SAN JOAQUIN RIVER
RESTORATION PROGRAM

Reach 3 and 4A Landowner Meeting

March 1, 2012

Los Banos Community Center

645 7th Street, Los Banos, CA

Preliminary draft – subject to change

Agenda

Purpose: Begin discussion and implementation of seepage projects in Reaches 3 and 4A

Outcome: Schedule discussions on individual projects

Agenda

Purpose: Begin discussion and implementation of seepage projects in Reaches 3 and 4A

- Introduction
- Program Update
- Seepage Management Plan
- Seepage Project Handbook
- Seepage Project Overview
- Landowner Perspective and Discussion on Project Implementation
- Next Steps

Objectives

- Convey Interim and Restoration Flows while avoiding seepage impacts
- Identify potential projects that would avoid seepage impacts
- Identify locations for projects with potential for seepage impacts
- Develop a common understanding of the process, procedures and expectations for projects

Dave Mooney

PROGRAM UPDATE

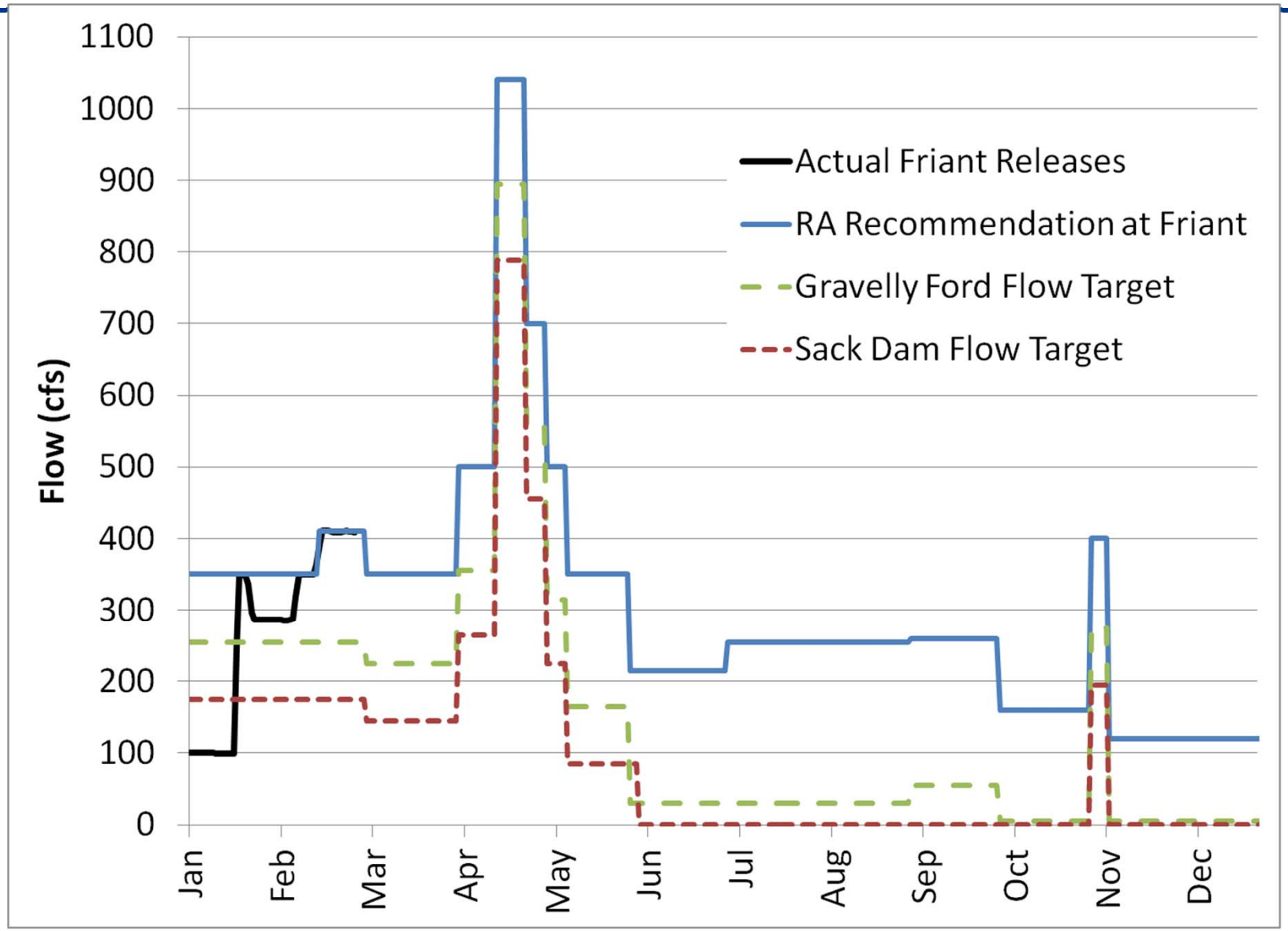
SJRRP Overview

- Program EIS/R
- Interim Flows
- Phase 1 Projects
  - Reach 2B – Mendota Pool Bypass
  - Reach 4B – Flow Routing
  - Arroyo Canal / Sack Dam – fish screen and passage
- Fish Reintroduction

Landowner Involvement

- Environmental Document Review
- Site-Specific Meetings
- Technical Feedback Groups
- Contact SJRRP Staff

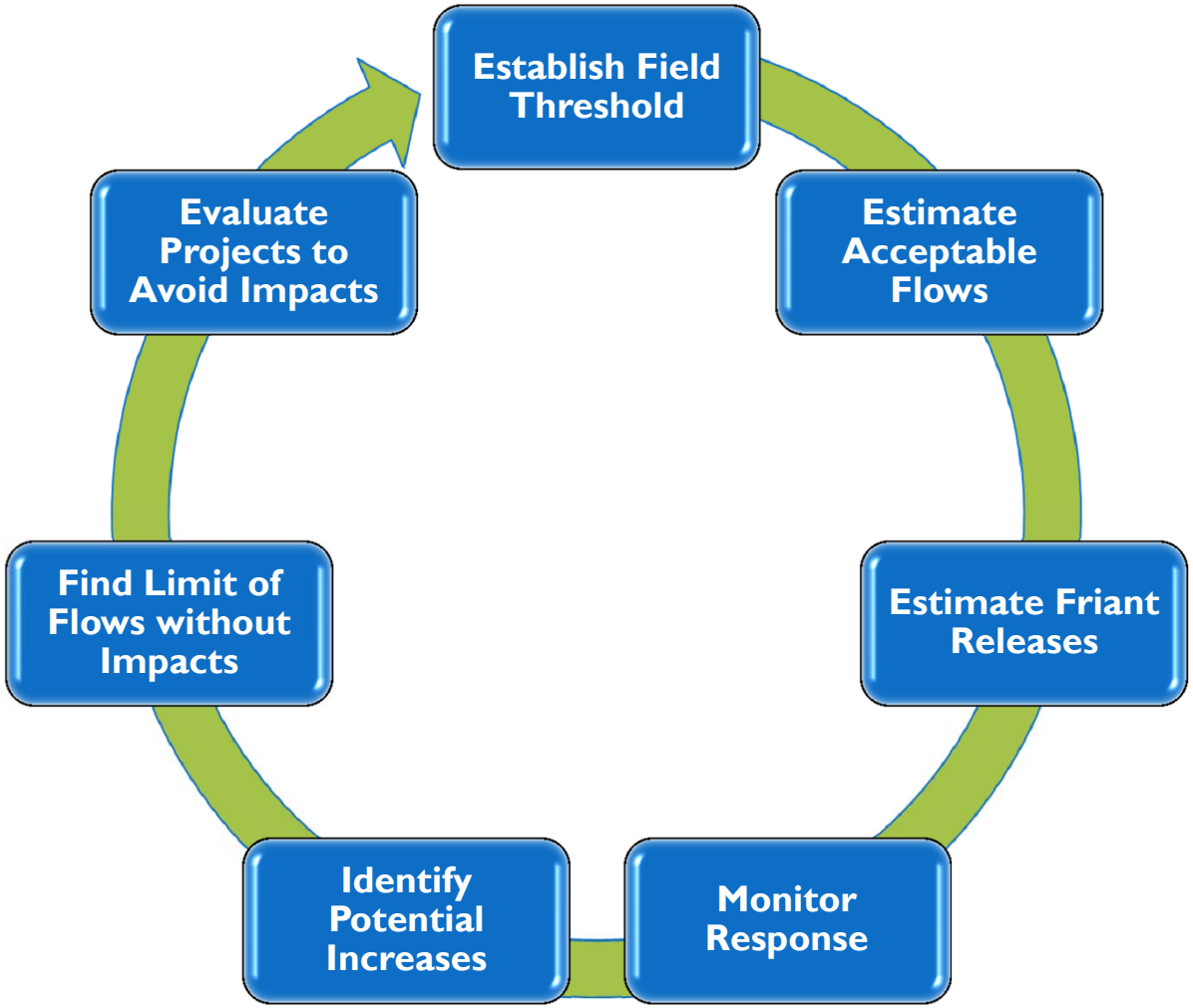
2012 Recommended Interim Flows



Katrina Harrison

SEEPAGE MANAGEMENT PLAN

Iterative Approach to Increase Flows while Avoiding Impacts



Seepage Management Plan

- Purpose: describe the approach to conveying flows while reducing or avoiding adverse seepage impacts

- Seepage & Conveyance Technical Feedback Group provides a way to solicit input

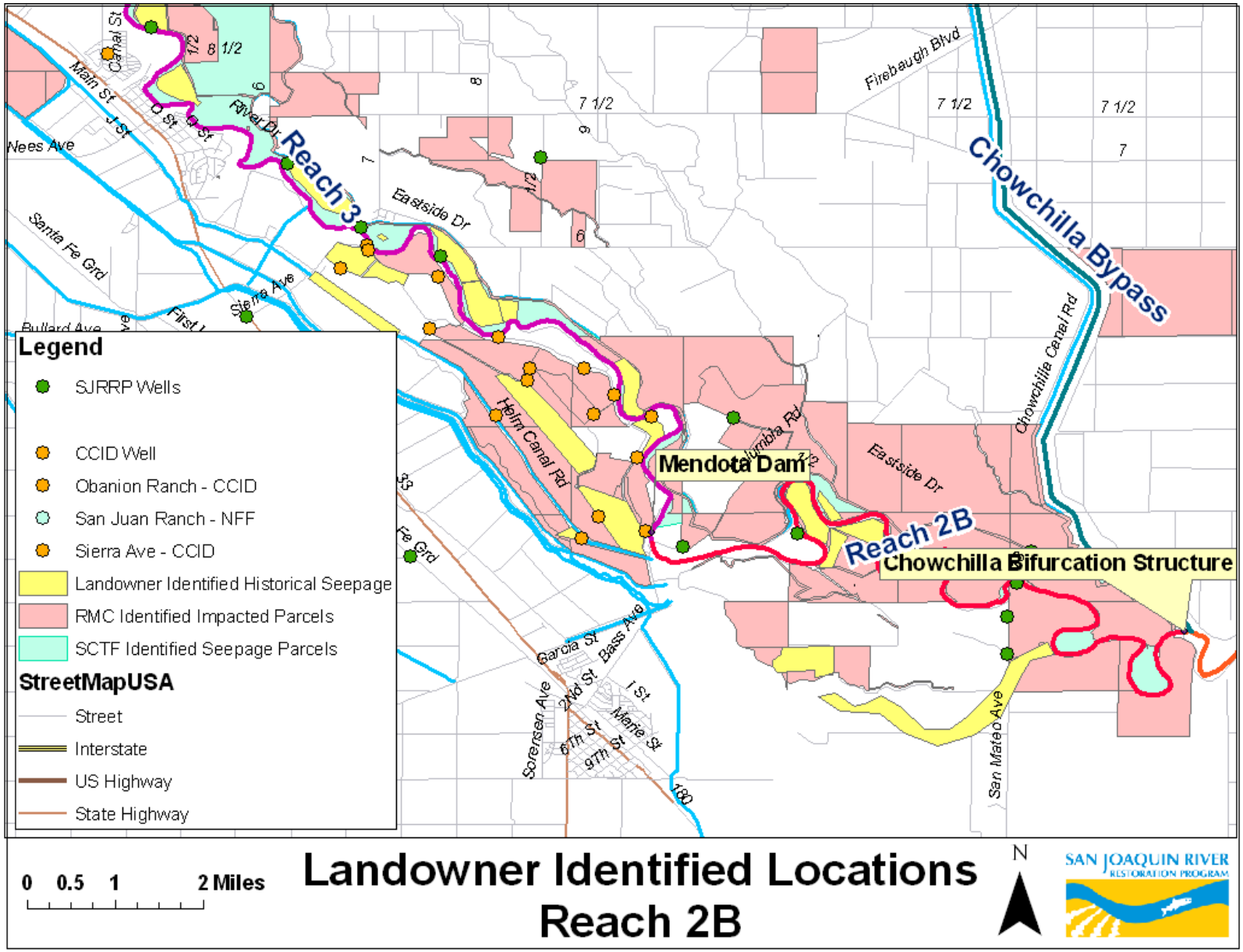
Elements of the SMP

- Seepage Impacts
- Locations of Known Risks
- Conceptual Model
- Monitoring Program
- Thresholds and Triggers
- Site Visit and Response

