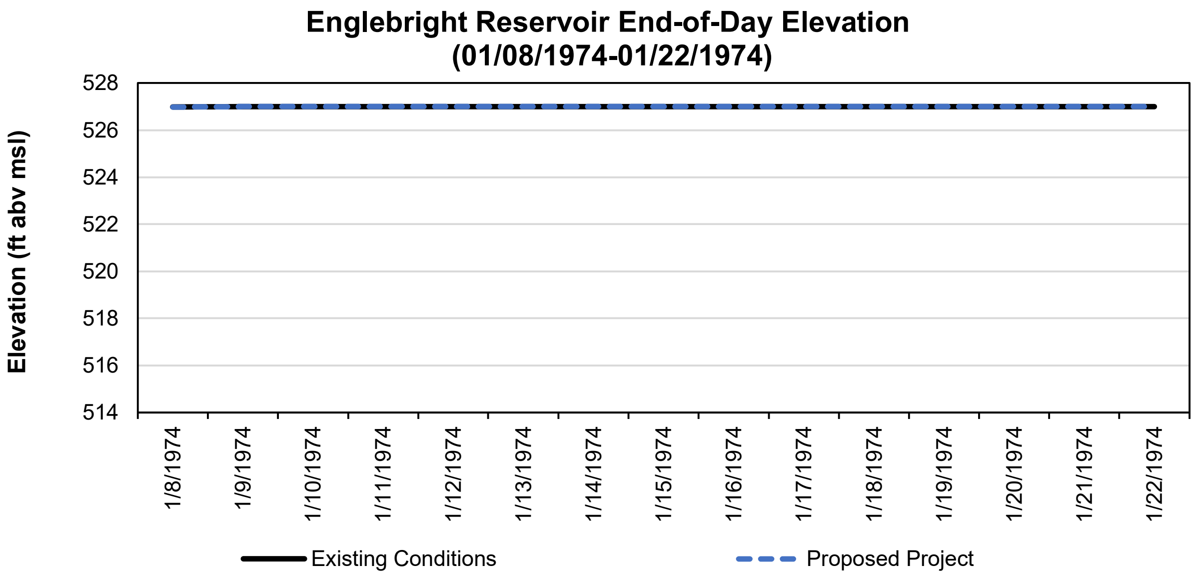
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/1/2017	2,957	2,957
1/2/2017	4,153	4,153
1/3/2017	8,924	9,082
1/4/2017	10,952	14,591
1/5/2017	9,693	19,323
1/6/2017	7,564	13,952
1/7/2017	5,613	3,970
1/8/2017	15,416	14,900
1/9/2017	39,343	33,148
1/10/2017	42,769	35,326
1/11/2017	40,188	36,230
1/12/2017	32,390	29,802
1/13/2017	15,595	17,483
1/14/2017	8,795	9,353
1/15/2017	3,005	3,009



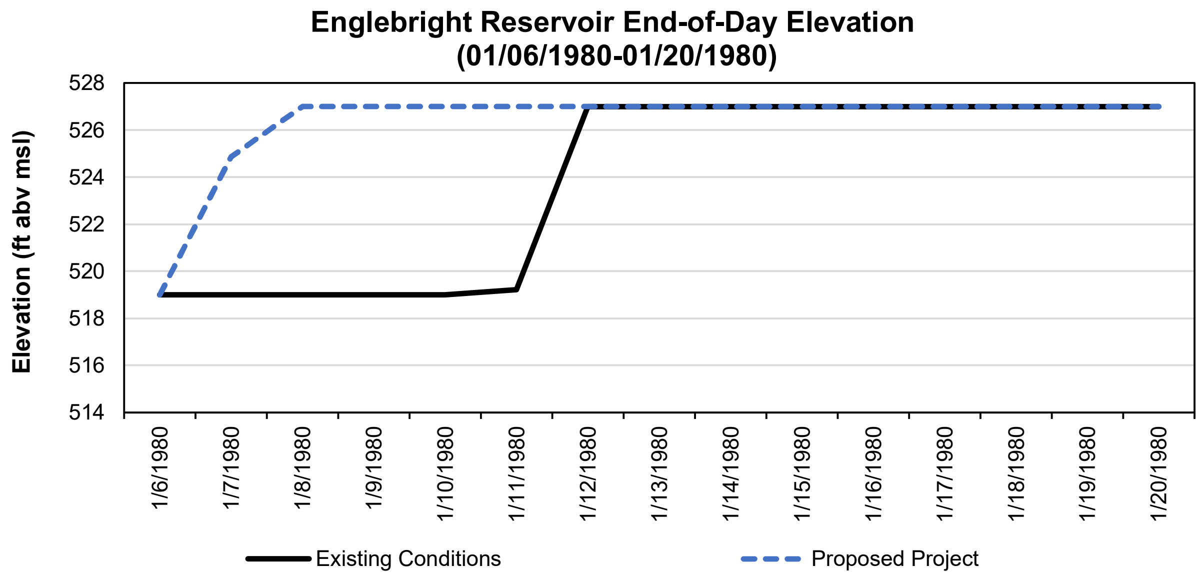
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/31/2017	3,549	3,549
2/1/2017	6,403	6,403
2/2/2017	7,552	7,552
2/3/2017	1,505	1,505
2/4/2017	8,283	8,283
2/5/2017	22,474	26,434
2/6/2017	21,069	24,422
2/7/2017	20,339	20,087
2/8/2017	41,419	38,707
2/9/2017	51,019	50,191
2/10/2017	51,907	51,429
2/11/2017	45,071	44,593
2/12/2017	27,563	25,005
2/13/2017	6,951	6,951
2/14/2017	1,656	1,656



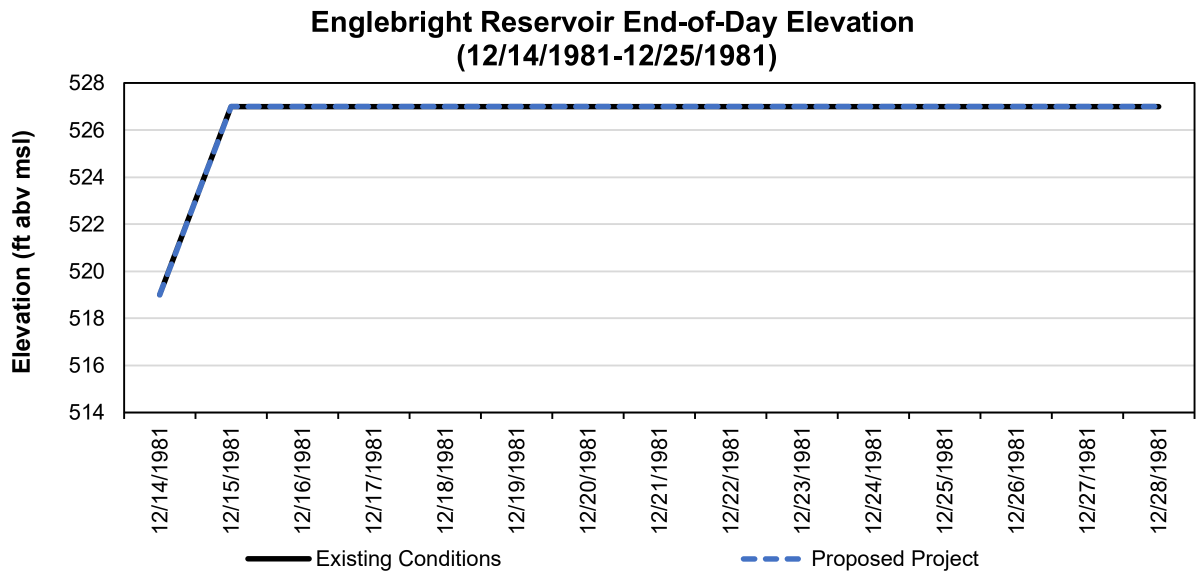
Date	Existing Conditions (ft)	Proposed Project (ft)
1/9/1970	519.0	519.0
1/10/1970	520.2	526.2
1/11/1970	520.5	527.0
1/12/1970	519.9	527.0
1/13/1970	527.0	527.0
1/14/1970	527.0	527.0
1/15/1970	527.0	527.0
1/16/1970	527.0	527.0
1/17/1970	527.0	527.0
1/18/1970	527.0	527.0
1/19/1970	527.0	527.0
1/20/1970	527.0	527.0
1/21/1970	527.0	527.0
1/22/1970	527.0	527.0
1/23/1970	527.0	527.0
1/24/1970	527.0	527.0
1/25/1970	527.0	527.0
1/26/1970	527.0	527.0
1/27/1970	527.0	527.0



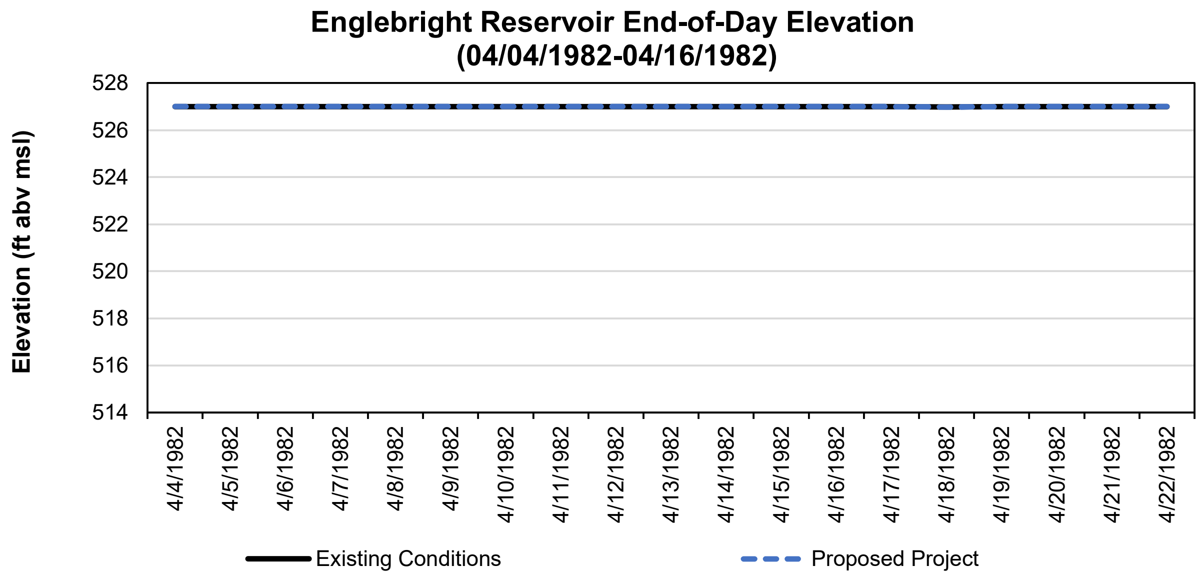
Date	Existing Conditions (ft)	Proposed Project (ft)
1/8/1974	527.0	527.0
1/9/1974	527.0	527.0
1/10/1974	527.0	527.0
1/11/1974	527.0	527.0
1/12/1974	527.0	527.0
1/13/1974	527.0	527.0
1/14/1974	527.0	527.0
1/15/1974	527.0	527.0
1/16/1974	527.0	527.0
1/17/1974	527.0	527.0
1/18/1974	527.0	527.0
1/19/1974	527.0	527.0
1/20/1974	527.0	527.0
1/21/1974	527.0	527.0
1/22/1974	527.0	527.0



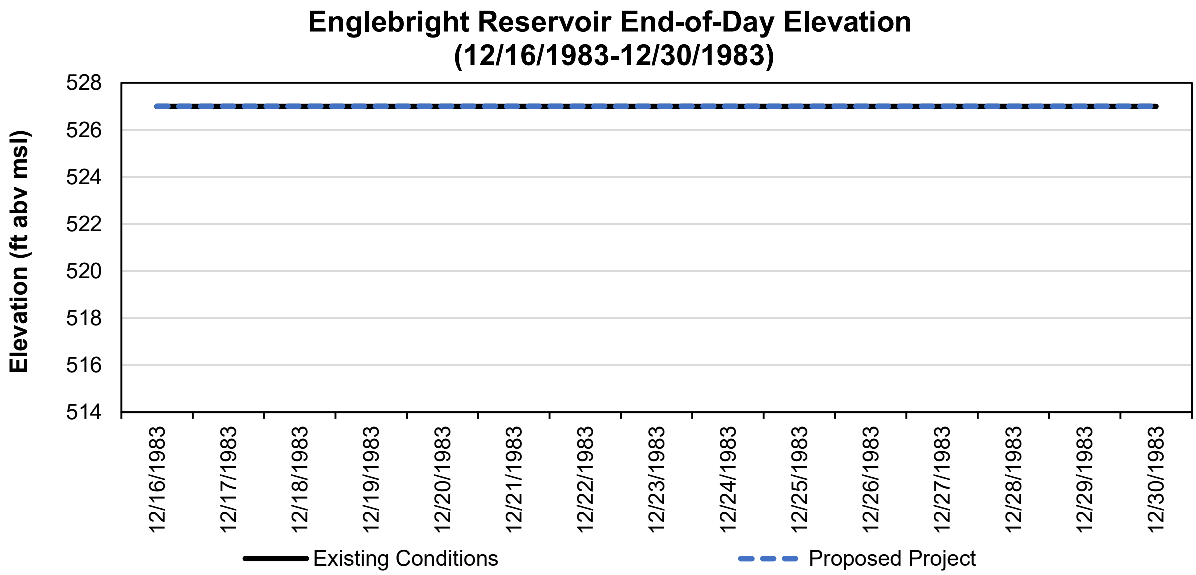
Date	Existing Conditions (ft)	Proposed Project (ft)
1/6/1980	519.0	519.0
1/7/1980	519.0	524.9
1/8/1980	519.0	527.0
1/9/1980	519.0	527.0
1/10/1980	519.0	527.0
1/11/1980	519.2	527.0
1/12/1980	527.0	527.0
1/13/1980	527.0	527.0
1/14/1980	527.0	527.0
1/15/1980	527.0	527.0
1/16/1980	527.0	527.0
1/17/1980	527.0	527.0
1/18/1980	527.0	527.0
1/19/1980	527.0	527.0
1/20/1980	527.0	527.0



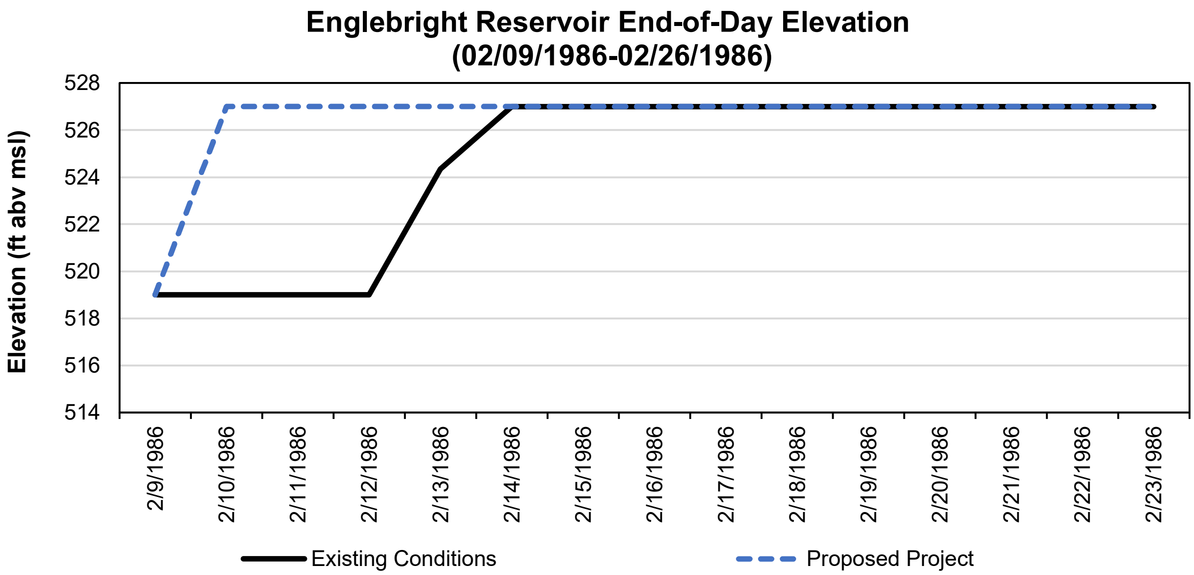
Date	Existing Conditions (ft)	Proposed Project (ft)
12/14/1981	519.0	519.0
12/15/1981	527.0	527.0
12/16/1981	527.0	527.0
12/17/1981	527.0	527.0
12/18/1981	527.0	527.0
12/19/1981	527.0	527.0
12/20/1981	527.0	527.0
12/21/1981	527.0	527.0
12/22/1981	527.0	527.0
12/23/1981	527.0	527.0
12/24/1981	527.0	527.0
12/25/1981	527.0	527.0
12/26/1981	527.0	527.0
12/27/1981	527.0	527.0
12/28/1981	527.0	527.0



Date	Existing Conditions (ft)	Proposed Project (ft)
4/4/1982	527.0	527.0
4/5/1982	527.0	527.0
4/6/1982	527.0	527.0
4/7/1982	527.0	527.0
4/8/1982	527.0	527.0
4/9/1982	527.0	527.0
4/10/1982	527.0	527.0
4/11/1982	527.0	527.0
4/12/1982	527.0	527.0
4/13/1982	527.0	527.0
4/14/1982	527.0	527.0
4/15/1982	527.0	527.0
4/16/1982	527.0	527.0
4/17/1982	527.0	527.0
4/18/1982	527.0	527.0
4/19/1982	527.0	527.0
4/20/1982	527.0	527.0
4/21/1982	527.0	527.0
4/22/1982	527.0	527.0

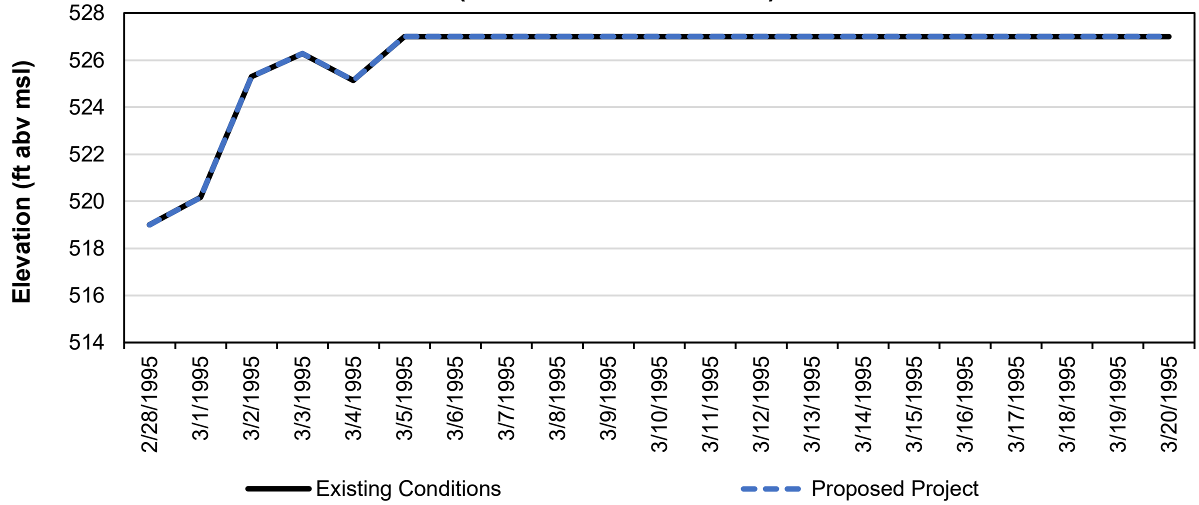


Date	Existing Conditions (ft)	Proposed Project (ft)
12/16/1983	527.0	527.0
12/17/1983	527.0	527.0
12/18/1983	527.0	527.0
12/19/1983	527.0	527.0
12/20/1983	527.0	527.0
12/21/1983	527.0	527.0
12/22/1983	527.0	527.0
12/23/1983	527.0	527.0
12/24/1983	527.0	527.0
12/25/1983	527.0	527.0
12/26/1983	527.0	527.0
12/27/1983	527.0	527.0
12/28/1983	527.0	527.0
12/29/1983	527.0	527.0
12/30/1983	527.0	527.0

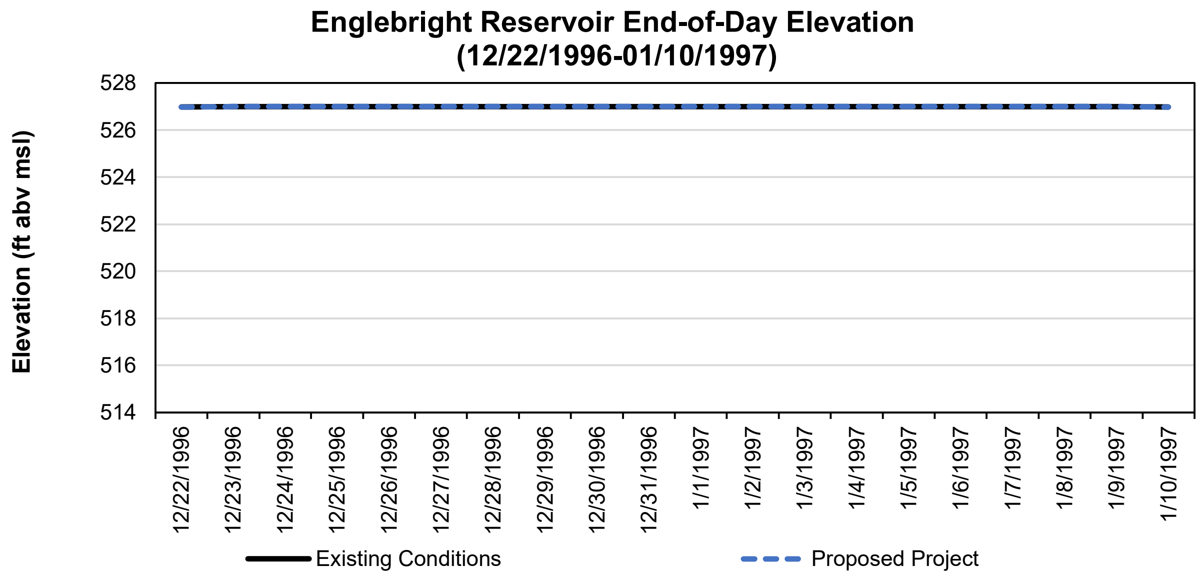


Date	Existing Conditions (ft)	Proposed Project (ft)
2/9/1986	519.0	519.0
2/10/1986	519.0	527.0
2/11/1986	519.0	527.0
2/12/1986	519.0	527.0
2/13/1986	524.3	527.0
2/14/1986	527.0	527.0
2/15/1986	527.0	527.0
2/16/1986	527.0	527.0
2/17/1986	527.0	527.0
2/18/1986	527.0	527.0
2/19/1986	527.0	527.0
2/20/1986	527.0	527.0
2/21/1986	527.0	527.0
2/22/1986	527.0	527.0
2/23/1986	527.0	527.0

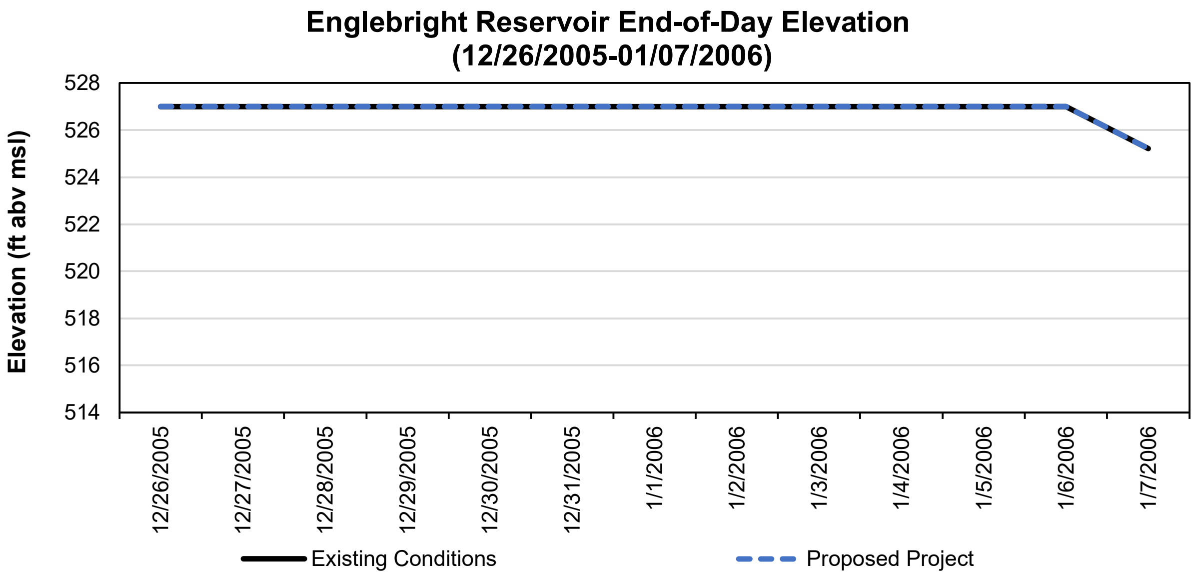
Englebright Reservoir End-of-Day Elevation (02/28/1995-03/20/1995)



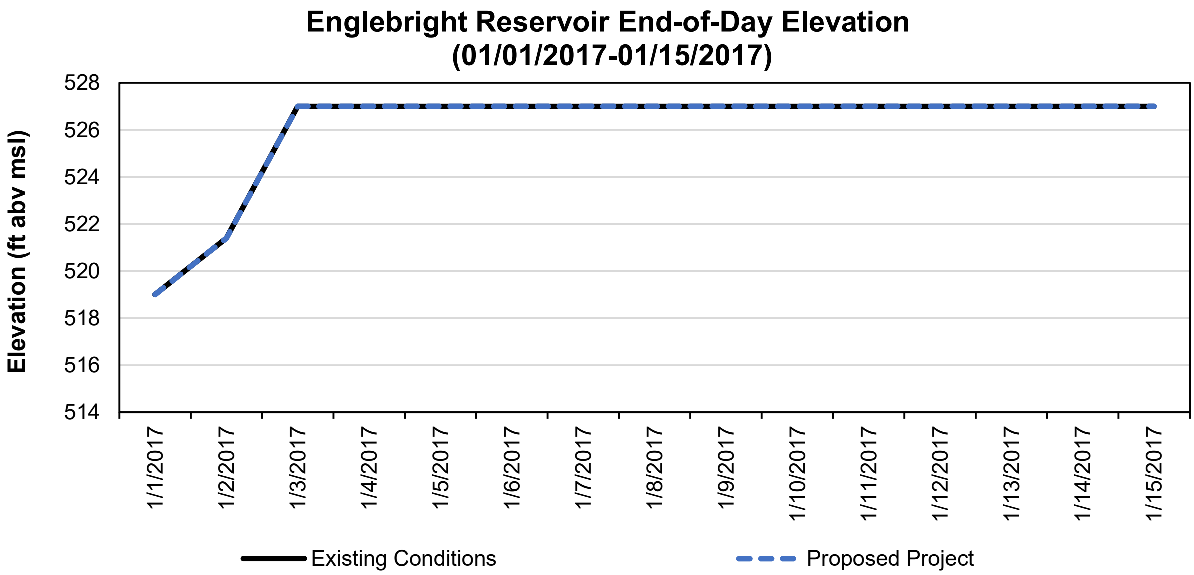
Date	Existing Conditions (ft)	Proposed Project (ft)
2/28/1995	519.0	519.0
3/1/1995	520.2	520.2
3/2/1995	525.3	525.3
3/3/1995	526.3	526.3
3/4/1995	525.1	525.1
3/5/1995	527.0	527.0
3/6/1995	527.0	527.0
3/7/1995	527.0	527.0
3/8/1995	527.0	527.0
3/9/1995	527.0	527.0
3/10/1995	527.0	527.0
3/11/1995	527.0	527.0
3/12/1995	527.0	527.0
3/13/1995	527.0	527.0
3/14/1995	527.0	527.0
3/15/1995	527.0	527.0
3/16/1995	527.0	527.0
3/17/1995	527.0	527.0
3/18/1995	527.0	527.0
3/19/1995	527.0	527.0
3/20/1995	527.0	527.0



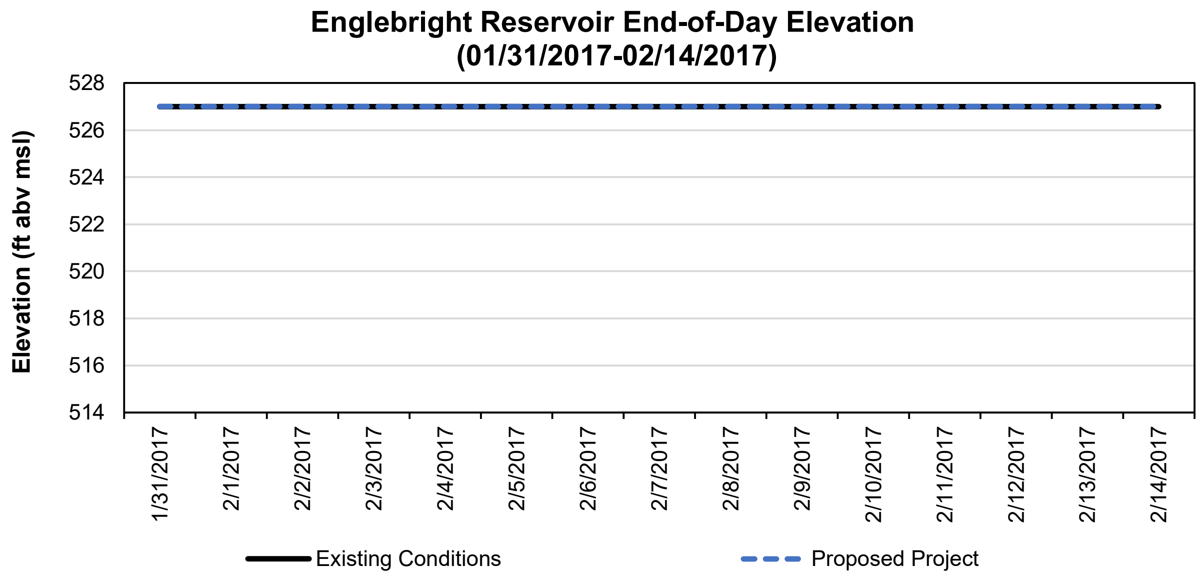
Date	Existing Conditions (ft)	Proposed Project (ft)
12/22/1996	527.0	527.0
12/23/1996	527.0	527.0
12/24/1996	527.0	527.0
12/25/1996	527.0	527.0
12/26/1996	527.0	527.0
12/27/1996	527.0	527.0
12/28/1996	527.0	527.0
12/29/1996	527.0	527.0
12/30/1996	527.0	527.0
12/31/1996	527.0	527.0
1/1/1997	527.0	527.0
1/2/1997	527.0	527.0
1/3/1997	527.0	527.0
1/4/1997	527.0	527.0
1/5/1997	527.0	527.0
1/6/1997	527.0	527.0
1/7/1997	527.0	527.0
1/8/1997	527.0	527.0
1/9/1997	527.0	527.0
1/10/1997	527.0	527.0



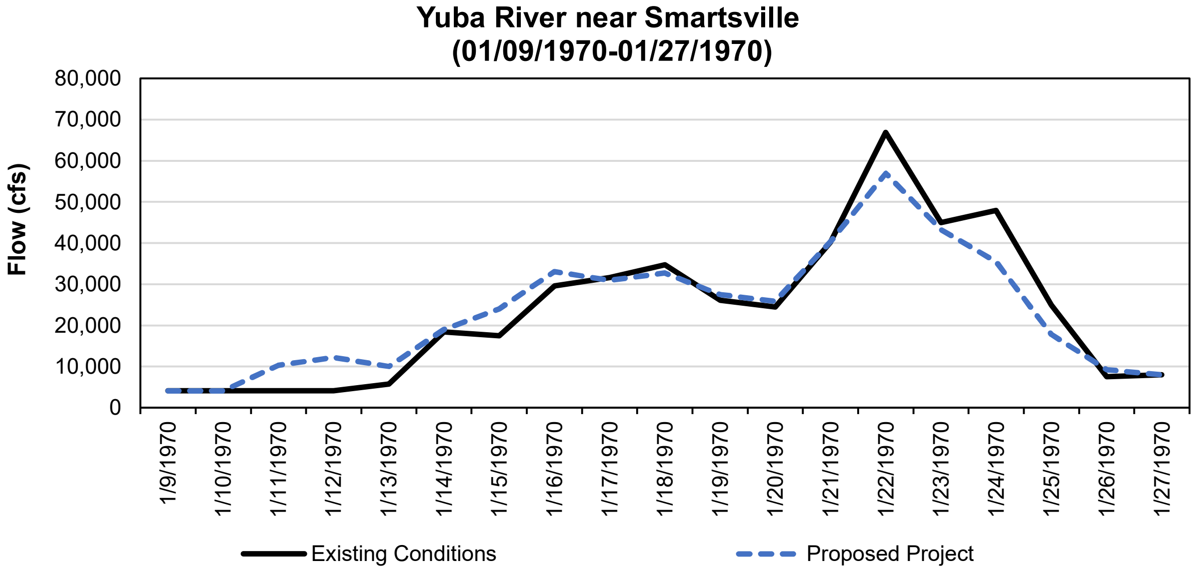
Date	Existing Conditions (ft)	Proposed Project (ft)
12/26/2005	527.0	527.0
12/27/2005	527.0	527.0
12/28/2005	527.0	527.0
12/29/2005	527.0	527.0
12/30/2005	527.0	527.0
12/31/2005	527.0	527.0
1/1/2006	527.0	527.0
1/2/2006	527.0	527.0
1/3/2006	527.0	527.0
1/4/2006	527.0	527.0
1/5/2006	527.0	527.0
1/6/2006	527.0	527.0
1/7/2006	525.2	525.2



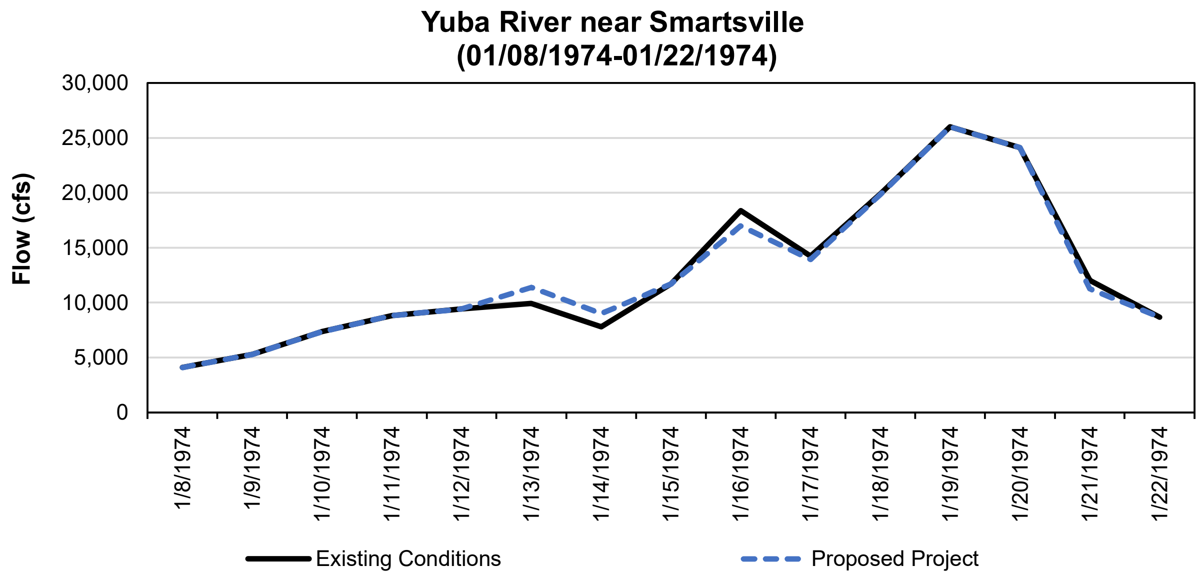
Date	Existing Conditions (ft)	Proposed Project (ft)
1/1/2017	519.0	519.0
1/2/2017	521.4	521.4
1/3/2017	527.0	527.0
1/4/2017	527.0	527.0
1/5/2017	527.0	527.0
1/6/2017	527.0	527.0
1/7/2017	527.0	527.0
1/8/2017	527.0	527.0
1/9/2017	527.0	527.0
1/10/2017	527.0	527.0
1/11/2017	527.0	527.0
1/12/2017	527.0	527.0
1/13/2017	527.0	527.0
1/14/2017	527.0	527.0
1/15/2017	527.0	527.0



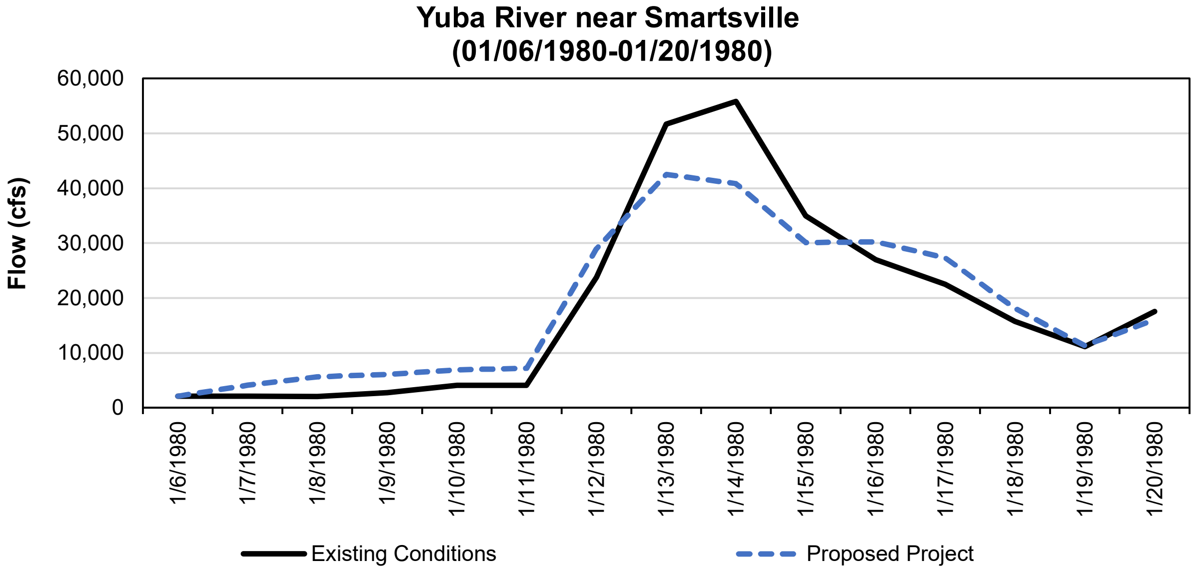
Date	Existing Conditions (ft)	Proposed Project (ft)
1/31/2017	527.0	527.0
2/1/2017	527.0	527.0
2/2/2017	527.0	527.0
2/3/2017	527.0	527.0
2/4/2017	527.0	527.0
2/5/2017	527.0	527.0
2/6/2017	527.0	527.0
2/7/2017	527.0	527.0
2/8/2017	527.0	527.0
2/9/2017	527.0	527.0
2/10/2017	527.0	527.0
2/11/2017	527.0	527.0
2/12/2017	527.0	527.0
2/13/2017	527.0	527.0
2/14/2017	527.0	527.0



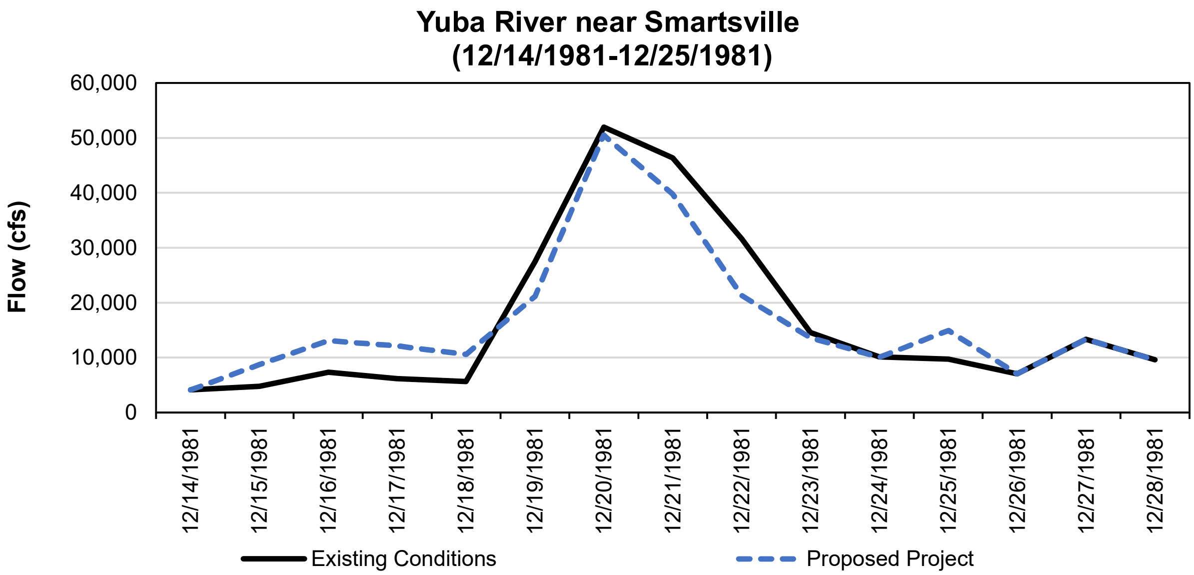
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/9/1970	4,100	4,100
1/10/1970	4,100	4,100
1/11/1970	4,100	10,286
1/12/1970	4,100	12,217
1/13/1970	5,770	10,018
1/14/1970	18,426	19,002
1/15/1970	17,453	24,006
1/16/1970	29,570	33,051
1/17/1970	31,577	30,972
1/18/1970	34,736	32,698
1/19/1970	26,128	27,468
1/20/1970	24,457	25,836
1/21/1970	40,117	40,373
1/22/1970	66,915	56,956
1/23/1970	44,914	43,239
1/24/1970	47,919	35,448
1/25/1970	24,928	17,822
1/26/1970	7,504	9,228
1/27/1970	7,981	7,981



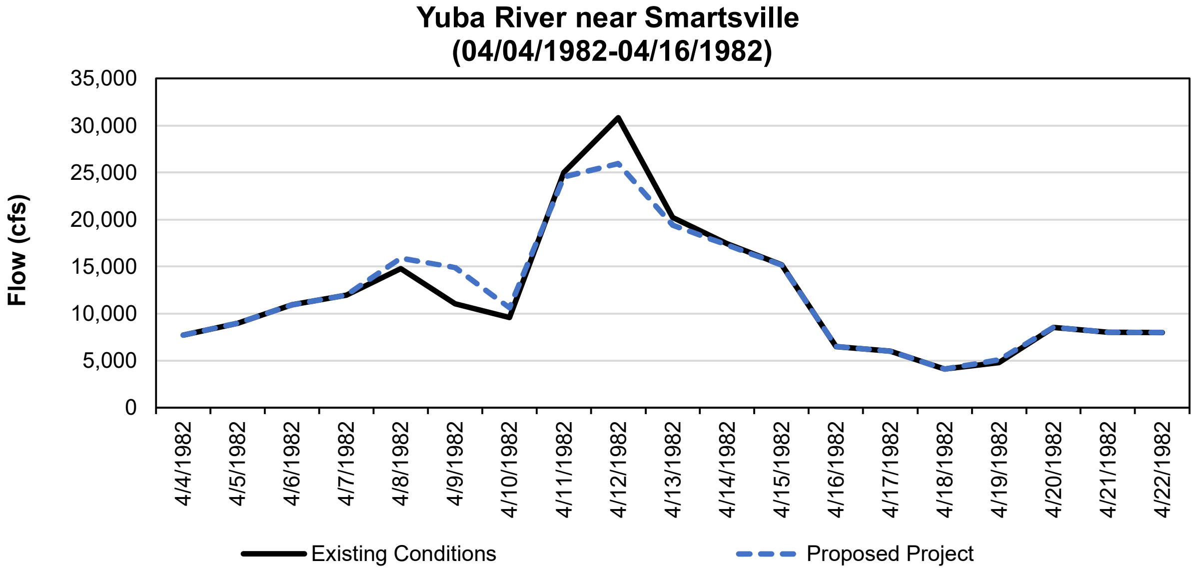
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/8/1974	4,100	4,100
1/9/1974	5,303	5,303
1/10/1974	7,363	7,363
1/11/1974	8,809	8,809
1/12/1974	9,418	9,418
1/13/1974	9,946	11,386
1/14/1974	7,823	9,010
1/15/1974	11,711	11,711
1/16/1974	18,395	16,978
1/17/1974	14,265	13,935
1/18/1974	19,920	19,840
1/19/1974	26,030	26,011
1/20/1974	24,119	24,110
1/21/1974	12,022	11,248
1/22/1974	8,680	8,680



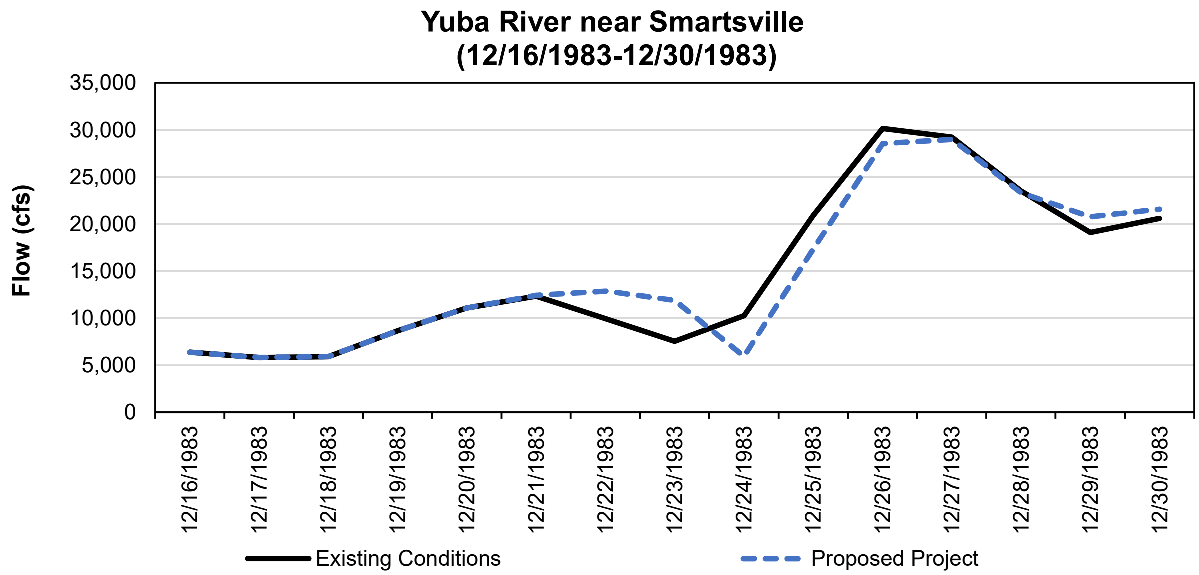
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/6/1980	2,085	2,085
1/7/1980	2,069	4,100
1/8/1980	2,043	5,634
1/9/1980	2,708	6,077
1/10/1980	4,100	6,885
1/11/1980	4,100	7,186
1/12/1980	23,771	28,968
1/13/1980	51,665	42,511
1/14/1980	55,849	40,851
1/15/1980	34,980	30,067
1/16/1980	26,973	30,219
1/17/1980	22,473	27,306
1/18/1980	15,715	18,079
1/19/1980	11,148	11,294
1/20/1980	17,580	15,997



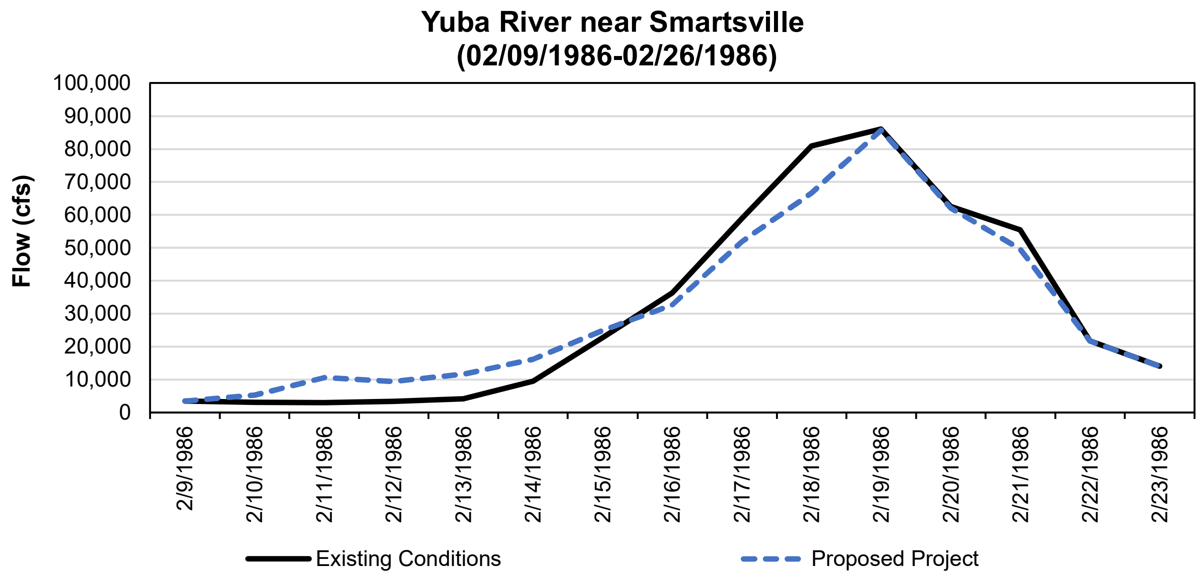
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/14/1981	4,100	4,100
12/15/1981	4,763	8,751
12/16/1981	7,344	13,106
12/17/1981	6,183	12,152
12/18/1981	5,656	10,583
12/19/1981	27,517	21,122
12/20/1981	52,008	50,527
12/21/1981	46,379	39,764
12/22/1981	31,624	21,280
12/23/1981	14,560	13,589
12/24/1981	10,091	10,031
12/25/1981	9,740	14,960
12/26/1981	7,039	7,039
12/27/1981	13,350	13,350
12/28/1981	9,562	9,562



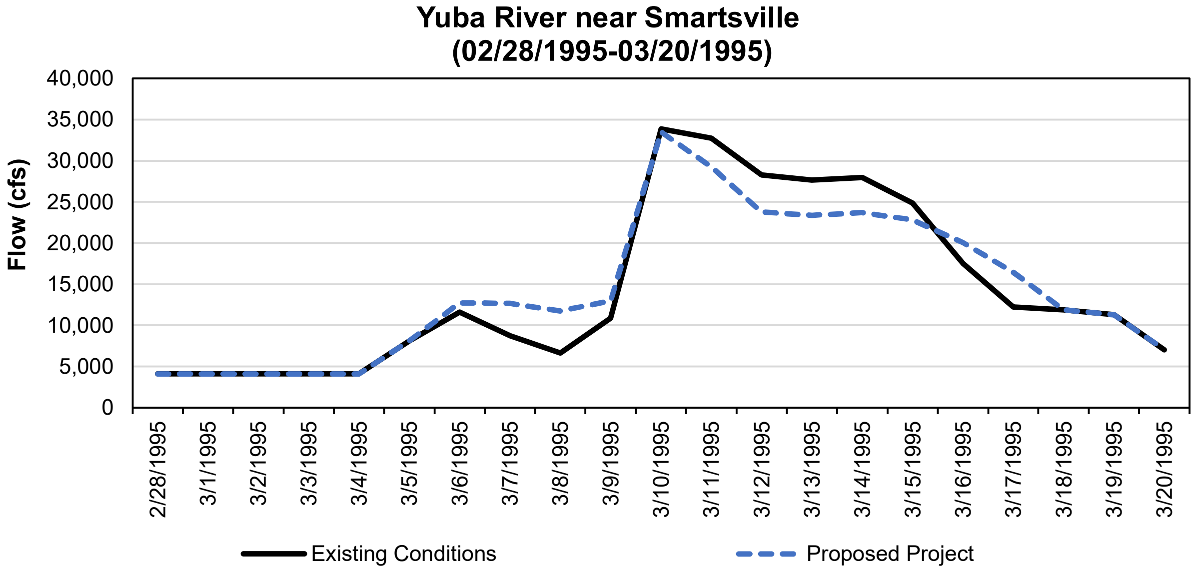
Date	Existing Conditions (cfs)	Proposed Project (cfs)
4/4/1982	7,713	7,713
4/5/1982	8,975	8,975
4/6/1982	10,919	10,919
4/7/1982	11,969	11,969
4/8/1982	14,789	15,908
4/9/1982	11,048	14,879
4/10/1982	9,565	10,610
4/11/1982	25,012	24,536
4/12/1982	30,817	25,951
4/13/1982	20,205	19,391
4/14/1982	17,421	17,312
4/15/1982	15,189	15,176
4/16/1982	6,475	6,498
4/17/1982	6,009	6,009
4/18/1982	4,100	4,100
4/19/1982	4,807	5,067
4/20/1982	8,537	8,537
4/21/1982	8,032	8,032
4/22/1982	7,978	7,978



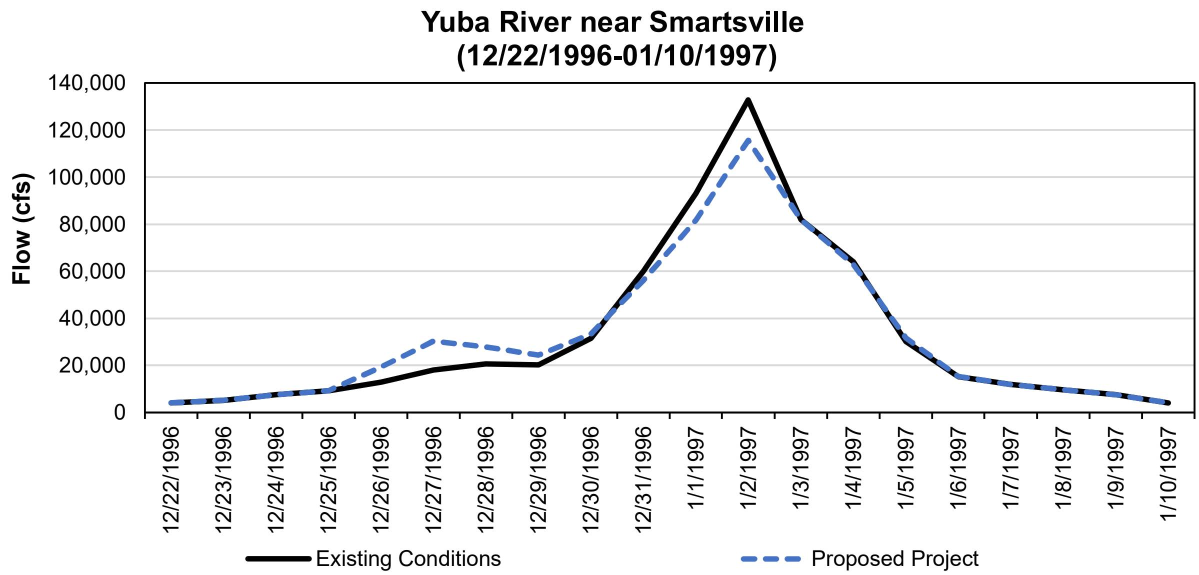
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/16/1983	6,379	6,379
12/17/1983	5,824	5,824
12/18/1983	5,922	5,922
12/19/1983	8,666	8,666
12/20/1983	11,082	11,082
12/21/1983	12,351	12,411
12/22/1983	9,971	12,868
12/23/1983	7,563	11,889
12/24/1983	10,277	5,952
12/25/1983	20,893	17,324
12/26/1983	30,152	28,537
12/27/1983	29,255	29,000
12/28/1983	23,510	23,331
12/29/1983	19,089	20,761
12/30/1983	20,570	21,558



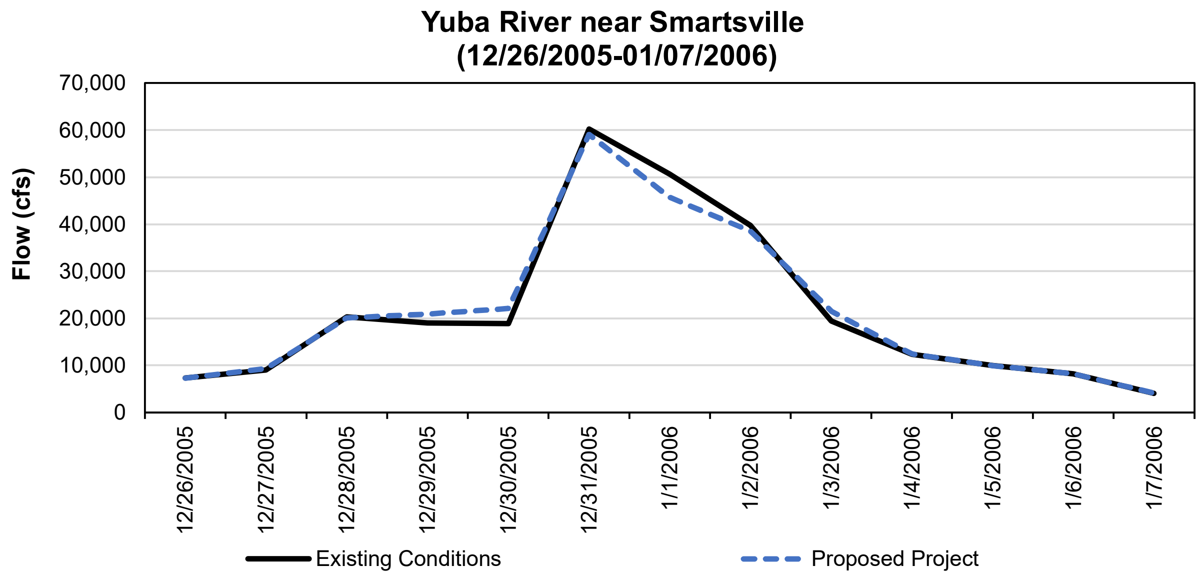
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/9/1986	3,473	3,473
2/10/1986	3,111	5,255
2/11/1986	3,013	10,593
2/12/1986	3,355	9,430
2/13/1986	4,100	11,643
2/14/1986	9,544	16,122
2/15/1986	22,717	24,878
2/16/1986	36,309	32,645
2/17/1986	58,892	51,907
2/18/1986	80,956	66,645
2/19/1986	86,041	85,691
2/20/1986	62,575	62,105
2/21/1986	55,465	49,531
2/22/1986	21,695	21,695
2/23/1986	14,030	14,030



Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/28/1995	4,100	4,100
3/1/1995	4,100	4,100
3/2/1995	4,100	4,100
3/3/1995	4,100	4,100
3/4/1995	4,100	4,100
3/5/1995	8,097	8,097
3/6/1995	11,609	12,749
3/7/1995	8,746	12,652
3/8/1995	6,671	11,735
3/9/1995	10,851	12,969
3/10/1995	33,874	33,503
3/11/1995	32,746	29,256
3/12/1995	28,301	23,752
3/13/1995	27,657	23,377
3/14/1995	27,989	23,715
3/15/1995	24,862	22,826
3/16/1995	17,505	20,051
3/17/1995	12,243	16,468
3/18/1995	11,902	11,902
3/19/1995	11,291	11,291
3/20/1995	7,034	7,034

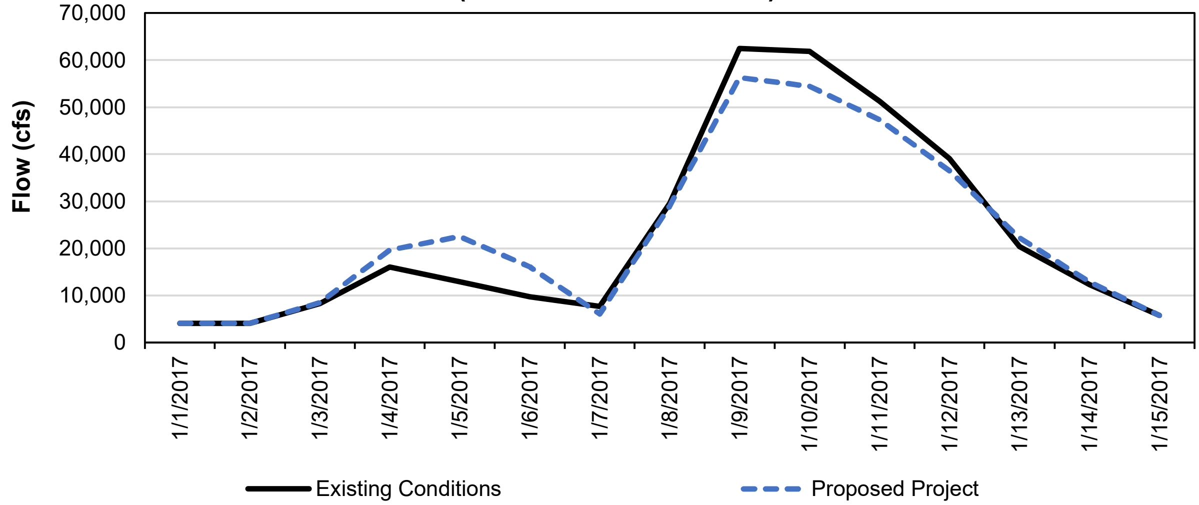


Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/22/1996	4,100	4,100
12/23/1996	5,231	5,231
12/24/1996	7,596	7,596
12/25/1996	9,285	9,285
12/26/1996	12,920	19,297
12/27/1996	18,121	30,286
12/28/1996	20,695	27,844
12/29/1996	20,119	24,378
12/30/1996	31,577	33,461
12/31/1996	60,072	56,132
1/1/1997	93,109	81,718
1/2/1997	132,789	115,684
1/3/1997	81,966	81,966
1/4/1997	63,990	62,941
1/5/1997	30,150	31,704
1/6/1997	15,232	15,320
1/7/1997	11,865	11,870
1/8/1997	9,600	9,601
1/9/1997	7,523	7,523
1/10/1997	4,100	4,100

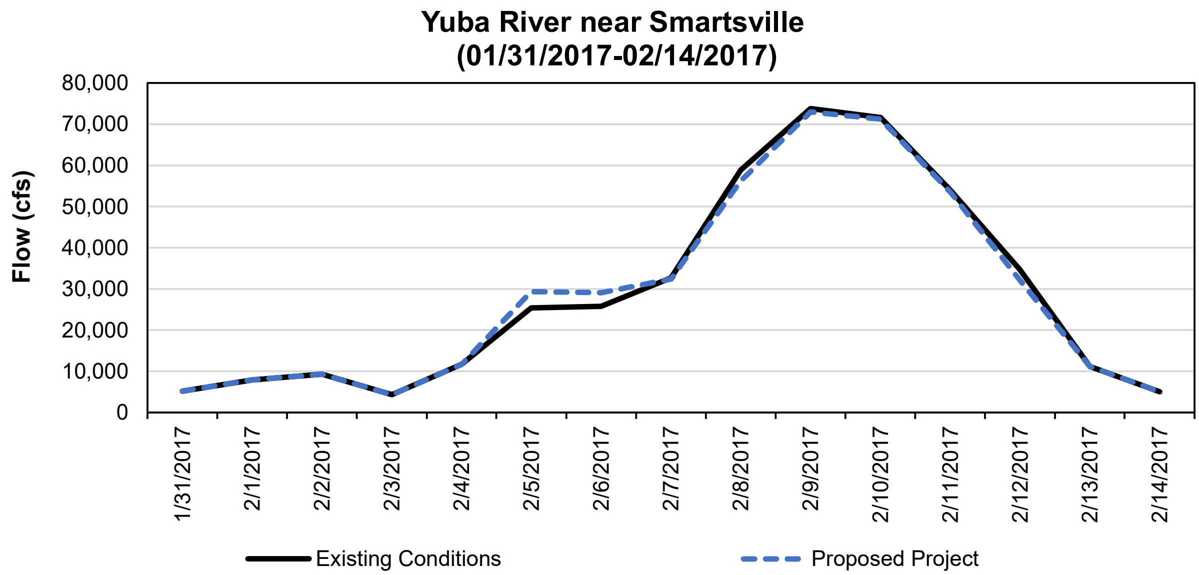


Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/26/2005	7,285	7,285
12/27/2005	9,029	9,347
12/28/2005	20,316	20,123
12/29/2005	19,075	20,921
12/30/2005	18,867	22,068
12/31/2005	60,240	59,082
1/1/2006	50,652	45,728
1/2/2006	39,809	38,555
1/3/2006	19,400	21,559
1/4/2006	12,388	12,408
1/5/2006	9,932	9,933
1/6/2006	8,245	8,246
1/7/2006	4,100	4,100

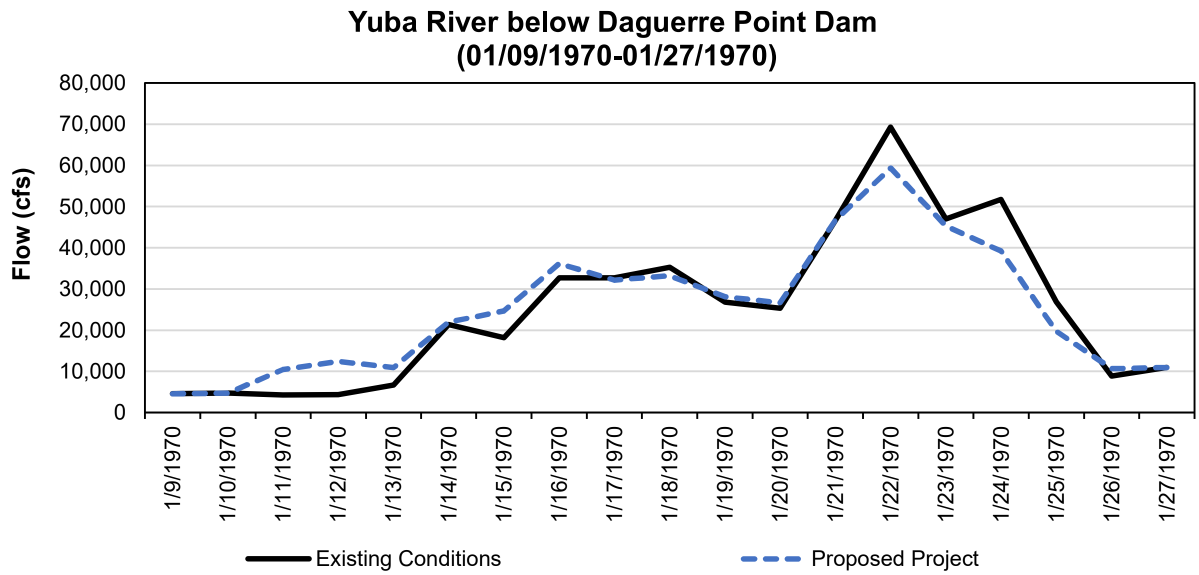
Yuba River near Smartsville (01/01/2017-01/15/2017)



