San Francisquito Creek, CAP 205 Review Plan (Execution Sheet)

(using Template 3.12.18)

Project Title: San Francisquito Creek, Continuing Authorities Program (CAP) 205

The San Francisquito Creek Flood Risk Management Study is implemented under the program authority in Section 205 of the Flood Control Act of 1948 (Public Law 80-858), as amended. Projects implemented under this authority evaluate structural or non-structural measures for flood risk management in accordance with current policies and procedures governing projects of the same type which are specifically authorized by Congress. The Federal cost limit for CAP 205 is $10 million for feasibility, design and implementation (D&I). Feasibility is cost shared 50/50 and D&I is cost-shared 65/35.

1. PROJECT INFORMATION

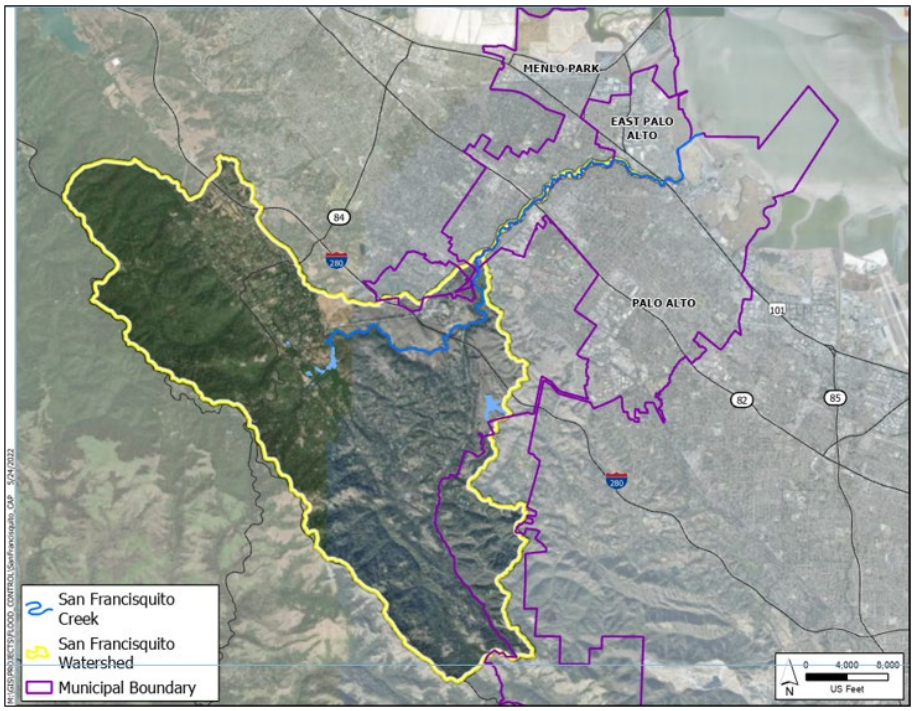
a. Project Description.

The Non-Federal Sponsor (NFS) for the study is the San Francisquito Creek Joint Powers Authority. The study is being conducted under the Continuing Authorities Program (CAP) Section 205. The study was converted from General Investigations (GI) after the TSP was determined to potentially fit within the CAP cost limit. The GI study was terminated on 3 December 2019. The Feasibility Cost Share Agreement (FCSA) for the CAP 205 study was executed on 4 June 2021.

San Francisquito Creek is in northern California, approximately 40 miles south of San Francisco. The creek flows northeast from the Santa Cruz Mountains for approximately 14 miles and terminates in San Francisco Bay, south of the Dumbarton Bridge. The Creek represents the boundary between the city of Palo Alto and the cities of Menlo Park and East Palo Alto, and between Santa Clara and San Mateo Counties.

The study area includes socially vulnerable communities within Menlo Park and East Palo Alto as well as affluent communities in Palo Alto. The study area is home to global technology companies, including Apple, Google and Facebook, as well as Stanford University in Palo Alto. Approximately 50,000 people live in the study area. The study area is shown in Figure 1.

