Midpeninsula Regional
Open Space District

R-25-96
Meeting 25-19
July 9, 2025

AGENDA ITEM 11

AGENDA ITEM

Proposed Third-party Hicks Creek Restoration Compensatory Mitigation Project at Sierra Azul Open Space Preserve

GENERAL MANAGER'S RECOMMENDATIONS

1. Accept staff's evaluation of the proposed third-party compensatory mitigation project at Sierra Azul Open Space Preserve, which would restore approximately 0.75 acres of degraded instream and riparian habitat.

2. Authorize the General Manager to negotiate a mitigation agreement with Peninsula Corridor Joint Powers Board and return to the Board for approval of the finalized agreement.

SUMMARY

The proposed Hicks Creek Mitigation Project (Mitigation Project) would restore approximately 0.75 acres of aquatic, wetland, and riparian habitat on Midpeninsula Regional Open Space District (District) lands within Sierra Azul Open Space Preserve. This restoration Mitigation Project is needed to satisfy regulatory permit requirements for the Peninsula Corridor Joint Powers Board's (JPB) Guadalupe River Bridge Replacement (GRBR) Project and would advance the District's goals for fisheries recovery, riparian restoration, and watershed health in the Guadalupe River watershed. The Mitigation Project is estimated to cost $16.7 million and would be fully funded, implemented, and monitored by JPB and its environmental consultant, Stillwater Sciences. Staff recommend developing a formal mitigation agreement to define project roles and financial responsibilities.

DISCUSSION

In 2024, JPB, the governing body for Caltrain, initiated a regional search for mitigation opportunities to fulfill regulatory obligations for the GRBR Project in San Jose, California. The GRBR Project is a critical public infrastructure upgrade that involves replacing or modifying two aging bridges along the Caltrain rail corridor in an area prone to chronic erosion and bank failure during storm events. These structural issues have necessitated emergency stabilization efforts in recent years.

To reduce ongoing risks and ensure the long-term safety and reliability of the rail system, the GRBR Project includes targeted channel stabilization and bridge reconstruction. The GRBR Project is required by the California Department of Fish and Wildlife (CDFW) and San Francisco Bay Regional Water Quality Control Board (RWQCB) permits to mitigate for

unavoidable permanent and temporary impacts to jurisdictional habitats in the Guadalupe River, and the Project's on-site habitat improvements fall short of the mitigation requirements.

In November 2024, JPB contacted District staff to explore opportunities for off-site mitigation on District lands within the Guadalupe River watershed to satisfy the permitting requirements of the GRBR Project. Per the District's Mitigation Policy (approved March 2022), staff evaluated the request based on the following criteria:

- Alignment with District Mission, Policies, and Goals
- Proximity to District Lands and Regional Context
- Public, Partner, and Social Implications
- Low-impact Project Design and Appropriate Mitigation
- Ecological Impact versus Value

Staff determined that the request aligns with the District's Mitigation Policy (see Attachment 1 for staff's analysis) and identified a suitable mitigation site along Hicks Creek (Attachment 2), a perennial tributary of Guadalupe Creek located within Sierra Azul Open Space Preserve. This reach of Hicks Creek has year-round flow, high-quality fish habitat upstream and downstream of the mitigation site and confirmed recent observations of Central California Coast steelhead (Oncorhynchus mykiss), a federally threatened species. However, the reach proposed for restoration is degraded by legacy infrastructure that predates District ownership, including a concrete-lined in-channel pool, incised banks, and invasive vegetation—conditions that impair fish passage, degrade water quality, and reduce habitat complexity.

In April 2025, JPB and Stillwater Sciences submitted the Off-site Mitigation Plan for District and regulatory review (Attachment 3). The proposed restoration would remove artificial channel structures, regrade banks, and construct a natural step-pool channel to restore hydrologic function and enable fish movement during low flows. Additional elements include:

- Installation of large woody debris, native cobble, and inset floodplain benches to increase complexity and resilience.
- Replacement of two deteriorating bridge crossings with arched culverts embedded to recreate natural streambed continuity.
- Removal of non-native vegetation and installation of native riparian and wetland plant species to stabilize soils, filter runoff, and improve habitat structure.

This creek restoration project is expected to result in significant habitat improvements across approximately 0.75 acres of aquatic, wetland, and riparian habitat. All work would be designed and implemented by Stillwater Sciences on behalf of JPB, with District review and oversight of design, permitting, construction, and monitoring.

The proposed Mitigation Project aligns with multiple District Resource Management Policies, including:

- Policy WR-6: Enhances fisheries habitat and stream function
- Policy VM-1: Restores native vegetation and riparian communities
- Policy WM-1: Improves habitat for rare and sensitive wildlife.

The cost to implement the project—including design, permitting, and construction—is estimated at $16.7 million and would be fully funded by JPB. Additionally, JPB would fund a five-year monitoring program that will assess vegetation establishment, with annual reporting to the District and regulatory agencies. Adaptive management actions will be implemented by JPB as necessary to meet permitting performance standards, and District staff will review and advise on all work. A formal mitigation agreement would be developed to outline roles and responsibilities, determine District reimbursement for staff time, and ensure compliance with District standards and best management practices.

FISCAL IMPACT

There is no fiscal impact associated with the recommendation. JPB will fully fund the mitigation work, no District funding will be required. If approved, the mitigation project would contribute approximately $16.7 million in outside funds for restoration work on District lands.

PRIOR BOARD AND COMMITTEE REVIEW

- On March 23, 2022, the Board adopted a new Mitigation Policy and associated revisions to the Resource Management Policies to guide future decisions on outside agency mitigation requests and inform mitigation efforts for internal projects (R-22-41, Minutes).
- On April 9, 2014, the Board approved the demolition of structures at Hicks Ranch (location of the proposed Hicks Creek Mitigation Project), Sierra Azul Open Space Preserve (R-14-67, Minutes).

PUBLIC NOTICE

Public notice was provided as required by the Brown Act.

CEQA COMPLIANCE

The proposed mitigation partnership and authorization to negotiate a mitigation agreement with JPB is not a project subject to the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378(b)(5), as it constitutes administrative activity and preliminary planning. JPB, as the lead agency under CEQA for the Guadalupe River Bridge Replacement Project and associated mitigation, will be responsible for evaluating the environmental effects of the proposed Hicks Creek Mitigation Project. JPB anticipates completing either a Subsequent Initial Study/Mitigated Negative Declaration (IS/MND) or an Addendum to its certified Guadalupe River Bridge Replacement Project IS/MND to address the off-site mitigation work at Hicks Creek. The District, as a CEQA responsible agency, would consider the completed CEQA document prior to taking final action on the mitigation agreement or implementation of the project. Any future District approval of the final mitigation agreement or implementation of the project would occur only after completion of JPB's CEQA process and confirmation that the project satisfies applicable CEQA requirements.

NEXT STEPS

If authorized, the General Manager will negotiate a mitigation agreement with JPB. Final design and permit applications will be initiated by JPB, and District staff will coordinate with Stillwater

Sciences on implementation planning. A future agenda item will return to the Board for approval of the mitigation agreement.

Attachment(s)

1. Staff Recommendation Memo
2. Project Location Map
3. Off-site Mitigation Plan – Hicks Creek Mitigation Project (Stillwater Sciences, April 2025)

Responsible Department Head:
Kirk Lenington, Natural Resources Department Manager

Prepared by/Contact person:
David Liefert, Senior Resources Management Specialist, Natural Resources Department

Midpeninsula Regional Open Space District

Memorandum

DATE: July 9, 2025

MEMO TO: Board of Directors

THROUGH: Ana Ruiz, General Manager

FROM: David Liefert, Senior Resource Management Specialist

SUBJECT: Mitigation Policy Evaluation for Hicks Creek, Sierra Azul Preserve

MITIGATION POLICY

The Midpeninsula Regional Open Space District's (District) Board of Directors (Board) approved a policy in 2022 to guide evaluations of outside agency mitigation requests and inform District-led project mitigations. The Mitigation Policy includes evaluation criteria for third-party compensatory mitigation projects to examine alignment with the District's mission, proximity to District lands, public implications, project design impact, and ecological impact versus value. The policy emphasizes achieving regional and landscape-level benefits and leveraging external mitigation funding to support restoration and natural resource resilience.

EXTERNAL PROJECT

Background

The Guadalupe River Bridge Replacement (GRBR) Project is a major infrastructure upgrade by Caltrain, a passenger rail service managed by the Peninsula Corridor Joint Powers Board (JPB), that involves replacement and extension of two rail bridges over the Guadalupe River in San Jose. The mitigation project proposed here is required to mitigate for permanent and temporary impacts to riparian, wetland, and stream habitats associated with the GRBR Project.

Mitigation for all impacts within the United States Army Corps of Engineers jurisdiction are anticipated to be achieved on-site. However, the GRBR Project site can only accommodate a portion of the mitigation required for impacts under Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife (CDFW) jurisdictions. As part of its permit conditions with the RWQCB and CDFW, JPB must implement off-site mitigation that meets specific acreage and habitat uplift criteria.

JPB and their consultants, Stillwater Sciences, initiated a search for suitable off-site mitigation locations. In November 2024, JPB contacted District staff about potential mitigation projects on District land in the Guadalupe River watershed. Staff identified Hicks Creek, located within Sierra Azul Open Space Preserve, as a promising opportunity due to its impaired condition, ecological potential, and location within a priority steelhead watershed. Staff reviewed the site with JPB and Stillwater and determined that a project could be developed consistent with the District's Natural Resources Management and Mitigation Policies.

The Hicks Creek Mitigation Project (Mitigation Project) site is expected to provide mitigation for the deficit of RWQCB jurisdiction impacts, and possibly a portion of the CDFW jurisdiction impacts. The remaining CDFW mitigation that is not addressed on-site at the GRBR Project nor by the Mitigation Project is anticipated to be mitigated by JPB entering into a fee-based Participating Special Entity Agreement with the Santa Clara Valley Habitat Agency. JPB submitted a draft Off-site Mitigation Plan in April 2025, providing a project description and a monitoring and maintenance plan for regulatory and District review.

Mitigation Project Site Description
The Mitigation Project is located along a reach of Hicks Creek that serves as important habitat for Central California Coast steelhead (Oncorhynchus mykiss), a federally threatened species. The District purchased the land in 2008 as part of a 90.28-acre property, protecting Hicks Creek and the surrounding land from Hicks Road to the upper boundary of the watershed.

Before being purchased, the Mitigation Project site was used for ranching, mining, seasonal and leisure activities, home steading, and equestrian activities. Several existing structures were included in the property purchase, including four residential units, pool house, changing room, pool and tub, storage barn, and shop building, the above ground portions of which were removed by the District in 2014. The embedded building foundations, rock walls lining the steam channel, a concrete-lined pool and tub, and surrounding contiguous portions of hardscapes were left intact. Much of this intact existing hardscape is within the active channel of Hicks Creek, its confluence with an unnamed tributary, and the surrounding banks, which interferes with the natural functions of the stream and substantially impacts the creek's geomorphology.

Mitigation Project Description
The proposed Mitigation Project would restore and enhance approximately 0.75 acres of aquatic, wetland, and riparian habitat on District lands within the Guadalupe River watershed, identified as a priority steelhead recovery area in the National Ocean and Atmospheric Administration (NOAA) Recovery Plan for Central California Coast Steelhead. The proposed restoration will provide year-round rearing and migratory habitat for juvenile steelhead, reduce sediment delivery to downstream reaches, and expand native riparian vegetation. Key elements include:

1. Removal of existing in-channel concrete structures that disrupt stream hydrology and fish passage.
2. Regrading of incised banks and construction of a step-pool channel to restore hydrologic function and enable fish movement during low-flow periods.
3. Placement of large woody debris, coarse sediment, and floodplain benches to increase habitat complexity.
4. Removal of non-native vegetation and installation of native riparian and wetland vegetation to improve species composition, stabilize soils, and protect water quality.
5. Replacement of two bridges with arched culverts embedded to recreate the natural creek bed.

Restoration actions include the removal of a concrete pool within the active stream channel, as well as the demolition of concrete and hardscape banks to reestablish a natural channel form. A section of chute-and-pool channel will be constructed to enhance fish passage and increase habitat complexity. These aquatic habitat improvements are intended to support multiple beneficial uses, including fish migration, spawning, preservation of rare and endangered species, and the enhancement of both cold and warm freshwater habitats. Inset floodplains are proposed along the channel and will become seasonally inundated, providing additional habitat diversity. The stream design also incorporates features specifically intended to improve conditions for amphibians and aquatic reptiles, such as the California red-legged frog and western pond turtle, both of which are known to occur near the Mitigation Project area.

Overall, the aquatic restoration design is primarily focused on improving habitat for steelhead, but it is also expected to benefit native herpetofauna by supporting their population viability over time. Additionally, the design may reduce habitat suitability for invasive predatory species such as bullfrogs, which are prevalent in the watershed. Revegetated areas within the Project will include aquatic habitats along the channel margins, freshwater emergent wetlands, and riparian plant communities. The selected plant palette is intended to enhance wildlife habitat quality and support a rich, diverse native understory.

Restoration work will be designed to maximize habitat uplift in accordance with regulatory performance standards. If possible, the Mitigation Project will utilize the District's programmatic permits and Open Space Maintenance and Restoration Program to streamline permitting requirements. JPB will be responsible for design, construction, monitoring, maintenance, permitting, and CEQA compliance.

MITIGATION VALUE AND POLICY ALIGNMENT

Alignment with District Mission, Policies, and Goals
The Hicks Creek Mitigation Project directly supports multiple goals within the District's Resource Management Policies. Specifically, the project advances Policy WR-6 (Enhance fisheries habitat) by restoring hydrologic and biological function to a degraded stream reach historically used by steelhead, a federally threatened species. The project also supports Policy VM-1 (Restore native plant communities) and Policy WM-1 (Protect habitat for rare and sensitive wildlife) through riparian revegetation and creation of new habitat features for species such as California red-legged frog and western pond turtle.

The project aligns with the District's Mitigation Policy, as it will result in a net resource benefit, has no identified conflict with District goals, and includes a clear maintenance and monitoring plan. It also meets the test of public interest by achieving substantial ecological uplift using external funds with no cost to the District. The District's 2022 Mitigation Policy allows third-party mitigation projects on District lands when they restore impaired natural systems and provide long-term ecological value. This project achieves those aims by removing concrete in-channel structures, reshaping banks to reduce incision, and constructing a step-pool channel to improve fish passage, instream habitat, and connectivity.

Proximity to District Lands and Regional Context
The project is located entirely within Sierra Azul Open Space Preserve, on a tributary of the Guadalupe River—a high-priority watershed for Central California Coast steelhead recovery. Restoration at this location advances regional conservation priorities identified in the NOAA Steelhead Recovery Plan and supports water quality improvements and habitat connectivity downstream of District lands. The site is ecologically significant but currently impaired, and restoration efforts will improve ecosystem function without affecting adjacent public access or land uses.

