Supplemental Environmental Project:
Peyton Slough Marshes Water Quality Improvements and Management

Basic Information

1. *Project Name:*

Peyton Slough Marshes - Water Quality Improvements and Management SEP (Peyton Slough SEP)

2. *Peyton Slough SEP Purpose and Location:*

The SEP will improve water quality and habitat in the Peyton Slough and its associated marshes (mid-marsh, McNabney Marsh) by automating tide gate operation to improve exchange between Peyton Slough and Carquinez Strait. Currently, a levee and tide gate on Peyton Slough separates fully tidal marshes in the north (downstream) from muted tidal marshes in the south (upstream) (Figure 1). Tide gate automation will improve water quality in the muted tidal marshes south of the tide gate. The tide gate is currently opened manually and operated inconsistently. Automation will optimize operation, so the tide gate is opened and closed when tides change, and operation does not rely on the availability of a person to operate it manually.

The SEP will assess how significantly tide gate automation improves water flow and quality in the muted tidal marshes by measuring tidal exchange and water quality parameters. It will also evaluate the potential for other actions that can further enhance water quality and habitat. A bathymetric survey will determine whether sediment is accumulating in Peyton Slough and affecting drainage. Subsequent sediment sampling within the channel will help inform whether sediment could be added or removed to further improve water circulation and promote marsh vegetation.

3. *Peyton Slough SEP Amount:*

$1,046,000

4. *Peyton Slough SEP Developed By:*

Landowners adjacent to the McNabney Marsh include the East Bay Regional Park District, EcoServices, Mt. View Sanitary District, and TransMontaigne. Additional parties interested in the Peyton Slough marsh complex include the Mount Diablo Audubon Society and the Contra Costa Resource Conservation District (District). Together, the landowners and additional parties (collectively referred to as the Managing Partners) have been working collaboratively for more than 30 years to identify ways to manage McNabney Marsh and enhance water quality and habitat

within the Peyton Slough Marshes. The Managing Partners developed this SEP to fit within the framework of those discussions.

5. *Peyton Slough SEP to be Implemented By:*

The Contra Costa Resource Conservation District (District)

6. *Contact:*

Heidi Petty, Watersheds Program Manager: hpetty@ccrcd.org

7. *Peyton Slough SEP Description*

The SEP will improve water circulation and enhance water quality in the Peyton Slough marshes. The SEP will be implemented in two phases: Phase 1 will assess baseline water quality and automate the Peyton Slough tide gate, and Phase 2 will assess improvements in tidal exchange and water quality, evaluate the condition of sediment in the mid-marsh and McNabney Marsh, and determine how sediment depths (bathymetry) could be changed to further enhance water circulation and marsh habitat. The San Francisco Bay Regional Water Quality Control Board (Regional Water Board) and Managing Partners will be updated on SEP progress through quarterly reporting for the duration of the SEP.

A. Phase 1 – Baseline Water Quality and Tide Gate Automation

The first phase of the SEP will start with a 4-month mobilization period and end with a *Phase I Completion Report.* During the mobilization period, the District will finalize work contracts and obtain equipment and materials for the SEP. During implementation of Phase 1, data will be collected to determine baseline water quality and tide data (water level) before the automation of the Peyton Slough tide gate. The Peyton Slough tide gate will be automated at the end of Phase 1.

To determine baseline water quality and tidal exchange, sondes and tide gauges will be installed by the District throughout the Peyton Slough marsh complex, with at least one sonde and tidal gauge in the following locations.

- Peyton Slough north of the tide gate (Peyton Slough)
- Peyton Slough south of the tide gate but before the Union Pacific Railway levee (mid-marsh)
- McNabney Marsh

These three locations are the minimum needed for sufficient monitoring. A fourth sonde and tidal gauge will be located in southeast McNabney Marsh for additional monitoring.

