

Deer Island Basin Complex Tidal Wetland Restoration Project Flood Control Zone 1 Advisory Board Meeting May 6, 2021



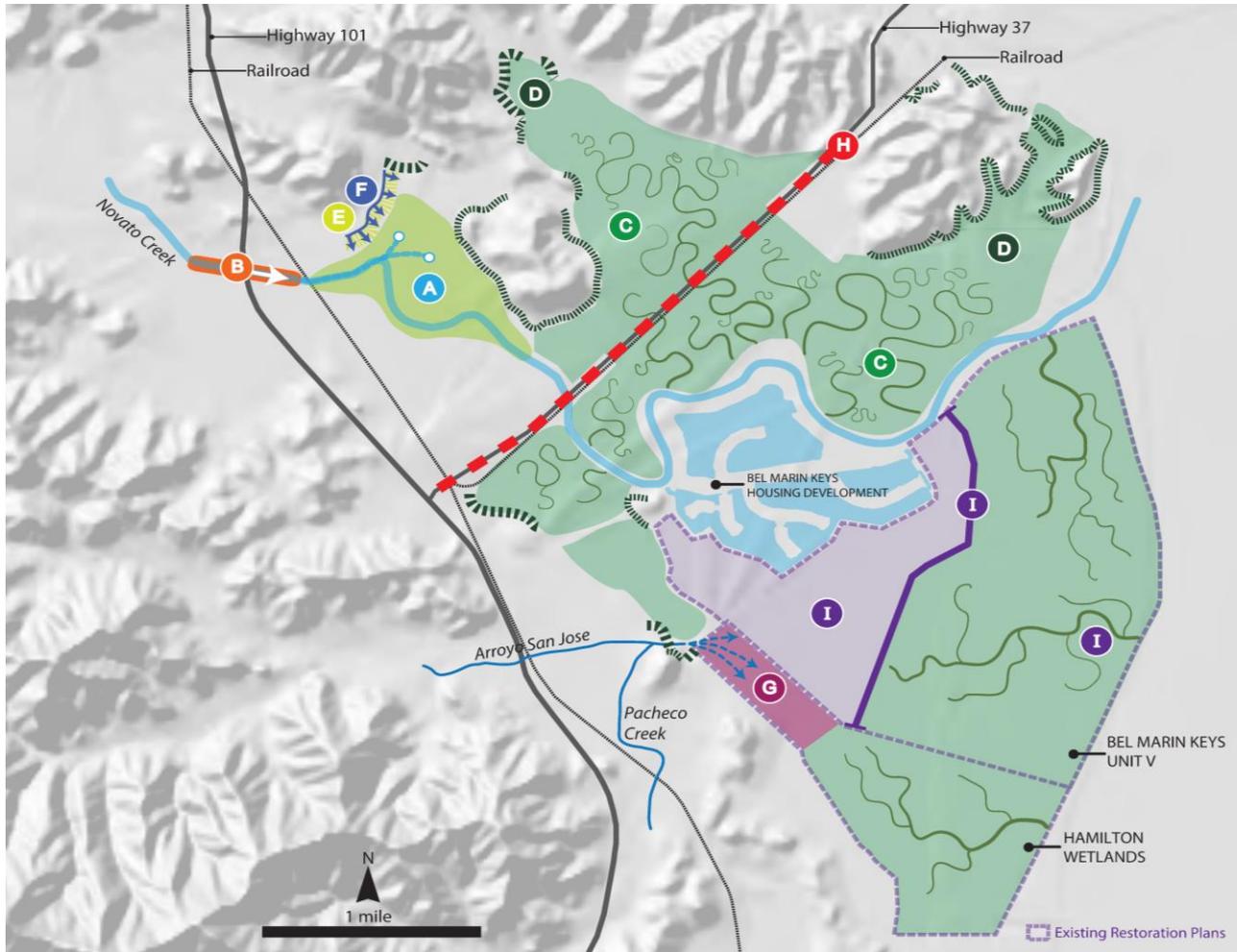
Project Background

- Over 1,000 acre of District owned former diked baylands (saved from development)
 - Located at critical fluvial-tidal interface
 - Flooding and infrastructure constraints
 - Challenges of restoring baylands far up creek channel – channel and system evolution
- ✓ *Project is first piece towards larger Baylands restoration*



Novato Baylands looking east to the bay

Lower Novato Creek System - SFEI Vision – Flood 2.0 Study



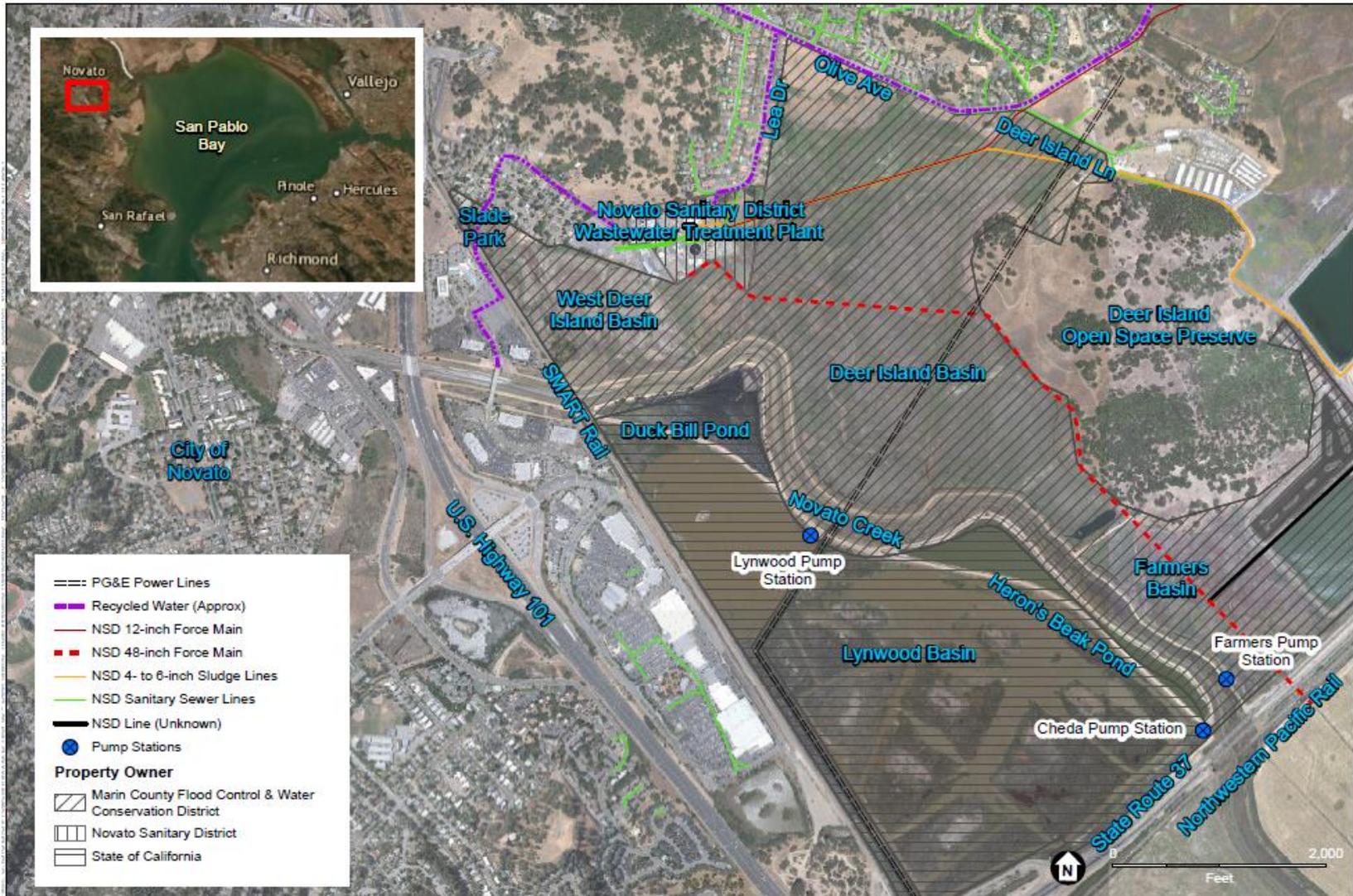
Lower Novato Creek System - Flooding at Leveroni Parcel / HWY 37



