Sites Reservoir Project Overview

Tehama-Colusa Canal Authority
Board of Directors Meeting

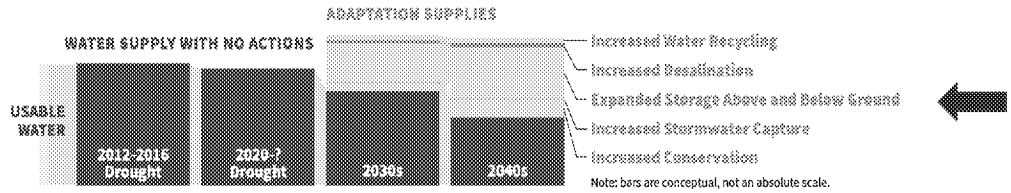
May 3, 2023

Sites

What Problem Does the Sites Project Help Solve?

Over the next 20 years, California could lose 10 percent[1] of its water supplies.

Our climate has changed, and the West continues to get hotter and drier. As it does, we will see on average less snowfall, more evaporation, and greater consumption of water by vegetation, soil, and the atmosphere itself.



In previous droughts the ratio of precipitation to evaporation to runoff has been similar. However, as temperatures rise, evaporation increases, with the consequence of a fall in runoff. As average temperatures continue to increase, the increase in evaporation will continue, with a concurrent drop in runoff.

Excerpted from Aug 2022 "California's Water Supply Strategy, Adapting to a Hotter Drier Future"

‘What if we had Sites?’ – most recent storms update

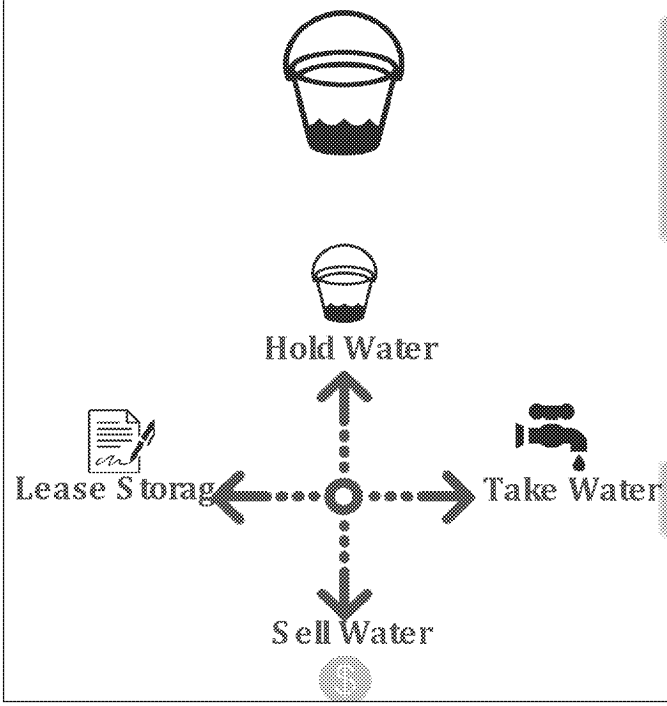
- Revised estimate for January 2023 storms - ~250,000af
- Current March-April 2023 forecasted filling is ~250,000af
- If spilling occurs from Lake Shasta, filling opportunities could continue
- Sites team will continue to monitor conditions and adjust forecasts as needed
- Real time monitoring continues to show Project capabilities are in line with modeling projections

How big would Sites be when built relative to other reservoirs in the state?

	CALIFORNIA'S LARGEST RESERVOIRS				
Rank	Name	County	Acre-Feet	Outflow	Dam
1	Lake Shasta	Shasta	4,552,000	Sacramento River	Shasta Dam
2	Lake Oroville	Butte	3,537,577	Feather River	Oroville Dam
3	Trinity Lake	Trinity	2,448,000	Trinity River	Trinity Dam
4	New Melones Lake	Tuolumne, Calaveras	2,400,000	Stanislaus River	New Melones Dam
5	San Luis Reservoir #	Merced	2,041,000	San Luis Creek	San Luis Dam
6	Don Pedro Reservoir	Tuolumne	2,030,000	Tuolumne River	New Don Pedro Dam
7	Lake Berryessa	Napa	1,602,000	Putah Creek	Monticello Dam
8	**Sites Reservoir #**	Colusa, Glenn	**1,500,000**	Stone Corral & Funks Creeks	Sites & Golden Gate Dams
9	Lake Almanor	Plumas	1,308,000	North Feather River	Canyon Dam
10	Folsom Lake	Sacramento, El Dorado, Placer	1,120,200	American River	Folsom Dam
		# - off stream reservoir			

Sites

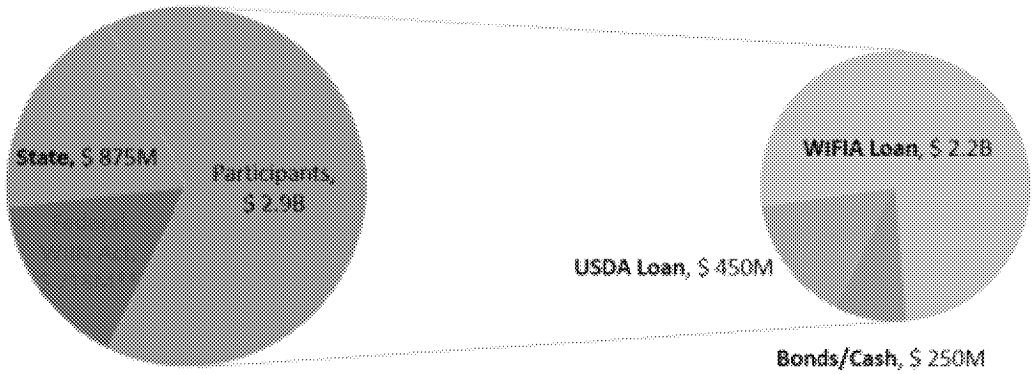
What Do You Get With Your Investment in Sites?



1. Share of Storage Space - your own bucket
2. Access to Proportionate Share of Water Diverted to Storage - X% of 300 TAF annual average (estimated)

Investor Decides - Local control of storage space and stored water

Project Funding Sources
'State/Federal Interest in the Sites Project'



**WIIN Act funding is based on 16% Reclamation investment under Alternative 3 (Preferred Project) and is reported in future dollars.

Environmental Planning & Permitting Update

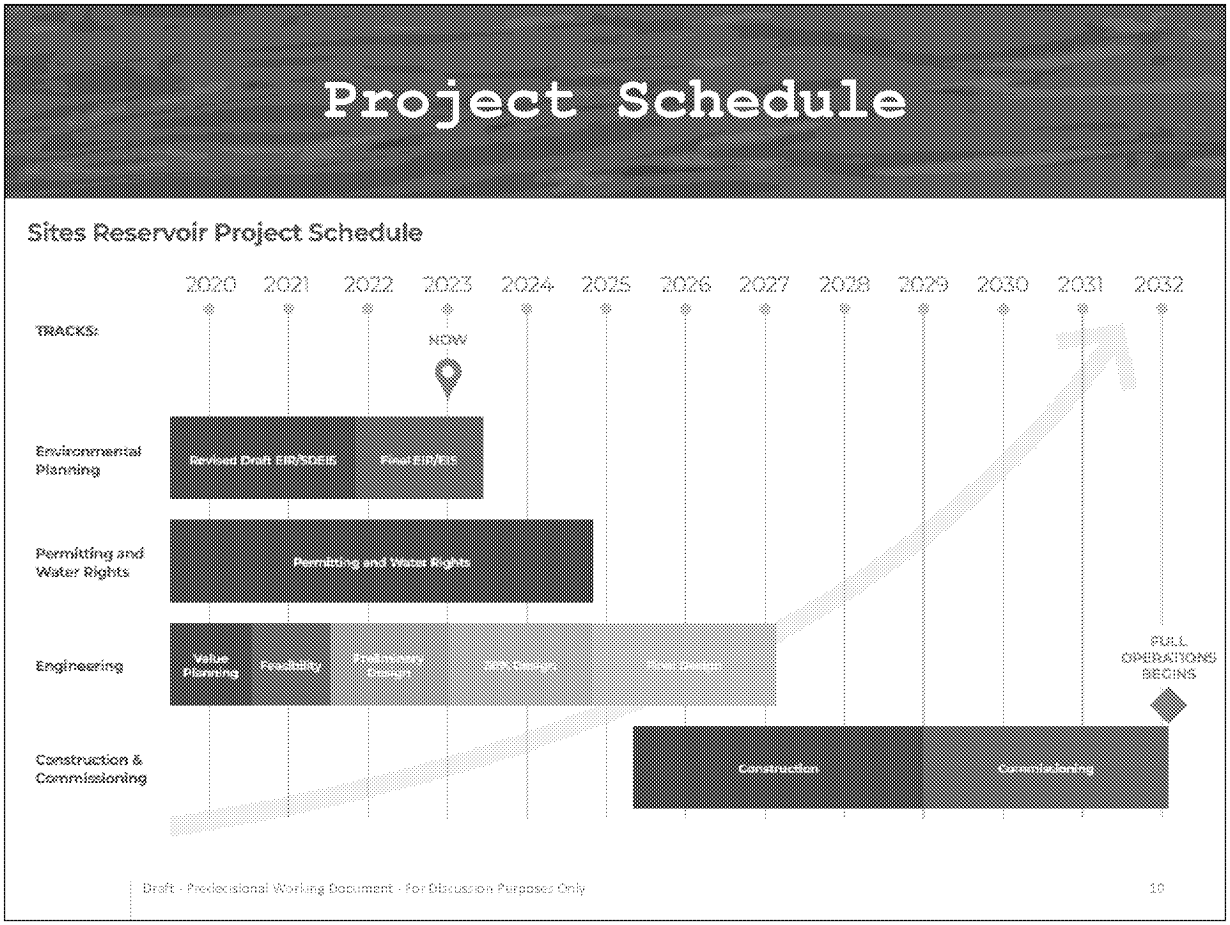
- Environmental Impact Report
  - 2017 Draft Document
  - 2021 Revised Draft document
    - Released for public review in November 2021
    - Comment period closed in January 2022
  - 2023 Final document
    - Expected in August 2023
    - All concerns evaluated
    - Revisions to 2021 draft included
    - Response to comments
- Water Right Permit
  - Submitted application to State Board in May 2022
  - Expect Board to complete review and notice for public review/protests in May 2023

Engineering Update

- **2021** – Completed the Feasibility Analysis
  - The California Water Commission Determined the Project is Feasible
- **2022-2024** – Conducting Field Studies
  - Survey Mapping & Geotechnical Investigations to Inform Preliminary Engineering Analysis and Design
- **2024** – Complete 30% Design
  - Update Project Cost Estimate
- **2024** and Beyond – Key Agency Reviews and Approvals
- **2025** – Begin Construction

Real Estate Update

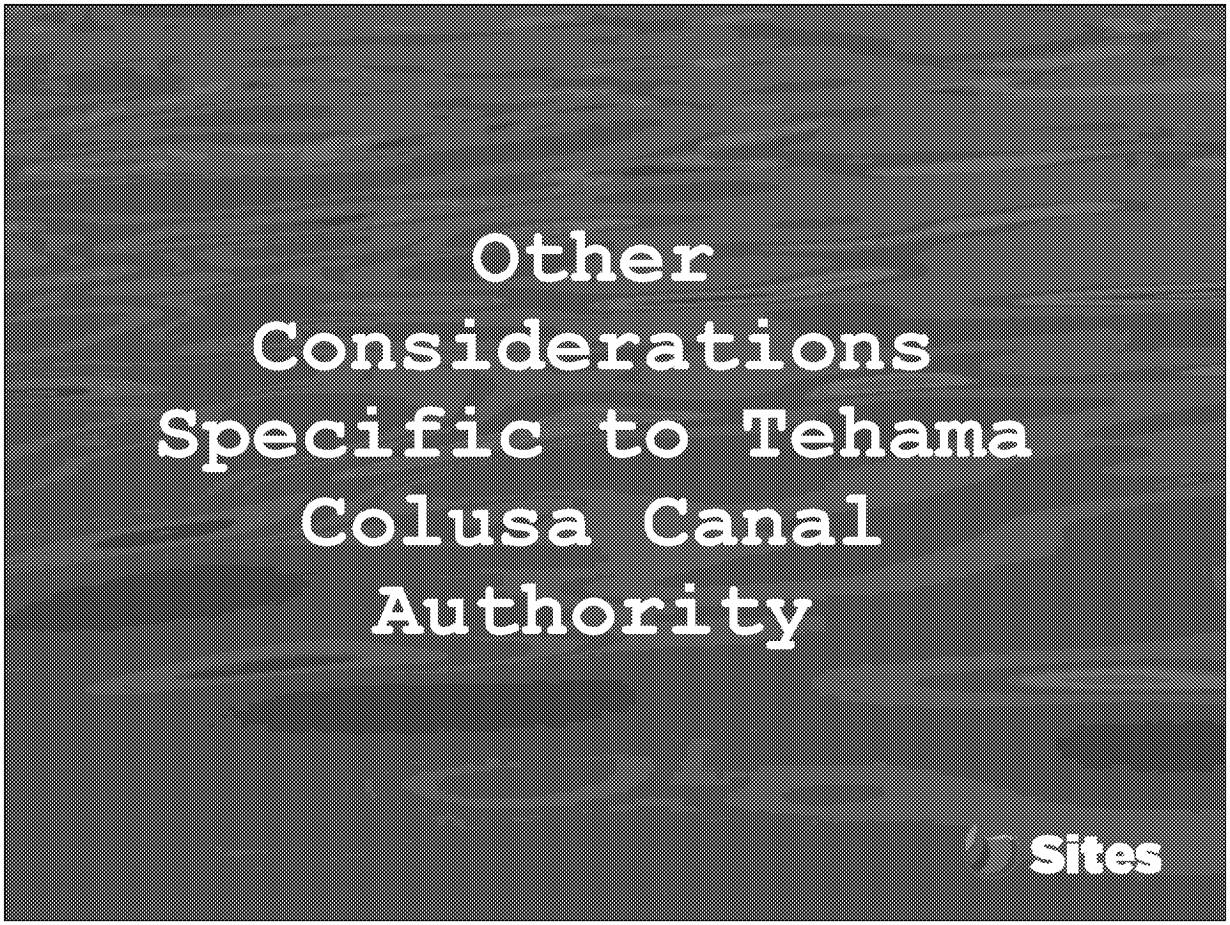
- Coordinating with Landowners on the project design. Two most frequently asked questions:
  - anticipated land needs and
  - timing for acquisition
- Securing Temporary Rights of Entry (TROE) and other agreements to conduct necessary technical field activities
- Having acquisition discussions on key project parcels or parcels associated with major project infrastructure
- Acquisition transactions not likely to occur sooner than 2024.



Speaker: Laurie

Draft - Predecisional Working Document - For Discussion Purposes Only

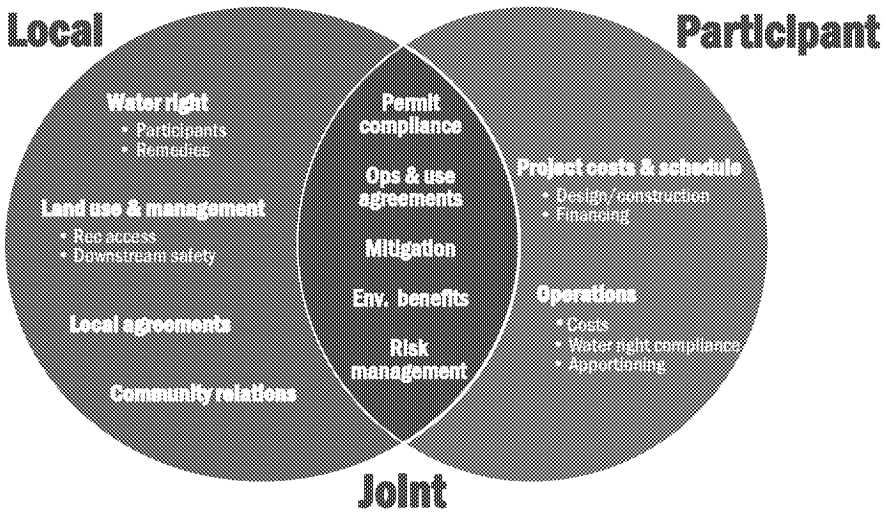
Other Considerations Specific to Tehama Colusa Canal Authority



Long Term Cooperation and Partnership – TC/GC Canal and the Sites Reservoir

- The Sites Authority acknowledges the priority that the TCCA and GCID have to serving the needs of their member agency's first.
- "Sharing facilities" is mutually beneficial – there are downside risks that can be mitigated and offset by upside benefits – this applies to all parties.
- Starting with the recently formed Cooperative Agreement (Thank You!) which serves to:
  - Clarifies roles and responsibilities
  - Provides for reimbursement of planning costs
  - Recognizes TCCA and GCID involvement in Sites planning
  - Sets in motion development of Long-Term Facility Use Agreements

Project Construction and Operations Oversight Considerations



Summary of WRLCM Key Results
'Shasta exchanges have great ecosystem potential'

- The Project has a slightly positive effect on winter-run with the potential to increase the overall population
- Benefits to winter-run are associated with periodic reductions in late summer water temperatures in critical water years that decreases salmon egg mortality
- Alternative 3A (Reclamation investment at 25%) has slightly greater benefits then Alternative 3B (16% investment)
  - May be able to create same benefits with more exchanges

Speaker: Ali

Draft - Predecisional Working Document - For Discussion Purposes Only

Questions

Sites

We are in a very dynamic interest rate environment
(Slide updated 9/26/2022, post workshop)

Parameter	Oct-21 Plan of Finance (POF) "Historical" Rates (Case 1)	$2.2B WIFIA with POF "Current" Rates (Case 6)	$2.2B WIFIA with POF "Historical" Rates (Case 7)	$2.2B WIFIA with POF "Historical" Rates Deferred Interest (Case 8)
Revenue Bond Interest Rate	5%	3.5%	5%	5%
WIFIA Interest Rate	n/a	2.38%	3.5%	3.5%
Bond funding	$2.8 B	$0.7 B	$0.7 B	$1.3 B
WIFIA funding	$0	$2.2 B	$2.2 B	$2.2 B = $1.6 B for Const + $0.6 B for Interest
Annual Debt Service ($2021)	$137 M	$107 M	$121 M	$155 M
$/AF of Participant Storage ($2021) Debt Service, Full Storage of 1,045 TAF	$131	$102	$116	$148
Debt Service $/AF of Participant Yield ($2021) Average Nominal Yield of 158 TAF/Yr	$818	$636	$722	$923
Total $/AF of Participant Yield ($2021) (Average Fixed and Variable Cost = $120/AF)	$938	$756	$842	$1,043

Note: Sep 2022 WIFIA rates now equal historical assumption of 3.5%. Current bond rates are within 0.5% of historical assumption.
B=billions, M=millions

Doug M

Allocation of Active Storage

Reservoir Size:	1,470,000 AF
Dead Pool:	60,000 AF
Active Storage:	1,410,000 AF

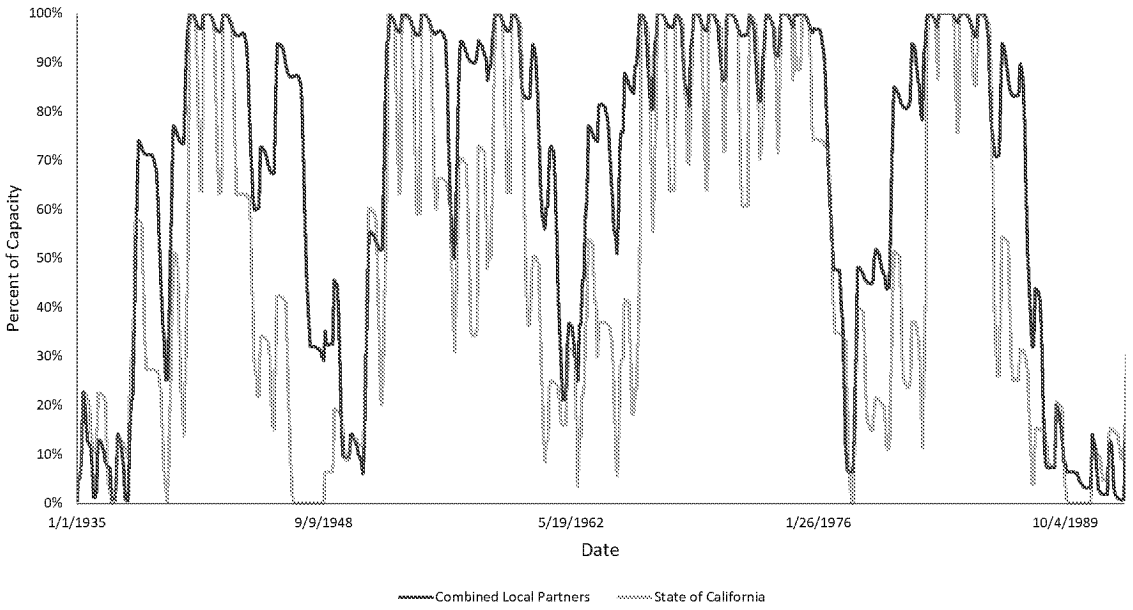
Participant Name	Amendment 3 Participation Level	Amendment 3 Storage Allocation	% Active Storage
Antelope Valley-East Kern WA	500	3,117	0.2%
City of American Canyon	4,000	24,936	1.8%
Coachella Valley WD	10,000	62,340	4.4%
Colusa County	10,000	62,340	4.4%
Colusa County WD	9,256	57,702	4.1%
Cortina WD	450	2,805	0.2%
Davis WD	2,000	12,468	0.9%
Desert WA	6,500	40,521	2.9%
Dunnigan WD	2,972	18,527	1.3%
Glenn-Colusa ID	5,000	31,170	2.2%
Irvine Ranch WD	1,000	6,234	0.4%
LaGrande WD	1,000	6,234	0.4%

Allocation of Active Storage

Participant Name	Amendment 3 Participation Level	Amendment 3 Storage Allocation	% Active Storage
Metropolitan Water District of SC	50,000	311,700	22.1%
Reclamation District 108	4,000	24,936	1.8%
Rosedale-Rio Bravo WD	500	3,117	0.2%
San Bernardino Valley Municipal WD	21,400	133,408	9.5%
San Gorgonio Pass WA	14,000	87,276	6.2%
Santa Clara Valley WD	500	3,117	0.2%
Santa Clarita Valley WA	5,000	31,170	2.2%
Westside WD	5,375	33,508	2.4%
Wheeler Ridge - Maricopa WSD	3,050	19,014	1.3%
Zone 7 WA	10,000	62,340	4.4%
State of California - Total	--	244,000	17.3%
Reclamation**	--	128,020	9.1%
Active Storage Total	**166,503**	**1,410,000**	**100.0%**

- Water diverted will be allocated to each Storage Partner's storage space proportional to its Storage Allocation (i.e., percent of Active Storage)

Considerations – Supply vs. Storage



Our Strength is in Our Broad Statewide Participation

Sacramento Valley

City of American Canyon
Colusa County
Colusa County Water Agency
Cortina Water District
Davis Water District
Dunnigan Water District
Glenn County
Glenn-Colusa Irrigation District
LaGrande Water District
Placer County Water Agency
Reclamation District 108
City of Roseville
Sacramento County Water Agency
City of Sacramento
Tehama-Colusa Canal Authority
Westside Water District
Western Canal Water District

Bay Area

Santa Clara Valley Water District
Zone 7 Water Agency

San Joaquin Valley

Wheeler Ridge-Maricopa Water Storage District
Rosedale-Rio Bravo Water Storage District

Southern California

Antelope Valley – East Kern Water Agency
Coachella Valley Water District
Desert Water Agency
Irvine Ranch Water District
Metropolitan Water District
San Bernardino Valley Municipal Water District

Waiting List

Cal-Am Sacramento
City of Napa
Delta View WUA
Glenn County
La Cumbre MWC
Madera County
Pacific Resources MWC
Palmdale WD
Santa Clara Valley WD
Western Municipal WD
Westlands WD
Wheeler Ridge Maricopa WSD
Woodland Davis CWA

Sites

Sites Project Authority

- Joint Powers Authority established under California law
- Authority member agencies located in the Sacramento Valley
- Reservoir Committee made up statewide agencies investing in the Sites Project
- The Sites Project Authority will own and operate Sites Reservoir

Board of Directors:
Colusa County
Colusa County Water District
Glenn County
Glenn-Colusa Irrigation District
Placer County Water Agency/City of Roseville
Reclamation District 108
Sacramento/Sac County Water Agency
Tehama-Colusa Canal

Project Next Steps/Goals: 2022 – 2024

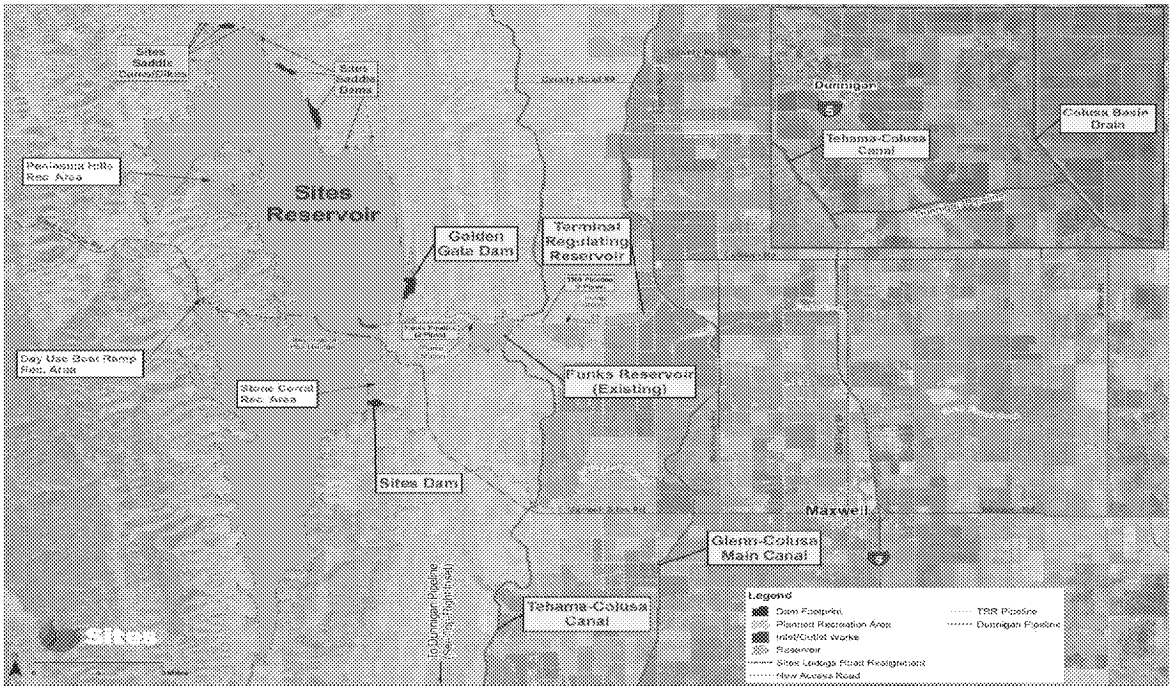
- Secure Final Prop 1 Funding award with CWC
- Execute Final Operations Agreement
- Secure WIIN and BIL Federal Funding
- Complete WIFIA/USDA Loan Agreements
- Execute Benefits and Obligations Contracts
- Complete Final EIR/EIS
- Obtain Critical Environmental Permits (BO, ITP, 404)
- Receive Water Right Order and Permit
- Obtain Local Agency Agreements and Permits
- Execute Benefits Contracts with DWR and Sites

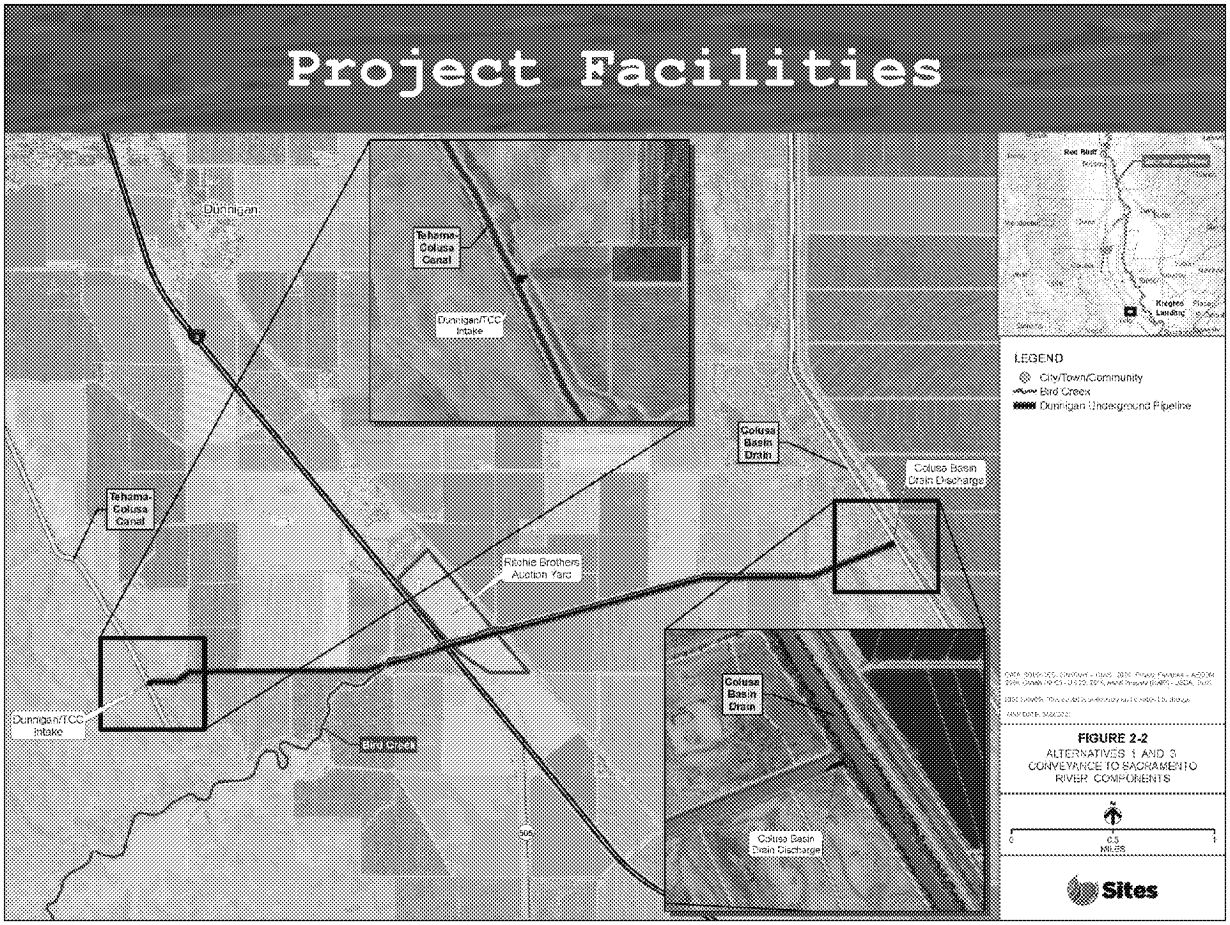
Project Next Steps/Goals: 2022 - 2024

- Develop Mitigation Acquisition Master Plan
- Initiate Application for DSOD Permit to Construct
- Advance Engineering Design to achieve Level 3 cost estimate
- Determine Procurement and Delivery Strategy
- Determine Overall Project Schedule
- Develop and Implement Land Acquisition Master Plan
- Conduct Geotech Investigations and Evaluations
- Perform Geotech Evaluation of all "Willing Seller" Properties
- Determine Organization Structure and Govern

Sites

Project Facilities




Project Facilities
Dunnigan
Tehama-Colusa Canal
Dunnigan/TCC Intake
Colusa Basin Drain
Colusa Basin Drain Discharge
Tehama-Colusa Canal
Richie Brothers Auction Yard
Dunnigan/TCC Intake
Bird Creek
Colusa Basin Drain
Colusa Basin Drain Discharge
LEGEND
City/Town/Community
Bird Creek
Dunnigan Underground Pipeline
FIGURE 2-2
ALTERNATIVES 1 AND 3
CONVEYANCE TO SACRAMENTO
RIVER COMPONENTS
0
0.5
1
MILES
Sites

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/1/2023 8:48:47 AM
To: Garrett Durst [garrett@naturalresourceresults.com]; Roger Gwinn [rgwinn@tfgnet.com]; Kevin Spesert [kspesert@sitesproject.org]
Subject: Re: Sites Leg Visit Follow-ups
Attachments: 03-02P Winter- Run Life Cycle Model Results.pptx; WRLCMreportMultiScenSitesAlt3AMod_Alt3BMod 2023_03_29_final.pdf

Here's you go: Two files – 1) the slide deck summarizing results, 2) graphs and tables from the report that were included with the slide deck that we carried around to our meetings in DC last week.

From: Garrett Durst <garrett@naturalresourceresults.com>
Date: Monday, May 1, 2023 at 8:03 AM
To: Jerry Brown <jbrown@sitesproject.org>, Roger Gwinn <rgwinn@tfgnet.com>, Kevin Spesert <kspesert@sitesproject.org>
Subject: Re: Sites Leg Visit Follow-ups

Could you send the PPT on the winter run life cycle model too when you have a chance? I think the study is going to be difficult for folks to digest (certainly was for me). Thanks!

From: Garrett Durst <garrett@naturalresourceresults.com>
Date: Monday, May 1, 2023 at 10:53 AM
To: Jerry Brown <jbrown@sitesproject.org>, Roger Gwinn <rgwinn@tfgnet.com>, Kevin Spesert <kspesert@sitesproject.org>
Subject: Re: Sites Leg Visit Follow-ups

Thank you!

From: Jerry Brown <jbrown@sitesproject.org>
Date: Friday, April 28, 2023 at 12:55 PM
To: Roger Gwinn <rgwinn@tfgnet.com>, Garrett Durst <garrett@naturalresourceresults.com>, Kevin Spesert <kspesert@sitesproject.org>
Subject: Sites Leg Visit Follow-ups

Here's the two items requested during our Leg visits:

1. Winter Run Life Cycle Model Report – I confirmed that the tool takes into account all Sites diversion and all Sites releases.
2. Table showing changes in operating criteria from 2017 EIR/EIS to current plans.

Please handle distribution as you see fit.

Jerry

Monthly Work Highlights: April 2023 – Project Integration

- Acted as day-to-day point of contact for Reclamation including coordinating the analysis needed for the Biological Assessment, Financial Assistance for WIIN Act funds, and the NEPA process and joint EIR/EIS. Led meetings required between the Authority and Reclamation.
- Continued to support the EPP on the EIR/EIS, including the development and revision of responses to comments, finalizing modeling for the Final EIR/EIS, and ongoing AB52 consultation. Continue coordination with Reclamation, USFWS, NMFS, USACE, State Water Board, and CDFW. Continue development of permit applications and approach strategies for referenced agencies.
- Continued to support the EPP in the review of the USFWS/NMFS Biological Assessment and CDFW Incidental Take Permit and other permitting deliverables. Coordinated the review process with Reclamation.
- Continued development of ongoing geotechnical investigations, including coordination with geotechnical services provider, engineering and environmental teams, real-estate, and Sites agents.
- Continuation of engagement with landowners and local agencies for field access to support project development activities, including coordination of field activities with geotechnical and environmental teams.
- Ongoing coordination on construction packages, discussion of schedule developed to be submitted with WSIP application.
- Worked with the scheduler to lead updates to the project schedule.
- Continued to coordinate with the EPA on the WIFIA loan application process and continued to develop content for the loan applications.
- Continued development of a program-wide Quality Management Plan
- Continued to develop the Sites-DWR-Reclamation Operations Agreement and the Prop 1 Benefit Agreements focused on flood control, recreation, and ecosystem benefits. Further efforts made on adaptive management plan exhibits.
- Led all GIS and IT efforts, including updating SharePoint site, day-to-day administration of project GIS and IT information, ROW tool, and real estate graphics requests. Worked on decision tracking application. Worked on building out AGOL solutions to support permitting and geotechnical investigations. Coordinated with Fugro and ICF GIS leads.
- Provided support on ad-hoc workgroup meetings, Reservoir Committee, and Board Meetings as needed.
- Continued coordination with real-estate and ICF on project-level survey efforts.
- Continued weekly meetings with water rights team, outreach to potential protestants, and prepare for testimony, coordinate with staff.
- Coordinate with CDFW on streambed permit and additional information requests for construction ITP and operations ITP.
- Coordinated and held meetings for construction scheduling, mitigation needs, survey timing, and access needs.

- Completed review and coordinated submittal of CAISO Interconnection Request; supported supplemental follow-up actions. Supported planning and permitting activities. Coordinated, prepared for, and participated in DSOD Technical Briefing.
- Engaged in ad hoc meetings with the Engineering service area providers to advance project objectives. Supported preparation of materials and attended the following meetings: April 2023 Agenda Development, O&E Workgroup, and Joint Reservoir Committee and Authority Board meetings.

From: Ali Elhassan [aelhassan@scvwa.org]
Sent: 5/2/2023 1:18:51 PM
To: Angela Bezzone [bezzone@mbkengineers.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Modeling documentation

Thanks Angela really appreciate it

From: Angela Bezzone <bezzone@mbkengineers.com>
Sent: Thursday, April 27, 2023 10:51 AM
To: Ali Elhassan <aelhassan@scvwa.org>
Cc: 'aforsythe (aforsythe@sitesproject.org)' <aforsythe@sitesproject.org>
Subject: RE: Modeling documentation

Hi Ali –

Attached are additional Sites documents, including:

1. Staff report dated April 21, 2023 which include an attached table summarizing the current assumptions for Percent Available Storage (or Capacity Interest) which is proportionate to the share of water diverted that would be made available to each Storage Partner.
2. A summary of demand assumptions for the different Storage Partner groups used in Project CalSim II modeling.
3. Slides providing information regarding through-Delta movement of Sites water. The second slide shows estimates of Sites exports and remaining available transfer capacity.

Please let me know if you have any questions or would like additional information.

Thanks,
Angela

From: Angela Bezzone
Sent: Thursday, April 6, 2023 2:10 PM
To: Ali Elhassan <aelhassan@scvwa.org>
Cc: aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Subject: FW: Modeling documentation

Hi Ali,

Apologies for the delay in getting back to you. We are still compiling information to send your way, particularly regarding demand assumptions used in the CalSim model. However, the Jacobs modeling team has posted the CalSim models and assumptions matrix to the link below for the No Action Alternative and Alternative 3 (the preferred alternative which assumes a Bureau of Reclamation investment of up to 25%).

We should have more information to send to you next week. Please let Ali and me know if you and your team have any questions about the model assumptions.

Thanks,

Angela Bezzone, P.E.

MBK Engineers
455 University Ave Suite 100
Sacramento, CA 95825

(916) 456-4400 – Phone
(775) 450-6408 – Cell
(916) 456-0253 – Fax

From: Micko, Steve <Steve.Micko@jacobs.com>
Sent: Thursday, April 6, 2023 2:01 PM
To: Angela Bezzone <bezzone@mbkengineers.com>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>; Leaf, Rob <Rob.Leaf@jacobs.com>
Subject: RE: Modeling documentation

Hi Angela,

At this link, I posted:

- NODOS_FEIRS2022_CALSIM_MMv5_NOACTION_051422.7z
  - CalSim II model for the No Action Alternative
- NODOS_FEIRS2022_CALSIM_MMv5_ALT3_051722.7z
  - CalSim II model for Alternative 3
- Sites_CalSim_AssumptionMatrix_20230210__ALT3_051722.xlsx
  - CalSim II assumptions matrix

Ali Elhassan should be able to access this link.

Thanks,
Steve

From: Ali Elhassan <aelhassan@scvwa.org>
Sent: Wednesday, April 5, 2023 3:25 PM
To: Angela Bezzone <bezzone@mbkengineers.com>
Subject: FW: Modeling documentation

Hi Angela, I sent this email to Ali but she is out of the office. Could you respond to my request.
Thanks

Ali

From: Ali Elhassan
Sent: Wednesday, April 5, 2023 3:22 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Modeling documentation

Hi Ali,
I am following up after our meeting a couple of weeks ago. I would like to know if you would be able to send me the available modeling documentation that we talked about to help us understand the model structure and assumptions made.
Please let me know if you have any questions.
Thanks
Ali

Ali Elhassan, Ph.D, PE
Director of Water Resources
Santa Clarita Valley Water Agency
26501 Summit Circle
Santa Clarita, Ca 91350
Direct (661) 705-3941 ext. 1248
Cell (661) -714-6286
E-Mail: aelhassan@scvwa.org

From: Marcus Maltby [mmaltby@BrwnCald.com]
Sent: 5/3/2023 10:40:25 AM
To: Jerry Brown [jbrown@sitesproject.org]; JP Robinette [jrobinette@sitesproject.org]; Luu, Henry [henry.luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Joe Trapasso [jtrapasso@sitesproject.org]; David Hubbard [Dhubbard@BrwnCald.com]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: Schedule Review - Sites

Good Morning All – Here is an agenda for our scheduling meeting tomorrow.

Agenda:

1. How we left last meeting – 4 action items
   a. Dave – Review schedule logic/general cleanup
   b. Agents – Review logic in area of responsibility
   c. Henry – Advance road design/pull out as separate activity
   d. Henry – Determine certainty on reservoir footprint/impacts on schedule
2. What's our status as of today – End of 2033
3. Temperature check – Agents comfort level with existing schedule as a baseline
4. Summary schedule – Format and level of detail for sharing and tracking outside of project team
5. Next Steps

-----Original Appointment-----
From: Marcia Kivett <MKivett@sitesproject.org>
Sent: Wednesday, March 8, 2023 11:31 AM
To: Marcia Kivett; Jerry Brown; JP Robinette; Luu, Henry; Alicia Forsythe; Kevin Spesert; Joe Trapasso; David Hubbard; Marcus Maltby
Subject: Schedule Review - Sites
When: Thursday, May 4, 2023 8:00 AM-10:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

We are moving this back a month because of the Baseline schedule pushing to June.

This is the only time that works for the 1st week of May. The DC trip is the last week of April, so I needed to look at May.

Henry - you have a "tentative" meeting on your calendar at 9:00.

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

Meeting ID: 267 951 877 383
Passcode: Tww9wq
Download Teams | Join on the web

Or call in (audio only)

+1 916-538-7066,,379245199# United States, Sacramento

Phone Conference ID: 379 245 199#

Find a local number | Reset PIN

Learn More | Meeting options

From: Quin La Capra [qlacapra@katzandassociates.com]
Sent: 5/3/2023 2:11:09 PM
To: Leahigh, John@DWR [John.Leahigh@water.ca.gov]; Mohr, Margaret@DWR [Margaret.Mohr@water.ca.gov]
CC: Sara M. Katz [skatz@katzandassociates.com]; Cooke, Robert@DWR [Robert.Cooke@water.ca.gov]; Kevin Spesert [kspesert@sitesproject.org]
Subject: RE: Video for Sites Reservoir Project

Hi John and Margaret,
I wanted to follow up to see if you had any questions about our request or if you wanted to set up a call to talk about this further?

Thank so much,
Quin

K&A
KATZ & ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Quin La Capra
Sent: Tuesday, April 18, 2023 9:49 AM
To: Leahigh, John@DWR <John.Leahigh@water.ca.gov>; Mohr, Margaret@DWR <Margaret.Mohr@water.ca.gov>
Cc: Sara M. Katz <skatz@katzandassociates.com>; Cooke, Robert@DWR <Robert.Cooke@water.ca.gov>
Subject: RE: Video for Sites Reservoir Project

Hi John,
Thanks so much for the connection!

Margaret—It's great to connect with you. As part of the Sites Reservoir environmental review process, we are creating three videos to launch following the EIR document certification process, which is expected to be mid to late June. Given that this project would not be possible without support from both state and federal partners, the theme of the first video is *collaboration*. We were hoping that a representative from DWR would join Jerry Brown, Sites Executive Director, and Don Bader, Area Manager for Reclamation's Northern CA Area Office in offering a recorded clip for this video.

Here are the talking points we'd hope they cover, but we are open to any changes you might need as part of your approval process:

Spokesperson on camera	In 2014, Proposition 1 dedicated $2.7 billion for investments in water storage projects, including Sites Reservoir.
Shots of different parts of California	67 percent of Californians supported Prop 1 funding and it also had bipartisan support from California leaders, who represent all parts of the state—north, south, rural, and urban. The state's investment in Sites also represents the first time California has secured dedicated water for the environment through surface storage.
Map or illustration of Sites location compared to other reservoirs	When operated in coordination with other Northern California reservoirs such as Shasta, Oroville, and Folsom, Sites Reservoir would increase flexibility, reliability, and resiliency of statewide water supplies in drier years.
Spokesperson on camera	Sites Reservoir will be an integral part of meeting California's long-term water needs for generations to come.

Sara and I will both be traveling to Maxwell tomorrow to film Jerry's portion and we have been in touch with the Public Affairs team at Reclamation, who are planning to film Don's portion separately and send it to us. We hope to have filming complete by the end of the month, but could be flexible based on schedules. We will be passing through Sacramento with our film crew on Wednesday or Friday, if that timing happens to work from you all. Otherwise, we'd be happy to coordinate filming at a later date or if you have a videographer, you could send us the filmed clip as Reclamation is doing.

Please let me know if you have any questions! I'd also be happy to set up a call to discuss this further.

Thank so much,
Quin

K&A
KATZ & ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Leahigh, John@DWR <John.Leahigh@water.ca.gov>
Sent: Tuesday, April 18, 2023 6:59 AM
To: Quin La Capra <qlacapra@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>; Mohr, Margaret@DWR <Margaret.Mohr@water.ca.gov>; Cooke, Robert@DWR <Robert.Cooke@water.ca.gov>; Leahigh, John@DWR <John.Leahigh@water.ca.gov>
Subject: RE: Video for Sites Reservoir Project

Quin,

I suggest you coordinate with Margaret Mohr lead from our PAO on the Sites video request with DWR executive.

John W. Leahigh, P.E.
Assistant Division Manager, Water Management
Division of Operations and Maintenance
State Water Project
O: (916) 902-9876
1516 Ninth Street,
Sacramento, CA 95814

From: Quin La Capra <qlacapra@katzandassociates.com>
Sent: Friday, April 14, 2023 3:48 PM
To: Cooke, Robert@DWR <Robert.Cooke@water.ca.gov>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: Video for Sites Reservoir Project

Hi Rob,
Thank you so much for helping us with our EIR video! As Sara mentioned, we would love to have you or another representative participate in our video focused on local, state, and federal collaboration on Sites Reservoir. Please see below for the script we drafted and let us know if you would like to change anything:

Spokesperson on camera	In 2014, Proposition 1 dedicated $2.7 billion for investments in water storage projects, including Sites Reservoir.
Shots of different parts of California	67 percent of Californians supported Prop 1 funding and it also had bipartisan support from California leaders, who represent all parts of the state—north, south, rural, and urban. The state's investment in Sites also represents the first time California has secured dedicated water for the environment through surface storage.
Map or illustration of Sites location compared to other reservoirs	When operated in coordination with other Northern California reservoirs such as Shasta, Oroville, and Folsom, Sites Reservoir would increase flexibility, reliability, and resiliency of statewide water supplies in drier years.
Spokesperson on camera	Sites Reservoir will be an integral part of meeting California's long-term water needs for generations to come.

Let us know if you have any questions and we will look out for an update on who will be available.

Thanks so much,
Quin

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Rob Kunde [rkunde@wrmwsd.com]
Sent: 5/3/2023 4:49:13 PM
To: Charles Gardiner [Charles@catalystgroupca.com]
CC: Jerry Brown [jbrown@sitesproject.org]
Subject: Re: Governance Ad Hoc Meeting of May 3, 2023 - Phase 5 Governance

Charles:

I agree with your summary.

Rob K.

From: Charles Gardiner <Charles@catalystgroupca.com>
Sent: Wednesday, May 3, 2023 4:38 PM
To: Rob Kunde <rkunde@wrmwsd.com>
Cc: Jerry Brown <jbrown@sitesproject.org>
Subject: RE: Governance Ad Hoc Meeting of May 3, 2023 - Phase 5 Governance

Thanks Rob. I think your points would argue for continuation of the governance structure proposed for design and construction – delegation of operations responsibilities to the RC and shared decision-making for the three conflict scenarios (recreation, communications/litigation, and changing participant shares). Let us know if you see it differently.

Charles

From: Rob Kunde <rkunde@wrmwsd.com>
Sent: Wednesday, May 3, 2023 4:20 PM
To: Charles Gardiner <Charles@catalystgroupca.com>
Cc: Jerry Brown <jbrown@sitesproject.org>
Subject: Governance Ad Hoc Meeting of May 3, 2023 - Phase 5 Governance

Charles:

Regarding your last question today, i.e. form of governance in Phase 5, it is reasonable to anticipate the following scenarios involving operations (you wanted examples):

1. Local interests want a substantial budget increase for recreation opportunities; RPC members balk at the cost.
2. There will be regulatory and NGO pressures to dedicate more Sites water to salmon cold water pool; RPC members want to increase their Sites yield to provide housing water, or decrease their Sites yield to save water for critically dry periods.
3. Colusa County's share of Sites is full, but still wants to capture additional watershed runoff for local needs.

Each represents a conflict scenario. A Governance structure with both local and export agencies working collaboratively will be better for resolving these conflicts, i.e. a continuation of local/export agency joint governance, than an "operating agency" or "SPA with a Participant Committee". Both "blocs" need to be involved and have a vote.

Robert J. Kunde, P.E.
Retired Annuitant
Wheeler Ridge-Maricopa Water Storage District
cell: 661-345-3719 email: rkunde@wrmwsd.com

Biweekly EIR/EIS Meeting - Agenda

Affordable Water, Sustainably Managed

Our Core Values – Safety, Trust and Integrity, Respect for Local Communities, Environmental Stewardship, Shared Responsibility and Shared Benefits, Accountability and Transparency, Proactive Innovation, Diversity and Inclusivity
Our Commitment – To live up to these values in everything we do

Meeting Information:

Date:	May 4, 2023	**Location:**	Teams
Start Time:	11:00 a.m.	**Finish Time:**	12:00 p.m.
Purpose:	RDEIR/SDEIS Status and Coordination		

Meeting Participants:

Monique Briard, ICF	Ali Forsythe, Sites Authority	Laurie Warner Herson, Integration
Ariel Cohen, HDR	Melissa Harris, ICF	

Agenda:

Discussion Topic	Topic Leader	Time Allotted
1. Schedule a. Tribal input and AB52 work plan (see attached) b. WQ efforts – steps for resolution (Attorney_Client WQ Steps)	Laurie	15 min
2. PC Outstanding Issues: a. Explaining why the future No Project/No Action is the same as the existing conditions (2020) baseline b. Growth-inducing impacts as discussion does not necessarily address the long-term increases under normal conditions for water suppliers other than MWD c. Where to use the insert for a Response to comment or in one of the Master Responses reviewed by Marc (third document provided for Monday's Chapter 2 & 3 meeting) d. Growth-Inducing Impacts	Melissa	15 min
3. Status of revisions to the Admin Final EIR/EIS:	Melissa	15 min

EIR/EIS Chapter	Status
Executive Summary	In progress: cross references to Chapter 2
Chapter 2: Project Description and Alternatives	In progress: multiple comments current identified as "being worked on in agency discussion meeting;" need

	updated information for Table 2-8 "General Construction Timing and Sequencing" (Integration)
Chapter 6: Surface Water Quality	In progress
Chapter 11: Aquatic Biological Resources	In progress
Chapter 15: Agriculture and Forestry Resources	Reclamation reviewing App 15A, could impact findings of the LESA and determination in Chapter 15
Chapter 22: Cultural Resources	Undergoing review
Chapter 23: Tribal Cultural Resources	Undergoing review
Chapter 28: Climate Change	Pending resolution of possible post-2030 future scenarios
Chapter 31: Cumulative Impacts	Pending resolution of possible post-2030 future scenarios
Chapter 32: Other Required Analyses	Pending resolution of growth-inducing effects
Master Response 1: CEQA & NEPA, Reg Requirements, General	Need updated information for Figure MR1-1 "Sites Reservoir Project Anticipated Permitting Timeline" (Integration)
Master Response 2: Alternatives Description and Baseline	Need to determine where and how to add the table to support the fish benefits (Integration)
Master Response 4: Water Quality	In progress
Master Response 5: Aquatic Biological Resources	In progress
Master Response 7: Tribal Coordination, Consultation, and Engagement	Undergoing review
Master Response 9: Alternatives Development	In process

4. Reclamation 2017 RTCs — Laurie — 5 min
5. Reclamation Coordination – agenda items for next meeting — All — 5 min
   a. FPPA?
   b. Review of substantial edits to WQ

From: Risse, Danielle [Danielle.Risse@hdrinc.com]
Sent: 5/2/2023 4:38:56 PM
To: Wolf, Barbara [Barbara.Wolf@icf.com]; Crawford, Karen [Karen.Crawford@icf.com]
CC: Melissa.Harris@icf.com; Janis Offermann [jaoffermann@montrose-env.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Subject: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Hi all,
I've taken Ali off of this email chain to lessen her Inbox backup ☺.

I believe everyone on this email now has access to our cultural confidential folder where the working EIS/EIR documents are located that we will be reviewing and revising over the next 3 weeks or so. These subject documents are listed below and located here on sharepoint: Environmental Planning Team - EIR_EIS_2023 Final Review - All Documents (sharepoint.com)

First up is Karen's review of the documents. Karen you have until COB Friday, May 5th to complete your review, after which Barbara will work on revisions. Karen, please respond to this group when you have completed your review. The documents to be reviewed are listed in the table below. All edits/comments should be made in track changes on the sharepoint versions. If you need to take any of these documents off of sharepoint to work on for any reason, please let this team know so we do not end up with version control issues.

Document/Chapter	Task	Personnel/Schedule
EIR/EIS Chapter 22. Cultural Resources	Review and revise	• Karen Crawford, ICF Consultant Team – completes review COB Friday, May 5th • Barbara Wolf, ICF – completes revisions following Karen's review by COB Friday, May 12th • Karen Crawford – completes back check by COB Wednesday, May 17th • Susan Lassell (ICF), Melissa Harris (ICF), Janis Offermann, Ali Forsythe, and Laurie Warner Herson – complete review by COB Friday, May 19th • Janis Offermann and Susan Lassell (backup) – complete minor revisions and/or responds to comments, if needed, COB Tuesday, May 23
EIR/EIS Appendix 22A, Cultural Resources	Review, but only revise introductory paragraph that clarifies this appendix is a previous document that has relevant data, but may not present that data following modern standards	
EIR/EIS Chapter 23. Tribal Cultural Resources	Review and revise	
Master Response 7, Tribal Coordination, Consultation, and Engagement	Review and revise	

As a reminder, the review/revisions should focus on the following:
- Remove racist/colonial/insensitive language and framework (don't use prehistoric or precontact)
- Be more sensitive to place, time, and resources and how these are viewed by tribes

One question for Laurie and Melissa. I see we only have a pdf for Appendix 22A. I realize this is the document that we will be reviewing and only updating the introductory paragraph, but can we go ahead and add a Word version of the introductory paragraph that we can revise to our working folder? I see a Word version of this paragraph is located in the Public DEIS/DEIR folders on sharepoint here: Environmental Planning Team - RDEIR-SDEIS - App22A - Cultural Resources - All Documents (sharepoint.com).

Thanks, Danielle

Danielle Risse, M.A.
Office 916-679-8796 **Mobile** 707-372-5007

hdrinc.com/follow-us

Project Manager: Monique Briard
EIR/EIS Lead: Melissa Harris

Admin Final Backcheck Details – For Authority and Reclamation Review

Documents to Be Delivered

- Vol 1 (Chapters): Word version with track changes since the RDEIR/SDEIS
- Vol 2 (Appendices): Word version with track changes since the RDEIR/SDEIS
- Vol 3 (Master Responses ~~and Comment Letters and Responses~~): Word version with tracks since the Admin Final EIR/EIS
- Vol 3 (Comment Letters and Responses): Clean Word version
- Draft Finalization Documents (MMRP/MMEP): Clean Word versions

Review Process

- Reviewers will make comments on Vol 1, 2 and 3 via comment-bubbles
- ICF will use track-changes to make changes in Vol 1, 2 and 3 and response to comments

Not Included for Schedule

- Reclamation backcheck review of documents prior to SES/Solicitor review (+1 week)
- Comment Reports for changes made since first Admin Final (+2 weeks)

Scheduled Delivery*: *Three weeks after all revisions complete: June 14

Final EIR/EIS Details – For Acceptance for the Authority and Public Release

Documents to Be Delivered

- Vol 1 (Chapters): ADA compliant PDF with simple track changes since the RDEIR/SDEIS
- Vol 2 (Appendices): ADA compliant PDF with simple track changes since the RDEIR/SDEIS
- Vol 3 (Master Responses and Comment Letters and Responses): ADA compliant clean PDF
- Draft Finalization Documents (MMRP/MMEP): ADA compliant clean PDF

Not Included for Schedule

- Comment Reports for changes made since Admin Final Backcheck (+2 weeks)

Scheduled Delivery*: *August 30 (following 10-day Public Noticing Period for Public Meeting)

Items for Resolution

- ~~Board Packet deadline for approval (10-day CEQA requirement)~~
- ~~ADA requirements for publication Board approval (ICF understanding is that ADA is required)~~
- Review and Revision of Chapter 22, 23, and Master Response 7
- Water Quality revisions
- Growth-Inducing Potential of the Project (potential impacts to Cumulative Impacts, Climate Change, GHG, Land Use, Agriculture, Air Quality, Water Quality, Traffic, Public Service and Utilities, as well as most master responses)
- Proving future conditions for Water Quality, Fluvial Geomorphology, Groundwater, and Biological Resources (e.g., wetlands, wildlife and aquatic resources)

Accepted Risks

All float removed from the schedule, so any delays would result in a changed schedule, with a minimum day-for-day impact of delays

Short and timely reviewer turn arounds are necessary to meet tight timeline

Cooperating Agencies will see Admin Final at the same time as Reclamation, Legal, and the Authority

Admin Version will be part of public record

Expedited finalization of documents may result in late changes not being incorporated throughout this version of the Admin Final EIR/EIS

Critical Path: Live edit meetings and comment resolution extend beyond March 31

Critical Path: Reviewers do not complete review per schedule will delay deliverables

Critical Path: Change in process or scope will delay deliverables

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 5/4/2023 10:46:49 AM
To: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: EPP Workgroup Agenda

Yes, just wanted to let you know we're working on it ☺

From: Marcia Kivett <MKivett@sitesproject.org>
Sent: Thursday, May 4, 2023 10:39 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: Re: EPP Workgroup Agenda

Thanks. I do not post the presentation until after the meeting. The only thing I need for tomorrow is the workgroup agenda.

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Thursday, May 4, 2023 10:36 AM
To: Marcia Kivett <MKivett@sitesproject.org>; Patel, Trishna <Trishna.Patel@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>
Subject: RE: EPP Workgroup Agenda

Hi Marcia,

Our EPP EIR/EIS presentation will be a continuation of the EIR/EIS briefings we've been giving and should be consistent with the prior EPP WG agenda items and the May Board agenda:

1.1 Review and comment on the Final EIR/EIS additional status briefing in preparation for approval of Project - Findings and Statement of Overriding Considerations

I'm preparing the draft presentation as well as RC/AB staff report in the next couple of days.

Have a good day -

Laurie

From: Marcia Kivett <MKivett@sitesproject.org>
Sent: Thursday, May 4, 2023 10:10 AM
To: Patel, Trishna <Trishna.Patel@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Spranza, John <john.spranza@hdrinc.com>
Subject: Re: EPP Workgroup Agenda

Laurie/John, are you in the loop with the EPP Agenda? I will need to post it tomorrow.

John, I hope you are feeling better today.

Trishna, I see you made some edits shown below. Thank you.

Ali, I hope feel better soon. I know you have the tour tomorrow and might not be in the position to approve before posting.

05-May

1. Discussion and Information Items:

1. Review Construction update for Biological Assessment and Section 2081
2. Review update on Water Rights Permit application. Review update on meetings with State Board staff and progress on the development of the Application and Water Availability Analysis.
3. Review update on Admin Draft EIR/EIS including updates to Key Sections such as Local Issues.
4. Review the Mitigation Cost Estimate.

From: Marcia Kivett <MKivett@sitesproject.org>
Sent: Wednesday, May 3, 2023 6:05 AM
To: Patel, Trishna <Trishna.Patel@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: EPP Workgroup Agenda

HI!!

Will you be ready to post the EPP Workgroup agenda and any attachments this Friday, May 5?

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/5/2023 11:36:29 AM
To: David Hubbard [Dhubbard@BrwnCald.com]
CC: Marcus Maltby [mmaltby@brwncald.com]; Marcia Kivett [MKivett@sitesproject.org]
Subject: Re: Sites Reservoir - Schedule Update to May 1, 2023

The strike team next meets on 5/16. Can I get an update to give to them with delays relative to the original January 2023 baseline we gave them? Need by noon Tuesday 5/9.

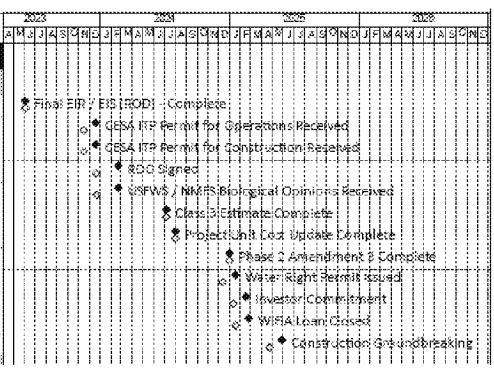
From: David Hubbard <Dhubbard@BrwnCald.com>
Date: Friday, May 5, 2023 at 9:31 AM
To: Marcus Maltby <mmaltby@brwncald.com>, JP Robinette <jrobinette@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, conner <conner@cmdwest.com>, "Edwards, Dawn" <dawn.edwards@hdrinc.com>, "Risse, Danielle" <danielle.risse@hdrinc.com>, "Luu, Henry" <henry.luu@hdrinc.com>, "jelica.arsenijevic" <jelica.arsenijevic@hdrinc.com>, "Spranza, John" <john.spranza@hdrinc.com>, Kevin Spesert <kspesert@sitesproject.org>, "laurie.warner.herson" <laurie.warner.herson@phenixenv.com>, Marcia Kivett <MKivett@sitesproject.org>, "bezzone@mbkengineers.com" <bezzone@mbkengineers.com>, Cheyanne Harris <CHarris@BrwnCald.com>, Justin Davies <JDavies@BrwnCald.com>, Lee Lambert <LLambert@BrwnCald.com>, Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>
Cc: Jerry Brown <jbrown@sitesproject.org>, Joe Trapasso <jtrapasso@sitesproject.org>, Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Howdy Everyone – have worked with you all to update the Schedule through end of April 2023 and have posted a Schedule with comparison to last month along with variances on finish dates.
Now I'm giving you all a chance to have another look and let me know if you'd like to make any changes before we finalize this update and move forward.

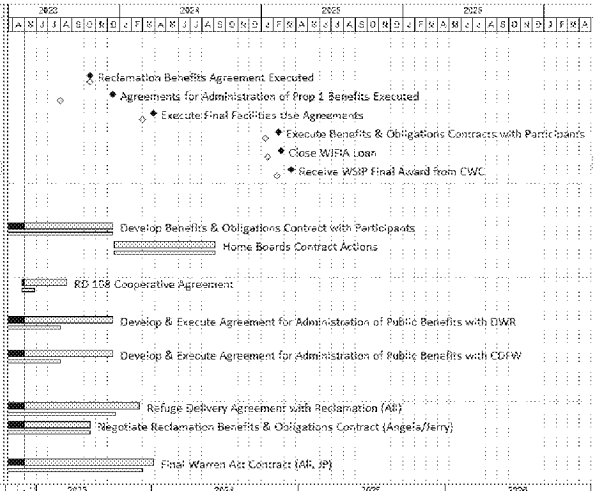
See the link here: Sites Schedule Comparison to Prior Month_2023.05.05.pdf

Also showing here some snips of Milestones and Activities that have slipped for a quick review and if anyone wants to look into these further, just let me know.
Several are on the Work Plan Progress Report (one pager) that gets shared with others outside this group.

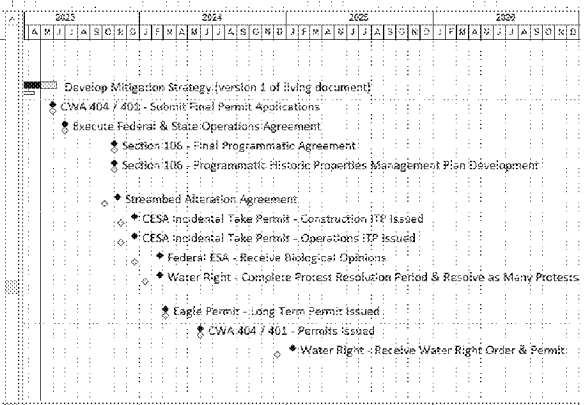
#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance - LM Finish
1	**Sites Reservoir Project: May 2023**						
2	Project Milestones						
3	MS-1200	Final EIR / EIS (ROD) - Complete		02-Jun-23	0	02-Jun-23	0
4	MS-1325	CESA ITP Permit for Operations Received		20-Dec-23	0	16-Nov-23	-22
5	MS-1340	CESA ITP Permit for Construction Received		20-Dec-23	0	16-Nov-23	-22
6	MS-1300	ROD Signed		20-Feb-24	0	21-Dec-23	-40
7	MS-1150	USFWS / NMFS Biological Opinions Received		20-Feb-24	0	21-Dec-23	-40
8	MS-1700	Class 3 Estimate Complete		05-Jul-24	0	05-Jul-24	0
9	MS-1450	Project Unit Cost Update Complete		30-Jul-24	0	30-Jul-24	0
10	MS-5000	Phase 2 Amendment 3 Complete		31-Dec-24*	0	31-Dec-24	0
11	MS-1400	Water Right Permit Issued		17-Jan-25*	0	10-Dec-24	-25
12	MS-1500	Investor Commitment		14-Feb-25	0	10-Jan-25	-25
13	MS-1600	WIFIA Loan Closed		21-Feb-25	0	17-Jan-25	-25
14	MS-3000	Construction Groundbreaking	28-May-25		0		-25



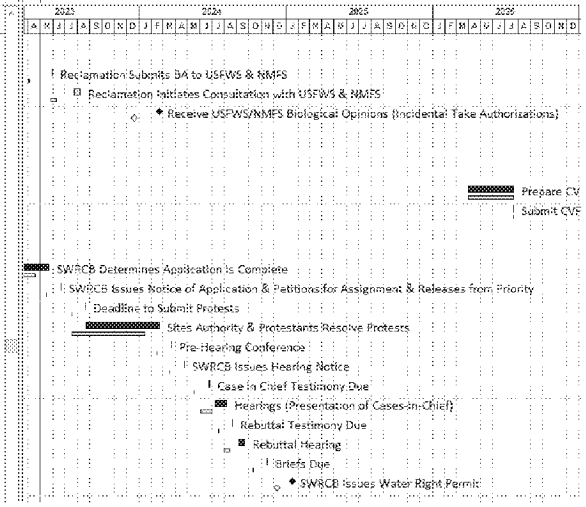
#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance LM Finish
78		**Project Agreements & Funding**					
79		**Key Deliverables**					
80	KD-1260	Reclamation Benefits Agreement Executed		17-Oct-23	0	17-Oct-23	0
81	KD-1520	Agreements for Administration of Prop 1 Benefits Executed		15-Dec-23	0	31-Jul-23	-96
82	KD-1230	Execute Final Facilities Use Agreements		28-Mar-24	0	29-Feb-24	-20
83	KD-1300	Execute Benefits & Obligations Contracts with Participants		14-Feb-25	0	10-Jan-25	-25
84	KD-2600	Close WIFIA Loan		21-Feb-25	0	17-Jan-25	-25
85	KD-1310	Receive WSIP Final Award from CWC		18-Mar-25	0	11-Feb-25	-25
86		**Inter-Agency Agreements**					
87		**Benefits & Obligations Contract with Participants**					
88	BO-1300	Develop Benefits & Obligations Contract with Participants	20-Mar-23 A	15-Dec-23	160	15-Dec-23	0
89	BO-1400	Home Boards Contract Actions	18-Dec-23	03-Sep-24	180	03-Sep-24	0
90		**Facility Use Agreements**					
91	FO-1040	RD 108 Cooperative Agreement	24-Apr-23 A	18-Aug-23	78	26-May-23	-58
92		**Agreements for Administration of Public Benefits**					
93	PB-1100	Develop & Execute Agreement for Administration of Public Benefits with DWR	31-Mar-22 A	15-Dec-23	160	31-Jul-23	-96
94	PB-1250	Develop & Execute Agreement for Administration of Public Benefits with CDFW	31-Mar-22 A	15-Dec-23	160	31-Jul-23	-96
95		**Federal Funding Committment**					
96	Refuge	Refuge Delivery Agreement with Reclamation (All)	12-Dec-22 A	20-Feb-24	201	21-Dec-23	-39
97	WIIN-1170	Negotiate Reclamation Benefits & Obligations Contract (Angela/Jerry)	16-Dec-22 A	17-Oct-23	119	17-Oct-23	0
98		**US Bureau of Reclamation Warren Act**					
99	FED-090	Final Warren Act Contract (All, JP)	01-Jun-21 A	28-Mar-24	231	29-Feb-24	-20



#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance LM Finish
133		**Permitting**					
134		**Key Deliverables**					
135	KD-1460	Develop Mitigation Strategy (version 1 of living document)	21-Nov-22 A	09-Jun-23	29	14-Apr-23	-39
136	KD-1390	CWA 404 / 401 - Submit Final Permit Applications		31-May-23	0	31-May-23	0
137	KD-1240	Execute Federal & State Operations Agreement		30-Jun-23	0	30-Jun-23	0
138	KD-1350	Section 106 - Final Programmatic Agreement		31-Oct-23	0	31-Oct-23	0
139	KD-1360	Section 106 - Programmatic Historic Properties Management Plan Development		31-Oct-23	0	31-Oct-23	0
140	KD-1420	Streambed Alteration Agreement		07-Nov-23	0	06-Oct-23	-22
141	KD-1370	CESA Incidental Take Permit - Construction ITP Issued		20-Dec-23	0	16-Nov-23	-22
142	KD-1380	CESA Incidental Take Permit - Operations ITP Issued		20-Dec-23	0	16-Nov-23	-22
143	KD-1340	Federal ESA - Receive Biological Opinions		20-Feb-24	0	21-Dec-23	-40
144	KD-1320	Water Right - Complete Protest Resolution Period & Resolve as Many Protests as Possible		21-Feb-24	0	16-Jan-24	-26
145	KD-1440	Eagle Permit - Long Term Permit Issued		06-Mar-24	0	06-Mar-24	0
146	KD-1400	CWA 404 / 401 - Permits Issued		31-May-24	0	31-May-24	0
147	KD-1330	Water Right - Receive Water Right Order & Permit		17-Jan-25	0	10-Dec-24	-25
148	KD-1410	Levee & Flood Permits - Section 408 & CVFPB Encroachment Permits Issued		08-Jul-27	0	08-Jul-27	0



#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance LM Finish
157		**USFWS & NMFS Endangered Species Act Section 7**					
158	BA-200	Prepare Draft BA	11-Jan-21 A	10-Mar-23 A	0	10-Mar-23	0
159	BA-210	Reclamation Submits BA to USFWS & NMFS	30-May-23	30-May-23	1	03-Apr-23	-46
160	BA-215	Reclamation Initiates Consultation with USFWS & NMFS	25-Jul-23	07-Aug-23	10	09-Jun-23	-46
161	BA-220	Receive USFWS/NMFS Biological Opinions (Incidental Take Authorizatio		20-Feb-24	0	21-Dec-23	-40
162		**USFWS Bald Eagle Protection Act**					
163		**State Agency Agreements & Permits**					
164		**Central Valley Flood Protection Board (CVFPB) Levee Encroachment**					
165	CVFPB-200	Prepare CVFPB Permit	01-Apr-26	22-Jul-26	81	22-Jul-26	0
166	CVFPB-210	Submit CVFPB Permit	23-Jul-26	23-Jul-26	1	23-Jul-26	0
167	CVFPB-220	Receive CVFPB Permit		08-Jul-27	0	08-Jul-27	0
168		**SWRCB Water Right Permit**					
169	WRP-115a	SWRCB Determines Application is Complete	12-May-22 A	22-May-23	16	17-Apr-23	-25
170	WRP-115b	SWRCB Issues Notice of Application & Petitions for Assignment & Rele	21-Jun-23	21-Jun-23	1	16-May-23	-25
171	WRP-115c	Deadline to Submit Protests	22-Aug-23	22-Aug-23	1	18-Jul-23	-25
172	WRP-116	Sites Authority & Protestants Resolve Protests	25-Aug-23	21-Feb-24	122	16-Jan-24	-25
173	WRP-117a	Pre-Hearing Conference	22-Mar-24	22-Mar-24	1	15-Feb-24	-25
174	WRP-117b	SWRCB Issues Hearing Notice	23-Apr-24	23-Apr-24	1	19-Mar-24	-25
175	WRP-117c	Case in Chief Testimony Due	24-Jun-24	24-Jun-24	1	17-May-24	-25
176	WRP-117d	Hearings (Presentation of Cases-in-Chief)	10-Jul-24	06-Aug-24	20	01-Jul-24	-25
177	WRP-117e	Rebuttal Testimony Due	21-Aug-24	21-Aug-24	1	17-Jul-24	-25
178	WRP-117f	Rebuttal Hearing	06-Sep-24	19-Sep-24	10	14-Aug-24	-25
179	WRP-117g	Briefs Due	15-Nov-24	15-Nov-24	1	11-Oct-24	-25
180	WRP-120	SWRCB Issues Water Right Permit		17-Jan-25	0	10-Dec-24	-25



Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

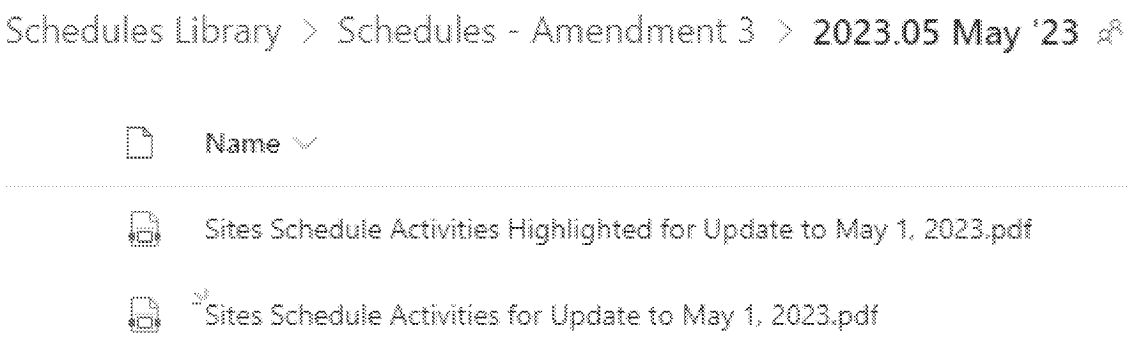
From: David Hubbard
Sent: Monday, May 1, 2023 10:46 AM
To: Marcus Maltby <mmaltby@BrwnCald.com>; jrobinette@sitesproject.org; Alicia Forsythe <aforsythe@sitesproject.org>; Conner McDonald <conner@cmdwest.com>; Edwards, Dawn <dawn.edwards@hdrinc.com>; Danielle Risse (danielle.risse@hdrinc.com) <danielle.risse@hdrinc.com>; Henry Luu <henry.luu@hdrinc.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Spranza, John

<john.spranza@hdrinc.com>; Kevin Spesert (kspesert@sitesproject.org) <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Marcia Kivett (MKivett@sitesproject.org) <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris <CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>
Cc: jbrown@sitesproject.org; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: Sites Reservoir - Schedule Update to May 1, 2023

Good Monday Morning, Sites Team - We've made it through another month with April 2023 now behind us and it's time to update our Sites Reservoir Project Schedule, moving our Data Date to May 1, 2023.
Below folder (follow link) contains reference Schedules for use in updating to May 1, 2023. Also added screenshots below containing the activities we need to update - with start dates, finish dates or continue as ongoing during the update period for the month of April 2023.
Email replies are fine and we also have some Teams calls on the calendar to collaborate. Marcia has done very well to get Schedule update sessions for this week, beginning today. Looking forward to reconnecting and talking Schedule with you all.

If you see that I've missed someone on distribution, please share with them and let me know who to add.