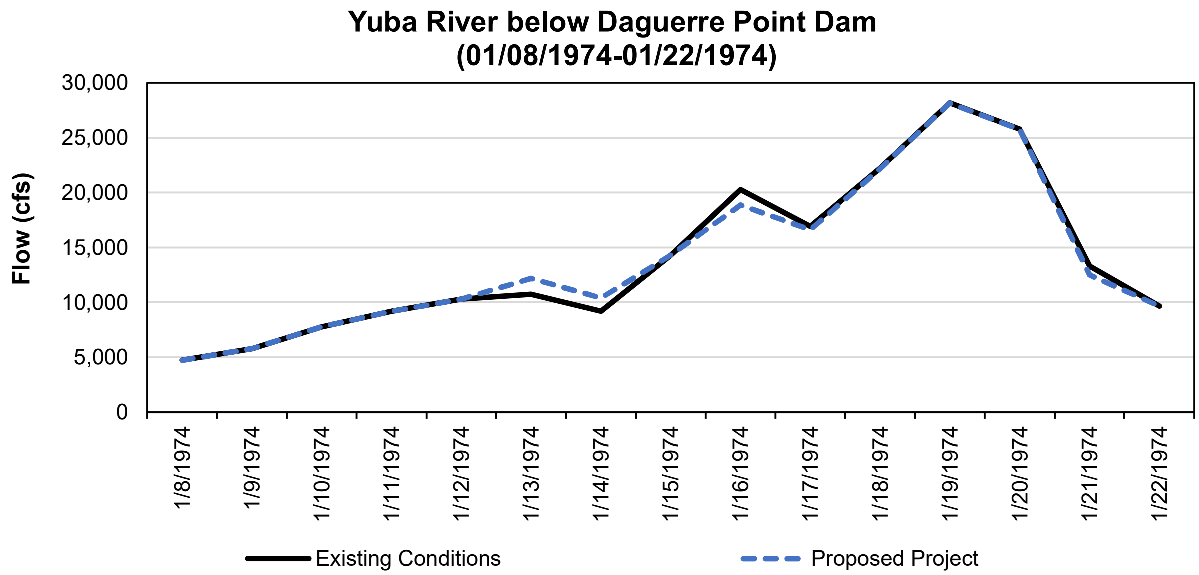
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/1/2017	4,100	4,100
1/2/2017	4,100	4,100
1/3/2017	8,303	8,460
1/4/2017	16,016	19,654
1/5/2017	12,896	22,526
1/6/2017	9,673	16,062
1/7/2017	7,685	6,043
1/8/2017	29,539	29,024
1/9/2017	62,488	56,294
1/10/2017	61,892	54,449
1/11/2017	51,272	47,314
1/12/2017	39,085	36,497
1/13/2017	20,404	22,291
1/14/2017	12,282	12,840
1/15/2017	5,741	5,745



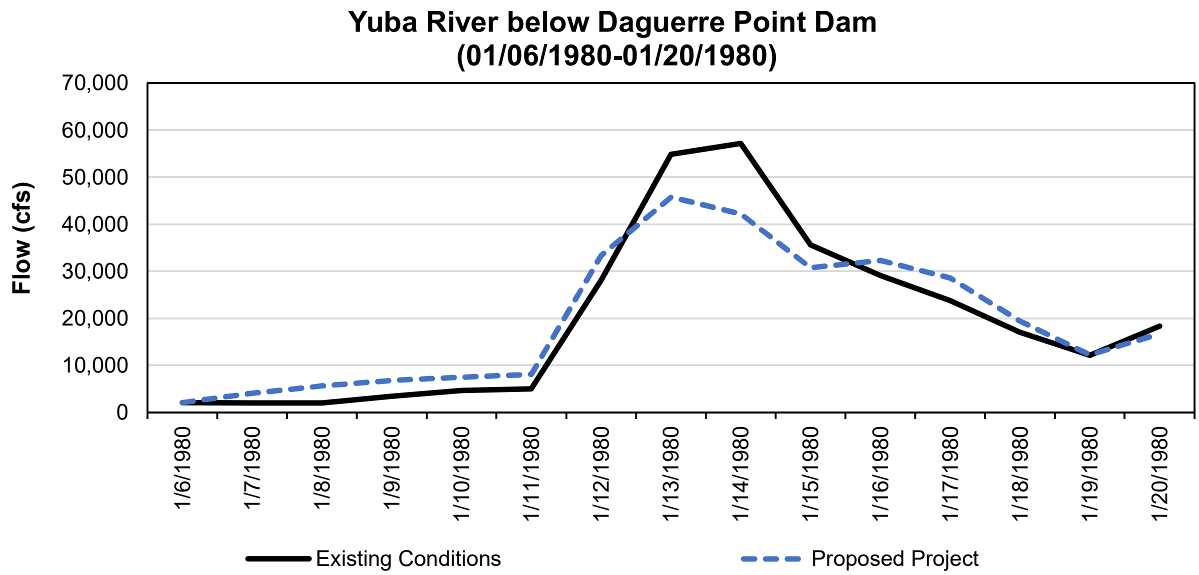
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/31/2017	5,178	5,178
2/1/2017	7,956	7,956
2/2/2017	9,282	9,282
2/3/2017	4,317	4,317
2/4/2017	11,680	11,680
2/5/2017	25,407	29,367
2/6/2017	25,763	29,116
2/7/2017	32,670	32,417
2/8/2017	58,927	56,215
2/9/2017	73,830	73,002
2/10/2017	71,676	71,198
2/11/2017	54,074	53,596
2/12/2017	34,707	32,148
2/13/2017	11,206	11,207
2/14/2017	5,053	5,053



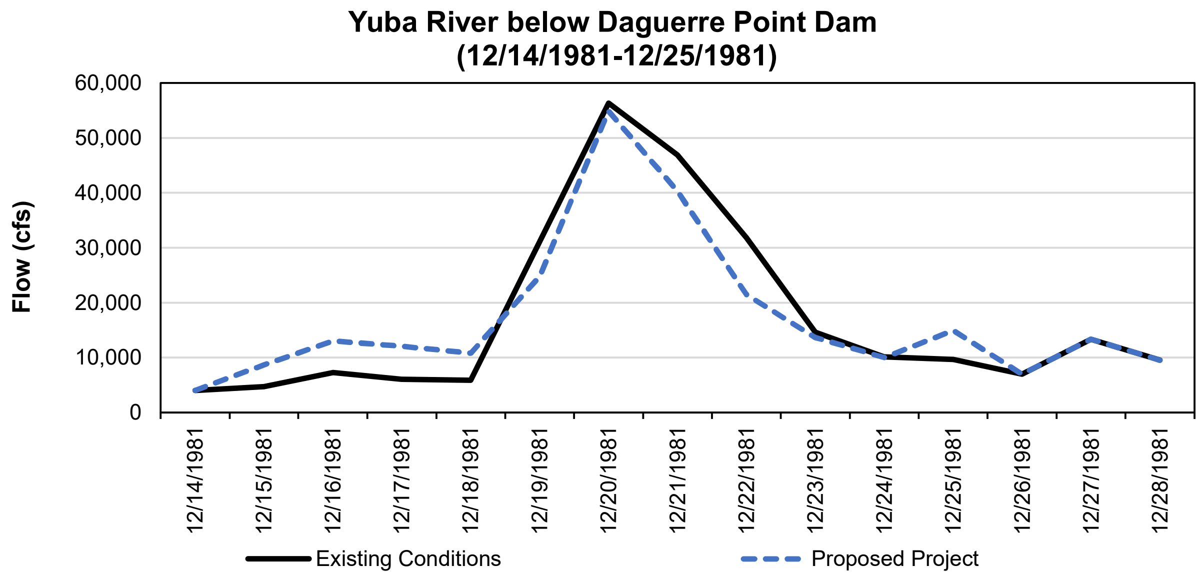
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/9/1970	4,540	4,540
1/10/1970	4,716	4,716
1/11/1970	4,276	10,462
1/12/1970	4,325	12,442
1/13/1970	6,704	10,951
1/14/1970	21,414	21,989
1/15/1970	18,122	24,675
1/16/1970	32,722	36,204
1/17/1970	32,724	32,119
1/18/1970	35,245	33,207
1/19/1970	26,770	28,110
1/20/1970	25,278	26,657
1/21/1970	46,471	46,727
1/22/1970	69,298	59,339
1/23/1970	46,991	45,316
1/24/1970	51,702	39,231
1/25/1970	26,819	19,714
1/26/1970	8,901	10,625
1/27/1970	10,897	10,897



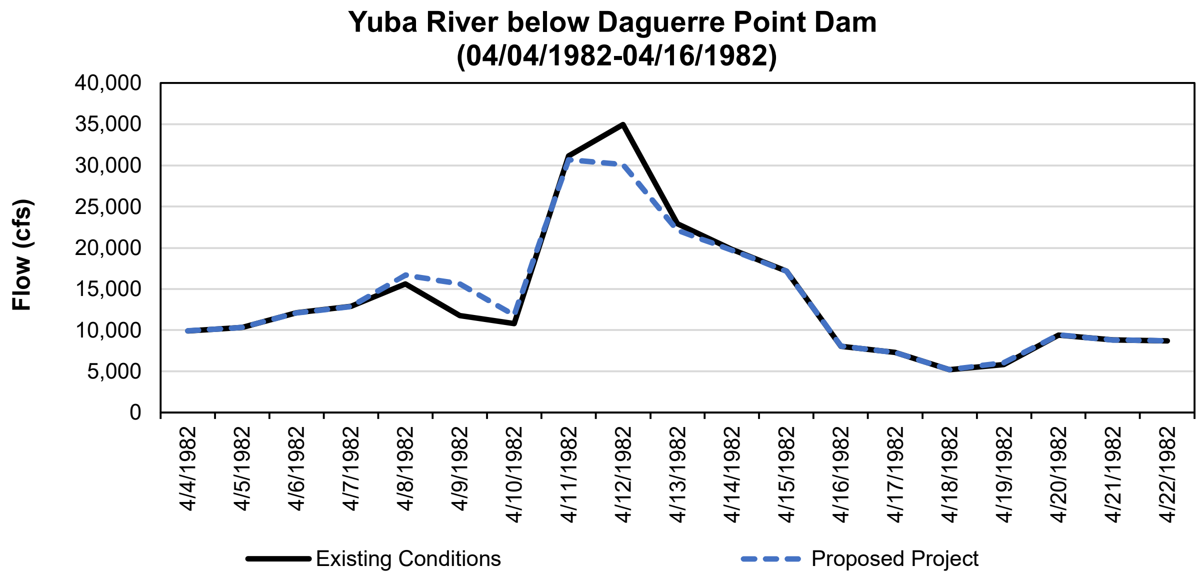
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/8/1974	4,735	4,735
1/9/1974	5,801	5,801
1/10/1974	7,796	7,796
1/11/1974	9,198	9,198
1/12/1974	10,294	10,294
1/13/1974	10,753	12,193
1/14/1974	9,213	10,400
1/15/1974	14,309	14,309
1/16/1974	20,285	18,869
1/17/1974	16,945	16,614
1/18/1974	22,271	22,192
1/19/1974	28,176	28,157
1/20/1974	25,786	25,777
1/21/1974	13,292	12,519
1/22/1974	9,672	9,672



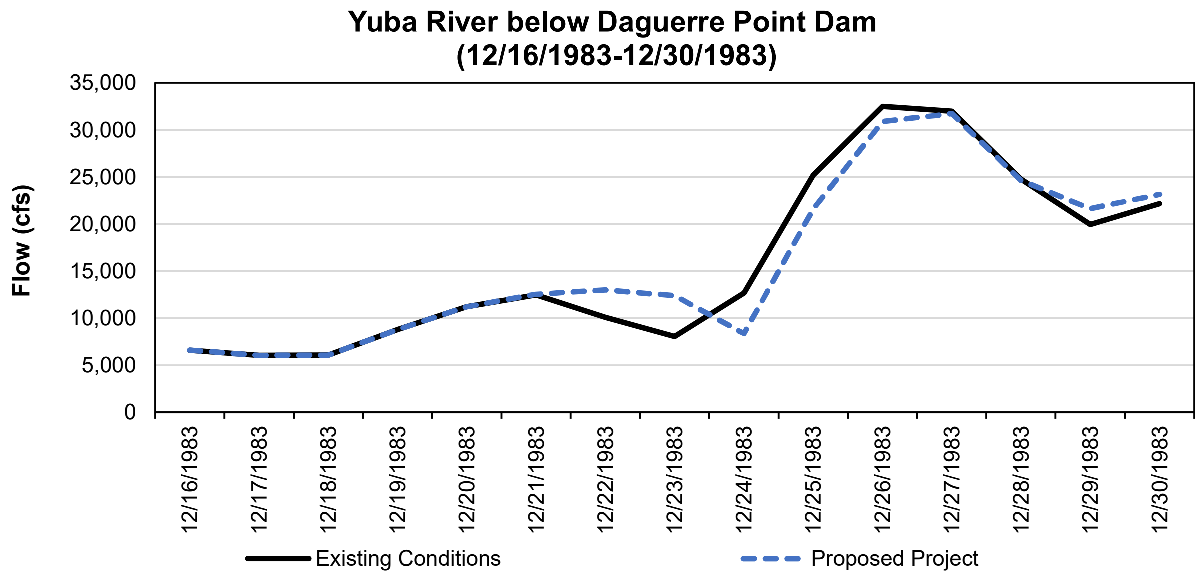
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/6/1980	2,097	2,097
1/7/1980	2,065	4,095
1/8/1980	2,044	5,635
1/9/1980	3,443	6,812
1/10/1980	4,711	7,496
1/11/1980	5,002	8,088
1/12/1980	28,159	33,357
1/13/1980	54,910	45,756
1/14/1980	57,186	42,188
1/15/1980	35,673	30,759
1/16/1980	29,085	32,332
1/17/1980	23,777	28,611
1/18/1980	17,086	19,450
1/19/1980	12,122	12,267
1/20/1980	18,307	16,724



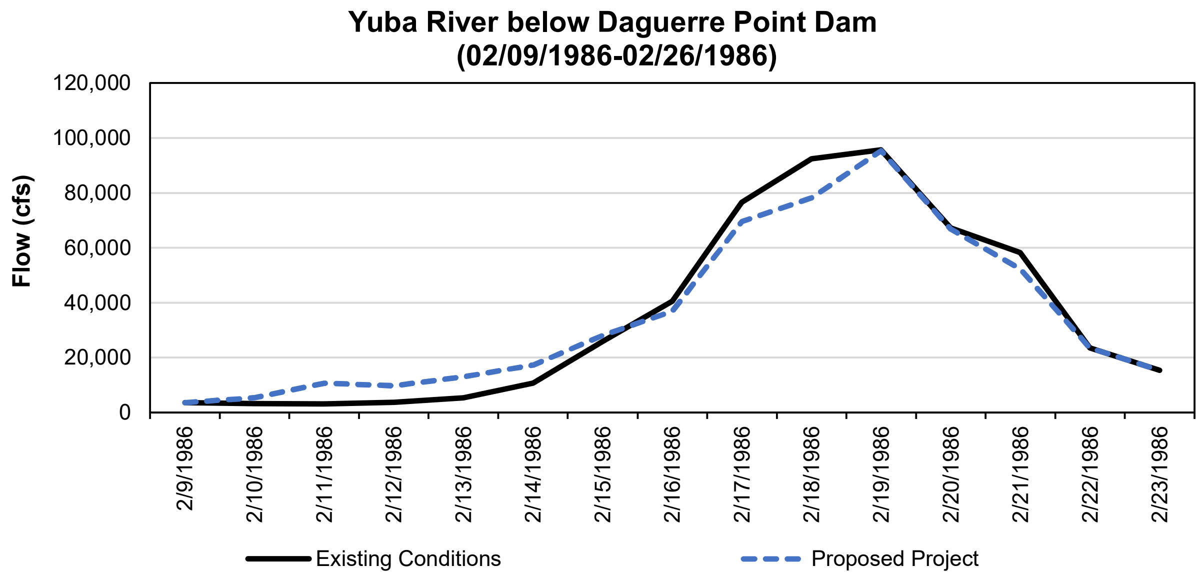
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/14/1981	4,036	4,036
12/15/1981	4,715	8,703
12/16/1981	7,283	13,045
12/17/1981	6,093	12,062
12/18/1981	5,850	10,777
12/19/1981	31,185	24,790
12/20/1981	56,365	54,884
12/21/1981	46,904	40,290
12/22/1981	31,807	21,463
12/23/1981	14,623	13,652
12/24/1981	10,089	10,029
12/25/1981	9,709	14,928
12/26/1981	6,987	6,987
12/27/1981	13,332	13,332
12/28/1981	9,537	9,537



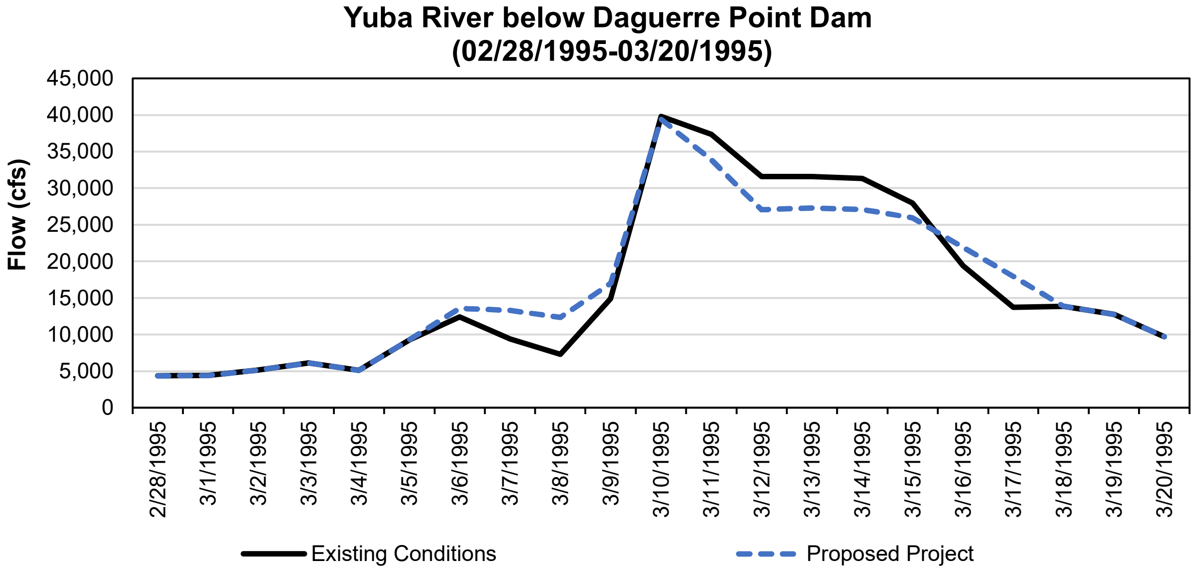
Date	Existing Conditions (cfs)	Proposed Project (cfs)
4/4/1982	9,896	9,896
4/5/1982	10,324	10,324
4/6/1982	12,103	12,103
4/7/1982	12,884	12,884
4/8/1982	15,582	16,702
4/9/1982	11,771	15,602
4/10/1982	10,774	11,819
4/11/1982	31,165	30,688
4/12/1982	34,959	30,093
4/13/1982	22,928	22,113
4/14/1982	19,812	19,704
4/15/1982	17,156	17,143
4/16/1982	8,030	8,052
4/17/1982	7,299	7,299
4/18/1982	5,206	5,206
4/19/1982	5,795	6,056
4/20/1982	9,423	9,423
4/21/1982	8,823	8,823
4/22/1982	8,694	8,694



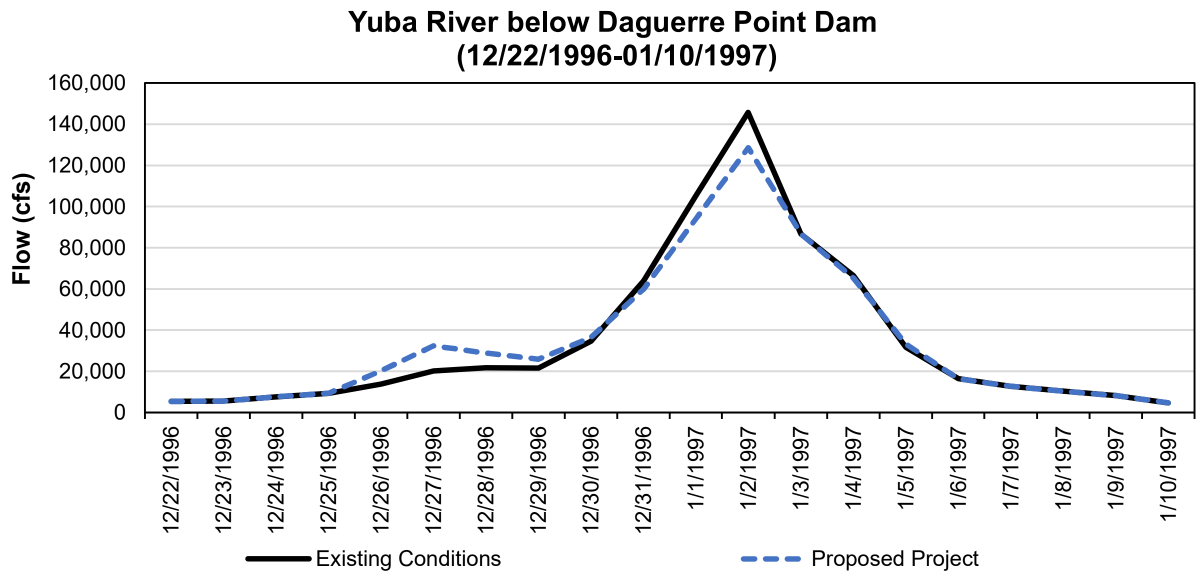
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/16/1983	6,585	6,585
12/17/1983	6,042	6,042
12/18/1983	6,060	6,060
12/19/1983	8,783	8,783
12/20/1983	11,221	11,221
12/21/1983	12,462	12,522
12/22/1983	10,094	12,991
12/23/1983	8,049	12,375
12/24/1983	12,690	8,365
12/25/1983	25,175	21,607
12/26/1983	32,484	30,869
12/27/1983	31,992	31,737
12/28/1983	24,800	24,621
12/29/1983	19,963	21,635
12/30/1983	22,166	23,154



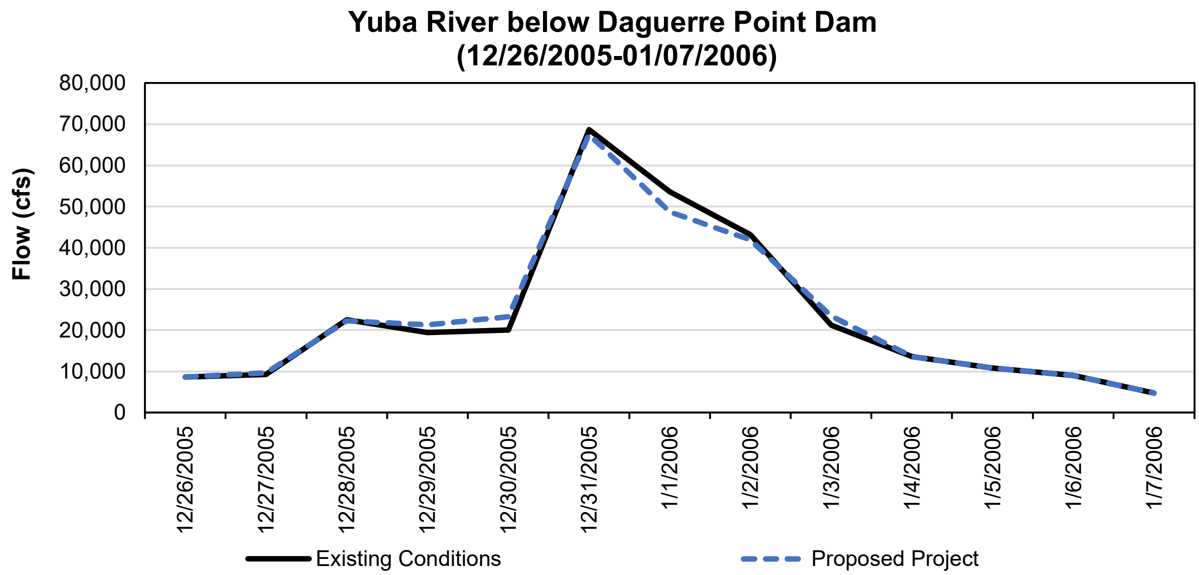
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/9/1986	3,582	3,582
2/10/1986	3,208	5,351
2/11/1986	3,099	10,679
2/12/1986	3,687	9,763
2/13/1986	5,427	12,970
2/14/1986	10,633	17,211
2/15/1986	25,881	28,042
2/16/1986	40,582	36,917
2/17/1986	76,554	69,569
2/18/1986	92,503	78,193
2/19/1986	95,717	95,368
2/20/1986	67,262	66,793
2/21/1986	58,213	52,279
2/22/1986	23,525	23,525
2/23/1986	15,377	15,377



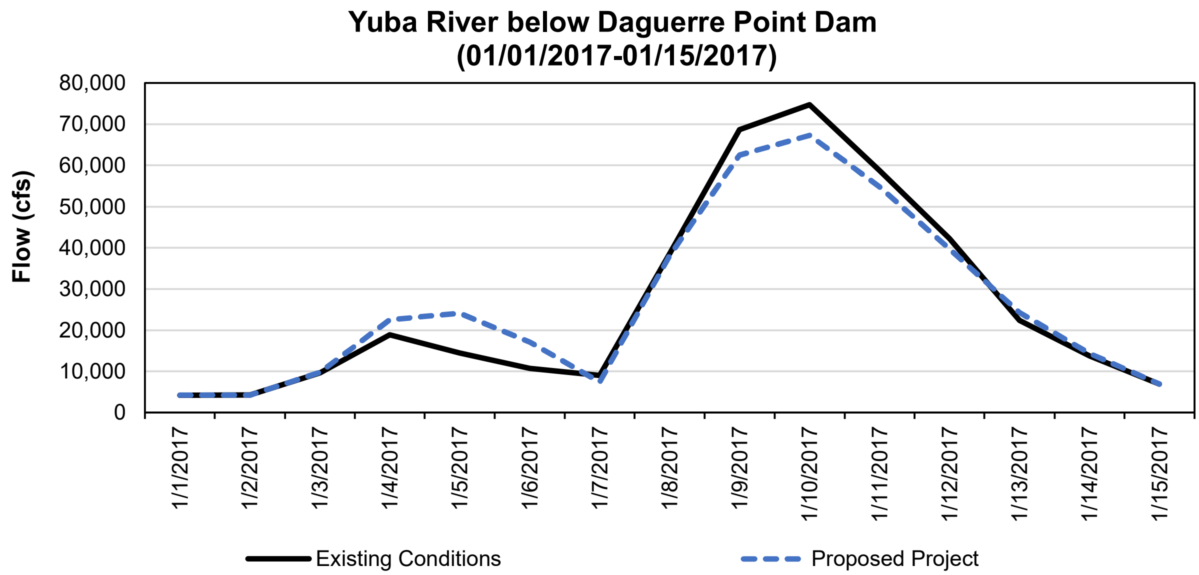
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/28/1995	4,354	4,354
3/1/1995	4,405	4,405
3/2/1995	5,150	5,150
3/3/1995	6,103	6,103
3/4/1995	5,107	5,107
3/5/1995	9,269	9,269
3/6/1995	12,437	13,577
3/7/1995	9,404	13,310
3/8/1995	7,287	12,351
3/9/1995	14,884	17,003
3/10/1995	39,807	39,437
3/11/1995	37,346	33,856
3/12/1995	31,607	27,059
3/13/1995	31,590	27,310
3/14/1995	31,375	27,101
3/15/1995	27,965	25,929
3/16/1995	19,397	21,944
3/17/1995	13,736	17,960
3/18/1995	13,845	13,845
3/19/1995	12,721	12,721
3/20/1995	9,696	9,696



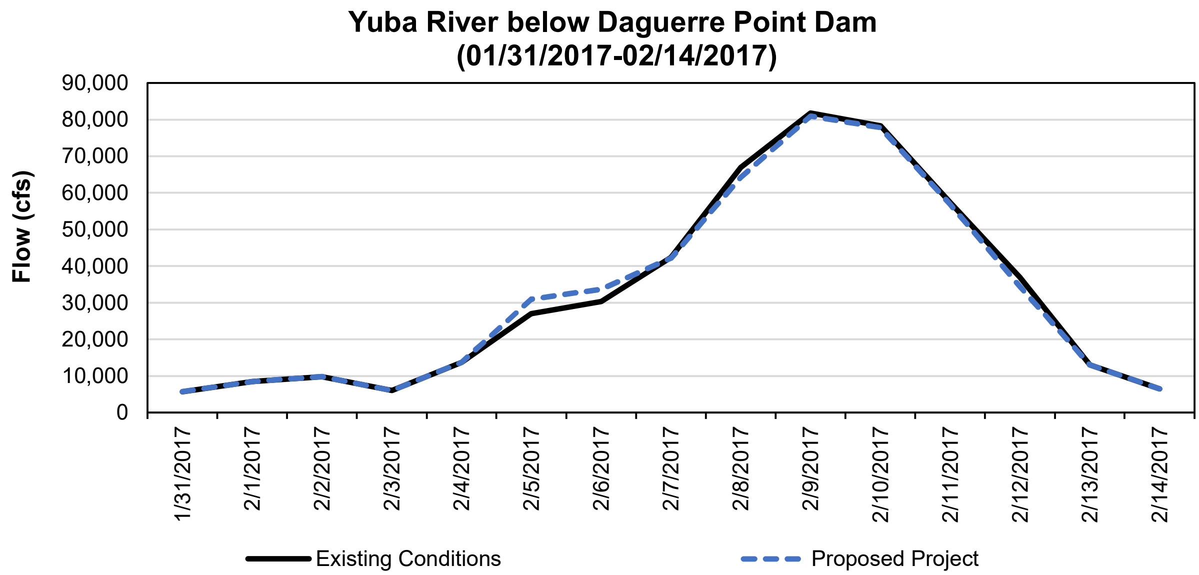
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/22/1996	5,427	5,427
12/23/1996	5,534	5,534
12/24/1996	7,682	7,682
12/25/1996	9,309	9,309
12/26/1996	13,870	20,247
12/27/1996	20,215	32,381
12/28/1996	21,782	28,931
12/29/1996	21,678	25,936
12/30/1996	34,611	36,495
12/31/1996	63,736	59,796
1/1/1997	105,383	93,993
1/2/1997	145,706	128,601
1/3/1997	86,647	86,647
1/4/1997	66,416	65,368
1/5/1997	31,758	33,313
1/6/1997	16,375	16,464
1/7/1997	12,777	12,783
1/8/1997	10,377	10,378
1/9/1997	8,188	8,188
1/10/1997	4,665	4,665



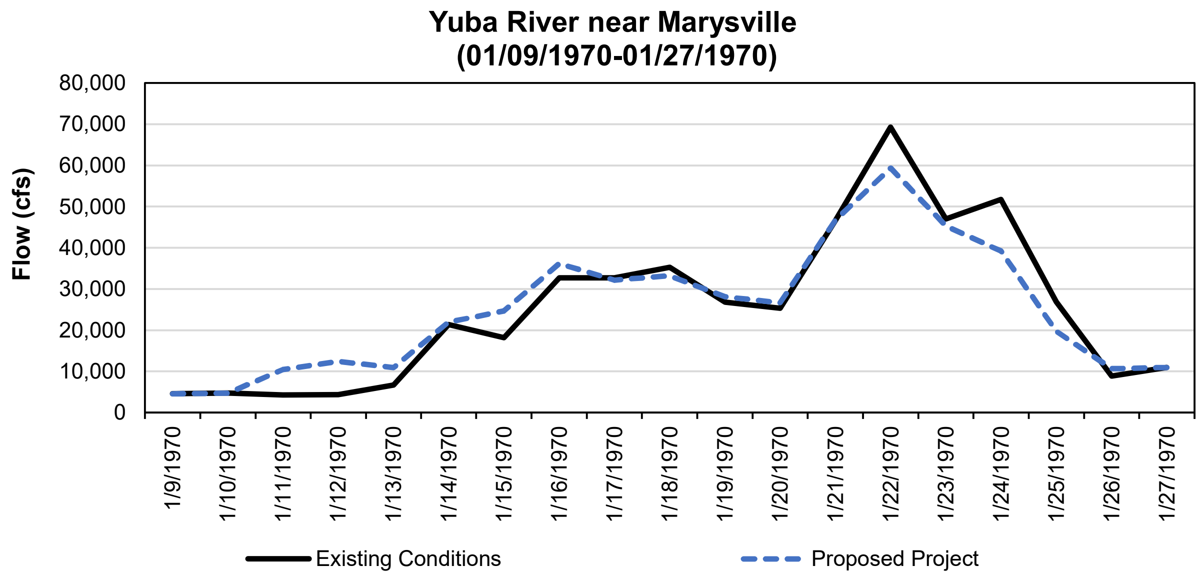
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/26/2005	8,607	8,607
12/27/2005	9,286	9,604
12/28/2005	22,485	22,292
12/29/2005	19,456	21,302
12/30/2005	20,046	23,247
12/31/2005	68,683	67,525
1/1/2006	53,635	48,711
1/2/2006	43,180	41,925
1/3/2006	21,234	23,393
1/4/2006	13,558	13,578
1/5/2006	10,843	10,844
1/6/2006	8,987	8,987
1/7/2006	4,711	4,711



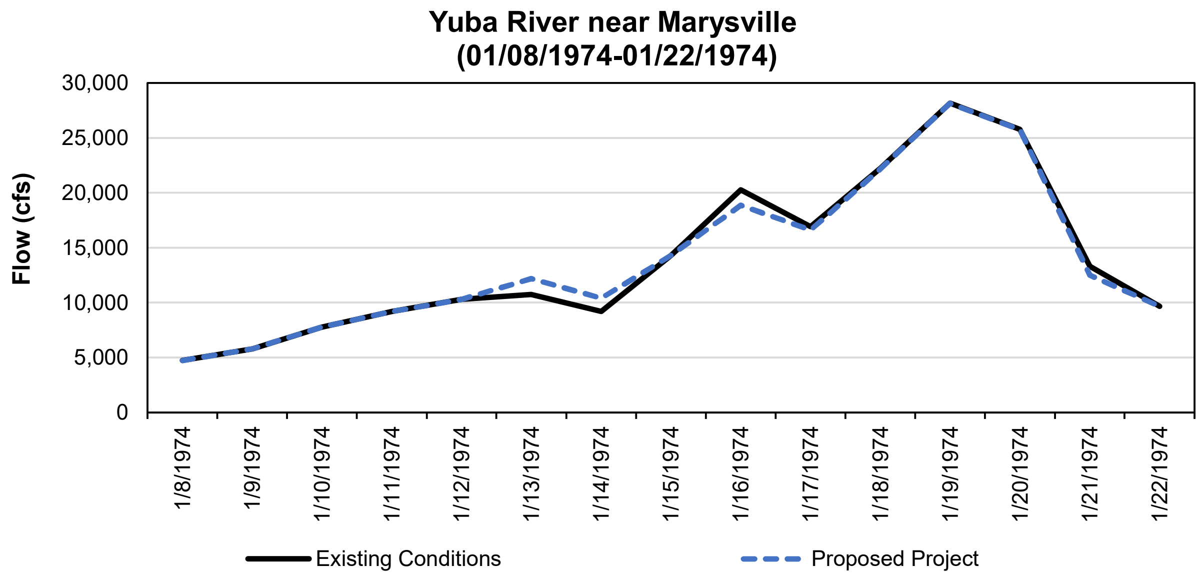
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/1/2017	4,192	4,192
1/2/2017	4,235	4,235
1/3/2017	9,590	9,747
1/4/2017	18,868	22,507
1/5/2017	14,448	24,078
1/6/2017	10,734	17,122
1/7/2017	9,053	7,411
1/8/2017	38,605	38,089
1/9/2017	68,711	62,516
1/10/2017	74,763	67,320
1/11/2017	58,753	54,795
1/12/2017	42,280	39,692
1/13/2017	22,387	24,275
1/14/2017	13,754	14,312
1/15/2017	6,908	6,912



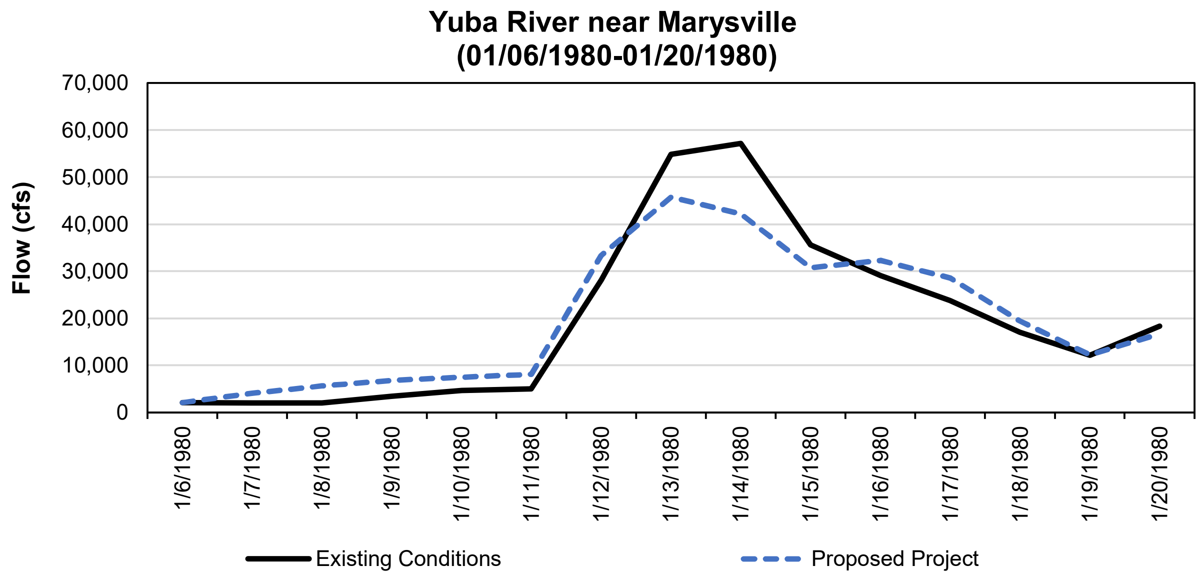
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/31/2017	5,695	5,695
2/1/2017	8,454	8,454
2/2/2017	9,819	9,819
2/3/2017	5,962	5,962
2/4/2017	13,682	13,682
2/5/2017	27,007	30,967
2/6/2017	30,311	33,664
2/7/2017	42,414	42,161
2/8/2017	66,922	64,210
2/9/2017	81,790	80,962
2/10/2017	78,268	77,790
2/11/2017	57,375	56,897
2/12/2017	36,951	34,393
2/13/2017	12,983	12,983
2/14/2017	6,499	6,499



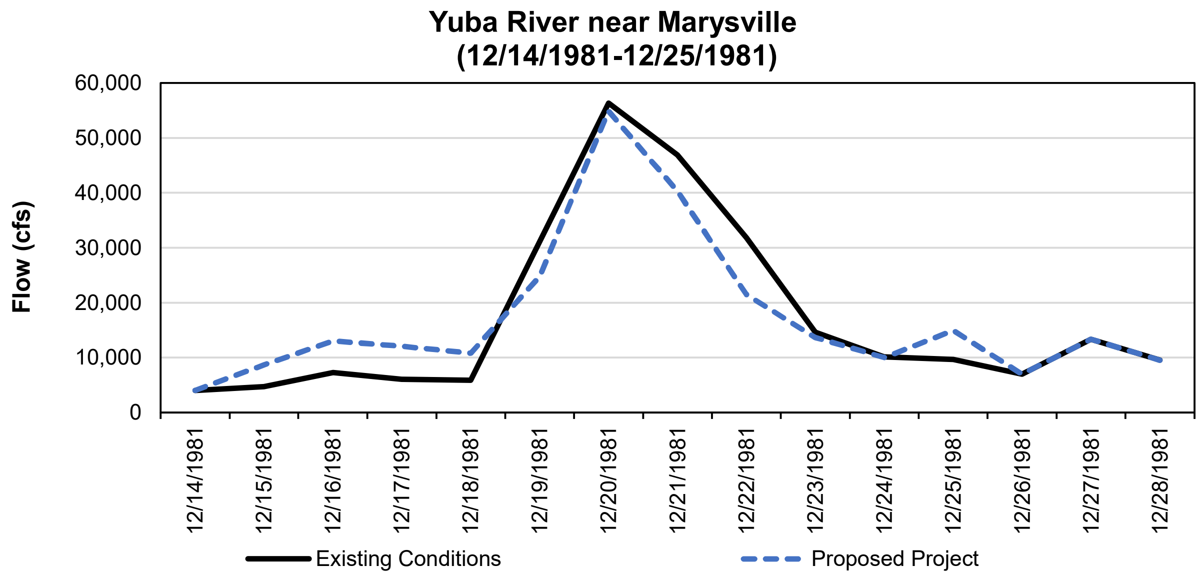
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/9/1970	4,540	4,540
1/10/1970	4,716	4,716
1/11/1970	4,276	10,462
1/12/1970	4,325	12,442
1/13/1970	6,704	10,951
1/14/1970	21,414	21,989
1/15/1970	18,122	24,675
1/16/1970	32,722	36,204
1/17/1970	32,724	32,119
1/18/1970	35,245	33,207
1/19/1970	26,770	28,110
1/20/1970	25,278	26,657
1/21/1970	46,471	46,727
1/22/1970	69,298	59,339
1/23/1970	46,991	45,316
1/24/1970	51,702	39,231
1/25/1970	26,819	19,714
1/26/1970	8,901	10,625
1/27/1970	10,897	10,897



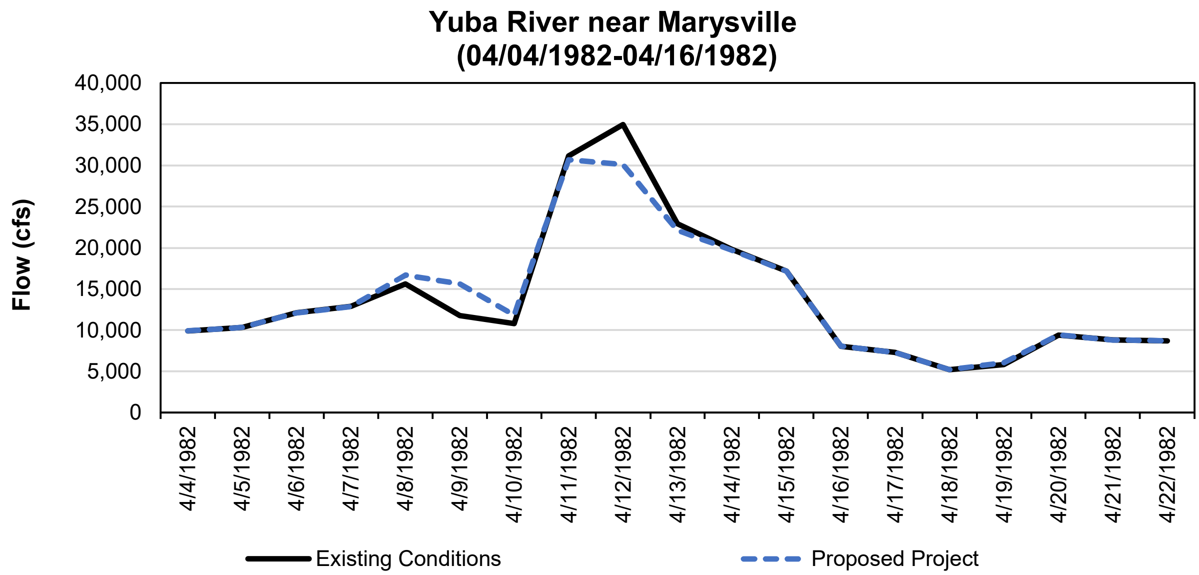
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/8/1974	4,735	4,735
1/9/1974	5,801	5,801
1/10/1974	7,796	7,796
1/11/1974	9,198	9,198
1/12/1974	10,294	10,294
1/13/1974	10,753	12,193
1/14/1974	9,213	10,400
1/15/1974	14,309	14,309
1/16/1974	20,285	18,869
1/17/1974	16,945	16,614
1/18/1974	22,271	22,192
1/19/1974	28,176	28,157
1/20/1974	25,786	25,777
1/21/1974	13,292	12,519
1/22/1974	9,672	9,672



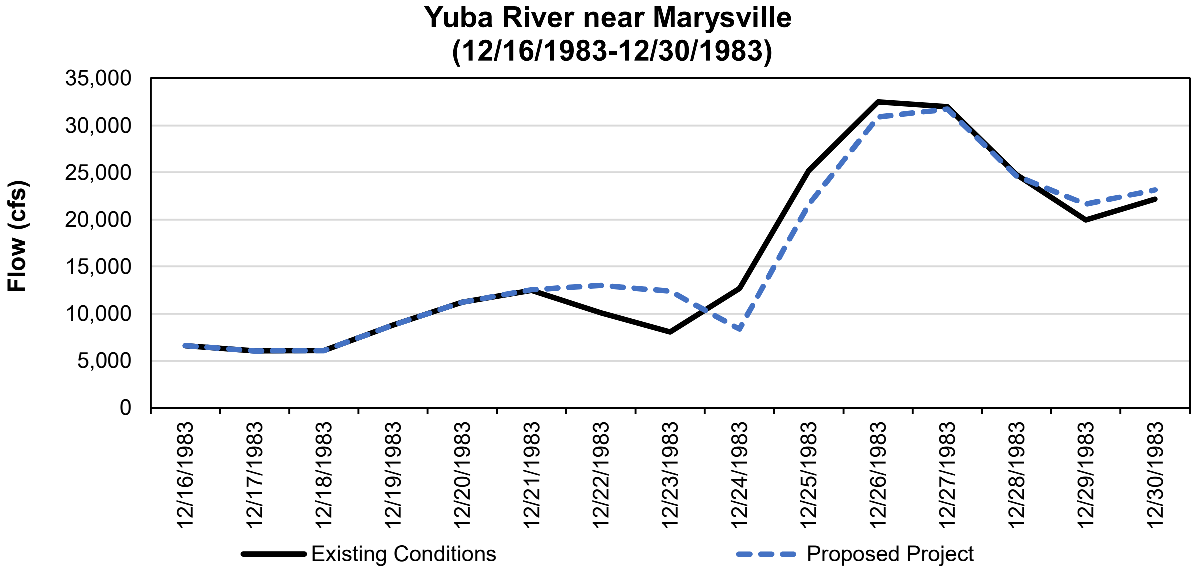
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/6/1980	2,097	2,097
1/7/1980	2,065	4,095
1/8/1980	2,044	5,635
1/9/1980	3,443	6,812
1/10/1980	4,711	7,496
1/11/1980	5,002	8,088
1/12/1980	28,159	33,357
1/13/1980	54,910	45,756
1/14/1980	57,186	42,188
1/15/1980	35,673	30,759
1/16/1980	29,085	32,332
1/17/1980	23,777	28,611
1/18/1980	17,086	19,450
1/19/1980	12,122	12,267
1/20/1980	18,307	16,724



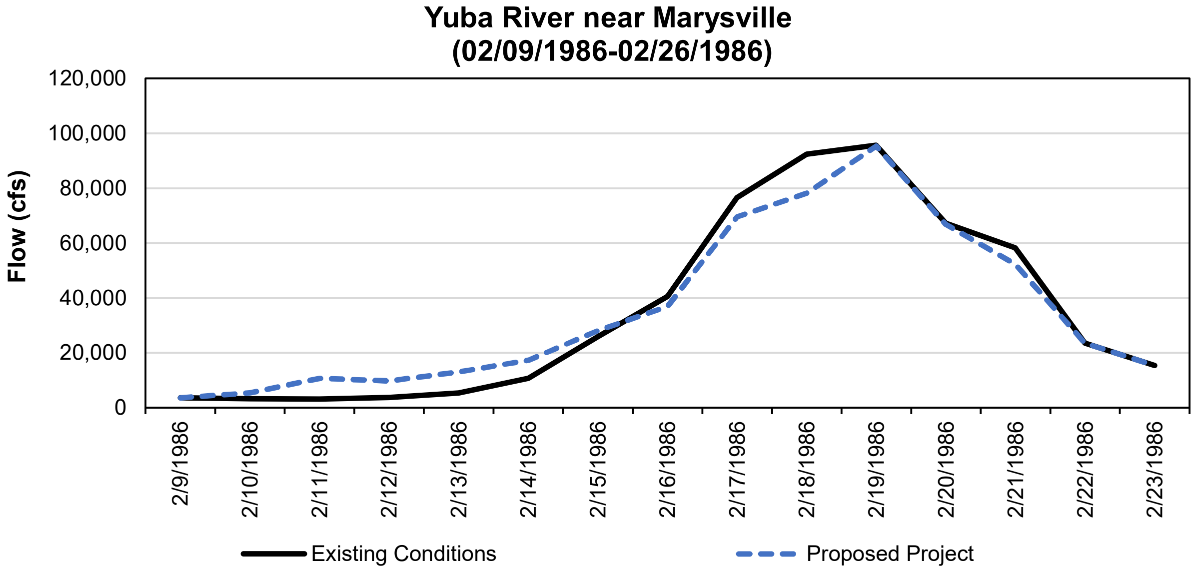
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/14/1981	4,036	4,036
12/15/1981	4,715	8,703
12/16/1981	7,283	13,045
12/17/1981	6,093	12,062
12/18/1981	5,850	10,777
12/19/1981	31,185	24,790
12/20/1981	56,365	54,884
12/21/1981	46,904	40,290
12/22/1981	31,807	21,463
12/23/1981	14,623	13,652
12/24/1981	10,089	10,029
12/25/1981	9,709	14,928
12/26/1981	6,987	6,987
12/27/1981	13,332	13,332
12/28/1981	9,537	9,537



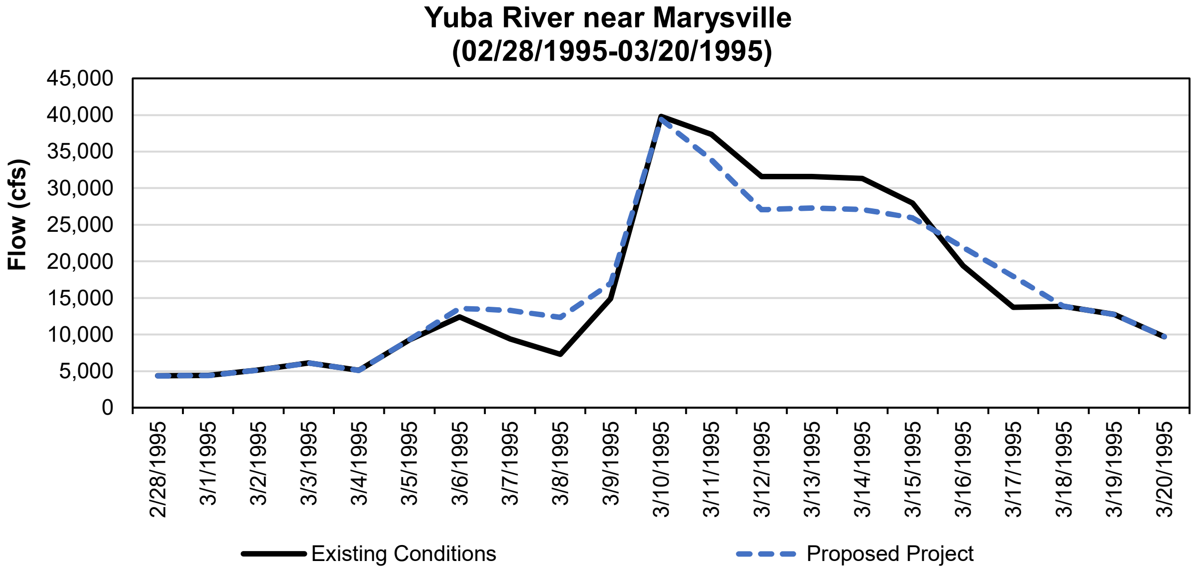
Date	Existing Conditions (cfs)	Proposed Project (cfs)
4/4/1982	9,896	9,896
4/5/1982	10,324	10,324
4/6/1982	12,103	12,103
4/7/1982	12,884	12,884
4/8/1982	15,582	16,702
4/9/1982	11,771	15,602
4/10/1982	10,774	11,819
4/11/1982	31,165	30,688
4/12/1982	34,959	30,093
4/13/1982	22,928	22,113
4/14/1982	19,812	19,704
4/15/1982	17,156	17,143
4/16/1982	8,030	8,052
4/17/1982	7,299	7,299
4/18/1982	5,206	5,206
4/19/1982	5,795	6,056
4/20/1982	9,423	9,423
4/21/1982	8,823	8,823
4/22/1982	8,694	8,694



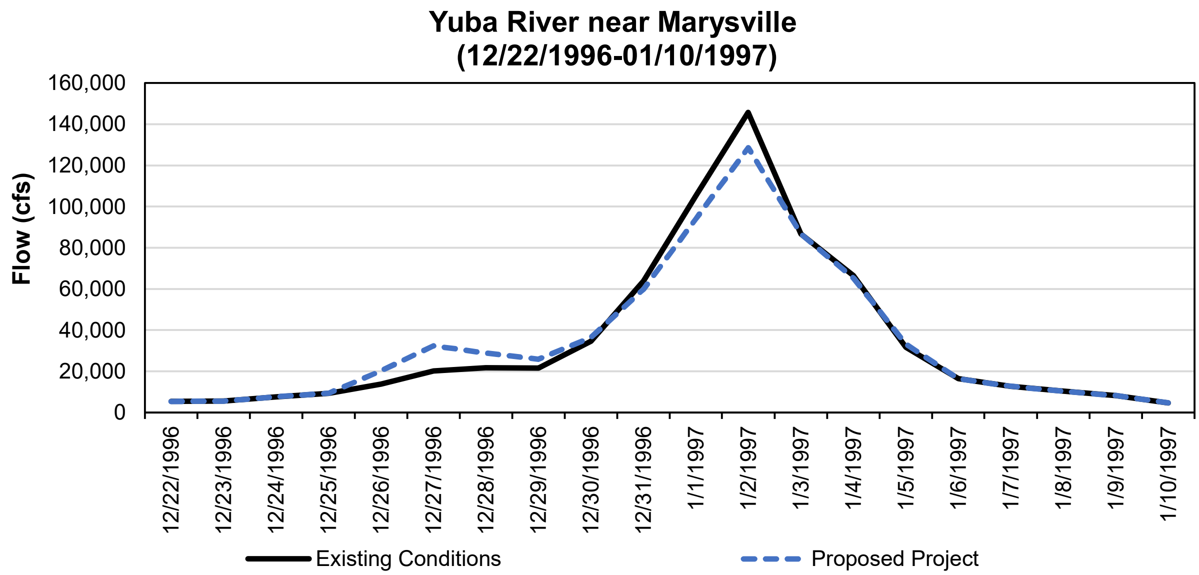
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/16/1983	6,585	6,585
12/17/1983	6,042	6,042
12/18/1983	6,060	6,060
12/19/1983	8,783	8,783
12/20/1983	11,221	11,221
12/21/1983	12,462	12,522
12/22/1983	10,094	12,991
12/23/1983	8,049	12,375
12/24/1983	12,690	8,365
12/25/1983	25,175	21,607
12/26/1983	32,484	30,869
12/27/1983	31,992	31,737
12/28/1983	24,800	24,621
12/29/1983	19,963	21,635
12/30/1983	22,166	23,154



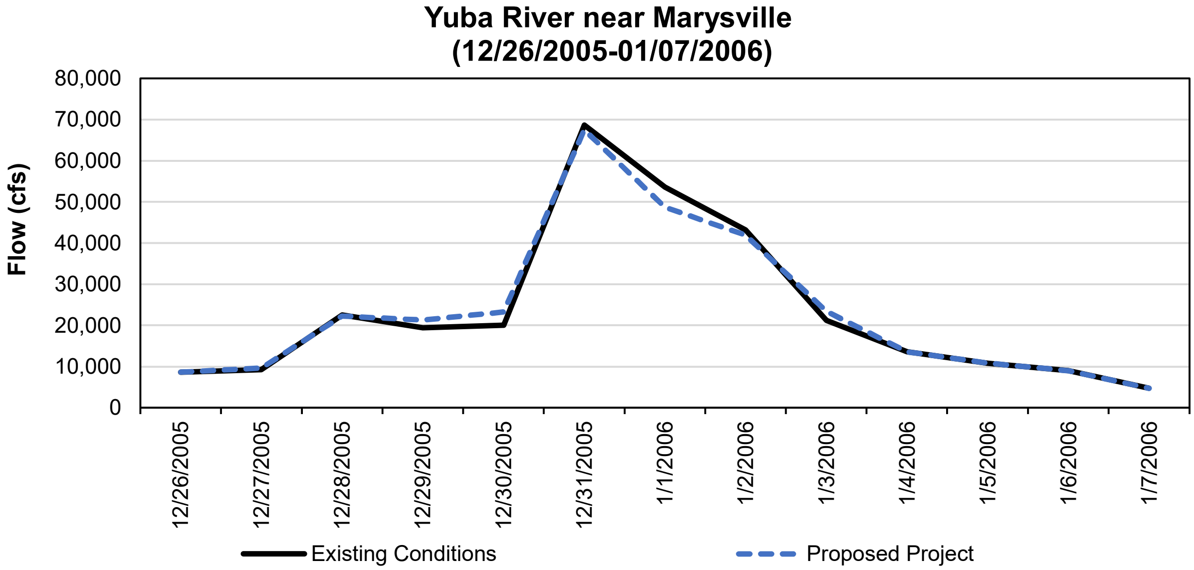
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/9/1986	3,582	3,582
2/10/1986	3,208	5,351
2/11/1986	3,099	10,679
2/12/1986	3,687	9,763
2/13/1986	5,427	12,970
2/14/1986	10,633	17,211
2/15/1986	25,881	28,042
2/16/1986	40,582	36,917
2/17/1986	76,554	69,569
2/18/1986	92,503	78,193
2/19/1986	95,717	95,368
2/20/1986	67,262	66,793
2/21/1986	58,213	52,279
2/22/1986	23,525	23,525
2/23/1986	15,377	15,377



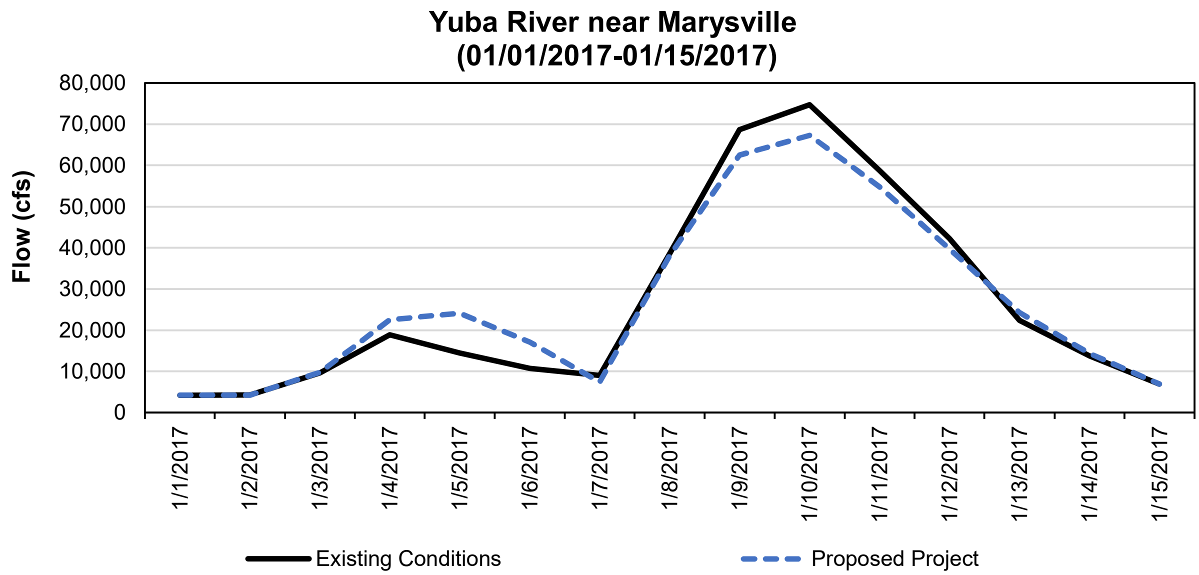
Date	Existing Conditions (cfs)	Proposed Project (cfs)
2/28/1995	4,354	4,354
3/1/1995	4,405	4,405
3/2/1995	5,150	5,150
3/3/1995	6,103	6,103
3/4/1995	5,107	5,107
3/5/1995	9,269	9,269
3/6/1995	12,437	13,577
3/7/1995	9,404	13,310
3/8/1995	7,287	12,351
3/9/1995	14,884	17,003
3/10/1995	39,807	39,437
3/11/1995	37,346	33,856
3/12/1995	31,607	27,059
3/13/1995	31,590	27,310
3/14/1995	31,375	27,101
3/15/1995	27,965	25,929
3/16/1995	19,397	21,944
3/17/1995	13,736	17,960
3/18/1995	13,845	13,845
3/19/1995	12,721	12,721
3/20/1995	9,696	9,696



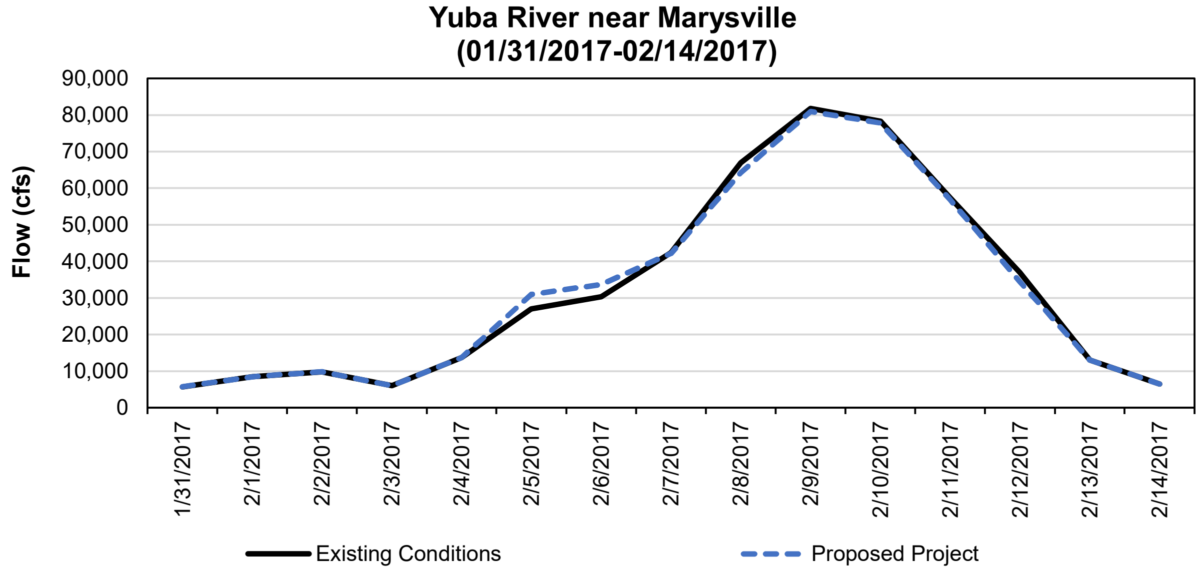
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/22/1996	5,427	5,427
12/23/1996	5,534	5,534
12/24/1996	7,682	7,682
12/25/1996	9,309	9,309
12/26/1996	13,870	20,247
12/27/1996	20,215	32,381
12/28/1996	21,782	28,931
12/29/1996	21,678	25,936
12/30/1996	34,611	36,495
12/31/1996	63,736	59,796
1/1/1997	105,383	93,993
1/2/1997	145,706	128,601
1/3/1997	86,647	86,647
1/4/1997	66,416	65,368
1/5/1997	31,758	33,313
1/6/1997	16,375	16,464
1/7/1997	12,777	12,783
1/8/1997	10,377	10,378
1/9/1997	8,188	8,188
1/10/1997	4,665	4,665



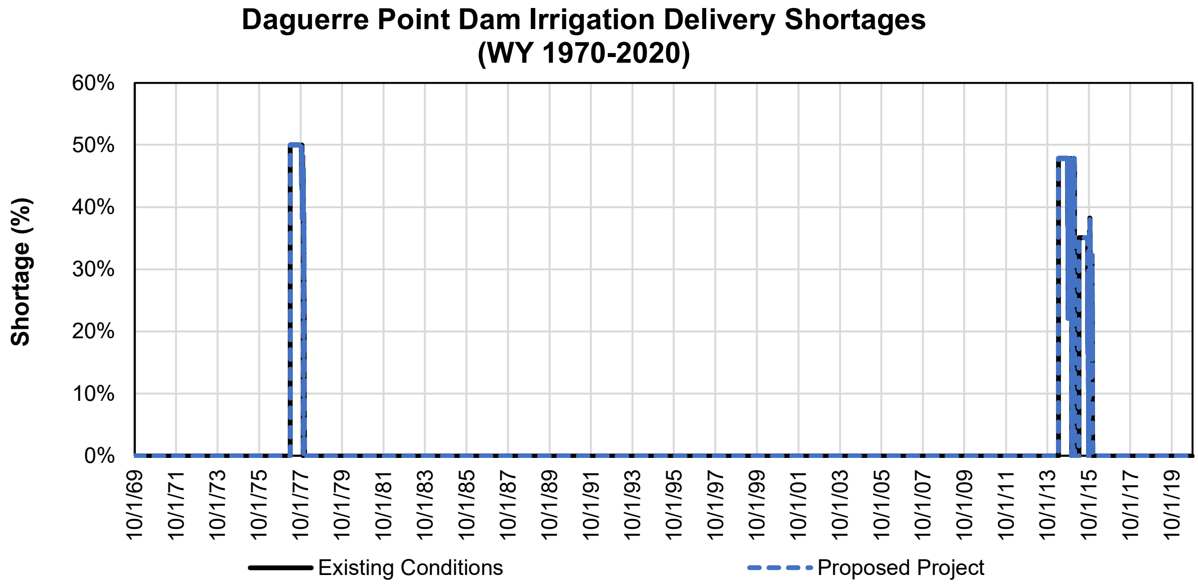
Date	Existing Conditions (cfs)	Proposed Project (cfs)
12/26/2005	8,607	8,607
12/27/2005	9,286	9,604
12/28/2005	22,485	22,292
12/29/2005	19,456	21,302
12/30/2005	20,046	23,247
12/31/2005	68,683	67,525
1/1/2006	53,635	48,711
1/2/2006	43,180	41,925
1/3/2006	21,234	23,393
1/4/2006	13,558	13,578
1/5/2006	10,843	10,844
1/6/2006	8,987	8,987
1/7/2006	4,711	4,711



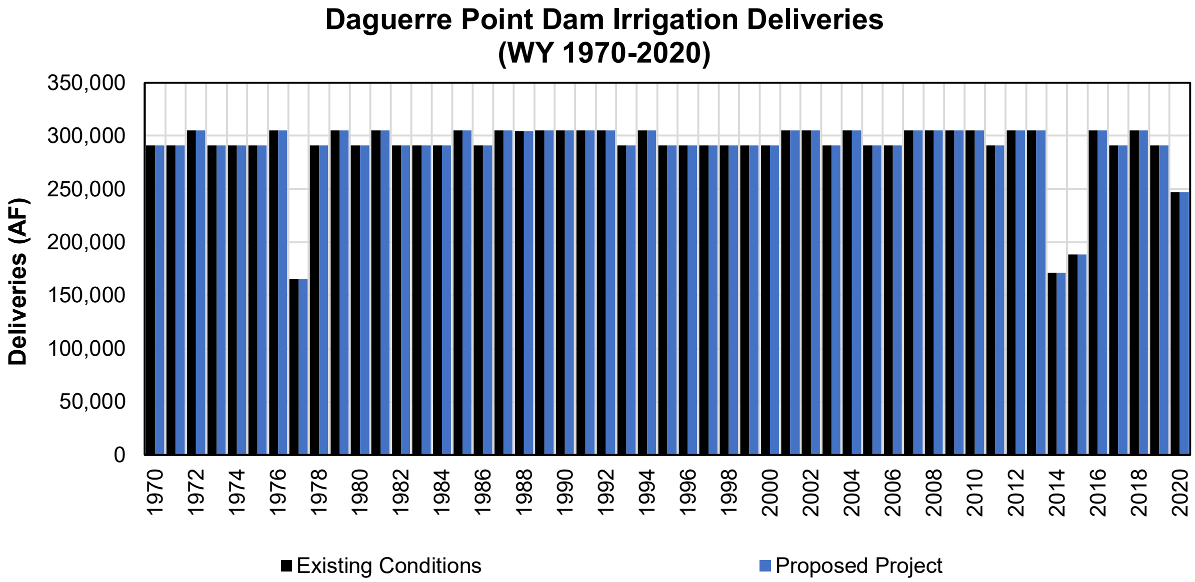
Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/1/2017	4,192	4,192
1/2/2017	4,235	4,235
1/3/2017	9,590	9,747
1/4/2017	18,868	22,507
1/5/2017	14,448	24,078
1/6/2017	10,734	17,122
1/7/2017	9,053	7,411
1/8/2017	38,605	38,089
1/9/2017	68,711	62,516
1/10/2017	74,763	67,320
1/11/2017	58,753	54,795
1/12/2017	42,280	39,692
1/13/2017	22,387	24,275
1/14/2017	13,754	14,312
1/15/2017	6,908	6,912



Date	Existing Conditions (cfs)	Proposed Project (cfs)
1/31/2017	5,695	5,695
2/1/2017	8,454	8,454
2/2/2017	9,819	9,819
2/3/2017	5,962	5,962
2/4/2017	13,682	13,682
2/5/2017	27,007	30,967
2/6/2017	30,311	33,664
2/7/2017	42,414	42,161
2/8/2017	66,922	64,210
2/9/2017	81,790	80,962
2/10/2017	78,268	77,790
2/11/2017	57,375	56,897
2/12/2017	36,951	34,393
2/13/2017	12,983	12,983
2/14/2017	6,499	6,499



Water Year	Maximum Shortage Existing Conditions	Maximum Shortage Proposed Project	Water Year	Maximum Shortage Existing Conditions	Maximum Shortage Proposed Project	Water Year	Maximum Shortage Existing Conditions	Maximum Shortage Proposed Project
1970	0%	0%	1990	0%	0%	2010	0%	0%
1971	0%	0%	1991	0%	0%	2011	0%	0%
1972	0%	0%	1992	0%	0%	2012	0%	0%
1973	0%	0%	1993	0%	0%	2013	0%	0%
1974	0%	0%	1994	0%	0%	2014	48%	48%
1975	0%	0%	1995	0%	0%	2015	48%	48%
1976	0%	0%	1996	0%	0%	2016	0%	0%
1977	50%	50%	1997	0%	0%	2017	0%	0%
1978	0%	0%	1998	0%	0%	2018	0%	0%
1979	0%	0%	1999	0%	0%	2019	0%	0%
1980	0%	0%	2000	0%	0%	2020	0%	0%
1981	0%	0%	2001	0%	0%			
1982	0%	0%	2002	0%	0%			
1983	0%	0%	2003	0%	0%			
1984	0%	0%	2004	0%	0%			
1985	0%	0%	2005	0%	0%			
1986	0%	0%	2006	0%	0%			
1987	0%	0%	2007	0%	0%			
1988	0%	0%	2008	0%	0%			
1989	0%	0%	2009	0%	0%			



Year	Deliveries (AF) Existing Conditions	Deliveries (AF) Proposed Project
1970	291,197	291,197
1971	291,197	291,197
1972	305,141	305,141
1973	291,197	291,197
1974	291,197	291,197
1975	291,197	291,197
1976	305,141	305,141
1977	165,493	165,493
1978	291,197	291,197
1979	305,081	305,081
1980	291,210	291,210
1981	305,081	305,081
1982	291,197	291,197
1983	291,197	291,197
1984	291,210	291,210
1985	305,081	305,081
1986	291,197	291,197
1987	305,081	305,081
1988	304,415	304,415
1989	305,081	305,081

Year	Deliveries (AF) Existing Conditions	Deliveries (AF) Proposed Project
1990	305,081	305,081
1991	305,081	305,081
1992	305,141	305,141
1993	291,197	291,197
1994	305,081	305,081
1995	291,197	291,197
1996	291,210	291,210
1997	291,197	291,197
1998	291,197	291,197
1999	291,197	291,197
2000	291,210	291,210
2001	305,081	305,081
2002	305,081	305,081
2003	291,197	291,197
2004	305,141	305,141
2005	291,197	291,197
2006	291,197	291,197
2007	305,081	305,081
2008	305,141	305,141
2009	305,081	305,081

Year	Deliveries (AF) Existing Conditions	Deliveries (AF) Proposed Project
2010	305,081	305,081
2011	291,197	291,197
2012	305,141	305,141
2013	305,081	305,081
2014	171,498	171,498
2015	188,686	188,686
2016	305,141	305,141
2017	291,197	291,197
2018	305,081	305,081
2019	291,197	291,197
2020	247,175	247,175

Attachment 2

Hourly Flood Operations Modeling Memorandum

MEMORANDUM

DATE: November 28, 2022

TO: Jeff Weaver, P.E. and Megan Lionberger, P.E.

