


November 15, 2018

Groundwater Sustainability Plans Preparation for Fillmore Basin and Piru Basin

Prepared for

Fillmore and Piru Basins
Groundwater Sustainability Agency

PO Box 1110
Fillmore, CA 93016

Prepared by

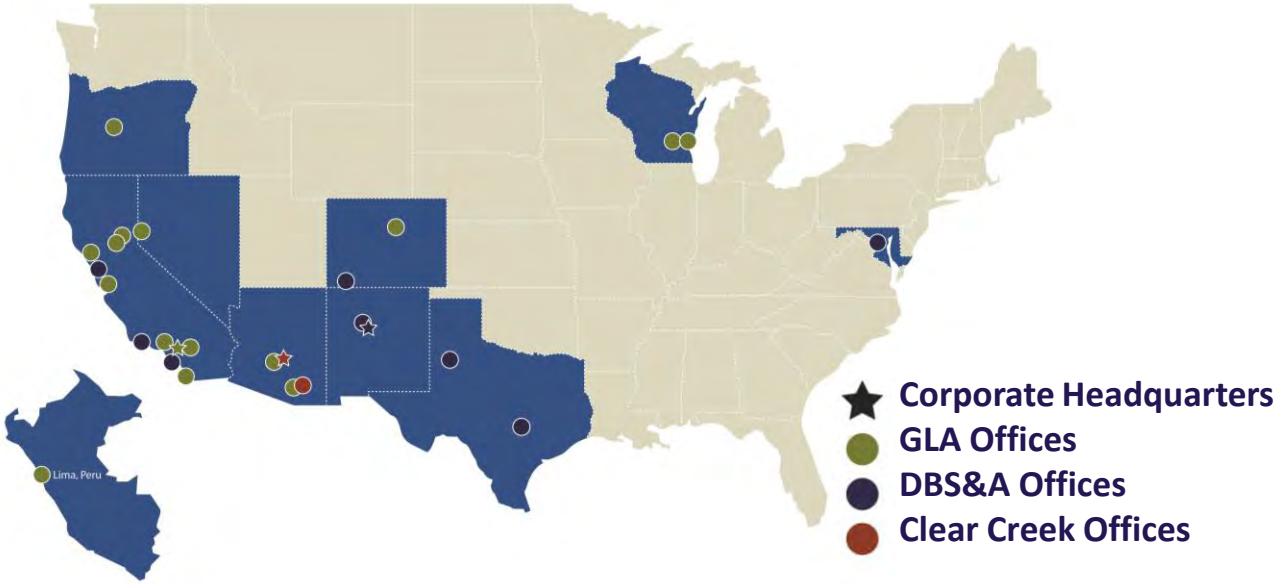
DBS&A
Daniel B. Stephens & Associates, Inc.

3916 State Street, Suite 1A
Santa Barbara, California 93105

- Prepare compliant GSPs for each of Fillmore and Piru basins
- Submit GSPs to DWR by January 31, 2022 deadline
- Leverage extensive existing data sets
- Focus on critical issues
- Stakeholder support of GSPs / transparent process
- Maintain GSP budget within Prop 1 grant award

Daniel B. Stephens & Associates, Inc.

- Solutions for water, natural resources, and the environment
- A Geo-Logic company
  - 250 employee owners
  - 27 offices



Areas of Expertise

- Water Resources
- Environmental Services
- Expert Litigation Services
- Soil Testing and Research Lab
- Information Solutions
- Engineering

Water Resources

- Water resources planning
- Water supply development
- Water reuse
- Water infrastructure
- Water rights
- Hydrologic analyses
- Water quality investigations
- Watershed management
- Stormwater quality management

Our Team...

DBS&A
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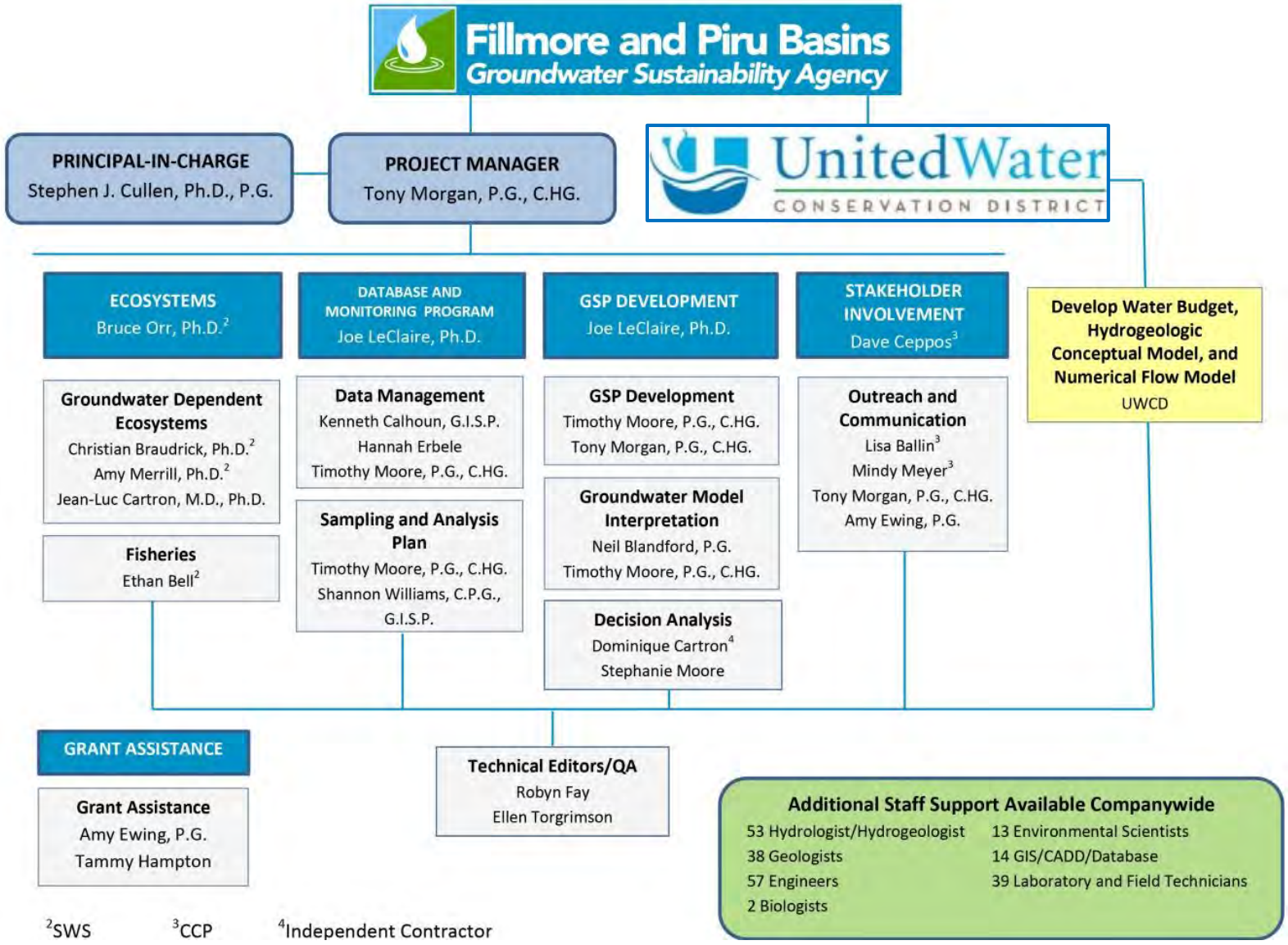
Stillwater Sciences

Consensus and
Collaboration Program
SACRAMENTO STATE
COLLEGE OF CONTINUING EDUCATION

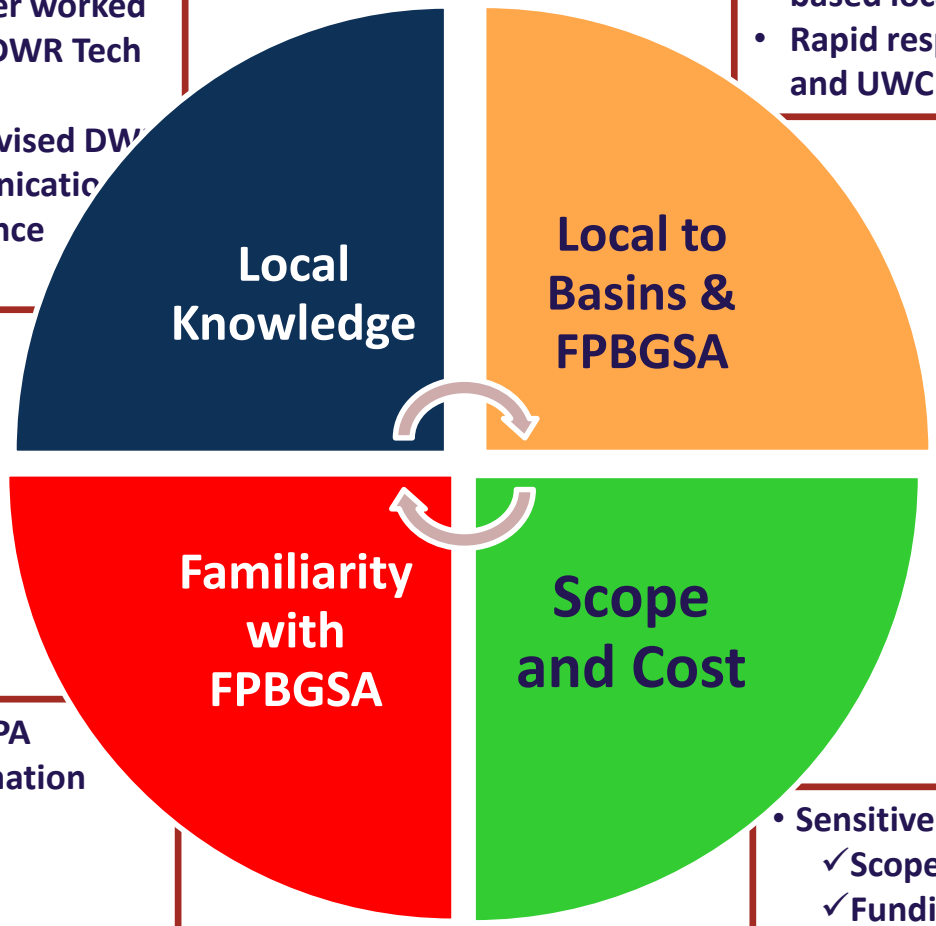
Team Organization Chart



Why choose DBS&A Team?