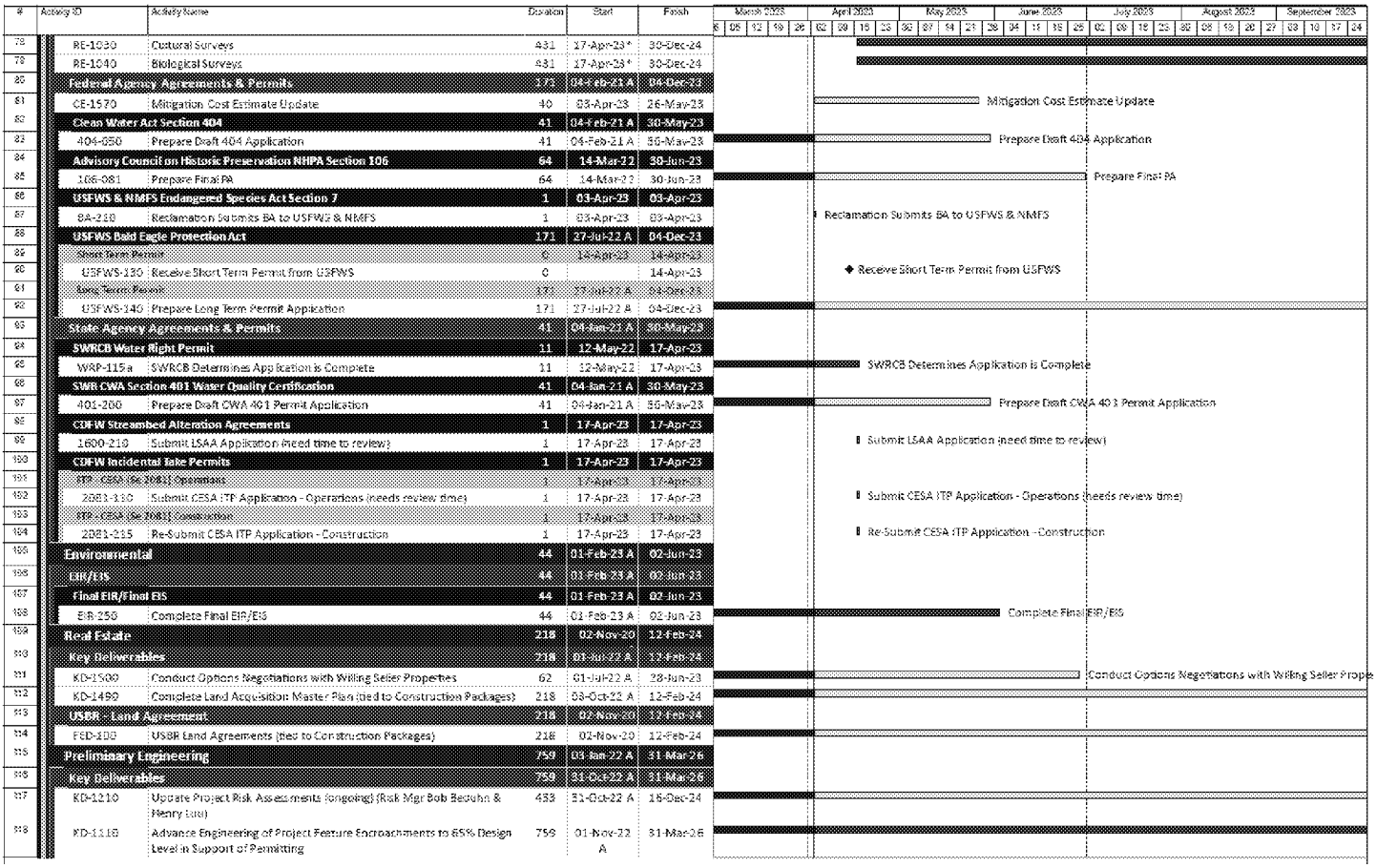
2023.05 May '23

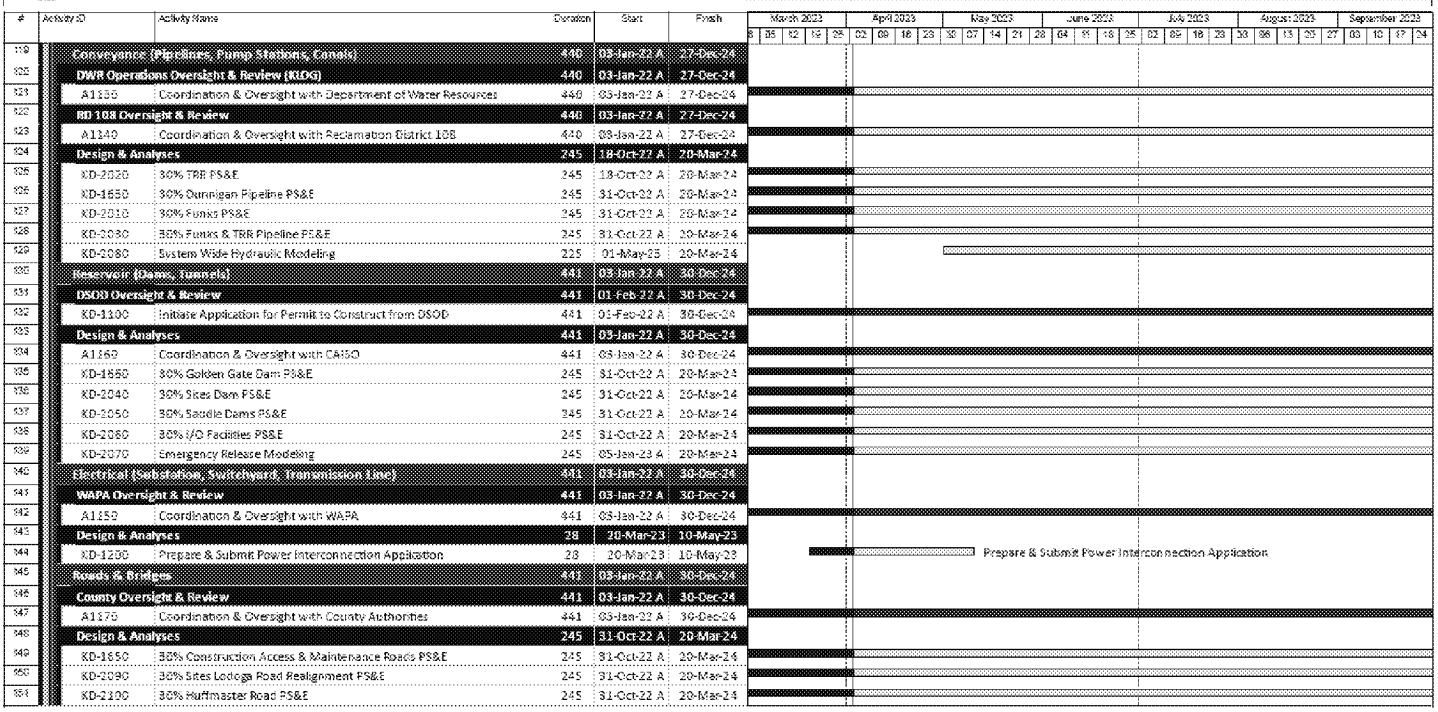


Sites Reservoir Project

Schedule

#	Activity ID	Activity Name	Duration	Start	Finish
1		**Sites Reservoir Project: May 2023**	759	01-Sep-20 A	31-Mar-26
2		Geotech Program	441	03-Jan-22 A	30-Dec-24
3		**Real Estate**	55	03-Jan-23 A	19-Jun-23
4		**Land Access Agreements**	55	03-Jan-23 A	19-Jun-23
5		**Colusa County**	55	03-Jan-23 A	19-Jun-23
6	LAAC-1300	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
7		**Yolo County**	55	03-Jan-23 A	19-Jun-23
8	LAAY-1300	Yolo Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
9		**Glenn County**	55	03-Jan-23 A	19-Jun-23
10	LAAG-1300	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
11		**Geotechnical Engineering**	430	02-Jan-23 A	11-Dec-24
12		**Geotechnical Investigations**	430	02-Jan-23 A	11-Dec-24
13		**Test Pits & Trenches**	420	17-Apr-23	11-Dec-24
14	TPT-1200	Geotech Test Pits & Trenches - Short Term Permit Window (Delta/Yolo)	420	17-Apr-23	11-Dec-24
15		**Work Packages**	84	02-Jan-23 A	30-Jun-23
16	GWP-1300	Geotech Work Package #2	84	02-Jan-23 A	30-Jun-23
17		**Preliminary Engineering**	441	03-Jan-22 A	30-Dec-24
18		**Key Deliverables**	438	05-Jan-22 A	30-Dec-24
19	A1180	Coordination & Oversight: DWR, WAPA, CAISO, UPRR, Caltrans	438	05-Jan-22 A	30-Dec-24
20		**Cost Estimate**	255	30-Jan-23 A	03-Apr-24
21		**Class 4 Cost Estimate Variance Reporting**	255	30-Jan-23 A	03-Apr-24
22	C4E-1000	Class 4 Cost Estimate Variance Reporting (reset to Sort G)	255	30-Jan-23 A	03-Apr-24
23		Project Development	759	01-Sep-20 A	31-Mar-26
24		**Planning**	188	01-Sep-20 A	31-Dec-23
25		**Key Deliverables**	188	24-Jan-22 A	31-Dec-23
26	KD-1330	Complete Updated Master Project Schedule (Baseline Established)	20	24-Jan-22 A	28-Apr-23
27	KD-1290	Formalize AB/RC Governance & Delegation of Authority for Phase 3 (Brown)	279	06-Sep-22 A	31-Dec-23
28		**NAHC/Local Tribes AB 52 Consultation**	68	01-Sep-20 A	07-Jul-23
29	STA-120	NAHC/Local Tribes AB 52 Consultation	68	01-Sep-20 A	07-Jul-23
30		**Reservoir Operations & Modeling**	429	03-Jan-22 A	10-Dec-24
31		**Final Sites DWR/Reclamation Operating Agreement**	64	19-Apr-22 A	30-Jun-23
32	OP-1505	Final Operating Agreement - Sites/DWR/Reclamation	64	19-Apr-22 A	30-Jun-23
33		**Water Rights Modeling**	429	03-Jan-22 A	10-Dec-24
34	A1200	Water Rights Modeling Support	429	03-Jan-22 A	10-Dec-24
35	A1210	Documentation for Water Rights	429	03-Jan-22 A	10-Dec-24
36		**Refined Daily Operations Model**	5	03-Oct-22 A	07-Apr-23
37	A1230	Refined Daily Operations Model	5	03-Oct-22 A	07-Apr-23
38		**Sites Specific Model**	220	10-Apr-23	21-Feb-24
39	OS-1150	Develop Participant Specific Model	220	10-Apr-23	21-Feb-24
40		**Project Agreements & Funding**	516	01-Jun-21 A	28-Jun-24
41		**Inter-Agency Agreements**	231	01-Jun-21 A	29-Feb-24
42		**Benefits & Obligations Contract with Participants**	180	20-Mar-23	15-Dec-23
43	BC-1300	Develop Benefits & Obligations Contract with Participants	180	20-Mar-23	15-Dec-23
44		**Facility Use Agreements**	25	24-Apr-23	26-May-23
45	FO-1640	RD 108 Cooperative Agreement	25	24-Apr-23	26-May-23
46		**Agreements for Administration of Public Benefits**	84	31-Mar-22 A	31-Jul-23
47	PB-1100	Develop & Execute Agreement for Administration of Public Benefits with DWR	84	31-Mar-22 A	31-Jul-23
48	PB-1200	Develop & Execute Agreement for Administration of Public Benefits with CDFW	84	31-Mar-22 A	31-Jul-23
49		**Federal Funding Commitment**	184	12-Dec-22	21-Dec-23
50	Refuge	Refuge Delivery Agreement with Reclamation	182	12-Dec-22	21-Dec-23
51	WBN-1170	Negotiate Reclamation Benefits & Obligations Contract	189	16-Dec-22	17-Oct-23
52		**US Bureau of Reclamation Warren Act**	231	01-Jun-21 A	29-Feb-24
53	FED-990	Final Warren Act Contract (AB, JF)	231	01-Jun-21 A	29-Feb-24
54		**Federal Funding**	516	10-Jun-22 A	28-Jun-24
55		**WIIN Act FAA**	59	10-Jun-22 A	31-May-23
56	WBN-1190	Review by Bureau of Reclamation (Joe, Cathy)	59	10-Jun-22 A	31-May-23
57		**WIFIA Loan**	247	04-Apr-23	25-Mar-24
58		WIFIA Negotiation	247	04-Apr-23	25-Mar-24
59	WIFIA-210	Term Sheet & Document Development	247	04-Apr-23	25-Mar-24
60	WIFIA-220	Final Rating Assessment (Depends on Final Rebalancing)	247	04-Apr-23	25-Mar-24
61	WIFIA-240	WIFIA Loan Negotiation	244	04-Apr-23	25-Mar-24
62		**USDA Loan**	516	02-Sep-22 A	28-Jun-24
63	USDA-1060	Satisfy USDA Loan Conditions	516	02-Sep-22 A	28-Jun-24
64		**State Funding (Water Storage Investment Program, WSIP)**	15	03-Apr-23	21-Apr-23
65		**WSIP Early Funding Administation**	15	03-Apr-23	21-Apr-23
66	WSIP-1250	WSIP Quarterly Report (Period Jan 1, 2023 through March 31, 2023)	15	03-Apr-23	21-Apr-23
67		**Local Funding**	0	03-Apr-23	03-Apr-23
68		**Finance Check Ins**	0	03-Apr-23	03-Apr-23
69	FC-1280	Financing Check-In Q1-2023	0		03-Apr-23
70		**Bank Financing (if needed)**	35	03-Apr-23	19-May-23
71	BF-1100	Prepare & Issue RFP to Prospective Lenders	15	03-Apr-23	21-Apr-23
72	BF-1200	Review & Select Lender(s)	20	24-Apr-23	19-May-23
73		**Permitting**	441	04-Jan-21 A	30-Dec-24
74		**Key Deliverables**	10	21-Nov-22	14-Apr-23
75	KD-1460	Develop Mitigation Strategy (version 1 of living document)	10	21-Nov-22	14-Apr-23
76	KD-1430	Eagle Permit - Short Term & Nest Permit Issued	0		14-Apr-23
77		**Field Surveys**	431	17-Apr-23	30-Dec-24





#	Activity ID	Activity Name	Duration	Start	Finish
78	RE-1030	Cultural Surveys	431	17-Apr-23*	30-Dec-24
79	RE-1040	Biological Surveys	431	17-Apr-23*	30-Dec-24
80	**Federal Agency Agreements & Permits**		**173**	**04-Feb-23 A**	**04-Dec-23**
81	CE-1570	Mitigation Cost Estimate Update	40	03-Apr-23	26-May-23
82	**Clean Water Act Section 404**		**41**	**04-Feb-23 A**	**30-May-23**
83	404-050	Prepare Draft 404 Application	41	04-Feb-23 A	30-May-23
84	**Advisory Council on Historic Preservation NHPA Section 106**		**64**	**14-Mar-22**	**30-Jun-23**
85	106-081	Prepare Final PA	64	14-Mar-22	30-Jun-23
86	**USFWS & NMFS Endangered Species Act Section 7**		**1**	**03-Apr-23**	**03-Apr-23**
87	BA-210	Reclamation Submits BA to USFWS & NMFS	1	03-Apr-23	03-Apr-23
88	**USFWS Bald Eagle Protection Act**		**171**	**27-Jul-22 A**	**04-Dec-23**
89	Short Term Permit		0	14-Apr-23	14-Apr-23
90	USFWS-130	Receive Short Term Permit from USFWS	0		14-Apr-23
91	Long Term Permit		171	27-Jul-22 A	04-Dec-23
92	USFWS-140	Prepare Long Term Permit Application	171	27-Jul-22 A	04-Dec-23
93	**State Agency Agreements & Permits**		**41**	**04-Feb-23 A**	**30-May-23**
94	**SWRCB Water Right Permit**		**11**	**12-May-22**	**17-Apr-23**
95	WRP-115a	SWRCB Determines Application is Complete	11	12-May-22	17-Apr-23
96	**SWR CWA Section 401 Water Quality Certification**		**41**	**04-Jan-23 A**	**30-May-23**
97	401-200	Prepare Draft CWA 401 Permit Application	41	04-Jan-23 A	30-May-23
98	**CDFW Streambed Alteration Agreements**		**1**	**17-Apr-23**	**17-Apr-23**
99	1600-210	Submit LSAA Application (need time to review)	1	17-Apr-23	17-Apr-23
100	**CDFW Incidental Take Permits**		**1**	**17-Apr-23**	**17-Apr-23**
101	ITP - CESA (ie 2081) Operations		1	17-Apr-23	17-Apr-23
102	2081-110	Submit CESA ITP Application - Operations (needs review time)	1	17-Apr-23	17-Apr-23
103	ITP - CESA (ie 2081) Construction		1	17-Apr-23	17-Apr-23
104	2081-215	Re-Submit CESA ITP Application - Construction	1	17-Apr-23	17-Apr-23
105	**Environmental**		**44**	**01-Feb-23 A**	**02-Jun-23**
106	**EIR/EIS**		**44**	**01-Feb-23 A**	**02-Jun-23**
107	**Final EIR/Final EIS**		**44**	**01-Feb-23 A**	**02-Jun-23**
108	EIR-250	Complete Final EIR/EIS	44	01-Feb-23 A	02-Jun-23
109	**Real Estate**		**218**	**02-Nov-20**	**12-Feb-24**
110	**Key Deliverables**		**218**	**03-Jun-22 A**	**12-Feb-24**
111	KD-1500	Conduct Options Negotiations with Willing Seller Properties	62	01-Jul-22 A	28-Jun-23
112	KD-1490	Complete Land Acquisition Master Plan (tied to Construction Packages)	218	03-Oct-22 A	12-Feb-24
113	**USBR - Land Agreement**		**218**	**02-Nov-20**	**12-Feb-24**
114	FED-100	USBR Land Agreements (tied to Construction Packages)	218	02-Nov-20	12-Feb-24
115	**Preliminary Engineering**		**759**	**03-Jan-22 A**	**31-Mar-26**
116	**Key Deliverables**		**759**	**31-Oct-22 A**	**31-Mar-26**
117	KD-1210	Update Project Risk Assessments (ongoing) (Risk Mgr Bob Beduhn & Henry Lin)	433	31-Oct-22 A	16-Dec-24
118	KD-1110	Advance Engineering of Project Feature Encroachments to 65% Design Level in Support of Permitting	759	01-Nov-22 A	31-Mar-26

#	Activity ID	Activity Name	Duration	Start	Finish
119	**Conveyance (Pipelines, Pump Stations, Canals)**		**440**	**03-Jan-22 A**	**27-Dec-24**
120	**DWR Operations Oversight & Review (KLDG)**		**440**	**03-Jan-22 A**	**27-Dec-24**
121	A1130	Coordination & Oversight with Department of Water Resources	440	03-Jan-22 A	27-Dec-24
122	**RD 108 Oversight & Review**		**440**	**03-Jan-22 A**	**27-Dec-24**
123	A1140	Coordination & Oversight with Reclamation District 108	440	03-Jan-22 A	27-Dec-24
124	**Design & Analyses**		**245**	**18-Oct-22 A**	**20-Mar-24**
125	KD-2020	30% TRR PS&E	245	18-Oct-22 A	20-Mar-24
126	KD-1650	30% Dunnigan Pipeline PS&E	245	31-Oct-22 A	20-Mar-24
127	KD-2010	30% Funks PS&E	245	31-Oct-22 A	20-Mar-24
128	KD-2030	30% Funks & TRR Pipeline PS&E	245	31-Oct-22 A	20-Mar-24
129	KD-2080	System Wide Hydraulic Modeling	225	01-May-23	20-Mar-24
130	**Reservoir (Dams, Tunnels)**		**441**	**03-Jan-22 A**	**30-Dec-24**
131	**DSOD Oversight & Review**		**441**	**01-Feb-22 A**	**30-Dec-24**
132	KD-1100	Initiate Application for Permit to Construct from DSOD	441	01-Feb-22 A	30-Dec-24
133	**Design & Analyses**		**441**	**03-Jan-22 A**	**30-Dec-24**
134	A1160	Coordination & Oversight with CAISO	441	03-Jan-22 A	30-Dec-24
135	KD-1660	30% Golden Gate Dam PS&E	245	31-Oct-22 A	20-Mar-24
136	KD-2040	30% Sites Dam PS&E	245	31-Oct-22 A	20-Mar-24
137	KD-2050	30% Saddle Dams PS&E	245	31-Oct-22 A	20-Mar-24
138	KD-2060	30% I/O Facilities PS&E	245	31-Oct-22 A	20-Mar-24
139	KD-2070	Emergency Release Modeling	245	05-Jan-23 A	20-Mar-24
140	**Electrical (Substation, Switchyard, Transmission Line)**		**441**	**03-Jan-22 A**	**30-Dec-24**
141	**WAPA Oversight & Review**		**441**	**03-Jan-22 A**	**30-Dec-24**
142	A1150	Coordination & Oversight with WAPA	441	03-Jan-22 A	30-Dec-24
143	**Design & Analyses**		**28**	**20-Mar-23**	**10-May-23**
144	KD-1200	Prepare & Submit Power Interconnection Application	28	20-Mar-23	10-May-23
145	**Roads & Bridges**		**441**	**03-Jan-22 A**	**30-Dec-24**
146	**County Oversight & Review**		**441**	**03-Jan-22 A**	**30-Dec-24**
147	A1170	Coordination & Oversight with County Authorities	441	03-Jan-22 A	30-Dec-24
148	**Design & Analyses**		**245**	**31-Oct-22 A**	**20-Mar-24**
149	KD-1650	30% Construction Access & Maintenance Roads PS&E	245	31-Oct-22 A	20-Mar-24
150	KD-2090	30% Sites Lodoga Road Realignment PS&E	245	31-Oct-22 A	20-Mar-24
151	KD-2100	30% Huffmaster Road PS&E	245	31-Oct-22 A	20-Mar-24

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: David Hubbard [Dhubbard@BrwnCald.com]
Sent: 5/5/2023 11:41:37 AM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Marcus Maltby [mmaltby@brwncald.com]; Marcia Kivett [MKivett@sitesproject.org]
Subject: Re: Sites Reservoir - Schedule Update to May 1, 2023

Sure, I can do that and provide the comparison to last month as well. See if we have any final changes and should get to it Monday.

Get Outlook for iOS

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Friday, May 5, 2023 1:36:29 PM
To: David Hubbard <Dhubbard@BrwnCald.com>
Cc: Marcus Maltby <mmaltby@BrwnCald.com>; Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: Sites Reservoir - Schedule Update to May 1, 2023

The strike team next meets on 5/16. Can I get an update to give to them with delays relative to the original January 2023 baseline we gave them? Need by noon Tuesday 5/9.

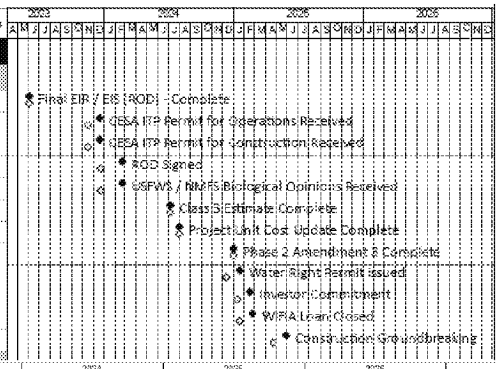
From: David Hubbard <Dhubbard@BrwnCald.com>
Date: Friday, May 5, 2023 at 9:31 AM
To: Marcus Maltby <mmaltby@brwncald.com>, JP Robinette <jrobinette@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, conner <conner@cmdwest.com>, "Edwards, Dawn" <dawn.edwards@hdrinc.com>, "Risse, Danielle" <danielle.risse@hdrinc.com>, "Luu, Henry" <henry.luu@hdrinc.com>, "jelica.arsenijevic" <jelica.arsenijevic@hdrinc.com>, "Spranza, John" <john.spranza@hdrinc.com>, Kevin Spesert <kspesert@sitesproject.org>, "laurie.warner.herson" <laurie.warner.herson@phenixenv.com>, Marcia Kivett <MKivett@sitesproject.org>, "bezzone@mbkengineers.com" <bezzone@mbkengineers.com>, Cheyanne Harris <CHarris@BrwnCald.com>, Justin Davies <JDavies@BrwnCald.com>, Lee Lambert <LLambert@BrwnCald.com>, Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>
Cc: Jerry Brown <jbrown@sitesproject.org>, Joe Trapasso <jtrapasso@sitesproject.org>, Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Howdy Everyone – have worked with you all to update the Schedule through end of April 2023 and have posted a Schedule with comparison to last month along with variances on finish dates.
Now I'm giving you all a chance to have another look and let me know if you'd like to make any changes before we finalize this update and move forward.

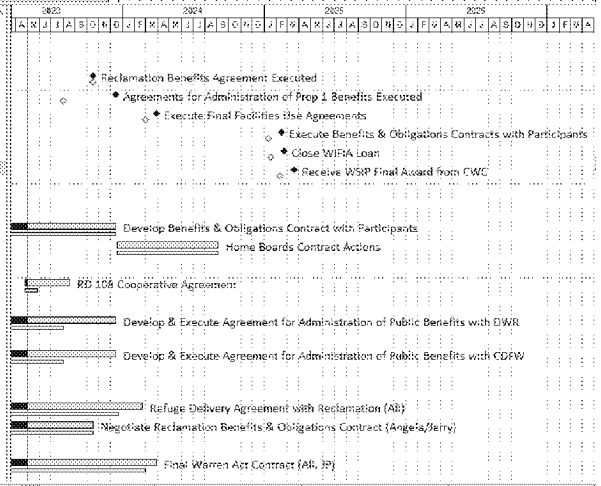
See the link here: Sites Schedule Comparison to Prior Month 2023.05.05.pdf

Also showing here some snips of Milestones and Activities that have slipped for a quick review and if anyone wants to look into these further, just let me know.
Several are on the Work Plan Progress Report (one pager) that gets shared with others outside this group.

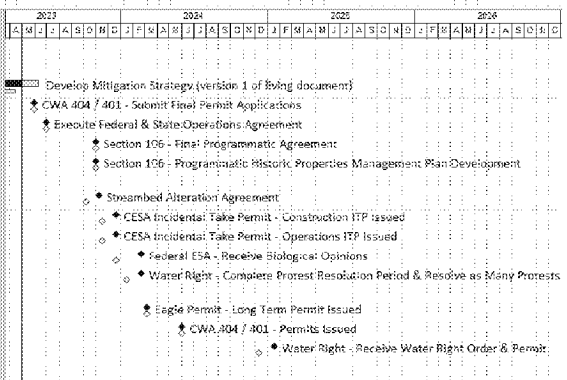
#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance - LM Finish
1		**Sites Reservoir Project: May 2023**					
2		**Project Milestones**					
3	MS-1200	Final EIR / EIS (ROD) - Complete		02-Jun-23	0	02-Jun-23	0
4	MS-1320	CESA ITP Permit for Operations Received		20-Dec-23	0	16-Nov-23	-22
5	MS-1340	CESA ITP Permit for Construction Received		20-Dec-23	0	16-Nov-23	-22
6	MS-1300	ROD Signed		20-Feb-24	0	21-Dec-23	-40
7	MS-1150	USFWS / NMFS Biological Opinions Received		20-Feb-24	0	21-Dec-23	-40
8	MS-1700	Class 3 Estimate Complete		05-Jul-24	0	05-Jul-24	0
9	MS-1450	Project Unit Cost Update Complete		30-Jul-24	0	30-Jul-24	0
10	MS-5000	Phase 2 Amendment 8 Complete		31-Dec-24*	0	31-Dec-24	0
11	MS-1400	Water Right Permit Issued		17-Jan-25*	0	10-Dec-24	-25
12	MS-1500	Investor Commitment		14-Feb-25	0	10-Jan-25	-25
13	MS-1600	WIFIA Loan Closed		21-Feb-25	0	17-Jan-25	-25
14	MS-3000	Construction Groundbreaking		28-May-25	0		-25



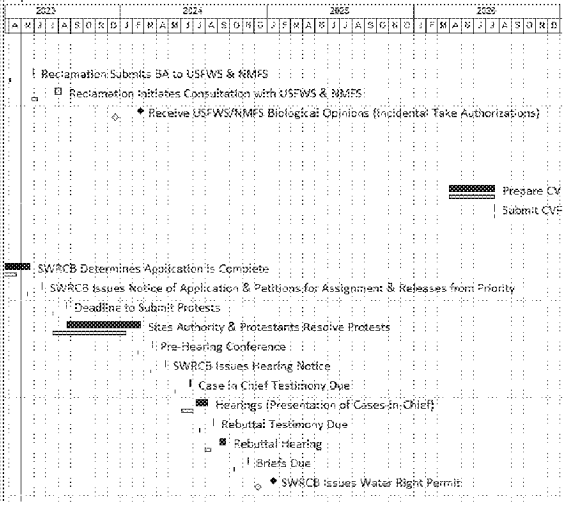
#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance - LM Finish
76		**Project Agreements & Funding**					
78		**Key Deliverables**					
80	KD-1260	Reclamation Benefits Agreement Executed		17-Oct-23	0	17-Oct-23	0
81	KD-1520	Agreements for Administration of Prop 1 Benefits Executed		15-Dec-23	0	31-Jul-23	-96
82	KD-1250	Execute Final Facilities Use Agreements		28-Mar-24	0	29-Feb-24	-20
83	KD-1300	Execute Benefits & Obligations Contracts with Participants		14-Feb-25	0	10-Jan-25	-25
84	KD-2500	Close WIFIA Loan		21-Feb-25	0	17-Jan-25	-25
85	KD-1310	Receive WSIP Final Award from CWC		18-Mar-25	0	11-Feb-25	-25
86		**Inter-Agency Agreements**					
87		**Benefits & Obligations Contract with Participants**					
88	BO-1300	Develop Benefits & Obligations Contract with Participants	20-Mar-23 A	15-Dec-23	160	15-Dec-23	0
89	BO-1400	Home Boards Contract Actions	18-Dec-23	03-Sep-24	180	03-Sep-24	0
90		**Facility Use Agreements**					
91	FO-1040	RD 108 Cooperative Agreement	24-Apr-23 A	18-Aug-23	78	26-May-23	-58
92		**Agreements for Administration of Public Benefits**					
93	PB-1100	Develop & Execute Agreement for Administration of Public Benefits with DWR	31-Mar-22 A	15-Dec-23	160	31-Jul-23	-96
94	PB-1200	Develop & Execute Agreement for Administration of Public Benefits with CDFW	31-Mar-22 A	15-Dec-23	160	31-Jul-23	-96
95		**Federal Funding Committment**					
96	Refuge	Refuge Delivery Agreement with Reclamation (All)	12-Dec-22 A	20-Feb-24	201	21-Dec-23	-39
97	WBN-1170	Negotiate Reclamation Benefits & Obligations Contract (Angela/Jerry)	16-Dec-22 A	17-Oct-23	119	17-Oct-23	0
98		**US Bureau of Reclamation Warren Act**					
99	FED-090	Final Warren Act Contract (All, JP)	01-Jun-21 A	28-Mar-24	231	29-Feb-24	-20



#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance - LM Finish
123		**Permitting**					
124		**Key Deliverables**					
125	KD-1460	Develop Mitigation Strategy (version 1 of living document)	21-Nov-22 A	09-Jun-23	29	14-Apr-23	-39
126	KD-1390	CWA 404 / 401 - Submit Final Permit Applications		31-May-23	0	31-May-23	0
127	KD-1240	Execute Federal & State Operations Agreement		30-Jun-23	0	30-Jun-23	0
128	KD-1350	Section 106 - Final Programmatic Agreement		31-Oct-23	0	31-Oct-23	0
129	KD-1360	Section 106 - Programmatic Historic Properties Management Plan Development		31-Oct-23	0	31-Oct-23	0
130	KD-1420	Streambed Alteration Agreement		07-Nov-23	0	06-Oct-23	-22
131	KD-1370	CESA Incidental Take Permit - Construction ITP Issued		20-Dec-23	0	16-Nov-23	-22
132	KD-1380	CESA Incidental Take Permit - Operations ITP Issued		20-Dec-23	0	16-Nov-23	-22
133	KD-1340	Federal ESA - Receive Biological Opinions		20-Feb-24	0	21-Dec-23	-40
134	KD-1320	Water Right - Complete Protest Resolution Period & Resolve as Many Protests as Possible		21-Feb-24	0	16-Jan-24	-26
135	KD-1440	Eagle Permit - Long Term Permit Issued		06-Mar-24	0	06-Mar-24	0
136	KD-1400	CWA 404 / 401 - Permits Issued		31-May-24	0	31-May-24	0
137	KD-1330	Water Right - Receive Water Right Order & Permit		17-Jan-25	0	10-Dec-24	-25
138	KD-1410	Levee & Flood Permits - Section 408 & CVFPB Encroachment Permits Issued		08-Jul-27	0	08-Jul-27	0



#	Activity ID	Activity Name	Start	Finish	Remaining Duration	Last Month Finish	Variance - LM Finish
157		**USFWS & NMFS Endangered Species Act Section 7**					
158	BA-200	Prepare Draft BA	11-Jan-21 A	10-Mar-23 A	0	10-Mar-23	0
159	BA-210	Reclamation Submits BA to USFWS & NMFS	30-May-23	30-May-23	1	03-Apr-23	-40
160	BA-215	Reclamation Initiates Consultation with USFWS & NMFS	25-Jul-23	07-Aug-23	10	09-Jun-23	-40
161	BA-220	Receive USFWS/NMFS Biological Opinions (Incidental Take Authorizatio		20-Feb-24	0	21-Dec-23	-40
162		**USFWS Bald Eagle Protection Act**					
163		**State Agency Agreements & Permits**					
164		**Central Valley Flood Protection Board (CVFPB) Levee Encroachment**					
165	CVFPB-200	Prepare CVFPB Permit	01-Apr-26	22-Jul-26	81	22-Jul-26	0
166	CVFPB-210	Submit CVFPB Permit	23-Jul-26	23-Jul-26	1	23-Jul-26	0
167	CVFPB-220	Receive CVFPB Permit		08-Jul-27	0	08-Jul-27	0
168		**SWRCB Water Right Permit**					
169	WRP-115a	SWRCB Determines Application is Complete	12-May-22 A	22-May-23	16	17-Apr-23	-25
170	WRP-115b	SWRCB Issues Notice of Application & Petitions for Assignment & Rele	21-Jun-23	21-Jun-23	1	16-May-23	-25
171	WRP-115c	Deadline to Submit Protests	22-Aug-23	22-Aug-23	1	18-Jul-23	-25
172	WRP-116	Sites Authority & Protestants Resolve Protests	25-Aug-23	21-Feb-24	122	16-Jan-24	-25
173	WRP-117a	Pre-Hearing Conference	22-Mar-24	22-Mar-24	1	15-Feb-24	-25
174	WRP-117b	SWRCB Issues Hearing Notice	23-Apr-24	23-Apr-24	1	19-Mar-24	-25
175	WRP-117c	Case in Chief Testimony Due	24-Jun-24	24-Jun-24	1	17-May-24	-25
176	WRP-117d	Hearings (Presentation of Cases-in-Chief)	10-Jul-24	06-Aug-24	20	01-Jul-24	-25
177	WRP-117e	Rebuttal Testimony Due	21-Aug-24	21-Aug-24	1	17-Jul-24	-25
178	WRP-117f	Rebuttal Hearing	06-Sep-24	19-Sep-24	10	14-Aug-24	-25
179	WRP-117g	Briefs Due	15-Nov-24	15-Nov-24	1	11-Oct-24	-25
180	WRP-120	SWRCB Issues Water Right Permit		17-Jan-25	0	10-Dec-24	-25



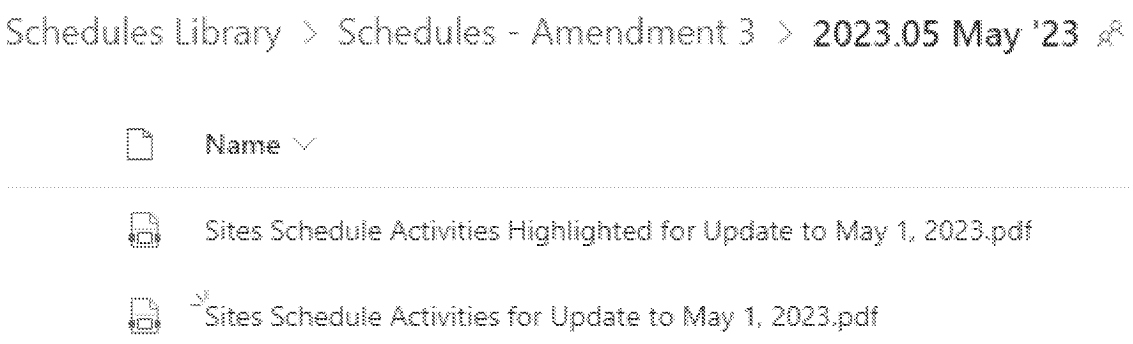
Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: David Hubbard
Sent: Monday, May 1, 2023 10:46 AM
To: Marcus Maltby <mmaltby@BrwnCald.com>; jrobinette@sitesproject.org; Alicia Forsythe <aforsythe@sitesproject.org>; Conner McDonald <conner@cmdwest.com>; Edwards, Dawn <dawn.edwards@hdrinc.com>; Danielle Risse (danielle.risse@hdrinc.com) <danielle.risse@hdrinc.com>; Henry Luu <henry.luu@hdrinc.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>; Kevin Spesert (kspesert@sitesproject.org) <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Marcia Kivett (MKivett@sitesproject.org) <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris <CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>
Cc: jbrown@sitesproject.org; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: Sites Reservoir - Schedule Update to May 1, 2023

Good Monday Morning, Sites Team - We've made it through another month with April 2023 now behind us and it's time to update our Sites Reservoir Project Schedule, moving our Data Date to May 1, 2023.
Below folder (follow link) contains reference Schedules for use in updating to May 1, 2023. Also added screenshots below containing the activities we need to update - with start dates, finish dates or continue as ongoing during the update period for the month of April 2023.
Email replies are fine and we also have some Teams calls on the calendar to collaborate. Marcia has done very well to get Schedule update sessions for this week, beginning today. Looking forward to reconnecting and talking Schedule with you all.

If you see that I've missed someone on distribution, please share with them and let me know who to add.

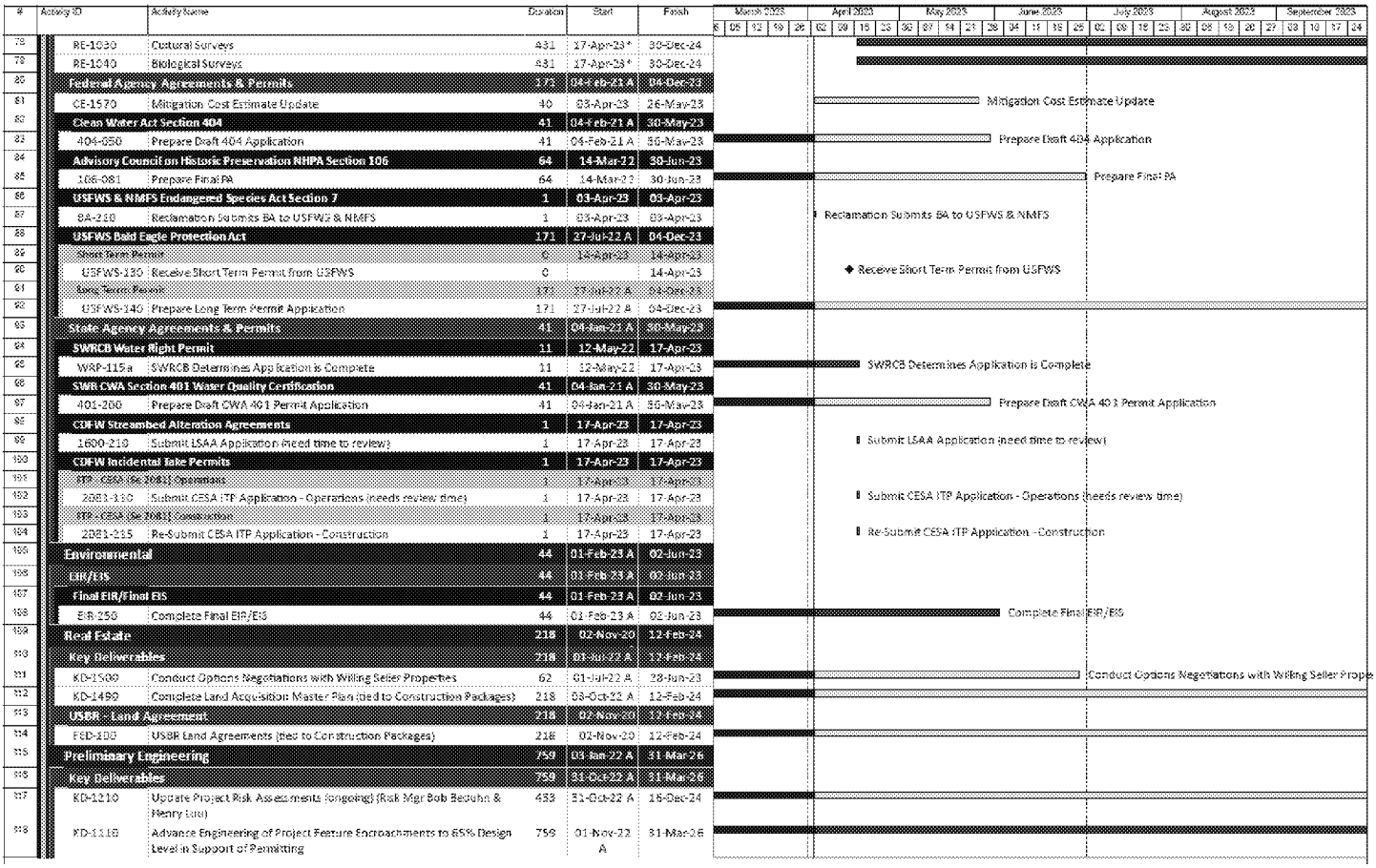
2023.05 May '23



Sites Reservoir Project

Schedule

#	Activity ID	Activity Name	Duration	Start	Finish
1		**Sites Reservoir Project: May 2023**	759	01-Sep-20 A	31-Mar-26
2		**Geotech Program**	441	03-Jan-23 A	30-Dec-24
3		**Real Estate**	55	03-Jan-23 A	19-Jun-23
4		**Land Access Agreements**	55	03-Jan-23 A	19-Jun-23
5		**Colusa County**	55	03-Jan-23 A	19-Jun-23
6	LAAC-1300	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
7		**Yolo County**	55	03-Jan-23 A	19-Jun-23
8	LAAY-1300	Yolo Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
9		**Glenn County**	55	03-Jan-23 A	19-Jun-23
10	LAAG-1300	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #3	55	03-Jan-23 A	19-Jun-23
11		**Geotechnical Engineering**	430	02-Jan-23 A	11-Dec-24
12		**Geotechnical Investigations**	430	02-Jan-23 A	11-Dec-24
13		**Test Pits & Trenches**	420	17-Apr-23	11-Dec-24
14	TPT-1200	Geotech Test Pits & Trenches - Short Term Permit Window (Delta/Yolo)	420	17-Apr-23	11-Dec-24
15		**Work Packages**	84	02-Jan-23 A	30-Jun-23
16	GWP-1300	Geotech Work Package #2	84	02-Jan-23 A	30-Jun-23
17		**Preliminary Engineering**	441	03-Jan-22 A	30-Dec-24
18		**Key Deliverables**	438	03-Jan-22 A	30-Dec-24
19	A1180	Coordination & Oversight: DWR, WAPA, CAISO, UPRR, Caltrans	438	03-Jan-22 A	30-Dec-24
20		**Cost Estimate**	255	30-Jan-23 A	03-Apr-24
21		**Class 4 Cost Estimate Variance Reporting**	255	30-Jan-23 A	03-Apr-24
22	C4E-1000	Class 4 Cost Estimate Variance Reporting (reset to Sort G)	255	30-Jan-23 A	03-Apr-24
23		**Project Development**	759	01-Sep-20 A	31-Mar-26
24		**Planning**	188	01-Sep-20 A	31-Dec-23
25		**Key Deliverables**	188	24-Jan-22 A	31-Dec-23
26	KD-1330	Complete Updated Master Project Schedule (Baseline Established)	20	24-Jan-22 A	28-Apr-23
27	KD-1290	Formalize AB/RC Governance & Delegation of Authority for Phase 3 (Brown)	279	06-Sep-22 A	31-Dec-23
28		**NAHC/Local Tribes AB 52 Consultation**	68	01-Sep-20 A	07-Jul-23
29	STA-120	NAHC/Local Tribes AB 52 Consultation	68	01-Sep-20 A	07-Jul-23
30		**Reservoir Operations & Modeling**	429	03-Jan-22 A	10-Dec-24
31		**Final Sites DWR/Reclamation Operating Agreement**	64	19-Apr-22 A	30-Jun-23
32	OP-1005	Final Operating Agreement - Sites/DWR/Reclamation	64	19-Apr-22 A	30-Jun-23
33		**Water Rights Modeling**	429	03-Jan-22 A	10-Dec-24
34	A1200	Water Rights Modeling Support	429	03-Jan-22 A	10-Dec-24
35	A1210	Documentation for Water Rights	429	03-Jan-22 A	10-Dec-24
36		**Refined Daily Operations Model**	5	03-Oct-22 A	07-Apr-23
37	A1230	Refined Daily Operations Model	5	03-Oct-22 A	07-Apr-23
38		**Site Specific Model**	220	10-Apr-23	21-Feb-24
39	OS-1150	Develop Participant Specific Model	220	10-Apr-23	21-Feb-24
40		**Project Agreements & Funding**	516	01-Jun-21 A	28-Jun-24
41		**Inter-Agency Agreements**	231	01-Jun-21 A	29-Feb-24
42		**Benefits & Obligations Contract with Participants**	180	20-Mar-23	15-Dec-23
43	BO-1300	Develop Benefits & Obligations Contract with Participants	180	20-Mar-23	15-Dec-23
44		**Facility Use Agreements**	25	24-Apr-23	26-May-23
45	FO-1040	RD 108 Cooperative Agreement	25	24-Apr-23	26-May-23
46		**Agreements for Administration of Public Benefits**	84	31-Mar-22 A	31-Jul-23
47	PB-1100	Develop & Execute Agreement for Administration of Public Benefits with DWR	84	31-Mar-22 A	31-Jul-23
48	PB-1200	Develop & Execute Agreement for Administration of Public Benefits with CDFW	84	31-Mar-22 A	31-Jul-23
49		**Federal Funding Commitment**	184	12-Dec-22	21-Dec-23
50	Refuge	Refuge Delivery Agreement with Reclamation	182	12-Dec-22	21-Dec-23
51	WBN-1170	Negotiate Reclamation Benefits & Obligations Contract	189	16-Dec-22	17-Oct-23
52		**US Bureau of Reclamation Warren Act**	231	01-Jun-21 A	29-Feb-24
53	FED-090	Final Warren Act Contract (AB, JF)	231	01-Jun-21 A	29-Feb-24
54		**Federal Funding**	316	10-Jun-22 A	28-Jun-24
55		**WIIN Act FAA**	59	10-Jun-22 A	31-May-23
56	WBN-1190	Review by Bureau of Reclamation (Joe, Cathy)	59	10-Jun-22 A	31-May-23
57		**WIFIA Loan**	247	04-Apr-23	25-Mar-24
58		WIFIA Negotiation	247	04-Apr-23	25-Mar-24
59	WIFIA-210	Term Sheet & Document Development	247	04-Apr-23	25-Mar-24
60	WIFIA-220	Final Rating Assessment (Depends on Final Rebalancing)	247	04-Apr-23	25-Mar-24
61	WIFIA-240	WIFIA Loan Negotiation	244	04-Apr-23	25-Mar-24
62		**USDA Loan**	316	02-Sep-22 A	28-Jun-24
63	USDA-1060	Satisfy USDA Loan Conditions	316	02-Sep-22 A	28-Jun-24
64		**State Funding (Water Storage Investment Program, WSIP)**	15	03-Apr-23	21-Apr-23
65		**WSIP Early Funding Administation**	15	03-Apr-23	21-Apr-23
66	WSIP-1250	WSIP Quarterly Report (Period Jan 1, 2023 through March 31, 2023)	15	03-Apr-23	21-Apr-23
67		**Local Funding**	0	03-Apr-23	03-Apr-23
68		**Finance Check Ins**	0	03-Apr-23	03-Apr-23
69	FC-1280	Financing Check-In Q1-2023	0		03-Apr-23
70		**Bank Financing (if needed)**	35	03-Apr-23	19-May-23
71	BF-1100	Prepare & Issue RFP to Prospective Lenders	15	03-Apr-23	21-Apr-23
72	BF-1200	Review & Select Lender(s)	20	24-Apr-23	19-May-23
73		**Permitting**	441	04-Jan-21 A	30-Dec-24
74		**Key Deliverables**	10	21-Nov-22	14-Apr-23
75	KD-1460	Develop Mitigation Strategy (version 1 of living document)	10	21-Nov-22	14-Apr-23
76	KD-1430	Eagle Permit - Short Term & Nest Permit Issued	0		14-Apr-23
77		**Field Surveys**	431	17-Apr-23	30-Dec-24



#	Activity ID	Activity Name	Duration	Start	Finish
79	RE-1030	Cultural Surveys	431	17-Apr-23*	30-Dec-24
78	RE-1040	Biological Surveys	431	17-Apr-23*	30-Dec-24
80	**Federal Agency Agreements & Permits**		**173**	**04-Feb-23 A**	**04-Dec-23**
81	CE-1570	Mitigation Cost Estimate Update	40	03-Apr-23	26-May-23
82	**Clean Water Act Section 404**		**41**	**04-Feb-23 A**	**30-May-23**
83	404-050	Prepare Draft 404 Application	41	04-Feb-23 A	30-May-23
84	**Advisory Council on Historic Preservation NHPA Section 106**		**64**	**14-Mar-22**	**30-Jun-23**
85	106-081	Prepare Final PA	64	14-Mar-22	30-Jun-23
86	**USFWS & NMFS Endangered Species Act Section 7**		**1**	**03-Apr-23**	**03-Apr-23**
87	BA-210	Reclamation Submits BA to USFWS & NMFS	1	03-Apr-23	03-Apr-23
88	**USFWS Bald Eagle Protection Act**		**171**	**27-Jul-22 A**	**04-Dec-23**
89	Short Term Permit		0	14-Apr-23	14-Apr-23
90	USFWS-130	Receive Short Term Permit from USFWS	0		14-Apr-23
91	Long Term Permit		171	27-Jul-22 A	04-Dec-23
92	USFWS-140	Prepare Long Term Permit Application	171	27-Jul-22 A	04-Dec-23
93	**State Agency Agreements & Permits**		**41**	**04-Jan-23 A**	**30-May-23**
94	**SWRCB Water Right Permit**		**11**	**12-May-22**	**17-Apr-23**
95	WRP-115a	SWRCB Determines Application is Complete	11	12-May-22	17-Apr-23
96	**SWR CWA Section 401 Water Quality Certification**		**41**	**04-Jan-23 A**	**30-May-23**
97	401-200	Prepare Draft CWA 401 Permit Application	41	04-Jan-23 A	30-May-23
98	**CDFW Streambed Alteration Agreements**		**1**	**17-Apr-23**	**17-Apr-23**
99	1600-210	Submit LSAA Application (need time to review)	1	17-Apr-23	17-Apr-23
100	**CDFW Incidental Take Permits**		**1**	**17-Apr-23**	**17-Apr-23**
101	ITP - CESA (ie 2081) Operations		1	17-Apr-23	17-Apr-23
102	2081-110	Submit CESA ITP Application - Operations (needs review time)	1	17-Apr-23	17-Apr-23
103	ITP - CESA (ie 2081) Construction		1	17-Apr-23	17-Apr-23
104	2081-215	Re-Submit CESA ITP Application - Construction	1	17-Apr-23	17-Apr-23
106	**Environmental**		**44**	**01-Feb-23 A**	**02-Jun-23**
106	**EIR/EIS**		**44**	**01-Feb-23 A**	**02-Jun-23**
107	**Final EIR/Final EIS**		**44**	**01-Feb-23 A**	**02-Jun-23**
108	EIR-250	Complete Final EIR/EIS	44	01-Feb-23 A	02-Jun-23
109	**Real Estate**		**218**	**02-Nov-20**	**12-Feb-24**
110	**Key Deliverables**		**218**	**03-Jun-22 A**	**12-Feb-24**
111	KD-1500	Conduct Options Negotiations with Willing Seller Properties	62	01-Jul-22 A	28-Jun-23
112	KD-1490	Complete Land Acquisition Master Plan (tied to Construction Packages)	218	03-Oct-22 A	12-Feb-24
113	**USBR - Land Agreement**		**218**	**02-Nov-20**	**12-Feb-24**
114	FED-100	USBR Land Agreements (tied to Construction Packages)	218	02-Nov-20	12-Feb-24
115	**Preliminary Engineering**		**759**	**03-Jan-22 A**	**31-Mar-26**
116	**Key Deliverables**		**759**	**31-Oct-22 A**	**31-Mar-26**
117	KD-1210	Update Project Risk Assessments (ongoing) (Risk Mgr Bob Beduhn & Henry Lin)	433	31-Oct-22 A	16-Dec-24
118	KD-1110	Advance Engineering of Project Feature Encroachments to 65% Design Level in Support of Permitting	759	01-Nov-22 A	31-Mar-26

#	Activity ID	Activity Name	Duration	Start	Finish
119	**Conveyance (Pipelines, Pump Stations, Canals)**		**440**	**03-Jan-22 A**	**27-Dec-24**
102	**DWR Operations Oversight & Review (KLDG)**		**440**	**03-Jan-22 A**	**27-Dec-24**
123	A1130	Coordination & Oversight with Department of Water Resources	440	03-Jan-22 A	27-Dec-24
122	**RD 108 Oversight & Review**		**440**	**03-Jan-22 A**	**27-Dec-24**
123	A1140	Coordination & Oversight with Reclamation District 108	440	03-Jan-22 A	27-Dec-24
124	**Design & Analyses**		**245**	**18-Oct-22 A**	**20-Mar-24**
125	KD-2020	30% TRR PS&E	245	18-Oct-22 A	20-Mar-24
126	KD-1650	30% Dunnigan Pipeline PS&E	245	31-Oct-22 A	20-Mar-24
127	KD-2010	30% Funks PS&E	245	31-Oct-22 A	20-Mar-24
128	KD-2030	30% Funks & TRR Pipeline PS&E	245	31-Oct-22 A	20-Mar-24
129	KD-2080	System Wide Hydraulic Modeling	225	01-May-23	20-Mar-24
130	**Reservoir (Dams, Tunnels)**		**441**	**03-Jan-22 A**	**30-Dec-24**
131	**DSOD Oversight & Review**		**441**	**01-Feb-22 A**	**30-Dec-24**
132	KD-1100	Initiate Application for Permit to Construct from DSOD	441	01-Feb-22 A	30-Dec-24
133	**Design & Analyses**		**441**	**03-Jan-22 A**	**30-Dec-24**
134	A1160	Coordination & Oversight with CAISO	441	03-Jan-22 A	30-Dec-24
135	KD-1660	30% Golden Gate Dam PS&E	245	31-Oct-22 A	20-Mar-24
136	KD-2040	30% Sites Dam PS&E	245	31-Oct-22 A	20-Mar-24
137	KD-2050	30% Saddle Dams PS&E	245	31-Oct-22 A	20-Mar-24
138	KD-2060	30% I/O Facilities PS&E	245	31-Oct-22 A	20-Mar-24
139	KD-2070	Emergency Release Modeling	245	05-Jan-23 A	20-Mar-24
140	**Electrical (Substation, Switchyard, Transmission Line)**		**441**	**03-Jan-22 A**	**30-Dec-24**
141	**WAPA Oversight & Review**		**441**	**03-Jan-22 A**	**30-Dec-24**
142	A1150	Coordination & Oversight with WAPA	441	03-Jan-22 A	30-Dec-24
143	**Design & Analyses**		**38**	**20-Mar-23**	**10-May-23**
144	KD-1200	Prepare & Submit Power Interconnection Application	28	20-Mar-23	10-May-23
145	**Roads & Bridges**		**441**	**03-Jan-22 A**	**30-Dec-24**
146	**County Oversight & Review**		**441**	**03-Jan-22 A**	**30-Dec-24**
147	A1170	Coordination & Oversight with County Authorities	441	03-Jan-22 A	30-Dec-24
148	**Design & Analyses**		**245**	**31-Oct-22 A**	**20-Mar-24**
149	KD-1650	30% Construction Access & Maintenance Roads PS&E	245	31-Oct-22 A	20-Mar-24
150	KD-2090	30% Sites Lodoga Road Realignment PS&E	245	31-Oct-22 A	20-Mar-24
151	KD-2100	30% Huffmaster Road PS&E	245	31-Oct-22 A	20-Mar-24

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: Lewis Bair [lbair@rd108.org]
Sent: 5/6/2023 2:20:05 PM
To: Ann Newton [anewton@katzandassociates.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Thad Bettner [tbettner@gcid.net]
Subject: Re: "un-dark" report

Thanks all.

Lewis

Sent from my iPhone

On May 6, 2023, at 12:53 PM, Ann Newton <anewton@katzandassociates.com> wrote:

Great to know - thanks! And yes it was a really good experience working with Undark. Can't remember the last time I went through such a thorough process with a news outlet. Let me know if I can be of any assistance.

Sent from my iPhone

On May 6, 2023, at 12:50 PM, Lewis Bair <lbair@rd108.org> wrote:

Yes, my wife did yesterday.

Lewis

From: Ann Newton <anewton@katzandassociates.com>
Date: Saturday, May 6, 2023 at 12:48 PM
To: Lewis Bair <lbair@rd108.org>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>, Thad Bettner <tbettner@gcid.net>
Subject: Re: "un-dark" report

Correct, Becki reached out to us. Did you say you heard a report out of her article on NPR?

Sent from my iPhone

On May 6, 2023, at 12:19 PM, Lewis Bair <lbair@rd108.org> wrote:

We were thinking the same thing. We just heard it on NPR and haven't seen the Sites article specifically. Can you share that?

Lewis

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Saturday, May 6, 2023 at 12:16 PM

To: Lewis Bair <lbair@rd108.org>, Thad Bettner <tbettner@gcid.net>, Ann Newton <anewton@katzandassociates.com>
Subject: Re: "un-dark" report

I believe they contacted us for an interview. Jerry asked me to take it. Ann, is this your recollection also? I dont think we reached out to them.

I was quite impressed with them. They did an extensive, independent back check to verify all of my statements and quotes. I was also impressed that the reporter reached out to people who were not the usual suspects -- Cyril Michel and Sarah Null. Two people who we really havent seen quoted in media articles previously. Becki did this independently - we did not direct her to them - other than to send her Cyril's recent paper and identify that PPIC was also moving forward concepts on the use of environmental water and creating assets for the environment.

Here's Becki's contact information if you'd like. brobins@palfreymedia.com. She was very thorough, had a number of follow up questions, and from interview to article was 2 months or more. So they arent quick. But I thought she did a really nice, balanced, informative, thought-provoking story -- somewhat of an unual thing in today's media.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Lewis Bair <lbair@rd108.org>
Sent: Saturday, May 6, 2023 11:43 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Thad Bettner <tbettner@gcid.net>
Subject: "un-dark" report

Ally,

Can you share with me how the Un-Dark effort came about? Is this something Sites asked for as a focused effort from them? I was wondering if we should do something similar for our efforts around salmon recovery?

Lewis

Sites Reservoir Project P1 Investigation
Field Shift 23
May 1-5, 2023

May 1 TRR-B-023 and TRR-B-025 at Funks, Backfill at TRW-B-029 at GCID

- Field teams and monitors met with Fugro PM at the Sites Authority office for a tailgate.
- Fire Chief in Maxwell was notified of team working in the TCCA and GCID areas.
- Teams escorted into work areas at TCCA.
- Patriot and Fugro PM visit TRW-B-029 to check settlement, 1'-5" backfilled, mats picked up. a
- One rig reset at TRR-B-023 and completed packer test and cored 10 feet.
- One rig at TRR-B-025 and completed packer testing and 20 feet of coring
- Patriot relocated drums to Maxwell yard.
- Fire Chief in Maxwell was notified that activities were completed for the day.
- No HSE issues or incidents. Rattle snake observed at cattle guard crossing to TRR-B-025.

May 2 TRR-B-023 and TRR-B-025 at Funks

- Field team and monitors met with Fugro PM at the Sites Authority office for a tailgate.
- Fire Chief in Maxwell was notified of team working in the TCCA.
- Teams were escorted into work areas.
- One rig at TRR-B-025 completed packer test and cored 20 feet and conducted second packer test.
- One rig at TRR-B-023 cored 10 feet and conducted packer test. Flushed hole, removed core rods to get ready to use televiewers. Hole collapsed, Fugro PM called and discussed with Jacobs options to collect DS data. 3 inch PVC will be grouted in place on Wed for DS testing on Friday.
- Patriot relocated drums to Maxwell yard.
- Fire Chief in Maxwell was notified that activities were completed for the day.
- No HSE issues or incidents. Rattle snake observed at cattle guard crossing to TRR-B-025.

May 3 TRR-B-023 and TRR-B-025 at Funks

- Field team and monitors met with Fugro PM at the Sites Authority office for a tailgate.
- Fire Chief in Maxwell was notified of team working in the TCCA. Teams were escorted into work areas.
- One rig at TRR-B-025 completed televiewing and grouting of the hole. Track-walked rig to staging area.
- One rig at TRR-B-023, cleaned out soil and sediment blockage from 28 feet to 70 feet. Set 3 inch PVC grouted in place.
- Patriot conducted rut management in various locations.
- Patriot relocated drums to Maxwell yard.
- Fire Chief in Maxwell was notified that activities were completed for the day.
- No HSE issues or incidents. Rattle snake observed at cattle guard crossing to TRR-B-025.

May 4 TRR-B-025 at Funks, Seismic Refraction Lines in Sites Canyon, and Rut Management

- Field team and monitors met with Fugro PM at the Sites Authority office for a tailgate.
- Fire Chief in Maxwell was notified of team working in the TCCA and Sites Canyon.
- Teams were escorted into work areas.
- Patriot and Fugro PM checked settlement and backfilled 1', removed hole cover.
- Fence to location TRR-B-025 was repaired and rut management conducted.
- Seismic refraction line S-SR-003 was completed.
- Fugro PM and Real Estate rep drove into Red Stick parcels but travel path was very slick and site visit was stopped.
- Seismic Refraction team continued work. While moving the seismic refraction line to the east, steepness of slope increased causing the team lead to pause part of the group, the second part of group continued to the east and at some point some equipment(battery) was set down/grip lost and tumbled to the roadway below. The battery was broken as it hit several rocks releasing battery acid along the tumble path. No staff injuries occurred. Small spill on roadway was neutralized with water and later with a baking soda solution. PM issued formal Stop Work to allow staff with equipment to traverse the slope to the road, and allow an assessment of changes in protocols when team regroups on Friday. Rocks and weeds/grasses at initial point of impact were sprayed down with baking soda solution.
- Fire Chief in Maxwell was notified that activities were completed for the day.
- Other than the battery incident no other HSE issues or incidents were noted.

May 5 TRR-B-023 Downhole Seismic, Seismic Refraction Lines, Battery Acid Cleanup, and Rut Management

- Field team and monitors met with Fugro PM at the Sites Authority office for a tailgate.
- Fire Chief in Maxwell was notified of team working in the TCCA and Sites Canyon areas.
- Teams were escorted into work areas.
- Patriot team conducted further neutralization of areas impacted in Sites Canyon by battery acid and removed some vegetation in area.
- One rig at TRR-B-023, conducted DS testing, and then grouted the hole.
- Seismic Refraction line S-SR-002 was surveyed in Sites Canyon.
- Rut management conducted at several locations.
- Patriot relocated drums to Maxwell yard.
- Fire Chief in Maxwell was notified that activities were completed for the day.
- No HSE issues or incidents.

Upcoming Work – May

Sites Canyon Work - Borings, Downhole testing, Seismic Refraction Surveying

Upcoming work - June

Sites Canyon Work- Borings and downhole testing, piezometer install and slug testing.

Redstick Farms parcels. Borings, pavement cores, seismic refraction lines and possible fault trench, test and dozer line excavations.

U.S. Fish and Wildlife Service Concerns Identified in the 2021 Sites Reservoir Project Planning Aid Memorandum - Draft

The following are the initial concerns identified in the PAM and the location in the administrative draft final EIR/EIS in track changes "All Markup" view:

- Provide greater specificity regarding potential mitigation lands or banks for each of the habitat types for which mitigation is proposed
    - Page 2 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Chapter 9, pages 9-25 through 9-27, 9-38 through 9-40, and 9-46 through 9-51
    - Master response 6, pages 12-14
- Provide a better description of how increases in Level 4 refuge water will be provided and the expected benefit to migratory birds
    - Page 3 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022 discussed in meeting on 11/2/22
- More thorough analysis of geomorphic effects of flow reduction in the higher flow range on habitat (cut bank formation, cottonwood seed dispersion/regeneration processes, wood transport) and the sensitive species that use it (e.g., bank swallows, yellow-billed cuckoo).
    - Page 4 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Chapter 10, pages 10-115 through 10-124, Table 10-2d
    - Write-up on *Sites Reservoir Western Yellow-billed Cuckoo Analysis* provided via email and discussed in meeting on 11/2/22
- Additional review may be needed of the resource protection measures identified for habitats (e.g., riparian, upland, stream, and wetland) that could support special-status species including the listed valley elderberry longhorn beetle, red-legged frog, and several rare plants, which are potentially present within the impact area.
    - Page 4 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Chapter 10, pages 10-49 through 10-52 and 10-72 through 10-74
    - Chapter 9, pages 9-46 through 9-51
- Provide a better demonstration of temperature benefit expected from opportunities to increase storage in Shasta Reservoir.
    - Pages 4 and 5 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Master Response 5 pages MR5-18 through MR5-21
    - Chapter 11, pages 11-109 through 11-115, 11-168 through 11-171, 11-207 through 11-210, 11-248 through 11-252, and 11-281 through 11-283
- In general, whenever water diversions occur, there will be an associated loss of food organisms and sediment, incidental mortality of fish at the intake screen(s), and lower survival due to lower flows and related mechanisms (predation exposure, less inundated edge cover, less food production, less suspended sediment):

    A. Flow criteria at Wilkins Slough (8,000 cfs [cubic feet per second] in April and May; 5,000 cfs in other months) is likely inadequate to protect downstream migrating salmon. Suggest consideration of Michel et al. (2021).

- Pages 5 and 6 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
- Chapter 2, pages 2-79 through 2-87
- Chapter 11, pages 11-138 through 11-139
- Master Response 5 pages MR5-23 through MR5-26

B. Need more thorough analysis of effects of habitat reduction on survival, weighted usable area (WUA) curves do not disclose all effects associated with reduced flow

- Pages 6 and 7 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
- Write-up on *WUA Concerns Discussion* provided via email and discussed in meeting on 11/2/22
- Chapter 11, page 11-63, pages 116 through 11-120, 11-173 through 11-176, 11-184-186, 11-212 through 11-216, 11-237 through 11-239, and 11-252 through 11-255, 11-283 through 11-302.
- Master Response 5 pages MR5-5 through MR5-8
- Appendix 11K, *Weighted Usable Area Analysis*, pages 11K-3 through 11K-21

C. More complete analysis of effects of flow reductions on sturgeon migration

- Pages 6 and 7 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
- Chapter 11, pages 11-283 through 11-311, 11-314 through 321, 11-326 through 328, and 11-330 through 11-331

- The relationship between pulses and fish movement is not a precise relationship. Longer and more frequent flows may be necessary to protect downstream-migrating juvenile salmon
  - Pages 6 and 7 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
  - Master Response 5 pages MR5-21 through MR5-25
  - Chapter 2, pages 2-82 through 2-83
  - Chapter 11, pages 11-85 through 11-87, 11-109 through 11-110, 11-159 through 11-161
  - Appendix 2D.6.3 and pages 2D-55 and 2D-56
- Need to address pulses as a mechanism to initiate/attract adult salmon and sturgeon up stream.
  - Page 7 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
  - Master Response 5 pages MR5-21 through MR5-25
  - Chapter 2, pages 2-82 through 2-83
- Provide a better explanation of effects and benefits of fall pulse flows into Yolo Bypass for plankton production and discussion of consequences of reduced flow into the bypass due to reduction in flows attributable to diversions at TCCA and GCID diversions
  - Pages 7 and 8 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
  - Master Response 5 pages MR5-20 and MR5-21, and MR5-31 through MR5-33
  - Chapter 11, pages 11-33 through 11-34, 11-123 through 11-131, and 11-222 and 223
  - Appendix 11M, *Yolo and Sutter Bypass Flow and Weir Spill Analysis*
- Address expected increase in loss of fish at South Delta export facilities associated with July – September increases in Delta exports.
  - Page 8 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
  - Master Response 5 pages MR5-27 and MR5-29 and MR5-32 and MR5-33
  - Chapter 11, pages 11-148 through 11-149, 11-187, 11-233 through 11-35, 11-269 through 270, 11-321, 11-331, 11-345, and 11-356 through 11-358

- More thorough analysis may be needed of the effects of exchanges on spawning and rearing habitat in the American and Feather Rivers
    - Page 8 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Master Response 5 pages MR5-19 and MR5-25 through MR5-26
    - Chapter 11, pages 11-168, 11-207
- Reclamation should consider the benefits of cumulative projects, how they would interact with the proposed project, and explain the sequence of construction/completion relative to the proposed project
    - Page 8 of the *Preliminary Evaluation of the Planning Aid Memorandum*, July 2022
    - Chapter 31, pages 31-35 through 31-45

Preliminary Evaluation of the Planning Aid Memorandum Technical Memorandum

To:	Alicia Forsythe, Sites Project Authority
CC:	John Spranza, Sites Integration Laurie Warner-Herson, Sites Integration
Date:	July 14, 2022
From:	ICF
Quality Review:	Mike Hendrick (ICF)
Authority Agent Review:	N/A
Subject:	Preliminary Evaluation of the Planning Aid Memorandum

1.0 Purpose

This memorandum presents a preliminary evaluation of the August 5, 2021, Planning Aid Memorandum (PAM) provided by the U.S. Fish and Wildlife Service (USFWS) to the Bureau of Reclamation (Reclamation) for the Sites Reservoir Project (Project). The purpose of the PAM was to provide Reclamation with the USFWS's comments and recommendations regarding the Project's potential effects on biological resources for consideration in project planning and preparation of a public revised draft environmental document. The PAM was prepared under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq*.). The Fish and Wildlife Coordination Act requires federal agencies proposing water resource development projects or involved in issuance of related permits or licenses to consult with the USFWS and provide equal consideration to the conservation, rehabilitation, and enhancement of fish and wildlife resources with other project purposes.

The PAM summarized early coordination between USFWS and Reclamation regarding potential effects of the proposed Project. It provided a high-level description of the Project and USFWS's views of potential effects of the inundation of upland habitat (i.e., upland effects), increased diversions of Sacramento River water (i.e., in-river effects), and cumulative impacts associated with implementation of other projects. The PAM also summarized information and early analysis of effects provided to the USFWS by Reclamation and identified areas and concerns where the USFWS indicated that more information or analysis was needed.

The key concerns identified in the PAM are categorized as upland effects (Section 2.0), in-river effects (Section 3.0), and cumulative impacts (Section 4.0). Responses summarizing how each key concern was addressed are provided herein. The Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) released in November 2021 contained much of the information to address these key concerns (Sites Project Authority and Bureau of Reclamation 2021). The PAM was developed based on the USFWS's review of the first administrative draft of the RDEIR/SDEIS and there were several substantive changes that occurred between the administrative draft and the publicly released RDEIR/SDEIS, which are explained below. In addition, subsequent analysis

that has been developed to date in preparation of responses to public comments on the RDEIR/SDEIS and for the development of related permitting processes was also used to address the key concerns.

It is important to note that the analysis of the comments on the RDEIR/SDEIS, the response to those comments, and the preparation of the Final EIR/EIS are ongoing. The Authority has recently changed the Project's diversion criteria and has worked with Reclamation since the issuance of the RDEIR/SDEIS to enhance the Project's anadromous species benefits, especially as reflected in the modeling framework. In addition, the Authority has moved from Alternative 1 as its Preferred Project for the purposes of the California Environmental Quality Act compliance to Alternative 3. Revised modeling is underway to reflect these adjustments and once modeling is completed, the Authority and Reclamation look forward to discussing the results and revisions to subsequent species analysis with the USFWS, National Marine Fisheries Service [NMFS], and the California Department of Fish and Wildlife [CDFW]. Therefore, the information and responses in this memorandum may change as these enhanced species protections and species benefits are incorporated into the Project.

2.0 Upland Effects

Key Concern: Provide greater specificity regarding potential mitigation lands or banks for each of the habitat types for which mitigation is proposed.

Response: Given the size of the Project, the Sites Project Authority (Authority) will rely on several mitigation strategies including a mix of mitigation banks and other mitigation mechanisms. The Project's Mitigation and Monitoring Plan (Plan) is under development and will be provided to the USFWS as part of the Project's Biological Assessment (anticipated summer 2022) and Final EIR/EIS (anticipated early 2023). The Plan includes a comprehensive mitigation planning strategy, implementation approach and general criteria for species and habitats based on anticipated Project impacts on regulated biological resources. As access is currently limited to less than 1% of the Project Area, a final analysis of impacts will be conducted once land access is obtained and following the final refinements of Project design and completion of on-the-ground, protocol-level biological field surveys.

Following completion of Project construction, temporary impacts will be mitigated through restoration and revegetation of areas disturbed by construction in accordance with an approved habitat restoration plan. Permanent impacts will be mitigated on site and at agency-approved (USFWS, NMFS, and/or CDFW) offsite locations. Onsite compensatory mitigation may include restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or preservation of aquatic or terrestrial biological resources that occur within the proposed Project area. Offsite compensatory mitigation for the proposed Project may include the purchase of agency-approved mitigation/conservation bank credits, the establishment of third party-responsible "turn-key" mitigation/conservation bank projects, preservation of biological resources through conservation easements with private landowners, payments to in-lieu fee programs, or the establishment of permittee-responsible offsite mitigation sites. The methods for assessing resources in the project footprint, best management practices to be applied, tools available for mitigating effects of the Project are discusses in chapters 9 – *Vegetation and Wetland Resources*, and 10 – *Wildlife Resources* of the RDEIR/SDEIS.

The Authority has conferred with USFWS about species habitat models and used this information to estimate mitigation obligations. The Authority expects to continue to work with USFWS and Reclamation as the Project moves forward and better information becomes available to define mitigation requirements.

Key Concern: Provide a better description of how increases in Incremental Level 4 refuge water will be provided and the expected benefit to migratory birds.

Response: Providing Incremental Level 4 refuge water is an environmental benefit of the Project recognized by the California Water Commission in its authorization of State funding from the Water Storage Investment Program (WSIP). The Authority envisions that CDFW will take an active role in managing the ecosystem water and the Authority would work with CDFW to schedule and adjust releases of ecosystem water to address real-time conditions and needs. The Authority also recognizes that Incremental Level 4 refuge water would be made available to federal refuges north and south of the Sacramento–San Joaquin Delta (Delta) and as such, expects that it would provide Incremental Level 4 water to appropriate destinations based on guidance from, and coordination with the CDFW, USFWS, and Reclamation. The Authority understands that Reclamation and CDFW have an existing methodology to allocate Incremental Level 4 refuge water to the National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands included in Central Valley Project Improvement Act Refuge Water Supply Program. The Authority anticipates that CDFW and Reclamation would allocate the Incremental Level 4 refuge water that results from the Project in the same way they allocate all Incremental Level 4 refuge water.

Table 1 below is from the Authority's *Water Storage Investment Program: Sites Reservoir Project Continuing Eligibility and Feasibility Determination* report (Authority 2021). It identifies the Project's Incremental Level 4 refuge water supply benefits in terms of water supply increases to National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands projected in 2030 and 2070 as estimated based on WSIP Unit Water Values. Incremental Level 4 represents the additional increment of water required for optimal wetland habitat development on the National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands included in Central Valley Project Improvement Act Refuge Water Supply Program. The benefits to migratory birds of Incremental Level 4 refuge water supply were identified as part of the original foundational documents of the Central Valley Project Improvement Act and differ for each individual National Wildlife Refuge, State Wildlife Area, and privately managed wetland.

Table 1. Sites Reservoir Project Incremental Level 4 Refuge Water Supply Increases (2030 and 2070) (TAF/year)

Period	North-of-the-Delta	South-of-the-Delta [b]	Total
2030 Results			
Long-Term Average [a]	5	11	17
Wet	0	0	0
Above Normal	9	5	14
Below Normal	9	13	22
Dry	8	27	34
Critical	6	17	23
2070 Results			
Long-Term Average [a]	5	10	15
Wet	0	0	0
Above Normal	9	1	10
Below Normal	7	8	16
Dry	7	10	17
Critical	6	21	27

Source: CALSIM II.

Notes:
(a) Average weighted based on water-year frequency rates
(b) Includes both San Joaquin and Tulare Lake Refuge deliveries and based on San Joaquin Valley 60-20-20 Index Year Class.
TAF = thousand acre-feet

Key Concern: More thorough analysis is needed of geomorphic effects of flow reduction in the higher flow range on habitat (cut bank formation, cottonwood seed dispersion/regeneration processes, wood transport) and the sensitive species that use it (e.g., bank swallows, yellow-billed cuckoo).

Response: The SRH-Meander model results presented in the RDEIR/SDEIS (Chapter 7 – *Fluvial Geomorphology*) suggested that the tendency for meander is not significant among the Project alternatives and the No Action Alternative (NAA). The river meandering, bank erosion, and deposition modeling concluded that there were no significant differences in the channel alignments between existing conditions and the modeled alternatives. Thus, operational impacts on the geomorphic regime (including natural river geomorphic processes such as sediment transport and bank erosion) and existing river geomorphic characteristics (e.g., sinuosity, channel gradient, substrate composition, channel width and depth, and riparian vegetation) of the greater Sacramento River system are expected to be minimal, and consequently, impacts on sensitive species would be negligible or minimal as well. The Authority will review these results with USFWS and Reclamation to determine whether additional analysis is warranted, or additional considerations will be added to the monitoring and adaptive management plans or the Project description.

Key Concern: Additional review may be needed of the resource protection measures identified for habitats (e.g., riparian, upland, stream, and wetland) that could support special-status species including the listed valley elderberry longhorn beetle, red-legged frog, and several rare plants, which are potentially present within the impact area.

Response: As stated above, verification of species' presence and habitat suitability has been limited by lack of access to lands that would be affected by the Project. Potential wildlife resources in the study area were evaluated by reviewing existing information and identifying potentially suitable habitat with geographic information system modeling. Sources of information and modeling techniques are summarized in Chapter 10, *Wildlife Resources*, of the RDEIR/SDEIS. The Authority will continue to work with Reclamation, USFWS, NMFS, CDFW, and other regulatory agencies to review these results and discuss the resource protection measures, including avoidance and minimization measures. These efforts have been ongoing for some time for aquatic species with more limited discussion on terrestrial species. The Authority with Reclamation would like to engage in more detailed discussion of these concerns with regard to terrestrial species.

3.0 In-River Effects

Key Concern: Provide a better demonstration of temperature benefit expected from opportunities to increase storage in Shasta Reservoir.

Response: In coordination with Reclamation, text was developed to expand the discussion of fisheries benefits related to increased operational flexibility associated with Shasta Reservoir. This text was developed after issuance of the PAM and was included in Chapter 2, *Project Description and Alternatives*, of the RDEIR/SDEIS. Additional water supply from Sites Reservoir would provide opportunities for improved management of salmonid habitat, particularly in the Sacramento River above Red Bluff Diversion Dam. By exchanging Sites Reservoir water for Central Valley Project (CVP) water, Reclamation has an additional tool to maintain and improve habitat for salmonid spawning,

incubation, rearing, and migration. By delivering water to CVP contractors from Sites Reservoir, Reclamation may maintain supply in Shasta Reservoir. Maintenance of supply can then be allocated in real-time management scenarios to uses that protect and enhance anadromous fish benefits, including protecting and enhancing the cold-water pool, which is essential for temperature control in the salmonid spawning reaches below Keswick Dam during Dry and Critically Dry Water Years. Increased storage may provide benefits beyond temperature such as providing a resource for maintaining fall flows to sustain spawning redds that persist in the wetted margins of the Sacramento River. In years when storm events are weak and naturally-occurring pulse flows are minimal, this maintenance of supply could be used to manufacture a spring pulse flow to assist juvenile salmonids in completing their migration from the upper Sacramento River to the Delta and ultimately the Pacific Ocean. The Authority is working with Reclamation to assess and enhance fisheries benefits associated with Reclamation's participation for the multiple objectives related to increased Shasta Reservoir storage.

The Project would also provide an additional capability to address expected changes in precipitation and runoff patterns anticipated to result from climate change (see Chapter 28 of the RDEIR/SDEIS). While long-term averages in precipitation are not expected to change, more precipitation is expected to fall as rain, resulting in a decreased snowpack and changes in runoff patterns. These changes will likely present challenges for future water management, including that for environmental benefits. The ability of the Project to capture and store water that cannot be captured and stored by Reclamation and to exchange water with Shasta Reservoir creates flexibility to provide environmental benefits to anadromous fish in the upper Sacramento River under climate change scenarios.

Key Concern: In general, whenever water diversions occur, there will be an associated loss of food organisms and sediment, incidental mortality of fish at the intake screen(s), and lower survival due to lower flows and related mechanisms (predation exposure, less inundated edge cover, less food production, less suspended sediment). Specific concerns expressed are as follows:

A. Flow criteria at Wilkins Slough (8,000 cfs [cubic feet per second] in April and May; 5,000 cfs in other months) is likely inadequate to protect downstream migrating salmon. Suggest consideration of Michel et al. (2021).

B. Need more thorough analysis of effects of habitat reduction on survival. Weighted usable area (WUA) curves do not disclose all effects associated with reduced flow.

C. Need more complete analysis of effects of flow reductions on sturgeon migration.

Response:

A. Wilkins Slough: In response to the concerns expressed in the PAM and the comments on the RDEIR/SDEIS from CDFW and others, the Authority increased the minimum bypass flow requirement at Wilkins Slough during October to June to 10,700 cfs (303 m^3/s), which is consistent with the step function identified to in Michel et al. (2021) for increased Chinook salmon survival in the Sacramento River. In summary, Michel et al. (2021) looked at the challenge of implementing functional flows to optimize ecosystem improvements given the limited resources. The minimum bypass flow at Wilkins Slough during September remains at 5,000 cfs. The Project will not be diverting water from June 15 to the end of August. Revisions have been made to the Project diversion criteria. These revisions are reflected in Table 2.

Table 2. Comparison of RDEIR/SDEIS and Revised Diversion Criteria

Location (Listed from North to South)	RDEIR/SDEIS with Mitigation Included	Revised and Expected in the Final EIR/EIS
Bend Bridge Pulse Protection	Protection of all qualified precipitation-generated pulse events (i.e., peaks in river flow rather than scheduled operational events) from October to May based on the detection of fish presence and migration during the beginning of the flow event. For each event where fish presence and migration is detected, diversions from the Sacramento River would cease for 7 days.	Similar except the following: (1) a qualified precipitation-generated pulse event is determined based on forecasted flows and (2) pulse protection may cease earlier than 7 days if flows at Bend Bridge exceed 29,000 cfs and Project diversions subtracted from Bend Bridge flows continue to be at least 25,000 cfs
Minimum Bypass Flows in the Sacramento River at the RBPP	3,250 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design	No change
Minimum Bypass Flows in the Sacramento River at the Hamilton City Pump Station	4,000 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design	No change
Minimum Bypass Flows in the Sacramento River at Wilkins Slough	10,700 cfs in March through May; 5,000 cfs all other times	10,700 cfs October through June; 5,000 cfs September (not diverting from June 15 to end of August)
Fremont Weir Notch Protections	No more than 1% reduction in flow over weir when spill over the weir are less than 600 cfs. No more than a 10% reduction in flow over weir when spills over the weir are between 600 cfs and 6,000 cfs. No restriction when flows over the weir are greater than 6,000 cfs	No longer included. Revised minimum bypass flows in the Sacramento River at Wilkins Slough and Bend Bridge Pulse Protection provide protections for Fremont Weir Notch
Freeport, Net Delta Outflow Index, X2, and Delta Water Quality	Operations consistent with all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs	No change

Note: This table mimics Table 2-5 in the RDEIR/SDEIS and the Wilkins Slough flow requirements have been incorporated into the Project Description.

The Authority is working with Reclamation to revise the modeling and determination of effects of the Project's revised operations criteria on fisheries resources. The Authority is also in ongoing conversations with Reclamation, CDFW, NMFS, and USFWS to develop language to describe how these operational requirements will be implemented and develop the associated fish monitoring program.

A. Upstream habitat: The Authority agrees diverting flow can have effects on habitat volume and available food that are likely more limiting, and not apparent in WUA calculations. The WUA is derived from the CALSIM runs and as such the WUA's are based on monthly averages that may not accurately reflect real time operations. The analysis in Chapter 11, *Aquatic Biological Resources*, of the RDEIR/SDEIS considers factors such as temperature, flow, and the effects of flow reductions on side channel and floodplain habitats to support its impact determination of less than significant with mitigation for salmonids.