Figure 1. San Francisquito Creek Study Area



Flooding at San Francisquito Creek has impacted thousands of people and resulted in severe economic damages to East Palo Alto, Menlo Park and Palo Alto. The flood of record at San Francisquito Creek occurred in 1998 and was the 2.2% AEP event. Floodwater broke out of the channel at Pope-Chaucer Street Bridge, flooding communities on both sides of the creek. Economic damages from the 1998 flood event were estimated at $28 million. Palo Alto later revised the estimated damages to be $40 million (1998 $). Seventeen hundred structures were damaged and 325 people had to be evacuated from their homes. The fire department had to evacuate some residents by boat because local streets and evacuation routes were flooded. Highway 101 was impassable and had to be closed. No deaths were reported.

The objectives of the study include:

1. Reduce flood-related economic damages in the San Francisquito Creek floodplain in residential areas and at critical infrastructure and ensure equitable distribution of FRM benefits to socially vulnerable and underserved communities in areas of East Palo Alto and Menlo Park, throughout the 50-year period of analysis.
2. Reduce flood-related life safety risks in the San Francisquito Creek floodplain by reducing the depth, velocity and extent of flooding in residential communities, along evacuation routes and at critical infrastructure and ensure equitable distribution of life safety benefits to socially vulnerable and underserved communities in areas of East Palo Alto and Menlo Park, throughout the 50-year period of analysis.
3. Use a nature-based approach to flood risk management to maintain or improve ecological function to support habitat for Federally threatened Central California steelhead and other special status species without negatively impacting flood risk management benefits throughout the 50-year period of analysis.

Measures and alternatives under consideration to address the flood problems in the study area include channel widening, floodwalls, bypass channel, detention basin, non-structural flood hazard signage, bank stabilization methods, and laying back the bank. The cost of measures and alternatives ranges from $300,000 (non-structural) to over $80 million. Alternatives that are over the CAP 205 cost limit ($10 million Fed) will not be carried forward into the final array of alternatives.

b. Factors Affecting the Scope and Level of Review.

- The floodplain includes both historically marginalized and affluent communities. The PDT is working with the NFS to develop a public outreach plan to ensure all communities are involved in the planning process.
- The PDT is completing a comprehensive benefits evaluation to ensure the effects of alternatives are documented regarding Other Social Effects (OSE), Environmental Quality (EQ), Regional Economic Development (RED) and National Economic Development (NED).
- The creek is home to Federally listed and endangered species and therefore it will be important to coordinate closely with regulatory agencies. An Environmental Assessment is being prepared in accordance with the National Environmental Policy Act.
- The team has not identified any other technical, institutional, nor social challenges for this study at this time.
- The District Chief of Engineering has assessed there is not a significant threat to human life associated with this project. IEPR Type I is not likely to be required. The rationale and decision will be evaluated at the TSP Milestone.

c. In-Kind Contributions.

- The NFS may contribute outreach related activities including drafting and printing project-related mailers for public meetings, logistical support for public meetings, and drafting the public outreach plan. The estimated cost of in-kind contributions is $50,000.

2. DISTRICT QUALITY CONTROL (DQC)

a. Required DQC Team Expertise.

DQC Disciplines	Expertise Required
Planning	The plan formulation reviewer should have experience in USACE plan formulation, and the modernized CAP planning process and should have experience with Flood Risk Management studies.
Economics	The economics reviewer should be either from the certified list by business line, or for exceptions, be approved as developmental reviewer by the Economics Sub-Community of Practice. It is required for the Economics reviewer have familiarity with HEC-FDA.
Environmental Resources	The environmental reviewer should have demonstrated experience in the field of environmental effects analysis of fluvial flood risk management studies, preferably in and around west coast fluvial systems. The reviewer should be