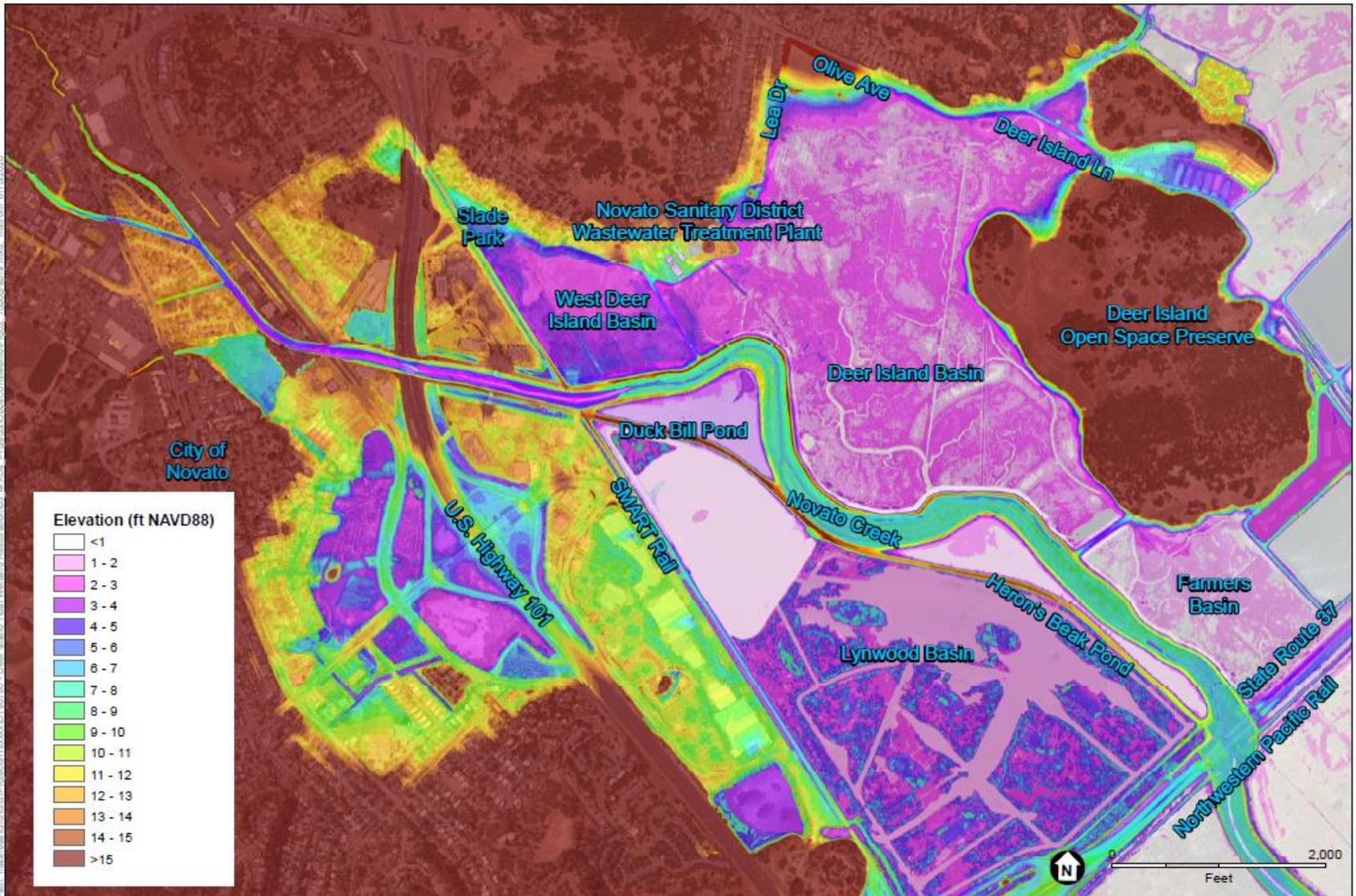
Project Team and Roles

- **Marin County Flood Control and Water Conservation District**
 - Roger Leventhal, Project Manager
- **ESA (Design, CEQA, Permitting)**
 - Melissa Carter, Project Manager
 - Mark Lindley, Senior Technical Lead
 - Michael Strom, Hydraulics and Hydrology