The Authority will revise the CALSIM analysis with the revised diversion criteria and enhanced anadromous fish benefits to reassess the effects on WUA in the Final EIR/EIS. During 2022, the Authority will work with Reclamation, USFWS, NMFS, and CDFW to review the revised modeling and related analyses to assess the adequacy of the analysis and work toward consensus on impact determinations and any measures needed to reduce impacts to less than significant levels (CEQA) and no adverse effects (NEPA).

B. Sturgeon: Shaffter (1997) reported spawning on white sturgeon in the Sacramento River at flows of about 6,500 to 6,640 cfs (184 to 188 m^3/s) after observing pulse of about 1,400 cfs (40 m^3/s) over base flow conditions. This reference appears to be the source for the concern. The Authority's decision to adopt a higher minimum bypass flow at Wilkins Slough and the Project's pulse flow protection measure would ensure the Project diversion do not cause flows to decline below those likely to influence sturgeon migration and spawning.

Key Concern: The relationship between pulses and fish movement is not a precise relationship. Longer and more frequent flows may be necessary to protect downstream-migrating juvenile salmon.

Response: The Project's pulse protection measure is intended to account for the importance of pulses in stimulating and providing for the redistribution of juvenile fish from their spawning grounds to downstream rearing areas and seaward migration (Poytress 2014, Steel 2020, Michel 2021, Hassrick 2022). The Authority recognizes that the precise relationship between flow pulses and fish movement is not known at this time. As such, the Authority intends to incorporate the pulse protection criteria, and strategies for evaluating the effectiveness of the criteria, into its adaptive management plan to address this uncertainty and continue to refine the criteria as the science and understanding of fish movement is better understood.

Key Concern: Need to address pulses as a mechanism to initiate/attract adult salmon and sturgeon up stream.

Response: As presented in the RDEIR/SDEIS, the Project is not expected to impede the upstream migration of adult salmon or sturgeon. The proposed pulse flow criteria ensure pulses are protected and propagate downstream. In addition, the revised minimum bypass flow requirement at Wilkins Slough ensures that Project operations do not diminish flows below levels which may interrupt or delay the upstream migration of sturgeon.

Key Concern: Provide a better explanation of effects and benefits of fall pulse flows into Yolo Bypass for plankton production and discussion of consequences of reduced flow into the bypass due to reduction in flows attributable to diversions at TCCA and GCID diversions.

Response: An analysis of the expected timing and benefit of the Yolo Bypass flow measure to stimulate food production and convey forage species to the north Delta for the benefit of delta smelt (*Hypomesus transpacificus*) and other planktivorous fish is presented in Chapter 11 - *Aquatic Biological Resources*, of the RDEIR/SDEIS. The benefit of this measure has been acknowledged by CDFW in the review of the Project during the California Water Commission's WSIP approval process. An analysis of the consequences of reduced flow into the Yolo Bypass due to reduction in flows attributable to diversions at TCCA and GCID diversions is provided in the section, *Impact FISH-2: Operations Effects on Winter-Run Chinook Salmon, Floodplain Inundation and Access,* in Chapter 11 - *Aquatic Biological Resources*, of the RDEIR/SDEIS, as well as in Appendix 11M. The analysis concludes that Sites diversions result in minor reductions in Yolo Bypass acreages inundated during the winter and spring, but that when the net effect

of all differences between the NAA and Alternatives 1, 2, and 3 are examined, the differences are small and the effect on fish populations is expected to be minor.

Key Concern: Address expected increase in loss of fish at South Delta export facilities associated with July through September increases in Delta exports.

Response: The effect of moving Sites Reservoir water across the Delta to the Delta export facilities on the location of X2, flows in Old and Middle River, and expected loss at the export facilities are addressed in Chapter 11 - *Aquatic Biological Resources*, and Appendix 5B3, *Delta Operations*, of the RDEIR/SDEIS. The results of these analyses suggest there would be little difference in south Delta loss between the NAA and Alternatives 1, 2, and 3, primarily due to absence of juvenile ESA-listed fish in the Delta between July and September.

Key Concern: More thorough analysis may be needed of the effects of exchanges on spawning and rearing habitat in the American and Feather Rivers.

Response: The effects of Project operations on temperatures in the American and Feather Rivers are discussed in Chapter 11, *Aquatic Biological Resources*; Appendix 11B, *Upstream Fisheries Impact Assessment Quantitative Methods*; and Appendix 11D, *Fisheries Water Temperature Assessment*, of the RDEIR/SDEIS. The results indicate impacts from changes in temperatures are less than significant. The effects of Project operations on availability of spawning and rearing habitat in the American and Feather Rivers are also analyzed in Chapter 11 and Appendix 11K, *Weighted Usable Area Analysis*, of the RDEIR/SDEIS. The analysis suggests no significant differences between Alternatives 1, 2, and 3 and the NAA with respect to WUA. An analysis of the potential redd dewatering in the American and Feather Rivers was also conducted and discussed in Chapter 11. The results of that analysis suggested no significant differences among the alternatives and the NAA.

These analyses will be revised to reflect the revised diversion criteria and enhanced anadromous fish benefits in revised CALSIM and other model runs. Once the updated modeling is completed, the Authority will be available to present and discuss those results with Reclamation, USFWS, NMFS, CDFW and the other regulatory agencies.

4.0 Cumulative Impacts with Other Projects

Key Concern: Reclamation should consider the benefits of these other projects, how they would interact with the Project, and explain the sequence of construction/completion relative to the Project.

Response: The Authority understands the interest in exploring how the Project may operate in conjunction with other projects such as the revised Delta Conveyance Project and the Shasta Raise Project. However, these projects are presently not sufficiently developed to assess how they would be constructed and operated, and any analysis of cumulative effects would be speculative. The Authority thinks adding speculative results to the cumulative effects analysis could be misleading; therefore, it does not plan to pursue such an analysis. For additional details, refer to Chapter 31, *Cumulative Impacts*, in the RDEIR/SDEIS. Chapter 31 states "The cumulative analysis is primarily qualitative. The cumulative analysis qualitatively addresses projects listed in Table 31-1, such as Delta Conveyance Project. For many of the projects in Table 31-1 it would be speculative to define multiple parameters and assumptions within a numerical modeling effort."

5.0 References

Hassrick, J.L., A.J. Ammann, R.W. Perry, S.N. John, and M.E. Daniels, 2022. Factors affecting spatiotemporal variation in survival of endangered winter-run Chinook salmon out-migrating from the Sacramento River. N. Am. J. of Fish. Man. https://doi.org/10.1002/NAFM.10748

Michel, C.J., J. Notch, F. Cordoleani, A. Ammann, E. Danner. 2021. Nonlinear survival of imperiled fish informs managed flows in a highly modified river. *Freshwater Ecology.* Available: https://doi.org/10.1002/ecs2.3498

Poytress, W. R., J. J. Gruber, F. D. Carrillo, and S. D. Voss. 2014. *Compendium Report of Red Bluff Diversion Dam Rotary Screw Trap Juvenile Anadromous Fish Production Indices for Years 2002–2012*. Prepared for California Department of Fish and Wildlife Ecosystem Restoration Program and the U.S. Bureau of Reclamation. July. U.S. Fish and Wildlife Service, Red Bluff, CA.

Schaffter, R. G. 1997. White Sturgeon spawning migrations and location of spawning habitat in the Sacramento River, California. Calif Fish Game 83(1):1-20.

Sites Project Authority. December 2021. Water Storage Investment Program: Sites Reservoir Project Continuing Eligibility and Feasibility Determination. Available: https://cwc.ca.gov/-/media/CWC-Website/Files/Documents/2021/12_December/December2021_Item_10_SitesFeasibility_Final.pdf

Sites Project Authority and Bureau of Reclamation. 2021. Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS). November. Available: https://sitesproject.org/revised-draft-environmental-impact-report-supplemental-draft-environmental-impact-statement/

Steel, A.E., Anderson, J.J., Mulvey, B., & Smith, D.L. (2020). Applying the mean free-path length model to juvenile Chinook salmon migrating in the Sacramento River, California. Environmental Biology of Fishes, 103, 1603-1617. https://doi.org/10.1007/s10641-020-01046-8

From: Alicia Forsythe [aforsythe@sitesproject.org]
Sent: 5/8/2023 4:35:32 PM
To: Janis Offermann [jaoffermann@montrose-env.com]; Kevin Spesert [kspesert@sitesproject.org]
CC: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Risse, Danielle [Danielle.Risse@hdrinc.com]
Subject: Re: Call from Jennie Mitchum at Colusa

Okay. Many thanks Janis. I just called her.

She expressed that they were not made aware of the efforts and had not seen the reports. I did say that we sent them to the Tribe and would be happy to resend them. Janis, can you resend them the consultation letters and the confidential reports? Lets include just the borings and the test pits (the two separate efforts) as these are the only ongoing efforts.

She also let me know that she had heard Yocha Dehe was monitoring, but that they didnt represent the Colusa Tribe. I said that I understood and respected that. Reinterated that we had them out previously but didnt have availability of monitors during Covid so transitioned

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Monday, May 8, 2023 4:23 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Risse, Danielle <Danielle.Risse@hdrinc.com>
Subject: RE: Call from Jennie Mitchum at Colusa

Hi, Ali
I got a call back from Jennie. She was concerned about the "big excavations" that she heard were going on right now. I explained that the only work that was happening were the geotechnical studies that included borings and but mostly studies that were ground penetrating surface studies. I did mention that trenching would start later this year.
Jennie then said that the monitors that are out there don't represent Colusa and don't know how Colusa feels about things. I acknowledged that and let her know that we did have monitors from Colusa before covid, but during covid they were no longer available, so Yocha Dehe stepped in. I said that the Authority would be happy to have Colusa participate again.
Lastly, she asked that I send her your contact info, which I did, and she asked that you give her a call tomorrow. Jennie's number is 530-868-8590 and her email is jmitchum@colusa-nsn.gov
Colusa has received all of the work plans and unanticipated discovery plans for the geotechnical studies, so they should be up to speed on what is going on and what is planned.

Let me know if there is anything I can do to assist.
Thanks

janis

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Monday, May 8, 2023 3:41 PM
To: Alicia Forsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Kevin Spesert (kspesert@sitesproject.org) <kspesert@sitesproject.org>
Cc: Laurie Warner Herson (laurie.warner.herson@phenixenv.com) <laurie.warner.herson@phenixenv.com>; 'Risse, Danielle' <Danielle.Risse@hdrinc.com>
Subject: Call from Jennie Mitchum at Colusa

Hi Ali
I just wanted to let you know that I had a voice mail message from Jennie Mitchum, the cultural director at Colusa. I called back but was not able to leave a voice mail, so I emailed her to let her know.
Hopefully this is a positive sign and that she is calling about setting up another meeting with you; though I am not sure why she wouldn't just reach out to you directly.
I will, of course, let you know when I have any other news to share. I was just so surprised to hear from her, that I wanted to inform you right away. Beyond confirming that you would like to meet again and that we are making revisions to the language of the EIR, is there anything else you would like me to convey if/when I actually talk with her?

Also, as a reminder, we have a meeting with Yocha Dehe scheduled for Thursday. Would you like me to reach out to Eric Hernandez and ask if they would still like to meet?

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

Technical Memorandum
Sites Reservoir
Emergency Drawdown Criteria TM

To:	J.P. Robinette, P.E. (Sites Project Authority)
CC:	Henry Luu, P.E. (HDR)
Date:	May 8, 2023
From:	Idit Zarchi, P.E. (AECOM)
Quality Review:	Mike Smith, P.E., G.E. (AECOM) Greg Reichert, P.E. (AECOM), Joe Barnes, P.E. (AECOM), Wayne Ohlin, P.E. (Jacobs), David Gutierrez, P.E. (GEI)
Authority Agent Review:	Henry Luu, P.E. (HDR)
Subject:	Sites Reservoir, Emergency Drawdown Criteria, Task HR29

Table of Contents

1.0 Introduction 3
1.1 Project Overview 3
1.2 Background and Purpose 3
1.3 Limitations 3
2.0 Guidelines for Emergency Drawdown 3
2.1 DSOD 3
2.2 Reclamation 4
2.3 Inflows During Evacuation 5
3.0 Dam Safety Considerations – Potential Failure Modes (PFMs) 7
3.1 Seismic Deformation of the Embankments 7
3.2 Fault Offsets within the Foundation 8
3.3 Dam Construction 8
3.4 Embankment Slope Stability 9
3.5 Internal Erosion 9
3.6 Stability of Tunnel Portals 9
3.7 Hydrologic Loading and Inflows 9
3.8 Other Factors 10
4.0 Downstream Flooding Impacts 10
5.0 Conclusion 10
6.0 References 12

List of Figures

Figure 1: Comparison of Average Reservoir Evacuation Rates
Figure 2: Reservoir Elevations at Different Drawdown Rates
Figure 3: 7-day Drawdown Flooding

List of Tables

Table 1: Summary of average discharges required to meet DSOD emergency drawdown criteria 4
Table 2: Summary of average discharges required to meet Reclamation emergency drawdown criteria .. 5
Table 3: Comparison of Reservoir Levels After 7 days 7

Attachments

Attachment A: Interpretation of Reclamation Guidelines

Acronyms and Abbreviations

Authority	Sites Project Authority
cfs	cubic feet per second
DSOD	California Department of Water Resources, Division of Safety of Dams
DWR	California Department of Water Resources, Division of Engineering
El	Elevation
Ft	feet
MAF	million-acre-foot
mi^2	Square mile
I/O	Inlet/Outlet
PFM	Potential Failure Mode
PMF	Probable Maximum Flood
Reclamation	U. S. Bureau of Reclamation
TM	technical memorandum
USGS	United States Geological Survey

1.0 Introduction

1.1 Project Overview

The Sites Project Authority (Authority) is in the preliminary design phase for the proposed Sites Reservoir, a 1.5-million-acre-foot (MAF) reservoir located in Colusa and Glenn Counties at a site studied previously by the California Department of Water Resources, Division of Engineering (DWR) and the U. S. Bureau of Reclamation (Reclamation).

1.2 Background and Purpose

The Authority is currently developing the design of Sites Reservoir's hydraulic infrastructure for the 30% design level, which will be used to elicit investor commitment for the project. The 30% design package is due March 2024, including the reservoir outlet design. DSOD criteria for emergency drawdown of the reservoir are a part of the governing criteria that dictate sizing the reservoir's outlets.

AECOM has assessed dam safety risk factors and flooding impacts for emergency releases based on drawdown protocol outlined by DSOD. AECOM also evaluated Reclamation requirements as an independent check. The purpose of this technical memorandum (TM) is to present AECOM's findings and recommendation of the reservoir emergency drawdown criteria for review and comment by DSOD; which will then be applied to the design of the outlet facilities at Sites Reservoir.

1.3 Limitations

AECOM represents that our services were conducted in a manner consistent with the current standard of care ordinarily applied as the state of practice in the profession, within the limits prescribed by our client.

This TM is intended for the sole use of the Sites Project Authority and DSOD. The scope of services performed may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or of the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

2.0 Guidelines for Emergency Drawdown

Outlet hydraulic capacities necessary were assessed to address DSOD requirements for drawdown for the currently proposed 1.5 MAF Sites Reservoir Project.

2.1 DSOD

Emergency reservoir drawdown protocol established by DSOD (DSOD, 2018) would require that Sites Reservoir have an emergency outlet capacity capable of meeting the following criteria:

1. Reduce the maximum storage depth of water in the reservoir by 10 percent within 7 days, or 10 days.
2. Drain the reservoir to top of dead pool (El. 300 feet) within 90 or 120 days.

The selected criteria is unique for each project and should be dependent on factors such as potential downstream impacts, seismic hazard, dam construction methods, and type of dam as determined by DSOD. It is recognized that it becomes more difficult and complex to meet the criteria for very large reservoirs.

Storage depth was defined in a memorandum sent to DSOD in April 2023 as the elevation difference between the maximum normal operating water surface elevation (spillway crest, El. 498 feet) and the lowest point in the reservoir that would result in hydrostatic loading on the dams. Considering the elevations of the upstream toes of both Golden Gate and Sites Dams, this is approximately El. 250 feet. Thus, the maximum storage depth for the reservoir, for the purposes of determining drawdown discharges, would be 248 feet (El. 498 feet minus El. 250 feet). Reducing the storage depth of water in the reservoir by 10 percent would bring it down to El. 473.2 feet (El. 498 feet minus 24.8 feet)

Calculations for the average[1] discharge rates to meet the two criteria were sent to DSOD in April 2023. Results are summarized in Table 1 below.

Table 1: Summary of average discharges required to meet DSOD emergency drawdown criteria

Drawdown Criteria	Average Discharge (cfs)
10% of Hydraulic Head in **7 days**	22,485 (say 22,500)
10% of Hydraulic Head in **10 days**	15,740 (say 15,800)
Drawdown to Deadpool in **90 days**	7,045 – 7,309[1] (say 7,000 – 7,300)
Drawdown to Deadpool in **120 days**	5,175 – 5,316[1] (say 5,200 – 5,300)

[1] Average discharge rate for the drawdown to deadpool is dependent on whether the drawdown of the upper 10% of reservoir hydraulic head is completed in 7 or 10 days, which results in a lower or higher average flow over the remaining days, respectively.

The average discharge rate required to reduce 10% of hydraulic head over 7 or 10 days is the governing factor for sizing the emergency outlet. Drawing down the upper 10% of hydraulic head in the reservoir in 7 days rather than 10 days would require upsizing the system to have the capacity to continuously release an additional average flow of about 6,700 cubic feet per second (cfs).

2.2 Reclamation

The U.S. Bureau of Reclamation provides criteria and guidelines for evacuating storage reservoirs and sizing low-level outlet works (Reclamation, 1990) that are based on defining the hazard (consequence of an adverse event) and risk (probability of an adverse event). The terms "high", "significant", and "low" are assigned to describe the hazard and risk. Reclamation's guidelines recognize that *"some reservoirs may be too large for short term evacuation…and some may have unique functions or other site-specific conditions which justify deviation from established criteria and guidelines."*

After review of Reclamation's guidelines AECOM would classify Sites as a high-hazard, significant risk reservoir. See Attachment A for more discussion on the interpretation of Reclamation's guidelines. Table 2 summarizes the average discharges required to meet Reclamation emergency drawdown stages for a high hazard, significant risk reservoir.

[1] Average discharge rates are presented for preliminary sizing of the outlets. Once design has been further developed hydraulic models will be utilized to determine variable flow rates as the reservoir level drops (and the system loses head).

Table 2: Summary of average discharges required to meet Reclamation emergency drawdown criteria

Evacuation Stage	Associated Elevation in Reservoir [ft]	High Hazard, Significant Risk Drawdown Timeframe [days]	Average Discharge [cfs]
75% Height[2]	431	25	15,475 (say 15,500)
50% Height	364	45	12,631 (say 12,600)
10% Storage[3]	~352	55	2,845 (say 2,800)
25% Height	297	80	2,794 (say 2,800)

The Reclamation average drawdown rate curve for a high hazard, significant risk reservoir and the DSOD average drawdown rate curves are shown in Figure 1. The DSOD curves assume a 90 day timeframe for the drawdown to deadpool. The Reclamation drawdown curve is similar to the DSOD 10-day drawdown curve for discharge of the upper 10% of hydraulic height. Below El. 473.2 the DSOD 10-day drawdown and Reclamation drawdown curves diverge. However, given that the system will be sized to handle the releases in the upper 10% of hydraulic height, the flow rate below that can be adjusted to meet either curve as needed based on the type of emergency that led to the required release.

2.3 Inflows During Evacuation

Sites is an offstream reservoir and the local watershed inflows are relatively small compared to the reservoir capacity. The majority of the inflows to Sites Reservoir will be pumped inflows from the Sacramento River. Pumping would not occur during an emergency drawdown since pumping and emergency releases use the same conveyance facilities. The natural monthly mean flow data was calculated for Sites Reservoir (see Attachment A). The maximum monthly mean flows would contribute approximately 12,100 AF to Sites Reservoir in a 90 day drawdown period. This equates to an average of 68 cfs for 90 days.

In addition to this, the Probable Maximum Flood (PMF) inflows were compared to the outlet capacity[4]. The previous PMF study for Sites Reservoir (DWR, 2004) calculated that the total volume into the reservoir would be approximately 78,400 acre-feet of water in 36 hours. This volume is roughly 25% of the upper 10% of the hydraulic storage (312,189 acre feet) and 5% of the total volume that will be released through the outlets during drawdown to Deadpool elevation (El. 300 feet). A 10-day drawdown of the upper 10% of hydraulic storage would have an average drawdown rate of 15,800 cfs. If the Sites outlets were sized for a 10-day drawdown they would be able to draw down the PMF volume in 2.5 days.

---

[2] Reclamation defines hydraulic height as the difference between the lowest point in the original streambed at the axis or centerline of the dam (El. 230 feet for Golden Gate) and the maximum controllable water surface (El. 498 feet).

[3] 10% of the storage between El. 498 feet and El. 230 feet.

[4] PMF flows are not typically considered when sizing outlets at a reservoir. However, this comparison was discussed at the DSOD meeting on April 6, 2023, and is presented to illustrate the large design capacity of the outlets.

Figure 1: Comparison of Average Reservoir Evacuation Rates

3.0 Dam Safety Considerations – Potential Failure Modes (PFMs)

Risk including the probability of loads, fragility of the structure and consequence of failure are all important considerations when assessing reservoir drawdown criteria. DSOD's protocols outline factors that should be considered, including downstream and seismic hazard, dam construction methods and age, known deficiencies and type of dam. AECOM considered these and other factors to provide support in recommending the appropriate drawdown criteria.

An important parameter associated with all the potential failure modes is the hydraulic head (or pressure) at the time of the potential failure. For comparison, the reservoir water surface level after 7 days was calculated for both a 7-day and 10-day average drawdown rate. Results are summarized in Table 3 and shown graphically in Figure 2.

Table 3: Comparison of Reservoir Levels After 7 days

	Average Drawdown Rate [cfs]	Water surface after 7 days [Elevation (ft)]	Depth below spillway at El. 498 [ft]	Depth below dam crest at El. 517 [ft]
7-day	22,500	473.2	24.8	43.8
10-day	15,800	481	17	36
Differential	**6,700**	**7.8**		

As can be seen in Table 3, there is very little difference in hydraulic head for the two criteria for this large reservoir. The reduction in hydrostatic pressure on the upstream dam toe between a 7-day and 10-day drawdown after 7 days is 7.8 feet (or 3.35 psi). This equates to a 3 percent difference of hydrostatic pressure at the toe of the dam. The preliminary design width of embankment for Golden Gate and Sites dams at the 7 day and 10 day drawdown elevations is about 200 feet and 180 feet which equates to a difference of about 10 percent.

3.1 Seismic Deformation of the Embankments

Deformation of the dam is expected to occur during the design seismic event. Seismic deformations can cause vertical and horizontal movement of the dam crest, which can lead to overtopping if insufficient freeboard is available, or failure due to erosion of material through transverse cracks extending below the water line.

The overall deformation will be dependent on the final design. However, the dam will be designed to have deformation that is significantly less than the design total freeboard of 19 feet above the maximum storage pool. As such, the risk of failure of the dams by overtopping due to excessive seismic deformations is considered to be remote. The embankment deformations will be estimated based on nonlinear analyses to be performed during preliminary design. The acceptability of the seismic deformations is discussed in the Design Criteria TM (AECOM, 2022).

Cracking of earth embankments, which may occur during a seismic event, is a result of the tensile failure of soils during shaking. Formation of cracks depend on the geometry of the canyon, such as at steep abutments, and the magnitude of deformations. The ability of a soil to propagate a crack and remain open depends on the soil type (clay, silt, sand, etc.) and the density of soil. Higher plasticity soils have a greater ability to support a crack that remains open to deep depths, even in the presence of water.

Sandy cohesionless soils may support the opening of a crack when partially saturated but will then collapse in the presence of water.

Other important factors that are considered in the potential failure mode of transverse cracking include:

- Nineteen feet of freeboard is substantial considering the expected depth of cracking from case histories and the expected calculated deformations. A modern chimney drain including filters and drains will be constructed to near the crest elevation of the dam. Seepage through any cracking that may occur below the water line will be filtered and drained through the drain. Lowering the reservoir with either the 7 or 10 day drawdown criteria would provide immediate additional freeboard. Considering the probability of the earthquake, expected deformation and depth of associated cracks, inclusion of drains and filters, and amount of available freeboard/cross-sectional width, we consider the risk of transverse cracking resulting in erosion of the embankment to be very low. The difference between the 7 day and 10-day drawdown requirement will be insignificant to this potential failure mode. Examination of deformation patterns and stresses in the embankment with nonlinear deformation analyses will be performed during design to confirm this conclusion.
- There are no concrete structures (such as spillway walls) present within the embankment eliminating differential settlement or separation between fill and concrete.
- The abutments are relatively flat and less likely to result in cracking (Pells and Fell, 2002) and the foundation will be shaped to avoid any slopes greater than 0.5H:1V (horizontal:vertical).
- DWR (2003) calculated yield coefficients of 0.19 or higher with predicted displacements of up to 2 feet in their previous analyses of the proposed embankments. While these analyses used a simplified procedure with a potentially lower seismic design criteria (magnitude 7 earthquake with a peak ground acceleration of 0.9g) the results indicate a robust design that is predicted to result in limited deformation during the design earthquake.

3.2 Fault Offsets within the Foundation

There are two sets of primary surface faults mapped in the project area:

1) Northeast-striking faults GG-1, GG-2, GG-3, and S-2 faults, which pass near or through the Sites Dam and Golden Gate Dam footprints, and
2) North-striking Salt Lake thrust fault, which passes near the proposed Saddle Dam 2 site, and the S-3 fault, which passes near Golden Gate Dam and Sites Dam.

Based on preliminary analysis presented in DWR (2003), the GG and S faults are estimated to have potential fault offsets on the order of 2 to 8 inches and the Salt Lake Fault is estimated to have a potential fault offset of 5 to 16 inches. Where these faults cross a dam footprint, the design will include thicker drains and filters to reduce the risk of dam failure due to internal erosion or erosion through cracks. Based on the relatively small amount of predicted fault offset and the planned inclusion of thicker filters and drains where faults may cross the dam footprint, we consider the risk of failure of the dam due to fault offset to be remote.

3.3 Dam Construction

The dam construction methods will follow all state of the practice requirements. The dam will be founded on an unyielding foundation, will be well compacted, and will include a robust blanket and

chimney drain design. Instrumentation will provide real time performance monitoring. A well-maintained dam should result in minimal future deficiencies.

3.4 Embankment Slope Stability

Another potential failure mode of the embankment is static failure of the embankment or failure during rapid drawdown. Previous analyses by DWR (DWR, 2003) show factors of safety of 1.7 or greater for steady-state and rapid drawdown conditions. These analyses will be updated to modern standards but are expected to have similar factors of safety.

Based on average flow rates, it is estimated the 10-day drawdown rate would be about 2.5 feet/day while the 7-day drawdown would be about 3.5 feet/day. While the embankment will be designed for instantaneous rapid drawdown, the drawdown rate of the reservoir could potentially influence the stability of the embankment, with the higher rate for the 7-day drawdown being slightly more detrimental than the 10-day drawdown. However, given the design and since both are high rates, it is unlikely that the different drawdown rates will result in an appreciable difference in the overall stability of the embankments during rapid drawdown.

3.5 Internal Erosion

Internal erosion failures can occur through the foundation or embankment. Appropriately designed drains and filters will be included in the design to prevent erosion and potential piping through the embankment. While the dam will be founded on rock that is unlikely to erode, blanket filters and drains will prevent piping of materials from discontinuities in the foundation. As noted in Table 3, there will be little difference in the hydraulic head comparing the 7 or 10 day criteria. There is only a 3 percent difference in total head comparing these criteria with substantial cross-sectional area during any of the drawdown criteria for the respective elevations.

3.6 Stability of Tunnel Portals

The tunnel portals will be designed for instantaneous rapid drawdown. Stability of the cut slopes above the portals will be assessed for both global failures and for localized wedge failures. Slope stabilization including shotcrete and rock bolts will be included. As such, failures are unlikely to occur with either drawdown rate.

3.7 Hydrologic Loading and Inflows

Sites reservoir will be an offsite reservoir with minimal inflow as a result of the design inflow flood (PMF).

More importantly, unlike major reservoirs on streams or rivers, there will be little to no inflow if one of the PFMs outlined above were to occur (See Section 2.3). The maximum monthly mean inflows would contribute an average of 68 cfs during a 90 day drawdown period when the average drawdown rate for a 10-day timeframe would be 15,800 cfs. This is a major factor we are considering when proposing the appropriate drawdown criteria. Additionally, the emergency outlet will be large compared to the relative inflows from a PMF and would be able to draw down the entire PMF volume in 2.5 days at the 15,800 cfs rate. Therefore, even during large storms, inflows will be insignificant compared to the outlet capacity.

3.8 Other Factors

CALSYMII software was used for preliminary operational modeling of the proposed Sites Reservoir. Inputs included 82 years of record on winter diversions from the Sacramento River and summer operational release assumptions. Results show that the water level within the reservoir will be below the elevation associated with a 10% reduction in hydrostatic head (El. 473.2), approximately 70% of the time. This reduces the likelihood of having full hydrostatic head on the dams during an emergency event.

4.0 Downstream Flooding Impacts

The Sites Reservoir Emergency Drawdown TM (Jacobs, 2021) evaluated inundation extents and depths downstream of the reservoir during an emergency drawdown.

A hydraulic model was developed to calculate expected maximum depths throughout the floodplain downstream of Sites Reservoir for the 7-day drawdown scenario. The upstream boundary of the model was at the Sites Reservoir outlets (Sites Dam, Funks Dam and the Terminal Regulating Reservoir) and the downstream boundary of the model was located at the Yolo bypass, just upstream of the Sacramento River. Initial discharges were set at about 16,000 cfs through the I/O works at Golden Gate Dam and up to around 4,700 cfs through the Sites Dam outlet[5], depending on the scenario. Results are shown in Figure 3.

The inundation study indicated expected flood depths of up to 2 feet in the town of Maxwell, and flood depths approaching 5 feet in a few low points in the terrain. The approximate flood arrival time for the town of Maxwell was 4 to 8 hours after initial releases began.

The Authority is presently running updated flood models based on the 2022 storage-elevation data for both the 7-day and 10-day drawdown rates. Different flow allocations between the two outlets are also being considered. A 10-day drawdown would result in average discharges of approximately 6,700 cfs less than in a 7-day drawdown and it is therefore anticipated to result in reduced flood depths and inundation extents.

As part of the inundation modeling efforts, Sites Authority is assessing a more equitable distribution of flows between the Sites Dam outlet and the I/O works at Golden Gate Dam during an emergency drawdown. This would provide better redundancy should the I/O works and conveyance system not perform at full capacity in an emergency (e.g., should one of the energy dissipation valves along the conveyance system have a mechanical issue that prevents it from fully opening).

5.0 Conclusion

The DSOD drawdown rates for the 7-day and 10-day criteria were compared considering PFMs and the relative risk reduction for the two criteria. The drawdown rates were also compared to Reclamation's guidelines and it was found that the 10-day drawdown rate is more in line with the drawdown rate associated with Reclamation's guidelines for a high hazard, significant risk reservoir.

---

[5] Flows for inundation modeling was done at the 10% design level. Since then emergency drawdown calculations show that flows would be higher for a 7-day drawdown.

Although there are always risks in dam safety, the dam will be designed to modern standards and will include a robust design. As noted by both DSOD and Reclamation, understanding the relative risk of the project is important in determining the appropriate drawdown criteria. In terms of dam safety, the most significant affect that the drawdown criteria would have for the various PFMs is the difference in hydraulic head between the 7-day or 10-day drawdown criteria. The most significant dam safety risk is the potential for embankment cracking and fault offsets. Although this risk is considered relatively small due to the rare seismic event and the robust design, the difference in the hydraulic head at the time of the related PFMs comparing the two criteria is relatively small, at about 3 percent. The difference in length of any related seepage path would also be small. Other aspects or conditions related to dam safety such as stability and reservoir overtopping during flooding are relatively unchanged between a 7-day or 10-day drawdown.

Selecting the criteria for reservoir drawdown depends on many factors. One important factor considered in recommending the criteria for drawdown is the potential for inflows to the reservoir during an emergency. There have been instances during emergencies that outlets can't keep up with inflows. Sites Reservoir will have the major advantage of having essentially no or minimal inflow during the credible PFMs outlined above.

Inundation modeling of the 7-day drawdown shows extensive flooding downstream of the reservoir if an emergency drawdown were implemented. Additional modeling efforts are being performed to allow comparison of flooding between the 7-day and 10-day drawdown discharges. However, by inspection, a 10-day drawdown would reduce the impacts of downstream flooding by reducing initial evacuation discharges by 6,700 cfs.

Given the above assessment of the reservoir, its structures, and downstream impacts, it is the Designer's opinion that a 10-day timeframe to draw down the upper 10% of hydraulic height is the appropriate criterion to safely evacuate water from the reservoir in the event of an emergency.

6.0 References

AECOM (2022). Design Criteria (Revised Draft), Basis of Design, Task Order No. 3. December 8.

DWR (2003). Department of Water Resources, North-of-the-Delta Offstream Storage, Sites Reservoir Engineering Feasibility Study, Golden Gate, Sites, and Saddle Dams

DWR (2004). Department of Water Resources, Memorandum, Sites Reservoir PMF Analysis. August 12.

DSOD (2018). Division of Safety of Dams, Inspection and Reevaluation Protocols. September 28.

Jacobs (2021). Sites Reservoir Emergency Drawdown Draft Technical Memorandum. July 16.

Pells and Fell (2002). Damage and Cracking of Embankment Dams by Earthquake and the Implications for Internal Erosion and Piping, University of New South Wales, School of Civil and Environmental Engineering, Uniciv Report No. R-408, January.

Reclamation (1990). Criteria and Guidelines for Evacuating Storage Reservoirs and Sizing Low-Level Outlet Works.

United States Geological Survey (USGS) 2023. National Water Information System. USGS Gauge 11390672 Stone Corral C Nr Sites CA. https://waterdata.usgs.gov/nwis/inventory?site_no=11390672&agency_cd=USGS. Date accessed: 9th January 2023

Attachment A

ACWA Pop-up Gathering Speaking Notes
May 9, 2023

(Total comments should be no more than 30 minutes total, keep at a high level, no slides)

Overall objectives – get buy-in that

1. ***Sites is on the rights course and is on track for success,***
2. ***Sites is being led well, and***
3. ***Attendees to be their agency's vocal advocate for participation in the project because they believe this project is needed to help address their problem, the project will be a success, and the project will deliver on its promises.***

Executive Director Comments (~5-7 min)

- Welcome, introduce Board members and staff present
- Myself and key members of the project leadership team are before you today to present our strategies and thinking for getting the Sites project built successfully. After we're done in about 40 minutes you should have a sense that this project is on the right course and is being led well. I'd like to start with a broad overview before we drill down into the specific areas of the project-
- "Sites is within reach and we are continuing the momentum"
    - You're going to hear about the solid progress we're making
    - California water is like Mr Toad's wild ride, always changing and evolving
    - This can make progress on large and complex endeavors difficult and sporadic
    - This leadership team is not distracted and intent on delivering success
- "We stay laser focused on affordability, permitability and buildability"
    - These continue to be key ingredients for success
    - nature's reprieve this year cannot detract from the urgent need for this project to get built so we're ready for what climate change brings
    - Always more to do, but we know you need certain things to make your investment decision.
    - We make sure the team pays close attention to what matters to you and is good for the overall success of the project
- "The bond of the Sites statewide partnership is healthy and growing stronger"
    - There is hidden value to all involved in this aspect of the project
    - Local – we're working to adapt our governance structure to fit what's needed to implement the project into the future. And we're fully subscribed with a waiting list of agencies ready to come on board if space allows. Nimble and flexible to whatever comes
    - State – making good progress on agreements needed to implement Prop 1
    - Federal – Reclamation has identified a desired level of participation, the Board feels their participation is important and we're anxiously awaiting them to secure the funds needed

With this backdrop, I've asked each of the key leaders to share what's going on within their areas and I'd like to start with Ali Forsythe.
(introduce Ali as the first speaker and mention that JP and then Kevin will follow)

Environmental Planning and Permitting Manager Comments (~10 min)

Introduce myself. Oversee planning, permitting and water operations.

1. Planning and Permitting -- Environmental permitting is within reach and we are on track. 2 huge milestones on the horizon.

- Final EIR/EIS –
  - Planning for an August 2023 certification and approval of the Project.
  - Tremendous accomplishment
  - Reflects years of adjustment and changes to the Project, to the analysis, to address concerns and really make Sites a better project
  - Importantly, reflects key refinements to diversion criteria in the Final EIR/EIS to be more protective of the fishery and following current science
  - In fact, with these adjustments and with working with Reclamation, had NMFS run their winter-run life cycle model and results show a positive chort replacement ratio – meaning Sites benefits the winter-run chinook salmon population
- Water Right Noticing
  - Application submitted last May; additional information submitted in January
  - State Board recently determined our application complete, and identified that they expect to notice it by June 5.
  - Tremendous effort and accomplishment
  - Largest, most extensive application ever submitted as the standards are so much higher today
  - Most extensive water availability analysis ever conducted – looked at 7 different scenarios and found a reasonable lik elihood of water available for the Project in all of them
  - Noticing will open a 60-day protest period
- These 2 accomplishments demonstrate that Sites is actively moving through the permitting process
  - Worked extensively with NGOs, interested stakeholders, local communities, water right holders, and Tribal nations and will continue to do so into the future

- However, will see concerns come out as we move forward with these two items – because they show the project is real and is really moving forward
- Some organizations will feel its important to submit concerns or protests
- These concerns are part of our open and transparent permitting process and we are prepared to work constructively to first understand each other, and second find solutions that work for both parties
- we're working to achieve consent, not consensus. We believe there are win-win solutions out there.

2. Preparing for Future Operations -- If Sites were built today, we could have put over 500,000 AF into storage this year. That's a 1/3 of our storage amount and about 2 X our average annual diversions

- Worked with MBK to develop a water operations tool. Its simple to get us going.
- Looks at our 3 key diversion criteria – excess conditions, pulse flow protection and wilkins slough
- Identifies diversions at both TCCA and GCID facilities based on actual flow data from CDEC and estimates diversions based on 30-day out flow projections from CA-NV River Forecast Center
- Sites operations is a ways off – but there is still quite a bit of work to get ready for this
- Tool is a key step in preparing for operations, better understanding the system and the things that may affect our operations and getting ready for the future

Introduce JP who will talk about how we're answering 3 big questions to make this future a reality.

Comments from May 2022

- *Environmental Process is progressing – in your judgment we are on track*
- *Project is not without opposition - we're working to achieve consent, not consensus*
- *Water Rights is really the last big lift – the application is going in next week and we believe we can achieve success in 18 months*

(introduce JP)

Engineering and Construction Manager Comments (~10 min)

- My role. We have made progress answering the big 3 questions for Participants.
- A lot of progress has been made determining how we will pay for the project. Half the project funding will come from a WIFIA loan, the largest by a factor of 2 that the EPA has ever undertaken, and the Authority has driven hard to secure a master agreement with the EPA in 2024. Now the effort will focus on two major tasks:
    - **Developing a contract with Participants to build and operate this "100 year asset".** Participants have stepped forward to fund and support this Project and the Authority is drafting a contract where Participants will flexibly manage their share of storage, diversions, and water service.
    - **Participants securing the funds needed to pay for their share of the Project.** This is an area where our diversity really shines through with agricultural districts, retailers, cities, counties, and wholesalers all working to plan for the cost of the Project, adjust rates, and for some conduct the appropriate voting processes. Our success depends on the hard work of Agency Staff and home-boards, and the Sites team greatly appreciates all of your support.
- Sites is a mega-project. The team is in place and we have a winning strategy. We have engaged with the community of contractors and laborers that will build the project and the response has been electric... We have a lot of momentum, and continue to define strategies for packaging the project facilities for construction, procuring a contractor, and putting in place systems to manage $4B of work. Our Participant's input has been invaluable in this strategizing. The team is currently focused on what it will take to reduce the time to build the Project after the Participants say "GO", a key aspect to creating an affordable project and delivering much-needed Project benefits to Participants and the environment. This strategy will focus on early contractor involvement on the dams and roads, close coordination with regulators on Dam Safety (DSOD), and accessing and acquiring property as a good neighbor. The next major milestone from an engineering perspective will be the 30% design and an updated cost estimate, planned for early 2024 and supported by field work being conducted today.
- [While engineering is not the critical path, we are using this time wisely because now is cheapest time to deal with risk and uncertainty. What steps and actions are being taken to do that. As a large civil project, our focus is on those things that move the needle, getting into the field, understanding where we will source materials, and dam safety design criteria.]
- [Add in geotech paragraph with some metrics]

- The Authority has "Respect for local communities" as a core value. To me, this means working with the community to define what good looks like for engineering, constructing, and operating the project. We are working with leaders in the community to create a project that benefits the people that will learn new skills and have new career opportunities during construction and into operations, provide services to the thousands of people who will work on the Project, pass the Reservoir on their way to work, spend evenings walking its trails and create memories on its banks. This Project is and will continue to be woven into the fabric of the Sacramento Valley, which started with the visionary group that formed the JPA thirteen years ago. For future generations of Californians to benefit from Sites, the people who know and work the land will have to make sacrifices and must benefit... We are starting to get specific on what that looks like. I will now pass the ball to Kevin to talk more about the local engagement, real estate activities, and our outreach efforts locally and in Washington.

Comments From May 2022

- *State Feasibility Determination in Dec 2021 was a big deal*
- *Aligning with Reclamation on Increasing the Federal Investment is a big focus right now*
- *Project engineering and cost certainty is progressing – we've got boots on the ground including a big Geotech effort. Good land access cooperation*
- *2 years is not a lot of time, but we need to work shoulder to shoulder with your agencies so we're all together and ready to finance this project.*

(Introduce Kevin)

<u>External Affairs Manager Comments (10 min)</u>

- Overview of my role – Real Estate/Land Management, Government Affairs, Communications

    - A strong and collaborative partnership with affected landowners and the local community is a core value for the Authority. Proactive landowner engagement has been an important priority for the Authority since its formation in 2010. Projects like this will not be successful without local support – and developing and maintaining this local support is the #1 priority for our team

    - To support this vital engagement effort – the Authority established a Local Community Working Group to work in collaboration with local community representatives to address concerns and identify opportunities of shared interest between the community and the Authority.

    - This effort is focused on keeping the landowners and community engaged in the development of the project – soliciting feedback on project design – and refining the projects design to address landowner/community concerns – these efforts will continue through the project's development and into construction.

    - Conducting a strategic and focused communications and stakeholder outreach program - focused on communicating project information, status, and key messages to a statewide audience through our various platforms – focusing on public education regarding the projects design, operation, and project benefits.

- Large project with many parcels and landowners (507 parcels/224 landowners) that includes approximately 17,000 acres across 3 counties with a mix of TROE to support technical field work, full and partial acquisitions, and temporary and permanent easements – but we have a strong Real Estate Team in place with extensive experience in public acquisition for infrastructure projects, experience working in the Sacramento Valley and strong local relationships.

- As JP mentioned - The Real Estate Team is working to secure Temporary Right of Entry agreements that allow for geotechnical, engineering, and environmental surveys to be conducted – securing these agreements has been successful and allowed for collection of a lot of data needed to further develop the project.

- Currently working to establish the foundations of the project's Right-of -Way Acquisition program – developing the processes, policies, procedures of the program– so that we can hit the ground running when the project reaches the acquisition phase.

- Conducting pre-acquisition engagement with landowners who have land that will need to be acquired. Early engagement is vitally important to the success of any acquisition program. Thru this process we can explain the acquisition process to the landowner, work thru any specific landowner concerns – valuation questions, curative measures, relocations, timing – before the formal acquisition process begins. Currently discussing with some landowners, the potential for early real estate actions for parcels where the project's vital infrastructure is located.

- **Government Affairs (JERRY WILL COVER)**
  - Our Sites East and West Government Affairs team is actively engaged with our statewide Congressional and State Legislative delegations, federal & state agency leadership, and the Biden and Newsome Administration.
  - Engagement efforts focused securing additional federal and state funding for the project, advancing key policy actions to advance the project, securing agreements with our federal and state partners, and supporting the project's permitting program.
  - Just recently held legislative visits in Sacramento (March) and DC (end of April) to continue building legislative and administration support for the project.
  - Very proud of the bipartisan statewide support for the project at both the federal level and state level – it's a project for all of California and project of National importance

(Kevin concludes, asks all four us to come back in front of the room and respond to any questions of the group)

(Jerry concludes the structured remarks and invites attendees to stick around a little longer and talk with board members and the team. Thanks everyone for coming and thanks them for their continued support of the project.)

Questions and Answers:

1. Why have there been delays in planning and permitting and what is the Team doing to address these?

   Response: Sites is a big project and should be planned carefully and thoughtfully. That means, to be successful, there's quite a bit of working with others. Which can take time. Also important to note is that our world of water is changing substantially. We have the CVP/SWP reconsultation, VAs, Water Quality Control Plan, DCP, Los Vaqueros, Colorado River issues, other Prop 1 projects, along with our Tribal Nations and disadvantaged communities finding their voices and seeking equal standing in these key changes. Tremendous change that we are all working on to prepare for a more equitable, resilient future in the face of climate change. We can not stop and wait for all of this change to occur as that will take time. So we move forward. But that means that sometimes we have to pause and work through issues, comments, challenges – that maybe aren't legal or statutory "requirements" per say – but are important to answer and address how all of this change fits together and works together into our collective future.

2. How is coordination with the Tribes progressing?

   Response: Extensive coordination has been ongoing for years and is continuing into the future. 2 items here – impacts to tribal resources and a collective existence into the future. First, on impacts to resources, we are committed to first avoiding impacts where we can, minimizing impacts, and then mitigating impacts. We will undertake these efforts and are seeking active involvement from the 5 tribes that have had traditional and cultural affiliation with the Project area. Second, we want to envision a collective existence into the future with the Tribes. They are our neighbors, we are building on their unceded lands. Our future is better if we can work together. We are working to engage the tribes on how best to set up a framework for discussions with all of the tribes with traditional and cultural affiliation with the Project area on opportunities today and into the future. Looking to give the Tribes a meaningful seat at the table. We have to remember that Tribes are independent nations with independent governments. And when a new Tribal government is seated, they can have different views from the prior administration. We are not immune to this and continue to seek opportunities to work together.

   (note, Tribes are Wintun, Patwin and Nomlaki – Colusa, Yocha Dehe, Paskenta, Cortina, Grindstone)

From: Marcia Kivett [MKivett@sitesproject.org]
Sent: 5/9/2023 7:09:16 AM
To: Marc Engstrom [mengstrom@ducks.org]
CC: Jerry Brown [jbrown@sitesproject.org]
Subject: Re: Sites Upcoming Milestones

Hi Marc,

Jerry has the below availability. Is there any that work with your schedule?

Monday, May 15 - any time between 10:00 and 4:00
Tuesday, May 16 - 9:00, 2:00 or any time at/after 4:00
Wednesday, May 17 - any time before noon

Thanks,

Marcia Kivett
Sites Project Coordinator
561.843.9740
mkivett@sitesproject.org
P.O. Box 517
122 Old Hwy 99W
Maxwell, CA 95955

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Friday, May 5, 2023 10:53 AM
To: Marc Engstrom <mengstrom@ducks.org>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: Sites Upcoming Milestones

Hi Marc – Hope all is well. Sites has some big milestones coming over the next couple of months (e.g Final EIR/EIS Approval, Water Right Application Noticing). You had mentioned Ryan Sabalow is the Ducks Unlimited comms director and I'm thinking a guest ed or some other media piece that Ryan authors about the project could be useful for our outreach efforts in regards to these milestones. Can we make some time next week to discuss?

Let me know.

Thanks
Jerry

From: David Hubbard [Dhubbard@BrwnCald.com]
Sent: 5/9/2023 9:06:07 AM
To: laurie.warner.herson [laurie.warner.herson@phenixenv.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Marcus Maltby [mmaltby@brwncald.com]
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Great, thank you Laurie. I'll add that to the "justification" wording.

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Tuesday, May 9, 2023 11:00 AM
To: David Hubbard <Dhubbard@BrwnCald.com>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Ali can confirm but we have needed additional time to 1) work with local tribal representatives, and 2) to address technical issues that have been raised by the public and agencies, both of which could be considered external drivers.

From: David Hubbard <Dhubbard@BrwnCald.com>
Sent: Tuesday, May 9, 2023 8:52 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Hi Laurie – is there any specific reasoning for the move from June to August? Need more time internally or are there external drivers?

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Monday, May 8, 2023 1:43 PM
To: David Hubbard <Dhubbard@BrwnCald.com>
Cc: Marcus Maltby <mmaltby@BrwnCald.com>; JP Robinette <jrobinette@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; conner <conner@cmdwest.com>; Edwards, Dawn <Dawn.Edwards@hdrinc.com>; Risse, Danielle <danielle.risse@hdrinc.com>; Luu, Henry <henry.luu@hdrinc.com>; jelica.arsenijevic <jelica.arsenijevic@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>; Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris

<CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>; Jerry Brown <jbrown@sitesproject.org>; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Yes, sorry for not including it earlier. It would be at the time of the Sites Joint Reservoir Committee & Authority Board meeting on August 18, 2023.

From: David Hubbard <Dhubbard@BrwnCald.com>
Sent: Monday, May 8, 2023 11:40 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Marcus Maltby <mmaltby@BrwnCald.com>; JP Robinette <jrobinette@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; conner <conner@cmdwest.com>; Edwards, Dawn <Dawn.Edwards@hdrinc.com>; Risse, Danielle <danielle.risse@hdrinc.com>; Luu, Henry <henry.luu@hdrinc.com>; jelica.arsenijevic <jelica.arsenijevic@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>; Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris <CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>; Jerry Brown <jbrown@sitesproject.org>; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: RE: Sites Reservoir - Schedule Update to May 1, 2023

Laurie – Thanks and do you have a date in mind to use for August or a best estimate at this time? August 4, 2023?

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Monday, May 8, 2023 1:08 PM
To: David Hubbard <Dhubbard@BrwnCald.com>
Cc: Marcus Maltby <mmaltby@BrwnCald.com>; JP Robinette <jrobinette@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; conner <conner@cmdwest.com>; Edwards, Dawn <Dawn.Edwards@hdrinc.com>; Risse, Danielle <danielle.risse@hdrinc.com>; Luu, Henry <henry.luu@hdrinc.com>; jelica.arsenijevic <jelica.arsenijevic@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>; Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris <CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>; Jerry Brown <jbrown@sitesproject.org>; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: Re: Sites Reservoir - Schedule Update to May 1, 2023

Hi Dave, the Final EIR/EIS has moved from June 2023 to August 2023.

On May 5, 2023, at 9:29 AM, David Hubbard <Dhubbard@brwncald.com> wrote:

Howdy Everyone – have worked with you all to update the Schedule through end of April 2023 and have posted a Schedule with comparison to last month along with variances on finish dates.

Now I'm giving you all a chance to have another look and let me know if you'd like to make any changes before we finalize this update and move forward.

See the link here: Sites Schedule Comparison to Prior Month_2023.05.05.pdf

Also showing here some snips of Milestones and Activities that have slipped for a quick review and if anyone wants to look into these further, just let me know.
Several are on the Work Plan Progress Report (one pager) that gets shared with others outside this group.

<image006.png>
<image007.png>
<image008.png>
<image009.png>
Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

From: David Hubbard
Sent: Monday, May 1, 2023 10:46 AM
To: Marcus Maltby <mmaltby@BrwnCald.com>; jrobinette@sitesproject.org; Alicia Forsythe <aforsythe@sitesproject.org>; Conner McDonald <conner@cmdwest.com>; Edwards, Dawn <dawn.edwards@hdrinc.com>; Danielle Risse (danielle.risse@hdrinc.com) <danielle.risse@hdrinc.com>; Henry Luu <henry.luu@hdrinc.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>; Kevin Spesert (kspesert@sitesproject.org) <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Marcia Kivett (MKivett@sitesproject.org) <MKivett@sitesproject.org>; bezzone@mbkengineers.com; Cheyanne Harris <CHarris@BrwnCald.com>; Justin Davies <JDavies@BrwnCald.com>; Lee Lambert <LLambert@BrwnCald.com>; Carolina Tornesi MacKinnon <CTornesiMacKinnon@BrwnCald.com>
Cc: jbrown@sitesproject.org; Joe Trapasso <jtrapasso@sitesproject.org>; Benjamin Orsak <BOrsak@BrwnCald.com>
Subject: Sites Reservoir - Schedule Update to May 1, 2023

Good Monday Morning, Sites Team - We've made it through another month with April 2023 now behind us and it's time to update our Sites Reservoir Project Schedule, moving our Data Date to May 1, 2023.
Below folder (follow link) contains reference Schedules for use in updating to May 1, 2023. Also added screenshots below containing the activities we need to update - with start dates, finish dates or continue as ongoing during the update period for the month of April 2023.
Email replies are fine and we also have some Teams calls on the calendar to collaborate. Marcia has done very well to get Schedule update sessions for this week, beginning today. Looking forward to reconnecting and talking Schedule with you all.

If you see that I've missed someone on distribution, please share with them and let me know who to add.

2023.05 May '23
<image001.png>
<image002.png>
<image003.png>
<image004.png>
<image005.png>

Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

Attachment 4.4B

Work Plan Schedule Summary of Changes

The Amendment 3 Work Plan project schedule is maintained and updated monthly. Changes to the previous month's schedule affecting the rolled-up summary level schedule are indicated by grey activity bars and milestone diamonds. Our critical path has been impacted by the changes shown in the schedule and listed below. Completion dates for Investor Commitment and Construction Groundbreaking have been pushed out 4 weeks from last month's schedule update.

A summary of changes reflected in the April 2023 Work Plan Schedule includes the following:

- *Receive CESA ITP - Operations* – Milestone date pushed out 3 weeks.

  Justification: Additional activity related to the review of the permit application has been added, resulting in the completion of this activity being pushed out 3 weeks.

- *Receive CESA ITP - Construction* – Milestone date pushed out 3 weeks.

  Justification: Additional activity related to the review of the permit application has been added, resulting in the completion of this activity being pushed out 3 weeks.

- Operations Plan, Version 2 – Finish date pushed out 3 weeks.

  Justification: Key predecessors to the Operations Plan, Version 2 are the CESA ITP Operations Permit and CESA ITP Construction Permit. The delay in the issuance of the two CESA ITP Permits have delayed this activity's start date.

- Federal ESA – Receive Biological Opinions – Milestone date pushed out 2 weeks.

  Justification: The Authority continues to work with Reclamation, USFWS, and NMFS on the Biological Assessment approach and is close to determining a path forward. Delays in submitting the Biological Assessment have pushed the timeframe for the Biological Opinions out.

- *Water Right Permit Issued* – Finish date pushed out 4 weeks. THIS IS THE CURRENT CRITICAL PATH OF AMENDMENT 3 WORK PLAN AND THIS DELAY WILL EXTEND THE COMPLETION OF A3 WORK INTO 2025.

  Justification: The SWRCB continues with the process of determining that the Application for Water Right Permit is complete. While this time may be made up later in the process, the logic of the schedule pushes the overall completion date out, which pushes out critical successor items as noted below.

- *Mitigation Cost Estimate Update* – Finish date pushed out 5 weeks.

  Justification: The Mitigation Strategy is still being developed and updating the Mitigation Cost Estimate will complete afterward. This delay in the Mitigation Cost Estimate Update continues to have sufficient float and has no impact on the overall project schedule at this time.

- *Investor Commitment* – Milestone date pushed out 4 weeks.

  Justification: Investor Commitment is linked to Water Right Permit Issued and has also been pushed out by 4 weeks.

- *Construction Groundbreaking* – Milestone date pushed out 4 weeks.

  Justification: Construction Groundbreaking is linked to Investor Commitment and has also been pushed out by 4 weeks.

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 5/9/2023 9:51:07 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: Action items from 1:1

Here you go:

1. Reach out to Rick Ortega and/or Ellen Wehr for a discussion of how they operate refuge water

2. Call Randel at Dimond Valley for discussion of tower ops and water quality

3. Reach out to Pablo for tower ops and water quality at San Luis

4. I will reach out to NDFA team for a meeting

John Spranza, MS, CCN
Senior Aquatic Ecologist / Regulatory Specialist
Fisheries Section Lead – Northern California
He/Him

HDR
2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916.679.8858 M 818.640.2487
john.spranza@hdrinc.com

hdrinc.com/follow-us
hdrinc.com/follow-us

May 5, 2023

MEETING NOTICE

WATER STORAGE EXPLORATORY COMMITTEE

Board Members of the Water Storage Exploratory Committee
Director Rebecca Eisenberg
Director Nai Hsueh (Committee Chair)
Director Richard P. Santos (Committee Vice Chair)

Staff Support of the Water Storage Exploratory Committee
Rick L. Callender, Esq., Chief Executive Officer
Melanie Richardson, Assistant Chief Executive Officer
Christopher Hakes, Acting Assistant Chief Executive Officer
Aaron Baker, Chief Operating Officer, Water Utility
Rachael Gibson, Chief of External Affairs
J. Carlos Orellana, District Counsel
Brian Hopper, Senior Assistant District Counsel
Vincent Gin, Deputy Operating Officer, Water Supply Division
Emmanuel Aryee, Deputy Operating Officer, Water Utility Capital Division
Ryan McCarter, Acting Deputy Operating Officer, Dam Safety & Capital Delivery Division
Gregory Williams, Deputy Operating Officer, Raw Water Division
Marta Lugo, Assistant Officer, Office of the Chief of External Affairs
Kirsten Struve, Assistant Officer, Water Supply Division
Cindy Kao, Imported Water Manager, Imported Water Unit
Julianne O'Brien, Pacheco Project Manager, Pacheco Project Delivery Unit
Metra Richert, Unit Manager, Water Supply Planning & Conservation Unit
Charlene Sun, Treasury and Debt Manager
Andrew Garcia, Senior Water Resources Specialist, Imported Water Unit
Samantha Greene, Senior Water Resources Specialist, Water Supply Planning & Conservation Unit

A regular meeting of the Santa Clara Valley Water District (SCVWD) Water Storage Exploratory Committee is to be held on **Friday, May 12, 2023, at 12:00 p.m.** at Headquarters Building Boardroom, 5700 Almaden Expressway, San Jose CA 95118. The Public and non-presenting staff may Join Zoom Meeting https://valleywater.zoom.us/j/98246045660.

The meeting agenda and corresponding materials can be found on our website for your convenience. https://www.valleywater.org/how-we-operate/committees/board-committees

WATER STORAGE EXPLORATORY COMMITTEE MEETING

Public Join Zoom Meeting
https://valleywater.zoom.us/j/98246045660

Meeting ID: 982 4604 5660
One tap mobile
+16699009128,,98246045660# US (San Jose)

Dial by your location
+1 669 900 9128 US (San Jose)
Meeting ID: 982 4604 5660

Santa Clara Valley Water District
Water Storage Exploratory Committee Meeting

Headquarters Building Boardroom
5700 Almaden Expressway
San Jose CA 95118

REGULAR MEETING
AGENDA

Friday, May 12, 2023
12:00 PM

District Mission: Provide Silicon Valley safe, clean water for a healthy life, environment and economy.

WATER STORAGE EXPLORATORY COMMITTEE

Director Richard P. Santos, District 3 (Committee Vice Chair)
Director Nai Hsueh, District 5 (Committee Chair)
Director Rebecca Eisenberg, District 7

All public records relating to an item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body will be available for public inspection at the Office of the Clerk of the Board at the Santa Clara Valley Water District Headquarters Building, 5700 Almaden Expressway, San Jose, CA 95118, at the same time that the public records are distributed or made available to the legislative body. Santa Clara Valley Water District will make reasonable efforts to accommodate persons with disabilities wishing to attend Board of Directors' meeting. Please advise the Clerk of the Board Office of any special needs by calling (408) 265-2600.

Vincent Gin
Christopher Hakes
(Staff Liaisons)

Glenna Brambill (Committee Liaison)
Management Analyst II
(408) 630-2408,
gbrambill@valleywater.org

Note: The finalized Board Agenda, exception items and supplemental items will be posted prior to the meeting in accordance with the Brown Act.

Santa Clara Valley Water District
Water Storage Exploratory Committee

REGULAR MEETING
AGENDA

Friday, May 12, 2023	12:00 PM	Headquarters Building Boardroom

IMPORTANT NOTICES AND PARTICIPATION INSTRUCTIONS

Santa Clara Valley Water District (Valley Water) Board of Directors/Board Committee meetings are held as a "hybrid" meetings, conducted in-person as well as by telecommunication, and is compliant with the provisions of the Ralph M. Brown Act.

To maximize public safety while still maintaining transparency and public access, members of the public have an option to participate by teleconference/video conference or attend in-person. To observe and participate in the meeting by teleconference/video conference, please see the meeting link located at the top of the agenda. If attending in-person, you are required to comply with Ordinance 22-03 - AN ORDINANCE OF THE SANTA CLARA VALLEY WATER DISTRICT SPECIFYING RULES OF DECORUM FOR PARTICIPATION IN BOARD AND COMMITTEE MEETINGS located at https://s3.us-west-2.amazonaws.com/valleywater.org.if-us-west-2/f2-live/s3fs-public/Ord.pdf

In accordance with the requirements of Gov. Code Section 54954.3(a), members of the public wishing to address the Board/Committee at a video conferenced meeting, during public comment or on any item listed on the agenda, should use the "Raise Hand" tool located in the Zoom meeting link listed on the agenda, at the time the item is called. Speakers will be acknowledged by the Board Chair in the order requests are received and granted speaking access to address the Board.

- Members of the Public may test their connection to Zoom Meetings at: https://zoom.us/test
- Members of the Public are encouraged to review our overview on joining Valley Water Board Meetings at: https://www.youtube.com/watch?v=TojJpYCxXm0

Valley Water, in complying with the Americans with Disabilities Act (ADA), requests individuals who require special accommodations to access and/or participate in Valley Water Board of Directors/Board Committee meetings to please contact the Clerk of the Board's office at (408) 630-2711, at least 3 business days before the scheduled meeting to ensure that Valley Water may assist you.

This agenda has been prepared as required by the applicable laws of the State of California, including but not limited to, Government Code Sections 54950 et. seq. and has not been prepared with a view to informing an investment decision in any of Valley Water's bonds, notes or other obligations. Any projections, plans or other forward-looking statements included in the information in this agenda are subject to a variety of

uncertainties that could cause any actual plans or results to differ materially from any such statement. The information herein is not intended to be used by investors or potential investors in considering the purchase or sale of Valley Water's bonds, notes or other obligations and investors and potential investors should rely only on information filed by Valley Water on the Municipal Securities Rulemaking Board's Electronic Municipal Market Access System for municipal securities disclosures and Valley Water's Investor Relations website, maintained on the World Wide Web at https://emma.msrb.org/ and https://www.valleywater.org/how-we-operate/financebudget/investor-relations, respectively.

Under the Brown Act, members of the public are not required to provide identifying information in order to attend public meetings. Through the link below, the Zoom webinar program requests entry of a name and email address, and Valley Water is unable to modify this requirement. Members of the public not wishing to provide such identifying information are encouraged to enter "Anonymous" or some other reference under name and to enter a fictional email address (e.g., attendee@valleywater.org) in lieu of their actual address. Inputting such values will not impact your ability to access the meeting through Zoom.

Join Zoom Meeting:
https://valleywater.zoom.us/j/98246045660
Meeting ID: 982 4604 5660
Join by Phone:
1 (669) 900-9128, 98246045660#

1. CALL TO ORDER:

1.1. Roll Call.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON THE AGENDA.

Notice to the Public: Members of the public who wish to address the Committee on any item not listed on the agenda should access the "Raise Hand" tool located in Zoom meeting link listed on the agenda. Speakers will be acknowledged by the Committee Chair in order requests are received and granted speaking access to address the Committee. Speakers comments should be limited to two minutes or as set by the Chair. The law does not permit Committee action on, or extended discussion of, any item not on the agenda except under special circumstances. If Committee action is requested, the matter may be placed on a future agenda. All comments that require a response will be referred to staff for a reply in writing. The Committee may take action on any item of business appearing on the posted agenda.

3. APPROVAL OF MINUTES:

3.1. Approval of Minutes. 23-0531

Recommendation: Approve the March 29, 2023, Special Meeting Minutes.
Manager: Candice Kwok-Smith, 408-630-3193
Attachments: Attachment 1: 03292923 WSEC Minutes
Est. Staff Time: 5 Minutes

4. REGULAR AGENDA:

4.1. Update on the Pacheco Reservoir Expansion Project. 23-0532

Recommendation: Receive and Discuss Information Regarding the Pacheco Reservoir Expansion Project.

Manager: Ryan McCarter, 408-630-2983

Attachments: Attachment 1: PowerPoint Presentation

Est. Staff Time: 15 Minutes

4.2. Update on Sites Reservoir Project. 23-0533

Recommendation: Receive and Discuss Information Regarding the Sites Reservoir Project.

Manager: Vincent Gin, 408-630-2633

Attachments: Attachment 1: Sites Participant Table
Attachment 2: PowerPoint Presentation

Est. Staff Time: 15 Minutes

4.3. B. F. Sisk Dam Raise and Reservoir Expansion Project Update. 23-0534

Recommendation: Receive and Discuss Information Regarding the B.F. Sisk Dam Raise and Reservoir Expansion Project.

Manager: Vincent Gin, 408-630-2633

Attachments: Attachment 1: PowerPoint Presentation

Est. Staff Time: 15 Minutes

4.4. Update on Antelope Valley-East Kern Water Agency High Desert Water Bank Phase 2 Project. 23-0538

Recommendation: Receive and Discuss Information Regarding the Antelope Valley-East Kern Water Agency High Desert Water Bank Phase 2 Project.

Manager: Vincent Gin, 408-630-2633

Attachments: Attachment 1: Ph2 XOI Request+Response
Attachment 2: PowerPoint Presentation

Est. Staff Time: 15 Minutes

4.5. Standing Items. 23-0535

Recommendation:
A. This agenda item allows the Committee to receive verbal or written updates and discuss the projects listed in the summary. These items are generally informational; however, the Committee may request additional information from staff:

B. This is informational only and no action is required.

Manager: Candice Kwok-Smith, 408-630-3193

Est. Staff Time: 10 Minutes

4.6. Review Water Storage Exploratory Committee Work Plan and the Committee's Next Meeting Agenda. 23-0537

Recommendation: Review the Committee's Work Plan to guide the Committee's discussions regarding policy alternatives and implications for Board deliberation.

Manager: Candice Kwok-Smith, 408-630-3193

Attachments: Attachment 1: 2023 WSEC Work Plan

Est. Staff Time: 5 Minutes

5. CLERK REVIEW AND CLARIFICATION OF COMMITTEE REQUESTS.

This is an opportunity for the Clerk to review and obtain clarification on any formally moved, seconded, and approved requests and recommendations made by the Committee during the meeting.

6. ADJOURN:

6.1. Adjourn to Regular Meeting at 12:00 p.m., on Friday, June 9, 2023.

This Page Intentionally Left Blank

Santa Clara Valley Water District

File No.: 23-0531

Agenda Date: 5/12/2023
Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Approval of Minutes.

RECOMMENDATION:
Approve the March 29, 2023, Special Meeting Minutes.

SUMMARY:
A summary of Committee discussions, and details of all actions taken by the Committee, during all open and public Committee meetings, is transcribed and submitted for review and approval.

Upon Committee approval, minutes transcripts are finalized and entered into the District's historical records archives and serve as historical records of the Committee's meetings.

ATTACHMENTS:
Attachment 1: 03292023 WSEC Draft Minutes

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

This Page Intentionally Left Blank

SANTA CLARA VALLEY WATER DISTRICT (VALLEY WATER)
WATER STORAGE EXPLORATORY COMMITTEE

DRAFT MINUTES

WEDNESDAY, MARCH 29, 2023

(Paragraph numbers coincide with agenda item numbers)

A special meeting of the Water Storage Exploratory Committee (Committee) was held on March 29, 2023, at Santa Clara Valley Water District, 5700 Almaden Expressway, San Jose CA 95118.

1. CALL TO ORDER

The Water Storage Exploratory Committee was called to order by Committee Chair Pro Tem Director Richard P. Santos at 11:01 a.m.

1.1 ROLL CALL

Valley Water Board Members in attendance were: Director Nai Hsueh (District 5) and Director Richard P. Santos (District 3), establishing a quorum, and Director Rebecca Eisenberg (District 7-arrived at 11:05 a.m.).

Valley Water Staff in attendance were: Gina Adriano, Antonio Alfaro, Emmanuel Aryee, Aaron Baker, Lisa Bankosh, Glenna Brambill, Rick Callender, Ray Fields, Anthony Fulcher, Bal Ganjoo, Meenakshi Ganjoo, Andrew Garcia, Vincent Gin. Alexander Gordon, Samantha Greene, Andy Gschwind, Christopher Hakes, Robert Harvie, Cindy Kao, Candice Kwok-Smith, Jessica Lovering, Katherine Maher, Michael Martin, Ryan McCarter, Julianne O'Brien, Carlos Orellana, Melanie Richardson, Don Rocha, Ranithri Slayton, Kirsten Struve, Charlene Sun, Darin Taylor, Greg Williams, and Jing Wu.

Guests in attendance were: Melanie Carrido (MWH Constructors), Katja Irvin (Sierra Club-Loma Prieta Chapter), Hon. Steve Jordan (Director, Purissima Hills Water District and BAWSCA), Hon. Yoriko Kishimoto (Midpeninsula Regional Open Space District), (Danielle McPherson and Nicole Sandkulla (BAWSCA), Maureen Martin. (Contra Costa Water District {CCWD}), Dan Peluso (Cal Engineer and Geologic, Inc.), Taryn Ravazzini (Executive Director, LVE Project Joint Powers Authority (JPA), Brian Schmidt (Green Foothills), Gavin Tasker-Barnard Construction), Bill Tuttle (San Jose Water Company-SJWC), and, Hon. John Weed (Alameda County Water District-ACWD).

Public in attendance were: Darren Baune, Jim Bowley, Molly Culton, CR Doug MC, Gavin Downs, Rhoda Fry, Gronczka, Kaho Khong, Kristina Loquist, and Paul Sorci.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON AGENDA

Katja Irvin (Sierra Club-Loma Prieta Chapter), noted that this committee is important and suggested beginning meeting every other month to discuss the large projects not included in the CIP.

Committee Chair Pro Tem Director Richard P. Santos moved to Agenda Item 5.1.

5. REGULAR AGENDA ITEMS

5.1 LOS VAQUEROS RESERVOIR EXPANSION PROJECT UPDATE

Michael Martin reviewed the materials as outlined in the agenda item.

Vincent Gin introduced Taryn Ravizzini (Executive Director, LVE Project Joint Powers Authority (JPA), and she gave an overview of the project, partnerships, and funding.

Public Comment:
Hon. Brian Schmidt (Green Foothills) had a question on the service agreement and this looks like a great project.

Vincent Gin was available to answer questions.

The Water Storage Exploratory Committee took no action.

Committee Chair Pro Tem Director Richard P. Santos moved to Agenda Item 3.1.

3. ELECTION OF CHAIR AND VICE CHAIR

3.1 ELECTION OF CHAIR AND VICE CHAIR

Chair Pro Tem Director Richard P. Santos opened the floor to take nominations for Committee Chair.

Director Richard P Santos nominated Director Nai Hsueh as Committee Chair, Director Rebecca Eisenberg seconded, the committee unanimously elected Director Nai Hsueh as Chair.

Committee Chair Director Nai Hsueh opened the floor was opened to take nominations for Committee Vice Chair.

Director Nai Hsueh nominated Director Richard P. Santos as Committee Vice Chair, Director Rebecca Eisenberg seconded, the committee unanimously elected Director Richard P. Santos as Vice Chair.

4. APPROVAL OF MINUTES

4.1 APPROVAL OF MINUTES

It was moved by Director Richard P. Santos, second by Director Nai Hsueh, and by majority vote carried to approve the minutes of the October 13, 2022, meeting of the Water Storage Exploratory Committee as presented. Director Rebecca Eisenberg abstained.

5. REGULAR AGENDA ITEMS

5.2 PERMANENT QUARRY RECONNAISSANCE STUDY

Vincent Gin and Samantha Greene reviewed the materials as outlined in the agenda item.

The Water Storage Exploratory Committee discussed the following: including EIR information on presentations to identify potential environmental impacts (red-legged frogs' impacts), if diverting from Stevens Creek Reservoir (steelhead impacts) critical habitat, other protective species, water quality, the County's Plan-mining impacts and remediation.

Public Comments:
Hon. Brian Schmidt (Green Foothills) noted high level reconnaissance shows this site may not be a viable solution. He gave input on the Impacts to species and diverting surface water may cause some issues with the environmental community. Reported the Quarry submitted a revised 2019 Reclamation Plan, but they suspended it, currently there is no mining or active cement activities, and the environmental agencies would like to see the plant restored.

Rhoda Fry had a question on who suggested the study, why did Valley Water decide to study this site? Rhoda noted some of the Quarry's history (West Material Storage Area scar, Yeager Yard Landslide, past flooding that caused landslide issues), stated that the water quality needs to be protected, suggested enforcing the County's 2012 Reclamation Plan, and concurred with Hon. Brian Schmidt's comments.

Hon. Steve Jordan (Director Purissima Hills Water District and BAWSCA) reported unable to supplement their water source from San Francisco with groundwater, there is no recharge in Los Altos Hills (removed from the groundwater recharge zone), would this be feasible for them in western part of the County? How does the 14,000 acre- feet compare to the capacity of Stevens Creek Reservoir?

Director Nai Hsueh, Aaron Baker, and Vincent Gin were available to answer questions.

The Water Storage Exploratory Committee took no action, however, suggested staff submit a non-agenda item with the presentation slides to inform the Board that this high-level study resulted to be a non-feasible project and discontinue any further resources for the study. Also, the Committee would like to have staff continue monitoring the quarry for any updates/changes.

5.3 UPDATE ON B. F. SISK DAM RAISE AND RESERVOIR EXPANSION PROJECT

Vincent Gin and Cindy Kao reviewed the materials as outlined in the agenda item.

Committee Chair Director Nai Hsueh noted that the Committee is receiving this high-level presentation prior to the Board getting any information.

The Water Storage Exploratory Committee would like an analysis of this project for the next meeting.

Public Comments:
Hon. Brian Schmidt had a question on how this project relates to Pacheco and how much

water would the dam hold?

Katja Irvin encouraged this item be presented to the full Board.

The Water Storage Exploratory Committee took no action.

5.4 STANDING ITEMS

Committee Chair Director Nai Hsueh reviewed the materials as outlined in the agenda item.

Cindy Kao reported on:
Groundwater Banking diversification (hydrology), one option Valley Water is exploring is Antelope Valley East Kern (AVEK) opportunities

- AVEK Develop 440,000 acre-feet groundwater bank, Valley Water's place holder is 200,000 acre-feet
- Developing Terms and Conditions for participation in the bank along with developing the MOU to incorporate the terms and conditions, expect to execute later this summer, the MOU will detail the terms for participating in the planning phase laying out principles for developing a banking agreement for the operations and construction phases
- Executed a Pilot Banking Agreement in March to test some of the processes and approvals needed to get the bank moving
- Working on water supply reliability efforts

Public Comments:
Katja Irvin followed up about the request Director Jim Beall made at the special Pacheco Board meeting regarding the project schedule, financial timelines, when will the Board will be receiving that? Asked for side-by-side analyses of storage alternatives, looking at costs on an acre-foot basis, with and without the 35% participation, Pacheco EIR, job creation, and San Luis Reservoir project-evaluations criteria so the public could give input.

Check to see if this was a BMR/non-agenda item so staff could formally answer.

Chris Hakes was available to answer questions. Come back on a quarterly basis with a report

Hon. Brian Schmidt commented on Valley Water looking at potable/non-potable water, more recycling water sources with exploring more areas of storage (such as LeHigh, which are not part of the Water Supply Master Plan). Having financial timelines. When will the Board make decisions on projects moving forward or not? Process on committee decisions to the board?

The Water Storage Exploratory Committee took no action.

5.5 REVIEW WATER STORAGE EXPLORATORY COMMITTEE WORK PLAN AND THE COMMITTEE'S NEXT MEETING AGENDA

Committee Chair Director Nai Hsueh reviewed the materials as outlined in the agenda item.

Committee Chair will work on 2023 Work Plan and meeting dates with Staff.

The Water Storage Exploratory Committee took no action.

6. CLERK REVIEW AND CLARIFICATION OF COMMITTEE ACTIONS

Glenna Brambill noted there were no action items for Board consideration.

7. ADJOURNMENT

Committee Chair Director Nai Hsueh adjourned the meeting at 12:57 p.m.

Glenna Brambill
Board Committee Liaison
Office of the Clerk of the Board

Approved:

This Page Intentionally Left Blank

File No.: 23-0532

Agenda Date: 5/12/2023
Item No.: 4.1.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Update on the Pacheco Reservoir Expansion Project.

RECOMMENDATION:
Receive and Discuss Information Regarding the Pacheco Reservoir Expansion Project.

SUMMARY:
On March 16, 2023, staff presented an update to the Board of Directors on the Pacheco Reservoir Expansion Project (PREP) as part of a Water Supply Master Plan update. In response to discussion during that Board meeting, staff will be providing quarterly updates to the Water Storage Exploratory Committee (Committee), followed by updates to the full Board.

Project Development
The PREP team has been continuing to develop the 60% design package, to include design level plans, specifications, and an updated construction cost estimate. The team is also proceeding with additional field investigations to gather needed information and refine the project design. Permission to Enter documents for the downstream investigations along Pacheco Creek went out in April and are continuing to be finalized. The second phase of geotechnical investigations for proposed site access improvements near Highway 152, the power transmission line alignment to the east, and to gather additional subsurface information related to the dam site is anticipated to resume in mid-May.

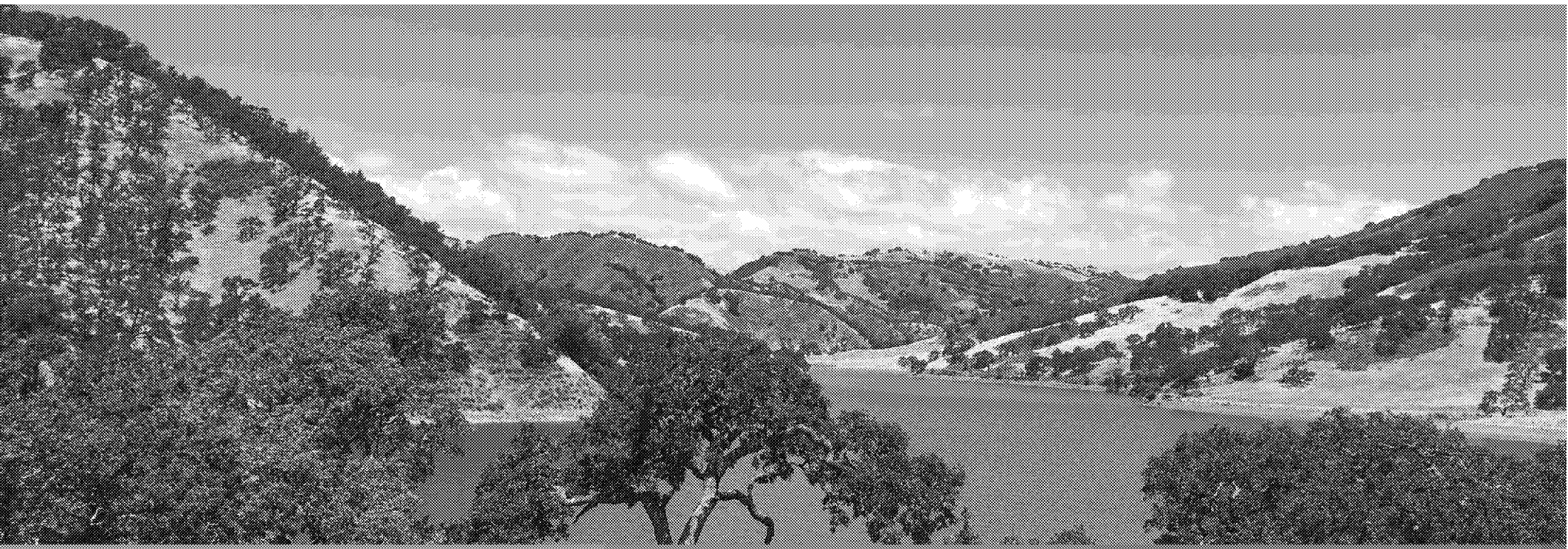
Upcoming Milestones
Staff has continued to develop the milestone timeline previously presented in response to direction provided by the Board at the March 16, 2023 meeting. The updated timeline now includes major financial milestones from project inception through the project approval and award of construction contract. The necessary steps in securing partnership agreements have been detailed on the timeline at their anticipated completion dates. Additionally, the points at which Board approval will be required have been identified.

