

Technical Memorandum

To: Allison Schuch, Executive Director, Fountain Creek Watershed Flood Control and Greenway District

From: Lucy Harrington and Tom Smrdel, GEI Consultants, Inc.

Date: November 10, 2023

Re: Phase 2 In-Lieu Fee Program Investigation Results for the Fountain Creek Watershed Flood Control and Greenway District
GEI Project No. 2204108

GEI Consultants, Inc. (GEI) was retained by the Fountain Creek Watershed Flood Control and Greenway District (District) to perform a second phase of a feasibility study on the development and implementation of an In Lieu Fee (ILF) program. This study was sought by the District to determine whether an ILF program could aid in completing restoration objectives that would meet the goals of the District. It is our understanding that these goals include:

- Implementation of restoration per the Strategic Plan for the Fountain Creek Watershed (Watershed Plan) and the Fountain Creek Corridor Floodplain Management Opportunities Study (FMO);
- Provide funding for land acquisition and long-term management and monitoring of new and existing restoration projects; and
- Provide additional income sources to help offset District overhead tasks.

This technical memo provides a summary of the initial findings from Phase 1 of the study, methods and results of findings from Phase 2, and proposed next steps.

1. Summary Results – Phase 1 Investigation

In fall 2022 through winter 2023, GEI performed an initial desktop analysis of existing and anecdotal information to determine the viability of developing an ILF program that could meet the above goals established by the District. This analysis focused on the review of publicly available documents and interviews with the District and potential ILF clients, which were summarized in a technical memo dated 4/21/23 (Phase 1 technical memo). The purpose of this initial analysis was threefold: first, to gain a high level understanding of the ecological feasibility of implementing restoration that could meet regulatory mitigation requirements within the Fountain Creek watershed; second, to understand the market demand from local entities for produced credits resulting from the restoration; and third, gauge regulatory acceptance of such a program. By evaluating the ecology viability, market demand, and regulatory buy in of an ILF program, the District would begin to have an understanding of the three vital “legs of the stool” necessary for a successful mitigation program.

Ecological Feasibility

Phase 1 results related to ecological feasibility were based on the review of previously developed studies such as the Fountain Creek Watershed Study, Watershed Management Plan (U.S. Army Corps of Engineers [USACE] 2009) and the Fountain Creek Corridor- Floodplain Management Opportunities Study (Matrix and THK Associates 2019) or the FMO, among others. After reviewing these documents, seven of the 18 Focus Areas in the FMO were identified as having moderate to high mitigation potential. This was based on factors such as:

- **Ecological Lift:** The amount of credits that could be developed in relation to cost and effort.
- **Site Stability:** Constructability of a project and the subsequent ability to meet regulatory performance standards.
- **Phased Approach Potential:** Flexibility to increase or decrease restoration project size and/or complexity based on the amount of funds available within a potential ILF program account.
- **Multiple Credit Types:** Ability of a Focus Area to address multiple market needs (e.g., wetlands, streams, and listed species at a single site).
- **Real Estate:** Single owner and/or publicly owned properties and absence of complex infrastructure (e.g., railroads, roads, etc.)
- **Water Rights:** Absence of significant diversions or return ditches on identified restoration parcels.
- **Visibility:** Ability of the public to view and learn from the mitigation site.

Based on this desktop review it was further determined that three Focus Areas, including T-Cross, Hancock Ranches, and Fountain North warranted a site visit to confirm desktop assumptions and development of conceptual designs as part of a Phase 2 investigation.

Market Demand

Interviews with representatives from water districts, municipalities, private developers, the Colorado Department of Transportation (CDOT) and various military installations revealed that there is a high level of interest within the community for both wetland and stream credits, especially from Colorado Springs Utilities (CS-U) and the City of Colorado Springs (City) as well as the home development community. There is also interest, though more limited, for species credits including Preble's meadow jumping mouse (*Zapus hudsonius preblei* [PMJM]), black rail (*Laterallus jamaicensis*), and monarch butterfly (*Danaus plexippus*) from CDOT and the Air Force Academy (AFA). The AFA is also curious as to how mitigation offsets could be developed for water quality trading, particularly with Per- and Polyfluoroalkyl Substances (PFAS). The primary motivation for all of these entities in the development of an ILF program is the desire for a faster permitting timeline as well as cost savings via reduced mitigation ratios that accompany the use of a USACE- approved mitigation program. Finally, these investigations revealed that additional written resources were available for review that could further expand the District's understanding of market demand.

Regulatory Acceptance

Communication with the Interagency Review Team (IRT), which is comprised of federal and state agencies responsible for review and approval of mitigation programs, revealed that both the USACE

and Colorado Parks and Wildlife (CPW) are interested in the establishment of an ILF program. Representatives from CPW indicated that native and recreational fisheries, wetlands and streams, and terrestrial species habitat mitigation were of interest, while staff from USACE stated that they would be interested in solutions for stream impacts, specifically, especially in areas in and around the Sand Creek Basin. While the USACE could not provide a more precise indication of potential mitigation demand in the next three to five years, they encouraged the District to submit a “friendly” Freedom of Information Act (FOIA) request to better understand mitigation demand within the past five years to help determine local trends. Additionally, the USACE recommended developing a draft prospectus, a common and relatively short document, outlining the broad strokes of an ILF program as described in the 2008 Mitigation Rule (USEPA 2008).

Phase 1 Recommendations

Based on these initial results from Phase 1, the following recommendations were made:

1. Conduct site visits to the three identified focus areas to fill data gaps, develop conceptual designs, and understand high level project costs to determine credit pricing should the District decide to move forward with ILF development.
2. Review additional documentation identified by CDOT, the City, and others during Phase 1 to further understand perceived future mitigation demand by potential clients.
3. Obtain and analyze USACE records under the FOIA process to understand historic mitigation demand.
4. Develop a draft prospectus to flesh out program development and receive formal feedback from the IRT.