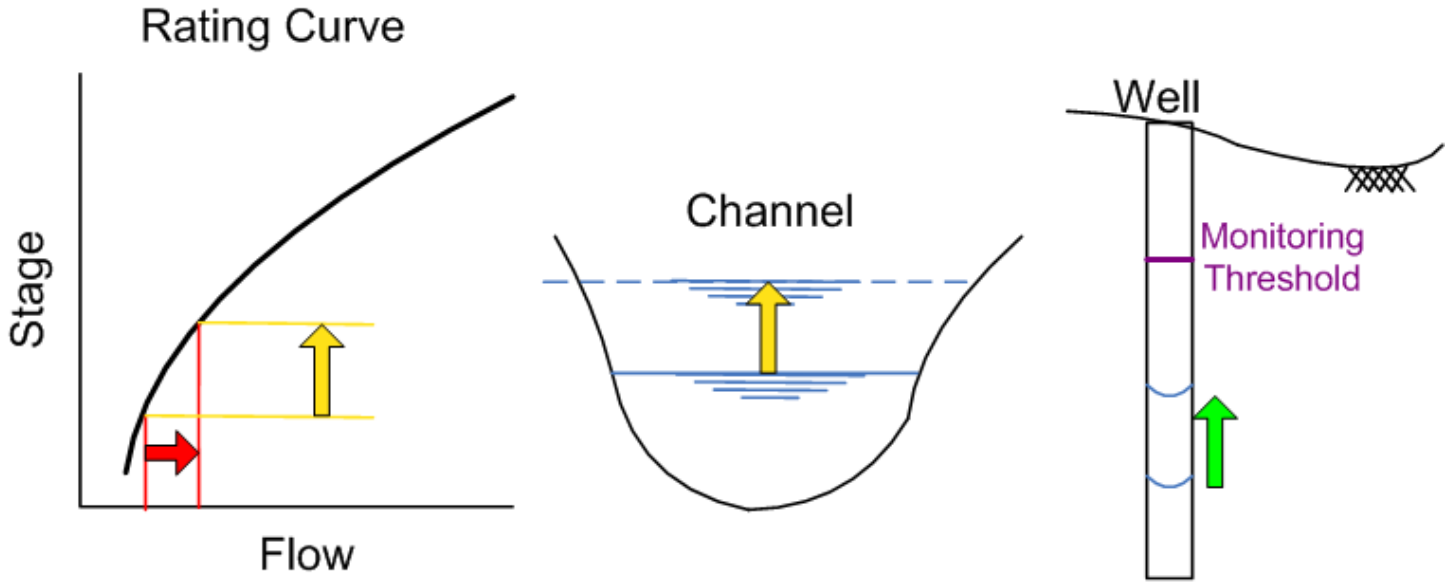
Seepage Impacts

- Shallow Groundwater
- Salinity in the Crop Root Zone
- Levee Instability

Locations of Known Risks



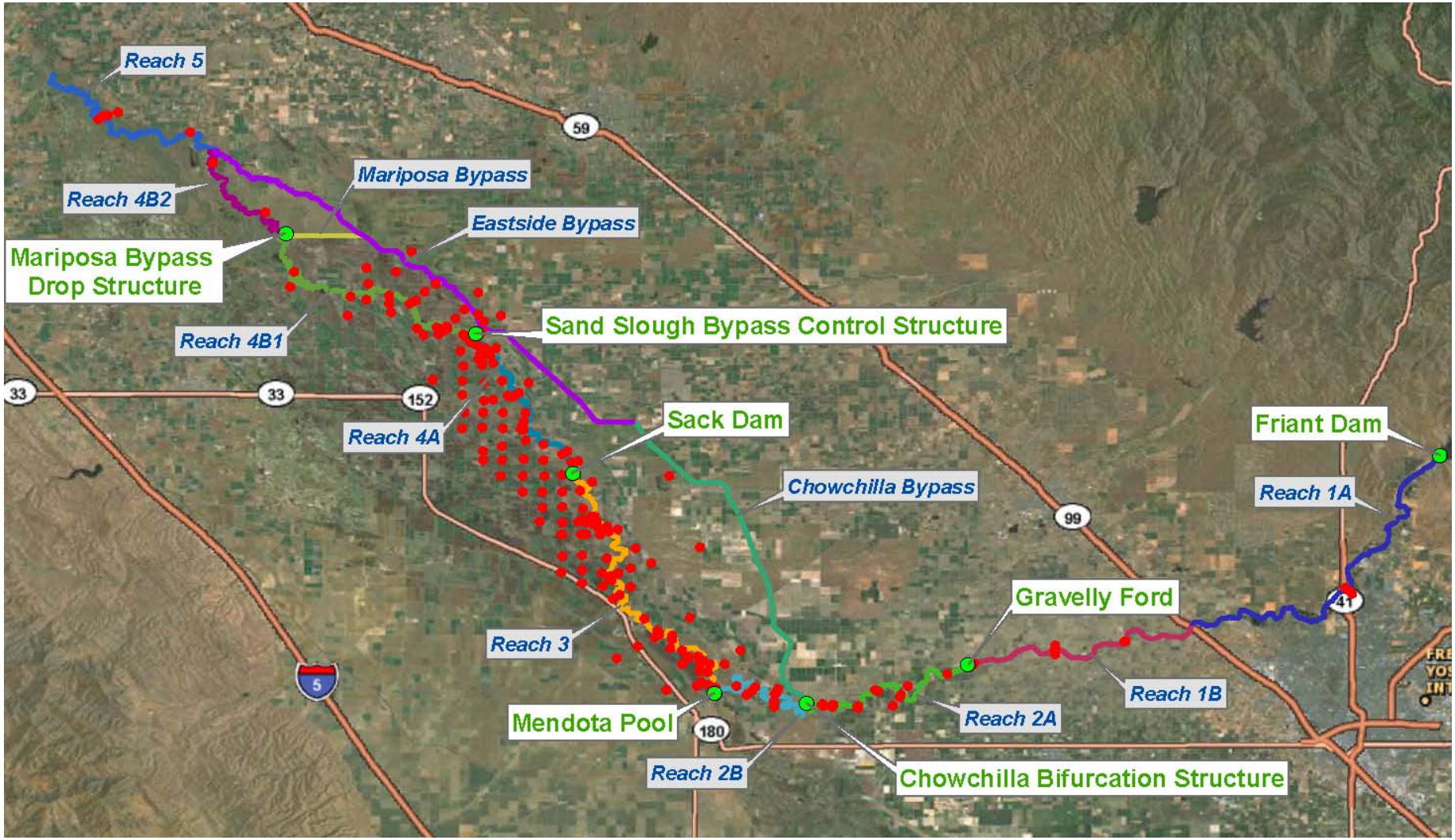
Conceptual Model



- Thresholds identify potential problems so that Reclamation can establish operating criteria to manage flows

SAN JOAQUIN RIVER RESTORATION PROGRAM

Monitoring Program

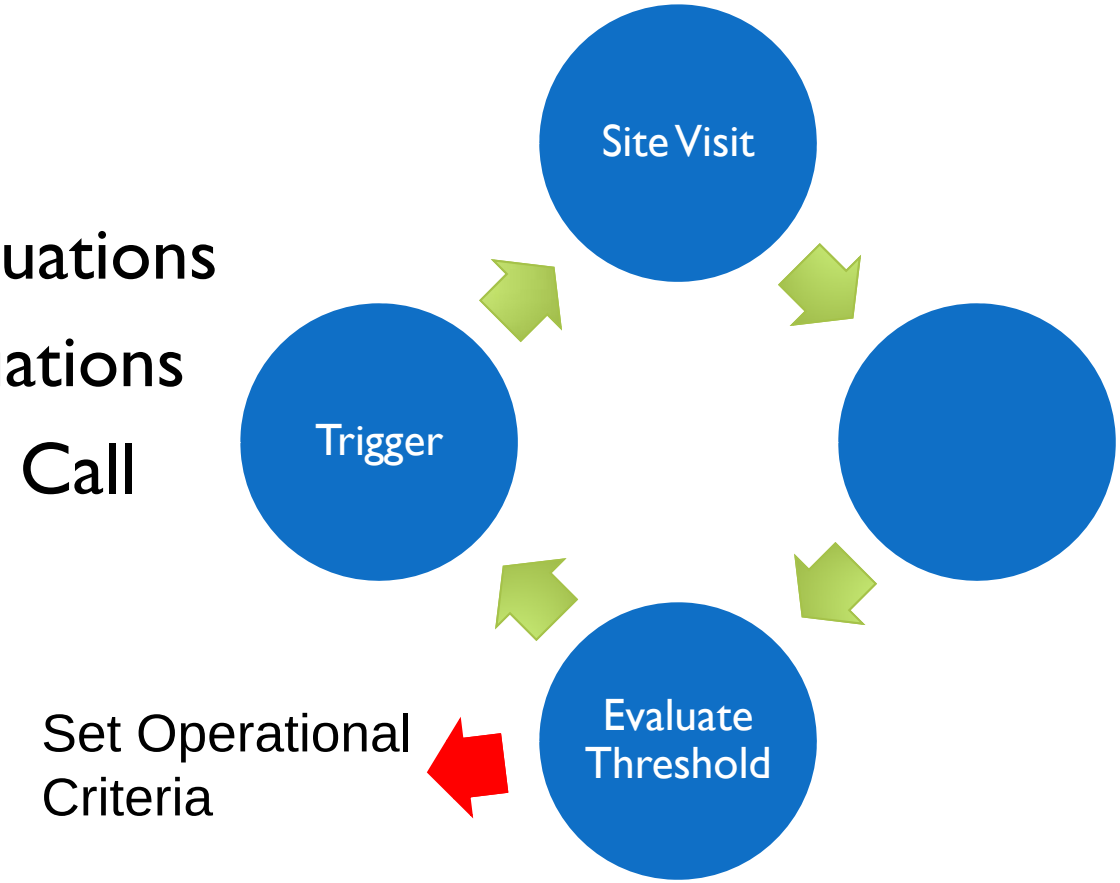


Thresholds

- Thresholds set in each monitoring well
- The approach to establish thresholds
  - Start conservative
  - Refine assumption with site-specific information
- Methods include:
  - Agricultural Conditions
  - Historical Data
  - Drainage Direction

Triggers and Operations

- Monitoring Data
- Triggers
  - Flow Bench Evaluations
  - Daily Flow Evaluations
  - Seepage Hotline Call
- Site Visit
- Response



- Refine thresholds assumption with site-specific information

Flow Bench Evaluations

- Purpose: Avoid material adverse seepage impacts
- Reclamation performs Flow Bench Evaluations prior to increasing flows

Flow Bench Evaluations

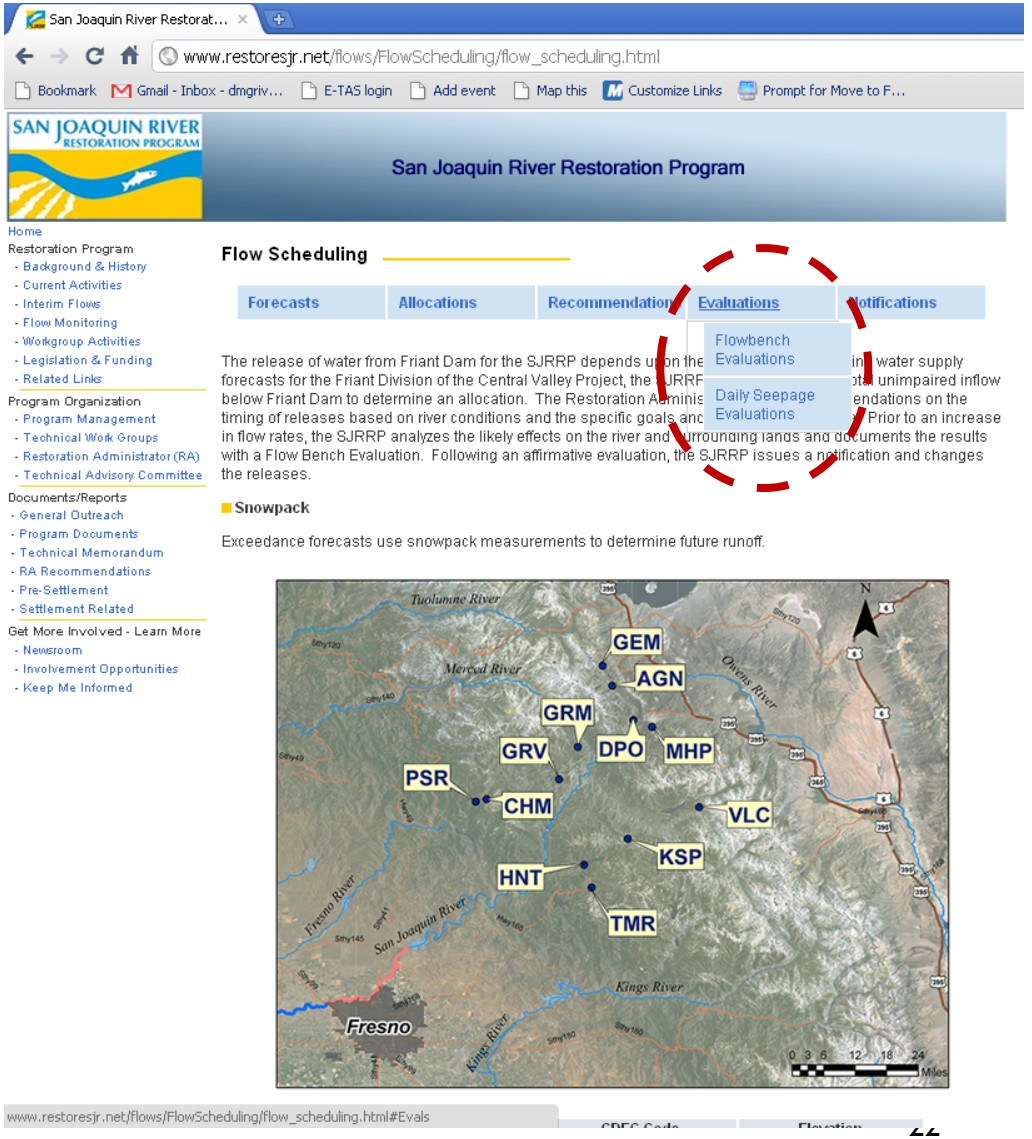
- Flow Bench Evaluations include:
  1) Conveyance Capacity
  2) Groundwater Telemetry
  3) Groundwater Manual Measurements
  4) Flow Stability
  5) Groundwater Projections
  6) Mendota Pool Operations
  7) Feedback
     a) Landowners (Seepage Hotline)
     b) Operators: LSJLD, CCID and SLCC

Daily Flow Evaluations

- Reclamation performs daily evaluations when flows exceed 475 cfs
- Daily Flow Evaluations Include
  - Conveyance Capacity
  - Groundwater Telemetry
  - Mendota Pool Operations
  - Landowner Feedback (Seepage Hotline)