Next Steps

Staff plans to present the updated timeline to the complete Board at a meeting in June. The next PREP update is planned for the Committee meeting in August and will include information on the lost opportunity costs if the project does not move forward as well as other items the Committee would like to discuss.
Additionally, staff is continuing to develop a future storage project cost/benefit comparison to be presented at a future committee meeting as part of a larger Water Supply Master Plan discussion.

ATTACHMENTS:
Attachment 1: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Ryan McCarter, 408-630-2983

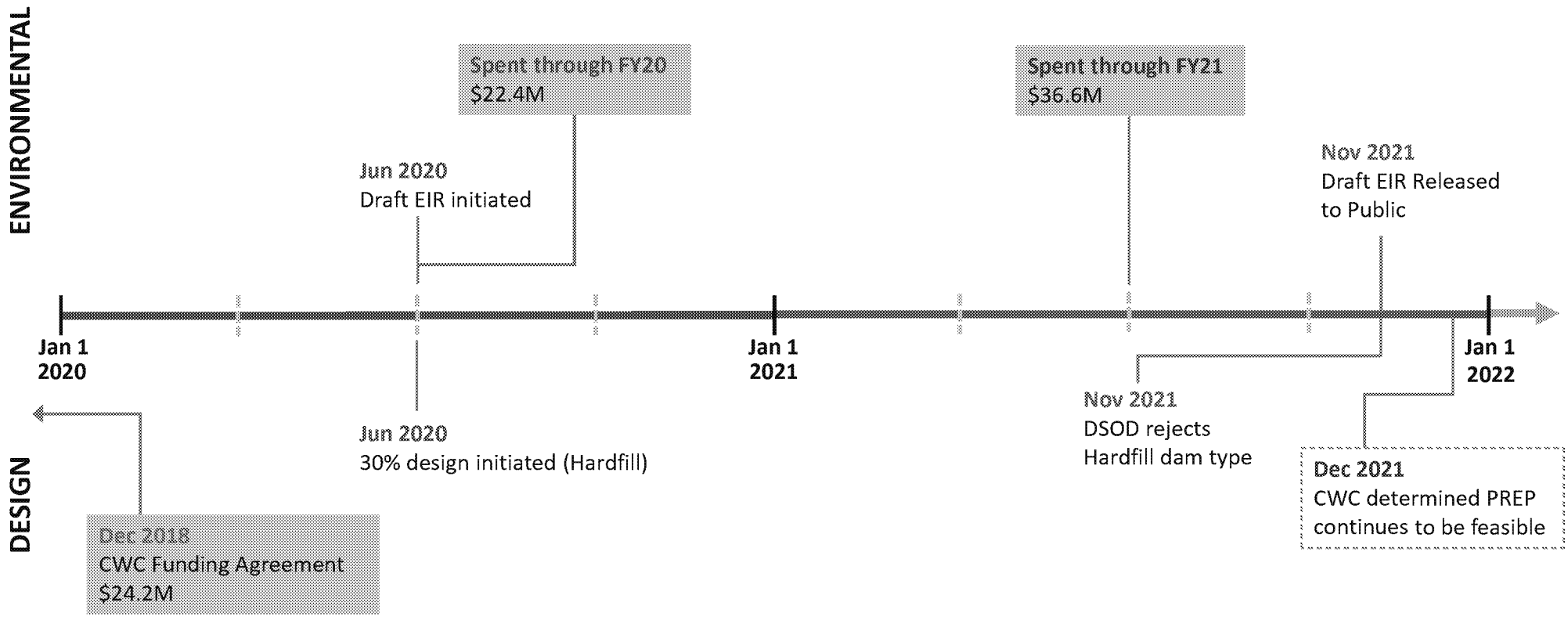


Pacheco Reservoir Expansion Project Update
Water Storage Exploratory Committee

May 12, 2023

Valley Water

Environmental and Design Milestone Timeline

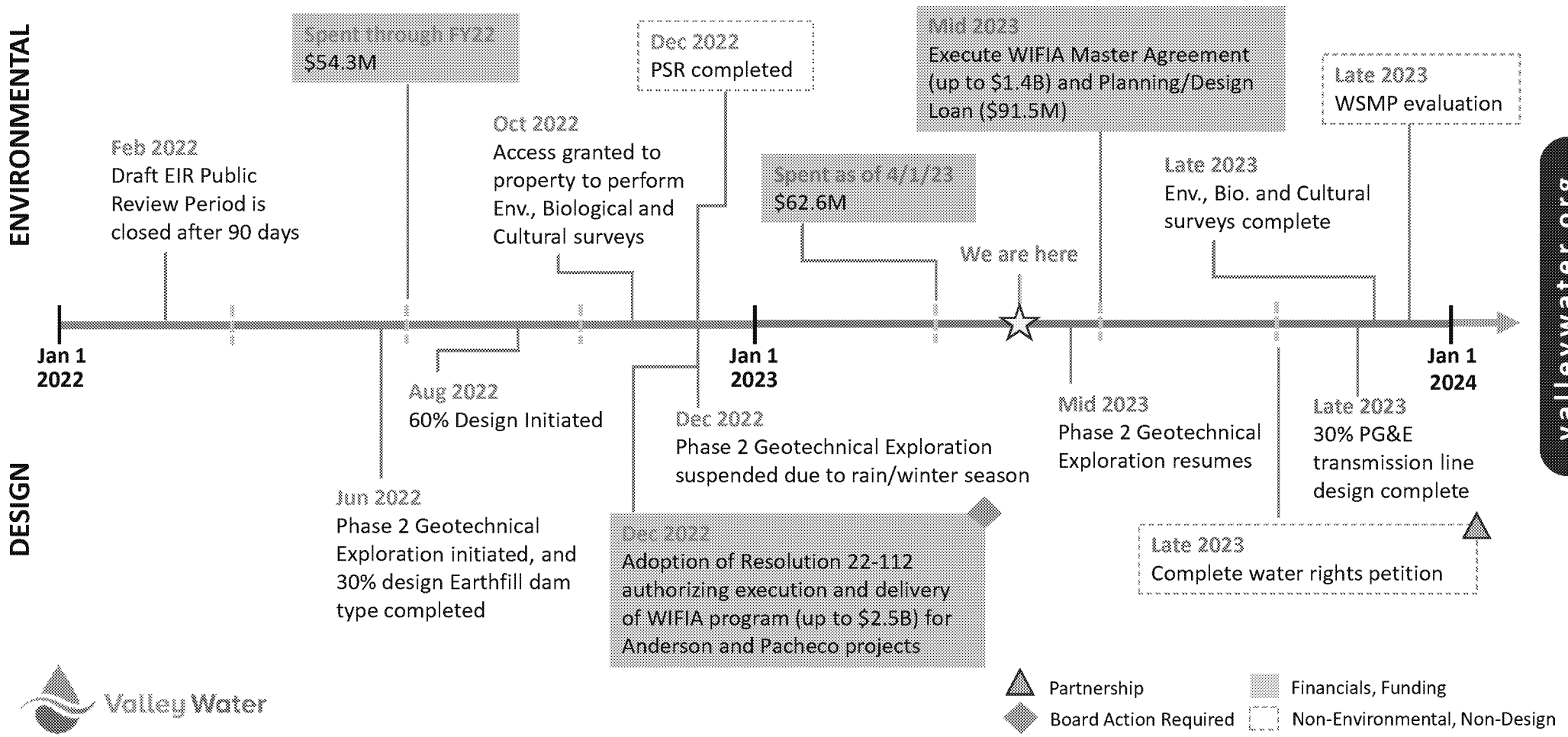


Valley Water

Partnership
Board Action Required
Financials, Funding
Non-Environmental, Non-Design

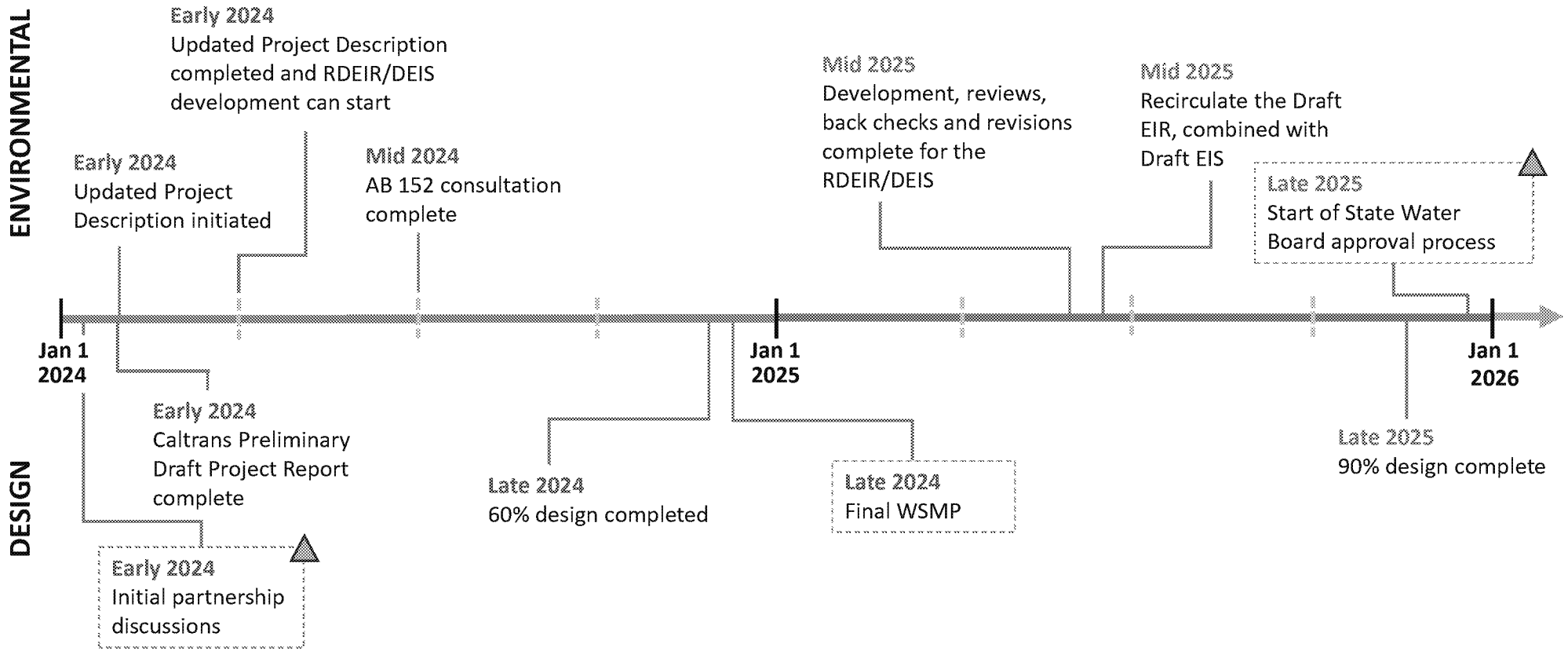
valleywater.org

Environmental and Design Milestone Timeline



Valley Water

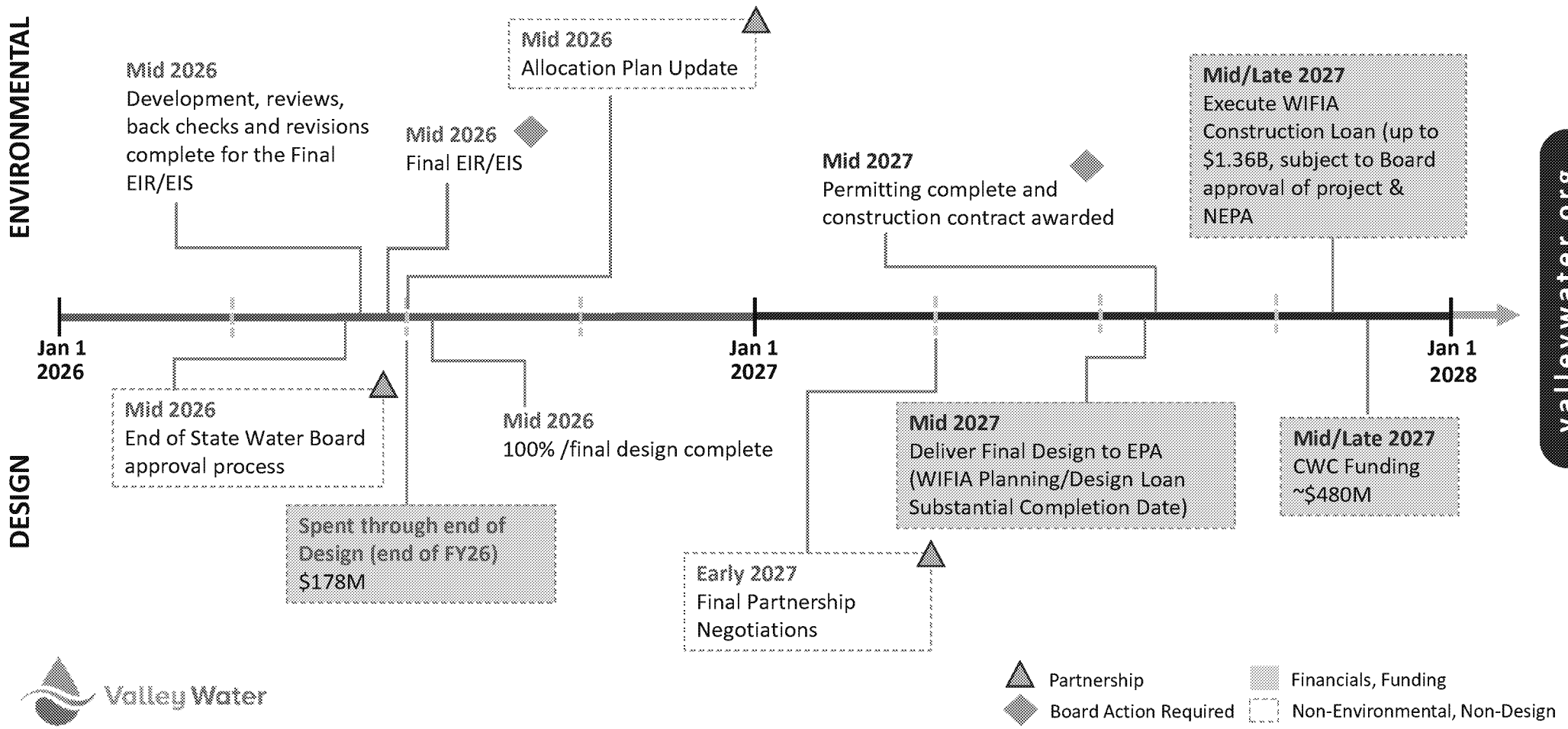
Environmental and Design Milestone Timeline



Valley Water

valleywater.org

Environmental and Design Milestone Timeline



Valley Water

valleywater.org

QUESTIONS

Santa Clara Valley Water District

File No.: 23-0533

Agenda Date: 5/12/2023
Item No.: 4.2.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Update on Sites Reservoir Project.

RECOMMENDATION:
Receive and Discuss Information Regarding the Sites Reservoir Project.

SUMMARY:
The Sites Reservoir Project (Project) is a proposed 1.41 million acre-foot, off-stream reservoir that would be located north-of-Delta (NOD), approximately 10 miles west of the town of Maxwell in Colusa County. The Project is designed to divert excess flows on the Sacramento River during storms and store it in Sites Reservoir which can then be released to provide water supply during dry years. In addition to providing water supply for Project participants, the Project will provide public benefits including environmental water supply, recreation facilities, and regional flood benefits. Santa Clara Valley Water District's (Valley Water) Water Supply Master Plan (WSMP) has identified the Project as a potential alternative to help ensure water supply reliability. Current members of the Sites Project Authority and Reservoir Committee (Participants), which together oversee the development of and fund the project, include Central Valley Project (CVP) water agencies north of the Delta, as well as State Water Project (SWP) water agencies south of the Delta. There is also strong support from the California Department of Water Resources (DWR), and the U.S. Bureau of Reclamation (Reclamation).

The Sites Project Authority is Joint Powers Authority made up of nine Sacramento Valley agencies. Each of the local agencies holds a seat on the Sites Project Board of Directors, DWR and Reclamation also participate as non-voting members of the Sites Project Board of Directors. The Project governance structure also includes a Reservoir Committee comprised of the 22 agencies that are participating in and funding the Project. Per the Sites 2019 Reservoir Project Agreement and the Sites Bylaws, items which constitute a material change to the Project, including items related to Project costs, require approval of both the Reservoir Committee and the Board of Directors. Work is currently underway to evaluate whether revisions to the Project governance will be required during Project construction and long-term operation of the project.

The Project is currently fully subscribed and has a waitlist of new agencies interested in joining the Project and existing participants interested in increasing their participation level. In addition, Reclamation has also requested to increase its participation level from 7% to 16%. Valley Water currently has a 0.2% participation level in the Project. In June 2022, Valley Water requested to be placed on the waiting list to have the opportunity to consider increasing participation up to a maximum of 2.7% participation level. If space becomes available and Valley Water is offered the opportunity to increase participation, staff will bring this opportunity to the board. Staff intends to evaluate different levels of participation and make a recommendation through the WSMP process. A table showing the participation level of existing participants and the list of agencies on the waiting list is shown in Attachment 1.

The Project submitted its Water Rights Application to the State Water Resources Control Board (SWRCB) in May 2022. The SWRCB requested the Project provide additional supplemental information in August 2022 which the Project has submitted. The SWRCB is currently reviewing the Water Right Application and it's anticipated that the Water Rights Permit would be issued in Fall 2024.

In March 2022, the Project was invited to apply for a $2.2 billion Water Infrastructure Finance and Innovation Act (WIFIA) loan which would cover up to 49% of the Project costs. The Project submitted the WIFIA loan application in March 2023 and it's anticipated that the WIFIA loan will be awarded in March 2024. The WIFIA loan would provide low interest financing for participating water agencies and could potentially reduce the unit cost of water by as much as 10%.

A Revised Draft EIR/EIS for the Project was completed in November 2021. The Revised Draft EIR/EIS was released following a value planning process that resulted in revisions to the Project that made the Project more affordable and addressed comments received on the 2017 Draft EIR/EIS. The Final EIR/EIS for the Project is expected to be released in August 2023.

The Sites Reservoir Benefits and Obligations Contract (Contract) will define the benefits, costs, risks, and financing obligations for Project participants. Negotiations for the Contract are expected to begin in mid-2023. Guiding Principles and Preliminary Terms for the Contract were adopted by the Project in November 2022. The Guiding Principles and Preliminary Terms does not commit participants to any particular requirements in the final Contract but provides high-level guidance on allocating benefits and costs, collecting payments, and remedying defaults, to inform development of the final Contract.

Project Benefits

The Project is designed to divert excess flows from the Sacramento River during high-flow events and store the water in Sites Reservoir. Water could then be released from Sites Reservoir in dry and critically dry years for environmental use and water supply. The Project would be operated in conjunction with both the State Water Project and Central Valley Project to increase the flexibility, reliability, and resiliency of statewide water supplies in drier years.

The operational flexibility provided by the Project will help preserve the cold-water pool in Lake Shasta later into the summer months to support spawning and rearing of endangered Winter-Run Chinook Salmon in the Sacramento River. The Project will also provide a reliable supply of refuge water to improve Pacific Flyway habitat for migratory birds and other native species as well as provide water dedicated to help improve conditions for Delta Smelt.

The water supply benefits for Valley Water will depend upon Valley Water's final level of participation in the Project. The anticipated water supply provided by Valley Water's current participation level and maximum waitlisted level are shown in Table 1 below. In general, Staff anticipates the Project could provide the following benefits to Valley Water:

- Increase in water supply, including greater amounts in dry years,
- Storage rights in Sites Reservoir proportional to the Valley Water's targeted participation level,
- Priority access to transfer supplies made available from other Project participants,
- Priority access to lease or purchase of storage capacity of other Project Participants,
- Improvement in Shasta Reservoir storage levels and cold-water pool that may provide fishery benefits and help stabilize CVP water supply allocations,

The extent to which these benefits can be realized depends on how the project risks, challenges, and mitigation measures are addressed throughout project development. Key risks to the Project which may affect Valley Water include:

- Limitations to our ability to transport water through the Delta,
- Potential reductions to the projected yield or storage capacity of the Project as negotiations with regulatory agencies progress,
- Potential cost increases in the future due to construction cost uncertainties.

These risks could be reduced by also investing in conveyance improvement projects such as the Delta Conveyance Facility.

Table 1: Anticipated Project Yield, Storage, and Costs by Participation Level

	Existing Participation Level	**Maximum Waitlisted Participation Level**
VALLEY WATER PARTICIPATION LEVEL		
Share of Total Project Costs	0.2%	2.7%
Requested Annual Yield (AF)[1]	500	6,000
Storage Allocation (AF)	3,117	37,400
ESTIMATED WATER SUPPLY BENEFITS FOR VALLEY WATER		
Average Delivered Yield (AF)[2]	380	4,590

Average Dry/Critical Year Delivered Yield (AF)[2]	770	9,250

[1] A Participant's "Participation Request" is a metric used by Sites Project managers to calculate participation levels relative to other participants. Actual annual yield of the project will differ from this requested participation level. [2] Delivered yield values are based on Sites Project modeling and may be updated as the project progresses. Delivered yields values assume a 25% carriage water loss.

Project Costs

The latest capital cost estimate for the Sites Reservoir Project is $3.9 billion in 2021 dollars, not including financing costs. This estimate includes anticipated costs for environmental mitigation and other non-construction costs including permitting, real estate, and engineering. Total annual O&M costs would vary depending on hydrology and operations but are expected to be about $15 million. An updated cost estimate for capital costs and O&M costs is expected mid-2024.

If Valley Water participates in the Project, its share of costs would depend on its participation level. Cost share for Valley Water current participation level and maximum waitlisted level is shown in Table 2 below. Through May 2023, Valley Water has spent approximately $2 million towards Project planning and development.

Table 2: Anticipated Project Costs by Participation Level

	0.2% Participation (Existing)	**2.7% Participation (Maximum Waitlisted Participation Level)**
Share of Total Capital Cost (2021 Dollars) [1]	$8.8 Million	$120 Million
Estimated Annual O&M Costs (2021 Dollars) [2]	$44,000	$583,000

[1] Share of total project capital costs published by the Sites Project which was adjusted for inflation to 2021 dollars, not including financing. [2] Annual O&M costs can vary widely based on hydrology and operations.

Project Funding

The Project has been awarded a total of approximately $1.1 billion in state and federal funding. A breakdown of the funding sources secured to date is shown in Table 3 below. The Sites JPA and Project partners are continuing efforts to procure additional funding including securing the final funding agreement with the California Water Commission and executing operating agreements with state, federal, and local partners.

Table 3. Sources of Project Funding

Funding Source	Funding Amount
Prop 1 WSIP award (State funding)	$875 Million, including $40 Million in early funding.

WIIN Act (Federal funding)	$215 Million

Water Supply Master Plan Context

Valley Water's internal water supply planning analysis recognizes that Valley Water may need to develop alternative water supply sources, such as Sites Reservoir Project, to meet level of service goals in the future. The Ensure Sustainability strategy in the Water Supply Master Plan includes elements to secure and optimize existing supplies and infrastructure. In addition to providing a new source of dry year supply for Valley Water, Sites Reservoir Project would also provide operational flexibility to the Central Valley Project that could help stabilize Central Valley Project allocations under climate changed conditions. Valley Water is in the process of updating the WSMP and this Project, in addition to other water supply projects, will be evaluated as part of this process.

Next Steps

In March 2022, Project participants executed Amendment 3 to the 2019 Reservoir Project Agreement, which provided approximately $67 million in funding for planning and design costs through the end of 2024. Valley Water's Amendment 3 funding commitment at our current 0.2% participation level was approximately $200,000. It is anticipated that the next project funding decision will be the final participation decision and include funding and financing commitments for Project construction and any remaining planning costs. Staff anticipates that a final decision will be requested in late 2024 or early 2025.

ATTACHMENTS:
Attachment 1: Sites Participant Table
Attachment 2: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Vincent Gin, 408-630-2633

This Page Intentionally Left Blank

Sites Participant Table and List of Waitlisted Agencies

Participant	Requested Annual Yield (AF)	Storage (AF)	% of Available Storage
Antelope Valley-East Kern WA	500	3,117	0.2%
City of American Canyon	4,000	24,936	1.8%
Coachella Valley WD	10,000	62,340	4.4%
Colusa County	10,000	62,340	4.4%
Colusa County WD	9,256	57,702	4.1%
Cortina WD	450	2,805	0.2%
Davis WD	2,000	12,468	0.9%
Desert WA	6,500	40,521	2.9%
Dunnigan WD	2,972	18,527	1.3%
Glenn-Colusa ID	5,000	31,170	2.2%
Irvine Ranch WD	1,000	6,234	0.4%
LaGrande WD	1,000	6,234	0.4%
Metropolitan Water District of SC	50,000	311,700	22.1%
Reclamation District 108	4,000	24,936	1.8%
Rosedale-Rio Bravo WD	500	3,117	0.2%
San Bernardino Valley Municipal WD	21,400	133,408	9.5%
San Gorgonio Pass WA	14,000	87,276	6.2%
Santa Clara Valley WD	500	3,117	0.2%
Santa Clarita Valley WA	5,000	31,170	2.2%
Westside WD	5,375	33,508	2.4%
Wheeler Ridge - Maricopa WSD	3,050	19,014	1.3%
Zone 7 WA	10,000	62,340	4.4%
State of California - Total	n/a	244,000	17.3%
Reclamation[1]	n/a	128,020	9.1%
Available Storage Total		**1,410,000**	**100.0%**

[1] Values reflect a potential increase in Reclamation's participation from its current 7% level to 9.1% based on currently available space in the reservoir. This increase in participation level has not been finalized.

Waitlisted Agencies

California American water
City of Napa
Dudley Ridge Water District
La Cumbra Mutual Water Company
Madera County Groundwater Sustainability Agency
Pacific Resources Mutual Water Company*
Palmdale Water District
Santa Clara Valley Water District**
Westlands Water District
Western Municipal Water District
Woodland Davis Clean Water Agency
Wheeler Ridge Maricopa Water Storage District**
U.S. Bureau of Reclamation**

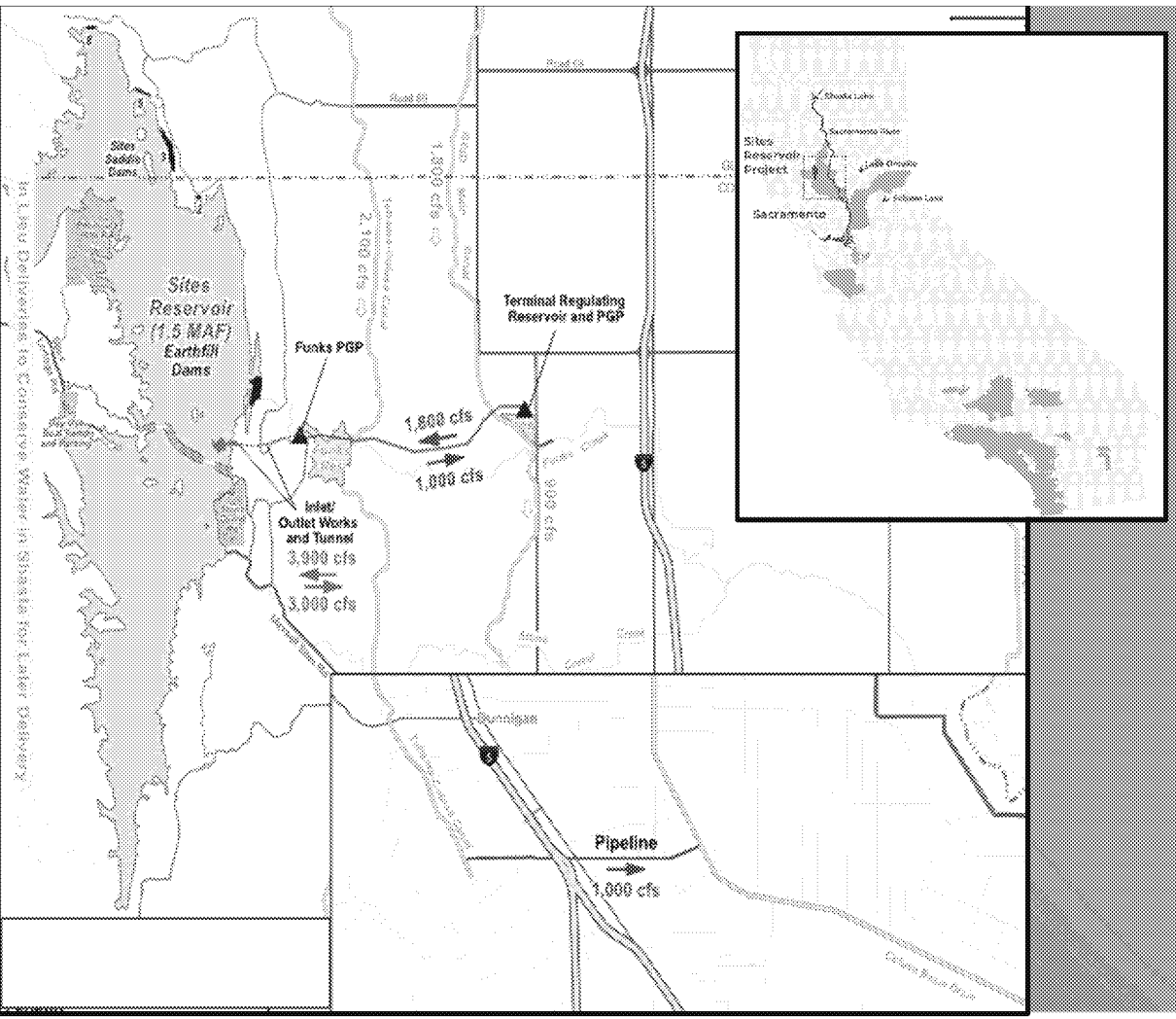
* former Sites Participant
**existing Sites Participant

This Page Intentionally Left Blank

Update on Sites Reservoir Project

Water Storage Exploratory Committee, May 12, 2023.

Valley Water



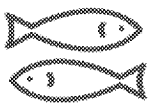
Sites Reservoir Project

Location: Colusa and Glenn Counties

- Off-Stream Reservoir
- Size: 1.41 million acre-foot (AF)
- New water supply for environment and M&I/Ag use
- Diverts and stores excess flows from winter storms

Valley Water

Project Overview

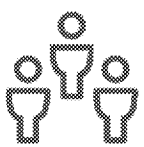


Off-stream Storage

Does not create a barrier to native fish migration

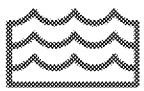
Federal and State Agencies Manage Environmental Water

Adaptable to current and future conditions and priorities



Local Leadership and Cooperation

Aligns with Sacramento Valley's values and fosters regional and statewide collaboration



Cooperative Operation

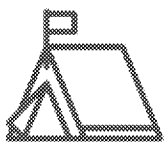
Increases effectiveness and efficiency of existing water storage infrastructure

Adaptable to Climate Change

Contributes to system reliability and performance with climate change

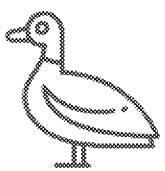
Dry Year Water Supply

Reliable dry year water supply for California communities, farms and businesses



Recreational Opportunities

Provides northern Sacramento Valley with additional opportunities for recreation



Environmental Support

Provides environmental water in drier periods for native fish, and habitat for native species and birds

Valley Water

Project Participation

- Project is currently fully subscribed:
  - State and Federal Participation
  - 22 Local Agencies

- Waiting List to Join Project or Increase Participation:
  - 11 New Agencies
  - 2 Existing Participants
  - U.S. Bureau of Reclamation

- Valley Water requested to join Waitlist in July 2022

Valley Water

Key Project Milestones

- WIFIA Loan Application submitted March 2023
- Water Rights Application submitted May 2022
- Final EIR/EIS anticipated Summer 2023
- Begin drafting Benefits & Obligations Contract in Summer 2023
- WIFIA Loan expected Spring 2024
- Water Rights Permit anticipated Fall 2024
- Final Participation Decision anticipated late 2024/ early 2025

Valley Water

Project Benefits

- New water supply
- Priority access to transfers and storage lease
- Adaptable to climate change
- Operational flexibility for CVP/SWP
- Improved Shasta cold water pool to support endangered fisheries
- Environmental water supply for refuges and delta smelt
- Regional flood benefits

Valley Water

Project Benefits

- Valley Water participation level: 0.2%
- On waiting list to potentially increase up to a maximum of 2.7%
  - Waiting list does not commit us to increasing, only allows opportunity if space becomes available

	0.2% Participation (Existing Level)	2.7% Participation (Maximum Waitlisted Level)
Requested Annual Yield	500 AF	6,000 AF
Storage Allocation	3,100 AF	37,400 AF
Dry Year Annual Yield	750 AF	9,250 AF

Valley Water

Project Funding

- Total Estimated Project Costs: $3.9 Billion (2021 Dollars)

- WSIP Funding: $875 Million
- Federal Funding: $214 Million
- Submitted Application for $2.2 Billion WIFIA Loan

Valley Water

Valley Water Project Costs

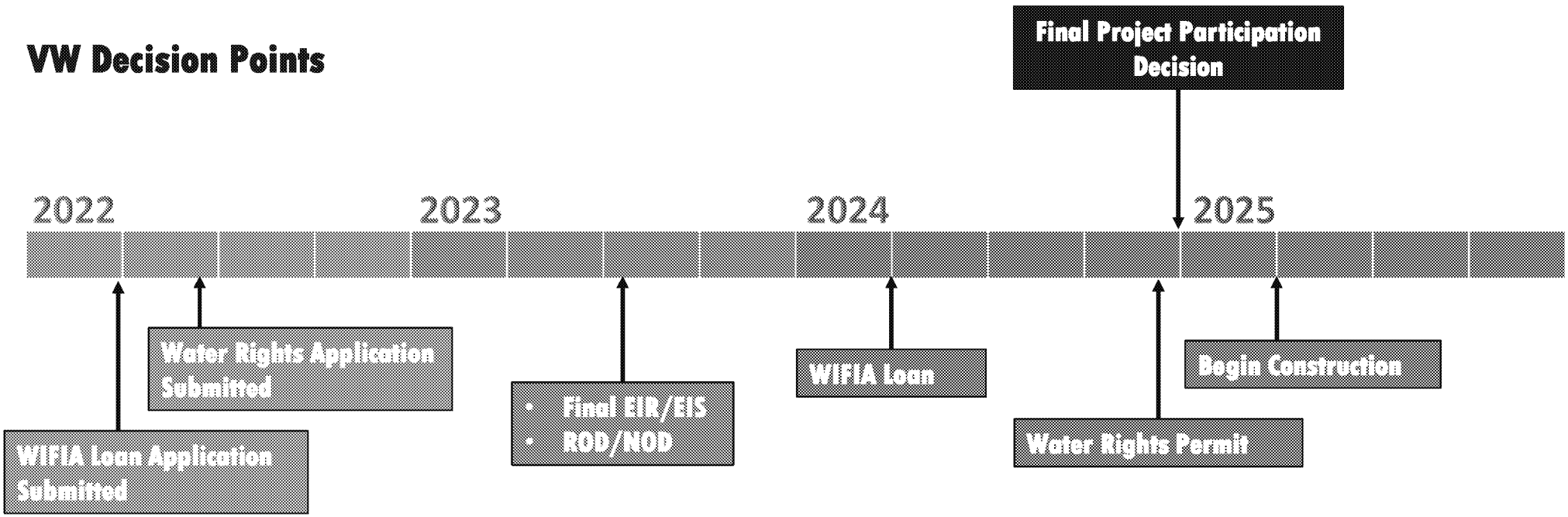
- Valley Water Estimated Project Costs:

	Existing Participation (0.2% Participation)	Maximum Waitlisted Participation (2.7% Participation)
Capital Costs:	$8.8 Million	$120 Million
Estimated Annual O&M Costs:	$44,000	$583,000

- Valley Water Funds Spent to Date: $2 Million
- Additional Valley Water Funds Committed through 2024: $0.1 Million

Valley Water

Project Schedule



Project Milestones

Valley Water

QUESTIONS

This Page Intentionally Left Blank

File No.: 23-0534

Agenda Date: 5/12/2023
Item No.: 4.3.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
B. F. Sisk Dam Raise and Reservoir Expansion Project Update.

RECOMMENDATION:
Receive and Discuss Information Regarding the B.F. Sisk Dam Raise and Reservoir Expansion Project.

SUMMARY:
The U.S. Bureau of Reclamation (Reclamation) and the San Luis & Delta-Mendota Water Authority (SLDMWA) are jointly developing the B.F. Sisk Dam Raise and Reservoir Expansion Project (Project), which would raise B.F. Sisk Dam by 10 feet and increase the storage capacity of San Luis Reservoir by 130,000 acre-feet (AF). This increase is in addition to the 12-foot raise being performed as part of the B.F. Sisk Safety of Dams Modification Project being undertaken by Reclamation and the Department of Water Resources (DWR), which is meant to address seismic concerns of the existing dam but will not increase the storage capacity of the reservoir.

San Luis Reservoir is a key facility shared by the State Water Project (SWP) and Central Valley Project (CVP) and is critical to the delivery of Valley Water's imported water supplies. Water stored in San Luis Reservoir can be directly accessed by Valley Water and delivered through Reclamation's San Felipe Division facilities, which are operated by Valley Water. Valley Water has the opportunity to participate in the Project and is currently supporting project development through its membership in the SLDMWA. Negotiations with Reclamation regarding key components of the project description will likely begin in several months; key project components include how storage may be used and how water supplies produced by the project may be allocated. If negotiations are fruitful, the Project could provide Valley Water with reliable new storage capacity, diversifying its storage portfolio consistent with a key Water Supply Master Plan (WSMP) strategy. The Project could also generate new surplus water supplies that could help offset future reductions in Valley Water's baseline imported water supplies due to climate change and regulatory criteria.

Although Participants do not have certainty on key items defining Project benefits, Valley Water staff

is in the process of evaluating anticipated benefits based on information currently available, which is presented in this memo. As negotiations progress and as part of WSMP update currently underway, staff will be able to evaluate the Project further, and ultimately develop a recommendation regarding Project participation for consideration by the Water Supply Exploratory Committee and full Board.

Benefits Analysis

For Participants, the Project is anticipated to provide benefits that can be grouped into two main categories; 1) dedicated storage, and 2) wet year water supply. Storage capacity is expected to be dedicated to each Participant in proportion to the amount of funding provided. Participation percentages are yet to be determined and will be negotiated among Participants, and later with Reclamation.

Staff anticipates that the Participants would have control of their non-CVP water supplies stored in their share of the enlarged San Luis Reservoir, either choosing to hold that water in storage for future use or convey the water to new or existing groundwater storage facilities for recovery during dry years. It is expected that these non-CVP supplies stored in the Participant's respective share of the reservoir would be protected from spill during times when the existing San Luis Reservoir fills. In the past 20 years, Valley Water has averaged approximately 35,000 AF of water stored in San Luis Reservoir from year to year. While Valley Water operates to minimize spill risk in San Luis, a total of 77,800 AF was spilled over the past 20 years. These spills occurred over four years, with an average spill volume of approximately 20,000 AF per year. Having a storage facility such as the Sisk Dam Raise could have secured some of this water for future use by Valley Water.

The Sisk Dam Raise may also allow Reclamation to divert surplus supplies from the Delta under its existing water rights for the CVP, referred to as Section 215 water. Additionally, Valley Water may also be able to store Delta surplus generated by the SWP, known as Article 21 water. Section 215 and Article 21 water is made available to CVP and SWP contractors, respectively, during high flow events, typically after San Luis Reservoir fills, and must be directly delivered or diverted to a non-project storage facility immediately as it becomes available. Valley Water has rarely been able to take advantage of these opportunities because local supplies are typically abundant at times when Section 215 and Article 21 is available, and because of its lack of alternative storage capabilities for imported water.

The degree to which each participant benefits from the Project will depend on how they choose to operate their respective share of storage capacity. To provide a potential range of benefits for Valley Water, staff performed a modeling analysis with two operational bookends, as described below. Note that this analysis does not consider Valley Water's ability to use these supplies in County or store them out of the County for later use and therefore should be considered preliminary. The performance of the Sisk Dam Raise Project in relation to the portfolio of projects contemplated in Valley Water's Water Supply Master Plan (WSMP) will be evaluated as part of the WSMP process and will be brought to the Water Storage Exploratory Committee and full Board at a later date.

In the first scenario Valley Water would operate the project to maximize the generation of Delta surplus water by using its stored water frequently ("cycling"). In this case we assume that Valley

Water would capture its maximum allocated Delta surplus when available and immediately draw down its storage to capture additional Delta surplus in subsequent years.

The water supply benefits shown in Table 1 include Valley Water's potential share of Delta surplus from both the CVP and SWP only. Although Reclamation's share of new storage capacity could be used to increase allocations for south of Delta CVP contractors, Valley Water is unlikely to see significant improvements to its CVP allocation due to the urban preference already afforded Valley Water from Reclamation's CVP Municipal and Industrial (M&I) Water Shortage Policy. The analysis indicates that the cycling scenario could result in significant "new" water supply available to Valley Water.

Table 1. Valley Water's Modeled Water Supply Benefits in Cycling Scenario

Storage Participation (TAF)	Water Year Type					Long-Term Average (TAF)
	Wet (TAF)	Above Norma (TAF)	Below Norma (TAF)	Dry (TAF)	Critica (TAF)	
5.5	*4*	*3*	*2*	*0*	*0*	*2*
15	*11*	*6*	*5*	*1*	*1*	*6*
30	*21*	*13*	*9*	*2*	*2*	*11*
45	*31*	*19*	*12*	*2*	*3*	*16*
65	*41*	*26*	*14*	*2*	*5*	*21*

If Valley Water chose to operate its share capacity according to this cycling method, it would likely need to pair it with a new or existing groundwater bank or other storage facility for longer-term storage. Surplus water could be captured and temporarily stored in the Project before being moved to a groundwater bank for long-term storage. Water could then be withdrawn from the groundwater bank to provide water supply during dry years. Valley Water's ability to take delivery of this water in County may be limited depending on the availability of local supplies, which are typically abundant when Delta surplus is available, and due to above average imported water allocations at these times. The degree to which Valley Water can take advantage of these supplies with additional future investments will be modeled as part of the update to the WSMP.

This current analysis does not include any Delta surplus that may be available to Valley Water if it participates in the Delta Conveyance Project (DCP). A significant portion of the water supply benefits of the DCP are expected to be provided as Article 21 supplies. Current modeling indicates that DCP would make Article 21 water available two to three times more often. If the DCP is ultimately built and Valley Water participates, it will be critical for Valley Water to make investments in storage projects such as the Sisk Dam Raise to fully realize these benefits.

In the second scenario Valley Water would operate its share of new storage capacity to maximize dry year supply ("dry year supply"). This would be accomplished by storing water in the Project for longer periods of time and only drawing on these supplies in dry and critically dry years when the CVP M&I allocation is less than 50 percent and the SWP allocation is less than 30 percent. Staff anticipates that Valley Water would be able to store other water types, including its allocated SWP supplies, transfer supplies, and water recovered from groundwater banks in its share of capacity. However, to estimate the exclusive benefits of the Sisk Dam Raise, the dry year supply scenario assumes that only Valley Water's share of Delta surplus is stored in its share of capacity.

Table 2. Valley Water's Modeled Water Supply Benefits in Dry Year Supply Scenario

Storage Participation (TAF)	Dry Years (TAF)	Critical Dry Years (TAF)
5.5	*2*	*3*
15	*5*	*5*
30	*9*	*11*
45	*14*	*16*
65	*20*	*23*

As expected, the dry year supply scenario significantly increases the direct delivery of surplus water supply to Valley Water in the drier years when compared to the cycling scenario. However, much less water is generated overall due to the lack of available storage space in the below normal, above normal, and wet years.

Project Costs

The capital cost estimate was recently updated to $888 million, not including financing costs. This estimate includes a 15 percent design contingency and 20 percent construction contingency. Total annual O&M costs are anticipated to be approximately $2.1M.

Cost savings are anticipated to be achieved because the Project involves the modification of an existing facility rather than construction of an entire new facility, and because it would occur concurrently with the B.F. Sisk Safety of Dam Modification Project. However, the Project would also require significant upgrades to State Route 152 to bring the road up to current safety standards, which adds significant costs. The breakdown of costs by major project element is shown in Table 1 below.

Table 1: Sisk Dam Raise Capital Costs

Project Feature	Capital Cost ($2022)
Dam Raise	*$412M*
State Route 152 Improvement	*$406M*
Design, Permitting, Project Management	*$70M*

Total Capital	***$888M***

If Valley Water participates in the Project, its share of costs would depend on the amount of storage it ultimately elects to purchase. Participants would be responsible for paying for their share of the Project construction costs, possibly through the SLDMWA or individually, although details have not yet been discussed. Table 2 indicates Valley Water's anticipated capital cost obligation under a range of participation scenarios, assuming that Participants are allocated 65,000 AF of new storage capacity.

Table 2: Range of Potential Costs for Valley Water

Storage Participation (AF)	Participation Level	Capital Cost ($2022)	Annualized O&M Cost
5,525	*8.5%*	*$38M*	*$0.2M*
15,000	*23%*	*$103M*	*$0.5M*
30,000	*46%*	*$205M*	*$1.0M*
45,000	*69%*	*$308M*	*$1.4M*
65,000	*100%*	*$444M*	*$2.1M*

Key Items to be Negotiated

Reclamation is currently pursuing a Basis of Negotiation, which is an internal administrative procedure that will allow it to begin negotiating with the prospective Participants and ultimately determine how the benefits and costs of the Sisk Dam Raise will be allocated. The items listed below represent several key project elements that will be confirmed or negotiated.

1. Cost Allocation - Valley Water staff anticipates that construction funding would be allocated in direct proportion to each Participants' respective share of capacity. It is still unclear whether any portion of Reclamation's share of capacity would be reimbursed by CVP contractors.

2. Water Allocation - Additional CVP water supplies generated by the Project may be used to improve south of Delta CVP allocations and be provided to Participants as Section 215 water.

3. Storage Security - Storage of non-CVP water is anticipated to be very secure, while the rules pertaining to storage of allocated CVP water and Section 215 water have not been determined. Valley Water is also evaluating the ability to store its SWP water.

4. Participant/Reclamation Storage Split - For planning purposes the new storage has been split 50/50 between Reclamation and Participants.

Water Supply Master Plan Context

Valley Water's internal water supply planning analysis recognizes that Valley Water may be overly dependent on the Semitropic Groundwater Storage Bank in Kern County to meet its storage needs,

and that greater diversification of storage investments may be required to meet level of service goals in the future. As described in the WSMP, Valley Water's existing supplies exceed our needs in some years, and additional facilities would increase flexibility and the ability to store these excess supplies for use in dry years. The WSMP Ensure Sustainability strategy includes elements to secure and optimize existing supplies and infrastructure. The Sisk Dam Raise could provide storage diversification and may also generate new surplus water supplies that could help offset future reductions in Valley Water's baseline imported supplies due to climate change and regulatory criteria. Valley Water is in the process of updating the WSMP and this Project, in addition to other storage projects, will be evaluated as part of this process.

Upcoming Funding Decision:

The initial planning for the Sisk Dam Raise was performed through a $2.4 million consulting contract approved by the SLDMWA Board of Directors, the costs for which were shared among all SLDMWA members. In early 2022 a subset of SLDMWA members, including Valley Water, elected to continue the development of the Project through an activity agreement, rather than as an obligation of the entire membership. Valley Water has committed approximately $235,000 to this effort to date.

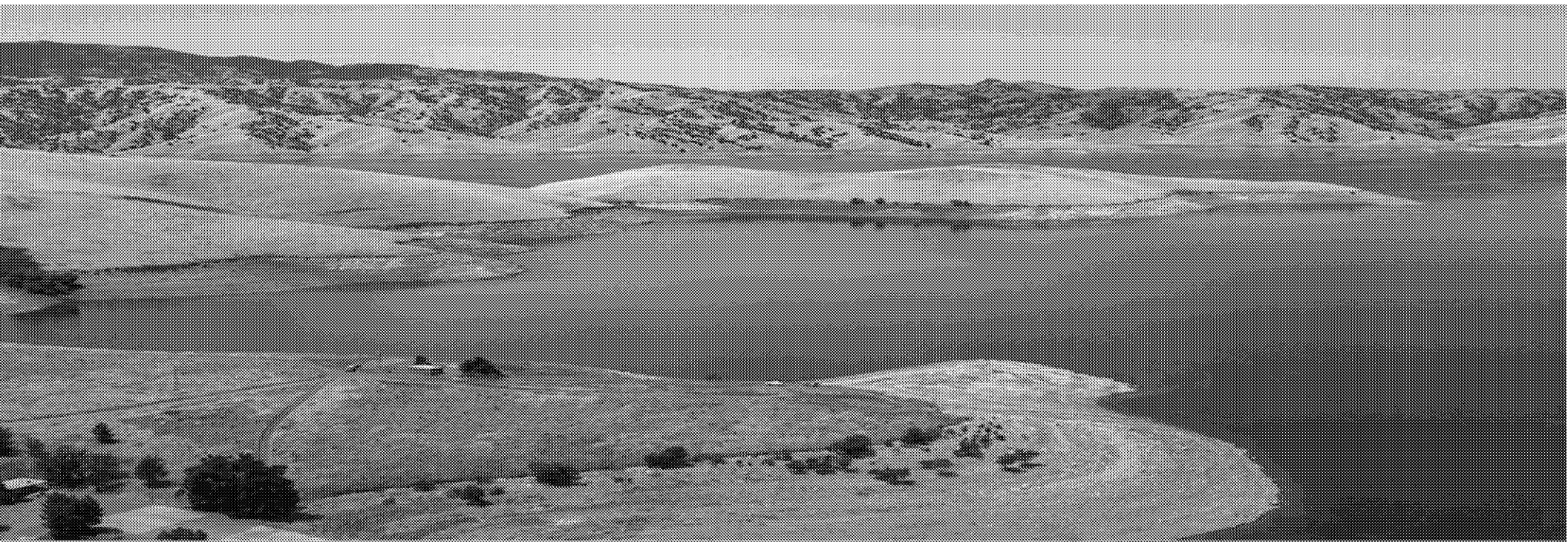
Reclamation estimates that a total of $20 million in planning funding will be required collectively from Project participants. An initial request of $2.5 Million will be needed from participants in June of 2023 to sustain Project planning through September of 2023. It is anticipated that an additional $7.5 million, to be provided jointly by Participants, will be required through July 2024, but the timing and size of future funding requests has not yet been decided. Options being considered include quarterly funding requests of $2.5 million each, or a larger request to cover a longer timeframe if negotiations with Reclamation result in meaningful progress.

Staff plans to bring the funding decision to the Water Storage Exploratory Committee in early June to seek its recommendation to go to the full Board in late June for continued participation in the planning phase of the Project.

Negotiations with Reclamation to define Project benefits and costs will likely conclude several months after the initial funding decision is made, and Valley Water will likely have the opportunity to adjust its participation level through subsequent funding requests.

ATTACHMENTS:
Attachment 1: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Vincent Gin, 408-630-2633

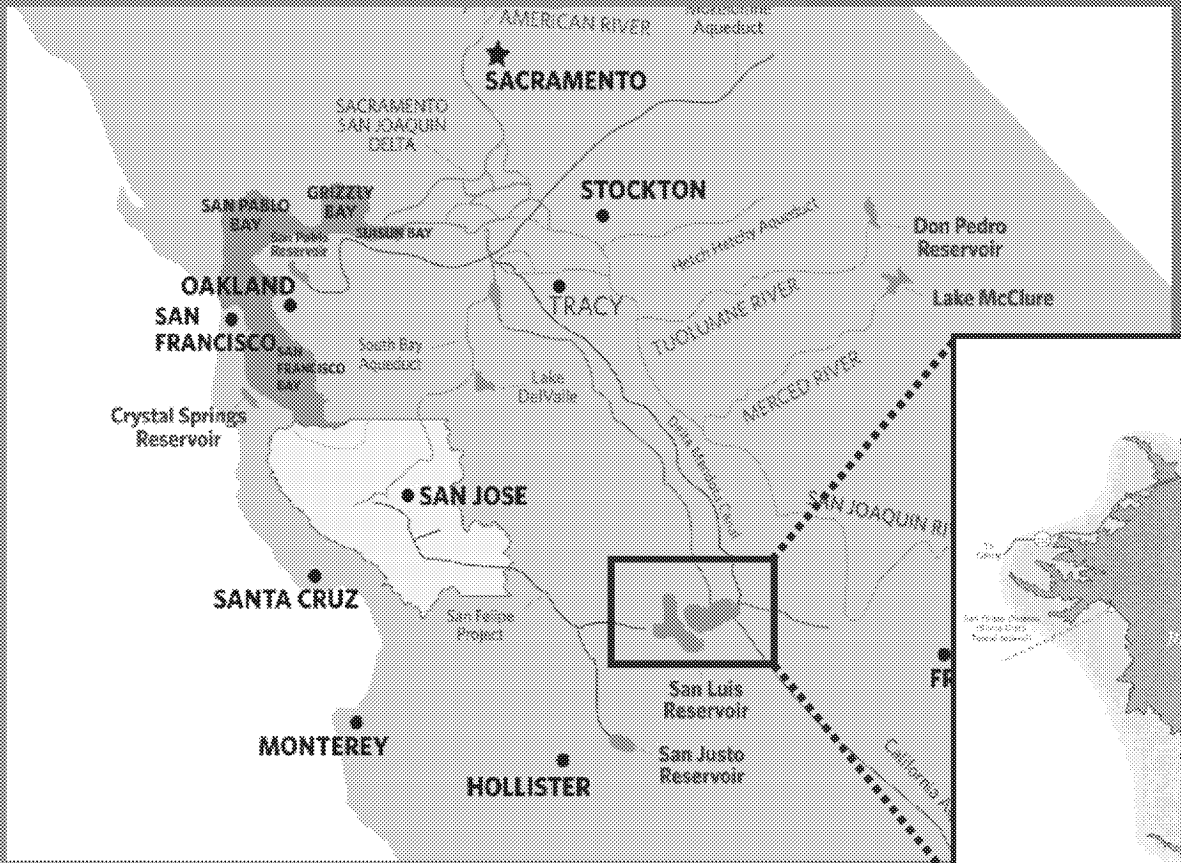


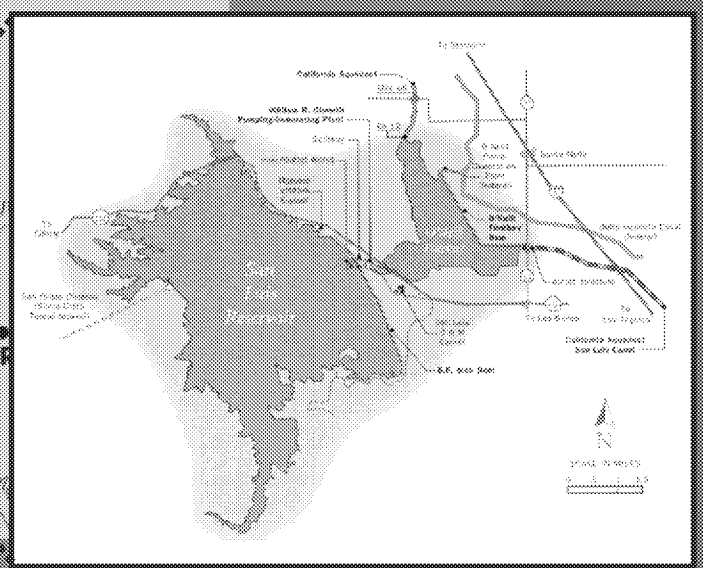
B.F. Sisk Dam Raise and Reservoir Expansion Project

Water Storage Exploratory Committee Meeting, May 12, 2023

Valley Water

Project Location





Location: San Luis Reservoir
Merced County

Existing Facility: Integrated Operations
Direct Access

Concurrent Projects

Safety of Dams Project:

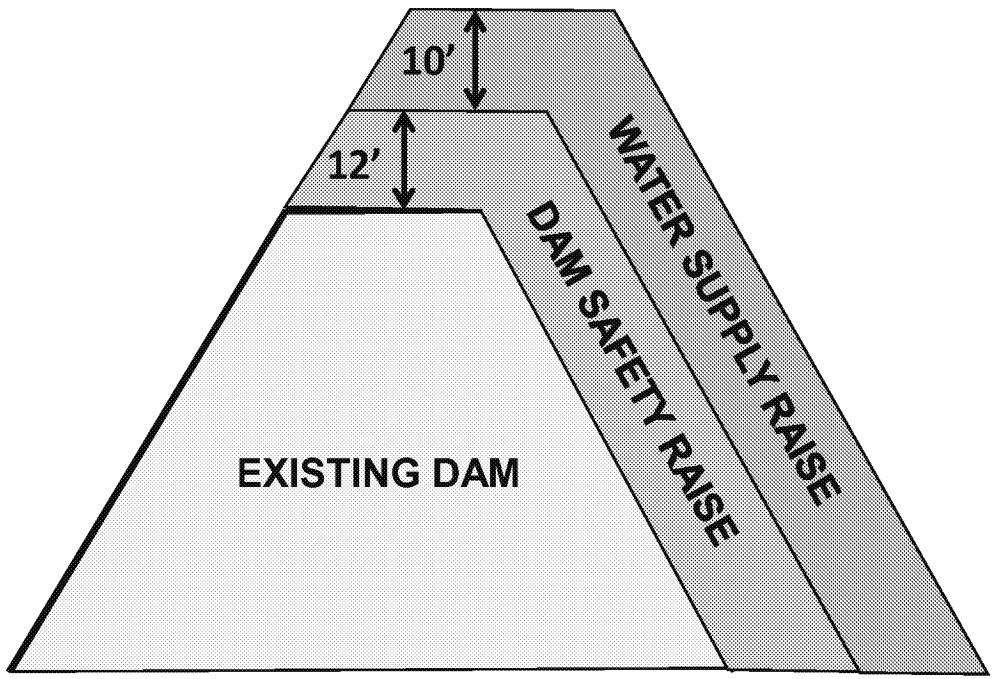
- Seismic repairs
- No additional storage

B.F. Sisk Dam Raise Project:

- 130,000 acre-feet (AF) new storage

Combined Projects:

- Cost and schedule savings
- Reduced environmental impact



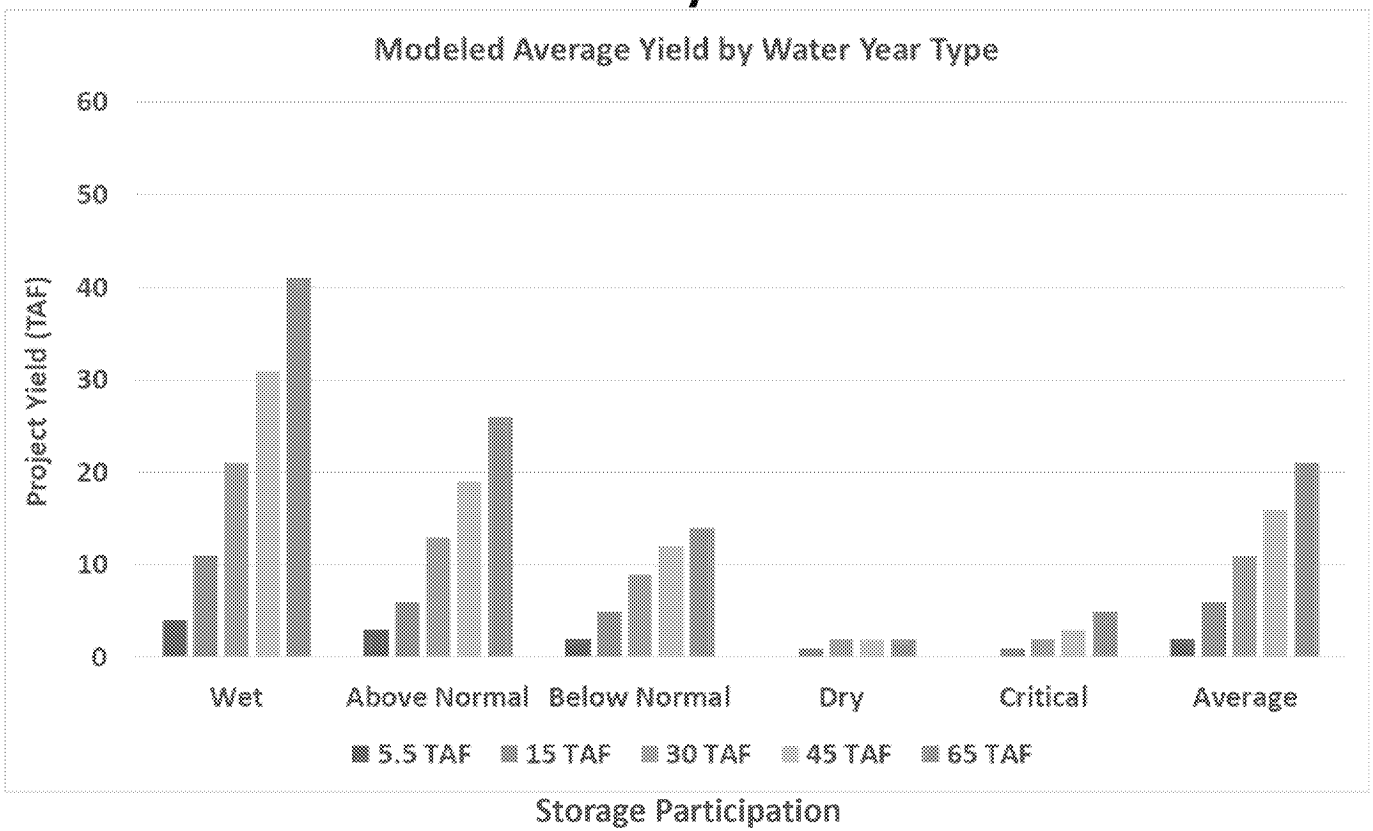
Valley Water

Project Benefits

- Anticipated project benefits – subject to future negotiation
  - Dedicated storage capacity for existing water supplies
  - Protection of stored water from spill
  - Capture of new surplus water
  - Improved reliability of CVP allocation

Potential Water Supply Benefits

- **"Cycling" Scenario captures a significant amount of Delta surplus**
  - **Assumes full withdrawal each year**

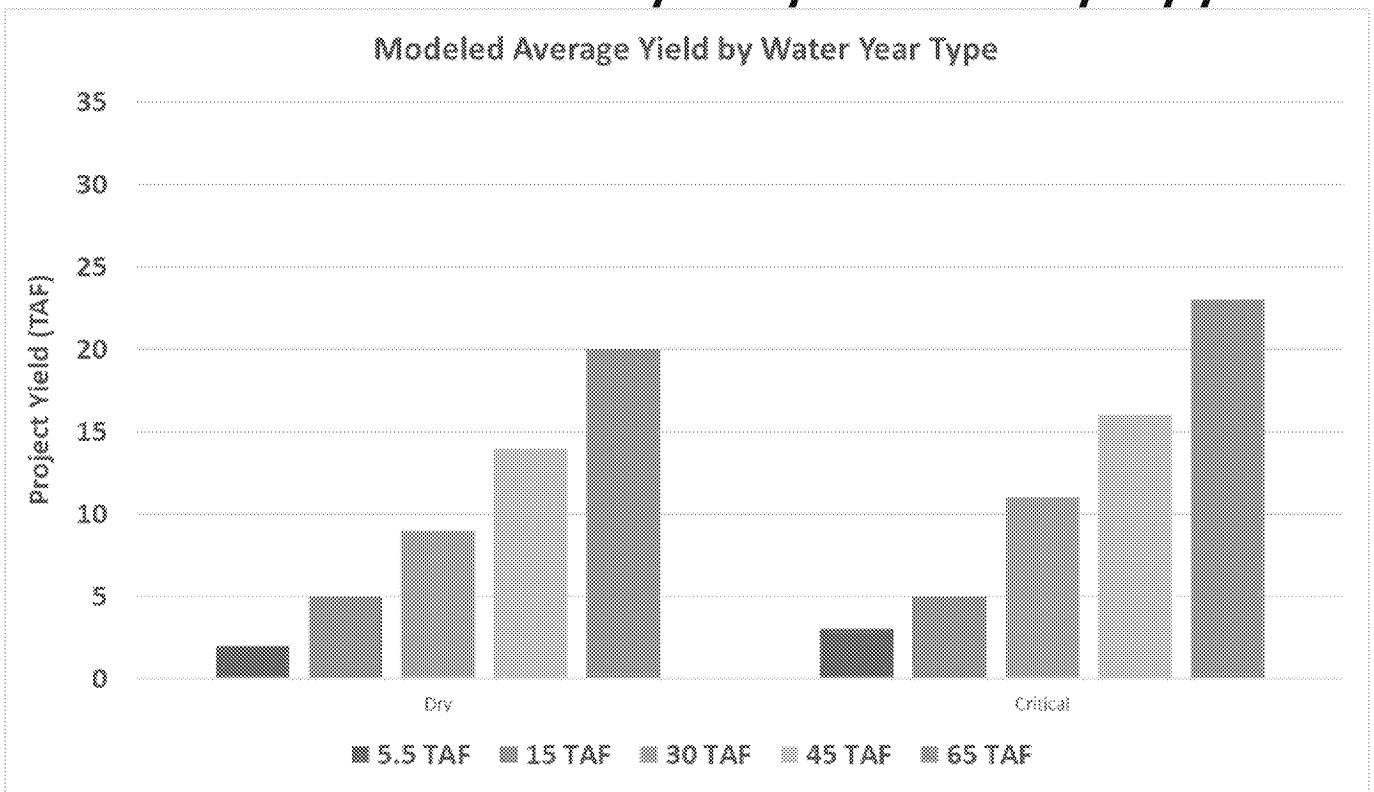


Valley Water

5

Potential Water Supply Benefits

- "Dry Year Supply" scenario stores Delta surplus for later use
  - Assumes withdrawal only in dry and critically dry years



Valley Water

Project Costs

- **Total annual O&M cost estimate: $3.9 million**

Project Feature	Capital Cost ($2022)
Dam Raise	$412M
State Route 152 Improvement	$406M
Design, Permitting, Project Management	$70M
Total Capital Cost	**$888M**

- **Contingencies: 15% design, 20% construction**

Valley Water

Range of Participation and Costs

- **Valley Water's potential share of 130,000 AF of new storage capacity**
  - **Assumes 65,000 AF is dedicated to project partners**

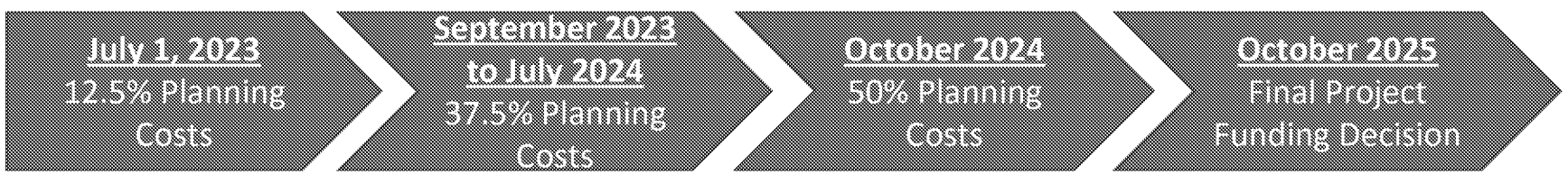
Storage Participation (TAF)	Investor Participation Level	Capital Cost ($2022)	Annualized O&M Cost
5,525	8.5%	$38M	$0.2M
15,000	23%	$103M	$0.5M
30,000	46%	$205M	$1.0M
45,000	69%	$308M	$1.4M
65,000	100%	$444M	$2.1M

Valley Water

Planning Costs and Milestones

- **Participants' Planning Cost Estimate: $20M**
  - **VW Share of Planning Costs: $1.7M - $20M**
  - **VW Funds Committed to Date: $235,000**

Project Milestones & Funding Schedule



Valley Water

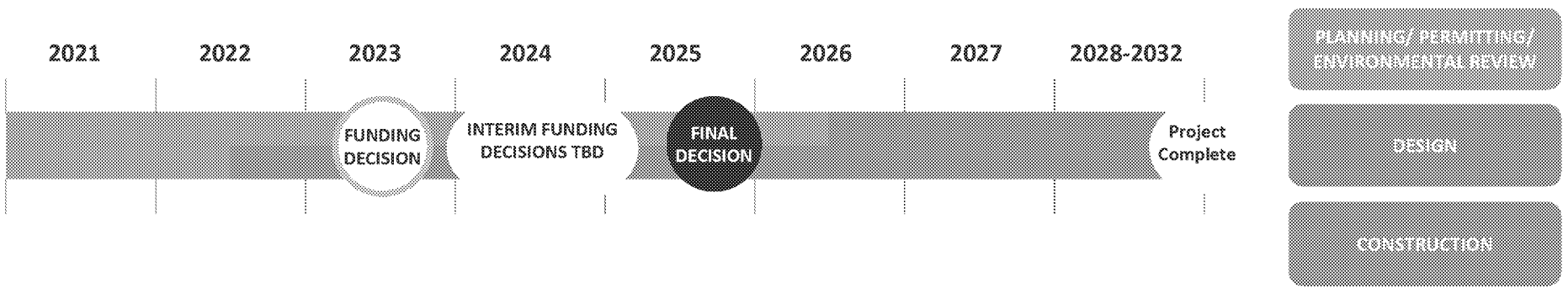
Board Decision Schedule

Participant planning costs:
(Valley Water share TBD)

$2.5M - July 2023
$7.5M - September 2023-July 2024
$10M - October 2024

Construction funding:

$497 Million - October 2025



Valley Water

File No.: 23-0538

Agenda Date: 5/12/2023
Item No.: 4.4.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Update on Antelope Valley-East Kern Water Agency High Desert Water Bank Phase 2 Project.

RECOMMENDATION:
Receive and Discuss Information Regarding the Antelope Valley-East Kern Water Agency High Desert Water Bank Phase 2 Project.

SUMMARY:

Background

AVEK is a State Water Project (SWP) contractor that provides water to the Antelope Valley and provides a new groundwater storage opportunity. Its service area is in eastern Kern County, northern Los Angeles County, and a portion of Ventura County. AVEK has the third largest Table A contract amount of the 29 SWP contractors with an amount of 144,484 AF. Served by the East Branch of the California Aqueduct, AVEK delivers both treated and untreated water to its customers. This location is ideal given the possibility to connect the Water Bank facilities to the East and West Branch of the California Aqueduct.

Description of the Potential Water Bank

AVEK is developing a new groundwater banking program within its services area. The proposed groundwater banking program would consist of a Phase 2 expansion of AVEK's High Desert Water Bank, for which Phase 1 is currently under construction.

Phase 1 of the High Desert Water Bank, developed by Metropolitan Water District (MWD) and AVEK, is on schedule to be operational by the end of 2025. Phase 1 is currently estimated to have a total capital cost of $210 million and will have approximately 280,000 AF of total storage capacity and annual recharge and recovery capacities of 70,000 AF per year. AVEK proposes to build an adjacent

facility located near the bifurcation of the West and East Branch of the California for Phase 2. With the on-going construction of Phase 1, information sharing and lessons learned by AVEK can facilitate project development for Phase 2.

Phase 2 of the High Desert Water Bank (Phase 2, Water Bank) is expected to feature the development of new recharge, storage, and direct recovery infrastructure. AVEK would own the facilities and Valley Water would have first priority to use of the facilities, including return capabilities. Valley Water would recover stored supplies by exchange with AVEK's allocated Table A supplies or by exchange with SWP supplies upon direct recovery and pump-in into the California Aqueduct. A key benefit of partnering with AVEK, an SWP contractor, is they can maintain water in San Luis Reservoir to ensure reliability of returns during critically dry years. Valley Water and AVEK will also explore the ability to store Central Valley Project (CVP) supplies in the Water Bank.

Project Status

In summer 2022, AVEK's Board of Directors held a workshop to consider commencing a detailed assessment of developing Phase 2 in partnership with potential participants. As a next step, AVEK provided a letter to potential partners requesting a non-binding expression of interest (XOI) in Phase 2. Valley Water's XOI letter, submitted in September 2022, identifies preliminary participation capacities for AVEK's planning purposes and does not commit Valley Water to project participation or funding. Copies of both AVEK's request letter and Valley Water's submitted XOI are included as Attachment 1. Valley Water's requested share of the project in the XOI is 200,000 AF of total storage capacity and 50,000 acre-feet of maximum annual recharge and recovery, or a 45% share of the project. These amounts can be changed after completion of an upcoming feasibility evaluation and future negotiations. Based on the feedback from interested parties, AVEK has put forward a proposed project with a design groundwater storage capacity of 440,000 acre-feet (AF) and annual recharge and recovery capacities of 110,000 AF per year.

In February 2023, Valley Water and AVEK entered into a Pilot Water Banking Storage Agreement (Pilot Agreement), which will serve as a pilot program allowing AVEK and Valley Water to determine the administrative requirements and associated costs for the conveyance of water delivered to AVEK and subsequently returned to Valley Water. This Pilot Agreement will also demonstrate a process to coordinate operations of both AVEK's and Valley Water's water supplies, increasing the reliability of both agency's supplies, while also establishing a working relationship to better ensure a reliable partnership leading into a potential long-term commitment in the Water Bank. Under the terms of the Pilot Agreement, Valley Water may deliver up to 15,000 AF of water to AVEK for storage in its existing Westside Water Bank. The Pilot Agreement will be subject to DWR's approval.

Staff and other interested partners had been coordinating with AVEK in drafting an initial term sheet for a Memorandum of Understanding (MOU) to formalize a partnership with AVEK. However, AVEK is currently transitioning to a new General Manager who, given the interest in and scale of Phase 2, would like to closely coordinate with the Board of Directors and confirm feasible project capacities prior to moving forward. The General Manager expressed to us that AVEK would like to put Phase 2 on hold for the next 6 months or so as they update the Board of Directors.

Project Costs

Using Phase 1 to estimate capital construction costs for Phase 2, staff estimates development of the Water Bank to cost approximately $330 million in 2022 dollars, not including financing costs. Preliminary estimates are expected to be developed during conceptual design and completion of a feasibility analysis.

Water Supply Master Plan Context

Valley Water's internal water supply planning analysis recognizes that Valley Water may be overly dependent on the Semitropic Groundwater Storage Bank in Kern County to meet its storage needs, and that greater diversification of storage investments may be required to meet level of service goals in the future. As described in the WSMP, Valley Water's existing supplies exceed our needs in some years, and additional facilities would increase flexibility and the ability to store these excess supplies for use in dry years. The Ensure Sustainability strategy described in the WSMP includes elements to secure and optimize existing supplies and infrastructure. The Water Bank could provide storage diversification and optimize existing infrastructure by providing additional dedicated storage and leveraging supplies available through Valley Water's existing imported water contracts. It could also increase Valley Water's ability to fully realize the benefits of other water supply projects that may produce water supplies in wetter years, which are best paired with new south-of-Delta storage. Valley Water is in the process of updating the WSMP and this Project, in addition to other storage projects, will be evaluated as part of this process.

Next Steps

Valley Water and AVEK will coordinate on implementation of the Pilot project to explore storing CVP and SWP supplies in the AVEK basin this year. Valley Water will continue discussions with AVEK regarding development of Phase 2 including supporting AVEK in conversations with DWR and the Bureau of Reclamation during this initial planning period.

Staff will return to the Water Storage Exploratory Committee with more information once AVEK has coordinated further with its Board of Directors regarding Phase 2 development and partnership parameters, likely this fall.

ATTACHMENTS:
Attachment 1: AVEK High Desert Water Bank Phase 2 and Request for Non-Binding Expression of Interest Letter
Attachment 2: PowerPoint Presentation

UNCLASSIFIED MANAGER:
Vincent Gin, 408-630-2633

This Page Intentionally Left Blank

ANTELOPE VALLEY - EAST KERN WATER AGENCY
AVEK
ESTABLISHED 1959

A PUBLIC AGENCY

July 15, 2022

Cindy Kao
Imported Water Manager
Santa Clara Valley Water District
5750 Almaden Expy
San Jose, CA 95118

Re: AVEK High Desert Water Bank Phase 2 and Request for Non-Binding Expression of Interest

Dear Ms. Kao,

I am writing to follow up on our prior discussions regarding the development of a new groundwater banking program within the service area of Antelope Valley-East Kern Water Agency (AVEK, Agency) and to provide an update on opportunities for Santa Clara Valley Water District's (Valley Water) future participation in this program.

The proposed groundwater banking program would consist of a Phase 2 expansion of AVEK's existing High Desert Water Bank. Phase 2 is expected to feature:

- Development of new recharge, storage, and direct recovery infrastructure;
- Access to 1st priority rights to the expanded program's capacities;
- Return of stored water through direct recovery and pump-back operations;
- A reliable location south of the State Water Project's Edmonston Pumping Plant and near the California Aqueduct's East and West Branches; and

On June 7, 2022, AVEK's Board of Directors held a workshop to consider commencing a more detailed assessment of developing Phase 2 in partnership with prospective program participants. AVEK's Board continues to support the evaluation of the program, and as an initial next step, would like to confirm Valley Water's interest in jointly furthering Phase 2's feasibility assessment. The anticipated feasibility analyses are intended to develop refined technical program specifications and costs reflective of specific partner needs and local site conditions.

AVEK would like to extend the opportunity to Valley Water to express interest in participation in Phase 2 of the water bank. AVEK requests that Valley Water respond to this letter in the form of a non-binding Expression of Interest (XOI) by providing the following information:

- Confirmation that Valley Water is interested in partnering with AVEK to conduct refined feasibility analyses to support further development of Phase 2;
- Estimated maximum volumes of annual recharge, annual recovery, and total storage capacity in in Phase 2 desired by Valley Water;
- Estimated minimum and maximum duration in years of Valley Water's desired participation in the Phase 2 once constructed and operational; and
- Key contact person with Valley Water for coordinating future communication and efforts.

AVEK kindly requests that the described XOI be delivered no later than 5:00 p.m. on August 10, 2022 via email to Assistant General Manager Matthew Knudson at mknudson@avek.org. Following its receipt and review of the XOI, AVEK will reach out to the key contact person identified by Valley Water to discuss any questions or clarifications. AVEK would then a draft Memorandum of Understanding (MOU) based on the information provided in the XOI for respective review and potential action by both AVEK and Valley Water to formalize their partnership. Among other things, the MOU would describe preliminary terms of the water banking partnership, including (among other provisions) capacity access rights, sharing of development costs, the development timeline, development milestones, and ability to opt-in/opt-out of program's development and operational phases.

Thank you for your consideration of this opportunity and potential partnership with AVEK in expanding water supply reliability to meet the needs of current and future generations. Should you have any questions regarding this letter and its contents, please do not hesitate to contact Matthew Knudson at mknudson@avek.org or 661-349-7310.

Sincerely,

For Dwayne Chisam
General Manager

Cc: Andrew Garcia

6500 WEST AVENUE N • PALMDALE, CALIFORNIA 93551
(661) 943-3201 • www.avek.org • info@avek.org

The mission of AVEK is to deliver reliable, sustainable and high quality supplemental water to the region in a cost-effective and efficient manner.

September 20, 2022

Mr. Dwayne Chisam
General Manager
Antelope Valley – East Kern Water Agency
6500 West Avenue N
Palmdale, CA 93551
Email: dchisam@avek.org

Subject: Non-Binding Expression of Interest for AVEK High Desert Water Bank Phase 2

Dear Mr. Chisam,

Valley Water is writing in response to your letter dated July 15, 2022, by providing you with this non-binding Expression of Interest (XOI) regarding participation in Phase 2 of the High Desert Water Bank (HDWB). Valley Water appreciates the communication and coordination between our agencies as we have discussed and considered this project.

This XOI is not intended to be or to evidence any legally binding agreement or obligation on the part of Valley Water. After submittal of this XOI, Valley Water understands that AVEK will coordinate with Valley Water staff in drafting a Memorandum of Understanding (MOU) to formalize a partnership with AVEK to conduct a refined feasibility analysis to support further development of Phase 2. Among other things, the MOU will describe preliminary terms of the water banking partnership, including (among other provisions) capacity access rights, sharing of development costs, the development timeline, development milestones, and the ability to opt-in and opt-out of project development and operational phases. No agreement shall be binding unless and until each party has executed the MOU.

Based on our initial understanding of the HDWB Phase 1 project characteristics and preliminary cost estimates and discussions with AVEK regarding utilization of AVEK State Water Project Table A supplies in San Luis Reservoir, Valley Water is interested in the following:

- Partnering with AVEK to conduct refined feasibility analyses to support further development of Phase 2;
- 50,000 acre-feet maximum annual recharge, 50,000 acre-feet maximum annual recovery, and 200,000 acre-feet maximum total storage capacity;
- 35-year Participation Minimum Duration, Perpetual Participation Maximum Duration.

Please coordinate upcoming communications and efforts related to HDWB Phase 2 with Andrew Garcia, Senior Engineer in the Imported Water Unit, at andrewgarcia@valleywater.org or 408-630-2817. Valley Water appreciates the opportunity to submit this XOI and we look forward to the potential partnership.