Public, Partner, and Social Implications
The Mitigation Project is being proposed to fulfill permit conditions for Caltrain's GRBR Project, a critical public infrastructure upgrade that will improve safety along the Caltrain corridor. The GRBR Project addresses two bridges situated in a stretch of river that experiences significant erosion and is vulnerable to bank failure during storm events. Past failures along the riverbank have necessitated emergency stabilization efforts in multiple years. To reduce these ongoing risks and safeguard the structural integrity of the rail bridges, the project will include targeted channel improvements to prevent further erosion, along with upgrades to the bridges themselves to ensure continued safe and dependable service for all rail users.

There are no anticipated conflicts with recreational access or other planned uses of Sierra Azul Open Space Preserve, and the ecological uplift from this project supports regional biodiversity, watershed function, and special status species recovery. The Mitigation Project offers a public benefit by restoring riparian and aquatic habitat and strengthens relationships with partner agencies working on regional

watershed goals. The public will continue to benefit from improved ecosystem services such as cleaner water, restored biodiversity, and a healthier steelhead fishery.

The project has no known opposition. JPB and the District will engage tribal groups and prepare cultural resource assessments prior to project implementation, and project planning has included coordination with regulatory agencies to meet all applicable permit and environmental requirements.

Low-Impact Project Design and Appropriate Mitigation
The Mitigation Project proposes to remove legacy hardscape features installed prior to District ownership. The restoration design replaces these low-functioning, artificial in-channel structures with a naturalized stream corridor to support fish passage, backwater refugia, inset floodplain benches, and large wood and boulder structures that mimic natural geomorphic processes.

All work will be confined to previously disturbed areas within the existing channel and immediate riparian zone. Construction activities will follow best management practices developed under the District's Open Space Maintenance and Restoration Program, and regulatory permitting will be conducted in coordination with relevant state and federal agencies. JPB will conduct a minimum of five years of post-construction monitoring under a formal maintenance and monitoring plan. Monitoring will include both qualitative and quantitative assessments of revegetation success, channel stability, and aquatic habitat function. The plan includes adaptive management protocols to address unforeseen conditions and ensure the long-term success of the mitigation. District staff will review and approve the monitoring plan, and maintenance activities will be coordinated with the District to ensure consistency with its policies and ecological goals.

Ecological Impact versus Value
The proposed mitigation will restore a high-priority steelhead stream that is currently impaired and lacks instream complexity. The area of impact from JPB's GRBR Project involves permanent and temporary impacts to urban or channelized stream habitat. In contrast, the mitigation project will restore high-quality, functioning aquatic and riparian habitat in a regionally significant watershed.

No sensitive species will be impacted by the construction of the mitigation project. Instead, the restored site will support native species by improving habitat structure and reducing the risk of non-native species establishment. The project is expected to deliver greater ecological benefit than required to compensate for the original impacts, offering substantial net resource gain in a strategic location on District lands.

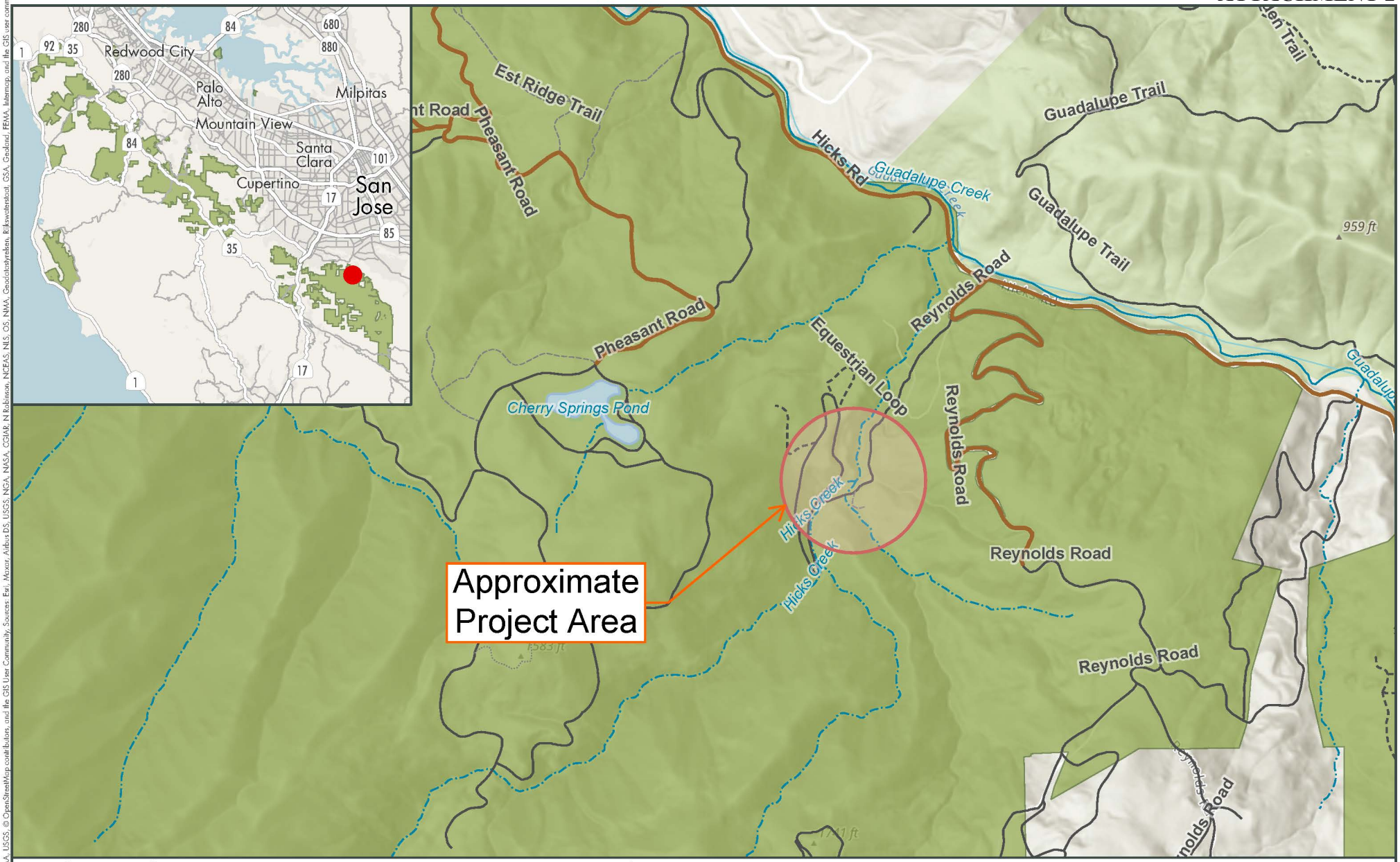
FISCAL IMPACT

There is no cost to the District for implementation. JPB would fully fund:

- Design, permitting, and construction of the project
- Installation and maintenance of vegetation
- A minimum 5-year monitoring and adaptive management period
- If deemed necessary, a full cost recovery for District staff time spent reviewing and overseeing the project

CONCLUSION

The third-party compensatory mitigation meets the District's criteria as laid out within the Board-approved Mitigation Policy.



Hicks Creek Mitigation Project Location - Sierra Azul Preserve

Stream
- Perennial
- Intermittent

Trail
- Paved Road
- Unpaved Seasonal Road
- Trail
- Abandoned / Unmaintained Road
- Abandoned / Unmaintained Trail

Waterbody
- Active Pond

Midpeninsula Regional Open Space District
5/22/2025

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MIDPENINSULA REGIONAL OPEN SPACE

ArcGIS Web AppBuilder

ATTACHMENT 3

Guadalupe River Bridge Replacement Project

Off-Site Mitigation Plan

April 25, 2025

1 INTRODUCTION

The Peninsula Corridor Joint Powers Board (JPB), which operates the San Francisco Peninsula's Caltrain passenger rail service, is in the process of completing the Guadalupe River Bridge Replacement Project (GRBR Project). The GRBR Project includes replacing the MT-1 bridge and extending the MT-2 bridge, both of which cross over the Guadalupe River corridor in an area with developed land and upland plant communities, as well as riparian, wetland, and aquatic habitats. Impacts resulting from the project require both on-site mitigation as well as off-site mitigation. On-site mitigation is described in the Habitat Mitigation and Monitoring Plan (HMMP) (Stillwater Sciences 2025), and this memo describes off-site mitigation.

The GRBR Project includes areas within multiple agency jurisdictions including the US Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW). Mitigation for all impacts within the USACE jurisdiction are anticipated to be achieved on-site. However, due to various limitations (e.g., property boundaries), the GRBR Project site can only accommodate a portion of the mitigation required for impacts under RWQCB and CDFW jurisdictions. A full description of impacts, on-site mitigation, and the amount of off-site mitigation needed are presented in the HMMP (Stillwater Sciences 2025). **Table 1** summarizes the acres of impacts and mitigation that will occur on-site and off-site as part of the Project.

To address the on-site mitigation deficits for CDFW and RWQCB jurisdiction (**Table 1**), JPB explored several options for off-site mitigation opportunities. JPB contacted several local land managers to identify the availability and type of off-site mitigation opportunities available. Local land managers included:

- Santa Clara Valley Habitat Agency (Habitat Agency)
- Midpeninsula Regional Open Space District (Midpen)
- Santa Clara Valley Water District (Valley Water)
- Santa Clara Valley Open Space Authority
- Land Trust of Santa Clara Valley

While all land managers expressed interest, an off-site mitigation project in the upper Guadalupe River watershed on Hicks Creek, which is a tributary to Guadalupe Creek, was found to be the most promising. The project site of the Hicks Creek Mitigation Project is owned by the Midpeninsula Regional Open Space District (Midpen) and is planned to provide mitigation both for the deficit of RWQCB jurisdiction impacts, and possibly as well as a portion of the CDFW jurisdiction impacts. The remaining CDFW mitigation that is not addressed on-site nor by the Hicks Creek Mitigation Project is anticipated to be mitigated by entering into a Participating Special Entity (PSE) Agreement with the Santa Clara Valley Habitat Agency (Habitat Agency) and paying the applicable and established fees. CDFW is a signatory to the Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (Valley Plan), and providing mitigation in accordance with the Valley Plan is anticipated to mitigate remaining potential impacts.

2 MIDPEN HICKS CREEK MITIGATION PROJECT

2.1 Site Background

The Hicks Creek Mitigation Project (or Project) site is managed by Midpen within their Sierra Azul Open Space Preserve in Santa Clara County, California. Midpen is an independent special district that protects plants and animals by preserving more than 70,000 acres of land in the greater Santa Cruz Mountains region (https://www.openspace.org/). Midpen's mission is to "acquire and preserve a regional greenbelt of open space land in perpetuity, protect and restore the natural environment, and provide opportunities for ecologically sensitive public enjoyment and education." There are 20,265 acres of Midpen land within the Guadalupe River Watershed. This land consists of the Bear Creek Redwoods, Felton Station, St. Joseph's Hill, El Sereno, and Sierra Azul preserves.

JPB contacted Kirk Lenington, Natural Resources Manager, and David Liefert, Ph. D and Senior Resource Management Specialist, at Midpen in November 2024 about possible mitigation projects on Midpen land in the Guadalupe River watershed. Midpen had no in-kind restoration projects currently prepared for execution within the Guadalupe River watershed; however, the Hicks Creek Mitigation Project, located in the Sierra Azul Preserve, was identified. After visiting the site, JPB and Midpen determined the Hicks Creek site could potentially contribute to the GRBR Project mitigation needs while also aligning with several of Midpen's restoration priorities.

In coordination with Midpen, JPB considered prioritization of restoration goals and strategies that are in alignment with, and anticipated to be most beneficial to, the programmatic restoration approaches of Midpen. Provided the existing site conditions and the presumed execution and success of the proposed conceptual mitigation design, all of Midpen's resource management strategies, as established in Midpen's *Resource Management Policies* (Midpen 2022), are anticipated to be satisfied except for public use and access elements, which are not applicable to this site (David Liefert, pers. comm., 2025). These strategies include the following:

1. Favor protection of resources when use significantly interferes with resource protection and preservation.
2. Provide an effective interdisciplinary program to protect and enhance natural and cultural resources. This program should include planning, interpretation, research, protection, maintenance, and monitoring practices.
3. Prevent or minimize human-caused and accelerated impacts, including erosion, invasion by non-native species, disruption of the natural flow of water, degradation of water quality, trampling of vegetation, and displacement of wildlife.
4. Protect and restore known rare, endangered, special status species and sensitive habitats, as well as seriously degraded or deteriorating areas. Give priority to sensitive habitats and consider the relative scarcity of the specific resources involved.
5. Manage open space as a composite resource, rather than as separate and isolated parts. Maintain ecological processes as well as individual species and features. Consider the regional context and cumulative impacts of resource management decisions. Favor long-term goals over short-term benefits.
6. Support low intensity recreational and agricultural use of District lands consistent with resource protection. Consider present and potential use.

7. Balance efforts to protect and restore resources with efforts to acquire and provide public access to lands.
8. Monitor changing conditions and the effectiveness of resource management practices.
9. Increase public knowledge, understanding, and appreciation of the natural and cultural resources of the preserves, and support for their conservation.

2.2 Existing Conditions

The Hicks Creek Mitigation Project site is part of the Mt. Umunhum Area of Midpen's Sierra Azul Open Space Preserve in Santa Clara County, California. The land was purchased by Midpen in 2008 as part of a 90.28-acre property (Midpen 2008), giving Midpen control of Hicks Creek and the surrounding land from Hicks Road upstream to the upper boundary of the watershed (**Figure 1** and **Figure 2**). Several existing structures were included in the property purchase including four residential units, pool house, changing room, pool and tub, storage barn, and shop building (Garavaglia Architecture 2014), the above ground portions of which have been removed by Midpen. The embedded building foundations, rock walls lining the steam channel concrete-lined pool and tub, and surrounding contiguous portions of hardscapes, were left intact. Much of this intact existing hardscape is within the active channel of Hicks Creek, its confluence with an unnamed tributary, and the surrounding banks and environment, which interferes with the natural functions of the stream and has substantial impacts to the creek's geomorphology.

Before being purchased by Midpen, the Hicks Creek site is thought to have been used for ranching, mining, seasonal and leisure activities related to mineral and hot springs, home steading, and equestrian activities (Garavaglia Architecture 2014). Lasting evidence of these various land uses was observed during reconnaissance visits to the site conducted in January and March 2025 by Stillwater Sciences. During these site visits Stillwater Sciences' staff observed numerous impediments that demonstrably impair stream function, such as:

- concrete slabs and footings within the streams and confluence,
- incised and overly steep stream banks,
- stream channels confined within stone walls,
- two undersized, perched, and deteriorating crossings,
- impounded sediments mounds below constriction, and
- non-native plant species.