The sondes will measure multiple water quality parameters, including salinity, pH, and dissolved oxygen (DO). The tide gauges will measure water elevations in Peyton Slough from Suisun Bay/Carquinez Strait through the mid-marsh and into McNabney Marsh. Tide data will be referenced to a defined tidal datum (e.g. North American Vertical Datum of 1988, NAVD 88). At least four months of tide and water quality data will be collected before automation of the tide gate. Tide data will include perigean and neap cycles.

To automate the tide gate, a remote operation system will be installed by the District at the location of the existing tide gate in the Peyton Slough (Figure 1). The remote operation system will open and shut the tide gates automatically based on real-time water-level data and will include alerts to notify landowners if triggers are exceeded.

B. Phase 2 – Tide Gate Evaluation and Sediment Assessment
The extent to which tide gate operations improve water circulation and quality will be evaluated through continued monitoring and collection of water quality and tide data. Data will be collected for six months by the District so the new conditions, with the automated tide gate, have time to equilibrate. After this six--month period, sediment within Peyton Slough, the mid-marsh, and McNabney Marsh will be assessed by the District.

A high-resolution bathymetric survey will be conducted by the District to determine Peyton Slough depths from Carquinez Strait in the north to McNabney Marsh in the south (along approximately 1.5 miles of the channel; Figure 1). The bathymetry survey will include survey data collection, data processing and reduction, and surface creation (digital elevation model). Bathymetry data will be referenced to the same tidal datum as the tide gauges and used to evaluate water circulation through Peyton Slough, to determine whether dredging or fill could further enhance water quality, and to identify whether there is excess sediment in Peyton Slough that could be used for expanding marsh habitat elsewhere.

Sediment accumulated within Peyton Slough resulting in reduced water circulation and drainage can be removed through dredging. The bathymetry survey will be used to identify Peyton Slough locations (from Carquinez Strait to McNabney Marsh) where dredging can be used to improve water circulation. Sediment cores to a four-foot depth will be collected at eight locations within Peyton Slough determined from the results of the bathymetric survey. Sampling of accumulated sediment will be used to evaluate dredged material quality and the potential for sediment reuse onsite to expand marsh habitat. The first sample will be collected by the District at the sediment-water interface and subsequent sediment samples will be spaced at approximately one-foot depth intervals to a final depth in the range of 3.5 to 4 feet, or refusal if encountered before the final depth.

All sediment chemical and conventional analyses will be conducted by the District in accordance with U.S. EPA methods. Targeted method reporting levels (MRLs) for analyses of bulk sediment are listed in the following table.

Analyte	Method	Target MRL
Metals		
Arsenic	EPA 6020	2 mg/kg
Cadmium	EPA 6020B Mod	0.3 mg/kg
Chromium	EPA 6020	5 mg/kg
Cooper	EPA 6020	5 mg/kg
Lead	EPA 6020	5 mg/kg
Mercury	EPA 7471A	0.02 mg/kg
Nickel	EPA 6020	5 mg/kg
Selenium	EPA 6020B Mod	0.1 mg/kg
Silver	EPA 6020B Mod	0.2 mg/kg
Zinc	EPA 6020	1 mg/kg
Pesticides		
Aldrin	EPA 8081B	2 µg/kg
a-BHC	EPA 8081B	2 µg/kg
b-BHC	EPA 8081B	2 µg/kg
g-BHC (Lindane)	EPA 8081B	2 µg/kg
d-BHC	EPA 8081B	2 µg/kg
Chlordane	EPA 8081B	20 µg/kg
24’-DDD	EPA 8081B	2 µg/kg
24’-DDE	EPA 8081B	2 µg/kg
24’-DDT	EPA 8081B	2 µg/kg
44'-DDD	EPA 8081B	2 µg/kg
44'-DDE	EPA 8081B	2 µg/kg
44'-DDT	EPA 8081B	2 µg/kg
Total DDT	EPA 8081B	2 µg/kg
Dieldrin	EPA 8081B	2 µg/kg
Endosulfan I	EPA 8081B	2 µg/kg
Endosulfan II	EPA 8081B	2 µg/kg
Endosulfan sulfate	EPA 8081B	2 µg/kg
Endrin	EPA 8081B	2 µg/kg
Endrin aldehyde	EPA 8081B	2 µg/kg
Heptachlor	EPA 8081B	2 µg/kg
Heptachlor	EPA 8081B	2 µg/kg
Toxaphene	EPA 8081B	20 µg/kg
Butyltins		
Mono-butyltin	Krone 1989	10 µg/kg