Sincerely,

Subject: Non-Binding Expression of Interest for AVEK High Desert Water Bank Phase 2

DocuSigned by:
Rick Callender
494EFB72AD8C4F9 ...

Rick Callender, Esq.
Chief Executive Officer
Valley Water

Antelope Valley-East Kern Water Bank

Water Storage Exploratory Committee Meeting, May 12, 2023

Valley Water

Valley Water relies on Semitropic Water Bank as sole out-of-county groundwater storage

VW's Semitropic Contract:

350,000 AF Storage
~252,000 AF currently in storage

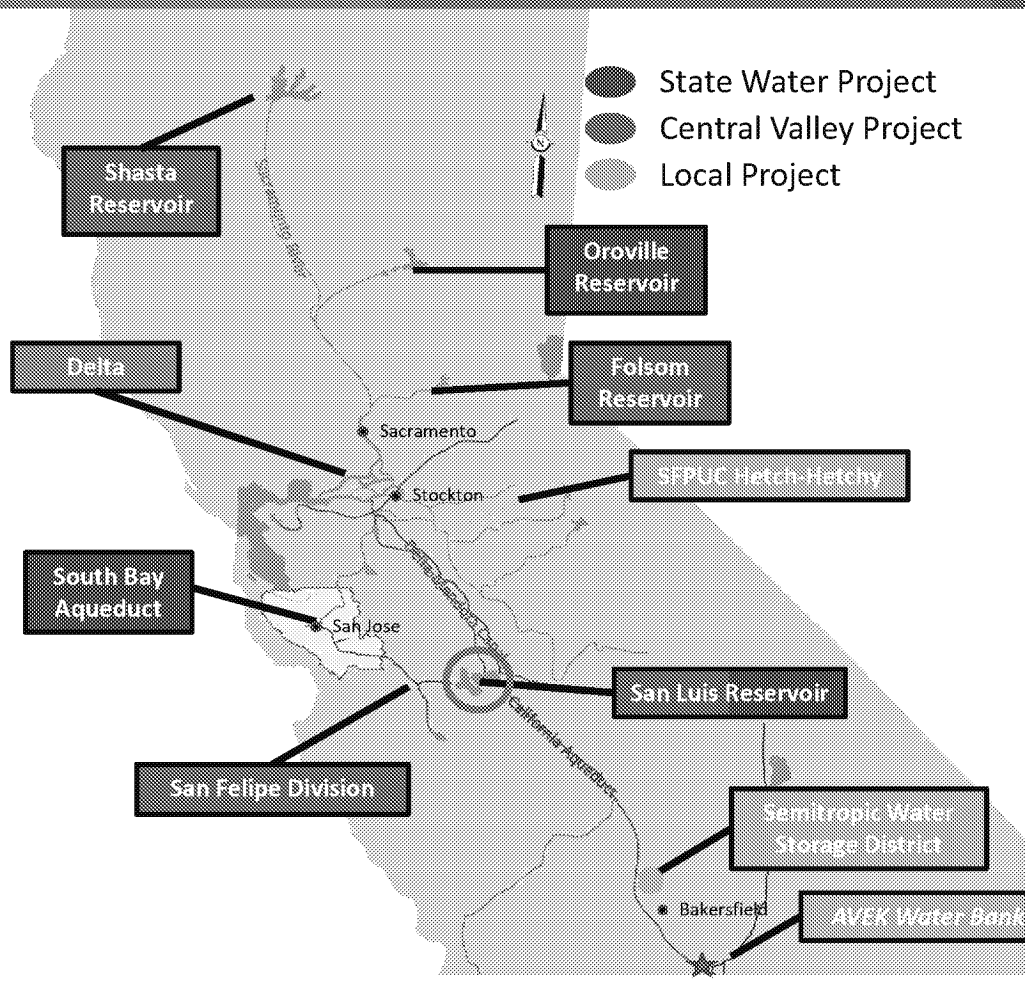
31,675 AF Annual Recharge

31,500-75,050 AF Annual Recovery
SWP Allocation Dependent

Agreement Term: 1997-2035

Historically outperformed:
Up to 80 TAF Recharge
Up to 45 TAF Recovery

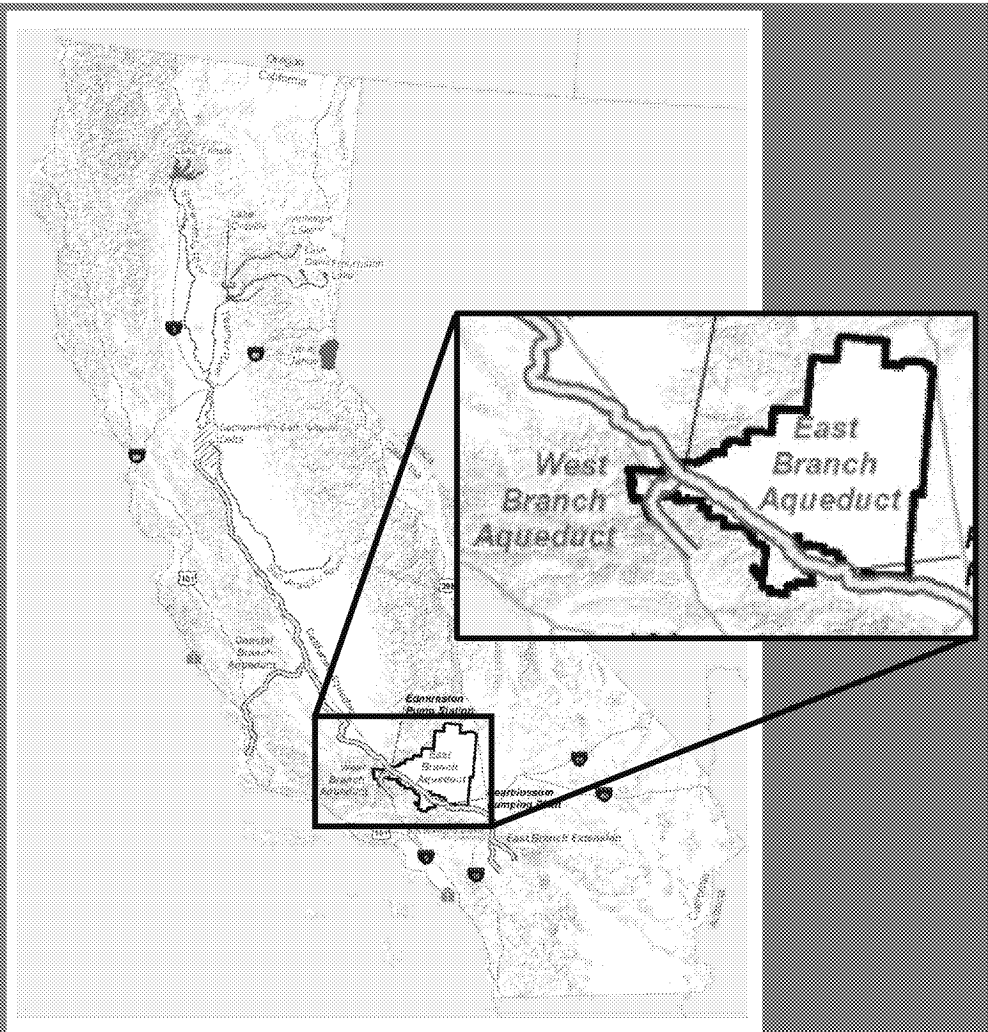
RELIABLE RECOVERY IN BOTH PRIOR DROUGHT PERIODS



Valley Water

AVEK Overview

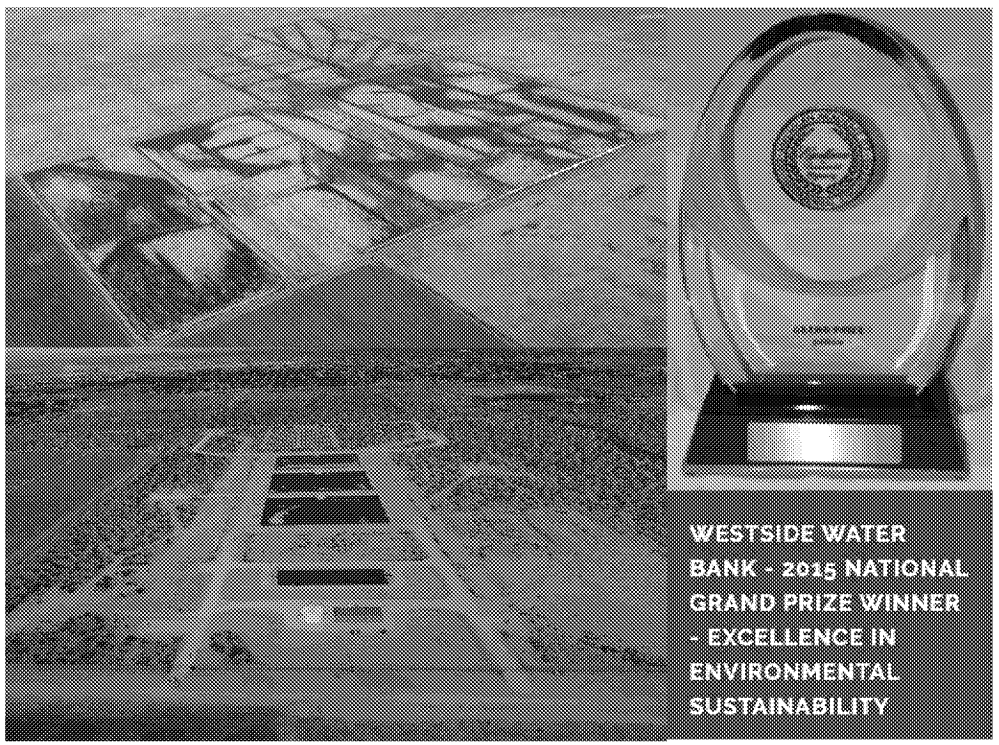
- East Branch of CA Aqueduct
- Service Area: 2,400 square miles in Los Angeles, Kern, and Ventura counties
- Water Supplies:
  - 144,844 AF SWP Table A
  - Local groundwater rights awarded in 2015 Antelope Valley Adjudication



Valley Water

Experienced Water Bank Operator

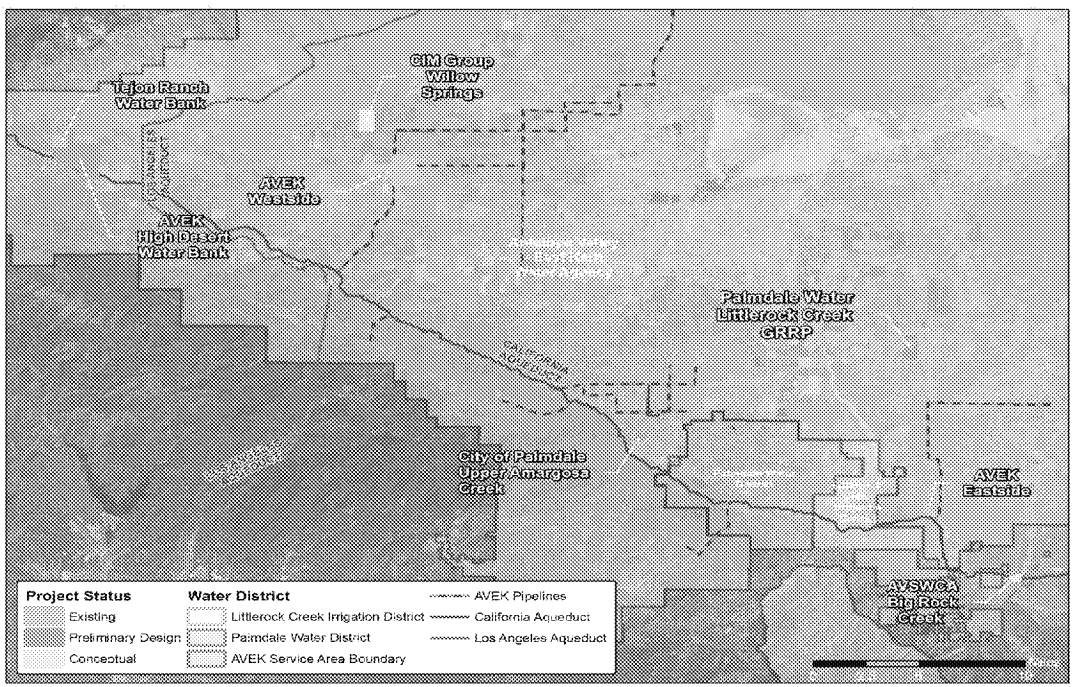
- **AVEK developed, Owns, and Operates**
  - ➢ Westside Water Bank (2010)
    - Total storage: 150 TAF
    - Recharge: 40 – 70 TAFY
    - Recovery: 20 – 25 TAFY
  - ➢ Eastside Water Bank (2016)
    - Total storage: 5.7 TAF
    - Recharge/Recovery: 2.2 TAFY
- **VW-AVEK Pilot Agreement (2023)**
  - ➢ Uses Westside Water Bank
  - ➢ Up to 15 TAF total storage



Valley Water

In Construction: High Desert Water Bank Phase 1

- **Phase I Currently Under Construction**
  - Metropolitan WD funded as sole partner
  - Capital Cost: $210M
  - Total Storage: 280,000 AF
  - Recharge capacity: 70,000 AFY
  - Recovery capacity: 70,000 AFY
- **Scheduled Operation**
  - 2023 Recharge / 2025 Recovery



Valley Water

About Proposed High Desert Water Bank Phase 2

- **Phase 2 Initial Interest – Based on Non-Binding Project Sizing Needs Submitted by Potential Partners:**
  - Total Storage: 440,000 AF
  - Recharge/Recovery Capacity: 110,000 AFY
- **VW Initial Interest**
  - Storage: 200,000 AF
  - Recharge/Recovery: 70,000 AFY
- **Development of new recharge, recovery, and storage infrastructure**
- **Stored Water Return**
  - SWP Exchange
  - AVEK's Table A from San Luis Reservoir

Valley Water

Where We Are Today

- Submitted Expression of Interest in Summer 2022
- Site Tour Fall 2022
- Tracking of Phase 1 HDWB construction
- Single Year Transfers and Pilot Banking

Valley Water

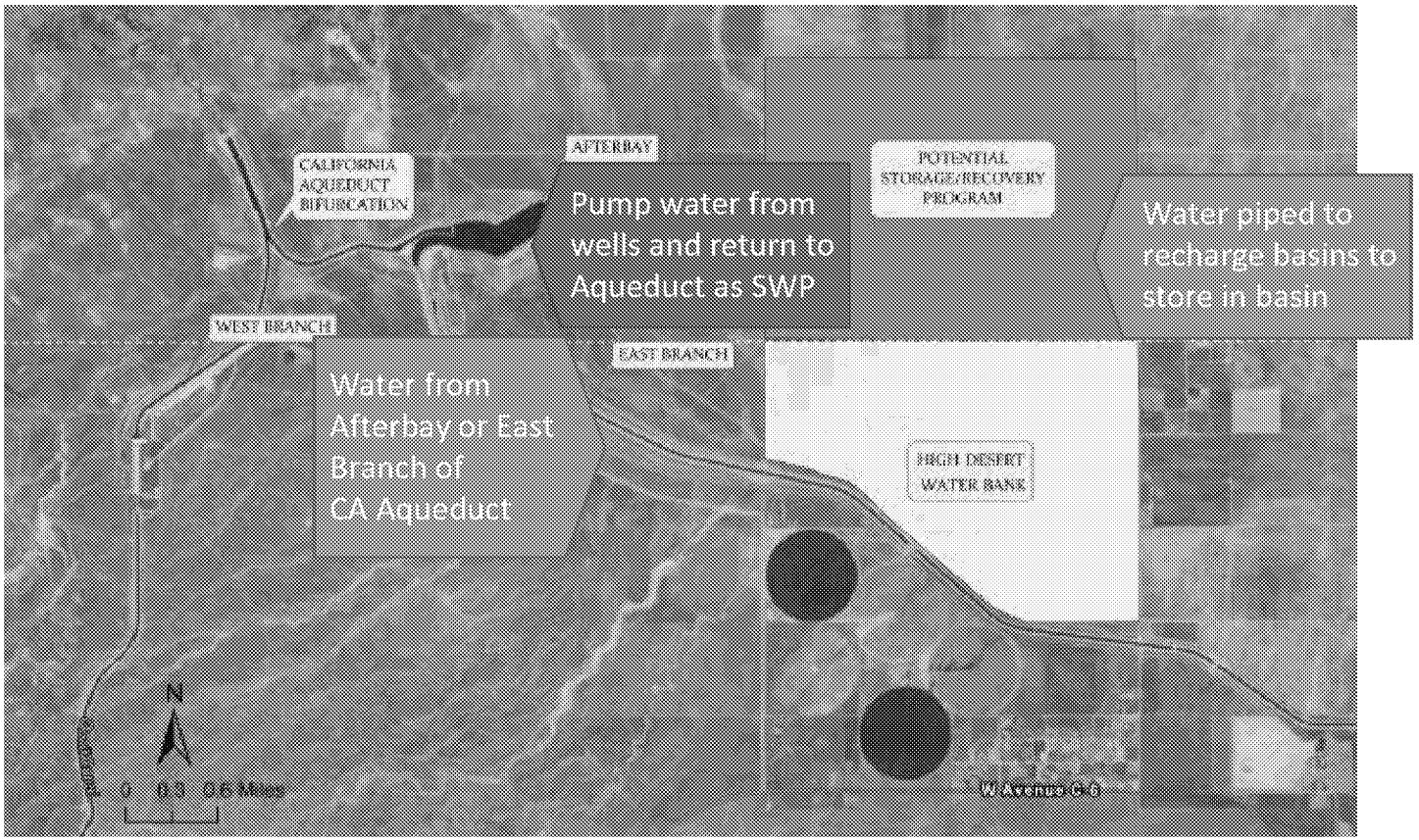
Estimated Phase 2 Costs

Initial Project Estimate	Cost ($2023)
Total Capital Cost	$330M

- Initial estimate based off Phase 1 cost; Phase 2 TBD through planning process
- Approximate construction cost of $760/AF of storage capacity

Valley Water

How the Water Bank Works



Valley Water

Anticipated Project Benefits

- Dedicated storage capacity for existing water supplies
- Improved water supply reliability during dry years
- Provides greater operational flexibility
- Strengthens partnership with key State Water Contractor
- Diversification of banked water

Next Steps

- Continue to meet with AVEK and coordinate on drafting of MOU
- Implement Pilot project
- Provide updates to WSEC and Board on progress
- Scope, budget, and work plans provided prior to partner decisions

Valley Water

11

This Page Intentionally Left Blank

Santa Clara Valley Water District

File No.: 23-0535

Agenda Date: 5/12/2023
Item No.: 4.5.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Standing Items.

RECOMMENDATION:

A. This agenda item allows the Committee to receive verbal or written updates and discuss the projects listed in the summary. These items are generally informational; however, the Committee may request additional information from staff:

B. This is informational only and no action is required.

SUMMARY:
Standing Items will allow regular reports from staff on subjects that may be of interest to the committee members.
Staff may provide a verbal update at the 5-12-2023, meeting if there is reportable/updated information.

1. Update on Los Vaqueros Reservoir Expansion Project (LVE) Transfer Bethany Pipeline (TBP) and Update on Management of South Bay Aqueduct (SBA) Facilities (No Update)
2. Del Puerto (No Update)
3. Water Banking Opportunities including but not limited to Pleasant Valley Water District (see agenda item 4.4 -AVEK)
4. Pacheco/San Luis Reservoir Low Point (see agenda item 4.1)
5. Semitropic (No Update)
6. Sites (see agenda item 4.2)
7. B.F. Sisk Dam Raise Project (see agenda item 4.3)
8. Shasta (No Update)

ATTACHMENTS:
None.

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

File No.: 23-0537

Agenda Date: 5/12/2023
Item No.: 4.6.

COMMITTEE AGENDA MEMORANDUM
Water Storage Exploratory Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Review Water Storage Exploratory Committee Work Plan and the Committee's Next Meeting Agenda.

RECOMMENDATION:
Review the Committee's Work Plan to guide the Committee's discussions regarding policy alternatives and implications for Board deliberation.

SUMMARY:
The Committee's Work Plan outlines the Board-approved topics for discussion to be able to prepare policy alternatives and implications for Board deliberation. The work plan is agendized at each meeting as accomplishments are updated and to review any work plan assignments by the Board.

BACKGROUND:

Governance Process Policy-8:

The District Act provides for the creation of advisory boards, committees, or committees by resolution to serve at the pleasure of the Board.

Accordingly, the Board has established Advisory Committees, which bring respective expertise and community interest, to advise the Board, when requested, in a capacity as defined: prepare Board policy alternatives and provide comment on activities in the implementation of the District's mission for Board consideration. In keeping with the Board's broader focus, Advisory Committees will not direct the implementation of District programs and projects, other than to receive information and provide comment.

Further, in accordance with Governance Process Policy-3, when requested by the Board, the Advisory Committees may help the Board produce the link between the District and the public through information sharing to the communities they represent.

ATTACHMENTS:
Attachment 1: 2023 WSEC Work Plan

UNCLASSIFIED MANAGER:
Candice Kwok-Smith, 408-630-3193

WSEC 2023 WORKPLAN - DRAFT (2023-4-10)

Task	Agenda Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
		Q1			Q2			Q3			Q4				Q1	
Los Vaqueros																
1	Project Update			X				X		X	X					
2	Multi-party agreement recommendation					X									X	
3	Service agreement recommendation															
Sites Reservoir																
1	Project Update					X		X		X						
2	Affirmation of project participation level						X									
B.F. Sisk Dam Raise																
1	Project Update			X		X		X		X						
2	Planning funding recommendation						X					X				
Pacheco Reservoir Expansion																
1	Project Update			Board		X	Board	X	Board			X	Board		X	Board
Groundwater Bank Opportunities																
1	Project Update					X										
2	AVEK update					X		X				X				
3	AVEK MOU recommendation						X									
Semitropic Groundwater Bank																
1	Project Update						X	X				X			X	

Board & Committees Dark

Attachment 1
Page 1 of 1

This Page Intentionally Left Blank

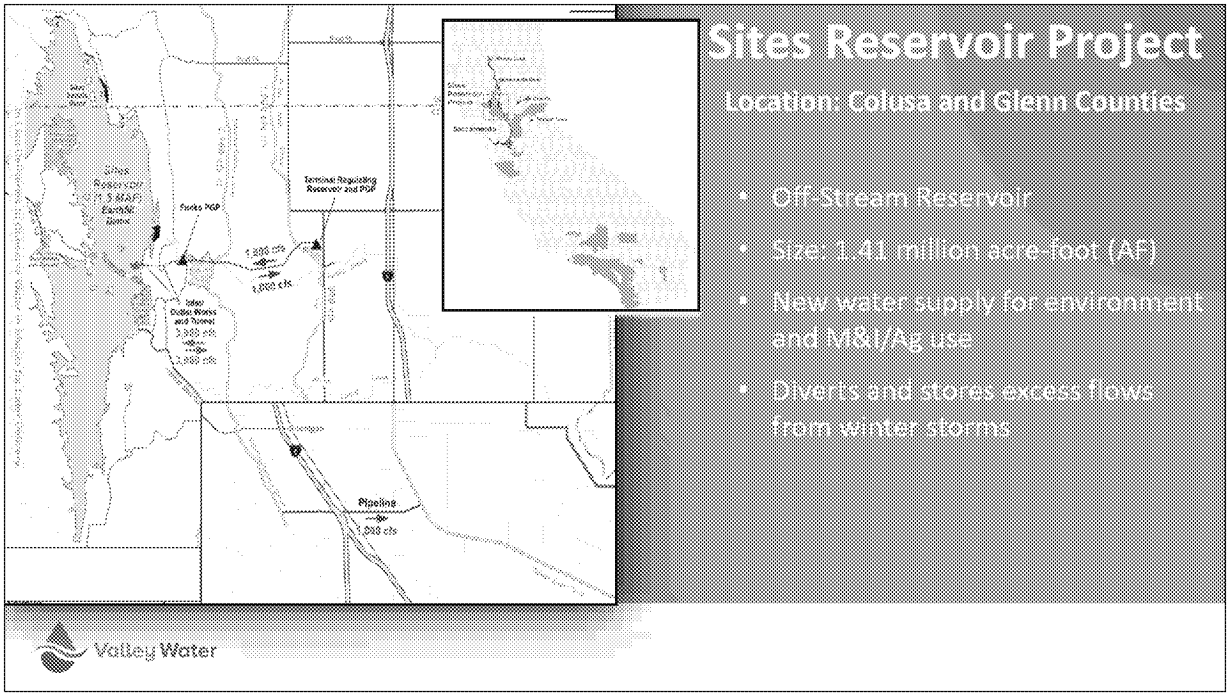
Valley Water

Clean Water • Healthy Environment • Flood Protection

Valley Water PPT Template
Version Release v.2.02

Valley Water

Valley Water



Notes:

Estimated Average Annual Yield, Dry and Critical Year Annual Yields have changed – Delta:

Project Overview

Off-stream Storage

Does not create a barrier to native fish migration

Federal and State Agencies Manage Environmental Water

Adaptable to current and future conditions and priorities

Local Leadership and Cooperation

Aligns with Sacramento Valley's values and fosters regional and statewide collaboration

Cooperative Operation

Increases effectiveness and efficiency of existing water storage infrastructure

Adaptable to Climate Change

Contributes to system reliability and performance with climate change

Dry Year Water Supply

Reliable dry year water supply for California communities, farms and businesses

Recreational Opportunities

Provides northern Sacramento Valley with additional opportunities for recreation

Environmental Support

Provides environmental water in drier periods for native fish, and habitat for native species and birds

Valley Water

Project Participation

- Project is currently fully subscribed:
  - State and Federal Participation
  - 22 Local Agencies
- Waiting List to Join Project or Increase Participation:
  - 11 New Agencies
  - 2 Existing Participants
  - U.S. Bureau of Reclamation
- Valley Water requested to join Waitlist in July 2022

Valley Water

Key Project Milestones

- WIFIA Loan Application submitted March 2023
- Water Rights Application submitted May 2022
- Final EIR/EIS anticipated Summer 2023
- Begin drafting Benefits & Obligations Contract in Summer 2023
- WIFIA Loan expected Spring 2024
- Water Rights Permit anticipated Fall 2024
- Final Participation Decision anticipated late 2024/ early 2025

Valley Water

Project Benefits

- New water supply
- Priority access to transfers and storage lease
- Adaptable to climate change
- Operational flexibility for CVP/SWP
- Improved Shasta cold water pool to support endangered fisheries
- Environmental water supply for refuges and delta smelt
- Regional flood benefits

Valley Water

Project Benefits

- Valley Water participation level: 0.2%
- On waiting list to potentially increase up to a maximum of 2.7%
  - Waiting list does not commit us to increasing, only allows opportunity if space becomes available

	0.2% Participation (Existing Level)	2.7% Participation (Maximum Waitlisted Level)
Requested Annual Yield	500 AF	6,000 AF
Storage Allocation	3,100 AF	37,400 AF
Dry Year Annual Yield	750 AF	9,250 AF

Valley Water

Project Funding

- Total Estimated Project Costs: $3.9 Billion (2021 Dollars)

- WSIP Funding: $875 Million
- Federal Funding: $214 Million
- Submitted Application for $2.2 Billion WIFIA Loan

Valley Water

Valley Water Project Costs

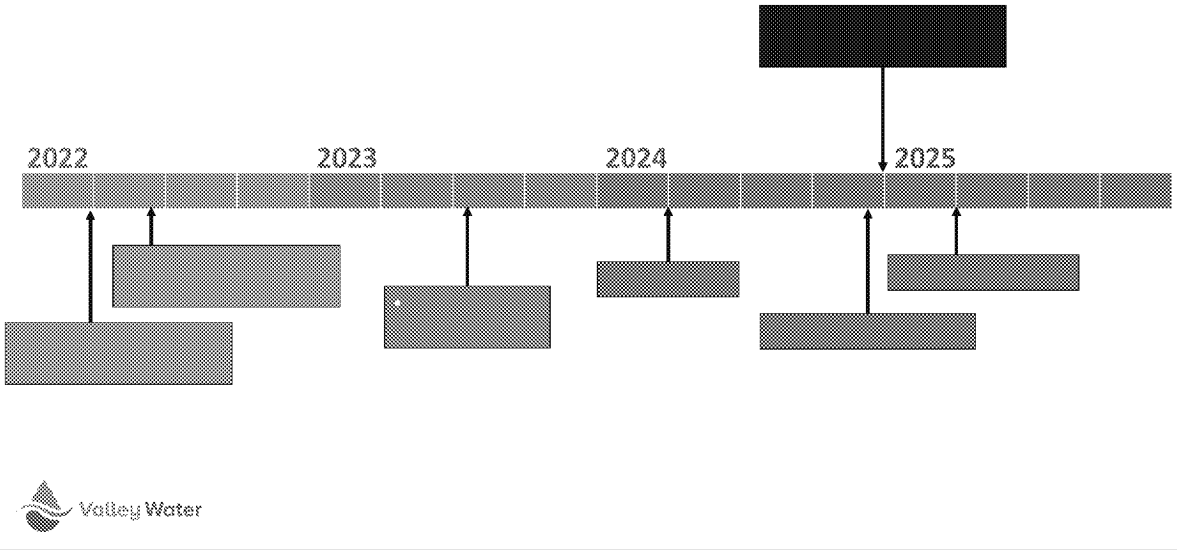
- Valley Water Estimated Project Costs:

	Existing Participation (0.2% Participation)	Maximum Waitlisted Participation (2.7% Participation)
Capital Costs:	$8.8 Million	$120 Million
Estimated Annual O&M Costs:	$44,000	$583,000

- Valley Water Funds Spent to Date: $2 Million
- Additional Valley Water Funds Committed through 2024: $0.1 Million

Valley Water

Project Schedule



Valley Water


Valley Water
Clean Water • Healthy Environment • Flood Protection

File Provided Natively

File Provided Natively

From: Micko, Steve [Steve.Micko@jacobs.com]
Sent: 5/10/2023 9:28:04 AM
To: Spranza, John [john.spranza@hdrinc.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Angela Bezzone [bezzone@mbkengineers.com]; Leaf, Rob [Rob.Leaf@jacobs.com]; Thayer, Reed [Reed.Thayer@jacobs.com]
Subject: Sites Fisheries Analysis Follow-Up

Hi John,

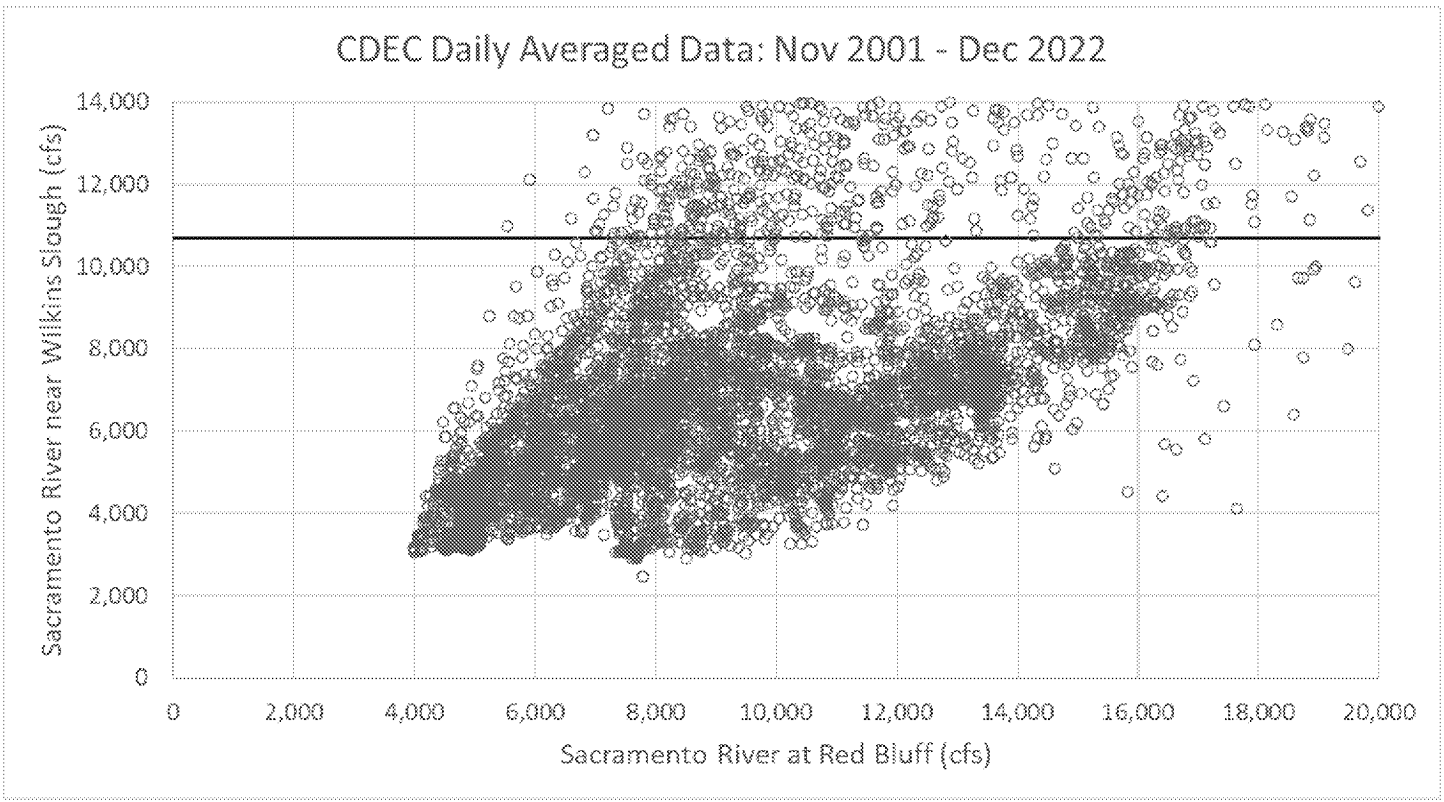
At the last fisheries agency coordination meeting I attended, I noted the following action items:

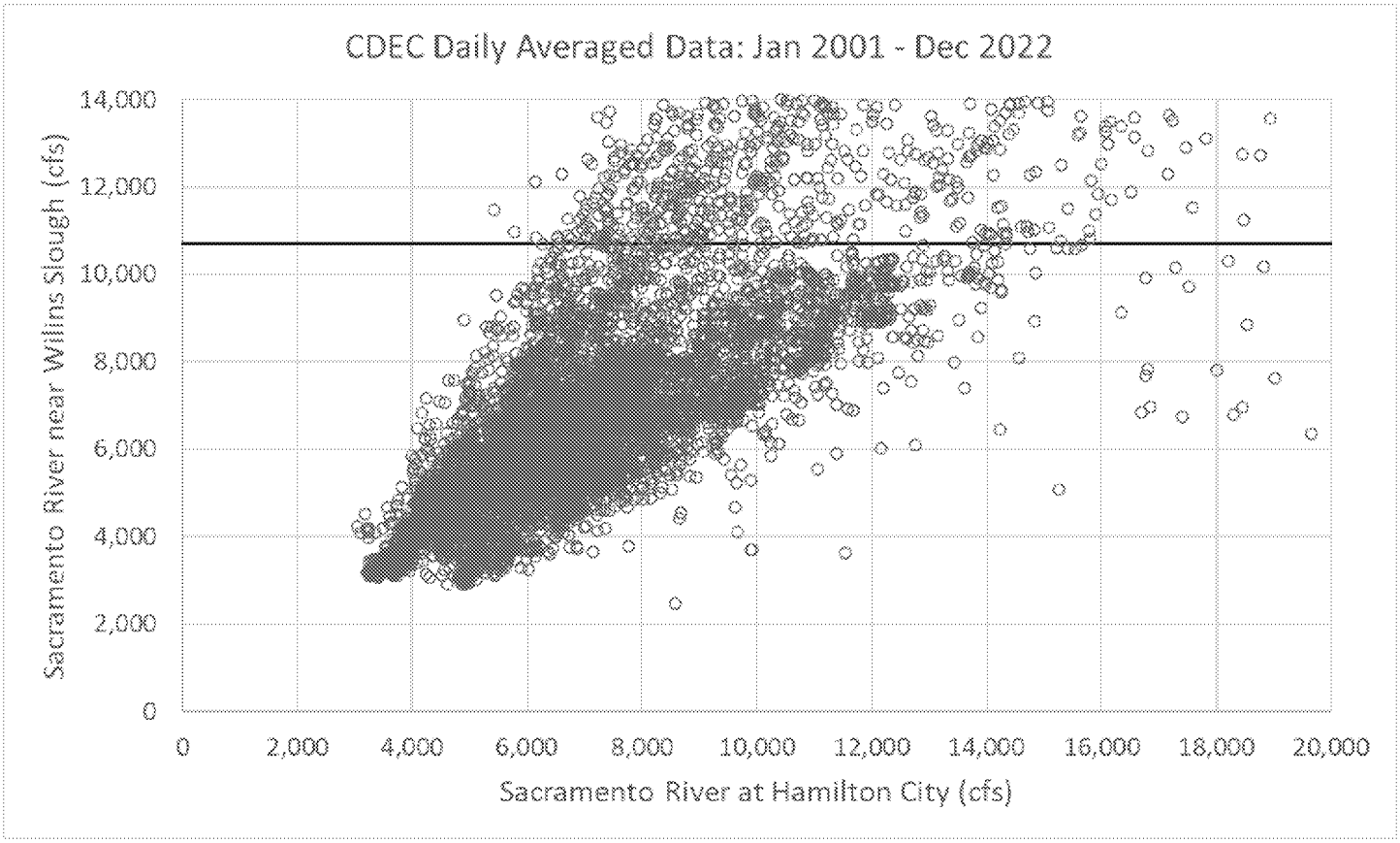
- With daily averaged CDEC data, prepare scatter plots of:
  - Sac R at Red Bluff vs Sac R at Wilkins Sl flow
  - Sac R at Hamilton vs Sac R at Wilkins Sl flow
- Evaluate the proportion of release through Dunnigan Pipeline that goes to Knights Landing Ridge Cut or Knights Landing Outfall Gates
- Evaluate the percent of river diverted at each diversion location

I know it's been some time.. See responses below.

Let me know if you have any questions.

Thanks,
Steve





Average Proportion of Releases through Dunnigan Pipeline

Alternative	Entering Knights Landing Outfall Gates	Entering Knights Landing Ridge Cut
Alt 3A 041122 2035CT	71%	29%
Alt 3B 041122 2035CT	70%	30%

Average Proportion of River Flow Diverted (in months with diversions)

Alternative	Proportion of River Diverted at Red Bluff	Proportion of River Diverted at Hamilton City
Alt 3A 041122 2035CT	9%	5%
Alt 3B 041122 2035CT	9%	5%

Steve Micko, PE (he/him) | Jacobs | Project Manager
O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

From: Hassrick, Jason [Jason.Hassrick@icf.com]
Sent: 4/10/2023 4:00:05 PM
To: Spranza, John [john.spranza@hdrinc.com]
CC: Briard, Monique [Monique.Briard@icf.com]; Hendrick, Mike [mike.hendrick@icf.com]; Lecky, Jim [jim.lecky@icf.com]; Chapman, Eric [Eric.Chapman@icf.com]; Wilder, Rick [Rick.Wilder@icf.com]; Greenwood, Marin [Marin.Greenwood@icf.com]
Subject: Understanding baseline salmon fry impacts from diversions
Attachments: ICF_Memorandum_FryStudies_10_April_2023.docx

Flag: Follow up

Hi John,

Attached is a tech memo proposal to employ recently developed miniaturized transmitters to study whether fry and smolts are similarly exposed at the Red Bluff and / or Hamilton City diversions. We proposed this in the context of the 10-year acoustic telemetry study that we are already planning to undertake with data obtained from smolt-sized winter-run and whether conclusions drawn from that analysis would apply to smaller fish.

Jason

Dr. JASON HASSRICK
+1.530.312.3275 mobile
icf.com | LinkedIn

From: Janis Offermann [jaoffermann@montrose-env.com]
Sent: 5/10/2023 12:25:21 PM
To: Kevin Spesert [kspesert@sitesproject.org]
Subject: documents for Colusa
Attachments: 2020_1207_Sites Reservoir update.pdf; 2020_1113_Gomez_Colusa_AB 52_REIR_Notification Letter.pdf

Hi, Kevin
As you know, I am compiling documents to send to Colusa. I am pulling together the consultation letters and the responses from the tribe. In the attached email, Molly says that she let you know that the tribe wanted to continue consultation. This is in response to the letter sent to them on November 11, 2020, also attached. There is no record of their response to you in the project files. I am guessing it was in an email. I am sorry to ask, but can you please check your emails and send me a PDF of the response?

Many thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

From: Janis Offermann
To: Molly West; Hazel Longmire
Subject: RE: Sites Reservoir update
Date: Monday, December 07, 2020 3:11:41 PM

Thank you for letting me know, Molly.
Much appreciated.
Janis

Janis Offermann
Cultural Resources Practice Leader
Horizon Water and Environment
400 Capitol Mall, Suite 2500
Sacramento, CA 95814
916.465.8076 – office
530.220.4918 – mobile

From: Molly West <mwest@colusa-nsn.gov>
Sent: Monday, December 07, 2020 2:55 PM
To: Janis Offermann <janis@horizonh2o.com>; Hazel Longmire <hlongmire@colusa-nsn.gov>
Subject: RE: Sites Reservoir update

Thank you Janis.

We have responded to Kevin Spesert to continue consultation.

Molly West
Tribal Project Administrator
Colusa Indian Community Council
3730 Hwy 45
Colusa, CA 95932
Phone (530) 458-8231
Fax (530) 458-3866

From: Janis Offermann [mailto:janis@horizonh2o.com]
Sent: Tuesday, November 17, 2020 11:16 AM
To: Molly West <mwest@colusa-nsn.gov>; Hazel Longmire <hlongmire@colusa-nsn.gov>
Subject: Sites Reservoir update

Good morning, Hazel and Molly

I am writing to give you a heads up that the attached letter was sent and should arrive at the Colusa office today. Following receipt of the letter, I think it would be sufficient to send an email to Kevin acknowledging it and saying that you would like to continue consultation on the project, if you don't want to respond with a formal letter like you usually do. But it is up to you.

Regarding the shapefiles of the new project footprint, I received information today that the engineers have finally finished their CAD drawings and they have been submitted to the GIS team for review; the shapefiles should be available late this week or next week. I apologize for this continued delay, but please be assured that I will send them to you as soon as they are made available to me.

Please let me know if youhave any questions or if you would like to schedule a follow-up meeting after reviewing the data we supplied to you last month.

Hope you and your families are all staying healthy.
Thanks
janis

Janis Offermann
Cultural Resources Practice Leader
Horizon Water and Environment
400 Capitol Mall, Suite 2500
Sacramento, CA 95814
916.465.8076 – office
530.220.4918 – mobile

November 13, 2020

Mr. Daniel Gomez, Chairperson
Colusa Indian Community Council
3730 Highway 45
Colusa, CA 95932

From: Fritz Durst/ Sites Project Authority Board Chair

Subject: Tribal Cultural Resources under the California Environmental Quality Act, Assembly Bill (AB) 52. Formal Notification of the Preferred Project for the Purposes of the California Environmental Quality Act (CEQA) Analysis and Notification of Consultation Opportunity for the Sites Reservoir Project, Colusa, Tehama, Glenn, and Yolo Counties, California, pursuant to Public Resources Code § 21080.3.1

Dear Honorable Chairperson Gomez,

The Sites Project Authority (Authority) initially contacted your tribe in February 2017 in compliance with the project notification requirements pursuant to Public Resources Code § 21080.3.1(d) for the Sites Reservoir Project. A Draft Environmental Impact Report (EIR) was published for public review in August 2017. After receipt of public comments on the Draft EIR, the Authority reconsidered elements of the project. In October 2019, representatives from both the Authority Board and Reservoir Committee began undertaking a "value planning" process, an effort to identify and evaluate additional alternatives. As a result of the the "value planning process," the Authority identified a project that redueced the size of the proposed Sites ReserviorReservoir from 1.8 million acre feet to 1.5 million acre feet, removed the Delevan Pipeline and associated facilities, and made minor adjustments to other project features.

On April 22, 2020, the Authority directed staff to revise and recirculate a Draft EIR consistent with the California Environmental Quality Act (CEQA) to analyze the environmental effects of the facility options identified in the Sites Project Value Planning Report.[1] The Revised Draft EIR is anticipated to be released for public review in the summer of 2021. In response to preparing the Revised Draft EIR, the Authority is providing you with a description of the revised project for your consideration pursuant to Public Resources Code § 21080.3.1(d).

Description of the Proposed Project

The Authority proposes to construct the revised Sites Reservoir Project, which includes a new off-stream storage reservoir and associated water conveyance facilities located in Colusa, Tehama, Glenn, and Yolo counties, California. The new reservoir would be located in Antelope Valley, on the eastern edge of the North Coast Ranges and approximately 10 miles west of the town of Maxwell.

[1] https://3hm5en24txyp2e4cxyxaklbs-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/02-01.a-Authority-Board_Value-Planning.pdf

P.O. Box 517
Maxwell, CA 95955
530.438.2309

The Sites Reservoir Project is proposed to provide storage and operational benefits including water supply resiliency, water dedicated to environmental uses, and other programs throughout California.

Two alternatives (Alternative 1 and Alternative 2) are currently under consideration. The primary differences in the alternatives is that Alternative 1 will impound up to 1.5 million acre feet of water and discharge water into the Colusa Drain, via the Tehama Colusa Canal, in the vicinity of Dunnigan, Yolo County. In contrast, Alternative 2 will hold up to 1.3 million acre feet of water and discharge water via the Tehama Colusa Canal into the Sacramento River; again, in the vicinity of Dunnigan. Alternative 1 also includes a bridge to extend the Sites Lodoga Road directly across the reservoir, while Alternative 2 re-routes the road around the south end of the reservoir and continues to Lodoga along the west side of the reservoir. Alternative 1 was designated by the Authority as the preferred project for the purposes of the CEQA analysis and permit development on September 17, 2020.

For more information regarding the proposed project alternatives, please see the attached Preliminary Project Description.

Pursuant to PRC § 21080.3.1 (b), please respond, in writing, within 30 days if you wish to request consultation. If you have any questions or wish to consult on this project, please contact the Authority's Lead Agency Point of Contact for AB 52 consultations:

Kevin Spesert, External Affairs Manager
Sites Project Authority
P.O. Box 517
Maxwell, CA 95955
Phone: (530) 632-4071
Email: kspesert@sitesproject.org

If consultation is requested, please provide the name and contact information of the designated lead contact person as part of your request. The Authority will contact the designated person to set a meeting date to begin consultation within 30 days of our receipt of your request.

Thank you for giving this matter your prompt attention.

Sincerely,

Fritz Durst
Sites Project Authority

From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 5/10/2023 12:33:34 PM
To: Janis Offermann [jaoffermann@montrose-env.com]
Subject: Re: documents for Colusa

Great...glad you found it

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Wednesday, May 10, 2023 12:30 PM
To: Kevin Spesert <kspesert@sitesproject.org>
Subject: RE: documents for Colusa

Oops. Never mind. I found it in my emails and will make sure it gets included in the project file.
thanks

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Wednesday, May 10, 2023 12:25 PM
To: Kevin Spesert (kspesert@sitesproject.org) <kspesert@sitesproject.org>
Subject: documents for Colusa

Hi, Kevin
As you know, I am compiling documents to send to Colusa. I am pulling together the consultation letters and the responses from the tribe. In the attached email, Molly says that she let you know that the tribe wanted to continue consultation. This is in response to the letter sent to them on November 11, 2020, also attached. There is no record of their response to you in the project files. I am guessing it was in an email. I am sorry to ask, but can you please check your emails and send me a PDF of the response?

Many thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

From: Janis Offermann [jaoffermann@montrose-env.com]
Sent: 5/10/2023 12:55:52 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Risse, Danielle [Danielle.Risse@hdrinc.com]
Subject: did we get a response from Colusa on this letter?
Attachments: 2022_0804_Sites_AB 52_Formal Notification Letter_ColusaIndianCommCouncil_Gomez signed.pdf

Hi, all
I am compiling all of the consultation letters and the responses from Colusa. I don't have any response to this letter in my files, nor is there one in the project files that Danielle and I went through yesterday. I am guessing we didn't receive on, based on their February 2022 letter deferring to YD, but I just wanted to circle back to you all in case I missed something. Does anyone recall getting any response from Colusa on this?

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

From: Risse, Danielle [Danielle.Risse@hdrinc.com]
Sent: 5/10/2023 1:39:16 PM
To: Janis Offermann [jaoffermann@montrose-env.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Subject: RE: did we get a response from Colusa on this letter?
Attachments: 2022_0804_Sites_AB 52_Formal Notification Letter_ColusaIndianCommCouncil_Gomez signed.pdf

Hi Janis,
I have no record of a response to this letter, which is consistent with what we said in the CEQA document for test pits and trenches.

Thanks, Danielle

Danielle Risse, M.A.
Office 916-679-8796 **Mobile** 707-372-5007

hdrinc.com/follow-us

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Wednesday, May 10, 2023 12:56 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Risse, Danielle <Danielle.Risse@hdrinc.com>
Subject: did we get a response from Colusa on this letter?

Hi, all
I am compiling all of the consultation letters and the responses from Colusa. I don't have any response to this letter in my files, nor is there one in the project files that Danielle and I went through yesterday. I am guessing we didn't receive on, based on their February 2022 letter deferring to YD, but I just wanted to circle back to you all in case I missed something. Does anyone recall getting any response from Colusa on this?

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 5/10/2023 1:50:34 PM
To: steve.micko@jacobs.com
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Angela Bezzone [bezzone@mbkengineers.com]; Leaf, Rob [Rob.Leaf@jacobs.com]; Thayer, Reed [Reed.Thayer@jacobs.com]; Hassrick, Jason (Jason.Hassrick@icf.com) [jason.hassrick@icf.com]; Wilder, Rick [Rick.Wilder@icf.com]; Greenwood, Marin [Marin.Greenwood@icf.com]; Lecky, Jim [jim.lecky@icf.com]
Subject: RE: Sites Fisheries Analysis Follow-Up

Thanks for following up on this Steve. That RB vs WS is really strange, although maybe it is so scattered and inconsistent because there are a lot of straws in the river between there and WS.

John Spranza

D 916.679.8858 M 818.640.2487

From: Micko, Steve <Steve.Micko@jacobs.com>
Sent: Wednesday, May 10, 2023 9:28 AM
To: Spranza, John <john.spranza@hdrinc.com>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Leaf, Rob <Rob.Leaf@jacobs.com>; Thayer, Reed <Reed.Thayer@jacobs.com>
Subject: Sites Fisheries Analysis Follow-Up

Hi John,

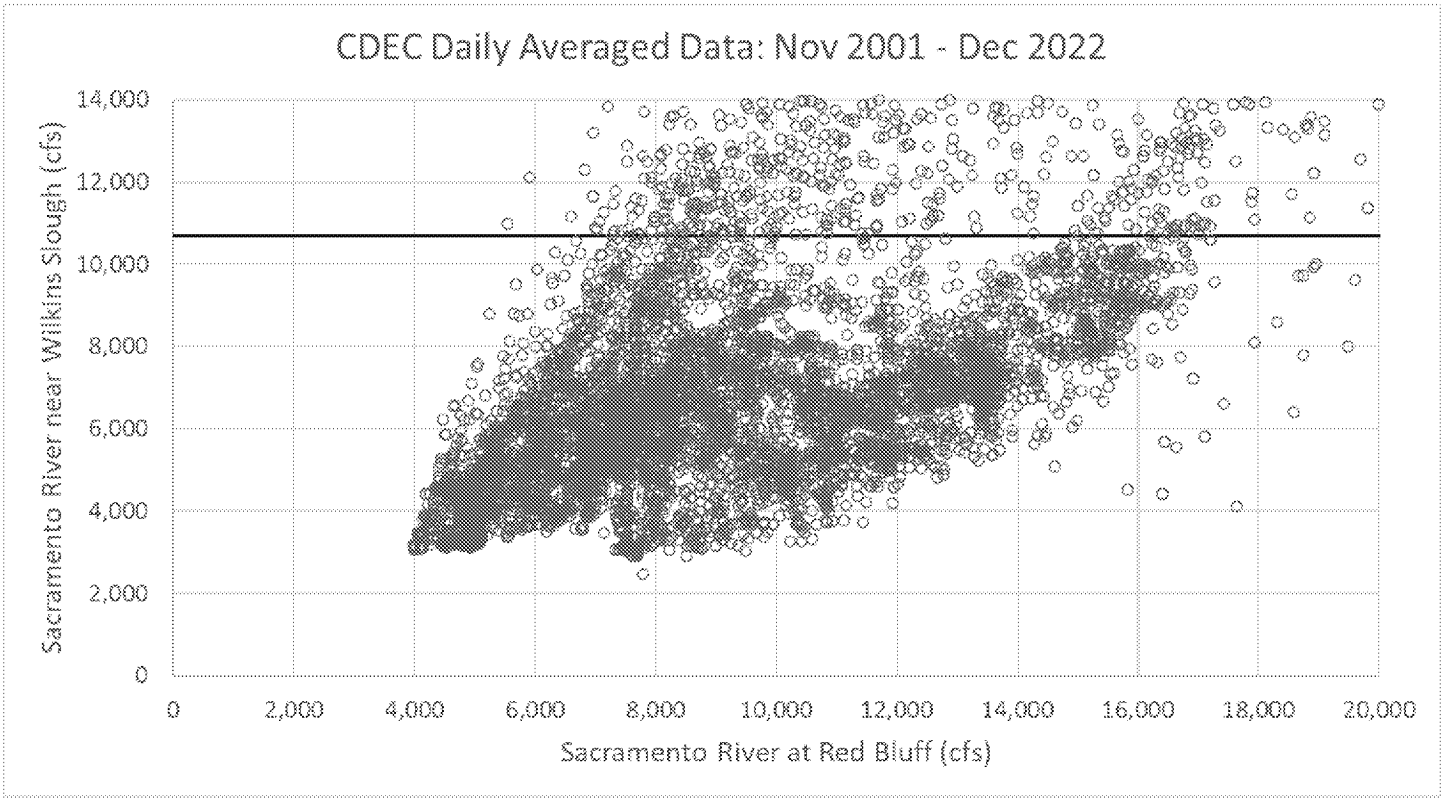
At the last fisheries agency coordination meeting I attended, I noted the following action items:

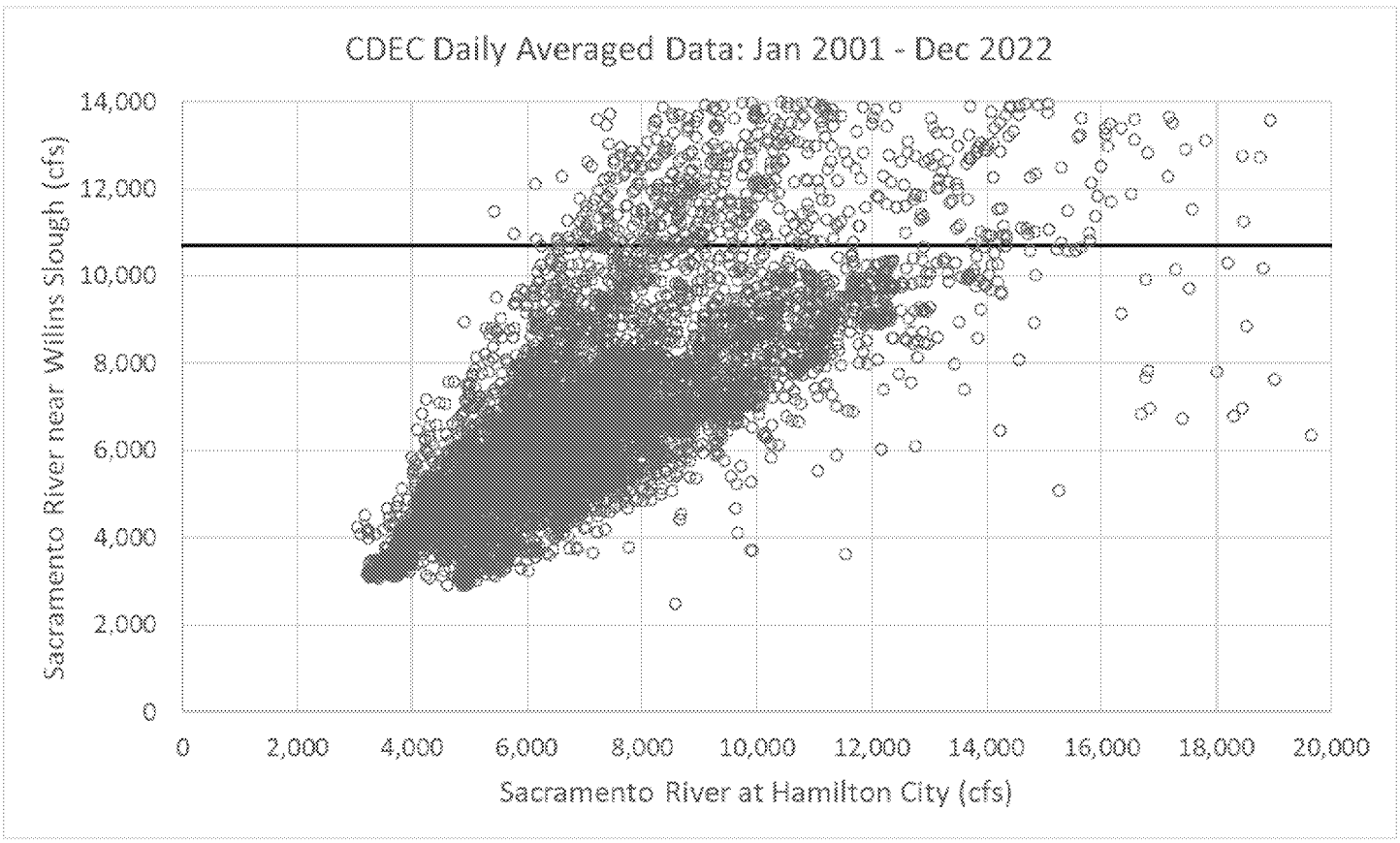
- With daily averaged CDEC data, prepare scatter plots of:
  - Sac R at Red Bluff vs Sac R at Wilkins Sl flow
  - Sac R at Hamilton vs Sac R at Wilkins Sl flow
- Evaluate the proportion of release through Dunnigan Pipeline that goes to Knights Landing Ridge Cut or Knights Landing Outfall Gates
- Evaluate the percent of river diverted at each diversion location

I know it's been some time.. See responses below.

Let me know if you have any questions.

Thanks,
Steve





Average Proportion of Releases through Dunnigan Pipeline

Alternative	Entering Knights Landing Outfall Gates	Entering Knights Landing Ridge Cut
Alt 3A 041122 2035CT	71%	29%
Alt 3B 041122 2035CT	70%	30%

Average Proportion of River Flow Diverted (in months with diversions)

Alternative	Proportion of River Diverted at Red Bluff	Proportion of River Diverted at Hamilton City
Alt 3A 041122 2035CT	9%	5%
Alt 3B 041122 2035CT	9%	5%

Steve Micko, PE (he/him) | Jacobs | Project Manager
O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

Lower Colusa Basin Drain System Mapping Meeting Minutes

Affordable Water, Sustainably Managed

Meeting Information:

Date:	May 2, 2023	**Location:**	Location
Start Time:	3 p.m.	**Finish Time:**	4 p.m.
Purpose:	Kick off effort to develop a set of maps that identify, organize, and communicate key issues affecting distinct sections of the Lower CBD System.		

Meeting Participants:

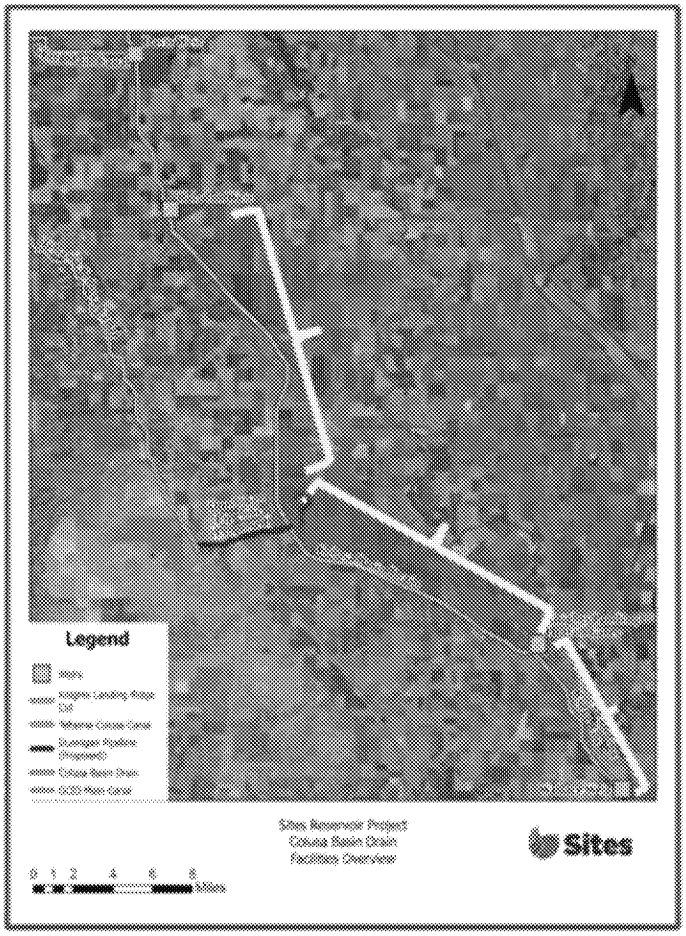
JP Robinette, Engineering & Construction Manager
Kevin Spesert, External Affairs Manager
Angela Bezzone, Reservoir Ops Lead
Pete Rude, Conveyance Design Lead
Cheyanne Harris, Project Agreements Lead
Amparo Flores, Agreements Support
Richard Newens, Agreements Support
Randy Olden, Sites Integration GIS Service Area Lead

Action Items:

Action Item		Owner	Deadline	Notes
1	Pull various existing datasets/shapefiles together over the next ~two weeks through May 17, 2023.	Randy	May 24, 2023	
2	Share Sharepoint site and GIS data procedure for uploading/sharing existing datasets/shapefiles.	Randy	May 2, 2023	**DONE. See email dated May 2, 2023 from Randy.**
3	Upload water rights-related maps, including diversion points, return flows to the Lower CBD System, and flow monitoring locations to SharePoint site.	Angela	May 17, 2023	
4	Upload land ownership maps & coordinate with Mike Azevedo about whether a map with the Colusa Basin Drainage District boundaries exists.	Kevin	May 17, 2023	
5	Check with enviro team on mitigation banks/conservation easement maps and upload maps available.	Amparo	May 17, 2023	

6	Look for relevant maps in the DWR website (e.g., jurisdictions of water agencies, etc.) for use in this effort.	Randy	May 17, 2023	
7	Research crop type info from DWR website and upload to SharePoint.	Rich	May 17, 2023	
8	Recommend potential threshold for impacts upstream of Dunnigan Pipeline and delineate extent of these impacts.	Pete	May 17, 2023 (confirm if feasible)	
9	Schedule follow up meeting based on preliminary maps generated after May 24, 2023.	Rich	May 17, 2023	

Meeting Minutes:



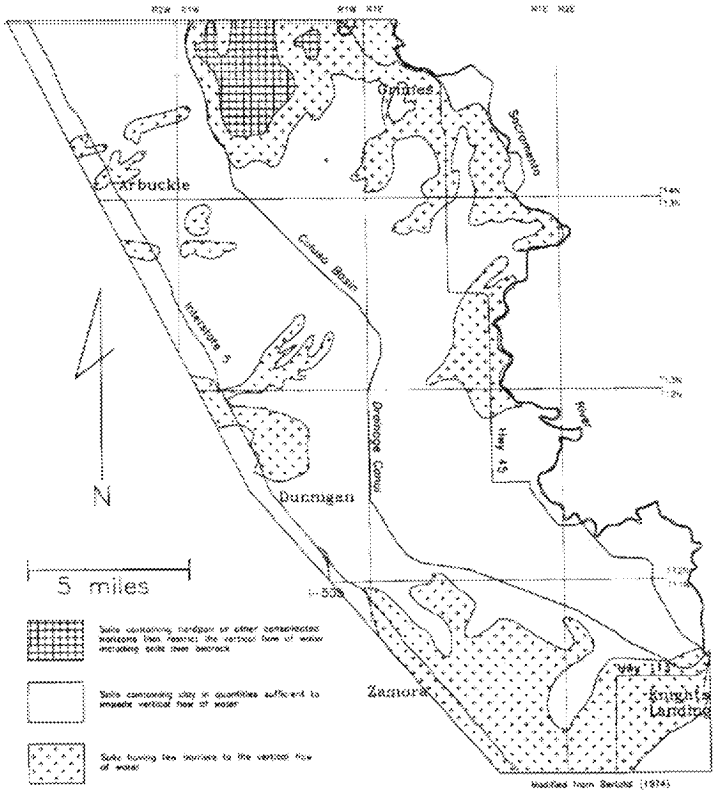
- Pete shared the LIDAR map used for conveyance design and highlighted key facilities. He was not certain about the extent of the LIDAR.
- Kevin noted that land ownership mapping for the Lower Colusa Basin Drain (CBD) System is available extending to just north of where the Dunnigan Pipeline connects with the CBD (at the County Line Road). He anticipates that landowner agreements/flood flowage easements would extend north to this area, not necessarily all the way to Balsdon Weir.
- JP suggested that the hydraulic analysis set a threshold for what could be considered an impact from Project operations upstream of Dunnigan Pipeline connection (e.g., up to 1 foot elevation rise), which could be used to delineate the northern extent of potential landowner agreements/flowage easements along the CBD.
- JP also suggested that the Lower CBD System could then be broken up into three sections that reflect the types of required planning efforts, such as: A - CBD upstream of Dunnigan PL where WSE elevation change less than [1'?, amount TBD] above Dunnigan PL, assume no agreements needed, coordination only; B - CBD from Dunnigan PL to KLOG, flowage

easements, possible capital improvements; C - Knights Landing Ridge Cut from CBD to Wallace Weir, flowage easements, possible capital improvements

- In addition to the items listed in the table below, attendees identified data that should be reflected in the maps, including:

DATA	Operations Analysis	Engineering/ Design	O&M/Other Agreements	Permits	Sites Water Rights
Key facilities	X	X	X		
Capacities	X	X	X		
Governance/institutional boundaries/jurisdictions			X		
Land ownership			X		
Other stakeholders			X		
O&M issues (existing/future?) flooding, seepage, levee stability	X	X	X	X	X
Water rights holders, water diverters, water diversions			X		X
Land types (e.g., irrigated farmland)			X		X
Farming activities (e.g., crops)					X
Flow measurement/monitoring locations				X	X
Environmental features?				X	
Others..?					

    - Mitigation banks/conservation easements
    - Land ownership identified by APN (not landowner names) (available from Kevin)
    - Return flows to the Lower CBD System
    - Creeks entering the Lower CBD System
    - Points of Diversion along the CBD (available from MBK)
    - Geology info along the Lower CBD System
- Angela pointed the team to the DWR district mapping tool, which could be used for jurisdictional boundaries; there are also other DWR GIS tools that could provide materials useful for these maps (e.g., https://data.cnra.ca.gov/dataset/statewide-crop-mapping).
- Rich noted that DWR collects crop type info. https://gis.water.ca.gov/app/CADWRLandUseViewer/?page=home
- Attendees noted that currently there's no organized O&M on the western levees, that RD 108 maintains the eastern levees, and that the Knights Landing Ridge Drainage District is responsible for the Knights Landing Ridge Cut O&M.



From: Janis Offermann [jaoffermann@montrose-env.com]
Sent: 5/10/2023 2:27:23 PM
To: Risse, Danielle [Danielle.Risse@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Subject: RE: [EXTERNAL] RE: did we get a response from Colusa on this letter?

OK I will quit looking and send these off, along with the reports.
Thanks!!

From: Risse, Danielle <Danielle.Risse@hdrinc.com>
Sent: Wednesday, May 10, 2023 1:39 PM
To: Janis Offermann <jaoffermann@montrose-env.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: [EXTERNAL] RE: did we get a response from Colusa on this letter?

Hi Janis,
I have no record of a response to this letter, which is consistent with what we said in the CEQA document for test pits and trenches.

Thanks, Danielle

Danielle Risse, M.A.
Office 916-679-8796 **Mobile** 707-372-5007

hdrinc.com/follow-us

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Wednesday, May 10, 2023 12:56 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Risse, Danielle <Danielle.Risse@hdrinc.com>
Subject: did we get a response from Colusa on this letter?

Hi, all
I am compiling all of the consultation letters and the responses from Colusa. I don't have any response to this letter in my files, nor is there one in the project files that Danielle and I went through yesterday. I am guessing we didn't receive on, based on their February 2022 letter deferring to YD, but I just wanted to circle back to you all in case I missed something. Does anyone recall getting any response from Colusa on this?

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

CONFIDENTIALITY NOTICE: The contents of this email message and any attachments are intended solely for the addressee(s) and may contain confidential, proprietary and/or privileged information and may be legally protected from disclosure. If you are not the intended recipient of this message or their agent, or if this message has been addressed to you in error, please immediately alert the sender by reply email and then delete this message and any attachments and the reply from your system. If you are not the intended recipient, you are hereby notified that any disclosure, use, dissemination, copying, or storage of this message or its attachments is strictly prohibited.

From: Marcia Kivett [MKivett@sitesproject.org]
Sent: 5/11/2023 10:22:34 AM
To: ripple2016@icloud.com
CC: Smith, Michael (orange) [michael.g.smith@aecom.com]
BCC: JP Robinette [jrobinette@sitesproject.org]; Luu, Henry [Henry.Luu@hdrinc.com]
Subject: Re: Sites Dam Project
Attachments: 04-04B Work Plan Progress Report - Summary of Changes (1).pdf; 04-04B Work Plan Progress Report (2) (1).pdf

It was very nice speaking with you. I've attached last month's schedule that we discussed. We update this monthly; it is a standing item in our board packet.

I will add you to our contractor's distribution list and send you our Board Meeting invitations for you to listen in on any items of interest.

Ali Forsythe, Sites Environmental Planning and Permitting Director, is giving an update on where we are in the EIR/EIS process at our May 19th Board meeting.

Feel free to let me know if you have any additional questions.

https://sitesproject.org/environmental-review/

Thanks,

Marcia Kivett
Sites Project Coordinator
561.843.9740
mkivett@sitesproject.org
P.O. Box 517
122 Old Hwy 99W
Maxwell, CA 95955

From: David Ripple <ripple2016@icloud.com>
Sent: Tuesday, May 9, 2023 1:42 PM
To: Smith, Michael (orange) <michael.g.smith@aecom.com>
Cc: 'Bill Graham' <billg@valley-rock.com>
Subject: Sites Dam Project

Michael:

I appreciate you taking the time this afternoon to briefly discuss the environmental review status for the Sites Dam Project.
As I mentioned, I do consulting for Bill Graham at North Valley Rock and he asked me to review the presentation you provided and discussed with him. As I indicated, my first question concerned the status of the environmental review process, and Bill suggested I contact you.
As requested, below is my contact information.

David Ripple
(415) 761-0991
ripple2016@icloud.com

I would appreciate you passing my contact information along to the individual you mentioned that is handling the environmental process for the project.
I would like to get a clear understanding of the status of the environmental review (Federal, State and Local)

Thanks,
David Ripple

Attachment 4.4B

Work Plan Schedule Summary of Changes

The Amendment 3 Work Plan project schedule is maintained and updated monthly. Changes to the previous month's schedule affecting the rolled-up summary level schedule are indicated by grey activity bars and milestone diamonds. Our critical path has been impacted by the changes shown in the schedule and listed below. Completion dates for Investor Commitment and Construction Groundbreaking have been pushed out 4 weeks from last month's schedule update.

A summary of changes reflected in the April 2023 Work Plan Schedule includes the following:

- *Receive CESA ITP - Operations* – Milestone date pushed out 3 weeks.

  Justification: Additional activity related to the review of the permit application has been added, resulting in the completion of this activity being pushed out 3 weeks.

- *Receive CESA ITP - Construction* – Milestone date pushed out 3 weeks.

  Justification: Additional activity related to the review of the permit application has been added, resulting in the completion of this activity being pushed out 3 weeks.

- Operations Plan, Version 2 – Finish date pushed out 3 weeks.

  Justification: Key predecessors to the Operations Plan, Version 2 are the CESA ITP Operations Permit and CESA ITP Construction Permit. The delay in the issuance of the two CESA ITP Permits have delayed this activity's start date.

- Federal ESA – Receive Biological Opinions – Milestone date pushed out 2 weeks.

  Justification: The Authority continues to work with Reclamation, USFWS, and NMFS on the Biological Assessment approach and is close to determining a path forward. Delays in submitting the Biological Assessment have pushed the timeframe for the Biological Opinions out.

- *Water Right Permit Issued* – Finish date pushed out 4 weeks. THIS IS THE CURRENT CRITICAL PATH OF AMENDMENT 3 WORK PLAN AND THIS DELAY WILL EXTEND THE COMPLETION OF A3 WORK INTO 2025.

  Justification: The SWRCB continues with the process of determining that the Application for Water Right Permit is complete. While this time may be made up later in the process, the logic of the schedule pushes the overall completion date out, which pushes out critical successor items as noted below.

- *Mitigation Cost Estimate Update* – Finish date pushed out 5 weeks.

  Justification: The Mitigation Strategy is still being developed and updating the Mitigation Cost Estimate will complete afterward. This delay in the Mitigation Cost Estimate Update continues to have sufficient float and has no impact on the overall project schedule at this time.

- *Investor Commitment* – Milestone date pushed out 4 weeks.

  Justification: Investor Commitment is linked to Water Right Permit Issued and has also been pushed out by 4 weeks.

- *Construction Groundbreaking* – Milestone date pushed out 4 weeks.

  Justification: Construction Groundbreaking is linked to Investor Commitment and has also been pushed out by 4 weeks.

Lower Colusa Basin Drain System Mapping Meeting Minutes

Affordable Water, Sustainably Managed

Meeting Information:

Date:	May 2, 2023	**Location:**	Location
Start Time:	3 p.m.	**Finish Time:**	4 p.m.
Purpose:	Kick off effort to develop a set of maps that identify, organize, and communicate key issues affecting distinct sections of the Lower CBD System.		

Meeting Participants:

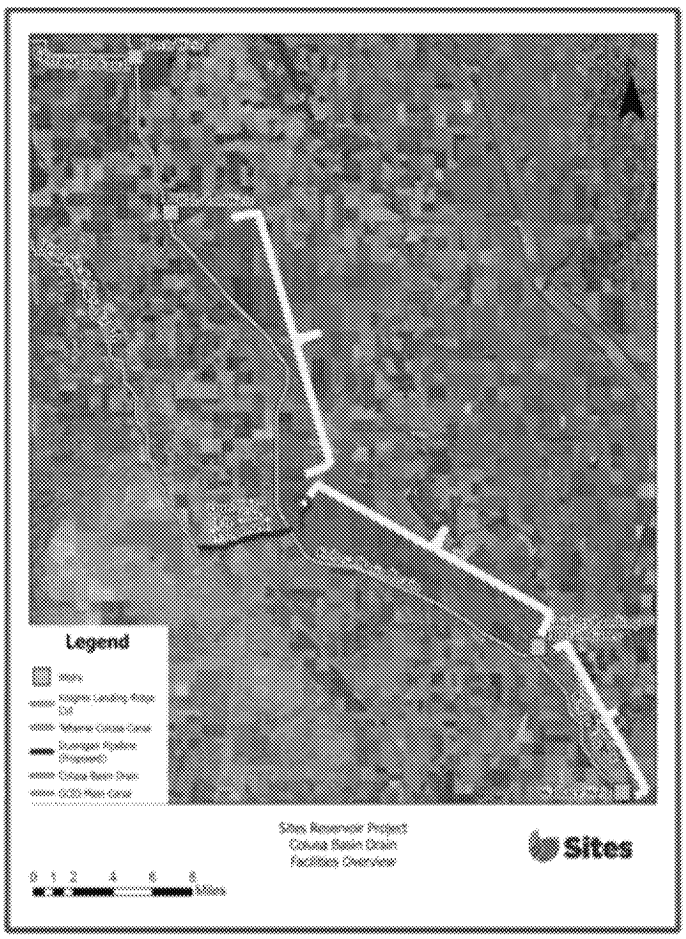
JP Robinette, Engineering & Construction Manager
Kevin Spesert, External Affairs Manager
Angela Bezzone, Reservoir Ops Lead
Pete Rude, Conveyance Design Lead
Cheyanne Harris, Project Agreements Lead
Amparo Flores, Agreements Support
Richard Newens, Agreements Support
Randy Olden, Sites Integration GIS Service Area Lead

Action Items:

Action Item		Owner	Deadline	Notes
1	Pull various existing datasets/shapefiles together over the next ~two weeks through May 17, 2023.	Randy	May 24, 2023	
2	Share Sharepoint site and GIS data procedure for uploading/sharing existing datasets/shapefiles.	Randy	May 2, 2023	**DONE. See email dated May 2, 2023 from Randy.**
3	Upload water rights-related maps, including diversion points, return flows to the Lower CBD System, and flow monitoring locations to SharePoint site.	Angela	May 17, 2023	
4	Upload land ownership maps & coordinate with Mike Azevedo about whether a map with the Colusa Basin Drainage District boundaries exists.	Kevin	May 17, 2023	
5	Check with enviro team on mitigation banks/conservation easement maps and upload maps available.	Amparo	May 17, 2023	

6	Look for relevant maps in the DWR website (e.g., jurisdictions of water agencies, etc.) for use in this effort.	Randy	May 17, 2023	
7	Research crop type info from DWR website and upload to SharePoint.	Rich	May 17, 2023	
8	Recommend potential threshold for impacts upstream of Dunnigan Pipeline and delineate extent of these impacts.	Pete	May 17, 2023 (confirm if feasible)	
9	Schedule follow up meeting based on preliminary maps generated after May 24, 2023.	Rich	May 17, 2023	

Meeting Minutes:



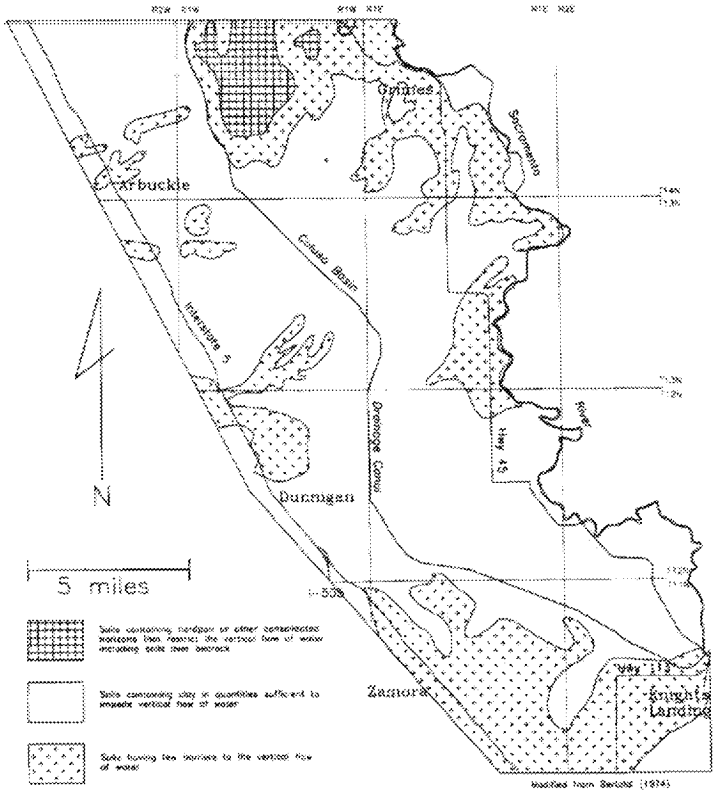
- Pete shared the LIDAR map used for conveyance design and highlighted key facilities. He was not certain about the extent of the LIDAR.
- Kevin noted that land ownership mapping for the Lower Colusa Basin Drain (CBD) System is available extending to just north of where the Dunnigan Pipeline connects with the CBD (at the County Line Road). He anticipates that landowner agreements/flood flowage easements would extend north to this area, not necessarily all the way to Balsdon Weir.
- JP suggested that the hydraulic analysis set a threshold for what could be considered an impact from Project operations upstream of Dunnigan Pipeline connection (e.g., up to 1 foot elevation rise), which could be used to delineate the northern extent of potential landowner agreements/flowage easements along the CBD.
- JP also suggested that the Lower CBD System could then be broken up into three sections that reflect the types of required planning efforts, such as: A - CBD upstream of Dunnigan PL where WSE elevation change less than [1'?, amount TBD] above Dunnigan PL, assume no agreements needed, coordination only; B - CBD from Dunnigan PL to KLOG, flowage

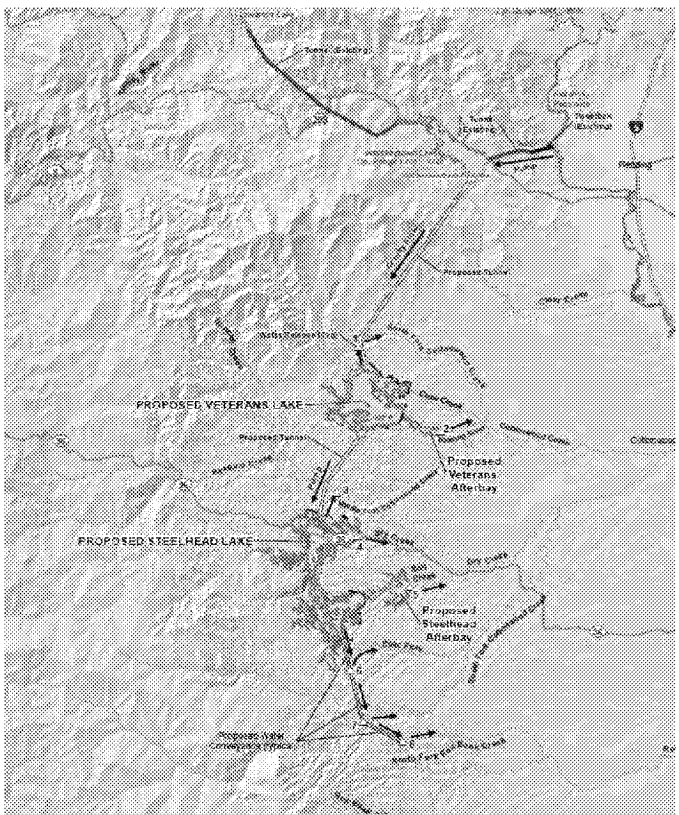
easements, possible capital improvements; C - Knights Landing Ridge Cut from CBD to Wallace Weir, flowage easements, possible capital improvements

- In addition to the items listed in the table below, attendees identified data that should be reflected in the maps, including:

DATA	Operations Analysis	Engineering/ Design	O&M/Other Agreements	Permits	Sites Water Rights
Key facilities	X	X	X		
Capacities	X	X	X		
Governance/institutional boundaries/jurisdictions			X		
Land ownership			X		
Other stakeholders			X		
O&M issues (existing/future?) flooding, seepage, levee stability	X	X	X	X	X
Water rights holders, water diverters, water diversions			X		X
Land types (e.g., irrigated farmland)			X		X
Farming activities (e.g., crops)					X
Flow measurement/monitoring locations				X	X
Environmental features?				X	
Others..?					