2.2.1 Vegetation Communities

Field observations and aerial imagery (**Figure 1**) characterize the Project site as a matrix of native riparian vegetation with upland oak woodland, both interspersed with non-native species. As observed by Stillwater Sciences' staff during site visits in January and March 2025, the remnant riparian community along Hicks Creek and the unnamed tributary was dominated by native California bay (*Umbellularia californica*) with other native tree associates including white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), and California buckeye (*Aesculus californica*). The understory was sparsely vegetated with mostly non-native plants species and a thick layer of leaf litter.

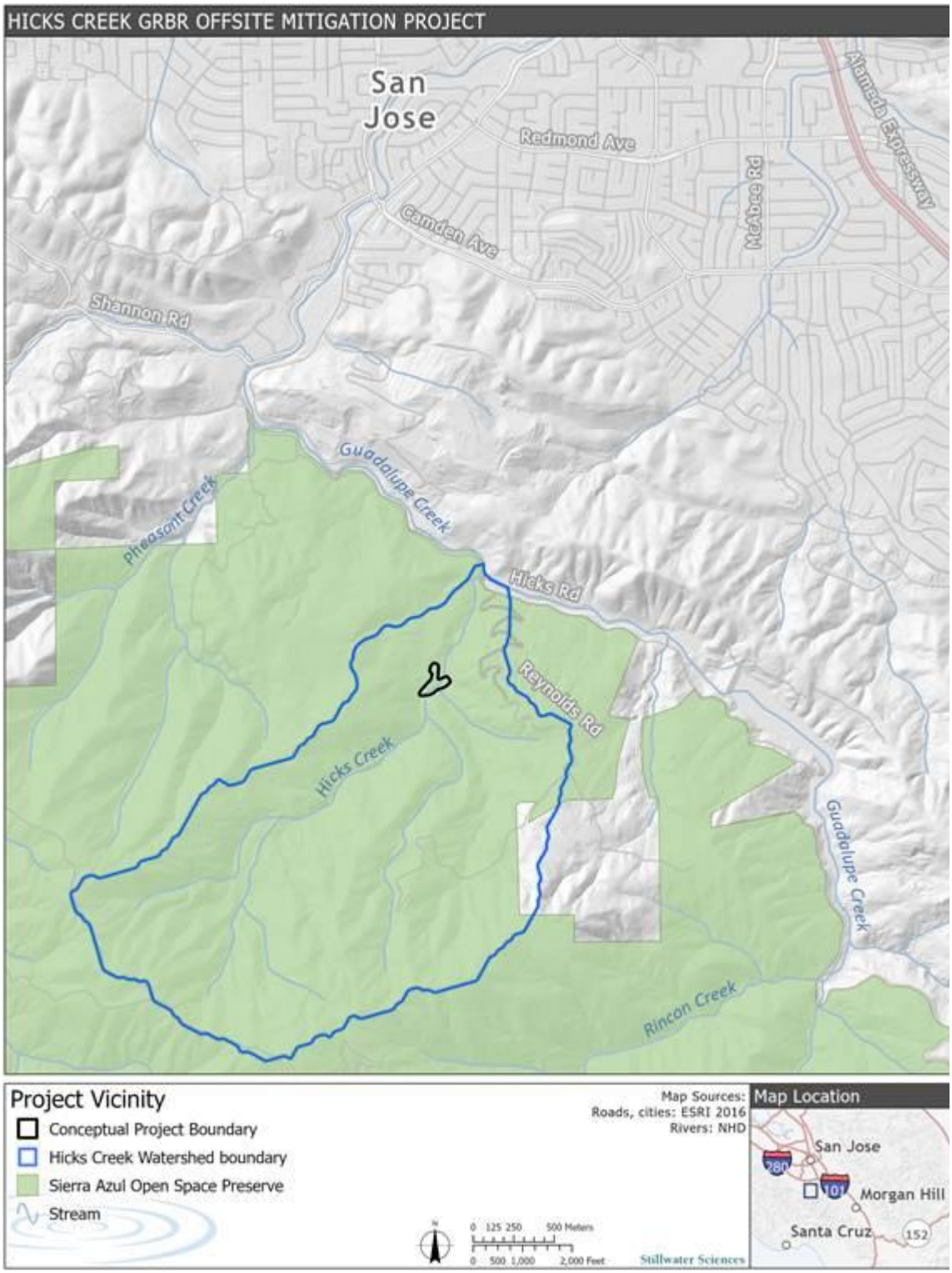


Figure 1. Hicks Creek Mitigation Project vicinity.

Figure 2. Hicks Creek Mitigation Project area.

The area of the site with the highest level of disturbance was downstream of the Hicks Creek bridge to the downstream end of the pool. In this area, non-native plant species were common and only patchy shaded riverine aquatic habitat. Non-native species included Himalayan blackberry (*Rubus armeniacus*), periwinkle (*Vinca major*), oleander (*Nerium oleander*), Mexican fan palm (*Washingtonia robusta*), California fan palm (*Washingtonia filifera*, non-native in this region), smilo grass (*Stipa miliacea*), and several annual herbaceous species (**Figure 3**). Notably, there was a large redwood (*Sequoia sempervirens*) near the Hicks Creek bridge that was likely planted by previous residents. Coyote brush (*Baccharis pilularis*) has recruited within the midstory on the right bank since the buildings and other structures were removed, and several fan palms, white alders, and other trees were documented within the portion of the creek confined within stone walls.

Figure 3. Non-native Himalayan blackberry on left bank and concrete along right bank of Hicks Creek within project site.

Upslope of the riparian corridor, coast live oak (*Quercus agrifolia*) was the dominant species with toyon (*Heteromeles arbutifolia*), manzanita (*Arctostaphylos* sp.), and orange bush monkeyflower (*Diplacus aurantiacus*) as associate species. A large patch of non-native prickly pear (*Opuntia* sp.) was noted upslope of the road on the left bank.

2.2.2 Aquatic Habitat

Hicks Creek is a high gradient stream in the headwaters of the Guadalupe River watershed that flows year-round due to inputs from Cherry Springs (Midpen 2008). Historic land use and alterations to stream channel within the project site have led to degraded aquatic habitat

conditions including a confined stream channel resulting from placement of concrete (**Figure 4**) and rock walls along the active stream channel and excavating and building a concrete lined in-channel swimming pool (**Figure 5**). Confining the channel has disconnected floodplain activation and reduced channel complexity (**Figure 6**).

Figure 4. Concrete channel lining stream bank on Hicks Creek in Project area.

Figure 5. Remnants of concrete swimming pool within Hicks Creek in the Project area, Himalayan blackberry in the foreground.

Figure 6. Stream channel lacking habitat complexity on Hicks Creek in Project area and rock wall along channel.

2.2.3 Fish Observations

Fish monitoring conducted in November 2024 documented several federally listed steelhead (*Oncorhynchus mykiss)* within the Hicks Creek Project Area (Valley Water 2025). Based on the presence of a partial fish migration barrier observed by Valley Water biologists approximately 0.46 km upstream of the confluence of Hicks Creek and Guadalupe Creek, the type of *O. mykiss* observed may have been either the resident form (i.e., rainbow trout) or the anadromous form (i.e., steelhead). While it was not determined if these fish were the resident or the anadromous form of *O. mykiss*, recent research has shown that the resident rainbow trout form play an important role in the overall success of maintaining the anadromous steelhead populations by contributing to gene flow that can increase overall population resilience (Kobayashi et al. 2024; Ross and Merz 2025). In addition to steelhead, riffle sculpin (*Cottus gulosus)* were also captured within Hicks Creek Project Area during the 2024 monitoring effort (Valley Water 2025).

2.2.4 Wildlife

Review of the *California department of Fish and Wildlife's California Natural Diversity Database* (CNDDB) (CDFW 2025) resulted in several special status species with known or potential to occur within a three-mile radius of the Project area.

- Northwestern pond turtle (Actinemys marmorata)
- CA red-legged frog (Rana draytonii)
- CA tiger salamander (Ambystoma californiense)
- Foothill yellow-legged frog (Rana boylii)
- Crotch's bumble bee (Bombus crotchii)
- Pallid bat (Antrozous pallidus)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Santa Cruz black salamander (Aneides niger)
- CA giant salamander (Dicamptodon ensatus)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Golden eagle (*Aquila chrysaetos*)

2.3 Goals, Objectives, and Need

The goals and objectives of the Hicks Creek Mitigation Project include the following:

- Remove several hundred cubic yards of constructed hardscapes that restrict natural stream functions, including geomorphic processes, fish passage, and restoration of natural habitat in a creek in the Guadalupe River watershed that is important to salmonids.
- Create, restore, and enhance waters of the State under RWQCB and CDFW jurisdiction and promote the establishment of a self-sustaining, native riparian and aquatic habitat,

resulting in a net increase of riparian acreage in alignment with the goals and policies of Midpen.

- Provide contiguous native riparian habitat and enhance stream function, which is anticipated to support local communities of desirable plant and wildlife species.

JPB's need to implement the Hicks Creek Mitigation Project is to mitigate for GRBR project impacts that cannot be mitigated on-site.

2.4 Mitigation

The Hicks Creek Mitigation Project includes removal of concrete and hardscape structures previously installed in the creek and riparian corridor, channel grading and installation of instream habitat features, and revegetation of the riparian corridor. Existing conditions are depicted in **Figure 7,** and conceptual plans are depicted in **Figures 8 through 11** and described in the following sections.

The main proposed site enhancement upon removal of the existing concrete obstructions and hardscape, will be the string of chute and pool channel that would replace the existing concrete pool and rock lined portions of stream. In accordance with the CDFW manual (CDFW 2009) for compliant fish passage design, "a chute and pool channel consists of a short rock ramp subunit followed by an armored pool subunit. [**Figure 12**] The bed structure of this repeating sequence dissipates energy through a combination of hydraulic roughness across the chute and the volume of the pool below the chute" (CDFW 2009). The chute and pool channel is proposed within the Hicks Creek Mitigation Project site based the stream length and gradient to promote potential fish passage by limiting the overall "chute" height and providing large pools below each for resting and building up the velocity needed to ascend to the upstream pool, at the top of the chute. Inset floodplain benches are proposed in the design to increase the overall capacity of the creek channel during significant flow events. Backwater habitat pockets are proposed to increase engagement, function and benefit of the surrounding channel and provide fish refugia during high flow events. There is an existing road network with two bridges that are proposed for removal and replacement, based on both their observed overall age and condition, as well as their effect on the creek's geomorphology and function; the bridges are proposed to be replaced by adequately sized pipe arches, or similar culvert configuration, featuring sufficient embedment to create a "natural bed" within the creek bed at a specified elevation and width.

Design features within the stream also include features to improve habitat conditions for amphibians and aquatic reptiles such as, California red-legged frog and western pond turtle which are known to occur in the vicinity of the Project (CDFW 2025). Removal of the existing concrete pool will be replaced with natural stream bed material to foster native plant colonization important for California red-legged frog egg adhesion. Large wood perch and refugia features will be installed within main channel and backwater features of the channel to provide basking habitat for western pond turtle. Overall, aquatic restoration design aimed at improving aquatic habitat conditions for steelhead will likely simultaneously provide future opportunities for native herpetofauna to benefit populations in the future. In addition, proposed designs may reduce habitat suitability for predatory non-native species, such as bullfrogs that are prevalent in the watershed.

HICKS RANCH CONCEPTUAL MITIGATION DESIGN

PRELIMINARY CONCEPT FOR COORDINATION, PLANNING, AND REVIEW

DRAFT : REV.B 4/17/25

SHEET 1 OF 5
EXISTING CONDITIONS

TYP EXISTING
VERTICAL STEM WALLS WITHIN CHANNEL, ~6+FT TALL

TYP EXISTING
ROCK WALLS CONFINING CHANNEL, ~2 TO 5+ FT TALL

SEE TYPICAL SECTIONS ON SHEETS 3 AND 4

TYP EXISTING
CONCRETE HARDSCAPE WITHIN AND ADJACENT TO CHANNEL, ~4,500+ SQFT

TYP EXISTING
CONCRETE HARDSCAPE UNDER CROSSINGS, ~500+ SQFT

TYP EXISTING
ROCK WALLS ADJACENT TO CHANNEL, ~2 TO 4+ FT TALL

HICKS CREEK

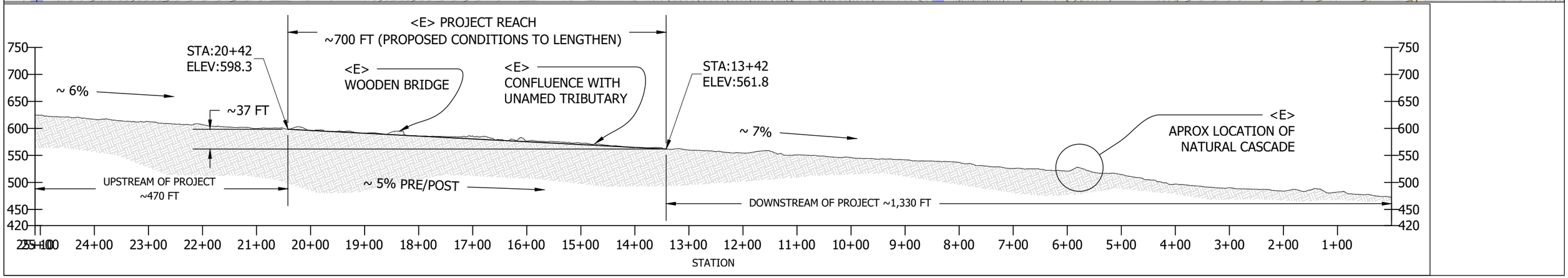
UNNAMED TRIB

TYP REMOVED
HISTORIC BUILDING LOCATIONS AND PORTIONS OF REMNANT FOUNDATIONS

FLOW

13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

0 20 40 80 FEET
SCALE: 1" = 40'



HICKS RANCH CONCEPTUAL MITIGATION DESIGN

PRELIMINARY CONCEPT FOR COORDINATION, PLANNING, AND REVIEW

DRAFT : REV.B 4/17/25

SHEET 2 OF 5
PROPOSED CONDITIONS

LEGEND AND ID KEY PROVIDED ON SHEET 3

0 20 40 80 FEET
SCALE: 1" = 40'