	familiar with various habitat types in the fluvial system, be knowledgeable on threatened and endangered species and general habitat requisites, as well as requirements of NEPA, Sections 401 and 404 of the Clean Water Act, Clean Air Act, Endangered Species Act, and Magnuson Steven Fisheries Management Act.
Cultural Resources	The cultural resources reviewer should have experience in completing cultural resources analysis for a coastal storm or flood risk reduction study. An understanding on the significance of the region's precontact archaeological sites, such as shell middens, is needed due to this cultural resource type being situated throughout the study area. The reviewer should also have years of experience in complying with federal environmental and historic preservation law, specifically Section 106 of the National Historic Preservation Act and its implementing regulations under 36 CFR 800 as well as NEPA. Knowledge on USACE's tribal trust responsibilities and any other regulations tied to coordination with tribes and historic organizations is needed.
Hydrology & Hydraulic Engineering	The hydraulic engineering reviewer will be an expert in the field of hydrology and hydraulics and have experience in completing hydraulic modeling and analysis for a coastal and inland flood risk management projects. They should have a thorough understanding of coastal flooding processes, open channel dynamics, application of flood walls, non-structural solutions involving flood warning systems and flood proofing, application of the USACE sea level rise curves, and operating 2D HEC-RAS hydraulic modeling software.
Geotechnical Engineering	The reviewer should have recent experience in the Corps' design requirements. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction.
Civil Engineering	The reviewer should have recent experience in the design of plans for various coastal storm damage reduction features such as flood walls, flood gates, and non-structural measures.
Cost Engineering	The reviewer should be a cost estimating specialist competent in cost estimating for both construction and ecosystem restoration using MCACES/MII; working knowledge of construction and environmental restoration; capable of making professional determinations based on experience.
Real Estate	Real Estate reviewers should be senior real estate specialist with experience in coastal storm damage reduction studies.

b. DQC Documentation. DQC reviewers will record substantive comments in DrChecks. Editorial comments may also be recorded in either in tracked changes, as comments in documents, or in a Word or Excel document file. Reviewers will be requested to review the Tentatively Selected Plan read-ahead, the draft Detailed Project Report, Environmental Assessment, and Technical Appendices, as well as the Draft-Final version of all documents. Once comments are addressed and back-checked, USACE management certifies that DQC is complete. DQC documentation will be available for Agency Technical Reviewers.

3. AGENCY TECHNICAL REVIEW (ATR)

See attachment 1 for ATR Certification Template.

a. Required ATR Team Expertise.

ATR Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Plan Formulation	The plan formulation reviewer should have experience in USACE plan formulation, be familiar with the "Planning Guidance Notebook" (ER-1105-2-100), the Water Resources Council's Principals and Guidelines, SMART Planning guidance, and the modernized CAP planning process, preferably in FRM CAP studies.
Economics	The Economics reviewer should be a senior economist with experience in the analysis of demographics, land use, recreation analysis, and flood damage assessments using HEC-FDA; use of RECONS model to address regional economic development associated with a project; discussion of other social effects (OSE) associated with flood risk, and well as OSE benefits from reduction in flood risk; economic justification of projects in accordance with current USACE policy for urban flood damages and industrial flood damages.
Environmental Resources	The environmental reviewer should have demonstrated experience in the field of environmental effects analysis of fluvial flood risk management studies, preferably in and around west coast. The reviewer should be familiar with various habitat types in the fluvial system, be knowledgeable on threatened and endangered species and general habitat requisites, as well as requirements of NEPA, Sections 401 and 404 of the Clean Water Act, Clean Air Act, Endangered Species Act, and Magnuson Steven Fisheries Management Act.
Cultural Resources	The cultural resources reviewer should have experience in completing cultural resources analysis for a coastal storm or flood