PREPARED BY: Carly Narlesky, P.E. and Olivia Alexander, E.I.T.

SUBJECT: Flood Operations Modeling to Support ARC Spillway Analysis in YRDPM

Executive Summary

To support representation of hourly flood operations in the Yuba River Development Project Model (YRDPM), MBK Engineers simulated twelve flood events identified in coordination with HDR. Water Control Manual (WCM) rules and forecast informed reservoir operations (FIRO) strategies were modeled for two physical scenarios at New Bullards Bar: Primary Spillway and Atmospheric River Control (ARC) Spillway. Both physical alternatives included releases via the river outlet and penstock. Resulting hourly reservoir outflows were resampled to develop daily mean release patterns that were then provided to HDR for incorporation into modeling with the daily YRDPM.

Flood Events

Twelve flood events were identified for detailed simulation in the hourly reservoir operations model. These events were the largest winter and spring events likely to trigger FIRO releases, based on the 7-day cumulative forecast inflow volume at New Bullards Bar (NBB) exceeding 100 thousand acre-feet (TAF). This threshold was adopted from NBB operations Alternative 2 presented in the Yuba-Feather Forecast Informed Reservoir Operations Draft Preliminary Viability Assessment (Ralph et al., 2022). Where available, the 75% non-exceedance probability 168-hour cumulative forecast inflow volume was derived from each forecast ensemble in the hindcast period of record (Whitin, 2015). This timeseries was augmented with 7-day forecast volumes developed from the historical record. A subset of these events were selected for representation in the hourly flood operations model, listed in Table 1. HDR provided additional criteria based on modeling with the YRDPM: only events prior to April 21 were considered, which corresponds to a flood reservation at NBB greater than 100 TAF. Additionally, if the initial storage of an event started below the top of conservation, combined starting storage volume and forecast inflow exceeding 110% of the flood reservation was used to select an event. If the starting storage was greater than or equal to seasonal top of conservation, a threshold of 200% of the flood reservation was used (HDR, 2022a).

Table 1. Simulated Flood Events

Event ID	**Water Year**	**Start Date**	**End Date**
1970	1970	January 10, 1970	January 30, 1970
1974	1974	January 11, 1974	January 26, 1974
1980	1980	January 7, 1980	January 22, 1980
1982a	1982	December 15, 1981	January 6, 1982
1982b	1982	April 5, 1982	April 21, 1982
1984	1984	December 20, 1983	January 5, 1984
1986	1986	February 9, 1986	February 28, 1986
1995	1995	March 1, 1995	March 21, 1995
1997	1997	December 23, 1996	January 10, 1997
2006	2006	December 25, 2005	January 8, 2006
2017a	2017	January 2, 2017	January 14, 2017
2017b	2017	February 1, 2017	February 16, 2017

Hydrology

Simulations were configured with hourly event records developed for the Central Valley Hydrology Study (CVHS). A provisional update to these records was provided by HDR during the Yuba-Feather FIRO Preliminary Viability Assessment (PVA) (Ralph et al., 2022). This provisional record extends each flow timeseries for the Yuba-Feather basin through calendar year 2018 and, at the time of this analysis, was under review by the Hydrology section at the United States Army Corps of Engineers, Sacramento District (USACE-SPK). This provisional hydrology was provided via Google Drive link in the DSS file: **SacramentoUnreg_In_100% (ResSim input)_2017_Provisional.dss** (HDR, 2022b).

The YRDPM operates on a daily timestep with hydrologic records that are corrected for historical observed volumes with a daily conversion factor. To ensure consistency with the daily flow volumes from the YRDPM, the hourly CVHS flood event hydrology was similarly transformed with correction factors computed for each day in the simulation record. These correction factors, provided by HDR, were ratios of the CVHS to historical daily inflow volumes at NBB.

Hourly hindcast ensembles for the 1985 to 2010 period of record were issued by CNRFC with an interval of 24 hours. In order to simulate the frequency of forecast issuances expected in real-time flood operations, the representative forecast inflow volumes derived from each ensemble were resampled to develop an inflow forecast volume timeseries that updates every 6 hours. For the operational alternative, the 168-hour volume series was computed from the ensemble member best matching the 75% non-exeedance probability in each forecast issuance.

Operations

Hourly flood events were simulated using the MBK reservoir operations model configured in Python, which includes a representation of both the Oroville and New Bullards Bar reservoirs. This model represents the Yuba-Feather watershed with boundary conditions and hydrologic inputs adopted from the CVHS for flood events in the historical record. Each reservoir includes rules representing the Water Control Plan (WCP) as described in the WCM. At each timestep, releases are determined by a prioritization of rules representing the release schedule as depicted on the Water Control Diagram (WCD), the minimum in-channel flow, seasonally varying flood reserve and conservation space, maximum release limits for downstream control flows (listed in Table 2), rate of increase and decrease limitations, and the minimum required release per the Emergency Spillway Release Diagram (ESRD) (USACE-SPK, 1970; USACE-SPK, 1972).

Table 2. Downstream Control Flows as defined in WCMs

Location	**Flow Constraint (cfs)**	**Applicable Reservoir(s)**
Feather River at Gridley	150,000	Oroville
Yuba River at Marysville	180,000 when Feather River flow is “low”, or 120,000 when Feather River is “high”	NBB
Feather at Yuba City	180,000	Oroville
Feather below Yuba River	300,000	NBB, Oroville
Feather below Bear River	320,000	NBB, Oroville

As in the Yuba-Feather FIRO PVA, the Yuba River at Marysville constraint was modeled at 180,000 cfs. This constraint was not exceeded for any of the simulated events.

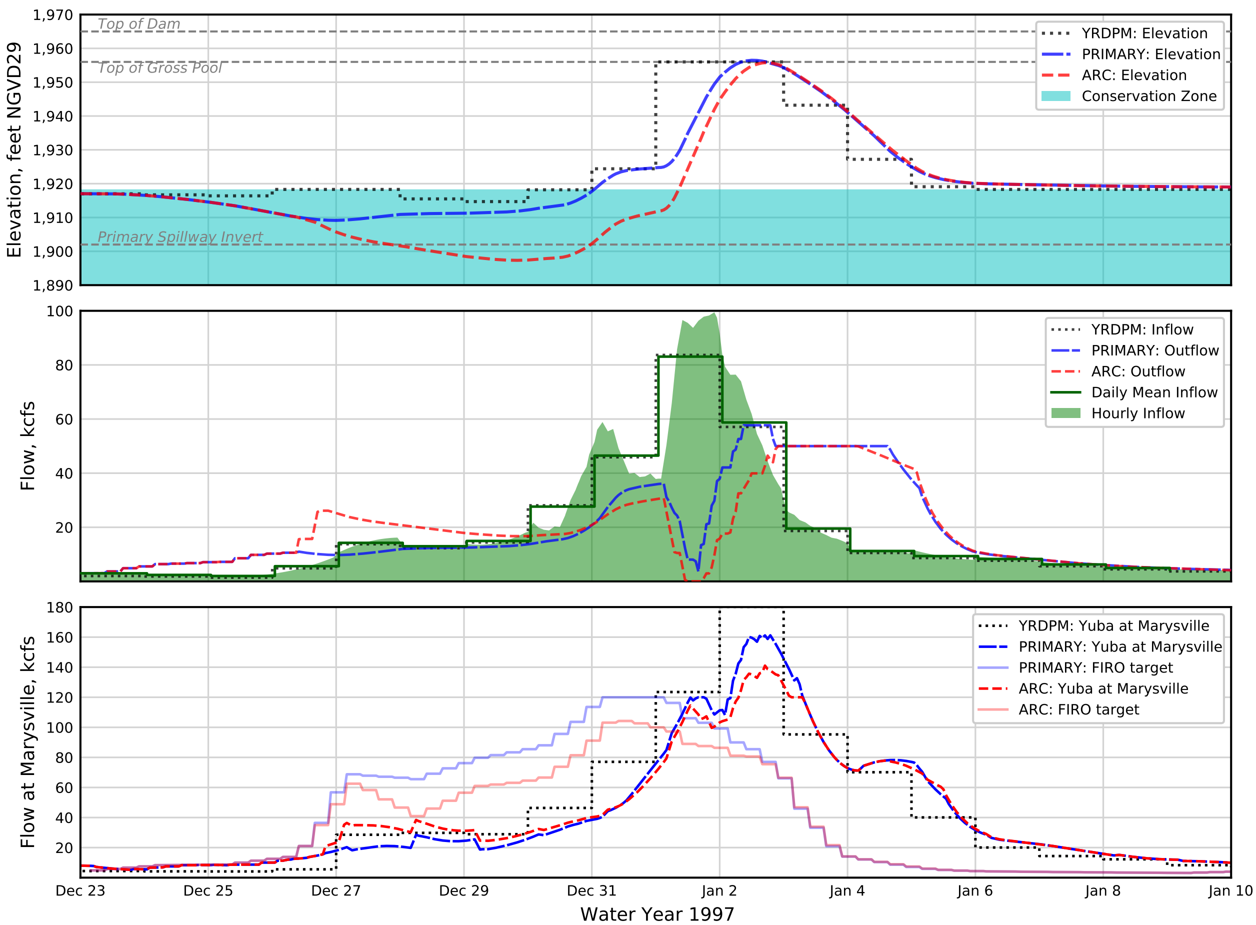
Under the Yuba-Feather FIRO PVA, a number of FIRO alternatives were also developed and explored using this model (MBK, 2021). For compatibility with the assumed operations for the YRDPM, MBK Engineers adapted an hourly FIRO release rule to represent the release schedule provided by HDR, detailed in Table 3 (HDR, 2021). For this alternative Oroville was assumed to operate under existing WCM rules. The 168-hour NBB inflow forecast volume and current storage were used to calculate the ratio of forecast encroachment (total of current storage and inflow forecast volume) and total flood reservation volume (difference between top of gross pool and current storage). FIRO releases were then computed at every hour by linearly interpolating a target flow at Marysville. Each simulation was initialized with New Bullards Bar storage and release values from YRDPM simulation results for the event start date. Oroville storage was initialized at the top of conservation.

Table 3. Target Flow at Marysville (Schedule)

Ratio of Forecast Encroachment to Total Flood Reservation Volume	Maximum Pre-Release Flow at Marysville (cfs)
0%	0
110%	15,000
125%	30,000
135%	40,000
150%	60,000
250%	120,000

Since FIRO strategies at NBB leveraging advanced releases are often restricted by reduced release capacity as the reservoir level drops, the difference in physical configuration (Primary or ARC spillway) manifested in variations in the hourly NBB release patterns, particularly for the largest events, as seen in Figure 1.

Figure 1. Hourly Operations Comparison for 1997 Event



Deliverables

Simulation results were provided to the YRDPM team in comma-separated value format, with one file per combination of event and spillway alternative. The hourly timeseries records were processed to provide mean daily series for flows, storages, and elevations from results.

Table 4. Daily Mean Timeseries Provided

NBB Timeseries	**Oroville Timeseries**	**System Flows**
NBB Inflow (cfs)	Oroville Inflow (cfs)	Feather at Gridley (cfs)
NBB Outflow (cfs)	Oroville Outflow (cfs)	Feather at Yuba City (cfs)
NBB Storage (acre-feet)	Oroville Storage (acre-feet)	Feather at Confluence (cfs)
NBB Elevation (feet, NGVD29)	Oroville Elevation (feet, NGVD29)	Feather at Nicolaus (cfs)
NBB Top of Conservation Elevation (feet, NGVD29)	Oroville Top of Conservation Elevation (feet, NGVD29)	Yuba at Marysville (cfs)
NBB Top of Conservation Storage (acre-feet)	Oroville Top of Conservation Storage (acre-feet)	
NBB Inflow Forecast 168-hour (acre-feet)	Oroville Inflow Forecast 168-hour (acre-feet)	

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Appendix C

Water Surface Elevation Modeling

MBK ENGINEERS
Water Resources ◆ Flood Control ◆ Water Rights

TECHNICAL MEMORANDUM

DATE: June 6, 2023

PREPARED BY: Michael Archer, P.E., MBK Engineers

REVIEWED BY: Patrick Ho, P.E., MBK Engineers

SUBJECT: Hydraulic Impact Analysis of the New Bullards Bar Dam Atmospheric River Control Spillway

Purpose

The purpose of the analysis documented herein was to determine the effects of the operation of New Bullards Bar (NBB) Dam using the Atmospheric River Control (ARC) spillway, as opposed to an operation using only the primary spillway. NBB Dam is located on the Yuba River, about 40 miles upstream of its confluence with the Feather River.

The effects of the ARC spillway were determined for floods equivalent to the historical February 1986 and January 1997 flood events.

Hydraulic Model

A HEC-RAS 5.0.7 hydraulic model of the Feather River watershed and the Sutter Bypass was used for the analysis. The model was developed by MBK Engineers (MBK, 2020) from the Sacramento River system model developed for the California Department of Water Resources (DWR) Central Valley Evaluation and Delineation (CVFED) program. This parent model is referred to as the CVFED Task Order No. 34 (TO 34) Lower Sacramento HEC-RAS model (Wood Rodgers, 2015).

For application in the Yuba River, Feather River, and Bear River watersheds, the CVFED model was truncated to remove the portion of the model downstream of the Fremont Weir and the Natomas Cross Canal. The one-dimensional (1-D) components of the lower Yuba River, including its confluence with the Feather River, were replaced with a two-dimensional (2-D) flow area to better capture overland flow dynamics in the Yuba River floodplains. The model was calibrated to the 2006 flood event and verified to the 1997 flood event using available stream gage records and surveyed high water marks from the two flood events. In the calibration process hydraulic parameters (such as Manning's roughness coefficient [n-value] and weir coefficients) are adjusted until the model reasonably reproduces the historical event, supporting the use of the model for computing conditions in hypothetical flood events. The model calibration and verification effort are documented in a technical memorandum prepared by MBK Engineers (MBK, 2021).

The model includes the Feather River below Oroville Dam, the Yuba River starting about 15 miles upstream of the Feather River, the Sutter Bypass, and the northern Yolo Bypass. The extents of the model sufficiently report hydraulic effects far enough upstream and downstream at locations where project effects become immeasurable. A schematic of the model is shown in Figure 1.

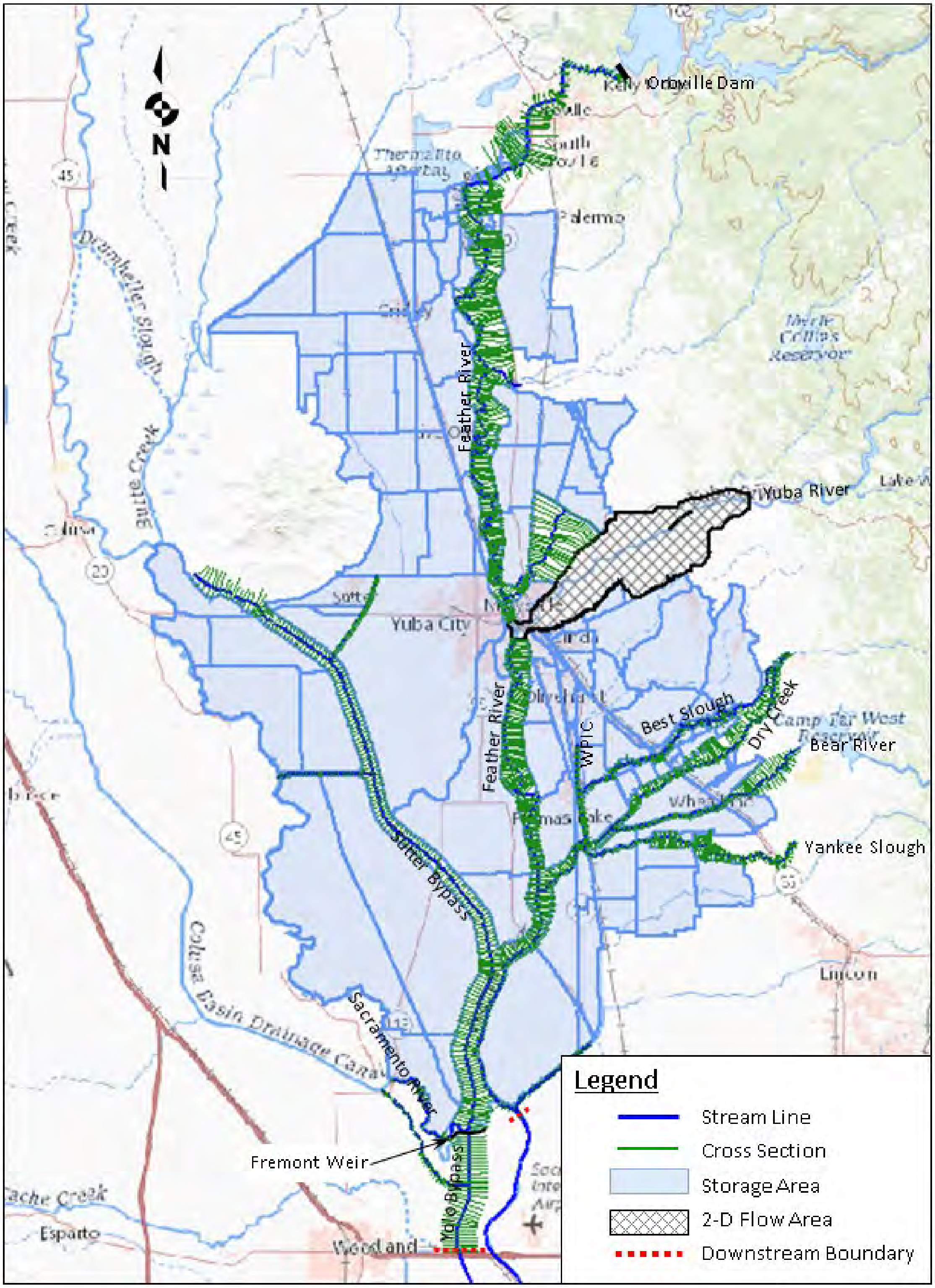

Figure 1. Feather River Model Schematic

The hydraulic model computes water surface elevations (WSE) under existing- and with-project conditions. The change in the computed maximum water surface elevation due to a proposed project is a typical metric used to indicate changes in flood risk due to the project. An increase in water surface elevation when floodwaters are flowing against the levee would directly increase flood risk. Meanwhile, reductions in water surface elevation would indicate reduction in flood risk.

In 2022, the hydraulic model was used to provide hydraulic design information to improve the levee systems under the responsibility of the Three Rivers Levee Improvement Authority (TRLIA), and to report on hydraulic impacts in their respective Environmental Impact Report/Environmental Impact Statement (EIR/EIS) documentation. Therefore, the model contains the latest and best available information at the time of this analysis and the analysis adheres to the standard practice in measuring flood risks.

Hydrology

The ARC spillway will result in changes in the releases from NBB Dam in large flood events, generally increasing releases early in the flood wave and allowing for reduced releases at the peak of the flood wave. This in turn may result in changes in the releases at Oroville Dam on the Feather River due to coordinated flood operations in the Feather River watershed. MBK Engineers has developed Yuba River and Feather River flows for primary and ARC spillway operations for the February 1986 and January 1997 floods (MBK, 2022). The flows used for hydraulic model inputs on the Yuba River and Feather River are shown for 1986 in Figure 2 and for 1997 in Figure 3. These figures illustrate the increase in flow on the Yuba River early in the flood with a corresponding reduction in flow at the peak of the flood.

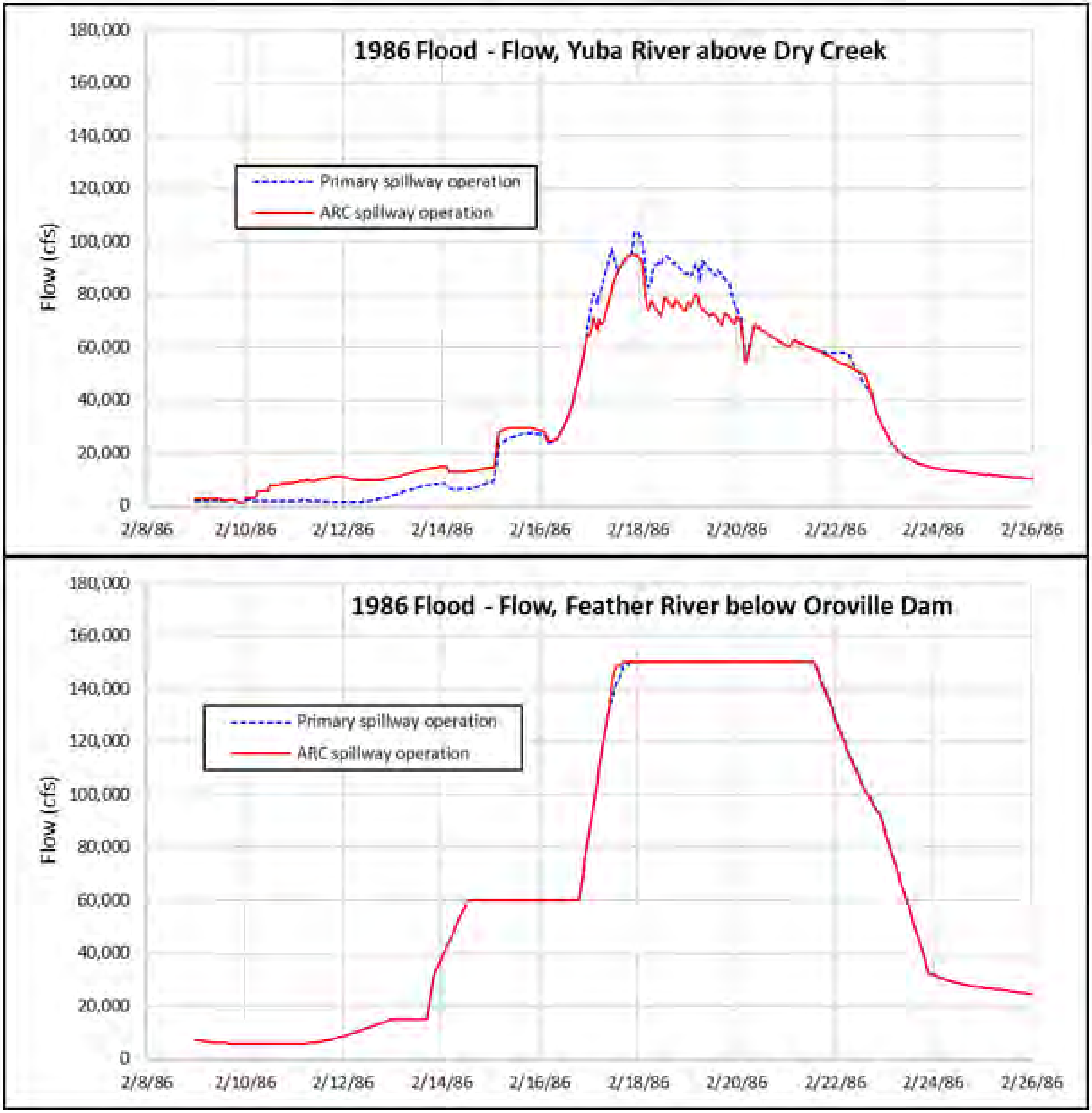

Figure 2. NBB Dam and Oroville Dam Releases for Primary and ARC Spillways, 1986 Flood

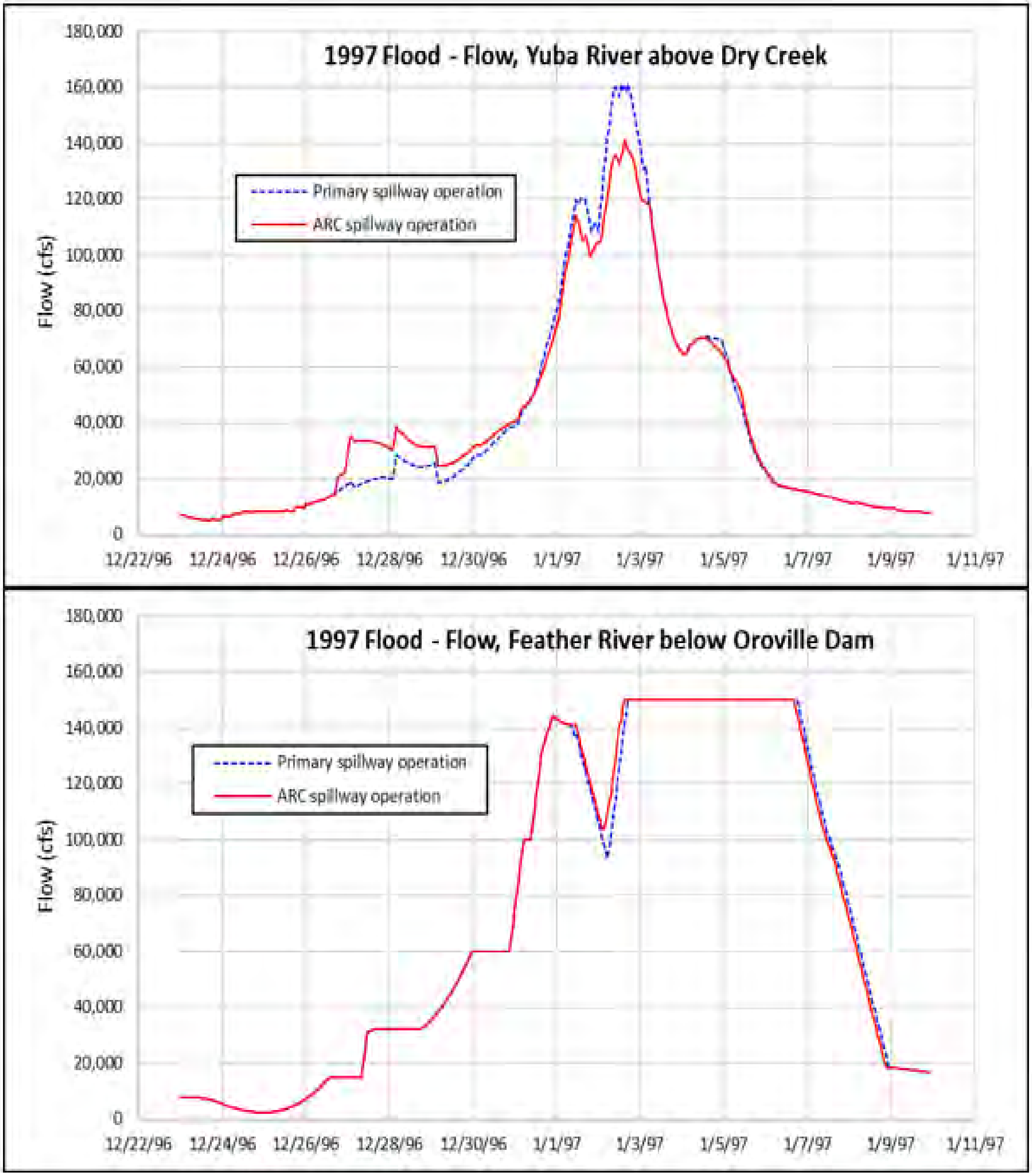

Figure 3. NBB Dam and Oroville Dam Releases for Primary and ARC Spillways, 1997 Flood

Results

At Flood Peak

The ARC spillway operation produces a substantial reduction in the peak flow in the Yuba River, with a small increase in the peak flow in the Feather River above the Yuba River. The net result is a reduction in the peak flow in the Feather River below the Yuba River, and a corresponding reduction in the Yolo Bypass and in the Sacramento Rive below the Feather River. Table 1 provides a summary of the effect of the ARC spillway on peak flows throughout the system.

Table 1. Effect of ARC Spillway of Peak Flows

Location	1986 flood			1997 flood		
	Peak Flow (cfs)		Change (cfs)	Peak Flow (cfs)		Change (cfs)
	Primary	ARC		Primary	ARC	
Yuba R. near Marysville	111,800	103,400	-8,400 (-7.5%)	156,400	136,800	-19,600 (-12.5%)
Feather R. above Yuba R.	169,500	170,300	+800 (+0.5%)	167,500	169,100	+1,600 (+1.0%)
Feather R. below Yuba R.	276,900	263,000	-13,900 (-5.0%)	302,900	289,400	-13,500 (-4.5%)
Fremont Weir	404,100	391,100	-13,000 (-3.2%)	431,500	423,900	-7,600 (-1.8%)
Sacramento R. below Natomas Cross Canal	99,800	98,600	-1,200 (-1.2%)	101,600	101,000	-600 (-0.6%)

The peak flow reduction resulting from the ARC spillway operation produces substantial reductions in the peak water surface elevations in the Yuba River, over two feet in some cases. Table 2 summarizes the effects on the peak water surface for the Yuba River Index Point locations shown in Figure 4. The effect along the centerline of the Yuba River is illustrated in the profile plot provided in Figure 5.

Table 2. Change in Maximum Water Surface Elevation at Yuba River Index Points

Index Point	Change in Maximum Water Surface Elevation (feet)	
	1986 Flood	1997 Flood
IP1	-0.48	-1.01
IP2	---[1]	---[1]
IP3	-0.43	-0.73
IP4	-0.59	-0.67
IP5	---[1]	---[1]
IP6	---[1]	-2.45
IP7	-0.74	-0.89
[1] Index point is dry for both spillway operations		

Figure 4. Yuba River Index Point Locations

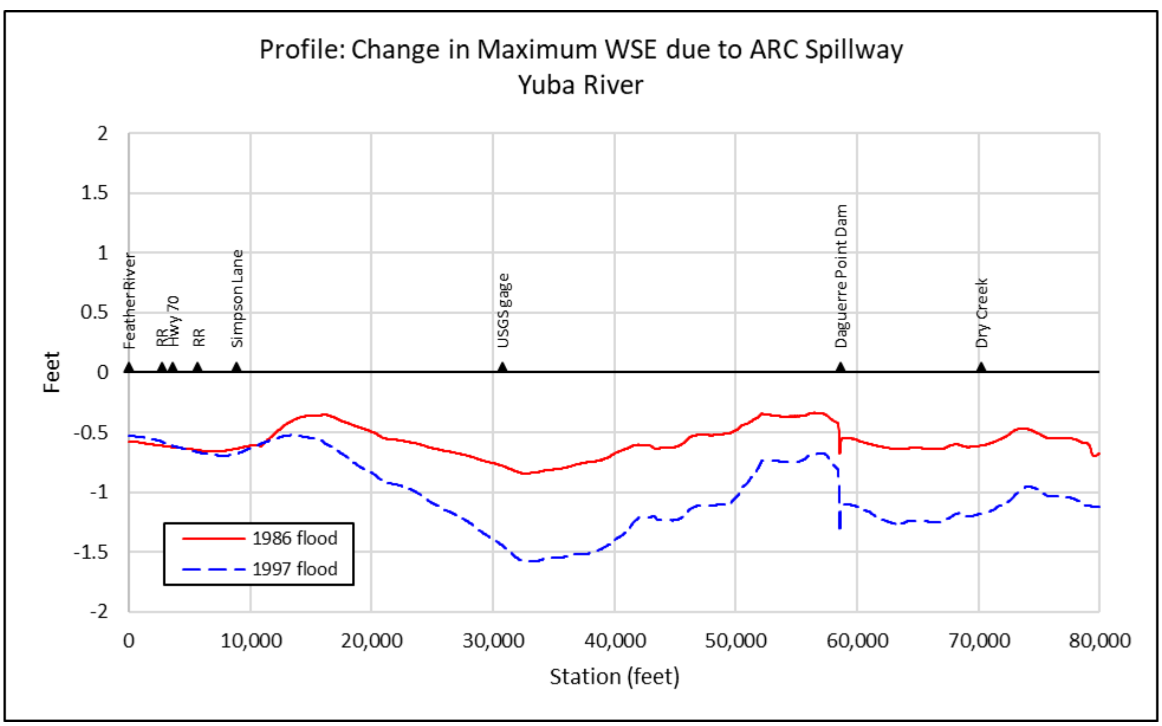

Figure 5. Yuba River Profile, Change in Maximum Water Surface Elevation Due to ARC Spillway, 1986 and 1997 Flood Events

The reduction in the peak water surface elevations resulting from the ARC spillway operation extends throughout the system. The changes to the peak water surface elevations at locations throughout the system are tabulated in Table 3.

Table 3. Changes in Peak Water Surface Elevation due to ARC Spillway Operation

River	Location	River Mile	Change in Maximum Water Surface Elevation (feet)	
			1986 Flood	1986 Flood
Feather River	Honcut Creek	127.246	+0.01	+0.05
	Yuba River	107.5	-0.58	-0.53
	Bear River	92.55	-0.44	-0.34
	Sacramento River	80.113	-0.28	-0.15
Bear River	WPIC	4.254	-0.02	-0.09
	Hwy 70	3.657	-0.07	-0.17
Western Pacific Interceptor Canal (WPIC)	Plumas-Arboga Road	3.641	-0.02	-0.03
	Best Slough	2.437	-0.02	-0.06
Sutter Bypass	Wadsworth Canal	83.642	-0.10	-0.03
	Tisdale Bypass	77.45	-0.23	-0.09
	Feather R. north levee	66.29	-0.30	-0.18
Yolo Bypass	Fremont Weir	56.708	-0.25	-0.14
	near Woodland	50.611	-0.13	-0.07
Sacramento River	Knights Landing	89.999	-0.23	-0.10
	Natomas Cross Canal	78.933	-0.28	-0.15
Natomas Cross Canal	Hwy 99	4.553	-0.26	-0.15

Early in Flood Event

The increase in Yuba River flow early in the flood event resulting from the ARC spillway operation results in an increase in flow in Feather River downstream of the Yuba River, as shown in Figure 6 and Figure 7. The corresponding change in WSE in the Feather River, just downstream of the Yuba River, is shown in Figure 8 and Figure 9.

The increase in WSE in the Feather River due to the ARC spillway operation occurs in the simulated flood events when the flow is less than 100,000 cfs, significantly less than the Sacramento River Flood Control Project design flow of 300,000 cfs in the Feather River downstream of the Yuba River. To lend further perspective, a cross section of the Feather River just downstream of the Yuba River (at hydraulic model river station 107.249) is shown with peak WSE's in Figure 10 (1986 event) and Figure 11 (1997 event). Also shown is the range of WSE's within which the ARC spillway operation increases the WSE for the 1986 flood in Figure 10 and for the 1997 flood in Figure 11. The increase in flow and WSE in the Feather River resulting from the ARC spillway operation occurs at a time when conditions are significantly below the system design condition; therefore, flood risk is not significantly increased.

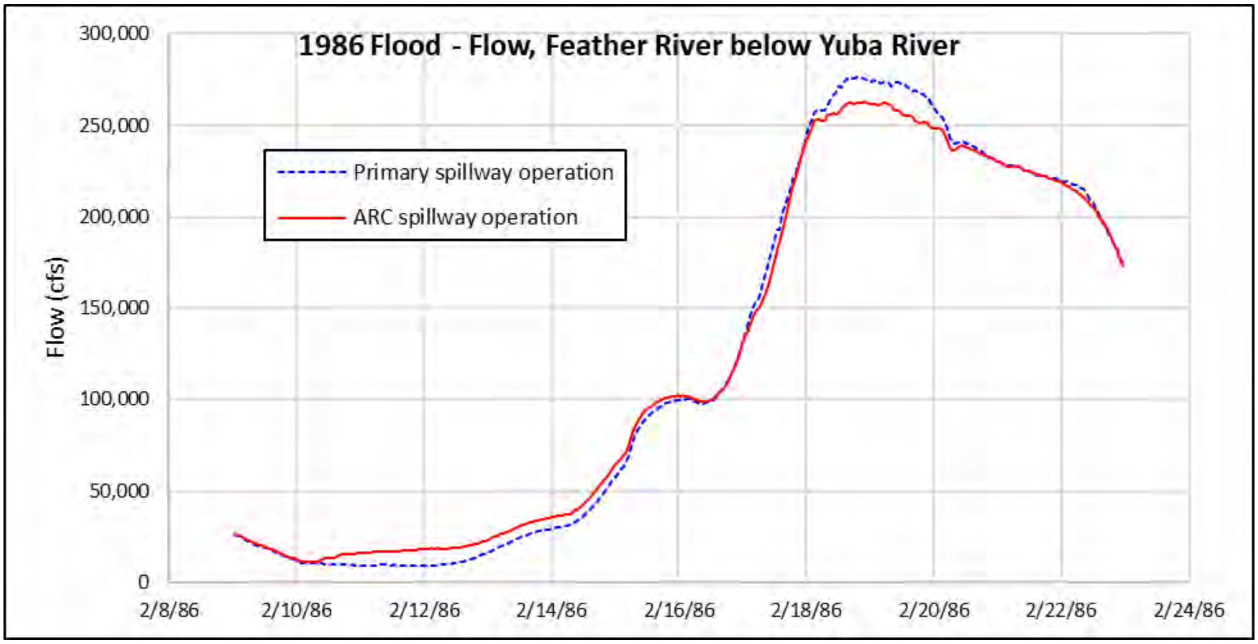

Figure 6. 1986 Flood, Flow in Feather River below Yuba River

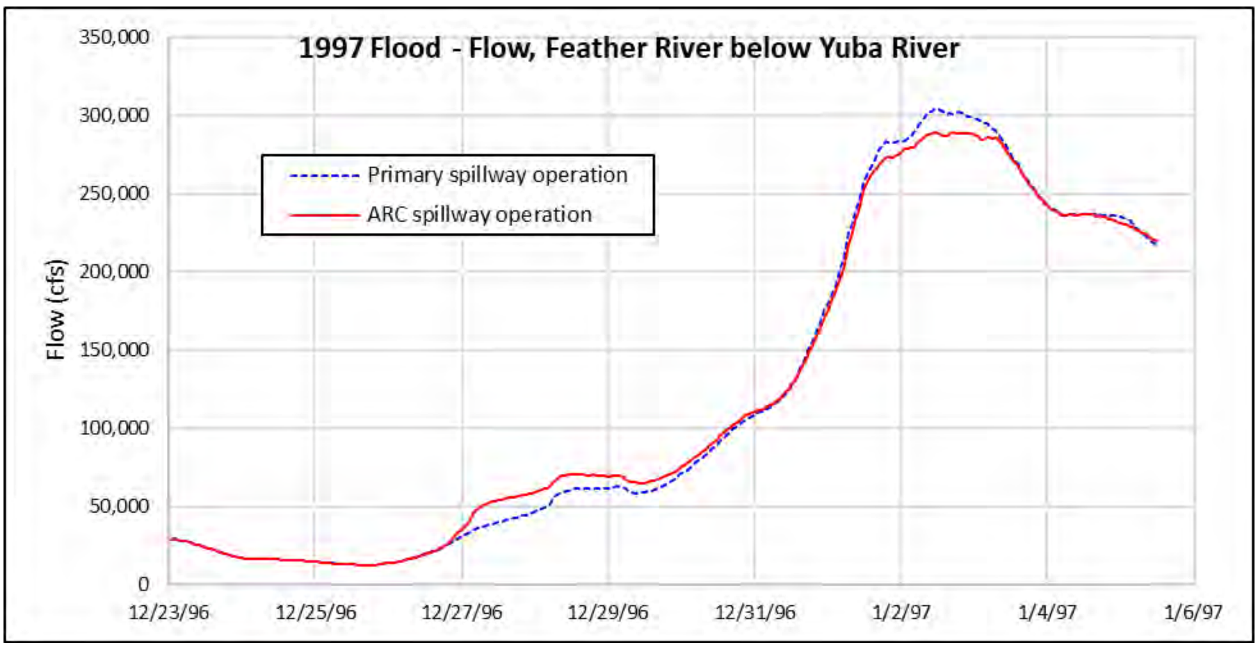

Figure 7. 1997 Flood, Flow in Feather River below Yuba River

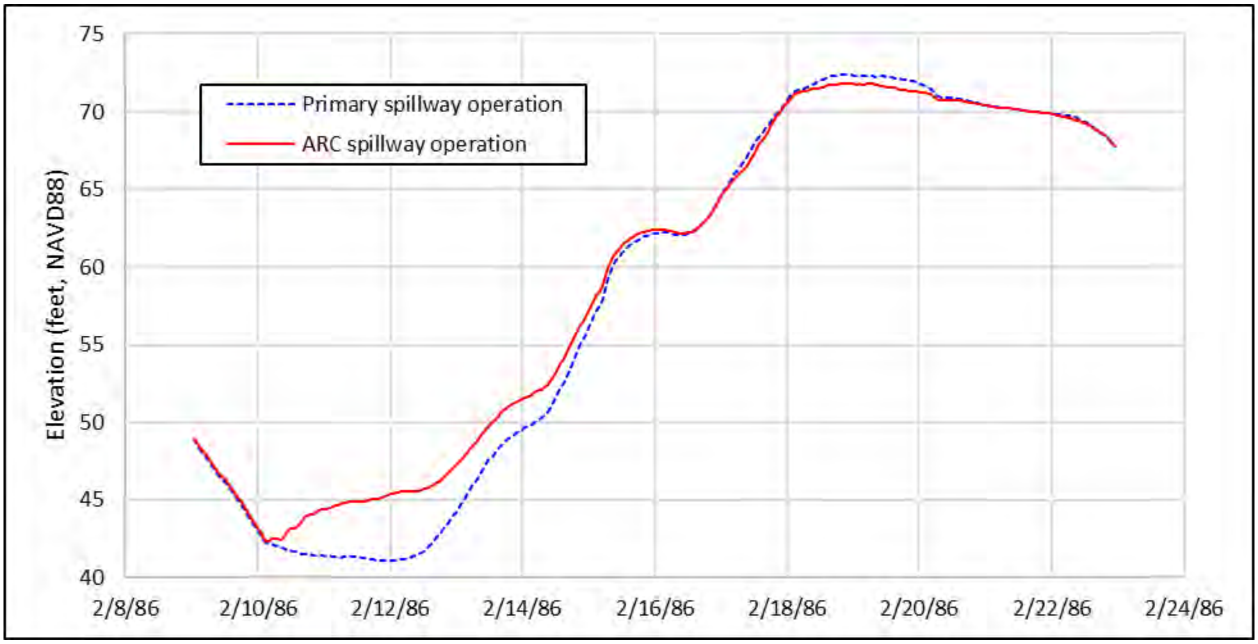

Figure 8. 1986 Flood, WSE in Feather River below Yuba River (hydraulic model river station 107.249)

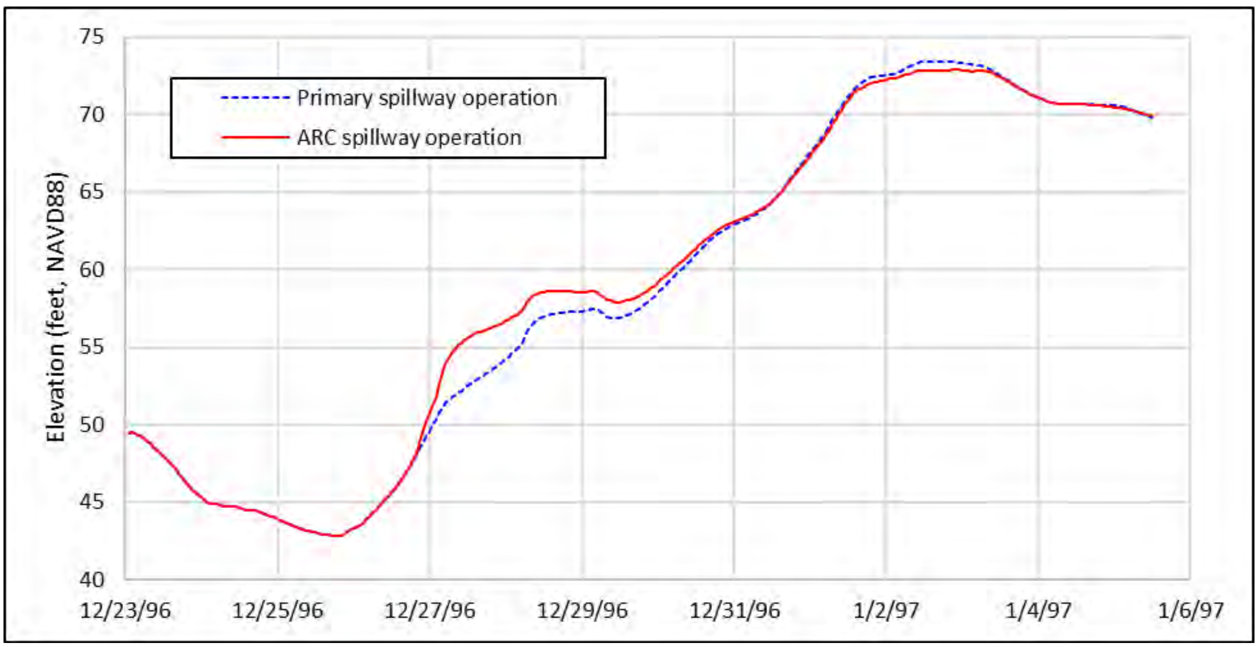

Figure 9. 1997 Flood, WSE in Feather River below Yuba River (hydraulic model river station 107.249)

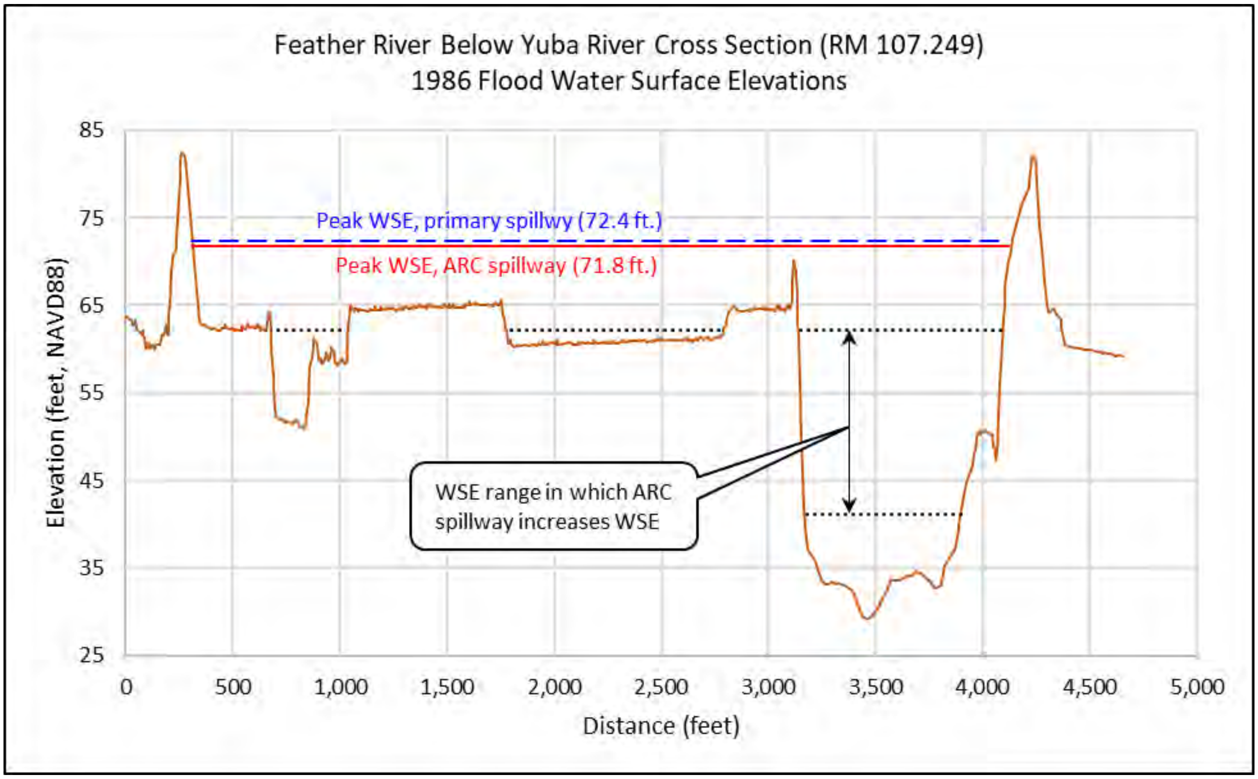

Figure 10. 1986 Flood, Feather River Cross Section Downstream of Yuba River with Peak WSE and WSE Range in which the ARC Spillway Operation Increases the WSE

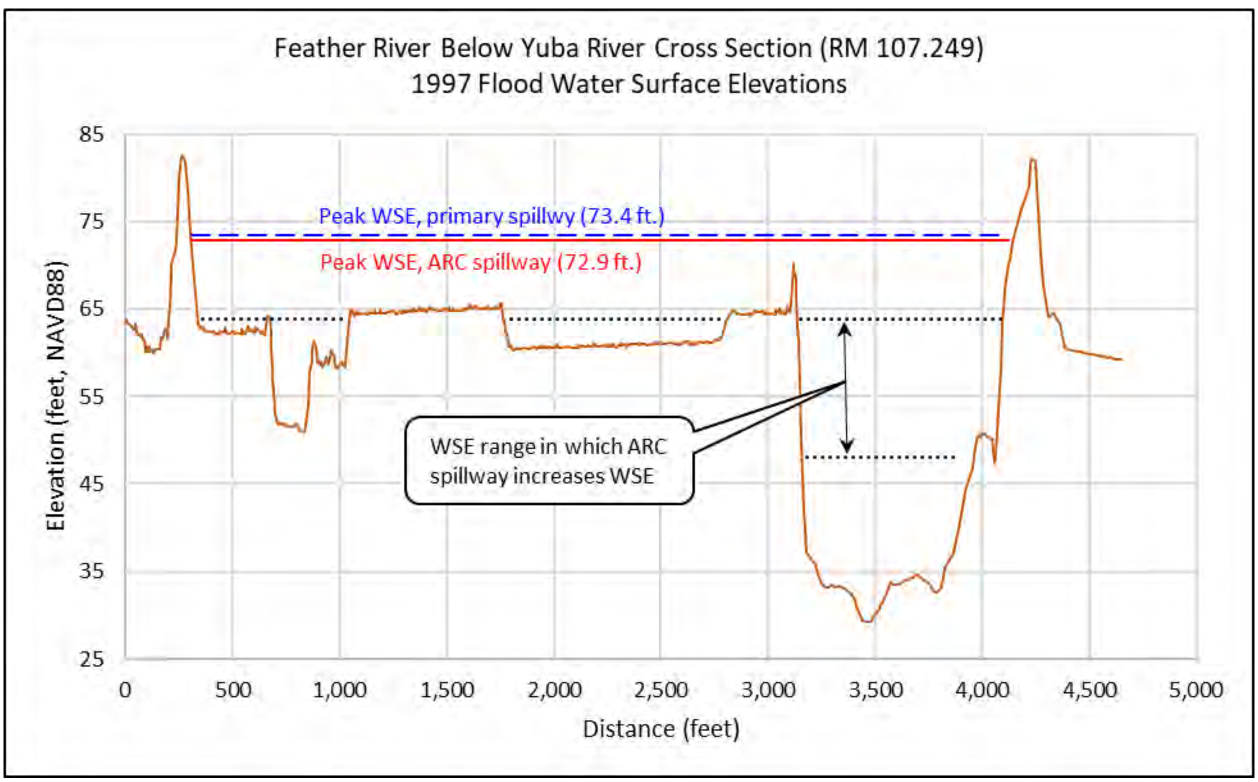

Figure 11. 1997 Flood, Feather River Cross Section Downstream of Yuba River with Peak WSE and WSE Range in Which the ARC Spillway Operation Increases the WSE

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Appendix D

Erodibility Assessment

Technical Memorandum

Prepared for: Yuba Water Agency

Prepared by: Michael Pantell, PE / GEI Consultants, Inc.
Zac Sharp, PhD / Utah State University
Todd Crampton, PG, CEG / GEI Consultants, Inc.

Reviewed by: Mark Fortner, PE, PLS / GEI Consultants, Inc.
David Gutierrez, PE, GE / GEI Consultants, Inc.
Alberto Pujol, PE, GE / GEI Consultants, Inc.

Date: March 25, 2022

Subject: **Stream Power and Erodibility Assessment for New Bullards Bar Dam ARC Spillway Project**

This Technical Memorandum (TM) describes an erodibility assessment of the unlined rock discharge channel downstream of the proposed Atmospheric River Control (ARC) Spillway at New Bullards Bar Dam. This assessment was performed by GEI Consultants, Inc. (GEI), as part of the design studies of the ARC Spillway Project (Project) and is intended to support ongoing design and environmental permitting efforts for the Project.

This TM is presented in two parts and includes one Attachment (A): Part 1 describes the development of stream power estimates for use in the erodibility assessment and Part 2 describes the erodibility assessment of the rock mass along the unlined discharge channel, which is based primarily on evaluation of the historical performance of the existing spillway. Attachment A includes review comments from Dr. Michael F. George of BCG Engineering (BCG, 2022) on earlier versions of this TM. Dr. George is recognized as an expert in spillway erodibility.

New Bullards Bar Dam is owned and operated by Yuba Water Agency (YWA) and is under the regulatory jurisdiction of the California Department of Water Resources, Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC). The dam has been in operation since 1970. The existing spillway is in the left abutment of the dam and consists of a reinforced-concrete weir and gate structure with three radial gates, a 100-foot-wide concrete-lined discharge chute, a flip bucket at the downstream end of the chute, and a relatively steep (35-50 degrees), unlined rock slope/discharge channel downstream of the flip bucket that conveys flows down to the North Fork Yuba River. The existing spillway has operated 26 times since 1970 and has experienced flows of up to about 50,000 cubic feet per second (cfs) four times in its operational history.

The proposed ARC Spillway is located about 280 feet south of the existing spillway and will be an open channel structure, similar to the existing spillway, controlled by two radial gates. The new spillway is being designed to accommodate flows of up to about 35,000 cfs with the reservoir level at the bottom of the flood pool (El. 1920.8 [NAD88]) and flows of up to about 64,000 cfs with the reservoir level at the normal maximum water surface (El. 1958.5 [NAD88]), both with the gates fully open. The orientation and flow direction of the proposed ARC Spillway is roughly subparallel (within about 20 degrees) to that of the existing spillway.

Technical Memorandum – Part 1

Prepared by: Michael Pantell, PE / GEI Consultants, Inc.
Zac Sharp, PhD / Utah State University

Subject: **Stream Power Assessment for New Bullards Bar Dam ARC Spillway Project**

Part 1 of this Technical Memorandum (TM) describes the development of stream power estimates for spillway flows in the unlined rock discharge channel downstream of the proposed Atmospheric River Control (ARC) Spillway at New Bullards Bar Dam. This analysis was performed to support the erodibility assessment of the rock along the unlined discharge channel. The results of the erodibility assessment are documented in Part 2 of this TM.

1.0 Methodology

Stream power is the rate of energy dissipation per unit area. This occurs when water flows over the surface or impacts the surface as a jet. As water flows along a surface, a portion of the stream power (available stream power) is the rate of potential energy that is being made available to move the water while another portion of the stream power (applied stream power) is applied to the surface as friction or work which cause erosion. While the available stream power does not contribute to erosion it acts as an upper bound to the amount of stream power that can be applied to the surface and contribute to erosion. Available stream power is defined in George Annandale's Scour Technology (Annandale, 2006) as follows:

$$P_{Available} = v \cdot \tau \tag{1}$$

Where v is the depth averaged velocity, and τ is shear stress. This equation is applicable in general to water flowing overland. Annandale provides equations for a range of other scenarios including knickpoints, jet impacts, hydraulic jumps, and back roller effects. Each of these other scenarios uses a derivation of the same basic equation as follows:

$$P = \frac{\gamma Q H}{A} \tag{2}$$

Where γ is the specific weight of water (kN/m^3), Q is the flow (m^3/s), H is change in energy head (m), and A is the area of energy dissipation (m^2). This stream power equation is a derivation of the available stream power equation shown in Equation 1. This is useful for unique scenarios where localized stream power may be higher due to effects not related to potential energy being converted into water turbulence. For example, at a hydraulic jump energy is being converted into more turbulent energy that would increase scour potential. Or in the case of a jet impact, the water's kinetic energy is being applied normal to the rock surface which would greatly increase the scour potential.

The jet impact scenario is applicable to New Bullards Bar flip bucket spillway. In the case of a jet of water there is always breakup that occurs as it travels through the air and dissipation occurs as the jet impacts the surface due to water that has built up in a plunge pool. Annandale accounts for these factors using the following equation:

$$P_{Jet} = P(C_P + F C_P') \tag{3}$$

Where, P is the stream power provided in Equation 2, F is a factor for the effects of jet breakup (F=1 for ski-jump jets) and C_p and C'_p are the average and fluctuating dynamic pressure coefficients, respectively. Both C_p and C'_p are a function of the ratio of the length of the jet at impact (L_J) and breakup length of the jet (L_b). In both cases, when the length of the jet at impact is greater than 2 times the breakup length, the values for C_p and C'_p quickly approach zero (BGC, 2022). As both of these values approach zero, the stream power of the jet at impact approaches zero. This is a result of the jet breaking as it travels through the air at a distance from the flip bucket referred to as the break up length.

This indicates that the breakup length and the how far the jet can go before impacts are the controlling factors of whether the jet impact contributes substantially to the erosion of the rock. The breakup length for a flip bucket jet is a constant value computed using the following (Pfister et al 2014):

$$L_b = \frac{76 \cdot h \cdot (1 + sin\varphi)}{Fr \cdot (1 + tan\delta)^4} \cdot \frac{1}{\cos(\varphi)} \tag{4}$$

Where h is the depth of the water entering the flip bucket, Fr is the Froude number of the water entering the flip bucket, φ is the approach angle of the chute into the flip bucket and δ is angle between the approach angle of the chute and the end of the flip bucket. The breakup length is dependent on the design of the spillway terminal exit trajectory, velocity, and depth of water.

In the case of the existing New Bullards Bar Spillway, the flip bucket spillway creates a jet that has impacted on the side of the canyon downstream of flip bucket. During a spillway release flows have ranged between less than 10,000 and 50,000 cfs over the period of record. Knowing how much each flow contributed to this erosion (jet impact or overland), will help predict the expected erosion of the proposed spillway.

The following sections will describe how stream power was computed for both the impact and overland flow for the following three scenarios:

- Existing spillway pre-erosion terrain
- Existing spillway current terrain
- Proposed ARC spillway

The existing spillway (both pre-erosion and current terrain) scenarios were analyzed to help calibrate the rock erodibility values that will be discussed in the Erodibility TM.

2.0 CFD Model

A Computational Fluid Dynamics (CFD) model was used to help provide the parameters needed to estimate stream power. The CFD solver used for this modelling was Star-CCM+, a double precision commercially available CFD code, capable of accurately solving all types of fluids problems from aerodynamics to multiphase fluid mechanics to heat transfer and fluid structure interaction. The solver has been proven accurate with an appropriate mesh on multiple occasions, including with verification of the CFD results with the physical model for the ARC spillway.

A CFD model was developed for both the existing spillway and proposed ARC spillway. The existing spillway was used to calibrate the model, which then supported calculations for the proposed spillway. The CFD model used 2014 and 2018 light and detection ranging (LiDAR) surveys by Quantum Spatial and the United States Geological Survey, respectively, to represent the present-day physical condition of the existing spillway and ARC spillway area. Both LiDAR datasets were used to generate high-resolution 3D bare-earth surfaces of the existing spillway discharge channel. Since the exact topography of the ARC spillway discharge channel will be determined during construction, the topography of the existing spillway discharge channel was copied and fitted to the proposed discharge channel. This was done to approximate the expected roughness of the channel in order to simulate the turbulent flow expected within the discharge channel.

A CFD model approximates the governing equations of fluid flow, the Navier Stokes equations, with the help of turbulence models on a discretized numerical mesh or grid. Part of the Navier Stokes equations include maintaining continuity, which is difficult to do for a jet that is airborne for hundreds of feet. As the jet breaks up, the model must use a fine enough mesh to keep track of all the water particles in order to not lose any mass.

Historical photographs and video of the existing spillway at New Bullards Bar show that the jet appears to break up and expand, becoming larger in cross-sectional area the farther it travels. This happens due to air bulking of the jet; as the jet travels and accelerates more air becomes part of the jet prior to landing and impact with ground. This increased air component significantly affects the stream power results because the water density decreases and cross-sectional area increases prior to impact of the jet.

To determine the amount of air that should be included into the stream power results, a model verification was conducted. Historical photos and data were collected from two past spill events when the existing spillway flowed at approximately 10,000 cfs and 40,000 cfs. CFD runs were produced to match these events, at 10,548 cfs and 47,542 cfs, respectively. The amount of air included in the jet was adjusted by adjusting a volume fraction of air within each cell. This value can be set to any value between one and zero, where pure water is one and pure dry air is zero. Starting at the standard value of 0.5, this value was adjusted until the jet streams from the CFD model visually matched the historical events. The effect of the volume fraction values on the size of the jet impact area is shown on **Figure 1-1**. It was determined that a volume fraction value of 1E-8 most closely matched the jet size and appearance to the actual jet from historical photos. **Figure 1-2** shows the historical photo and CFD results for the 10,000 cfs scenario and **Figure 1-3** shows the historical photo and CFD results for the 40,000 cfs scenario.

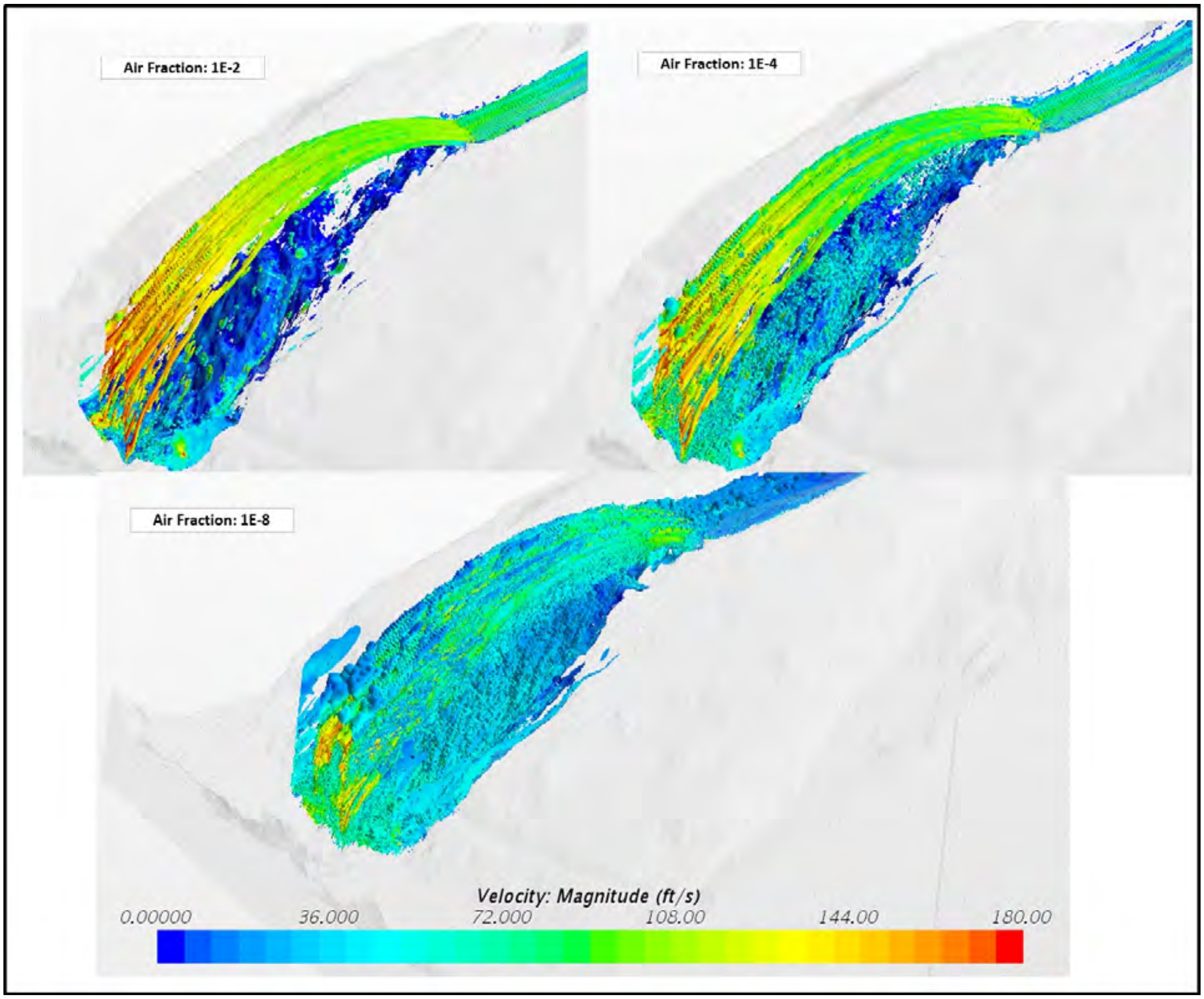

Figure 1-1 . Comparison of jet areas with various air volume fractions.