Flow Bench & Daily Flow Evaluations

- Reclamation documents evaluations at:
  www.restoresjr.net/flows/FlowScheduling/flow_scheduling.html



Site Visit and Response

- Hotline Intake: A landowner calls the seepage hotline or sends an email:

  916-978-4398

  interimflows@restoresjr.net

- Site Visit: Reclamation views the problem and meets with the landowner
- Response: Reclamation identifies a course of action

Seepage Hotline Intake

- Location
- Access
- Distance from the River
- Proximity to Levee Toe
- Description of Seepage
- Potential Impact
- Relationship to Interim Flows
- Immediacy of Impact

Site Visit

- Description of Seepage
- Type of Impact
- Interim Flow Relationship
- Operations Recommendation
- Follow-Up Recommendation
- Photo Log

Site Visit Data Collection

- Landowner Input
- River Stage
- Soil Texture
- Hand Auger Holes
- Drive point Installation
- Infrastructure
- Crop Health

Response

- Adjust Monitoring
- Establish New Thresholds
- Set Operations Criteria
- Limit or Reduce Flows

Dave Mooney

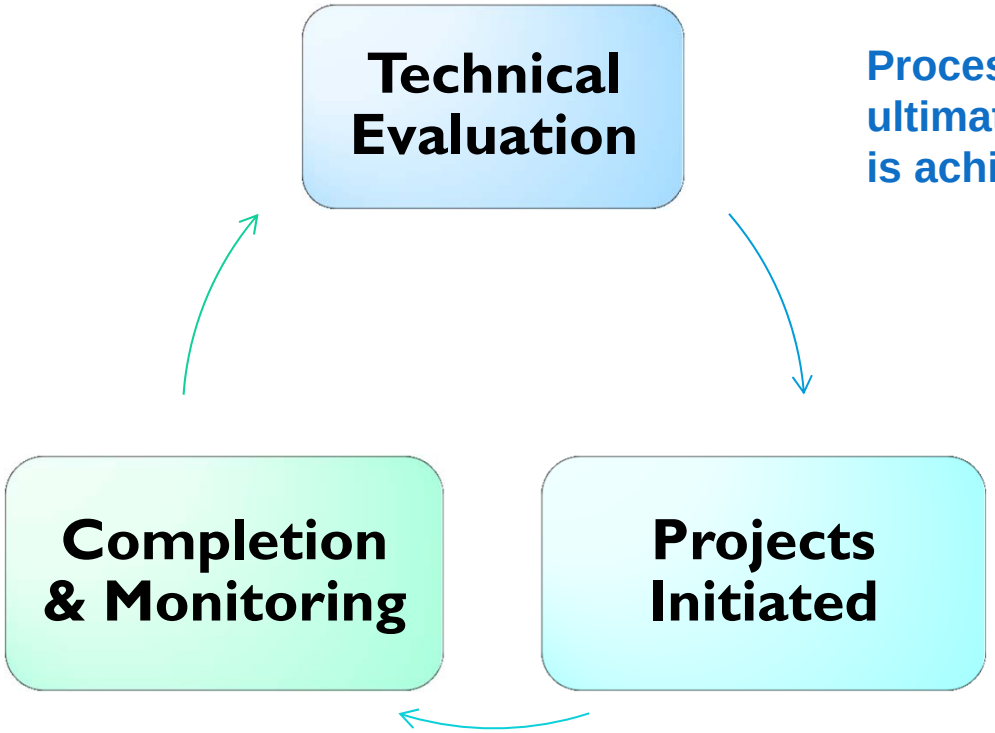
SEEPAGE PROJECT HANDBOOK

Project Types

- Real Estate Actions
  - Easements
  - Acquisition
- Physical Projects
  - Tile drains
  - Slurry walls
  - Drainage ditches
  - Shallow well pumping
  - Conveyance improvements

Introduction

- Purpose: Define expectations, procedures and timelines for installation of seepage projects



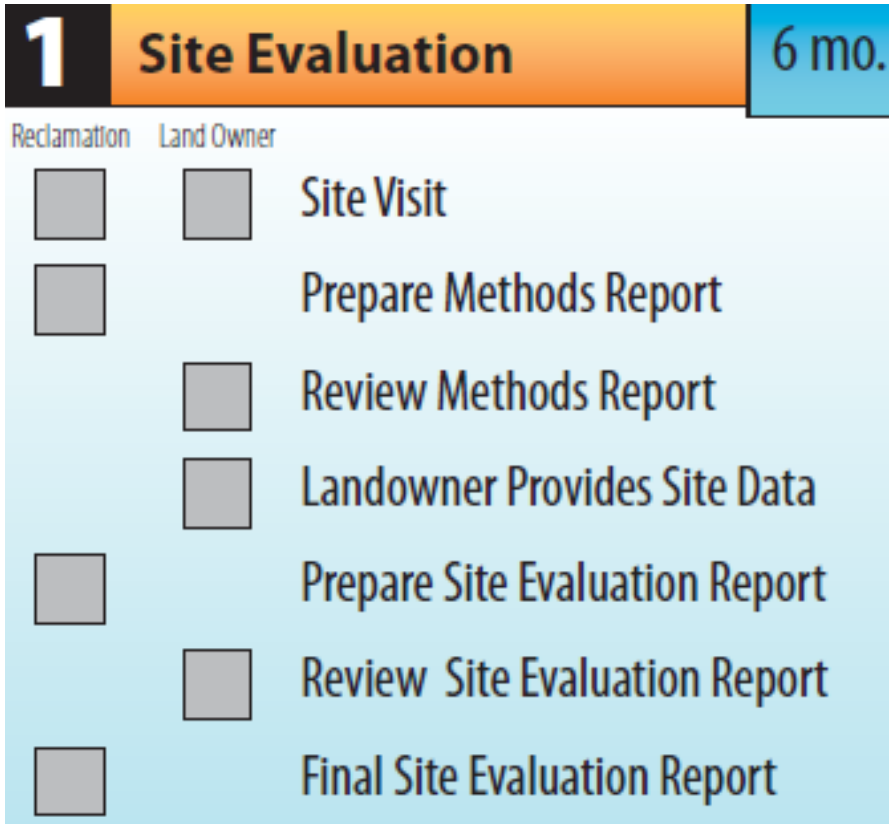
Process repeats until ultimate goal of 4,500 cfs is achieved

Elements of the Seepage Project Handbook

- Site Evaluation
- Environmental Compliance
- Design
- Plan Formulation
- Design Data Collection
- Construction
- Financial Assistance

Site Evaluation

- Site Evaluations collect data to guide plan formulation



Site Evaluation Process

1) Records Review
2) Data Collection
3) Analysis
4) Reporting

- Methods Report details expected data collection: records and fieldwork

Existing Records Review

Reclamation has:

- Precipitation Records
- Historic Aerial Photos

Reclamation may have:

- Soil Texture
- Soil Salinity Sampling
- Groundwater Monitoring
- Surface Water Monitoring

Landowner may have:

- Yield Data
- Irrigation Records
- Fertilizer Applications
- Aerial Photos
- Soil Texture
- Soil Salinity
- Infrastructure

Data Collection

- Salinity Sampling via hand augers
- EM 38
- Water Quality Sampling
- Hydraulic Conductivity Tests
- Staff Gages
- Monitoring Wells

Analysis

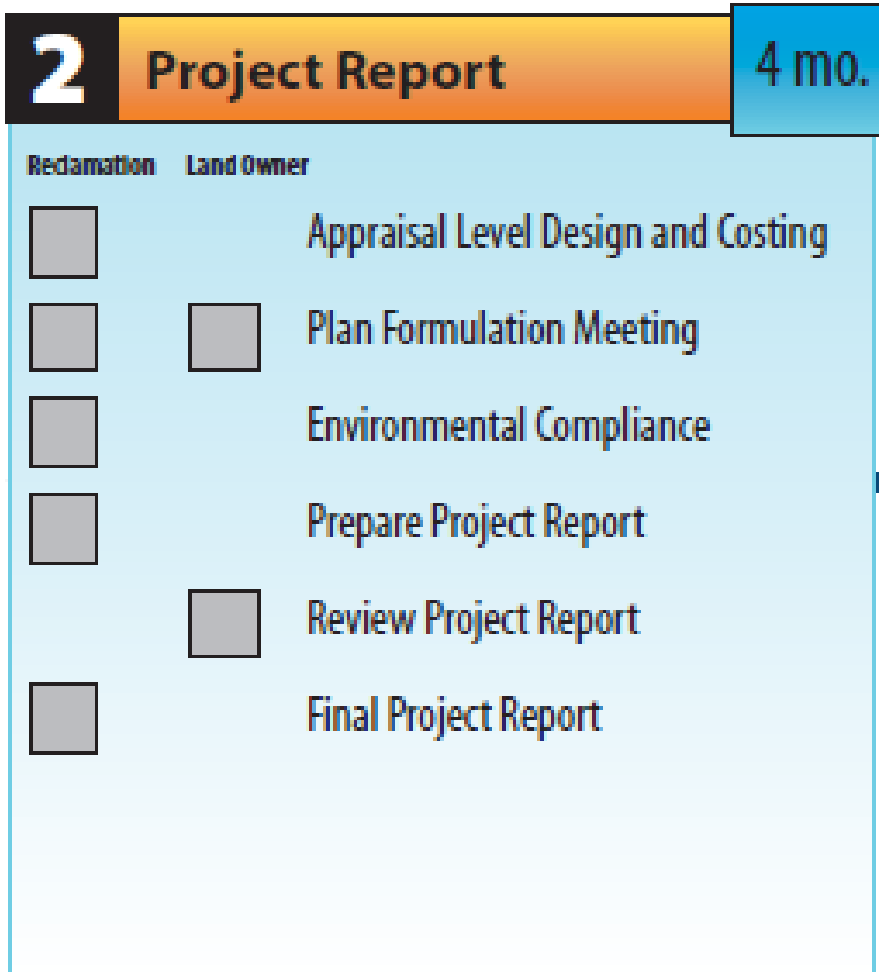
- Cross-sections
- Water surface vs. groundwater profiles
- Flow nets
  - Soil texture
  - Hydraulic conductivity
- Site-specific influences

Site Evaluation Report

- Provides for landowner input – are we considering all relevant data?
- Gathers site-specific soil and water data together for future landowner use
- Sets initial alternatives for further analysis as Reclamation must consider a range of reasonable approaches

Plan Formulation and Project Info

- Plan Formulation chooses a project from alternatives
- A Project Report summarizes design and compliance data regarding the chosen project



Appraisal Level Design

- Reclamation must consider a range of reasonable approaches
- For all the initial alternatives in the Site Evaluation Report, the following will be developed:
  - Appraisal Level Designs
  - Costs

Plan Formulation

- Alternatives must meet the purpose, but can have different benefits, costs and impacts
- We use criteria to understand the advantages and disadvantages of the different alternatives
- At the Plan Formulation meeting Reclamation and the landowner will use the criteria to chose a project

Plan Formulation / Alternatives Evaluation High Priority Criteria

- Increases Interim Flows to 4,500 cfs
- Effectiveness in protecting lands to 4,500 cfs
- Landowner Acceptability
- Regional Integration
- Water Quality
- Suitability to Site
- Long-term Operations and Maintenance
- Fisheries Impacts

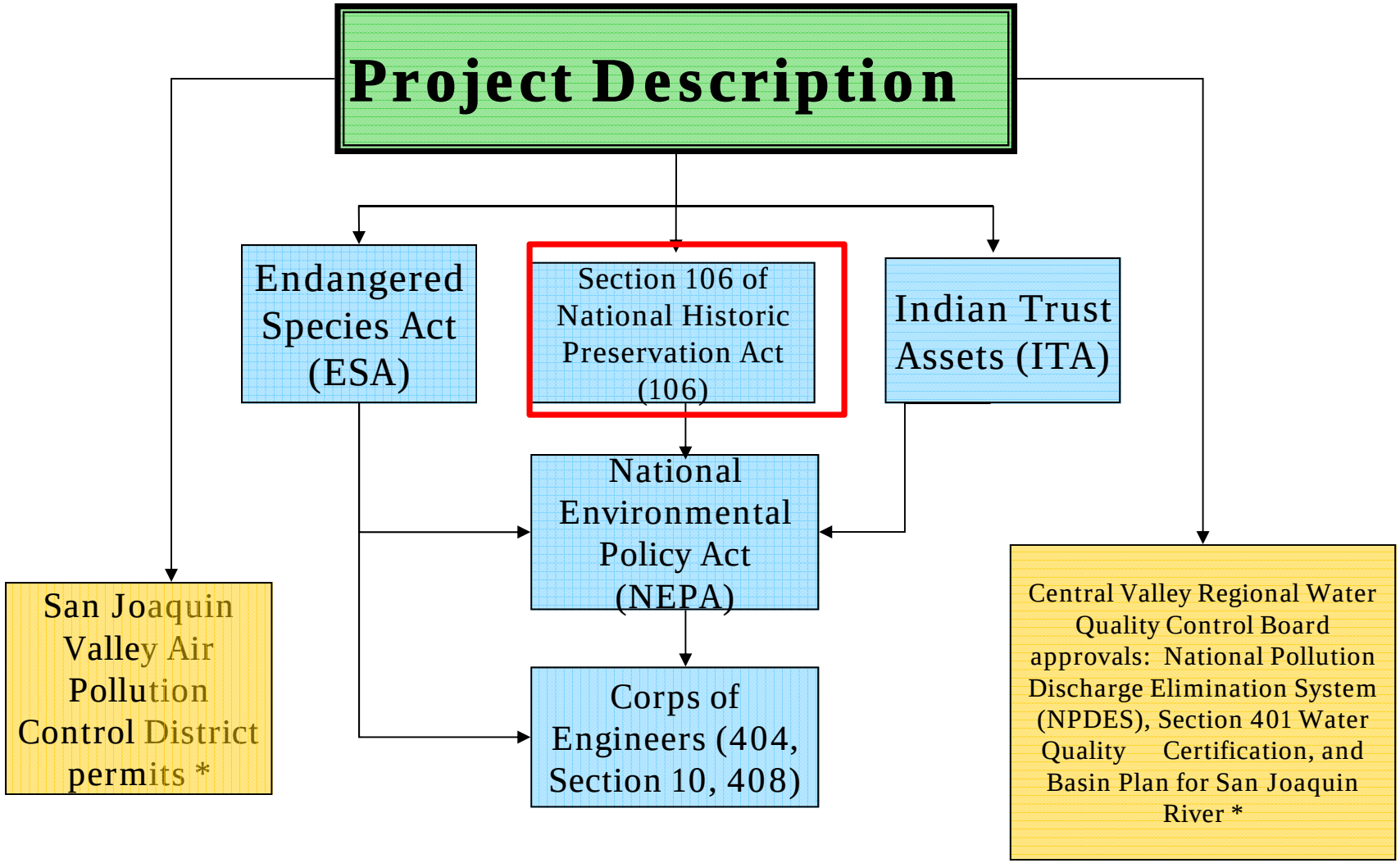
Plan Formulation / Alternatives Evaluation Medium Priority Criteria