2. Phase 2

Based on the results of Phase 1, the District’s Board of Directors (Board) and the Technical Advisory Committee (TAC) approved GEI to move forward with completion of a Phase 2 investigation to complete Phase 1 recommendations one through three in spring 2023. The results of these tasks are detailed below.

2.1 Ecological Restoration

Ecological restoration investigations completed as part of Phase 2 focused on site visits, data gap review, conceptual design development, and financial modeling to develop a “straw dog” evaluation of a potential ILF. Each of these steps contributed to further confirming that high quality restoration can be performed at the selected sites while simultaneously meeting federal mitigation standards and providing credits at a cost that will be appealing to potential consumers.

High level water right assumptions were also incorporated into design and costing estimations. This included focusing conceptual designs on the utilization of high river flows and passive subsurface water movement through naturally occurring alluvium within the historic floodplain. This allows for subsurface irrigation without additional exposure and/or slowing of surface water, potentially placing the selected projects within the scope of new state legislation as described in SB23-270. Additional water right alternatives contemplated considered the use of leased wastewater from various utilities for initial vegetative establishment at the ILF sites; however, in depth discussions of these options have yet to occur. The District will need to examine these and other water right solutions for the

overall program during ILF development and for specific sites once project implementation proceeds, assuming ongoing District interest.

Site Visit and Data Gap Review

In reviewing ecological restoration alternatives, GEI first conducted site visits to four locations. This included Falcon North and T-Cross Ranch, which were identified as preferred locations in Phase 1. While Hancock Ranch was selected for a site visit in Phase 1, it was not included in Phase 2 as site access could not be secured. Instead, site visits were added at Frost and BJ Ranches. Frost Ranch was added to the list of visited locations due to both landowner and Board interest in performing bank stabilization work on this property and the ability of this site to provide significant stream and fisheries improvements to the ILF. BJ Ranches was selected due to property availability (the site is currently for sale) and because of the relatively easy phasing of a variety of restoration activities that could be conducted at this location, thus providing future program flexibility. Conceptual designs of each of these focus areas are provided as Appendix A. A summary of each of the conceptual projects is provided below.

Conceptual Design

Design concepts were developed to encourage significant credit development while promoting high quality restoration inline with regionally appropriate ecological functions and augmented community health and safety. Across all properties, wetland re-establishment and enhanced wetland credits were considered. Re-establishment credits offset mitigation-to-impacts at a 1:1 ratio and entail rebuilding wetlands in areas where wetlands historically existed but are no longer present due to agriculture, development, water management, or other factors. Frequently, development of these credits requires significant earthwork and includes practices such as lowering the floodplain or recreating high flow channels. Enhancement credits offset mitigation-to-impacts at a 2:1 ratio. These credits are formed by improving degraded wetlands within a selected property, increasing their ecological functions. Activities associated with enhancement include noxious weed control, minor earthwork, and native seed planting. Preservation credits associated with existing high value wetlands were not considered at this level as preservation credits are available at a mitigation-to-impact ratio of ~10:1 and require a number of USACE approvals for use. Incorporation of these credits may be considered during full ILF development. Stream credits were also examined at each of the sites considered. Stream credit potential was made through a high-level application of the Colorado Stream Quantification Tool (CSQT) and translated into Functional Feet (FF) which is the measurement used with the CSQT.

Each of the proposed projects incorporate elements that will benefit black rails, such as shallow foraging areas. Monarch butterfly improvements can also be brought into project designs by including preferred forage items, such as native milkweed species, into planting plans. Species credit assessments were not calculated as part of Phase 2 as this will require further conversations with U.S. Fish and Wildlife Service (USFWS) to include these species as there is not a formal mitigation policy for this agency in Colorado at this time. None of the FMO Focus Areas are in locations thought to contain PMJM and are therefore unlikely to result in receiving mitigation credits from the IRT. However, other areas in the north-northwestern portions of the watershed have been prioritized for PMJM conservation and future ILF projects could be developed here if there is sufficient market demand and interest by the District.

State fish species of concern, such as the flathead chub (*Platygobio gracilis*) and the Arkansas Darter (*Etheostoma cragini*) were also considered as part of the conceptual design process as offsets for these species may become important as part of a CPW Fish and Wildlife Mitigation Plan which are often required for large water infrastructure projects. Additionally, consideration of these rare species into design elements is important for IRT buy in and for delivering high quality restoration in the Fountain Creek watershed. Exact credits were not evaluated for these species due to the absence of a codified CPW mitigation policy. However, both federal and state species crediting may be incorporated into the prospectus phase should the District decide to move forward.

Finally, site visits and resulting conceptual designs looked at regional benefits for flood control, recreation, water quality, and bank stabilization. While it is unlikely that the District will receive credits for incorporating these elements into a project, they are key project elements that provide benefits to the region as a whole and aid in stakeholder buy in which will be vital for program function and success.

Costs

Implementation costs for each of the selected sites considered construction costs, mitigation costs, and profit margins for the District. All costs were considered in 2023 dollars and current market rates. It should be assumed that costing assumptions in the model will vary over time and the results may change from external pressures due to items such as inflation, labor availability, and fuel costs. Construction costs considered items such as mobilization and demobilization as well as project implementation. Construction costs also incorporated soft costs such as design fees, construction management services, and permitting. While some of these costs were considered “constants” by dollar or percentage amount across all sites, others were assumed to vary between projects due to design and site complexity. Constant versus variable construction costs are noted on site-specific costing sheets included in Appendix B.