    - Mitigation banks/conservation easements
    - Land ownership identified by APN (not landowner names) (available from Kevin)
    - Return flows to the Lower CBD System
    - Creeks entering the Lower CBD System
    - Points of Diversion along the CBD (available from MBK)
    - Geology info along the Lower CBD System
- Angela pointed the team to the DWR district mapping tool, which could be used for jurisdictional boundaries; there are also other DWR GIS tools that could provide materials useful for these maps (e.g., https://data.cnra.ca.gov/dataset/statewide-crop-mapping).
- Rich noted that DWR collects crop type info. https://gis.water.ca.gov/app/CADWRLandUseViewer/?page=home
- Attendees noted that currently there's no organized O&M on the western levees, that RD 108 maintains the eastern levees, and that the Knights Landing Ridge Drainage District is responsible for the Knights Landing Ridge Cut O&M.





Fishery Enhancement / Off-Stream Storage Study

Veterans Lake-Steelhead Lake Concept

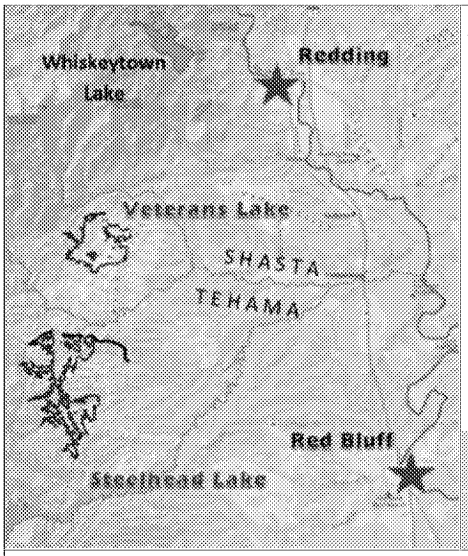
Central Valley Project, California

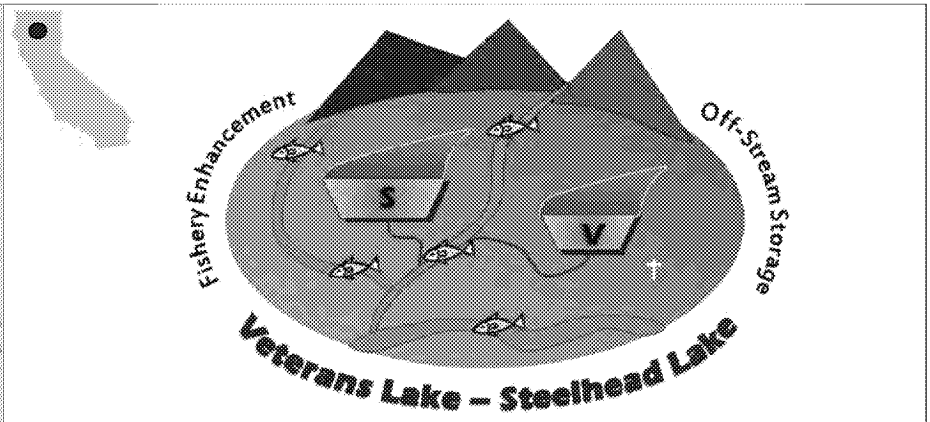
September 28, 2016

Veterans Lake – Steelhead Lake

Fishery Enhancement / Off-Stream Storage

July 2013





A 1969 Department of Water Resources study projected an increase of nearly 25,000 spawning salmon in an average year with reliable spawning flows (1100% increase vs. 2011 data) along 55 miles of SF/NF/Main channel Cottonwood Creek after a 10-year buildup. This off-stream project can ensure reliable spawning flows for up to 110 miles along those same streams plus 5 others.

The proposed off-stream reservoirs at Veterans Lake and Steelhead Lake combined could store up to approximately 2.4 million acre-feet of water for statewide use, plus ensure reliable cold water spawning flows for up to 110 miles of streams to benefit anadromous fish. This off-stream concept is new; nothing like any of the large on-stream dams considered and rejected years ago for this area. Both lakes could be filled with Shasta Lake water via Whiskeytown Lake and a new 13-mile gravity flow conveyance tunnel from Whiskeytown to Veterans. Two options for getting water from Shasta to Whiskeytown include: 1) Pump up through the existing Spring Creek tunnel from Keswick Lake, or 2) Add a new 9-mile tunnel directly from Shasta to Whiskeytown. A separate 5-mile tunnel would take water over to Steelhead Lake. Many other conveyance and diversion options are also possible. Increased storage-yield primarily comes from excess Shasta Lake water plus some from diversions within the Cottonwood Creek watershed. Flood protection downstream of Keswick is improved by diverting excess Shasta Lake water off-site. The over 400-foot deep reservoirs will provide significant volumes of cold water storage. Releases in excess of spawning flows could be sent back through Whiskeytown/Keswick reservoirs.

The off-stream reservoirs would be located on minor tributaries that: 1) Do not support anadromous fish, 2) Are not considered critical habitat for Chinook Salmon and Central Valley Steelhead, 3) Will not affect critical sediment flow and gravel migration into the Sacramento River, and 4) Will not negatively impact endangered or threatened anadromous fish.

Schoenfield connection: With Veterans Lake and Steelhead Lake in place, an additional 9.5 mile gravity flow conveyance tunnel could connect to the proposed Schoenfield Reservoir southwest of Red Bluff. This connection would provide a needed water source for the up to 400,000 acre-feet off-stream Schoenfield location and make it possible to ensure reliable cold water spawning flows for up to an additional 89 miles of streams.

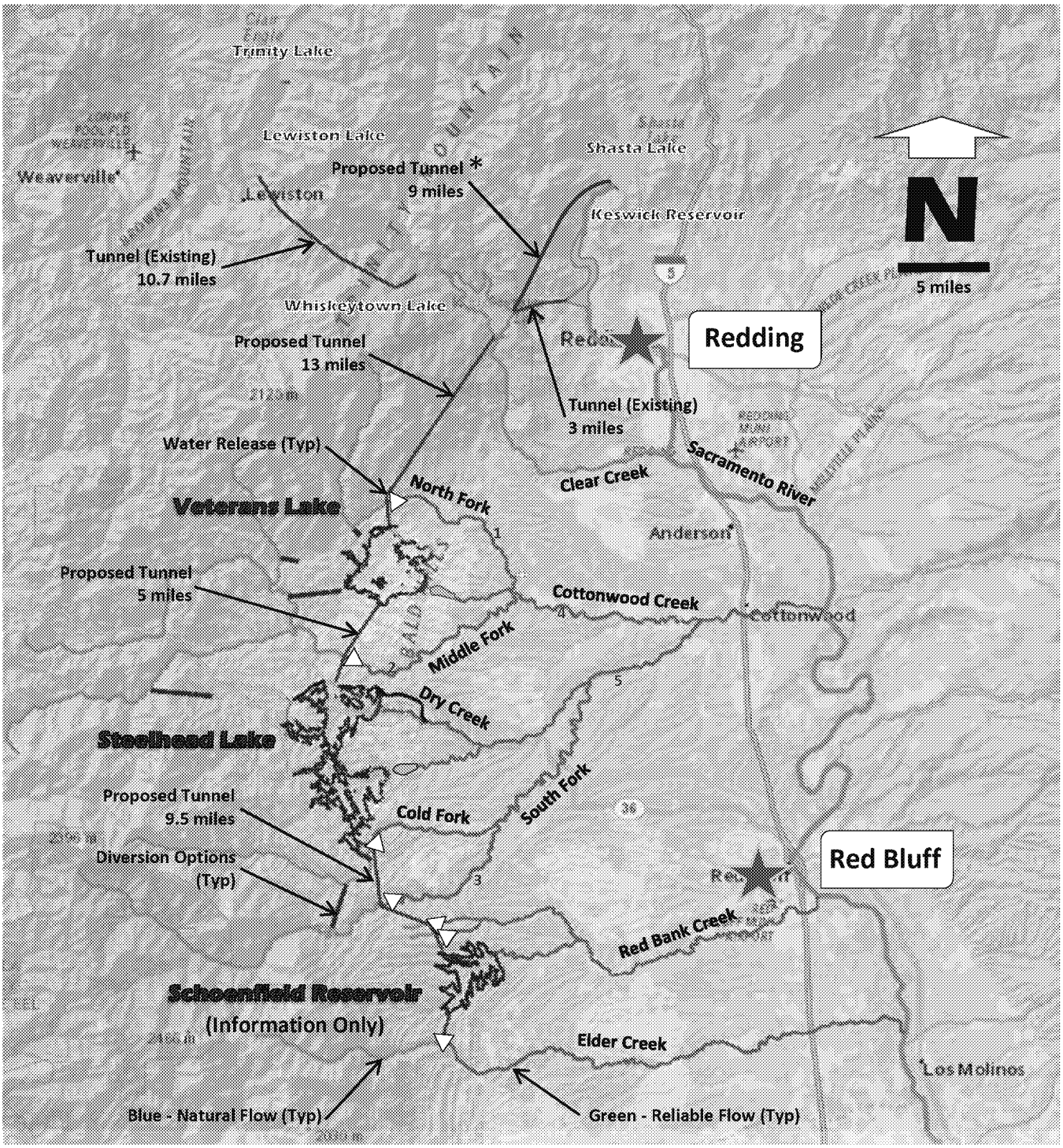
Objectives:	• Increase water supply • Increase survival of anadromous fish • Increase water quality and reliability • Increase water management flexibility	Secondary objectives: • Sustainable hydropower • Recreation • Limited flood control
	Veterans Lake Shasta County	**Steelhead Lake Tehama County**
Off-stream reservoir information:	• Up to approximately 1 million acre-feet • Max water surface elevation = up to 1130 feet • Surface area = up to 7,000 acres • Max depth at dam = up to 410 feet	• Up to approximately 1.4 million acre-feet • Max water surface elevation = up to 1300 feet • Surface area = up to 9,000 acres • Max depth at dam = up to 430 feet
Streams to have reliable cold water spawning flows:	• 13 miles NF Cottonwood Creek • 14 miles MF Cottonwood Creek • 4 miles Roaring "River" • 22 miles Main channel Cottonwood Creek	• 31 miles Cold Fork + SF Cottonwood Cr • 19 miles Salt Creek • 7 miles Dry Creek • **110 miles** **TOTAL Veterans + Steelhead**

July 2013

Veterans Lake – Steelhead Lake

Fishery Enhancement / Off-Stream Storage

Conveyance – Diversion – Fishery Enhancement Options



Information only - past proposed on-stream dams: 1-Hulen Lake 2-Fiddlers Lake 3-Dippingvat Lake 4-Dutch Gulch Lake 5-Tehama Lake

Note:

Schoenfield Reservoir and the conveyance tunnel connecting it are shown here for information only on how it would fit into the proposed Veterans Lake – Steelhead Lake fishery enhancement / off-stream storage concept.

* The proposed conveyance tunnel directly between Shasta Lake and Whiskeytown Lake has been dropped from consideration.

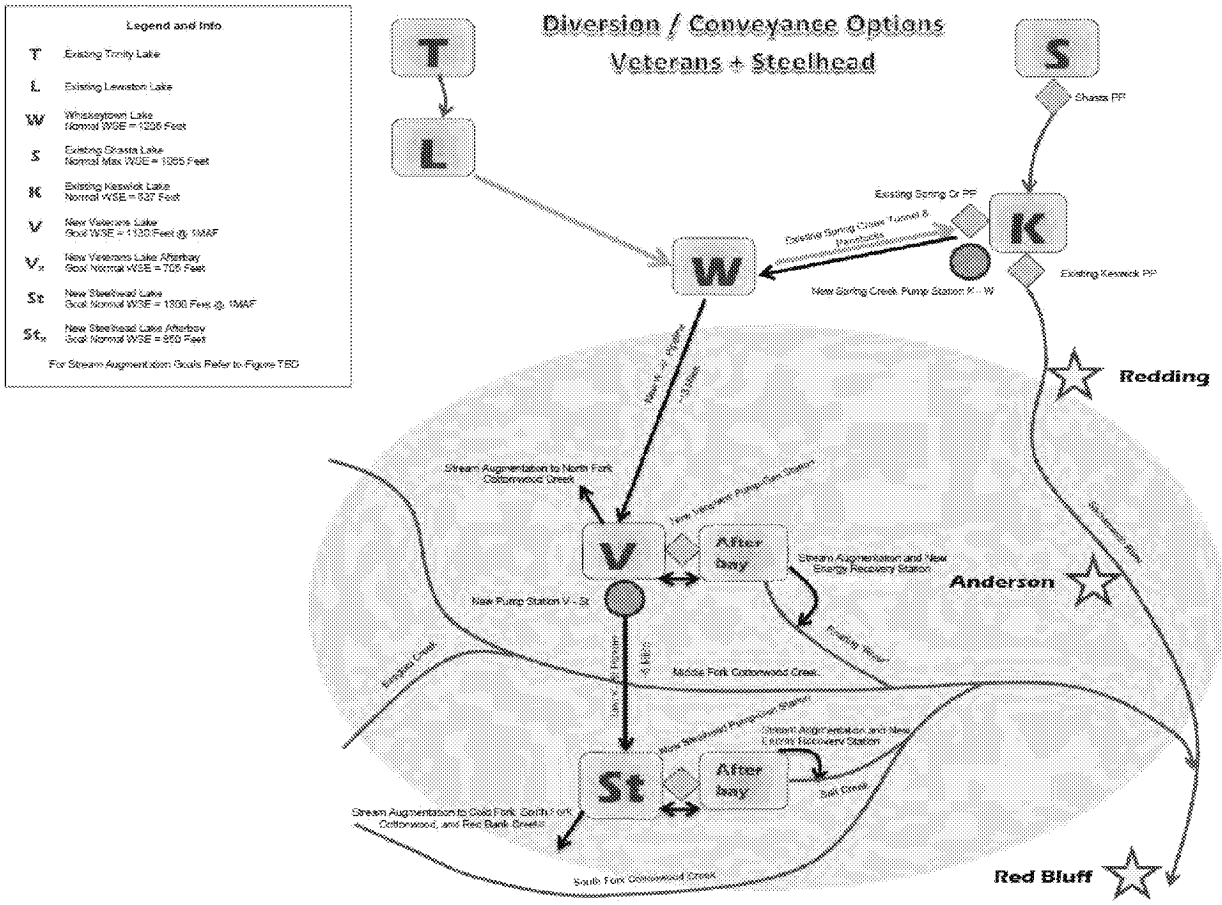


Figure ES-3. Revised VLSL Concept – Flow Schematic (Source: Reclamation, Modified by HDR)

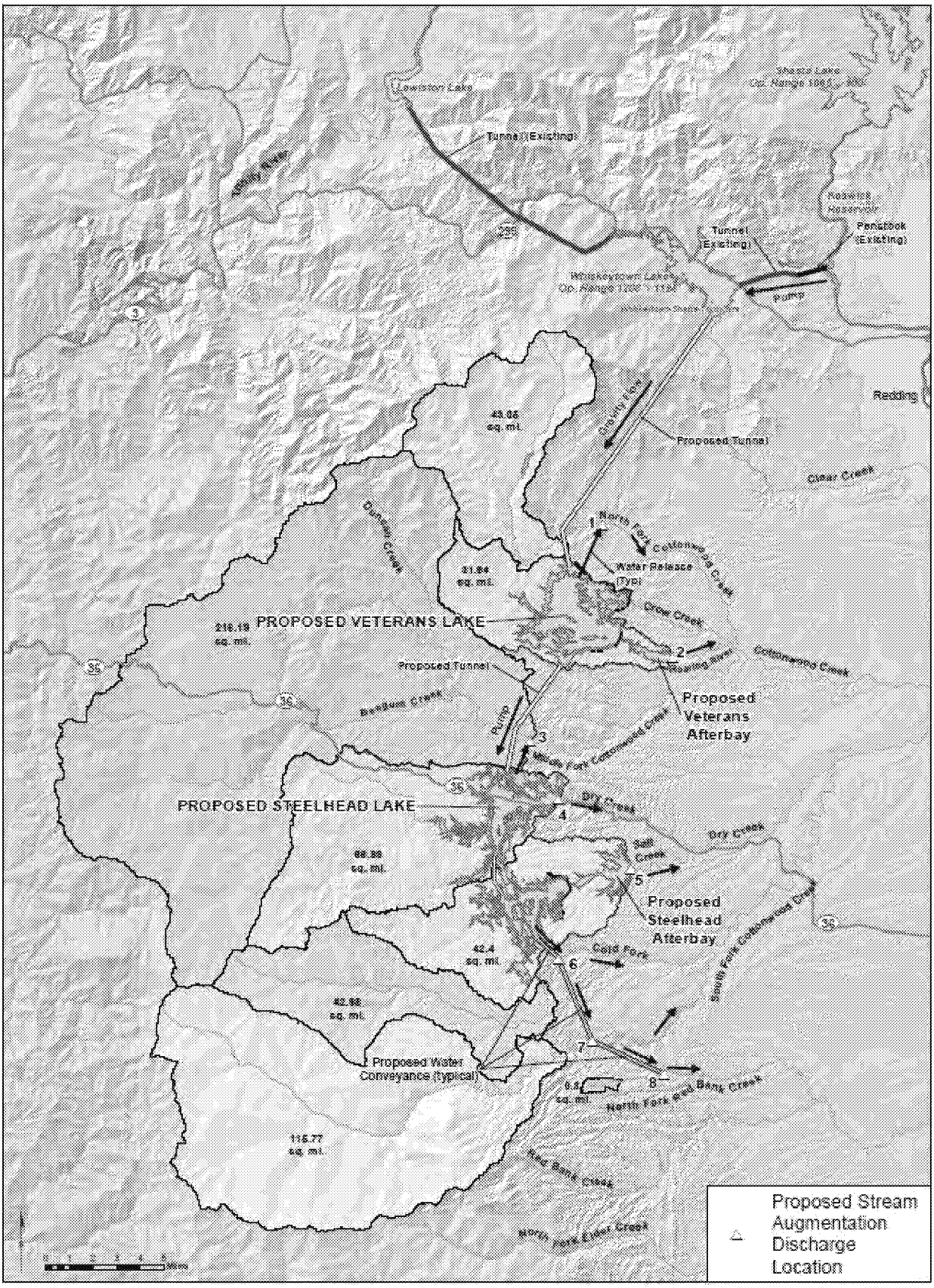


Figure 3-1. HDR-Proposed Water Conveyance and Pumping Systems for VLSL Concept

2023 Comments on 2016 Report

Finding large off-stream locations to store up to over 2.4 MAF of water for statewide use that does not require any new on-stream diversions that can be filled from existing reservoirs is a giant win. The over 400 ft deep reservoirs at VLSL will develop large cold water pools directly adjacent to critical habitat streams for anadromous fish. In these days, that is the equivalent to finding liquid gold! No matter what, we have to figure out an economical way to fill them with water.

The 2016 report "Fishery Enhancement / Off-Stream Storage Study Veterans Lake / Steelhead Lake (VLSL) Concept" by HDR for Reclamation (2016 Report) provided an overview of the concept proposed water project.

A very brief summary of the scope/features of the VLSL concept from the 2016 Report is as follows:

- Veterans Lake ~1.0 MAF off-stream storage for statewide use
    - Includes large cold water pool
    - Afterbay reservoir
    - Power generating plant
- Steelhead Lake ~1.2 MAF - ~1.6 MAF off-stream storage for statewide use
    - Includes large cold water pool
    - Afterbay reservoir
    - Power generating plant
- Conveyance tunnels
    - Gravity flow conveyance tunnel from Whiskeytown to Veterans
    - Pumped flow from Keswick to Whiskeytown
    - Pumped flow from Veterans to Steelhead
- Augmentation with cold water for spawning flows for 110 miles of 8 critical habitat streams for anadromous fish
    - Direct piping from reservoirs to 6 of the critical habitat streams
- ~1.3 MAF/year of water supplied by Shasta Lake
    - ~0.7 MAF/year of gravity flow water from Trinity River Diversion (TRD) at Whiskeytown Lake
        - All TRD water makes it to the Sacramento River via VLSL facilities
    - ~0.6 MAF/year of pumped water from Keswick Lake to Whiskeytown Lake
        - Pumping plant at Keswick

The long list of features and infrastructure above shows that there is much more to VLSL than just water storage. In fact, the fishery enhancement portion of VLSL includes the augmentation of the streams for spawning flows which takes significant infrastructure, causes the conveyance tunnels to be larger, and "uses" substantially more water than water storage alone. Water needs for stream augmentation for all eight streams causes about 45% of the overall water budget to be pumped up from Keswick Lake to Whiskeytown Lake - which is not nearly as cost effective as regular gravity flow.

One measure of water storage projects is the cost per acre-ft of water stored. The cost of water stored at VLSL comes in high - in the range of $2,700 to $3,300 per acre-foot. But that is only half the story. That number alone does not give any credit to the large cold water pools created by VLSL and significant amount of spawning flows on critical habitat streams for anadromous fish. The up to 110 miles of streams with spawning flows to benefit anadromous fish is something unique to VLSL. Since VLSL are deep enough to develop cold water pools, it would be a shame not to take advantage of it. It would be sort of like finding gold but using it to make gravel instead of fine jewelry or other more appropriate higher uses. Funding for fishery enhancements is part of legislation.

The 2016 Report shows the VLSL fishery enhancement and water storage costs came in too high to compete head to head with other water storage only projects. The VLSL concept is more than just water storage. Therefore, it does makes sense, however, to first prioritize water storage then limit stream augmentation to what can be done cost effectively or without requiring water pumping from Keswick to Whiskeytown.

Scope to Prioritize Water Storage and Reduce Costs

It is possible to reduce overall costs from the 2016 Report at VLSL while maximizing water storage – and thus lower the net cost per acre-foot. Looking at the 2016 Report there are some scope elements - such as building only Veterans Lake - for instance, and construction methods that can be looked at to lower overall costs. Scope can prioritize a much more conventional water storage only with sizing and infrastructure scaled back accordingly. Stream augmentation can also be prioritized to avoid use of expensive infrastructure. See revised scope options for VLSL focused on water storage below.

Dam and Dike Construction

Concrete Faced Rockfill Dam (CFRD) construction was assumed for all dam and dike locations for VLSL in the 2016 Report. Dam and dike construction is perhaps the single largest cost component in all water storage projects. However, earthfill or embankment dams can be typically constructed at a lower cost than CFRD. Earthfill / embankment dams may be 25% to 35% or more cheaper than CFRD construction. That is a big difference on the single biggest ticket on a water storage project. Many of the item costs in the 2016 Report are listed as percentages of the total project costs so reducing the dam/dike costs will "multiply" the savings. Also, many major dams in the area are earthfill or embankment construction (Whiskeytown, Trinity, and Oroville, for instance) as are most of the dams under consideration for other future water storage projects around the state.

There may be an engineering or other reasons why CFRD construction was selected at VLSL and not at other locations. If not, a more apples for apples comparison on costs for VLSL would mean either converting all other potential dam locations statewide to CFRD construction (for the purposes of cost comparison only) or using an earthfill or embankment construction option for VLSL. That would put VLSL on an a more equal cost comparison to other potential projects.

Water Diversions From Whiskeytown Lake for VLSL

The absolute key to the entire VLSL water storage concept is to use water diverted from Whiskeytown Lake via a new gravity flow conveyance tunnel to Veterans Lake. Currently Trinity River Diversions (TRD) to the Sacramento River are via conveyance tunnels from Lewiston Lake to Whiskeytown Lake then on to Keswick Lake. See the table below for more info.

Total flows into Whiskeytown Lake each year are approximated as follows:

Volume Acre-feet / Year	**Source**	**Comments**
604,000	Actual 22 year average from 2001-2022	
704,000	Legislation allows this volume per year	
650,000		• Rough average of actual volume and legislative allowed volume
100,000 to 130,000	Natural flows into Whiskeytown	• Assumed to be about 21% of total flows
750,000	TOTAL inflow into Whiskeytown	• Using 650,000 + 100,000 = 750,000
(100,000)	Releases to Clear Creek South Powerhouse / and Clear Creek	• About 13% of total inflow is released into Clear Creek for City of Redding power generation and fish flows
650,000	Available to release to VLSL each year – all with gravity flow	• **Assumes releases of TRD flows to Keswick are reduced to zero** • Currently – all of this water flows from Whiskeytown to Keswick each year • All the TRD water makes it way to the Sacramento River via VLSL facilities instead of via Keswick

650,000	Increased releases from Shasta Lake into Keswick	• No net changes of inflow into Keswick • No net changes to TRD flows to the Sacramento River • Every drop of water diverted to VLSL is replaced by increased releases from Shasta into Keswick • Keswick maintains the same water volume and temperature as if there was no VLSL project

Since increased Shasta releases are used to make up for diverted flows to VLSL – then excess flows at Shasta Lake are effectively used to fill VLSL.

Significant costs and added infrastructure can be avoided if the scope of work does not include pumping water up from Keswick Lake to Whiskeytown Lake to serve the VLSL project. The key to making VLSL cost effective and able to compete with other potential projects is to prioritize water storage first and then add only as much stream augmentation as possible without pumping water up from Keswick Lake. Streams should be prioritized so that those with the most "bang for the buck" are selected first for direct stream augmentation.

Lost Power Generation

Since Trinity River Diversion flows to Keswick Lake will be reduced to zero to send water to VLSL, power generation at the Spring Creek Powerplant at Keswick from TRD water will also go to zero. That power loss can be largely offset by the increased releases at Shasta Dam. Since the same volume of water will be newly released from Shasta that used to flow from Whiskeytown, power generation will still occur at the Shasta Powerplant, though the available head is less at Shasta which means less power will be generated.

Whiskeytown / Keswick can still be used as a peaking power generator with flows down to Keswick during peak power periods then offset by pumping back into Whiskeytown during off peak hours. Peak power generation at Spring Creek/Keswick does not have anything to do with water diverted to the VLSL project.

Water Budget Used to Set Scope

With a water budget of roughly 650,000 ac-ft per year available for use by VLSL (adjust as needed as further studies confirm), set a scope of work first to prioritize water storage, then with the remaining water, prioritize which additional streams to augment with cold water spawning flows.

Scope - prioritized to maximize water storage – then augment streams:

- Veterans Lake ~1.0 MAF off-stream storage for statewide use
    - Includes large cold water pool
    - Dam and dikes as needed
    - Gravity flow conveyance tunnel sized to only serve Veterans Lake
        - No stream augmentation (other than at the main dam)
        - No afterbay
    - Includes power generation at Roaring River
    - Includes cold water spawning flows at Roaring River – then flowing downstream to Middle Fork of Cottonwood Creek then to Main Cottonwood Creek to Sacramento River

- Assume there is water remaining – then

- Steelhead Lake/Small – smaller, gravity flow version
    - Resize the gravity flow conveyance tunnel from Whiskeytown to Veterans to also serve Steelhead/Small
    - Gravity flow conveyance tunnel sized for storage only from Veterans Lake to Steelhead/Small
    - Dams and dikes as needed

- Steelhead Lake/Small storage is around 200,000 to 250,000 ac-ft or so
  - Similar in size to Whiskeytown Lake (storage of 241,100 ac-ft)
  - No stream augmentation (other than at the main dam)
  - No afterbay
- Includes power generation at Dry Creek
- Includes cold water spawning flows at Dry Creek - then flowing downstream to South Fork of Cottonwood Creek then Main Cottonwood Creek to Sacramento River

If the roughly 650,000 ac-ft water budget is enough to fill and operate these two reservoirs as storage only - Veterans Lake and Steelhead Lake/Small - they will not require a single drop of conveyance water to be pumped. Storage will sum to about 1.2 to 1.3 MAF and include a new cold water pool for anadromous fish. Creeks already receiving cold water spawning flows at the dam outlets include Roaring River and Dry Creek. Infrastructure is largely limited to two gravity flow conveyance tunnels, two power generating plants, and power transmission lines. Ideally, Veterans Lake and Steelhead/Small could be operated much like Whiskeytown Lake which maintains pretty much a constant water elevation year round.

- If there is still water remaining from the 650,000 ac-ft water budget – then there are two options to consider
- Do not go over the water budget of 650,000 ac-ft/year that requires water to be pumped up from Keswick to Whiskeytown

Option 1 – Add More Water Storage

- Steelhead Lake ~1.4 MAF off-stream storage for statewide use
  - Includes large cold water pool
- Use pumped conveyance to build regular full size Steelhead Lake
  - Resize the gravity flow conveyance tunnel from Whiskeytown to Veterans to also serve the full size Steelhead Lake
  - Pumped conveyance tunnel from Veterans to Steelhead sized for the bigger Steelhead Lake
  - Storage at Steelhead Lake is around 1.4 MAF
  - No afterbay
  - Includes power generation at Salt Creek
  - Includes cold water spawning flows at Salt Creek – then flowing downstream to Dry Creek, then to South Fork of Cottonwood Creek then Main Cottonwood Creek to Sacramento River

Option 2 – add More Stream Augmentation

- Add direct stream augmentation for cold water spawning flows to the priority list of streams
  - Resize the gravity flow conveyance tunnels as needed to account for spawning flows
  - Still no pumping required for any conveyance flows
  - Potential creeks to be prioritized include for augmented flows
    - There is not enough water (total water budget of ~650,000 ac-ft/year) for all four of these creeks – must prioritize
      - North Fork of Cottonwood Creek
      - Middle Fork of Cottonwood Creek
      - Salt Creek
      - Cold Fork of Cottonwood Creek

Note: Some streams already get cold water augmented spawning flows as the water is released from Veterans into Roaring River and from Steelhead into either Dry Creek or Salt Creek (depending on the size of lake).

The VLSL concept will be most competitive with other potential water storage projects if: prioritize scope to maximize water storage, limit scope to water available by gravity flow from Whiskeytown, use the same dam/dike type as other projects (where feasible), maximize use of gravity flow for conveyance, limit infrastructure that does not increase storage, and augment priority streams with cold water for spawning flows.

From: Joe Trapasso [jtrapasso@sitesproject.org]
Sent: 5/11/2023 8:54:54 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Kevin Spesert [kspesert@sitesproject.org]
Subject: RE: Sites Project - Colusa Monitoring Agreement

Ali,

I emailed Alan requesting he review the CICC executed agreement:

- To determine if it meets our current contracting requirements.
- If we could amend Article B. Term regarding "……it shall remain in effect until the completion of the 2019 Geotechnical Investigations depicted in Attachment I." to get the monitoring work started soon. Of course, CICC would also want to revise their billing rates and potentially add more definition to the scope.

I will let you know as soon as I get a response from Alan.

Joe

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, May 11, 2023 10:29 AM
To: Joe Trapasso <jtrapasso@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>
Subject: Re: Sites Project - Colusa Monitoring Agreement

Hi Joe - Can you run the agreement through legal and see if we can still use it? Id like to get them out in the field ASAP if we can.

Ali

———————
Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Reservoir Project | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Joe Trapasso <jtrapasso@sitesproject.org>
Sent: Monday, May 8, 2023 7:55:16 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>
Subject: RE: Sites Project - Colusa Monitoring Agreement

Attached is the Colusa Indian CC executed agreement. It was reviewed by legal but may need to be reviewed again as our view of agreements has changed over the past four years. Also the attachments will change and billing rates will likely be increased. I think the Tribal staff we dealt with in the past are no longer there.

I will review in more detail later.

Joe

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Monday, May 8, 2023 4:58 PM
To: Joe Trapasso <jtrapasso@sitesproject.org>

Cc: Kevin Spesert <kspesert@sitesproject.org>
Subject: Sites Project - Colusa Monitoring Agreement
Importance: High

Joe - The Colusa Tribe has expressed an interest in doing Tribal monitoring. I know we have had an agreement with them in the past. Do you have this and if so, can you send it over?

Also, is the agreement still valid? Meaning if we wanted to get them out quickly under this agreement, can we do this? Kevin thought that maybe it didnt have an end date and that it might still be "in effect".

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

File Provided Natively

File Provided Natively

From: Micko, Steve [Steve.Micko@jacobs.com]
Sent: 4/24/2023 5:28:29 PM
To: Davis-Fadtke, Kristal@Wildlife [Kristal.Davis-Fadtke@wildlife.ca.gov]; Williams, Jonathan@Wildlife [Jonathan.Williams@wildlife.ca.gov]; Sherrick, Robert@Wildlife [Robert.Sherrick@Wildlife.ca.gov]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [john.spranza@hdrinc.com]; Angela Bezzone [bezzone@mbkengineers.com]; Leaf, Rob [Rob.Leaf@jacobs.com]; Thayer, Reed [Reed.Thayer@jacobs.com]
Subject: RE: Sites Project - Operations ITP, Continued Modeling Discussion

Hi Kristal, Jon and Rob,

At this link, we've posted CalSim II studies for the following alternatives:

- NAA 041222 2035CT
  - No Action Alternative (for the BA/ITP)
- ALT 3A 041122 2035CT
  - Alternative 3A (for the BA/ITP)
  - 1.5 MAF Sites Reservoir
  - 25% Reclamation Investment
  - Includes Shasta exchanges
- ALT 3B 041122 2035CT
  - Alternative 3B (for the BA/ITP)
  - 1.5 MAF Sites Reservoir
  - 16% Reclamation investment
  - Includes Shasta exchanges
- ALT 1A 062222 2035CT
  - Alternative 1A at 2035CT climate (as requested by CDFW)
  - 1.5 MAF Sites Reservoir
  - No Reclamation investment
  - Includes Shasta exchanges
- ALT 1A 062222 noShaEXCH 2035CT
  - Alternative 1A at 2035CT climate without Shasta exchange (as requested by CDFW)
  - 1.5 MAF Sites Reservoir
  - No Reclamation investment
  - No Shasta exchanges

A trend reporting spreadsheet, with results of the alternatives above, is also posted to the link above.

Please let me know if you have any questions.

Thanks,
Steve

Steve Micko, PE (he/him) | Jacobs | Project Manager
O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

-----Original Appointment-----
From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Monday, April 3, 2023 10:57 AM

To: Alicia Forsythe; Davis-Fadtke, Kristal@Wildlife; Williams, Jonathan@Wildlife; Spranza, John; Micko, Steve; Angela Bezzone
Subject: Sites Project - Operations ITP, Continued Modeling Discussion
When: Monday, April 17, 2023 1:00 PM-2:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

Just a small group discussion on modeling. Steve and Angela, hopefully you both can join.

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

Meeting ID: 266 274 400 733
Passcode: 5Ye23W
Download Teams | Join on the web

Or call in (audio only)
+1 916-538-7066,,363093693# United States, Sacramento
Phone Conference ID: 363 093 693#
Find a local number | Reset PIN

Learn More | Meeting options

From: Alicia Forsythe [aforsythe@sitesproject.org]
Sent: 5/12/2023 2:10:48 PM
To: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Jerry Brown [jbrown@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
CC: Marcia Kivett [MKivett@sitesproject.org]; JP Robinette [jrobinette@sitesproject.org]
Subject: Re: LCWG May Agenda Item on Socioeconomic Outlook

Laurie - can you explain the construction jobs a little better? The about 100 direct construction jobs seems low to me.

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Friday, May 12, 2023 11:25 AM
To: Jerry Brown <jbrown@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Marcia Kivett <MKivett@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: LCWG May Agenda Item on Socioeconomic Outlook

Hi Jerry,

Apologies for this late response – I was driving back from Monterey when you sent this yesterday. My responses are below:

1. Is the referenced SAP/IMPLAN modeling that was done documented in reports that could be provided for more detail if requested?

Appendix 30A of the RDEIR/SDEIS provides an overview of the modeling. It includes an updated introduction and reproduces the 2017 appendices:

- 22A Economics Analytical Framework
- 22B Reporting Metrics Tool
- 22C Regional Economics Modeling
- 22D Urban Water Supply Economics Modeling
- 22E Urban Water Quality Economics Modeling
- 22F Agricultural Supply Economics Modeling

More models were used than are listed in the slides but IMPLAN and SWAP were key. Appendix 30B, *Comparison of Regional Hydrologic Model Results to Inform Economic Analyses* is where you can find the comparison of the 2017 hydrologic modeling water supply results to the revised project and supports the continued use of 2017 economic modeling for the purposes of the EIR/EIS.

2. Is there an estimate of # of construction jobs generated (direct and indirect)?

Yes, the 2017 modeling projected that from 99 to 115 direct jobs and from 448 and 503 total jobs (i.e., direct, indirect, and induced jobs) would be generated by construction.

3. I infer the annual property tax loss between the 2 copies is estimated to be $300,000. Am I reading this correctly?

Yes, based on the 2017 modeling, "Annual losses in property tax revenue were estimated to be $30,892 in Glenn County and $274,239 in Colusa County. These amounts totaled 0.04% and 0.33%, respectively, of the Counties' total revenue in the 2015–2016 fiscal year."

4. For the property tax loss do you know off the top of your head whether there been any consideration of the "Williamson act" effects?

I did not find a reference to Williamson Act contracts in the Socioeconomic chapter or appendices, although we quantified the acreage of impacts in Chapter 15, *Agriculture and Forestry Resources* and provide Table 15-17. Land under Williamson Act Contract Permanently Disturbed by Project Facilities under Alternatives 1, 2, and 3 (acres). Figures (15-4a, 15-4b, and 15-4c) illustrating the location of Williamson Act contracts are also provided in the RDEIR/SDEIS.

5. The omission of any mention of sales tax revenue in Colusa or Glenn counties implies this was not considered. Is this correct? I assume it was not modeled given the qualitative conclusions but can reach out to AECOM and CH to confirm, if needed.

Please let me know if you need anything else.

Laurie

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Thursday, May 11, 2023 2:54 PM
To: Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Re: LCWG May Agenda Item on Socioeconomic Outlook

Laurie – these look fantastic. Thank you for preparing them. Just so I am informed that questions arise can you respond to:

1. Is the referenced SAP/IMPLAN modeling that was done documented in reports that could be provided for more detail if requested?
2. Is there an estimate of # of construction jobs generated (direct and indirect)?
3. I infer the annual property tax loss between the 2 copies is estimated to be $300,000. Am I reading this correctly?
4. For the property tax loss do you know off the top of your head whether there been any consideration of the "Williamson act" effects?
5. The omission of any mention of sales tax revenue in Colusa or Glenn counties implies this was not considered. Is this correct?

Kevin,

1. *Were we able to acquire the Williamson act GIS layer for the reservoir footprint?*
2. *Please provide a link to the location on sharepoint where these and the other files for LCWG meeting are located. I may need to make a few other tweaks and I promised Wendy to share before the meeting.*

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Thursday, May 11, 2023 at 10:49 AM
To: Jerry Brown <jbrown@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>, JP Robinette <jrobinette@sitesproject.org>
Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: Fw: LCWG May Agenda Item on Socioeconomic Outlook

Hi Jerry - Laurie put together some summary slides of the socioeconomics analysis in the RDEIR/SDEIS. Let us know if you have any questions, concerns, or would like more information. I do suspect the tax revenue

loss will need to be recalculated as we acquire land and as I think the county's revenues have recently changed. But this provides a ball park range.

Including JP and Kevin so they are aware of this analysis.

Thanks Laurie!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Wednesday, May 10, 2023 9:49 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: FW: LCWG May Agenda Item on Socioeconomic Outlook

Hi Ali,

Please see the attached draft socioeconomic slides for Jerry. Let me know if you have any questions.

-Laurie

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Thursday, May 4, 2023 3:23 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: LCWG May Agenda Item on Socioeconomic Outlook

Yes, 4-5 slides summarizing the analysis and results in Ch 30 would be very much appreciated. Particularly as related to the County finances. Need by COB 5/11.

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Thursday, May 4, 2023 at 2:54 PM
To: Jerry Brown <jbrown@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>, Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: LCWG May Agenda Item on Socioeconomic Outlook

I am not aware of any slides on this chapter. I know I have not put any together. We could do this if you'd like.

If I remember correctly, and its been a while, the numbers in Chapter 30 are based off the 1.8 MAF project. We did not re-run them for the smaller project. Laurie, do you remember this.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Thursday, May 4, 2023 1:53 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: LCWG May Agenda Item on Socioeconomic Outlook

An item we plan to discuss at this month's LCWG is Local Government Socioeconomic effects with the Project. I recently reread Chapter 30 of the RDEIR in this regard. Do we have any slides already prepared that describe the analysis and findings in Chapter 30? I'm thinking we might want to review these with the LCWG and explain how we are working with the County to dive deeper into the analysis of sales tax, property tax loss, and recreation revenues to better determine the magnitude of the "positive" effects our RDEIR finds would come to Glenn and Colusa county as a result of the Project.

Let me know. Thanks

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/12/2023 2:14:43 PM
To: Luu, Henry [Henry.Luu@hdrinc.com]
CC: JP Robinette [jrobinette@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
Subject: Re: Earthquake Faults @ Sites Reservoir

Very interesting and exactly what I was looking for. Thanks

When the EIR comes out, we will need to include a FAQ on earthquake safety so I am pleased to see we've already had some conversations about dam and other facility design criteria (e.g. M7 on the Fruto Fault) with DSOD already engaged.

From: "Luu, Henry" <Henry.Luu@hdrinc.com>
Date: Friday, May 12, 2023 at 1:43 PM
To: Jerry Brown <jbrown@sitesproject.org>
Cc: JP Robinette <jrobinette@sitesproject.org>
Subject: RE: Earthquake Faults @ Sites Reservoir

Hi Jerry, attached are a couple of sources for reference:

- Figure 2b, I just noticed a typo towards the bottom of this map where the "Golden Gate Dam" annotation near the S-2 and NEF-2 fault traces should be labeled as "Sites Dam". The entire document is on SharePoint @Revised Final Draft DSOD GIWP v03172023.pdf.
- Seismic characterization – the team presented initial thoughts on existing faults and seismic characterization to DSOD last month (20230406_Technical Briefing).

Henry M. Luu, PE
D 916.679.8857 M 916.754.7566

hdrinc.com/follow-us

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Friday, May 12, 2023 12:57 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Cc: JP Robinette <jrobinette@sitesproject.org>
Subject: Earthquake Faults @ Sites Reservoir

Can you direct me to a map that shows the known and active earthquake faults in around or near the footprint of the reservoir and dams?

From: Alicia Forsythe [aforsythe@sitesproject.org]
Sent: 5/12/2023 2:29:21 PM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Kevin Spesert [kspesert@sitesproject.org]; Marcia Kivett [MKivett@sitesproject.org]
Subject: Re: Sites Paragraphs for County CEDS Report
Attachments: 20230512_Sites Project Description for Colusa County CEDS Process.docx

Here's the draft write-up for the CEDS effort. Let me know what you all think.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Friday, May 5, 2023 11:49 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>
Subject: Sites Paragraphs for County CEDS Report

As discussed this morning can you have someone on within the EPP team provide the following information preferably in a 2-3 paragraph format that can be transmitted to Colusa County and Chapin Consultants **by COB Friday 5/12** for inclusion in the draft Community Economic Development Strategy document that is being prepared and will highlight the Sites Project as one of 3 top priorities for the region in terms of stimulating economic development:

Project description (high level)
What is the intent of the investment? (along the lines of a purpose and need statement)– they are gearing the CEDS to focus on a resiliency message for the region's economy and our investment description should focus here plus mention any other reasons for the project.
What is the level of investment?
What is the timeline for the investment?
Where are the locations for the project elements?
What kind of resources (materials, equipment, labor) will the project require and what area do we envision pulling these in from?
Can we identify ancilliary projects or economic activity that would result the construction of the reservoir? Recreation is one example.
Hopefully the person this gets assigned to has some experience with CEDS and can craft the information in a manner that can easily be cut/past into the document.

From: JP Robinette [jrobinette@sitesproject.org]
Sent: 5/15/2023 7:14:36 AM
To: Cheyanne Harris [CHarris@BrwnCald.com]
Subject: Re: B&O Contract Steering Committee Notes (5/12)

Super helpful, and thanks for sharing!

From: Cheyanne Harris <CHarris@BrwnCald.com>
Sent: Friday, May 12, 2023 12:15 PM
To: JP Robinette <jrobinette@sitesproject.org>
Subject: B&O Contract Steering Committee Notes (5/12)

Sending rough notes if it's at all helpful. Next scheduled meeting with the Steering group is Fri 6/9.

- What is the Sites Authority committing to build?
  - Jerry - '30% design or some other technical milestone that represents 'the Project'
    - Jeff - this is doable - similar approach is done on Design Build projects
      - Dams are baked; but there's high degree of variability with the conveyance infrastructure (but this will need to be defined anyway
    - Liz - need to be sufficiently conservative (e.g., accounting for changes between 30% and beyond)
    - Doug B - need to be careful what's in the Contract (don't want to have to go back to the homeboards unnecessarily to amend the Contract) - e.g., 30% design may be too early for some Participants to commit
      - Liz - is there a document that describes the Project's Performance requirements
        - Jerry - there was a 10% design report completed at the end of Amendment 2. Several Participants mentioned to their homeboards that 30% design would be complete by the end of Amendment 3
      - Defining the facilities (e.g., XX miles of Dunnigan Pipeline, XX AF of reservoir - maybe defer to CEQA document) vs. just defining what is received (% capacity interest + % of available divertable water)
        - Potential considerations
          - CEQA action - evaluating what the Board's commitment actually will be vs. some separate summary resolution that defines the project
            - Homeboards will in effect approve the project when they take their respective homeboard actions to approve the Sites Board's CEQA document
          - Sites Authority could adopts 30% design (and associated cost estimate) and that gets referred to in the Contract
            - Will draft language to define the Project based on 30% design (with provisions for design to evolve as needed & in alignment with governance decisions (e.g., Sites Authority decide what 'good industry practice' looks like based on 75% majority vote)
- What will participants need to know about ops and governance (decision making) to sign the contract
  - Draft of ops plan accompanies contract draft?
    - Alan - something more in depth than an outline would be helpful
    - Jeff - "true operations are actually outside a Contract (it's one entity that ultimately makes the day to day decisions)"
      - The Plan is just a Plan
    - Consider - note to draft (including existing ops plan) with a note to elaborate on when Participants should expect updated plan & the associated items that'll be reflected in that ops plan update
  - How should we best communicate where items will be covered or when [covered elsewhere]
  - Governance related
    - Will cover specifics in a forthcoming meeting later this month
    - Anticipate getting AB/RC on governance considerations in June
      - Still working through how these items will get covered in various agreements
    - Still unclear what'll actually be reflected in the B&O Contract vs. elsewhere

- Voting bloc sidebar

Analysis of 'Voting Blocs' based on existing and potential future arrangements using existing voting weighting system

	Voting Weights	
Possible Voting Blocs	**Per Amendment 3**	**With CCFCWCD**
North of Delta	35.96%	27.93%
South of Delta	64.04%	72.07%
South of Delta less MWD	46.76%	54.11%
MWDSC alone	17.29%	17.96%
All SWCs	67.52%	85.58%
All CVPs	28.60%	17.85%
Ag	31.78%	27.65%
Urban	67.52%	72.35%
Rated Agency's	57.85%	74.57%
# of Authority Bd members on RC	5	3

- Approach/timing for distribution of first draft
  - Jerry - don't think we need to take draft to a committee ahead of RC/AB meeting
    - Be sure to confirm: What are we asking for in Participant review
- Parking lot
  - Steering committee consider items that would require going back to homeboards
  - Roadmap of document reviews (for Participants to know when they'll look at the documents referenced in the Contract)
- Action
  - JP/Cheyanne - noodle on WIFIA subcommittee coordination. Hold off on coordinating with Marcia to schedule
  - Liz -
    - Will coordinate with individual commentors to closeout comments as needed
    - [done during meeting] ~~Will forward invite for 3/22 governance meeting to Alan~~
    - will draft 'what the Sites Authority committing to build' language to reference to 30% design
      - Core team - will draft up some alternatives for Participant consideration (in case the initial language in the Contract is not specific enough for them)
    - Will include a note to draft in the Ops Plan Section of the Contract (incl. existing ops plan, when Participants should expect the updated plan, and a list of item that'll be reflected in the forthcoming ops plan update

Thanks.

Cheyanne Harris, P.E.*
Brown and Caldwell
CHarris@brwncald.com
T 916.853.5349 ¦ **C** 916.628.2352
*Professional Registration in California
Pronouns: she/her/hers
Brown AND Caldwell

From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 5/15/2023 7:48:24 AM
To: Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: Re: Sites Paragraphs for County CEDS Report

Will do

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, May 15, 2023 7:47 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: Sites Paragraphs for County CEDS Report

This looks good. The only thing I changed was to show the construction period of 6-8 years instead of 10 since this is the latest information on schedule to our Board. I also started a folder here for all CEDS related coordination and placed this document in the folder.

20230512_Sites Project Description for Colusa County CEDS Process.docx

Kevin – Can you forward this document to Chapin and Greg and his staff?

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Friday, May 12, 2023 at 2:29 PM
To: Jerry Brown <jbrown@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>, Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: Sites Paragraphs for County CEDS Report

Here's the draft write-up for the CEDS effort. Let me know what you all think.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Friday, May 5, 2023 11:49 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>
Subject: Sites Paragraphs for County CEDS Report

As discussed this morning can you have someone on within the EPP team provide the following information preferably in a 2-3 paragraph format that can be transmitted to Colusa County and Chapin Consultants **by COB Friday 5/12** for inclusion in the draft Community Economic Development Strategy document that is being prepared and will highlight the Sites Project as one of 3 top priorities for the region in terms of stimulating economic development:

Project description (high level)
What is the intent of the investment? (along the lines of a purpose and need statement)– they are gearing the CEDS to focus on a resiliency message for the region's economy and our investment description should focus here plus mention any other reasons for the project.
What is the level of investment?
What is the timeline for the investment?
Where are the locations for the project elements?
What kind of resources (materials, equipment, labor) will the project require and what area do we envision pulling these in from?
Can we identify ancilliary projects or economic activity that would result the construction of the reservoir? Recreation is one example.
Hopefully the person this gets assigned to has some experience with CEDS and can craft the information in a manner that can easily be cut/past into the document.

From: Brian Rahman [brian@zglobal.biz]
Sent: 5/10/2023 4:09:42 PM
To: Rude, Pete [Pete.Rude@jacobs.com]; Luu, Henry [Henry.Luu@hdrinc.com]
CC: Wu, Dawning [Dawning.Wu@hdrinc.com]; Asil Rafiq [arafiq@zglobal.biz]; Samer Abou Eljoud [samer@zglobal.biz]
Subject: [EXTERNAL] RE: [External Email] CAISO Strategy
Attachments: CAISO Interconnection Process Enhancements v1.docx

Pete, Henry,
Attached is a summary/status of the CAISO Interconnection Process Enhancements that will impact Cluster 15 and the Sites Interconnection Request. Still more to come as they work on Track 2 of the process which is where our main interest will be. By the end of this month, we should receive their Straw Proposal for the Track 2 changes. At this point things are still a bit fuzzy on schedule and how Cluster 15 will be processed. From our perspective, I believe we need to watch out for the following items and be prepared to approach CAISO management if we see conflicts with Sites.

1. Site Control Requirement to enter Phase 2. This is already included in the BPM, based on current info on schedule phase 1 will end sometime in Q3/Q4 of 2025.
2. Power Purchase Agreement or Short List to enter Phase 2. This is unlikely to be the case for Sites so we need to help them understand the conflict with construction duration and need for assurance that we have an interconnection agreement.
3. Provision to only accept requests that are consistent with CPUC IRP. We may be ok here, but based on CAISO Transmission Planning studies, it will be difficult to secure Resource Adequacy Capacity, which is not critical, but highly desirable.
4. Provision to limit number of requests based on Transmission planning capacity studies. They have floated ideas including an auction to secure positions. This could be an issue if we find we are competing with a bunch of power plant developers.

Look forward to our discussion on these items.
Thanks,
Brian

From: Rude, Pete <Pete.Rude@jacobs.com>
Sent: Wednesday, May 10, 2023 12:49 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>; Wu, Dawning <Dawning.Wu@hdrinc.com>
Cc: Brian Rahman <brian@zglobal.biz>
Subject: RE: [External Email] CAISO Strategy

Hi Henry & Dawning – per below from Brian on CA ISO strategy – we are available next week during the following times:

5/17, Wednesday: 1- 3pm
5/18, Thursday: 8-10:00am or 10:30-11:30am
5/19, Friday, all day except 9-10am and 1-2pm.

Let us know and I will set up a call. Thanks.

Peter H. Rude, PE (*CA, OR, HI, CO*) /Jacobs/ Civil Engineer & Principal Project Manager
1-530-229-3396 (office)/ 1-530-917-4164 (mobile)/ 2525 Airpark Drive, Redding, CA 96001
pete.rude@jacobs.com / www.jacobs.com

From: Brian Rahman <brian@zglobal.biz>
Sent: Wednesday, May 10, 2023 10:45 AM
To: Rude, Pete <Pete.Rude@jacobs.com>
Subject: [EXTERNAL] CAISO Strategy

Hi Pete,
I am preparing for our discussion on CAISO and would like to suggest we have a call later next week. The CAISO is proposing some near-term changes that will go to the Board for approval next week. The second phase is still in stakeholder process and scheduled to go to board in December. Much of the second phase is still very rough and stakeholders have lot of conflicting comments. I will draft a short explanation of the expected changes.
Thanks,
Brian

Brian Rahman PE
Vice President, Engineering and Markets
Northern CA Office: 604 Sutter Street, Suite 250, Folsom, CA 95630
Phone:(916) 985-9461 Cell: (916) 221-0532
Southern CA Office: 750 W. Main Street, El Centro, CA 92243
Phone:(760) 355-0288 | email: Brian@zglobal.biz
http://www.zglobal.biz

NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

This email has been scanned for spam and viruses by Proofpoint Essentials. Click here to report this email as spam.

CAISO Interconnection Process Enhancements – ZGlobal Overview

Link to CAISO Initiative for Interconnection Process Enhancements 2023:

https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/Interconnection-process-enhancements-2023

Track 1 - Will go to CAISO Board for Approval on May 17. This is simply an internal approval before submission to FERC.

Track 1 is primarily some small tariff changes to address Cluster 14 timeline and Cluster 15 procedural changes. Below is based on the "revised draft tariff language" posed on 5/8/23.

For Cluster 14:

- Phase II study due date extended to January 31, 2024, was previously November 24, 2023.
- Publish TPD results no later than May 31, 2024, was previously March 23, 2024.
- Second IFS due no later than July 1, 2024, was previously May 4, 2024.

The primary objective of C14 changes is to provide CAISO more time to complete C14 before C15.

For Cluster 15:

All existing tariff provisions will apply with the following exceptions:

- All Cluster 15 requests will be validated by September 26, 2024. Projects with deficiencies after this date will be rejected and not included in the study.
- Allowed to make modifications to the IR between May 1 – September 26, 2024. Can not increase net to grid but can change technology and add storage. Does not impact ability to make modifications later in the process via MMA.
- Can withdrawal prior to April 1, 2024, and receive full refund of Study deposit (less anything incurred by CAISO/PG&E) and site exclusivity deposit.
- Existing tariff provisions remain for withdrawal 30 days after scoping meeting. i.e. forfeit 50% of study deposit and 50% of the site exclusivity deposit.
- CAISO includes a section basically stating that for Cluster 15, the tariff timelines and dates do not apply.
- No Independent Study Process (ISP) requests will be accepted until Cluster 15 Phase I is completed.

Track 2 – Straw Proposal to be posted on May 25th with stakeholder process to follow. Estimated to go to Board on December 14, 2023

Track 2 of the proposed changes are still being worked on, but are proposed to include:

- Priority to projects proposed in areas with available capacity or where capacity upgrades are planned.
- Priority to projects in areas aligned with CPUC portfolios.
- Limit the number of projects based on planned capacity in a certain area.

- Require projects to have PPA or be short-listed.
- Only open request window when warranted.

Track 2 elements above are based on the March 6th "Issue Paper and Straw Proposal". CAISO has received comments from multiple developers as well as Utilities and trade organizations. CAISO will be evaluating these and should address in the Track 2 Straw proposal due on May 25th.

Real Estate Team
Weekly Check-In – Agenda

Affordable Water, Sustainably Managed

Our Core Values – Safety, Trust and Integrity, Respect for Local Communities, Environmental Stewardship, Shared Responsibility and Shared Benefits, Accountability and Transparency, Proactive Innovation, Diversity and Inclusivity
Our Commitment – To live up to these values in everything we do

Meeting Information:

Date:	May 15, 2023	**Location:**	Virtual – Microsoft Teams
Start Time:	2:00 p.m.	**Finish Time:**	3:00 p.m.
Purpose:	Real Estate Team – Weekly Check-In		

Meeting Participants:

Kevin Spesert	Jeff Mathews	Trishna Patel
Conner McDonald	Caitlin Nielsen	

Agenda:

Discussion Topic	Topic Leader
1. Overview and Opening Comments	Kevin
2. Field Work – Previous Week's Recap a. Sites Canyon - Banyan - Borings and Seismic Refraction b. Funks - Backfill TRR-B-023	Conner / All
3. Field Work – Current and Upcoming a. Geotech - Funks - North-Central Borings - TBD b. Geotech - Sites Canyon - Banyan Roadway - May 15-19 - Borings c. Cultural - Sites Canyon - Banyan - May 16 - Community Awareness d. Requested a) Biological / Wildlife / Botanical - May 23-25 b) Aquatics - May 24 e. Contemplated - Red Stick - Geotech a) Per Direction of Real Estate - End of May / Beginning of June	Conner / All
4. Landowner Engagement – Recap, Current Engagement, Look-Ahead a. Banyan - regular updates regarding field work b. Owens - Available for meeting in early June; Insurance c. Jensen - Appraisal Site Visit - May 10 d. Holthouse - setting up phone call e. Red Stick - Geotech has confirmed Locations to be attempted f. Wells - Cemetery g. LaGrande h. Kellogg	Conner / Jeff / All

i. Cody Arnold	
5. Local Coordination – Recap, Current Engagement, Look-Ahead a. USBR / TCCA a) North Shoreline Road - accessible in about a week b) Stream Gauge? c) Dunnigan Borings? b. GCID Coordination – Geotech Work Package 2	Conner / Jeff / All
6. Right-of-Way Manual a. Draft For Review	Conner / Jeff / Caitlin / Trishna
7. Project Team – Interdisciplinary Coordination a. Cultural Team - Cemetery b. Environmental Team - Banyan - Request - May 23-25 c. Environmental Team - Aquatic Studies - Request - May 24 d. Geotech - Test Pit - In Town - For Borrow Information e. Engineering - Roadways - Glenn County Meeting f. Engineering - Roadways - Colusa County Meeting - May 31 - 10am g. Environmental Mitigation - Planning Meeting for Open House - May 16; Dawn Edwards Tour Request h. Geotech - Remnant Features i. Geotech - Banyan Laydown Area j. Land Survey - Scope For Boundary Survey a) Glenn County - Roads 68 / 69 / D b) Parcel Boundaries / Existing Right-of-Way Limits / Existing Easements c) Research and Document Review, then Field Surveys d) Deliverable: Boundary Map with Plotted Encumbrances e) Preliminary Work for Appraisal Mapping, Legals and Plats k. Lower Colusa Basin Drain - Principles of Use	Conner / All
8. Administrative a. Appraisals In Process - Progress Billing - Revised Invoices Pending b. California Rangeland Trust - May 19/20	Conner
9. Open Discussion	All
10. Action-Item Recap	Caitlin
11. Next Steps	Kevin / Conner / All
12. Closing Thoughts	Kevin


Google Earth

From: Quin La Capra [qlacapra@katzandassociates.com]
Sent: 5/15/2023 2:10:28 PM
To: Spranza, John [john.spranza@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Emily Fan Michaelson [emichaelson@katzandassociates.com]
CC: Sara M. Katz [skatz@katzandassociates.com]
Subject: RE: Sites Fisheries EIR/EIS Meeting Notes & Follow up
Attachments: Fisheries Fact Sheet Outline.docx

Hi all,
I wanted to circle back on this outline for the fisheries fact sheet. We're hoping you can review and provide edits, as needed, as well as provide some of the information needed to supplement the outline.

Please let us know if you have any questions!

Best,
Quin

K&A
KATZ & ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Quin La Capra
Sent: Thursday, March 23, 2023 11:48 AM
To: Spranza, John <John.Spranza@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: RE: Sites Fisheries EIR/EIS Meeting Notes & Follow up

Hi all,
I wanted to follow up on this outline and see if anyone had edits and if we could get more information for the portions noted in the comments. If you could provide feedback or additional information by **Tuesday the 28th**, that would help keep us on schedule.

Please let me know if you have any questions!

Thank you,
Quin

K&A
KATZ & ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Quin La Capra
Sent: Thursday, March 9, 2023 1:35 PM
To: Spranza, John <John.Spranza@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: RE: Sites Fisheries EIR/EIS Meeting Notes & Follow up

Hi everyone,
Attached is the general outline we put together for the fisheries fact sheet. We identified areas where we need more information or visuals in the comments.

Please feel free to make any changes you see fit. Additionally, if it would be easier to discuss the comments over a short call, I would be happy to set that up.

Thanks so much,
Quin

K&A
KATZ & ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Saturday, February 18, 2023 9:33 AM
To: Quin La Capra <qlacapra@katzandassociates.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: RE: Sites Fisheries EIR/EIS Meeting Notes & Follow up

Thanks for sending this over. Here are photos and Pacific salmon factoids.

- Salmon are "anadromous." That means they live in both freshwater and salt water over the source of their lives
- Salmon can migrate more than 1,800 miles upstream through freshwater to spawn
- Salmon return to their birth stream to spawn after spending several years at sea
- Once adult salmon return to freshwater, they do not eat. This means that adults can go six months without food prior to spawning.
- There are 7 species of pacific salmon
- Pink salmon are the smallest and most abundant species and chinook salmon are the largest and can weigh over 100 lbs.
- A female salmon can carry up to 10,000 eggs
- Pacific salmon are also semelparous, meaning that the most adults die after reproduction and become nutrients and food in the freshwater systems their young will hatch in
- Pacific salmon are named *Oncorhynchus*. The name is derived from the greek onkos ("hook") and rynchos ("nose")

John Spranza

D 916.679.8858 M 818.640.2487

From: Quin La Capra <qlacapra@katzandassociates.com>
Sent: Friday, February 17, 2023 10:45 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>;

Spranza, John <John.Spranza@hdrinc.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: Sites Fisheries EIR/EIS Meeting Notes & Follow up

Hi everyone,
Attached are the notes from Tuesday's EIR/EIS topic meeting on fisheries. Please note the action items at the end of the document and please let me know if any edits are needed.

Best,
Quin

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

Sites Reservoir Project
EIR/EIS Fact Sheet – Fisheries

Background/Introduction

- Changes to the project including a design that is more protective of fisheries/has less impacts to fisheries
- Following the most current science to be protective of fisheries
- Commitment to be protective of fisheries

Commented [QC1]: Can you suggest specific changes we can mention that were most beneficial to fisheries?

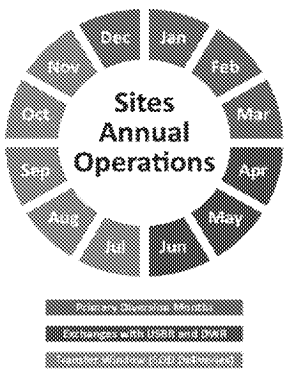
Mitigation Measures

- New benchmark on river flow protections; scientifically-based measure for Sacramento River flows
- Diversion criteria changes
  - Pulse protection number is lower
  - Reduced overall diversion capability with removal of Delvan Pipeline
    - Previously 5,000 cubic feet per second most of year; now 10,700 cubic feet per second during all but one month (September)
    - The Authority is currently developing an operating agreement with DWR and Reclamation for the CVP and SWP to operate in coordination with Sites Reservoir.
    - Water may be released from Sites Reservoir for export through the Delta during the transfer window (July to November)
      - [Graphic]:

Commented [QC2]: Can you provide an explanation or further clarity on this point?

Commented [QC3]: Can you verify the numbers and changes?

Commented [QC4]: This is the only mention of Reclamation and DWR in Master Response. Can you verify the narrative for this exchange period?



[Sidebar]: Hydrograph and explanation paragraph

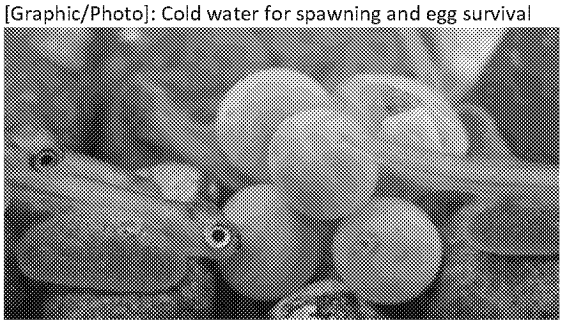
- [Graphic]: Simplified hydrograph that shows availability of water even in dry years
- Diversion criteria focuses on current conditions in the Sac River that fish are experiencing—not the water year

Commented [QC5]: Can you provide this graphic?

Value-Added Benefits

- Stores water specifically to support fish and their habitat during drought periods
- Helps preserve cold-water pool in Shasta Lake to support salmon development, spawning, and rearing
    - [Graphic/Diagram]: Different temperatures of water and how we swap water with Shasta

      Commented [QC6]: Can you provide this graphic?
    - [Graphic/Photo]: Cold water for spawning and egg survival



- Improved conditions for delta smelt – estimated increases to population with Prop 1 funds

  Commented [QC7]: Can you provide further clarity on this?

[Footer]: Visit sitesproject.org/environmental-review to review the Final EIR/EIS.

From: Quin La Capra [qlacapra@katzandassociates.com]
Sent: 5/15/2023 2:13:45 PM
To: Clabaugh, Anna [Anna.Clabaugh@hdrinc.com]; Spranza, John [john.spranza@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Emily Fan Michaelson [emichaelson@katzandassociates.com]; Sara M. Katz [skatz@katzandassociates.com]
Subject: RE: Water Quality EIR/EIS Meeting Notes
Attachments: Water Quality Fact Sheet Outline.docx

Hi all,
Attached is our preliminary outline of the water quality fact sheet. We've noted where we could benefit from additional explanations or details.

Please let us know if you have any feedback or questions!

Thank you,
Quin

K&A
KATZ & ASSOCIATES
Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Clabaugh, Anna <Anna.Clabaugh@hdrinc.com>
Sent: Tuesday, March 21, 2023 12:02 PM
To: Spranza, John <John.Spranza@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Quin La Capra <qlacapra@katzandassociates.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>; Sara M. Katz <skatz@katzandassociates.com>
Subject: RE: Water Quality EIR/EIS Meeting Notes

Hi All,

I've updated the visualizations using format 2 and the revision requests from Ali (see attached). Happy to make edits as needed.

Best,

Anna Clabaugh
D (916) 679-8717

hdrinc.com/follow-us

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Thursday, March 2, 2023 3:46 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Quin La Capra <qlacapra@katzandassociates.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>; Sara M. Katz <skatz@katzandassociates.com>; Clabaugh, Anna <Anna.Clabaugh@hdrinc.com>
Subject: RE: Water Quality EIR/EIS Meeting Notes

Sounds good, we will use format 2 and revise for general consumption.

Thanks.

John Spranza

D 916.679.8858 M 818.640.2487

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, March 2, 2023 3:33 PM
To: Quin La Capra <glacapra@katzandassociates.com>; Spranza, John <john.spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>; Sara M. Katz <skatz@katzandassociates.com>; Clabaugh, Anna <Anna.Clabaugh@hdrinc.com>
Subject: RE: Water Quality EIR/EIS Meeting Notes

Thanks John for moving on this. There's too much in these graphics. I like the overall format of the second one the best as we want the reader to be able to quickly compare across the columns and go 'oh, Sites is less than the standard'.

I am thinking of 2 graphics –

1. Sacramento River – show median concentrations in Sacramento River, MEDIAN concentration with Sites discharge, Max concentration with Sites discharge then the freshwater standard for aquatic life protection. On this one show for each of the four constituents. Lets color them all different variations of blue. No yellow or orange (these are danger colors). And lets put a like 20% or so transparency photo of the River behind the graphic. So its clear where talking about the river. We need to show median to be apples to apples, we can show max or ditch it for just median. I don't really care, but we need median.

2. Sites Reservoir – similar graphic but show median sites reservoir concentration and then freshwater standard for aquatic life protection with a Sites Reservoir transparent background.

The Colusa Basin Drain stuff and the 95% is too confusing to the general layperson. If we want to show max for the Sac River, I am good with that as some will argue that the median doesn't show the whole story.

We can work on the graphic and then apply the background. But I think the background would help orient the reader and add something visually.

Thanks again for keeping these moving.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Quin La Capra <qlacapra@katzandassociates.com>
Sent: Thursday, March 2, 2023 3:12 PM
To: Spranza, John <john.spranza@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>; Clabaugh, Anna <Anna.Clabaugh@hdrinc.com>
Subject: RE: Water Quality EIR/EIS Meeting Notes

Thank you, John! We will let you know if we have any questions or if we need anything else!

Best,
Quin

K&A ASSOCIATES

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Thursday, March 2, 2023 10:10 AM
To: Quin La Capra <qlacapra@katzandassociates.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>; Clabaugh, Anna <Anna.Clabaugh@hdrinc.com>
Subject: RE: Water Quality EIR/EIS Meeting Notes

Hi All,
We had an action item to come up with visuals for the water variables, attached for your considerations are three options that we worked up.

John Spranza

D 916.679.8858 M 818.640.2487

From: Quin La Capra <qlacapra@katzandassociates.com>
Sent: Monday, February 27, 2023 11:53 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Spranza, John <John.Spranza@hdrinc.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: Water Quality EIR/EIS Meeting Notes

Hi everyone,
I hope you all had a great weekend! Attached are the notes from last week's EIR/EIS topic meeting on water quality. Please note the action item at the end of the document and let me know if any edits are needed.

Best,
Quin

Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

Sites Reservoir Project
EIR/EIS Fact Sheet – Water Quality

Background/Introduction

- Modeling was expanded to include additional data from Sacramento River winter flows
- Modeling is now more transparent and more easily understandable for the public
- Continued commitment to water quality

Navigating the Unknown

- Taken a conservative approach in this analysis because of the uncertainty
  - Adjusted to be more responsive to increases in river and percent tributary flow
  - Allow estimated concentrations to exceed the maximum measured values
  - Assume no settling of suspended sediment in the conveyance system on the way to Sites Reservoir
- Modeled to the greatest extent we can for a facility that does not exist
- Identified mitigation and monitoring measures

Improved Modeling of Discharge Effects

- *Reservoir and River Release Temperatures*
  - Temperatures in Sac River during the time of year we are discharging are usually high and the water from Sites will be a cooler temperature
  - Volume of Sites water is much smaller compared to River volume
  - [Graphic]: Comparison of temperatures with Sites vs. without Sites
- *Colusa Basin Drain Water*
  - Pipeline to convey water back to the Sacramento River between the Tehama-Colusa Canal and the Colusa Basin Drain
  - Uses existing water conveyance facilities
- *Mercury and Methylmercury*
  - Concentrations will be similar to other reservoirs
  - Expected to be well below CA standards (CA Toxics Rule objective for mercury)
- *Algal Bloom Occurrences*
  - Higher temperatures as the result of climate change will contribute to algal blooms in the Delta

Mitigation and Monitoring Measures

  - [Callout box]: statistics on modeling and analysis

[Callout box]: Releases would meet water quality standards for agricultural uses

- [Graphic: Water quality standards table from John]

Continued Commitment to Water Quality

- Not discharging directly into the Sac River
  - [Graphic/Diagram]: Stats on number of miles of canals, pipelines, and drains before it reaches the river

Commented [QC1]: Can you provide details on how it is more transparent and understandable? What changed?

Commented [QC2]: Can you provide further clarity on how the modeling was more conservative?

Commented [QC3]: Taken from MR4- Page 7

Commented [QC4]: The analysis in Chapter 6 includes mitigation measures for these significant impacts—Mitigation Measures WQ-1.1, WQ-2.1, and WQ-2.2.

Commented [QC5R4]: Can you provide the text for chapter 6?

Commented [QC6]: Can you please provide clarification on where we can find more details on these subtopics? Not all of them were addressed in the Water Quality Master Response.

Commented [QC7]: "The detailed analysis in Chapter 6 determined that a number of water quality impacts would be less than significant, including water temperature"

Commented [QC8R7]: Can you provide the text for chapter 6?

Commented [QC9]: Can you provide this graphic?

Commented [QC10]: Can you provide this data?

Commented [QC11]: Can you provide the updated table or graphic?

Commented [QC12]: Can you provide this graphic or data?

- 60 miles of conveyance before it reaches the River

From: Quin La Capra [qlacapra@katzandassociates.com]
Sent: 5/15/2023 2:20:24 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Emily Fan Michaelson [emichaelson@katzandassociates.com]
CC: Sara M. Katz [skatz@katzandassociates.com]
Subject: RE: Local Community Impacts Meeting Notes
Attachments: Local Community Impacts Fact Sheet Outline.docx

Hi all,
Attached is our preliminary outline of the community impacts fact sheet. We identified areas where we need more information in the comments.

Please let us know if you have any feedback or questions!

Thank you,
Quin

K&A
KATZ&ASSOCIATES
Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

From: Quin La Capra
Sent: Thursday, March 23, 2023 9:26 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Emily Fan Michaelson <emichaelson@katzandassociates.com>
Cc: Sara M. Katz <skatz@katzandassociates.com>
Subject: Local Community Impacts Meeting Notes

Hi everyone,
Attached are the notes from last week's EIR topic meeting on local impacts. Please let me know if any edits are needed.

Best,
Quin

K&A
KATZ&ASSOCIATES
Quin La Capra
Senior Account Executive
San Diego · Los Angeles · San Francisco

Sites Reservoir Project
EIR Fact Sheet – Local Community Impacts

Background/Introduction

- The Sites Project Authority is going to be part of this community for the next hundred years with this investment in Sites Reservoir.
    - Authority is a local agency with staff and Board members from Glen and Colusa counties as well as nearby regions; it is part of the fabric of this community
        - Fritz Durst, Reclamation District 108, Chair
        - Jeff Sutton, Tehama-Colusa Canal Authority, Vice Chair
        - Gray Allen, Placer County Water Agency/City of Roseville
        - Gary Evans, Colusa County Supervisor
        - Joe Marsh, Colusa County Water District
        - Thomas Arnold, Glenn County Supervisor
        - Logan Dennis, Glenn-Colusa Irrigation District
        - Kerry Schmitz, City of Sacramento/Sacramento County Water Agency
        - Doug Parker, Westside Water District
        - Don Bader, U.S. Bureau of Reclamation – Cost Share Partner (non-voting)
        - Rob Cooke, California Department of Water Resources – Ex-Officio Member (non-voting)
    - There is a vested interest for the Authority to make the community better
    - The long-term commitment is reflected in our values and strategic plan

Community Benefits

- Sites Reservoir supports the Sacramento Valley way of life. It's a one-of-a-kind region where family farms, small towns, and the environment work in harmony.
- Sites Reservoir will provide a more sustainable water supply for our farms, factories, and the people who depend on those jobs.
    - [Quotes from locals]
        - Local farmer
        - Local supplier or distributer
        - County representative
- Sites Reservoir also strengthens our local agricultural economy, which helps to preserve and diversify the region's economic engine. Regional economic benefits include:
    - Added tax revenue
    - Added small businesses revenue
    - Job creation from efforts to hire locally
    - Internships and training opportunities for youth
    - Added revenue from the purchase and acquisition of local materials
- Construction of Sites Reservoir could also lead to community improvements such as new roadways and bridges and long-term infrastructure development, such as broadband or transportation improvements.

Community Impacts

Commented [QC1]: Can you recommend people who could provide quotes?

- The Sites Project Authority is striving to be a good neighbor during both construction and operation of Sites Reservoir.
- We've ensured that there will not be construction or commuting-related vehicles on Oak Street between Old Highway 99 and Sutton Road. This will be enforced through incentives and penalties included in our construction contracts.
- Potential Construction Impacts:
    - Approximately 1,700 workers on site per day at peak construction
    - Construction housing sites
- Potential Operational Impacts:
    - Increased traffic on Oak Street
        - Mitigated by voluntary improvements like pedestrian crossings and stop signs that would be made during the construction phase
    - Increased demand for emergency response services like police or security resources from added facilities and people in the area
        - Mitigated by...
- We will continue to work with local community organizations to come up with mitigatable solutions to these impacts.

Commented [QC2]: Is there anything to add here?

Commented [QC3]: Have there been talks with emergency services on how this can be mitigated?

Visit sitesproject.org/environmental-review to review the full EIR/EIS.

From: Alicia Forsythe [aforsythe@sitesproject.org]
Sent: 5/15/2023 3:32:14 PM
To: Joe Trapasso [jtrapasso@sitesproject.org]
CC: Kevin Spesert [kspesert@sitesproject.org]; Lori Jones [LJones@BrwnCald.com]
Subject: Re: Legal CICC Agreement Comments in Going Forward

Hi Joe - Thanks for all of this feedback. I will reach out to the Colusa Tribe and just make sure they are comfortable using the agreement also. Once I hear from them, we can get all the pieces you note below in order.

I have not heard from Paskenta. I have a call with them on Thursday, so will check in then.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Joe Trapasso <jtrapasso@sitesproject.org>
Sent: Monday, May 15, 2023 8:45 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Kevin Spesert <kspesert@sitesproject.org>; Lori Jones <LJones@BrwnCald.com>
Subject: Legal CICC Agreement Comments in Going Forward

Ali,

Alan reviewed the CICC agreement and had the following comments.

- The CICC agreement contains none of the Authority's standard terms. Acceptability is a business decision. We made a business decision to use their agreement without the Authority's standard terms for the existing agreement.
- He is comfortable using the existing form of agreement and make slight modifications in an addendum, letter agreement, or similar instrument, especially to get the work started soon.
- Alan is "... comfortable with that approach given our prior review and approval of the existing form and given what I assume was an acceptable performance under the agreement the first time."

I'll work with Lori to decide on a document to continue using the existing agreement. We will need a "Section J. The Description of Work" from you. Also, they will likely want to include updated billing rates and potential labor categories.

For Work Plan budgeting purposes, I'd like the agreement to include an A3, FY 23, and 24 budgets. So, need those budget estimates from you. We will need to review the overall A3 budget for Tribe monitoring (CICC, Yocha Dehe, Paskenta) and determine where the funds will come from. Finally, I'd like to have the agreement include an end date that can be amended as needed.

Are you planning to work with CICC on the agreement extension?

What is the status of the Paskenta Tribe agreement?

Thanks,

Joe

Joe Trapasso
Program Operations Manager
Sites Reservoir Project
Phone: 530.387.1102
Email: jtrapasso@sitesproject.org
Web: www.SitesProject.org
P.O. Box 517
122 Old Highway 99 West
Maxwell, CA 95955

From: Alicia Forsythe [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A6CDF06A7E904B65BAA21702A82AD329-AFORSYTHE]
Sent: 5/15/2023 4:14:18 PM
To: Ben King [bking@pacgoldag.com]
Subject: RE: Thank You and Follow Up

Ben – Thank you for sending this onto me. And apologies for the delay in getting back to you. It's been a really crazy few weeks.