Project Location

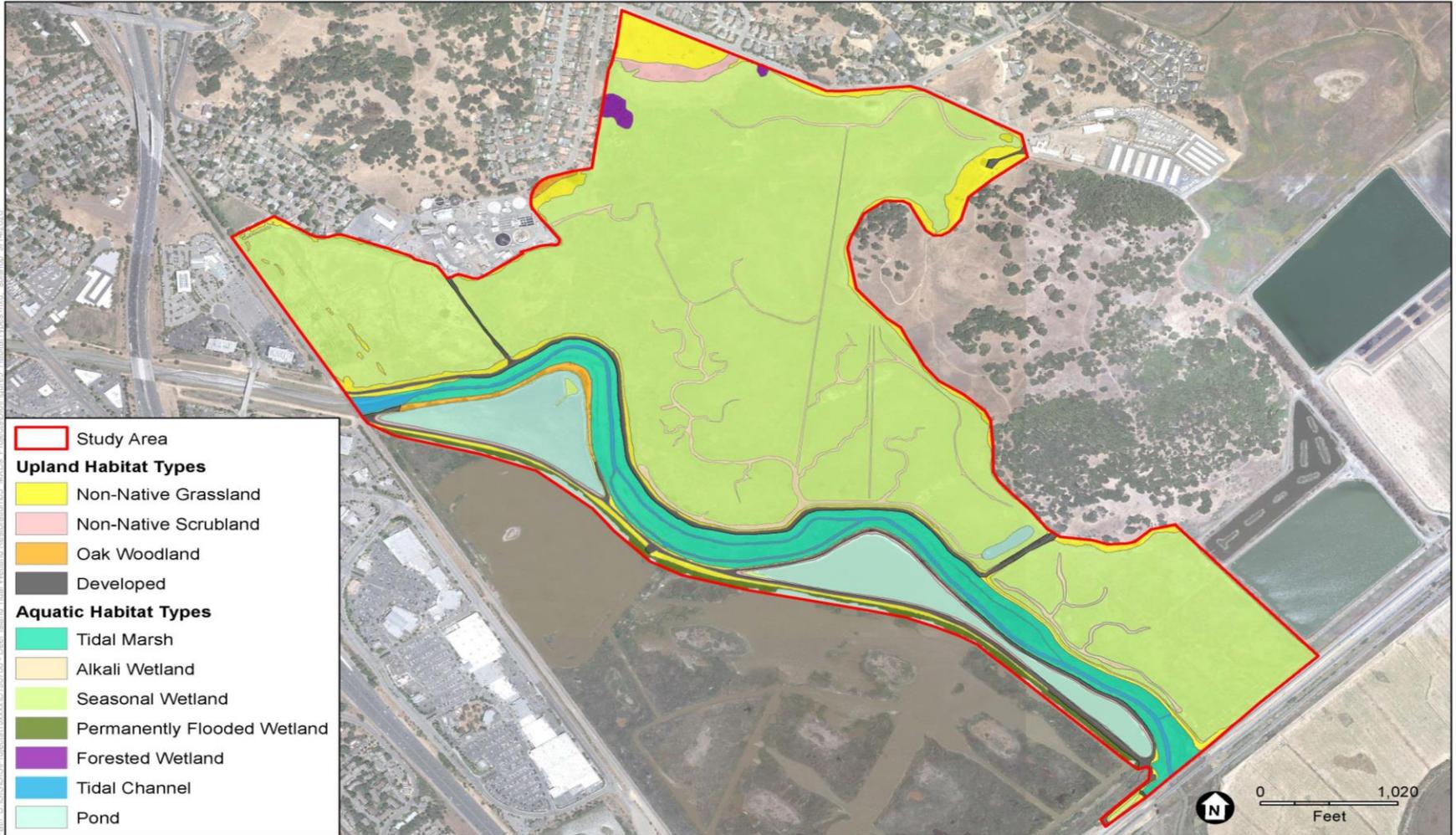


Topography



Q:\GIS\MapDocs\GIS\Projects\110000\01100100 - Deer Island Tidal Wetland Restoration\02 - Topography\mxd - 11/10/2010 8:11:00 AM

Habitat Assessment



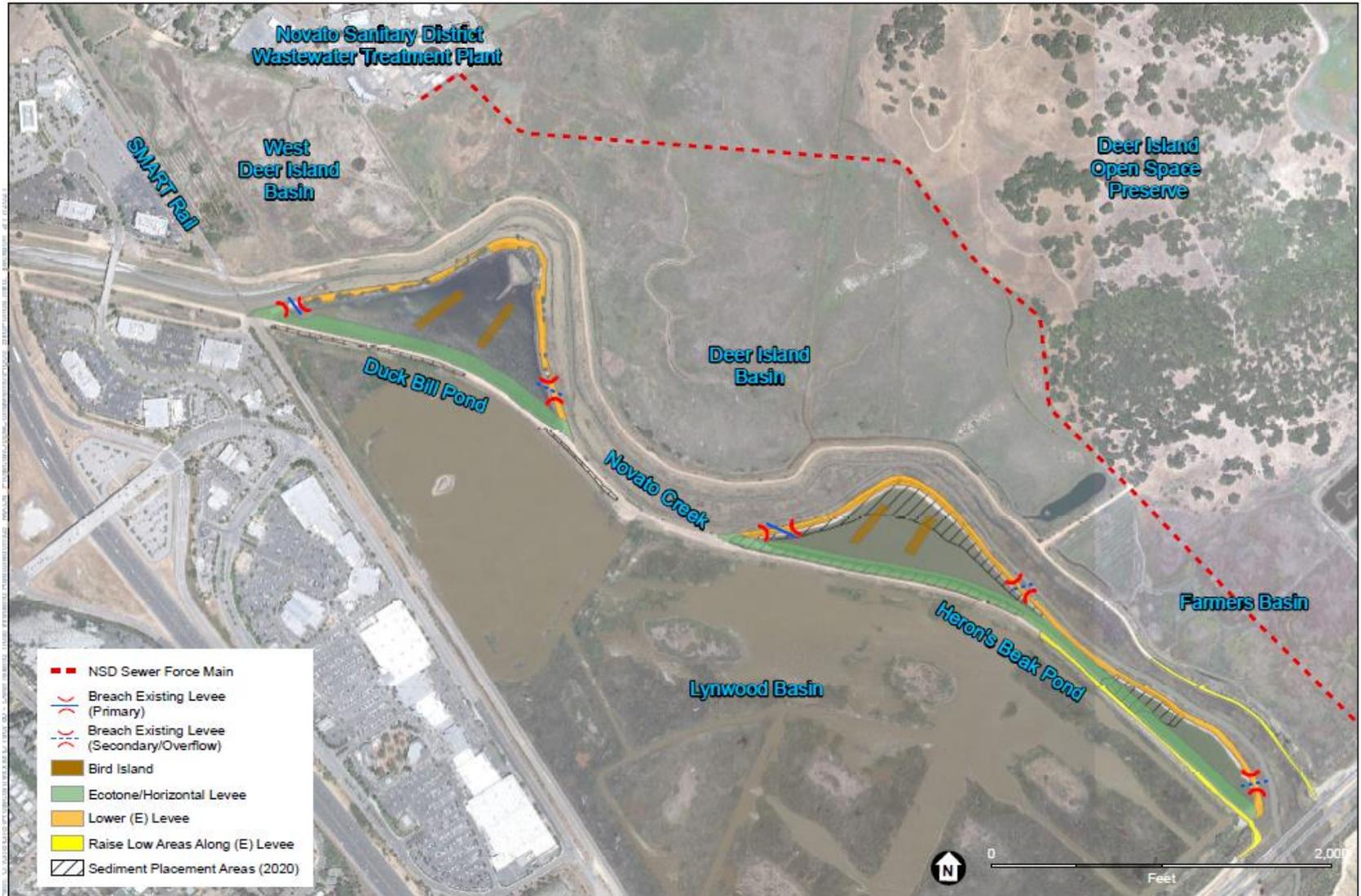
Project Goals and Objectives

1. Restore floodplain and tidal connectivity, and tidal wetland habitats;
2. Enhance ecological functions within baylands habitats along/adjacent to Novato Creek;
3. Preserve and improve habitat conditions that support special status species known to occur, currently and/or historically, within Novato Creek and associated tidal marshes;
4. Contribute to long term flood control goals and sea level rise resiliency for the lower Novato Creek Baylands; and
5. Protect critical infrastructure located within and adjacent to the project area (including Hwy 37) to protect current levels of flood protection and maintenance access.