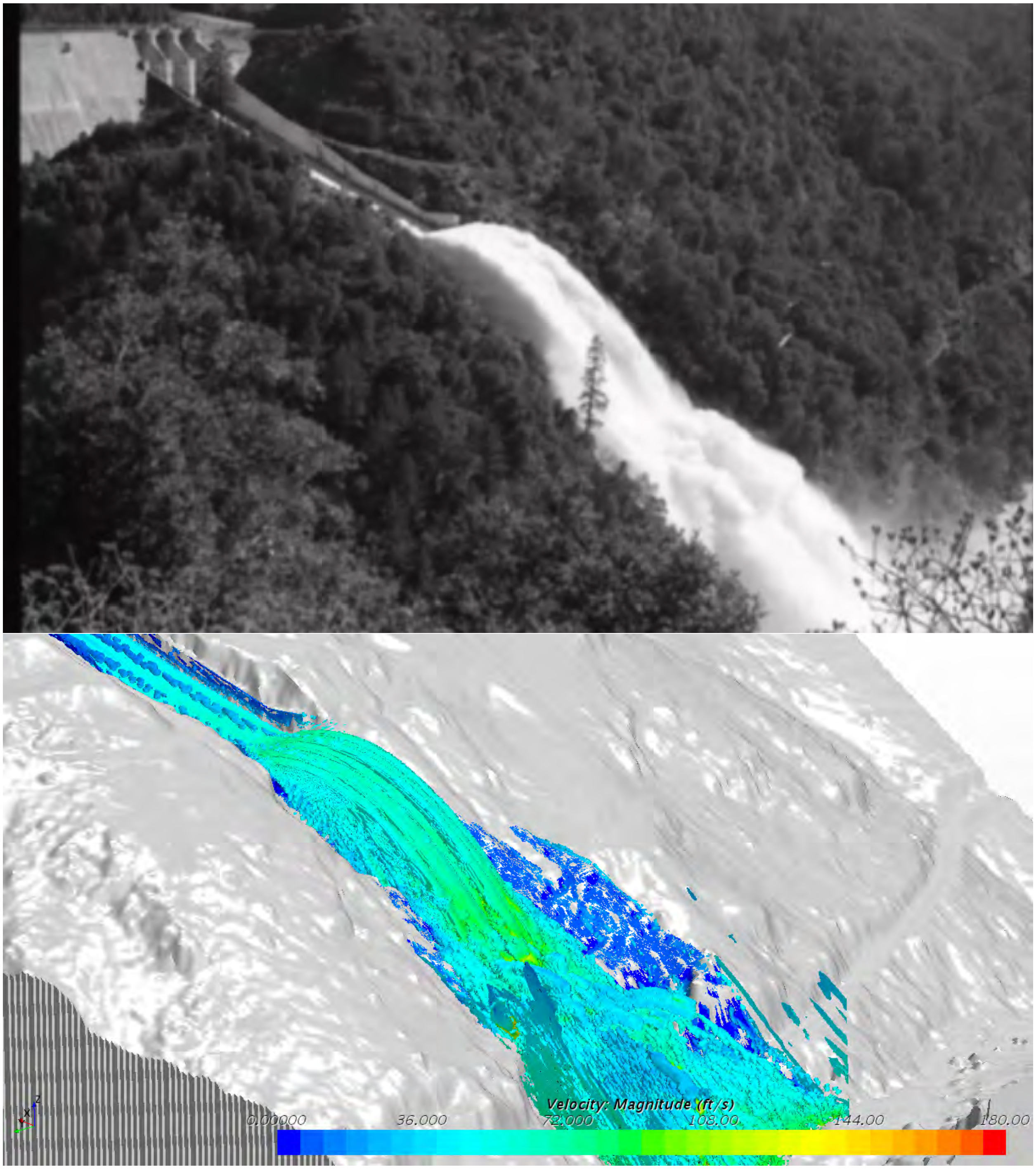

Figure 1-2: Historical photo of a spill with an estimated flow rate of approximately 10,000 cfs (above) and the CFD jet at a flow rate of 10,548 cfs (below).

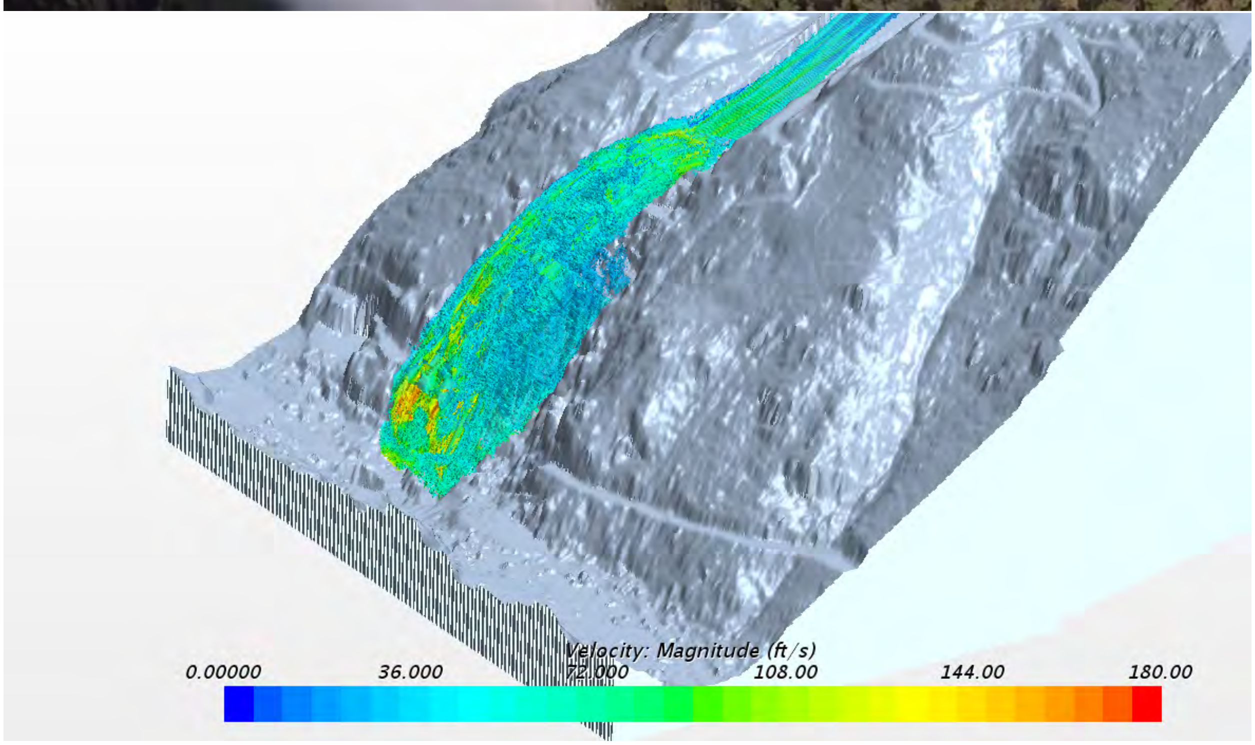

Figure 1-3: Historical photo extracted from a video showing an approximate flow rate of 40,000 cfs (above) and the CFD results at a flow rate of 47,542 cfs (below).

3.0 Existing Spillway Stream Power

After the amount of air in the jet was calibrated, the CFD model was run for the existing spillway current terrain scenario. Three flows were analyzed: 10,548 cfs, 24,403 cfs, and 47,542 cfs. These runs represent a range of flows that the existing spillway has previously experienced. For the pre-erosion terrain scenario, the CFD model was only run with 10,548 cfs. The following sections describe the stream power results for each of these scenarios.

3.1 Jet Impact Stream Power

The first step in determining the jet impact stream power is to compute the ratio of jet impact length to jet breakup length provided in Equation 4. For the existing spillway flip bucket, the variables ϕ and δ were measured to be 22.8 degrees and 16.3 degrees respectively. For each run, the depth and velocity of the water entering the flip bucket and the impact location of the jet were obtained from CFD model. From there the Froude number, breakup length, and the jet impact length to breakup length ratio were computed. The values are shown in **Table 1-1**.

Table 1-1. Summary of CFD Results for Existing Spillway

Flow (cfs)	Flow Depth at Flip Bucket (ft)	Velocity at Flip Bucket (ft/s)	Froude Number	Breakup Length, L_B (ft)	Jet Length, L_J (ft)	L_J/L_B
Existing Terrain						
10,548	1.43	69.7	10.28	5.7	258	45.5
24,403	2.56	90.1	9.94	10.5	489	46.5
47,542	4.36	102.8	8.68	20.5	600	29.3
Pre-Erosion Terrain						
10,548	1.43	69.7	10.28	5.7	208	36.7

The results from **Table 1-1** show that, regardless of the scenario, the jet length to breakup length ratio is much larger than 2. Based on discussions with Dr. Michael George and literature provided by him, this indicates that the stream power due to the impact of the jet will be negligible (BCG, 2022). This matches with visual images of the spillway at various flows which show the jet is predominately broken up into small particles. This also indicates that the erosion that has occurred in the spillway discharge area was not due to the jet impact, rather it was likely due to water coalescing on the hillside and flowing down. Likely the erosion is due to the lower flow (10,548 cfs) historic events where most of the water landed high up on the hillside, coalesced and flowed down the hillside eroding it.

3.2 Overland Flow Stream Power

As discussed in the previous section, it was concluded that the likely cause of erosion on the canyon face downstream of the existing spillway chute was not from the impact of the water on the face, but due to water flowing down the canyon after it coalesced. From this we decided to compute the stream power for the 10,548 cfs scenarios because the jet for this flow rate impacts above the area with the greatest amount of erosion while the larger flow rate scenarios impact below the area where most of the erosion has developed.

To compute overland flow stream power, the shear stress and velocity were obtained from the CFD model for the entire downstream area as point data files. Shear stress on the surface was output directly from the CFD model. Velocity data was output from the CFD model for the regions near the surface of the ground. This was done to determine the depth averaged velocity of the water flowing over the ground by removing any water detached from there surface. For both datasets, the point data was averaged to 1 square foot raster data files. These datasets were input into Equation 1 to create a stream power raster file for the entire impact surface.

This was performed in three time steps to account for spatial and temporal changes throughout the model. The time steps analyzed were based on the maximum shear stress at all points in the model for a given time step. After analyzing the maximum shear stress at all points within the model over time, the time steps with minimum, maximum, and average values were chosen. These time steps were processed into stream power values and averaged to compute the average maximum stream power over the surface.

Figure 1-4 and **Figure 1-5** shows the overland stream power results for the pre-erosion and existing terrain scenarios, respectively. The pre-erosion results show a maximum stream power value of 356 kW/m^2. This value was located within the impact zone of the jet. Based on the discussion in Section 3.1, we determined any erosion is unlikely due to jet break-up. We discarded these values and used the maximum stream power values outside of the impact zone.

Figure 1-4 shows for the pre-erosion surface the predominate stream power in the shear zone ranged from 25 to 100 kW/m^2 with some peak values as high as 250 kW/m^2. For the lower section of the discharge chute, stream power values range predominately less than 25 kW/m^2 with some peak values as high 100 kW/m^2.

Similarly, **Figure 1-5** shows the existing terrain results has a maximum stream power within the impact zone of 930 kW/m^2. In the shear zone, the predominate stream power ranged from 25 to 100 kW/m^2 with some peak values as high as 250 kW/m^2. For the lower section of the discharge chute, stream power values range predominately less than 25 kW/m^2 with some peak values as high 100 kW/m^2.

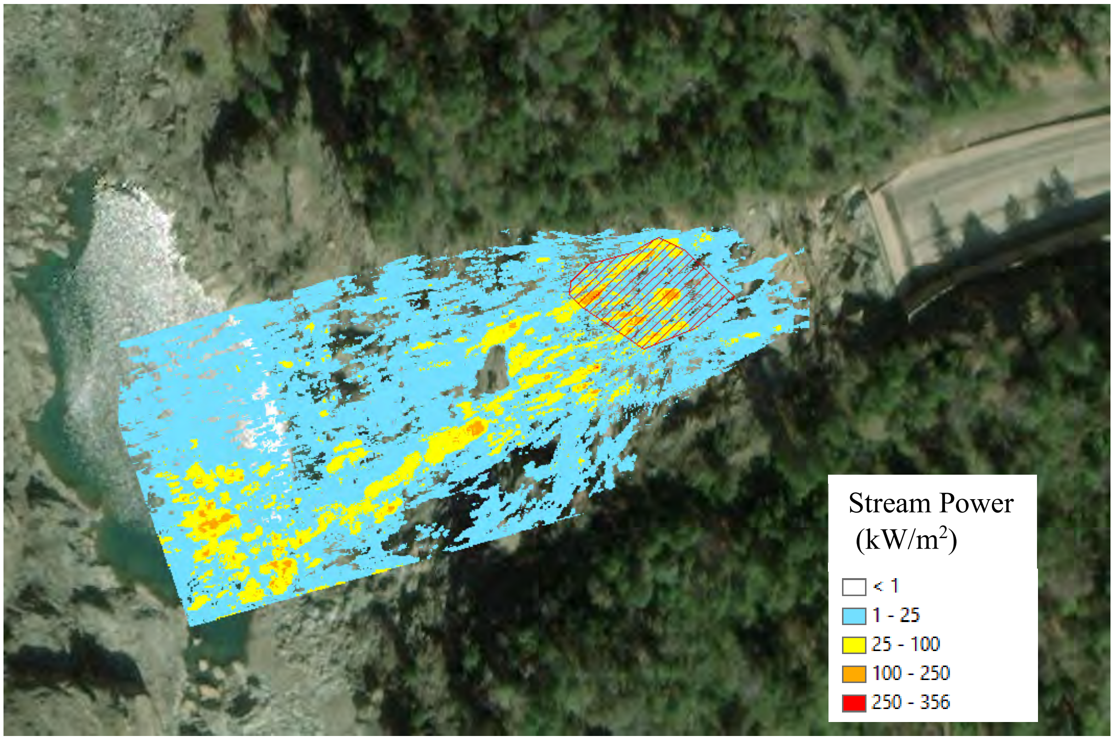

Figure 1-4: Overland Flow Stream Power Results for 10,548 cfs Scenario. Zone of Impact Shown in Hatched Red Area.

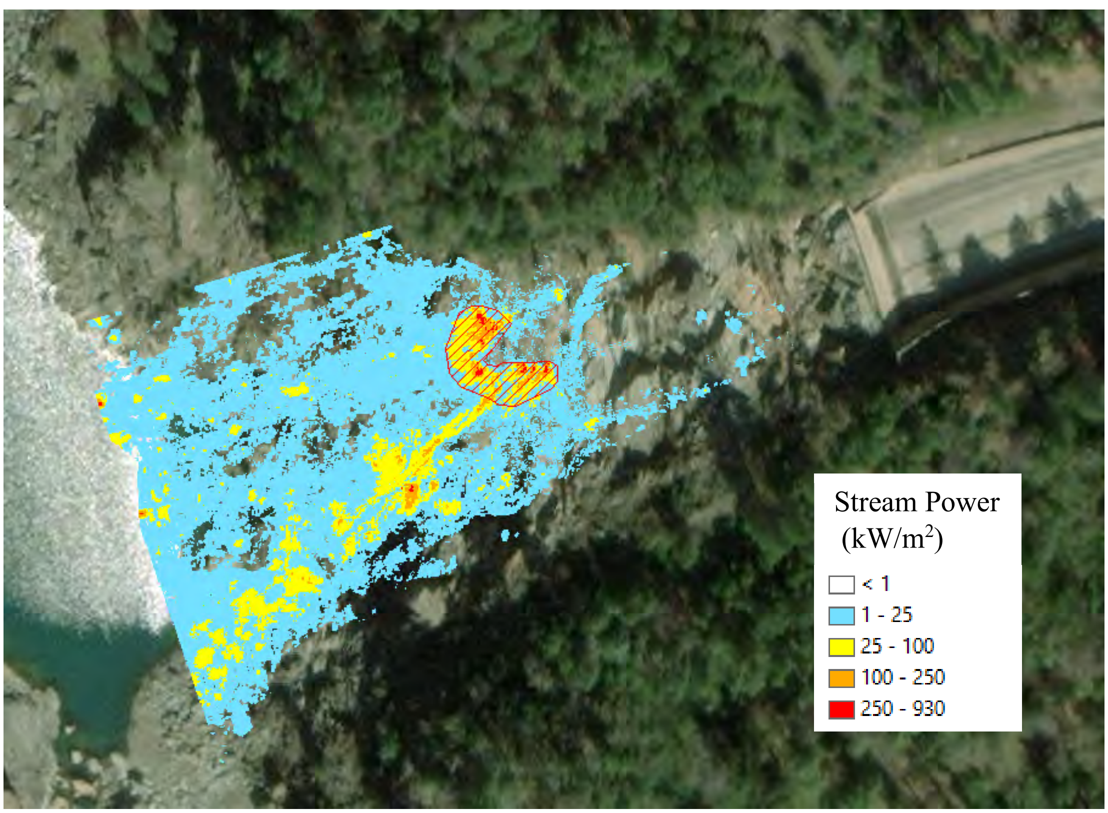

Figure 1-5: Overland Flow Stream Power Results for 10,548 cfs Scenario. Zone of Impact Shown in Hatched Red Area.

3.3 Mesh Sensitivity Analysis

In addition to verifying the model results to images of historic flows, a mesh sensitivity analysis was conducted to verify that the model resolution was sufficient to compute consistent model results. Three model runs were conducted with varying mesh sizes. Since Star-CCM+ is a flexible mesh, the cell size within the mesh varies. That said, Coarse, Medium, and Fine meshes were developed and run. **Figure 1-6** shows the model results for each.

While each of the runs had similar maximum stream powers ranging from 571 kW/m^2 to 735 kW/m^2, the Coarse model run lacked the resolution to properly resolve the shear zone. Both the Medium and Fine meshes produced spatial results with similar peak stream power magnitudes and locations. From this we decided that the medium mesh was sufficient to properly resolve the stream power results and was used for all model scenarios.

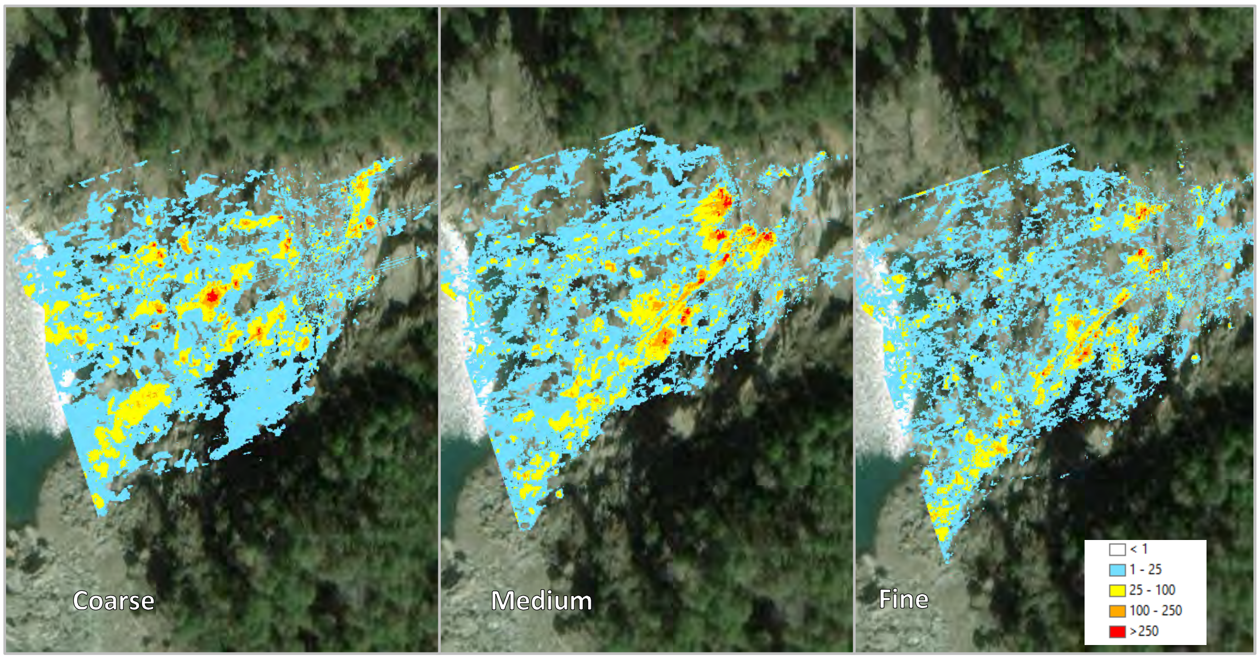

Figure 1-6: Overland Flow Sensitivity Analysis Stream Power Results

4.0 ARC Spillway Stream Power

The following sections will describe the stream power results for the proposed ARC spillway.

4.1 Jet Impact Stream Power

The ARC spillway will include a flip bucket spillway that projects water at a high velocity down the side of the canyon. Through initial hydraulic model tests, the spillway is designed to have a high velocity and lower depth at takeoff. This was designed such that the jet length will be much greater than the breakup length for all runs. **Table 1-2** shows the results of the jet length to breakup length ratio for four runs that range from 2,969 cfs to 50,000 cfs. This table shows that for all flow scenarios the jet length at impact is much greater than two times the jet breakup length. This indicates that for the new spillway the stream power from the jet impact will be negligible.

Table 1-2. Summary of CFD Results for ARC Spillway

Flow (cfs)	Flow Depth at Flip Bucket (ft)	Velocity at Flip Bucket (ft/s)	Froude Number	Breakup Length, L_B (ft)	Jet Length, L_J (ft)	L_J/L_B
2,969	1.0	67.8	12.1	3	260	85.7
10,000	2.9	85.7	8.84	12	472	38.7
30,000	7.5	93.6	6.04	46	572	12.5
50,000	11.7	98.5	5.08	85	619	7.2

4.2 Overland Flow Stream Power

Since the jet impact will have negligible stream power, the stream power from the overland flow will be the controlling flow regime. To estimate the overland flow stream power, a flow was selected that would impact the surface high on the hillside and be allowed to flow across the downstream discharge chute. The 10,000 cfs run impacted far down on the bottom of the canyon wall, while the 50,000 cfs run impacts in the canyon bottom. A 2,969 cfs run was chosen for the controlling overland flow scenario because it impacts much closer to the flip bucket location.

Figure 1-7 shows the CFD overland stream power results for the ARC spillway. The results show a maximum stream power value in the range of 250 kW/m^2 to 454 kW/m^2. These values are located within the impact zone of the jet. Based on the discussion in Section 3.1, the CFD model is under estimating air bulking of the jet and we determined the actual jet break-up length would greatly reduce jet impact stream power. Hence we discarded these values and determined that the overland stream power is controlling . For the discharge chute, overland stream power values range predominately around 25 kW/m^2 with some peak values as high 100 kW/m^2.

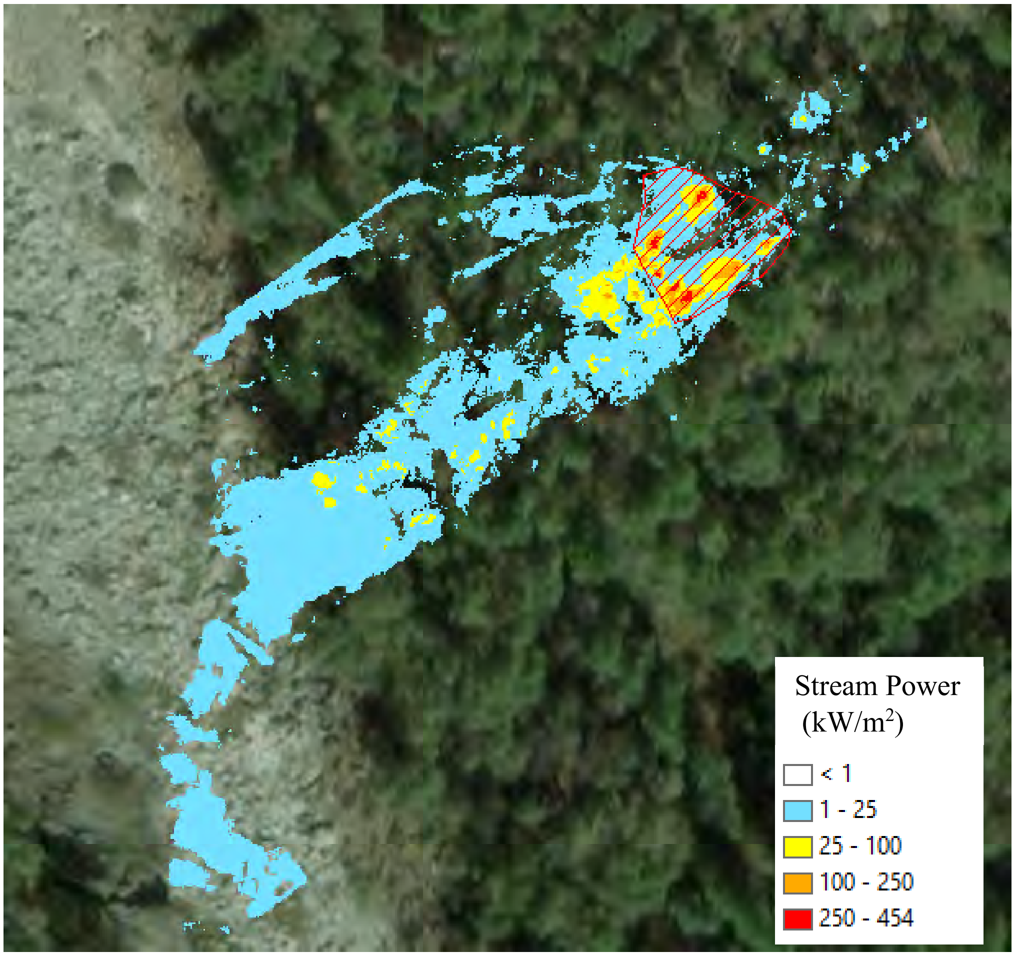

Figure 1-7: Overland Flow Stream Power Results for ARC Spillway 2,969 cfs Scenario. Zone of Impact Shown in Hatched Red Area.

5.0 Conclusions

The CFD model scenarios are intended to provide stream power results for the New Bullards Bar Dam existing spillway and proposed ARC spillway. The following are the summary of results from the CFD evaluation:

- The CFD model parameters were adjusted to match trajectory, bulking and jet breakup length for flows and historic images of the existing spillway. The "calibrated" CFD results were used to model the ARC spillway.
- For all scenarios of the existing and proposed ARC spillway, the stream power due to the jet impact was concluded to be negligible because the jet impact length was much greater than 2 times the break-up length.
- The overland flow stream power was determined to be the controlling stream power for all scenarios.
- Of the three existing spillway scenario runs, only the 10,548 cfs scenario impacts the hillside.
- For the pre-erosion terrain, the predominate stream power within the shear zone of the existing spillway ranged from 25 to 100 kW/m^2 with some peak values as high as 250 kW/m^2. For the

lower section of the discharge chute, stream power values ranged predominately less than 25 kW/m^2 with some peak values as high as 100 kW/m^2.

- For the existing terrain the predominate stream power within the shear zone of the existing spillway ranged from 25 to 100 kW/m^2 with some peak values as high as 250 kW/m^2. For the lower section of the discharge chute, stream power values range predominately around 25 kW/m^2 with some peak values as high as 100 kW/m^2.
- For the ARC spillway, all flow scenarios produced break up lengths much greater than 2. This indicates the maximum stream power that would be experienced would not be from the jet impact. Rather the maximum stream power would be a result of overland flow.
- For the ARC spillway, a 2,969 cfs scenario was determined to impact the hillside highest on the discharge channel and would allow for the largest of flow down the channel. Larger flows would impact further down the discharge channel and decrease the erosion potential overland flow.
- For the ARC spillway, a 2,969 cfs produced stream power values predominately around 25 kW/m^2 with some peak values as high as 100 kW/m^2.

Technical Memorandum – Part 2

Prepared by: Todd Crampton, PG, CEG / GEI Consultants, Inc.

Subject: **Erodibility Assessment for New Bullards Bar Dam ARC Spillway Project**

Part 2 of this TM describes an erodibility assessment of the downstream unlined section of the proposed ARC Spillway at New Bullards Bar Dam. This assessment relies on recent geologic and geotechnical information, available topographic data, evaluation of the historical performance of the unlined rock discharge channel of the existing spillway and supporting stream power estimates.

Geologic and geotechnical explorations have recently been carried out by GEI (2022) for the Project. Given the proximity and shared geologic site conditions of the two spillways, the available historical data for the existing spillway offers a unique "case history" for evaluating the erosion potential of the unlined rock section of the proposed ARC Spillway. As previously documented by GEI (2019), erosion of the unlined rock slope of the existing spillway has occurred during its 52 years of service, with substantial erosion concentrated along an ancient shear zone that obliquely crosses the spillway (see **Figure 2-1**)[1].

6.0 Site Geology

The bedrock geology of the existing and proposed spillways consists of metavolcanic rock of the Jurassic-age Smartville Complex. Petrographic analyses (thin sections) performed on rock core samples obtained for the Project indicate the rock is mildly metamorphosed andesite, ranging from aphanitic (fine-grained) to porphyritic (coarse-grained). Field mapping of the existing spillway indicates the exposed rock typically is slightly weathered to fresh, very hard to extremely hard, and variably fractured. Laboratory test data on rock core samples obtained for the Project indicate the slightly weathered to fresh rock is very strong. The structure of the rock is dominated by a regional north- to northwest-trending subvertical foliation (layering) and several prominent joint sets that create a very blocky rock mass. The foliation, which ranges from a fraction of an inch to several feet wide, is only weakly expressed in thin section, indicating it is more of a meso-scale feature. Field observations indicate most joints persist for several tens of feet, with some persisting for many hundreds (to thousands) of feet. The joints typically are planar to slightly undulating, with tight asperities and rough to slightly rough surfaces. In areas of moderate to intense weathering, joints can have oxide coatings or thin clay fillings. Rock core borings drilled for the Project encountered rare clay-filled joints on the order of 1 inch to 3 inches thick. Similar clay-filled joints (termed "mud-clay seams") were encountered in the foundation excavation of New Bullards Bar Dam; these joints were inclined at low angles (≤ 20 degrees) with consistent dip directions toward the left (south) abutment (DSOD, 1967).

As noted above, an ancient shear zone extends obliquely through the existing unlined spillway discharge channel (see **Figures 2-1 and 2-2**). The shear zone is subvertical with a strike of about N30E. Field exposures indicate the shear zone consists of two to three subparallel zones of crushed rock that typically are on the order of about 8 inches wide. The same shear zone was encountered in the foundation excavation of New Bullards Bar Dam (Blocks 21 and 22), where it was found to range from about 2 feet to 15 feet wide (total) and include several 4- to 6-inch-wide seams of soft clay gouge. Concentrated erosion along this feature from past spill events has created a deep, relatively narrow slot (or crevice) in

[1] All Part 2 figures are attached at the end of this TM.

the unlined rock discharge channel. The rock mass not affected by the shear zone has experienced significantly less erosion.

7.0 Methodology

This assessment was performed using the semi-empirical Erodibility Index Method (EIM) originally proposed by Annandale (1995). Annandale reviewed about 150 case studies of spillway channels and plunge pools to develop a "threshold line" of erosion (scour) potential that relates the erodibility index of the foundation material to the available stream power exerted on the foundation by jet impact and/or overland flow (**Figure 2-3**). The stream power, typically given in kilowatts per square meter (kW/m^2), is calculated from hydraulic parameters and can be estimated for a range of discharge scenarios. The erodibility index (also known as the Kirsten Index (*K*)) is a unitless geo-mechanical index number based on studies by Kirsten (1982), who originally developed the index to evaluate the rippability of a rock mass by mechanical equipment. Annandale (1995) later applied this index without modification to scour analyses and coined the term Erodibility Index. The Erodibility Index (*K*) is calculated as follows:

$$K = M_s K_b K_d J_s$$

where M_s = intact material strength number (unconfined compressive strength in megapascals (MPa)); K_b = block size number (based on RQD / # of joint sets (Jn)); K_d = joint strength number (based on joint roughness (Jr) and alteration (Ja)); and J_s = relative shape and orientation number (based on strike and dip of the controlling joint set). These numbers can be measured or estimated from field data and associated tables provided in Annandale (1995); the intact material strength can be estimated from field data or determined from laboratory testing. The inputs require judgement from an experienced engineer or geologist and typically a range of *K* values is considered[2].

The EIM is widely accepted throughout the dam industry and is considered state-of-the-practice for evaluating the erosion potential or initiation of scour for dam overtopping and spill events; it does not, however, directly predict the rate or magnitude of scour and erosion. As a means of estimating the magnitude of erosion using the method, researchers from the U.S. Army Corps of Engineers (USACE) and the U.S. Department of Agriculture (USDA) performed regressions on Annandale's data set to develop probability bounds of erosion (P(E)) at the 0.01, 0.50, and 0.99 probability levels (Wibowo et al, 2005). As shown in **Figure 2-3**, the P(E) = 0.50 line of Wibowo et al (2005) is close to the threshold erodibility line of Annandale (1995; 2006). This "erodibility threshold" graph and guidelines for the EIM currently are in use by the U.S. Bureau of Reclamation (USBR) as Best Practices Chapters (Chapter D-1: Erosion of Soil and Rock and Chapter D-2: Spillway Erosion (Presentation)) of their Risk Management Program, with the latest edition listed as July 2019.

It must also be noted that the EIM was developed primarily for application to relatively flat-lying (or subhorizontal) discharge channels. For this reason, this erodibility assessment also considered kinematic effects on the rock mass induced by the steep (~ 35 to 50 degrees) rock slope using Block Theory analysis methods (Goodman and Shi, 1985), the basic premise being gravity has a greater destabilizing force on a rock mass exposed in a steep slope relative to a gentle slope. This generally amounts to a reduction in the *K* values and corresponding rock resistance to scour (*Pr*) values that are predicted by the EIM (BCG, 2022). To account for this, a site-specific Reduction Factor (RF) was developed by comparing the minimum rotation angle (θr) of the active resultant force vector needed to destabilize a removable block

[2] It is beyond the scope of this TM to elaborate on the details of selecting the inputs for calculating *K*. For more information, refer to Annandale (1995) and Kirsten (1982).

from a flat (reference) slope to a removable block on the steep slope in the Project area. The RF for this assessment was developed by Dr. Michael F. George using the geologic data obtained for the Project and found to range from 0.14 to 0.34 (BCG, 2022). Application of this RF to the "base" *K* values is discussed below in Section 4.2.

8.0 Erodibility Assessment Data

8.1 Historical Spillway Discharge Data

As previously mentioned, the existing spillway has been in operation since 1970. A bar graph of historical spill data, beginning with the initial spill in January 1970 through April 8, 2018, is shown in **Figure 2-4**. These data indicate the spillway has operated in 26 of the 48 years of record. The graph indicates that spills in most years are dominated by lower (≤ 15,000 cfs) discharge events. Spill events greater than or equal to 20,000 cfs happen relatively infrequently, having only occurred during six of the 48 record years. Of those six record years, only four years (1970, 1986, 1997, and 2017) have seen discharges equal to or greater than 40,000 cfs. Discharges of about 50,000 cfs (the highest discharge of record) have occurred only four times, with two occurring only days apart in 1970 and the others in 1986 and 1997. Based on the spill history data, the durations for any one discharge value are typically on the order of hours, but the duration of spilling for any one flood event can go on for several days to weeks.

From the spill data it is also evident that spill flow rates within any given year cycle up and down, based on lake level and operational requirements. This is represented by the dark blue lines (breaks) in **Figure 2-4**, which represent a single sustained discharge value within a given spill event.

8.2 Topographic Data

The present-day physical condition of the existing spillway and Project area is based on high-resolution light and detection ranging (LiDAR) surveys performed by Quantum Spatial in 2014 and the United States Geological Survey in 2018. The 2014 LiDAR data was augmented in 2017 by researchers at the University of California, Davis to include bathymetry within the North Fork Yuba River channel, including the plunge pool below the existing spillway. The 2018 LiDAR data does not include the plunge pool bathymetry and, for this reason, the 2014 LiDAR surface was chosen as the Project topography for design. Both LiDAR datasets were used to generate high-resolution 3D bare-earth surfaces of the existing spillway discharge channel and adjacent Project area, from which 2-foot contours were generated. The 2014 LiDAR surface (with plunge pool topography) is shown in **Figure 2-2**. Note the topographic lineaments associated with the northwest-trending shear zone in the existing discharge channel are prominently expressed in the LiDAR.

From the available historical data, GEI also prepared an as-excavated (i.e., pre-erosion) surface for the existing spillway based on a 1969 construction drawing titled "Spillway Foundation As Excavated" (Drawing ZCC-13-1306, 2 Sheets, dated August 19, 1969). This drawing provided excavation contours at a contour interval of 7.5 feet for the existing spillway structure foundation and downstream discharge channel to roughly Station 18+50 (for reference, the end of the flip bucket is at Station 14+32). Downstream of Station 18+50, GEI merged the as-excavated surface with the original (pre-construction) topography (25-foot contour interval), using Drawing ZCC-10-401 (dated May 31, 1965). The combined historical topographic data sets were used to generate a 3D surface, from which 2-foot contours were generated. The as-excavated surface is not as detailed or accurate as the existing (2014 LiDAR) surface (particularly below Station 18+50), but it does provide a basis for evaluating historical erosion in the existing spillway. The as-excavated topographic surface (and the 2014 LiDAR surface) is shown in **Figure 2-5**.

Also shown in **Figure 2-5** is a historical aerial photograph of the Project area dated May 16, 1969. This photograph also is shown behind the 1969 contours. The photograph shows the spillway chute under construction and the discharge channel stripped and grubbed of vegetation and overburden; it is not clear from the photograph, however, if any excavation of the discharge channel bedrock had occurred by this time. Note in **Figure 2-5** the shear zone in the discharge channel is expressed as northeast-trending tonal lineament in the 1969 aerial photograph and as subtle topographic lineament in the as-excavated surface.

8.3 Erodibility Index

The base (i.e., non-adjusted) *K* values for this study were developed using geologic and geotechnical data collected by GEI for the Project (GEI, 2022), following EIM guidelines. These data include field mapping of bedrock discontinuities at and around the existing and proposed spillways, borehole discontinuity (televiewer) data from selected boreholes, rock quality designation (RQD) data from selected boreholes, and unconfined compressive strength (UCS) data from selected boreholes. The group of "selected" boreholes includes Borings 18-B9 through 18-B17, as these are in the bedrock units underlying the downstream portion of the existing and proposed spillways (see **Figure 2-2**). **Tables 2-1 and 2-2** provide a summary of the available UCS and RQD data from these borings, respectively.

Table 2-1. Summary of UCS Data

	Mean (MPa)	Median (MPa)	Minimum (MPa)	Maximum (MPa)	Standard Deviation
All Data*	**177**	**170**	**87**	**371**	**80**
Shallow Data (n=5)	**155**	**120**	**103**	**262**	**65**
Deeper Data (n=10)	**188**	**175**	**87**	**371**	**100**

* Includes 15 total measurements from Borings 18-B9, 18-B10, 18-B12, and 18-B13. All tests were performed on slightly weathered or fresh metavolcanic rock. The "shallow" data were obtained from core samples extending to a depth of about 70 feet.

Based on criteria from the International Society of Rock Mechanics (1981), the range of intact rock strengths classifies as strong to extremely strong, while the average and median values classify as very strong. This factor alone would generally preclude scour of the rock mass as a likely erosion mechanism during the lifetime of the Project.

Table 2-2. Weighted Averages of RQD Data

All Data	Shallow Data (< 20 ft)	Deeper Data (> 20 ft)
57	**18**	**64**

Notes: Values are based on 1,373 total feet of rock core from nine borings. The values are weighted based on the core run lengths. Shallow rock typically is intensely to moderately weathered; deeper rock typically is moderately weathered to fresh. A cutoff of 20 feet was chosen as this is the nominal stripping depth of the ARC spillway discharge channel.

Over 470 discontinuity measurements from the selected boreholes were plotted on a stereonet to evaluate joint orientations with respect to flow direction of the existing and proposed spillways (**Figure 2-6**). From these data, one prominent set of discontinuities can be identified, which, based on field observations and geologic mapping data, corresponds to the regional foliation. This set is dubbed "J1" and has an average orientation (strike/dip) of 166/66, which is nearly orthogonal to the flow direction of both the existing spillway and the ARC Spillway (**Figure 2-6**).

As many as five additional joint sets (J2 through J6) can be identified from **Figure 2-6**, including two low-angle (dipping less than 30 degrees) sets (J4 and J6) and three high-angle sets (J2, J3, and J5), one of which (J3) is oriented subparallel to the shear zone in the existing discharge channel. Note that the low-angle sets also are approximately orthogonal to the flow directions. This is further illustrated in **Figure 2-7**, which shows a schematic drawing of the bedrock structure and joint sets considered in the analysis (sets J2 and J5 do not appear in **Figure 2-7** because they are not considered "controlling" joints). These bedrock structure conditions apply to both spillways, as the flow directions between the two varies only by about 20 degrees. In general, the blocky nature of the rock mass and the very high intact rock strengths suggest plucking or kinematic failure are the most likely mechanisms of erosion from spillway flows.

The selected input values and associated K values are summarized below in **Table 2-3**. The table also includes a column for resisting power P_r (in units of kW/m^2) of the rock, given by $P_r = K^{0.75}$ (Annandale, 1995), for a direct comparison with the computed stream power values. The adjusted P_r values (P_{ra}) were developed using the range of RF values (0.14 to 0.34) to account for the additional kinematic effects on the steep discharge slope, as previously described. The K values were first adjusted using the range of RF values, then the adjusted K values were used to compute the P_{ra} values.

Table 2-3. Summary of Erodibility Index Values and Inputs

Rock Mass Type	K	P_r	$P_{r(a)}$	M_s	K_b	K_d	J_s	Inputs
Poor Rock	288	70	16-31	120	3.6	1.3	0.50	RQD = 18; Jn = 5; Jr = 2; Ja = 1.5
Good Rock	2,240	326	75-145	175	12.8	2.0	0.50	RQD = 64; Jn = 5; Jr = 2; Ja = 1

Notes: The "poor" rock values are considered representative of predominantly moderately to intensely weathered or sheared rock; the "good" rock values are considered representative of predominantly slightly weathered to fresh rock. These rock mass types are correlative with rock mass quality designations generally based on RQD values (ASTM 6032-96). The *Ms* input values are median values for "shallow" and "deeper" rock from Table 2-1.

9.0 Erodibility Analysis and Discussion

9.1 Stream Power vs Erodibility Index

The estimated stream powers and erodibility index values are shown on the erodibility threshold graph in **Figure 2-8**. The stream powers shown include a low value of 25 kW/m^2, a high value of 100 kW/m^2, and a peak value of 250 kW/m^2, based on the results presented and discussed above. These stream powers represent the full range of stream powers expected to impact the discharge channels at both the existing and the proposed ARC Spillway. For the K values, the "base" value and adjusted values (using the range of RFs) are shown for both the "poor" and "good" rock mass types, which are common to both spillways.

As shown in **Figure 2-8**, the stream powers and full range of adjusted K values for "poor" rock generally intersect near or above the erodibility threshold line, indicating this rock is generally erodible for the range of stream powers shown. For the "good" rock mass type, only the lower half of the adjusted K values are susceptible to erosion at stream powers of about 70 kW/m^2 or higher.

9.2 Existing Spillway

A comparison of the 1969 (pre-erosion) and 2014 LiDAR topographic surfaces shows the distribution and magnitude of erosion from 1970 to 2014 (**Figure 2-9**). This comparison indicates two major areas of erosion, labeled as Area 1 and Area 2. Area 1 is on the steep slope below (downstream of) the impact zone of the 10,500 cfs jet. The maximum depth of erosion in this area (along the spillway centerline, measured normal to the slope) is about 30 to 40 feet. Area 2 corresponds to the linear, northeast-trending shear zone, where depths of erosion commonly exceed 50 feet and approach 60 feet measured normal to the slope. This area is generally within and below the impact area of the 10,500 cfs jet.

Figure 2-10 shows a comparison of the 2014 and 2018 LiDAR topographic surfaces. During this time period, spills occurred in 2016, 2017, and 2018, with 2017 seeing spills up to about 40,000 cfs. The comparison of these surfaces indicates several localized areas of erosion, some approaching up to 20 feet measured normal to the slope. These more recent areas of erosion are generally concentrated along the steep walls of the shear zone, which suggests they were blocks that were plucked or failed kinematically. **Figure 2-10** shows minimal to no erosion outside of the shear zone, including within Area 1.

A centerline profile and two sections through the spillway comparing the various topographic surfaces are shown in **Figure 2-11**. From the centerline profile it can be seen that the excavation for the discharge channel may not have extended downstream of Station 17+50, as the “pre-construction” ground surface becomes roughly coincident with the “as-excavated” surface at this point. This suggests that some amount of poor (i.e., moderately to intensely weathered) rock remained on the slope in this area, which would have been susceptible to erosion. If the slope below Station 17+50 was only minimally stripped, poorer quality rock (outside the shear zone) that was left in place could account for much of the observed erosion in Area 1. As noted above, minimal to no erosion of this area occurred between 2014 and 2018 (see **Figure 2-10**), suggesting poor quality rock was largely removed prior to 2014 and only good quality (i.e., erosion resistant) rock remains.

The overland flow stream powers associated with the 10,500 cfs discharge are significantly higher within the shear zone, relative to areas outside of the shear zone. This is due to the concentration of flows within the narrow crevice along the shear zone and the higher resulting flow velocities. A similar concentration of flows within the shear zone would be expected for even lower discharges (< 10,500 cfs). We speculate this process has been ongoing since the spillway was put into operation and preferential erosion (scour) of the weaker shear zone rock has led to progressive downcutting and concentration of flows that exacerbate the process. The adverse orientation of the shear zone, roughly subparallel to the spillway flow direction, clearly is a major factor of this condition. As the shear zone was progressively eroded and more free rock faces were exposed, plucking and kinematic failure of larger, adjacent rock blocks likely was facilitated (and possibly accelerated), ultimately leading to the current deep and narrow crevice in the channel.

9.3 ARC Spillway

As illustrated in **Figures 1-4 and 1-5**, stream powers along the upper half of the ARC Spillway discharge channel are expected to be similar or incrementally smaller in magnitude than those typically experienced at the existing spillway. As shown in **Figure 1-7**, the stream powers expected for the ARC Spillway will have some capacity for moderate erosion, particularly if poor quality rock is exposed in the discharge channel and is not treated as part of the spillway construction. However, the magnitude of such erosion should be significantly less than that observed at the existing spillway because the full length of the discharge channel will be stripped to a nominal depth of about 20 feet. This depth of stripping is anticipated to remove most of the poor quality rock on the slope. In addition, rock defects encountered during construction, such as a zone of sheared or intensely fractured rock, will be treated to reduce the potential for excessive erosion.

10.0 Conclusions and Recommendations

10.1 Conclusions

Areas of the existing unlined spillway discharge channel at New Bullards Bar Dam have experienced erosion in its 52-year lifetime. The most significant areas of erosion coincide with an ancient shear zone that comprises several narrow, subparallel zones of weak, crushed rock, and an area of the discharge channel that was grubbed but only minimally stripped. The shear zone represents a geologic defect in the spillway discharge channel that has significantly influenced the location and magnitude of historical erosion. The topographic expression of this feature is evident in the 1969 spillway excavation surface and in historical aerial imagery dated May 16, 1969. Our analysis suggests this feature likely has acted as a zone of flow concentration and preferential erosion from the beginning of spillway operation. Erosion of the adjacent (un-sheared) bedrock has been much less severe in comparison.

Some amount of continued erosion of the good quality rock mass in the existing spillway channel should be expected, particularly within and adjacent to the shear zone. This is in part due to the ongoing physical and chemical weathering of the rock mass, both during and in between spill events, along with the susceptibility of the rock mass to periodic kinematic failure. The progressive weathering of the rock mass/rock joints over time likely results in episodic erosion of the good (fresh to slightly weathered) rock, as opposed to some average annual amount of erosion. In other words, in some years discharge events may yield very little to no noticeable erosion, whereas other years may yield larger, noticeable rock mass erosion. Based on historical performance, continued episodic erosion of the existing discharge channel is unlikely to impact the spillway structure.

Some erosion of the unlined discharge channel of the proposed ARC spillway should also be expected; however, the magnitude of such erosion should be less than that observed at the existing spillway because the full length of the discharge channel will be stripped to a nominal depth of about 20 feet. This depth of stripping is anticipated to remove most of the poor quality rock on the slope. Any rock defects encountered during construction, such as a zone of sheared or intensely fracture rock, will be treated to mitigate excessive erosion. A plunge pool also is expected to develop in the North Fork Yuba River over time. The plunge pool likely will be similar in size and depth to the plunge pool at the existing spillway[3], based on the similar rock erodibility and stream power values developed for the two spillways.

Over the 50+ years of operation at the existing spillway, the maximum depth of erosion experienced outside the shear zone has been about 30 to 40 feet measured normal to the slope, including within both the discharge channel and the plunge pool. With the significant excavation of surficial rock proposed for the ARC Spillway discharge channel and the dental treatment of rock defects exposed on the channel invert, the depth of erosion anticipated to occur at the ARC Spillway discharge channel is expected to be less. Similar to the existing spillway, the expected erosion will not have a detrimental effect on the integrity of the spillway structure or safety of the dam.

[3] The volume of material eroded from the plunge pool at the existing spillway is estimated to be about 37,000 cubic yards.

10.2 Recommendations

Of utmost importance for the long-term performance of the proposed ARC Spillway will be the identification of a similar shear zone feature (if it exists) in the downstream discharge channel during construction. This will require careful mapping and inspection during excavation of the channel, as the current slope conditions and available data (and investigation techniques) do not allow for a positive or negative identification of such a feature with certainty. The available data do, however, indicate the presence of the northeast-trending J3 joint set in the foundation rock of the ARC Spillway. These joints are structurally related to the shear zone in the existing spillway and, thus, it is possible that a similar feature could be encountered in the ARC Spillway discharge channel. If such a feature is encountered during construction, it should be treated by meticulous dental excavation, removal of gouge and crushed rock, cleaning with air-water jets, slush grouting of narrow joints, and placement of dental concrete to fill the dental excavations and develop a relatively smooth surface conforming to the adjacent un-sheared bedrock slope.

Following construction of the ARC Spillway, it is recommended that both spillways be monitored and inspected for erosion on a regular basis. The ARC Spillway warrants more frequent (annual) inspections during its first several years of service, including during and immediately following spill events. To facilitate this we recommend an aerial LiDAR survey of the ARC Spillway be conducted after construction (and prior to operation) to document as-built conditions of the discharge channel and establish a baseline topographic surface that can be used to compare with subsequent surveys. These surveys should be repeated on a 10-year basis and supplemented with drone surveys to obtain high resolution aerial imagery. Analysis of the LiDAR data and aerial imagery should be performed by a qualified engineering geologist or engineer to monitor erosion trends.

11.0 References

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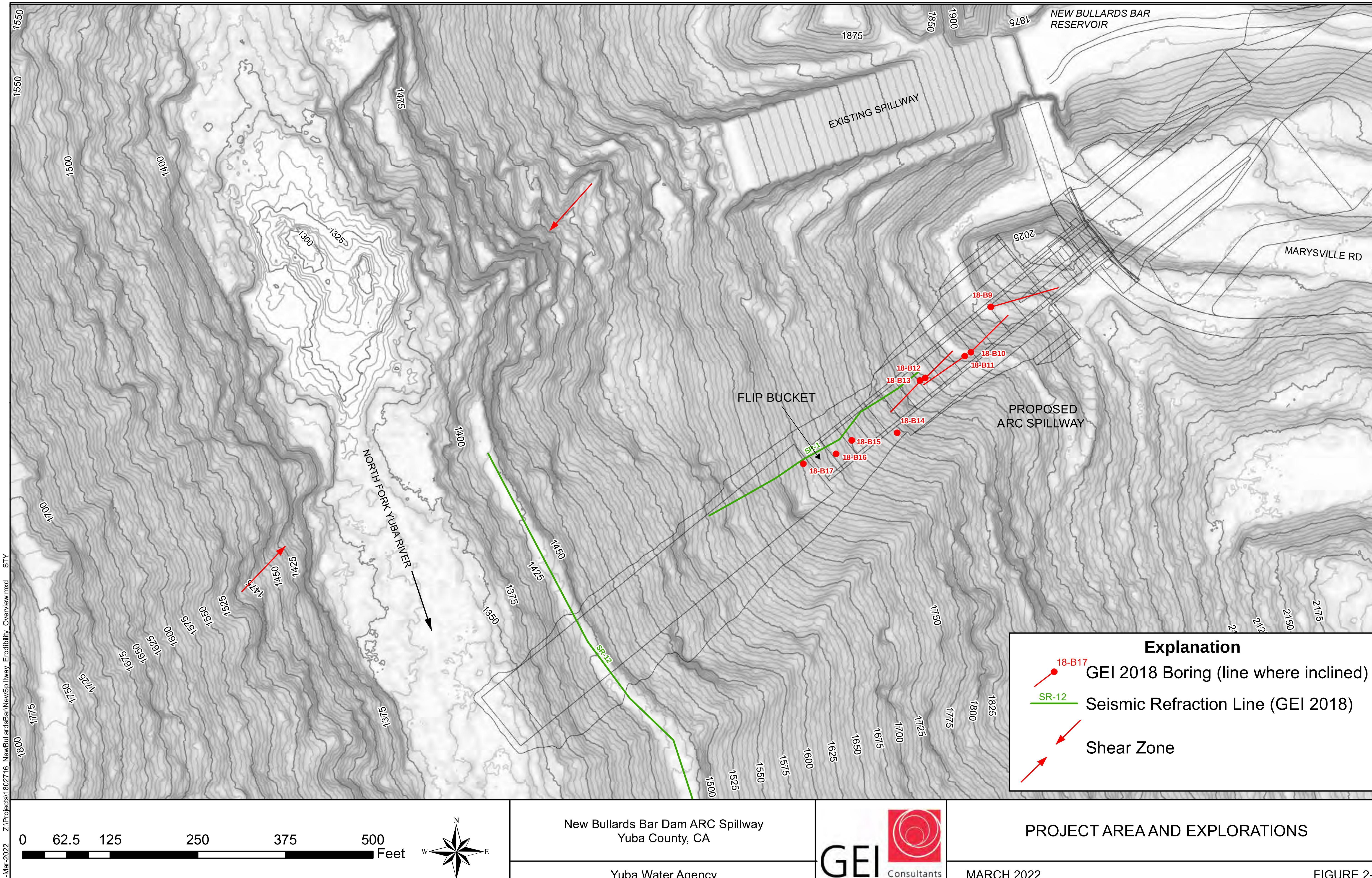
Part 2 Figures

Existing spillway and discharge channel. Note jointed rock mass and deep erosional slot coincident with ancient shear zone (between arrows). Approximate Secondary Spillway alignment shown by black line. Red oval marks approximate location of person in photograph below.

Close up of shear zone in existing spillway discharge channel. See above photograph for location of person (red oval).



New Bullards Bar Dam ARC Spillway
Yuba County, CA

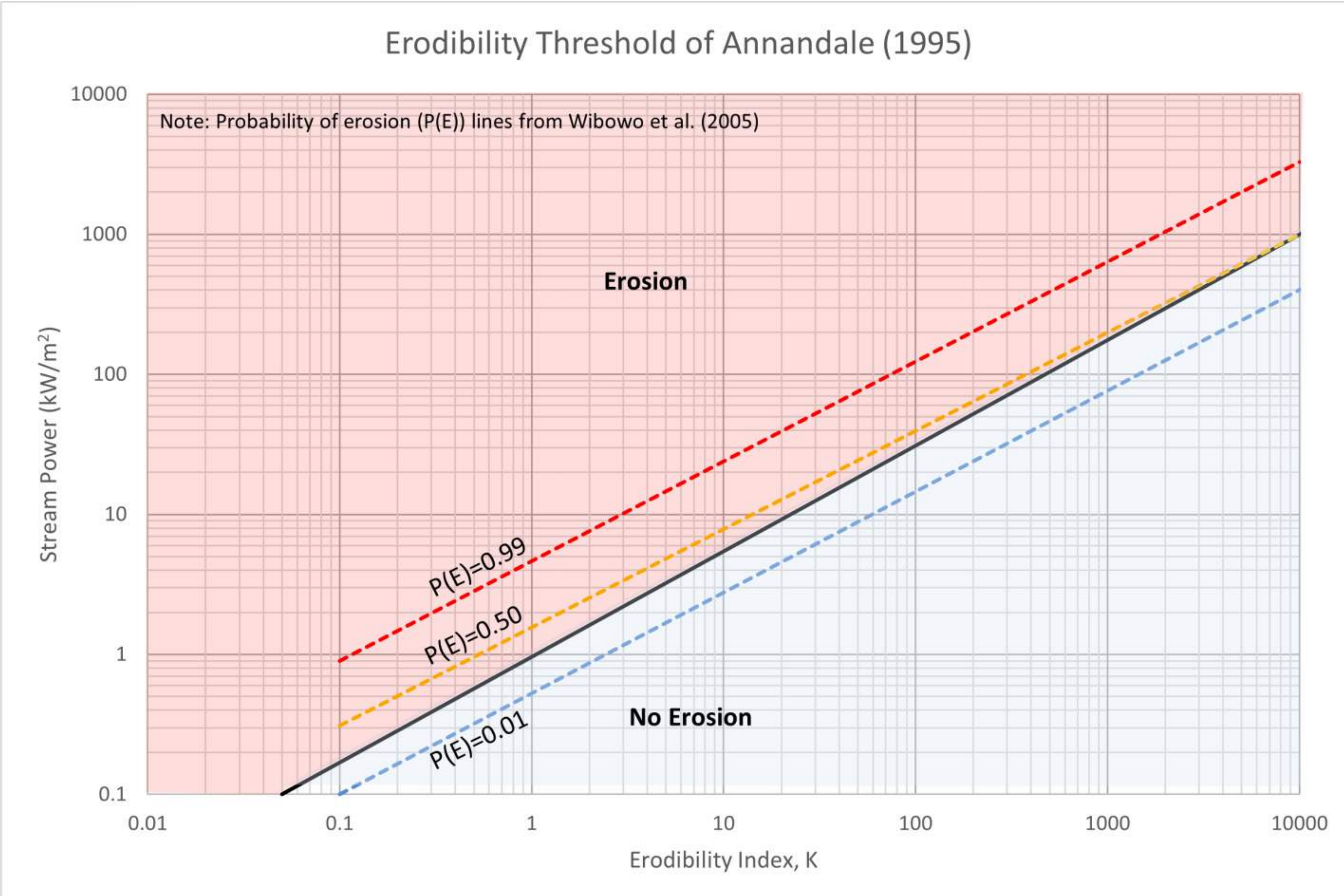
Yuba Water Agency

GEI Consultants

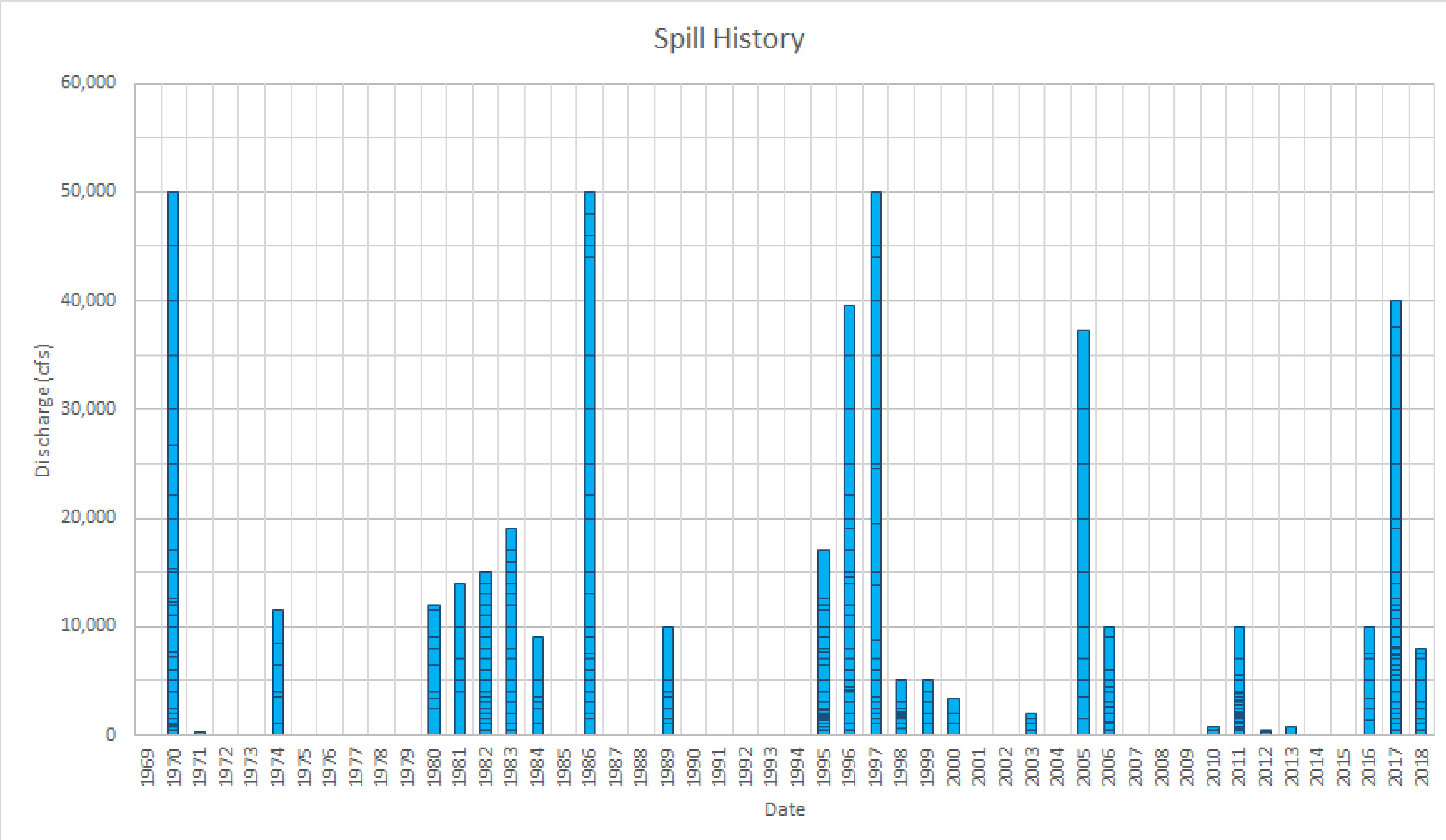
PROJECT AREA AND EXPLORATIONS

MARCH 2022

FIGURE 2-2



	New Bullards Bar Dam ARC Spillway Yuba County, CA	GEI Consultants	ERODIBILITY THRESHOLD LINE
	Yuba Water Agency		MARCH 2022 FIGURE 2-3



NOTE: Dark blue ticks represent recorded discrete discharge values for a given year.