SEE TYPICAL SECTIONS ON SHEETS 3 AND 4

1 2 3 4 5 6 7 8 9 10 11 12

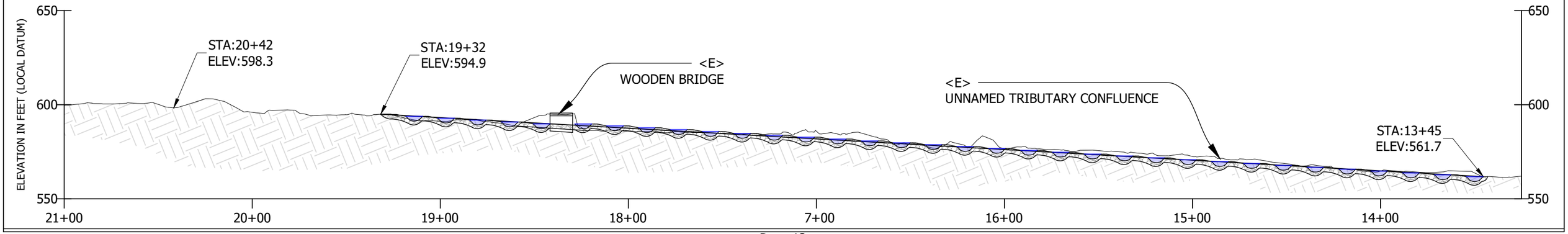
561.71
583.96
594.91

13+00
16+00
17+00
18+00
15+00
20+00

FLOW

HICKS CREEK

UNNAMED TRIB



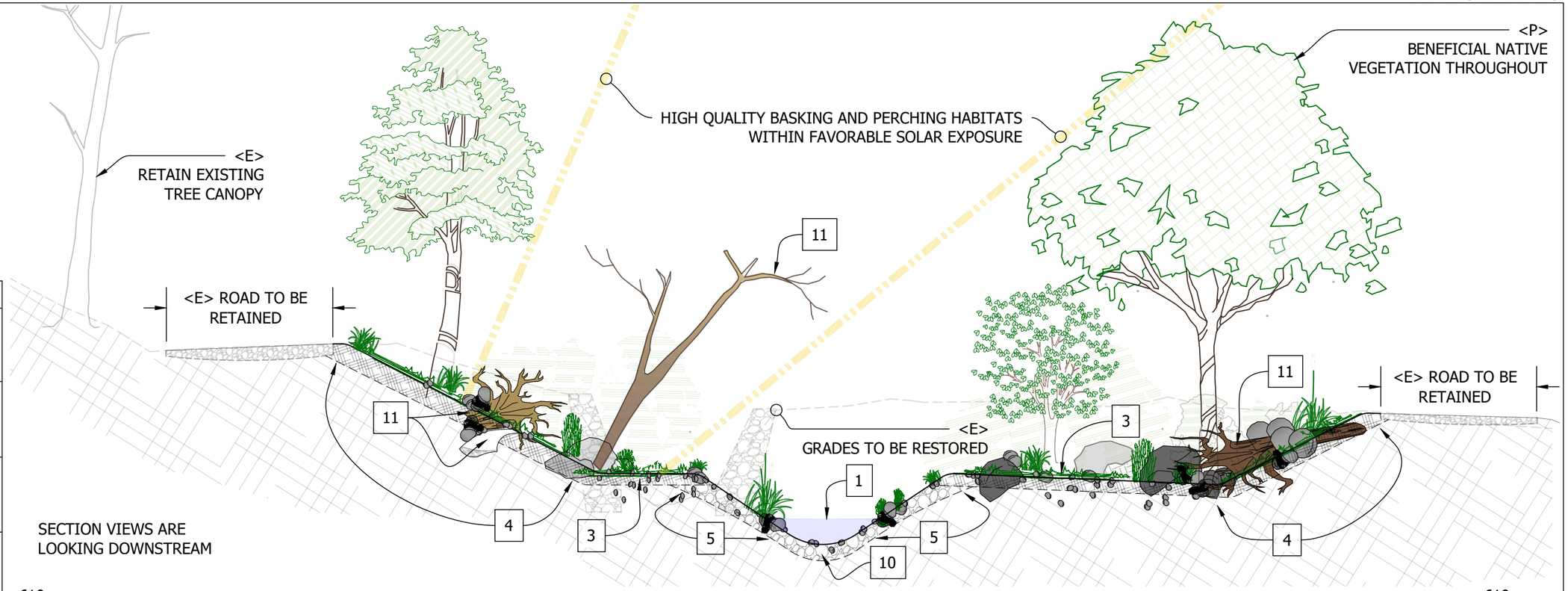
HICKS RANCH CONCEPTUAL MITIGATION DESIGN

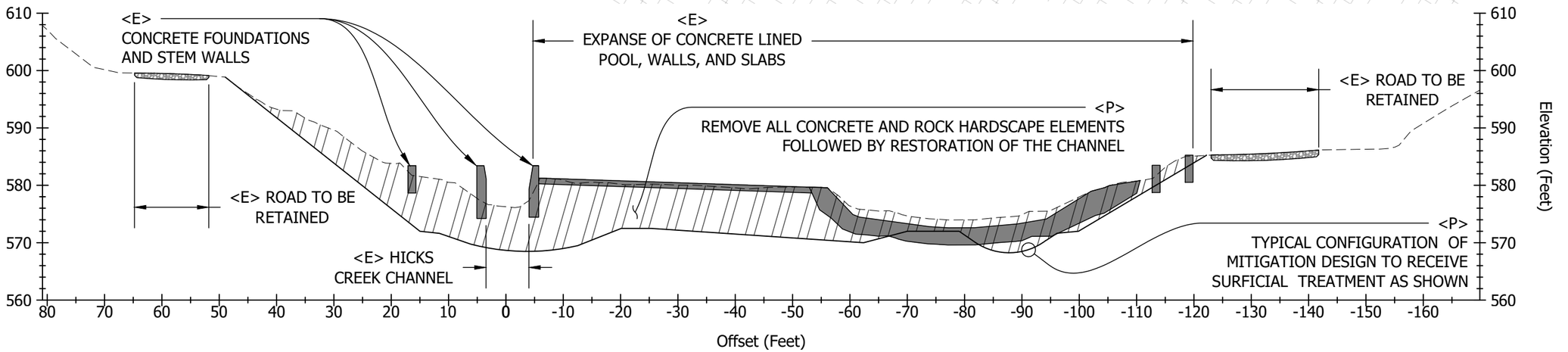
PRELIMINARY CONCEPT FOR COORDINATION, PLANNING, AND REVIEW

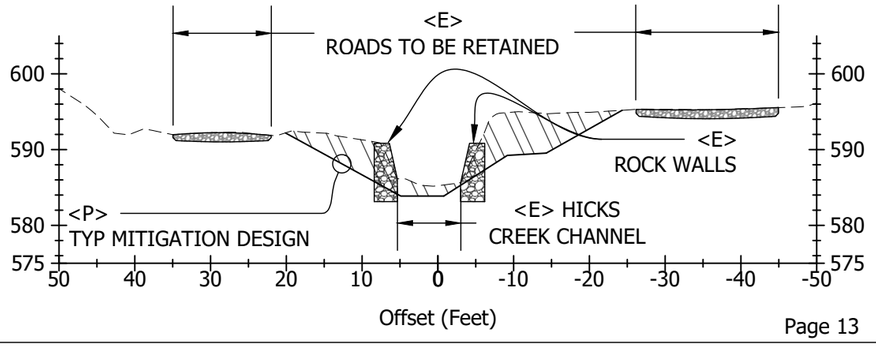
DRAFT : REV.B 4/17/25

SHEET 3 OF 5
CHANNEL CONDITIONS

ID	DESCRIPTIONS FOR ALL SHEETS
1	POOL AND CHUTE WETTED HABITAT; ALL POOLS SHOWN ARE 2' DEEP; CHUTE SECTIONS PROVIDE 1' OF FALL OVER 5' OR HORIZONTAL DISTANCE; SIDE SLOPES WITHIN POOLS ARE 2:1 (H:V); ~5,400 SQFT AS SHOWN.
2	PIPE-ARCH CULVERT WITH NATURAL STREAMBED BOTTOM, TYP (2), BACKFILL LOWER ~2' OF CULVERT WITH ENGINEERED STREAMBED MATERIAL (ESM) FOR FULL RUN SO THAT 6' REMAINED FOR CONVEYANCE OF STORM FLOWS; (2) SHOWN AT 50' X 12' X 8' (LxWxH).
3	INSET FLOOD PLAIN BENCHES; DESIGNED TO RELIEVE HIGH FLOW EVENTS AND SEE WETTED CONDITIONS AT LEAST 1 TO 2 TIMES ANNUALLY; ANTICIPATE TOPPING WITH 6" OF IMPORTED TOP SOIL; ~8,250 SQFT AS SHOWN.
4	RIPARIAN FOREST - UPPER SLOPED BANKS; TRANSITION FROM THE IN-CHANNEL REGIONS UP TO MATCH EXISTING GRADES AT THE PERIMETER OF THE PROJECT; ANTICIPATE 2:1 TO 3:1 (H:V) SIDE SLOPES; ANTICIPATE TOPPING WITH 6" OF IMPORTED TOP SOIL; ~12,000 SQFT AS SHOWN.
5	ACTIVE CHANNEL REGION - LOWER SLOPED BANKS; TRANSITION FROM BOTTOM OF THE BANKS INTO THE STREAM CHANNEL; ANTICIPATE 2:1 TO 3:1 (H:V) SIDE SLOPES; ANTICIPATE TOPPING WITH 6" OF IMPORTED TOP SOIL: ~7,500 SQFT AS SHOWN.
6	ROCK SLOPE PROTECTION (RSP) ARMOR, 2.5' THICK AT CULVERT CROSSING LOCATIONS SHOWN; INCORPORATE WILLOW STAKES AS FEASIBLE; ~1,750 SQFT AS SHOWN.
7	ROAD REPAIR AND REBUILD OF PRISM SURROUNDING CULVERT; TOP W/ 6" OF CRUSHED ROAD BASE; PRISM REBUILD BELOW TO BE APPROXIMATED BY 50 x 12 x 6 (LENGTH x WIDTH x DEPTH) AS A TRIANGULAR PRISM ON EACH SIDE, WITH ADDED VOLUME FOR COVER OVER CULVERT; ~150 CYDS TO BE PLACED AT 90% RELATIVE COMPACTION FOR ROADWAY BACKFILL; ~4,000 SQFT AS SHOWN.
8	LARGE GRADE CONTROL (LGC) STRUCTURES TO PROVIDE POOL AND CHUTE PATTERN; TO BE 3' WIDE AT THEIR CROWNS AND EACH WITH A 3' WIDE LOW FLOW NOTCH; EMBED IN BANKS AS SHOWN TO MITIGATE FLANKING; DASHED/LIGHT EXTENT INDICATES EMBEDDED PORTION; BOLD PATTERN INDICATES VISIBLE EXTENT; ~3,000 CYDS AS SHOWN.
9	BURIED COBBLE TOE PROTECTION; TO PROVIDE SCOUR PROTECTION ALONG TURNS AND BELOW ROADWAYS; TO BE BURIED 6" BELOW GRADES AND EXTEND FOR 3FT; TYPICALLY 1.5' WIDE; ~3,000 SQFT AS SHOWN.
10	ENGINEERED STREAMBED MATERAIL (ESM) TO LINE ALL POOL UNITS AND CULVERTS WITH A TYPICAL 2' DEEP LAYER; ~5,600 SQFT AS SHOWN.
11	LARGE WOOD PERCH AND REFUGIA FEATURES WITH BOULDER BALLAST AND LARGE STONE BASKING LOCATIONS
12	SPOILS DEPOSITION LOCATION; TO PERMANENTLY RECEIVE EXCAVATED SPOILS FROM THE PROJECT SITE; SEPARATELY, ANTICIPATE REMOVAL OF 350CYDS OF CONCRETE AND STONE HARDSCAPE







LEGEND FOR SHEET 2	
SWATCH	DESCRIPTION
	ANTICIPATED EXTENTS OF POOLED WATER AND CASCADING WATER
	PIPE-ARCH CULVERTS WITH NATURAL STREAMBED BOTTOM
	INSET FLOOD PLAIN BENCH PLANTING PALETTES
	UPPER SLOPED BANKS - RIPARIAN FOREST PLANTING PALLETS
	LOWER SLOPED BANKS - ACTIVE CHANNEL REGION STREAMBANK PLANTING PALETTE

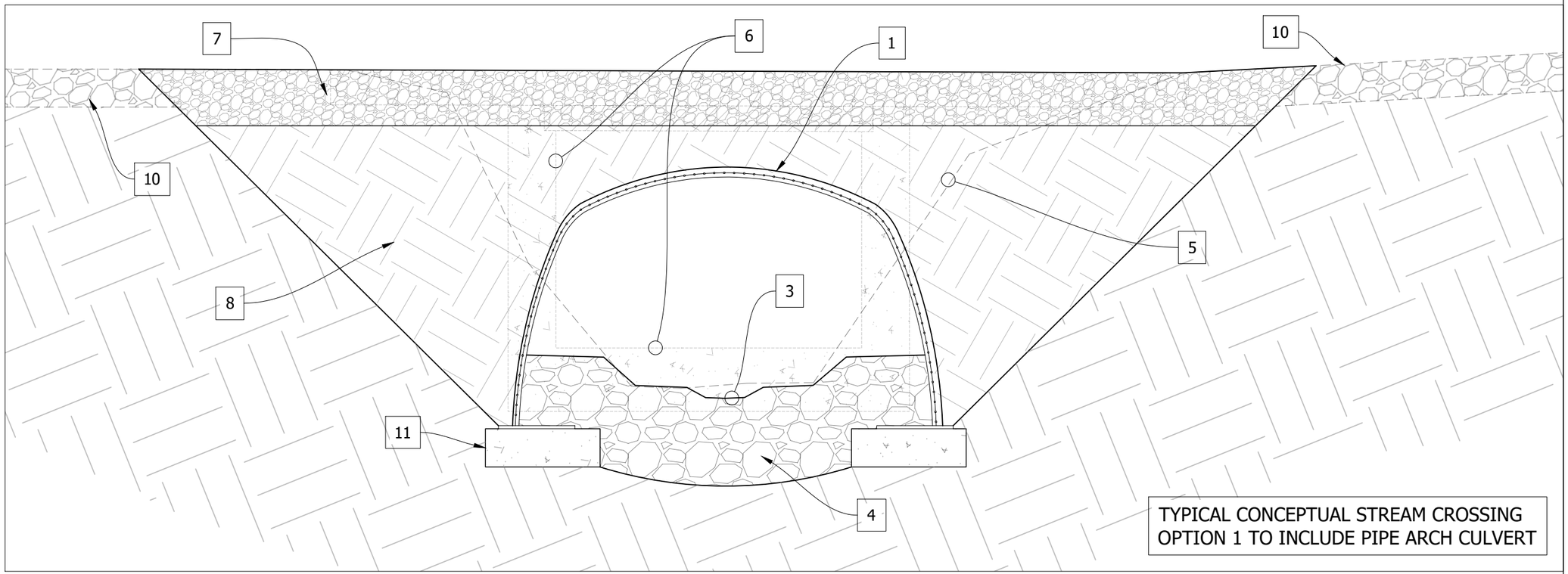
	ROCK SLOPE PROTECTION (RSP) ARMOR
	ROAD REPAIR AND REBUILD
	LARGE GRADE CONTROL (LGC) STRUCTURES (EXPOSED PORTIONS BOLD, EMBEDDED PORTIONS LIGHTER)
	BURIED COBBLE TOE PROTECTION, SUBGRADE
	ENGINEERED STREAMBED MATERAIL (ESM)