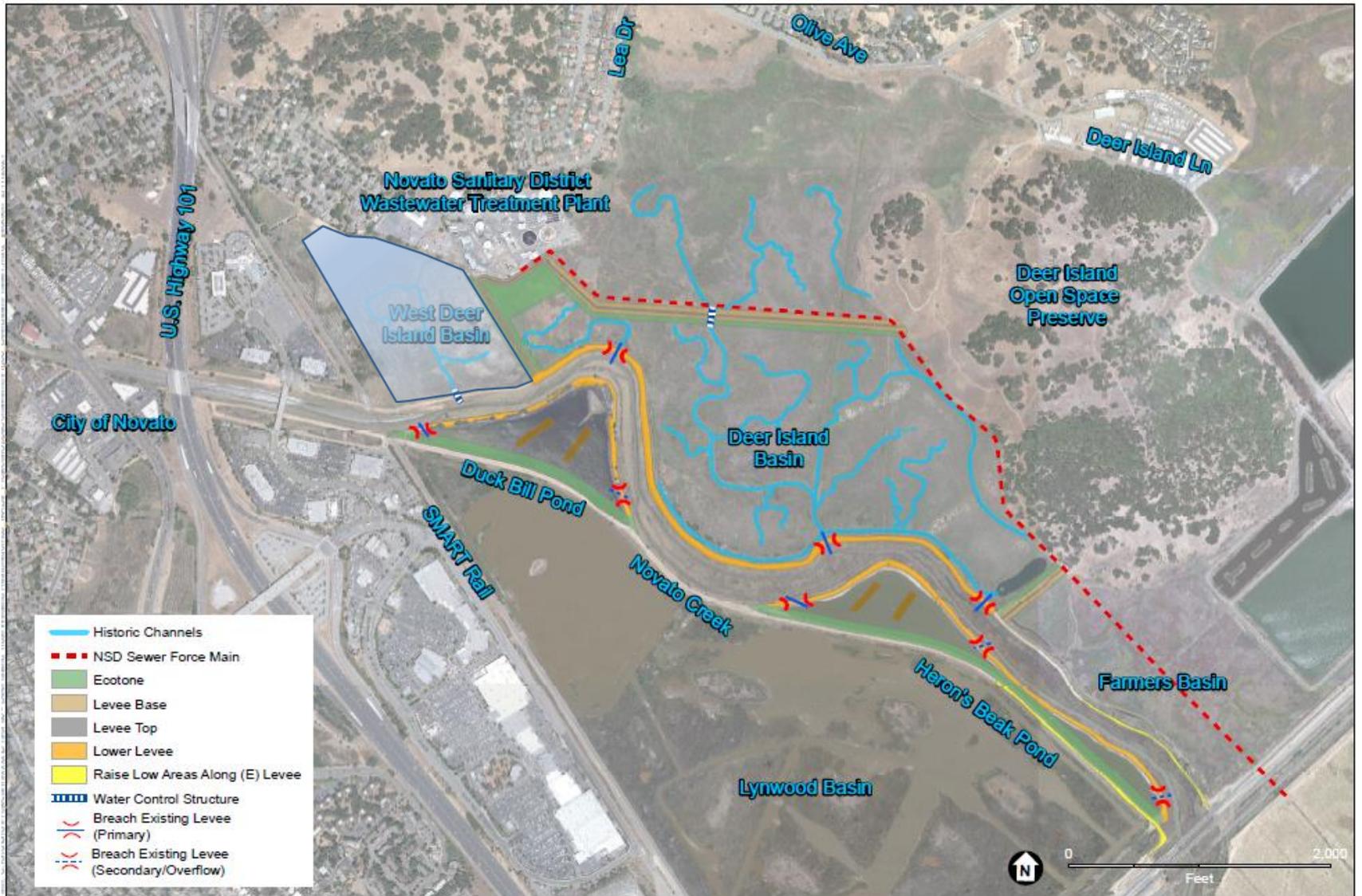
Phased Approach

- **Bird Ponds First**
 - Initiate tidal scour with increased tidal prism along Novato Creek
 - Allow time to advance planning and design for the larger Deer Island Basin
- **Deer Island Basin**
 - Implementation Approach:
 - Phased Restoration vs.
 - Full Restoration
 - Phased Approach:
 - Restore the southern half to initiate additional scour
 - Limit the magnitude of potential temporary flood impacts
 - Provide time to relocate critical wastewater infrastructure
 - Allow for HWY 37 issue/solutions to catch up

Bird Ponds Restoration



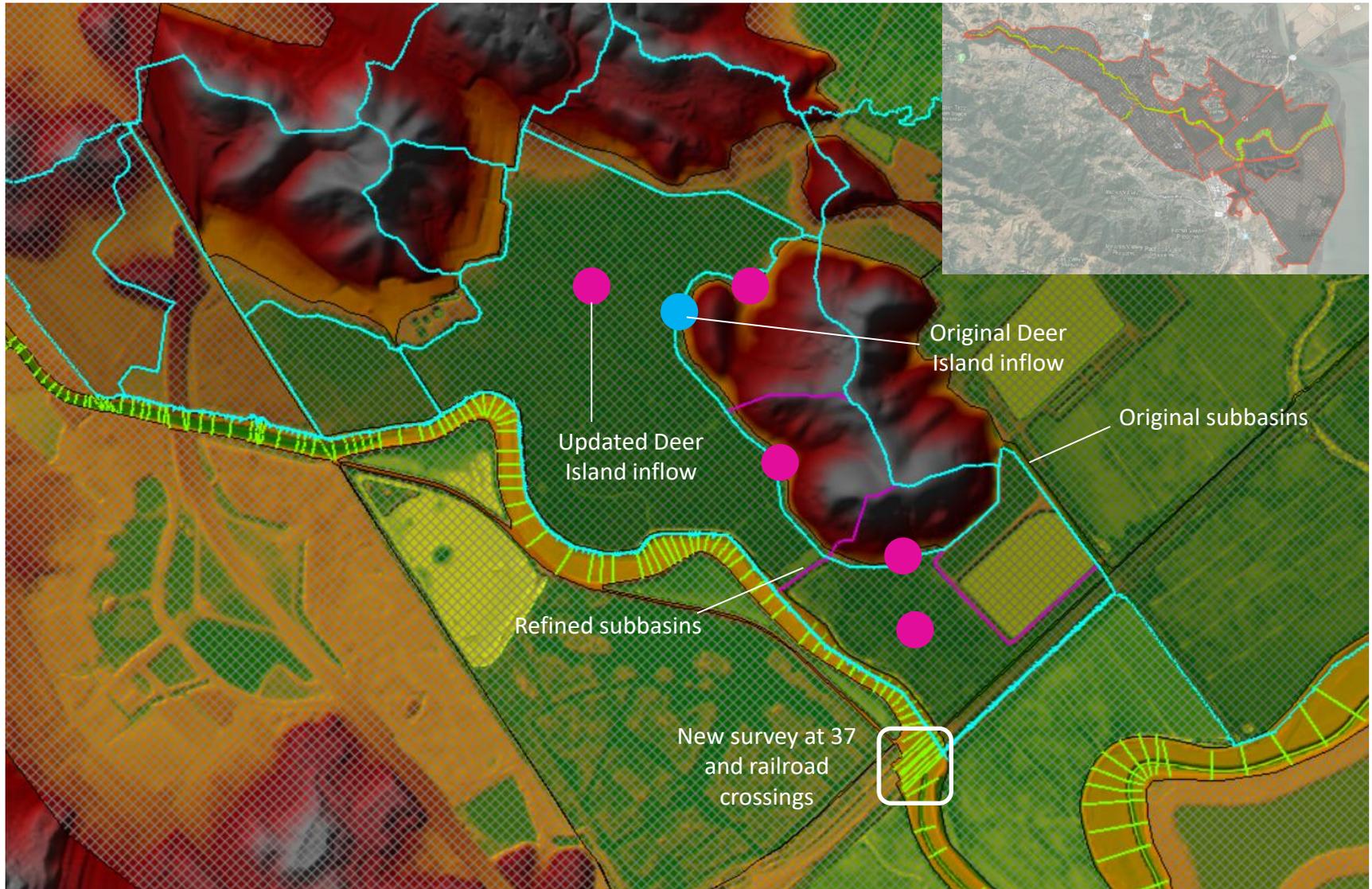
Deer Island Basin: Phase 1 (~125 Acres)