Analyte	Method	Target MRL
Di-butyltin	Krone 1989	10 µg/kg
Tri-butyltin	Krone 1989	10 µg/kg
Tetra-butyltin	Krone 1989	10 µg/kg
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	EPA 8270C	20 µg/kg
Acenaphthylene	EPA 8270C	20 µg/kg
Anthracene	EPA 8270C	20 µg/kg
Benz(a)anthracene	EPA 8270C	20 µg/kg
Benzo(a)pyrene	EPA 8270C	20 µg/kg
Benzo(e)pyrene	EPA 8270C	20 µg/kg
Benzo(b)fluoranthene	EPA 8270C	20 µg/kg
Benzo(g,h,i)perylene	EPA 8270C	20 µg/kg
Benzo(k)fluoranthene	EPA 8270C	20 µg/kg
Biphenyl	EPA 8270C	20 µg/kg
Chrysene	EPA 8270C	20 µg/kg
Dibenz(a,h)anthracene	EPA 8270C	20 µg/kg
Dibenzothiophene	EPA 8270C	20 µg/kg
Dimethylnaphthalene, 2, 6-	EPA 8270C	20 µg/kg
Fluoranthene	EPA 8270C	20 µg/kg
Fluorene	EPA 8270C	20 µg/kg
Indeno(1,2,3-cd)pyrene	EPA 8270C	20 µg/kg
Methylnaphthalene, 1-	EPA 8270C	20 µg/kg
Methylnaphthalene, 2-	EPA 8270C	20 µg/kg
Methylphenanthrene, 1-	EPA 8270C	20 µg/kg
Naphthalene	EPA 8270C	20 µg/kg
Perylene	EPA 8270C	20 µg/kg
Phenanthrene	EPA 8270C	20 µg/kg
Pyrene	EPA 8270C	20 µg/kg
Trimethylnaphthalene, 2,3,5-	EPA 8270C	20 µg/kg
Polychlorinated biphenyls (PCBs)		
PCB-8	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-18	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-28	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-31	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-33	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-44	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-49	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-52	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-56	EPA 8082 ECD or EPA 8270C	0.5 µg/kg

Analyte	Method	Target MRL
PCB-60	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-66	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-70	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-74	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-87	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-95	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-97	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-99	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-101	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-105	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-110	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-118	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-128	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-132	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-138	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-141	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-149	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-151	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-153	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-156	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-158	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-170	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-174	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-177	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-180	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-183	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-187	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-194	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-195	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-201	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
PCB-203	EPA 8082 ECD or EPA 8270C	0.5 µg/kg
Dioxins/Furans	EPA 8290	1 ng/kg
Grain Size	ASTM D4464(M)	±0.1%
Total Solids	SM 2540B	±0.1%
Total Organic Carbon	EPA 9060A	±0.1%
Tissue Lipids (wet weight)	NOAA 1993	0.01%

C. Monitoring and Reporting

After completion of Phase 2, the SEP will include two years of monitoring and reporting on tide gate operations. Monitoring will be done by the District to confirm tide gate function and to continue evaluating water quality parameters and tide elevations with the multi-parameter sondes and tidal gauges. The tide gate and monitoring equipment will be inspected by the District on a quarterly basis, at a minimum, for the duration of the two-year monitoring period and maintenance will be performed as needed.
Reports will include quarterly progress and status reports and the three milestone reports described below. Quarterly reports may be included as part of the milestone reports when the timing for these reports coincide. All reports will be prepared by the District and submitted electronically to Martinez Refining Company LLC (MRC), the Regional Water Board and the Managing Partners.