HICKS RANCH CONCEPTUAL MITIGATION DESIGN

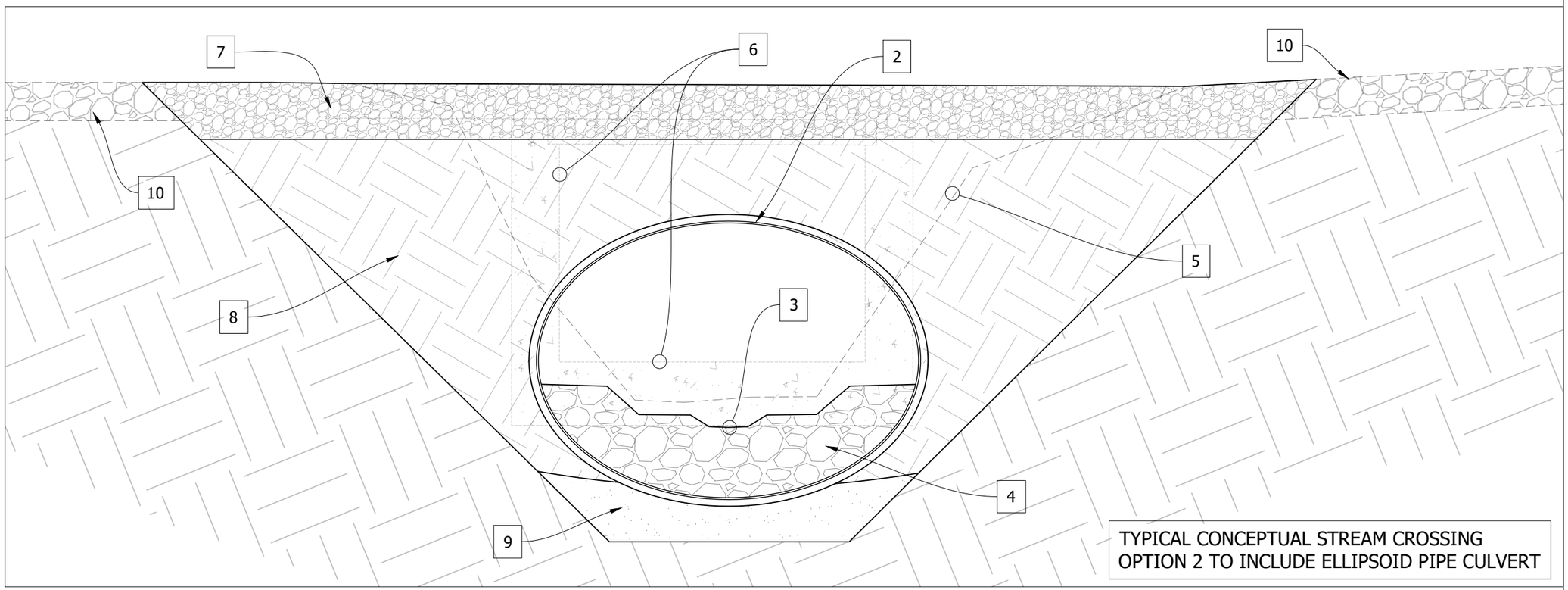
PRELIMINARY CONCEPT FOR COORDINATION, PLANNING, AND REVIEW

DRAFT : REV.B 4/17/25

SHEET 4 OF 5
PROPOSED X'ING OPTIONS



TYPICAL CONCEPTUAL STREAM CROSSING
OPTION 1 TO INCLUDE PIPE ARCH CULVERT



TYPICAL CONCEPTUAL STREAM CROSSING
OPTION 2 TO INCLUDE ELLIPSOID PIPE CULVERT

FEATURES

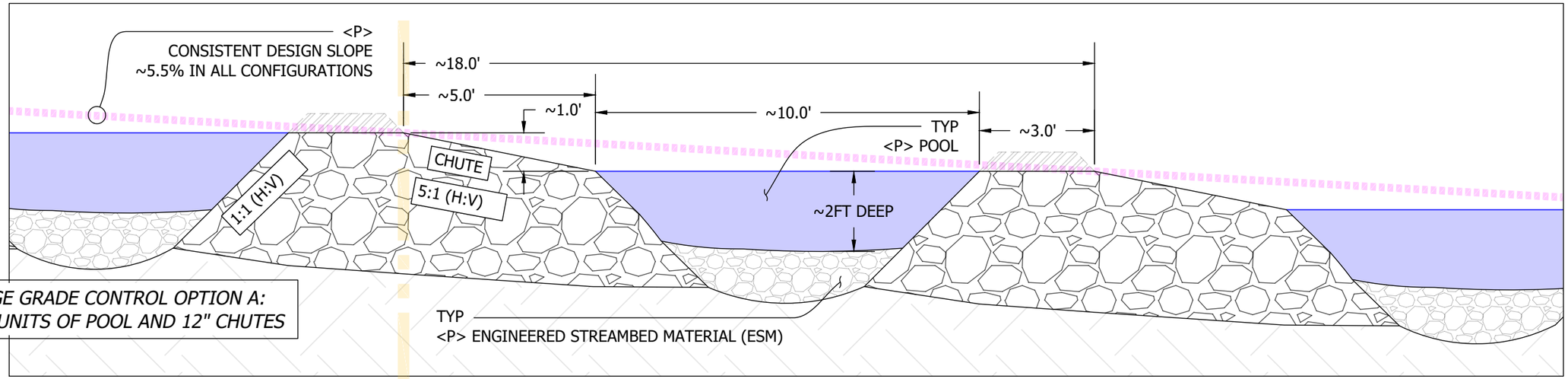
ID	DESCRIPTION
1	ALUMINUM ARCH CULVERT WITH OPEN BOTTOM
2	ELLIPSOID PIPE WITH ESM INFILL
3	PROPOSED GRADES WITHIN CULVERT, TO INCLUDE LOW FLOW NOTCH
4	ENGINEERED STREAM BED MATERIAL
5	EXISTING GRADES TO BE LOWERED AND RESTORED
6	TYPICAL EXISTING CONFIGURATION OF BOTH STREAM CROSSING (1 ON HICKS CREEK AND 1 ON THE UN NAMED TRIBUTARY); FEATURE VERTICAL CONCRETE WALLS WITH PERCHED CONCRETE BED.
7	ROAD REPAIR AND REBUILD OF PRISM SURROUNDING CULVERT; TOP W/ 6" OF CRUSHED ROAD BASE; TO BE PLACED AT 90% RELATIVE COMPACTION FOR ROADWAY BACKFILL
8	REBUILT ROAD PRISM AND FILL; TO BE PLACED IN MAX 8-INCH THICK LIFTS AND COMPACTED TO 90% RELATIVE COMPACTION
9	BEDDING SAND
10	EXISTING ROADWAY TO BE RETAINED
11	REINFORCED CONCRETE STRIP FOOTINGS

HICKS RANCH CONCEPTUAL MITIGATION DESIGN

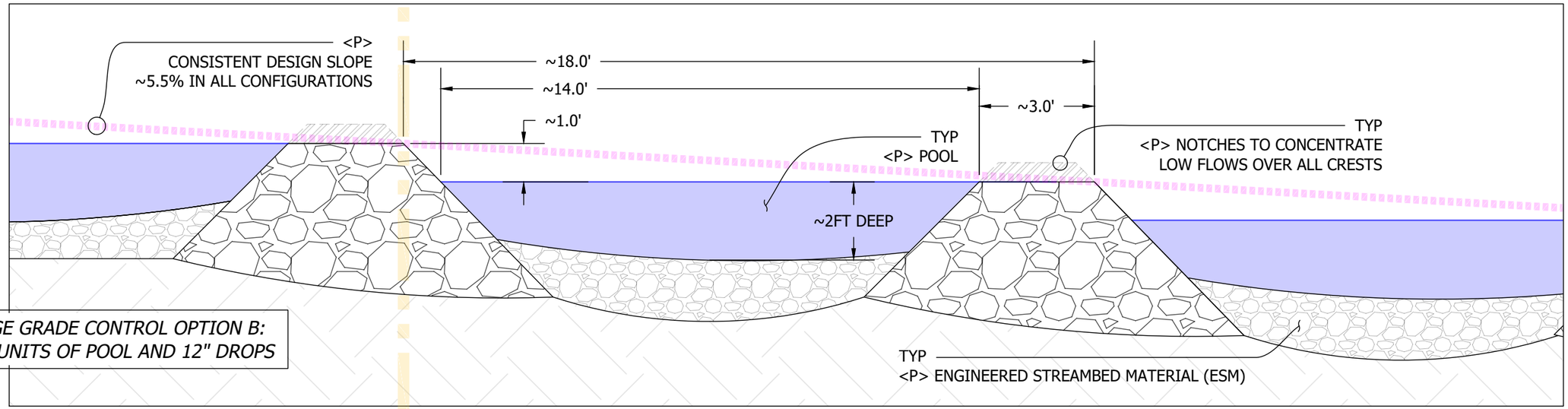
PRELIMINARY CONCEPT FOR COORDINATION, PLANNING, AND REVIEW

DRAFT : REV.B 4/17/25

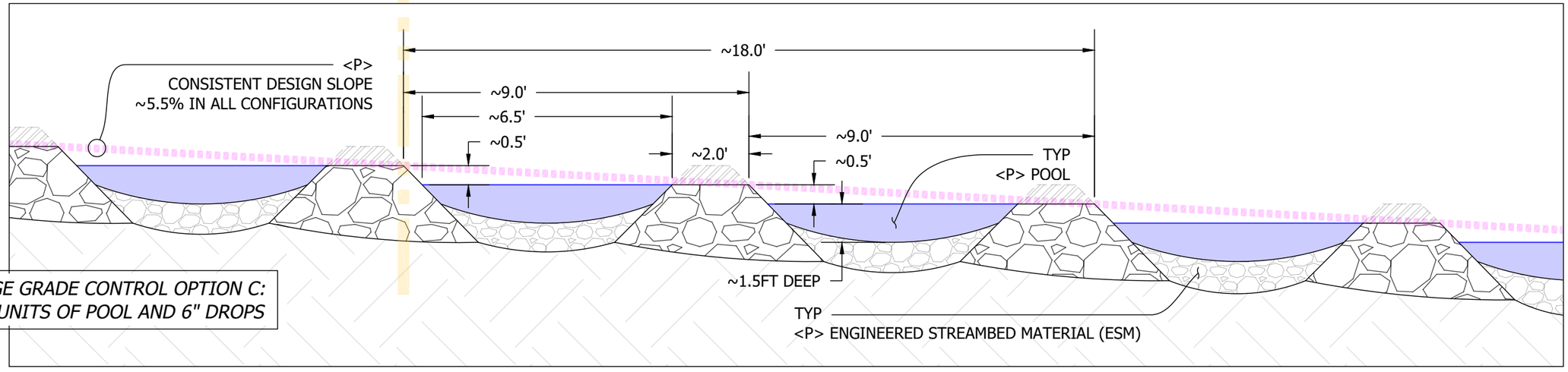
SHEET 5 OF 5
GRADE CONTROL OPTIONS



LARGE GRADE CONTROL OPTION A:
~32 UNITS OF POOL AND 12" CHUTES



LARGE GRADE CONTROL OPTION B:
~32 UNITS OF POOL AND 12" DROPS



LARGE GRADE CONTROL OPTION C:
~64 UNITS OF POOL AND 6" DROPS

Figure 12. Example of chute pool sequence and channel spanning bridge.

Revegetated areas within the Project will include aquatic habitat along the channel margin, freshwater emergent wetlands, and riparian communities. Selected plants will help restore and enhance wildlife habitat quality and promote a rich and diverse native plant understory. Plants will be selected to support both native pollinators—including pollinator-preferred plants that flower during winter, spring, and summer, as well as water and nesting resources—as well as avian bird diversity through combining woody tree and shrub cover with seed- and fruit-producing herbaceous plant communities to support herbivorous and ground-nesting birds. Native plant assemblages will also support invertebrate species that are a valuable food source for local bat species.

In addition, controlling invasive plant species will be key to successful site restoration. Prior to construction, nonnative species will be treated and removed from the entire site. Removal efforts will target California Invasive Plant Council (CAL-IPC) high or moderate rated invasive plant species (i.e., species with either severe or substantial and apparent ecological impacts on physical processes, plant and animal communities, and vegetation structure; Cal-IPC 2025). During construction, measures will be implemented to prevent the introduction, establishment, or spread of invasive plants. Following construction and throughout the maintenance and monitoring period, early detection and rapid response techniques will be implemented to contain and locally eradicate occurrences that may establish.

Anticipated uplift in habitat conditions is summarized in **Table 2** and total potential area of mitigation expected from the proposed conceptual designs is summarized in **Table 3**.

Table 2. Beneficial uses and expected uplift with proposed mitigation.

Beneficial Uses	Existing Conditions	Proposed conditions and uplift to beneficial uses
Cold freshwater habitat Warm freshwater habitat	Concrete lined channel sections and in-channel pool feature limiting riparian shading. Low habitat complexity channel resulting from box culverts and confined stream channel sections	Restore natural streambed to promote vegetation growth along stream channel, increase riparian shaded area, and increase allochthonous input
Fish migration	Limited holding pools available over high-gradient channel.	Increase number of holding pools and addition of high flow refugia for migrating steelhead
Preservation of rare and endangered species	Limited access for steelhead migration and holding habitat	Overall improvement for steelhead access and rearing habitat, increase basking habitat for western pond turtle and promote native vegetation growth within stream channel to increase California red-legged frog egg deposition habitat
Fish spawning	High gradient channel with limited velocity breaks for spawning	Improve spawning habitat by creating pools and restoring section to natural stream bed
Wildlife habitat	Concrete lined channel section, non-native vegetation communities	increase basking habitat for western pond turtle and promote native vegetation growth within stream channel to increase California red-legged frog egg deposition habitat. And replace non-native vegetation with native vegetation to support natural wildlife community.