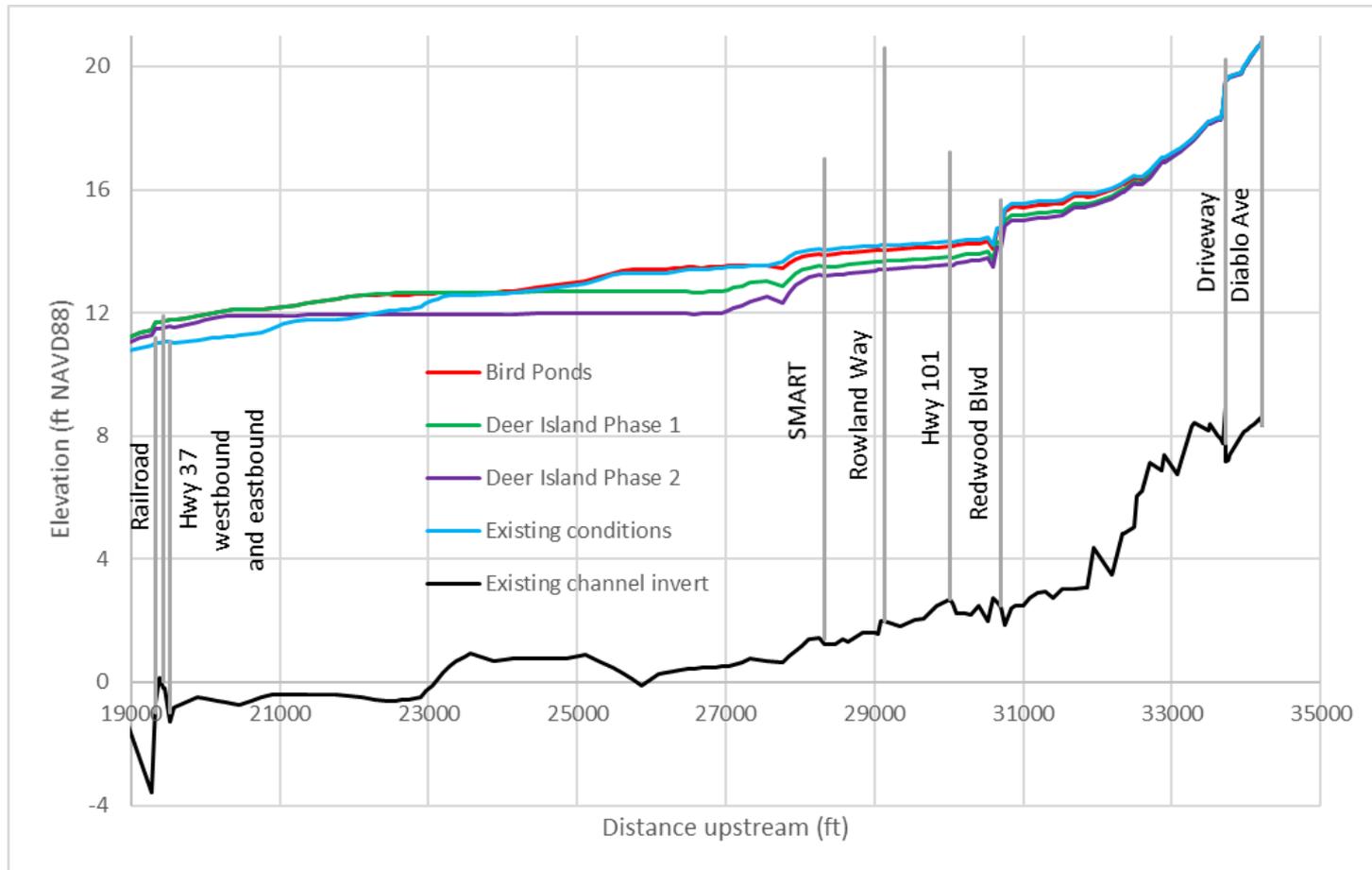
Deer Island Basin: Full Restoration (~230 Acres)