Mitigation costs include items required for an IRT-approved mitigation program. This includes costs for such things as land acquisition, conservation easement or deed restriction establishment, land management and monitoring, entitlement (e.g., mitigation document development and agency coordination), and water right evaluations. Each of the costs in this category are considered constants except for land acquisition which may vary based on landowner needs and general property markets.

Land management costs are also considered a mitigation cost and were developed based on the IRT requirement to set aside funds in a secure investment account prior to implementing each specific ILF project. These accounts are often managed by large non-profits, such as the National Fish and Wildlife Foundation (NFWF) and generally have a rate of return around 3.5%. It was assumed that an average of \$15,000 per year per site would be needed for activities such as invasive species control, trash removal, and addressing homeless encampments. Although we realize that some sites will require additional funding, many will not require as high of a level of maintenance. The exact per year amount will vary largely based on site location; however, \$15,000 was considered to be a suitable average amount. To allow for the funding of this annual budget, each site will need \$430,000 upon site establishment for continuous and ongoing management. Thus, the land management line item is consistent across all projects.

Mitigation costs also incorporated a line item to address water rights, as a solution for legal water right challenges which is required for any USACE-approved mitigation project. Because of the site-specific nature of this requirement, a generic number of \$10,000 per project was added as a line item to each reviewed site to supplement the overall \$15,000 line item per site for attorney fees. This \$10,000 may be used for the purchase of augmentation water, lease water, or other methods that will need to be determined on a case-by-case basis as a precursor for specific project implementation.

Finally, District profit margins were set at 20%. This is the standard at which many mitigation projects are tied in order to adequately cover project costs and provide sufficient funding for future project implementation. This rate of return also allows for the formation of an additional cushion to supplement the standard 10% project contingency should project overruns occur, thus reducing risk to the District.

Project costs were drafted by GEI. Third-party review of these costs was provided by Hill, International as a no-cost add-on to this scope. This allowed for confirmation of costs and additional refinement to model projections.

Conceptual Project Summary

Below is a summary of each conceptual project evaluated. Concept design drawings are provided in Appendix A while project cost summaries are provided in Appendix B. For each project assessed, total costs were distributed across all credits and credit type. This resulted in a “cost per credit” which would be paid by consumers.

Fountain North:

Table 1: Fountain North Credit to Cost Summary

Project Summary	Acres
Re-established Wetlands	53.5
Enhanced Wetlands	15.2
Total Costs (rounded)	\$8M
Cost per Credit	\$130K (wetland only)

Design elements associated with the Fountain North Focus Area include the following key items:

- The notch levee on the north and south side of the site will allow water to enter the site during high flows while also allowing water to drain back to Fountain Creek which may help to prevent fish stranding.
- Propose development of a controlled, stabilized inlet on the north levee to allow for the maintenance of existing and future recreation facilities, bird watching, and educational areas.
- Propose re-establishment of high flow channels throughout the floodplain to provide habitat for native small stream fishes. These areas would connect with the existing pond area to provide year-round habitat and opportunities for fish to move into wetland areas while the area is inundated.

Frost:

Table 2: Frost Credit to Cost Summary

Project Summary	Acres
Re-established Wetlands (Ac)	66.96
Enhanced Wetlands (Ac)	201.7
Stream Credits (FF)	2,719.7
Total Costs (rounded)	\$21M
Cost per Credit	\$122K (wetland)
	\$2.5K (stream)

Design elements focus on restoration of the stream corridor due to the landowner’s desire to avoid changes to the existing hay fields. These improvements include the following key items:

- Perform wetland enhancement within existing wetland areas. This would include cattail management, minor grading/dredging, and revegetation with native plants.
- Improvements to fish habitat by reconnecting Williams Creek with Fountain Creek during high flows.
- Propose to grade Frost Wall at a 2:1 ratio and stabilize this area with native scrub-shrub vegetation and rock. Special attention should be paid to potential impacts to existing hay fields.

BJ Ranches:

Table 3: BJ Ranches Credit to Cost Summary

Project Summary	Acres or Functional Foot
Re-established Wetlands	0.7
Enhanced Wetlands	181.9
Stream Credits	54.2
Total Costs (rounded)	\$4M
Cost per Credit	\$44K(wetland)
	\$3K (stream)

Design elements for this Focus Area concentrate on the restoration of former hay fields and the enhancement of existing onsite wetlands as well as improvement of the stream corridor.

- Propose to develop stream credits and improve habitat for native small fishes by retaining the existing riparian areas and reconnecting Fountain Creek to former hay fields through the enhancement of the historic ditch network, converting these areas into surrogate high flow channels.
- Incorporate existing internal ditch network for water delivery to provide irrigation during initial vegetation establishment period.
- These improvements can be easily broken into phases to allow activities to occur as funding through the ILF becomes available.

T-Cross

Table 4: T-Cross Credit to Cost Summary

Project Summary	Acres or Functional Foot
Re-established Wetlands	326.8
Enhanced Wetlands	103.3
Total Costs (rounded)	\$68M
Cost per Credit	\$180K(wetland)

Design elements on the T-Cross property consist of restoring previous agricultural fields and enhancing current wetlands while maintaining the healthy existing riparian corridor.

- Develop new high flow channel through the existing center pivot, which may be abandoned with property sale, and tie into existing ditch system for fish and wetland habitat credits.
- Re-establish wetlands between center pivot and riparian corridor.
- Bury cattails in existing degraded wetlands on the southern portion of the property with construction spoils and revegetate with native mix.
- Potentially split these activities between multiple phases to manage costs.