- Proj Mgr and Hydrogeologist know geology & hydrogeology
- Ecosystem team member worked in basins for 15 years - DWR Tech Support for GDEs
- Outreach consultant advised DW on Stakeholder Communicatio and Engagement Guidance Document

- Proj Mgr and Hydrogeologist based locally
- Rapid response time to FPBGSA and UWCD offices



- Proj Mgr assisted with JPA
- Early stakeholder information meetings
- Assisted with GSA/GSP formational topics
- AB3030 GW Management Plan update

- Sensitive to:
  - ✓Scope of Work
  - ✓Funding available from FPBGSA's Prop 1 Grant Award

Technical Approach

Approach geared towards the identification of an expeditious, yet technically reasonable and implementable path to sustainability for the Basins. A GSP is not required to be a large document or overly complicated...

Project Goals	Technical Approach
Prepare compliant GSPs for each of Fillmore and Piru basins	Address the items prescribed by DWR in their GSP Preparation Checklist and GSP Annotated Outline guidance documents
Focus on critical issues	Establish critical issues early in process; Use experience and knowledge of team; Stakeholder engagement
Leverage the extensive existing data sets	Use experience and knowledge of team; Coordination with UWCD
Maintain GSP budget within Prop 1 grant award	SOW sensitive to funding available from Prop 1 grant
Stakeholder support of GSPs / transparent process	Stakeholder engagement to identify concerns and solutions; Public Engagement Plan; “decision audit trail”
Submit GSPs to DWR by January 31, 2022 deadline	Timely interaction with UWCD & BOD in accordance with Work Plan

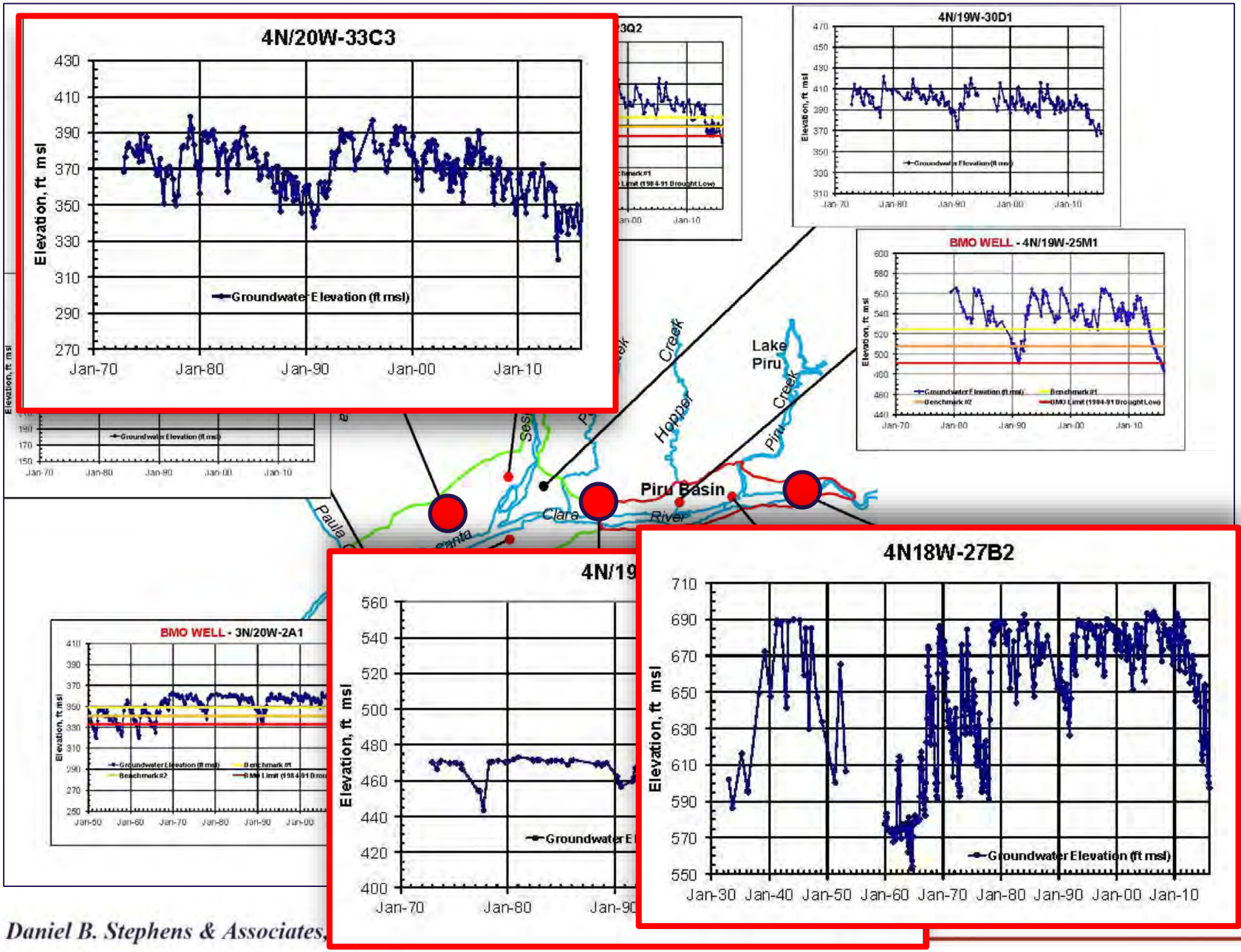
Sustainability Indicators:

- Lowering GW Levels
- Surface Water Depletion
- Degraded Water Quality
- Land Subsidence
- ~~Seawater Intrusion~~
- Reduction of Storage

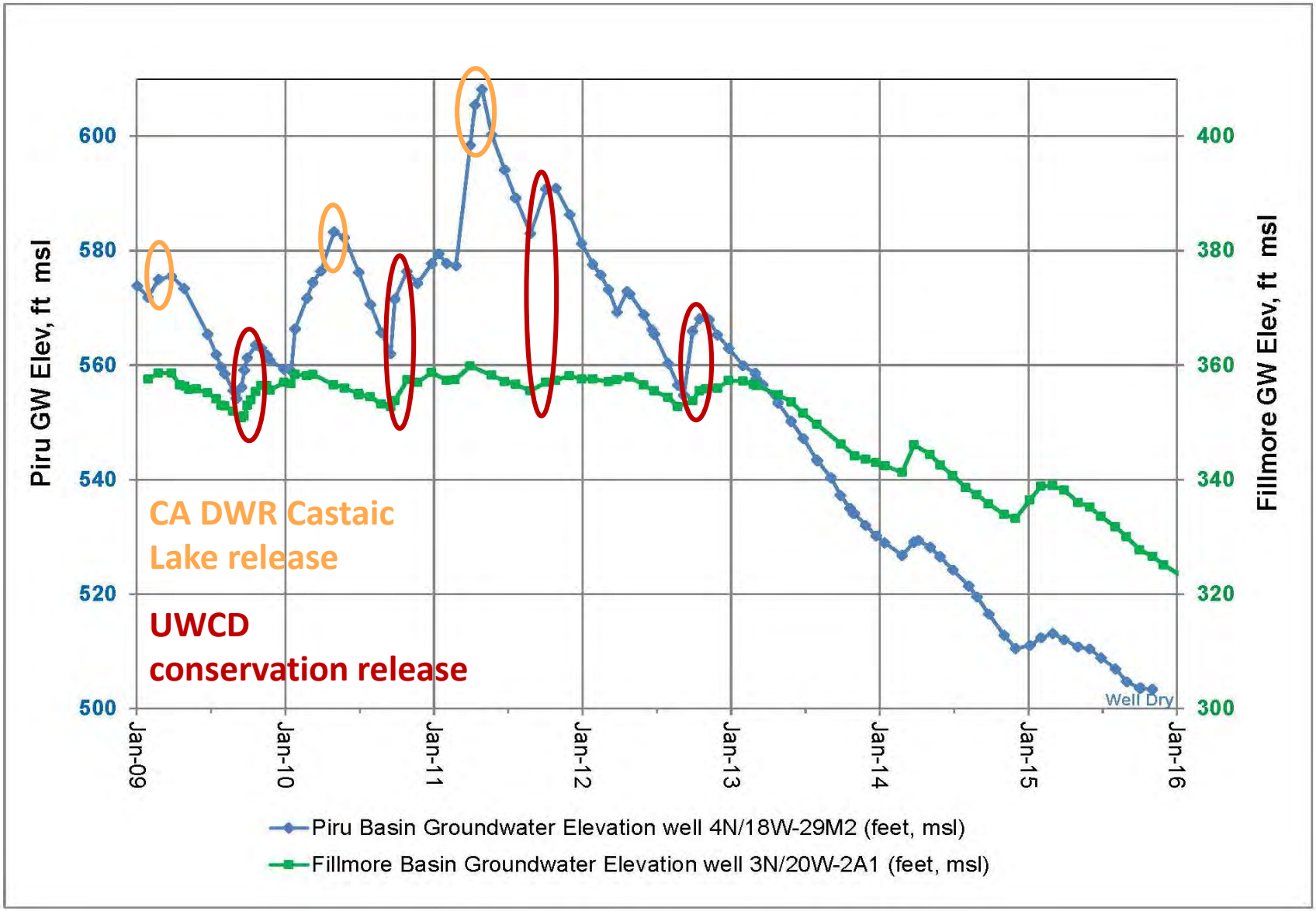
Tailored to the critical issues of the Basins

"...avoid significant and unreasonable effects...