	risk reduction study. An understanding on the significance of the region's precontact archaeological sites, such as shell middens, is needed due to this cultural resource type being situated throughout the study area. The reviewer should also have years of experience in complying with federal environmental and historic preservation law, specifically Section 106 of the National Historic Preservation Act and its implementing regulations under 36 CFR 800 as well as NEPA. Knowledge on USACE's tribal trust responsibilities and any other regulations tied to coordination with tribes and historic organizations is needed.
Hydrology, Hydraulic, & Coastal Engineering	The hydraulic engineering reviewer will be an expert in the field of hydrology and hydraulics and have experience in completing hydraulic modeling and analysis for a coastal storm or flood risk reduction project. They should have a thorough understanding of coastal flooding processes, open channel dynamics, application of flood walls, non-structural solutions involving flood warning systems and flood proofing, application of the USACE sea level rise curves, and operating 2D HEC-RAS hydraulic modeling software.
Geotechnical Engineering	The reviewer should be a geotechnical engineer familiar with sampling and laboratory testing, embankment stability and seepage analyses, planning analysis, floodwalls, fragility curves, and a number of other closely associated technical subjects.
Civil Engineering	The reviewer should be a civil engineer with experience in designing grading plans and floodwalls, and bank-protection removal or modification.
Cost Engineering	Cost MCX Staff or Cost MCX Pre-Certified Professional with experience preparing cost estimates for flood risk management projects and the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, planning and scheduling.
Real Estate	The real estate specialist should be familiar with real estate valuation, gross appraisal, utility relocations, takings, and partial takings as needed for implementation of Civil Works projects.
Risk Analysis	The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results. The reviewer should also be familiar with failure tree statistical analysis and flood risk transfer.

4. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. Decision on Type I IEPR. In accordance with Director of Civil Works Memorandum (05 APR 2019), Interim Guidance on Streamlining Independent External Peer Review (IEPR) for Improved Civil Works

Product Delivery, the three mandatory conditions determining whether Type I IEPR is undertaken are as follows:

- When the estimated total cost of the project, including mitigation costs, is greater than $200 million.
    - Not applicable here. The estimated total project cost is between $10 to 16 million.
- When the Governor of an affected state requests a peer review by independent experts.
    - Not applicable here.
- When the Chief of Engineers determines the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project (including but not limited to projects requiring an environmental impact statement (EIS)).
    - Not applicable here. The study is preparing an Environmental Assessment.

In addition to the above mandatory triggers, Director of Civil Works Memorandum (05 APR 2019) references Section 2034 of WRDA 2007, as amended, which permits project studies that would otherwise require independent peer review to be excluded from independent peer review under certain circumstances, including if the project study does not include an EIS and is being conducted under the USACE Continuing Authorities Program (CAP). The San Francisquito Creek study does not meet any of the mandatory triggers for Type I IEPR and is being conducted under the CAP 205 authority. The District requests MSC concurrence to forgo Type I IEPR based of this risk-informed assessment.

The decision to forgo Type I IEPR will be reviewed at the TSP Milestone and the TSP MFR will document the MSC's risk-informed assessment of the expected contribution of IEPR and determination that Type I IEPR is not required.

b. Required Type I IEPR Panel Expertise.

IEPR Panel Disciplines	Expertise Required
NA	NA

c. Anticipated Type II IEPR (Safety Assurance Review (SAR)).
Not anticipated.

5. MODEL CERTIFICATION AND APPROVAL

a. Planning Models.

The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status	Peer Review Anticipated
HEC-FDA v. 1.4.3	FDA has been used to compute without project damages, and with project benefits.	Certified	N/A. DQC and ATR will

			review how the model was applied.
Excel – Flood Depths by Structure	Extreme Tide Elevations for every year, ACE event, and SLR scenario combination were measured against the building elevations to determine flood depths for each significant structure in the WQCP. Elevations were taken from as-built plans, ground elevations, and a survey of the building floor slab elevations in September 2021. This is necessary as the terrain data in the HEC-RAS model does not accurately represent the elevation where the structures begin to flood.		March 4-March 25, 2022 via DQC

b. Engineering Models.