New Bullards Bar Dam ARC Spillway
Yuba County, CA

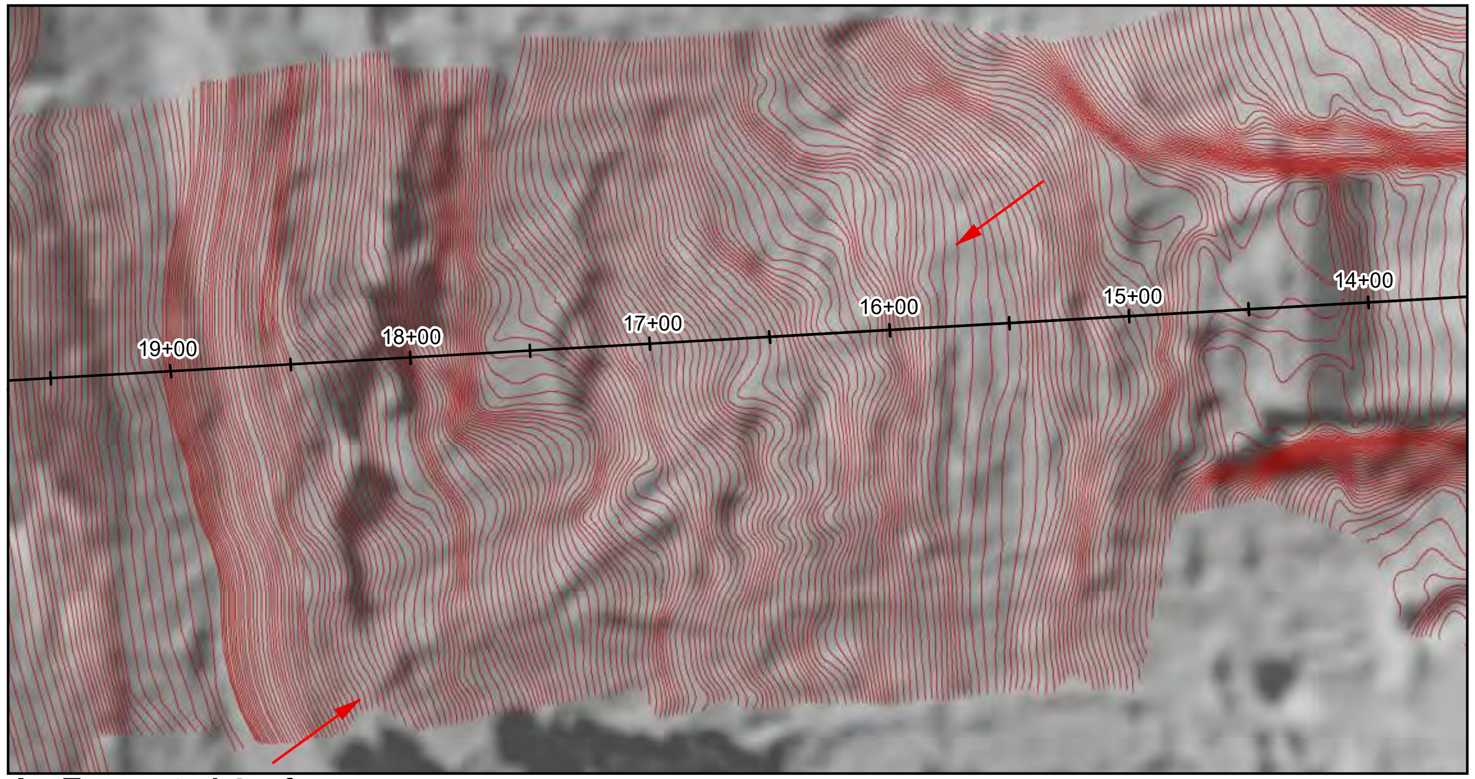
Yuba Water Agency

GEI Consultants

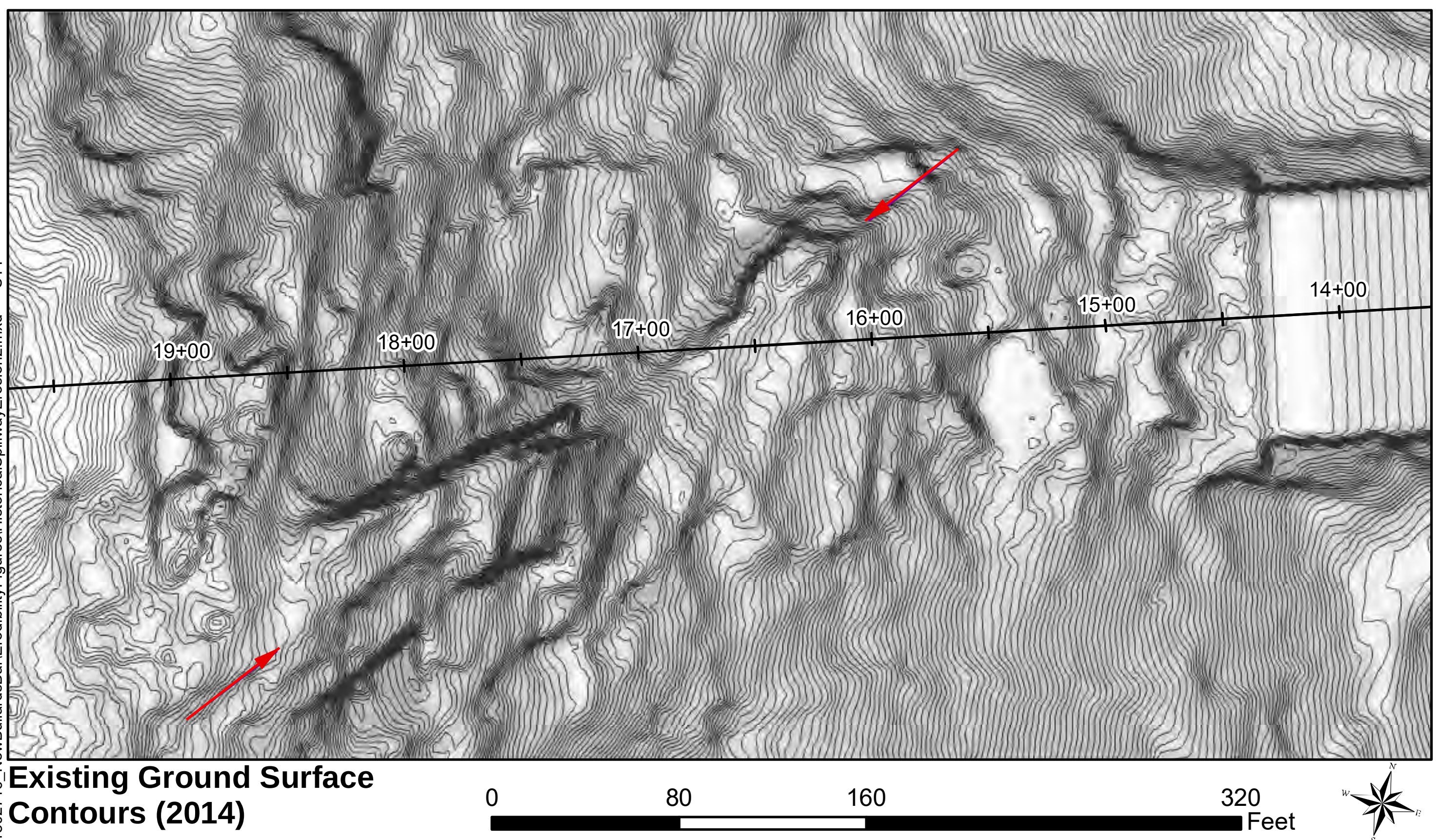
HISTORICAL DISCHARGE DATA

MARCH 2022

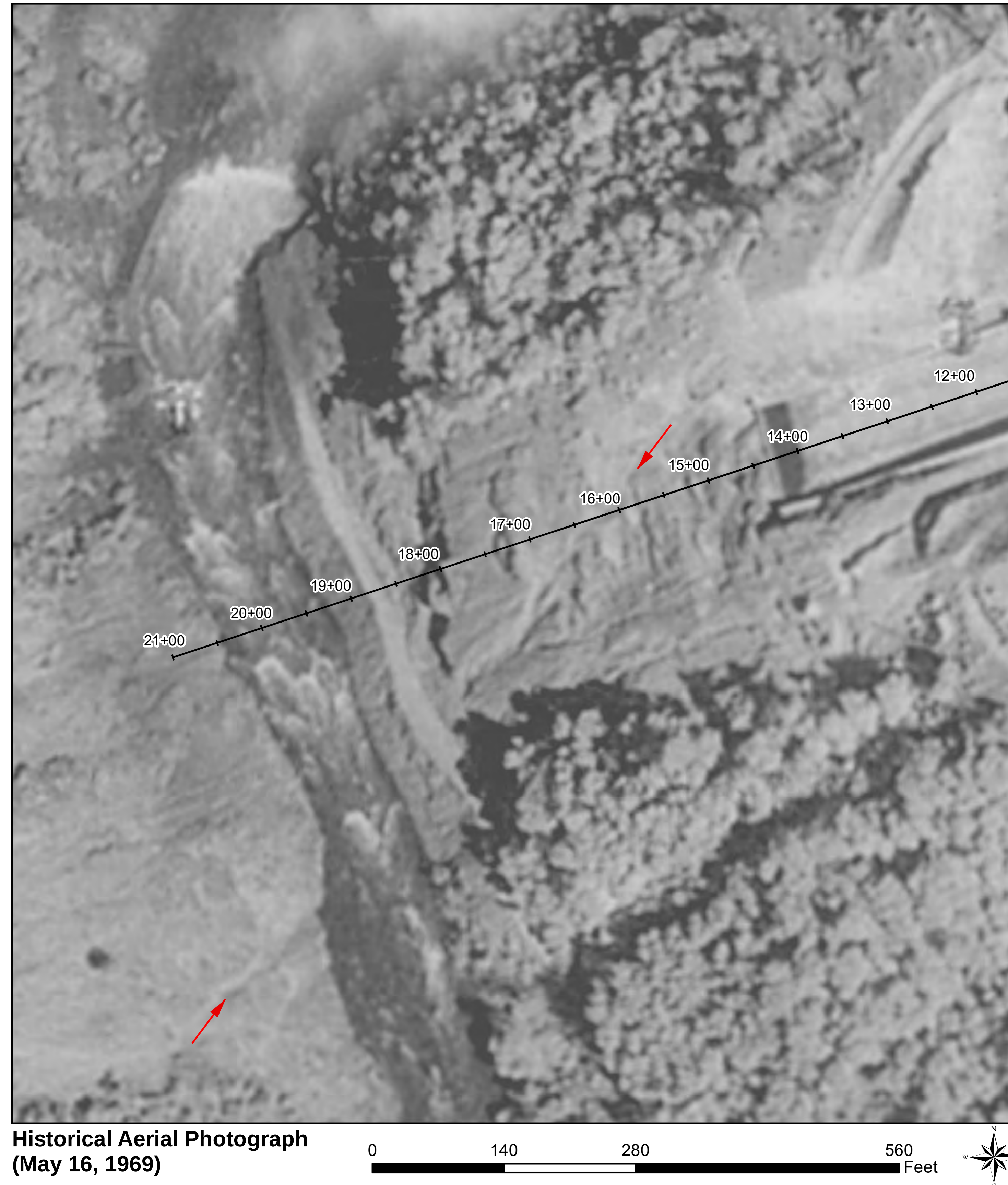
FIGURE 2-4



As-Excavated Surface Contours (1969)



Existing Ground Surface Contours (2014)



Historical Aerial Photograph (May 16, 1969)

Shear Zone

New Bullards Bar Dam ARC Spillway
Yuba County, CA

Yuba Water Agency

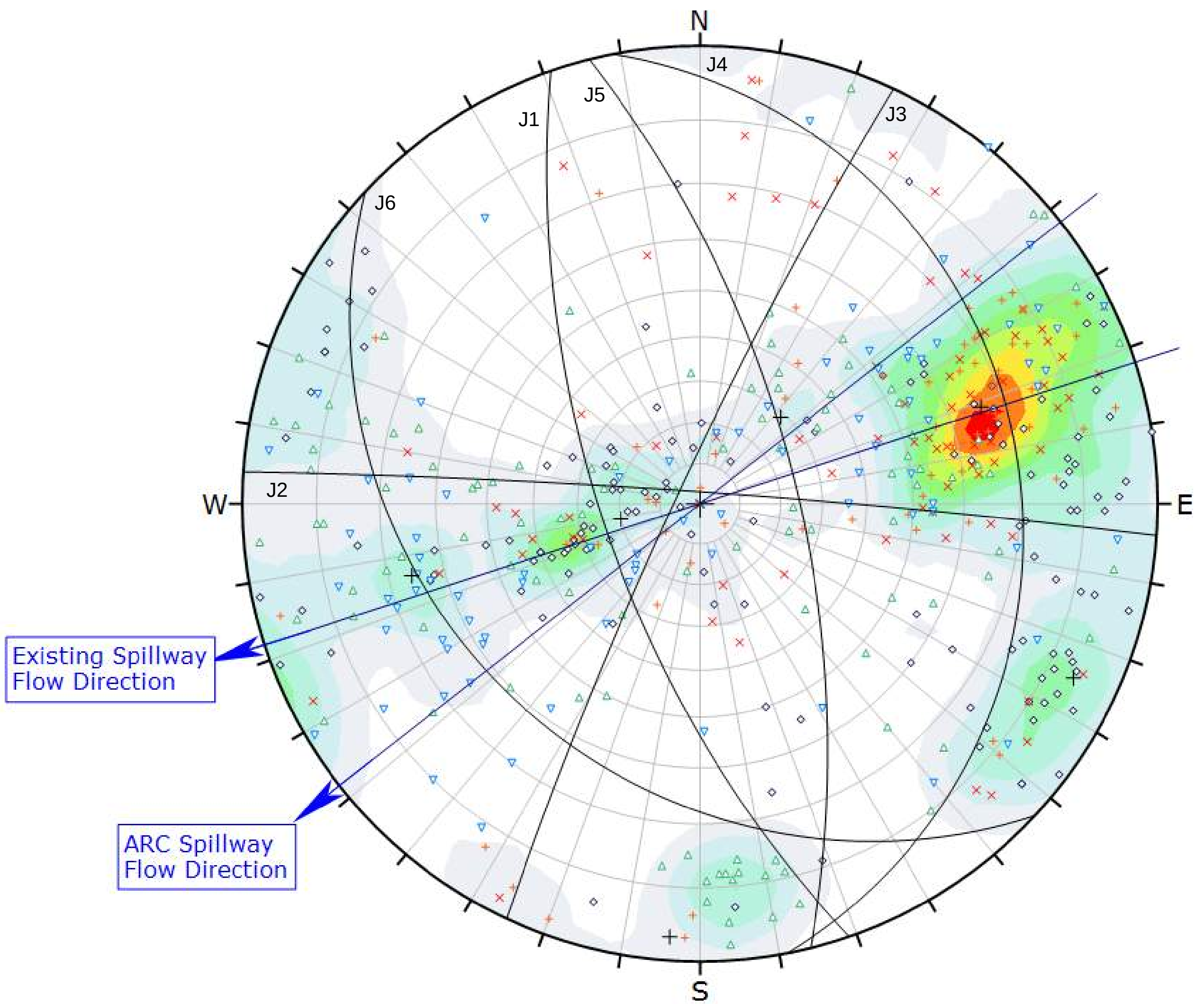
GEI Consultants

EXISTING SPILLWAY
PRE-EROSION AND EXISTING TOPOGRAPHY

MARCH 2022

FIGURE 2-5

04-Mar-2022 Z:\Projects\1802716_NewBullardsBarErodibilityFigures\HistoricalSpillwayErosion2.mxd STY



Symbol	BORING	Quantity
◇	B-09	136
×	B-10	74
△	B-11	106
+	B-12	72
▽	B-13	84

Color	Density Concentrations
	0.00 - 0.70
	0.70 - 1.40
	1.40 - 2.10
	2.10 - 2.80
	2.80 - 3.50
	3.50 - 4.20
	4.20 - 4.90
	4.90 - 5.60
	5.60 - 6.30
	6.30 - 7.00
Contour Data	Pole Vectors
Maximum Density	6.73%
Contour Distribution	Fisher
Counting Circle Size	1.0%

	Color	Strike (Right)	Dip	Label
Mean Set Planes				
1m	■	161	66	J1
2m	■	205	84	J3
3m	■	274	87	J2
4m	■	349	20	J4
5m	■	346	66	J5
6m	■	133	29	J6

Plot Mode	Pole Vectors
Vector Count	472 (472 Entries)
Hemisphere	Lower
Projection	Equal Angle

New Bullards Bar Dam ARC Spillway
Yuba County, CA

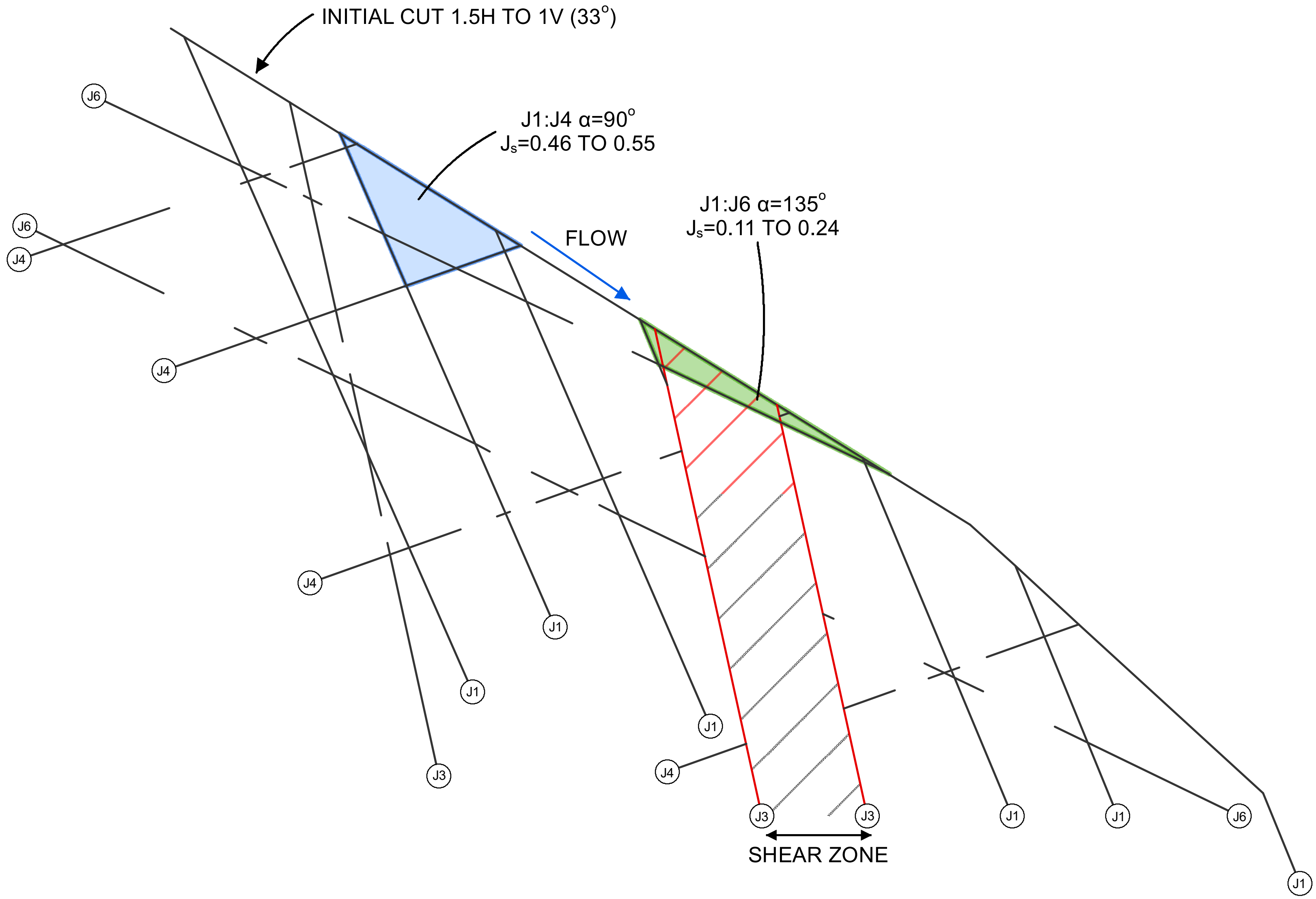
Yuba Water Agency

GEI Consultants

DISCONTINUITY DATA AND MAJOR JOINT SETS

MARCH 20

FIGURE 2-6



J4 Schematic Joint Orientation and Joint Set Number

New Bullards Bar Dam ARC Spillway
Yuba County, CA

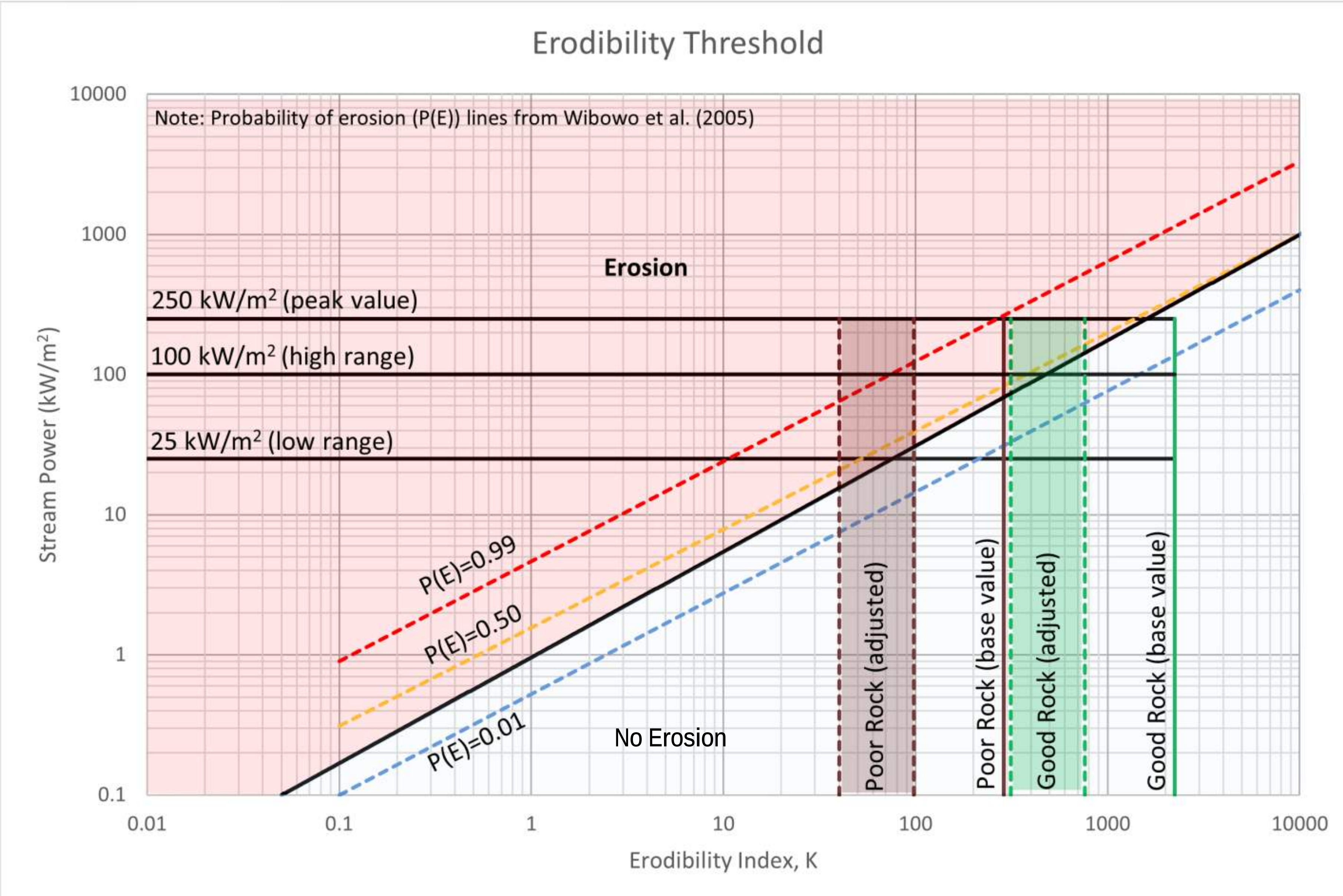
Yuba Water Agency

GEI Consultants

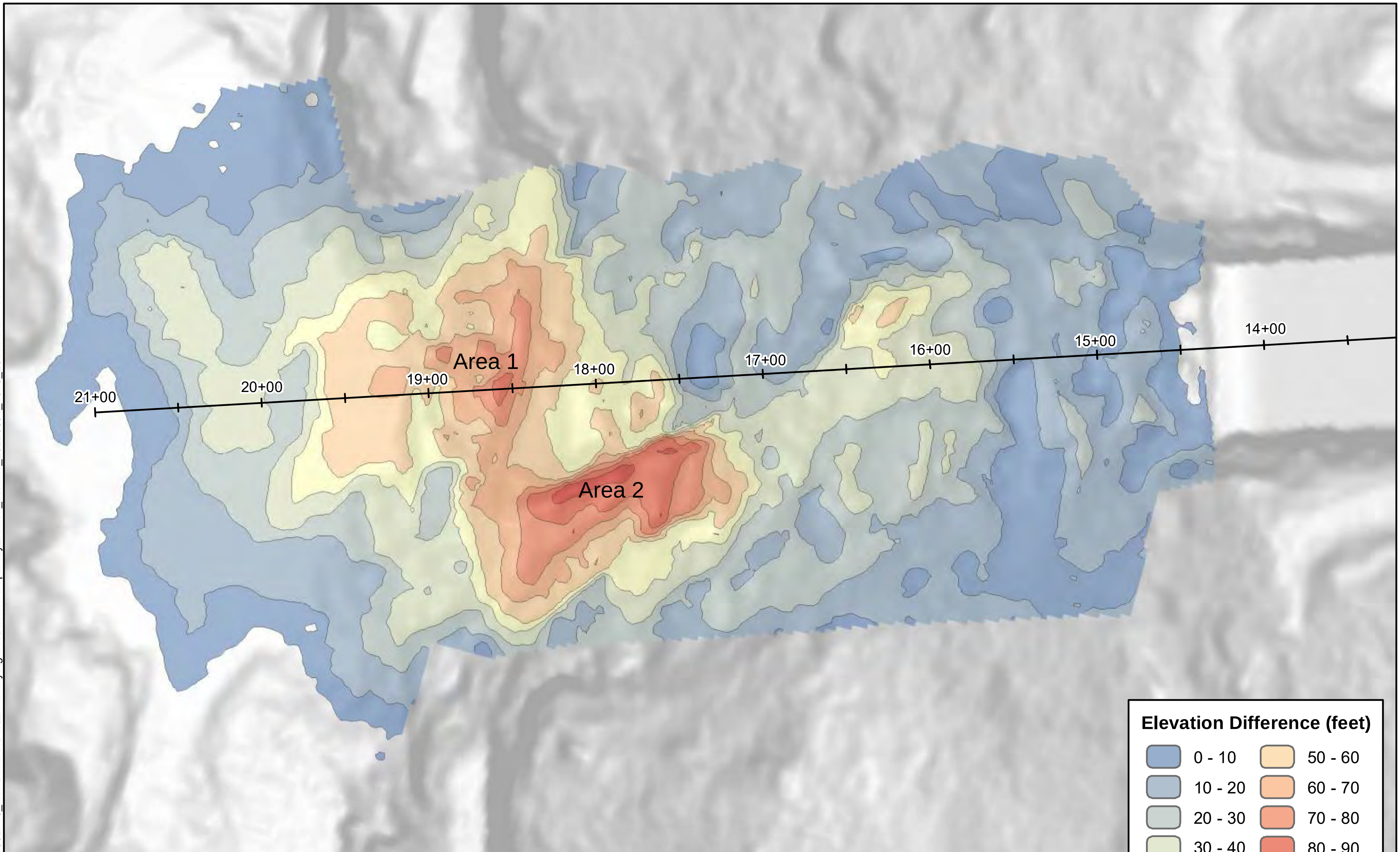
BEDROCK STRUCTURE SCHEMATIC

MARCH 2022

FIGURE 2-7



New Bullards Bar Dam ARC Spillway Yuba County, CA	GEI Consultants	ERODIBILITY ANALYSIS RESULTS	
Yuba Water Agency		MARCH 2022	FIGURE 2-8



NOTES:
1) 2014 elevation data aquired from Quatum Spatial (2014) dataset, modified by UC Davis (2017);
1970 elevation data acquired from IECO (1969), DWG ZZC-13-1306.

0 40 80 160 Feet

New Bullards Bar Dam ARC Spillway
Yuba County, CA

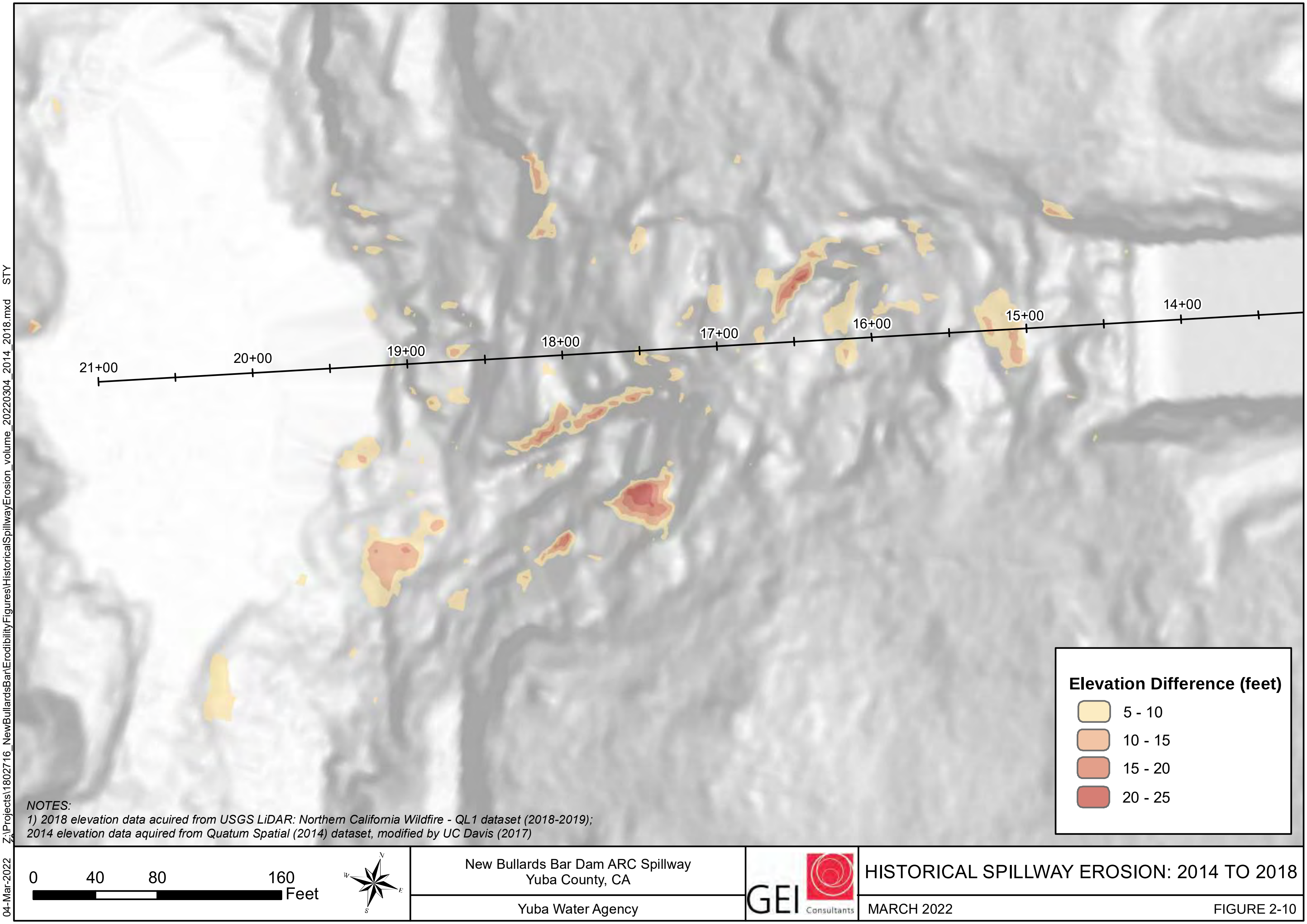
Yuba Water Agency

GEI Consultants

HISTORICAL SPILLWAY EROSION: 1970 TO 2014

MARCH 2022

FIGURE 2-9



NOTES:
1) 2018 elevation data acuired from USGS LiDAR: Northern California Wildfire - QL1 dataset (2018-2019);
2014 elevation data aquired from Quatum Spatial (2014) dataset, modified by UC Davis (2017)

New Bullards Bar Dam ARC Spillway
Yuba County, CA

Yuba Water Agency

GEI Consultants

HISTORICAL SPILLWAY EROSION: 2014 TO 2018

MARCH 2022

FIGURE 2-10

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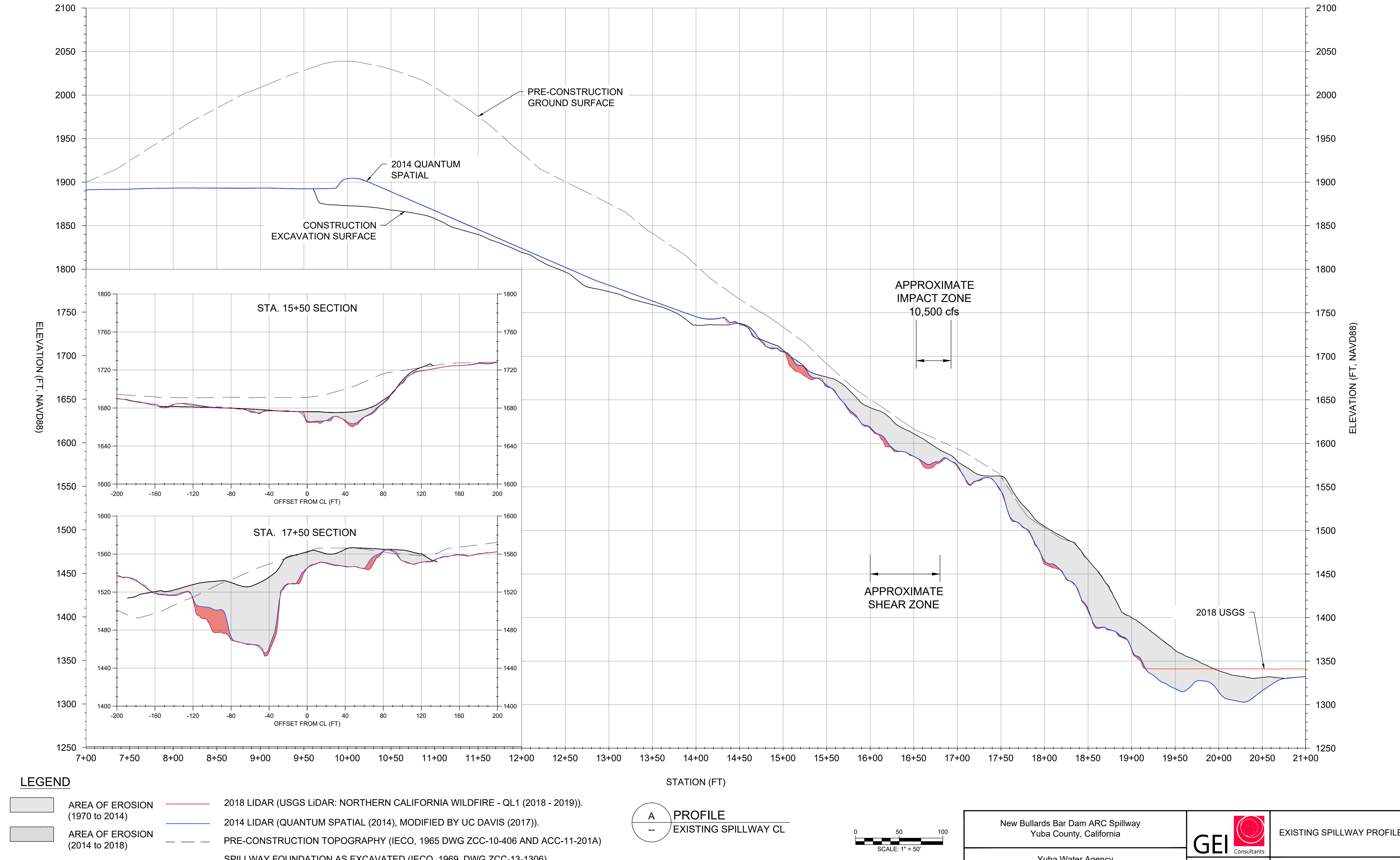
04-Mar-2022



New Bullards Bar Dam ARC Spillway
Yuba County, California

Yuba Water Agency

GEI Consultants

EXISTING SPILLWAY PROFILE

Project 1803716 | MARCH 2022 | FIGURE 2-11

\\OAK2L-SYEHL Z:\Projects\1802716_NewBullardsBar\ErodibilityFigures\Existing Spwy Profile-Rev CL 2022 Erodibility.dwg - 3/4/2022

Attachment A

Comments on New Bullards Bar Existing Spillway Erodibility Analysis: memorandum prepared by Dr. Michael George, BCG Engineering, Inc., January 21, 2022

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
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Fax (604) 684-5909

January 21, 2022
Project No.: 1737004

Mr. Mark Fortner, PE, PLS
GEI Consultants, Inc.
2868 Prospect Park Drive, Suite 310
Rancho Cordova, CA 95670

Dear Mark,

Re: Comments on New Bullards Bar Existing Spillway Erodibility Analysis

GEI Consultants, Inc. (GEI) has requested review from BGC Engineering USA, Inc. (BGC) regarding the erodibility potential of the existing and proposed secondary spillways at New Bullards Bar Dam, which is owned and operated by Yuba Water Agency (YWA) and located approximately 30 miles northeast of Yuba City, California. The existing spillway is concrete-lined and discharges onto a steep rock slope in the Yuba River Valley below. The existing spillway has experienced some scour during its 50-year operational lifetime, predominantly focused along a shear zone on the steep hillslope as well as in the plunge pool region in the valley bottom. The secondary spillway is proposed to be located approximately 280 feet south of the existing spillway and will be an open channel structure, similar to the existing spillway, controlled by two radial gates. The upper portion of the spillway will also be concrete-lined and will discharge into the Yuba River Valley, similar to the existing spillway.

GEI has requested review of two documents relating to the procedures used to evaluate erodibility of the existing spillway that will support erodibility analysis of the secondary spillway:

- GEI (2021) – Stream Power Assessment for New Bullards Bar Dam Secondary Spillway Project. Draft Technical Memorandum submitted to Yuba Water Agency. August 30, 2021.
- GEI (2021) – Erodibility Assessment for New Bullards Bar Dam Secondary Spillway Project. Draft Technical Memorandum submitted to Yuba Water Agency. July 27, 2021.

This work was performed under the terms and conditions mutually agreed upon by BGC and GEI under the subcontracting agreement signed November 9, 2021 for GEI Project 2102531 – YWA NBB Secondary Spillway. Comments on each memorandum are provided below.

1.0 COMMENTS ON STEAM POWER ASSESSMENT FOR NEW BULLARDS BAR DAM SECONDARY SPILLWAY PROJECT

This memorandum outlines the quantification of the erosive capacity associated with the impinging jet emanating from the existing spillway. Analysis is performed using the Erodibility

Index Method (Annandale 1995, 2006) which uses unit stream power to represent the flow erosive capacity.

The following comments are provided regarding the procedures used to evaluate stream power:

- Stream power of the impinging jet was evaluated analytically using the procedures outlined by FERC (2018) which is appropriate for this analysis. Stream power values at the jet impact location with the rock mass / plunge pool, however, are still relatively high which can be attributed to the selection of dynamic pressure coefficients that are used to modify the jet erosive capacity. These coefficients account for jet disintegration in the atmosphere (expressed in terms of the jet break-up length ratio, H/L_b) as well as dissipation of energy as a function of plunge pool depth.

  Data for these coefficients are derived from testing by Castillo et al. (2015). The data presented in FERC (2018) are limited to jet break-up length ratios $H/L_b < 1.8$. Castillo et al., however, suggest that for jet break-up length ratios, $H/L_b > 2$ that the dynamic pressure coefficients become negligible (Figure 1-1). For these conditions, the associated stream power of jet would also become negligible. Based on discussion with GEI, the associated jet break-up length ratio for flows witnessed from the existing spillway (up to approximately 50,000 cfs) are significantly greater than 2 (i.e., $H/L_b \sim 10$ to 50). This indicates that the jet is completely broken up and has little to no erosive capacity.

  It should be noted that testing on jets with break-up length ratios, $H/L_b > 2$ has not be performed to confirm the trend suggested by Castillo et al. in Figure 1-1 such that use of a ratio of $H/L_b \sim 2$ where the dynamic pressure coefficients become negligible may not be conservative. However, given that H/L_b ratios for the existing spillway are significantly greater than 2, BGC supports the application of Figure 1-1 to the estimation of the jet stream power.

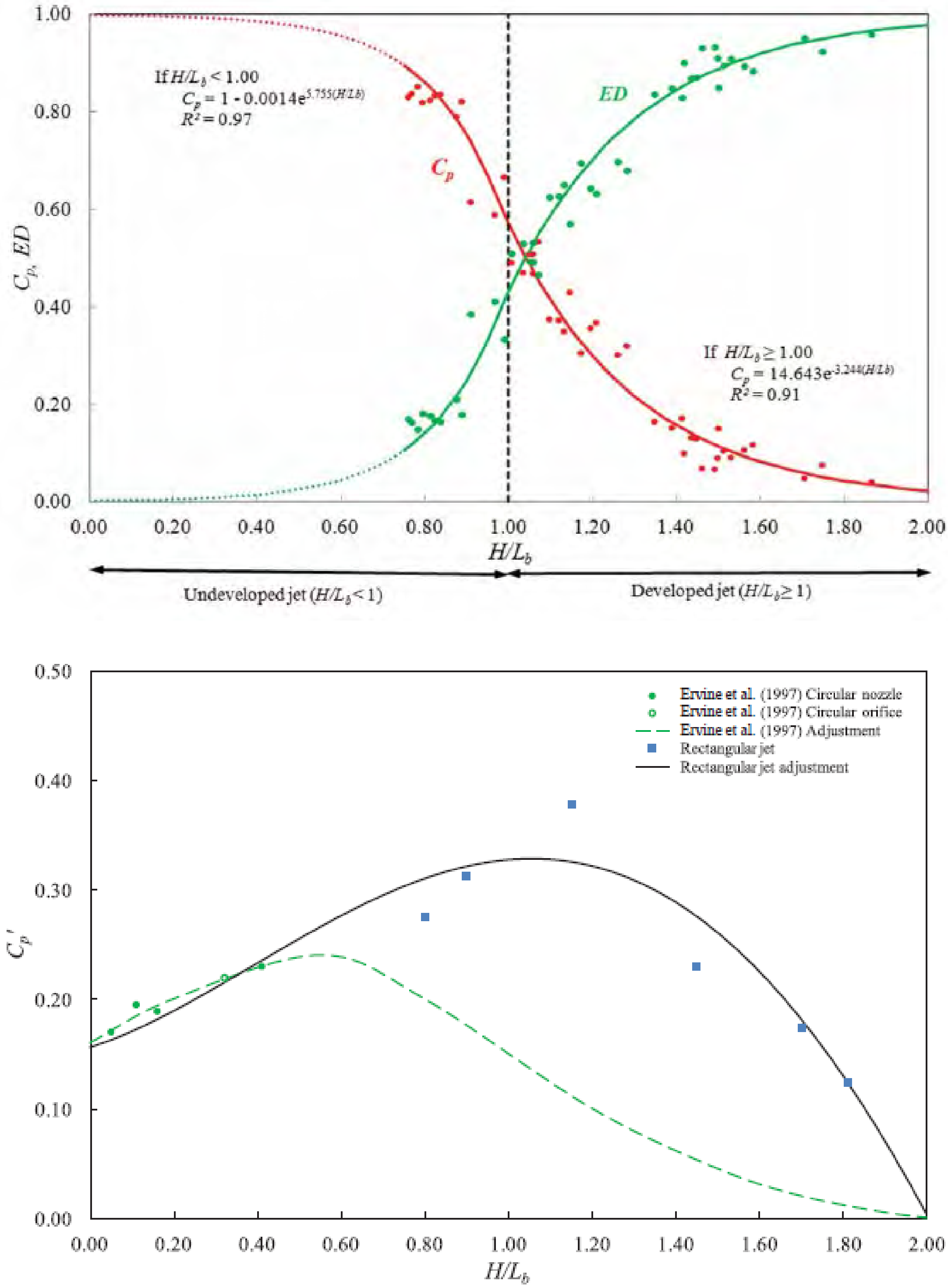

Figure 1-1. Relationship for average (C_p) (top), and fluctuating (C'_p) (bottom) dynamic pressure coefficients as a function of jet break-up length ratio from Castillo et al. (2015) from laboratory testing (not from New Bullards Bar Dam).

- Stream power of the impinging jet was also evaluated numerically using the 3D computational fluid dynamics (CFD) model, STAR-CCM+. Modeling was performed by the Utah State University Water Resources Laboratory (UWRL). BGC has low confidence in the jet stream power values determined using the CFD model given the difficulty to numerically simulate the jet break-up process in the atmosphere. BGC is currently not aware of any instances for dams or spillways that have attempted to simulate this process numerically that could corroborate the use of the CFD model for this application. As noted in the comment above, jet break-up has a significant impact on the jet erosive capacity such that the analytical approach (based on physical model testing) is preferrable by BGC to estimate the jet stream power.

  Should GEI wish to further pursue the use of the CFD model to estimate stream power, BGC suggests the use of Large Eddy Simulation (LES) to model turbulence as well as benchmark testing of the CFD model against physical model test results. The use of LES would likely require a significantly smaller model grid size which will increase computational time.

- Downstream of the jet impact location, stream power associated with overland flow on the hillslope is also estimated using the CFD model. Given the steep and blocky nature of the hillslope, it is not demonstrated if the shear stresses output from the model are suitable for use in estimating the stream power of the overland flow. The mesh size in the overland flow region is noted to be 4 ft, which seems coarse. A mesh sensitivity analysis is suggested to assess the impacts of mesh size on the estimated erosive capacity of the flow.

2.0 COMMENTS ON ERODIBILITY ASSESSMENT FOR NEW BULLARDS BAR DAM SECONDARY SPILLWAY PROJECT

This memorandum outlines the quantification of the rock resistance to scour for the existing spillway and provides comparison with the stream power values estimated using the analytical and numerical methods discussed in the previous section. Observations on historical scour are also provided based on topographic change analysis between 1970 and 2014 as well as 2014 and 2018. The following comments are provided regarding the erodibility assessment:

- Rock resistance to scour was quantified using the Erodibility Index Method (Annandale 1995, 2006). Rock in the spillway is described as metavolcanic rock of the Smartville Complex. Three rock classifications are presented consisting of “poor rock”, “fair rock” and “good rock” with corresponding rock resistance threshold values of P_r = 83 kW/m^2, 404 kW/m^2 and 660 kW/m^2, respectively. Based on review of the geologic material and photos presented the assigned rock resistance values seem reasonable and in-line with BGC’s prior experience with similar rock types.
- Given the steep nature of the hillslope downstream of the existing spillway, rock resistance values estimated with the Erodibility Index Method likely over-predict the actual rock

resistance threshold to scour. This is attributed to the 3D kinematics of discrete rock blocks that are more readily eroded from the rock mass on the steep slope (vs. a flat surface). On a steep slope, gravity has a greater destabilizing effect which is not accounted for with the Erodibility Index Method. This is depicted in Figure 2-1. In this example, the steep slope cut affords the block additional kinematic freedom to slide downward more easily on the low angle discontinuity plane (J2) versus on the same block bounded by a flat slope cut that would require a greater force to slide upward on J1 to be removed.

In order to quantify this potential reduction in the rock resistance threshold, a reduction factor (RF) based on Block Theory analysis (Goodman & Shi, 1985) is proposed. Block Theory provides a systematic approach to identify and assess stability of removable rock blocks from a rock mass based on their 3D kinematic constraints. This reduction factor compares the minimum rotation angle (θr) of the active resultant force vector (R_a) needed to destabilize a removable block from a flat (reference) surface to a removable block from the steep slope of the existing spillway valley wall. The rotation angle can be used as a proxy to represent the relative rock threshold to scour as it relates to the magnitude of the force required to destabilize individual blocks within the rock mass (e.g., a higher value of θr indicates a greater force is needed to destabilize a removable block and vice versa).

For a rock mass comprised of multiple discontinuity sets, several removable block types exist. Of interest is the removable block type yielding the smallest value of θr. This corresponds to the threshold at which scour of the rock mass will commence. Figure 2-2 shows values θr for all removable block types (based on the prominent discontinuity sets at New Bullards Bar) from a flat (reference) slope as a function of the active resultant force vector direction (azimuth). Additional details on the evaluation of θr can be found in George (2015). A similar plot for removable block types from the steep spillway rock slope is also provided (Figure 2-3). In each plot, a trendline showing the minimum value of θr for all the removable blocks as a function of the resultant azimuth is also shown.

A reduction factor (RF) is developed which relates the ratio of the minimum value of θr for the steep slope to the minimum value of θr for the flat (reference slope) as a function of the active resultant force azimuth (Figure 2-4):

$$RF=\frac{\theta r_{slope}}{\theta r_{ref}}$$

Based on the general direction of overland flow in the existing spillway (azimuth ~ 250 degrees, +/- 30 degrees to account for flow direction variability) a range of potential RF values exist. This range is approximately RF = 0.14 to 0.34. Use of the minimum value of RF is suggested for use here (RF = 0.14). This reduction factor should be applied to the rock resisting power (P_r) estimated with the Erodibility Index and suggests the scour threshold of rock on the steep slope is 14% of what it would be on a flat slope. This adjusted value accounts for the influence of rock block kinematics on the scour threshold.

$$P_{r\_slope}=RF \cdot P_r$$

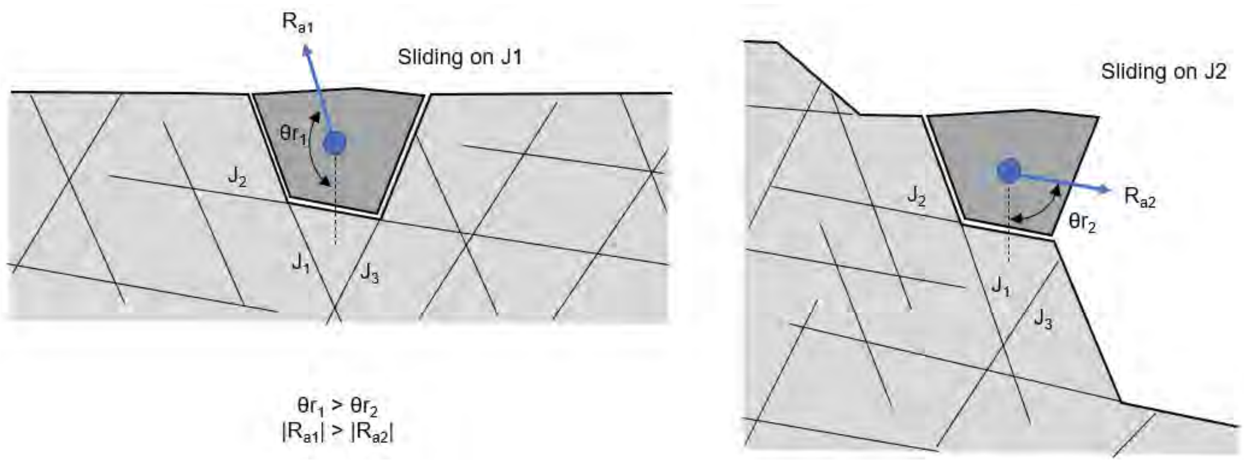

Figure 2-1. Schematic depicting effects of kinematic constraints on the relative active resultant force (R_a) required to destabilize a discrete rock block from a flat rock surface versus a steep rock slope.

Figure 2-2. Determination of the minimum rotation angle of the active resultant force vector applied to removable block types from a flat (reference) slope.

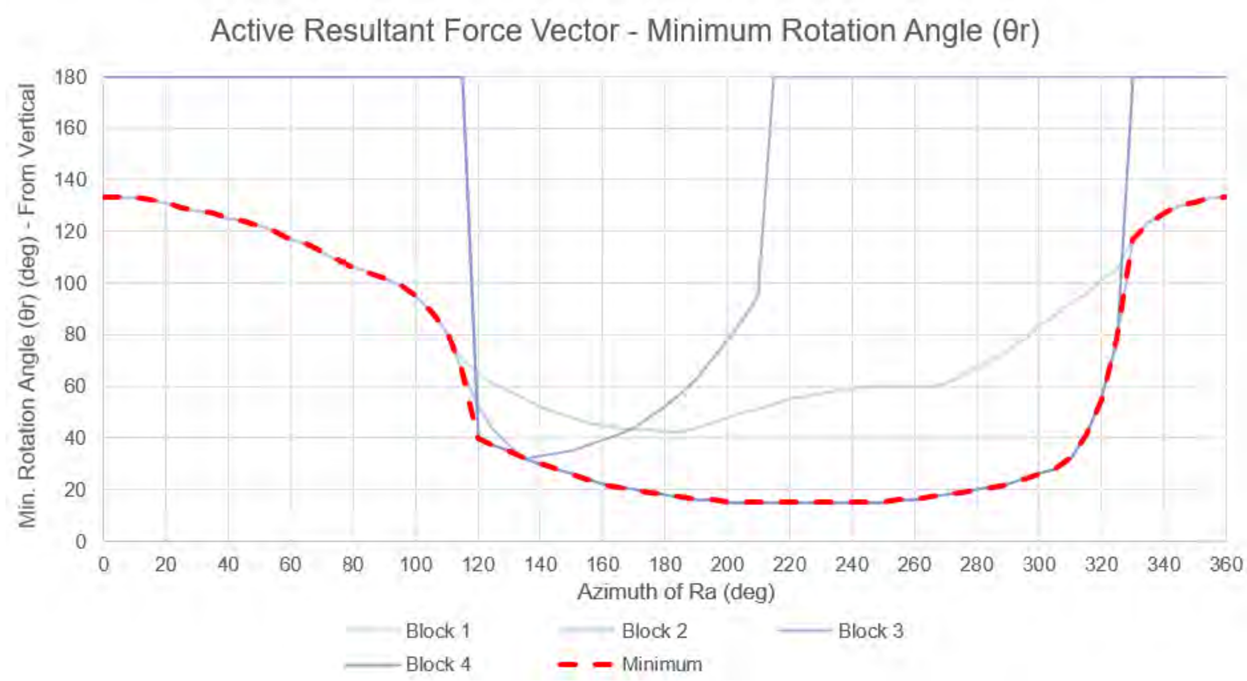

Figure 2-3. Determination of the minimum rotation angle of the active resultant force vector applied to removable block types from the steep spillway rock slope.

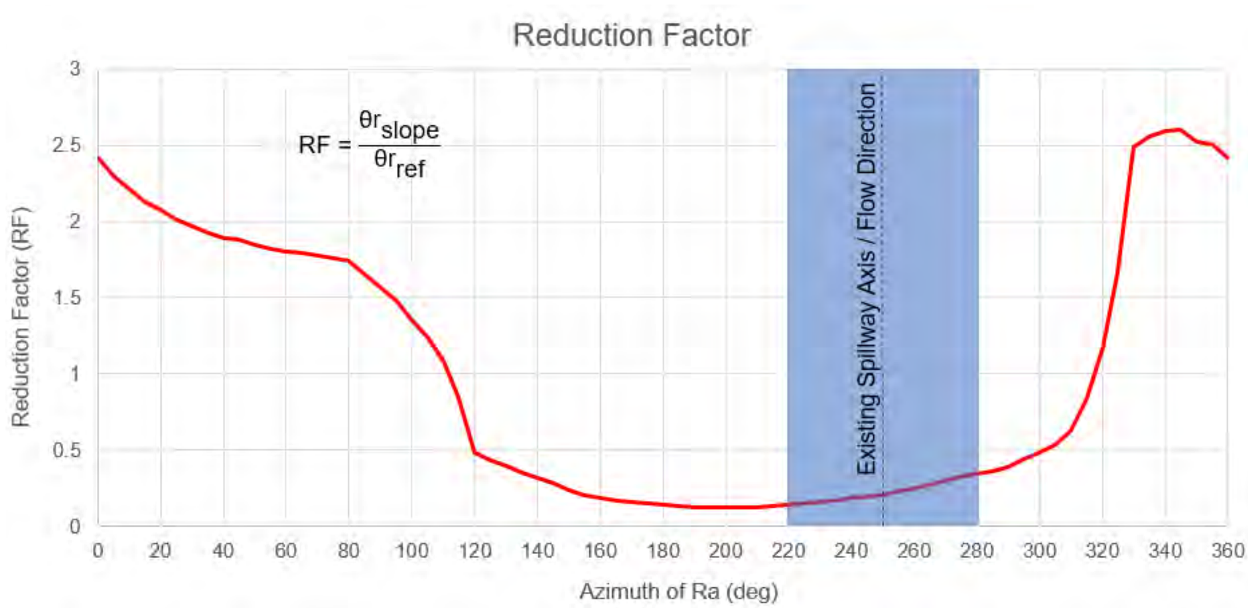

Figure 2-4. Reduction factor (RF) as a function of active resultant force vector direction. The general range of values is confined to +/- 30 degrees from the orientation of the spillway axis.

3.0 CONCLUDING REMARKS

Multiple comments arising from review of the two GEI memorandums have potential implications for the existing and proposed secondary spillway erodibility analyses. First, BGC considers it is more appropriate to estimate the impinging jet erosive capacity analytically (versus from the CFD model) and incorporating the suggested trend from Castillo et al. (2015) for large jet break-up length ratios in the determination of the dynamic pressure coefficients. Second, due to the steep nature of the rock slope downstream of the spillways, BGC suggests reducing the estimated rock resistance threshold estimated with the Erodibility Index Method by a reduction factor (RF) as described in the previous section that incorporates the influence of the 3D rock block kinematics. A value of RF = 0.14 is suggested. The use the Block Theory Rock Erodibility Method (George, 2015) could also be examined as an alternative approach to evaluate scour on the steep slope.

Given the high degree of jet break-up estimated for the existing spillway (H/L_b ratios ~ 10 to 50) scour associated with the impinging jet is anticipated to be minimal such that the overland flow condition downstream of the jet impact location is likely more critical for scour. This implies that lower discharge conditions that impact further up the slope resulting in overland flow can result in increased potential for scour.

4.0 CLOSURE

BGC Engineering USA, Inc. (BGC) appreciates the opportunity to provide input on the New Bullards Bar Spillway project. BGC prepared this document for the account of GEI and YWA. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

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Yours sincerely,

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per:

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Reviewed by:

Dr. George W. Annandale, P.E. (CO-32041)
Consultant

MFG/GWA/saa/

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Castillo, L.G., Carrillo, J.M., and Blazquez, A. (2015). Plunge pool dynamic pressures: a temporal analysis in the nappe flow case. Journal of Hydraulic Research, 53(1): 101-118.

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Appendix E

Water Temperature Modeling

New Bullards Bar Dam ARC Spillway Project Water Temperature Model

Overview

While a substantial quantity of water temperature data has been collected throughout the New Bullards Bar Dam Atmospheric River Control (ARC) Spillway Project (project or proposed project) area, the available data is limited to a few years, and generally collected from readily accessible locations and regulatory compliance points. Analysis of project effects is greatly enhanced through the examination of a longer period-of-record of data than was historically available, representing a wide range of hydrologic and meteorological conditions. Accordingly, a suite of water temperature models were developed with the capability of simulating water temperatures throughout the project area, for a period of record matching that of the Operations Model – Water Years 1970 through 2017 (refer to Appendix B for more information). Yuba County Water Agency (YCWA) provides a detailed description of the various modeling platforms used in the development of the water temperature models in YCWA 2022[1], which is summarized below.

The Temperature Model consists of three separate models that are run in series to simulate water temperatures from upstream to downstream. The Temperature Model consisted of: 1) the Upper Temperature Model; 2) the Englebright Temperature Model; and 3) the Lower Temperature Model. Each model is summarized below.

Upper Temperature Model

This model uses the United States Army Corps of Engineer's (USACE's) HEC model HEC-5Q to simulate project water temperatures upstream of Englebright Reservoir. The model uses hydrologic output from the Operations Model; a historically based synthetic timeseries for water temperatures on the Middle Yuba River above Our House Diversion Dam, on Oregon Creek above Log Cabin Diversion Dam, and on the North Yuba River above New Bullards Bar Dam; accretions below each of the project dams; and a historically based synthetic timeseries of meteorological conditions to simulate project effects on water temperatures. The model extents include a vertically-segmented one-dimension representation of New Bullards Bar Reservoir, the Middle Yuba River from Our House Diversion Dam to its confluence with the North Yuba River, Oregon Creek from Log Cabin Diversion Dam to its confluence with the Middle Yuba River, the North Yuba River from New Bullards Bar Dam to its confluence with the Middle Yuba River, and the Yuba River from its headwaters at the confluence of the North Yuba and Middle Yuba rivers to where the Yuba River reaches the NMWSE of Englebright Reservoir.

[1] Yuba County Water Agency, 2022. *Yuba River Development Project Water Temperature Model Documentation.* December

Englebright Temperature Model

This model uses the Portland State University's CE-QUAL-W2 model to simulate water temperatures in Englebright Reservoir. The models uses hydrologic output from the Operations Model, simulated water temperatures on the Yuba River below the New Colgate Powerhouse from the Upper Temperature Model; a historically based synthetic timeseries of water temperatures in the South Yuba River near Jones Bar; accretions to Englebright Reservoir; and historically based synthetic meteorological conditions to simulate project effects on Englebright Reservoir water temperatures. The model provides a two-dimensional representation of Englebright Reservoir, including flows through both of Narrows 1 and Narrows 2 powerhouses at Englebright Dam.

Lower Temperature Model

This model uses the USACE's HEC-5Q to simulate water temperatures in the Yuba River from Englebright Dam to the Yuba River's confluence with the Feather River. The model uses hydrologic output from the Operations Model; simulated Yuba River water temperatures below Englebright Dam from the Englebright Temperature Model; a historically based timeseries of water temperatures in Deer Creek near its confluence with the Yuba River and Dry Creek near its confluence with the Yuba River; and historically based meteorological conditions to simulate project effects on the Yuba River below Englebright Dam.

ARC Spillway

Water temperature modeling of the ARC Spillway was completed using the same model as the the existing conditions model, but used the lower elevation of the ARC Spillway for releases when needed based on output from the Water Balance/Operations Model (Appendix B).

Modeling Results Summary

Figure E-1 shows a comparison of historical maximum-daily water temperature with computed maximum-daily water temperatures for the Middle Yuba River above its confluence with the North Yuba River. Where only one line is visible in the following 4 figures, the predicted maximum daily water temperature are nearly identical to the historical maximum daily water temperature (i.e., the blue line is under the red line).

Figure E-2 shows a comparison of historical maximum-daily water temperatures with computed maximum-daily water temperatures in the Yuba River near Smartsville.

Figure E-3 shows a comparison of historical maximum-daily water temperatures with computed maximum-daily water temperatures for the Yuba River at Daguerre Point Dam.

Figure E-4 shows a comparison of historical maximum-daily water temperatures with computed maximum-daily water temperatures for the Yuba River near Marysville.