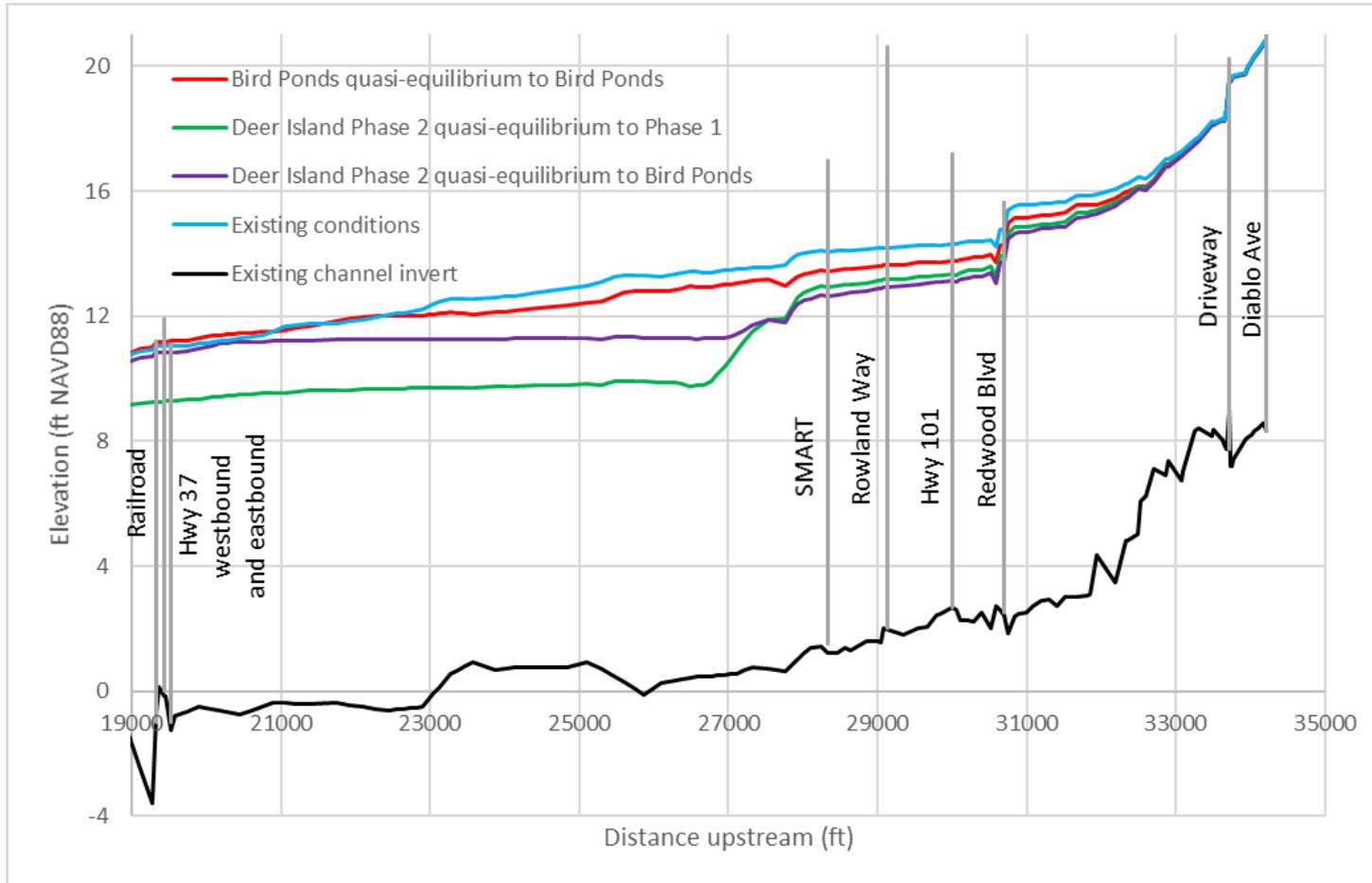
HEC-RAS Model Updates Overview



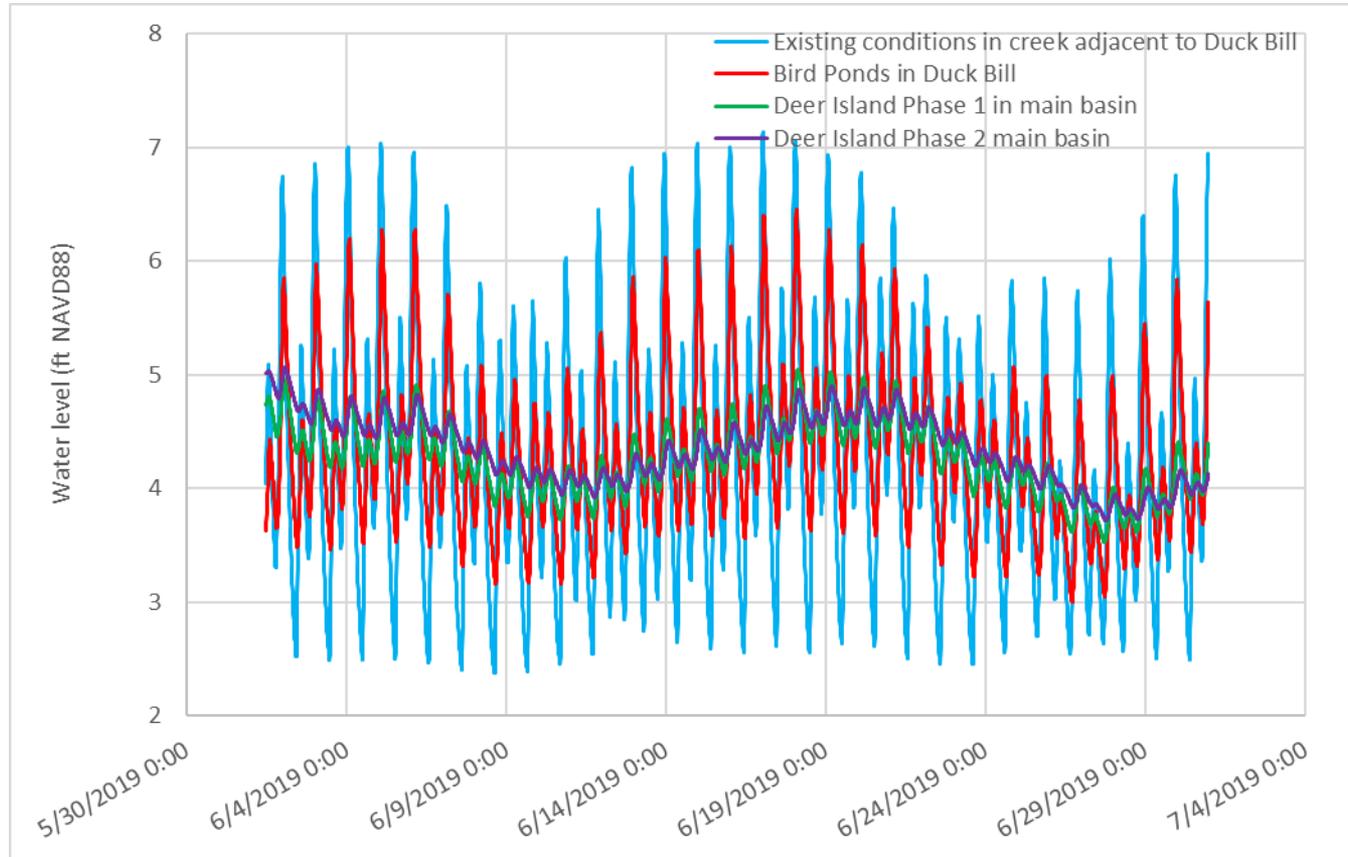
Q50-T1 event – Near Term Post Restoration Max water surface elevation profiles w/ existing Novato Creek geometry



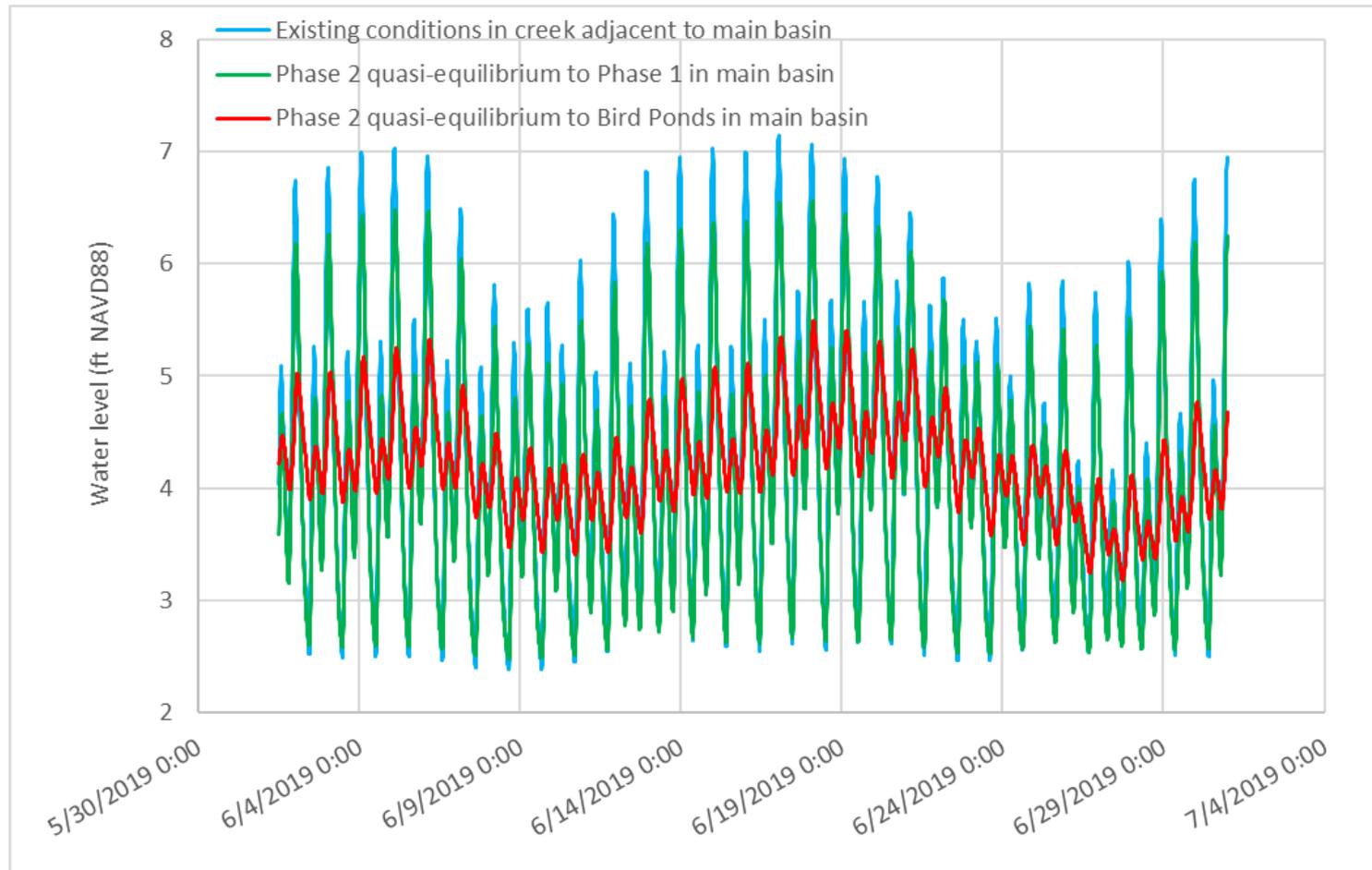
Q50-T1 event – (10+ years) Post Restoration Max water surface elevation profiles w/ quasi-equilibrium Novato Creek geometry