The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status	Peer Review Anticipated
HEC-RAS 6.0	Hydraulic Engineering Center's River Analysis System (HEC-RAS) will be used to create a 2-D model of the project area. This model will help visualize the depths, extents, and progression of all the flooding scenarios. The model will be used to view existing conditions as well as future project alternatives and how they may affect the flooding depths, extents, and progression.	Certified	N/A

6. REVIEW SCHEDULES AND COSTS

Pre-TSP IPR: 18 May 2022 (Actual)
TSP Milestone: 5 July 2022 (Actual)
Release Draft Report: March 2023

a. DQC Schedule and Cost. May – November 2022, Estimated cost is $50,000.

- TSP RAH including Fact Sheet and Presentation: May – June 2022
- Draft Technical Appendices: July – September 2022
- Draft Detailed Project Report and Environmental Assessment: January 2023

b. ATR Schedule and Cost. March 2023. Estimated cost is $65k.

c. Planning and Engineering Model Peer Review Schedule and Cost. May - August 2022 (via DQC).

d. Type I IEPR Schedule and Cost. N/A
Type II IEPR (SAR) Schedule and Cost. N/A

7. PUBLIC PARTICIPATION

The PDT has been coordinating with local resource agencies, tribes, and other stakeholders working on projects near the project area. In coordination with the Non-Federal Sponsor the PDT developed a public outreach plan to ensure there is transparent communication to communities regarding the study process and project impacts. Coordination to date has included engagement during project scoping and the well-attended, virtual NEPA scoping meeting, as well as an interagency meeting held in May. The draft report will be released for public comment after the TSP milestone.

8. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments on this review plan can be directed to the following point(s) of contact: Jaime O'Halloran, Lead Planner and Project Manager, jaime.l.o'halloran@usace.army.mil.

9. TEAM ROSTER

Redacted. Please direct public comments to the Project Manager, see paragraph 8.

10. PROJECT FACTSHEET REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

11. CURRENT APPROVED SPD CAP PgRP

The SPD CAP Programmatic Review Plan can be viewed on the San Francisco District website, https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Project-Review-Plans/.

12. DISTRICT CONCURRENCE / DISTRICT QUALITY CONTROL CERTIFICATION

District Quality Control (DQC) of the San Francisquito Creek Continuing Authorities Program, Section 205 SPD CAP Programmatic Review Plan Execution Sheet has been completed. All comments resulting from DQC review have been resolved.

General Findings

Compliance with clearly established policy principles and procedures, utilizing clearly justified and valid assumptions, has been verified. The undersigned recommend certification of the quality control process for this product.

Certification of District Quality Control Review and Coordination

Certification is hereby given that all quality control activities and coordination appropriate to the level of risk and complexity inherent with the completed product have been completed. All concerns resulting from District Quality Control Review of the project have been fully resolved.

We the undersigned concur in the review plan execution sheet, dated 18 May 2022 (resigned 1 December 2022) for the San Francisquito Creek CAP 205 project.

Thomas R. Kendall Digitally signed by Thomas R. Kendall Date: 2022.12.01 15:43:13 -08'00'

Thomas Kendall, PE — Date

San Francisco District Planning Chief

Son Ha Digitally signed by Son Ha Date: 2022.12.01 15:59:34 -08'00'

Son Ha, PE — Date

San Francisco District Engineering Chief

ATTACHMENT 1

Sample Statements of Completion and Certification of ATR for Decision Documents

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *Integrated Feasibility Report and Environmental Assessment* for the *San Francisquito Creek, CAP 205 project in San Mateo and Santa Clara Counties, CA* The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-217. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

SIGNATURE _____ _____

Name Date
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ _____

Name Date
Project Manager (home district)
Office Symbol

SIGNATURE _____ _____

Name Date
Architect Engineer Firm Project Manager[1]
Company, location

SIGNATURE _____ _____

Name Date
Review Management Office Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Describe the major technical concerns and their resolution.*

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE _____ _____

Name Date
Chief, Engineering Division (home district)
Office Symbol

SIGNATURE _____ _____

Name Date
Chief, Planning Division (home district)
Office Symbol

[1] Only needed if some portion of the ATR was contracted