- Revise bullets
- Project Ownership
- Subsidence
- Coordination with Other Programs
- Fish Habitat Opportunities
- Cost

Plan Formulation / Alternatives Evaluation Low Priority Criteria

- Environmental compliance
- Regulatory permitting (time)

Environmental Compliance Process Flow Chart



** State permits that are obtained by Reclamation because the state has been delegated authority of implementing a federal statute.*

Endangered Species Act (ESA)

- Field reviews/surveys needed to identify both:
  - Presence/absence of species
  - Presence/absence of potential habitat
- Reclamation then prepares an effects analysis and determines:
  - No Effect
  - May effect, not likely to adversely affect (NLTAA)
  - Likely to adversely affect (LTAA)
- For NLTAA or LTAA, then need U.S. Fish and Wildlife Service and/or National Marine Fisheries Service consultation

National Historic Preservation Act (Section 106)

- Field surveys will be needed to identify:
  i. Surface cultural and archaeological resources
  ii. Subsurface cultural and archaeological resources
  iii. Eligibility status of resources
- Reclamation reports to the California State Historic Preservation Officer (SHPO) with a determination
- SHPO has 30 days to respond

National Environmental Policy Act (NEPA)

- NEPA documents impacts to environmental resources including, but not limited to:
  - Aesthetics
  - Air Quality
  - Biological Resources
  - Cultural Resources
  - Environmental Justice
  - Geology and Soils
  - Hydrology (e.g., water quality, groundwater, etc.)
  - Noise
  - Public Health
  - Recreation
  - Socioeconomics
  - Transportation
  - Utilities
  - Etc.

Environmental Compliance

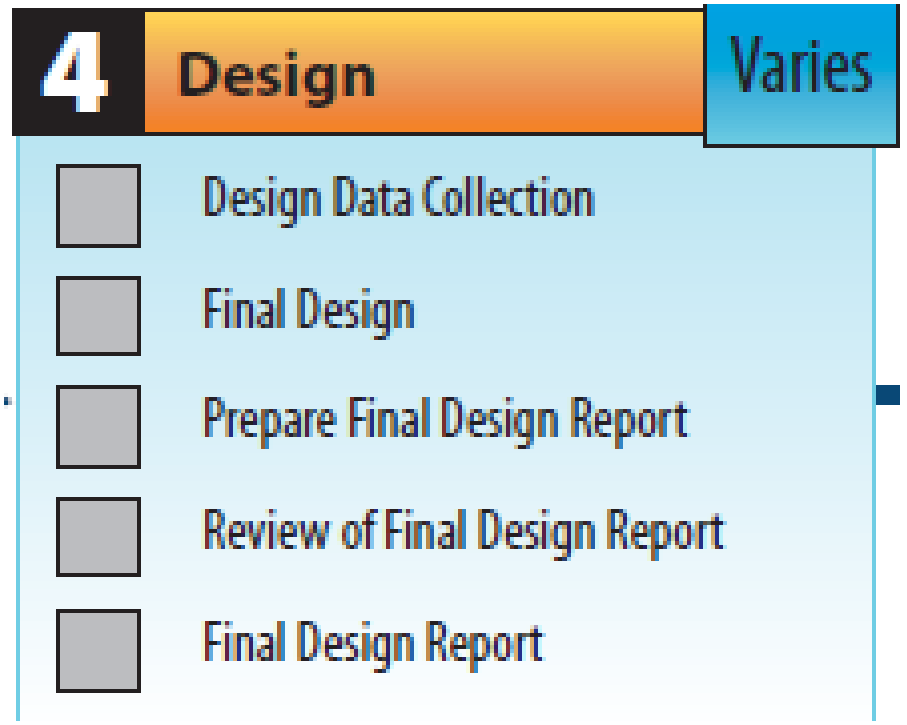
- Endangered Species Act Effects Analysis
- Cultural Resources Analysis
- NEPA or joint NEPA/CEQA document
- Potential Regional Water Quality Control Board permit / approval
- Potential Army Corps of Engineers permit
- Potential San Joaquin Valley Air Pollution Control District permit

Project Report

- Summarizes work on project for landowner review
- Includes:
  - Appraisal Level Designs, Costs and Specs for alternatives
  - Feasibility Level Design for chosen alternative
  - Environmental Compliance and permitting

Reclamation Design Process

- Data Collection
- Concept
- Design
- Specification



Design Data Collection

- Can be lengthy process
- Important to define initial design data needs early in the process
- Begins before design concept phase
- Includes:
  - Geotechnical Investigation
  - Surveying

Concept Stage (30%)

- Field exploration
- Materials testing
- Hydraulic studies
- Cost estimate and schedule
- TMs
- Value engineering

Design Stage (60%)

- Selected conceptual design is refined
- Design data collection, testing and analysis should be completed
- Cost estimate and schedule updated
- Permit requirements are initiated
- Preliminary drawings completed

Specification Stage (90%)

- Lab testing reports completed
- TMs finalized and approved
- Specifications sent for review
- Quantities and bid schedules complete

Bid and Award

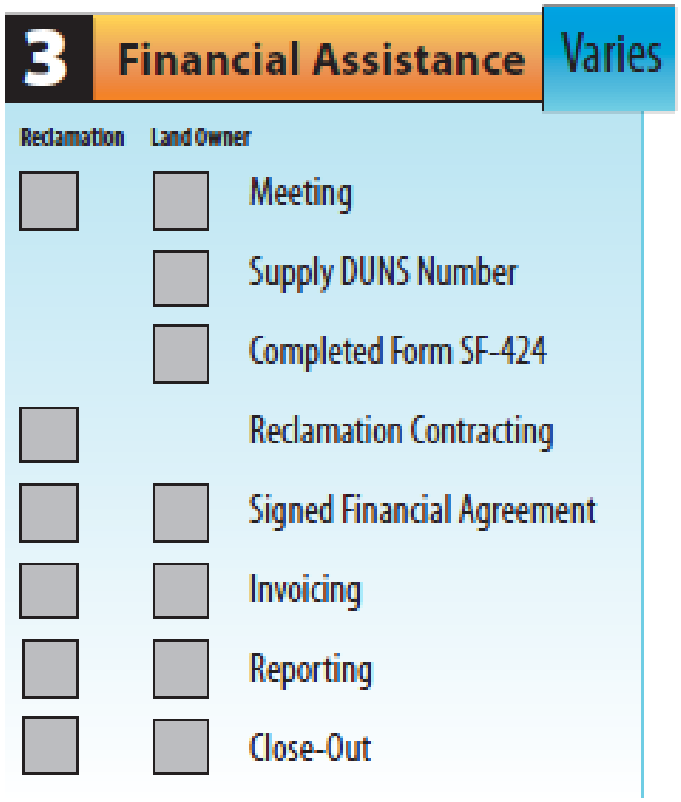
- Specification Review
- Final Specifications and Design Summary
- Decision Memorandum Completed:
  - Final design briefing, drawings made available
  - Final Specifications completed
- Landowner Review of Decision Memorandum
- Bid
- Award
- Construction

Construction

- Construction includes coordination to work around landowner activities and ensure accuracy

Financial Assistance

- Financial assistance agreements define the scope of work and terms for receiving federal money.
- Components:
  - Design and Construction
  - Ownership
  - Operations and Maintenance
  - Water Discharge
  - Monitoring
  - Cost Share



Agreement

- Ownership Options
  - Reclamation-owned project on private land
  - Reclamation-owned project on district land
  - District-owned project on district land
  - District-owned project on private land
  - Landowner-owned project on private land

Agreement / Financial Assistance

- Operations and Maintenance Options
  - District O&M
  - Landowner O&M
  - Reclamation consultant O&M

  AND
  - Performance measures for operations and maintenance in the agreement

Agreement / Financial Assistance

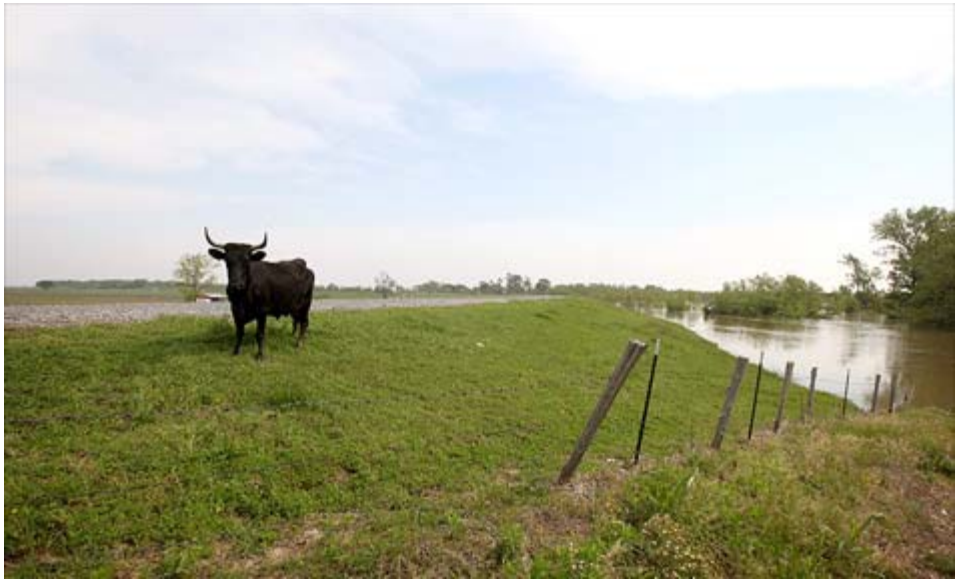
- Water Discharge Choices
  - Discharge to river or canal?
    - Depends on water quality
    - Ownership of water
  - Landowner, district, or Reclamation holds permits?

Agreement / Financial Assistance

- Long-term Monitoring
  - Water quality monitoring for permit compliance or water supply compliance performed by landowner, district, or Reclamation?
  - Long-term groundwater monitoring performed by landowner, district, or Reclamation?

Agreement / Financial Assistance

- Cost-share
  - Projects may prevent historical flooding impacts on lands – approximately 1 out of 3 years
  - Cost-share with districts or landowners?