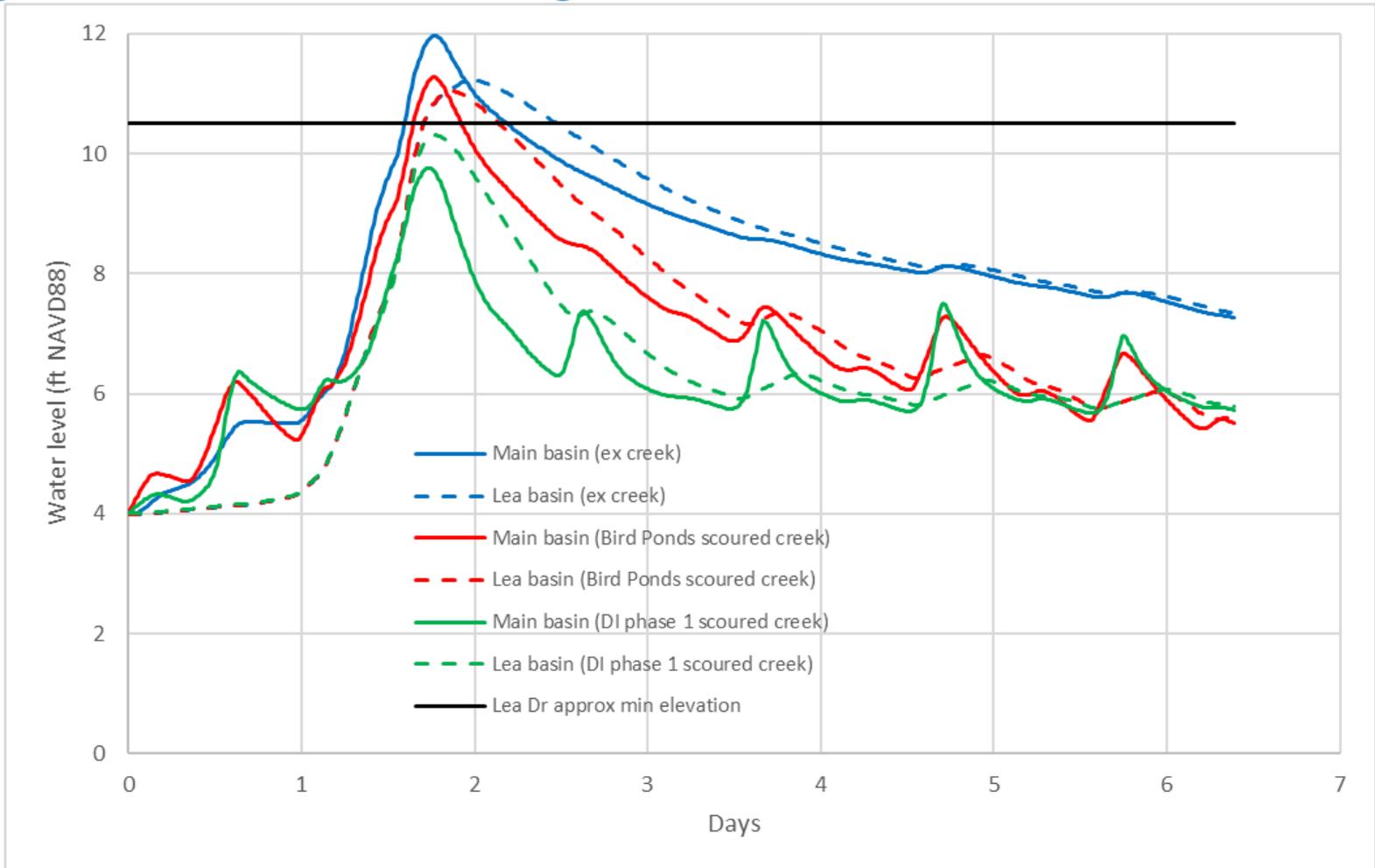
Typical tides w/ existing Novato Creek geometry



Typical tides w/ quasi-equilibrium Novato Creek geometry



Q50-T1 – Lea Drive Stormwater Basin w/ Gravity drainage through gated culvert w/ range of Novato Creek geometries

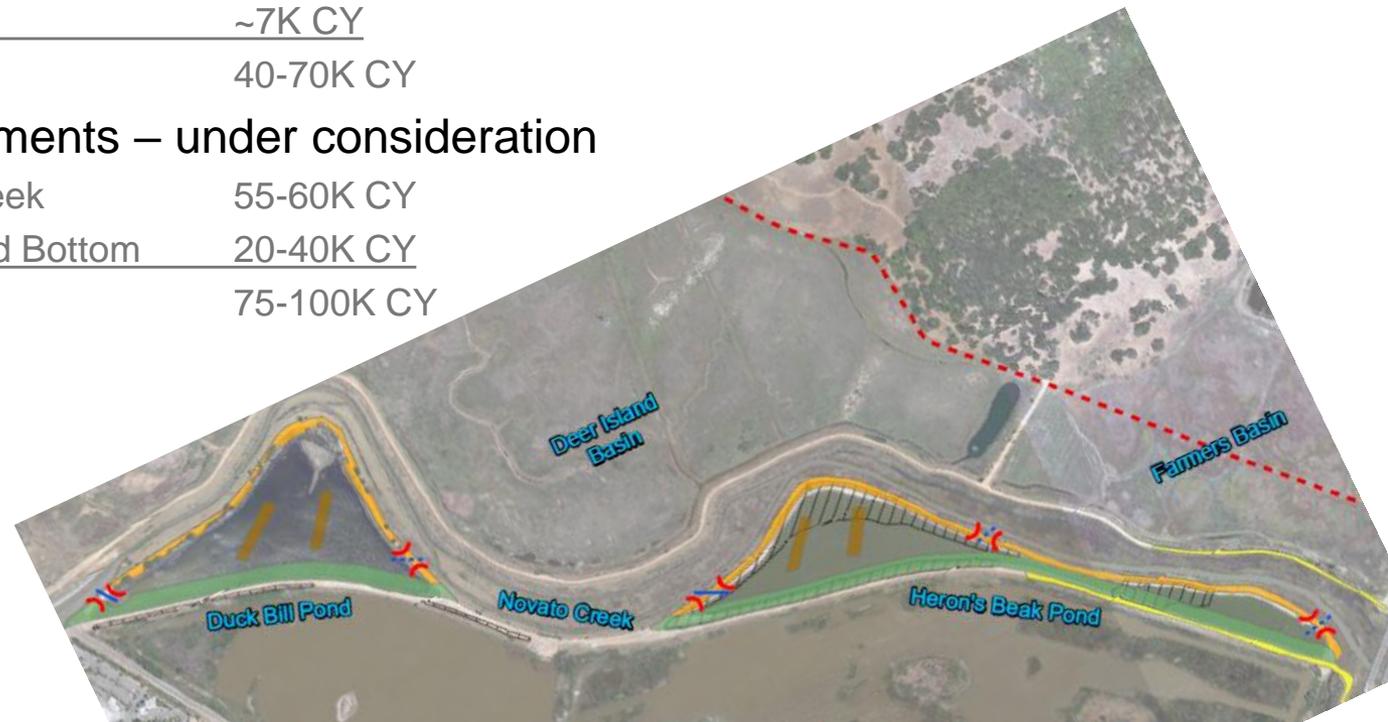


Modeling Conclusions

- **Near Term Conditions**
 - ~0.3 ft water level decrease at Nave Gardens vs. existing
 - ~0.6 ft water level increase at Highway 37 vs. existing
 - ~0.7 ft max depth of flooding on Lea Drive w/o pumping
 - ~0.2 ft min daily tide range in Deer Island Basin
- **Longer Term Conditions**
 - ~0.6 ft water level decrease at Nave Gardens vs. existing
 - ~0.6 ft water level decrease at Highway 37 vs. existing
 - ~0.7 ft water level decrease at Lea Drive vs. near term
 - ~4 ft max daily tide range in Deer Island Basin – similar to existing