Technical Approach



Groundwater Levels / Projects & Management Actions

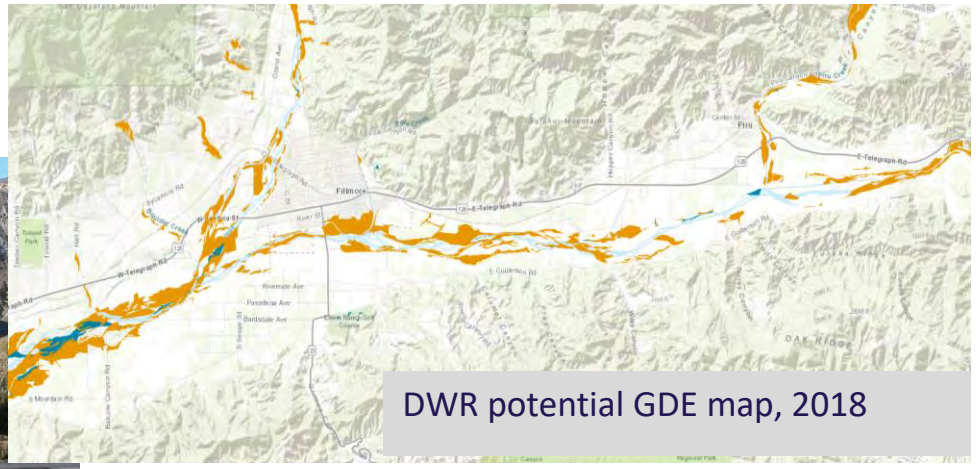


Early and extensive public engagement an essential requirement

Discussing Water Rights, A Western Pastime

Groundwater Dependent Ecosystems

- Our 2006 vegetation map is the foundation of DWR's potential GDE map
- Our Team can leverage 2018 vegetation mapping update in the basins to save costs
- Our experience in the basins allows us to rapidly link groundwater-surface water modeling to vegetation maps, steelhead habitat and passage, and habitat for other listed species

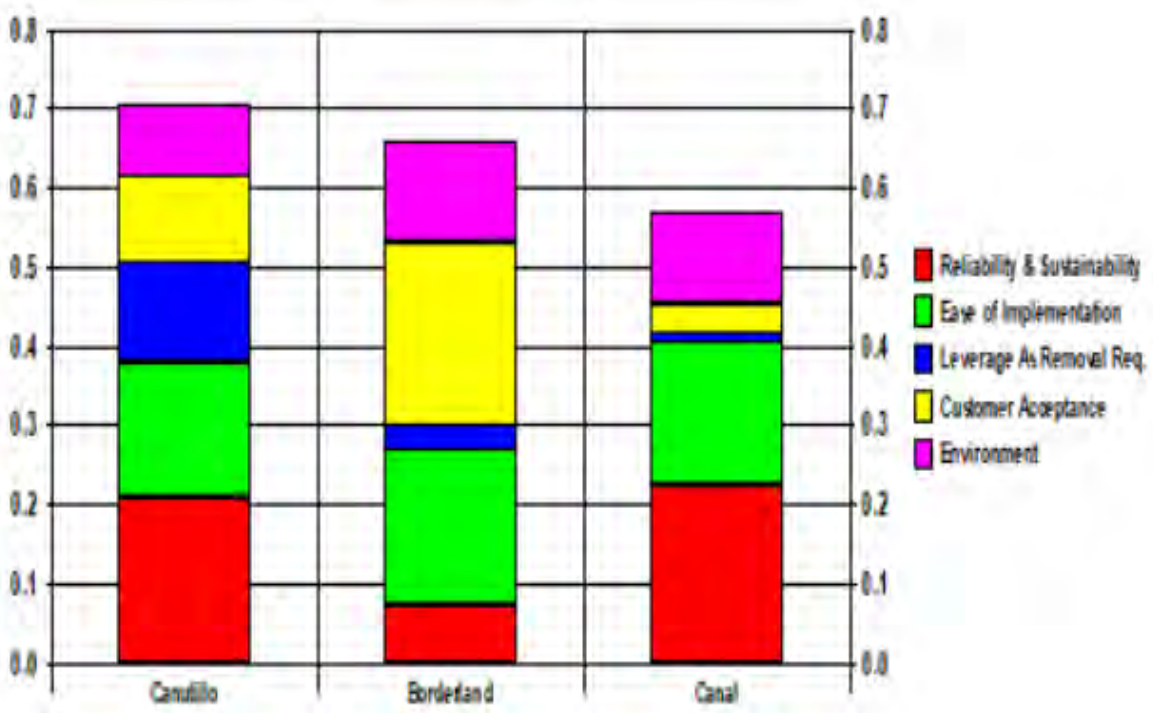


DWR potential GDE map, 2018

Stillwater Sciences

- The DA process (*Multi-Attribute Utility Analysis [MUA])* facilitates decision-making by allowing consideration of the issues and values that are most important in identifying sustainability alternatives that incorporate participation by Agency officials and stakeholders.
- The goal of the process is to systematically evaluate, compare, and rank alternative sustainability scenarios for a final long-range plan.
- The DA process and model will help us to more efficiently and objectively score (and ultimately select) the most appropriates water management alternatives (or combinations of alternatives) for achieving sustainability

Software: Criterium DecisionPlus for water management decision support.



Value Added:

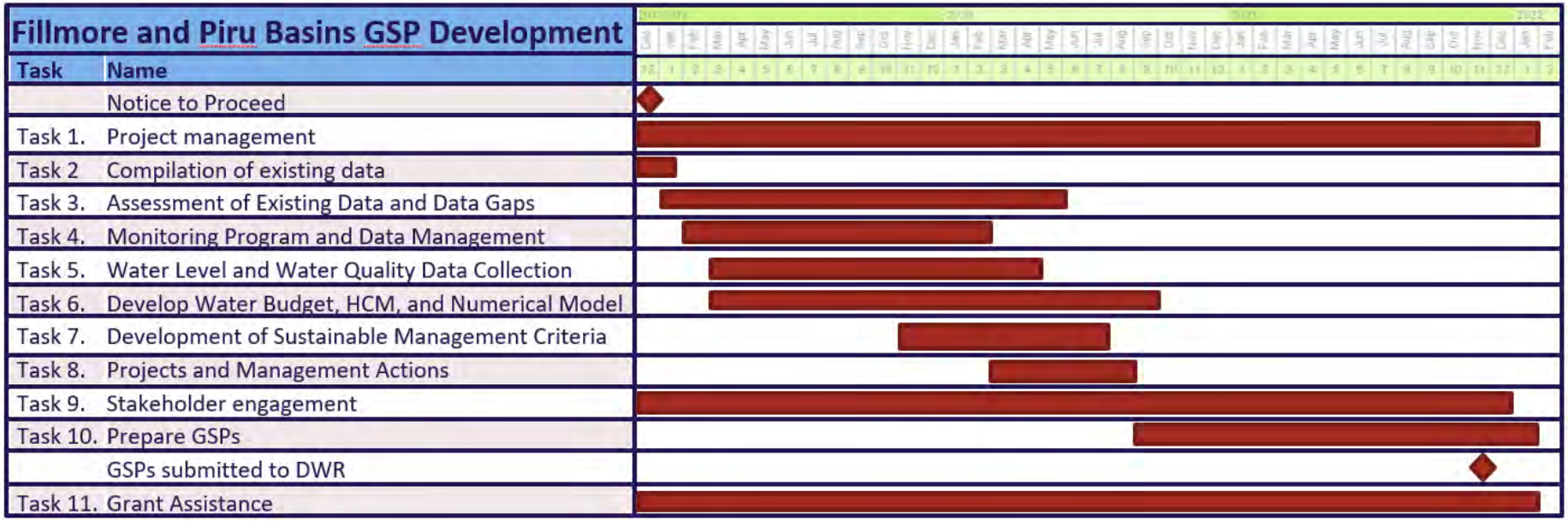
- Ensures stakeholder involvement in the decision process
- Builds consensus around goals and performance measures that reflect but also separate values and technical input
- Outcome is not predetermined
- Projects and management actions may be combined into different planning approaches
- Should be implemented after initial stakeholder engagement meetings are completed and when initial technical results are available

Wide applicability for complex problems:

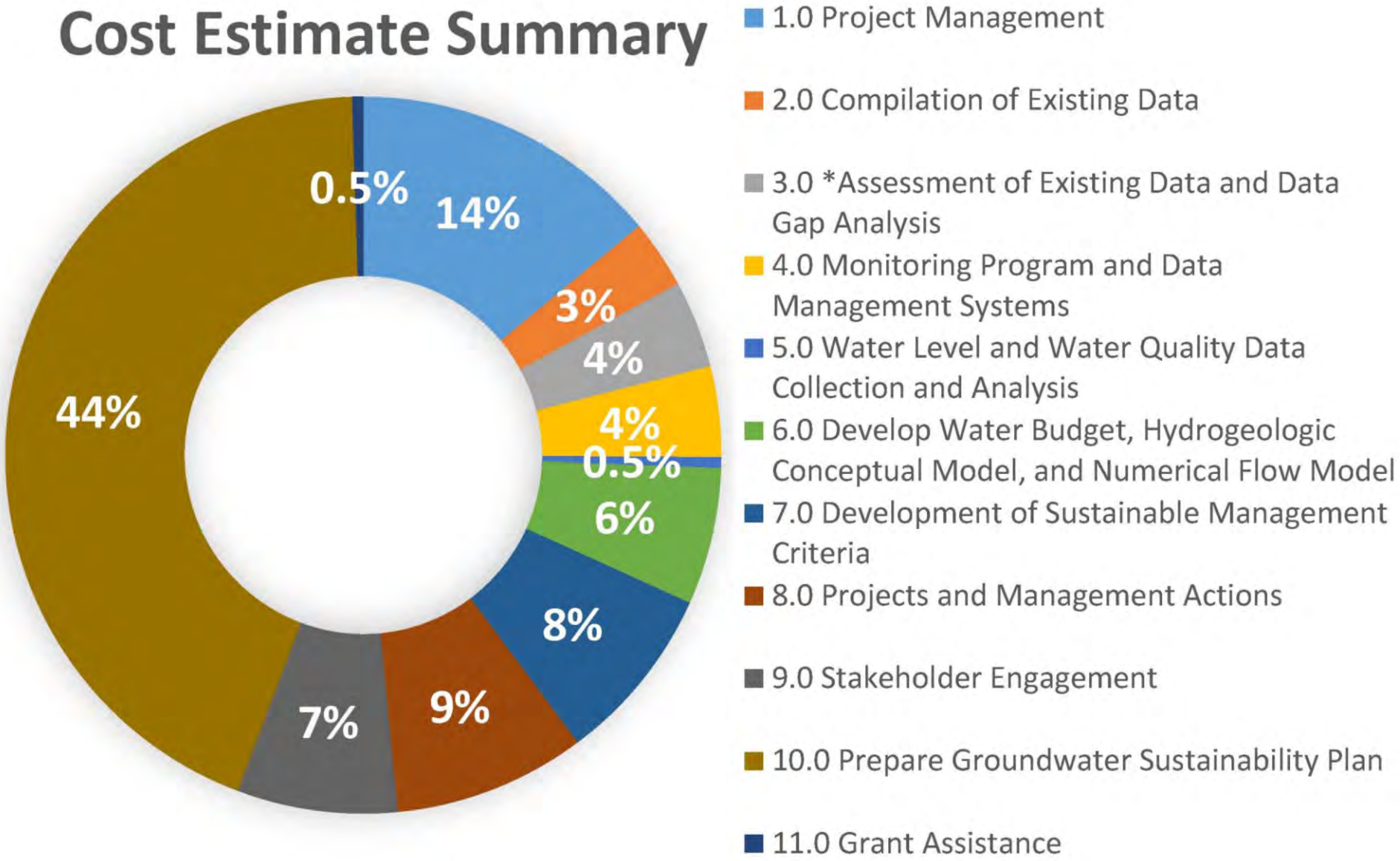
- River basin management: allocation of surface water for irrigation
- Water resource management strategy with significant litigation risks
- Contaminated sediment management alternatives
- Decommissioning offshore O&G platforms
- Siting nuclear plants / military / industrial activity
- Bomb detection method selection for FAA
- Selection of imaging techniques for breast cancer

Estimated Project Schedule

Many critical elements of the GSPs will be prepared by UWCD, so we have built UWCD's assumed milestones into our schedule. It will be important that DBS&A and UWCD work in tandem and that all parties achieve identified milestones in order to meet the DWR deadline.