Table 3. Potential off-site mitigation areas within the Hicks Creek Mitigation Project Site

Habitat Creation/Enhancement ([1])	Area (ft^2)	Area (acres)
Aquatic habitat (ID 1)	5,400	0.12
Active Channel region (aquatic habitat) (ID 5)	7,500	0.17
Wetland/Floodplain habitat (ID 3)	8,250	0.19
Riparian forest (ID 4)	12,000	0.28
Total	**33,150**	**0.76**

Note: ID numbers are related to the Features shown in Figure 8.

2.4.1 Aquatic habitat

Restoration actions within the aquatic channel include removal of the concrete pool within the active stream channel and removal of concrete and hardscape channel banks to create a natural channel and constructing a section of chute and pool channel to promote fish passage and

increase habitat complexity. These improvements to aquatic habitat will address several beneficial uses including fish migration, preservation of rare and endangered species, fish spawning, and cold freshwater habitat and warm freshwater habitat.

As described above the "chute and pool" design approach will be adopted to support fish passage for steelhead. Under the existing conditions the average longitudinal slope within Hicks Creek and the adjacent tributary were determined to be approximately 6.5 percent and +7 percent, respectively, based off the available LiDAR data for the region. These slopes are natural and consistent with creek channels in headwater streams, but do pose a challenge to achieving stability of the overall design. Based on the available LiDAR data, there appears to be approximately 33 feet of overall elevation loss within the design reach. In other words, approximately 33 vertical feet are required to distribute between the top and bottom extents of the Project extent; this equates to each "chute" being approximately 1-foot high to allow fish passage. The approach taken to generate the conceptual design was to introduce some increased sinuosity and length into the reach to reduce the overall slope to approximately 5.6 percent allowing for longer pools between each chute. To provide a chute with a sloped face that could be navigated by a fish swimming, as opposed to a fish jumping; the approximately 1-foot-high chute needs to be spread over approximately 5 horizontal feet along the channel, generating a chute slope of approximately 20 percent for the approximately 5 feet of chute length. To limit the overall slope of the chute and pool unit to approximately 5.6 percent, while providing approximately 5 horizontal feet for each chute, the pools will be approximately 18-feet-long, on average. Each pool will be approximately 2-feet-deep at a minimum to promote sufficient swimming distance to successfully navigate the chute upstream. Additionally, as depicted in the conceptual plan, "low-flow-notches" will be provided at all the large grade control structure to promote the concentration of flows into regions that are deep enough to permit travel by fish upstream.

Since the existing hardscape to be removed and the creek to be replaced is actually positioned on the confluence of Hicks Creek and small more ephemeral tributary, the complexity and capacity at the confluence has been increased to more closely resemble the confluence of creek systems nearby; providing backwater habitat complexity and refugia and featuring the use of large wood and habitat features as further enhancement. Provided the project moves forward, detailed hydraulic modeling would be required to more carefully ascertain and assess the velocities and hydraulics produced by the proposed conceptual design and what elevations to adopt for certain features to best match their proposed use and intent.

Revegetation in the aquatic channel will be limited to channel edges and will include native perennial herbaceous species. Plantings may include sedges (e.g., Santa Barbara sedge [*Carex barbarae*]), rushes (e.g.,, and other perennial herbs (e.g.,) that are site specific and regionally appropriate. Cattails (*Typha* sp.) and tules (*Schoenoplectus* sp.) will not be recommended, as these species can spread rapidly, outcompete smaller plants, and negatively impact the restoration design. A seeding palette of annual and perennial species will also be developed to promote diversity as well as to reduce erosion in the first year following construction.

2.4.2 Wetlands

Along the proposed conceptual channel, inset floodplains are proposed at the top of short inset side slopes of the active channel; these geomorphic features, within riparian setting like this, often typify the "wetland" habitat type, as generally defined and desired within the relevant mitigation types. These regions are anticipated to be set at an elevation(s) where they would be inundated multiple times a season for varying durations and at varying depths; producing and

hosting plant communities and habitats consistent "wetlands". These inset floodplain benches will need to have the hydraulic modeling results to determine the elevation best suited to inundate during desired events and for a desired annual frequency to promote the development of a wetland type environment.

Wetland areas are expected to be seasonally inundated and as such, the planting palette will be similar to the aquatic channel, with additional species included within the planting palette that tolerate seasonal inundation. The planting and seeding palettes may include perennial grasses (e.g., beardless wild-rye [*Elymus triticoides*]), perennial herbs (e.g., mugwort [*Artemisia douglasiana*]), as well as sedge and rushe species. If hydraulic studies show that these wetland and floodplain areas can support woody riparian species, the planting palette will be expanded to include shrubs (e.g., narrowleaf willow [*Salix exigua*]) and trees (e.g., white alder).

2.4.3 Riparian Forest

The regions of riparian forest indicated on the conceptual design occupy the predominately sloped faces along the upper banks of the channel. Largely connecting the interior channel grades of the inset floodplains and channel up to the existing surrounding grades, the riparian forest provides the elevation changes necessary to establish wide and more significant channels and pools and still fit within the footprint the existing between the existing network of roads. This approach will generally use low side slopes to promote stability, anticipated to have slope of approximately 3:1.

The riparian forest areas are expected to have ready access to groundwater and infrequently inundated. To the extent possible, existing native riparian trees will be preserved in place, and prescribed plantings will fill in available space. Cuttings may be harvested from existing willows to supplement nursery material. The planting palette will include overstory (e.g.,), midstory (e.g., California rose [*Rosa californica*]), and understory (e.g., mugwort) species to provide a diverse habitat for wildlife.

2.5 Monitoring

A mitigation monitoring plan (MMP) will be approved by resources agencies and Midpen. The MMP will align with Midpen's Resource Management Policies (Midpen 2022) and Midpen's Open Space Maintenance and Restoration Program Best Management Practices (BMPs). Post-construction monitoring of the offsite mitigation area will be performed by a qualified biologist designated by JPB and approved by Midpen. This monitoring will ensure that the offsite mitigation area is established, that the functions and values of the aquatic habitat and riparian area are increased, and that the revegetation effort is deemed sufficient to compensate for the impacts at the GRBR site to the satisfaction of the regulatory agencies. Monitoring will be both qualitative and quantitative throughout the maintenance and monitoring period.

Success criteria, including performance standards for revegetation (e.g., absolute cover of native vegetation, cover of target weeds) and conditions for geomorphic features and aquatic habitat features will be developed in coordination with regulatory agencies and Midpen. Quantitative plant monitoring events will be conducted annually during late spring or early summer. Geomorphic monitoring will be conducted immediately after construction is completed and then annually or biannually during the low flow season (summer/fall) through the end of the maintenance and monitoring period. Annual reports for a given monitoring year will be submitted to the regulatory agencies and will include any recommendations for remedial actions or adaptive management, which would be implemented by JPB.

Photo-documentation points will be established prior to construction and photos will be repeated immediately after installation of mitigation plantings and during annual monitoring events. The MMP will include as-built topographic surveys, a record of installed plant quantities by species and location, and qualitative plant monitoring events in the months following construction completion.

Monitoring will continue until either (1) the mitigation site has met the final success criteria or (2) the regulatory agencies determine that monitoring is no longer required. Monitoring may be extended if success criteria are not met (see contingency measures described in Section 2.6).

Maintenance will begin immediately post-construction on an as-needed basis. Any unplanned maintenance needs are expected to be identified during regular site visits and will be addressed by JPB, as agreed upon by JPB and Midpen.

2.6 Contingency Measures

Contingency measures are typically prepared in advance of a project and describe measures to be implemented when unforeseen biotic or abiotic factors cause all or significant portions of the restoration efforts to fail. For example, contingency measures would be implemented: if large-scale disturbance events occur; if it is evident that the revegetation efforts are not on-track to meet success criteria during annual checkpoints; or if the success criteria for the mitigation area has not been met after the mitigation monitoring period. The contingency measures that define the response to these various potentialities are presented as conceptual approaches herein, but will need to be further developed into specific actions as the design and permitting processes proceed through continued involvement of the RWQCB, CDFW, and Midpen to develop the final contingency measures for the Project.

2.6.1 Vegetation Contingency Measures

Successful revegetation is crucial for long-term habitat restoration and erosion control within the Project area. However, establishing new vegetation can be challenging, particularly in riparian and disturbed areas. Factors such as invasive species competition, herbivory, and extreme weather events could hinder plant establishment and lead to erosion, potentially compromising the Project's ecological goals.

To improve the likelihood of successful revegetation, the following measures are either incorporated in the designs or recommended at various stages as the Project progresses. The revegetation plan should be developed to incorporate diverse native species adapted to the various planting zones (e.g. emergent wetland, seasonal wetland, lower riparian, upper riparian, upland scrub, oak woodland) to promote resilience and increase the likelihood of successful establishment. Incorporation of willow staking and willow-brush baffles and clusters further enhances bank stability and provides natural erosion control. Additionally, temporary erosion control measures and BMPs, including staked coir logs and biodegradable erosion control fabric, should be implemented on all slopes steeper than 3:1 to promote protection during the critical vegetation establishment period. Post-project monitoring should assess revegetation success and inform any necessary adaptive management actions.

Examples of such adaptive management actions include the following:

- Re-seed/plant any portion of the site that experiences significant vegetation loss during a major storm event. Implement erosion control measures like coconut fiber mats, if

needed. Replacement plants shall be monitored with the same parameters and success criteria as the original plantings.

- Adjust irrigation frequency and duration to accommodate precipitation patterns.
- If significant levels of herbivory are detected, implement wildlife deterrent measures. For example, installing cages around trees to prevent deer browsing.
- If non-native plants are outcompeting native plants, increase weed abatement efforts. Weed abatement would include mechanical removal (hand-held tools) and/or chemical controls via herbicides approved for use adjacent to aquatic features. Non-chemical manual removal should be preferentially used to the extent possible.
- Install replacement plantings if survival or cover standards are not being achieved.

2.6.2 Engineering Contingency Measures

A large-scale disturbance may have impacts on the geomorphic stability of the river. It is not possible for this design to fully eliminate risk associated with the variable and dynamic geomorphic, hydrologic, and/or hydraulic conditions that are inherent to this type of restoration and mitigation design project; therefore, specific strategies are considered to manage those known risks and minimize undue risk. There are several areas of potential known typical project risk that are to be evaluated during the subsequent Project design process, should it move forward. These typical risks and typical or anticipated risk management actions are presented **Appendix A** to be considered further during the design development process which may ultimately be proposed during the construction or monitoring phases of the Project. Implementation of this Project will include elements of ongoing monitoring and adaptive management for the Project phases of development, execution, and monitoring, to promote attainment of the desired restored function and habitat potential.

2.7 Construction Assumptions

Implementation of the Hicks Creek Mitigation Project could begin in 2026 or as soon as feasible following design development and procurement phases. It is assumed that the work would take 6-8 months to complete and would be performed during two dry seasons between June 15th and October 15th. The timeline to complete the implementation is affected by a small footprint for installation of the features. As a result, the work is expected to be limited to two crews, driven by construction of the weir structures in a small area, as well as space needed for equipment, trucking and material storage.

To execute the work, a dewatering system that will pump the creek water around the excavation site is anticipated to provide a dry work area during each dry season. The construction contractor would also likely need to perform road improvements, i.e. stabilization, for truck hauling and potential other improvements to create efficient access. It is assumed that the excavated soil and other materials would need to be hauled off site. The excavated material may have high moisture content where work is in the creek areas creating some excavation and handling challenges and may require drying prior to haul off. Further design development will explore potential for reuse of excavated soil on the site to reduce the amount of material haul off.

It is anticipated that the work would be completed by two crews of laborers and equipment operators under the supervision of a qualified biologist and other necessary environmental oversight. All materials are expected to be available locally. The following equipment would be

operated on the site to complete the work of demolition, haul off, grading, and installation of habitat features: CAT 336 Large Excavator (CAT 336), Dozer (CAT D6), Front End Loader (CAT 966), Large Haul Trucks, and pickup trucks. Further investigation of the existing conditions may determine whether additional equipment is required.

2.8 Environmental Clearance and Permits

This section reviews the environmental clearance and permitting process assumed for the Hicks Creek Mitigation Project.

2.8.1 California Environmental Quality Act (CEQA)

CEQA requires government agencies in California to consider the environmental impacts of their actions. Pursuant to CEQA Guidelines Section 15378, a "project" comprises the "whole of the action" that has the potential to result in a direct or indirect physical change in the environment, meaning that it comprises the entirety of all project activities and government agency actions. The Hicks Creek Mitigation Project would be implemented as mitigation for the JPB GRBR Project, and therefore under CEQA the Hicks Creek Mitigation Project is a component of the JPB GRBR Project.

Pursuant to CEQA, JPB adopted the GRBR Project Initial Study (IS)/Mitigated Negative Declaration (MND) in February 2021 (SCH #2020110323). In March 2025, pursuant to CEQA Guidelines Section 15164, JPB adopted an Addendum to the MND for the GRBR Project to analyze the changes in the project since adoption of the original MND.

JPB approval of the Hicks Creek Mitigation Project would require analysis of the potential environmental impacts. If that analysis determines that any of the below conditions are met, then JPB must prepare a Subsequent IS/MND pursuant to CEQA Guidelines 15162, including circulation of the Subsequent IS/MND for public review and comment. If none of the conditions are met, then JPB may prepare a second Addendum to the MND.

- Substantial changes are proposed to the project that would require major revisions of the MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.
- Substantial changes occur with respect to the circumstances under which the project is being undertaken that would require major revisions of the previous environmental document in order to describe and analyze new significant environmental effects, or any changes that would cause a substantial increase in the severity of the previously identified significant effects.
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous environmental document was approved, shows any of the following*:*
    - The project would have one or more significant effects not discussed in the previous MND.
    - Significant effects previously examined would be substantially more severe than shown in the previous MND.
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the

project, but the project proponent declines to adopt the mitigation measure or alternative.

- Mitigation measures or alternatives which are considerably different from those analyzed in the previous MND would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measure or alternative.

The Final Subsequent IS/MND or Addendum would be adopted by JPB upon approval of the project, and JPB would file a Notice of Determination with the County Clerk and State Clearinghouse.

Midpen, as a CEQA responsible agency pursuant to PRC 21069, would also adopt the Subsequent IS/MND or Addendum when taking final action on the project. Midpen has indicated that initial approval to explore the project would not be subject to CEQA, but final Board action approving the project would require completion of JPB's CEQA document.