Bird Ponds - Construction Elements

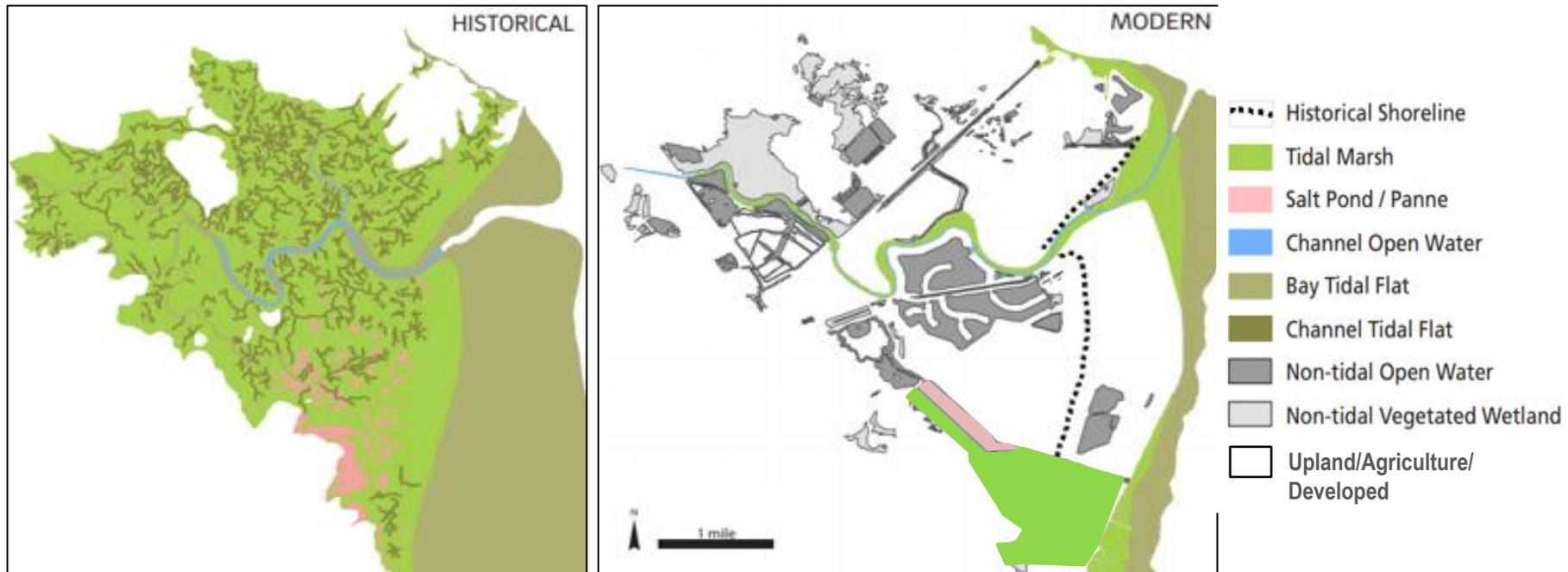
- **Lynwood Levee Improvements**
 - Ecotone Slope 50-60K CY
 - HWY 37 Raise ~4K CY
 - Stability Berms 6-10K CY
 - Total 60-75K CY
- **Lower & Breach Novato Creek Levee**
 - Duck Bill 9-24K CY
 - Herons Beak 23-38K CY
 - Breaches ~7K CY
 - Total 40-70K CY
- **Optional Elements – under consideration**
 - Dredge Creek 55-60K CY
 - Lower Pond Bottom 20-40K CY
 - Total 75-100K CY



Funding Status

- **Bird Ponds Funding**
 - Funded for final design, CEQA, and permitting
 - Implementation anticipated in 2023;
 - No implementation funding yet, but likely to qualify for SF BRA Grant funding
- **Deer Island Basin Funding:**
 - Preliminary design (~30% complete)
 - CEQA (together with Bird Ponds)
 - Technical Studies (ARD, habitat assessment) combined with Bird Ponds reports
 - No final design or permitting funding

Loss of Tidal Marsh



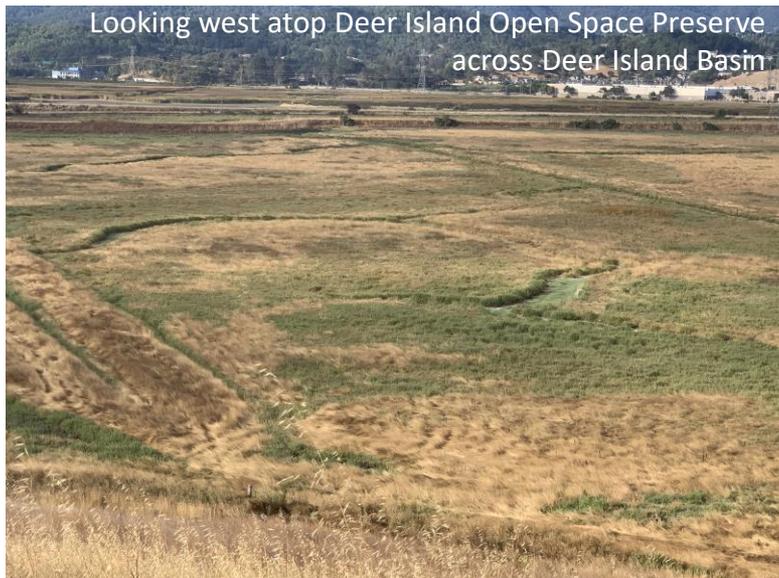
Site Conditions



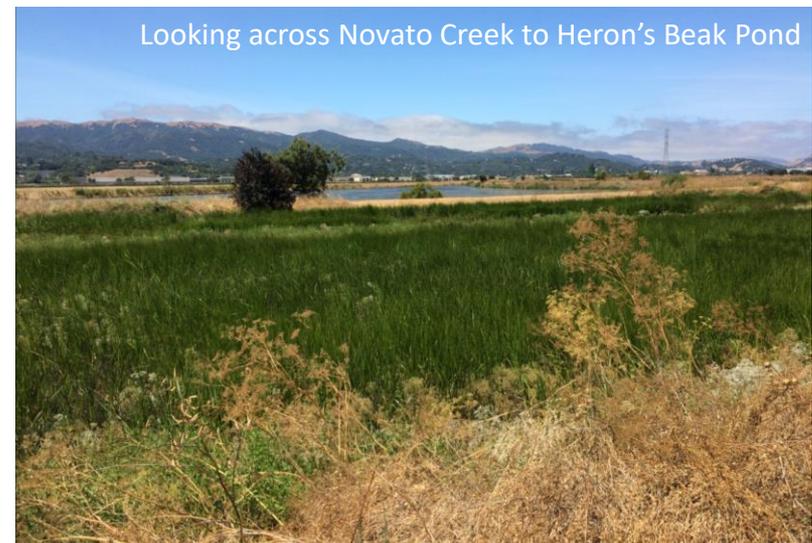
Duck Bill Pond



Heron's Beak Pond



Looking west atop Deer Island Open Space Preserve
across Deer Island Basin



Looking across Novato Creek to Heron's Beak Pond