TEAM EFFORT

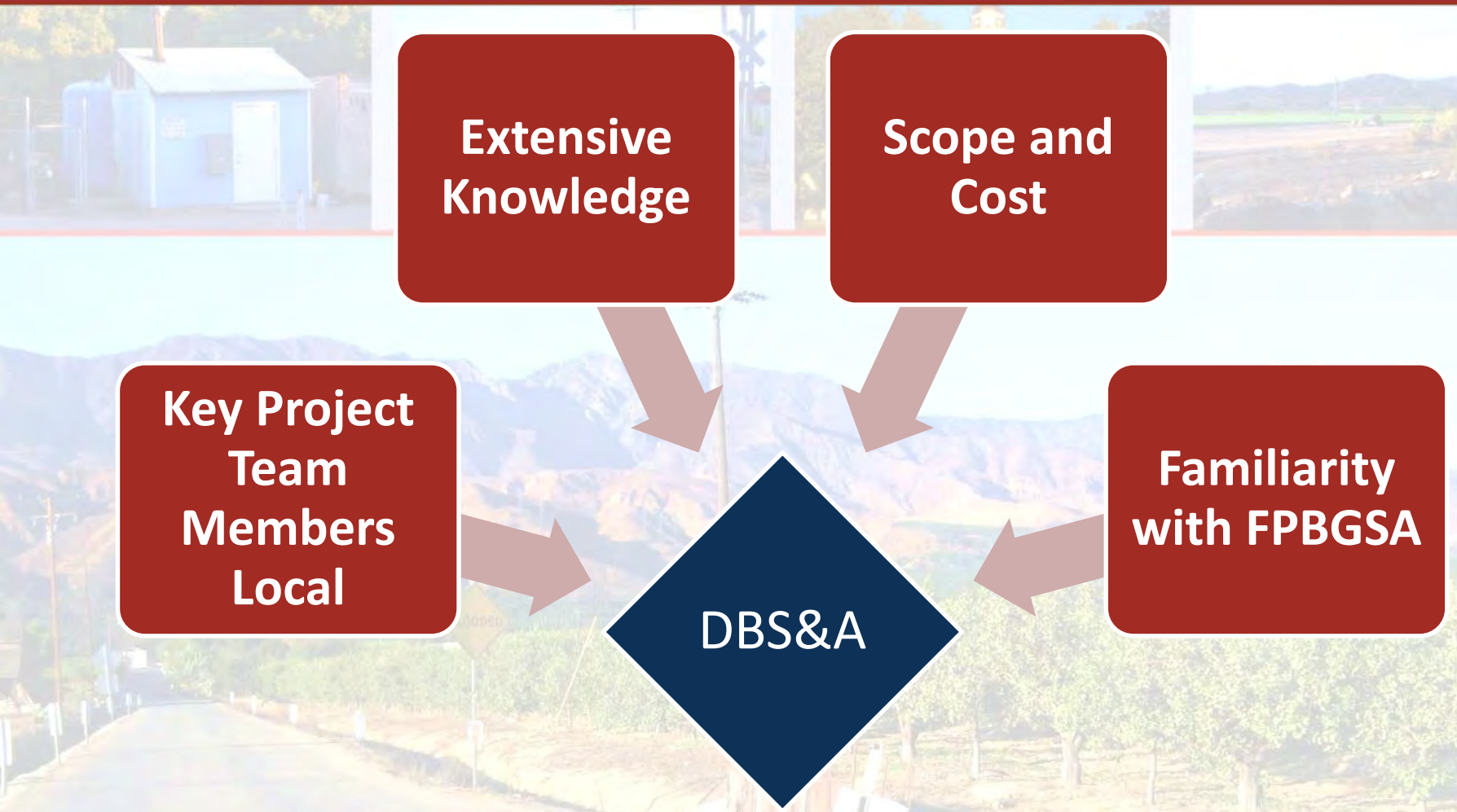

Cost Estimate Summary
0.5%
14%
3%
4%
4%
0.5%
6%
8%
9%
7%
44%
1.0 Project Management
2.0 Compilation of Existing Data
3.0 *Assessment of Existing Data and Data Gap Analysis
4.0 Monitoring Program and Data Management Systems
5.0 Water Level and Water Quality Data Collection and Analysis
6.0 Develop Water Budget, Hydrogeologic Conceptual Model, and Numerical Flow Model
7.0 Development of Sustainable Management Criteria
8.0 Projects and Management Actions
9.0 Stakeholder Engagement
10.0 Prepare Groundwater Sustainability Plan
11.0 Grant Assistance

California Department of Water Resources, 2016

Thank You

Tony Morgan, P.G., C.HG.
Vice President / Principal Hydrogeologist, DBS&A
3916 State Street, Suite 1A, Santa Barbara, CA 93105
tmorgan@geo-logic.com
O. (805) 683-2409 x1403 C. (805) 290-3862

Summary



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DBS&A Sub-Contractor Labor rates

CCP - Budget Detail

			Managing Senior Mediator	Assistant Facilitator II	Lead Mediator	Information Technology Support	Associate Mediator	Admin Support	Task total	Task total w/ markup
			Ceppos	Staff	Ballin	Staff	Meyer	Staff		
			$208	$93	$163	$93	$163	$92		
1.0	Project Management		12	12				0.5	$ 3,658.00	$ 4,064.44
2.0	Compilation of Existing Data								$ -	$ -
3.0	Assessment of Existing Data and Data Gap Analysis								$ -	$ -
4.0	Monitoring Program and Data Management Systems								$ -	$ -
5.0	Water Level and Water Quality Data Collection and Analysis								$ -	$ -
6.0	Develop Water Budget, Hydrogeologic Conceptual Model, and Numerical Flow Model								$ -	$ -
7.0	Development of Sustainable Management Criteria								$ -	$ -
8.0	Projects and Management Actions								$ -	$ -
9.0	Stakeholder Engagement		28	255				27	$ 32,023.00	$ 35,581.11
10.0	Prepare Groundwater Sustainability Plan								$ -	$ -
11.0	Grant Assistance								$ -	$ -
12.0									$ -	$ -
13.0									$ -	$ -
14.0									$ -	$ -
15.0									$ -	$ -
16.0									$ -	$ -
17.0									$ -	$ -
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19.0									$ -	$ -
20.0									$ -	$ -
21.0									$ -	$ -
22.0									$ -	$ -
23.0									$ -	$ -
	Subtotal		40	267	0	0	0	27.5	$ 35,681	$ 39,646
	Total including Markup	10%			334.5				$ 35,681	Labor
									$ 1,319	ODCs + Indirect Costs
									$ 37,000	Total w/o markup
									$ 41,111	total w/markup

DBS&A Sub Contractor labor rates

Stillwater Sciences - Budget Detail

				Sr Ecologist / Principal	Fluvial Geomorphologist	Sr Ecologist	Sr Fisheries Ecologist	Sr Wildlife Ecologist	Editor	GIS Analyst	Ecologist/ Deputy PM	Jr. GIS technical			
		expenses		B Orr	C Braudrick	A Merrill	E Bell	H Burger	Dawson	K. Rodrguez	R. Thoms	TBD	labor cost total	Labor + expenses	Labor + expense rounded	Total Hrs
				$270.00	$161.00	$187.00	$187.00	$143.00	$90.00	$105.00	$105.00	$81.00				
1.0	Project Management				20						50		$ 8,470	$ 8,470	$ 8,500	70
2.0	Compilation of Existing Data			6	10	8	8	8		20	22	36	$ 14,692	$ 14,692	$ 14,600	118
3.0	Assessment of Existing Data and Data Gap Analysis			4	12	12	9	8		8	8		$ 9,763	$ 9,763	$ 9,800	61
4.0	Monitoring Program and Data Management Systems			5	4	6	6	6		10			$ 6,146	$ 6,146	$ 6,200	37
5.0	Water Level and Water Quality Data Collection and Analysis												$ -	$ -	$ -	0
6.0	Develop Water Budget, Hydrogeologic Conceptual Model, and Numerical Flow Model			6	16	16	16	16	4	24	16		$ 17,028	$ 17,028	$ 17,000	114
7.0	Development of Sustainable Management Criteria			6	24	24	24	24		4	12		$ 19,572	$ 19,572	$ 19,600	118
8.0	Projects and Management Actions			8	8	8	8	8		9			$ 8,529	$ 8,529	$ 8,500	49
9.0	Stakeholder Engagement	$	1,940	8	20								$ 5,380	$ 7,320	$ 7,300	28
10.0	Prepare Groundwater Sustainability Plan			16	28	30	28	28	8	30	28		$ 30,488	$ 30,488	$ 30,500	196
11.0	Grant Assistance															
12.0																
13.0																
14.0																
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16.0																
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20.0																
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22.0																
23.0																
	Subtotal			59	142	104	99	98	12	105	136	36	$ 120,068	$ 122,008	$ 122,000	
	Total including Markup	10%						791							$ 135,556	

Fillmore and Piru Basins
Groundwater Sustainability Agency

Groundwater Sustainability Plans Preparation for Fillmore Basin and Piru Basin

LARRY WALKER ASSOCIATES
Science. Policy. Solutions.

MONTGOMERY & ASSOCIATES

RCS RICHARD C. SLADE & ASSOCIATES LLC
CONSULTING GROUNDWATER GEOLOGISTS

Presentation Overview

- Overview of the Team
- Why the LWA team?
- Project approach: keys to success

Project Team

Our role is to support the GSA and United to develop a GSP accepted by DWR and local stakeholders

Fillmore and Piru Basins
Groundwater Sustainability Agency

PRINCIPAL IN CHARGE (LWA)

Ashli Desai, President

PROJECT MANAGER (LWA)

Diana Engle, Ph.D., Senior Scientist (PM)
Laura Foglia, Ph.D. (Assistant PM)

STRATEGIC ADVISORS

Derrik Williams, PG, CHG
Betsy Elzufon

Larry Walker Associates, Inc.

Task Leads
Laura Foglia, Ph.D.
Mitch Mysliwiec, Ph.D.

Supporting Staff
Masih Akhbari, Ph.D., PE
Nima Jabbari, Ph.D., PE
Amir Mani, Ph.D., PE
Michael Marson

Montgomery and Associates

Task Leads
Cameron Tana, PE
Georgina King, PG, CHG

Supporting Staff
Hanieh Haeri, Ph.D.