2.8.2 National Environmental Policy Act (NEPA)

NEPA requires Federal agencies to assess the environmental impacts of their proposed actions as part of their decision-making. Sometimes there are changes to the proposed federal action, affected environment, anticipated impact, applicable requirements, or mitigation measures that may trigger the need to revisit the NEPA analysis to determine whether the original document or decision remains valid, or a supplemental or new analysis is needed. (23 Code of Federal Regulations [CFR] 771.129, et seq., *NEPA Re-Evaluation Joint Guidance for Federal Highway Administration, Federal Railroad Administration, & FTA,* issued on August 14, 2019) ("Joint NEPA Guidance"). JPB would be required to coordinate with the Federal Transit Administration (FTA) to evaluate the Hicks Creek Mitigation Project as a component of the GRBR Project, which included issuance of funds from State of Good Repair Grants Program (49 U.S.C. 5337). In April 2021, the FTA adopted a Documented Categorical Exclusion (DCE) for the Project.

2.8.3 Environmental Permits

Midpen operates under an Open Space Maintenance and Operation Program (Program) that, among other activities, includes restoration and enhancement projects. The resource agencies, including USACE, RWQCB, and CDFW, issued permits for the Program.

- USACE Permit No. SPN-2019-00146 expires January 31, 2029
- RWQCB Order No. R2-2022-0004 expires February 9, 2027
- CDFW Final Lake and Streambed Alteration Agreement, EPIMS-SMO-22941-R3 expires December 31, 2027, unless it is extended.

The project has to match the definition of restoration in the Open Space Maintenance and Operation Program to be covered by these programmatic permits. The restoration actions are described in an IS/MND for the Program (Horizon Water and Environment, September 2021) and summarized in **Table 4**.

Table 4. Restoration Actions Covered by Programmatic Permits

Applicable to Project	Restoration Facility or Feature	Typical Examples of Activity Type

X	Removal of in-stream infrastructure (i.e., impoundments) and collapsed structures (i.e., bridges or culverts) or upsizing of culverts	Creation of aquatic habitat and/or improvement of fisheries habitat, flows, sediment transport
X	Native vegetation plantings and seeding	Habitat enhancement
	Traditional ecological knowledge practices (indigenous stewardship)	Plant gathering, seed collection, and plantings
	Wildlife friendly spring box/troughs	Habitat enhancement to prevent wildlife entrapment
X	Pond and stream restoration	Improve ponds and streams to restore aquatic habitat
X	Treatment of invasive species	Habitat enhancement
	Exclusion fencing	Habitat enhancement to exclude cattle and protect species
	Prescribed burns	Habitat enhancement, fuels management, and cultural fire
	Conservation grazing	Fuels and species/grassland management
	Road decommissioning	Restored hydrology and watershed processes
	Water well decommissioning	Entrapment hazard removal and water quality protection
	Structural demolitions in riparian or other sensitive areas	Habitat enhancement

The description of the four items marked above as applicable to the Hicks Creek Mitigation Project is excerpted from the IS/MND as follows.

> ***Removal of In-stream Infrastructure and Pond and Stream Restoration.*** Restoration activities within creeks and rivers may include removal of in-stream infrastructure and barriers to fish passage; removal of old crossings, including culverts on no longer used roads or collapsed crossing structure; installation of habitat features, such as large woody material; removal of in-channel debris/trash (i.e., tires, trash, other non-sedimentary materials); riparian vegetation treatment and planting in accordance with Midpen's IPMP, and gravel augmentation.
>
> Removal of in-stream infrastructure, including diversion impoundments and collapsed structures, such as bridges and culverts that may block fish passage, would create and improve aquatic habitat and improve connectivity for fish and other species, including steelhead. Midpen also routinely removes debris/trash that may impair hydraulic conditions and reduce flow conveyance capacity. In-channel work would be limited to the dry season or during low flows. Removal of humanmade materials or refuse would

be done by hand wherever possible. Cables, winches, and heavy equipment used to pull out large material would be staged above the top of bank. Where these materials are within the bank, streambank slopes would be stabilized to erosion with bioengineering techniques (i.e., willow stakes, slash packing, etc.), weed-free straw, or jute-netting.

Large woody materials (i.e., downed trees) can provide habitat, and geomorphic or other channel stability benefits. However, fallen large woody materials may also have the potential to increase flooding or erosion threats by significantly obstructing flows or deflecting flows towards banks or other facilities. Midpen seeks to maintain the materials in place as a habitat feature if they do not pose a threat to the environment or infrastructure. Midpen may trim or limb branches or re-orient the large woody material in the channel. Cables, winches, and heavy equipment would be used to pull or tie large woody material into place. In some areas, hand tools and hand laborers would be utilized. Midpen may also install new large woody materials in the channel in accordance with techniques developed by the California Department of Fish and Wildlife, National Oceanic Atmospheric Administration, and the Salmon Restoration Federation.

Gravel augmentation provides direct benefits for improving fish spawning and rearing habitat by enhancing sedimentary materials within the channel bed. Midpen may use watershed specific gravels collected through sediment removal activities behind in-stream structures (i.e., dams) as the source for gravel augmentation projects. Midpen would collect, sort, separate, and reuse clean and appropriately sized gravel. When designing a gravel augmentation project, several factors would be considered, including: the existing channel conditions; the grain size distribution of the sediment to be added; the volume of gravel to deposit; the frequency of gravel addition that would be required in light of sediment transport; how the added gravel would interact with to the existing flow regime and/or channel geometry; and the extent of augmentation effects within the channel reach. In the future, Midpen may assess opportunities to augment gravel in salmonid streams.

Restoration activities adjacent to creeks and rivers may include floodplain reconnection, including the lowering of artificial berms, streamside decommissioning of roads, and other measures to restore the lateral connectivity of streams.

Some creeks within Midpen lands experience severe sedimentation due to upstream stream conditions. Midpen would proactively prevent failure and reduction of episodic release of road fill through enhancing native riparian habitats. Native riparian habitat enhancement projects would reduce in-stream sedimentation over time, improving water quality for the benefit of fish and other wildlife that rely on the creek for survival, resulting in a net environmental benefit across the region. Work within and around creeks and streams that provide habitat for salmonids would be limited to June 15 to October 31. Work within and around creeks that do not provide habitat for salmonids and do not discharge directly into such drainages would be limited to April 15 to October 31.

Native Vegetation Plantings and Seeding. The objective of native vegetation plantings is to enhance the complexity and diversity of upland and wetland habitats and restore areas disturbed during Program activities. Native vegetation plantings would also enhance habitat for birds, amphibians, and other wildlife using upland, wetland, and riparian areas. Native vegetation plantings would involve planting and seeding locally

collected native species; installing temporary irrigation, as necessary; controlling weeds and target invasive plants through manual, mechanical, or biological methods such as herbicide application, prescribed fire or use of grazing animals; installing herbivory protection structures. Erosion control BMPs such as straw wattles, coir rolls, certified weed-free straw, and erosion mats would be implemented to minimize impacts to streambanks and to prevent erosion and soil loss.

Treatment of Invasive Species. All invasive species removal would be conducted under Midpen's IPMP, which emphasizes an ecological approach to managing pests (plant and animal). Midpen actively treats 105 plant species on their lands using various methods including manual, mechanical, chemical (e.g., herbicide and fungicide), and biological control (e.g., bio-control agent). Manual removal may include the use of hand picks, planting knifes, weed wrenches and other hand tools. Mechanical removal methods may include the use of brush cutters, hedgers, chainsaws, chippers, and mowers. Chemical methods involve the use of herbicides, including Roundup Custom (Glyphosate), Roundup ProMax (Glyphosate), Milestone (Aminopyralid), Transline (Clopyralid), Polaris (Imazapyr), Stalker (Imazapyr), Envoy Plus (Clethodim), Capstone, and Garlon 4 Ultra. Biological methods may include using other organisms to control pests. Flaming of seedlings, burn piles, and prescribed fires may also be used. Depending on the target species, surveys, treatments, and monitoring may occur year-round. Midpen anticipates working on up to 100 invasive plant removal projects per year.

Invasive animals are generally found in humanmade stock ponds and reservoirs but may occur in natural sag ponds. Midpen would employ several methods to control invasive animal species, including through temporary seasonal draining of ponds to control bullfrogs and/or non-native fish; shooting or trapping to eradicate bullfrogs and feral pigs, and trapping nonnative turtles. Because it is challenging to completely eradicate a species, Midpen typically controls pest numbers, removes individuals that have the greatest impact on critical resources, or excludes a pest species from a defined sensitive area. Programs to control invasive plant and animal species often require a long-term commitment. Midpen anticipates working on up to three invasive animal species removal projects per year.

Activities Not Covered. The proposed Program does not include large, complex projects, such as new paved parking areas, new ponds, new offices, or other projects that significantly increase visitor capacity to Midpen OSPs. These types of activities would be outside of the scope of the Program and thus, would be permitted separately (to the extent that permits are needed for those activities).

In addition, emergency maintenance actions or unplanned repair work are not included in the Program. A situation is considered an "emergency" if it is a sudden, unexpected occurrence involving a clear and imminent danger that demands immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services (Public Resource Code Section (PRC) 21060.3). Although emergency situations will not be covered by the permits authorizing the activities of the proposed Program, Midpen would make every effort to follow the guidance provided in the Manual when implementing activities under emergency conditions.

The Hicks Creek Mitigation Project fits the description of projects covered by the programmatic permits, however, this would need to be confirmed by the resource agencies that issued the permits as well as the available capacity within the permits.

- USACE Permit No. SPN-2019-00146 requires specific information be provided in advance, and will need information about potential impacts and avoidance measures related to California red-legged frog, salmonids, and cultural resources to consult with other agencies (U.S. Fish and Wildlife Service, NOAA Fisheries, and State Historic Preservation Office).
- RWQCB Order No. R2-2022-0004 includes restoration actions, but it does not specify Hicks Creek as being within the Midpen Routine Maintenance Program (RMP) Manual. Midpen has indicated that Hicks Creek not being listed in the permit does not preclude coverage under it (D. Liefert, pers. comm.). The project must adhere to BMPs and avoidance and minimization measures in the RMP Manual to be covered by the Order. The RMP Manual has an extensive list of BMPs, including consultation with state and federal resource agencies, species handling methods, biological monitoring, and cultural resources assessment that will be included in the project.
- CDFW Lake or Streambed Alteration Agreement (SMO-22941-R3) covers a broad geographic area and incorporates measures for a wide range of species. It does not provide take coverage for state or federally listed species. All of the impact minimization and avoidance measures listed in the permit can be implemented at this site.

2.9 Midpen Review and Approval

On March 31, 2025, a letter of support for the Hicks Creek Mitigation Project was provided to JPB by Midpen staff and is included as **Appendix B**.

Midpen has established Resource Management Policies to guide activities on Midpen lands in a way that protects natural resources. The Hicks Creek Mitigation Project is in keeping with Midpen Resource management policies associated with Water Resources (WR), Vegetation Management (VM), and Wildlife Management (WM), specifically policies WR-6, WR-7, WM-1 , and WM-2 as further detailed below[1].

Policy WR-6 *Preserve and enhance fisheries habitats.*

- *Inventory and assess stream reaches accessible to anadromous fish to identify impediments to fish passage and opportunities for habitat enhancement.*
- *Remove artificial barriers to fish passage where removal will enhance spawning and rearing habitats.*
- *Enhance spawning and rearing habitats for native fisheries through restoration. Prioritize restoration and enhancement of areas providing habitat to sensitive species.*
- *Monitor sensitive fish species populations in District waters.*

[1] https://www.openspace.org/sites/default/files/Resource_Management_Policies.pdf

- *Monitor water quality and condition of high priority aquatic habitats associated with District projects containing spawning, breeding, rearing habitat for special status fish, reptile, amphibian, or other aquatic species.*

Policy WR-7 *Preserve and enhance ponds and other wetland habitats*

- *Maintain ponds or other water bodies as wildlife watering sources as appropriate*
- *Inventory and assess ponds and wetlands to identify opportunities for habitat maintenance and enhancement*
- *Monitor sensitive reptile, amphibian, and aquatic organism populations dependent on District wetlands.*
- *Preserve ponds through maintenance of artificial impoundment structures where ponds provide habitat for sensitive and other wildlife species.*

Policy VM-1 *Maintain the Diversity of Native Plant Communities*

Policy WM-2 *Protect, maintain and enhance habitat features that have particular value to native wildlife.*

2.9.1 Approval Process

Midpen would follow the following procedure for approval. This includes:

- Initial request for mitigation on Midpen land by JPB, including provision of proposed design (Complete)
- Midpen development of a staff report to Midpen's Board recommending the project and requesting that the General Manager be authorized to negotiate a mitigation agreement. (Anticipated to be presented at the July 9th Midpen Board meeting)
- JPB provision of a memo describing the Hicks Creek Mitigation Project's alignment with Midpen's Mitigation Policy.
- Completion of a wetland assessment for the Hicks Creek Mitigation Project area
- Completion of the design and mitigation monitoring plan with Midpen staff input and review
- Midpen Board approval to pursue the project by entering a mitigation agreement.

Midpen's Board approval would be contingent on the following evaluation criteria:

(1) Alignment with District Mission, Policies, and Goals: How does the project and the mitigation align with the District's Mission and Goals?

(2) Proximity to District Lands and Regional Context: What is the geographic proximity to the external project (the GRBR project)?

(3) Public, Partner, and Social Implications: What are the potential public, societal and partner implications?

(4) Low-impact Project Design and Appropriate Mitigation: How has the external entity (JPB) first reduced environmental impacts through GRBR project design before approaching the District with a mitigation request?

(5) Ecological Impact versus Value: What is the ecological impact of the project versus the ecological value of the proposed mitigation?

Final Midpen approval of a Memorandum of Agreement/Memorandum of Understanding would take place after that document is prepared and the JPB CEQA Addendum is completed. The Midpen Board, as a responsible agency, would review JPB's CEQA Addendum with the Board action, as well as file a Notice of Determination.

At JPB, approval would involve preparation and approval of the MOA/MOU. At the Board meeting granting approval, the Board would consider the CEQA Addendum, and JPB would issue a Notice of Determination with the Santa Clara County Clerk and State Clearinghouse.

During a conversation between JPB and RWQCB on April 22, 2025, RWCQB agreed that based on the project concept, the Hicks Creek Mitigation Project could contribute mitigation credits towards the GRBR project RWQCB jurisdictional impacts. Based on this feedback from RWQCB, JPB will proceed with further developing the Hicks Creek Mitigation Project and proceed through the process toward approval.

3 HABITAT AGENCY

3.1 Background

The Santa Clara Valley Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP; "Valley Plan" is a regional planning document that uses mitigation fees from development within its service area to protect, conserve, and restore habitat for state and/or federally listed species in the Santa Clara Valley. It was established by six local municipalities/agencies to simplify the permit process for legally defined "take" of federally or state listed species and their habitat during otherwise lawful activities, such as urban development. While the Santa Clara Valley Transportation Authority (VTA) is a co-permittee, JPB is not a co-permittee, but JPB can participate in the Valley Plan through a Participating Special Entity (PSE) Agreement.