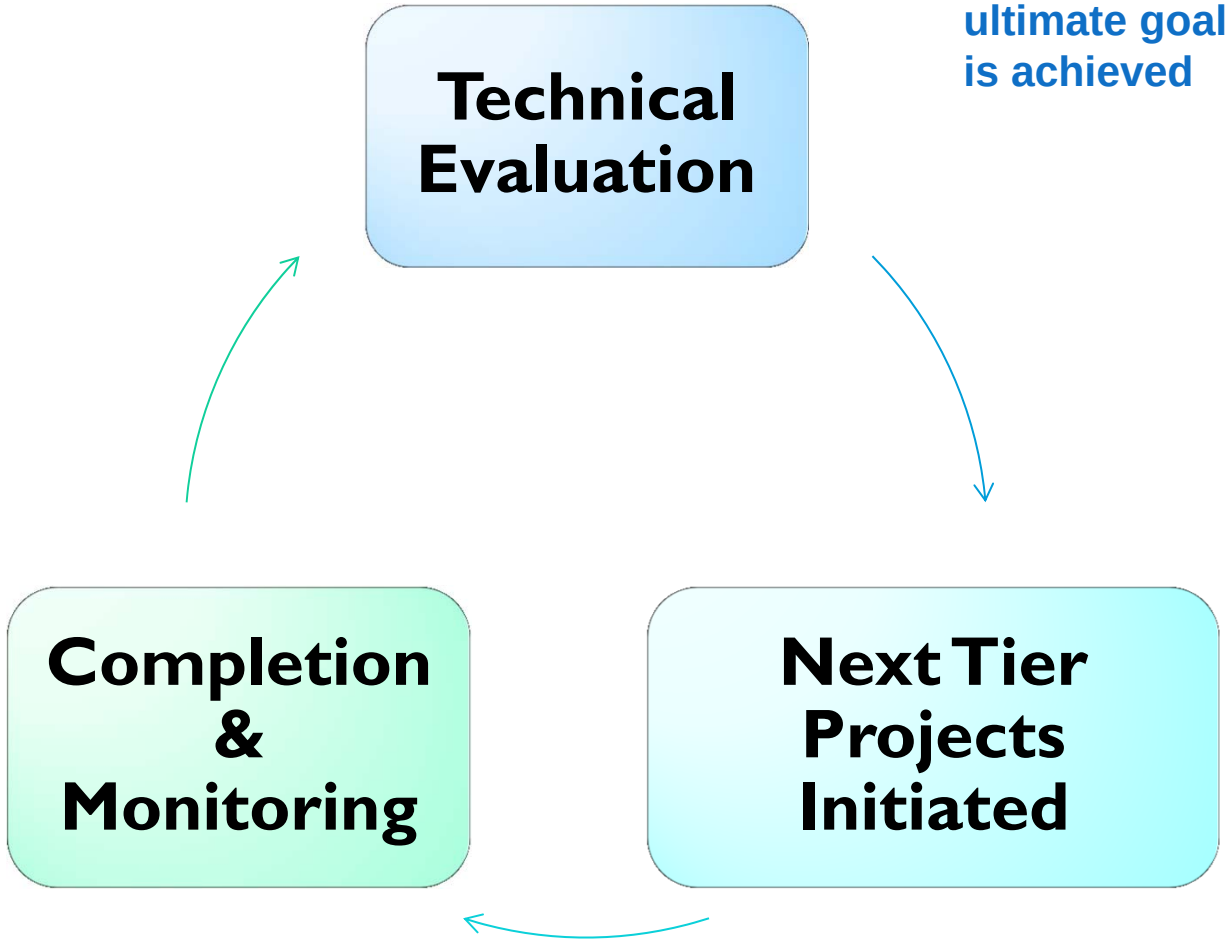


Katrina Harrison

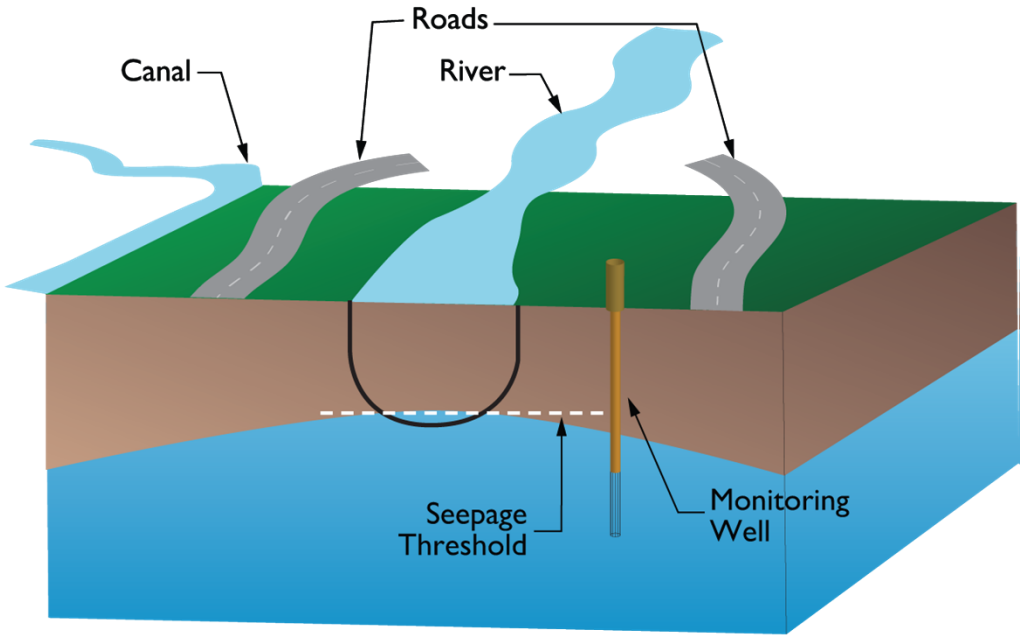
SEEPAGE PROJECT OVERVIEW

Seepage Project Implementation

Process repeats until ultimate goal of 4,500 cfs is achieved



Technical Evaluation

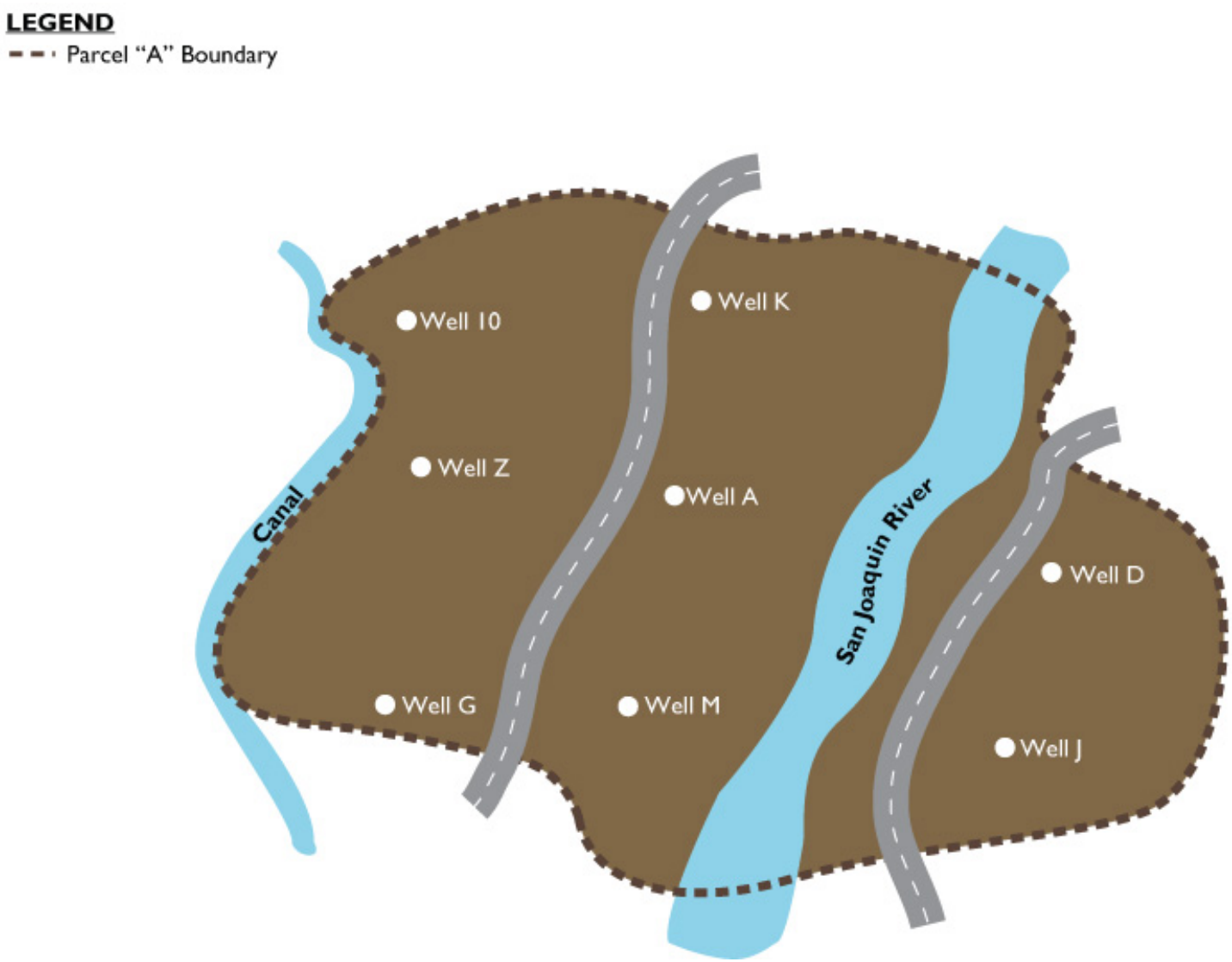


- Technical Evaluation – Book of Seepage Parcel Groups from SMP
- Flows held below thresholds

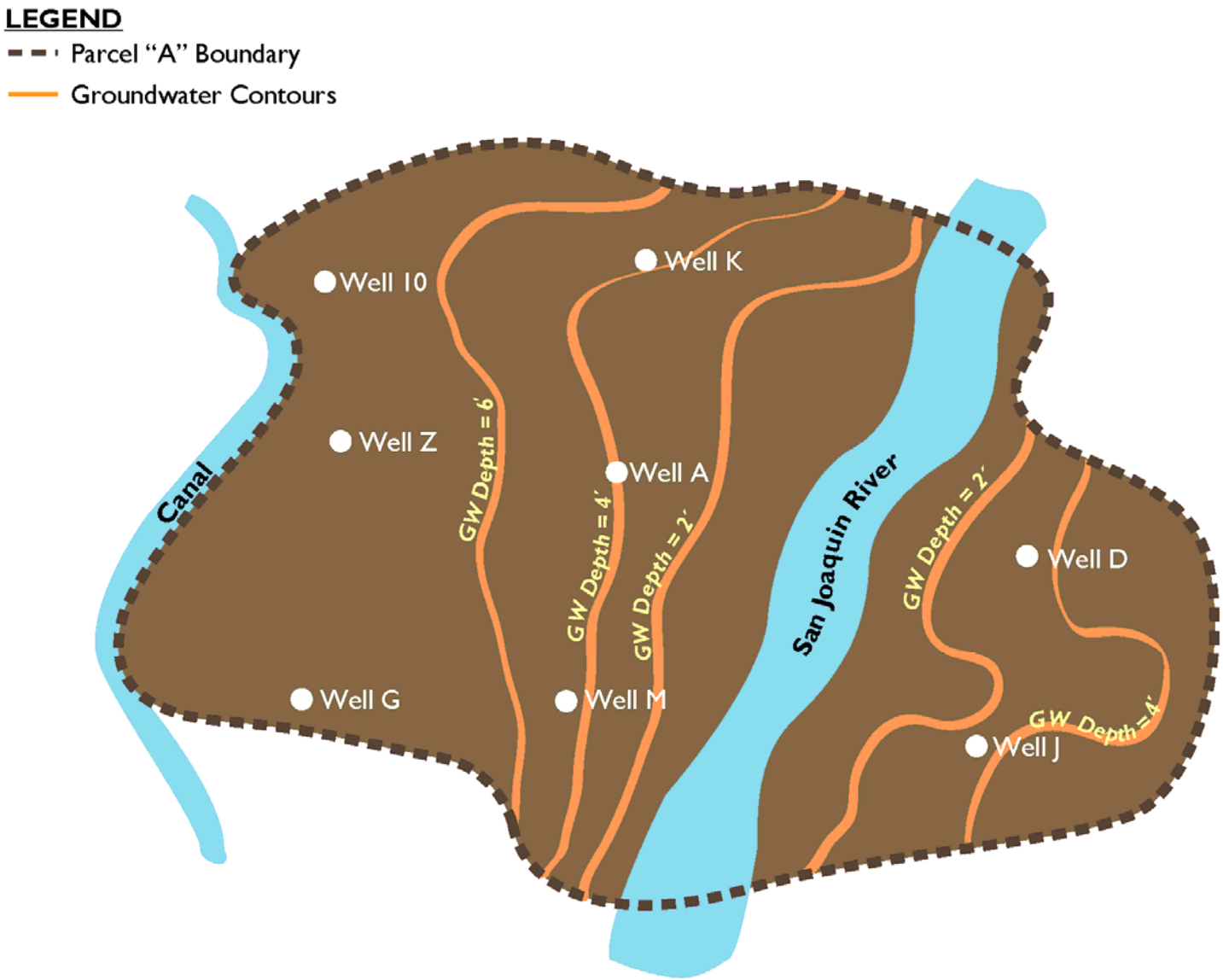
Technical Evaluation

- Existing Data Includes:
  - Groundwater Data
  - Anecdotal Inundation Data
  - Cross-sections
  - Profiles
  - Locations

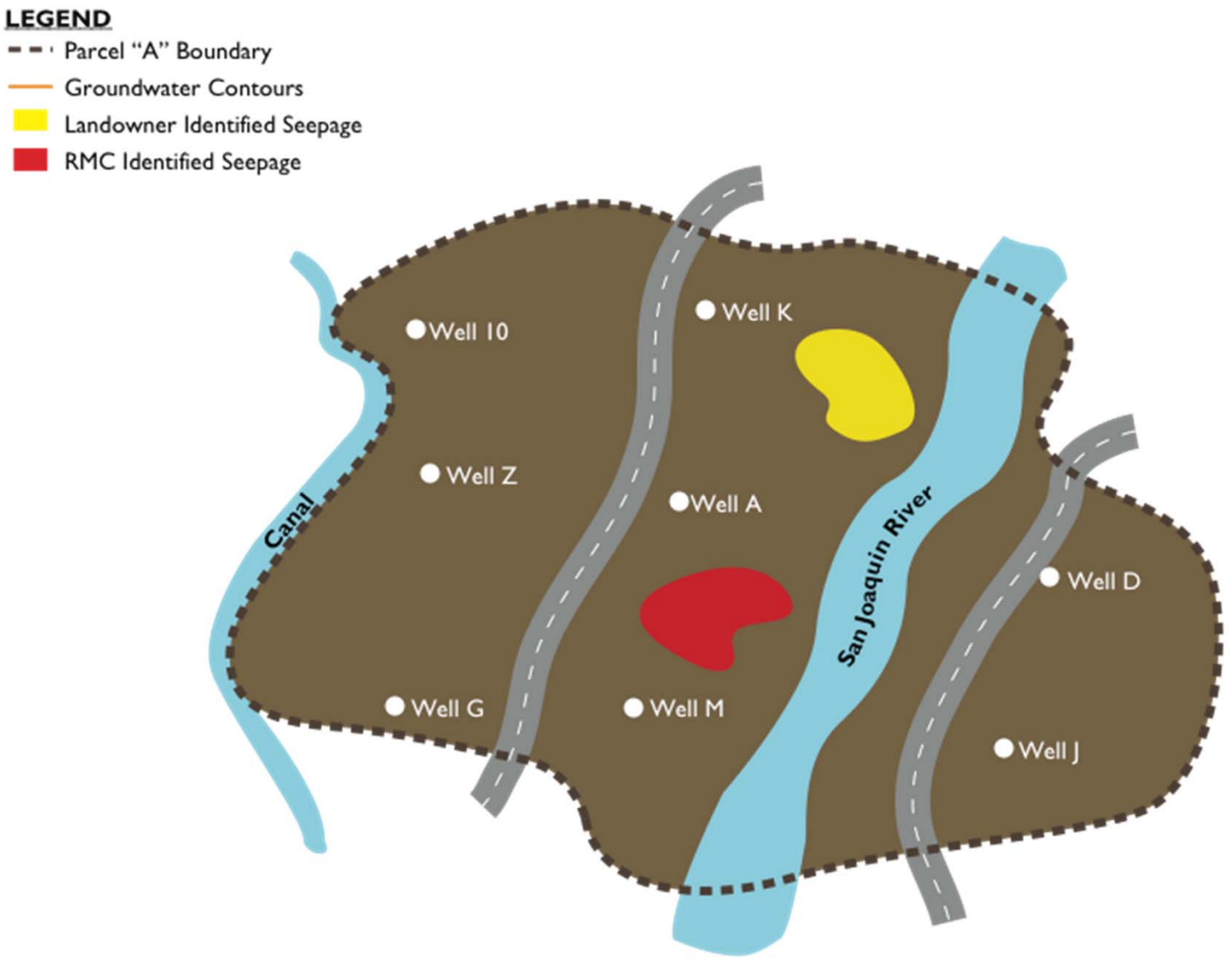
Location Map – Parcel Group "A"