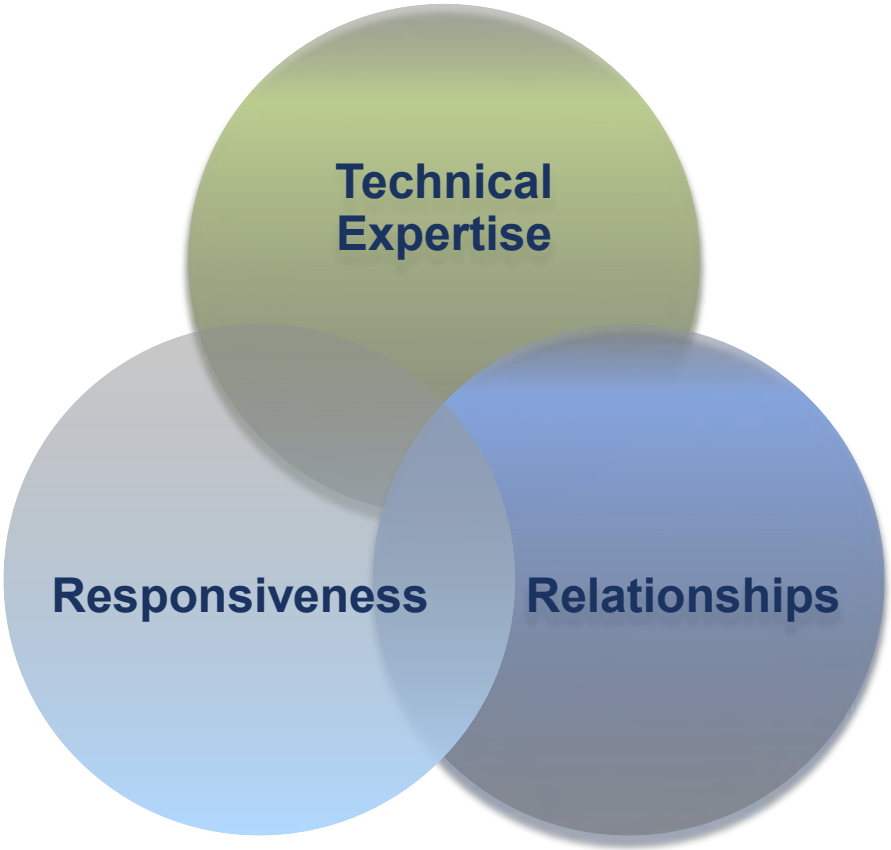
Richard Slade & Associates

Task Leads
Richard Slade PG, CEG
Anthony Hicke, PG, CHG

Supporting Staff
Earl LaPensee, PG, CHG

Why the LWA team?

Our team provides the three components necessary to develop an acceptable and implementable GSP



Our team has the technical experience to develop the GSPs

LWA

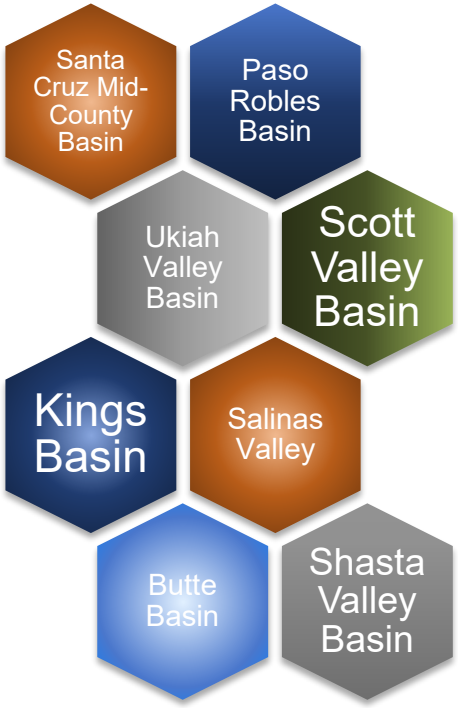
- GW team with 5 PhDs and 10 geologists and engineers
- Expertise in GW modeling, monitoring and data analysis, climate change impacts, and GW/SW interactions.

Our subcontractors

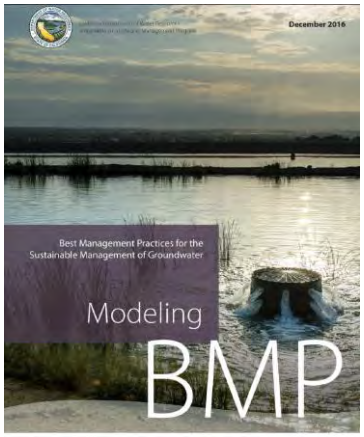
- Groundwater firms with 90+ staff and over 50 years of experience in managing groundwater basins

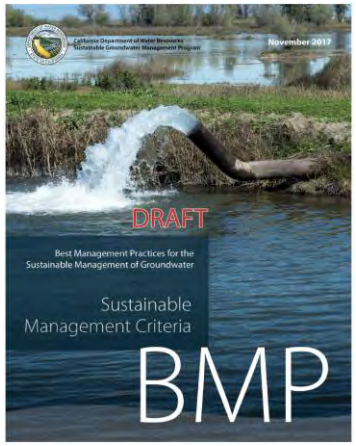
➢ We have diverse GSP project experience in many basins

Technical Expertise

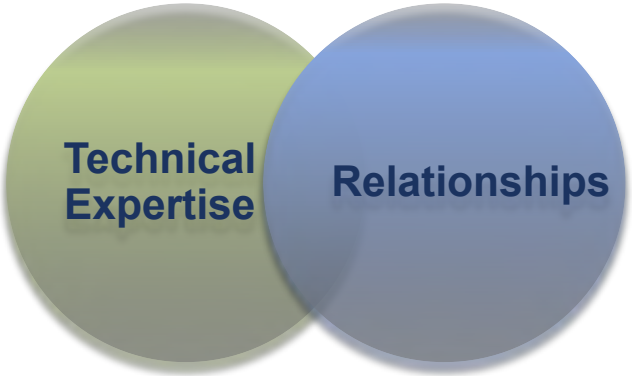


➢ **We developed SGMA *Best Management Practices* for Modeling and Sustainable Management Criteria on behalf of DWR**



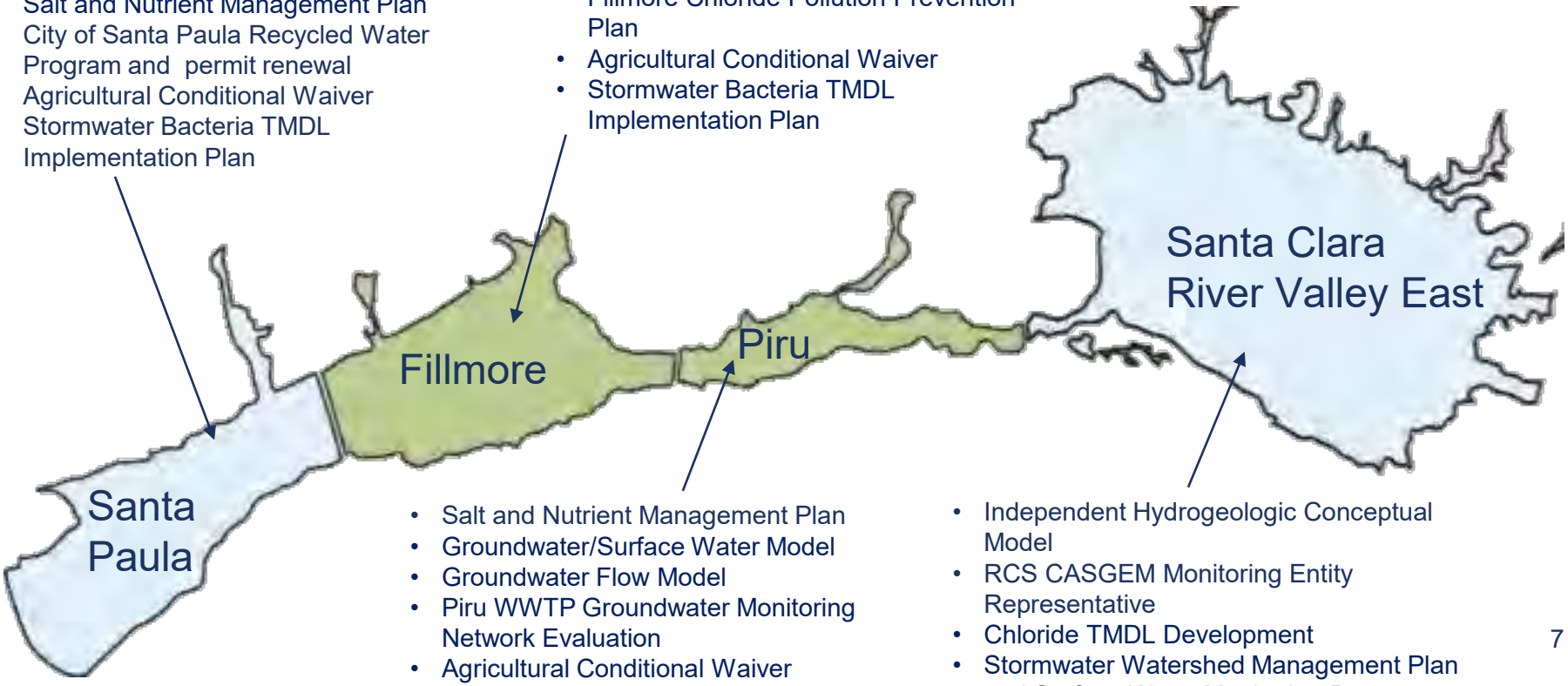


We have strong local technical experience and relationships



- Independent Hydrogeologic Conceptual Model
- Review of UWCD monitoring network data
- Salt and Nutrient Management Plan
- City of Santa Paula Recycled Water Program and permit renewal
- Agricultural Conditional Waiver
- Stormwater Bacteria TMDL Implementation Plan

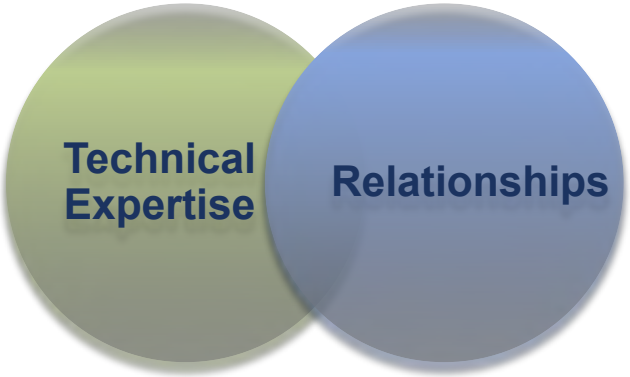
- Salt and Nutrient Management Plan
- Analysis of City Well 9
- Groundwater/Surface Water Model
- Groundwater Flow Model
- Fillmore Chloride Pollution Prevention Plan
- Agricultural Conditional Waiver
- Stormwater Bacteria TMDL Implementation Plan