Credit pricing across the four evaluated sites varies between \$44,000 and \$180,000 per wetland credit and \$2,500 - \$3,000 per Functional Foot (FF) for stream credit depending on the site. Current costs per credit at mitigation banks in Colorado range from \$150,000 to \$250,000, indicating that costs for credits for a District-led ILF program are within the range of market acceptability.

Between all investigated projects, total construction costs were estimated at \$101M with total available wetland credits at 700 acres and stream credits at 2,773 FF. The average cost to consumers of wetland credits was \$143,000/credit and \$2,500/FF for stream. This brings the total gross of the ILF, assuming all credits are sold, to \$107M. Total net to the District of implementing the ILF Program would be approximately \$26M in 2023 dollars, which is comprised of the 20% profit margin built into credit pricing plus the additional \$6M of revenue earned above and beyond the \$101M input for construction and mitigation costs. These results are summarized in Table 5. For the purpose of this initial “straw dog” effort, it was assumed that all credits would be purchased in a short time frame; during development of the ILF Instrument, the model will incorporate additional metrics such as the loss of money value over time and absorption rates which will be refined with input from the IRT.

Table 5: Financial Summary

Total Construction Project Costs = \$101M
Total Wetland Credits = 700
Total Stream Credits = 2,773.2
Average Cost: Wetland credit = \$143K
Average Cost: stream credit = \$2.5K
Total Net for District = \$26M*

*Straw dog projections; will be further refined during instrument development

2.2 Additional Demand Information

During Phase 1 investigations, several additional documents were identified by interviewed entities as resources that could be reviewed to better understand demand. This included the CDOT Statewide Transportation Improvement Program (STIP) documents and the 10 Year Vision Plan. Additionally, the City and staff from a local environmental consulting firms contacted GEI staff to add to original estimates of demand based on direct recent experience. Our investigation into these resources revealed additional mitigation demand within the Fountain Creek Watershed.

CDOT Documents

CDOT is the largest consumer of wetland mitigation credits in Colorado per the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS 2023). We used the most recent STIP document to estimate the number of credits CDOT may spend in the Fountain Creek Watershed from 2024-2027. The STIP is an annually-updated document that details the planned spending across the state for CDOT for the next four years, with the most recent plan covering 2024-2027. In addition, we looked at the December 2022 CDOT 10-Year Vision Plan, which gives an overview of projects CDOT hopes to complete in the next 1 – 4 years, and the next 5 – 10 years. The estimated spending for both sources might be slightly underestimated, however, as the locations of the projects are not provided. Those that were clearly located within the watershed were included, but several projects only included the names of roads that cross through the watershed. The STIP breaks the projects into annual spending amounts, but the 10-Year Vision Plan gives the overall cost of the project, and whether or not the project will be completed in the specified time period. This difference in reporting accounts for the delta in expected CDOT spending, depending on the original source. Any project that would require significant construction was assumed to have the potential to have impacts to wetlands, whereas simple re-paving projects were assumed to likely not have potential wetland impacts. This distinction was not always clear in the STIP data but was easier to discern in the 10-Year Vision Plan. The results of this investigation are included in Table 6 below.

Table 6: CDOT Capital Investment Summary- Fountain Creek Watershed.

Source Document	Time Period for Estimate	Estimated Spending
STIP	2024-2027	\$79 M
10-Year Vision Plan	2023-2026	\$227 M
10-Year Vision Plan	2026-2032	\$414 M

Other Sources

Conversations conducted after the completion of Phase 1 with the City’s Stormwater Enterprise group revealed a credit demand of between 3 – 5 credits per year is anticipated. This is based on recent changes required by the USACE in credit ratios and greater impacts to streams than originally anticipated. To develop a more conservative estimate, we assumed a credit demand of three credits per year for the sake of our investigation. Additionally, staff from Pinyon Environmental and Walsh stated that home and commercial development clients were seeking wetland and stream offsets for projects throughout the region to assist in ongoing and planned development projects.

Credits may also be needed to offset species impacts for USFWS and CPW as well as future demand associated with fill of Waters of the State per new state regulations (CDPHE 2023); however, as these

agencies do not yet have a formalized mitigation program, it is not currently possible to estimate demand for these credit types. Additional investigation into this information will be gathered through agency interaction during the development of the prospectus and the full ILF program.

2.3 ORM Data Analysis

The final step in the Phase 2 analysis was obtaining and assessing database information from the USACE ORM system. GEI staff obtained ORM data through a “Friendly FOIA” request that included the total permitted fill and amount of mitigation required within the Fountain Creek Watershed from August 2018 – August 2023. The summary of these results is listed below in Table 7.

Table 7: ORM Data Summary

Total Fill Authorized	81.54 acres
Mitigation Required	14.1 acres
Annual Demand	3 credit/yr.

These data only reflect those permits which were issued during the selected time period. Permits that are undergoing review were not included. The overall trend of credit demand assessed demonstrates that mitigation requirements have been increasing over the past three years with mitigation demand split between Permittee Responsible Mitigation (PRM) and credit purchase at USACE-approved mitigation banks. Finally, no stream credits were recorded during this time; however, we anticipate an increase in demand for these credits with the increased requirement for use of the CSQT which was officially released in summer 2020.