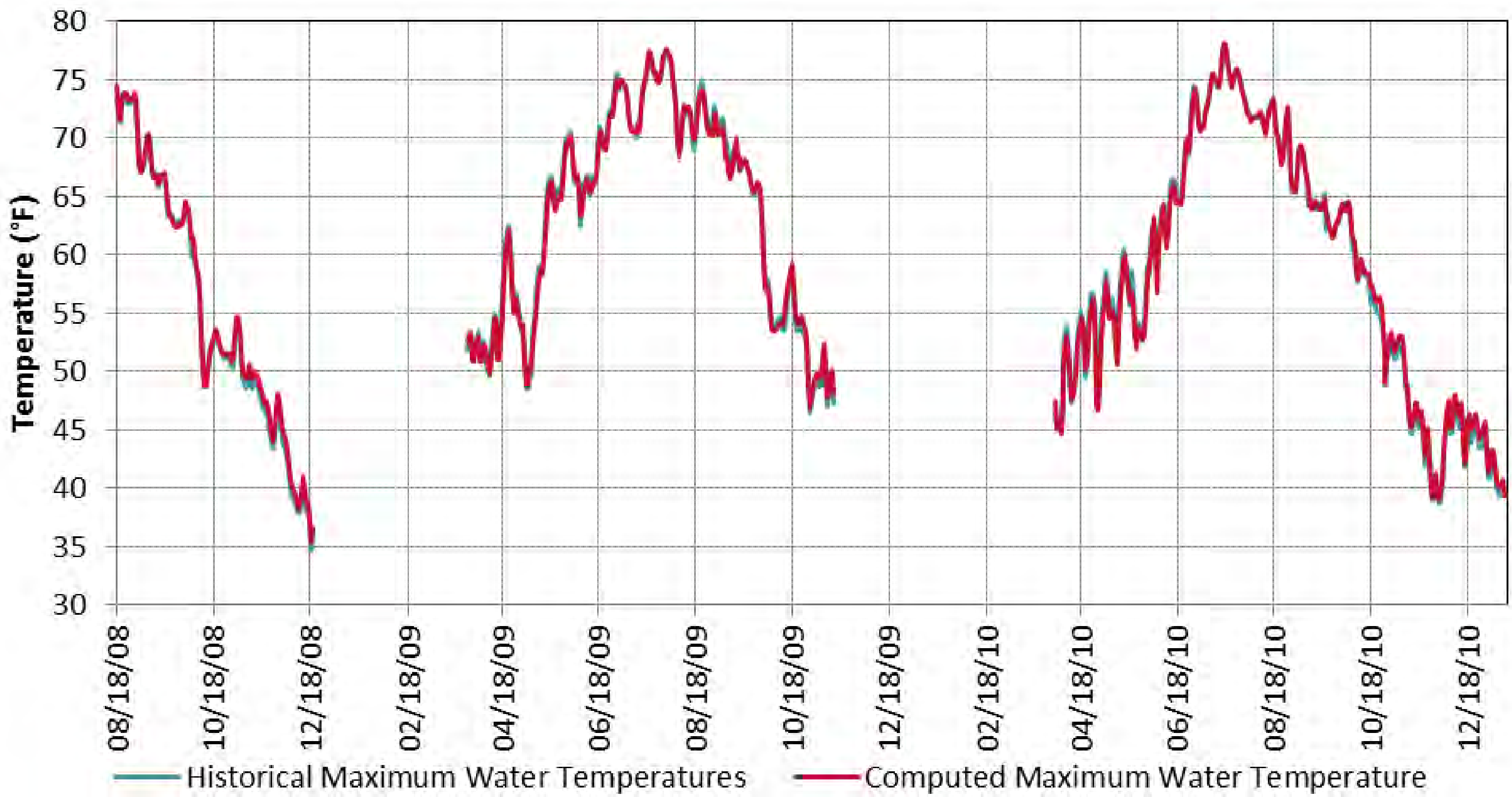

Figure E-1. Comparison of Historical and Computed Maximum-daily Water Temperatures in the Middle Yuba River above its Confluence with the North Yuba River

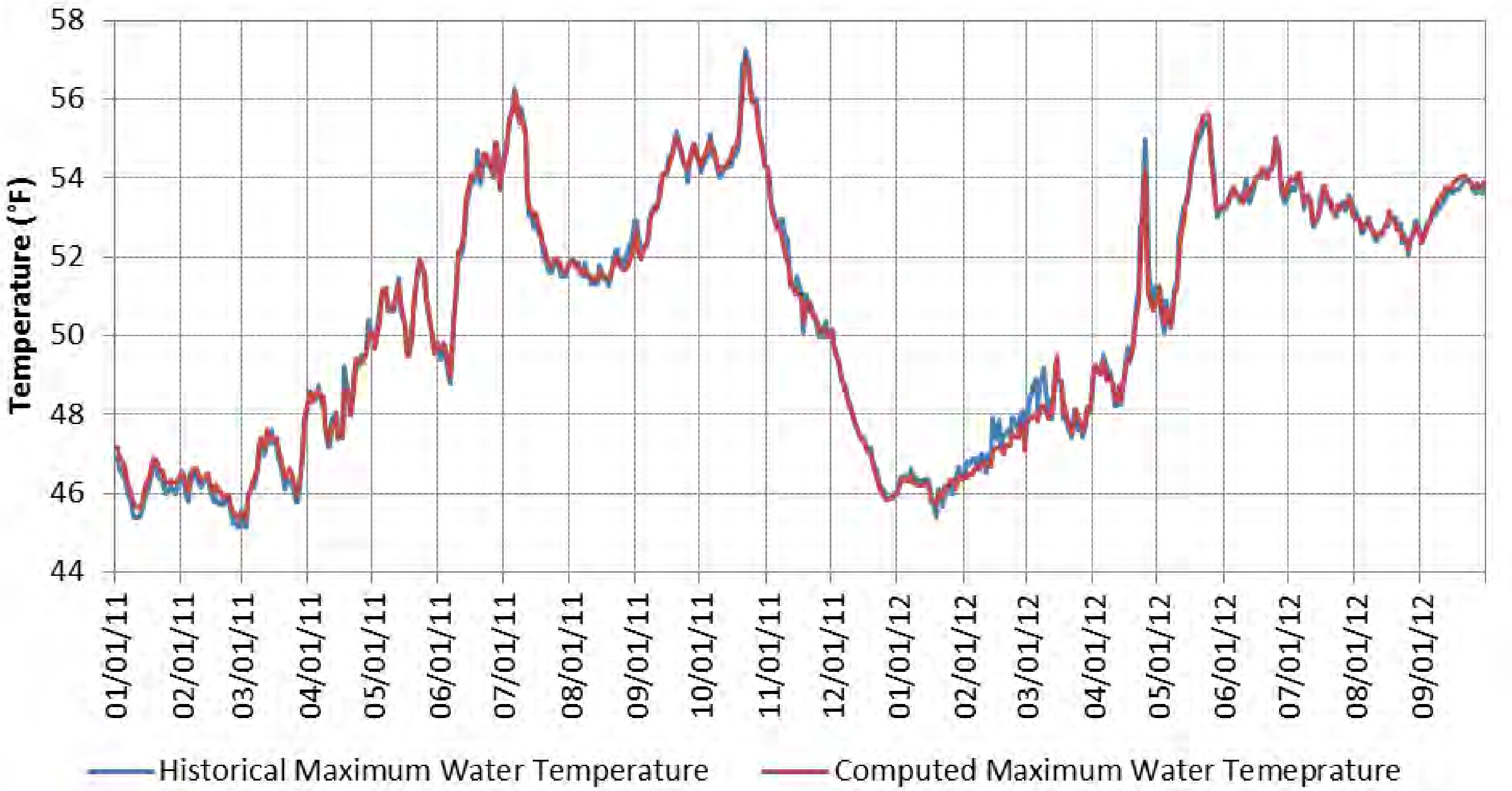

Figure E-2. Comparison of Historical and Computed Maximum-daily Water Temperatures in the Yuba River Near Smartsville

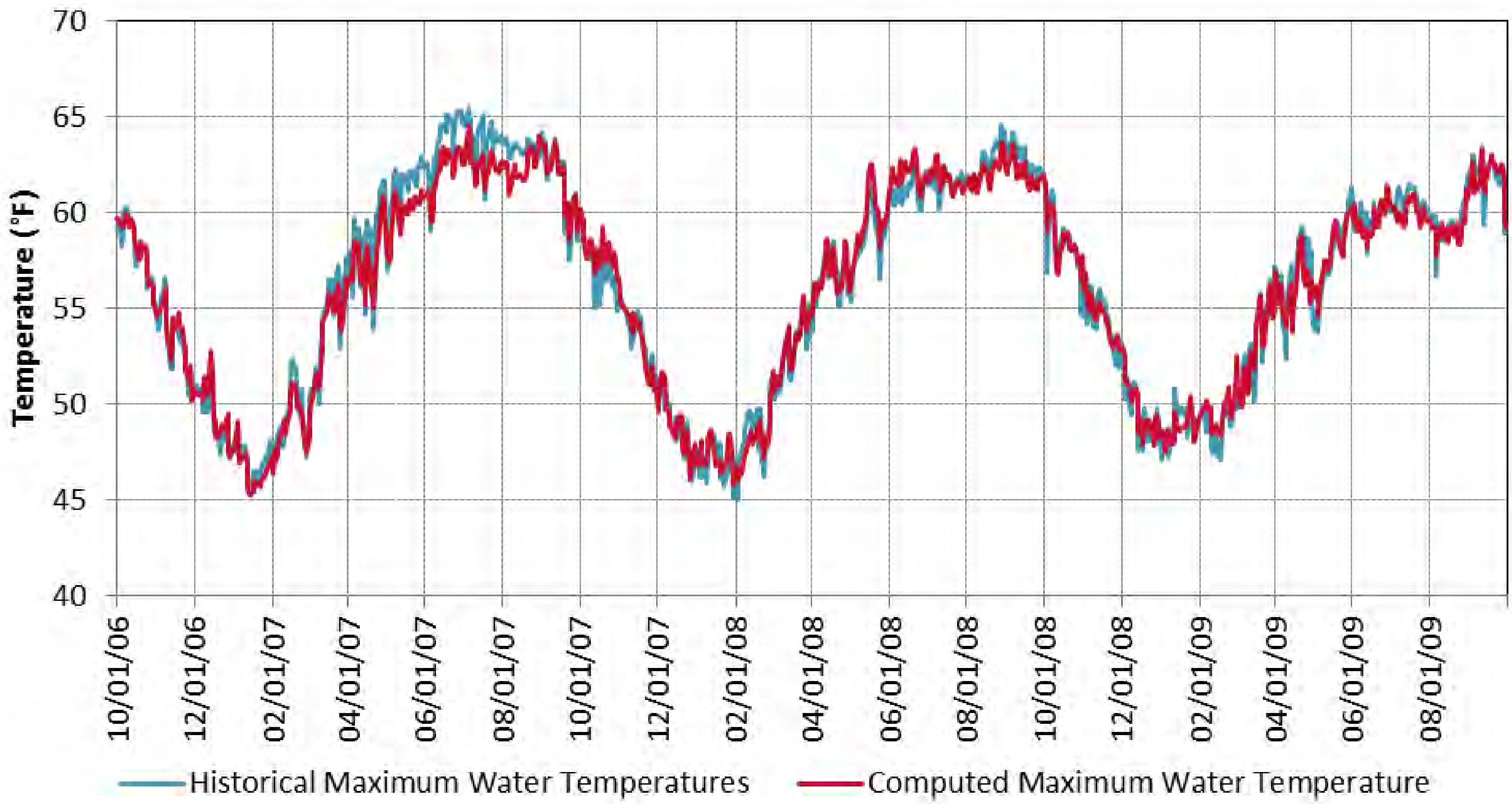

Figure E-3. Comparison of Historical and Computed Maximum-daily Water Temperatures in the Yuba River Near Daguerre Point Dam

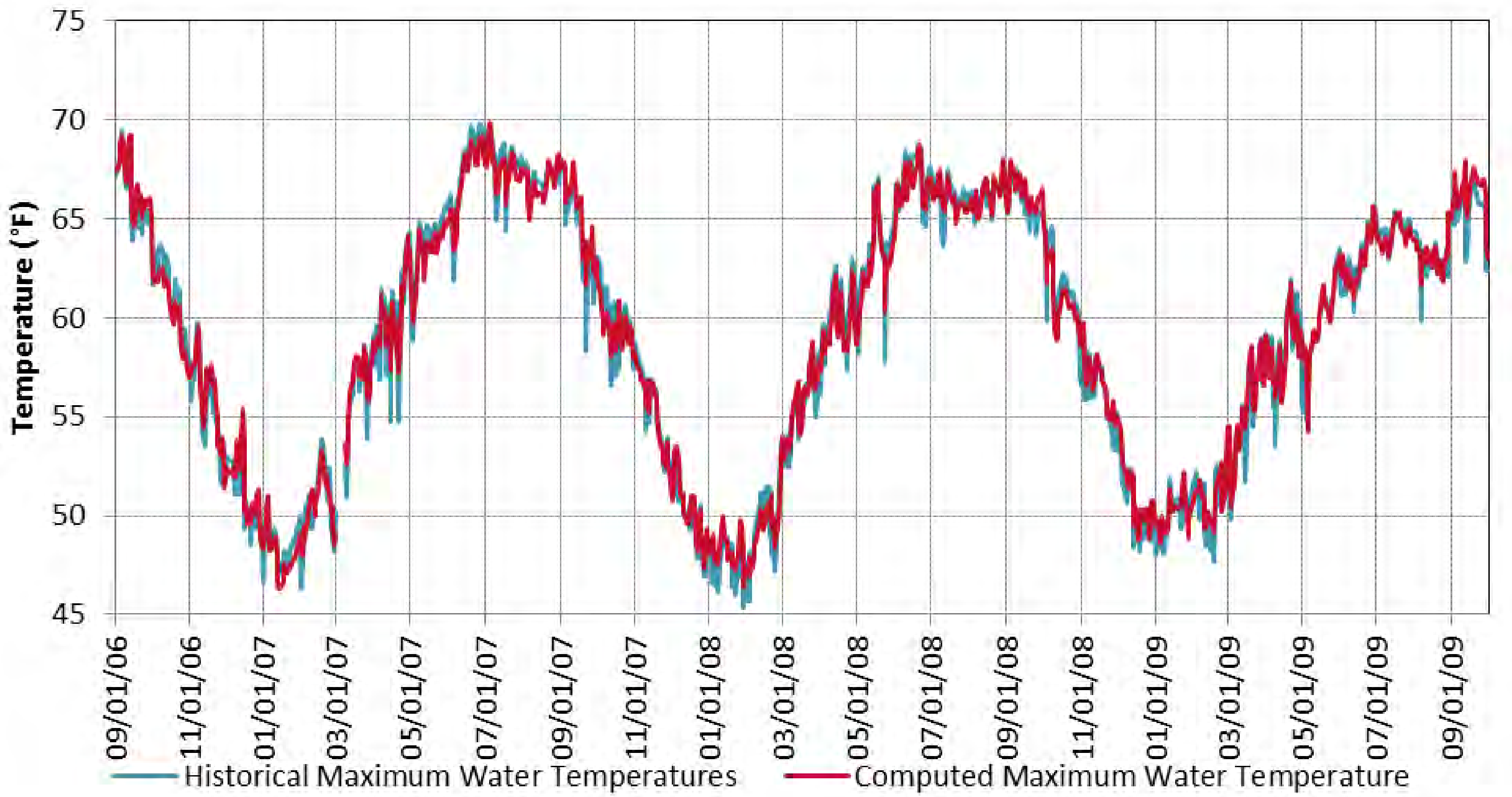

Figure E-4. Comparison of Historical and Computed Maximum-daily Water Temperatures in the Yuba River Near Marysville

Appendix F

Biological Database Searches

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Challenge (3912142) OR Forbestown (3912153) OR Clipper Mills (3912152) OR Strawberry Valley (3912151) OR Rackerby (3912143) OR Camptonville (3912141) OR Oregon House (3912133) OR French Corral (3912132) OR Nevada City (3912131))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Accipiter gentilis northern goshawk	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	2,800 3,400	433 S:2	0	0	1	0	0	1	2	0	2	0	0
Ambystoma macrodactylum sigillatum southern long-toed salamander	G5T4 S3	None None	CDFW_SSC-Species of Special Concern	3,800 3,800	611 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	1,370 3,310	420 S:2	0	1	1	0	0	0	0	2	2	0	0
Bombus occidentalis western bumble bee	G3 S1	None Candidate Endangered	IUCN_VU-Vulnerable USFS_S-Sensitive	3,000 3,700	306 S:2	0	0	0	0	0	2	2	0	2	0	0
Corynorhinus townsendii Townsend's big-eared bat	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	566 566	635 S:1	0	1	0	0	0	0	0	1	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	240 2,234	1424 S:4	1	0	0	0	0	3	2	2	4	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	574 3,700	523 S:4	0	0	0	0	0	4	3	1	4	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive	1,200 2,000	332 S:3	0	1	0	0	0	2	3	0	3	0	0
Lasionycteris noctivagans silver-haired bat	G3G4 S3S4	None None	IUCN_LC-Least Concern	3,300 3,300	139 S:1	0	0	1	0	0	0	0	1	1	0	0
Lasiurus cinereus hoary bat	G3G4 S4	None None	IUCN_LC-Least Concern	580 580	238 S:1	0	1	0	0	0	0	0	1	1	0	0
Lasiurus frantzii western red bat	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	580 3,310	128 S:2	0	2	0	0	0	0	0	2	2	0	0
Laterallus jamaicensis coturniculus California black rail	G3T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_EN-Endangered NABCI_RWL-Red Watch List	325 925	303 S:13	0	0	0	0	0	13	5	8	13	0	0
Margaritifera falcata western pearlshell	G4G5 S1S2	None None	IUCN_NT-Near Threatened	1,470 2,240	78 S:2	0	0	0	0	0	2	0	2	2	0	0
Martes caurina sierrae Sierra marten	G4G5T3 S3	None None	USFS_S-Sensitive	3,638 4,320	149 S:2	0	0	0	0	0	2	1	1	2	0	0
Myotis evotis long-eared myotis	G5 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	3,290 3,290	139 S:1	0	0	1	0	0	0	0	1	1	0	0
Myotis thysanodes fringed myotis	G4 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive	3,300 3,300	86 S:1	0	0	1	0	0	0	0	1	1	0	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern	580 971	265 S:2	0	1	1	0	0	0	0	2	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Pekania pennanti Fisher	G5 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	2,000 2,000	555 S:1	0	0	0	0	0	1	1	0	1	0	0
Phrynosoma blainvillii coast horned lizard	G3 S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	2,260 2,500	784 S:2	0	1	0	0	0	1	2	0	2	0	0
Rana boylii pop. 2 foothill yellow-legged frog - Feather River DPS	G3T2 S2	Proposed Threatened Threatened	BLM_S-Sensitive USFS_S-Sensitive	1,027 3,200	116 S:9	0	0	0	0	2	7	9	0	7	0	2
Rana boylii pop. 3 foothill yellow-legged frog - north Sierra DPS	G3T2 S2	None Threatened	BLM_S-Sensitive USFS_S-Sensitive	1,098 4,200	237 S:49	1	5	2	0	2	39	19	30	47	0	2
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	2,100 2,100	1685 S:1	0	0	1	0	0	0	0	1	1	0	0
Rana sierrae Sierra Nevada yellow-legged frog	G1 S1	Endangered Threatened	CDFW_WL-Watch List IUCN_EN-Endangered USFS_S-Sensitive	3,500 4,500	659 S:2	0	0	0	0	0	2	2	0	2	0	0
Strix nebulosa great gray owl	G5 S1	None Endangered	CDF_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive	2,800 2,800	79 S:1	0	0	1	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Challenge (3912142) OR Forbestown (3912153) OR Clipper Mills (3912152) OR Strawberry Valley (3912151) OR Rackerby (3912143) OR Camptonville (3912141) OR Oregon House (3912133) OR French Corral (3912132) OR Nevada City (3912131))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Buxbaumia viridis green shield-moss	G3G4 S2	None None	Rare Plant Rank - 2B.2 BLM_S-Sensitive USFS_S-Sensitive	3,200 3,200	9 S:1	0	0	0	0	0	1	0	1	1	0	0
Cardamine pachystigma var. dissectifolia dissected-leaved toothwort	G3G5T2Q S2	None None	Rare Plant Rank - 1B.2	1,800 1,800	19 S:1	0	0	0	1	0	0	0	1	1	0	0
Carex cyrtostachya Sierra arching sedge	G2 S2	None None	Rare Plant Rank - 1B.2	2,180 4,000	28 S:9	0	3	3	0	0	3	0	9	9	0	0
Carex xerophila chaparral sedge	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	2,010 2,520	15 S:3	0	0	0	0	0	3	0	3	3	0	0
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	G4G5T4 S4	None None	Rare Plant Rank - 4.2 SB_UCSC-UC Santa Cruz	650 2,900	89 S:26	7	7	4	0	0	8	13	13	26	0	0
Clarkia gracilis ssp. albicaulis white-stemmed clarkia	G5T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley USFS_S-Sensitive	1,150 1,800	32 S:2	0	1	0	0	0	1	1	1	2	0	0
Clarkia mosquinii Mosquin's clarkia	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	720 3,530	78 S:18	2	10	3	1	1	1	2	16	17	0	1
Eriogonum umbellatum var. ahartii Ahart's buckwheat	G5T3 S3	None None	Rare Plant Rank - 1B.2 SB_UCSC-UC Santa Cruz USFS_S-Sensitive	2,000 4,120	30 S:11	0	8	3	0	0	0	0	11	11	0	0
Erythranthe filicifolia fern-leaved monkeyflower	G2 S2	None None	Rare Plant Rank - 1B.2	4,100 4,100	25 S:1	1	0	0	0	0	0	0	1	1	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Fissidens pauperculus minute pocket moss	G3? S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	2,140 3,350	22 S:4	0	2	1	0	0	1	0	4	4	0	0
Fremontodendron decumbens Pine Hill flannelbush	G1 S1	Endangered Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	2,200 2,285	12 S:2	0	0	0	0	0	2	2	0	2	0	0
Fritillaria eastwoodiae Butte County fritillary	G3Q S3	None None	Rare Plant Rank - 3.2 USFS_S-Sensitive	910 3,250	235 S:41	2	8	13	7	0	11	6	35	41	0	0
Lewisia cantelovii Cantelow's lewisia	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz USFS_S-Sensitive	1,100 2,256	73 S:4	2	0	0	0	0	2	2	2	4	0	0
Lupinus dalesiae Quincy lupine	G3 S3	None None	Rare Plant Rank - 4.2	2,300 2,300	228 S:1	0	0	0	0	0	1	1	0	1	0	0
Mielichhoferia elongata elongate copper moss	G5 S3S4	None None	Rare Plant Rank - 4.3 USFS_S-Sensitive	1,780 1,780	20 S:1	0	0	0	0	0	1	1	0	1	0	0
Packera layneae Layne's ragwort	G2 S2	Threatened Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	2,230 2,230	48 S:2	0	0	0	2	0	0	1	1	2	0	0
Peltigera gowardii western waterfan lichen	G4? S3	None None	Rare Plant Rank - 4.2 USFS_S-Sensitive	3,500 4,000	26 S:2	1	0	0	0	0	1	0	2	2	0	0
Poa sierrae Sierra blue grass	G3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive USFS_S-Sensitive	1,700 2,300	88 S:2	0	1	1	0	0	0	0	2	2	0	0
Pohlia flexuosa flexuose threadmoss	G5 S1	None None	Rare Plant Rank - 2B.1	3,115 3,115	1 S:1	0	0	0	0	0	1	0	1	1	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Pyrrocoma lucida sticky pyrrocoma	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz USFS_S-Sensitive	2,500 2,500	76 S:1	0	0	0	0	0	1	1	0	1	0	0
Rhynchospora capitellata brownish beaked-rush	G5 S1	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern	2,660 4,000	25 S:4	0	1	1	0	0	2	2	2	4	0	0
Sanicula tracyi Tracy's sanicle	G4 S4	None None	Rare Plant Rank - 4.2 USFS_S-Sensitive	3,400 3,400	80 S:1	0	1	0	0	0	0	1	0	1	0	0
Scytinium siskiyouense Siskiyou jellyskin lichen	G2G3 S1	None None	Rare Plant Rank - 1B.1	3,950 3,950	18 S:1	0	0	0	0	0	1	0	1	1	0	0

CALIFORNIA NATIVE PLANT SOCIETY

Search Results

40 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**3912151:3912141:3912153:3912152:3912131:3912132:3912142:3912143:3912133**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	4.2
Arctostaphylos mewukka ssp. *truei*	True's manzanita	Ericaceae	perennial evergreen shrub	Feb-Jul	None	None	4.2
Brodiaea sierrae	Sierra foothills brodiaea	Themidaceae	perennial bulbiferous herb	May-Aug	None	None	4.3
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	None	None	4.2
Buxbaumia viridis	green shield-moss	Buxbaumiaceae	moss		None	None	2B.2
Cardamine pachystigma var. *dissectifolia*	dissected-leaved toothwort	Brassicaceae	perennial rhizomatous herb	Feb-May	None	None	1B.2
Carex cyrtostachya	Sierra arching sedge	Cyperaceae	perennial herb	May-Aug	None	None	1B.2
Carex xerophila	chaparral sedge	Cyperaceae	perennial herb	Mar-Jun	None	None	1B.2
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	Onagraceae	annual herb	(Mar)May-Jul	None	None	4.2
Clarkia gracilis ssp. *albicaulis*	white-stemmed clarkia	Onagraceae	annual herb	May-Jul	None	None	1B.2
Clarkia mildrediae ssp. *lutescens*	golden-anthered clarkia	Onagraceae	annual herb	Jun-Aug	None	None	4.2
Clarkia mosquinii	Mosquin's clarkia	Onagraceae	annual herb	May-Jul(Sep)	None	None	1B.1
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	None	None	4.3
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	None	None	4.2
Darlingtonia californica	California pitcherplant	Sarraceniaceae	perennial rhizomatous herb (carnivorous)	Apr-Aug	None	None	4.2
Erigeron petrophilus var. *sierrensis*	northern Sierra daisy	Asteraceae	perennial rhizomatous herb	Jun-Oct	None	None	4.3
Eriogonum umbellatum var. *ahartii*	Ahart's buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	1B.2
Erythranthe filicifolia	fern-leaved monkeyflower	Phrymaceae	annual herb	Apr-Jun	None	None	1B.2
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		None	None	1B.2
Fremontodendron decumbens	Pine Hill flannelbush	Malvaceae	perennial evergreen shrub	Apr-Jul	FE	CR	1B.2
Fritillaria eastwoodiae	Butte County fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	3.2
Lewisia cantelovii	Cantelow's lewisia	Montiaceae	perennial herb	May-Oct	None	None	1B.2

Lilium humboldtii ssp. humboldtii	Humboldt lily	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	None	None	4.2
Lupinus dalesiae	Quincy lupine	Fabaceae	perennial herb	May-Aug	None	None	4.2
Lycopodiella inundata	inundated bog-clubmoss	Lycopodiaceae	perennial rhizomatous herb	Jun-Sep	None	None	2B.2
Mielichhoferia elongata	elongate copper moss	Mielichhoferiaceae	moss		None	None	4.3
Mielichhoferia shevockii	Shevock's copper moss	Mielichhoferiaceae	moss		None	None	1B.2
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	Apr-Aug	FT	CR	1B.2
Peltigera gowardii	western waterfan lichen	Peltigeraceae	foliose lichen (aquatic)		None	None	4.2
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	4.2
Plagiobothrys glyptocarpus var. modestus	Cedar Crest popcornflower	Boraginaceae	annual herb	Apr-Jun	None	None	3
Poa sierrae	Sierra blue grass	Poaceae	perennial rhizomatous herb	Apr-Jul	None	None	1B.3
Pohlia flexuosa	flexuose threadmoss	Mielichhoferiaceae	moss		None	None	2B.1
Pseudostellaria sierrae	Sierra starwort	Caryophyllaceae	perennial rhizomatous herb	May-Aug	None	None	4.2
Pyrrocoma lucida	sticky pyrrocoma	Asteraceae	perennial herb	Jul-Oct	None	None	1B.2
Rhynchospora capitellata	brownish beaked-rush	Cyperaceae	perennial herb	Jul-Aug	None	None	2B.2
Sanicula tracyi	Tracy's sanicle	Apiaceae	perennial herb	Apr-Jul	None	None	4.2
Scytinium siskiyouense	Siskiyou jellyskin lichen	Collemataceae	foliose lichen		None	None	1B.1
Sidalcea gigantea	giant checkerbloom	Malvaceae	perennial rhizomatous herb	(Jan-Jun)Jul-Oct	None	None	4.3
Vaccinium coccineum	Siskiyou Mountains huckleberry	Ericaceae	perennial deciduous shrub	Jun-Aug	None	None	3.3

Showing 1 to 40 of 40 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 25 March 2023].

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Nevada and Yuba counties, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Spotted Owl *Strix occidentalis occidentalis* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7266	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS

Vernal Pool Fairy Shrimp *Branchinecta lynchi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Layne's Butterweed *Senecio layneae* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4062	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Black-throated Gray Warbler Dendroica nigrescens This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jul 20

Bullock's Oriole Icterus bullockii
Breeds Mar 21 to Jul 25
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus
Breeds Mar 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum
Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Cassin's Finch Carpodacus cassinii
Breeds May 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9462

Clark's Grebe Aechmophorus clarkii
Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa
Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Evening Grosbeak Coccothraustes vespertinus
Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos
Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei
Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

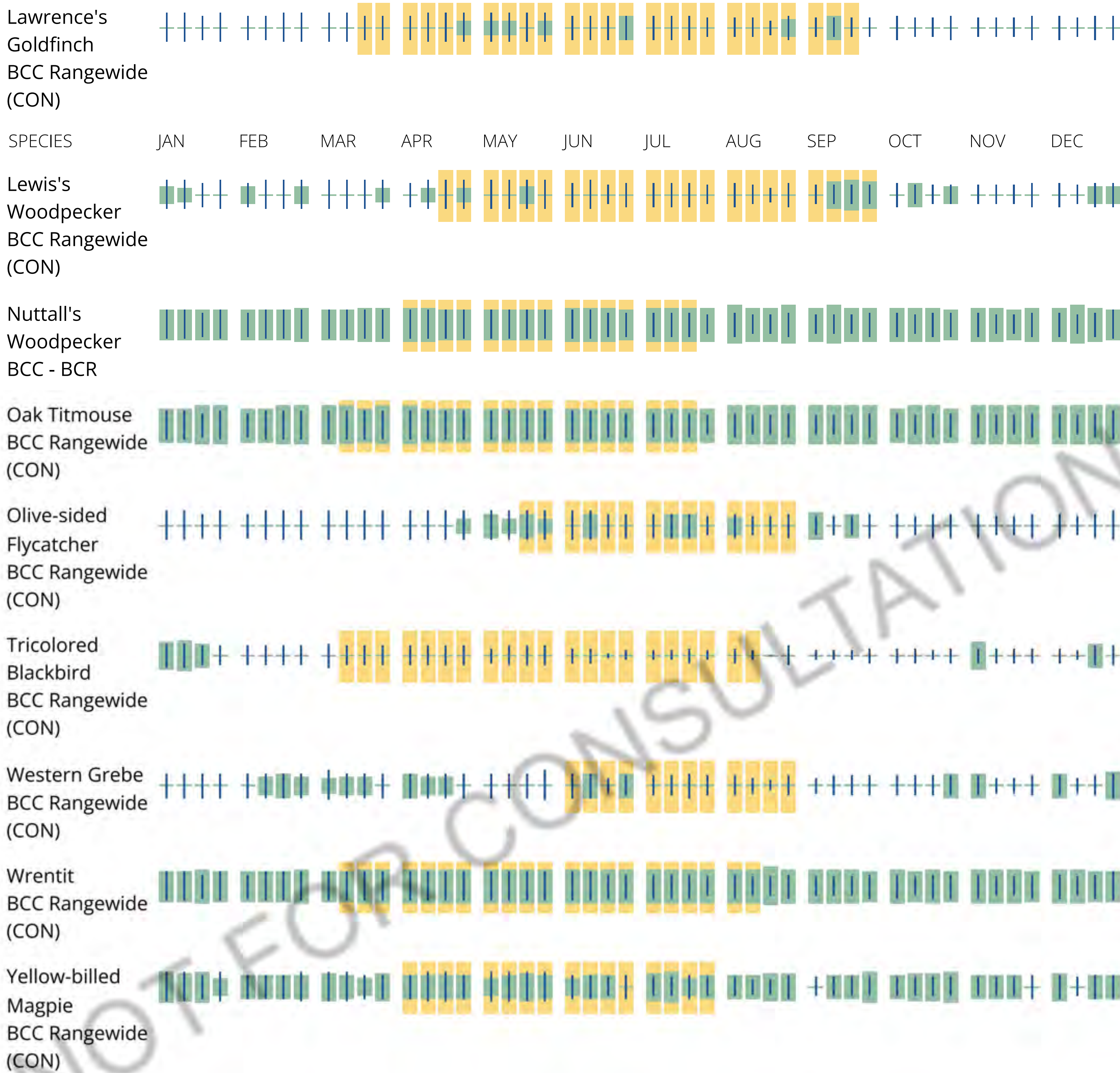
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix G

Air Quality and Greenhouse Gas Emissions Modeling

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June 12, 2023
Project No: 20-09070

Ryan Jolley
Senior Environmental Project Director
GEI Consultants
2868 Prospect Park Drive, Suite 400
Rancho Cordova, California 95670
Via email: rjolley@geiconsultants.com

Subject: Air Quality and Greenhouse Gas Modeling Results for the Yuba Water Agency New Bullards Bar Reservoir Atmospheric River Control Spillway

Dear Mr. Jolley:

Rincon Consultants, Inc. (Rincon) completed criteria air pollutant and greenhouse gas (GHG) emission estimates using the California Emissions Estimator Model (CalEEMod) for the Yuba Water Agency New Bullards Bar Reservoir Atmospheric River Control Spillway. As detailed in the analysis below, criteria air pollutant emissions would exceed Feather River Air Quality Management District (FRAQMD) thresholds during project construction but not during operation. GHG emissions generated during project construction would also exceed the threshold of significance in Years 1, 2, and 3. Project operation and its associated GHG emissions would be consistent with the California Air Resources Board's (CARB) Climate Change Scoping Plan. Implementation of Recommended Measures AIR-1 through AIR-3, GHG-1, and GHG-2 is recommended to address the air pollutant and GHG threshold exceedances during project construction to the extent feasible.

Project Description

The proposed project includes construction of a new spillway at a lower elevation in the New Bullards Bar Reservoir to better manage peak flood flows downstream. The project would consist of an intake and approach channel in the reservoir, control structure, a concrete-lined spillway chute channel excavated in rock (approximately 365 feet long by 48 feet wide by 33 feet high), a discharge channel leading to the North Yuba River downstream of the dam, and a gate control house. In addition, the project would include a supervisory control and data acquisition (SCADA) system, access control and video surveillance systems, and outdoor lighting fixtures. The project would be located on an approximately 10-acre site. Figure 1 shows the project site plan.

Electricity provided by Pacific Gas & Electric (PG&E) would be used to operate the spillway gate and power other general operations at the gate control house. To connect to the existing electrical grid, the project would include installation of a new overhead line from the existing PG&E utility pole on the southwest side of Marysville Road to a new utility pole with a surge arrester and fuse cutoff switch at the operations pad. In addition, 12.5-kilovolt power conductors would be installed in an underground duct bank to the new pad mounted transformer. To provide emergency power, the project would include a 150-kilowatt (i.e., 201-horsepower [hp]) propane gas generator with an output circuit breaker

Figure 1 Project Site Plan

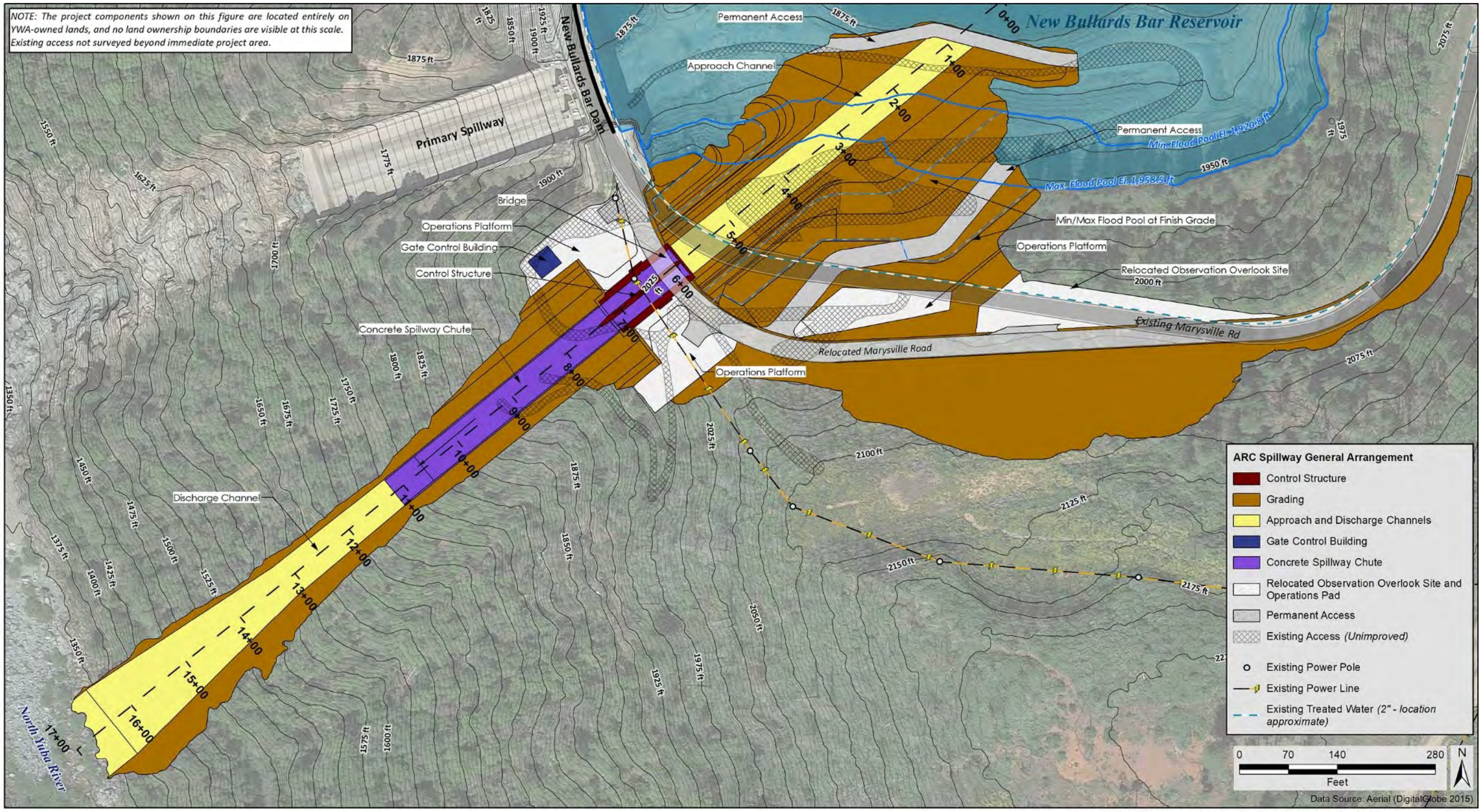

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Figure Source: GEI Consultants, Inc. 2023.

to be located on the operations pad. A permanent on-site fuel supply tank would be installed underground and would supply 48 hours of generator operation at full load. The power and control cables from the generator would be installed in an underground duct bank from the generator to the gate control house. The proposed SCADA and access control and video surveillance systems would be interfaced to the existing microwave equipment at the Penstock Butterfly Valve House at the dam via microwave radio and fiber communication pathways to dispatch SCADA data as well as access controls and video surveillance signals to the Colgate Plant. The remote control and monitoring of guard and service wheel gates, project facilities, a reservoir level sensor and transmitter, tunnel flow discharge, and fire alarm system at the gate control house would be monitored via SCADA link.

Project Construction

Table 1 summarizes the anticipated project construction schedule and the maximum number of construction workers estimated for each phase. As shown therein, project construction would occur in eight phases over the course of approximately four years and four months with the maximum number of on-site workers associated with construction equipment operation ranging from 45 to 75 people. In total, the maximum number of construction workers on-site each day, including equipment operators, overhead personnel, and supervisors, would be approximately 110 persons.

Table 1 Construction Schedule

No.	Construction Phase	Start Date	End Date	Workdays	Peak Construction Workers
1	Mobilization	January Year 1	April Year 1	60	45
2	General Site Preparation	April Year 1	July Year 1	50	50
3	Stage 1	April Year 1	October Year 1	120	65
4	Stage 2	October Year 1	May Year 4	704	75
5	Stage 3	March Year 2	May Year 4	663	70
6	Stage 4	May Year 4	January Year 5	155	75
7	Stage 5	January Year 5	March Year 5	71	45
8	Site Restoration and Demobilization	April Year 5	May Year 5	30	30

Approximately 720,000 cubic yards (CY) of soil and rock would be dredged/excavated and placed at the soil and rock disposal area over the course of 500 days to accommodate the proposed project. No soil or rock would be exported outside of the designated construction areas. Blasting may be used during Phases 3a, 4a, 6a, and 7a to fracture rock during rock excavation activities. Approximately 35,000 CY of aggregate would be processed from excavated rock or imported to the project site over the course of 70 days and temporarily stockpiled at one of the staging areas prior to use for concrete production at the temporary on-site batch plant. Haul trucks exporting soil and rock materials would have an average capacity of approximately 20 CY, and haul trucks importing aggregate would have an average capacity of approximately 14 CY. Additional construction characteristics, including the construction equipment list, the approximate schedules of soil export and import, and the various haul routes that would be utilized for soil export and aggregate import, are included in Attachment 1.

A temporary concrete batch plant powered by an approximately 365-kilowatt (490-hp) generator would operate for approximately 759 days during Phases 4b, 5d, and 6c and would produce approximately 28,677 CY of concrete. Approximately 7,170 one-way truck trips would be required to transport concrete approximately 0.25 mile from the batch plant to the construction site during Phases 4b, 5d, and 6c, assuming a concrete truck capacity of 8 CY. In addition, deliveries of various construction materials would require approximately 3,700 truck trips over the duration of construction activities. In addition, approximately 250 truck trips for off-hauling of excess sediment and construction waste would occur over the course of 45 days during Phases 2 through 7.

Operations and Maintenance

The project would require electrical power for the guard and service gate hydraulic power unit, electrical control panels, SCADA and communications systems equipment, access control and video surveillance systems equipment, balance-of-plant mechanical systems, power receptacles, local lighting and convenience receptacles. Operation of these components would require approximately 28,720 kilowatt-hours of electricity per year. The 201-hp propane emergency generator would be tested once a month in accordance with regulatory requirements. Approximately 10 vehicle trips from Marysville would be made by staff each month to perform visual inspection of the spillway area and other site facilities. However, these trips would be part of existing daily operations and maintenance trips made by staff from Marysville to the New Bullards Bar Reservoir area and therefore would not be net new trips. Every 5 to 10 years, the intake gates would be handled (e.g., removed, reinstalled) via a tower hoist for major maintenance activities. A multi-coat epoxy paint system would be used for corrosion protection of the intake gates.

Methodology

The project's construction and operational emissions of criteria air pollutants and GHGs were primarily estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1. Emissions from the proposed temporary concrete batch plant and blasting activities were calculated separately and aggregated with the model outputs. CalEEMod uses project-specific information, including the project's land uses, acreage, and location, to model a project's construction and operational emissions.

Construction emissions modeled include emissions generated by construction equipment used on site; emissions generated by vehicle trips associated with construction, such as worker, vendor, hauling, and concrete transfer trips; emissions generated by operation of the temporary concrete batch plant; and emissions generated by blasting. Construction of the proposed project was analyzed based on the construction schedule, construction equipment, haul truck trip estimates, and construction worker estimates provided by GEI Consultants (see Table 1 and Attachment 1). For the purposes of providing a conservative estimate of emissions, it is assumed Year 1 of construction would be year 2024. If construction commences at a later date, emissions would be lower than those estimated herein because of increasingly stringent federal and state regulations on the fuel efficiency and emissions controls of construction equipment and vehicles. It is assumed that all construction equipment used would be diesel-powered. CalEEMod was used to estimate emissions generated by construction equipment, vehicle trips, and generator usage for operation of the temporary concrete batch plant. For most construction equipment, default emission factors in CalEEMod were used. However, because of the size of the generator required for the temporary concrete batch plant, CalEEMod required manual input of emission factors. Emission factors for reactive organic gases (ROG), nitrogen oxides (NO_X), carbon monoxide, and particulate matter were sourced from the CAT D350 GC diesel generator specifications (see Attachment 3). The carbon dioxide (CO_2) emission factor for the generator was estimated assuming operation of the generator at 75 percent load,[1] which results in average fuel consumption of 21.6 gallons of diesel fuel per hour based on the manufacturer specifications and a GHG emission factor of 10,180 grams of CO_2 per gallon of diesel fuel.[2, 3] The resulting emission factor was calculated to be 448.751 grams of CO_2 per hp-hour.[4]

Emissions of particulate matter measuring 10 microns or less in diameter (PM_{10}) associated with the temporary concrete batch plant were estimated using the United States Environmental Protection Agency's (U.S. EPA) AP-42 emissions factors and average material composition from Table 11.12-1 in U.S. EPA AP-42 Section 11.12 (Concrete Batching).[5] PM_{10} emissions generated by blasting activities were estimated using the equation in Table 11.9-1 in U.S. EPA AP-42 Section 11.9 (Western Surface Coal Mining) for blasting activities associating with coal mining, which is a similar process to that which would be utilized for the proposed project. Blasting activities would involve placing explosives in pre-drilled holes, each of which would have one detonator/nonelectric cap, one primer, and ammonium nitrate/fuel oil (ANFO) explosive. Holes would be drilled into approximately 132,000 linear feet of rock over an approximately 5.5-acre area at approximately 15-foot intervals; therefore, approximately 8,900 holes would be drilled. Approximately 225 tons of explosives in total would be utilized for blasting, and up to two blasts would occur per day. An area of up to approximately 2,500 square feet would be affected by each blast. NO_X emissions generated by detonation of the ANFO explosives were calculated using the emissions factor of 17 pounds of NO_X emissions per ton of ANFO detonated from Table 13.3-1 in U.S. EPA AP-42 Section 13.3 (Explosives Detonation).

Operational emissions modeled include emissions from area sources, energy use, water conveyance and treatment, solid waste disposal, stationary sources, and mobile sources (i.e., vehicles). Operational emissions modeling used the following assumptions:

- **Area Sources**. Every 5 to 10 years, the intake gates would be re-coated with a multi-coat epoxy paint for corrosion protection. The epoxy paint would be similar or equivalent to International Interseal 670 HS, which has an ROG content of 240 grams per liter (see Attachment 4). Approximately 24,000 square feet of surface area (4,000 square feet per intake gate multiplied by six intake gates) would be recoated.
- **Energy Use**. The project would consume approximately 28,720 kilowatt-hours of electricity annually. Electricity would be supplied by PG&E; therefore, PG&E's specific emission factors (i.e., the amount of CO_2, methane, and nitrous oxide per kilowatt-hour) forecast for year 2029 were utilized in CalEEMod.
- **Stationary Sources.** The project would include a 201-hp propane emergency generator that would be tested once a month for approximately 30 minutes at a time in accordance with regulatory requirements. Emissions associated with generator testing were estimated using criteria air

[1] This load value is consistent with CalEEMod default load factor of 74 percent for generators.
[2] United States Environmental Protection Agency. 2022. Greenhouse Gases Equivalencies Calculator - Calculations and References. Last updated: June 23, 2022. https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references (accessed January 2023).
[3] Assumes all carbon in the diesel is converted to CO_2, based on the United States Environmental Protection Agency's website.
[4] (21.6 gallons of diesel fuel per hour * 10,180 grams of CO_2 per gallon of diesel fuel) / 490 hp
[5] United States Environmental Protection Agency. 2023. AP-42: Compilation of Air Emissions Factors. Last updated: January 9, 2023. https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors (accessed February 2023).

pollutant emission factors from the South Coast Air Quality Management District and GHG emission factors from the U.S. EPA.[6, 7]

- **Water Conveyance and Treatment.** The project itself would not generate demand for water. Emissions related to the conveyance of water through the proposed atmospheric river conveyance spillway are captured in the calculation of energy use.
- **Solid Waste Disposal.** The project would not generate solid waste during operation.
- **Mobile Sources.** As discussed under *Project Description*, monthly operations and maintenance activities would be performed as part of Yuba Water Agency's existing routine operations and maintenance rounds at the New Bullards Bar Reservoir. Therefore, emissions from these trips were not modeled.

Thresholds

Criteria Air Pollutants

The FRAQMD has adopted guidelines for quantifying and determining the significance of air quality emissions in its 2010 *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land Use Projects under the California Environmental Quality Act*.[8] The thresholds of significance adopted by FRAQMD are summarized in Table 2.

Table 2 Air Quality Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds
ROG	25 lbs/day multiplied by project length, not to exceed 4.5 tons per year[1]	25 lbs/day
NO_X	25 lbs/day multiplied by project length, not to exceed 4.5 tons per year[1]	25 lbs/day
PM_{10}	80 lbs/day	80 lbs/day

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = particulate matter with a diameter of 10 microns or less; lbs/day = pounds per day

[1] ROG and NO_X construction emissions may be averaged over the life of the project, but may not exceed 4.5 tons per year.

Source: FRAQMD. 2010. Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land Use Projects under the California Environmental Quality Act. June 7, 2010. https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf (accessed February 2023).

The FRAQMD also recommends including the following special considerations in the analysis of a project's construction emissions:

- If a project is located within 1,000 feet of a sensitive receptor location, the impact of diesel particulate matter should be included in the environmental analysis.

[6] South Coast Air Quality Management District. 2014. Combustion Default Emission Factors. December 2014. https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/combustion-emission-factors-2014.pdf?sfvrsn=8 (accessed February 2023).

[7] United States Environmental Protection Agency. 2022. Emission Factors for Greenhouse Gas Inventories. Last updated: April 1, 2022. https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf (accessed February 2023).

[8] FRAQMD. 2010. Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land Use Projects under the California Environmental Quality Act. June 7, 2010. https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf (accessed February 2023).

- Construction vehicles must comply with diesel idling restrictions contained in Title 13 California Code of Regulations Section 2485 for on-road vehicles and Section 2449(d)(3) of CARB's In-Use Off-Road Diesel Regulation.
- The potential to encounter naturally-occurring asbestos should be evaluated for projects in the foothills and mountainous portions of the FRAQMD's jurisdiction.
- Portable engines with 50 hp or greater and certain types of equipment commonly used during construction activities may require California statewide portable engine equipment registration issued by CARB or an FRAQMD permit.

The project site is not located within 1,000 feet of a sensitive receptor location and is not located in an area known to have naturally-occurring asbestos.[9] In addition, the project would be required to comply with all applicable diesel idling restrictions and portable engine equipment registration requirements. Therefore, these special considerations are not discussed further.

Greenhouse Gas Emissions

Neither FRAQMD nor Yuba Water Agency has adopted a threshold of significance for GHG emissions generated by development projects that are not stationary sources permitted by FRAQMD. Therefore, this analysis utilizes the thresholds of significance recommended by the Sacramento Metropolitan Air Quality Management District (SMAQMD; the air district immediately to the south of FRAQMD) for evaluating construction-related GHG emissions.[10] For construction emissions, the threshold of significance is 1,100 metric tons (MT) of carbon dioxide equivalents (CO_2e) per year.[11, 12] For operational emissions, the threshold of significance is consistency with CARB's Climate Change Scoping Plan, which can be demonstrated through implementation of the applicable best management practices (BMPs) identified by SMAQMD. These BMPs consist of:

- BMP 1: Projects shall be designed and constructed without natural gas infrastructure.
- BMP 2: Projects shall meet the current California Green Building Code Standards Tier 2 requirements, except all electric vehicle-capable spaces shall instead be electric vehicle-ready.

If a project's operational emissions exceed 1,100 MT of CO_2e per year after implementation of BMP 1 and BMP 2, then implementation of the following BMP is required to demonstrate consistency with CARB's Scoping Plan:

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[9] Governor's Office of Planning and Research. 2007. Addressing Naturally Occurring Asbestos in CEQA Documents. August 1, 2007.
[10] Sacramento Metropolitan Air Quality Management District. 2020. Guide to Air Quality Assessment in Sacramento County. Adopted December 2009. Last amended October 2020. http://www.airquality.org/air-quality-health/climate-change/ceqa-guidance-tools (accessed February 2023).
[11] GHGs produced by human activities include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf]).
[12] The Intergovernmental Panel on Climate Change's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the annual California GHG emissions inventory published by CARB uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

- BMP 3: Residential projects shall achieve a 15 percent reduction in vehicle miles traveled (VMT) per resident, and office projects shall achieve a 15 percent reduction in VMT per worker compared to existing average vehicle miles traveled for the county. Retail projects shall achieve a no net increase in total VMT traveled to show consistency with Senate Bill 743.

Analysis

Criteria Air Pollutants

Construction Emissions

Table 3 summarizes estimated emissions of criteria pollutants associated with project construction. As shown therein, criteria air pollutant emissions generated by project construction would exceed the FRAQMD threshold for NO_X during all years of construction and the FRAQMD threshold for PM_{10} in Year 2. Construction-related emissions of ROG would not exceed the FRAQMD threshold during any year of construction. Recommended measures to address exceedances of the thresholds for NO_X and PM_{10} during project construction are provided under *Recommended Measures*.

Table 3 Construction-Related Criteria Air Pollutant Emissions

	Emissions		
Year of Construction	**ROG (tons/year)**	**NO_x (tons/year)[1]**	**PM_{10} (lbs/day)[2, 3]**
Year 1			
Emissions	0.6	6.8	65
FRAQMD Thresholds	3.2[4]	3.2[4]	80
Threshold Exceeded?	**No**	**Yes**	**No**
Year 2			
Emissions	0.8	10.2	122
FRAQMD Thresholds	3.3[5]	3.3[5]	80
Threshold Exceeded?	**No**	**Yes**	**Yes**
Year 3			
Emissions	0.4	7.4	9
FRAQMD Thresholds	3.3[5]	3.3[5]	80
Threshold Exceeded?	**No**	**Yes**	**No**
Year 4			
Emissions	0.3	4.1	27
FRAQMD Thresholds	3.3[5]	3.3[5]	80
Threshold Exceeded?	**No**	**Yes**	**No**

Year of Construction	Emissions		
	ROG (tons/year)	NO_x (tons/year)[1]	PM_{10} (lbs/day)[2, 3]
Year 5			
Emissions	0.2	1.4	36
FRAQMD Thresholds	1.2[6]	1.2[6]	80
Threshold Exceeded?	**No**	**Yes**	**No**

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = particulate matter measuring 10 microns or less in diameter; lbs/day = pounds per day

Notes: See Attachment 2 for modeling results. Some numbers may not add up due to rounding.

[1] Estimates of NO_X include emissions from detonation of ammonium nitrate/fuel oil (ANFO) with 1.5 tons in Year 1, 0.2 ton in Year 4, and 0.2 ton in Year 5.

[2] Estimates of PM_{10} include emissions from operation of the temporary concrete batch plant, which would generate approximately 1.2 pounds of PM_{10} per day in Year 1, 2.5 pounds of PM_{10} per day in Years 2 and 3, 3.1 pounds of PM_{10} per day in Year 4, and 0.6 pound of PM_{10} per day in Year 5.

[3] Estimates of PM_{10} include emissions from blasting, which would generate approximately 1.8 pounds of PM_{10} per day of blasting activities in Years 1, 4, and 5.

[4] The ROG and NO_X thresholds for Year 1 are 2.0 tons per year ([25 pounds per day multiplied by 252 working days] / 2,000 pounds per ton).

[5] The ROG and NO_X thresholds for Years 2, 3, and 4 are 3.3 tons per year ([25 pounds per day multiplied by 260 working days per year] / 2,000 pounds per ton).

[6] The ROG and NO_X thresholds for Year 5 are 1.2 tons per year ([25 pounds per day multiplied by 95 working days] / 2,000 pounds per ton).

Operational Emissions

Operational emissions of criteria air pollutants generated by the proposed project would be limited to emissions from re-coating the intake gates every 5 to 10 years and monthly testing of the emergency generator.[13] Table 4 summarizes the estimated daily emissions associated with operations and maintenance activities during a conservative scenario in which the intake gates are re-coated, which would only occur every 5 to 10 years, because this scenario represents maximum daily emissions. As shown therein, operational emissions generated by the proposed project would not exceed FRAQMD thresholds.

[13] Direct emissions of criteria pollutants from energy sources are only calculated for those that combust on site, such as natural gas used in a building, which is consistent with CalEEMod methodology. CalEEMod does not calculate or attribute emissions of criteria pollutants from electricity generation to individual projects because fossil fuel power plants are existing stationary sources permitted by air districts and/or the U.S. EPA, and they are subject to local, state, and federal control measures. Criteria pollutant emissions from power plants are associated with the power plants themselves, and not individual projects or electricity users. See the CalEEMod User Guide for more information (https://www.caleemod.com/user-guide).

Table 4 Operational Criteria Pollutant Emissions

Source[1]	Maximum Daily Emissions (lbs/day) ROG	NOx	PM10
Re-coating Intake Gates	0.8	< 0.1	< 0.1
Emergency Generator Testing	0.2	0.3	< 0.1
Total	**1.0**	**0.3**	**< 0.1**
Threshold	25	25	80
Threshold Exceeded?	**No**	**No**	**No**

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = particulate matter measuring 10 microns or less in diameter; lbs/day = pounds per day

Notes: See Attachment 2 for modeling results. Some numbers may not add up due to rounding.

Recommended Measures

The following measures are recommended to reduce the project's construction-related criteria air pollutant emissions.

Recommended Measure AIR-1: Implement FRAQMD Construction Phase Mitigation Measures

The following FRAQMD Construction Phase Mitigation Measures, listed below, should be implemented to reduce construction-related emissions of criteria air pollutants:

- Develop and submit a fugitive dust control plan to FRAQMD and implement the FRAQMD-approved plan.
- The contractor should be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of on-site operation.
- Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators to the extent feasible and practicable.
- All grading operations should be suspended when average wind speeds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Work areas should be watered or treated with dust suppressants as necessary to prevent fugitive dust violations.
- An operational water truck should be available at all times. Apply water to control dust at least twice daily as needed to prevent visible emissions violations and off-site dust impacts. Travel time to water sources should be considered and additional trucks used if needed.
- On-site dirt piles or other stockpiled material should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas should be incorporated.
- All transfer processes involving a free fall of soil or other particulate matter should be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.

- Approved chemical soil stabilizers should be applied, according to the manufacturers' specifications, to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
- To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment should be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
- Paved streets should be swept frequently (water sweeper recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
- Temporary traffic control should be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the County Department of Public Works and/or California Department of Transportation and to reduce vehicle dust emissions.
- Traffic speeds on all unpaved surfaces should be reduced to 25 miles per hour or less, and unnecessary vehicle traffic should be reduced by restricting access. Appropriate training, on-site enforcement, and signage should be provided.
- Ground cover on the construction site should be reestablished as soon as feasible, through seeding and watering.

Timing: Throughout all construction activities

Responsibility: Yuba Water Agency and its construction contractor(s)

RECOMMENDED MEASURE AIR-2: REDUCE CONSTRUCTION-RELATED EXHAUST EMISSIONS

Yuba Water Agency should require its contractor to prepare a comprehensive inventory list (i.e., make, model, engine year, hp, emission rates) of all heavy-duty (equal to or greater than 50 hp) off-road (portable and mobile) equipment that will be used an aggregate of 40 or more hours for the construction project (including owned, leased, and subcontractor vehicles).

Using the inventory list, the contractor should prepare and provide a plan for approval by FRAQMD demonstrating that the heavy-duty off-road equipment to be used in the construction project will achieve a project-wide fleet-average 20 percent NO_X reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at the time of construction. The contractor should implement the FRAQMD-approved plan.

A Construction Mitigation Calculator (MS Excel) may be downloaded from the SMAQMD website to perform the fleet average evaluation http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation. Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB-approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), aftertreatment products, voluntary off-site mitigation projects, provision of funds for FRAQMD off-site mitigation projects, and/or other options as they become available. FRAQMD should be contacted to discuss alternative measures.

The results of the Construction Mitigation Calculator should be submitted and approved by FRAQMD prior to beginning construction work. The project should provide a monthly summary of heavy-duty off-road equipment usage to FRAQMD throughout project construction.

Timing: Prior to and throughout all construction activities

Responsibility: Yuba Water Agency and its construction contractor(s)

Recommended Measure AIR-3: Purchase Off-Site NO_X Mitigation Fees

Any excess emissions of NO_x above FRAQMD's established threshold should be mitigated through a contribution to the FRAQMD's Off-Site Mitigation Program to reduce emissions to less than significant. Accordingly, it is anticipated that Yuba Water Agency should purchase 13.5 tons of NO_x credits (2.6 tons in Year 1, 6.3 tons in Year 2, 4.0 tons in Year 3, and 0.6 ton in Year 4) to reduce emissions to the FRAQMD established threshold. Yuba Water Agency should comply with the following measures to pay an off-site construction mitigation fee to reduce NO_X emissions:

- Yuba Water Agency should compile a list of all emission sources and consult with FRAQMD staff to implement this mitigation measure.
- The project should track emissions generated from equipment and vehicles throughout the project phases that are estimated to exceed the threshold (for example, if a construction phase exceeds the threshold, then track emissions from off-road, portable, and on-road equipment and vehicles).
- Yuba Water Agency should pay a mitigation fee in the amount of $30,000 per ton of excess emissions of NO_X caused by project construction above the FRAQMD established threshold (as quantified by Yuba Water Agency in accordance with FRAQMD guidelines) and a 10 percent administrative fee to the FRAQMD mitigation fund, such as a Carl Moyer-type Program, to reduce the project impacts from construction NO_x emissions to below the significance threshold each year.[14] If mitigation fees change, then Yuba Water Agency should pay the current fee at the time of the mitigation payment.

Timing: Throughout all construction activities and following the completion of construction

Responsibility: Yuba Water Agency

Significance after Implementation of Recommended Measures

Table 5 summarizes the estimated emissions of criteria pollutants associated with project construction with implementation of Recommended Measures AIR-1 and AIR-2. As shown therein, with implementation of these two recommended measures, criteria air pollutant emissions generated by project construction would be reduced as compared to unmitigated emissions but would continue to exceed the FRAQMD threshold for NO_X in Years 1 through 4 and the FRAQMD threshold for PM_{10} in Year 2. Implementation of Recommended Measure AIR-3 would offset the remaining excess NO_X emissions through payment of an off-site construction mitigation fee to FRAQMD. No additional feasible measures are available to reduce PM_{10} emissions during Year 2 to below the FRAMQD threshold of significance.

[14] The current off-site mitigation fee is provided on FRAQMD's CEQA Planning website, available at: https://www.fraqmd.org/ceqa-planning.

Table 5 Mitigated Construction Criteria Air Pollutant Emissions – Recommended Measures AIR-1 and AIR-2[1]

	Maximum Emissions (Mitigated)		
Year of Construction	**ROG (tons/year)**	**NO_x (tons/year)[2]**	**PM_{10} (lbs/day)[3, 4]**
Year 1			
Emissions	0.6	5.8	59
FRAQMD Thresholds	3.2[5]	3.2[5]	80
Threshold Exceeded?	**No**	**Yes**	**No**
Year 2			
Emissions	0.8	9.6	116
FRAQMD Thresholds	3.3[6]	3.3[6]	80
Threshold Exceeded?	**No**	**Yes**	**Yes**
Year 3			
Emissions	0.4	7.3	4
FRAQMD Thresholds	3.3[6]	3.3[6]	80
Threshold Exceeded?	**No**	**Yes**	**No**
Year 4			
Emissions	0.3	3.9	24
FRAQMD Thresholds	3.3[6]	3.3[6]	80
Threshold Exceeded?	**No**	**Yes**	**No**
Year 5			
Emissions	0.2	1.2	33
FRAQMD Thresholds	1.2[7]	1.2[7]	80
Threshold Exceeded?	**No**	**No**	**No**

ROG = reactive organic gases; NO_X = nitrogen oxides; PM_{10} = particulate matter measuring 10 microns or less in diameter; lbs/day = pounds per day

Notes: See Attachment 2 for modeling results. Some numbers may not add up due to rounding.

[1] Pursuant to Recommended Measure AIR-1, the emission reduction measures included in the mitigated CalEEMod modeling consist of C-9 (Use Dust Suppressants), C-10-A (Water Exposed Surfaces with frequency of two times daily), C-11 (Limit Vehicle Speeds on Unpaved Roads), and C-12 (Sweep Paved Roads). The emission reductions associated with Recommended Measure AIR-2 were calculated separately from CalEEMod based on the required percent reductions in ROG, NO_X, and exhaust PM_{10} emissions from off-road equipment. Mitigated off-road equipment emissions calculations are included in Attachment 2.

[2] Estimates of NO_X include emissions from detonation of ammonium nitrate/fuel oil (ANFO) with 1.5 tons in Year 1, 0.2 ton in Year 4, and 0.2 ton in Year 5.

[3] Estimates of PM_{10} include emissions from operation of the temporary concrete batch plant, which would generate approximately 1.2 pounds of PM_{10} per day in Year 1, 2.5 pounds of PM_{10} per day in Years 2 and 3, 3.1 pounds of PM_{10} per day in Year 4, and 0.6 pound of PM_{10} per day in Year 5.

	Maximum Emissions (Mitigated)		
Year of Construction	ROG (tons/year)	NO_x (tons/year)[2]	PM_{10} (lbs/day)[3, 4]

[4] Estimates of PM_{10} include emissions from blasting which would generate approximately 1.8 pounds of PM_{10} per day of blasting activities in Years 1, 4, and 5.

[5] The ROG and NO_X thresholds for Year 1 are 2.0 tons per year ([25 pounds per day multiplied by 252 working days] / 2,000 pounds per ton).

[6] The ROG and NO_X thresholds for Years 2, 3, and 4 are 3.3 tons per year ([25 pounds per day multiplied by 260 working days per year] / 2,000 pounds per ton).

[7] The ROG and NO_X thresholds for Year 5 are 1.2 tons per year ([25 pounds per day multiplied by 95 working days] / 2,000 pounds per ton).

Greenhouse Gas Emissions

Construction Emissions

Table 7 summarizes the project's annual construction-related GHG emissions for Years 1 through 5. As shown therein, annual construction-related GHG emissions would exceed the threshold of 1,100 MT of CO_2e in Years 1, 2, and 3. Recommended measures to address the exceedances of the GHG emissions threshold during project construction are provided under *Recommended Measures*.

Table 6 Construction-Related GHG Emissions

Year of Construction	Annual Emissions (MT of CO_2e per year)
Year 1	1,251
Year 2	2,388
Year 3	1,365
Year 4	923
Year 5	381
Threshold	**1,100**
Threshold Exceeded?	**Yes – Years 1, 2, and 3**

MT = metric tons; CO_2e = carbon dioxide equivalents

Notes: See Attachment 2 for modeling results.

Operational Emissions

Table 7 summarizes the project's operational GHG emissions associated with electricity usage and emergency generator testing. As shown therein, combined GHG emissions would be approximately 3.4 MT of CO_2e per year.

Table 7 Operational GHG Emissions

Emission Source[1]	Annual Emissions (MT of CO_2e per year)
Electricity Usage	2.7
Emergency Generator Testing	0.7
Total Project Emissions	**3.4**

MT = metric tons; CO_2e = carbon dioxide equivalents

[1] Re-coating the intake gates would not generate GHG emissions; therefore, this emissions source is not included in the calculations of operational GHG emissions.

Notes: See Attachment 2 for modeling results.

As discussed under *Significance Thresholds*, the significance of the project's emissions is determined by evaluating whether the project has implemented the applicable BMPs identified by SMAQMD to demonstrate consistency with CARB's Climate Change Scoping Plan. The proposed project would not include natural gas infrastructure, consistent with BMP 1. Spillways are not subject to the California Green Building Code Standards, and no new parking spaces would be installed that could incorporate electric vehicle-capable spaces. As shown in Table 7, the project's operational emissions would not exceed 1,100 MT of CO_2e per year; as a result, implementation of BMP 3 is not required. Therefore, project operation would not conflict with the BMPs recommended by SMAQMD and would thus be consistent with CARB's Climate Change Scoping Plan.

Recommended Measures

The following measures are recommended to reduce the project's construction-related GHG emissions.

Recommended Measure GHG-1: Implement Construction GHG Emissions Reduction Best Management Practices

The following measures should be implemented during construction activities, when feasible, to reduce GHG emissions in exhaust:

- Improve fuel efficiency from construction equipment:
  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than three minutes. Provide clear signage that posts this requirement for workers at the entrances to the site.
  - Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
  - Train equipment operators in proper use of equipment.
  - Use the proper size of equipment for the job.
- Perform on-site material hauling with trucks equipped with on-road engines, when possible and determined to be less emissive than the off-road engines.
- Use alternative fuels for generators at construction sites, such as propane or solar, or use electrical power.

- Use a CARB-approved low carbon fuel for construction equipment. (NO_X emissions from the use of low carbon fuel must be reviewed and increases mitigated.)
- Minimize the amount of concrete for paved surfaces or use a low carbon concrete option.
- Produce concrete on-site if determined to be less emissive than transporting ready mix.

Timing: During construction activities

Responsibility: Yuba Water Agency and its construction contractor(s)

RECOMMENDED MEASURE GHG-2: PURCHASE OFF-SITE GHG CONSTRUCTION MITIGATION CREDITS

Yuba Water Agency should acquire carbon offset credits equal to construction-related GHG emissions that exceed the annual SMAQMD significance threshold of 1,100 MT of CO_2e, based on actual construction emissions calculated after project construction is complete. Carbon offset credits should comply with CARB's Cap-and-Trade program and should be purchased from an accredited carbon credit market. Offset credits must be registered with, and retired by an Offset Project Registry, as defined in 17 California Code of Regulations Section 95802(a), that is approved by CARB, such as, but not limited to, Climate Action Reserve, American Carbon Registry, or Verra (formerly Verified Carbon Standard), that is recognized by The Climate Registry, a non-profit organization governed by U.S. states and Canadian provinces and territories. To demonstrate that the carbon offset credits provided are real, permanent, additional, quantifiable, verifiable, and enforceable, as those terms are defined in 17 California Code of Regulations Section 95802(a), Yuba Water Agency should document the protocol used to verify the credits and submit the documentation for approval to a CARB-accredited third-party verification entity. If the verification entity finds that any credits purchased did not meet these criteria, Yuba Water Agency should purchase alternative credits and submit a follow-up report to the verification entity for concurrence. All carbon offsets purchased should be tracked through The Climate Registry.

Timing: Before construction activities begin, during construction activities, and after construction activities are complete

Responsibility: Yuba Water Agency

Significance after Implementation of Recommended Measures

Implementation of Recommended Measure GHG-1 would reduce construction-related GHG emissions to the extent feasible through implementation of various construction BMPs. Implementation of Recommended Measure GHG-2 would offset the remaining GHG emissions in excess of the threshold of 1,100 MT of CO_2e per year through the purchase of off-site GHG construction mitigation credits, which would thus reduce construction-related GHG emissions below the threshold of significance.

Conclusion

Criteria air pollutant emissions generated during project construction would exceed the FRAQMD threshold for NO_X during all years of construction and the FRAQMD threshold for PM_{10} in Year 2. As a result, implementation of Recommended Measures AIR-1 through AIR-3 is recommended, which would reduce NO_x emissions below the threshold of significance. Although PM_{10} emissions would be reduced, these emissions would remain in excess of the FRAQMD threshold of significance. Operational emissions of criteria air pollutant emissions would not exceed FRAQMD thresholds.

GHG emissions generated during project construction would exceed the threshold of 1,100 MT of CO_2e in Years 1, 2, and 3; therefore, implementation of Recommended Measures GHG-1 and GHG-2 is recommended. Project operation and its associated GHG emissions would be consistent with the CARB Climate Change Scoping Plan.

Thank you for the opportunity to assist with this assignment. Please do not hesitate to contact us if you have questions about this report.

Sincerely,
Rincon Consultants, Inc.