Within 90 days of completing tide gate construction, a *Phase I Completion Report* will be submitted by the District that includes the following:

- Figures showing the SEP location, including the tide gate, sondes, and tide gauges;
- Description of field activities;
- Field logs;
- Baseline water quality and tide data;
- Quality assurance/quality control procedures; and
- Copies of accounting records of expenditures.

Within 90 days of completing the sediment assessment, a *Phase 2 Completion Report* will be submitted by the District that includes the following:

- Procedures for the bathymetry survey;
- The bathymetric maps produced from the bathymetric survey;
- Location and justification of sediment sample locations and sediment core depths;
- Figures showing the sediment sample locations;
- Procedures for sediment sampling and quality assurance/quality control protocols;
- Description of field activities;
- Field logs of the bathymetry survey and sampling event;
- Copies of all chain of custody documents for samples and laboratory quality assurance data;

- Monitoring results;
- Results of sediment analyses, including summary tables and comparison to applicable ecological screening levels;
- Evaluation of results; and
- Conclusions and recommendations.

Upon completing the monitoring period for the SEP, a *SEP Completion Report* will be submitted by the District that includes the following:

- Figures showing the SEP location, including the tide gate and multiparameter sondes and tide gauges;
- Description of SEP activities, including monitoring;
- Monitoring results;
- Evaluation of SEP performance measures; and
- Copies of accounting records of expenditures.

The Regional Water Board must approve the *SEP Completion Report* for the SEP to be deemed complete.

D. Long-term Operation and Maintenance

Following SEP completion, the Management Partners will provide continued operation and maintenance of the tide gate as part of their existing marsh management responsibilities. Ongoing tide gate maintenance will be a minor extension of existing marsh management activities.

8. *Peyton Slough SEP Policy Compliance*

This SEP fits within two categories of acceptable SEPs in the State Water Board SEP Policy (Policy).

A. Environmental Restoration and Protection Category

Phase 1 of the SEP will have a direct benefit on surface water quality and will enhance an ecosystem. By changing an inconsistently operated, manual tide gate to a remotely operated, automatic tide gate, a hydraulic bottleneck will be minimized. Water exchange between Carquinez Strait and the muted tidal marshes south of the tide gate will improve by maximizing tidal circulation through the tide gate. Increased tidal circulation will improve water exchange and water quality by increasing DO levels and stabilizing pH and temperature, which will enhance the health of marsh vegetation and habitat and mitigate marsh odors and algal blooms. Increased tidal exchange may also improve drainage from McNabney Marsh and reduce hypoxic conditions.

B. Assessments and Audits Category

Phase 2 of the SEP includes an assessment of sediment quality (an environmental quality assessment and study). Conditions in Peyton Slough will be assessed through a bathymetric survey and sediment sampling. The bathymetric survey will identify locations of sediment buildup and evaluate where dredging could further improve water flow and tidal exchange within Peyton Slough, thus improving wetland vegetation health in the mid-marsh and McNabney Marsh. Sampling of accumulated sediment in Peyton Slough will determine potential reuse for that material if the channel is dredged to further improve water circulation and drainage. Uncontaminated sediments can be used onsite to enhance habitat. The removal of contaminated sediments may have additional water quality benefits.

The SEP does not pose a conflict of interest for the settling parties. The Managing Partners developed the SEP to enhance the Peyton Slough Marshes. The SEP is not required by, nor operated under, the auspices of, or any obligations of, MRC, and does not directly benefit, in a fiscal manner, the Regional Water Board's functions, its members, or its staff.

The SEP has a nexus to the location of the alleged violations. MRC's Martinez Refinery is located within the same watershed and less than a mile from McNabney Marsh.