The Valley Plan was adopted in 2013 and has a 50-year term. It is implemented by the Santa Clara Valley Habitat Agency. It covers primarily terrestrial species and fish habitat, but it does not cover fish. The permits are with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). NOAA Fisheries, which is responsible for federally listed fish species, is not a participant in the HCP/NCCP. Subsequent to the issuance of the Incidental Take permits (ITP), the U.S. Army Corps of Engineers (USACE) issued Regional General Permit 18 (RGP 18) to cover projects in the Valley Plan service area that trigger Clean Water Act permits. The Regional Water Quality Control Board (RWQCB) has not issued a General Order, so there is not a similar permit avenue with the RWQCB.

CDFW confirmed in concept that JPB could obtain needed CDFW mitigation credits for the GRBR project from the Habitat Agency.

3.2 Participating Special Entity (PSE)

JPB is not a signatory to the Valley Plan, however, public or quasi-public entities that are not subject to local land use authority and regulated utilities are not subject to the Valley Plan unless they voluntarily seek coverage and are approved as a Participating Special Entity (PSE). PSEs may obtain incidental take authorization via an agreement with the Habitat Agency for projects in the permit area. The Guadalupe Bridges project is within the permit area, and JPB can obtain coverage under a PSE Agreement. There is precedence because JPB was a PSE with the Los Gatos Creek Bridges project.

The Valley Plan specifies the criteria for approval of projects via PSE Agreements and includes a template agreement. Each PSE Agreement is a contract that legally binds the PSE to the terms of the Valley Plan, Implementation Agreement, and Wildlife Agency permits. The California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service (as signatories to the Valley Plan Implementation Agreement), as well as the Habitat Agency Implementation Board approve each PSE Agreement.

A PSE Agreement requires the following (excerpted from the PSE Agreement Information):

- the proposed project complies with all terms and requirements of the Governing Documents (Habitat Plan, Implementing Agreement, permits)
- the Wildlife Agencies have concurred in writing with approval of the PSE application and the proposed project,

- the impacts of the proposed project fall within those analyzed in the Habitat Plan, the Endangered Species Act Section 7 biological opinion for the Habitat Plan, and the Habitat Plan's EIR/EIS in general type, location, magnitude, and effects,
- the impacts of the proposed project do not deplete the amount of take coverage to such an extent that not enough is available for future covered activities (activities conducted through eligible covered projects undertaken within the Habitat Plan permit area),
- the proposed project does not conflict with the conservation strategy or the ability of the Habitat Agency to meet Habitat Plan goals and objectives, and
- the PSE Agreement will further the ability of the Habitat Agency to implement Habitat Plan goals and objectives.

The PSE Agreement process includes:

- Preparing an application that includes a project description, existing conditions and impacts (Landcover Analysis), determination if the project is in a wildlife survey area, identification of applicable avoidance and mitigation measures, fee calculations, CEQA documentation, a fee, and an administrative cost recovery agreement.
- The Habitat Agency will review and submit it to the wildlife agencies (USFWS, CDFW).
- Once the wildlife agencies approve, the applicant reviews and signs the PSE Agreement
- Habitat Agency Board Approval and final payment of all fees prior to receiving certificate of inclusion

Once the fees are paid, project impacts are covered by the Valley Plan. The Habitat Agency uses the fees to benefit similar habitat in the permit area.

3.3 Purchase Credits

The fees that are calculated as part of the PSE relate to the area of landcover (i.e., habitat types) that are impacted. The Valley Plan specifies the methodology for determining the impacts to landcover and a formula for calculating the fee. It is necessary to determine specific landcover impacts prior to calculating the fee.

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Appendix A

Typical Engineering Risks and Risk Management Actions

Table A1. Typical Engineering Risks and Risk Management Actions

Engineered Element	Risks	Management of Risk
Overall Restoration Design	While the Project reach exhibits some geomorphic dynamism, it is highly constrained by existing infrastructure. This necessitates extensive rock armoring to promote stability. Despite this engineered stability, natural geomorphic processes, such as sediment deposition and localized scour, may still occur particularly during large storm events. These processes have the potential to impact the functionality and integrity of the designed features, particularly those with specific and detailed objectives.	The restoration design should prioritize large-scale features, including large boulder grade controls, pools, and large wood structures. These features are anticipated to generally provide both habitat complexity and long-term stability against erosive forces and scour. The robust nature of these features is anticipated to retain their desired roles in promoting stream function while still accounting for and anticipating geomorphic changes over time. This approach enhances the Project's long-term ecological benefits while acknowledging the dynamic nature of the river system. It is strongly recommended that Stillwater's engineer and/or restoration designer is closely involved in the conception and execution of the Project to ensure that all features are constructed as designed and/or appropriately modified to adapt to field conditions observed during construction.
Large Wood Structures	Flow velocities and shear forces within the Project reach are excessively high. As such, all proposed large wood designs must carefully consider the forces acting on each structure during storm events. There is critical infrastructure downstream that could be adversely affected by mobilized large wood.	To minimize the risk that large wood structures are disarticulated and transported downstream, the stability of the structures should consider a 20-year design life, and apply a rational method of force determination and specification of the necessary ballast and anchorage anticipated to attain the desired factors of safety (FOS) adopted for the Project, with respect to the structure's risk of sliding, floating, and/or overturning. Additionally, Stillwater staff or delegate should witness and observe construction and conduct post-project monitoring to confirm and determine that the structures are assembled as designed and performing as intended. Post-project monitoring should be planned during the first two winters following significant storm events; in subsequent years monitoring should be planned for flow events that are expected to exceed the velocity and depth of previous events. This monitoring should plan to identify changes in site conditions that may affect functionality and durability of the installed features (i.e., newly mobilized large wood, new significant scour, or repositioning of an existing structure).
	Large wood structures typically have a design life of approximately 20 years due to declining strength related to wood decay, presenting a known reduction in habitat resource and complexity.	To account for the estimated 20-year design life of the large wood, the structures should include boulders that will continue to provide habitat complexity even after the wood rots. The design should incorporate riparian planting in the design to provide additional riparian wood and root matter that may support natural replacement of rotten large wood.
	Large wood structures typically have a design life of approximately 20 years due to declining strength related to wood decay, presenting a risk of mobilized portions of large wood structures becoming unmoored and mobile	To account for the estimated 20-year design life of the large wood, the structures should be sized to be at least 1.5 times as long as the typical channel width at the top of its banks. A theoretically mobilized piece of large wood of sufficient length within a natural stream system reflective of these anticipated conditions would not be expected to travel significant distances downstream and would be anticipated to become lodged and pinned in channel curvatures, existing large wood, vegetation, or other natural features within the creek system shortly after theoretical mobilization. The nearest crossing under a roadway occurs at Hicks Road, approximately 0.5 miles downstream.
	In a future large storm event, sediment delivered to the Project reach from upstream sources may change channel morphology in ways that adversely impact the functionality of the proposed structures.	The proposed addition of large wood and boulder structures within the Project reach are anticipated to make channel morphology and typical habitat within the Project area more resilient to potential future geomorphic changes.
Large grade control structures	The proposed channel design concept incorporates large grade control structures made from large immobile "boulders" and engineered streambed material (ESM) to promote establishment and maintenance of the desired channel form and function. However, there is a risk that these structures may not effectively control grade, potentially leading to unintended channel incision or aggradation. The design proposes inset floodplain benches in tandem with the large grade control structures, theoretically alleviating the forces applied to the rock features during the largest storm events; however, if the inset floodplain benches do not engage during large flow events, the features within the channel may experience an increase in the applied hydraulic forces, promoting the risk of excessive shear stress, erosion forces, and or headcutting and incision at the floodplain, potentially undermining the integrity of the channel and adjacent infrastructure during high flows.	The proposed design should incorporate grade control structures strategically sized and placed throughout the Project reach to promote stability of the channel bed and maintenance of the desired longitudinal profile. These structures need to be designed through application of a rational analysis method that demonstrates their expected stability under anticipated flow conditions, and provides for adequate factors of safety; adhering to the methods outlined in CDFW's fish passage design manual (CDFW 2009) to the extent feasible. Individual boulders within the large rock grade control structures will be of the size anticipated to be immobile during the anticipated worst-case design scenario; these large boulders should be stabilized with smaller wedged cobbles, with ESM and fines jetted and tamped into all the void spaces between boulders at each large grade control structure. Additionally, the floodplain grading could include buried rock grade control structures to reduce the risk of headcutting through the proposed inset floodplain benches.
	The proposed channel design concept incorporates large grade control structures made from large immobile "boulders" and ESM to promote establishment and maintenance of the desired channel form and function. However, there is a risk that these structures may not effectively control grade, potentially leading to subsurface flows through the grade control structures instead of over, this potential risk would be anticipated to produce shallow pools lacking surface water connection, especially during low flow events. If left unresolved, the risk of developing significant piping of water through preferred flow paths within and under the large grade control structures would be anticipated, promoting the risk of instability and hindering the attainment of the mitigation potential.	The well graded mixture of ESM will be packed into the voids of the large grade control structures and packed into the pool and channel bed between the proposed large grade control structures. This smaller material should be tamped, jetted, and/or flooded into place to minimize hyporheic flow. Ensuring interstitial void spaces are adequately packed with finer material is essential to maintain surface flows. Applying Similar methods of rock sizing, produces the size distribution of cobbles, rocks, gravels and sandy "fines" appropriate for creating the ESM that fills the bed substrate between the large grade control structures. The ESM should include a matrix of coarse sand and silt that composes up to 10 percent of the final mixture. The anticipated optimal ESM particle size distribution should be calculated using methods of USACE (1994), Bates et al. (2003), and CDFW (2009). Rocks from the D_{84} to D_{100} size classes will be used as stable bank line rock that will form an active channel margin through the reach and long the periphery channel and bottom of banks. The channel should incorporate additional partially buried rocks of this size class as dispersed keystone rocks within the bed to accomplish the following: dissipate energy, increase hydraulic variability, create micro low-velocity refugia for aquatic species, and provide bank toe stability. The largest rock size should consist of angular boulders and large cobbles, with smaller rock packed into interstitial void spaces. ESM should be placed in lifts between 0.5 and 1.0 feet in thickness; and should typically occupy at least 2 ft of typical thickness along the bed; to be further refined in subsequent design phases.
Rock Sizing	The long-term stability of the rock features is crucial to the success of the Project. Improperly sized or installed rock features may become unstable over time, particularly during high flows. This may promote	Rock features will need to be carefully sized and designed using established engineering methodologies incorporating variables such as: flow velocity, shear stress, and local channel morphology to determine the corresponding appropriate rock dimensions, configuration, and respective

Table A1. Typical Engineering Risks and Risk Management Actions		
Engineered Element	**Risks**	**Management of Risk**
	unraveling, displacement, or undermining of the proposed features, compromising their intended function, resulting in increased risks of erosion, scour, and the potential for undesirable geomorphic changes within the Project reach.	gradations. The design of the proposed rock features will need to prioritize robust design and adequate embedment deeply into surrounding banks and interlocking to resist displacement and promote structural integrity, through the estimated range of flow conditions. This approach generally encourages rock features to effectively prevent scour, enhance bank stability, minimize erosion, and preserve the intended geomorphic shape of the channel over time
Erosion and Scour	Under high flow conditions, the main channel thalweg could deviate from its intended course and shift onto an alternate course, potentially inducing erosion and instability within the side channel banks.	Any proposed side channel design should incorporate a sufficient elevation offset above the main channel thalweg to limit activation to flows exceeding applicable design storms. Additionally, rock slope protection (RSP) and bank stabilization measures should be integrated to reinforce channel boundaries and resist potential erosive forces.
	Scour processes, particularly in high-velocity zones, pose a long-term risk to the structural integrity of the installed large wood and rock features. Cumulative scour effects may undermine the foundation of these features, potentially leading to instability and failure over time.	The design should incorporate riprap armoring and implement gradual channel curvature transitions to minimize localized scour susceptibility. To encourage long-term stability, detailed scour calculations should be performed to inform the design of keyway trench and rock embedment depths. This approach is anticipated to reinforce the foundation of rock structures and help to protect against potential undermining. Included as a form of conservatism, the rock structures themselves should be sufficiently sized to presume some toe rocks could be partially undermined without compromising the overall functionality of the scour protection feature.
Fish Passage	The proposed design incorporates grade control structures and ESM to establish and maintain the desired channel form and function. Despite this engineered stability, natural geomorphic processes, such as scouring and headward erosion, may still occur, particularly during large storm events. These processes have the potential to impact the functionality and integrity of the designed features, particularly with respect to fish passage.	The large grade control structures and ESM should be designed with a low flow notch of sufficient size to provide fish passage. Additionally, the design strategically places the proposed grade control structures throughout the project reach to limit and evenly distribute the longitudinal slope of the proposed restored creek, with each large grade control structure installed above a pool feature; pools should at a minimum be 2 ft deep. Some small scour pools may form over time between the grade control structures and on the downstream side of large wood structures because of large flow events. These scour pool patterns and regions of flow and velocity variability are anticipated to provide resting pools and refugia for migrating fish to navigate upstream at a reasonable pace. Post-project monitoring will evaluate fish passage conditions and inform any necessary adjustments to ensure that future changes to channel morphology do not negatively impact fish passage.

Appendix B

MidPen Staff Letter of Support

March 26, 2025

Michael Tauchen, Deputy Director – Environmental Compliance
Caltrain
1250 San Carlos Ave.
San Carlos, CA 94070

Submitted via email: tauchenm@caltrain.com
CC: oconnorb@caltrain.com

Re: Proposed External Mitigation Project At Sierra Azul Open Space Preserve

Dear Mr. Tauchen,

Midpeninsula Regional Open Space District (Midpen) staff supports the proposal to utilize restoration at Sierra Azul Open Space Preserve as mitigation for impacts associated with Caltrain's capital projects in the Guadalupe Creek Watershed. This project will enhance habitat for federally threatened steelhead and other native species by restoring instream and riparian habitat and hydrological processes at a site acquired by Midpen in 2008. The proposed restoration aligns with Midpen's long-term conservation goals, supports the regional health and resiliency of natural resources, and represents an opportunity to demonstrate effective partnership and collaborative conservation by advancing both infrastructure and environmental stewardship.

Midpen staff support the restoration project and will bring it for approval by the Board of Directors. However, formal approval by the Board is required, consistent with the District's Mitigation Policy (attached), which mandates Board review of mitigation projects over $50,000 or involving significant ecological considerations. We understand that this project may involve coordination with multiple regulatory agencies, and we are prepared to assist Caltrain with navigating the necessary permitting and compliance requirements.

We look forward to continued collaboration on this important restoration effort. Please let us know how we can assist with further project development or regulatory coordination.

Sincerely,

Brian Malone

Brian Malone, Assistant General Manager