As part of our assessment of the ORM data, we also reviewed where mitigation was being performed to better understand mitigation competition for the program. Currently, two mitigation banks serve the Fountain Creek watershed. This includes the Maria Lakes Mitigation Bank, located outside of Walsenburg and the El Paso County Umbrella Bank. Maria Lakes provides wetland credits and currently has 4.53 credits available for purchase. Because this area is several watersheds south of Fountain Creek, mitigation ratios are higher, with the USACE requiring the purchase of credits at a 1:1.75 or 1:2 impact to mitigation ratio. This increases the costs to consumers and would likely make this a less appealing option than a locally approved ILF. The El Paso County Umbrella Mitigation Bank includes several sites within El Paso County. However, credits for this bank can only be sold to El Paso County as an organization, excluding entities such as CDOT, utility providers, and individual parties needing mitigation. In addition, several mitigation banks are listed as “proposed” on the RIBTS website for the region, including Judge Orr, Fountain Creek, and Cramer Creek mitigation banks (RIBITS 2023). Recent discussions with other consulting firms during the course of Phase 2 investigations revealed that these banks are likely not moving forward due to water right concerns and landowner changes. Finally, PRM is always an option for any project. While it is uncertain how much competition PRM may present to the ILF, use of PRM frequently requires higher ratios of mitigation, particularly when an approved ILF program is available per stated preferences in federal mitigation policies (USEPA 2008).

Based on the additional sources reviewed as well as the analyzed ORM database, we assume a demand of between six to ten credits per year within the Fountain Creek watershed. Of these, 3 – 4 credits may use other sources to fulfill their mitigation demand such as credit purchase from a bank or PRM. We therefore believe that a reasonable estimate of credit sales from the ILF be 3 – 6 credits per year. These results are summarized in Table 8. Based on this rate of consumption, the District may expect to see approximately \$143,000 per year net gain from the ILF on top of project implementation in 2023 dollars. As material costs change, overall credit costs will need to be adjusted accordingly to retain this level of profit. The appropriate escalation rates will be further examined and included as part of full ILF development.

Table 8: Summary Demand

Credit Demand = 6 - 10 credits/yr
Competition = 3 - 4 credits/yr
Total Restoration Net = 3-6 credits/ yr*
Total District Funds Net = \$143K/y

3. Next Steps

Based on our development of conceptual designs, review of additional demand information, and analysis of ORM data, an ILF program continues to be viable for the District. Concepts demonstrate that high quality wetland and stream restoration can be implemented at a cost that will be attractive to consumers while providing profits for the District. Demand and competition analysis continue to demonstrate a need for the program that could benefit development projects throughout the region. Based on this information, we recommend the District proceed with the next phase of ILF program development.

For the next phase, we recommend the following process:

- Development of a draft prospectus. Preparation of this document is the first official step toward the development of an ILF program for IRT review under the 2008 Mitigation Rule defined process. Completion and submission of the draft prospectus will allow the IRT to provide written and verbal comment on the ILF program regarding important items such as Service Area and implementation schedules. The cost for the development of this document will be \$25,000.
- Upon approval of the prospectus, the estimated cost for completion of an ILF is \$135,000. This cost may be adjusted based on IRT feedback and the addition of credits beyond stream and wetlands due to the additional agency coordination required for inclusion of these emergent credit types.

The full prospectus will further define the details of the program, such as long-term management and monitoring processes and collected funds management. This document will then be put out to formal

public notice on the USACE website for public review and comment. Upon completion of the public notice process, the IRT will authorize the development of full ILF program documents for agency review and signature. It is anticipated that ILF development costs will be recouped by the District within two years of ILF program development based on the current anticipated credit consumption rate.

4. References

- Colorado S.B. 23-270 (Introduced and Amended) – Agriculture and Natural Resources Committee. Concerning Projects that Restore the Environmental Health of Natural Stream Systems without Administration. 2023.
- Colorado Department of Public Health and Environment (CDPHE). 2023. Clean Water Policy 17. Enforcement of Unpermitted Discharges of Dredged and Fill Material into State Waters. July 6, 2023. Available at: <https://cdphe.colorado.gov/dredge-and-fill>
- Matrix Design Group, THK Associates, Inc. 2019. Fountain Creek Corridor - Floodplain Management Opportunities Study. 127 pp.
- U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (USEPA). 2008. Compensatory Mitigation for Losses of Aquatic Resources. 73 FR 19593. Effective date: June 9, 2008.
- USACE. 2009. Fountain Creek Watershed Study, Watershed Management Plan. 236pp.
- USACE. Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS). Available at: <https://ribits.ops.usace.army.mil/ords/f?p=107:2> Accessed: September 21, 2023.