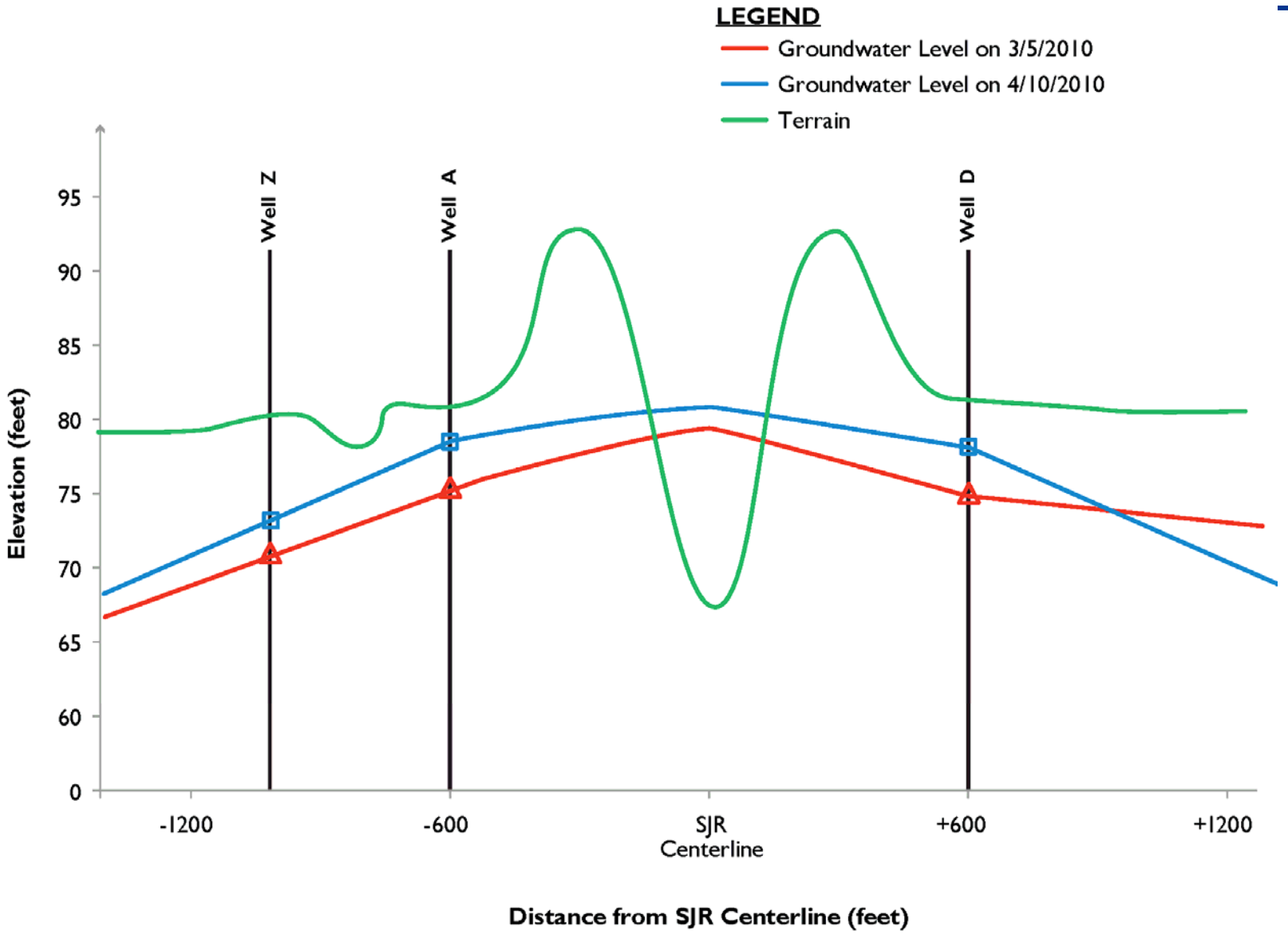
Groundwater Map – Parcel Group "A"



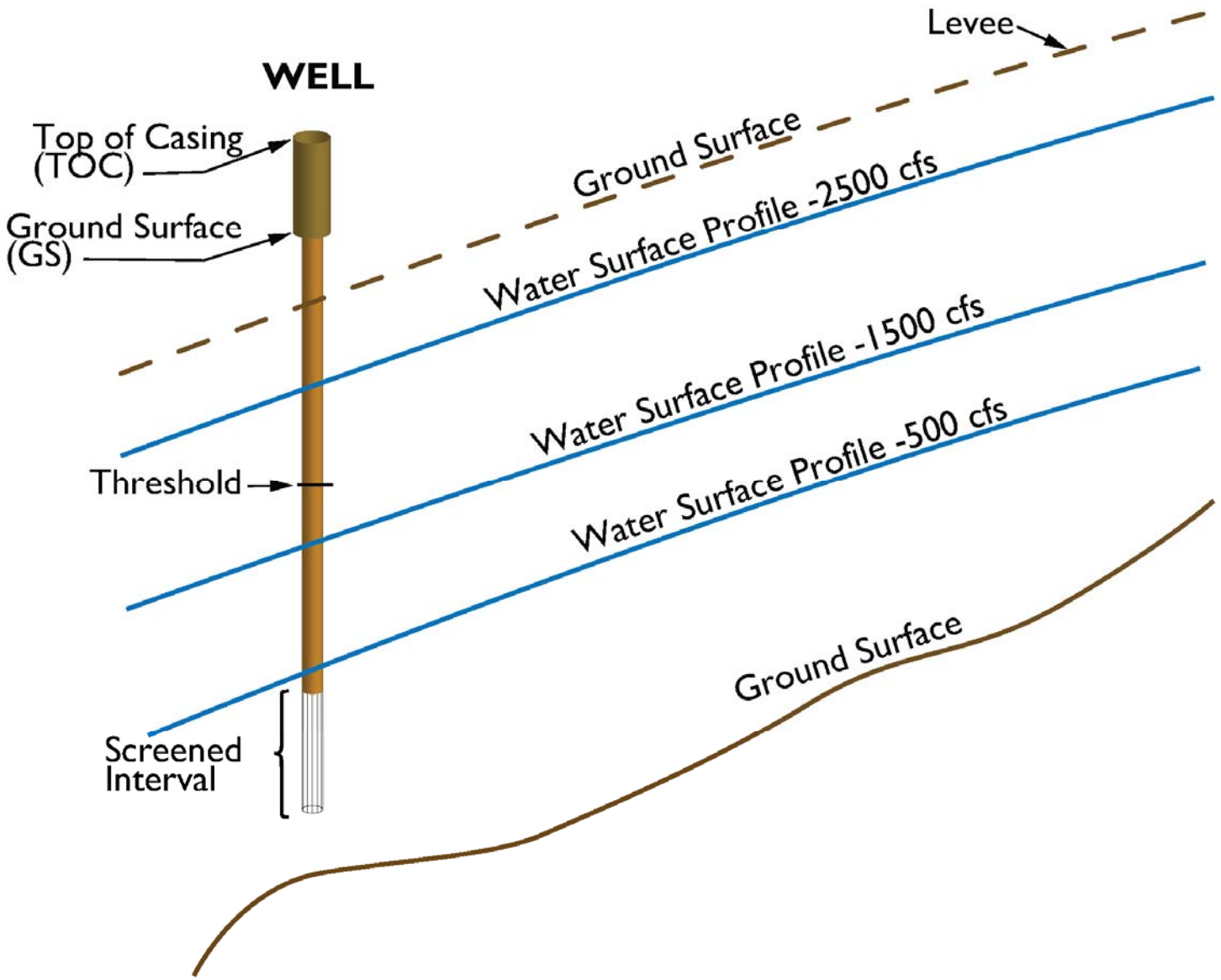
Inundation Map – Parcel Group "A"



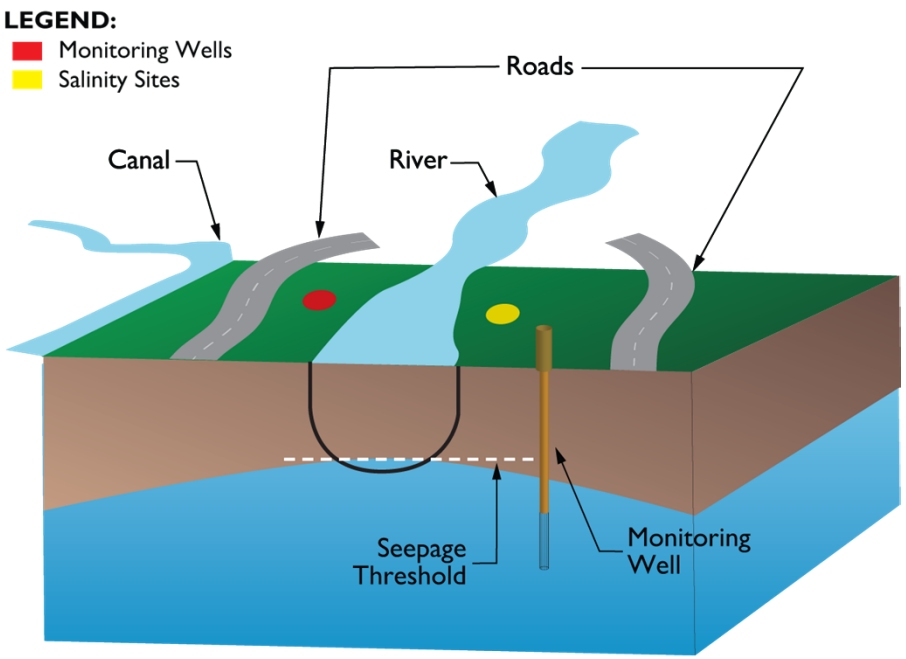
Cross-Section – Parcel Group "A"



Profile – Parcel Group "A"



Next Tier Projects Initiated



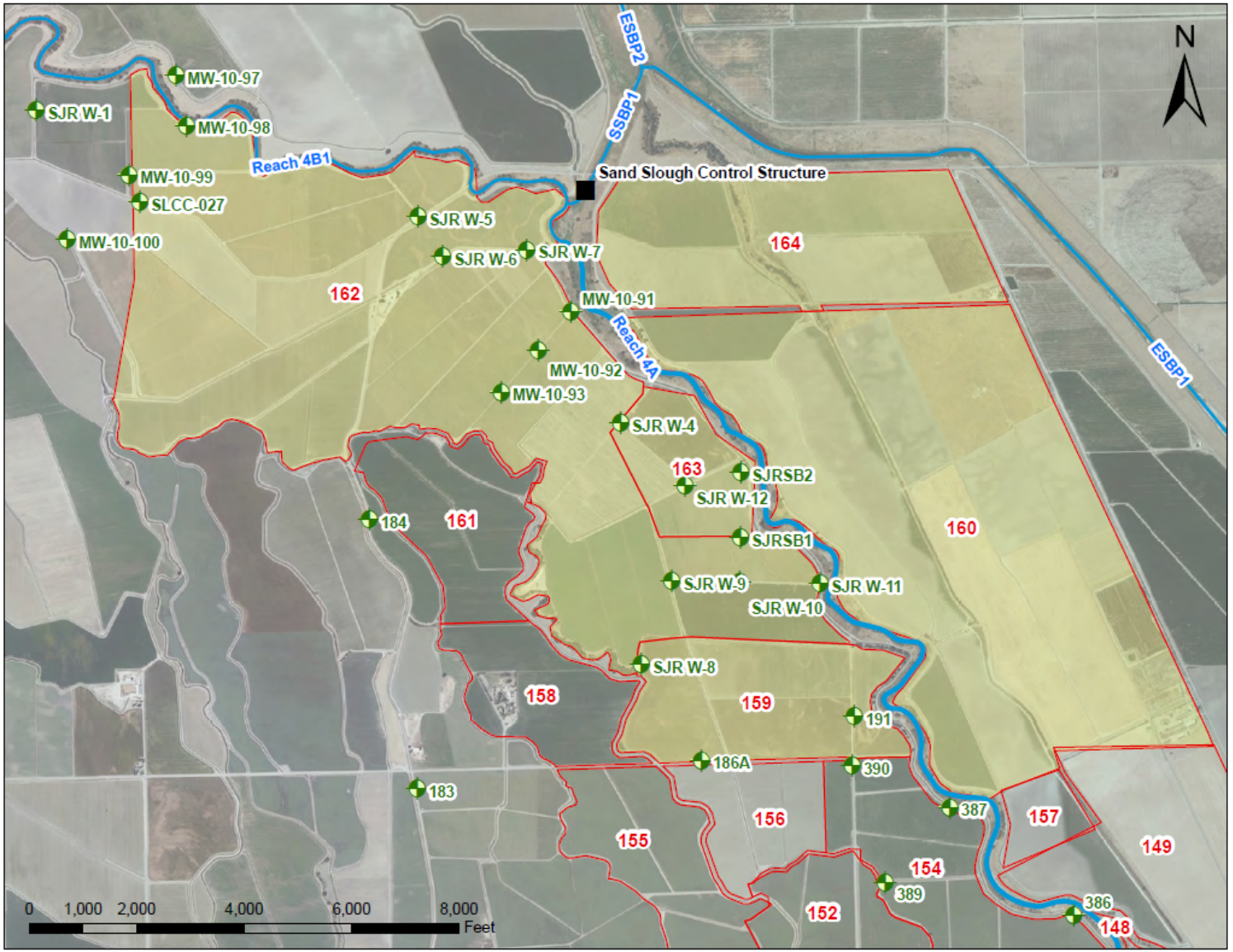
- Projects Initiated – Seepage Project Handbook Process
- Temporary projects in Reaches 2B and 4B
- Flows held below thresholds