- Salt and Nutrient Management Plan
- Groundwater/Surface Water Model
- Groundwater Flow Model
- Piru WWTP Groundwater Monitoring Network Evaluation
- Agricultural Conditional Waiver

- Independent Hydrogeologic Conceptual Model
- RCS CASGEM Monitoring Entity Representative
- Chloride TMDL Development
- Stormwater Watershed Management Plan and Surface Water Monitoring Program

We understand the nexus between SGMA and other regulatory requirements



We can leverage our experience in these areas to get multiple benefits from the GSP

- Irrigated agriculture
- WTP percolation ponds
- Recycling permits
- Groundwater recharge
- Aquifer storage & recovery
- Indirect potable re-use
- Stormwater capture and infiltration

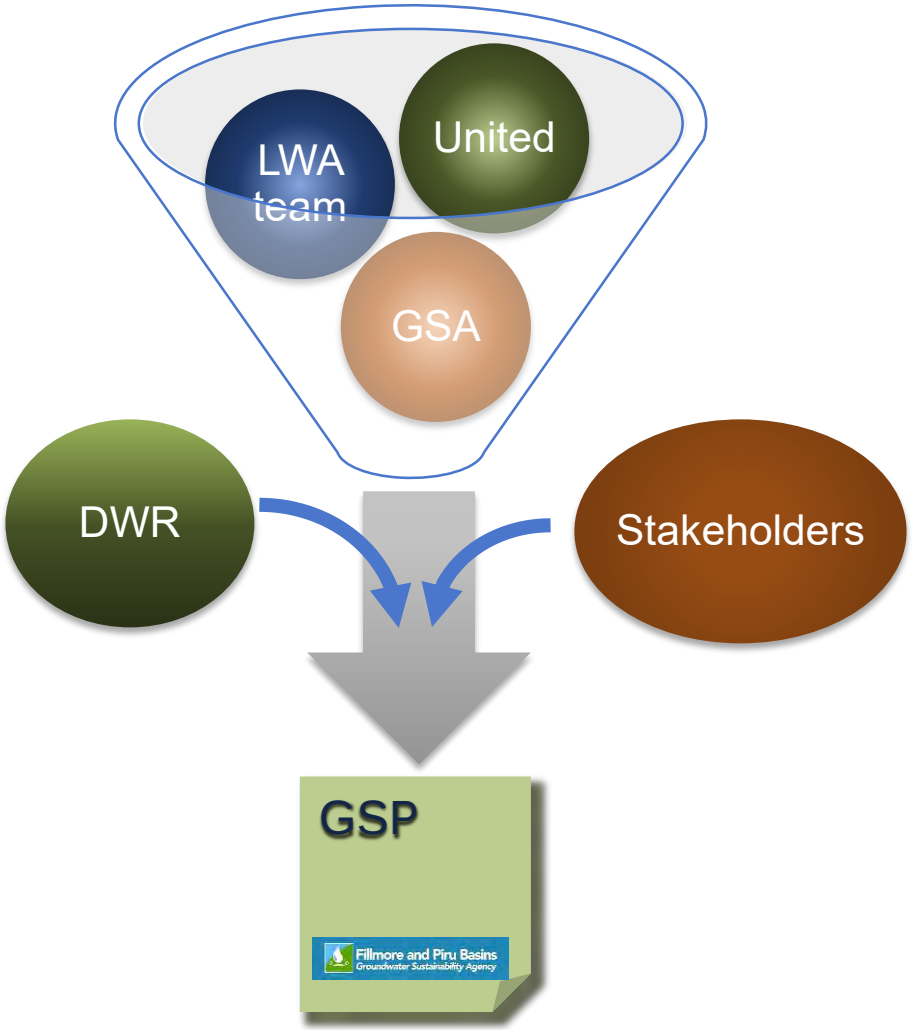
Responsiveness is important

Responsiveness

- Responsive to:
  - GSA
  - Stakeholders
  - Requirements of SGMA
- We can adapt!
- We don’t want to waste your time!

We understand our role in the project!

Task 1	Project Management
Task 2	Digital Library
Task 3	Data Gap Analysis
Tasks 4 & 5	Monitoring Plan & Data Management
Task 6	Water Budget & Associated Modeling
Task 7	Sustainable Management Criteria
Task 8	Projects & Management Actions
Task 9	Stakeholder Engagement
Task 10	Prepare the GSP



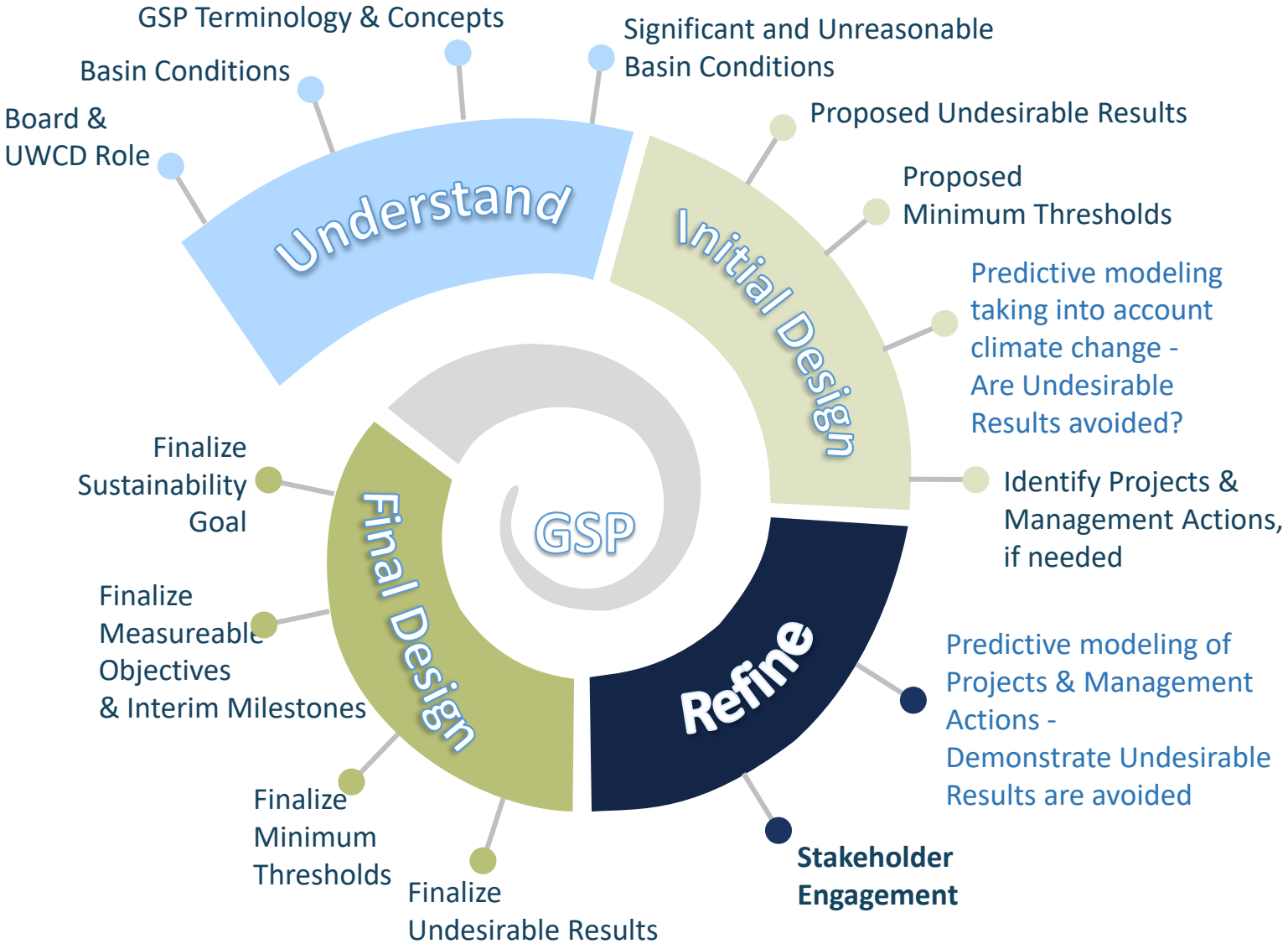
We are familiar with the datasets and existing monitoring programs

- Richard Slade & Associates is experienced in evaluating and parsing large UWCD datasets
- Lots of monitoring ongoing in the basin – (UWCD/CASGEM, SNMP, VCAILG etc.)
- Our monitoring plan will not "re-invent the wheel"
  - We'll focus on using EXISTING monitoring for GSP purposes.
  - Richard Slade & Associates used similar approach for CASGEM and SNMPs in other basins

We have the necessary expertise and local knowledge to use groundwater models to effectively supplement the GSP

- We understand United's role on modeling
- We are very comfortable working with United on modeling projects as we have done so on several projects in the past
- We would like early involvement with model development to be able to plan how to use model output to develop sustainability criteria needed for the GSP
- The model is important - we will rely on the model to determine if all sustainability criteria can be met

We have experience developing Sustainable Management Criteria and identifying projects & management actions to achieve sustainability