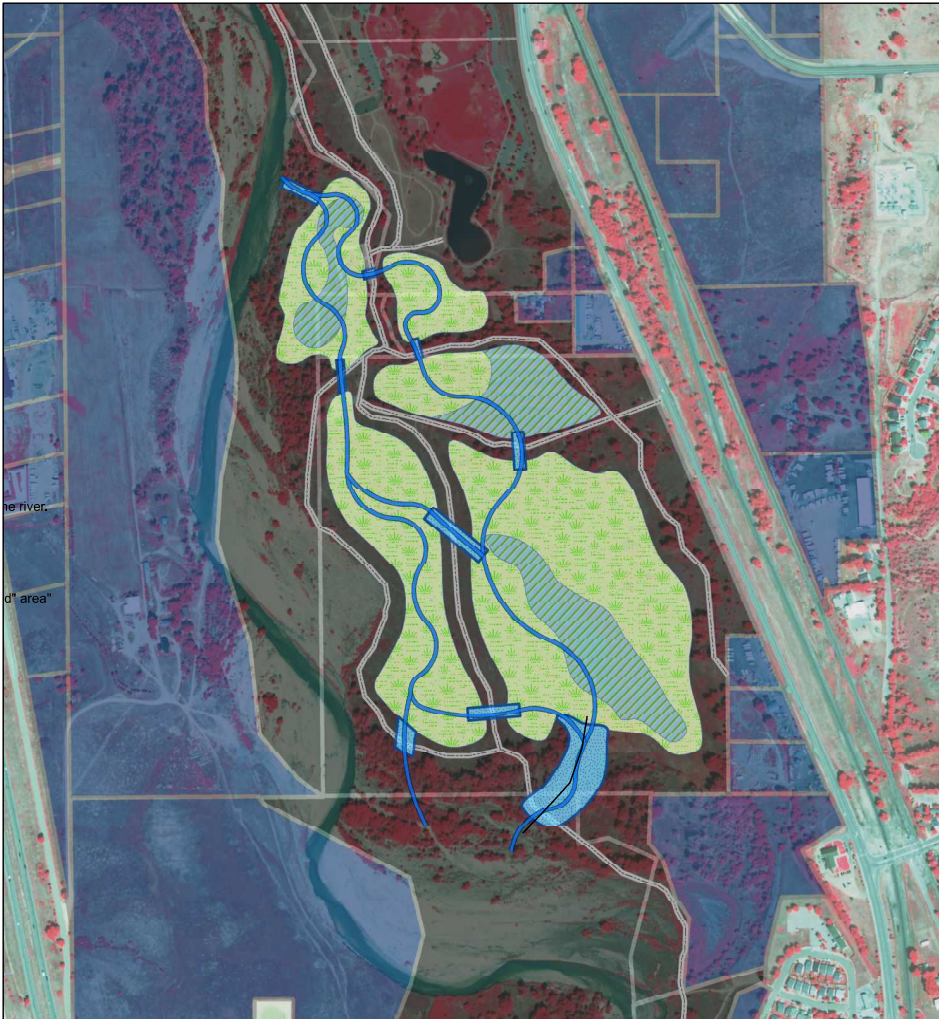
Appendix A: Conceptual Design

FOUNTAIN NORTH WETLAND REESTABLISHMENT AND ENHANCEMENT PROJECT

Project Summary	Acres
Reestablished Wetlands	53.5
Enhanced Wetlands	15.2

Legend

- Trail
- Proposed Design Features**
- Enhance Wetland
- Reestablish Wetland
- Surface Water Connection
- Parcels**
- Others
- El Paso County
- Connectivity Channel

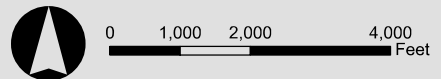


FROST WETLAND/STREAM REESTABLISHMENT AND ENHANCEMENT PROJECT

Project Summary	Acres/Ft
Reestablished Wetlands (ac)	66.9
Enhanced Wetlands (ac)	201.7
Stream Credits (FF)	2,719.7
Total Stream Length (ft)	24,597.0

Legend

- BJ Ranches Parcels
 - Tee Cross Ranches Parcels
 - Frost Ranch Parcels
- Proposed Design Features**
- Enhance Wetland
 - Reestablish Wetland
 - Frost Wall
 - Connectivity Channel



BJ RANCHES WETLAND REESTABLISHMENT AND ENHANCEMENT PROJECT

Project Summary	Acre/Ft
Reestablished Wetlands	0.7
Enhanced Wetlands	181.9
Stream Credits (Ft)	54.2
Total Stream Length	677.0

Legend







- BJ Ranches Parcels
- Tee Cross Ranches Parcels
- Frost Ranch Parcels
- Enhance Wetland
- Frost Wall

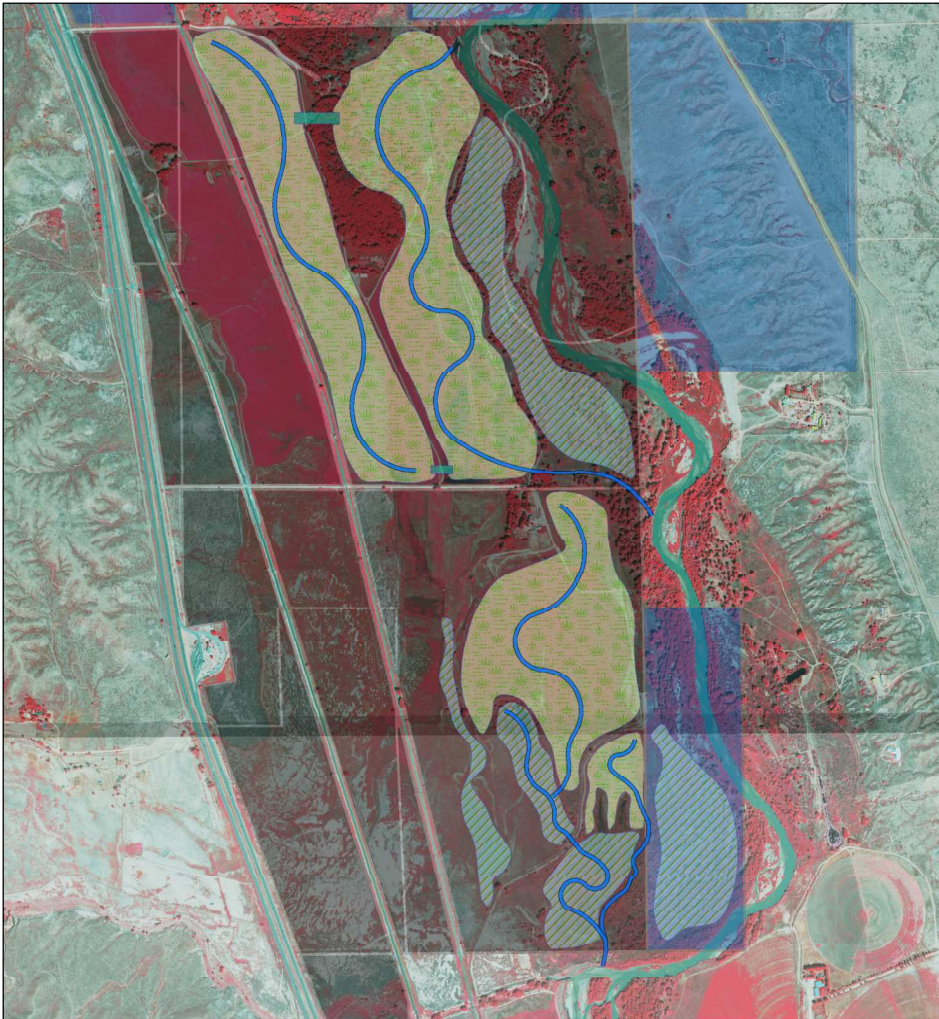
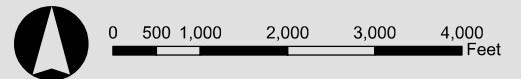