First Tier Parcel Groups

- Selected parcel groups for priority evaluation
- Highest priority locations to resolve potential impacts and increase river flows
- Criteria
  - Observed 2011 seepage AND/OR
  - District manager observed historical seepage AND/OR
  - Shallow nearby groundwater level above 4 feet, unaffected by irrigation

SAN JOAQUIN RIVER RESTORATION PROGRAM

Priority Parcel Groups



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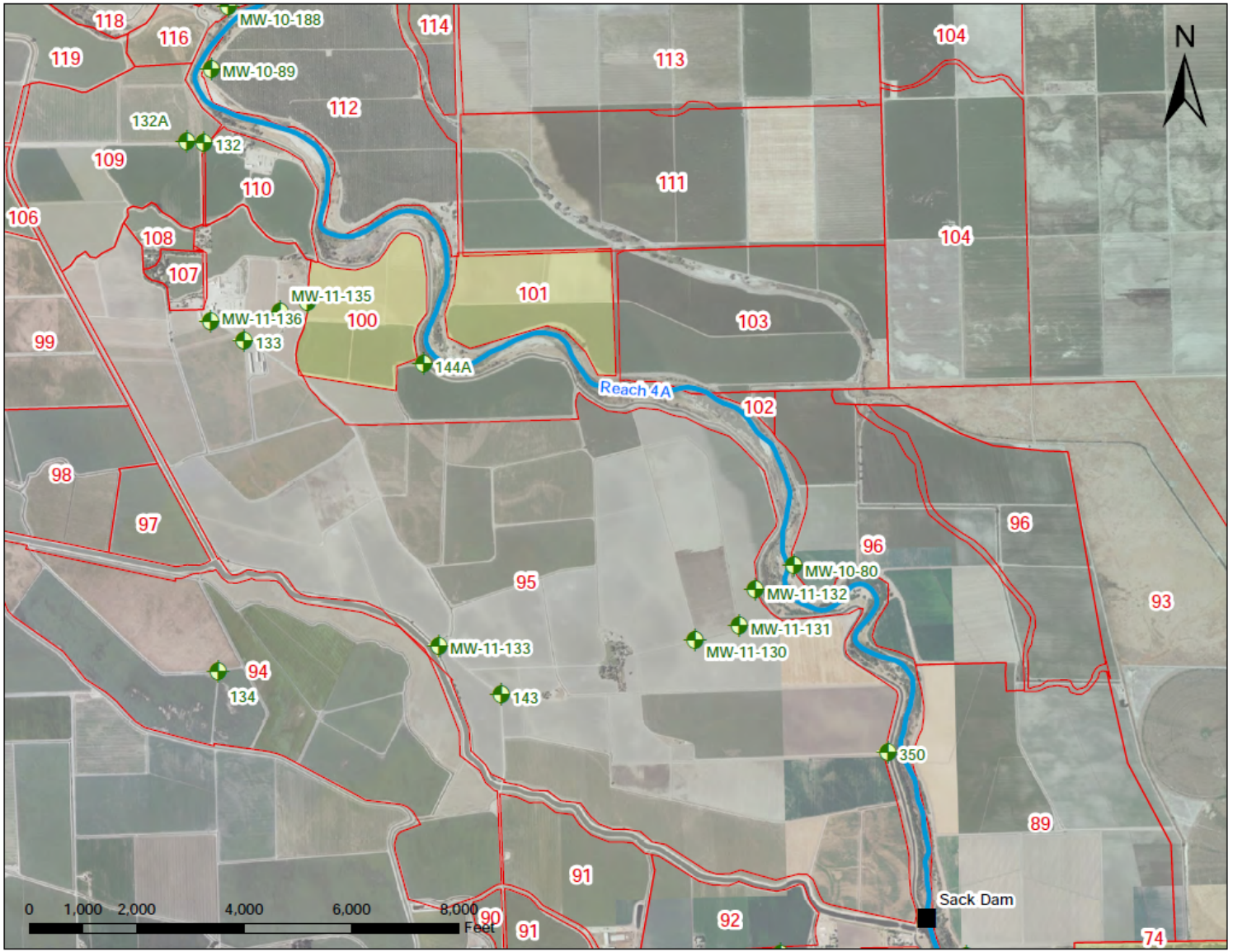

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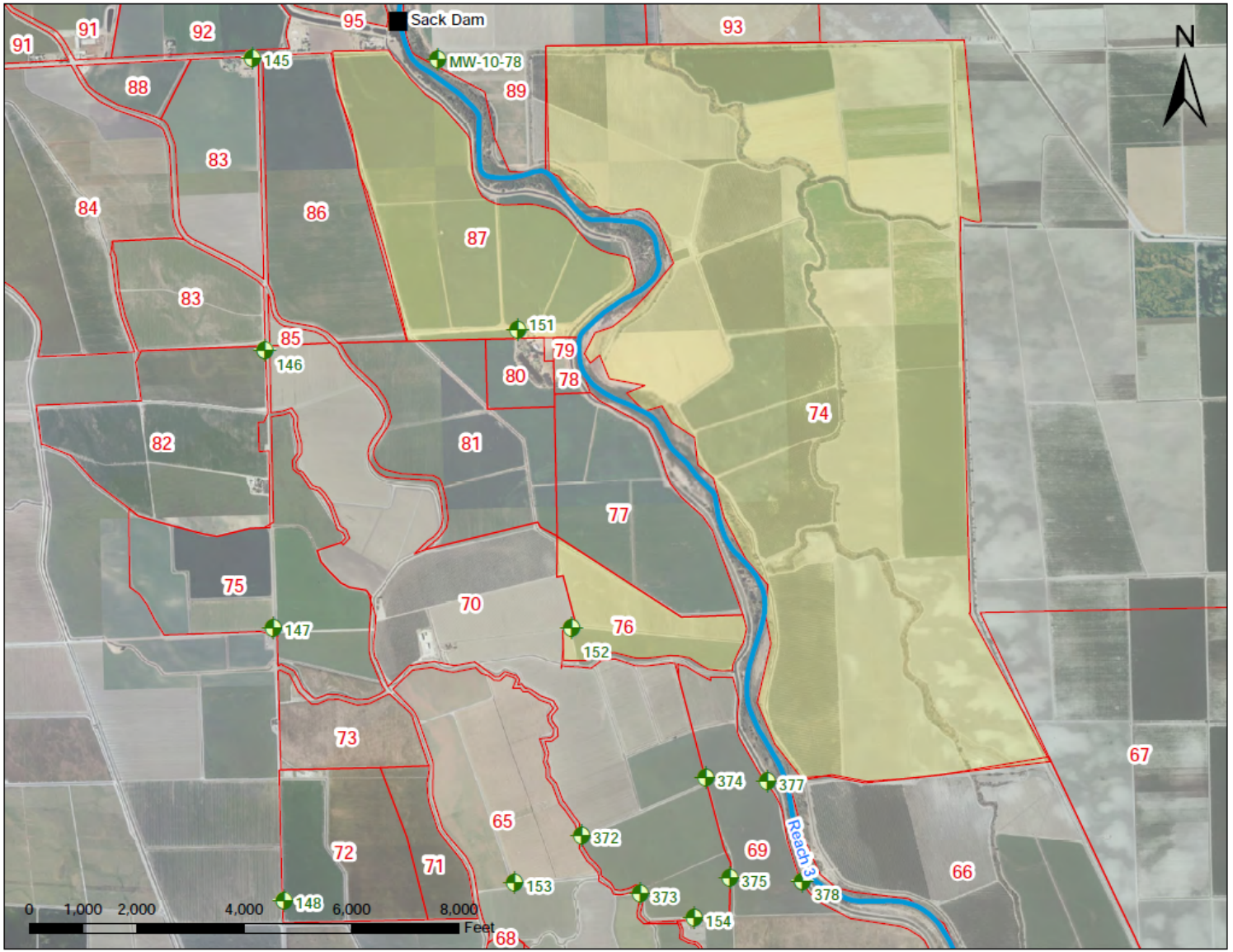

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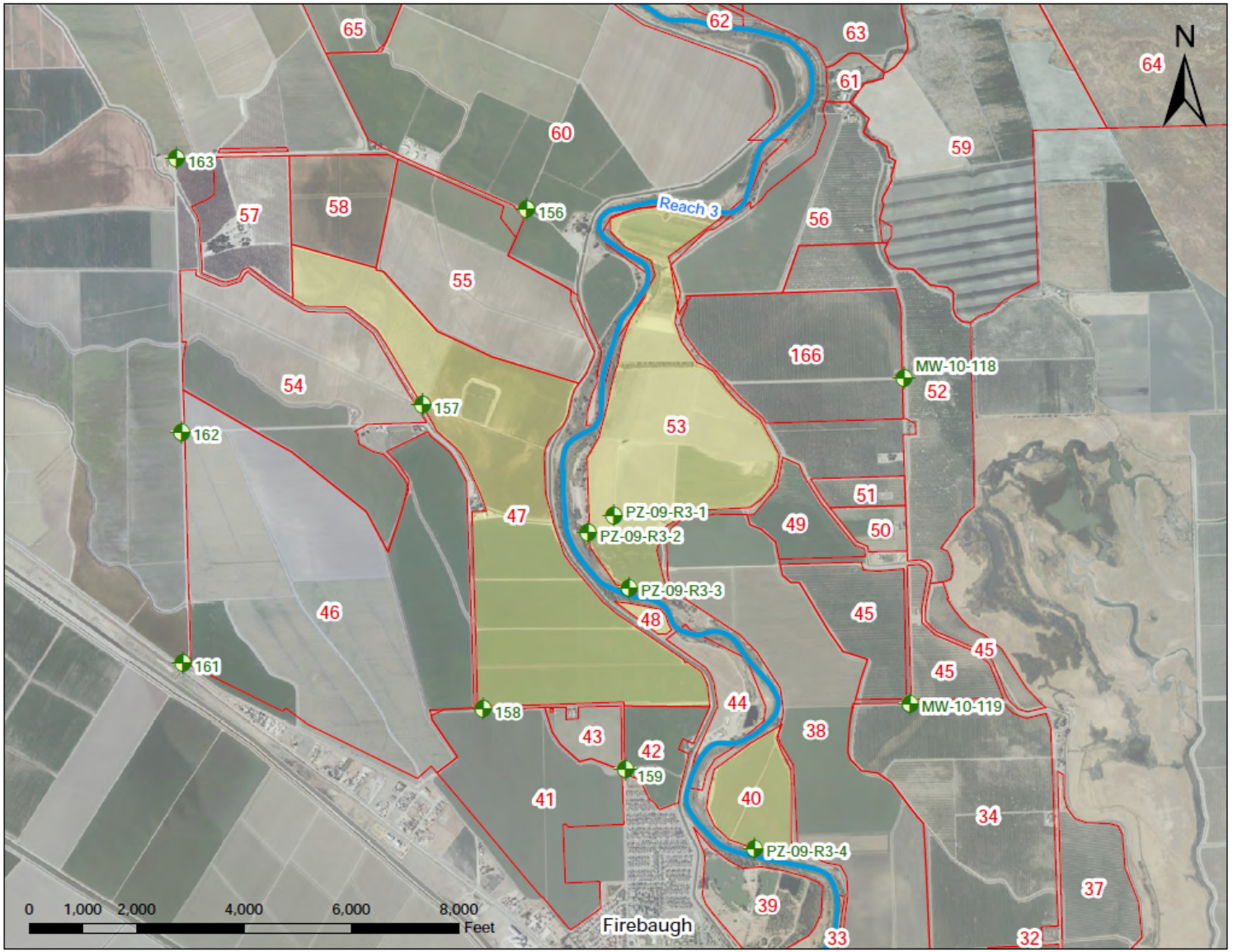

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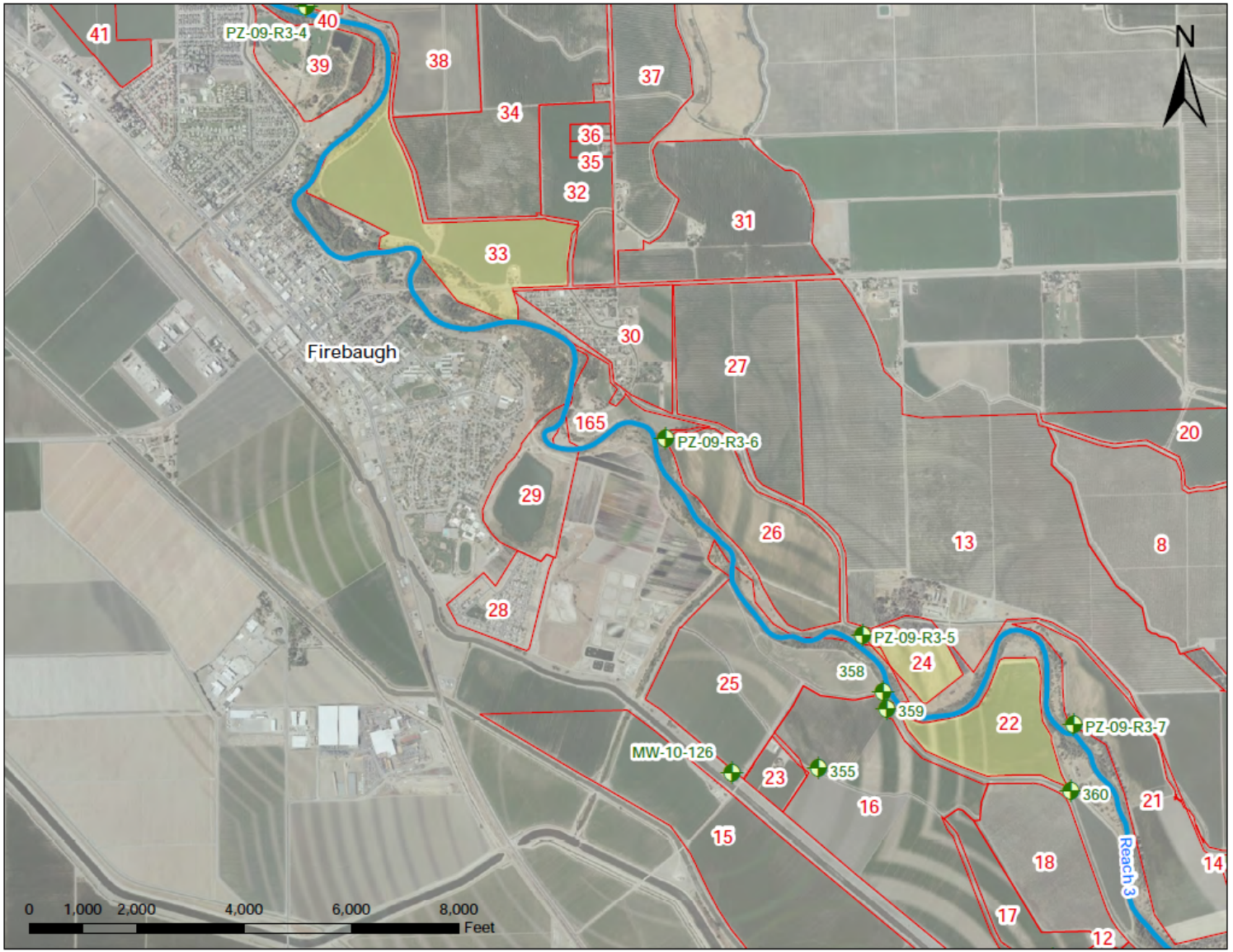