Thank you also for spending time with me. I appreciate understanding your lands better and understanding water in the area. Its helps me see how all of these things fit together – along with getting a better sense of what Sites can do to play a role in solutions to some of the regional challenges. And I love hearing about your family history. So much of that is interwoven with the land – and a deep connection to land is something that is becoming more and more unusual these days. I appreciate and value your time.

I haven't had a chance to review the materials that you sent over, but will do that soon.

I also wanted to send you contact information for the mitigation firm I mentioned – Its Natural Resources Group, Inc. Their website is here: Natural Resources Group, Inc. - The Company You've Been Looking For (natural-resources-group.com). They offer a number of services that seem to tie in nicely with your goals and thoughts of the future. Let me know if you'd like me to send an email to Skip Moss, the individual that I know, connecting you two. Skip and I both went to UC Santa Barbara and worked for a consulting firm there in the Santa Barbara area together before both heading out our separate ways. I find him to be really practical and honest.

Also, we heard from the State Water Board that they have determined our application "substantially complete" and intend to notice it later this month or early June. I know you have expressed an interest in the past to protest. One the Board notices the application, protests have to be submitted in the required period – a minimum of 60 days. We will run the notice in newspapers as required by the Board and send notices to certain water rights holders as required by the Board. We are waiting on noticing instructions from the Board, so I don't know how extensive this effort will be or if you are on the list – I suspect you would be. But just in case – you can also send an email to Jelena Hartman with the State Water Board at jelena.hartman@waterboards.ca.gov to make sure you are on the mailing list. I will also work to remember to send the notice onto you once it comes out.

Let me do some work with our team in thinking about the future and some of the items we discussed and I'll circle back in a few weeks.

Thank you again for your time. I really appreciate it.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Ben King <bking@pacgoldag.com>
Sent: Monday, May 8, 2023 8:19 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>

Cc: Ben King <bking@pacgoldag.com>
Subject: Thank You and Follow Up

Good Morning Ali,

First of all, I wanted to thank you for making the trip to College City and spending a couple of hours with us last Wednesday. I really appreciated the opportunity to discuss my family's history and the unique riparian and wetland history of the land my great grandparents settled on when they came to California in 1857.

I am also forwarding you the Colusa National Wildlife Management Plan that I forwarded to the State Water Resources Control Board for public comment on May 2nd. I gave public comment at the May 2nd hearing at the 9:30 am Agenda time slot. As I mentioned I recently came across this document as part of my engagement in the Colusa County LAFCO process regarding a Public Hearing on the Sphere of Influence for GCID.

Best Regards,

Ben

From: Ben King
Sent: Friday, April 28, 2023 10:56 AM
To: Courtney.Tyler@waterboards.ca.gov
Cc: Ben King (bking@pacgoldag.com) <bking@pacgoldag.com>
Subject: Public Comment for May 2, 2023 SWRCB Public Forum/Workshop

Good Morning Ms. Tyler,

I wanted to let you know that I would like the opportunity to make a public comment at the May 2nd SWRCB Public Forum/Workshop on May 2nd if possible.

I am a Member of the Joint Technical Advisory Committee for the Colusa Groundwater Authority which a focus on water quality issues and Public Trust concerns for the historical Colusa Trough. Recently I reviewed the Colusa National Refuge Water Management Plan completed in 2011 and the Plan states that the USFW does not believe that the groundwater under the Refuge is usable because the Bureau of Reclamation drilled test wells and found mercury contamination at the Colusa National Refuge and Mercury and Chromium groundwater contamination at the Sacramento National Refuge. I was not aware of this issue before I read the report and perhaps the SWRCB is not aware of this issue either. Obviously the National Refuges are located in the historic wetlands of the Colusa Trough which important environmental sensitivities and the Colusa National Refuge is located within a couple miles of the north western portion of the City of Colusa.

Here is the excerpt from Page 9 of the Colusa National Wildlife Management Plan as attached:

"5. Groundwater

Describe groundwater availability, quality and potential for use

USBR drilled four test wells on nearby Sacramento NWR in the early 1990s. **Chemical analysis of these groundwater wells at Sacramento NWR and at Colusa NWR detected mercury levels above the EPA chronic criteria (both Sacramento NWR and Colusa NWR) and levels of the hexavalent form of chromium above the EPA chronic and acute criteria (Sacramento NWR). Due to these test results it is believed that the use of this water could have a detrimental effect on the aquatic and wildlife resources that utilize the area.** In addition, limited quantity (hundreds of gallons instead of thousands) was found for the test wells at Sacramento NWR. The groundwater basin under the refuge is considered to be of very limited usefulness."

Best Regards,

Ben King

File Provided Natively

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 5/16/2023 9:24:34 AM
To: Janis Offermann [jaoffermann@montrose-env.com]
CC: Risse, Danielle [Danielle.Risse@hdrinc.com]; Wolf, Barbara [Barbara.Wolf@icf.com]; Crawford, Karen [Karen.Crawford@icf.com]; Lassell, Susan [Susan.Lassell@icf.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Harris, Melissa [Melissa.Harris@icf.com]
Subject: Re: [EXTERNAL] FW: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Yes Janis, please update where you have new info. We will also be making more revisions after our meeting tomorrow regarding the AB 52 process.

On May 16, 2023, at 9:21 AM, Janis Offermann <jaoffermann@montrose-env.com> wrote:

Should we be updating these documents, as well? I notice that Paskenta's request to consult with the USBR under Section 106 is not included.
thanks

From: Risse, Danielle <Danielle.Risse@hdrinc.com>
Sent: Tuesday, May 16, 2023 8:45 AM
To: Janis Offermann <jaoffermann@montrose-env.com>; Wolf, Barbara <Barbara.Wolf@icf.com>; Crawford, Karen <Karen.Crawford@icf.com>; Lassell, Susan <susan.lassell@icf.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Harris, Melissa <Melissa.Harris@icf.com>
Subject: Re: [EXTERNAL] FW: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Yes, that's correct.

Get Outlook for iOS

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Tuesday, May 16, 2023 6:09:06 AM
To: Risse, Danielle <Danielle.Risse@hdrinc.com>; Wolf, Barbara <Barbara.Wolf@icf.com>; Crawford, Karen <Karen.Crawford@icf.com>; Lassell, Susan <susan.lassell@icf.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Harris, Melissa <Melissa.Harris@icf.com>
Subject: RE: [EXTERNAL] FW: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Thanks for the status update, Danielle. Just to confirm, are we doing our reviews simultaneously?
Thanks
janis

From: Risse, Danielle <Danielle.Risse@hdrinc.com>
Sent: Monday, May 15, 2023 10:34 PM
To: Wolf, Barbara <Barbara.Wolf@icf.com>; Crawford, Karen <Karen.Crawford@icf.com>; Lassell, Susan <susan.lassell@icf.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Janis Offermann <jaoffermann@montrose-env.com>

Cc: Harris, Melissa <Melissa.Harris@icf.com>
Subject: [EXTERNAL] FW: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Hi all,
See below for the status of the final review/revisions of the four cultural resources EIR/EIS documents we are working on:

1. EIR/EIS Chapter 22. Cultural Resources – team is still working on this chapter and will be meeting on Thursday (5/18) to discuss final revisions. We are hoping to complete edits by Friday, 5/19. This will put us a little behind our deadline of 5/19, as Ali, Laurie, and Janis will not be able to start their final review until then.
2. EIR/EIS Appendix 22A, Cultural Resources – **Ready for Ali, Janis, Laurie, and Susan to review.**
3. EIR/EIS Chapter 23. Tribal Cultural Resources - **Ready for Ali, Janis, Laurie, and Susan to review**; does have a couple follow-up items to address pending final review and pending how some items are addressed in Chapter 22.
4. Master Response 7, Tribal Coordination, Consultation, and Engagement – **Ready for Ali, Janis, Laurie, and Susan to review**; only one word change suggested (changing "affects" to "effects").

As a reminder, our working documents are located here: Environmental Planning Team - EIR_EIS_2023 Final Review - All Documents (sharepoint.com).

Thanks, Danielle

Danielle Risse, M.A. (she/her)
Office 916-679-8796 **Mobile** 707-372-5007

hdrinc.com/follow-us

From: Risse, Danielle
Sent: Tuesday, May 2, 2023 4:39 PM
To: Wolf, Barbara <Barbara.Wolf@icf.com>; Crawford, Karen <Karen.Crawford@icf.com>
Cc: Melissa.Harris@icf.com; Janis Offermann <jaoffermann@montrose-env.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: Sites - EIR/EIS 2023 Final Review of Cultural Chapters

Hi all,
I've taken Ali off of this email chain to lessen her Inbox backup 😊.

I believe everyone on this email now has access to our cultural confidential folder where the working EIS/EIR documents are located that we will be reviewing and revising over the next 3 weeks or so. These subject documents are listed below and located here on sharepoint: Environmental Planning Team - EIR_EIS_2023 Final Review - All Documents (sharepoint.com)

First up is Karen's review of the documents. Karen you have until COB Friday, May 5th to complete your review, after which Barbara will work on revisions. Karen, please respond to this group when you have completed your review. The documents to be reviewed are listed in the table below. All edits/comments should be made in track changes on the sharepoint versions. If you need to take any of these documents off of sharepoint to work on for any reason, please let this team know so we do not end up with version control issues.

Document/Chapter	Task	Personnel/Schedule
EIR/EIS Chapter 22. Cultural Resources	Review and revise	1. Karen Crawford, ICF Consultant Team – completes review COB Friday, May 5th

Document/Chapter	Task	Personnel/Schedule
EIR/EIS Appendix 22A, Cultural Resources	Review, but only revise introductory paragraph that clarifies this appendix is a previous document that has relevant data, but may not present that data following modern standards	2. Barbara Wolf, ICF – completes revisions following Karen's review by COB Friday, May 12th 3. Karen Crawford – completes back check by COB Wednesday, May 17th 4. Susan Lassell (ICF), Melissa Harris (ICF), Janis Offermann, Ali Forsythe, and Laurie Warner Herson – complete review by COB Friday, May 19th 5. Janis Offermann and Susan Lassell (backup) – complete minor revisions and/or responds to comments, if needed, COB Tuesday, May 23
EIR/EIS Chapter 23. Tribal Cultural Resources	Review and revise	
Master Response 7, Tribal Coordination, Consultation, and Engagement	Review and revise	

As a reminder, the review/revisions should focus on the following:

1. Remove racist/colonial/insensitive language and framework (don't use prehistoric or precontact)
2. Be more sensitive to place, time, and resources and how these are viewed by tribes

One question for Laurie and Melissa. I see we only have a pdf for Appendix 22A. I realize this is the document that we will be reviewing and only updating the introductory paragraph, but can we go ahead and add a Word version of the introductory paragraph that we can revise to our working folder? I see a Word version of this paragraph is located in the Public DEIS/DEIR folders on sharepoint here: Environmental Planning Team - RDEIR-SDEIS - App22A - Cultural Resources - All Documents (sharepoint.com).

Thanks, Danielle

Danielle Risse, M.A.
Office 916-679-8796 **Mobile** 707-372-5007

hdrinc.com/follow-us

CONFIDENTIALITY NOTICE: The contents of this email message and any attachments are intended solely for the addressee(s) and may contain confidential, proprietary and/or privileged information and may be legally protected from disclosure. If you are not the intended recipient of this message or their agent, or if this message has been addressed to you in error, please immediately alert the sender by reply email and then delete this message and any attachments and the reply from your system. If you are not the intended recipient, you are hereby notified that any disclosure, use, dissemination, copying, or storage of this message or its attachments is strictly prohibited.

From: Kevin Spesert [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DEF2E3FB8FBE4310BB65B7A20F658C0F-KSPESERT000]
Sent: 5/16/2023 10:42:11 AM
To: Vicki Doll [vicki@chabinconcepts.com]
CC: Greg Plucker [gplucker@countyofcolusa.com]; Jerry Brown [jbrown@sitesproject.org]
Subject: Sites Project write-up for the CEDS
Attachments: 20230512_Sites Project Description for Colusa County CEDS Process.docx

Hi Vicki…

Attached is a write-up for the Sites Project for the CEDS that we said we would send over when we talked a couple of weeks ago.

Look forward to meeting you at our Local Community Working Group meeting this Thursday in Maxwell…I have included the slides that you sent over into the master slide deck…thanks again.

Give me a call if you have any questions.

Thanks!

Kevin

Kevin Spesert
External Affairs Manager
Sites Project Authority
Phone: 530.632.4071
Email: kspesert@sitesproject.org
Web: www.SitesProject.org
P.O. Box 517
122 Old Hwy 99W
Maxwell, CA 95955

GLENN COUNTY
BOARD OF SUPERVISORS

Willows Memorial Hall, 2nd Floor
525 West Sycamore Street, Suite B1
Willows, CA 95988

Scott H. De Moss, County Administrative Officer

Grant Carmon, District 1
Paul Barr, District 2
Tom Arnold, District 3
Keith Corum, District 4
Ken Hahn, District 5

November 16,2021

Mr. Jerry Brown
Executive Director
Sites Project Authority
122 Old Highway 99 West
Maxwell, CA 95955
jbrown@sitesproject.org

Subject: Letter of Intent - Participation in Sites Reservoir Project

Mr. Brown,

The purpose of this letter is to formally notify the Sites Reservoir Project of Glenn County's desire to participate in the planning and environmental review of the Sites Reservoir Project (Project) GLENN COUNTY's participation would correspond to 1,000 acre-feet (AF) of release capacity in the Project. This capacity would allow Glenn County to establish a water supply upon which Glenn County might help reduce the impacts of future droughts on local supply interruptions for drinking water and other necessary water uses.

It is our understanding that payment for Glenn County's share of the costs associated with Project planning and environmental work would be based on a pro-rata share of the majority of release capacity shares. We also understand that Glenn County's participation would be contingent upon payment for a pro-rata share of costs of previous work completed, as well as the current estimated planning and environmental review costs.

Should Glenn County and the Authority enter into a participation agreement, the costs for Glenn County's participation in the planning and environment work would be a total of between $400 and $625 per acre foot for the 2022, 2023, and 2024 cash call covered under the Amendment 3 Work Plan.

This letter of intent does not contain all the material terms of Glenn County's participation and is not intended to, nor does it create, a binding agreement. Neither Glenn County nor the Authority will have any obligation regarding Glenn County's participation until an application and agreement has been executed. Glenn County's execution of such an agreement would be subject to the findings of its due diligence investigations. Glenn County understands that by entering into the participation agreement, it will secure release capacity shares to which Glenn County would have first rights of refusal in any future phase of the Project including construction and Project operations.

Please provide the agreement and any related amendments that would be necessary for Glenn County to participate in the planning and environmental review work for the Project. Dependent on legal counsel review and the findings of Glenn County's due diligence evaluations, the agreement would be presented to Glenn County's Board of Supervisors for consideration.

Glenn County looks forward to evaluating the Project and working with the Sites Project Authority. If you have any questions, please contact me or one of my staff at (530) 934-6400.

Sincerely,

Scott H. De Moss
County Administrative Officer

December 14, 2021

Mr. Jerry Brown
Executive Director
Sites Project Authority
122 Old Highway 99 West
Maxwell, CA 95955
jbrown@sitesproject.org

RE: Letter of Intent – Madera County Groundwater Sustainability Agency - Participation in Sites Reservoir Project

Dear Mr. Brown:

The purpose of this letter is to establish the interest of Madera County Groundwater Sustainability Agency (MCGSA) in participating in the Sites Reservoir Project (Project). The MCGSA's participation hopes to be in 10,000 acre-feet (AF) of release capacity in the Project as well as participating in the planning and environmental review. This amount would assist the MCGSA achieve sustainability by 2040 as described in the subbasins' groundwater sustainability plans.

In order to participate, MCGSA would need to have a successful rate study and Proposition 218 proceeding, which is scheduled currently for spring 2022. In addition, participation would need to be approved by the board of supervisors acting as the board of directors for MCGSA.

It is our understanding that payment for MCGSA's share of the costs associated with Project planning and environmental work would be based on a pro-rata share of a majority of the release shares. We also understand that MCGSA's participation would be contingent upon payment for a pro-rata share of costs of previous work completed, as well as the current estimated planning and environmental review costs under the Site's Reservoir Authority's Amendment 3 Work Plan, which includes estimated environmental and planning work through January 1, 2024.

This letter of intent does not contain all the material terms of MCGSA's participation and is not intended to, nor does it create a binding agreement. Neither MCGSA nor the Sites Reservoir Project Authority will have any obligation regarding MCGSA's participation until a participation agreement has been executed. MCGSA's execution of such an agreement would be subject to the findings of its due diligence investigations. Please provide the agreement and any related amendments that would be necessary for MCGSA to participate in the Sites Project. Dependent on legal counsel review and

the findings of MCGSA's due diligence evaluations, the agreement would be presented to Madera County Board of Supervisors for consideration.

MCGSA looks forward to working with the Sites Project Authority. If you have any questions, please feel free to contact me.

Sincerely,

Stephanie Anagnoson

Stephanie Anagnoson
Director, Water and Natural Resources
Madera County GSA

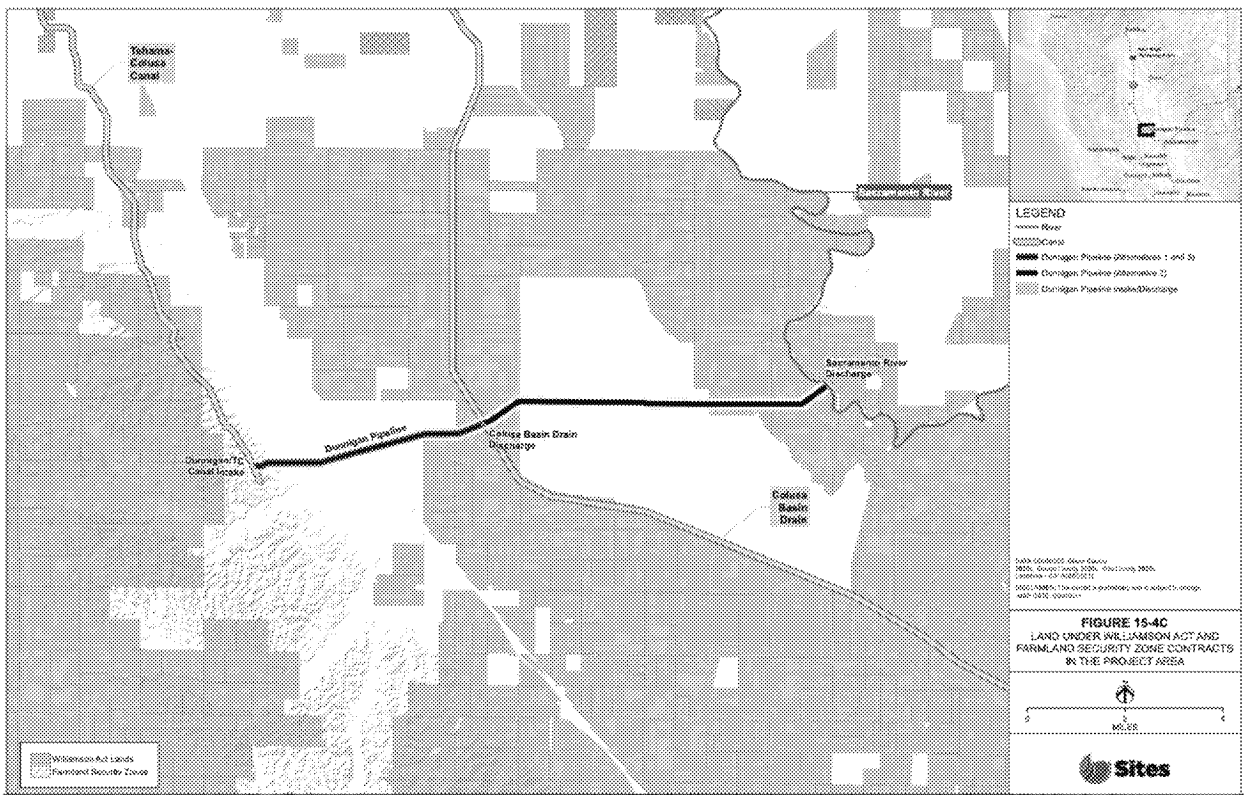
From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/16/2023 1:08:53 PM
To: Kevin Spesert [kspesert@sitesproject.org]
Subject: Williamson Act Lands

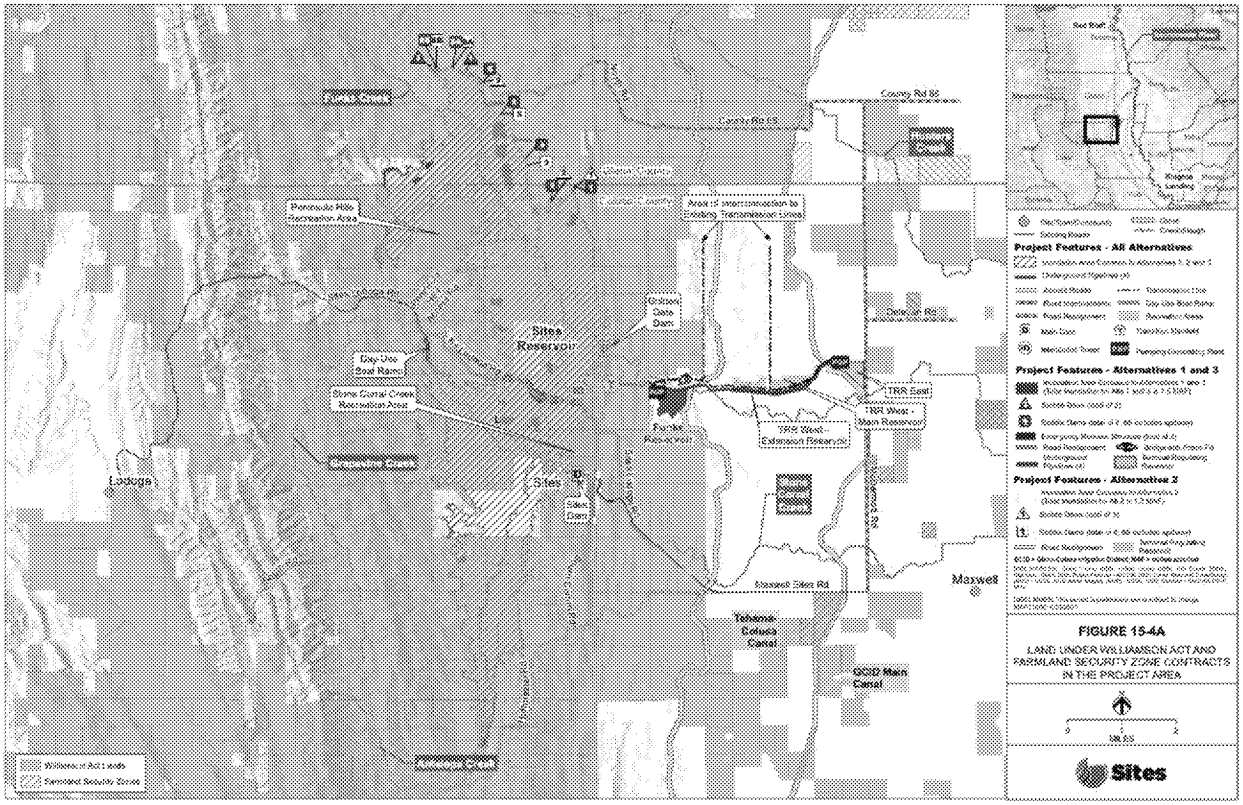
Never mind. The maps and tables are already in the EIR (attached). We have the information in GIS, no need to ask Mike A for it.

Table 15-17. Land under Williamson Act Contract Permanently Disturbed by Project Facilities under Alternatives 1, 2, and 3 (acres)

Project Facilities	Alternatives 1 and 3	Alternative 2
Glenn County		
Saddle Dams and Saddle Dikes	99	58
Roads	202	216
Sites Reservoir and Related Facilities	49	59
Inundation Area	1,657	1,482
Glenn County Total	2,007	1,816
Colusa County		
Main Dams and Saddle Dams	66	30
Roads	831	1,061
Sites Reservoir and Related Facilities	388	408
Recreation Areas	785	722
Inundation Area	9,790	9,299
Colusa County Total	11,861	11,521
Yolo County		
Conveyance to Sacramento River (TC Canal Intake, Dunnigan Pipeline, CBD Outlet, Sacramento Discharge for Alternative 2)	--	3
Yolo County Total	--	3
Total	**13,868**	**13,340**

Source: Glenn County 2020c, Colusa County 2020b, Yolo County 2020b.
Note:
-- = <0.01 acre or none
CBD = Colusa Basin Drain
TC = Tehama-Colusa
Note: Sum of numbers may not equal total shown due to rounding.




Stone Corral Creek
Peninsula Hills Recreation Area
Sites Reservoir
Golden Gate Dam
Day-Use Boat Ramp
Stone Corral Creek Recreation Area
Funks Reservoir
TRR East
TRR West - Main Reservoir
TRR West - Extension Reservoir
Lodoga
Sites
Sites Dam
Maxwell Sites Rd
Maxwell
Tehama-Colusa Canal
GCID Main Canal
Area of Interconnection to Existing Transmission Lines
Project Features - All Alternatives
Project Features - Alternatives 1 and 3
Project Features - Alternative 2
Williamson Act Lands
Farmland Security Zones
FIGURE 15-4A
LAND UNDER WILLIAMSON ACT AND FARMLAND SECURITY ZONE CONTRACTS IN THE PROJECT AREA
Sites

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 5/16/2023 1:19:04 PM
To: Michael, Howard [howard.michael@aecom.com]
CC: Luu, Henry [henry.luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Crossen, Shannon [Shannon.Crossen@icf.com]; Berryman, Ellen (Ellen.Berryman@icf.com) [ellen.berryman@icf.com]; Poopatanapong, Amy [Amy.Poopatanapong@icf.com]
Subject: RE: Info requests for wildlife crossings
Attachments: Draft Sites Reservoir Wildlife Crossing Design Guidance_2023 5 16.docx

Howard,
I am not sure about drainage, that's going to be addressed in the Project's NPDES permit, which is quite a way's off. I'll reach out to some colleagues that work with Caltrans and see if they have any thoughts.

I have also attached the general wildlife crossing design guidelines that we discussed last week. These guidelines are general approximations for locational spacing and size, and I think are sufficient for your use through 30% (I hope). Please let me know if you have any questions on the table.

Thanks,
John

John Spranza

D 916.679.8858 M 818.640.2487

From: Michael, Howard <howard.michael@aecom.com>
Sent: Tuesday, May 16, 2023 12:12 PM
To: Spranza, John <John.Spranza@hdrinc.com>
Cc: Luu, Henry <henry.luu@hdrinc.com>
Subject: RE: Info requests for wildlife crossings

You are welcome John. Btw, I am still waiting on a response regarding draining stormwater directly off of the bridge into the reservoir. I am sure you passed this request along. We are progressing with a flat profile for the road and bridge over the reservoir as this will same a fair amount of money and I cant see any harm in this approach since this is a man-made waterbody that is off stream and not a scenic river of any type. Plus the reservoir is for recreational use too so this all points to me as being ok to drain stormwater directly into. Please let me know as soon as you hear back on this request.

Thanks again John,

Howard Michael, P.E.
AECOM
D +1-916-266-4938
M +1-916-769-6334
howard.michael@aecom.com

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Tuesday, May 16, 2023 11:04 AM

To: Michael, Howard <howard.michael@aecom.com>
Cc: Luu, Henry <henry.luu@hdrinc.com>
Subject: RE: Info requests for wildlife crossings

Thank you Howard, I'll get this over to the ICF team.

John Spranza

D 916.679.8858 M 818.640.2487

From: Michael, Howard <howard.michael@aecom.com>
Sent: Tuesday, May 16, 2023 10:43 AM
To: Spranza, John <John.Spranza@hdrinc.com>
Cc: Luu, Henry <Henry.Luu@hdrinc.com>
Subject: FW: Info requests for wildlife crossings

John, I hope the following addresses the first bullet point further below.

From Ben Aldridge: The table below summarizes our assumed traffic flows. Note that these are approximate as we only used this to estimate the TI, which is relatively insensitive to increases in traffic as the TI number gets higher. At this stage of design, I'd suggest considering that the values shown may vary by 30 percent. Also note that these values are per lane.

	Year 1-5	**Year 6-10**	**10-40 Years**
Description of activities	Dam construction. Primarily, vehicles on the roads will be haul trucks. Use of small trucks will be minimal with occasional large double trailer trucks traveling to each site.	Construction ends and startup begins. More small trucks than haul trucks, although some hauling may occur as construction timelines change and worksites shut down.	Very minimal haul trucks/large trucks traveling the roads. Primarily small trucks using roads.
Southern Access AADTT Values			
2-axle	150 Assumed 50 small trucks per job site for workers/etc.	150 Assumed 50 small trucks per job site.	150 Assumed 50 small trucks per job site
3-axle	15 ^same as reasoning above	30 Assumed 10 vehicles per job site.	30 Assumed 10 small trucks per job site
4-axle	155 Total loads per day for southern access	15 Assumed 10 trucks per job site	9 Assumed 3 trucks per job site.
5-axle	3	1	0

	1 large truck per job site	One large truck per day	No large trucks
Northern Access AADTT Values			
2-axle	80 Assumed 8 small truck per job site for workers/etc.	80 Assumed 8 small trucks per job site	80 Assumed 8 small trucks per job site
3-axle	10 ^same as reasoning above	20 ^same as reasoning above	20 Assumed 2 trucks per job site because saddle dams/dikes likely not accessed often by this vehicle type
4-axle	72 Total loads per day for northern access	10 Assumed 1 truck per job site	5 Assumed 1 truck per every other job site.
5-axle	2 1 large truck services dikes and one for saddle dams	1 One large truck per day	0 No large trucks

Regards,
Howard

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Friday, May 12, 2023 10:42 AM
To: Luu, Henry <henry.luu@hdrinc.com>; Michael, Howard <howard.michael@aecom.com>
Subject: FW: Info requests for wildlife crossings

Hi Henry and Howard, are you able to give me estimates for the first two bullets below?

John Spranza

D 916.679.8858 M 818.640.2487

From: Berryman, Ellen <Ellen.Berryman@icf.com>
Sent: Thursday, May 11, 2023 11:29 AM
To: Spranza, John <John.Spranza@hdrinc.com>
Subject: Info requests for wildlife crossings

Hi John,
A couple of outstanding info requests I'm checking in with you about.

- Construction and operations traffic volume for all roads in study area (not in EIR)
- Freeboard range expected on the Sites – Lodoga Bridge

- We also need to set up that call with the San Luis Reservoir folks to discuss elk and other wildlife issues

Can you help?
Thanks,
Ellen

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/16/2023 4:55:23 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Joe Trapasso [jtrapasso@sitesproject.org]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: Tribal Monitor Contracts
Attachments: 02-05 Yocha Dehe Contract[2].pdf

I reread the yoche deHe staff report and we're going to have to go to the board to renew the Colusa tribe monitoring contract, assuming that's the direction we're headed. Please add to the 3 month look ahead accordingly. I also suggest that if we're going to have a similar monitoring agreement with the Paskenta tribe we should get authorization at the same time and explain the way in which the work will get distributed among the 3 tribes.

From: Lassell, Susan [Susan.Lassell@icf.com]
Sent: 5/17/2023 11:05:37 AM
To: Risse, Danielle [danielle.risse@hdrinc.com]; Lloyd, John [John.Lloyd@hdrinc.com]; Horizon Water [janis@horizonh2o.com]; Havelaar, Christiaan [Christiaan.Havelaar@icf.com]; Quirk, Phillip [Phillip.Quirk@icf.com]
CC: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites Reservoir - CR coordination

Hey folks –

I'm sorry to report that I have a hard conflict with today's coordination call and won't be able to join this call.

Updates on my front include focusing on the EIR/EIS 2023 final review (per Tribal concerns) a bit later today, and generally supporting Phil as he manages the day-to-day efforts to drive forward the built resources survey and cemetery relocation planning.

Please feel free to reach out to me directly if I can help with anything!

Susan

SUSAN LASSELL | +1.916.231.7612 direct | +1.415.238.9086 mobile

** My working hours may be different from yours. Please don't feel obligated to reply outside of your normal work schedule.

-----Original Appointment-----
From: Lassell, Susan
Sent: Wednesday, April 27, 2022 1:54 PM
To: Lassell, Susan; Danielle Risse; Lloyd, John; Janis Offermann; Havelaar, Christiaan; Quirk, Phillip
Cc: Laurie Warner Herson; Alicia Forsythe
Subject: Sites Reservoir - CR coordination
When: Wednesday, May 17, 2023 11:30 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting

Join with a video conferencing device
731643270@t.plcm.vc
Video Conference ID: 114 846 206 4
Alternate VTC instructions

Or call in (audio only)
+1 213-493-7443,,68818034# United States, Los Angeles
Phone Conference ID: 688 180 34#
Find a local number | Reset PIN

Learn More | Meeting options | Legal

Biweekly EIR/EIS Meeting - Agenda

Affordable Water, Sustainably Managed

Our Core Values – Safety, Trust and Integrity, Respect for Local Communities, Environmental Stewardship, Shared Responsibility and Shared Benefits, Accountability and Transparency, Proactive Innovation, Diversity and Inclusivity
Our Commitment – To live up to these values in everything we do

Meeting Information:

Date:	May 18, 2023	**Location:**	Teams
Start Time:	11:00 a.m.	**Finish Time:**	12:00 p.m.
Purpose:	RDEIR/SDEIS Status and Coordination		

Meeting Participants:

Monique Briard, ICF	Ali Forsythe, Sites Authority	Laurie Warner Herson, Integration
Ariel Cohen, HDR	Melissa Harris, ICF	

Agenda:

Discussion Topic	Topic Leader	Time Allotted
1. Outstanding Items for Discussion a. Future conditions and growth inducing effects additions that could be made to the Baseline Conditions discussion in Chapter 3, or the Cumulative Effects Chapter b. Ali's final approval of approach for WQ bolstering given schedule and information available: review of the WQ Table and legal framework c. When will the CEQA legal review occur and what will be the format of that review? d. Do we need to adapt our approach for Reclamation's backcheck such as providing a briefing or further discussion as to the reason for the additional changes? e. Do we need Jerry to review the EIR/EIS prior it Reclamation's review? f. Will Integration have two sets of comments to integrate? g. Coordination Act Report timing and potential need to include in the EIR/EIS, and this approach may need direction from Reclamation	Melissa	25 min
2. Schedule	All	30 min
3. Reclamation Coordination – agenda items for next meeting	All	5 min

From: Wendy Tyler [wtyler@countyofcolusa.com]
Sent: 5/17/2023 5:12:39 PM
To: Jerry Brown [jbrown@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
Subject: RE: Draft slides for review - Sites Local Community Working Group

Thanks Jerry. I appreciate the clarification. To me it was reading revenue from recreation on or around the reservoir. I would have to ask Mike what the East Park visitor days number is. I'll see if I can reach him before tomorrow's meeting.

See you tomorrow.
Wendy

Wendy G. Tyler
County of Colusa
County Administrative Officer

(530) 458-0737

From: Jerry Brown [mailto:jbrown@sitesproject.org]
Sent: Wednesday, May 17, 2023 2:08 PM
To: Wendy Tyler <wtyler@countyofcolusa.com>; Kevin Spesert <kspesert@sitesproject.org>
Subject: Re: Draft slides for review - Sites Local Community Working Group

I've drilled down further into the $2.4M estimate. I was wrong. This is not gross recreation revenues. The $2.4M represents all income from recreation in the local and regional economies. I'll revise the slide accordingly.

A key metric that the revenue number generates from is "visitor days". That number comes from the Prop 1 application. Its 187,000. Do you know what the "visitor days" number is for East Park? At Los Vaqueros it was about 50,000 but only after we got designated top striper fishing spot. Before that it was about 25,000, and most of that was school education program visits.

I appreciate you flagging this and think it would be helpful to raise any of your concerns or comments tomorrow.

From: Wendy Tyler <wtyler@countyofcolusa.com>
Date: Wednesday, May 17, 2023 at 12:01 PM
To: Jerry Brown <jbrown@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Subject: RE: Draft slides for review - Sites Local Community Working Group

Thanks, Jerry.
Yes, it is true that the schools should be made whole by the State. I just wanted to make sure we weren't a smaller percentage of that figure.

My experience with East Park would cause me to think that the $2.4M is overstated by a significant amount. East Park generally open from mid-April through October brings in about $170k in gross revenue including special events each year. I realize Sites is larger, and will likely have recreation "year-round", but I also believe that the exercise of the water will have impact on usage. Folks don't like to recreate on low water, they don't like to camp when it's a significant hike to the water, etc. That said, I can steer my thoughts elsewhere for that discussion if you would like me to.

Looking forward to tomorrow.

Wendy

Wendy G. Tyler
County of Colusa
County Administrative Officer

(530) 458-0737

From: Jerry Brown [mailto:jbrown@sitesproject.org]
Sent: Tuesday, May 16, 2023 1:30 PM
To: Wendy Tyler <wtyler@countyofcolusa.com>; Kevin Spesert <kspesert@sitesproject.org>
Subject: Re: Draft slides for review - Sites Local Community Working Group

Two very good questions that I'll do my best to answer as follows:

1. The figures shown are total annual property tax revenue loss based off of County financial reporting which I infer to mean the amounts are loss to the County revenues only. I don't believe this represents what the state loses. I took away from Robert Bs 101 lesson that the state wouldn't make the county cover its loss. Is that incorrect?
2. I can't find any detail on the $2.4M in recreation revenue. This is 100% revenue from the recreation itself. My experience at Los Vaqueros was that we generated about $1M per year in revenues (ie fishing permits, trail use, boat rentals). I'm guessing this is something that came from the Prop 1 application. I think know what you're thinking – over estimated.

Hope this helps.

Jerry

From: Wendy Tyler <wtyler@countyofcolusa.com>
Date: Tuesday, May 16, 2023 at 11:45 AM
To: Kevin Spesert <kspesert@sitesproject.org>
Cc: Jerry Brown <jbrown@sitesproject.org>
Subject: RE: Draft slides for review - Sites Local Community Working Group

Hi Kevin,
Thanks for getting these over to me. The slides looks great. You know I'm not shy about adding to a conversation. I do have a couple of questions, so that I am more fully aware, before saying anything.
Slide 14: Are the losses in property tax revenue just the County's respective shares, or is that total property tax?
Slide 15: Where did the $2.4 million gross revenue figure come from?
Look forward to hearing from you.
Thanks,
Wendy

Wendy G. Tyler
County of Colusa
County Administrative Officer

(530) 458-0737

From: Kevin Spesert [mailto:kspesert@sitesproject.org]
Sent: Tuesday, May 16, 2023 10:10 AM
To: Wendy Tyler <wtyler@countyofcolusa.com>
Cc: Jerry Brown <jbrown@sitesproject.org>
Subject: Draft slides for review - Sites Local Community Working Group

Hi Wendy,

Attached are the working draft slides for the Local Community Working Group meeting this Thursday related to the CEDS and County Finance discussions…

Please review a forward any edits/suggestions and I will add them into the presentation…and hoping that you will be part of the presentation and provide your thoughts during the discussion…

Please give me a call if you have any questions.

Thanks!

Kevin

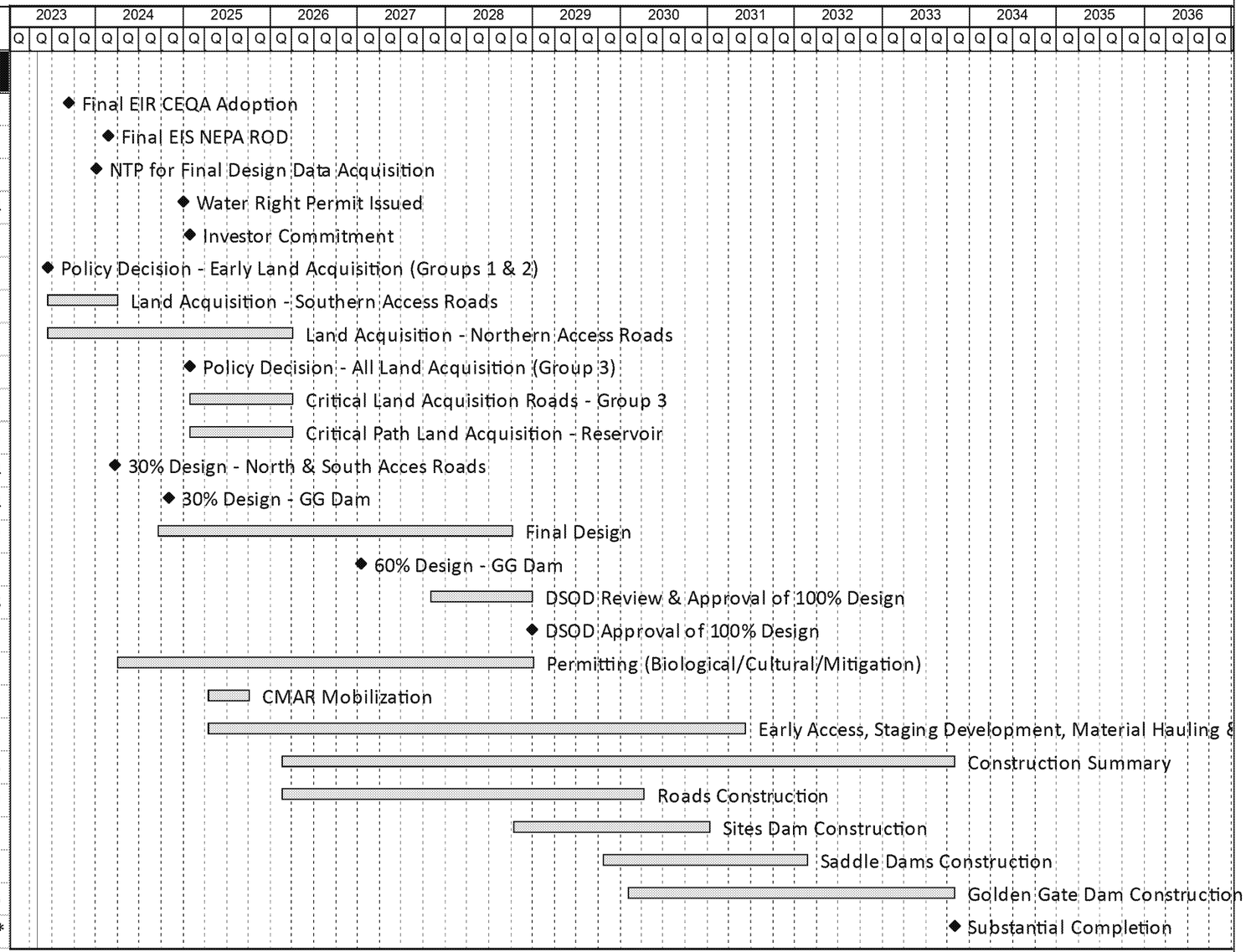
Kevin Spesert

External Affairs Manager
Sites Project Authority
Phone: 530.632.4071
Email: kspesert@sitesproject.org
Web: www.SitesProject.org
P.O. Box 517
122 Old Hwy 99W
Maxwell, CA 95955

Sites Reservoir Project

Schedule

#	Activity Name	Start	Finish
1	**Sites Reservoir Project: June 2023 + CP2**		
2	Final EIR CEQA Adoption		11-Sep-23
3	Final EIS NEPA ROD		20-Feb-24
4	NTP for Final Design Data Acquisition		05-Jan-24
5	Water Right Permit Issued		31-Dec-24
6	Investor Commitment		29-Jan-25
7	Policy Decision - Early Land Acquisition (Groups 1 & 2)	16-Jun-23*	
8	Land Acquisition - Southern Access Roads	16-Jun-23	01-Apr-24
9	Land Acquisition - Northern Access Roads	16-Jun-23	03-Apr-26
10	Policy Decision - All Land Acquisition (Group 3)	30-Jan-25*	
11	Critical Land Acquisition Roads - Group 3	30-Jan-25	03-Apr-26
12	Critical Path Land Acquisition - Reservoir	30-Jan-25	03-Apr-26
13	30% Design - North & South Acces Roads		20-Mar-24
14	30% Design - GG Dam		01-Nov-24
15	Final Design	20-Sep-24	06-Oct-28
16	60% Design - GG Dam		15-Jan-27
17	DSOD Review & Approval of 100% Design	01-Nov-27	29-Dec-28
18	DSOD Approval of 100% Design		01-Jan-29
19	Permitting (Biological/Cultural/Mitigation)	02-Apr-24	04-Jan-29
20	CMAR Mobilization	17-Apr-25	06-Oct-25
21	Early Access, Staging Development, Material Hauling & Stockpile	17-Apr-25	10-Jun-31
22	Construction Summary	16-Feb-26	03-Nov-33
23	Roads Construction	16-Feb-26	12-Apr-30
24	Sites Dam Construction	16-Oct-28	10-Jan-31
25	Saddle Dams Construction	25-Oct-29	25-Feb-32
26	Golden Gate Dam Construction	07-Feb-30	03-Nov-33
27	Substantial Completion		)3-Nov-33*



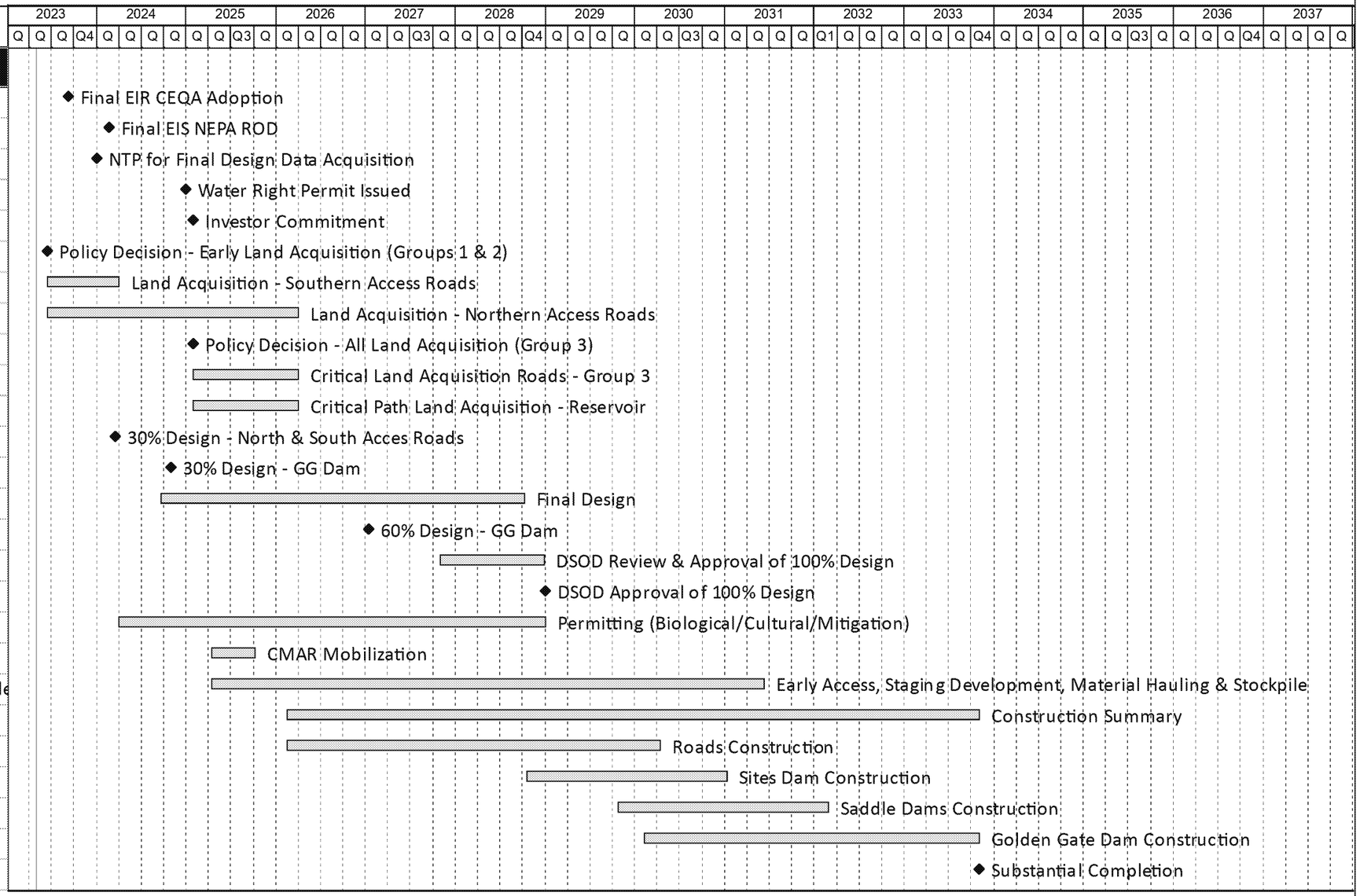
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP2
Layout Name: Sites Reservoir for O and E_1 / TASK filter: Critical OE.
Data Date: 01-May-23 / Print Date: 22-May-23

Sites Reservoir Project

Schedule

#	Activity Name
1	**Sites Reservoir Project: June 2023 + CP2**
2	Final EIR CEQA Adoption
3	Final EIS NEPA ROD
4	NTP for Final Design Data Acquisition
5	Water Right Permit Issued
6	Investor Commitment
7	Policy Decision - Early Land Acquisition (Groups 1 & 2)
8	Land Acquisition - Southern Access Roads
9	Land Acquisition - Northern Access Roads
10	Policy Decision - All Land Acquisition (Group 3)
11	Critical Land Acquisition Roads - Group 3
12	Critical Path Land Acquisition - Reservoir
13	30% Design - North & South Acces Roads
14	30% Design - GG Dam
15	Final Design
16	60% Design - GG Dam
17	DSOD Review & Approval of 100% Design
18	DSOD Approval of 100% Design
19	Permitting (Biological/Cultural/Mitigation)
20	CMAR Mobilization
21	Early Access, Staging Development, Material Hauling & Stockpile
22	Construction Summary
23	Roads Construction
24	Sites Dam Construction
25	Saddle Dams Construction
26	Golden Gate Dam Construction
27	Substantial Completion



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP2
Layout Name: Sites Reservoir for O and E_1 / TASK filter: Critical OE.
Data Date: 01-May-23 / Print Date: 22-May-23

From: Alicia Forsythe [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A6CDF06A7E904B65BAA21702A82AD329-AFORSYTHE]
Sent: 5/18/2023 2:01:28 PM
To: Janis Offermann [jaoffermann@montrose-env.com]
Subject: RE: Paskenta ethnography

Awesome! Thank you! I felt a bit bad for bringing it up out of the blue. But I was just thinking – lets start making good on some of these things we've been talking about and now is the perfect time as I have to go to the board and get money anyway. So let's just get money for all of this. And I think it would be great to start this with Laverne as he's been such a long-term participant in the Project and he's starting a cultural department. So this could really help him kick start his work in Paskenta.

I am kind of thinking $200K for just Paskenta for this. I could see eventually doing this with Colusa and Yocha Dehe and costs may be similar or more. So in total, I think we are likely $600+ for all three. I suspect they can actually do this for less than we can as they will likely have lower billing rates that we can get.

I am excited for something like this as I really want to advocate for the Tribes and look out for their interests. I just need more knowledge and understanding to be able to do this. And I think something like this will help us gain the understanding and information that will help us formulate real, actionable items for the future.

If you have a chance in the next few weeks to draft a few sentences/bullets, that would be great. I actually don't need much to get it into the Board agenda, but I need to share a bit of what this would be.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Thursday, May 18, 2023 1:04 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Paskenta ethnography

Hi, Ali
I just wanted to say that your offer to work with Paskenta on ethnographic documentation really hit it out of the ballpark. What a great suggestion, especially at this moment.
FYI, way back when CH2MHill was leading the environmental work and I was a URS (I'm thinking it was around 2012 or 2013), they held a big meeting about additional environmental work that was needed to re-kickstart the EIR. At that time I brought up the need for an ethnographic study and we even came up with a ballpark cost. Even then, I think it was in the $200K range, so I would guess that it would be double by now. This, however, would have included involvement with all of the tribes, not just those occupying the north part of the project area. I just wanted to point this out for context, when considering potential costs for the Paskenta piece.

Mostly, I just wanted to applaud you for bringing this up. Let me know if you would like me to write a short description for you to present to the board. Also, and this is way down the road, when we completed the ethnographic work for the

Oroville relicensing, we distilled the confidential report down to a version accessible to the public for local libraries and for the project website. It is a nice way to disseminate this knowledge to the public.

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

From: Janis Offermann [jaoffermann@montrose-env.com]
Sent: 5/18/2023 2:07:58 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: [EXTERNAL] RE: Paskenta ethnography

Great. I will be happy to get something to you soon.
Also, allocating money for something like this, which would occur in the future, is a wonderful way to demonstrate the Authority's long term commitment to the tribe.
Thanks
Janis

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, May 18, 2023 2:01 PM
To: Janis Offermann <jaoffermann@montrose-env.com>
Subject: [EXTERNAL] RE: Paskenta ethnography

Awesome! Thank you! I felt a bit bad for bringing it up out of the blue. But I was just thinking – lets start making good on some of these things we've been talking about and now is the perfect time as I have to go to the board and get money anyway. So let's just get money for all of this. And I think it would be great to start this with Laverne as he's been such a long-term participant in the Project and he's starting a cultural department. So this could really help him kick start his work in Paskenta.

I am kind of thinking $200K for just Paskenta for this. I could see eventually doing this with Colusa and Yocha Dehe and costs may be similar or more. So in total, I think we are likely $600+ for all three. I suspect they can actually do this for less than we can as they will likely have lower billing rates that we can get.

I am excited for something like this as I really want to advocate for the Tribes and look out for their interests. I just need more knowledge and understanding to be able to do this. And I think something like this will help us gain the understanding and information that will help us formulate real, actionable items for the future.

If you have a chance in the next few weeks to draft a few sentences/bullets, that would be great. I actually don't need much to get it into the Board agenda, but I need to share a bit of what this would be.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Janis Offermann <jaoffermann@montrose-env.com>
Sent: Thursday, May 18, 2023 1:04 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Paskenta ethnography

Hi, Ali

I just wanted to say that your offer to work with Paskenta on ethnographic documentation really hit it out of the ballpark. What a great suggestion, especially at this moment.
FYI, way back when CH2MHill was leading the environmental work and I was a URS (I'm thinking it was around 2012 or 2013), they held a big meeting about additional environmental work that was needed to re-kickstart the EIR. At that time I brought up the need for an ethnographic study and we even came up with a ballpark cost. Even then, I think it was in the $200K range, so I would guess that it would be double by now. This, however, would have included involvement with all of the tribes, not just those occupying the north part of the project area. I just wanted to point this out for context, when considering potential costs for the Paskenta piece.

Mostly, I just wanted to applaud you for bringing this up. Let me know if you would like me to write a short description for you to present to the board. Also, and this is way down the road, when we completed the ethnographic work for the Oroville relicensing, we distilled the confidential report down to a version accessible to the public for local libraries and for the project website. It is a nice way to disseminate this knowledge to the public.

Thanks
janis

Janis Offermann, M.A., RPA
Senior Cultural Resources Manager
M: 530.220.4918
jaoffermann@montrose-env.com
Please note new email address after April 1, 2023. I can still receive emails as janis@horizonh2o.com**; however, all of my outgoing emails to you will be from** jaoffermann@montrose-env.com.

CONFIDENTIALITY NOTICE: The contents of this email message and any attachments are intended solely for the addressee(s) and may contain confidential, proprietary and/or privileged information and may be legally protected from disclosure. If you are not the intended recipient of this message or their agent, or if this message has been addressed to you in error, please immediately alert the sender by reply email and then delete this message and any attachments and the reply from your system. If you are not the intended recipient, you are hereby notified that any disclosure, use, dissemination, copying, or storage of this message or its attachments is strictly prohibited.

Elevation Vs. Area and Storage Data 10/17/2022

2022 LiDAR Data

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
241	2466	0	0.00	0.0	0	**0.0**	**0.1**
242	6561	1	4,514	0.1	0	**0**	**0.2**
243	15318	1	10,940	0.3	0	**0**	**0.4**
244	38394	1	26,856	0.6	1	**1**	**0.9**
245	56709	1	47,552	1.1	1	**2**	**1.3**
246	92619	1	74,664	1.7	2	**4**	**2.1**
247	116910	1	104,765	2.4	2	**6**	**2.7**
248	143496	1	130,203	3.0	3	**9**	**3.3**
249	189135	1	166,316	3.8	4	**13**	**4.3**
250	246357	1	217,746	5.0	5	**18**	**5.7**
251	316989	1	281,673	6.5	6	**24**	**7.3**
252	353835	1	335,412	7.7	8	**32**	**8.1**
253	396288	1	375,062	8.6	9	**41**	**9.1**
254	419184	1	407,736	9.4	9	**50**	**9.6**
255	437751	1	428,468	9.8	10	**60**	**10.0**
256	453726	1	445,739	10.2	10	**70**	**10.4**
257	486747	1	470,237	10.8	11	**81**	**11.2**
258	518499	1	502,623	11.5	12	**93**	**11.9**
259	540576	1	529,538	12.2	12	**105**	**12.4**
260	563616	1	552,096	12.7	13	**117**	**12.9**
261	588681	1	576,149	13.2	13	**131**	**13.5**
262	616626	1	602,654	13.8	14	**144**	**14.2**
263	663948	1	640,287	14.7	15	**159**	**15.2**
264	709182	1	686,565	15.8	16	**175**	**16.3**
265	759141	1	734,162	16.9	17	**192**	**17.4**
266	829773	1	794,457	18.2	18	**210**	**19.0**
267	891135	1	860,454	19.8	20	**230**	**20.5**
268	964089	1	927,612	21.3	21	**251**	**22.1**
269	1096056	1	1,030,073	23.6	24	275	25.2
270	1406691	1	1,251,374	28.7	29	**303**	**32.3**
271	1915317	1	1,661,004	38.1	38	**342**	**44.0**
272	2593917	1	2,254,617	51.8	52	**393**	**59.5**
273	3149928	1	2,871,923	65.9	66	**459**	**72.3**
274	3603186	1	3,376,557	77.5	78	**537**	**82.7**
275	3993012	1	3,798,099	87.2	87	**624**	**91.7**
276	4426281	1	4,209,647	96.6	97	**721**	**101.6**
277	4932972	1	4,679,627	107.4	107	**828**	**113.2**
278	5471622	1	5,202,297	119.4	119	**947**	**125.6**
279	6108786	1	5,790,204	132.9	133	**1,080**	**140.2**
280	6910452	1	6,509,619	149.4	149	**1,230**	**158.6**
281	7901478	1	7,405,965	170.0	170	**1,400**	**181.4**
282	9024606	1	8,463,042	194.3	194	**1,594**	**207.2**
283	10180611	1	9,602,609	220.4	220	**1,815**	**233.7**
284	11530917	1	10,855,764	249.2	249	**2,064**	**264.7**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

Elevation Vs. Area and Storage Data 10/17/2022

2022 LiDAR Data

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
285	13136850	1	12,333,884	283.1	283	**2,347**	**301.6**
286	14739534	1	13,938,192	320.0	320	**2,667**	**338.4**
287	16240572	1	15,490,053	355.6	356	**3,022**	**372.8**
288	17649891	1	16,945,232	389.0	389	**3,411**	**405.2**
289	19111446	1	18,380,669	422.0	422	**3,833**	**438.7**
290	20484882	1	19,798,164	454.5	455	**4,288**	**470.3**
291	21896136	1	21,190,509	486.5	486	**4,774**	**502.7**
292	23668317	1	22,782,227	523.0	523	**5,297**	**543.3**
293	25733475	1	24,700,896	567.1	567	**5,864**	**590.8**
294	27895437	1	26,814,456	615.6	616	**6,480**	**640.4**
295	30423762	1	29,159,600	669.4	669	**7,149**	**698.4**
296	32773329	1	31,598,546	725.4	725	**7,875**	**752.4**
297	34867395	1	33,820,362	776.4	776	**8,651**	**800.4**
298	36797796	1	35,832,596	822.6	823	**9,474**	**844.8**
299	38636235	1	37,717,016	865.9	866	**10,340**	**887.0**
300	40714920	1	39,675,578	910.8	911	**11,251**	**934.7**
301	42761268	1	41,738,094	958.2	958	**12,209**	**981.7**
302	44853480	1	43,807,374	1,005.7	1,006	**13,214**	**1,029.7**
303	46907055	1	45,880,268	1,053.3	1,053	**14,268**	**1,076.8**
304	48981690	1	47,944,373	1,100.7	1,101	**15,368**	**1,124.5**
305	51202269	1	50,091,980	1,150.0	1,150	**16,518**	**1,175.4**
306	53461710	1	52,331,990	1,201.4	1,201	**17,720**	**1,227.3**
307	55798839	1	54,630,275	1,254.1	1,254	**18,974**	**1,281.0**
308	58358205	1	57,078,522	1,310.3	1,310	**20,284**	**1,339.7**
309	61018758	1	59,688,482	1,370.3	1,370	**21,654**	**1,400.8**
310	63789255	1	62,404,007	1,432.6	1,433	**23,087**	**1,464.4**
311	66446991	1	65,118,123	1,494.9	1,495	**24,582**	**1,525.4**
312	68998932	1	67,722,962	1,554.7	1,555	**26,137**	**1,584.0**
313	71766207	1	70,382,570	1,615.8	1,616	**27,752**	**1,647.5**
314	74689884	1	73,228,046	1,681.1	1,681	**29,433**	**1,714.6**
315	77920146	1	76,305,015	1,751.7	1,752	**31,185**	**1,788.8**
316	81021429	1	79,470,788	1,824.4	1,824	**33,010**	**1,860.0**
317	84120219	1	82,570,824	1,895.6	1,896	**34,905**	**1,931.1**
318	87559830	1	85,840,025	1,970.6	1,971	**36,876**	**2,010.1**
319	91572723	1	89,566,277	2,056.2	2,056	**38,932**	**2,102.2**
320	95094945	1	93,333,834	2,142.7	2,143	**41,075**	**2,183.1**
321	98274510	1	96,684,728	2,219.6	2,220	**43,294**	**2,256.1**
322	101275632	1	99,775,071	2,290.5	2,291	**45,585**	**2,325.0**
323	104310378	1	102,793,005	2,359.8	2,360	**47,944**	**2,394.6**
324	107279109	1	105,794,744	2,428.7	2,429	**50,373**	**2,462.8**
325	110321127	1	108,800,118	2,497.7	2,498	**52,871**	**2,532.6**
326	113231853	1	111,776,490	2,566.0	2,566	**55,437**	**2,599.4**
327	116138772	1	114,685,313	2,632.8	2,633	**58,070**	**2,666.2**
328	118983474	1	117,561,123	2,698.8	2,699	**60,769**	**2,731.5**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

Elevation Vs. Area and Storage Data
2022 LiDAR Data

10/17/2022

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
329	121924449	1	120,453,962	2,765.2	2,765	**63,534**	**2,799.0**
330	124989156	1	123,456,803	2,834.2	2,834	**66,368**	**2,869.4**
331	128106171	1	126,547,664	2,905.1	2,905	**69,273**	**2,940.9**
332	131213394	1	129,659,783	2,976.6	2,977	**72,250**	**3,012.2**
333	134371404	1	132,792,399	3,048.5	3,048	**75,298**	**3,084.7**
334	137321334	1	135,846,369	3,118.6	3,119	**78,417**	**3,152.5**
335	140276070	1	138,798,702	3,186.4	3,186	**81,603**	**3,220.3**
336	143171712	1	141,723,891	3,253.5	3,254	**84,857**	**3,286.8**
337	146119140	1	144,645,426	3,320.6	3,321	**88,177**	**3,354.4**
338	149087628	1	147,603,384	3,388.5	3,389	**91,566**	**3,422.6**
339	152072244	1	150,579,936	3,456.8	3,457	**95,023**	**3,491.1**
340	155018925	1	153,545,585	3,524.9	3,525	**98,548**	**3,558.7**
341	158037453	1	156,528,189	3,593.4	3,593	**102,141**	**3,628.0**
342	161048466	1	159,542,960	3,662.6	3,663	**105,804**	**3,697.2**
343	163989081	1	162,518,774	3,730.9	3,731	**109,535**	**3,764.7**
344	167018373	1	165,503,727	3,799.4	3,799	**113,334**	**3,834.2**
345	169999641	1	168,509,007	3,868.4	3,868	**117,202**	**3,902.7**
346	172893330	1	171,446,486	3,935.9	3,936	**121,138**	**3,969.1**
347	175783374	1	174,338,352	4,002.3	4,002	**125,141**	**4,035.4**
348	178661871	1	177,222,623	4,068.5	4,068	**129,209**	**4,101.5**
349	181534401	1	180,098,136	4,134.5	4,134	**133,343**	**4,167.5**
350	184442103	1	182,988,252	4,200.8	4,201	**137,544**	**4,234.2**
351	187313454	1	185,877,779	4,267.2	4,267	**141,811**	**4,300.1**
352	190170963	1	188,742,209	4,332.9	4,333	**146,144**	**4,365.7**
353	193036050	1	191,603,507	4,398.6	4,399	**150,543**	**4,431.5**
354	195940602	1	194,488,326	4,464.8	4,465	**155,008**	**4,498.2**
355	198923715	1	197,432,159	4,532.4	4,532	**159,540**	**4,566.7**
356	202031415	1	200,477,565	4,602.3	4,602	**164,143**	**4,638.0**
357	205187490	1	203,609,453	4,674.2	4,674	**168,817**	**4,710.5**
358	208448352	1	206,817,921	4,747.9	4,748	**173,565**	**4,785.3**
359	211795569	1	210,121,961	4,823.7	4,824	**178,388**	**4,862.2**
360	215000190	1	213,397,880	4,898.9	4,899	**183,287**	**4,935.7**
361	218227635	1	216,613,913	4,972.8	4,973	**188,260**	**5,009.8**
362	221567130	1	219,897,383	5,048.1	5,048	**193,308**	**5,086.5**
363	224761473	1	223,164,302	5,123.1	5,123	**198,431**	**5,159.8**
364	227826693	1	226,294,083	5,195.0	5,195	**203,626**	**5,230.2**
365	230863374	1	229,345,034	5,265.0	5,265	**208,891**	**5,299.9**
366	233929971	1	232,396,673	5,335.1	5,335	**214,227**	**5,370.3**
367	236982924	1	235,456,448	5,405.3	5,405	**219,632**	**5,440.4**
368	240004584	1	238,493,754	5,475.1	5,475	**225,107**	**5,509.7**
369	243027513	1	241,516,049	5,544.4	5,544	**230,651**	**5,579.1**
370	246005082	1	244,516,298	5,613.3	5,613	**236,265**	**5,647.5**
371	248871483	1	247,438,283	5,680.4	5,680	**241,945**	**5,713.3**
372	251735022	1	250,303,253	5,746.2	5,746	**247,691**	**5,779.0**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

Elevation Vs. Area and Storage Data 10/17/2022

2022 LiDAR Data

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
373	254572875	1	253,153,949	5,811.6	5,812	**253,503**	**5,844.2**
374	257428782	1	256,000,829	5,877.0	5,877	**259,380**	**5,909.8**
375	260364519	1	258,896,651	5,943.4	5,943	**265,323**	**5,977.1**
376	263230956	1	261,797,738	6,010.0	6,010	**271,333**	**6,043.0**
377	266131026	1	264,680,991	6,076.2	6,076	**277,410**	**6,109.5**
378	269021772	1	267,576,399	6,142.7	6,143	**283,552**	**6,175.9**
379	271912284	1	270,467,028	6,209.1	6,209	**289,761**	**6,242.2**
380	274849722	1	273,381,003	6,276.0	6,276	**296,037**	**6,309.7**
381	277824690	1	276,337,206	6,343.8	6,344	**302,381**	**6,378.0**
382	280932390	1	279,378,540	6,413.6	6,414	**308,795**	**6,449.3**
383	284096691	1	282,514,541	6,485.6	6,486	**315,281**	**6,522.0**
384	287195319	1	285,646,005	6,557.5	6,558	**321,838**	**6,593.1**
385	290421675	1	288,808,497	6,630.1	6,630	**328,468**	**6,667.2**
386	293630823	1	292,026,249	6,704.0	6,704	**335,172**	**6,740.8**
387	296823105	1	295,226,964	6,777.5	6,777	**341,950**	**6,814.1**
388	299891781	1	298,357,443	6,849.3	6,849	**348,799**	**6,884.6**
389	302926104	1	301,408,943	6,919.4	6,919	**355,718**	**6,954.2**
390	306066402	1	304,496,253	6,990.3	6,990	**362,709**	**7,026.3**
391	309174309	1	307,620,356	7,062.0	7,062	**369,771**	**7,097.7**
392	312223680	1	310,698,995	7,132.7	7,133	**376,903**	**7,167.7**
393	315220653	1	313,722,167	7,202.1	7,202	**384,105**	**7,236.5**
394	318112974	1	316,666,814	7,269.7	7,270	**391,375**	**7,302.9**
395	321136641	1	319,624,808	7,337.6	7,338	**398,713**	**7,372.3**
396	324112275	1	322,624,458	7,406.4	7,406	**406,119**	**7,440.6**
397	327034746	1	325,573,511	7,474.1	7,474	**413,593**	**7,507.7**
398	329914575	1	328,474,661	7,540.7	7,541	**421,134**	**7,573.8**
399	332815491	1	331,365,033	7,607.1	7,607	**428,741**	**7,640.4**
400	335679219	1	334,247,355	7,673.3	7,673	**436,414**	**7,706.1**
401	338479785	1	337,079,502	7,738.3	7,738	**444,153**	**7,770.4**
402	341179587	1	339,829,686	7,801.4	7,801	**451,954**	**7,832.4**
403	343888191	1	342,533,889	7,863.5	7,863	**459,818**	**7,894.6**
404	346621257	1	345,254,724	7,926.0	7,926	**467,743**	**7,957.3**
405	349365555	1	347,993,406	7,988.8	7,989	**475,732**	**8,020.3**
406	352072269	1	350,718,912	8,051.4	8,051	**483,784**	**8,082.5**
407	354749985	1	353,411,127	8,113.2	8,113	**491,897**	**8,143.9**
408	357340149	1	356,045,067	8,173.7	8,174	**500,071**	**8,203.4**
409	359906166	1	358,623,158	8,232.9	8,233	**508,303**	**8,262.3**
410	362485116	1	361,195,641	8,291.9	8,292	**516,595**	**8,321.5**
411	365108067	1	363,796,592	8,351.6	8,352	**524,947**	**8,381.7**
412	367748064	1	366,428,066	8,412.0	8,412	**533,359**	**8,442.3**
413	370327383	1	369,037,724	8,471.9	8,472	**541,831**	**8,501.5**
414	372994497	1	371,660,940	8,532.2	8,532	**550,363**	**8,562.8**
415	375647580	1	374,321,039	8,593.2	8,593	**558,956**	**8,623.7**
416	378255789	1	376,951,685	8,653.6	8,654	**567,610**	**8,683.6**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

Elevation Vs. Area and Storage Data 10/17/2022

2022 LiDAR Data

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
417	380883249	1	379,569,519	8,713.7	8,714	**576,324**	**8,743.9**
418	383551452	1	382,217,351	8,774.5	8,775	**585,098**	**8,805.1**
419	386220330	1	384,885,891	8,835.8	8,836	**593,934**	**8,866.4**
420	388853712	1	387,537,021	8,896.6	8,897	**602,831**	**8,926.9**
421	391516389	1	390,185,051	8,957.4	8,957	**611,788**	**8,988.0**
422	394209693	1	392,863,041	9,018.9	9,019	**620,807**	**9,049.8**
423	396848070	1	395,528,882	9,080.1	9,080	**629,887**	**9,110.4**
424	399468069	1	398,158,070	9,140.5	9,140	**639,027**	**9,170.5**
425	402112116	1	400,790,093	9,200.9	9,201	**648,228**	**9,231.2**
426	404751528	1	403,431,822	9,261.5	9,262	**657,490**	**9,291.8**
427	407386521	1	406,069,025	9,322.1	9,322	**666,812**	**9,352.3**
428	410001183	1	408,693,852	9,382.3	9,382	**676,194**	**9,412.3**
429	412596459	1	411,298,821	9,442.1	9,442	**685,636**	**9,471.9**
430	415133415	1	413,864,937	9,501.0	9,501	**695,137**	**9,530.2**
431	417646944	1	416,390,180	9,559.0	9,559	**704,696**	**9,587.9**
432	420130440	1	418,888,692	9,616.4	9,616	**714,313**	**9,644.9**
433	422608752	1	421,369,596	9,673.3	9,673	**723,986**	**9,701.8**
434	425044305	1	423,826,529	9,729.7	9,730	**733,716**	**9,757.7**
435	427480434	1	426,262,370	9,785.6	9,786	**743,501**	**9,813.6**
436	429918912	1	428,699,673	9,841.6	9,842	**753,343**	**9,869.6**
437	432376173	1	431,147,543	9,897.8	9,898	**763,241**	**9,926.0**
438	434914299	1	433,645,236	9,955.1	9,955	**773,196**	**9,984.3**
439	437436171	1	436,175,235	10,013.2	10,013	**783,209**	**10,042.2**
440	439917516	1	438,676,844	10,070.6	10,071	**793,280**	**10,099.1**
441	442382211	1	441,149,864	10,127.4	10,127	**803,407**	**10,155.7**
442	444827673	1	443,604,942	10,183.8	10,184	**813,591**	**10,211.8**
443	447244218	1	446,035,946	10,239.6	10,240	**823,830**	**10,267.3**
444	449655975	1	448,450,097	10,295.0	10,295	**834,125**	**10,322.7**
445	452068803	1	450,862,389	10,350.4	10,350	**844,476**	**10,378.1**
446	454495842	1	453,282,323	10,405.9	10,406	**854,882**	**10,433.8**
447	456957288	1	455,726,565	10,462.0	10,462	**865,344**	**10,490.3**
448	459493767	1	458,225,528	10,519.4	10,519	**875,863**	**10,548.5**
449	462103560	1	460,798,664	10,578.5	10,578	**886,442**	**10,608.4**
450	464695920	1	463,399,740	10,638.2	10,638	**897,080**	**10,668.0**
451	467244090	1	465,970,005	10,697.2	10,697	**907,777**	**10,726.4**
452	469754235	1	468,499,163	10,755.3	10,755	**918,532**	**10,784.1**
453	472256046	1	471,005,141	10,812.8	10,813	**929,345**	**10,841.5**
454	474714819	1	473,485,433	10,869.7	10,870	**940,215**	**10,898.0**
455	477139077	1	475,926,948	10,925.8	10,926	**951,141**	**10,953.6**
456	479584413	1	478,361,745	10,981.7	10,982	**962,122**	**11,009.7**
457	482129388	1	480,856,901	11,039.0	11,039	**973,161**	**11,068.2**
458	484638579	1	483,383,984	11,097.0	11,097	**984,258**	**11,125.8**
459	487119681	1	485,879,130	11,154.3	11,154	**995,412**	**11,182.7**
460	489585717	1	488,352,699	11,211.0	11,211	**1,006,624**	**11,239.3**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

Elevation Vs. Area and Storage Data 10/17/2022

2022 LiDAR Data

Elev (ft)	Area (ft2)	Delta Elev (ft)	Mean Area (ft2)	Mean Area (acres)	Vol by Area (AF) (incremental)	Volume (AF) (cumulative)	Area (acres)
461	492151104	1	490,868,411	11,268.8	11,269	**1,017,892**	**11,298.2**
462	494661996	1	493,406,550	11,327.1	11,327	**1,029,219**	**11,355.9**
463	497150028	1	495,906,012	11,384.4	11,384	**1,040,604**	**11,413.0**
464	499592466	1	498,371,247	11,441.0	11,441	**1,052,045**	**11,469.1**
465	501974289	1	500,783,378	11,496.4	11,496	**1,063,541**	**11,523.7**
466	504331812	1	503,153,051	11,550.8	11,551	**1,075,092**	**11,577.9**
467	506676330	1	505,504,071	11,604.8	11,605	**1,086,697**	**11,631.7**
468	509000202	1	507,838,266	11,658.4	11,658	**1,098,355**	**11,685.0**
469	511345521	1	510,172,862	11,712.0	11,712	**1,110,067**	**11,738.9**
470	513669222	1	512,507,372	11,765.6	11,766	**1,121,833**	**11,792.2**
471	515969856	1	514,819,539	11,818.6	11,819	**1,133,651**	**11,845.0**
472	518257557	1	517,113,707	11,871.3	11,871	**1,145,523**	**11,897.6**
473	520534404	1	519,395,981	11,923.7	11,924	**1,157,446**	**11,949.8**
474	522818721	1	521,676,563	11,976.0	11,976	**1,169,422**	**12,002.3**
475	525099600	1	523,959,161	12,028.4	12,028	**1,181,451**	**12,054.6**
476	527351679	1	526,225,640	12,080.5	12,080	**1,193,531**	**12,106.3**
477	529597161	1	528,474,420	12,132.1	12,132	**1,205,663**	**12,157.9**
478	531822951	1	530,710,056	12,183.4	12,183	**1,217,847**	**12,209.0**
479	534024729	1	532,923,840	12,234.2	12,234	**1,230,081**	**12,259.5**
480	536240853	1	535,132,791	12,285.0	12,285	**1,242,366**	**12,310.4**
481	538458003	1	537,349,428	12,335.8	12,336	**1,254,702**	**12,361.3**
482	540647802	1	539,552,903	12,386.4	12,386	**1,267,088**	**12,411.6**
483	542827557	1	541,737,680	12,436.6	12,437	**1,279,525**	**12,461.6**
484	545027256	1	543,927,407	12,486.9	12,487	**1,292,012**	**12,512.1**
485	547232742	1	546,129,999	12,537.4	12,537	**1,304,549**	**12,562.7**
486	549419760	1	548,326,251	12,587.8	12,588	**1,317,137**	**12,612.9**
487	551599416	1	550,509,588	12,638.0	12,638	**1,329,775**	**12,663.0**
488	553776372	1	552,687,894	12,688.0	12,688	**1,342,463**	**12,713.0**
489	555939018	1	554,857,695	12,737.8	12,738	**1,355,201**	**12,762.6**
490	558073224	1	557,006,121	12,787.1	12,787	**1,367,988**	**12,811.6**
491	560198070	1	559,135,647	12,836.0	12,836	**1,380,824**	**12,860.4**
492	562295700	1	561,246,885	12,884.5	12,884	**1,393,708**	**12,908.5**
493	564394104	1	563,344,902	12,932.6	12,933	**1,406,641**	**12,956.7**
494	566502930	1	565,448,517	12,980.9	12,981	**1,419,622**	**13,005.1**
495	568624401	1	567,563,666	13,029.5	13,029	**1,432,651**	**13,053.8**
496	570734253	1	569,679,327	13,078.0	13,078	**1,445,729**	**13,102.3**
497	572832945	1	571,783,599	13,126.3	13,126	**1,458,856**	**13,150.4**
498	**574910604**	**1**	**573,871,775**	**13,174.3**	**13,174**	**1,472,030**	**13,198.1**
499	576989775	1	575,950,190	13,222.0	13,222	**1,485,252**	**13,245.9**
500	579047535	1	578,018,655	13,269.5	13,269	**1,498,521**	**13,293.1**
501	581098941	1	580,073,238	13,316.6	13,317	**1,511,838**	**13,340.2**
502	583161444	1	582,130,193	13,363.9	13,364	**1,525,202**	**13,387.5**
503	585239814	1	584,200,629	13,411.4	13,411	**1,538,613**	**13,435.3**
504	587336175	1	586,287,995	13,459.3	13,459	**1,552,073**	**13,483.4**

https://aecom.sharepoint.com/sites/SitesTO03/Shared Documents/General/400_Technical/430_Technical_Working_Documents/HR34.06 Hydraulics Outlet Works/Storage Elevation Curve/Storage Elevation Curve.xlsx

From: Herrin, Jeff [jeff.herrin@aecom.com]
Sent: 5/19/2023 5:39:50 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [john.spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Kevin Spesert [kspesert@sitesproject.org]
Subject: RE: Dale Widner-LaMalfa mtg- Fw: (Sites) Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

I'm aware of Veterans Lake. There was another suggestion called Cottonwood Lake that sounds a lot like Steelhead Lake, but they may not be identical. Veterans Lake and Cottonwood Lake are covered in the Federal feasibility report by Reclamation (see Appendix A). The Federal report screened Veterans and Cottonwood Lake out in a manner similar to the analysis for Red Bank, Newville, and Colusa Reservoirs. Neither project met the Federal objective for providing benefits to anadromous fish. There was no requirement in WSIP to evaluate alternative projects in the State feasibility report prepared by the Authority for the Water Commission.