9. *Peyton Slough SEP Schedule and Budget*

The SEP will be implemented in two phases by the District. The following table summarizes the implementation schedule and budget for these phases of work, along with monitoring and reporting. Key SEP milestones are the Phase 1 Completion Report, the Phase 2 Completion Report, and the SEP Completion Report.

Task	Cost	Completion Date
Consultant, Contractor, and Vendor Bid and Selection	$15,000	November 30, 2024
Sonde/tide Gauge Equipment	$55,000	December 30, 2024
Sonde and Tide Gauge Installation	$18,000	January 31, 2025
Sonde and Tide Gauge Baseline Monitoring and Reporting	$26,000	May 31, 2025
2025 Sonde and Tide Gauge Servicing and Maintenance	$34,000	Throughout 2025
Tide Gate Equipment and Installation	$175,000	August 31, 2025
Phase 1 Completion Report	$15,000	**November 30, 2025**

Task	Cost	Completion Date
Bathymetry Survey	$48,000	April 30, 2026
Sediment Sampling, Including Sampling Plan, Collection, and Laboratory Analysis	$75,000	June 30, 2026
2026 Monitoring	$26,000	October 1, 2026
2026 Sonde and Tide Gauge Servicing and Maintenance	$34,000	Throughout 2026
Phase 2 Completion Report	$20,000	**September 30, 2026**
2027 Monitoring	$26,000	October 1, 2026
2027 Sonde and Tide Gauge Servicing and Maintenance	$34,000	Throughout 2027
2028 Monitoring	$26,000	October 1, 2028
2028 Sonde and Tide Gauge Servicing and Maintenance	$34,000	Throughout 2028
Prepare SEP Completion Report	$25,000	December 31, 2028
SEP Completion Report and Acceptance	--	**December 31, 2028**
Quarterly Reports	$120,000	January 1, April 1, July 1, and October 1 of each year through completion
SUBTOTAL	$806,000	
SEP Management (15% of Total SEP Cost)	$120,000	
Contingency + Inflation (15% of Total SEP Costs)	$120,000	
Total Cost	$1,046,000	

The SEP Completion Date is the due date of the final report unless the Regional Water Board Executive Officer approves an extension. If an extension is granted, it shall also apply to the reports to the Regional Water Board. If an extension is necessary, the District will submit a written request, copying MRC, for such extension to the Executive Officer and provide the justification for the delay as required by the Stipulated Order paragraph 17.

The District will provide an accounting of costs and expenses for the SEP, copying MRC, on a quarterly basis via reports submitted to the Regional Water Board. If funds allocated for the SEP are not completely spent upon successful completion of the SEP, the District will turn over remaining funds to the State Cleanup and Abatement Account.

10. *Peyton Slough SEP Performance Measures*

The SEP shall achieve the following performance measures and/or indicators to be deemed completed:

A. SEP Implementation

The District will submit progress status reports on a quarterly basis until the project is complete. Implementation will be documented in three milestone reports: the *Phase I Completion Report*; the *Phase 2 Completion Report*; and the *SEP Completion Report*. Reports will be submitted to the Regional Water Board, MRC, and the Managing Partners.

B. Tide Gate Function

Operation of the automated tide gate will be monitored by the District to confirm it is functioning as intended. The tide gate will be checked weekly during the first month of operation and at least quarterly thereafter for the duration of the project. Operation and maintenance records will be kept by the District to document the physical operation of the tide gate, including whether it is performing consistently with remote sensing/software and that nothing is limiting or inhibiting its ability to function, (*e.g.* vegetation, trash, wood, or other debris blocking or interfering with opening or closing the gate).