We know how to effectively gather and use stakeholder input

Task 1	Project Management
Task 2	Digital Library
Task 3	Data Gap Analysis
Tasks 4 & 5	Monitoring Plan & Data Management
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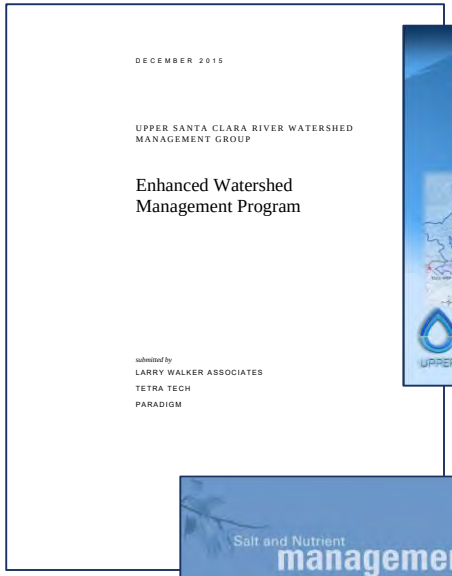
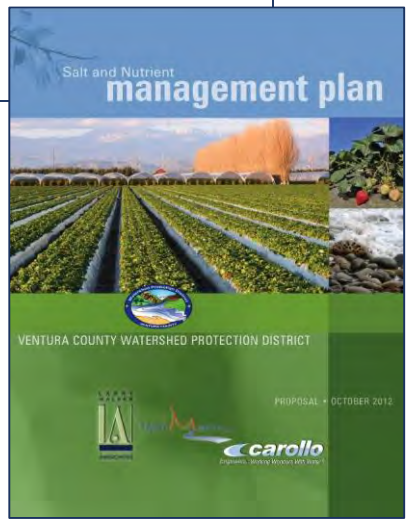
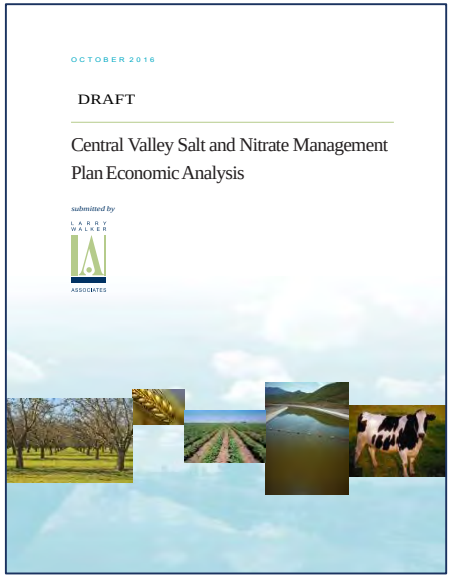
Task 10	Prepare the GSP



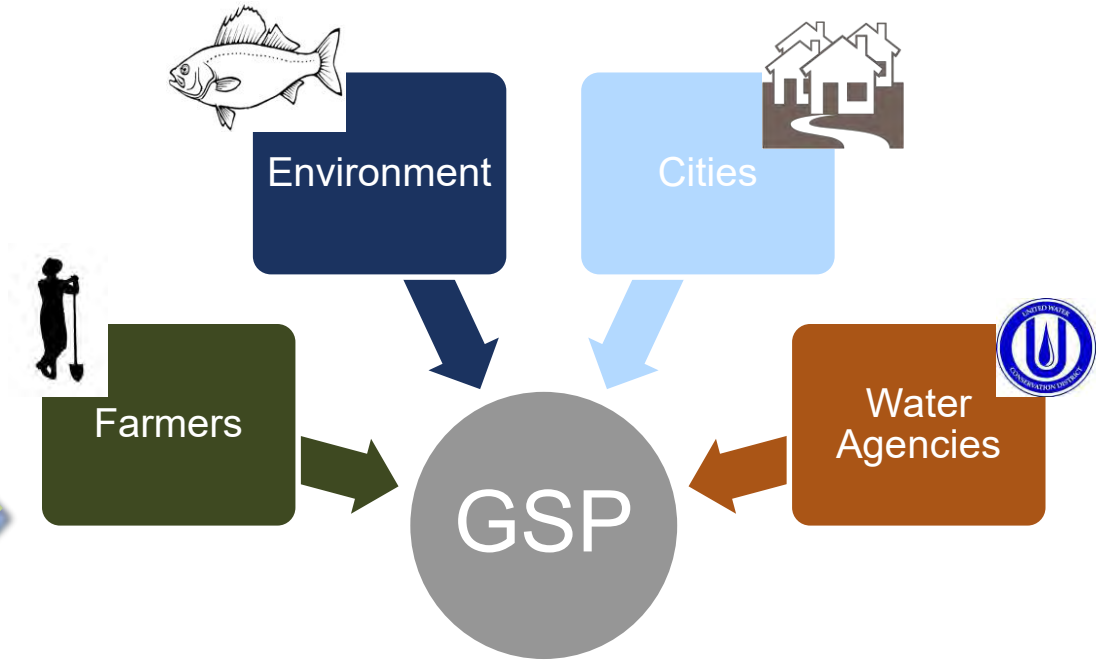




We know how to effectively gather and use stakeholder input

- Task 1 — Project Management
- Task 2 — Digital Library
- Task 3 — Data Gap Analysis
- Tasks 4 & 5 — Monitoring Plan & Data Management
- Task 6 — Water Budget & Associated Modeling
- Task 7 — Sustainable Management Criteria
- Task 8 — Projects & Management Actions
- Task 9 — Stakeholder Engagement
- Task 10 — Prepare the GSP

We have developed targeted, understandable materials that result in meaningful input



Why the LWA team?

Our team brings a unique skill set

- Extensive **experience** developing similar types of plans
- Excellent understanding of **DWR requirements**
- Team members with **unique perspectives**
- **Broad understanding** of constraints and conditions in the planning area
- **Technical expertise** to create a useful GSP

LARRY WALKER ASSOCIATES
Science. Policy. Solutions.

MONTGOMERY & ASSOCIATES

RCS RICHARD C. SLADE & ASSOCIATES LLC
CONSULTING GROUNDWATER GEOLOGISTS

Questions?

Thank you!

Update on DWR Basin Boundary Modifications

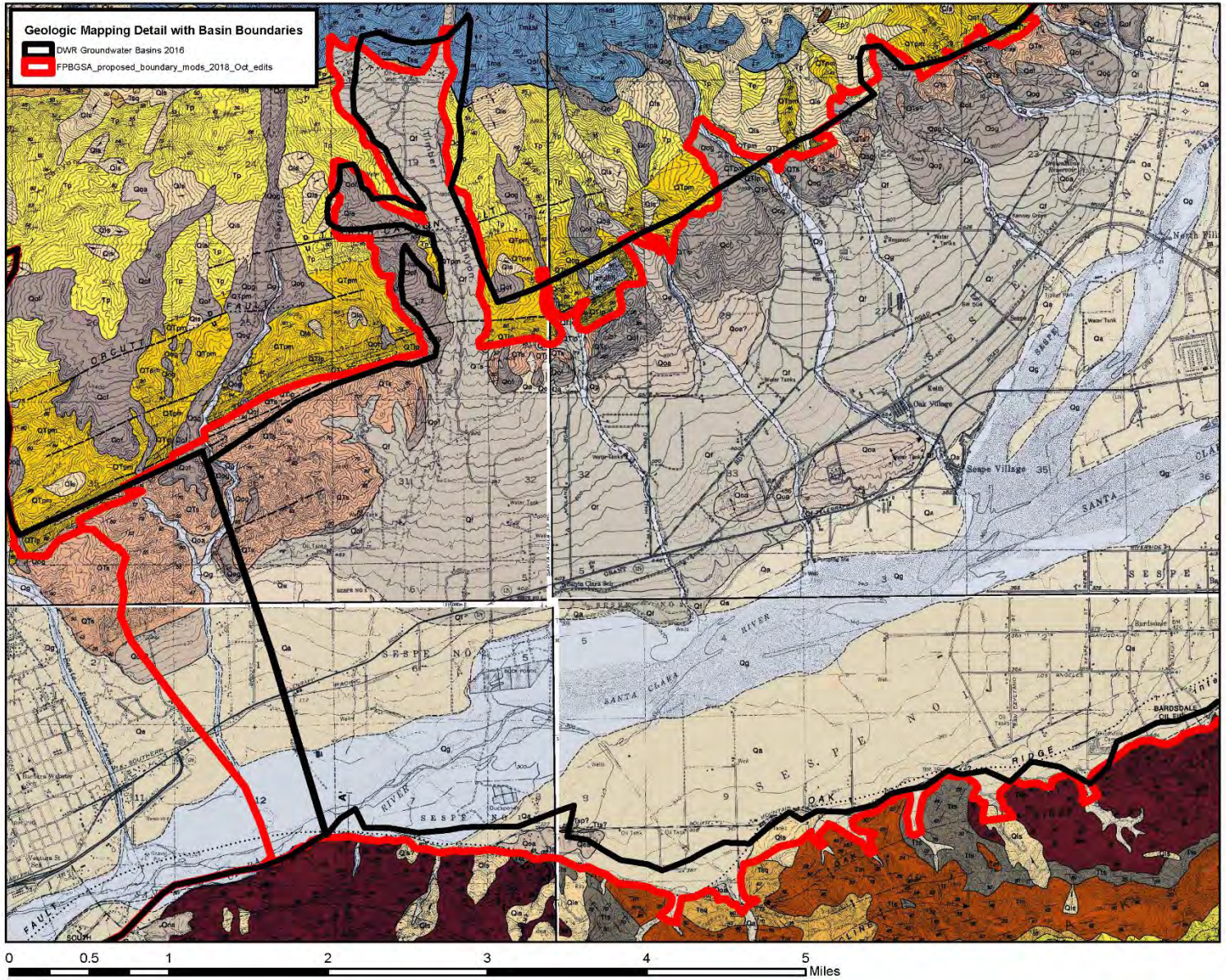
DWR Basin Boundary Modifications:

- United worked with DWR staff in early 2018 to redraw Piru and Fillmore boundaries, following original DWR criteria (but with improved accuracy)
- Most edits were technical in nature (following geologic contacts)
- Western Fillmore basin boundary has a technical basis, but snaps to a jurisdictional boundary
- DWR requested additional justifications for proposed boundaries on October 9