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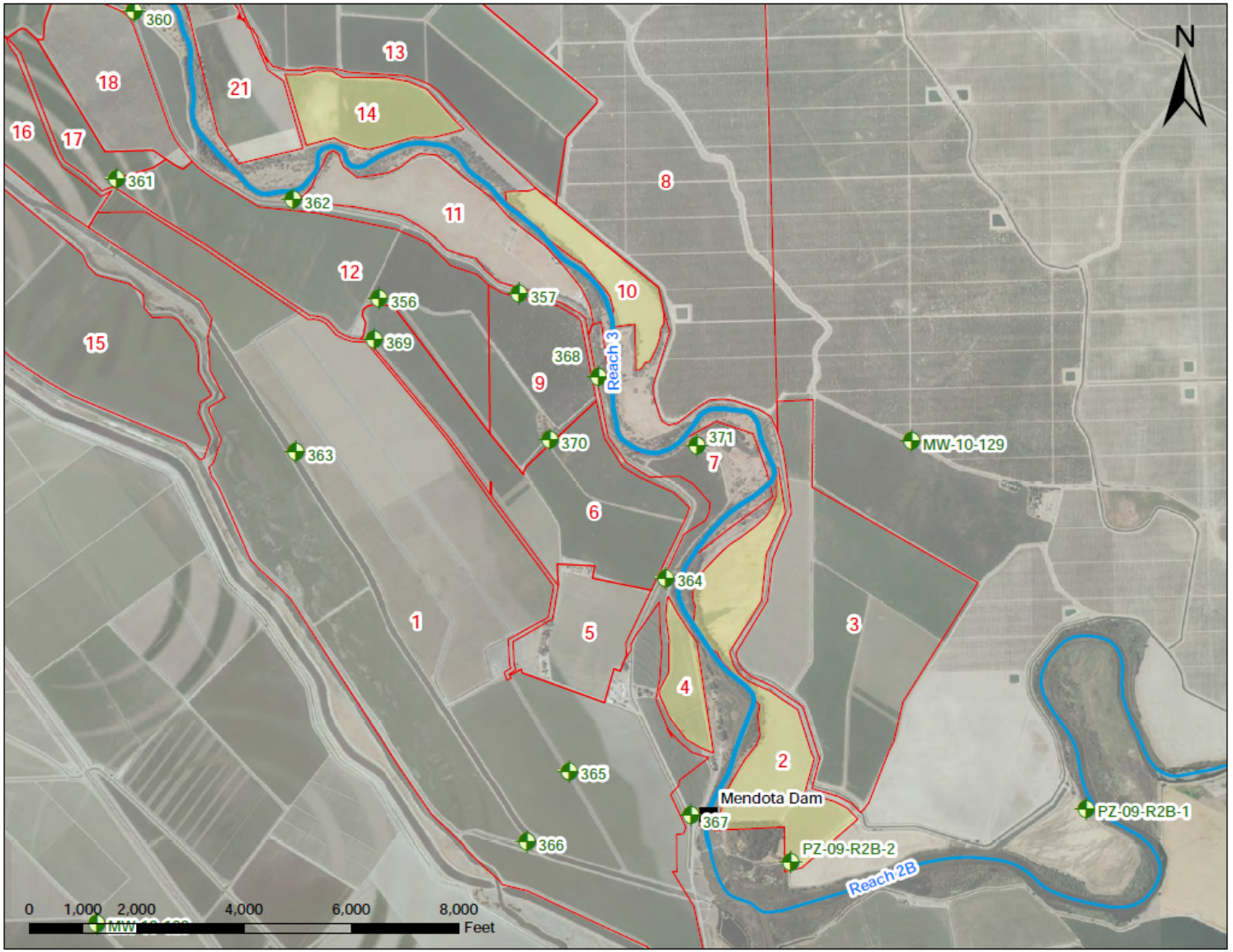


Projects Initiated

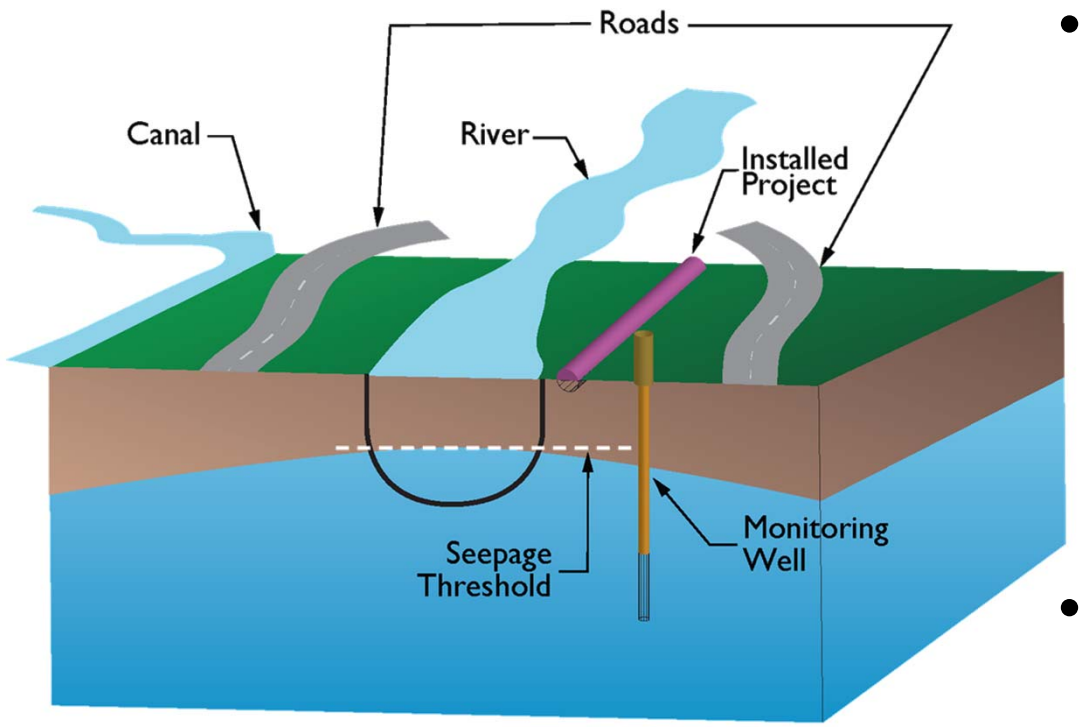
Initial Selection Criteria (from fall SCTFG) :

- Implement a section of CCID Interceptor Plan
- Initiate a seepage project quickly

Projects Initiated

- Parcel Group 87
  - Kick-off meeting this morning
- Parcel Group 159
  - Kick-off meeting to be scheduled soon, working on records review
- Parcel Group 74
  - Kick-off meeting to be scheduled soon, working on records review

Completion and Monitoring



- Project Complete – Monitoring and Evaluation
  - Long-term Monitoring
  - Is the project functioning?
- Increase flows to new flow constraint

LANDOWNER DISCUSSION

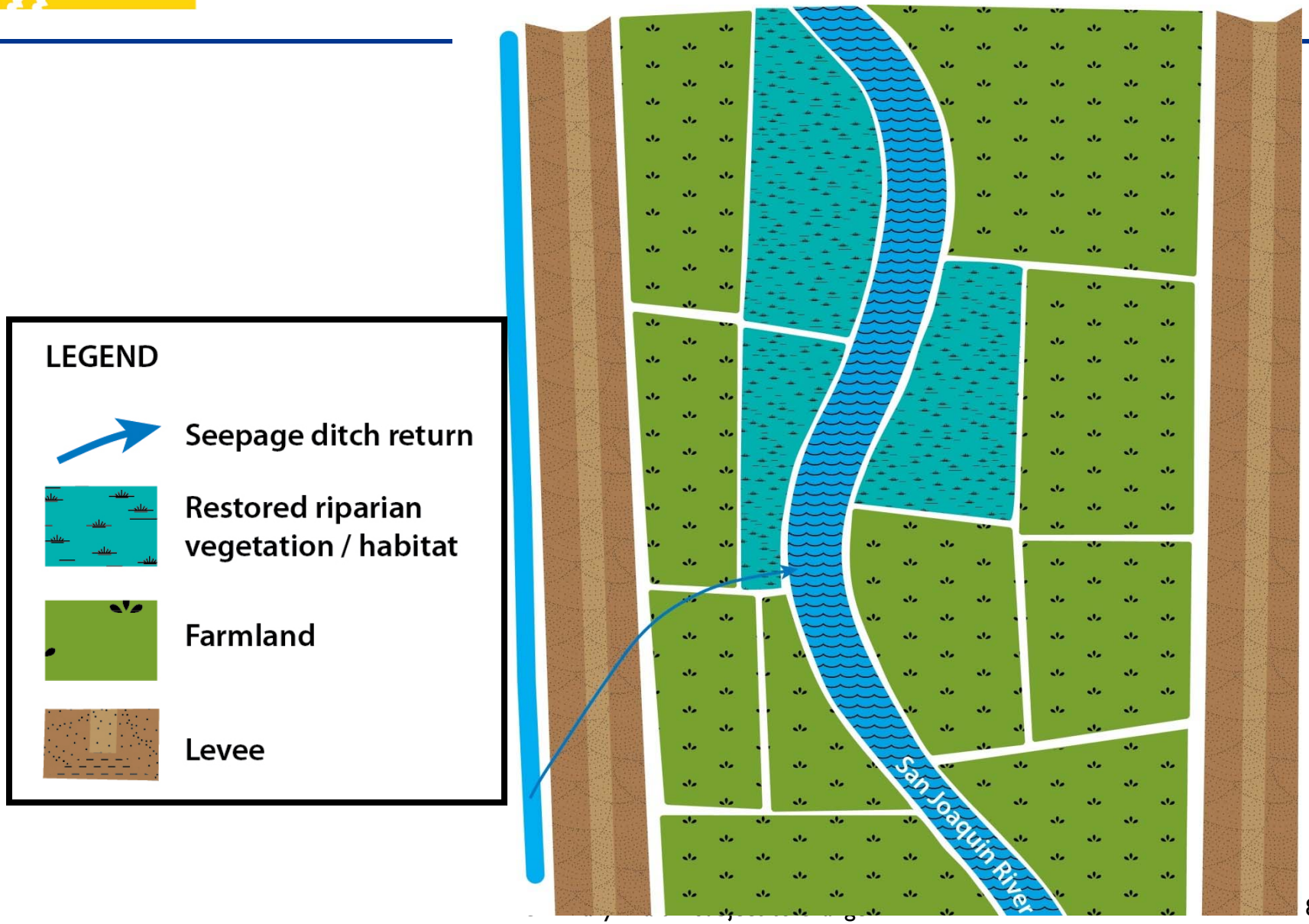
Seepage Project Concerns

Purpose:

- Hear landowner comments regarding seepage project process
- Address concerns about projects
- Solicit additional suggestions to address as a group or one-on-one

Project Approach

Inside vs. Outside of Levees



Schedule

Event	Timeline
Initial Site Visit. Kicks off the seepage project process.	Following hotline call follow-up site visit or identification in SMP
Site Evaluation – Methods Report	~1 month after site visit
Site Evaluation – Fieldwork & Analysis	Following landowner approval of Methods Report
Site Evaluation Report	~6 months after site visit
Appraisal Level Designs for Initial Alternatives	Following Site Evaluation Report
Plan Formulation Meeting	~8 months after site visit
Feasibility Design, quantities, Cost Estimates	Following plan formulation and choosing of preferred alternative
Project Report	~10 months after site visit
Environmental Compliance	~10 months after site visit
Financial Assistance Agreement	~10 months after site visit
Final Design	Following Project Report
Bid	Following final design
Pre-Construction Meeting	Following bid, with contractor
Pre-construction surveys	Immediately prior to construction
Construction	Following notice to proceed

Meetings and Reviews

- Initial Site Visit
- Methods TM Review
- Site Evaluation TM Review
- Plan Formulation Meeting
- Project Report Review
- Pre-Construction Meeting

- Others to add?

Deliverables

- Site Visit Forms
- Methods TM
- Site Evaluation Report
  - Appraisal Level Designs
- Project Report
  - Feasibility Level Design
  - Environmental Compliance & Permitting
  - Financial Assistance Agreement
- Final Design, Quantities, Cost Estimates

Challenges

- Ownership
- Operations and Maintenance
- Water Discharge
- Water Rights
- Long-term Monitoring
- Cost-share
- Terms of an Agreement

Patti Ransdell

NEXT STEPS

Next Steps

- Feedback from Landowners
- Comments on Seepage Project Handbook

- Schedule Site Visits
- Schedule one-on-one discussions

Action Items and Review

- Update Action Items
  - Revised Actions
  - New Actions

Contact

- Technical Feedback Group – David Mooney
  - 916-978-5458
  - dmmooney@usbr.gov
- Seepage Concerns – Seepage Hotline
  - 916-978-4398
  - interimflows@restoresjr.net