C. Water Quality and Habitat Improvement

The goal of the SEP is to improve water quality within the muted tidal marshes south of the tide gate on Peyton Slough. More consistent operation of the tide gate, which is a hydraulic constriction when not open, will improve the flow of saline waters from Carquinez Strait to the interior marshes, i.e. tidal exchange. The three objectives for the SEP are to (1) increase tidal exchange and water circulation in Peyton Slough and the muted tidal marshes south of the tide gate levee, (2) improve water quality by increasing tidal exchange, and (3) determine whether removing sediment would enhance water circulation and quality, and whether dredged sediment could be used onsite to enhance wetland habitat. The following will be used to evaluate SEP performance to meet these objectives.

i. Performance Metrics for Improved Flow

To evaluate improved water exchange from Carquinez Strait, through Peyton Slough, to the muted tidal marshes south of the tide gate, tide gate operation will be recorded, and tide gauges will be installed by the District to collect tide data. Performance metrics will be primarily based on tide gate operation and a comparison of baseline water level metrics to water levels post automation. Records of when the tide gate is opened and closed will be kept by the District prior to automation to establish baseline

conditions, and after automation to determine a percent increase. Tide gauges also will be installed by the District in Peyton Slough, the mid-marsh, and McNabney Marsh to measure flood and ebb tides and evaluate the amount and extent of water exchange. The amount of water reaching McNabney Marsh is expected to be limited due to the levee and Union Pacific Railroad terrace that separates the mid-marsh from McNabney Marsh and creates a hydraulic bottleneck.

Current operation of the tide gate is inconsistent and based on staff availability to manually open and close it. With automation of the tide gate, it will be opened and closed daily and in sync with tidal flows when staff would not typically be available to manually operate it (e.g., evenings, weekends, and holidays). This is expected to increase tidal exchanges by as much as 100 percent (e.g., when only one tidal cycle is captured from manually opening and closing the tide gate during daytime operations and the gate remains closed for the evening tidal cycle).

ii. Performance Metrics for Improved Water Quality

To evaluate improved water quality, sondes will be installed by the District to measure salinity, pH, and DO before tide-gate automation. Continued monitoring post automation will allow comparison of water quality metrics. Salinity levels will rise and fall with tidal exchanges and salinity is expected to reach levels similar to Carquinez Strait during flood tides. Salinity concentrations will be measured from Peyton Slough through the mid-marsh and in McNabney Marsh to evaluate the extent of tidal exchange from Carquinez Strait. To evaluate how much this exchange improves water quality, pH and DO will be measured. The goal is for these parameters to be within the naturally occurring range for tidal marshes and limit the potential for more extreme, hypoxic conditions to develop. The targets are pH between 6.0 to 9.0 and DO at or above 7.0 milligrams per liter.

iii. Performance Metrics for Sediment Assessment

The goal for the sediment assessment is to identify locations of sediment accumulation in Peyton Slough and determine potential use of that material should the sediment be dredged. The bathymetric survey conducted by the District will identify locations of sediment accumulation and be used to evaluate where dredging could further improve water flow and tidal exchange within Peyton Slough. Sediment sampling will be used to evaluate the quality and, therefore, potential use of the sediment. The SEP will be evaluated based on completion of sediment assessment work, as described. The assessment will produce products that include a bathymetric digital elevation model of Peyton Slough from Carquinez Strait

in the north to McNabney Marsh in the south, a sediment sample location map, and analytical results for eight sediment cores.