TEE CROSS WETLAND REESTABLISHMENT AND ENHANCEMENT PROJECT

Project Features	Acres
Reestablished Wetlands	326.8
Enhanced Wetlands	103.3

Legend

-  Tee Cross Ranches Parcels
-  BJ Ranches Parcels
- Proposed Design Features**
-  Enhance Wetland
-  Reestablish Wetland
-  Surface Water Connection
-  Connectivity Channel



Appendix B: Project Costing - DRAFT

Markup Report



Project: Fountain Creek Watershed, Fountain Creek North
Phase: Program Level
Date: 9/8/2023

Description	Qty	UM	Unit \$	Total
Mobiliation (LS)	1.0	LS	\$ 50,000.00	\$ 50,000
DeMobiliation (LS)	1.0	LS	\$ 30,000.00	\$ 30,000
Excavation (CY)	245,470	CY	\$ 4.00	\$ 981,881
Haul (CY)	245,470	CY	\$ 10.00	\$ 2,454,704
Clear and Grub (ac)	53.5	AC	\$ 500.00	\$ 26,725
Planting Implementaion - Re-Established Wetland	53.45	AC	\$ 5,000.00	\$ 267,250
Planting Implementaion - Enhanced Wetland	15.19	AC	\$ 2,500.00	\$ 37,975
Monitoring	7.00	YR	\$ 15,000.00	\$ 105,000
Total Direct Construction Cost			\$	3,953,535

Markup Description	Percentage	Subtotal
Design Contingency	0.0%	\$ -
General Conditions	5.0%	\$ 197,677
Overhead	5.0%	\$ 207,561
Profit	5.0%	\$ 217,939
Bond, Insurance	1.0%	\$ 45,767
Escalation*	0.0%	\$ -
Sales Tax	2.5%	\$ 115,562
Total Marked Up Construction Cost		\$ 4,738,040

Soft Costs	Subtotal
Design Fees	\$ 75,809
CM Services	\$ 47,380
Floodplain Permitting	\$ 7,913
Permitting	\$ 23,690
Total Soft Costs	\$ 154,792

Owner Costs	Qty	UM	Unit \$	Subtotal
Project Contingency	10.0%		\$	489,283
Water Rights	1	LS	\$ 10,000.00	\$ 10,000
Land Management	1	YR	\$ 430,000.00	\$ 430,000
Conservation Easement	1	LS	\$ 50,000.00	\$ 50,000
Land Aquisition	68.64	AC	\$ 7,000.00	\$ 480,480
Attorney Fees	1	LS	\$ 15,000.00	\$ 15,000
Pre-endowment Maintenance	1	LS	\$ 150,000.00	\$ 150,000
Entitlement	1	LS	\$ 75,000.00	\$ 75,000

Total Owner Costs		\$	1,699,763
Project Cost		\$	6,592,595
District Administrative Overhead	20.0%	\$	1,318,519
Total project Costs		\$	7,911,114
		Cost/Credit	\$ 129,478.14

*Escalation is calculated to mid-point of construction
 1/1/2024 Construction Start

Markup Report



Project: Fountain Creek Watershed, Frost
Phase: Program Level
Date: 9/8/2023

Description	Qty	UM	Unit \$	Total
Mobiliation (LS)	1.0	LS	\$ 50,000.00	\$ 50,000
DeMobiliation (LS)	1.0	LS	\$ 30,000.00	\$ 30,000
Excavation (CY)	680,267	CY	\$ 4.00	\$ 2,721,066
Haul (CY)	680,267	CY	\$ 10.00	\$ 6,802,666
Clear and Grub (ac)	66.9	AC	\$ 500.00	\$ 33,444
Planting Implementaion - Re-Established Wetland	66.89	AC	\$ 5,000.00	\$ 334,438
Planting Implementaion - Enhanced Wetland	201.66	AC	\$ 2,500.00	\$ 504,150
Monitoring	7.00	YR	\$ 15,000.00	\$ 105,000
Total Direct Construction Cost				\$ 10,580,764

Markup Description	Percentage	Subtotal
Design Contingency	0.0%	\$ -
General Conditions	5.0%	\$ 529,038
Overhead	5.0%	\$ 555,490
Profit	5.0%	\$ 583,265
Bond, Insurance	1.0%	\$ 122,486
Sales Tax	2.5%	\$ 309,276
Total Marked Up Construction Cost		\$ 12,680,318

Soft Costs	Subtotal
Design Fees	\$ 202,885
CM Services	\$ 126,803
Floodplain Permitting	\$ 21,176
Permitting	\$ 63,402
Total Soft Costs	\$ 414,266