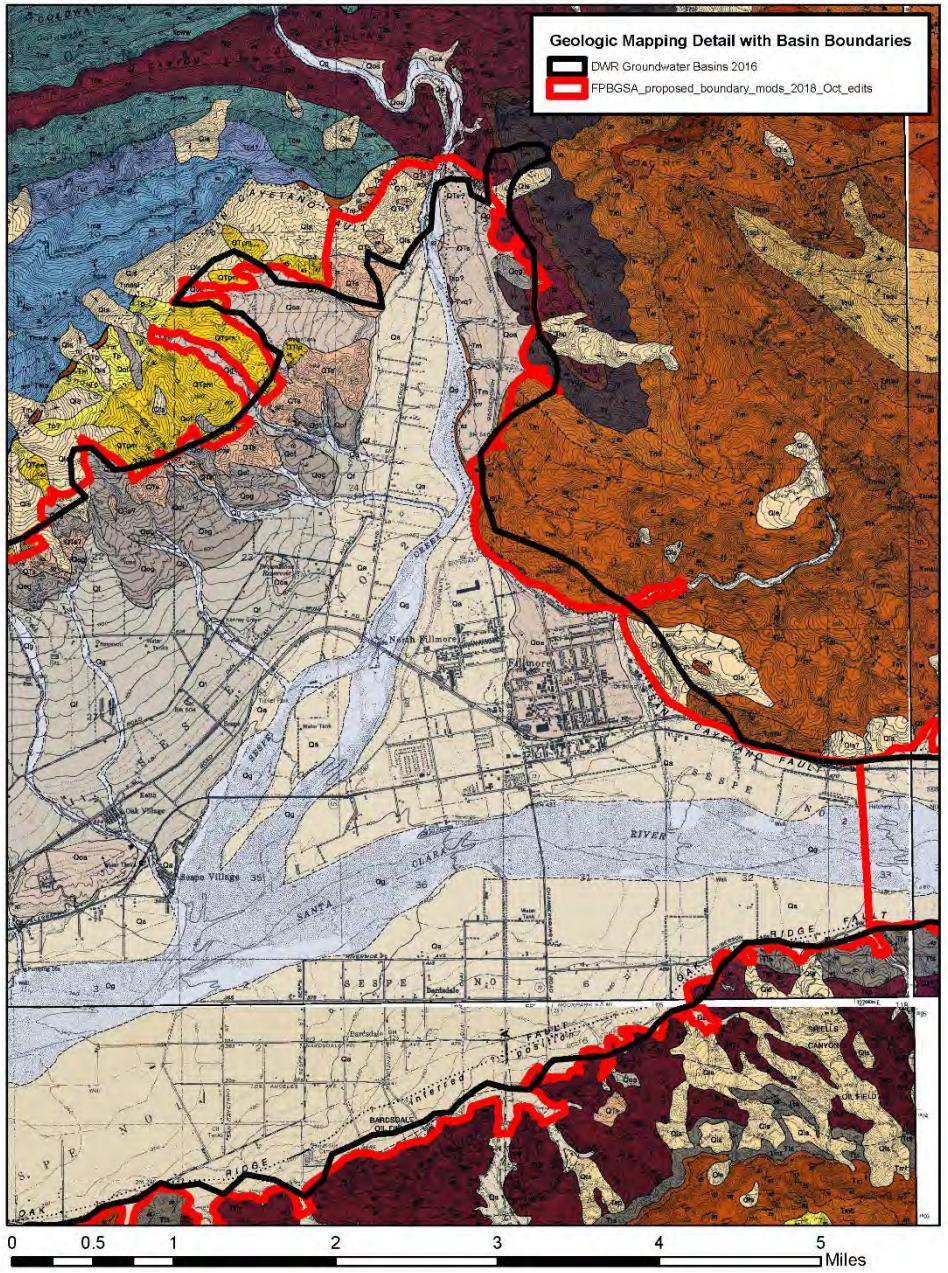
DWR Basin Boundary Modifications:

- On October 29 the DWR review panel expressed a strong preference for including alluvium around margins of the basin
- Mapped alluvium could be excluded if thought to be < 25 feet thick, unsaturated, non-water-bearing or structurally isolated from the basin
- Landslide deposits could be excluded
- UWCD edited the proposed basin boundaries and resubmitted to DWR on October 30

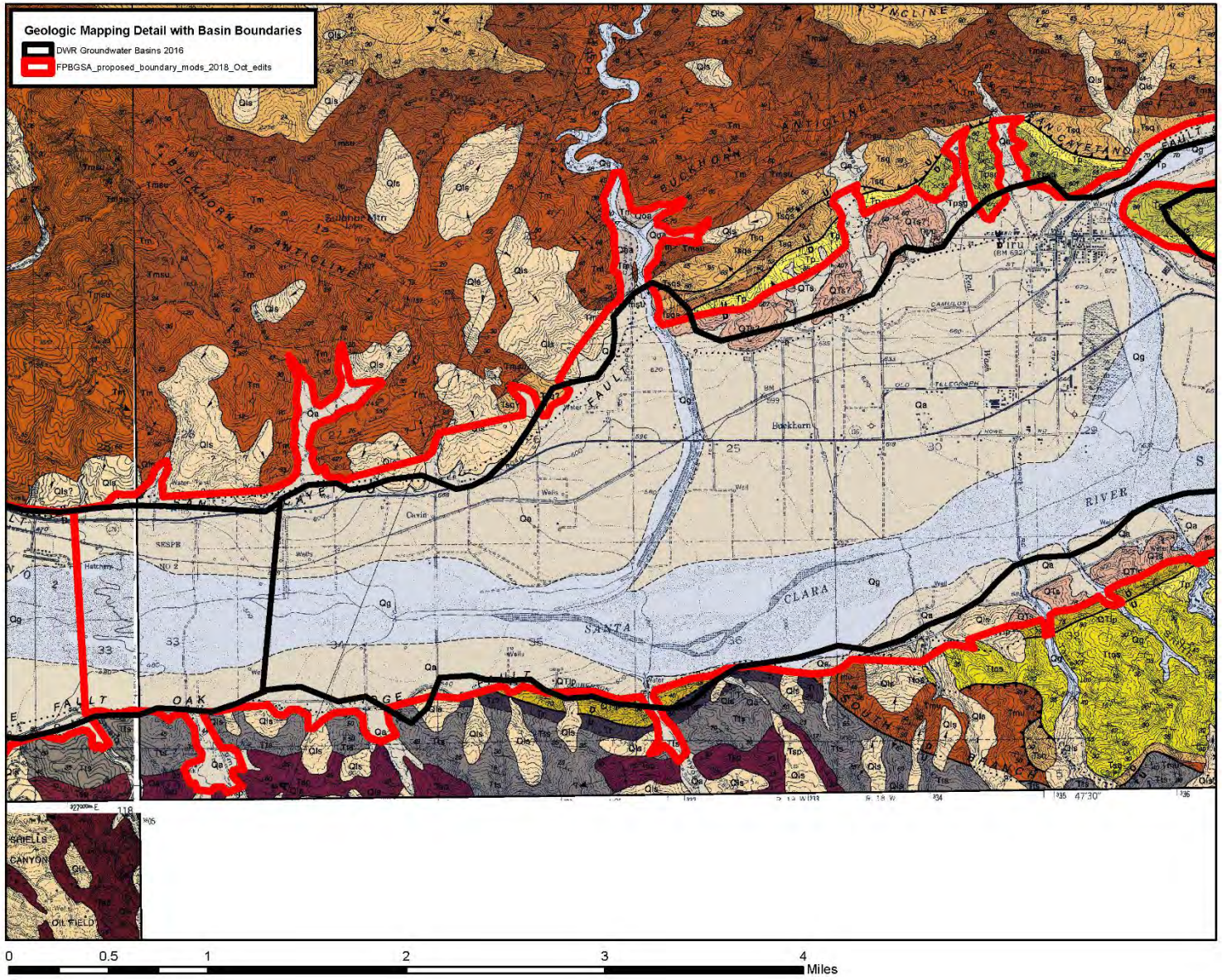
Basin Boundary Modification: Western Fillmore



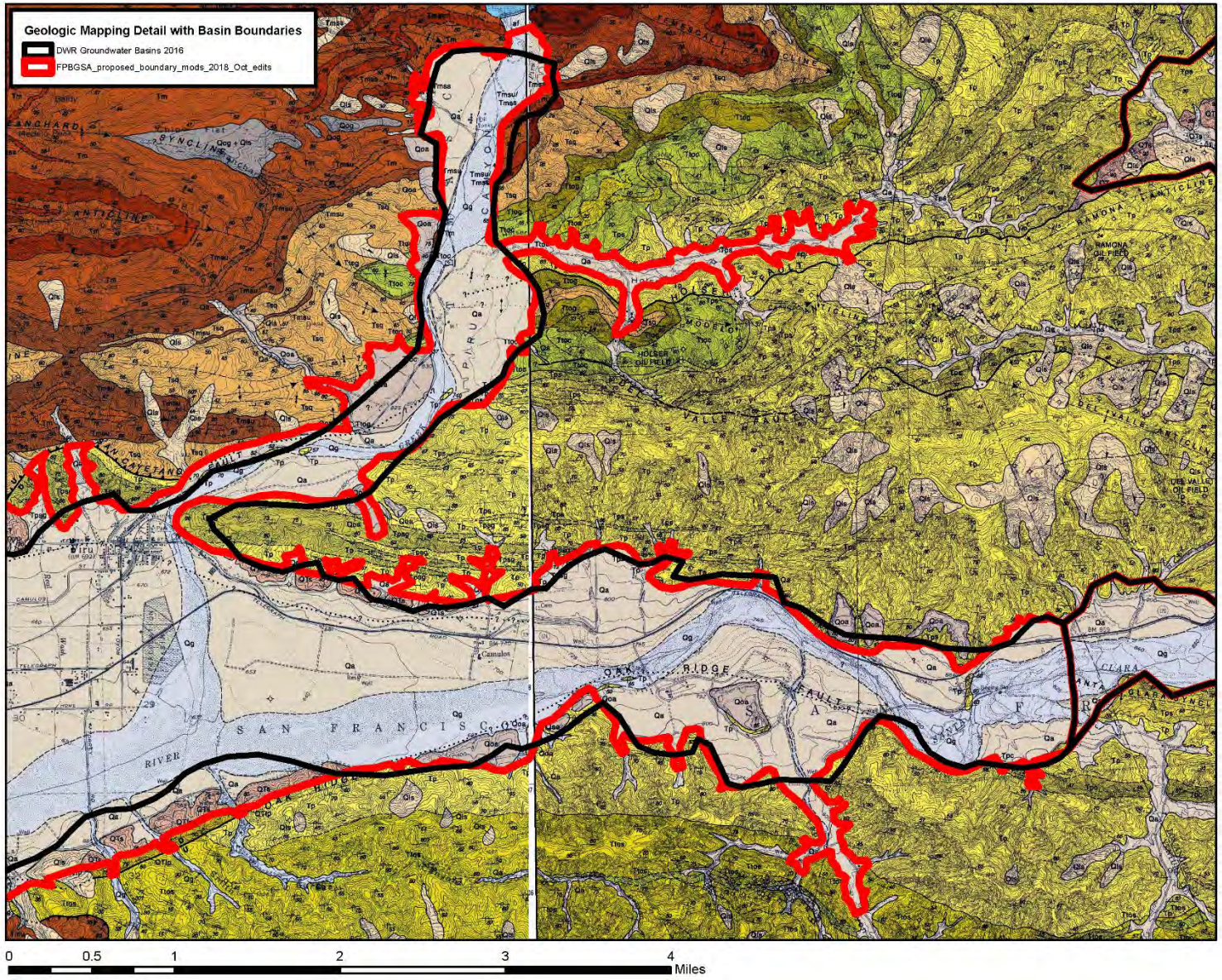
Basin Boundary Modification: Western Fillmore



Basin Boundary Modification: Western Piru



Basin Boundary Modification: Eastern Piru



DWR Basin Boundary Modifications:

- DWR review panel recommended approval of recent version of proposed basin boundaries, forwarded recommendation to DWR Director
- Additional areas now proposed to be within the basins, notable areas include Holser Canyon, Tapo Canyon, lower Hopper Canyon
- United will evaluate what additional wells are now included in the basins (compared to the July 2018 boundary proposal)