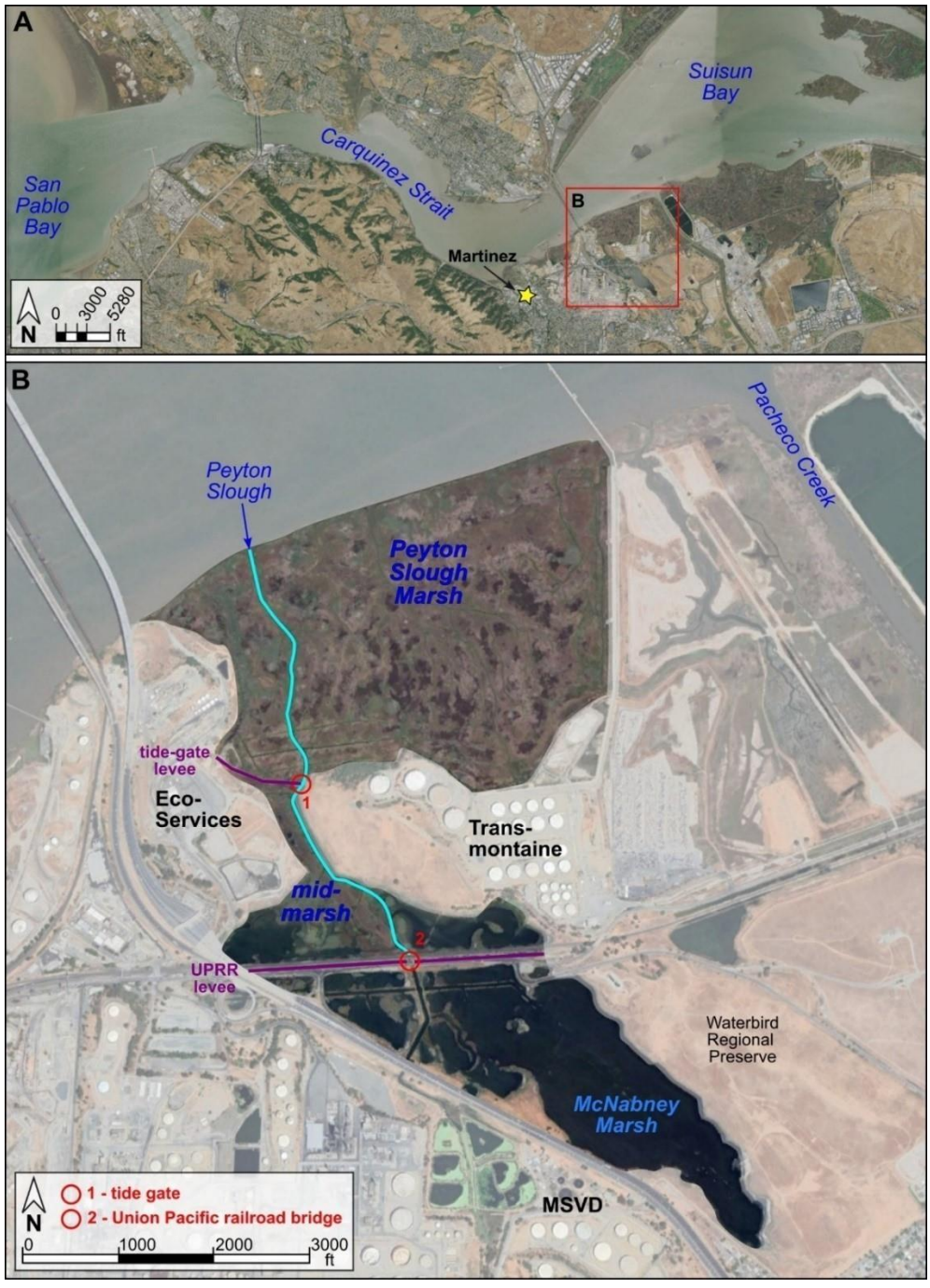

Figure 1: (A) The Peyton Slough Marshes are located on the southern shoreline of Suisun Bay, where its waters enter Carquinez Strait. (B) The Peyton Slough marshes consist of Peyton Slough Marsh, the mid-marsh (comprised of Rhodia Marsh, South Spread Area, and Plains Terminal Marsh), and McNabney Marsh. These three hydro-geographically distinct waters have formed as a result of local subsidence beneath McNabney Marsh and modern infrastructure. Two levees and their associated choke points have restricted water flow within the system. Peyton Slough has been significantly altered. Prior to alteration

beginning in the late 19th century, the marshes were a continuous tidal marsh subject to full tidal action. Peyton Slough Marsh maintains the most “natural”’ connection with Suisun Bay and Carquinez Strait. (The Union Pacific railroad (UPRR) levee is also commonly referred to as Waterfront Road.)