Annaliese Torres
Senior Environmental Planner

Jennifer Haddow, PhD
Principal Environmental Scientist

Attachments

Attachment 1 Additional Construction Characteristics

Attachment 2 Air Quality and Greenhouse Gas Modeling Results

Attachment 3 CAT D350 GC Manufacturer Specifications

Attachment 4 International Interseal 670 HS Specifications

Attachment 1

Additional Construction Characteristics

Additional Construction Characteristics

Table 1 Construction Equipment List

No.	Construction Phase	Days	Equipment	Number of Equipment	Hours of Use per Day
1	Mobilization	60	Mechanic Truck	3	5
			Cat 365 Excavator	1	4
			150T Rough Terrain Crane	1	4
2a	General Site Preparation – General and Site Improvements	50	Cat 345 Excavator	1	9
			Cat 330 Excavator	1	7
			Cat 330 Excavator with Breaker	1	3
			Articulated 40T Haul Truck	2	6
			Cat D8 Dozer	2	5
			Cat D6 Dozer	1	3
			Cat 14 Blade	1	9
			Cat 563 Roller	1	9
			On-Road Water Truck (4,000 gallons)	2	6
			ECM-370 Drill with Compressor	1	1
			1-Ton Flatbed Crew Truck	2	3
2b	General Site Preparation – Staging and Disposal Area Development	50	Cat 345 Excavator	1	7
			Furakawa Rock Drill	1	4
			Articulated 40T Haul Truck	3	2
			Cat D8 Dozer	1	7
			Cat 966 Loader	1	7
3a	Stage 1 – Preliminary Rock Excavation for Control Structure	60	Cat 345 Excavator	1	10
			ECM-370 Drill with Compressor	1	10
			Cat 330 Excavator	1	10
			Cat 330 Excavator with Breaker	1	10
			Articulated 40T Haul Truck	3	10
			Cat D8 Dozer	1	10
			1-Ton Flatbed Crew Truck	2	10
			Cat 14 Blade	1	10
			On-Road Water Truck (4,000 Gallons)	1	10
3b	Stage 1 – Install SBC Cutoff Wall and Grout Curtain	60	Cat 345 Excavator	1	10
			ECM-370 Drill with Compressor	1	10
			Articulated 40T Haul Truck	3	10
			Cat D8 Dozer	1	10
			Cat 14 Blade	1	10
			On-Road Water Truck (4,000 Gallons)	1	10
			1-Ton Flatbed Crew Truck	1	10

No.	Construction Phase	Days	Equipment	Number of Equipment	Hours of Use per Day
4a	Stage 2 – Rock Excavation for Control Structure and Spillway Chute	64	ECM-370 Drill with Compressor	3	10
			Cat 345 Excavator	1	10
			Cat 330 Excavator	1	10
			Cat 330 Excavator with Breaker	1	10
			Cat D8 Dozer	2	10
			Articulated 40T Haul Truck	3	10
			Cat 14 Blade	1	10
			On-Road Water Truck (4,000 Gallons)	1	10
			1-Ton Flatbed Crew Truck	3	10
			Air Compressor (175 cubic feet per minute)	2	10
			Cat 305 Excavator	1	10
4b	Stage 2 – Control Structure Concrete	640	250 Ton Lattice Boom Crane	3	6
			JLG Manlift	2	9
			Rough Terrain Forklift	3	6
			28M Concrete Pump Truck	2	5
5a	Stage 3 - Rock Excavation for Discharge Channel	227	Furakawa Rock Drill	2	10
			Cat 365 Excavator	1	4
			Cat 345 Excavator	1	10
			Cat 330 Excavator with Breaker	3	4
			Cat D8 Dozer	1	4
			Cat 980 Loader	1	4
			Articulated 40T Haul Truck	3	4
			1-Ton Flatbed Crew Truck	1	10
5b	Stage 3 – Discharge Channel Foundation Cleaning	16	Air Compressor (175 cubic feet per minute)	2	10
			Cat 305 Excavator	2	10
			Vacuum Truck (3,500 gallons)	2	10
5c	Stage 3 – Install Guard and Service Gates, Project Controls	220	250 Ton Lattice Boom Crane	2	3
			Cat 330 Excavator	1	5
			Articulated 40T Haul Truck	1	5
			Cat CS 563 Single Drum Smooth Roller	1	5
			Cat D4 Low Ground Pressure Dozer	1	5
			JLG Manlift	2	4
			Rough Terrain Forklift	1	5
			On-Road Water Truck (4,000 Gallons)	1	5
5d	Stage 3 – Spillway Chute – Rock Anchors and Concrete	200	250 Ton Lattice Boom Crane	1	6
			Rough Terrain Forklift	1	12
			28M Concrete Pump Truck	1	2

No.	Construction Phase	Days	Equipment	Number of Equipment	Hours of Use per Day
6a	Stage 4 – Excavate Upstream Access Ramp and Left/Right Approach Walls	26	Cat Blade 14	1	9
			Cat 330 Excavator	1	9
			Cat 345 Excavator	1	9
			Articulated 40T Haul Truck	3	9
			Cat D8 Dozer	1	9
			On-Road Water Truck (4,000 Gallons)	1	9
6b	Stage 4 – Rock Excavation	25	ECM-370 Drill with Compressor	3	1
			Cat 345 Excavator	1	1
			Cat 330 Excavator	1	1
			Cat 330 Excavator with Breaker	1	1
			Cat D8 Dozer	1	1
			On-Road Water Truck (4,000 Gallons)	1	1
			Articulated 40T Haul Truck	3	1
			1-Ton Flatbed Crew Truck	2	1
			Cat 14 Blade	1	1
6c	Stage 4 – Concrete for Left/Right Approach Walls	104	250 Ton Lattice Boom Crane	2	6
			Rough Terrain Forklift	2	6
			28M Concrete Pump Truck	2	6
7a	Stage 5 – Common Excavation for Approach Channel	41	Cat 330 Excavator	1	10
			Cat 330 Excavator with Breaker	1	10
			Cat 345 Excavator	1	10
			Articulated 40T Haul Truck	3	10
			Cat D8 Dozer	2	10
			On-Road Water Truck (4,000 Gallons)	1	10
			Cat 14 Blade	1	10
7b	Stage 5 – Rock Excavation for Approach Channel	20	ECM-370 Drill with Compressor	3	9
			Cat 345 Excavator	1	9
			Cat 330 Excavator	1	9
			Cat 330 Excavator with Breaker	1	9
			D8 Dozer	2	9
			On-Road Water Truck (4,000 Gallons)	1	9
			Articulated 40T Haul Truck	3	9
			1-Ton Flatbed Crew Truck	1	9
			Cat 14 Blade	1	9
7c	Stage 5 - Upstream Access Road, Dam Overlook, and Common Excavation	10	Cat 345 Excavator	1	5
			Cat 330 Excavator	1	3
			Cat D8 Dozer	1	5
			On-Road Water Truck (4,000 Gallons)	1	8
			Articulated 40T Haul Truck	3	5
			Cat 14 Blade	1	3

No.	Construction Phase	Days	Equipment	Number of Equipment	Hours of Use per Day
8	Site Restoration and Demobilization	30	Cat 14 Blade	1	4
			Cat 563 Roller	1	4
			On-Road Water Truck (4,000 Gallons)	1	4
			Rough Terrain Forklift	1	10
			Mechanic Truck	3	10
			Cat 365 Excavator	1	7
			150T Rough Terrain Crane	1	4

Table 2 Soil and Rock Disposal Schedule

No.	Construction Phase	Export Quantity (cubic yards)	Days	Calendar Year	Haul Route
2a	General Site Preparation – General and Site Improvements	18,000	50	Year 1	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
2b	General Site Preparation – Staging and Disposal Area Development	3,000	50	Year 1	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
3a	Stage 1 – Preliminary Rock Excavation for Control Structure	161,700	60	Year 1	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
4a	Stage 2 – Rock Excavation for Control Structure and Spillway Chute	140,000	64	Year 1	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
5a	Stage 3 - Rock Excavation for Discharge Channel	153,300	227	Year 2	Long haul route (2 miles) to disposal site
6a	Stage 4 – Common Excavation for Upstream Access Ramp and Left/Right Approach Walls	50,800	26	Year 4	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)

No.	Construction Phase	Export Quantity (cubic yards)	Days	Calendar Year	Haul Route
6b	Stage 4 – Rock Excavation for Left/Right Approach Walls	38,700	25	Year 4	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
7a	Stage 5 – Common Excavation for Approach Channel	90,000	41	Year 5	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
7b	Stage 5 – Rock Excavation for Approach Channel	57,100	20	Year 5	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)
7c	Stage 5 - Upstream Access Road, Dam Overlook, and Common Excavation	10,000	10	Year 5	0.6 mile - 10% via Marysville Road (1.5 mile), 90% via short haul route to disposal site (0.53 mile)

Table 3 Aggregate Import Schedule

No.	Construction Phase	Import Quantity (cubic yards)	Days	Calendar Year
4	Stage 2	25,000	12	Year 2
5	Stage 3	8,000	32	Year 2
6	Stage 4	2,000	25	Year 4

Table 4 Haul Routes

Haul Route	Distance (miles)
Marysville Road Haul Route	1.5
Short Haul Route to Disposal Site	0.3
Long Haul Route to Disposal Site	2.0

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Attachment 2

Air Quality and Greenhouse Gas Modeling Results

YWA Secondary Spillway for New Bullards Bar Reservoir v2 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	YWA Secondary Spillway for New Bullards Bar Reservoir v2
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	55.4
Location	39.39288842955213, -121.14322360625434
County	Yuba
City	Unincorporated
Air District	Feather River AQMD
Air Basin	Sacramento Valley
TAZ	347
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	7.30	Acre	7.30	0.00	0.00	0.00	—	Size of project site

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-9	Use Dust Suppressants
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.89	80.6	86.5	0.17	2.94	194	195	9.28	23.0	29.4	22,337	0.95	0.58	22,501
Mit.	9.89	80.6	86.5	0.17	2.94	187	189	9.28	19.8	27.7	22,337	0.95	0.58	22,501
% Reduced	—	—	—	—	—	3%	3%	—	14%	6%	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.99	113	89.0	0.23	3.50	456	459	10.2	60.7	63.3	26,653	1.27	0.77	26,913
Mit.	9.99	113	89.0	0.23	3.50	429	432	10.2	47.1	49.8	26,653	1.27	0.77	26,913
% Reduced	—	—	—	—	—	6%	6%	—	22%	21%	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.19	55.7	49.2	0.09	1.51	118	119	6.57	13.1	19.7	14,294	0.58	0.36	14,423
Mit.	4.19	55.7	49.2	0.09	1.51	113	114	6.57	11.9	18.5	14,294	0.58	0.36	14,423

% Reduced	—	—	—	—	—	4%	4%	—	10%	6%	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.76	10.2	8.97	0.02	0.27	21.5	21.7	1.20	2.40	3.60	2,367	0.10	0.06	2,388
Mit.	0.76	10.2	8.97	0.02	0.27	20.5	20.8	1.20	2.17	3.37	2,367	0.10	0.06	2,388
% Reduced	—	—	—	—	—	4%	4%	—	10%	6%	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	9.89	77.1	86.5	0.17	2.94	194	195	2.71	23.0	24.0	22,337	0.95	0.41	22,501
2025	6.66	80.6	81.5	0.13	2.20	182	184	9.28	20.1	29.4	22,184	0.88	0.58	22,402
2026	3.85	61.5	55.9	0.07	1.60	10.4	12.0	1.54	3.14	4.68	13,675	0.46	0.29	13,786
2027	3.73	60.4	54.2	0.07	1.56	136	137	1.50	14.1	14.3	13,594	0.45	0.29	13,702
2028	1.12	7.36	13.4	0.03	0.23	0.93	1.17	0.22	0.19	0.40	4,094	0.15	0.10	4,131
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	8.99	113	89.0	0.16	3.50	184	184	3.28	22.3	25.6	23,212	0.95	0.43	23,365
2025	8.45	106	85.3	0.16	3.21	182	184	10.2	22.3	32.5	23,132	0.94	0.58	23,280
2026	4.93	71.0	57.8	0.11	1.96	10.4	12.0	1.87	3.14	4.68	17,748	0.58	0.33	17,860
2027	3.56	60.8	49.9	0.07	1.56	10.4	12.0	1.50	3.14	4.64	13,256	0.39	0.29	13,351
2028	9.99	82.8	84.5	0.23	2.90	456	459	2.66	60.7	63.3	26,653	1.27	0.77	26,913
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.29	29.1	28.0	0.06	1.03	61.0	62.1	0.95	9.26	10.2	7,491	0.35	0.18	7,555

2025	4.19	55.7	49.2	0.09	1.51	118	119	6.57	13.1	19.7	14,294	0.58	0.36	14,423
2026	2.06	40.4	30.5	0.04	1.01	5.43	6.44	0.97	1.35	2.32	8,181	0.27	0.17	8,243
2027	1.67	21.1	20.8	0.03	0.56	21.3	21.8	0.54	3.03	3.57	5,525	0.18	0.15	5,576
2028	0.83	6.73	7.27	0.02	0.24	32.9	33.2	0.22	4.47	4.69	2,283	0.11	0.06	2,304
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.60	5.31	5.11	0.01	0.19	11.1	11.3	0.17	1.69	1.86	1,240	0.06	0.03	1,251
2025	0.76	10.2	8.97	0.02	0.27	21.5	21.7	1.20	2.40	3.60	2,367	0.10	0.06	2,388
2026	0.38	7.37	5.58	0.01	0.18	0.99	1.17	0.18	0.25	0.42	1,355	0.04	0.03	1,365
2027	0.31	3.85	3.80	0.01	0.10	3.88	3.98	0.10	0.55	0.65	915	0.03	0.02	923
2028	0.15	1.23	1.33	< 0.005	0.04	6.01	6.05	0.04	0.82	0.86	378	0.02	0.01	381

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	9.89	77.1	86.5	0.17	2.94	187	189	2.71	19.8	20.8	22,337	0.95	0.41	22,501
2025	6.66	80.6	81.5	0.13	2.20	174	177	9.28	18.4	27.7	22,184	0.88	0.58	22,402
2026	3.85	61.5	55.9	0.07	1.60	4.33	5.93	1.54	1.28	2.82	13,675	0.46	0.29	13,786
2027	3.73	60.4	54.2	0.07	1.56	135	135	1.50	13.8	14.0	13,594	0.45	0.29	13,702
2028	1.12	7.36	13.4	0.03	0.23	0.74	0.97	0.22	0.17	0.38	4,094	0.15	0.10	4,131
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	8.99	113	89.0	0.16	3.50	184	184	3.28	18.4	19.0	23,212	0.95	0.43	23,365
2025	8.45	106	85.3	0.16	3.21	174	177	10.2	18.4	27.7	23,132	0.94	0.58	23,280
2026	4.93	71.0	57.8	0.11	1.96	4.33	6.08	1.87	1.28	3.04	17,748	0.58	0.33	17,860
2027	3.56	60.8	49.9	0.07	1.56	4.33	5.89	1.50	1.28	2.78	13,256	0.39	0.29	13,351

2028	9.99	82.8	84.5	0.23	2.90	429	432	2.66	47.1	49.8	26,653	1.27	0.77	26,913
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.29	29.1	28.0	0.06	1.03	55.2	56.2	0.95	6.45	7.41	7,491	0.35	0.18	7,555
2025	4.19	55.7	49.2	0.09	1.51	113	114	6.57	11.9	18.5	14,294	0.58	0.36	14,423
2026	2.06	40.4	30.5	0.04	1.01	2.19	3.20	0.97	0.59	1.56	8,181	0.27	0.17	8,243
2027	1.67	21.1	20.8	0.03	0.56	18.7	19.3	0.54	2.25	2.78	5,525	0.18	0.15	5,576
2028	0.83	6.73	7.27	0.02	0.24	30.8	31.0	0.22	3.41	3.62	2,283	0.11	0.06	2,304
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.60	5.31	5.11	0.01	0.19	10.1	10.3	0.17	1.18	1.35	1,240	0.06	0.03	1,251
2025	0.76	10.2	8.97	0.02	0.27	20.5	20.8	1.20	2.17	3.37	2,367	0.10	0.06	2,388
2026	0.38	7.37	5.58	0.01	0.18	0.40	0.58	0.18	0.11	0.29	1,355	0.04	0.03	1,365
2027	0.31	3.85	3.80	0.01	0.10	3.41	3.52	0.10	0.41	0.51	915	0.03	0.02	923
2028	0.15	1.23	1.33	< 0.005	0.04	5.61	5.66	0.04	0.62	0.66	378	0.02	0.01	381

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	16.9	0.04	0.01	20.5

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.80	0.01	< 0.005	3.39

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.01	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.83	0.04	0.01	4.27
Total	0.79	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	16.9	0.04	0.01	20.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	2.66	< 0.005	< 0.005	2.68
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71
Total	0.14	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.80	0.01	< 0.005	3.39

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130

Total	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.96	0.28	0.26	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	41.3	1.24	0.25	146
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	16.1	< 0.005	< 0.005	16.2
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	0.01	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.83	0.04	0.01	4.27
Total	0.79	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	16.9	0.04	0.01	20.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	2.66	< 0.005	< 0.005	2.68
Water	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Stationary	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71
Total	0.14	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.80	0.01	< 0.005	3.39

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	6.94	6.01	0.01	0.30	—	0.30	0.28	—	0.28	1,435	0.06	0.01	1,440
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	6.94	6.01	0.01	0.30	—	0.30	0.28	—	0.28	1,435	0.06	0.01	1,440
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.14	0.99	< 0.005	0.05	—	0.05	0.05	—	0.05	236	0.01	< 0.005	237
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	39.0	< 0.005	< 0.005	39.2
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.55	0.40	7.12	0.00	0.00	0.86	0.86	0.00	0.20	0.20	988	0.05	0.03	1,004
Vendor	0.01	0.55	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.53	5.36	0.00	0.00	0.86	0.86	0.00	0.20	0.20	875	0.06	0.04	888
Vendor	0.01	0.59	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	335
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	148	0.01	0.01	150
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.02	0.02	0.00	0.01	0.01	24.4	< 0.005	< 0.005	24.8
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	6.94	6.01	0.01	0.30	—	0.30	0.28	—	0.28	1,435	0.06	0.01	1,440
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.75	6.94	6.01	0.01	0.30	—	0.30	0.28	—	0.28	1,435	0.06	0.01	1,440
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	1.14	0.99	< 0.005	0.05	—	0.05	0.05	—	0.05	236	0.01	< 0.005	237
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	39.0	< 0.005	< 0.005	39.2
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.55	0.40	7.12	0.00	0.00	0.86	0.86	0.00	0.20	0.20	988	0.05	0.03	1,004
Vendor	0.01	0.55	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.53	5.36	0.00	0.00	0.86	0.86	0.00	0.20	0.20	875	0.06	0.04	888
Vendor	0.01	0.59	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	335
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.90	0.00	0.00	0.14	0.14	0.00	0.03	0.03	148	0.01	0.01	150
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.02	0.02	0.00	0.01	0.01	24.4	< 0.005	< 0.005	24.8
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.94	27.8	23.8	0.06	1.13	—	1.13	1.04	—	1.04	6,502	0.26	0.05	6,524
Dust From Material Movement	—	—	—	—	—	11.2	11.2	—	5.54	5.54	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.80	3.26	0.01	0.15	—	0.15	0.14	—	0.14	891	0.04	0.01	894
Dust From Material Movement	—	—	—	—	—	1.54	1.54	—	0.76	0.76	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.69	0.60	< 0.005	0.03	—	0.03	0.03	—	0.03	147	0.01	< 0.005	148
Dust From Material Movement	—	—	—	—	—	0.28	0.28	—	0.14	0.14	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.61	0.45	7.92	0.00	0.00	0.95	0.95	0.00	0.22	0.22	1,098	0.05	0.04	1,115
Vendor	0.02	0.66	0.25	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	384	0.02	0.06	403
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.83	0.00	0.00	0.13	0.13	0.00	0.03	0.03	137	0.01	0.01	139
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.94	27.8	23.8	0.06	1.13	—	1.13	1.04	—	1.04	6,502	0.26	0.05	6,524
Dust From Material Movement	—	—	—	—	—	2.92	2.92	—	1.44	1.44	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.80	3.26	0.01	0.15	—	0.15	0.14	—	0.14	891	0.04	0.01	894
Dust From Material Movement	—	—	—	—	—	0.40	0.40	—	0.20	0.20	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.69	0.60	< 0.005	0.03	—	0.03	0.03	—	0.03	147	0.01	< 0.005	148
Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.04	0.04	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.45	7.92	0.00	0.00	0.95	0.95	0.00	0.22	0.22	1,098	0.05	0.04	1,115
Vendor	0.02	0.66	0.25	< 0.005	0.01	0.10	0.10	0.01	0.03	0.03	384	0.02	0.06	403
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.83	0.00	0.00	0.13	0.13	0.00	0.03	0.03	137	0.01	0.01	139
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.97	56.5	44.3	0.11	2.24	—	2.24	2.06	—	2.06	12,203	0.50	0.10	12,245
Dust From Material Movement	—	—	—	—	—	17.0	17.0	—	8.49	8.49	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	7.96	6.25	0.02	0.32	—	0.32	0.29	—	0.29	1,719	0.07	0.01	1,725
Dust From Material Movement	—	—	—	—	—	2.40	2.40	—	1.20	1.20	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.45	1.14	< 0.005	0.06	—	0.06	0.05	—	0.05	285	0.01	< 0.005	286

Dust From Material Movement	—	—	—	—	—	0.44	0.44	—	0.22	0.22	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.89	8.93	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,459	0.09	0.06	1,479
Vendor	0.01	0.47	0.17	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	256	0.01	0.04	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.28	0.00	0.00	0.19	0.19	0.00	0.05	0.05	211	0.01	0.01	214
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	36.1	< 0.005	0.01	37.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	34.9	< 0.005	< 0.005	35.4
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.98	< 0.005	< 0.005	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.97	56.5	44.3	0.11	2.24	—	2.24	2.06	—	2.06	12,203	0.50	0.10	12,245
Dust From Material Movement	—	—	—	—	—	4.43	4.43	—	2.21	2.21	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	7.96	6.25	0.02	0.32	—	0.32	0.29	—	0.29	1,719	0.07	0.01	1,725
Dust From Material Movement	—	—	—	—	—	0.62	0.62	—	0.31	0.31	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.45	1.14	< 0.005	0.06	—	0.06	0.05	—	0.05	285	0.01	< 0.005	286
Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.06	0.06	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.82	0.89	8.93	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,459	0.09	0.06	1,479
Vendor	0.01	0.47	0.17	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	256	0.01	0.04	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.28	0.00	0.00	0.19	0.19	0.00	0.05	0.05	211	0.01	0.01	214
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	36.1	< 0.005	0.01	37.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	34.9	< 0.005	< 0.005	35.4
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.98	< 0.005	< 0.005	6.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.57	50.8	42.2	0.11	1.99	—	1.99	1.83	—	1.83	12,201	0.49	0.10	12,242
Dust From Material Movement	—	—	—	—	—	17.0	17.0	—	8.49	8.49	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	1.59	1.32	< 0.005	0.06	—	0.06	0.06	—	0.06	382	0.02	< 0.005	383
Dust From Material Movement	—	—	—	—	—	0.53	0.53	—	0.27	0.27	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.29	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	63.2	< 0.005	< 0.005	63.5
Dust From Material Movement	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.79	8.23	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,428	0.09	0.06	1,448
Vendor	0.01	0.44	0.16	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	252	0.01	0.04	264
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	45.9	< 0.005	< 0.005	46.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.90	< 0.005	< 0.005	8.27
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.60	< 0.005	< 0.005	7.71

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.31	< 0.005	< 0.005	1.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.57	50.8	42.2	0.11	1.99	—	1.99	1.83	—	1.83	12,201	0.49	0.10	12,242
Dust From Material Movement	—	—	—	—	—	4.43	4.43	—	2.21	2.21	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	1.59	1.32	< 0.005	0.06	—	0.06	0.06	—	0.06	382	0.02	< 0.005	383
Dust From Material Movement	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.29	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	63.2	< 0.005	< 0.005	63.5

Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.79	8.23	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,428	0.09	0.06	1,448
Vendor	0.01	0.44	0.16	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	252	0.01	0.04	264
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	45.9	< 0.005	< 0.005	46.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.90	< 0.005	< 0.005	8.27
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.60	< 0.005	< 0.005	7.71
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.31	< 0.005	< 0.005	1.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.17	0.17	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	3.85	1.93	0.01	0.01	127	127	0.01	12.7	12.8	742	0.11	0.12	781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.54	0.26	< 0.005	< 0.005	17.9	17.9	< 0.005	1.79	1.80	105	0.02	0.02	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.05	< 0.005	< 0.005	3.27	3.27	< 0.005	0.33	0.33	17.3	< 0.005	< 0.005	18.2

3.10. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	3.85	1.93	0.01	0.01	127	127	0.01	12.7	12.8	742	0.11	0.12	781
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.54	0.26	< 0.005	< 0.005	17.9	17.9	< 0.005	1.79	1.80	105	0.02	0.02	110
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.05	< 0.005	< 0.005	3.27	3.27	< 0.005	0.33	0.33	17.3	< 0.005	< 0.005	18.2

3.11. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.17	0.17	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	3.77	1.93	0.01	0.01	127	127	0.01	12.7	12.8	731	0.10	0.11	767
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	0.06	< 0.005	< 0.005	3.99	3.99	< 0.005	0.40	0.40	22.9	< 0.005	< 0.005	24.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.73	0.73	< 0.005	0.07	0.07	3.79	< 0.005	< 0.005	3.98

3.12. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.11	3.77	1.93	0.01	0.01	127	127	0.01	12.7	12.8	731	0.10	0.11	767
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	0.06	< 0.005	< 0.005	3.99	3.99	< 0.005	0.40	0.40	22.9	< 0.005	< 0.005	24.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.73	0.73	< 0.005	0.07	0.07	3.79	< 0.005	< 0.005	3.98

3.13. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.53	0.26	< 0.005	< 0.005	17.9	17.9	< 0.005	1.79	1.79	105	0.02	0.02	110
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	0.06	< 0.005	< 0.005	3.92	3.92	< 0.005	0.39	0.39	22.9	< 0.005	< 0.005	24.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.72	0.72	< 0.005	0.07	0.07	3.79	< 0.005	< 0.005	3.99

3.14. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.53	0.26	< 0.005	< 0.005	17.9	17.9	< 0.005	1.79	1.79	105	0.02	0.02	110
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.12	0.06	< 0.005	< 0.005	3.92	3.92	< 0.005	0.39	0.39	22.9	< 0.005	< 0.005	24.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	0.72	0.72	< 0.005	0.07	0.07	3.79	< 0.005	< 0.005	3.99

3.15. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	15.0	12.1	0.03	0.61	—	0.61	0.56	—	0.56	3,480	0.14	0.03	3,492
Dust From Material Movement	—	—	—	—	—	5.73	5.73	—	2.95	2.95	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.06	1.66	< 0.005	0.08	—	0.08	0.08	—	0.08	477	0.02	< 0.005	478
Dust From Material Movement	—	—	—	—	—	0.79	0.79	—	0.40	0.40	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.38	0.30	< 0.005	0.02	—	0.02	0.01	—	0.01	78.9	< 0.005	< 0.005	79.2
Dust From Material Movement	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.45	7.92	0.00	0.00	0.95	0.95	0.00	0.22	0.22	1,098	0.05	0.04	1,115
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	128	0.01	0.02	134

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.83	0.00	0.00	0.13	0.13	0.00	0.03	0.03	137	0.01	0.01	139
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.6	< 0.005	< 0.005	18.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.91	< 0.005	< 0.005	3.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.16. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.61	15.0	12.1	0.03	0.61	—	0.61	0.56	—	0.56	3,480	0.14	0.03	3,492
Dust From Material Movement	—	—	—	—	—	1.49	1.49	—	0.77	0.77	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.06	1.66	< 0.005	0.08	—	0.08	0.08	—	0.08	477	0.02	< 0.005	478
Dust From Material Movement	—	—	—	—	—	0.20	0.20	—	0.10	0.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.38	0.30	< 0.005	0.02	—	0.02	0.01	—	0.01	78.9	< 0.005	< 0.005	79.2
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.61	0.45	7.92	0.00	0.00	0.95	0.95	0.00	0.22	0.22	1,098	0.05	0.04	1,115
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	128	0.01	0.02	134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.83	0.00	0.00	0.13	0.13	0.00	0.03	0.03	137	0.01	0.01	139
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.6	< 0.005	< 0.005	18.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.91	< 0.005	< 0.005	3.04
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.17. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.62	25.6	18.6	0.05	1.02	—	1.02	0.94	—	0.94	5,377	0.22	0.04	5,396
Dust From Material Movement	—	—	—	—	—	8.85	8.85	—	4.28	4.28	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.21	3.05	0.01	0.17	—	0.17	0.15	—	0.15	884	0.04	0.01	887
Dust From Material Movement	—	—	—	—	—	1.46	1.46	—	0.70	0.70	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.77	0.56	< 0.005	0.03	—	0.03	0.03	—	0.03	146	0.01	< 0.005	147

Dust From Material Movement	—	—	—	—	—	0.27	0.27	—	0.13	0.13	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.58	10.3	0.00	0.00	1.24	1.24	0.00	0.29	0.29	1,427	0.07	0.05	1,450
Vendor	0.01	0.44	0.16	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	256	0.01	0.04	268
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.30	0.00	0.00	0.20	0.20	0.00	0.05	0.05	213	0.01	0.01	216
Vendor	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	42.1	< 0.005	0.01	44.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	35.3	< 0.005	< 0.005	35.8
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.97	< 0.005	< 0.005	7.30
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.18. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.62	25.6	18.6	0.05	1.02	—	1.02	0.94	—	0.94	5,377	0.22	0.04	5,396
Dust From Material Movement	—	—	—	—	—	2.30	2.30	—	1.11	1.11	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	4.21	3.05	0.01	0.17	—	0.17	0.15	—	0.15	884	0.04	0.01	887
Dust From Material Movement	—	—	—	—	—	0.38	0.38	—	0.18	0.18	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.77	0.56	< 0.005	0.03	—	0.03	0.03	—	0.03	146	0.01	< 0.005	147
Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.58	10.3	0.00	0.00	1.24	1.24	0.00	0.29	0.29	1,427	0.07	0.05	1,450
Vendor	0.01	0.44	0.16	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	256	0.01	0.04	268

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.30	0.00	0.00	0.20	0.20	0.00	0.05	0.05	213	0.01	0.01	216
Vendor	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	42.1	< 0.005	0.01	44.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	35.3	< 0.005	< 0.005	35.8
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.97	< 0.005	< 0.005	7.30
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.20	0.20	—	0.03	0.03	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.20	0.20	—	0.03	0.03	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.18	5.40	2.66	0.01	0.02	184	184	0.02	18.4	18.4	1,074	0.16	0.17	1,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	5.56	2.79	0.01	0.02	184	184	0.02	18.4	18.4	1,072	0.16	0.17	1,128
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.90	0.45	< 0.005	< 0.005	30.2	30.2	< 0.005	3.02	3.03	176	0.03	0.03	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.16	0.08	< 0.005	< 0.005	5.51	5.51	< 0.005	0.55	0.55	29.2	< 0.005	< 0.005	30.7

3.20. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—
Architectura l Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.18	5.40	2.66	0.01	0.02	184	184	0.02	18.4	18.4	1,074	0.16	0.17	1,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	5.56	2.79	0.01	0.02	184	184	0.02	18.4	18.4	1,072	0.16	0.17	1,128
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.90	0.45	< 0.005	< 0.005	30.2	30.2	< 0.005	3.02	3.03	176	0.03	0.03	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.16	0.08	< 0.005	< 0.005	5.51	5.51	< 0.005	0.55	0.55	29.2	< 0.005	< 0.005	30.7

3.21. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.17	0.09	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	25.0	< 0.005	< 0.005	26.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.15	0.15	< 0.005	0.02	0.02	1.13	< 0.005	< 0.005	1.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	0.19	< 0.005	< 0.005	0.20
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.22. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.17	0.09	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	25.0	< 0.005	< 0.005	26.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	1.13	< 0.005	< 0.005	1.19
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.19	< 0.005	< 0.005	0.20
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.23. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.08	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	24.7	< 0.005	< 0.005	25.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.17	0.09	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	24.6	< 0.005	< 0.005	25.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.12	0.06	< 0.005	< 0.005	2.41	2.41	< 0.005	0.24	0.24	17.6	< 0.005	< 0.005	18.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.44	0.44	< 0.005	0.04	0.04	2.91	< 0.005	< 0.005	3.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.24. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.08	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	24.7	< 0.005	< 0.005	25.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.17	0.09	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	24.6	< 0.005	< 0.005	25.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.12	0.06	< 0.005	< 0.005	0.22	0.22	< 0.005	0.02	0.02	17.6	< 0.005	< 0.005	18.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	2.91	< 0.005	< 0.005	3.06
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.25. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.08	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	24.2	< 0.005	< 0.005	25.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.09	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	24.2	< 0.005	< 0.005	25.5
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.11	0.06	< 0.005	< 0.005	2.41	2.41	< 0.005	0.24	0.24	17.3	< 0.005	< 0.005	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.44	0.44	< 0.005	0.04	0.04	2.86	< 0.005	< 0.005	3.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.26. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.08	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	24.2	< 0.005	< 0.005	25.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.09	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	24.2	< 0.005	< 0.005	25.5

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.11	0.06	< 0.005	< 0.005	0.22	0.22	< 0.005	0.02	0.02	17.3	< 0.005	< 0.005	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	2.86	< 0.005	< 0.005	3.01
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.27. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.15	0.08	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	23.7	< 0.005	< 0.005	25.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.09	< 0.005	< 0.005	3.37	3.37	< 0.005	0.34	0.34	23.8	< 0.005	< 0.005	25.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.04	0.02	< 0.005	< 0.005	0.93	0.93	< 0.005	0.09	0.09	6.56	< 0.005	< 0.005	6.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	1.09	< 0.005	< 0.005	1.14

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.28. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.15	0.08	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	23.7	< 0.005	< 0.005	25.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.01	0.16	0.09	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	23.8	< 0.005	< 0.005	25.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.04	0.02	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	6.56	< 0.005	< 0.005	6.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	1.09	< 0.005	< 0.005	1.14
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.29. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.24	49.9	24.5	0.03	1.24	—	1.24	1.20	—	1.20	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.06	2.25	1.10	< 0.005	0.06	—	0.06	0.05	—	0.05	312	0.01	< 0.005	313
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.41	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	51.7	< 0.005	< 0.005	51.8
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.89	8.93	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,459	0.09	0.06	1,479
Vendor	0.01	0.24	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	128	0.01	0.02	134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.41	0.00	0.00	0.06	0.06	0.00	0.01	0.01	67.4	< 0.005	< 0.005	68.4
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.77	< 0.005	< 0.005	6.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.2	< 0.005	< 0.005	11.3
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.95	< 0.005	< 0.005	1.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.30. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.24	49.9	24.5	0.03	1.24	—	1.24	1.20	—	1.20	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	2.25	1.10	< 0.005	0.06	—	0.06	0.05	—	0.05	312	0.01	< 0.005	313
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.41	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	51.7	< 0.005	< 0.005	51.8
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.89	8.93	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,459	0.09	0.06	1,479
Vendor	0.01	0.24	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	128	0.01	0.02	134
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.41	0.00	0.00	0.06	0.06	0.00	0.01	0.01	67.4	< 0.005	< 0.005	68.4
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.77	< 0.005	< 0.005	6.03
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.2	< 0.005	< 0.005	11.3
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.95	< 0.005	< 0.005	1.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.31. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	49.0	24.4	0.03	1.20	—	1.20	8.36	—	8.36	6,941	0.14	0.03	6,953
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	49.0	24.4	0.03	1.20	—	1.20	8.36	—	8.36	6,941	0.14	0.03	6,953
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	35.0	17.5	0.02	0.86	—	0.86	5.97	—	5.97	4,958	0.10	0.02	4,966
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	6.39	3.18	< 0.005	0.16	—	0.16	1.09	—	1.09	821	0.02	< 0.005	822
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.88	0.58	10.9	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,612	0.08	0.06	1,637
Vendor	0.01	0.21	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.79	8.23	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,428	0.09	0.06	1,448
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.49	5.97	0.00	0.00	0.99	0.99	0.00	0.23	0.23	1,047	0.06	0.04	1,063
Vendor	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	90.1	< 0.005	0.01	94.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.09	0.00	0.00	0.18	0.18	0.00	0.04	0.04	173	0.01	0.01	176
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	14.9	< 0.005	< 0.005	15.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.32. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	49.0	24.4	0.03	1.20	—	1.20	8.36	—	8.36	6,941	0.14	0.03	6,953
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	49.0	24.4	0.03	1.20	—	1.20	8.36	—	8.36	6,941	0.14	0.03	6,953
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	35.0	17.5	0.02	0.86	—	0.86	5.97	—	5.97	4,958	0.10	0.02	4,966
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	6.39	3.18	< 0.005	0.16	—	0.16	1.09	—	1.09	821	0.02	< 0.005	822
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.88	0.58	10.9	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,612	0.08	0.06	1,637
Vendor	0.01	0.21	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.79	8.23	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,428	0.09	0.06	1,448
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.49	5.97	0.00	0.00	0.99	0.99	0.00	0.23	0.23	1,047	0.06	0.04	1,063
Vendor	< 0.005	0.16	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	90.1	< 0.005	0.01	94.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.09	0.00	0.00	0.18	0.18	0.00	0.04	0.04	173	0.01	0.01	176
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	14.9	< 0.005	< 0.005	15.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.33. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	48.5	24.3	0.03	1.18	—	1.18	1.15	—	1.15	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	48.5	24.3	0.03	1.18	—	1.18	1.15	—	1.15	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	34.6	17.4	0.02	0.84	—	0.84	0.82	—	0.82	4,958	0.10	0.02	4,966
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	6.32	3.17	< 0.005	0.15	—	0.15	0.15	—	0.15	821	0.02	< 0.005	822
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.53	10.0	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,578	0.07	0.06	1,603
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	124	0.01	0.02	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.69	7.58	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,399	0.04	0.06	1,417
Vendor	< 0.005	0.21	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	124	0.01	0.02	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.45	5.50	0.00	0.00	0.99	0.99	0.00	0.23	0.23	1,025	0.06	0.04	1,041
Vendor	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	88.6	< 0.005	0.01	92.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	1.00	0.00	0.00	0.18	0.18	0.00	0.04	0.04	170	0.01	0.01	172
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	14.7	< 0.005	< 0.005	15.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.34. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	48.5	24.3	0.03	1.18	—	1.18	1.15	—	1.15	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.17	48.5	24.3	0.03	1.18	—	1.18	1.15	—	1.15	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.84	34.6	17.4	0.02	0.84	—	0.84	0.82	—	0.82	4,958	0.10	0.02	4,966
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	6.32	3.17	< 0.005	0.15	—	0.15	0.15	—	0.15	821	0.02	< 0.005	822
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.78	0.53	10.0	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,578	0.07	0.06	1,603
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	124	0.01	0.02	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.69	7.58	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,399	0.04	0.06	1,417
Vendor	< 0.005	0.21	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	124	0.01	0.02	130
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.50	0.45	5.50	0.00	0.00	0.99	0.99	0.00	0.23	0.23	1,025	0.06	0.04	1,041
Vendor	< 0.005	0.15	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	88.6	< 0.005	0.01	92.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	1.00	0.00	0.00	0.18	0.18	0.00	0.04	0.04	170	0.01	0.01	172
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	14.7	< 0.005	< 0.005	15.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.35. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	48.0	24.3	0.03	1.16	—	1.16	1.13	—	1.13	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	48.0	24.3	0.03	1.16	—	1.16	1.13	—	1.13	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	13.3	6.70	0.01	0.32	—	0.32	0.31	—	0.31	1,915	0.04	0.01	1,918
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	2.42	1.22	< 0.005	0.06	—	0.06	0.06	—	0.06	317	0.01	< 0.005	318
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	< 0.005	0.18	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.66	0.64	6.98	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,370	0.04	0.06	1,388
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	1.96	0.00	0.00	0.38	0.38	0.00	0.09	0.09	388	0.01	0.02	394
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	33.6	< 0.005	< 0.005	35.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.36	0.00	0.00	0.07	0.07	0.00	0.02	0.02	64.2	< 0.005	< 0.005	65.2
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.56	< 0.005	< 0.005	5.81
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.36. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	48.0	24.3	0.03	1.16	—	1.16	1.13	—	1.13	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15	48.0	24.3	0.03	1.16	—	1.16	1.13	—	1.13	6,941	0.14	0.03	6,952
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	13.3	6.70	0.01	0.32	—	0.32	0.31	—	0.31	1,915	0.04	0.01	1,918
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	2.42	1.22	< 0.005	0.06	—	0.06	0.06	—	0.06	317	0.01	< 0.005	318
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	< 0.005	0.18	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.66	0.64	6.98	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,370	0.04	0.06	1,388
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	1.96	0.00	0.00	0.38	0.38	0.00	0.09	0.09	388	0.01	0.02	394
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	33.6	< 0.005	< 0.005	35.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.36	0.00	0.00	0.07	0.07	0.00	0.02	0.02	64.2	< 0.005	< 0.005	65.2
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.56	< 0.005	< 0.005	5.81
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.37. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.72	0.27	0.01	0.01	0.11	0.11	0.01	0.03	0.04	457	0.04	0.07	480
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.78	0.27	0.01	0.01	0.11	0.11	0.01	0.03	0.04	457	0.04	0.07	479
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.01	0.42	0.15	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	250	0.02	0.04	263
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	41.4	< 0.005	0.01	43.5

3.38. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.72	0.27	0.01	0.01	0.11	0.11	0.01	0.03	0.04	457	0.04	0.07	480
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.78	0.27	0.01	0.01	0.11	0.11	0.01	0.03	0.04	457	0.04	0.07	479
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.42	0.15	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	250	0.02	0.04	263
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	41.4	< 0.005	0.01	43.5

3.39. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	1.84	0.85	0.01	0.01	169	169	0.01	16.9	16.9	635	0.07	0.10	668

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	1.93	0.88	0.01	0.01	169	169	0.01	16.9	16.9	635	0.07	0.10	667
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	1.18	0.53	< 0.005	0.01	105	105	0.01	10.5	10.5	395	0.04	0.06	415
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.22	0.10	< 0.005	< 0.005	19.1	19.1	< 0.005	1.92	1.92	65.4	0.01	0.01	68.7

3.40. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	1.84	0.85	0.01	0.01	169	169	0.01	16.9	16.9	635	0.07	0.10	668
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	1.93	0.88	0.01	0.01	169	169	0.01	16.9	16.9	635	0.07	0.10	667
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.03	1.18	0.53	< 0.005	0.01	105	105	0.01	10.5	10.5	395	0.04	0.06	415
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.22	0.10	< 0.005	< 0.005	19.1	19.1	< 0.005	1.92	1.92	65.4	0.01	0.01	68.7

3.41. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.45	21.1	18.5	0.07	0.82	—	0.82	0.75	—	0.75	7,281	0.30	0.06	7,306
Dust From Material Movement	—	—	—	—	—	3.28	3.28	—	1.68	1.68	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.45	21.1	18.5	0.07	0.82	—	0.82	0.75	—	0.75	7,281	0.30	0.06	7,306
Dust From Material Movement	—	—	—	—	—	3.28	3.28	—	1.68	1.68	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.46	12.6	11.0	0.04	0.49	—	0.49	0.45	—	0.45	4,332	0.18	0.04	4,347

Dust From Material Movement	—	—	—	—	—	1.95	1.95	—	1.00	1.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.30	2.01	0.01	0.09	—	0.09	0.08	—	0.08	717	0.03	0.01	720
Dust From Material Movement	—	—	—	—	—	0.36	0.36	—	0.18	0.18	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.54	10.1	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,504	0.07	0.05	1,528
Vendor	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	189	0.01	0.03	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.73	7.68	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,333	0.08	0.05	1,351
Vendor	0.01	0.33	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	189	0.01	0.03	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.43	0.38	4.64	0.00	0.00	0.77	0.77	0.00	0.18	0.18	814	0.05	0.03	826
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	113	0.01	0.02	118
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.85	0.00	0.00	0.14	0.14	0.00	0.03	0.03	135	0.01	0.01	137

Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	18.6	< 0.005	< 0.005	19.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.42. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.45	21.1	18.5	0.07	0.82	—	0.82	0.75	—	0.75	7,281	0.30	0.06	7,306
Dust From Material Movement	—	—	—	—	—	0.85	0.85	—	0.44	0.44	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.45	21.1	18.5	0.07	0.82	—	0.82	0.75	—	0.75	7,281	0.30	0.06	7,306
Dust From Material Movement	—	—	—	—	—	0.85	0.85	—	0.44	0.44	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.46	12.6	11.0	0.04	0.49	—	0.49	0.45	—	0.45	4,332	0.18	0.04	4,347
Dust From Material Movement	—	—	—	—	—	0.51	0.51	—	0.26	0.26	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	2.30	2.01	0.01	0.09	—	0.09	0.08	—	0.08	717	0.03	0.01	720
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.54	10.1	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,504	0.07	0.05	1,528
Vendor	0.01	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	189	0.01	0.03	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.73	7.68	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,333	0.08	0.05	1,351
Vendor	0.01	0.33	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	189	0.01	0.03	198
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.43	0.38	4.64	0.00	0.00	0.77	0.77	0.00	0.18	0.18	814	0.05	0.03	826
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	113	0.01	0.02	118
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.85	0.00	0.00	0.14	0.14	0.00	0.03	0.03	135	0.01	0.01	137
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	18.6	< 0.005	< 0.005	19.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.43. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.39	19.7	18.3	0.07	0.77	—	0.77	0.71	—	0.71	7,285	0.30	0.06	7,310
Dust From Material Movement	—	—	—	—	—	3.28	3.28	—	1.68	1.68	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.50	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	185	0.01	< 0.005	186
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.04	0.04	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	30.7	< 0.005	< 0.005	30.8
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	34.1	< 0.005	< 0.005	34.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.74	< 0.005	< 0.005	4.96
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.64	< 0.005	< 0.005	5.73
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.78	< 0.005	< 0.005	0.82
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.44. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.39	19.7	18.3	0.07	0.77	—	0.77	0.71	—	0.71	7,285	0.30	0.06	7,310

Dust From Material Movement	—	—	—	—	—	0.85	0.85	—	0.44	0.44	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.50	0.47	< 0.005	0.02	—	0.02	0.02	—	0.02	185	0.01	< 0.005	186
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	30.7	< 0.005	< 0.005	30.8
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	34.1	< 0.005	< 0.005	34.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.74	< 0.005	< 0.005	4.96

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	5.64	< 0.005	< 0.005	5.73
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.78	< 0.005	< 0.005	0.82
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.45. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.78	0.29	0.01	0.01	0.11	0.12	0.01	0.03	0.04	493	0.04	0.08	518
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.84	0.29	0.01	0.01	0.11	0.12	0.01	0.03	0.04	493	0.04	0.08	517
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293	0.02	0.05	308
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	48.5	< 0.005	0.01	51.0

3.46. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.78	0.29	0.01	0.01	0.11	0.12	0.01	0.03	0.04	493	0.04	0.08	518

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.84	0.29	0.01	0.01	0.11	0.12	0.01	0.03	0.04	493	0.04	0.08	517
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.49	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	293	0.02	0.05	308
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	48.5	< 0.005	0.01	51.0

3.47. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.74	0.27	0.01	0.01	0.11	0.12	0.01	0.03	0.04	484	0.04	0.08	509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.79	0.27	0.01	0.01	0.11	0.12	0.01	0.03	0.04	484	0.04	0.08	508
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.01	0.56	0.19	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	345	0.03	0.06	363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	57.2	< 0.005	0.01	60.1

3.48. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.74	0.27	0.01	0.01	0.11	0.12	0.01	0.03	0.04	484	0.04	0.08	509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.79	0.27	0.01	0.01	0.11	0.12	0.01	0.03	0.04	484	0.04	0.08	508
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.56	0.19	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	345	0.03	0.06	363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	57.2	< 0.005	0.01	60.1

3.49. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.69	0.26	0.01	0.01	0.11	0.12	0.01	0.03	0.04	473	0.04	0.07	497

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.75	0.26	0.01	0.01	0.11	0.12	0.01	0.03	0.04	473	0.04	0.07	497
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.20	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	131	0.01	0.02	137
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	21.6	< 0.005	< 0.005	22.7

3.50. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.69	0.26	0.01	0.01	0.11	0.12	0.01	0.03	0.04	473	0.04	0.07	497
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.75	0.26	0.01	0.01	0.11	0.12	0.01	0.03	0.04	473	0.04	0.07	497
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	0.20	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	131	0.01	0.02	137
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	21.6	< 0.005	< 0.005	22.7

3.51. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	4.45	5.60	0.01	0.15	—	0.15	0.14	—	0.14	1,276	0.05	0.01	1,280
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	4.45	5.60	0.01	0.15	—	0.15	0.14	—	0.14	1,276	0.05	0.01	1,280
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.44	3.07	0.01	0.08	—	0.08	0.07	—	0.07	699	0.03	0.01	701

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.45	0.56	< 0.005	0.01	—	0.01	0.01	—	0.01	116	< 0.005	< 0.005	116
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.54	10.1	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,504	0.07	0.05	1,528
Vendor	0.01	0.21	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.73	7.68	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,333	0.08	0.05	1,351
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.35	4.27	0.00	0.00	0.71	0.71	0.00	0.17	0.17	750	0.04	0.03	761
Vendor	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	69.1	< 0.005	0.01	72.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.78	0.00	0.00	0.13	0.13	0.00	0.03	0.03	124	0.01	< 0.005	126

Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.4	< 0.005	< 0.005	12.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.52. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	4.45	5.60	0.01	0.15	—	0.15	0.14	—	0.14	1,276	0.05	0.01	1,280
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	4.45	5.60	0.01	0.15	—	0.15	0.14	—	0.14	1,276	0.05	0.01	1,280
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.44	3.07	0.01	0.08	—	0.08	0.07	—	0.07	699	0.03	0.01	701
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.45	0.56	< 0.005	0.01	—	0.01	0.01	—	0.01	116	< 0.005	< 0.005	116
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.82	0.54	10.1	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,504	0.07	0.05	1,528
Vendor	0.01	0.21	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.73	7.68	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,333	0.08	0.05	1,351
Vendor	0.01	0.22	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	126	0.01	0.02	132
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.35	4.27	0.00	0.00	0.71	0.71	0.00	0.17	0.17	750	0.04	0.03	761
Vendor	< 0.005	0.12	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	69.1	< 0.005	0.01	72.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.78	0.00	0.00	0.13	0.13	0.00	0.03	0.03	124	0.01	< 0.005	126
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.4	< 0.005	< 0.005	12.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.53. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.09	0.05	< 0.005	< 0.005	1.87	1.87	< 0.005	0.19	0.19	13.7	< 0.005	< 0.005	14.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.09	0.05	< 0.005	< 0.005	1.87	1.87	< 0.005	0.19	0.19	13.7	< 0.005	< 0.005	14.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.05	0.03	< 0.005	< 0.005	1.03	1.03	< 0.005	0.10	0.10	7.50	< 0.005	< 0.005	7.89
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.19	0.19	< 0.005	0.02	0.02	1.24	< 0.005	< 0.005	1.31
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.54. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.09	0.05	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	13.7	< 0.005	< 0.005	14.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.09	0.05	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	13.7	< 0.005	< 0.005	14.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.05	0.03	< 0.005	< 0.005	0.09	0.09	< 0.005	0.01	0.01	7.50	< 0.005	< 0.005	7.89
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	1.24	< 0.005	< 0.005	1.31
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.55. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	4.91	6.32	0.01	0.14	—	0.14	0.13	—	0.13	799	0.03	0.01	802
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.22	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	35.0	< 0.005	< 0.005	35.1
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.80	< 0.005	< 0.005	5.82
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.41	0.15	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	248	0.01	0.04	260
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	58.7	< 0.005	< 0.005	59.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10.9	< 0.005	< 0.005	11.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.72	< 0.005	< 0.005	9.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.80	< 0.005	< 0.005	1.89
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.56. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	4.91	6.32	0.01	0.14	—	0.14	0.13	—	0.13	799	0.03	0.01	802
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.22	0.28	< 0.005	0.01	—	0.01	0.01	—	0.01	35.0	< 0.005	< 0.005	35.1
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	5.80	< 0.005	< 0.005	5.82
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.41	0.15	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	248	0.01	0.04	260
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.31	0.00	0.00	0.06	0.06	0.00	0.01	0.01	58.7	< 0.005	< 0.005	59.6
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	10.9	< 0.005	< 0.005	11.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.72	< 0.005	< 0.005	9.87
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.80	< 0.005	< 0.005	1.89
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.57. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	10.7	11.7	0.03	0.41	—	0.41	0.38	—	0.38	2,866	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	4.10	4.10	—	2.10	2.10	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	10.7	11.7	0.03	0.41	—	0.41	0.38	—	0.38	2,866	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	4.10	4.10	—	2.10	2.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	3.45	3.78	0.01	0.13	—	0.13	0.12	—	0.12	925	0.04	0.01	928
Dust From Material Movement	—	—	—	—	—	1.32	1.32	—	0.68	0.68	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.63	0.69	< 0.005	0.02	—	0.02	0.02	—	0.02	153	0.01	< 0.005	154
Dust From Material Movement	—	—	—	—	—	0.24	0.24	—	0.12	0.12	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.49	9.35	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,473	0.07	0.05	1,496
Vendor	0.01	0.29	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	2.32	0.00	0.00	0.42	0.42	0.00	0.10	0.10	433	0.02	0.02	439
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	60.1	< 0.005	0.01	62.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	71.6	< 0.005	< 0.005	72.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	9.95	< 0.005	< 0.005	10.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.58. Site Preparation (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	10.7	11.7	0.03	0.41	—	0.41	0.38	—	0.38	2,866	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	1.06	1.06	—	0.55	0.55	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.14	10.7	11.7	0.03	0.41	—	0.41	0.38	—	0.38	2,866	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	1.06	1.06	—	0.55	0.55	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	3.45	3.78	0.01	0.13	—	0.13	0.12	—	0.12	925	0.04	0.01	928
Dust From Material Movement	—	—	—	—	—	0.34	0.34	—	0.18	0.18	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.63	0.69	< 0.005	0.02	—	0.02	0.02	—	0.02	153	0.01	< 0.005	154
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.73	0.49	9.35	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,473	0.07	0.05	1,496
Vendor	0.01	0.29	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.65	0.64	7.07	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,305	0.04	0.05	1,323
Vendor	0.01	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	186	0.01	0.03	195
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.19	2.32	0.00	0.00	0.42	0.42	0.00	0.10	0.10	433	0.02	0.02	439
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	60.1	< 0.005	0.01	62.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.42	0.00	0.00	0.08	0.08	0.00	0.02	0.02	71.6	< 0.005	< 0.005	72.7
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	9.95	< 0.005	< 0.005	10.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.59. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	10.2	11.6	0.03	0.39	—	0.39	0.36	—	0.36	2,865	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	4.10	4.10	—	2.10	2.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	10.2	11.6	0.03	0.39	—	0.39	0.36	—	0.36	2,865	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	4.10	4.10	—	2.10	2.10	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	2.80	3.20	0.01	0.11	—	0.11	0.10	—	0.10	791	0.03	0.01	793
Dust From Material Movement	—	—	—	—	—	1.13	1.13	—	0.58	0.58	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.51	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	131	0.01	< 0.005	131
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.44	8.60	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,442	0.07	0.05	1,464
Vendor	0.01	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.59	6.52	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,279	0.04	0.05	1,296
Vendor	0.01	0.29	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	1.83	0.00	0.00	0.36	0.36	0.00	0.08	0.08	362	0.01	0.01	367
Vendor	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	50.4	< 0.005	0.01	52.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.33	0.00	0.00	0.06	0.06	0.00	0.02	0.02	59.9	< 0.005	< 0.005	60.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.34	< 0.005	< 0.005	8.72
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.60. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	10.2	11.6	0.03	0.39	—	0.39	0.36	—	0.36	2,865	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	1.06	1.06	—	0.55	0.55	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.11	10.2	11.6	0.03	0.39	—	0.39	0.36	—	0.36	2,865	0.12	0.02	2,875
Dust From Material Movement	—	—	—	—	—	1.06	1.06	—	0.55	0.55	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	2.80	3.20	0.01	0.11	—	0.11	0.10	—	0.10	791	0.03	0.01	793
Dust From Material Movement	—	—	—	—	—	0.29	0.29	—	0.15	0.15	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.51	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	131	0.01	< 0.005	131
Dust From Material Movement	—	—	—	—	—	0.05	0.05	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.69	0.44	8.60	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,442	0.07	0.05	1,464
Vendor	0.01	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.62	0.59	6.52	0.00	0.00	1.34	1.34	0.00	0.31	0.31	1,279	0.04	0.05	1,296
Vendor	0.01	0.29	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	1.83	0.00	0.00	0.36	0.36	0.00	0.08	0.08	362	0.01	0.01	367
Vendor	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	50.4	< 0.005	0.01	52.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.33	0.00	0.00	0.06	0.06	0.00	0.02	0.02	59.9	< 0.005	< 0.005	60.8
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.34	< 0.005	< 0.005	8.72
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.61. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.91	15.6	14.7	0.05	0.62	—	0.62	0.57	—	0.57	4,981	0.20	0.04	4,998
Dust From Material Movement	—	—	—	—	—	7.97	7.97	—	3.85	3.85	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.11	1.05	< 0.005	0.04	—	0.04	0.04	—	0.04	355	0.01	< 0.005	356
Dust From Material Movement	—	—	—	—	—	0.57	0.57	—	0.27	0.27	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	58.7	< 0.005	< 0.005	58.9
Dust From Material Movement	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	0.01	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.50	0.00	0.00	0.10	0.10	0.00	0.02	0.02	100	< 0.005	< 0.005	102
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.0	< 0.005	< 0.005	13.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.6	< 0.005	< 0.005	16.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.15	< 0.005	< 0.005	2.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.62. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.91	15.6	14.7	0.05	0.62	—	0.62	0.57	—	0.57	4,981	0.20	0.04	4,998
Dust From Material Movement	—	—	—	—	—	2.07	2.07	—	1.00	1.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	1.11	1.05	< 0.005	0.04	—	0.04	0.04	—	0.04	355	0.01	< 0.005	356
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	58.7	< 0.005	< 0.005	58.9

Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	0.01	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	182	0.01	0.03	191
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.50	0.00	0.00	0.10	0.10	0.00	0.02	0.02	100	< 0.005	< 0.005	102
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.0	< 0.005	< 0.005	13.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	16.6	< 0.005	< 0.005	16.8
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.15	< 0.005	< 0.005	2.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.63. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	2.99	2.69	0.01	0.12	—	0.12	0.11	—	0.11	990	0.04	0.01	994
Dust From Material Movement	—	—	—	—	—	0.89	0.89	—	0.43	0.43	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	67.8	< 0.005	< 0.005	68.1
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.2	< 0.005	< 0.005	11.3
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	0.01	0.45	0.17	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	304	0.02	0.04	318

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	96.3	< 0.005	< 0.005	97.7
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	20.8	< 0.005	< 0.005	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	15.9	< 0.005	< 0.005	16.2
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.45	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.64. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	2.99	2.69	0.01	0.12	—	0.12	0.11	—	0.11	990	0.04	0.01	994
Dust From Material Movement	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	67.8	< 0.005	< 0.005	68.1
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.2	< 0.005	< 0.005	11.3
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	0.01	0.45	0.17	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	304	0.02	0.04	318
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.49	0.00	0.00	0.09	0.09	0.00	0.02	0.02	96.3	< 0.005	< 0.005	97.7
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	20.8	< 0.005	< 0.005	21.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	15.9	< 0.005	< 0.005	16.2

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.45	< 0.005	< 0.005	3.61
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.65. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.02	0.02	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.13	3.64	1.94	0.01	0.01	133	133	0.01	13.3	13.3	736	0.10	0.12	774
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.26	0.14	< 0.005	< 0.005	9.49	9.49	< 0.005	0.95	0.95	52.5	0.01	0.01	55.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.73	1.73	< 0.005	0.17	0.17	8.69	< 0.005	< 0.005	9.13

3.66. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.13	3.64	1.94	0.01	0.01	133	133	0.01	13.3	13.3	736	0.10	0.12	774
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.26	0.14	< 0.005	< 0.005	9.49	9.49	< 0.005	0.95	0.95	52.5	0.01	0.01	55.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.73	1.73	< 0.005	0.17	0.17	8.69	< 0.005	< 0.005	9.13

3.67. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	7.52	8.48	0.02	0.27	—	0.27	0.25	—	0.25	2,144	0.09	0.02	2,151
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	7.52	8.48	0.02	0.27	—	0.27	0.25	—	0.25	2,144	0.09	0.02	2,151
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.14	2.42	0.01	0.08	—	0.08	0.07	—	0.07	611	0.02	< 0.005	613
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.04	0.39	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	101	< 0.005	< 0.005	101
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	< 0.005	0.18	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.66	0.64	6.98	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,370	0.04	0.06	1,388
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.16	2.02	0.00	0.00	0.39	0.39	0.00	0.09	0.09	401	0.01	0.02	406
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	34.7	< 0.005	0.01	36.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	66.3	< 0.005	< 0.005	67.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.74	< 0.005	< 0.005	6.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.68. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	7.52	8.48	0.02	0.27	—	0.27	0.25	—	0.25	2,144	0.09	0.02	2,151
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.78	7.52	8.48	0.02	0.27	—	0.27	0.25	—	0.25	2,144	0.09	0.02	2,151
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	2.14	2.42	0.01	0.08	—	0.08	0.07	—	0.07	611	0.02	< 0.005	613
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.39	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	101	< 0.005	< 0.005	101

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.74	0.47	9.21	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,545	0.07	0.06	1,569
Vendor	< 0.005	0.18	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.66	0.64	6.98	0.00	0.00	1.43	1.43	0.00	0.34	0.34	1,370	0.04	0.06	1,388
Vendor	< 0.005	0.19	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	122	0.01	0.02	127
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.16	2.02	0.00	0.00	0.39	0.39	0.00	0.09	0.09	401	0.01	0.02	406
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	34.7	< 0.005	0.01	36.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.37	0.00	0.00	0.07	0.07	0.00	0.02	0.02	66.3	< 0.005	< 0.005	67.3
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.74	< 0.005	< 0.005	6.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.69. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.07	0.04	< 0.005	< 0.005	1.50	1.50	< 0.005	0.15	0.15	10.6	< 0.005	< 0.005	11.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.07	0.04	< 0.005	< 0.005	1.50	1.50	< 0.005	0.15	0.15	10.6	< 0.005	< 0.005	11.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.43	0.43	< 0.005	0.04	0.04	3.01	< 0.005	< 0.005	3.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	0.50	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.70. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.07	0.04	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	10.6	< 0.005	< 0.005	11.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.07	0.04	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	10.6	< 0.005	< 0.005	11.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	3.01	< 0.005	< 0.005	3.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.50	< 0.005	< 0.005	0.52
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.71. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.02	0.02	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	2.88	1.54	0.01	0.01	106	106	0.01	10.6	10.6	583	0.08	0.09	614
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.20	0.11	< 0.005	< 0.005	7.23	7.23	< 0.005	0.72	0.72	40.0	0.01	0.01	42.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.02	< 0.005	< 0.005	1.32	1.32	< 0.005	0.13	0.13	6.62	< 0.005	< 0.005	6.96

3.72. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	2.88	1.54	0.01	0.01	106	106	0.01	10.6	10.6	583	0.08	0.09	614
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.20	0.11	< 0.005	< 0.005	7.23	7.23	< 0.005	0.72	0.72	40.0	0.01	0.01	42.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.04	0.02	< 0.005	< 0.005	1.32	1.32	< 0.005	0.13	0.13	6.62	< 0.005	< 0.005	6.96

3.73. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	211	0.02	0.03	222
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.33	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	211	0.02	0.03	222
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.8	< 0.005	0.01	56.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.90	< 0.005	< 0.005	9.34

3.74. Site Preparation (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.31	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	211	0.02	0.03	222
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.33	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	211	0.02	0.03	222
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	53.8	< 0.005	0.01	56.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.90	< 0.005	< 0.005	9.34

3.75. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	206	0.02	0.03	216
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.64	< 0.005	< 0.005	5.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.93	< 0.005	< 0.005	0.98

3.76. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.31	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	206	0.02	0.03	216
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	5.64	< 0.005	< 0.005	5.92
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.93	< 0.005	< 0.005	0.98

3.77. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.44	27.7	27.2	0.08	1.14	—	1.14	1.05	—	1.05	8,406	0.34	0.07	8,435
Dust From Material Movement	—	—	—	—	—	17.0	17.0	—	8.49	8.49	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	3.12	3.06	0.01	0.13	—	0.13	0.12	—	0.12	944	0.04	0.01	948
Dust From Material Movement	—	—	—	—	—	1.91	1.91	—	0.95	0.95	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.57	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	156	0.01	< 0.005	157
Dust From Material Movement	—	—	—	—	—	0.35	0.35	—	0.17	0.17	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	< 0.005	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	178	0.01	0.03	186
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.45	0.00	0.00	0.09	0.09	0.00	0.02	0.02	92.9	< 0.005	< 0.005	94.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	20.0	< 0.005	< 0.005	20.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	15.4	< 0.005	< 0.005	15.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.31	< 0.005	< 0.005	3.47
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.78. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.44	27.7	27.2	0.08	1.14	—	1.14	1.05	—	1.05	8,406	0.34	0.07	8,435
Dust From Material Movement	—	—	—	—	—	4.43	4.43	—	2.21	2.21	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	3.12	3.06	0.01	0.13	—	0.13	0.12	—	0.12	944	0.04	0.01	948
Dust From Material Movement	—	—	—	—	—	0.50	0.50	—	0.25	0.25	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.57	0.56	< 0.005	0.02	—	0.02	0.02	—	0.02	156	0.01	< 0.005	157
Dust From Material Movement	—	—	—	—	—	0.09	0.09	—	0.05	0.05	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	< 0.005	0.27	0.10	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	178	0.01	0.03	186
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.45	0.00	0.00	0.09	0.09	0.00	0.02	0.02	92.9	< 0.005	< 0.005	94.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	20.0	< 0.005	< 0.005	20.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	15.4	< 0.005	< 0.005	15.6
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.31	< 0.005	< 0.005	3.47
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.79. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.17	0.17	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.13	4.22	2.33	0.01	0.01	153	153	0.01	15.4	15.4	831	0.11	0.13	873
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.47	0.26	< 0.005	< 0.005	17.2	17.2	< 0.005	1.72	1.73	93.2	0.01	0.01	98.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.05	< 0.005	< 0.005	3.15	3.15	< 0.005	0.31	0.31	15.4	< 0.005	< 0.005	16.2

3.80. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.13	4.22	2.33	0.01	0.01	153	153	0.01	15.4	15.4	831	0.11	0.13	873
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.47	0.26	< 0.005	< 0.005	17.2	17.2	< 0.005	1.72	1.73	93.2	0.01	0.01	98.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.08	0.05	< 0.005	< 0.005	3.15	3.15	< 0.005	0.31	0.31	15.4	< 0.005	< 0.005	16.2

3.81. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.13	34.0	31.7	0.10	1.41	—	1.41	1.30	—	1.30	10,411	0.42	0.08	10,447
Dust From Material Movement	—	—	—	—	—	15.3	15.3	—	7.64	7.64	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.86	1.74	0.01	0.08	—	0.08	0.07	—	0.07	570	0.02	< 0.005	572
Dust From Material Movement	—	—	—	—	—	0.84	0.84	—	0.42	0.42	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.34	0.32	< 0.005	0.01	—	0.01	0.01	—	0.01	94.4	< 0.005	< 0.005	94.8
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.08	0.08	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	0.01	0.36	0.13	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	237	0.01	0.04	248
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	45.3	< 0.005	< 0.005	46.0
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.0	< 0.005	< 0.005	13.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.50	< 0.005	< 0.005	7.61

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.15	< 0.005	< 0.005	2.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.82. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.13	34.0	31.7	0.10	1.41	—	1.41	1.30	—	1.30	10,411	0.42	0.08	10,447
Dust From Material Movement	—	—	—	—	—	3.99	3.99	—	1.99	1.99	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	1.86	1.74	0.01	0.08	—	0.08	0.07	—	0.07	570	0.02	< 0.005	572
Dust From Material Movement	—	—	—	—	—	0.22	0.22	—	0.11	0.11	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.34	0.32	< 0.005	0.01	—	0.01	0.01	—	0.01	94.4	< 0.005	< 0.005	94.8

Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	0.01	0.36	0.13	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	237	0.01	0.04	248
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	45.3	< 0.005	< 0.005	46.0
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.0	< 0.005	< 0.005	13.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.50	< 0.005	< 0.005	7.61
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.15	< 0.005	< 0.005	2.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.83. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.22	0.22	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	5.35	2.96	0.01	0.02	195	195	0.01	19.5	19.5	1,055	0.14	0.17	1,108
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.29	0.16	< 0.005	< 0.005	10.7	10.7	< 0.005	1.07	1.07	57.7	0.01	0.01	60.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.95	1.95	< 0.005	0.19	0.19	9.55	< 0.005	< 0.005	10.0

3.84. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.16	5.35	2.96	0.01	0.02	195	195	0.01	19.5	19.5	1,055	0.14	0.17	1,108
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.29	0.16	< 0.005	< 0.005	10.7	10.7	< 0.005	1.07	1.07	57.7	0.01	0.01	60.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.95	1.95	< 0.005	0.19	0.19	9.55	< 0.005	< 0.005	10.0

3.85. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	1.87	1.04	< 0.005	0.01	68.2	68.2	< 0.005	6.82	6.83	369	0.05	0.06	388
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.87	1.87	< 0.005	0.19	0.19	10.1	< 0.005	< 0.005	10.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	0.34	0.34	< 0.005	0.03	0.03	1.67	< 0.005	< 0.005	1.76

3.86. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.06	1.87	1.04	< 0.005	0.01	68.2	68.2	< 0.005	6.82	6.83	369	0.05	0.06	388
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	1.87	1.87	< 0.005	0.19	0.19	10.1	< 0.005	< 0.005	10.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	0.34	0.34	< 0.005	0.03	0.03	1.67	< 0.005	< 0.005	1.76

3.87. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.19	7.18	0.02	0.29	—	0.29	0.27	—	0.27	2,299	0.09	0.02	2,307
Dust From Material Movement	—	—	—	—	—	4.29	4.29	—	2.13	2.13	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	63.0	< 0.005	< 0.005	63.2
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	10.4	< 0.005	< 0.005	10.5
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.68	0.25	0.01	0.01	0.11	0.12	0.01	0.03	0.04	449	0.03	0.07	471
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.3	< 0.005	< 0.005	12.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.75	< 0.005	< 0.005	3.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.04	< 0.005	< 0.005	2.14

3.88. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90	7.19	7.18	0.02	0.29	—	0.29	0.27	—	0.27	2,299	0.09	0.02	2,307
Dust From Material Movement	—	—	—	—	—	1.12	1.12	—	0.55	0.55	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	63.0	< 0.005	< 0.005	63.2
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	10.4	< 0.005	< 0.005	10.5
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	3.89	0.00	0.00	0.86	0.86	0.00	0.20	0.20	806	0.02	0.03	816
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.68	0.25	0.01	0.01	0.11	0.12	0.01	0.03	0.04	449	0.03	0.07	471
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.11	0.00	0.00	0.02	0.02	0.00	0.01	0.01	22.6	< 0.005	< 0.005	23.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.3	< 0.005	< 0.005	12.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.75	< 0.005	< 0.005	3.80

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.04	< 0.005	< 0.005	2.14

3.89. Site Preparation (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	6.70	9.83	0.03	0.23	—	0.23	0.21	—	0.21	3,133	0.13	0.03	3,144
Dust From Material Movement	—	—	—	—	—	0.27	0.27	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	258	0.01	< 0.005	258
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	42.6	< 0.005	< 0.005	42.8

Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.17	3.42	0.00	0.00	0.57	0.57	0.00	0.13	0.13	605	0.01	0.02	614
Vendor	0.01	0.50	0.19	< 0.005	< 0.005	0.10	0.10	< 0.005	0.03	0.03	356	0.02	0.05	373
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	45.3	< 0.005	< 0.005	46.0
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.3	< 0.005	< 0.005	30.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.50	< 0.005	< 0.005	7.61
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.85	< 0.005	< 0.005	5.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.90. Site Preparation (2028) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.83	6.70	9.83	0.03	0.23	—	0.23	0.21	—	0.21	3,133	0.13	0.03	3,144
Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.55	0.81	< 0.005	0.02	—	0.02	0.02	—	0.02	258	0.01	< 0.005	258
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	42.6	< 0.005	< 0.005	42.8
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.17	3.42	0.00	0.00	0.57	0.57	0.00	0.13	0.13	605	0.01	0.02	614
Vendor	0.01	0.50	0.19	< 0.005	< 0.005	0.10	0.10	< 0.005	0.03	0.03	356	0.02	0.05	373

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.22	0.00	0.00	0.05	0.05	0.00	0.01	0.01	45.3	< 0.005	< 0.005	46.0
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.3	< 0.005	< 0.005	30.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.50	< 0.005	< 0.005	7.61
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.85	< 0.005	< 0.005	5.07
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.91. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.26	30.8	23.6	0.07	1.19	—	1.19	1.10	—	1.10	7,794	0.32	0.06	7,821
Dust From Material Movement	—	—	—	—	—	8.85	8.85	—	4.28	4.28	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	5.07	3.89	0.01	0.20	—	0.20	0.18	—	0.18	1,281	0.05	0.01	1,286
Dust From Material Movement	—	—	—	—	—	1.46	1.46	—	0.70	0.70	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	0.71	< 0.005	0.04	—	0.04	0.03	—	0.03	212	0.01	< 0.005	213
Dust From Material Movement	—	—	—	—	—	0.27	0.27	—	0.13	0.13	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.58	10.3	0.00	0.00	1.24	1.24	0.00	0.29	0.29	1,427	0.07	0.05	1,450
Vendor	0.01	0.55	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.30	0.00	0.00	0.20	0.20	0.00	0.05	0.05	213	0.01	0.01	216
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	35.3	< 0.005	< 0.005	35.8

Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.92. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.26	30.8	23.6	0.07	1.19	—	1.19	1.10	—	1.10	7,794	0.32	0.06	7,821
Dust From Material Movement	—	—	—	—	—	2.30	2.30	—	1.11	1.11	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	5.07	3.89	0.01	0.20	—	0.20	0.18	—	0.18	1,281	0.05	0.01	1,286
Dust From Material Movement	—	—	—	—	—	0.38	0.38	—	0.18	0.18	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	0.71	< 0.005	0.04	—	0.04	0.03	—	0.03	212	0.01	< 0.005	213

Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.58	10.3	0.00	0.00	1.24	1.24	0.00	0.29	0.29	1,427	0.07	0.05	1,450
Vendor	0.01	0.55	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	320	0.02	0.05	336
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.11	1.30	0.00	0.00	0.20	0.20	0.00	0.05	0.05	213	0.01	0.01	216
Vendor	< 0.005	0.10	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.7	< 0.005	0.01	55.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.24	0.00	0.00	0.04	0.04	0.00	0.01	0.01	35.3	< 0.005	< 0.005	35.8
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.72	< 0.005	< 0.005	9.12
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Total	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Total	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	2.66	< 0.005	< 0.005	2.68
Total	—	—	—	—	—	—	—	—	—	—	2.66	< 0.005	< 0.005	2.68

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Total	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Total	—	—	—	—	—	—	—	—	—	—	16.1	< 0.005	< 0.005	16.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	2.66	< 0.005	< 0.005	2.68
Total	—	—	—	—	—	—	—	—	—	—	2.66	< 0.005	< 0.005	2.68

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.76	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.76	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.76	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.76	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.79	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.14	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency Generator	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Total	0.17	0.28	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	25.3	1.23	0.25	130
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.14	0.01	< 0.005	0.71

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
1	Site Preparation	1/15/2024	4/5/2024	5.00	60.0	—
2a	Site Preparation	4/8/2024	6/14/2024	5.00	50.0	—
4a	Site Preparation	10/21/2024	1/16/2025	5.00	64.0	—
4a - Export	Site Preparation	10/21/2024	1/16/2025	5.00	64.0	—
2a 2b - Export	Site Preparation	4/8/2024	7/26/2024	5.00	80.0	—
2b	Site Preparation	4/8/2024	6/14/2024	5.00	50.0	—
3b	Site Preparation	6/28/2024	9/19/2024	5.00	60.0	—
3a - Export	Site Preparation	7/29/2024	10/18/2024	5.00	60.0	—
4b - Concrete Transfer	Site Preparation	12/9/2024	5/21/2027	5.00	640	—
4b	Site Preparation	12/9/2024	5/21/2027	5.00	640	—
5 - Import	Site Preparation	2/3/2025	11/7/2025	5.00	200	—
5a - Export	Site Preparation	2/3/2025	12/16/2025	5.00	227	—
5a	Site Preparation	3/3/2025	1/13/2026	5.00	227	—

4 - Import	Site Preparation	3/3/2025	5/21/2027	5.00	580	—
5d	Site Preparation	3/3/2025	12/5/2025	5.00	200	—
5d - Concrete Transfer	Site Preparation	3/3/2025	12/5/2025	5.00	200	—
5b	Site Preparation	1/14/2026	2/4/2026	5.00	16.0	—
5c	Site Preparation	7/20/2026	5/21/2027	5.00	220	—
6a	Site Preparation	5/24/2027	6/28/2027	5.00	26.0	—
6b	Site Preparation	6/29/2027	8/2/2027	5.00	25.0	—
6a - Export	Site Preparation	7/5/2027	8/9/2027	5.00	26.0	—
6c	Site Preparation	8/3/2027	12/24/2027	5.00	104	—
6c - Concrete Transfer	Site Preparation	8/3/2027	12/24/2027	5.00	104	—
6b - Export	Site Preparation	8/10/2027	9/13/2027	5.00	25.0	—
6 - Import	Site Preparation	8/24/2027	1/14/2028	5.00	104	—
7a	Site Preparation	1/17/2028	3/13/2028	5.00	41.0	—
7a - Export	Site Preparation	1/17/2028	3/10/2028	5.00	41.0	—
7b	Site Preparation	2/14/2028	3/10/2028	5.00	20.0	—
7b - Export	Site Preparation	2/14/2028	3/10/2028	5.00	20.0	—
7c - Export	Site Preparation	2/21/2028	3/3/2028	5.00	10.0	—
7c	Site Preparation	2/21/2028	3/3/2028	5.00	10.0	—
8	Site Preparation	4/3/2028	5/12/2028	5.00	30.0	—
3a	Site Preparation	4/8/2024	6/28/2024	5.00	60.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
1	Cranes	Diesel	Average	1.00	4.00	522	0.29
1	Excavators	Diesel	Average	1.00	4.00	411	0.38

4a	Rubber Tired Dozers	Diesel	Average	2.00	10.0	354	0.40
4a	Air Compressors	Diesel	Average	2.00	10.0	37.0	0.48
3a	Excavators	Diesel	Average	1.00	10.0	346	0.38
3a	Excavators	Diesel	Average	2.00	10.0	273	0.38
3a	Graders	Diesel	Average	1.00	10.0	238	0.41
3a	Other Construction Equipment	Diesel	Average	1.00	10.0	215	0.42
3a	Rubber Tired Dozers	Diesel	Average	1.00	10.0	354	0.40
4a	Excavators	Diesel	Average	1.00	10.0	346	0.38
4a	Excavators	Diesel	Average	2.00	10.0	273	0.38
4a	Excavators	Diesel	Average	1.00	10.0	40.0	0.38
4a	Graders	Diesel	Average	1.00	10.0	238	0.41
4a	Other Construction Equipment	Diesel	Average	3.00	10.0	215	0.42
2a	Excavators	Diesel	Average	1.00	7.00	330	0.38
2a	Excavators	Diesel	Average	1.00	9.00	347	0.38
2a	Excavators	Diesel	Average	1.00	3.00	330	0.38
2a	Graders	Diesel	Average	1.00	9.00	238	0.41
2a	Other Construction Equipment	Diesel	Average	1.00	1.00	215	0.42
2a	Rollers	Diesel	Average	1.00	9.00	145	0.38
2a	Rubber Tired Dozers	Diesel	Average	2.00	5.00	354	0.40
2a	Rubber Tired Dozers	Diesel	Average	1.00	3.00	215	0.40
2b	Excavators	Diesel	Average	1.00	7.00	346	0.38
2b	Other Construction Equipment	Diesel	Average	1.00	4.00	225	0.42
2b	Rubber Tired Dozers	Diesel	Average	1.00	7.00	354	0.40
2b	Rubber Tired Loaders	Diesel	Average	1.00	7.00	276	0.36
3b	Excavators	Diesel	Average	1.00	10.0	346	0.38

3b	Graders	Diesel	Average	1.00	10.0	238	0.41
3b	Other Construction Equipment	Diesel	Average	1.00	10.0	215	0.42
3b	Rubber Tired Dozers	Diesel	Average	1.00	10.0	354	0.40
4b	Aerial Lifts	Diesel	Average	2.00	9.00	46.0	0.31
4b	Cranes	Diesel	Average	3.00	6.00	365	0.29
4b	Generator Sets	Diesel	Average	1.00	10.0	490	0.74
4b	Rough Terrain Forklifts	Diesel	Average	3.00	6.00	96.0	0.40
5a	Excavators	Diesel	Average	1.00	4.00	411	0.38
5a	Excavators	Diesel	Average	1.00	10.0	346	0.38
5a	Excavators	Diesel	Average	3.00	4.00	273	0.38
5a	Other Construction Equipment	Diesel	Average	2.00	10.0	225	0.42
5a	Rubber Tired Dozers	Diesel	Average	1.00	4.00	354	0.40
5a	Rubber Tired Loaders	Diesel	Average	1.00	4.00	425	0.36
5d	Cranes	Diesel	Average	1.00	6.00	365	0.29
5d	Rough Terrain Forklifts	Diesel	Average	1.00	12.0	96.0	0.40
5b	Air Compressors	Diesel	Average	2.00	10.0	37.0	0.48
5b	Excavators	Diesel	Average	2.00	10.0	36.0	0.38
5c	Aerial Lifts	Diesel	Average	2.00	4.00	46.0	0.31
5c	Cranes	Diesel	Average	2.00	3.00	365	0.29
5c	Excavators	Diesel	Average	1.00	5.00	273	0.38
5c	Rollers	Diesel	Average	1.00	5.00	145	0.38
5c	Rough Terrain Forklifts	Diesel	Average	1.00	5.00	96.0	0.40
5c	Rubber Tired Dozers	Diesel	Average	1.00	5.00	354	0.40
6a	Excavators	Diesel	Average	1.00	9.00	273	0.38
6a	Excavators	Diesel	Average	1.00	9.00	346	0.38
6a	Graders	Diesel	Average	1.00	9.00	238	0.41

6a	Rubber Tired Dozers	Diesel	Average	1.00	9.00	354	0.40
6b	Excavators	Diesel	Average	1.00	1.00	346	0.38
6b	Excavators	Diesel	Average	2.00	1.00	273	0.38
6b	Graders	Diesel	Average	1.00	1.00	238	0.41
6b	Other Construction Equipment	Diesel	Average	3.00	1.00	215	0.42
6b	Rubber Tired Dozers	Diesel	Average	1.00	1.00	354	0.40
6c	Cranes	Diesel	Average	2.00	6.00	365	0.29
6c	Generator Sets	Diesel	Average	1.00	10.0	14.0	0.74
6c	Rough Terrain Forklifts	Diesel	Average	2.00	6.00	96.0	0.40
7a	Excavators	Diesel	Average	2.00	10.0	273	0.38
7a	Excavators	Diesel	Average	1.00	10.0	346	0.38
7a	Graders	Diesel	Average	1.00	10.0	238	0.41
7a	Rubber Tired Dozers	Diesel	Average	2.00	10.0	354	0.40
7b	Excavators	Diesel	Average	1.00	9.00	346	0.38
7b	Excavators	Diesel	Average	2.00	9.00	273	0.38
7b	Graders	Diesel	Average	1.00	9.00	238	0.41
7b	Other Construction Equipment	Diesel	Average	3.00	9.00	215	0.42
7b	Rubber Tired Dozers	Diesel	Average	2.00	9.00	354	0.40
7c	Excavators	Diesel	Average	1.00	5.00	346	0.38
7c	Excavators	Diesel	Average	1.00	3.00	273	0.38
7c	Graders	Diesel	Average	1.00	3.00	238	0.41
7c	Rubber Tired Dozers	Diesel	Average	1.00	5.00	354	0.40
8	Cranes	Diesel	Average	1.00	4.00	522	0.29
8	Excavators	Diesel	Average	1.00	7.00	411	0.38
8	Graders	Diesel	Average	1.00	4.00	238	0.41
8	Rollers	Diesel	Average	1.00	4.00	145	0.38

8	Rough Terrain Forklifts	Diesel	Average	1.00	10.0	96.0	0.40

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
1	Cranes	Diesel	Average	1.00	4.00	522	0.29
1	Excavators	Diesel	Average	1.00	4.00	411	0.38
4a	Rubber Tired Dozers	Diesel	Average	2.00	10.0	354	0.40
4a	Air Compressors	Diesel	Average	2.00	10.0	37.0	0.48
3a	Excavators	Diesel	Average	1.00	10.0	346	0.38
3a	Excavators	Diesel	Average	2.00	10.0	273	0.38
3a	Graders	Diesel	Average	1.00	10.0	238	0.41
3a	Other Construction Equipment	Diesel	Average	1.00	10.0	215	0.42
3a	Rubber Tired Dozers	Diesel	Average	1.00	10.0	354	0.40
4a	Excavators	Diesel	Average	1.00	10.0	346	0.38
4a	Excavators	Diesel	Average	2.00	10.0	273	0.38
4a	Excavators	Diesel	Average	1.00	10.0	40.0	0.38
4a	Graders	Diesel	Average	1.00	10.0	238	0.41
4a	Other Construction Equipment	Diesel	Average	3.00	10.0	215	0.42
2a	Excavators	Diesel	Average	1.00	7.00	330	0.38
2a	Excavators	Diesel	Average	1.00	9.00	347	0.38
2a	Excavators	Diesel	Average	1.00	3.00	330	0.38
2a	Graders	Diesel	Average	1.00	9.00	238	0.41
2a	Other Construction Equipment	Diesel	Average	1.00	1.00	215	0.42
2a	Rollers	Diesel	Average	1.00	9.00	145	0.38
2a	Rubber Tired Dozers	Diesel	Average	2.00	5.00	354	0.40

2a	Rubber Tired Dozers	Diesel	Average	1.00	3.00	215	0.40
2b	Excavators	Diesel	Average	1.00	7.00	346	0.38
2b	Other Construction Equipment	Diesel	Average	1.00	4.00	225	0.42
2b	Rubber Tired Dozers	Diesel	Average	1.00	7.00	354	0.40
2b	Rubber Tired Loaders	Diesel	Average	1.00	7.00	276	0.36
3b	Excavators	Diesel	Average	1.00	10.0	346	0.38
3b	Graders	Diesel	Average	1.00	10.0	238	0.41
3b	Other Construction Equipment	Diesel	Average	1.00	10.0	215	0.42
3b	Rubber Tired Dozers	Diesel	Average	1.00	10.0	354	0.40
4b	Aerial Lifts	Diesel	Average	2.00	9.00	46.0	0.31
4b	Cranes	Diesel	Average	3.00	6.00	365	0.29
4b	Generator Sets	Diesel	Average	1.00	10.0	490	0.74
4b	Rough Terrain Forklifts	Diesel	Average	3.00	6.00	96.0	0.40
5a	Excavators	Diesel	Average	1.00	4.00	411	0.38
5a	Excavators	Diesel	Average	1.00	10.0	346	0.38
5a	Excavators	Diesel	Average	3.00	4.00	273	0.38
5a	Other Construction Equipment	Diesel	Average	2.00	10.0	225	0.42
5a	Rubber Tired Dozers	Diesel	Average	1.00	4.00	354	0.40
5a	Rubber Tired Loaders	Diesel	Average	1.00	4.00	425	0.36
5d	Cranes	Diesel	Average	1.00	6.00	365	0.29
5d	Rough Terrain Forklifts	Diesel	Average	1.00	12.0	96.0	0.40
5b	Air Compressors	Diesel	Average	2.00	10.0	37.0	0.48
5b	Excavators	Diesel	Average	2.00	10.0	36.0	0.38
5c	Aerial Lifts	Diesel	Average	2.00	4.00	46.0	0.31
5c	Cranes	Diesel	Average	2.00	3.00	365	0.29
5c	Excavators	Diesel	Average	1.00	5.00	273	0.38

5c	Rollers	Diesel	Average	1.00	5.00	145	0.38
5c	Rough Terrain Forklifts	Diesel	Average	1.00	5.00	96.0	0.40
5c	Rubber Tired Dozers	Diesel	Average	1.00	5.00	354	0.40
6a	Excavators	Diesel	Average	1.00	9.00	273	0.38
6a	Excavators	Diesel	Average	1.00	9.00	346	0.38
6a	Graders	Diesel	Average	1.00	9.00	238	0.41
6a	Rubber Tired Dozers	Diesel	Average	1.00	9.00	354	0.40
6b	Excavators	Diesel	Average	1.00	1.00	346	0.38
6b	Excavators	Diesel	Average	2.00	1.00	273	0.38
6b	Graders	Diesel	Average	1.00	1.00	238	0.41
6b	Other Construction Equipment	Diesel	Average	3.00	1.00	215	0.42
6b	Rubber Tired Dozers	Diesel	Average	1.00	1.00	354	0.40
6c	Cranes	Diesel	Average	2.00	6.00	365	0.29
6c	Generator Sets	Diesel	Average	1.00	10.0	14.0	0.74
6c	Rough Terrain Forklifts	Diesel	Average	2.00	6.00	96.0	0.40
7a	Excavators	Diesel	Average	2.00	10.0	273	0.38
7a	Excavators	Diesel	Average	1.00	10.0	346	0.38
7a	Graders	Diesel	Average	1.00	10.0	238	0.41
7a	Rubber Tired Dozers	Diesel	Average	2.00	10.0	354	0.40
7b	Excavators	Diesel	Average	1.00	9.00	346	0.38
7b	Excavators	Diesel	Average	2.00	9.00	273	0.38
7b	Graders	Diesel	Average	1.00	9.00	238	0.41
7b	Other Construction Equipment	Diesel	Average	3.00	9.00	215	0.42
7b	Rubber Tired Dozers	Diesel	Average	2.00	9.00	354	0.40
7c	Excavators	Diesel	Average	1.00	5.00	346	0.38
7c	Excavators	Diesel	Average	1.00	3.00	273	0.38

7c	Graders	Diesel	Average	1.00	3.00	238	0.41
7c	Rubber Tired Dozers	Diesel	Average	1.00	5.00	354	0.40
8	Cranes	Diesel	Average	1.00	4.00	522	0.29
8	Excavators	Diesel	Average	1.00	7.00	411	0.38
8	Graders	Diesel	Average	1.00	4.00	238	0.41
8	Rollers	Diesel	Average	1.00	4.00	145	0.38
8	Rough Terrain Forklifts	Diesel	Average	1.00	10.0	96.0	0.40

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
1	—	—	—	—
1	Worker	90.0	13.5	LDA,LDT1,LDT2
1	Vendor	10.0	9.33	HHDT,MHDT
1	Hauling	0.00	20.0	HHDT
1	Onsite truck	—	—	HHDT
2a	—	—	—	—
2a	Worker	100	13.5	LDA,LDT1,LDT2
2a	Vendor	12.0	9.33	HHDT,MHDT
2a	Hauling	0.00	20.0	HHDT
2a	Onsite truck	—	—	HHDT
2b	—	—	—	—
2b	Worker	100	13.5	LDA,LDT1,LDT2
2b	Vendor	4.00	9.33	HHDT,MHDT
2b	Hauling	0.00	20.0	HHDT
2b	Onsite truck	—	—	HHDT

2a 2b - Export	—	—	—	—
2a 2b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
2a 2b - Export	Vendor	—	9.33	HHDT,MHDT
2a 2b - Export	Hauling	26.3	0.60	HHDT
2a 2b - Export	Onsite truck	0.00	—	HHDT
3b	—	—	—	—
3b	Worker	130	13.5	LDA,LDT1,LDT2
3b	Vendor	8.00	9.33	HHDT,MHDT
3b	Hauling	0.00	20.0	HHDT
3b	Onsite truck	—	—	HHDT
3a - Export	—	—	—	—
3a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
3a - Export	Vendor	—	9.33	HHDT,MHDT
3a - Export	Hauling	270	0.60	HHDT
3a - Export	Onsite truck	—	—	HHDT
4a	—	—	—	—
4a	Worker	150	13.5	LDA,LDT1,LDT2
4a	Vendor	8.00	9.33	HHDT,MHDT
4a	Hauling	0.00	20.0	HHDT
4a	Onsite truck	—	—	HHDT
4a - Export	—	—	—	—
4a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
4a - Export	Vendor	—	9.33	HHDT,MHDT
4a - Export	Hauling	187	0.60	HHDT
4a - Export	Onsite truck	—	—	HHDT
4b - Concrete Transfer	—	—	—	—
4b - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2

4b - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
4b - Concrete Transfer	Hauling	0.00	20.0	HHDT
4b - Concrete Transfer	Onsite truck	9.00	0.30	HHDT
4b	—	—	—	—
4b	Worker	150	13.5	LDA,LDT1,LDT2
4b	Vendor	4.00	9.33	HHDT,MHDT
4b	Hauling	0.00	20.0	HHDT
4b	Onsite truck	—	—	HHDT
5 - Import	—	—	—	—
5 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
5 - Import	Vendor	—	9.33	HHDT,MHDT
5 - Import	Hauling	5.71	20.0	HHDT
5 - Import	Onsite truck	—	—	HHDT
5a - Export	—	—	—	—
5a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
5a - Export	Vendor	—	8.33	HHDT,MHDT
5a - Export	Hauling	67.5	2.00	HHDT
5a - Export	Onsite truck	—	—	HHDT
5a	—	—	—	—
5a	Worker	140	13.5	LDA,LDT1,LDT2
5a	Vendor	6.00	9.33	HHDT,MHDT
5a	Hauling	0.00	20.0	HHDT
5a	Onsite truck	—	—	HHDT
4 - Import	—	—	—	—
4 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
4 - Import	Vendor	—	9.33	HHDT,MHDT
4 - Import	Hauling	6.16	20.0	HHDT

4 - Import	Onsite truck	—	—	HHDT
5d	—	—	—	—
5d	Worker	140	13.5	LDA,LDT1,LDT2
5d	Vendor	4.00	9.33	HHDT,MHDT
5d	Hauling	0.00	20.0	HHDT
5d	Onsite truck	—	—	HHDT
5d - Concrete Transfer	—	—	—	—
5d - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2
5d - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
5d - Concrete Transfer	Hauling	0.00	20.0	HHDT
5d - Concrete Transfer	Onsite truck	5.00	0.30	HHDT
5b	—	—	—	—
5b	Worker	140	13.5	LDA,LDT1,LDT2
5b	Vendor	8.00	9.33	HHDT,MHDT
5b	Hauling	0.00	20.0	HHDT
5b	Onsite truck	—	—	HHDT
5c	—	—	—	—
5c	Worker	140	13.5	LDA,LDT1,LDT2
5c	Vendor	6.00	9.33	HHDT,MHDT
5c	Hauling	0.00	20.0	HHDT
5c	Onsite truck	—	—	HHDT
6a	—	—	—	—
6a	Worker	150	13.5	LDA,LDT1,LDT2
6a	Vendor	6.00	9.33	HHDT,MHDT
6a	Hauling	0.00	20.0	HHDT
6a	Onsite truck	—	—	HHDT
6b	—	—	—	—

6b	Worker	150	13.5	LDA,LDT1,LDT2
6b	Vendor	10.0	9.33	HHDT,MHDT
6b	Hauling	0.00	20.0	HHDT
6b	Onsite truck	—	—	HHDT
6a - Export	—	—	—	—
6a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
6a - Export	Vendor	—	9.33	HHDT,MHDT
6a - Export	Hauling	195	0.60	HHDT
6a - Export	Onsite truck	—	—	HHDT
6c	—	—	—	—
6c	Worker	150	13.5	LDA,LDT1,LDT2
6c	Vendor	4.00	9.33	HHDT,MHDT
6c	Hauling	0.00	20.0	HHDT
6c	Onsite truck	—	—	HHDT
6c - Concrete Transfer	—	—	—	—
6c - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2
6c - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
6c - Concrete Transfer	Hauling	0.00	20.0	HHDT
6c - Concrete Transfer	Onsite truck	4.00	0.30	HHDT
6b - Export	—	—	—	—
6b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
6b - Export	Vendor	—	9.33	HHDT,MHDT
6b - Export	Hauling	155	0.60	HHDT
6b - Export	Onsite truck	—	—	HHDT
6 - Import	—	—	—	—
6 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
6 - Import	Vendor	—	9.33	HHDT,MHDT

6 - Import	Hauling	2.75	20.0	HHDT
6 - Import	Onsite truck	—	—	HHDT
7a	—	—	—	—
7a	Worker	90.0	13.5	LDA,LDT1,LDT2
7a	Vendor	6.00	9.33	HHDT,MHDT
7a	Hauling	0.00	20.0	HHDT
7a	Onsite truck	—	—	HHDT
7a - Export	—	—	—	—
7a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7a - Export	Vendor	—	9.33	HHDT,MHDT
7a - Export	Hauling	225	0.60	HHDT
7a - Export	Onsite truck	—	—	HHDT
7b	—	—	—	—
7b	Worker	90.0	13.5	LDA,LDT1,LDT2
7b	Vendor	8.00	9.33	HHDT,MHDT
7b	Hauling	0.00	20.0	HHDT
7b	Onsite truck	—	—	HHDT
7b - Export	—	—	—	—
7b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7b - Export	Vendor	—	9.33	HHDT,MHDT
7b - Export	Hauling	286	0.60	HHDT
7b - Export	Onsite truck	—	—	HHDT
7c - Export	—	—	—	—
7c - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7c - Export	Vendor	—	9.33	HHDT,MHDT
7c - Export	Hauling	100	0.60	HHDT
7c - Export	Onsite truck	—	—	HHDT

7c	—	—	—	—
7c	Worker	90.0	13.5	LDA,LDT1,LDT2
7c	Vendor	—	9.33	HHDT,MHDT
7c	Hauling	6.00	20.0	HHDT
7c	Onsite truck	—	—	HHDT
8	—	—	—	—
8	Worker	60.0	13.5	LDA,LDT1,LDT2
8	Vendor	12.0	9.33	HHDT,MHDT
8	Hauling	0.00	20.0	HHDT
8	Onsite truck	—	—	HHDT
3a	—	—	—	—
3a	Worker	130	13.5	LDA,LDT1,LDT2
3a	Vendor	10.0	9.33	HHDT,MHDT
3a	Hauling	0.00	20.0	HHDT
3a	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
1	—	—	—	—
1	Worker	90.0	13.5	LDA,LDT1,LDT2
1	Vendor	10.0	9.33	HHDT,MHDT
1	Hauling	0.00	20.0	HHDT
1	Onsite truck	—	—	HHDT
2a	—	—	—	—
2a	Worker	100	13.5	LDA,LDT1,LDT2
2a	Vendor	12.0	9.33	HHDT,MHDT
2a	Hauling	0.00	20.0	HHDT

2a	Onsite truck	—	—	HHDT
2b	—	—	—	—
2b	Worker	100	13.5	LDA,LDT1,LDT2
2b	Vendor	4.00	9.33	HHDT,MHDT
2b	Hauling	0.00	20.0	HHDT
2b	Onsite truck	—	—	HHDT
2a 2b - Export	—	—	—	—
2a 2b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
2a 2b - Export	Vendor	—	9.33	HHDT,MHDT
2a 2b - Export	Hauling	26.3	0.60	HHDT
2a 2b - Export	Onsite truck	0.00	—	HHDT
3b	—	—	—	—
3b	Worker	130	13.5	LDA,LDT1,LDT2
3b	Vendor	8.00	9.33	HHDT,MHDT
3b	Hauling	0.00	20.0	HHDT
3b	Onsite truck	—	—	HHDT
3a - Export	—	—	—	—
3a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
3a - Export	Vendor	—	9.33	HHDT,MHDT
3a - Export	Hauling	270	0.60	HHDT
3a - Export	Onsite truck	—	—	HHDT
4a	—	—	—	—
4a	Worker	150	13.5	LDA,LDT1,LDT2
4a	Vendor	8.00	9.33	HHDT,MHDT
4a	Hauling	0.00	20.0	HHDT
4a	Onsite truck	—	—	HHDT
4a - Export	—	—	—	—

4a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
4a - Export	Vendor	—	9.33	HHDT,MHDT
4a - Export	Hauling	187	0.60	HHDT
4a - Export	Onsite truck	—	—	HHDT
4b - Concrete Transfer	—	—	—	—
4b - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2
4b - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
4b - Concrete Transfer	Hauling	0.00	20.0	HHDT
4b - Concrete Transfer	Onsite truck	9.00	0.30	HHDT
4b	—	—	—	—
4b	Worker	150	13.5	LDA,LDT1,LDT2
4b	Vendor	4.00	9.33	HHDT,MHDT
4b	Hauling	0.00	20.0	HHDT
4b	Onsite truck	—	—	HHDT
5 - Import	—	—	—	—
5 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
5 - Import	Vendor	—	9.33	HHDT,MHDT
5 - Import	Hauling	5.71	20.0	HHDT
5 - Import	Onsite truck	—	—	HHDT
5a - Export	—	—	—	—
5a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
5a - Export	Vendor	—	8.33	HHDT,MHDT
5a - Export	Hauling	67.5	2.00	HHDT
5a - Export	Onsite truck	—	—	HHDT
5a	—	—	—	—
5a	Worker	140	13.5	LDA,LDT1,LDT2
5a	Vendor	6.00	9.33	HHDT,MHDT

5a	Hauling	0.00	20.0	HHDT
5a	Onsite truck	—	—	HHDT
4 - Import	—	—	—	—
4 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
4 - Import	Vendor	—	9.33	HHDT,MHDT
4 - Import	Hauling	6.16	20.0	HHDT
4 - Import	Onsite truck	—	—	HHDT
5d	—	—	—	—
5d	Worker	140	13.5	LDA,LDT1,LDT2
5d	Vendor	4.00	9.33	HHDT,MHDT
5d	Hauling	0.00	20.0	HHDT
5d	Onsite truck	—	—	HHDT
5d - Concrete Transfer	—	—	—	—
5d - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2
5d - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
5d - Concrete Transfer	Hauling	0.00	20.0	HHDT
5d - Concrete Transfer	Onsite truck	5.00	0.30	HHDT
5b	—	—	—	—
5b	Worker	140	13.5	LDA,LDT1,LDT2
5b	Vendor	8.00	9.33	HHDT,MHDT
5b	Hauling	0.00	20.0	HHDT
5b	Onsite truck	—	—	HHDT
5c	—	—	—	—
5c	Worker	140	13.5	LDA,LDT1,LDT2
5c	Vendor	6.00	9.33	HHDT,MHDT
5c	Hauling	0.00	20.0	HHDT
5c	Onsite truck	—	—	HHDT

6a	—	—	—	—
6a	Worker	150	13.5	LDA,LDT1,LDT2
6a	Vendor	6.00	9.33	HHDT,MHDT
6a	Hauling	0.00	20.0	HHDT
6a	Onsite truck	—	—	HHDT
6b	—	—	—	—
6b	Worker	150	13.5	LDA,LDT1,LDT2
6b	Vendor	10.0	9.33	HHDT,MHDT
6b	Hauling	0.00	20.0	HHDT
6b	Onsite truck	—	—	HHDT
6a - Export	—	—	—	—
6a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
6a - Export	Vendor	—	9.33	HHDT,MHDT
6a - Export	Hauling	195	0.60	HHDT
6a - Export	Onsite truck	—	—	HHDT
6c	—	—	—	—
6c	Worker	150	13.5	LDA,LDT1,LDT2
6c	Vendor	4.00	9.33	HHDT,MHDT
6c	Hauling	0.00	20.0	HHDT
6c	Onsite truck	—	—	HHDT
6c - Concrete Transfer	—	—	—	—
6c - Concrete Transfer	Worker	0.00	13.5	LDA,LDT1,LDT2
6c - Concrete Transfer	Vendor	—	9.33	HHDT,MHDT
6c - Concrete Transfer	Hauling	0.00	20.0	HHDT
6c - Concrete Transfer	Onsite truck	4.00	0.30	HHDT
6b - Export	—	—	—	—
6b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2

6b - Export	Vendor	—	9.33	HHDT,MHDT
6b - Export	Hauling	155	0.60	HHDT
6b - Export	Onsite truck	—	—	HHDT
6 - Import	—	—	—	—
6 - Import	Worker	0.00	13.5	LDA,LDT1,LDT2
6 - Import	Vendor	—	9.33	HHDT,MHDT
6 - Import	Hauling	2.75	20.0	HHDT
6 - Import	Onsite truck	—	—	HHDT
7a	—	—	—	—
7a	Worker	90.0	13.5	LDA,LDT1,LDT2
7a	Vendor	6.00	9.33	HHDT,MHDT
7a	Hauling	0.00	20.0	HHDT
7a	Onsite truck	—	—	HHDT
7a - Export	—	—	—	—
7a - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7a - Export	Vendor	—	9.33	HHDT,MHDT
7a - Export	Hauling	225	0.60	HHDT
7a - Export	Onsite truck	—	—	HHDT
7b	—	—	—	—
7b	Worker	90.0	13.5	LDA,LDT1,LDT2
7b	Vendor	8.00	9.33	HHDT,MHDT
7b	Hauling	0.00	20.0	HHDT
7b	Onsite truck	—	—	HHDT
7b - Export	—	—	—	—
7b - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7b - Export	Vendor	—	9.33	HHDT,MHDT
7b - Export	Hauling	286	0.60	HHDT

7b - Export	Onsite truck	—	—	HHDT
7c - Export	—	—	—	—
7c - Export	Worker	0.00	13.5	LDA,LDT1,LDT2
7c - Export	Vendor	—	9.33	HHDT,MHDT
7c - Export	Hauling	100	0.60	HHDT
7c - Export	Onsite truck	—	—	HHDT
7c	—	—	—	—
7c	Worker	90.0	13.5	LDA,LDT1,LDT2
7c	Vendor	—	9.33	HHDT,MHDT
7c	Hauling	6.00	20.0	HHDT
7c	Onsite truck	—	—	HHDT
8	—	—	—	—
8	Worker	60.0	13.5	LDA,LDT1,LDT2
8	Vendor	12.0	9.33	HHDT,MHDT
8	Hauling	0.00	20.0	HHDT
8	Onsite truck	—	—	HHDT
3a	—	—	—	—
3a	Worker	130	13.5	LDA,LDT1,LDT2
3a	Vendor	10.0	9.33	HHDT,MHDT
3a	Hauling	0.00	20.0	HHDT
3a	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
3a - Export	0.00	0.00	0.00	0.00	0.00

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
1	—	—	0.00	0.00	—
2a	—	—	68.8	0.00	—
4a	—	—	120	0.00	—
4a - Export	—	140,000	0.00	0.00	—
2a 2b - Export	—	21,000	0.00	0.00	—
2b	—	—	21.9	0.00	—
3b	—	—	75.0	0.00	—
3a - Export	—	161,700	0.00	0.00	—
4b - Concrete Transfer	—	—	0.00	0.00	—
4b	—	—	0.00	0.00	—
5 - Import	8,000	—	0.00	0.00	—
5a - Export	—	153,300	0.00	0.00	—
5a	—	—	56.8	0.00	—
4 - Import	25,000	—	0.00	0.00	—
5d	—	—	0.00	0.00	—
5d - Concrete Transfer	—	—	0.00	0.00	—
5b	—	—	0.00	0.00	—
5c	—	—	68.8	0.00	—
6a	—	—	29.3	0.00	—
6b	—	—	3.13	0.00	—

6a - Export	—	50,800	0.00	0.00	—
6c	—	—	0.00	0.00	—
6c - Concrete Transfer	—	—	0.00	0.00	—
6b - Export	—	38,700	0.00	0.00	—
6 - Import	2,000	—	0.00	0.00	—
7a	—	—	76.9	0.00	—
7a - Export	—	90,000	0.00	0.00	—
7b	—	—	33.8	0.00	—
7b - Export	—	57,100	0.00	0.00	—
7c - Export	—	10,000	0.00	0.00	—
7c	—	—	5.00	0.00	—
8	—	—	7.50	0.00	—
3a	—	—	75.0	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	7.30	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005

2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	24,000

5.10.3. Landscape Equipment

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	0.00

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	0.00

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	28,720	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	28,720	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	0.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

Emergency Generator	Diesel	1.00	0.50	6.00	201	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Schedule provided by GEI
Construction: Off-Road Equipment	Equipment list provided by GEI
Construction: Off-Road Equipment EF	Based on specs for Cat D350 GC generator and a USEPA GHG factor for diesel fuel of 10,180 g per gallon diesel
Construction: Trips and VMT	Trip estimates and distances provided by GEI. Average export truck capacity of 20 cubic yards and average import truck capacity of 14 cubic yards.
Construction: On-Road Fugitive Dust	Based on road characteristics.
Construction: Architectural Coatings	No architectural coating required during construction.
Operations: Architectural Coatings	Information provided by GEI - recoating intake gates every 5-10 years
Operations: Energy Use	Provided by GEI.
Operations: Emergency Generators and Fire Pumps	Specs provided by GEI
Operations: Generators + Pumps EF	Based on SCAQMD and USEPA emission factors for propane generator
Construction: Dust From Material Movement	Provided by GEI
Operations: Landscape Equipment	No maintained landscaping associated with project.

Concrete Batch Plant Calculations - Phase 4b (October Year 1 to May Year 4)

Amount of Aggregate	25,000	cubic yards
	30,612	Mg[1]
Amount of Sand[2]	23,448	Mg
Amount of Cement[2]	8,069	Mg
Amount of Cement Supplement[2]	915	Mg
Amount of Concrete Mixture	63,326	Mg

Mg = megagram

[1] Weight conversion factor of 2,700 pounds per cubic yard.

[2] Calculated using average material composition per U.S. EPA AP-42 Table 11.12-1

Process	**Emission Factor (kg of PM_{10} per Mg of material loaded)[1]**	**Emissions**	
Aggregate Transfer	0.0017	52.04	kg total
Sand Transfer	0.00051	11.96	kg total
Cement Unloading to Elevated Storage Silo	0.00017	1.37	kg total
Weigh Hopper Loading	0.0013	70.28	kg total
Truck Loading (Truck Mix)	0.025	224.60	kg total
Total		**360**	kg total
Number of Days of Concrete Operation		640	days
PM_{10} Emissions per Day		**1.2**	lbs/day

kg = kilogram; PM_{10} = particulate matter measuring 10 microns or less in diameter; Mg = megagram; lbs = pounds

[1] Source: U.S. EPA AP-42 Table 11.12-1

Average Material Composition Per U.S. EPA AP-42 Table 11.12-1				
Material	**Amount**	**Unit**	**Ratio to Aggregate**	**Unit**
Coarse aggregate	846	kg	1	kg/kg
Sand	648	kg	0.765957447	kg/kg
Cement	223	kg	0.263593381	kg/kg
Cement Supplement	33	kg	0.039007092	kg/kg
Water	0.075	kg	8.86525E-05	kg/kg

kg = kilogram

Concrete Batch Plant Calculations - Phase 5d (March Year 2 to May Year 4)

Amount of Aggregate	8,000	cubic yards
	9,796	Mg[1]
Amount of Sand[2]	7,503	Mg
Amount of Cement[2]	2,582	Mg
Amount of Cement Supplement[2]	293	Mg
Amount of Concrete Mixture	20,264	Mg

Mg = megagram

[1] Weight conversion factor of 2,700 pounds per cubic yard.

[2] Calculated using average material composition per U.S. EPA AP-42 Table 11.12-1

Process	**Emission Factor (kg of PM_{10} per Mg of material loaded)[1]**	**Emissions**	
Aggregate Transfer	0.0017	16.65	kg total
Sand Transfer	0.00051	3.83	kg total
Cement Unloading to Elevated Storage Silo	0.00017	0.44	kg total
Weigh Hopper Loading	0.0013	22.49	kg total
Truck Loading (Truck Mix)	0.025	71.87	kg total
Total		**115**	kg total
Number of Days of Concrete Operation		200	days
PM_{10} Emissions per Day		**1.3**	lbs/day

kg = kilogram; PM_{10} = particulate matter measuring 10 microns or less in diameter; Mg = megagram; lbs = pounds

[1] Source: U.S. EPA AP-42 Table 11.12-1

Average Material Composition Per U.S. EPA AP-42 Table 11.12-1				
Material	**Amount**	**Unit**	**Ratio to Aggregate**	**Unit**
Coarse aggregate	846	kg	1	kg/kg
Sand	648	kg	0.765957447	kg/kg
Cement	223	kg	0.263593381	kg/kg
Cement Supplement	33	kg	0.039007092	kg/kg
Water	0.075	kg	8.86525E-05	kg/kg

kg = kilogram

Concrete Batch Plant Calculations - Phase 6c (May Year 4 to January Year 5)

Amount of Aggregate	2,000	cubic yards
	2,449	Mg[1]
Amount of Sand[2]	1,876	Mg
Amount of Cement[2]	646	Mg
Amount of Cement Supplement[2]	73	Mg
Amount of Concrete Mixture	5,066	Mg

Mg = megagram

[1] Weight conversion factor of 2,700 pounds per cubic yard.

[2] Calculated using average material composition per U.S. EPA AP-42 Table 11.12-1

Process	**Emission Factor (kg of PM_{10} per Mg of material loaded)[1]**	**Emissions**	
Aggregate Transfer	0.0017	4.16	kg total
Sand Transfer	0.00051	0.96	kg total
Cement Unloading to Elevated Storage Silo	0.00017	0.11	kg total
Weigh Hopper Loading	0.0013	5.62	kg total
Truck Loading (Truck Mix)	0.025	17.97	kg total
Total		**29**	kg total
Number of Days of Concrete Operation		104	days
PM_{10} Emissions per Day		**0.6**	lbs/day

kg = kilogram; PM_{10} = particulate matter measuring 10 microns or less in diameter; Mg = megagram; lbs = pounds

[1] Source: U.S. EPA AP-42 Table 11.12-1

Average Material Composition Per U.S. EPA AP-42 Table 11.12-1				
Material	**Amount**	**Unit**	**Ratio to Aggregate**	**Unit**
Coarse aggregate	846	kg	1	kg/kg
Sand	648	kg	0.765957447	kg/kg
Cement	223	kg	0.263593381	kg/kg
Cement Supplement	33	kg	0.039007092	kg/kg
Water	0.075	kg	8.86525E-05	kg/kg

kg = kilogram

Blasting Calculations

PM_{10} Emissions	
Area of Blasting (square feet)	2500
PM_{10} Emissions per Blast (lbs)	0.9
Number of Blasts per Day	2
PM_{10} Emissions per Day (lbs)	1.8

PM_{10} = particulate matter measuring 10 microns or less in diameter; lbs = pounds

Equation from U.S. EPA AP-42 Table 11.9-1.

NO_X Emissions			
	Year 1	Year 4	Year 5
Total Quantity of ANFO (tons)	225		
Estimated Blasting per Year[1]	79.5%	8.3%	12.2%
Quantity of ANFO Detonated per Year (tons)	179.0	18.6	27.5
Annual NO_X Emissions from Detonation (tons)	1.5	0.2	0.2

NO_X = nitrogen oxide; ANFO = ammonium nitrate/fuel oil

Calculated using an emissions factor of 17 lbs of NO_X per ton of ANFO detonated from U.S. EPA AP-42 Table 13.3-1.

[1] Based on estimated soil export quantities for each year

Off-Road Equipment Emissions by Phase (tons/year) - Unmitigated		
Phase	**ROG**	**NOx**
3.2 Site Preparation (2024) - Mitigated	0.02	0.21
3.4 Site Preparation (2024) - Mitigated	0.07	0.69
3.6 Site Preparation (2024) - Mitigated	0.15	1.45
3.8 Site Preparation (2025) - Mitigated	0.03	0.29
3.16 Site Preparation (2024) - Mitigated	0.04	0.38
3.18 Site Preparation (2024) - Mitigated	0.08	0.77
3.30 Site Preparation (2024) - Mitigated	0.01	0.41
3.42 Site Preparation (2025) - Mitigated	0.27	2.30
3.44 Site Preparation (2026) - Mitigated	0.01	0.09
3.52 Site Preparation (2025) - Mitigated	0.04	0.45
3.56 Site Preparation (2026) - Mitigated	0.01	0.04
3.58 Site Preparation (2026) - Mitigated	0.07	0.63
3.60 Site Preparation (2027) - Mitigated	0.06	0.51
3.62 Site Preparation (2027) - Mitigated	0.02	0.20
3.64 Site Preparation (2027) - Mitigated	< 0.005	0.04
3.68 Site Preparation (2027) - Mitigated	0.04	0.39
3.78 Site Preparation (2028) - Mitigated	0.07	0.57
3.82 Site Preparation (2028) - Mitigated	0.04	0.34
3.88 Site Preparation (2028) - Mitigated	< 0.005	0.04
3.90 Site Preparation (2028) - Mitigated	0.01	0.10
3.92 Site Preparation (2024) - Mitigated	0.10	0.93

Off-Road Equipment Emissions by Phase (tons/year) - MM AIR-2*		
Phase	**ROG**	**NOx**
3.2 Site Preparation (2024) - Mitigated	0.02	0.17
3.4 Site Preparation (2024) - Mitigated	0.07	0.55
3.6 Site Preparation (2024) - Mitigated	0.14	1.16
3.8 Site Preparation (2025) - Mitigated	0.03	0.23
3.16 Site Preparation (2024) - Mitigated	0.04	0.30
3.18 Site Preparation (2024) - Mitigated	0.08	0.62
3.30 Site Preparation (2024) - Mitigated	0.01	0.33
3.42 Site Preparation (2025) - Mitigated	0.26	1.84
3.44 Site Preparation (2026) - Mitigated	0.01	0.07
3.52 Site Preparation (2025) - Mitigated	0.04	0.36
3.56 Site Preparation (2026) - Mitigated	0.01	0.03
3.58 Site Preparation (2026) - Mitigated	0.07	0.50
3.60 Site Preparation (2027) - Mitigated	0.06	0.41
3.62 Site Preparation (2027) - Mitigated	0.02	0.16
3.64 Site Preparation (2027) - Mitigated	< 0.005	0.03
3.68 Site Preparation (2027) - Mitigated	0.04	0.31
3.78 Site Preparation (2028) - Mitigated	0.07	0.46
3.82 Site Preparation (2028) - Mitigated	0.04	0.27
3.88 Site Preparation (2028) - Mitigated	<0.005	0.03
3.90 Site Preparation (2028) - Mitigated	0.01	0.08
3.92 Site Preparation (2024) - Mitigated	0.10	0.74

*Includes a 5% ROG reduction and a 20% NO_X reduction.

Net Change in Annual Off-Road Equipment Emissions by Phase (tons/year) - MM AIR-2		
Phase	**ROG**	**NOx**
3.2 Site Preparation (2024) - Mitigated	0.00	-0.04
3.4 Site Preparation (2024) - Mitigated	0.00	-0.14
3.6 Site Preparation (2024) - Mitigated	-0.01	-0.29
3.8 Site Preparation (2025) - Mitigated	0.00	-0.06
3.16 Site Preparation (2024) - Mitigated	0.00	-0.08
3.18 Site Preparation (2024) - Mitigated	0.00	-0.15
3.30 Site Preparation (2024) - Mitigated	0.00	-0.08
3.42 Site Preparation (2025) - Mitigated	-0.01	-0.46
3.44 Site Preparation (2026) - Mitigated	0.00	-0.02
3.52 Site Preparation (2025) - Mitigated	0.00	-0.09
3.56 Site Preparation (2026) - Mitigated	0.00	-0.01
3.58 Site Preparation (2026) - Mitigated	0.00	-0.13
3.60 Site Preparation (2027) - Mitigated	0.00	-0.10
3.62 Site Preparation (2027) - Mitigated	0.00	-0.04
3.64 Site Preparation (2027) - Mitigated	0.00	-0.01
3.68 Site Preparation (2027) - Mitigated	0.00	-0.08
3.78 Site Preparation (2028) - Mitigated	0.00	-0.11
3.82 Site Preparation (2028) - Mitigated	0.00	-0.07
3.88 Site Preparation (2028) - Mitigated	0.00	-0.01
3.90 Site Preparation (2028) - Mitigated	0.00	-0.02
3.92 Site Preparation (2024) - Mitigated	-0.01	-0.19

Net Change in Annual Off-Road Equipment Emissions by Year (tons/year) - MM AIR-2		
Year	**ROG**	**NOx**
2024	-0.02	-0.97
2025	-0.02	-0.61
2026	0.00	-0.14
2027	-0.01	-0.23
2028	-0.01	-0.21

Off-Road Equipment Emissions by Phase (lbs/day) - Unmitigated	
Phase	**PM10E**
3.2 Site Preparation (2024) - Mitigated	0.05
3.4 Site Preparation (2024) - Mitigated	0.15
3.6 Site Preparation (2024) - Mitigated	0.32
3.8 Site Preparation (2025) - Mitigated	0.06
3.16 Site Preparation (2024) - Mitigated	0.08
3.18 Site Preparation (2024) - Mitigated	0.17
3.30 Site Preparation (2024) - Mitigated	0.06
3.42 Site Preparation (2025) - Mitigated	0.49
3.44 Site Preparation (2026) - Mitigated	0.02
3.52 Site Preparation (2025) - Mitigated	0.08
3.56 Site Preparation (2026) - Mitigated	0.01
3.58 Site Preparation (2026) - Mitigated	0.13
3.60 Site Preparation (2027) - Mitigated	0.11
3.62 Site Preparation (2027) - Mitigated	0.04
3.64 Site Preparation (2027) - Mitigated	0.01
3.68 Site Preparation (2027) - Mitigated	0.08
3.78 Site Preparation (2028) - Mitigated	0.13
3.82 Site Preparation (2028) - Mitigated	0.08
3.88 Site Preparation (2028) - Mitigated	0.01
3.90 Site Preparation (2028) - Mitigated	0.02
3.92 Site Preparation (2024) - Mitigated	0.20

Off-Road Equipment Emissions by Phase (lbs/day) - MM AIR-2*	
Phase	**PM10E**
3.2 Site Preparation (2024) - Mitigated	0.03
3.4 Site Preparation (2024) - Mitigated	0.08
3.6 Site Preparation (2024) - Mitigated	0.18
3.8 Site Preparation (2025) - Mitigated	0.03
3.16 Site Preparation (2024) - Mitigated	0.04
3.18 Site Preparation (2024) - Mitigated	0.09
3.30 Site Preparation (2024) - Mitigated	0.03
3.42 Site Preparation (2025) - Mitigated	0.27
3.44 Site Preparation (2026) - Mitigated	0.01
3.52 Site Preparation (2025) - Mitigated	0.04
3.56 Site Preparation (2026) - Mitigated	0.01
3.58 Site Preparation (2026) - Mitigated	0.07
3.60 Site Preparation (2027) - Mitigated	0.06
3.62 Site Preparation (2027) - Mitigated	0.02
3.64 Site Preparation (2027) - Mitigated	0.01
3.68 Site Preparation (2027) - Mitigated	0.04
3.78 Site Preparation (2028) - Mitigated	0.07
3.82 Site Preparation (2028) - Mitigated	0.04
3.88 Site Preparation (2028) - Mitigated	0.01
3.90 Site Preparation (2028) - Mitigated	0.01
3.92 Site Preparation (2024) - Mitigated	0.11

*Includes a 45% exhaust PM10 reduction.

Net Change in Daily Off-Road Equipment Emissions by Phase (lbs/day) - MM AIR-2	
Phase	**PM10E**
3.2 Site Preparation (2024) - Mitigated	-0.02
3.4 Site Preparation (2024) - Mitigated	-0.07
3.6 Site Preparation (2024) - Mitigated	-0.14
3.8 Site Preparation (2025) - Mitigated	-0.03
3.16 Site Preparation (2024) - Mitigated	-0.04
3.18 Site Preparation (2024) - Mitigated	-0.08
3.30 Site Preparation (2024) - Mitigated	-0.03
3.42 Site Preparation (2025) - Mitigated	-0.22
3.44 Site Preparation (2026) - Mitigated	-0.01
3.52 Site Preparation (2025) - Mitigated	-0.04
3.56 Site Preparation (2026) - Mitigated	0.00
3.58 Site Preparation (2026) - Mitigated	-0.06
3.60 Site Preparation (2027) - Mitigated	-0.05
3.62 Site Preparation (2027) - Mitigated	-0.02
3.64 Site Preparation (2027) - Mitigated	0.00
3.68 Site Preparation (2027) - Mitigated	-0.04
3.78 Site Preparation (2028) - Mitigated	-0.06
3.82 Site Preparation (2028) - Mitigated	-0.04
3.88 Site Preparation (2028) - Mitigated	0.00
3.90 Site Preparation (2028) - Mitigated	-0.01
3.92 Site Preparation (2024) - Mitigated	-0.09

Net Change in Daily Off-Road Equipment Emissions by Year (lbs/year) - MM AIR-2	
Year	**PM10**
2024	-0.5
2025	-0.3
2026	-0.1
2027	-0.1
2028	-0.1

Attachment 3

CAT D350 GC Manufacturer Specifications

Cat® D350 GC

Diesel Generator Sets

Standby : 60 Hz

Image shown may not reflect actual configuration.

Engine Model	Cat® C13 In-line 6, 4-cycle diesel
Bore x Stroke	130 mm x 157 mm (5.1 in x 6.2 in)
Displacement	12.5 L (763 in³)
Compression Ratio	16.3:1
Aspiration	Turbocharged Air-to-Air Aftercooled
Fuel Injection System	MEUI
Governor	Electronic ADEM™ A4

Model	Standby	Emission Strategy
D350 GC	350 ekW, 437.5 kVA	EPA Certified for Stationary Emergency Application

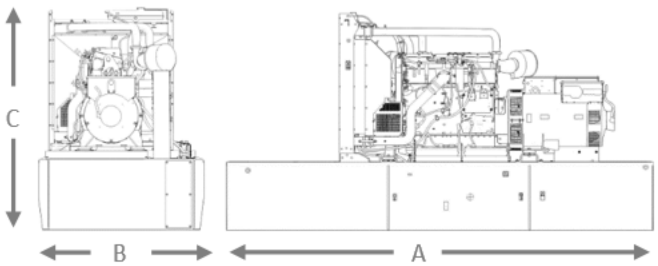
PACKAGE PERFORMANCE

Performance	Standby
Frequency	60 Hz
Genset Power Rating	437.50 kVA
Genset power rating with fan @ 0.8 power factor	350 ekW
Emissions	EPA TIER 3
Performance Number	EM1692
Fuel Consumption	
100% load with fan, L/hr (gal/hr)	94.3 (24.9)
75% load with fan, L/hr (gal/hr)	81.9 (21.6)
50% load with fan, L/hr (gal/hr)	60.2 (15.9)
25% load with fan, L/hr (gal/hr)	34.3 (9.1)
Cooling System[1]	
Radiator air flow restriction (system), kPa (in water)	0.12 (0.48)
Radiator air flow, m³/min (cfm)	497 (17551)
Engine coolant capacity, L (gal)	14.2 (3.8)
Radiator coolant capacity, L (gal)	30 (8)
Total coolant capacity, L (gal)	34 (12)
Inlet Air	
Combustion air inlet flow rate m³/min (cfm)	24.8 (874.4)
Max. Allowable Combustion Air Inlet Temp, °C (°F)	49 (120)
Exhaust System	
Exhaust stack gas temperature, °C (°F)	571.2 (1060.1)
Exhaust gas flow rate, m³/min (cfm)	73.4 (2591.3)
Exhaust system backpressure (maximum allowable) kPa (in. water)	10.0 (40.0)
Heat Rejection	
Heat rejection to jacket water, kW (Btu/min)	143 (8132)
Heat rejection to exhaust (total), kW (Btu/min)	360 (20484)
Heat rejection to aftercooler, kW (Btu/min)	55 (3108)
Heat rejection to atmosphere from engine, kW (Btu/min)	47 (2694)
Heat rejection from alternator, kW (Btu/min)	24 (1382)
Emissions (Nominal)[2]	
NOx, mg/Nm³ (g/hp-hr)	2274.7 (4.58)
CO, mg/Nm³ (g/hp-hr)	666.9 (1.35)
HC, mg/Nm³ (g/hp-hr)	6.2 (0.01)
PM, mg/Nm³ (g/hp-hr)	39.4 (0.10)

D350 GC Diesel Generator Sets
Electric Power

Alternator[3]		
Voltages	480V	600V
Motor starting capability @ 30% Voltage Dip, skVA	718	731
Current Amps	526.2	421
Frame Size	M3115L4	M3115L4
Excitation	S.E	AREP
Temperature Rise, °C	105	105

WEIGHTS & DIMENSIONS – OPEN SET



FUEL TANK CAPACITY

Tank Design	Total Capacity L (gal)	Useable Capacity L (gal)
Integral	2820 (744.9)	2553 (674.4)

Base	Length "A" mm (in)	Width "B" mm (in)	Height "C" mm (in)	Generator Set Weight kg (lb)
Skid (Wide Base)	4625 (182.8)	1630 (64.2)	2039 (80.3)	3291 (7255.4)
Integral Tank Base	4625 (182.8)	1630 (64.2)	2456 (96.7)	3143 (6929.1)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

APPLICABLE CODES AND STANDARDS:

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.
Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

RATINGS: Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

FUEL RATES: Based on fuel oil of 35º API [16º C (60º F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29º C (85º F) and weighing 838.9 g/litre (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

DEFINITIONS AND CONDITIONS

[1] For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

[2] Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 BTU/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

[3] UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

LET'S DO THE WORK.™

Attachment 4

International Interseal 670 HS Specifications

Interseal® 670HS

Surface Tolerant Epoxy

International®

PRODUCT DESCRIPTION

A low VOC, two component high build, high solids surface tolerant epoxy maintenance coating.

INTENDED USES

For application to a wide variety of substrates including hand prepared rusty steel, abrasive blast cleaned and hydroblasted steel, and a wide range of intact, aged coatings.
Provides excellent anti-corrosive protection in industrial, coastal structures, pulp and paper plants, bridges and offshore environments in both atmospheric exposure and immersion service

PRACTICAL INFORMATION FOR INTERSEAL 670HS

Colour Available in a wide range of colours including Aluminium

Gloss Level Semi-gloss (Aluminium is eggshell)

Volume Solids 82% ± 3% (depends on colour)

Typical Thickness 100-250 microns (4-10 mils) dry equivalent to 122-305 microns (4.9-12.2 mils) wet

Theoretical Coverage 6.56 m²/litre at 125 microns d.f.t and stated volume solids
263 sq.ft/US gallon at 5 mils d.f.t and stated volume solids

Practical Coverage Allow appropriate loss factors

Method of Application Airless spray, Air spray, Brush, Roller

Drying Time ▲

			Overcoating Interval Interseal 670HS with Self			Overcoating Interval with recommended topcoats		
Temperature	**Touch Dry**	**Hard Dry**	*Min*	*Max ●*	*Max †*	*Min*	*Max ●*	*Max †#*
10ºC (50ºF)	8 hours	32 hours	32 hours	6 weeks	Extended*	20 hours	21 days	12 weeks
15ºC (59ºF)	7 hours	26 hours	26 hours	4 weeks	Extended*	14 hours	14 days	8 weeks
25ºC (77ºF)	5 hours	18 hours	18 hours	14 days	Extended*	10 hours	7 days	4 weeks
40ºC (104ºF)	2 hours	6 hours	6 hours	7 days	Extended*	4 hours	3 days	2 weeks

▲ For curing at low temperatures, an alternative curing agent is available. See Product Characteristics for details.
● Refers to situations where immersion is likely to occur
† Refer to atmospheric service only
* See International Protective Coatings Definitions & Abbreviations
\# Maximum overcoating intervals are shorter when using polysiloxane topcoats.
Consult International Protective Coatings for further details.

REGULATORY DATA

Flash Point (Typical) Base (Part A) 36°C (97°F) Curing Agent (Part B) 56°C (133°F) Mixed 33°C (91°F)

Product Weight 1.6 kg/l (13.3 lb/gal)

VOC

114 g/kg	EU Solvent Emissions Directive (Council Directive 1999/13/EC)
2.00 lb/gal (240 g/lt)	EPA Method 24
151 g/lt	Chinese National Standard GB23985

SURFACE PREPARATION

The performance of this product will depend upon the degree of surface preparation. The surface to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:2000.

Accumulated dirt and soluble salts must be removed. Dry bristle brushing will normally be adequate for accumulated dirt. Soluble salts should be removed by fresh water washing.

Abrasive Blast Cleaning

For immersion service, Interseal 670HS must be applied to surfaces blast cleaned to Sa2.5 (ISO 8501-1:2007) or SSPC-SP10. However, for atmospheric exposure best performance will be achieved when Interseal 670HS is applied to surfaces prepared to a minimum of Sa2.5 (ISO 8501-1:2007) or SSPC-SP6.

Surface defects revealed by the blast cleaning process, should be ground, filled, or treated in the appropriate manner.

A surface profile of 50-75 microns (2-3 mils) is recommended.

Hand or Power Tool Preparation

Hand or power tool clean to a minimum St2 (ISO 8501-1:2007) or SSPC-SP2.

Note, all scale must be removed and areas which cannot be prepared adequately by chipping or needle gun should be spot blasted to a minimum standard of Sa2 (ISO 8501-1:2007) or SSPC-SP6. Typically this would apply to C or D grade rusting in this standard.

Ultra High Pressure Hydroblasting/Abrasive Wet Blasting

May be applied to surfaces prepared to Sa2.5 (ISO 8501-1:2007) or SSPC-SP6 which have flash rusted to no worse than Grade HB2.5M (refer to International Hydroblasting Standards) or Grade SB2.5M (refer to International Slurry blasting Standards). It is also possible to apply to damp surfaces in some circumstances. Further information is available from International Protective Coatings.

Aged Coatings

Interseal 670HS is suitable for overcoating a limited range of intact, tightly adherent aged coatings. Loose or flaking coatings should be removed back to a firm edge. Glossy finishes may require light abrasion to provide a physical ‘key’. See Product Characteristics section for further information.

APPLICATION

Mixing

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. Once the unit has been mixed it must be used within the working pot life specified.

(1) Agitate Base (Part A) with a power agitator.
(2) Combine entire contents of Curing Agent (Part B) with Base (Part A) and mix thoroughly with power agitator.

Mix Ratio

5.67 parts : 1.00 part by volume

Working Pot Life

10°C (50°F)	15°C (59°F)	25°C (77°F)	40°C (104°F)
5 hours	3 hours	2 hours	1 hour

Airless Spray

Recommended — Tip range 0.45-0.58 mm (18-23 thou)
Total output fluid pressure at spray tip not less than 176 kg/cm² (2,500 p.s.i.)

Air Spray (Pressure Pot)

Recommended

Gun	DeVilbiss MBC or JGA
Air Cap	704 or 765
Fluid Tip	E

Brush

Recommended — Typically 100-125 microns (4-5 mils) can be achieved

Roller

Recommended — Typically 75-100 microns (3-4 mils) can be achieved

Thinner

International GTA220 — Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.

Cleaner

International GTA822
(or GTA415)

Work Stoppages

Do not allow material to remain in hoses, gun or spray equipment. Thoroughly flush all equipment with International GTA822. Once units of paint have been mixed they should not be resealed and it is advised that after prolonged stoppages work recommences with freshly mixed units.

Clean Up

Clean all equipment immediately after use with International GTA822. It is good working practice to periodically flush out spray equipment during the course of the working day. Frequency of cleaning will depend upon amount sprayed, temperature and elapsed time, including any delays.

All surplus materials and empty containers should be disposed of in accordance with appropriate regional regulations/legislation.

Interseal® 670HS

Surface Tolerant Epoxy

PRODUCT CHARACTERISTICS

For water immersion service, surface preparation to a minimum of Sa2.5 (ISO 8501-1:2007) or SSPC-SP10 followed by application of multi-coats of Interseal 670HS to a total minimum dry film thickness of 250 microns (10 mils) is required.

Colours derived from chromascan bases as the first coat of a specification for immersion service is not recommended.

Maximum film build in one coat is best attained by airless spray. When applying by methods other than airless spray, the required film build is unlikely to be achieved. Application by air spray may require a multiple cross spray pattern to attain maximum film build. Low or high temperatures may require specific application techniques to achieve maximum film build.

If salt water is used in the wet blast process the resulting surface must be thoroughly washed with fresh water before application of Interseal 670HS. With freshly blasted surfaces a slight degree of flash rusting is allowable, and is preferable to the surface being too wet. Puddles, ponding and accumulations of water must be removed.

Interseal 670HS may be applied to suitably sealed or primed concrete; contact International Protective Coatings for further advice on specification and primers.

Interseal 670HS is suitable for overcoating intact, aged alkyd, epoxy and polyurethane systems. However, this product is not recommended where thermoplastic coatings such as chlorinated rubbers and vinyls have previously been used. Please consult International Protective Coatings for alternative recommendations.

Surface temperature must always be a minimum of 3°C (5°F) above dew point.

Level of sheen and surface finish is dependent on application method. Avoid using a mixture of application methods whenever possible.

In common with all epoxies Interseal 670HS will chalk and discolour on exterior exposure. However, these phenomena are not detrimental to anti-corrosive performance.

Premature exposure to ponding water will cause a colour change, especially in dark colours.

Interseal 670HS can be used as a non-skid deck system by modification with addition of GMA132 (crushed flint) aggregate. Application should then be to a suitably primed surface. Typical thicknesses will be between 500-1,000 microns (20-40 mils). Preferred application is by a suitable large tip hopper gun (e.g. Sagola 429 or Air texture gun fitted with a 5-10 mm nozzle). Trowel or roller can be used for small areas. Alternatively, a broadcast method of application can be used. Consult International Protective Coatings for further details.

Low Temperature Curing

A winter grade curing agent is also available to enable more rapid cure at temperatures less than 10°C (50°F), however this curing agent will give an initial shade variation and more rapid discoloration on weathering.

Interseal 670HS is capable of curing at temperatures below 0°C (32°F). However, this product should not be applied at temperatures below 0°C (32°F) where there is a possibility of ice formation on the substrate.

			Overcoating Interval Interseal 670HS with Self			Overcoating Interval with recommended topcoats		
Temperature	**Touch Dry**	**Hard Dry**	*Min*	*Max ●*	*Max †*	*Min*	*Max ●*	*Max †*
-5ºC (23ºF)	24 hours	72 hours	72 hours	12 weeks	Extended*	72 hours	84 hours	12 weeks
0ºC (32ºF)	16 hours	56 hours	56 hours	10 weeks	Extended*	42 hours	54 hours	10 weeks
5ºC (41ºF)	9 hours	36 hours	36 hours	8 weeks	Extended*	36 hours	48 hours	8 weeks
10ºC (50ºF)	5 hours	24 hours	24 hours	6 weeks	Extended*	16 hours	24 hours	6 weeks

● Refers to situations where immersion is likely to occur

† Refer to atmospheric service only

* See International Protective Coatings Definitions & Abbreviations

Touch dry times shown above are actual drying times due to chemical cure, rather than physical set due to solidification of the coating film at temperatures below 0°C (32°F).

Note: VOC values quoted are based on maximum possible for the product taking into account variations due to colour differences and normal manufacturing tolerances.

Low molecular weight reactive additives, which will form part of the film during normal ambient cure conditions, will also affect VOC values determined using EPA Method 24

SYSTEMS COMPATIBILITY

Interseal 670HS will normally be applied to correctly prepared steel substrates. However, it can be used over suitably primed surfaces. Suitable primers are:

- Intercure 200
- Interplus 356
- Intergard 269
- Interzinc 315
- Interplus 256

Where a cosmetically acceptable topcoat is required the following products are recommended:

- Intercryl 530
- Intergard 740
- Interfine 629HS
- Interthane 870
- Interfine 878
- Interthane 990
- Interfine 979

Other suitable primers/topcoats are available. Consult International Protective Coatings.

ADDITIONAL INFORMATION

Further information regarding industry standards, terms and abbreviations used in this data sheet can be found in the following documents available at www.international-pc.com:

- Definitions & Abbreviations
- Surface Preparation
- Paint Application
- Theoretical & Practical Coverage

Individual copies of these information sections are available upon request.

SAFETY PRECAUTIONS

This product is intended for use only by professional applicators in industrial situations in accordance with the advice given on this sheet, the Material Safety Data Sheet and the container(s), and should not be used without reference to the Material Safety Data Sheet (MSDS) which International Protective Coatings has provided to its customers.

All work involving the application and use of this product should be performed in compliance with all relevant national, Health, Safety & Environmental standards and regulations.

In the event welding or flame cutting is performed on metal coated with this product, dust and fumes will be emitted which will require the use of appropriate personal protective equipment and adequate local exhaust ventilation.

If in doubt regarding the suitability of use of this product, consult International Protective Coatings for further advice.

PACK SIZE	Unit Size	Part A		Part B	
		Vol	Pack	Vol	Pack
	20 litre	17 litre	20 litre	3 litre	3.7 litre
	5 US gal	4.25 US Gal	5 US Gal	0.75 US Gal	1 US gal

For availability of other pack sizes, contact International Protective Coatings

SHIPPING WEIGHT (TYPICAL)	Unit Size	Part A	Part B
	20 litre	30.8 kg	3.5 kg
	5 US gal	64.9 lb	6.8 lb

STORAGE	Shelf Life	12 months minimum at 25°C (77°F). Subject to re-inspection thereafter. Store in dry, shaded conditions away from sources of heat and ignition. Protect from frost.

Important Note

The information in this data sheet is not intended to be exhaustive; any person using the product for any purpose other than that specifically recommended in this data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at their own risk. All advice given or statements made about the product (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability at all for the performance of the product or for (subject to the maximum extent permitted by law) any loss or damage arising out of the use of the product. We hereby disclaim any warranties or representations, express or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose. All products supplied and technical advice given are subject to our Conditions of Sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is liable to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to check with their local representative that this data sheet is current prior to using the product.

This Technical Data Sheet is available on our website at www.international-marine.com or www.international-pc.com, and should be the same as this document. Should there be any discrepancies between this document and the version of the Technical Data Sheet that appears on the website, then the version on the website will take precedence.

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