Owner Costs	Qty	UM	Unit \$	Subtotal
Project Contingency	10.0%			\$ 1,309,458
Water Rights	1	LS	\$ 15,000.00	\$ 15,000
Land Management	1	YR	\$ 430,000.00	\$ 430,000
Conservation Easement	1	LS	\$ 50,000.00	\$ 50,000
Land Aquisition	268.55	AC	\$ 7,000.00	\$ 1,879,833
Attorney Fees	1	LS	\$ 15,000.00	\$ 15,000
Pre-endowment Maintenance	1	LS	\$ 150,000.00	\$ 150,000
Entitlement	1	LS	\$ 75,000.00	\$ 75,000

Total Owner Costs \$ 3,924,291

Project Cost \$ 17,018,875

District Administrative Overhead 20% \$ 3,403,775

Total Project Costs \$ 20,422,651

Cost per credit	\$121,745
Stream	\$2,500.00

*Escalation is calculated to mid-point of construction

1/1/2024 Construction Start

Markup Report



Project: Fountain Creek Watershed, BJ Ranches
Phase: Program Level
Date: 9/8/2023

Description	Qty	UM	Unit \$	Total
Mobiliation (LS)	1.0	LS	\$ 50,000.00	\$ 50,000
DeMobiliation (LS)	1.0	LS	\$ 30,000.00	\$ 30,000
Excavation (CY)	73,875	CY	\$ 4.00	\$ 295,502
Haul (CY)	3,694	CY	\$ 10.00	\$ 36,938
Clear and Grub (ac)	0.7	AC	\$ 500.00	\$ 363
Planting Implementaion - Re-Established Wetland	0.73	AC	\$ 5,000.00	\$ 3,625
Planting Implementaion - Enhanced Wetland	181.87	AC	\$ 2,500.00	\$ 454,675
Monitoring	7.00	YR	\$ 15,000.00	\$ 105,000

Total Direct Construction Cost \$ **976,102**

Markup Description	Percentage	Subtotal
Design Contingency	0.0%	\$ -
General Conditions	5.0%	\$ 48,805
Overhead	5.0%	\$ 51,245
Profit	5.0%	\$ 53,808
Bond, Insurance	1.0%	\$ 11,300
Sales Tax	2.5%	\$ 28,531

Total Marked Up Construction Cost \$ **1,169,791**

Soft Costs	Subtotal
Design Fees	\$ 18,717
CM Services	\$ 11,698
Floodplain Permitting	\$ 1,954
Permitting	\$ 5,849

Total Soft Costs \$ **38,217**

Owner Costs	Qty	UM	Unit \$	Subtotal
Project Contingency	10.0%		\$	120,801
Water Rights	1	LS	\$ 10,000.00	\$ 10,000
Land Management	1	YR	\$ 430,000.00	\$ 430,000
Conservation Easement	1	LS	\$ 50,000.00	\$ 50,000
Land Aquisition	182.60	AC	\$ 7,000.00	\$ 1,278,165
Attorney Fees	1	LS	\$ 15,000.00	\$ 15,000
Pre-endowment Maintenance	1	LS	\$ 150,000.00	\$ 150,000
Entitlement	1	LS	\$ 75,000.00	\$ 75,000

Total Owner Costs \$ **2,128,966**

Project Cost \$ **3,336,974**

District Administrative Overhead 20% \$ **667,395**

Total Project Costs \$ **4,004,369**

Cost/credit \$ 43,691.96
 Stream: \$2,500

Markup Report



Project: Fountain Creek Watershed, T-Cross
Phase: Program Level
Date: 9/8/2023

Description	Qty	UM	Unit \$	Total
Mobiliation (LS)	1.0	LS	\$ 50,000.00	\$ 50,000
DeMobiliation (LS)	1.0	LS	\$ 30,000.00	\$ 30,000
Excavation (CY)	2,596,124	CY	\$ 4.00	\$ 10,384,496
Haul (CY)	2,596,124	CY	\$ 10.00	\$ 25,961,240
Clear and Grub (ac)	326.75	AC	\$ 500.00	\$ 163,375
Planting Implementaion - Re-Established Wetland	326.75	AC	\$ 5,000.00	\$ 1,633,750
Planting Implementaion - Enhanced Wetland	103.34	AC	\$ 2,500.00	\$ 258,350
Monitoring	7.00	YR	\$ 15,000.00	\$ 105,000

Total Direct Construction Cost \$ **38,586,212**

Markup Description	Percentage	Subtotal
Design Contingency	0.0%	\$ -
General Conditions	5.0%	\$ 1,929,311
Overhead	5.0%	\$ 2,025,776
Profit	5.0%	\$ 2,127,065
Bond, Insurance	1.0%	\$ 446,684
Sales Tax	2.5%	\$ 1,127,876

Total Marked Up Construction Cost \$ **46,242,923**

Soft Costs	Subtotal
Design Fees	\$ 739,887
CM Services	\$ 462,429
Floodplain Permitting	\$ 77,226
Permitting	\$ 231,215

Total Soft Costs \$ **1,510,756**

Owner Costs	Qty	UM	Unit \$	Subtotal
Project Contingency	10.0%		\$	4,775,368
Water Rights	1	LS	\$ 10,000.00	\$ 10,000
Land Management	1	YR	\$ 430,000.00	\$ 430,000
Conservation Easement	1	LS	\$ 50,000.00	\$ 50,000
Land Aquistion	430.09	AC	\$ 7,000.00	\$ 3,010,630
Attorney Fees	1	LS	\$ 15,000.00	\$ 15,000
Pre-endowment Maintenance	1	LS	\$ 150,000.00	\$ 150,000
Entitlement	1	LS	\$ 75,000.00	\$ 75,000

Total Owner Costs \$ **8,515,998**

Project Costs \$ **56,269,677**

District Administrative Overhead 20% **11253935.44**

Total Project Costs \$ **67,523,613**

Cost/Credit \$ 178,421.49

*Escalation is calculated to mid-point of construction