These projects are located well to the north of Sites Reservoir. They are well away from the Sacramento River and there is no existing canal system (like the TC Canal and GCID Main Canal) to carry water to that vicinity. They rely on releases from Shasta rather than flows from downstream tributaries to the Sacramento River for filling. There was a concern that they would impact water levels in other reservoirs, including Shasta. My understanding is that all of these projects involve constructing new dams on creeks that are important for anadromous fish. I suspect the inundation areas would also result in greater biological impacts.

I think it can be argued that these alternatives are really different ways of looking at expanding storage in Shasta rather than creating true offsite storage in the Sacramento River Basin with a project like Sites, Colusa, or Newville Reservoir. Sites and Veterans Lake are apples and oranges – different watersheds, different source of water, different beneficiaries, different public benefits. I don't think these reservoirs are what CALFED had in mind when it looked at North of the Delta Storage – the intent was to provide storage that could result in benefits to the Sacramento/San Joaquin Rivers Delta. I think these proposals are outside of the scope of CALFED and should be evaluated separately. The environmental impacts are likely to be a big hurdle.

Jeff

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, May 18, 2023 7:20 PM
To: Spranza, John <john.spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Herrin, Jeff <jeff.herrin@aecom.com>; Kevin Spesert <kspesert@sitesproject.org>
Subject: FW: Dale Widner-LaMalfa mtg- Fw: (Sites) Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

Hi all – This is a long email trial and a number of attachments. But this individual believes that the 2020 Feasibility Report didn't adequately cover Veterans Lake and Steelhead Lake.

Laurie - can you review the 2017 draft EIR/EIS and the RDEIR/SDEIS to see if we mention these two reservoirs as options?

Jeff - are you aware of these reservoirs?

I think we should have a call with Allison on this next week and figure out next steps.

I'll reach out to her to schedule something.

In the mean time, please send the group anything you're able to find on this.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Bader, Donald P <DBader@usbr.gov>
Sent: Thursday, May 18, 2023 3:02 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Fw: Dale Widner-LaMalfa mtg- Fw: [EXTERNAL] (Sites) Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

Ally, what is going on here?

From: Hadley, Elizabeth W <ehadley@usbr.gov>
Sent: Thursday, May 11, 2023 1:46 PM
To: Bader, Donald P <DBader@usbr.gov>; Jacobs, Kevin M <KJacobs@usbr.gov>; Hudleston, James J <NHudleston@usbr.gov>
Subject: Fwd: Dale Widner-LaMalfa mtg- Fw: [EXTERNAL] (Sites) Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

Is this the person we are bringing on board? Is he going to be pursuing this project while working for us?

Elizabeth W. Hadley

Deputy Area Manager

Bureau of Reclamation

Interior Region 10 - California-Great Basin

Northern California Area Office

Office (530) 247-8502

Cell (530) 722-7518

ehadley@usbr.gov

From: Navarro, Lisa M <LNavarro@usbr.gov>
Sent: Thursday, May 11, 2023 1:43 PM
To: Knecht, Mary Lee <MKnecht@usbr.gov>
Cc: Campbell Miranda, Tara Jane <tcampbellmiranda@usbr.gov>; Hadley, Elizabeth W <ehadley@usbr.gov>
Subject: Dale Widner-LaMalfa mtg- Fw: [EXTERNAL] (Sites) Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

Hi all,
FYI - please see email below from Dale Widner (a Caltrans engineer who retired in December) regarding his May 5 meeting with Congressman LaMalfa. In that meeting, LaMalfa raised the recent issues/complaints re Trinity Lake (orange highlights below) and supported Mr. Widner's concept for "Veterans Lake Steelhead Lake

(VLSL) for more water storage in California (offstream water storage with excess releases from Shasta Lake). (Yellow highlight is related to Sites.)

Dale Widner has had this idea for a "Veterans Lake Steelhead Lake" project possibly since 2010 and is trying to revive. In 2016, CVPIA Rod Wittler worked with Dale, researched/worked with Denver; nothing came from it; economic weren't there, nothing to pursue. (Rod is happy to brief anyone on this effort.)

Dale started contacting Allison Jacobson (PM for Sites) and me early April requesting to "update the record on VLSL in the 2020 Final Feasibility Study for the North of the Delta Offstream Storage (NODOS Report)." Allison doesn't think there is any obligation to update the record when all of the public comment deadlines have long since passed. However, we did have a brief call with Ali Forsythe a few minutes ago, who is also looking into this. To date, Allison and I have received 17 emails from Dale.

Also attached is an agenda Dale provided for a recent meeting with Allison Jacobson (PM for Sites); in it, he says Don Bader is bringing him on as a part time Project Manager in retirement (NEW Solutions Program).

Thanks,
Lisa

From: Dale Widner <dale.widner@yahoo.com>
Sent: Thursday, May 11, 2023 9:34 AM
To: Jacobson, Allison M <ajacobson@usbr.gov>; Navarro, Lisa M <LNavarro@usbr.gov>; Brenda Haynes <brenda.haynes@mail.house.gov>
Subject: [EXTERNAL] Latest info on Veterans Lake - Steelhead Lake (VLSL) after meeting with Congressman LaMalfa

Hi Allison/Lisa

Here is a heads up to give you the latest info on VLSL.

I was able to meet and discuss Veterans Lake - Steelhead Lake (VLSL) in Redding with Congressman Doug LaMalfa on Friday, May 5th, 2023. Brenda Haynes, his District Representative in Redding was also there.

Congressman LaMalfa is very interested in increasing water storage in California. The hour-long meeting went "super well" and the Congressman is very interested in the VLSL concept. They will be working on what they can do to help update the record on VLSL in the 2020 Final Feasibility Study for the North of the Delta Offstream Storage (NODOS Report). He feels that an Addendum or similar to the NODOS Report is needed to correct the record on VLSL going forward.

The Congressman also raised concerns with Trinity Reservoir and what ideas are possible to keep more of the water within the Trinity River watershed and send less to the Sacramento River via the Trinity River Diversion (TRD). His constituents in Trinity County have raised the issue that Trinity Lake is still half full this year while there are full lakes all around. Whiskeytown, Keswick, and Shasta are all full right now while Trinity Lake remains half full. Can anything be done about that? I informed him that Trinty Lake gets most of its inflow from snowmelt while Shasta Lake gets most of its inflow from rainfall - so there may be better results as it warms up.

After our meeting I modified the Detailed Description write up for VLSL to also address the Trinty River watershed issues raised by the Congressman. The new cold water pool that is created at Veterans Lake and the second new cold water pool at Steelhead Lake are game changers for reservoir operations and can allow for modifications to the existing Trinity River Diversions to the Sacramento River.

Please open and review the two attached files - VLSL V50 Detailed Description - 10 pages and Tunnel Vision.

Thank you and please contact me with your questions.

Dale Widner
(530) 917-7949

For Immediate Release:
May 19, 2023

Contact: Ann Newton
(310) 774-7639

Governor Newsom Includes Sites Reservoir in Building More, Creating Jobs Initiative

SACRAMENTO – Governor Newsom announced that Sites Reservoir is included in a list of beneficiaries in his sweeping reforms in a press conference today. As the Governor articulated in his remarks, these reforms will save time and save money.

"We applaud the Governor and his leadership to deliver critical infrastructure," said Fritz Durst, Chair, Reclamation District 108. "We look forward to engaging with the governor and his team as this works through the legislative process. Any efforts to speed up project construction and reduce costs by millions of dollars are more than welcome by the Sites Project Authority. We look forward to supporting the Governor's efforts to build more critical infrastructure and create jobs for all Californians."

Sites Reservoir is at the cusp of significant milestones, including consideration of a water right permit by the State Water Resources Control Board and the certification of its Final Environmental Impact Report/Statement, anticipated for later this year. The Governor's proposed legislation provides even more momentum and would allow us to more quickly realize the benefits of Sites Reservoir for people, the environment and farms.

Sites is an off-stream reservoir proposed north of the Sacramento-San Joaquin Delta, where it would provide unique water supply and environmental benefits during dry periods, especially during extended drought. Additional information can be found at www.sitesproject.org or on Facebook and Twitter at @SitesProject.

###

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 5/19/2023 1:16:21 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Subject: RE: Fire related BMP

Good catch- I missed that in my search. Thank you !

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Friday, May 19, 2023 10:50 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: RE: Fire related BMP

I am good with this. I think we also have fire breaks in Chapter 2 for land management. Page 2-29

Although buffer areas would generally remain undeveloped, the Authority would install limited features and perform periodic maintenance primarily related to reducing fire hazards. These actions would include erecting and maintaining fencing, grading fire breaks/trails, maintaining vegetation (e.g., grazing, tilling, or disking), and performing limited prescribed/controlled burns. The Authority may manage buffer areas as wildlife habitat where appropriate.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Sunday, May 14, 2023 3:27 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: FW: Fire related BMP

Hi Ali,

Jelica asked whether firebreaks were addressed in the EIR/EIS. I searched the document and confirmed that they are not. I suggest we add the following text to BMP-18 and make this part of our fire safety plan.

Please confirm and I will send this text edit to ICF.

Thank you,

Laurie

From: Laurie Warner Herson
Sent: Wednesday, April 26, 2023 8:36 AM

To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Subject: Fire related BMP

Hi Jelica,

I do not see specific reference to the construction of fire breaks but under BMP-18, implementation of a Fire Safety Plan:

BMP-18	Development and Implementation of Fire Safety Plans for Prevention and Suppression/Control During Construction and Maintenance	• Prepare a fire safety plan for review by Counties and CalFire for review. This plan will include precautions to carry out during high-fire danger, a list of fire-suppression equipment and tools to have on hand, a description of available communications; procedures and policies for controlling any fires that are on the work site, and other related fire prevention and control procedures (e.g., construction of firebreaks), specifications for the supply of water to have on hand, and descriptions of other actions that will reduce the risk of ignition and facilitate immediate control of an accidental fire. • Coordinate with applicable fire departments prior to construction activities to determine the appropriate type and amounts of fire equipment to be carried on vehicles. • Maintain fire-suppression equipment (e.g., fire extinguishers, fire blankets) at work locations and on equipment. • Construction personnel will be required to park vehicles away from dry vegetation. • If a fire should start, all appropriate fire protection agencies responsible will be contacted immediately. • Maintain a list of all major potential fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each potential major hazard. • Smoking will be allowed only in areas designated for smoking. • Gasoline-powered construction equipment with catalytic converters will be equipped with shielding or other acceptable fire prevention features. Internal combustion engines will be equipped with spark arrestors. • Welding sites will include fire prevention provisions. • The contractor will maintain contact with local firefighting agencies throughout the fire season for updates on fire conditions, and such fire conditions will be communicated daily to the on-site employees of the contractor and subcontractors daily. • Red Flag Warning events from the National Weather Service will be monitored daily and construction activities that have higher potential to result in wildfires (e.g., blasting or working in areas where vegetation has not been cleared) will cease. • Provide adequate and appropriate communication throughout the construction site(s) such as cell towers and radio repeater sites, operational radios, and/or operational telephones. • Communication equipment will be provided to all construction crews and monitors and equipment will be confirmed operational each day prior to initiating construction activities at each work site. • Water tanks and/or water trucks will be made available at active construction site(s) for fire protection during construction.

See text in red, above, we could add fire breaks to this BMP. Let me know what you think.

Laurie

Laurie Warner Herson
Principal/Owner

Phenix
Environmental Planning

916.201.3935
laurie.warner.herson@phenixenv.com
State of California Small Business (#1796182)
Supplier Clearinghouse Women Business Enterprise (#16000323)

http://phenixenv.com/

From: Briard, Monique [Monique.Briard@icf.com]
Sent: 5/22/2023 10:51:42 AM
To: Spranza, John [john.spranza@hdrinc.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Harris, Melissa [Melissa.Harris@icf.com]; Huber, Anne [Anne.Huber@icf.com]; Erecius, Lesa [Lesa.Erecius@icf.com]
Subject: RE: SPJPA Sites: CE QUAL W2 Action Items

John,

Based on our EIR/S schedule call last Thursday, we are trying to wrap up all of these updates by 5/31 which seems like we should proceed without the W2 results if they are still not available. Any delay at this point will push finalizing the document to September. Please confirm today if we are proceeding without the W2 results.

We are going to be sending you section 2D.3, the description of the RMP that has the Authority's new commitments, by Wednesday of this week (depending on if we are going to update the document with W2 results or not) we would like a quick review of it to ensure that you are okay with our updates and provide comments quickly if changes are needed so that we can finalize our response to comments tables.

Also, please add more material to better describe project benefits to the file that Anne sent you on May 2nd.

Thanks,

Monique
916.231.9551 (direct) or 916.842.0894 (cell)

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Thursday, May 18, 2023 8:51 AM
To: Huber, Anne <Anne.Huber@icf.com>; Erecius, Lesa <Lesa.Erecius@icf.com>; Briard, Monique <Monique.Briard@icf.com>
Cc: aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: FW: SPJPA Sites: CE QUAL W2 Action Items

Monique, Lesa, and Anne

I realize this information was due at the beginning of the week and that by not having it available, the schedule for finishing the FEIR/EIS is further strained. I will be talking with Ali and Angela about water quality close-out this afternoon.
Best,
John

John Spranza

D 916.679.8858 M 818.640.2487

From: Micko, Steve <Steve.Micko@jacobs.com>
Sent: Wednesday, May 17, 2023 4:58 PM
To: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Cc: Winslow, Kyle <Kyle.Winslow@jacobs.com>
Subject: SPJPA Sites: CE QUAL W2 Action Items

Hi John and Angela – We're planning to wrap-up the CE QUAL W2 actions items by the end of the week.

Thanks!
Steve

Steve Micko, PE (he/him) | Jacobs | Project Manager
O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 5/23/2023 7:26:41 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Naomi Tanaka [tanaka@mbkengineers.com]; JP Robinette [jrobinette@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
CC: Spranza, John [john.spranza@hdrinc.com]; Angela Bezzone [bezzone@mbkengineers.com]
Subject: Re: Sites Diversion Forecast - May 16th, 2023

Oh, one more thing. My next presentation where this will come up is next Thursday for ACWA Region 2. Can we have an updated estimate before then? thanks

---

From: Jerry Brown <jbrown@sitesproject.org>
Date: Monday, May 22, 2023 at 4:28 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

I'm fine with holding off but at this juncture, let's make our own best estimate of "adjusted amounts of divertable water during pulse conditions" by analyzing when the pulse flows occurred and then backing off/out those amounts from our calculation without engaging with Reclamation since this is the SPAs operations tool. It is understood that the tool is intended for estimating purposes and is not a substitute for the laws, rules, regulations and approvals that the SPA will operate the project to. Thanks

---

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Monday, May 22, 2023 at 12:45 PM
To: Jerry Brown <jbrown@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – Before we do that, I think we should develop some parameters around Reclamation's pulse flows. And then share those with Reclamation to make sure they agree. And then back out those numbers. While this will take a little bit of time, I'd like to make sure that we can defend in our numbers that we ARE NOT diverting water released for the purpose of the environment/fishery and NOT rediverting CVP water into Sites. I just want to be careful that we don't get pushback that we can't defend from Reclamation or NGOs on the numbers.

Angela, maybe you, Naomi and I schedule 30 minutes to talk about our current assumptions on this water and then figure out how to document those and true them up with Reclamation?

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, May 22, 2023 11:54 AM
To: Naomi Tanaka <tanaka@mbkengineers.com>; Alicia Forsythe <aforsythe@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

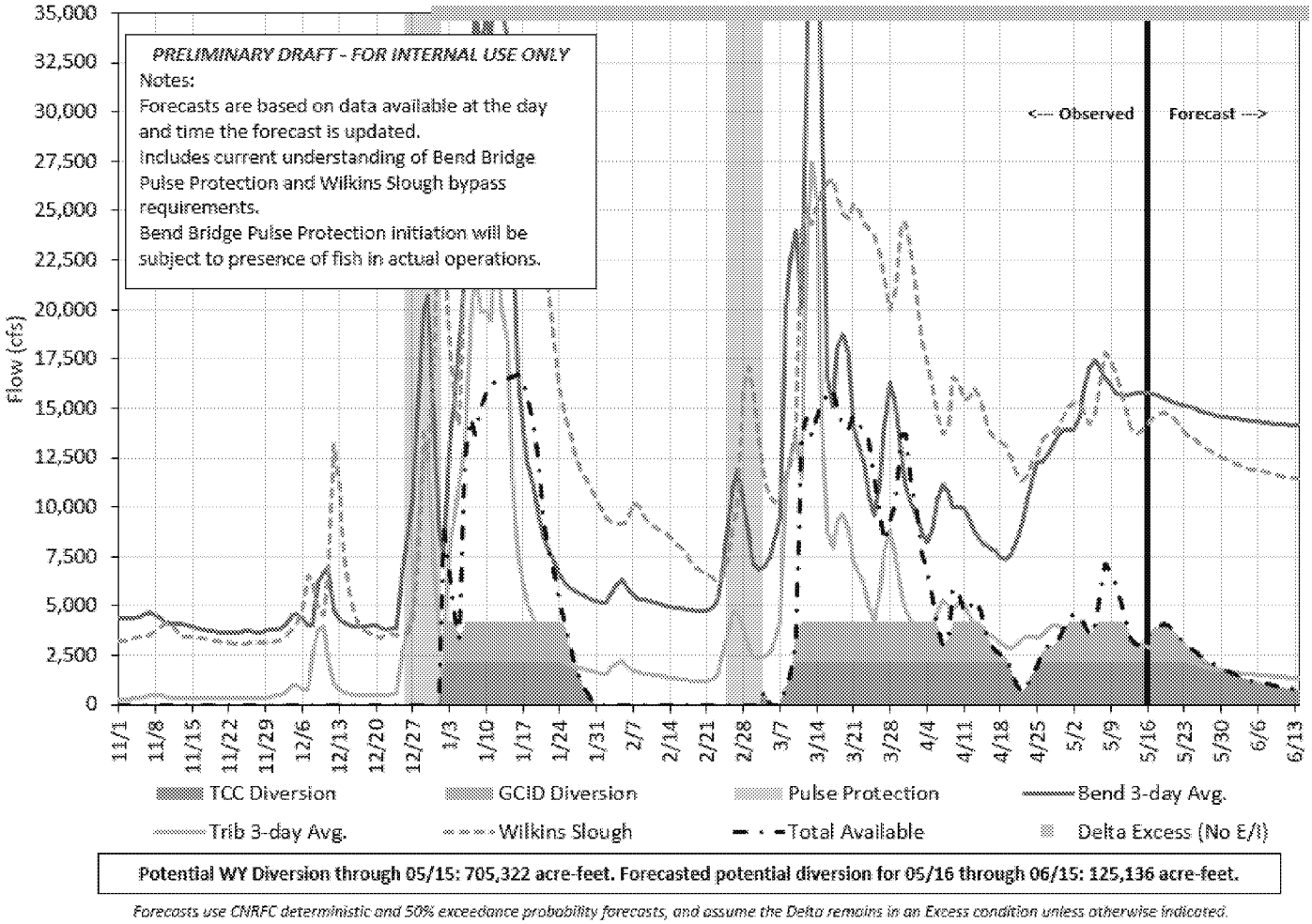
Is it okay to update our projection of "what Sites could have diverted this year" from ~500,000af to ~700,000af?

From: Naomi Tanaka <tanaka@mbkengineers.com>
Date: Tuesday, May 16, 2023 at 1:30 PM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Sites Diversion Forecast - May 16th, 2023

Good afternoon All,

Based on current conditions, we estimate that about 705 TAF could potentially be diverted to date. However, Reclamation had two spring pulse flow events scheduled from 4/24 - 4/28 and 5/8 - 5/14. Assuming a one-day travel time from Keswick to Bend Bridge, we estimate that Sites diversions may have been reduced by about 85 TAF based on no Sites diversions to protect the pulse flows. The forecast indicates the potential to divert another 125 TAF over the next 30 days. In addition, the Sacramento River flows are steadily decreasing over the 30-day forecast, reducing projected diversions. Also of note, the Sites diversion season would end on June 14, so the current forecast period includes the remainder of the potential diversions for the year.

We will monitor the forecast and send another update after the end of the diversion season.



As always, if you have any questions, please let me or Angela know, thank you!

Naomi Tanaka, E.I.T.
Assistant Engineer
MBK Engineers

455 University Avenue, Suite 100
Sacramento, CA 95825
Office: 916-456-4400, ext. 183

From: Barry O'Regan [boregan@ksninc.com]
Sent: 5/23/2023 8:37:58 AM
To: Amparo Flores [AFlores@brwncald.com]; JP Robinette [jrobinette@sitesproject.org]; Newens, Richard [Richard.Newens@hdrinc.com]; Kevin Spesert [kspesert@sitesproject.org]
CC: Lewis Bair [lbair@rd108.org]; William Vanderwaal [wvanderwaal@rd108.org]
Subject: KLOG Gage Stage - Issues with Model Calibration
Attachments: 2267-0130-Final-Survey_Control_Report.pdf; 2267-0130-Final-Staff-Gauge_Report.pdf

See attached our recent survey work referenced in the prior email. John Stofleth with cbec is leading model development for the Colusa Drain. He would be my first call if you have any questions about how subsidence may be impacting model calibration. His contact information is below.

John Stofleth, MS, PE
Senior Hydrologist

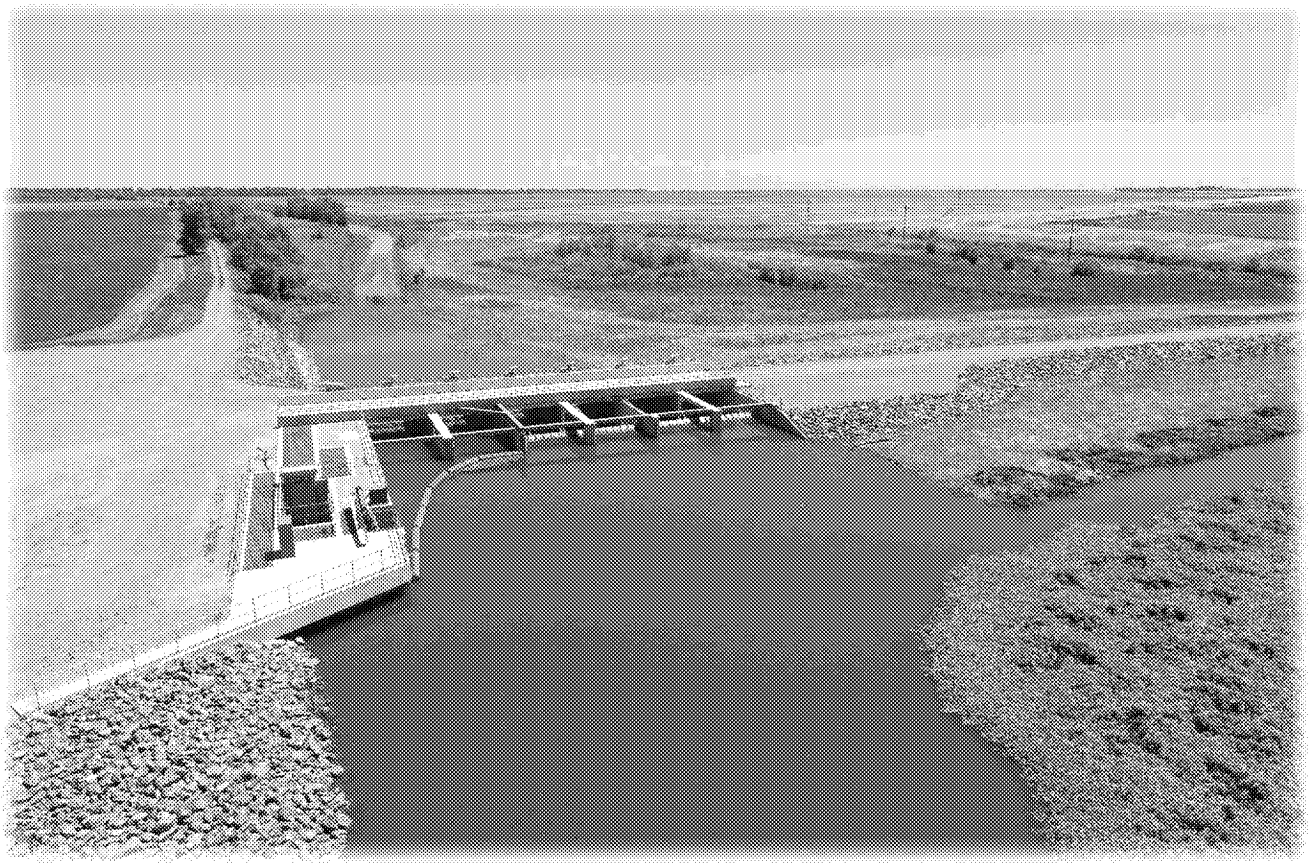
cbec, inc. eco engineering
916.668.5246 | direct
916.662.0122 | cell
public dropbox
cbecoeng.com
j.stofleth@cbecoeng.com

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
The trusted firm for delivering the right solution for our clients' needs.

Barry O'Regan , P.E. CFM
Principal Engineer
1550 Harbor Blvd. Suite 212 West Sacramento CA 95691
p 916 403-5900 f 916 403-5901 m 209 323-9864
boregan@ksninc.com www.ksninc.com

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS

Kjeldsen, Sinnock & Neudeck, Inc. (KSN)
Reclamation District No. 108
Stream Gauge Staff Survey
Primary Survey Control Report
Riggs Ranch, Knights Landing, Ridge Cut & Wallace Weir



April 2023

Prepared By:
Kris F. Nehmer, PLS
Land Surveying Manager
711 N. Pershing Avenue
Stockton, California 95203
(209) 946-0268
Email: knehmer@ksninc.com
Website: www.ksninc.com

Reclamation District No. 108
Staff Gauge Monitoring
Primary Survey Control Network Report
April 2023

Introduction and Observations

In April of 2023 Kjeldsen, Sinnock & Neudeck, Inc. (KSN) performed a GPS control survey along the Colusa Drain and Ridge Cut Slough. The purpose of the survey was to check historic elevation data on benchmarks used for referencing stream gauge staff readings. This report summarizes the processes used to establish a primary survey control network, which was then used to acquire stream gauge staff readings with conventional surveying methods. The specific locations include the following sites:

- Colusa Drain at Riggs Ranch Pump Station
- Colusa Drain at Knights Landing
- Ridge Cut Slough at Knights Landing
- Ridge Cut Slough at Wallace Weir

KSN observed the primary survey control network on April 5th, 6th, and 13th, 2023. Trimble R8-3 and Trimble R12 Global Navigation Satellite System (GNSS) receivers were used to acquire static observations. All observations, except one, utilized 2-meter fixed height tripods. Observations were post-processed with National Geodetic Survey (NGS) Continuously Operating Reference Stations (CORS). Several observations were also uploaded to the NGS Online Positioning Users Service (OPUS) to check against the final CORS adjusted values.

Data Check-in and Baseline Processing

Trimble Business Center (TBC) v 5.81 was utilized for checking the raw data and processing the baselines. The seed position selected for processing the baselines was CORS site SUTB. The following steps summarize the data check-in and processing.

- CORS data was downloaded for the following stations to include timelines that overlapped field observations by KSN.
    - P271: 6 hours 04/05/2023; 4 hours 04/06/2023; and 6 hours 04/13/2023
    - SACR: 6 hours 04/05/2023; 4 hours 04/06/2023; and 6 hours 04/13/2023
    - SUTB: 6 hours 04/05/2023; 4 hours 04/06/2023; and 6 hours 04/13/2023
- All CORS data baselines were processed and GNSS loop closures were analyzed; no flags or outliers were detected. All GNSS loop closures successfully passed with tolerance settings of 0.1' horizontal and 0.1' vertical.
- KSN static field observations were imported. After troubleshooting and processing baselines with the CORS observations, all loop closures successfully passed with tolerance settings of 0.1' horizontal and 0.1' vertical.

Loop Closures

A total of one-hundred thirteen (113) loops with three (3) legs each were generated. All the GNSS loops successfully passed the loop closure test with tolerance settings of 0.10sft in the horizontal position

and 0.10sft in the vertical position. The average loop length was 375,603.624sft; the largest closure error was 0.055sft in the horizontal position and 0.096sft in the vertical position. Please see the enclosed loop closure report for additional details. Successful GNSS loop closures indicate there are no issues with the post-processed baselines.

Primary Network Adjustment

The estimated error settings in TBC were set to 0.002sft for antenna height errors and 0.002sft for centering errors. A fully constrained adjustment was performed holding the record NGS Data Sheet positions for the CORS sites (SUTB, SACR, and P271). The horizontal positions were held fixed for all CORS sites, and the height (ellipsoid) was held fixed at SACR. The adjustment passed the CHI Squared Test with a 0.98 network reference factor with no outliers being detected. This adjustment was accepted. Please see the enclosed adjustment report for additional details. An attempt was made to fix all the CORS sites in 3d, but those adjustment results were not in agreement with OPUS solutions, and the best adjustment was that described above.

Separate from the primary network adjustment, NGS Online Positioning User Service (OPUS) solutions were generated for five primary control points occupied by KSN. Below is a comparison of the OPUS generated solutions and KSN's final adjusted primary network values using CORS data.

CORS Adjusted Network Positions					OPUS Solutions – CORS Adjusted			
Point	Northing	Easting	Elevation	Description	dN	dE	dZ	Ellipsoid
102	2050270.73	6625872.81	40.46	NGS CODY	-0.03	-0.03	-0.10	-0.09
103	2123687.12	6573545.99	44.28	NGS WAYNE	-0.03	0.00	-0.06	-0.06
502	2026492.95	6658568.54	41.45	DWR RES YOLO	-0.03	-0.04	-0.07	-0.08
505	2028248.40	6666310.18	23.56	NGS - SM NO 15	-0.05	0.03	-0.15	-0.16
507	2025473.28	6657416.86	26.60	RBRC KSN CONTROL	-0.04	-0.02	-0.10	-0.10

*All units are U.S. Survey Feet. Orthometric elevations are derived from adjusted ellipsoid heights and GEOID18.

The comparison between the CORS adjustment and OPUS derived solutions confirm that no outliers exist. The differences identified above are expected because of OPUS processing procedures, the processing methods of baselines derived by KSN, and the selected fixed CORS Stations. This exercise was performed as a quality control procedure.

A separate comparison was made between the CORS adjustment and published NGS data sheet values. As expected, the CORS stations have no deviation from record in the horizontal position since these stations were fixed in the adjustment. CORS stations SUTB and P271 do not have published orthometric elevations, but the ellipsoid values fit within expected tolerances for the range of coverage. There are notable differences at all other locations in both the horizontal and vertical positions.

CORS Adjusted Network Positions					NGS Data Sheet – CORS Adjusted			
Point	Northing	Easting	Elevation	Description	dN	dE	dZ	Ellipsoid
101	2050672.95	6639568.54	45.26	F859 RESET	-0.03	0.00	1.1	1.18
102	2050270.73	6625872.81	40.46	NGS CODY	0.11	0.00	1.1	1.19
103	2123687.12	6573545.99	44.28	NGS WAYNE	-0.76	-1.10	2.0	2.14
201	2201017.19	6612505.46	2119.14	SUTB - ARP	0.00	0.00	-	0.12
202	2001341.67	6643182.77	42.12	P271 - ARP	0.00	0.00	-	0.10
203	2001011.35	6746077.48	124.47	SACR - ARP	0.00	0.00	0.1	0.00
505	2028248.40	6666310.18	23.56	NGS - SM NO 15	0.21	-0.16	0.3	0.18

*All units are U.S. Survey Feet. Orthometric elevations are derived from adjusted ellipsoid heights and GEOID18.

The comparison shown on the previous table highlights the questionable confidence level of record historic elevations on NGS control points in the subject area.

Final Primary Project Survey Control

Below is a list of the final adjusted primary survey control. All coordinates are grid. The final coordinates are based on the North American Datum of 1983 (NAD 83 (2011)) converted to the California Coordinate System of 1983, Zone 2 (CCS83-Z2), 2010.00 epoch date adjustment, as referenced by NGS/OPUS/CORS control monuments. Elevations are based on the North American Vertical Datum of 1988 (NAVD 88) utilizing adjusted ellipsoid values and GEOID18.

Final Adjusted Primary Survey Control (OPUS/CORS NAVD88 GEOID18)				
Point	Northing	Easting	Elevation	Description
101	2050672.95	6639568.54	45.26	F859 RESET
102	2050270.73	6625872.81	40.46	NGS CODY
103	2123687.12	6573545.99	44.28	NGS WAYNE
201	2201017.19	6612505.46	2119.14	SUTB (ARP)
202	2001341.67	6643182.77	42.12	P271 (ARP)
203	2001011.35	6746077.48	124.47	SACR (ARP)
501	2034560.66	6648713.31	43.19	MAG NAIL ON HEADWALL
502	2026492.95	6658568.54	41.45	DWR RES YOLO
505	2028248.40	6666310.18	23.56	NGS - SM NO 15
507	2025473.28	6657416.86	26.60	RBRC KSN CONTROL
509	2024589.68	6657107.98	41.31	PK TBM
601	2130671.58	6567107.29	43.71	MAG NAIL ON BRIDGE
602	2130670.69	6567381.66	43.20	MAG NAIL ON TULE ROAD

Results and Conclusions

Utilizing CORS sites with measured and adjusted ellipsoid values is the best method for monitoring potential movement. The ellipsoid model (GRS80) does not change and is consistent for projecting GPS/GNSS observations to the NAD 83 California State Plane Zone Projections. However, ellipsoid heights are used with a Geoid Model to determine orthometric elevations (NAVD88). Geoid Models are refined over time and published by the NGS. There have been several Geoid Models (GEOID96, GEOID99, GEOID03, GEOID06, GEOID12, GEOID12A, GEOID12B, and GEOID18). This project utilized GEOID18, but historic published elevation data may have been determined or surveyed with the use of older Geoid Models. Keeping this in mind, an ellipsoid height at one location could produce different orthometric elevations if different Geoid Models are used.

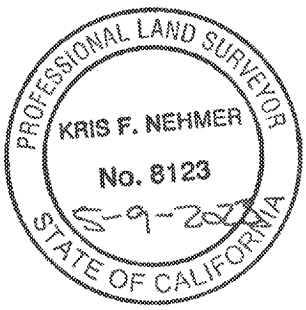
This network contains accurate observations that are based upon CORS data. GNSS baselines, GNSS loop closures, and the least square adjustment provide reliable results for the time of this survey. The adjusted coordinates and elevations provide solutions within expected tolerances. This primary survey control was used for conventional surveys at the sites noted above.

Survey Statement

This survey was prepared under my personal direction and supervision. The notes and data contained herein are true copies of the original.

KJELDSEN, SINNOCK & NEUDECK, INC.

Kris F. Nehmer, PLS #8123



w/enclosures

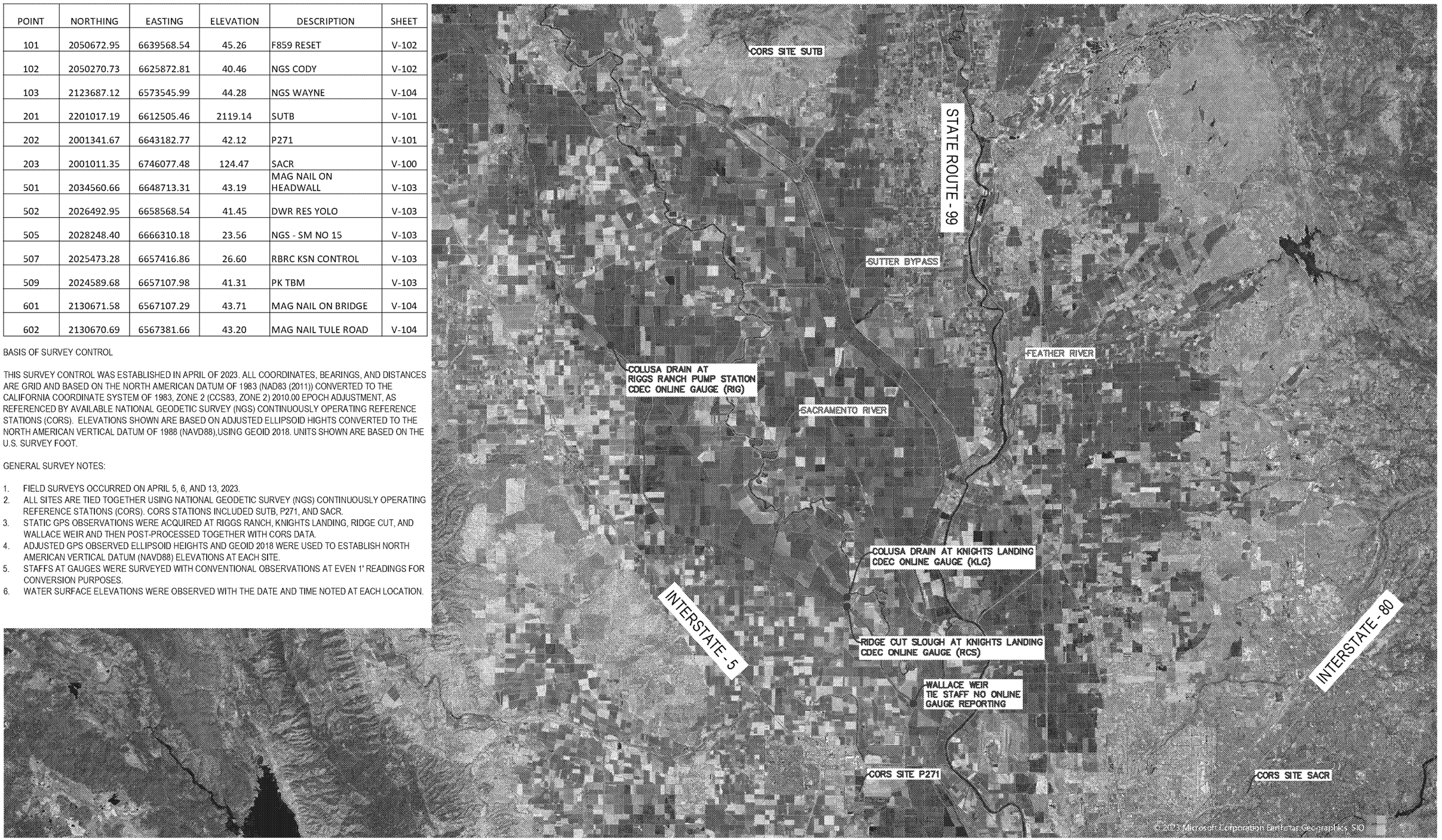
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	SHEET
101	2050672.95	6639568.54	45.26	F859 RESET	V-102
102	2050270.73	6625872.81	40.46	NGS CODY	V-102
103	2123687.12	6573545.99	44.28	NGS WAYNE	V-104
201	2201017.19	6612505.46	2119.14	SUTB	V-101
202	2001341.67	6643182.77	42.12	P271	V-101
203	2001011.35	6746077.48	124.47	SACR	V-100
501	2034560.66	6648713.31	43.19	MAG NAIL ON HEADWALL	V-103
502	2026492.95	6658568.54	41.45	DWR RES YOLO	V-103
505	2028248.40	6666310.18	23.56	NGS - SM NO 15	V-103
507	2025473.28	6657416.86	26.60	RBRC KSN CONTROL	V-103
509	2024589.68	6657107.98	41.31	PK TBM	V-103
601	2130671.58	6567107.29	43.71	MAG NAIL ON BRIDGE	V-104
602	2130670.69	6567381.66	43.20	MAG NAIL TULE ROAD	V-104

BASIS OF SURVEY CONTROL

THIS SURVEY CONTROL WAS ESTABLISHED IN APRIL OF 2023. ALL COORDINATES, BEARINGS, AND DISTANCES ARE GRID AND BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83 (2011)) CONVERTED TO THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 2 (CCS83, ZONE 2) 2010.00 EPOCH ADJUSTMENT, AS REFERENCED BY AVAILABLE NATIONAL GEODETIC SURVEY (NGS) CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS). ELEVATIONS SHOWN ARE BASED ON ADJUSTED ELLIPSOID HIGHTS CONVERTED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88),USING GEOID 2018. UNITS SHOWN ARE BASED ON THE U.S. SURVEY FOOT.

GENERAL SURVEY NOTES:

1. FIELD SURVEYS OCCURRED ON APRIL 5, 6, AND 13, 2023.
2. ALL SITES ARE TIED TOGETHER USING NATIONAL GEODETIC SURVEY (NGS) CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS). CORS STATIONS INCLUDED SUTB, P271, AND SACR.
3. STATIC GPS OBSERVATIONS WERE ACQUIRED AT RIGGS RANCH, KNIGHTS LANDING, RIDGE CUT, AND WALLACE WEIR AND THEN POST-PROCESSED TOGETHER WITH CORS DATA.
4. ADJUSTED GPS OBSERVED ELLIPSOID HEIGHTS AND GEOID 2018 WERE USED TO ESTABLISH NORTH AMERICAN VERTICAL DATUM (NAVD88) ELEVATIONS AT EACH SITE.
5. STAFFS AT GAUGES WERE SURVEYED WITH CONVENTIONAL OBSERVATIONS AT EVEN 1' READINGS FOR CONVERSION PURPOSES.
6. WATER SURFACE ELEVATIONS WERE OBSERVED WITH THE DATE AND TIME NOTED AT EACH LOCATION.



Know what's below. Call before you dig.

SUBMITTAL	
%	Date

NORTH ORIENTATION

PROJECT SURVEYOR

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR

DESIGN BY KFN
DRAWN BY KFN
CHECK BY KFN
HORIZONTAL DATUM CCS83, ZONE 2
VERTICAL DATUM NAVD88

DRAWING SCALE
1"=12,000'
ORIGINAL DRAWING SCALE
0 ½" 1"

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N. Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

KNIGHTS LANDING / COLUSA DRAIN / RIDGE CUT MONITORING
PRIMARY SURVEY CONTROL - CORS

SITE LOCATIONS
WW, RCS, KLG, & RIG

DATE APRIL
SHEET IDENTIFICATION V-101
SHEET 1 OF 4
KSN PROJECT FILE NO. 2267-0130

FILE SPEC: P:\2267_Reclamation_District_108\0130_Landscape_Scale_Feas_Study\07_Survey\100_Control\KLG-Monitoring\Exhibit\Adjusted-Control-Exhibit.dwg
PLOT DATE: Apr 26, 2023 - 4:04pm

Draft_0024976

FILE SPEC: P:\2267_Reclamation_District_108\0130_Landscape_Scale_Feas_Study\07_Survey\100_Control\KLG-Monitoring\Exhibit\Adjusted-Control-Exhibit.dwg
PLOT DATE: Apr 26, 2023 - 4:04pm

811 Know what's below. Call before you dig.

SUBMITTAL	
%	Date

NORTH ORIENTATION

PROJECT SURVEYOR

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR

DESIGN BY	KFN
DRAWN BY	KFN
CHECK BY	KFN
HORIZONTAL DATUM	CCS83, ZONE 2
VERTICAL DATUM	NAVD88

DRAWING SCALE

1"=1000'

ORIGINAL DRAWING SCALE

0 ½" 1"

KSN inc. KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N. Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

KNIGHTS LANDING / COLUSA DRAIN / RIDGE CUT MONITORING
PRIMARY SURVEY CONTROL - KNIGHTS LANDING/RIDGE CUT

SITE LOCATIONS COLUSA DRAIN AND RIDGE CUT

DATE
APRIL 2023

SHEET IDENTIFICATION
V-102
SHEET 2 OF 4

KSN PROJECT FILE NO.
2267-0130

Draft_0024977

NOTES:
1. PERFORMED STATIC TIES/OBSERVATIONS TO 501, 502, 505, 507, AND 509 FROM CORS.
2. CONVENTIONAL SURVEYS WERE PERFORM AT WALLACE WEIR.
3. PHOTOS WERE TAKEN OF ALL GAGES FOR REPORTING.
4. WATER SURFACE ELEVATIONS WERE SURVEYED WITH DATE AND TIME NOTED.

811 Know what's below. Call before you dig.

SUBMITTAL	
%	Date

NORTH ORIENTATION

PROJECT SURVEYOR
PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY	KFN
DRAWN BY	KFN
CHECK BY	KFN
HORIZONTAL DATUM	CCS83, ZONE 2
VERTICAL DATUM	NAVD88

DRAWING SCALE
1"=800'
ORIGINAL DRAWING SCALE
0 ½" 1"

KSN inc.
KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N. Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

KNIGHTS LANDING / COLUSA DRAIN / RIDGE CUT MONITORING
PRIMARY SURVEY CONTROL - WALLACE WEIR

SITE LOCATIONS
WALLACE WEIR

DATE APRIL 2023
SHEET IDENTIFICATION V-103
SHEET 3 OF 4
KSN PROJECT FILE NO. 2267-0130

FILE SPEC: P:\2267_Reclamation_District_108\0130_Landscape_Scale_Feas_Study\07_Survey\100_Control\KLG-Monitoring\Exhibit\Adjusted-Control-Exhibit.dwg
PLOT DATE: Apr 26, 2023 – 4:05pm

Draft_0024978

NOTES:
1. PERFORMED STATIC TIES/OBSERVATIONS TO 103 (WAYNE), 601 AND 602 FROM CORS.
2. CONVENTIONAL SURVEYS WERE PERFORMED AT RIGGS RANCH.
3. PHOTOS WERE TAKEN OF ALL GAGES FOR REPORTING.
4. WATER SURFACE ELEVATIONS WERE SURVEYED WITH DATE AND TIME NOTED.

FILE SPEC: P:\2267_Reclamation_District_108\0130_Landscape_Scale_Face_Study\07_Survey\100_Control\VKLG-Monitoring\Exhibit\Adjusted-Control-Exhibit.dwg
PLOT DATE: Apr 26, 2023 - 4:06pm

811 Know what's below. Call before you dig.

SUBMITTAL	
%	Date

NORTH ORIENTATION

PROJECT SURVEYOR
PRELIMINARY NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	APPR.

DESIGN BY	KFN
DRAWN BY	KFN
CHECK BY	KFN
HORIZONTAL DATUM	CCS83, ZONE 2
VERTICAL DATUM	NAVD88

DRAWING SCALE
1"=800'
ORIGINAL DRAWING SCALE
0 ½" 1"

KSN inc. KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS
www.ksninc.com
711 N. Pershing Avenue
Stockton, CA 95203
209-946-0268
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

KNIGHTS LANDING / COLUSA DRAIN / RIDGE CUT MONITORING
PRIMARY SURVEY CONTROL - RIGGS RANCH

SITE LOCATIONS
RIGGS RANCH

DATE
APRIL 2023

SHEET IDENTIFICATION
V-104
SHEET 4 OF 4

KSN PROJECT FILE NO.
2267-0130

KSN Inc
711 N. Pershing Ave
Stockton, CA 95203
Phone: 209-946-0268

Project File Data		**Coordinate System**	
Name:	R:\TBC\Projects\Network\2267-0130-Monitoring\2267-0130-Monitoring-Network.vce	Name:	United States/NAD83
Size:	135 KB	Zone:	California Zone 2 0402
Modified:	4/20/2023 7:57:01 PM (UTC:-7)	Datum:	NAD83(2011)
Time zone:	Pacific Standard Time	Global reference datum:	NAD83(2011)
Reference number:		Global reference epoch:	2010
Description:		Geoid:	GEOID18 (Conus)
Comment 1:		Vertical datum:	NAVD88
Comment 2:		Calibrated site:	
Comment 3:			

GNSS Loop Closure Results

Summary

Legs in loop: 3
Number of Loops: 113
Number Passed: 113
Number Failed: 0

	Length (US survey foot)	Δ3D (US survey foot)	ΔHoriz (US survey foot)	ΔVert (US survey foot)	PPM
Pass/Fail Criteria			0.100	0.100	
Best		0.004	0.001	0.000	0.015
Worst		0.100	0.055	0.096	2.164
Average Loop	375603.624	0.041	0.020	0.033	0.184
Standard Error	166103.690	0.047	0.023	0.041	0.266

Passed Loops

Loop: 202-201-509

Vector ID	From	To	Start Time
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 509 (PV53)	201	509	4/13/2023 1:48:42 PM
202 --> 509 (PV55)	202	509	4/13/2023 1:48:42 PM

PV15-PV53-PV55	**Length = 411167.349 ft**	**ΔHoriz = 0.055 ft**	**ΔVert = -0.080 ft**	**PPM = 0.237**
	Δ3D = 0.097 ft	**ΔX = 0.032 ft**	**ΔY = 0.016 ft**	**ΔZ = -0.091 ft**

Vector ID	From	To	Start Time
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM
201 --> 509 (PV53)	201	509	4/13/2023 1:48:42 PM
202 --> 509 (PV55)	202	509	4/13/2023 1:48:42 PM

PV1-PV53-PV55	**Length = 411167.364 ft**	**ΔHoriz = 0.042 ft**	**ΔVert = -0.017 ft**	**PPM = 0.110**
	Δ3D = 0.045 ft	**ΔX = -0.015 ft**	**ΔY = -0.005 ft**	**ΔZ = -0.042 ft**

Vector ID	From	To	Start Time
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM
201 --> 509 (PV53)	201	509	4/13/2023 1:48:42 PM
202 --> 509 (PV55)	202	509	4/13/2023 1:48:42 PM

PV2-PV53-PV55	**Length = 411167.365 ft**	**ΔHoriz = 0.040 ft**	**ΔVert = -0.042 ft**	**PPM = 0.140**
	Δ3D = 0.058 ft	**ΔX = -0.001 ft**	**ΔY = 0.010 ft**	**ΔZ = -0.057 ft**

Loop: 202-203-501

Vector ID	From	To	Start Time

202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM
202 --> 501 (PV50)	202	501	4/13/2023 10:48:27 AM

PV5-PV49-PV50	**Length = 239567.858 ft**	**ΔHoriz = 0.052 ft**	**ΔVert = -0.047 ft**	**PPM = 0.293**
	Δ3D = 0.070 ft	**ΔX = 0.007 ft**	**ΔY = 0.070 ft**	**ΔZ = 0.003 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM
202 --> 501 (PV50)	202	501	4/13/2023 10:48:27 AM

PV3-PV49-PV50	**Length = 239567.865 ft**	**ΔHoriz = 0.051 ft**	**ΔVert = -0.052 ft**	**PPM = 0.305**
	Δ3D = 0.073 ft	**ΔX = 0.016 ft**	**ΔY = 0.071 ft**	**ΔZ = 0.003 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM
202 --> 501 (PV50)	202	501	4/13/2023 10:48:27 AM

PV13-PV49-PV50	**Length = 239567.870 ft**	**ΔHoriz = 0.038 ft**	**ΔVert = -0.032 ft**	**PPM = 0.208**
	Δ3D = 0.050 ft	**ΔX = 0.008 ft**	**ΔY = 0.049 ft**	**ΔZ = 0.006 ft**

Loop: 202-502-501

Vector ID	From	To	Start Time
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM
502 --> 501 (PV47)	502	501	4/13/2023 10:48:27 AM
202 --> 501			4/13/2023 10:48:27

(PV50)	202	501		AM	
PV35-PV47-PV50	**Length = 75901.145 ft**	**ΔHoriz = 0.051 ft**	**ΔVert = -0.030 ft**	**PPM = 0.783**	
	Δ3D = 0.059 ft	**ΔX = 0.014 ft**	**ΔY = 0.054 ft**	**ΔZ = 0.019 ft**	

Loop: 202-505-501

Vector ID	From	To	Start Time		
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM		
505 --> 501 (PV46)	505	501	4/13/2023 10:48:27 AM		
202 --> 501 (PV50)	202	501	4/13/2023 10:48:27 AM		
PV39-PV46-PV50	**Length = 87856.577 ft**	**ΔHoriz = 0.042 ft**	**ΔVert = -0.064 ft**	**PPM = 0.871**	
	Δ3D = 0.077 ft	**ΔX = 0.039 ft**	**ΔY = 0.066 ft**	**ΔZ = -0.007 ft**	

Loop: 202-507-501

Vector ID	From	To	Start Time		
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM		
507 --> 501 (PV45)	507	501	4/13/2023 10:48:27 AM		
202 --> 501 (PV50)	202	501	4/13/2023 10:48:27 AM		
PV44-PV45-PV50	**Length = 74280.562 ft**	**ΔHoriz = 0.041 ft**	**ΔVert = -0.048 ft**	**PPM = 0.847**	
	Δ3D = 0.063 ft	**ΔX = 0.020 ft**	**ΔY = 0.059 ft**	**ΔZ = 0.000 ft**	

Loop: 202-201-502

Vector ID	From	To	Start Time
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM
201 --> 502			4/13/2023 8:59:42

(PV33)	201	502	AM
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV1-PV33-PV35	**Length = 412074.565 ft**	**ΔHoriz = 0.035 ft**	**ΔVert = 0.009 ft**	**PPM = 0.089**
	Δ3D = 0.037 ft	**ΔX = -0.032 ft**	**ΔY = 0.015 ft**	**ΔZ = 0.009 ft**

Vector ID	From	To	Start Time
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV2-PV33-PV35	**Length = 412074.565 ft**	**ΔHoriz = 0.032 ft**	**ΔVert = -0.016 ft**	**PPM = 0.086**
	Δ3D = 0.035 ft	**ΔX = -0.018 ft**	**ΔY = 0.030 ft**	**ΔZ = -0.006 ft**

Vector ID	From	To	Start Time
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV15-PV33-PV35	**Length = 412074.549 ft**	**ΔHoriz = 0.009 ft**	**ΔVert = -0.055 ft**	**PPM = 0.135**
	Δ3D = 0.056 ft	**ΔX = 0.015 ft**	**ΔY = 0.037 ft**	**ΔZ = -0.039 ft**

Loop: 202-203-201

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV13-PV14-PV1	**Length = 545499.590 ft**	**ΔHoriz = 0.035 ft**	**ΔVert = -0.051 ft**	**PPM = 0.114**
	Δ3D = 0.062 ft	**ΔX = 0.038 ft**	**ΔY = 0.008 ft**	**ΔZ = -0.049 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV13-PV14-PV2	**Length = 545499.591 ft**	**ΔHoriz = 0.033 ft**	**ΔVert = -0.026 ft**	**PPM = 0.078**
	Δ3D = 0.042 ft	**ΔX = 0.024 ft**	**ΔY = -0.007 ft**	**ΔZ = -0.034 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV13-PV4-PV1	**Length = 545499.593 ft**	**ΔHoriz = 0.031 ft**	**ΔVert = 0.001 ft**	**PPM = 0.057**
	Δ3D = 0.031 ft	**ΔX = 0.005 ft**	**ΔY = -0.023 ft**	**ΔZ = -0.020 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV13-PV4-PV2	**Length = 545499.594 ft**	**ΔHoriz = 0.030 ft**	**ΔVert = 0.026 ft**	**PPM = 0.073**
	Δ3D = 0.040 ft	**ΔX = -0.010 ft**	**ΔY = -0.038 ft**	**ΔZ = -0.006 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV13-PV6-PV1	**Length = 545499.601 ft**	**ΔHoriz = 0.028 ft**	**ΔVert = -0.013 ft**	**PPM = 0.057**
	Δ3D = 0.031 ft	**ΔX = 0.024 ft**	**ΔY = -0.011 ft**	**ΔZ = -0.016 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV5-PV4-PV15	**Length = 545499.566 ft**	**ΔHoriz = 0.026 ft**	**ΔVert = 0.050 ft**	**PPM = 0.103**
	Δ3D = 0.056 ft	**ΔX = -0.044 ft**	**ΔY = -0.024 ft**	**ΔZ = 0.025 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV13-PV6-PV2	**Length = 545499.601 ft**	**ΔHoriz = 0.025 ft**	**ΔVert = 0.012 ft**	**PPM = 0.051**
	Δ3D = 0.028 ft	**ΔX = 0.010 ft**	**ΔY = -0.026 ft**	**ΔZ = -0.002 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV3-PV14-PV1	**Length = 545499.585 ft**	**ΔHoriz = 0.025 ft**	**ΔVert = -0.072 ft**	**PPM = 0.139**

	ΔΔ3D = 0.076 ft	**ΔΔX = 0.046 ft**	**ΔΔY = 0.030 ft**	**ΔΔZ = -0.052 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV3-PV14-PV2	**Length = 545499.586 ft**	**ΔΔHoriz = 0.022 ft**	**ΔΔVert = -0.047 ft**	**PPM = 0.095**
	ΔΔ3D = 0.052 ft	**ΔΔX = 0.032 ft**	**ΔΔY = 0.015 ft**	**ΔΔZ = -0.038 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV3-PV6-PV1	**Length = 545499.595 ft**	**ΔΔHoriz = 0.021 ft**	**ΔΔVert = -0.033 ft**	**PPM = 0.072**
	ΔΔ3D = 0.039 ft	**ΔΔX = 0.032 ft**	**ΔΔY = 0.011 ft**	**ΔΔZ = -0.020 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV5-PV14-PV1	**Length = 545499.578 ft**	**ΔΔHoriz = 0.021 ft**	**ΔΔVert = -0.066 ft**	**PPM = 0.127**
	ΔΔ3D = 0.069 ft	**ΔΔX = 0.037 ft**	**ΔΔY = 0.029 ft**	**ΔΔZ = -0.051 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV13-PV4-PV15	**Length = 545499.578 ft**	**ΔHoriz = 0.020 ft**	**ΔVert = 0.065 ft**	**PPM = 0.125**
	Δ3D = 0.068 ft	**ΔX = -0.043 ft**	**ΔY = -0.045 ft**	**ΔZ = 0.028 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV5-PV4-PV2	**Length = 545499.582 ft**	**ΔHoriz = 0.019 ft**	**ΔVert = 0.011 ft**	**PPM = 0.041**
	Δ3D = 0.022 ft	**ΔX = -0.011 ft**	**ΔY = -0.017 ft**	**ΔZ = -0.008 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV5-PV14-PV2	**Length = 545499.579 ft**	**ΔHoriz = 0.019 ft**	**ΔVert = -0.041 ft**	**PPM = 0.083**
	Δ3D = 0.045 ft	**ΔX = 0.023 ft**	**ΔY = 0.014 ft**	**ΔZ = -0.037 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV5-PV4-PV1	**Length = 545499.581 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = -0.014 ft**	**PPM = 0.043**
	Δ3D = 0.023 ft	**ΔX = 0.003 ft**	**ΔY = -0.002 ft**	**ΔZ = -0.023 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM

201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV3-PV4-PV1	**Length = 545499.588 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = -0.019 ft**	**PPM = 0.049**
	Δ3D = 0.027 ft	**ΔX = 0.012 ft**	**ΔY = -0.001 ft**	**ΔZ = -0.024 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV3-PV4-PV15	**Length = 545499.573 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = 0.044 ft**	**PPM = 0.088**
	Δ3D = 0.048 ft	**ΔX = -0.035 ft**	**ΔY = -0.022 ft**	**ΔZ = 0.025 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV3-PV4-PV2	**Length = 545499.589 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = 0.005 ft**	**PPM = 0.033**
	Δ3D = 0.018 ft	**ΔX = -0.002 ft**	**ΔY = -0.016 ft**	**ΔZ = -0.009 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV3-PV6-PV2	**Length = 545499.596 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = -0.008 ft**	**PPM = 0.035**
	Δ3D = 0.019 ft	**ΔX = 0.018 ft**	**ΔY = -0.004 ft**	**ΔZ = -0.005 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM

201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV5-PV6-PV15	**Length = 545499.573 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = 0.036 ft**	**PPM = 0.073**
	Δ3D = 0.040 ft	**ΔX = -0.025 ft**	**ΔY = -0.012 ft**	**ΔZ = 0.029 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM

PV5-PV6-PV1	**Length = 545499.588 ft**	**ΔHoriz = 0.014 ft**	**ΔVert = -0.028 ft**	**PPM = 0.057**
	Δ3D = 0.031 ft	**ΔX = 0.022 ft**	**ΔY = 0.010 ft**	**ΔZ = -0.019 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV3-PV6-PV15	**Length = 545499.580 ft**	**ΔHoriz = 0.014 ft**	**ΔVert = 0.031 ft**	**PPM = 0.062**
	Δ3D = 0.034 ft	**ΔX = -0.015 ft**	**ΔY = -0.010 ft**	**ΔZ = 0.028 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV5-PV14-PV15	**Length = 545499.563 ft**	**ΔHoriz = 0.013 ft**	**ΔVert = -0.002 ft**	**PPM = 0.024**
	Δ3D = 0.013 ft	**ΔX = -0.010 ft**	**ΔY = 0.007 ft**	**ΔZ = -0.003 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV13-PV14-PV15	**Length = 545499.575 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = 0.013 ft**	**PPM = 0.030**
	Δ3D = 0.017 ft	**ΔX = -0.009 ft**	**ΔY = -0.014 ft**	**ΔZ = 0.000 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM

PV5-PV6-PV2	**Length = 545499.589 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = -0.003 ft**	**PPM = 0.020**
	Δ3D = 0.011 ft	**ΔX = 0.008 ft**	**ΔY = -0.005 ft**	**ΔZ = -0.005 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV3-PV14-PV15	**Length = 545499.570 ft**	**ΔHoriz = 0.005 ft**	**ΔVert = -0.008 ft**	**PPM = 0.017**
	Δ3D = 0.009 ft	**ΔX = -0.001 ft**	**ΔY = 0.008 ft**	**ΔZ = -0.004 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM

PV13-PV6-PV15	**Length = 545499.585 ft**	**ΔHoriz = 0.002 ft**	**ΔVert = 0.051 ft**	**PPM = 0.094**
	Δ3D = 0.051 ft	**ΔX = -0.023 ft**	**ΔY = -0.033 ft**	**ΔZ = 0.032 ft**

Loop: 103-202-201

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV11-PV15-PV12	**Length = 429464.684 ft**	**ΔHoriz = 0.035 ft**	**ΔVert = -0.040 ft**	**PPM = 0.125**
	Δ3D = 0.054 ft	**ΔX = 0.029 ft**	**ΔY = 0.001 ft**	**ΔZ = -0.045 ft**

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV11-PV1-PV12	**Length = 429464.699 ft**	**ΔHoriz = 0.015 ft**	**ΔVert = 0.024 ft**	**PPM = 0.065**
	Δ3D = 0.028 ft	**ΔX = -0.018 ft**	**ΔY = -0.021 ft**	**ΔZ = 0.003 ft**

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV11-PV2-PV12	**Length = 429464.699 ft**	**ΔHoriz = 0.013 ft**	**ΔVert = -0.001 ft**	**PPM = 0.031**
				ΔZ = -0.011

	ΔΔ3D = 0.013 ft	**ΔΔX = -0.004 ft**	**ΔΔY = -0.006 ft**	**ft**

Loop: 103-202-203

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM

PV11-PV13-PV10	**Length = 455399.696 ft**	**ΔHoriz = 0.033 ft**	**ΔVert = 0.009 ft**	**PPM = 0.074**
	Δ3D = 0.034 ft	**ΔX = 0.015 ft**	**ΔY = -0.030 ft**	**ΔZ = -0.007 ft**

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM

PV11-PV3-PV10	**Length = 455399.691 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = -0.011 ft**	**PPM = 0.057**
	Δ3D = 0.026 ft	**ΔX = 0.023 ft**	**ΔY = -0.007 ft**	**ΔZ = -0.011 ft**

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM

PV11-PV5-PV10	**Length = 455399.684 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = -0.006 ft**	**PPM = 0.041**
	Δ3D = 0.019 ft	**ΔX = 0.013 ft**	**ΔY = -0.009 ft**	**ΔZ = -0.010 ft**

Loop: 103-203-601

Vector ID	From	To	Start Time
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM
203 --> 601 (PV28)	203	601	4/6/2023 12:58:42 PM
103 --> 601 (PV26)	103	601	4/6/2023 12:58:42 PM

PV10-PV28-PV26	**Length = 442231.591 ft**	**ΔHoriz = 0.031 ft**	**ΔVert = 0.000 ft**	**PPM = 0.071**
	Δ3D = 0.031 ft	**ΔX = -0.018 ft**	**ΔY = 0.023 ft**	**ΔZ = 0.011 ft**

Loop: 201-502-509

Vector ID	From	To	Start Time
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
502 --> 509 (PV52)	502	509	4/13/2023 1:48:42 PM
201 --> 509 (PV53)	201	509	4/13/2023 1:48:42 PM

PV33-PV52-PV53	**Length = 364947.141 ft**	**ΔHoriz = 0.030 ft**	**ΔVert = 0.050 ft**	**PPM = 0.160**
	Δ3D = 0.058 ft	**ΔX = -0.032 ft**	**ΔY = -0.010 ft**	**ΔZ = 0.048 ft**

Loop: 201-502-505

Vector ID	From	To	Start Time
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM

PV33-PV36-PV37	**Length = 369461.559 ft**	**ΔHoriz = 0.030 ft**	**ΔVert = -0.078 ft**	**PPM = 0.225**

	ΔX = 0.009 ft	**ΔY = 0.070 ft**	**ΔZ = -0.045 ft**	

Loop: 103-203-201

Vector ID	From	To	Start Time
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV10-PV4-PV12	**Length = 538884.569 ft**	**ΔHoriz = 0.029 ft**	**ΔVert = 0.015 ft**	**PPM = 0.062**
	ΔX = -0.028 ft	**ΔY = -0.015 ft**	**ΔZ = -0.010 ft**	

Vector ID	From	To	Start Time
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV10-PV14-PV12	**Length = 538884.566 ft**	**ΔHoriz = 0.020 ft**	**ΔVert = -0.037 ft**	**PPM = 0.077**
	ΔX = 0.005 ft	**ΔY = 0.016 ft**	**ΔZ = -0.038 ft**	

Vector ID	From	To	Start Time
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 103 (PV12)	201	103	4/6/2023 10:08:12 AM

PV10-PV6-PV12	**Length = 538884.577 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = 0.002 ft**	**PPM = 0.020**
	ΔX = -0.009 ft	**ΔY = -0.003 ft**	**ΔZ = -0.006 ft**	

Loop: 202-505-509

Vector ID	From	To	Start Time
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM
505 --> 509 (PV51)	505	509	4/13/2023 1:48:32 PM
202 --> 509 (PV55)	202	509	4/13/2023 1:48:42 PM

PV39-PV51-PV55	**Length = 72486.962 ft**	**ΔHoriz = 0.029 ft**	**ΔVert = -0.020 ft**	**PPM = 0.487**
	Δ3D = 0.035 ft	**ΔX = 0.006 ft**	**ΔY = -0.006 ft**	**ΔZ = -0.034 ft**

Loop: 102-203-101

Vector ID	From	To	Start Time
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM
203 --> 101 (PV17)	203	101	4/5/2023 9:56:22 AM
102 --> 101 (PV16)	102	101	4/5/2023 9:56:22 AM

PV7-PV17-PV16	**Length = 261142.443 ft**	**ΔHoriz = 0.029 ft**	**ΔVert = 0.025 ft**	**PPM = 0.147**
	Δ3D = 0.038 ft	**ΔX = -0.019 ft**	**ΔY = 0.005 ft**	**ΔZ = 0.033 ft**

Loop: 103-203-602

Vector ID	From	To	Start Time
203 --> 103 (PV10)	203	103	4/6/2023 10:08:12 AM
203 --> 602 (PV27)	203	602	4/6/2023 12:40:37 PM
103 --> 602 (PV25)	103	602	4/6/2023 12:40:37 PM

PV10-PV27-PV25	**Length = 441824.453 ft**	**ΔHoriz = 0.029 ft**	**ΔVert = 0.096 ft**	**PPM = 0.227**
	Δ3D = 0.100 ft	**ΔX = -0.059 ft**	**ΔY = -0.044 ft**	**ΔZ = 0.068 ft**

Loop: 203-201-507

Vector ID	From	To	Start Time
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM

PV4-PV42-PV43	**Length = 513756.408 ft**	**ΔHoriz = 0.029 ft**	**ΔVert = 0.067 ft**	**PPM = 0.142**
	Δ3D = 0.073 ft	**ΔX = -0.040 ft**	**ΔY = -0.057 ft**	**ΔZ = 0.020 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM

PV14-PV42-PV43	**Length = 513756.405 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = 0.015 ft**	**PPM = 0.055**
	Δ3D = 0.028 ft	**ΔX = -0.007 ft**	**ΔY = -0.026 ft**	**ΔZ = -0.008 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM

PV6-PV42-PV43	**Length = 513756.415 ft**	**ΔHoriz = 0.014 ft**	**ΔVert = 0.053 ft**	**PPM = 0.107**
	Δ3D = 0.055 ft	**ΔX = -0.021 ft**	**ΔY = -0.045 ft**	**ΔZ = 0.024 ft**

Loop: 203-502-505

Vector ID	From	To	Start Time
203 --> 502			

(PV34)	203	502	4/13/2023 8:59:42 AM	
505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM	
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM	
PV34-PV36-PV38	**Length = 183382.100 ft**	**ΔHoriz = 0.028 ft**	**ΔVert = -0.031 ft**	**PPM = 0.231**
	Δ3D = 0.042 ft	**ΔX = -0.012 ft**	**ΔY = 0.035 ft**	**ΔZ = -0.020 ft**

Loop: 202-201-505

Vector ID	From	To	Start Time	
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM	
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM	
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM	
PV1-PV37-PV39	**Length = 418523.628 ft**	**ΔHoriz = 0.028 ft**	**ΔVert = 0.090 ft**	**PPM = 0.226**
	Δ3D = 0.094 ft	**ΔX = -0.056 ft**	**ΔY = -0.040 ft**	**ΔZ = 0.065 ft**

Vector ID	From	To	Start Time	
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM	
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM	
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM	
PV2-PV37-PV39	**Length = 418523.628 ft**	**ΔHoriz = 0.025 ft**	**ΔVert = 0.065 ft**	**PPM = 0.167**
	Δ3D = 0.070 ft	**ΔX = -0.042 ft**	**ΔY = -0.025 ft**	**ΔZ = 0.050 ft**

Vector ID	From	To	Start Time
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM
202 --> 505			4/13/2023 10:13:42

(PV39)	202	505	AM	
PV15-PV37-PV39	**Length = 418523.613 ft**	**ΔHoriz = 0.002 ft**	**ΔVert = 0.026 ft**	**PPM = 0.063**
	Δ3D = 0.026 ft	**ΔX = -0.009 ft**	**ΔY = -0.018 ft**	**ΔZ = 0.016 ft**

Loop: 102-202-201

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV8-PV15-PV9	**Length = 405329.096 ft**	**ΔHoriz = 0.026 ft**	**ΔVert = -0.073 ft**	**PPM = 0.191**
	Δ3D = 0.077 ft	**ΔX = 0.046 ft**	**ΔY = 0.030 ft**	**ΔZ = -0.054 ft**

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV8-PV1-PV9	**Length = 405329.111 ft**	**ΔHoriz = 0.005 ft**	**ΔVert = -0.009 ft**	**PPM = 0.026**
	Δ3D = 0.011 ft	**ΔX = -0.001 ft**	**ΔY = 0.009 ft**	**ΔZ = -0.006 ft**

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV8-PV2-PV9	**Length = 405329.112 ft**	**ΔHoriz = 0.002 ft**	**ΔVert = -0.034 ft**	**PPM = 0.084**
	Δ3D = 0.034 ft	**ΔX = 0.013 ft**	**ΔY = 0.024 ft**	**ΔZ = -0.021 ft**

Loop: 202-201-507

Vector ID	From	To	Start Time
201 --> 202 (PV1)	201	202	4/5/2023 8:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV1-PV42-PV44	**Length = 411304.637 ft**	**ΔHoriz = 0.025 ft**	**ΔVert = 0.038 ft**	**PPM = 0.110**
	Δ3D = 0.045 ft	**ΔX = -0.038 ft**	**ΔY = -0.016 ft**	**ΔZ = 0.018 ft**

Vector ID	From	To	Start Time
201 --> 202 (PV2)	201	202	4/6/2023 9:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV2-PV42-PV44	**Length = 411304.637 ft**	**ΔHoriz = 0.021 ft**	**ΔVert = 0.013 ft**	**PPM = 0.060**
	Δ3D = 0.025 ft	**ΔX = -0.024 ft**	**ΔY = -0.001 ft**	**ΔZ = 0.004 ft**

Vector ID	From	To	Start Time
202 --> 201 (PV15)	202	201	4/13/2023 8:59:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV15-PV42-PV44	**Length = 411304.621 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = -0.026 ft**	**PPM = 0.077**
	Δ3D = 0.032 ft	**ΔX = 0.009 ft**	**ΔY = 0.006 ft**	**ΔZ = -0.030 ft**

Loop: 202-502-509

Vector ID	From	To	Start Time
202 --> 502			4/13/2023 8:59:42

(PV35)	202	502	AM	
502 --> 509 (PV52)	502	509	4/13/2023 1:48:42 PM	
202 --> 509 (PV55)	202	509	4/13/2023 1:48:42 PM	
PV35-PV52-PV55	**Length = 58986.131 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = 0.024 ft**	**PPM = 0.583**
	Δ3D = 0.034 ft	**ΔX = -0.015 ft**	**ΔY = -0.031 ft**	**ΔZ = -0.004 ft**

Loop: 201-505-509

Vector ID	From	To	Start Time	
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM	
505 --> 509 (PV51)	505	509	4/13/2023 1:48:32 PM	
201 --> 509 (PV53)	201	509	4/13/2023 1:48:42 PM	
PV37-PV51-PV53	**Length = 372903.884 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = 0.087 ft**	**PPM = 0.243**
	Δ3D = 0.091 ft	**ΔX = -0.035 ft**	**ΔY = -0.041 ft**	**ΔZ = 0.073 ft**

Loop: 203-505-501

Vector ID	From	To	Start Time	
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM	
505 --> 501 (PV46)	505	501	4/13/2023 10:48:27 AM	
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM	
PV38-PV46-PV49	**Length = 205978.984 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = -0.019 ft**	**PPM = 0.148**
	Δ3D = 0.031 ft	**ΔX = 0.029 ft**	**ΔY = 0.007 ft**	**ΔZ = -0.003 ft**

Loop: 203-201-505

Vector ID	From	To	Start Time
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM

PV4-PV37-PV38	**Length = 505827.048 ft**	**ΔHoriz = 0.024 ft**	**ΔVert = 0.078 ft**	**PPM = 0.161**
	Δ3D = 0.081 ft	**ΔX = -0.050 ft**	**ΔY = -0.054 ft**	**ΔZ = 0.034 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM

PV14-PV37-PV38	**Length = 505827.045 ft**	**ΔHoriz = 0.014 ft**	**ΔVert = 0.026 ft**	**PPM = 0.057**
	Δ3D = 0.029 ft	**ΔX = -0.017 ft**	**ΔY = -0.023 ft**	**ΔZ = 0.006 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM

PV6-PV37-PV38	**Length = 505827.055 ft**	**ΔHoriz = 0.005 ft**	**ΔVert = 0.064 ft**	**PPM = 0.128**
	Δ3D = 0.065 ft	**ΔX = -0.031 ft**	**ΔY = -0.042 ft**	**ΔZ = 0.038 ft**

Loop: 202-502-505

Vector ID	From	To	Start Time
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM

PV35-PV36-PV39	**Length = 72906.850 ft**	**ΔHoriz = 0.023 ft**	**ΔVert = 0.003 ft**	**PPM = 0.322**
	Δ3D = 0.023 ft	**ΔX = -0.015 ft**	**ΔY = 0.014 ft**	**ΔZ = 0.011 ft**

Loop: 201-502-507

Vector ID	From	To	Start Time
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
507 --> 502 (PV41)	507	502	4/13/2023 9:15:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM

PV33-PV41-PV42	**Length = 363306.124 ft**	**ΔHoriz = 0.023 ft**	**ΔVert = 0.001 ft**	**PPM = 0.062**
	Δ3D = 0.023 ft	**ΔX = -0.011 ft**	**ΔY = 0.016 ft**	**ΔZ = 0.011 ft**

Loop: 203-505-507

Vector ID	From	To	Start Time
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM
507 --> 505 (PV40)	507	505	4/13/2023 10:13:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM

PV38-PV40-PV43	**Length = 185590.117 ft**	**ΔHoriz = 0.022 ft**	**ΔVert = 0.049 ft**	**PPM = 0.288**
	Δ3D = 0.053 ft	**ΔX = -0.001 ft**	**ΔY = -0.044 ft**	**ΔZ = 0.031 ft**

Loop: 203-201-502

Vector ID	From	To	Start Time

201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM

PV4-PV33-PV34	**Length = 512229.160 ft**	**ΔHoriz = 0.020 ft**	**ΔVert = 0.031 ft**	**PPM = 0.072**
	Δ3D = 0.037 ft	**ΔX = -0.030 ft**	**ΔY = -0.020 ft**	**ΔZ = 0.010 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM

PV14-PV33-PV34	**Length = 512229.157 ft**	**ΔHoriz = 0.008 ft**	**ΔVert = -0.021 ft**	**PPM = 0.043**
	Δ3D = 0.022 ft	**ΔX = 0.004 ft**	**ΔY = 0.011 ft**	**ΔZ = -0.019 ft**

Vector ID	From	To	Start Time
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 502 (PV33)	201	502	4/13/2023 8:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM

PV6-PV33-PV34	**Length = 512229.167 ft**	**ΔHoriz = 0.005 ft**	**ΔVert = 0.018 ft**	**PPM = 0.036**
	Δ3D = 0.019 ft	**ΔX = -0.010 ft**	**ΔY = -0.008 ft**	**ΔZ = 0.013 ft**

Loop: 102-203-201

Vector ID	From	To	Start Time
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM
201 --> 203 (PV14)	201	203	4/13/2023 8:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV7-PV14-PV9	**Length = 521831.037 ft**	**ΔHoriz = 0.018 ft**	**ΔVert = -0.082 ft**	**PPM = 0.161**
	Δ3D = 0.084 ft	**ΔX = 0.045 ft**	**ΔY = 0.043 ft**	**ΔZ = -0.056 ft**

Vector ID	From	To	Start Time
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM
201 --> 203 (PV6)	201	203	4/6/2023 9:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV7-PV6-PV9	**Length = 521831.048 ft**	**ΔHoriz = 0.015 ft**	**ΔVert = -0.044 ft**	**PPM = 0.088**
	Δ3D = 0.046 ft	**ΔX = 0.031 ft**	**ΔY = 0.024 ft**	**ΔZ = -0.024 ft**

Vector ID	From	To	Start Time
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM
201 --> 203 (PV4)	201	203	4/5/2023 8:59:42 AM
201 --> 102 (PV9)	201	102	4/5/2023 8:59:42 AM

PV7-PV4-PV9	**Length = 521831.040 ft**	**ΔHoriz = 0.012 ft**	**ΔVert = -0.030 ft**	**PPM = 0.062**
	Δ3D = 0.032 ft	**ΔX = 0.012 ft**	**ΔY = 0.012 ft**	**ΔZ = -0.028 ft**

Loop: 102-202-203

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM

PV8-PV13-PV7	**Length = 284719.580 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = 0.022 ft**	**PPM = 0.097**
	Δ3D = 0.028 ft	**ΔX = -0.008 ft**	**ΔY = -0.026 ft**	**ΔZ = 0.002 ft**

Vector ID	From	To	Start Time

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM

PV8-PV5-PV7	**Length = 284719.568 ft**	**ΔHoriz = 0.009 ft**	**ΔVert = 0.007 ft**	**PPM = 0.039**
	Δ3D = 0.011 ft	**ΔX = -0.010 ft**	**ΔY = -0.005 ft**	**ΔZ = -0.001 ft**

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 102 (PV7)	203	102	4/5/2023 8:59:42 AM

PV8-PV3-PV7	**Length = 284719.575 ft**	**ΔHoriz = 0.004 ft**	**ΔVert = 0.001 ft**	**PPM = 0.015**
	Δ3D = 0.004 ft	**ΔX = 0.000 ft**	**ΔY = -0.004 ft**	**ΔZ = -0.002 ft**

Loop: 502-505-509

Vector ID	From	To	Start Time
505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM
505 --> 509 (PV51)	505	509	4/13/2023 1:48:32 PM
502 --> 509 (PV52)	502	509	4/13/2023 1:48:42 PM

PV36-PV51-PV52	**Length = 20241.456 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = -0.040 ft**	**PPM = 2.164**
	Δ3D = 0.044 ft	**ΔX = 0.006 ft**	**ΔY = 0.039 ft**	**ΔZ = -0.019 ft**

Loop: 202-203-502

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM

202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV5-PV34-PV35	**Length = 223535.828 ft**	**ΔHoriz = 0.017 ft**	**ΔVert = -0.037 ft**	**PPM = 0.180**
	Δ3D = 0.040 ft	**ΔX = 0.000 ft**	**ΔY = 0.032 ft**	**ΔZ = -0.024 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV13-PV34-PV35	**Length = 223535.840 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = -0.021 ft**	**PPM = 0.107**
	Δ3D = 0.024 ft	**ΔX = 0.002 ft**	**ΔY = 0.011 ft**	**ΔZ = -0.021 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM

PV3-PV34-PV35	**Length = 223535.835 ft**	**ΔHoriz = 0.010 ft**	**ΔVert = -0.042 ft**	**PPM = 0.192**
	Δ3D = 0.043 ft	**ΔX = 0.010 ft**	**ΔY = 0.034 ft**	**ΔZ = -0.024 ft**

Loop: 202-203-507

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV5-PV43-PV44	**Length = 222898.422 ft**	**ΔHoriz = 0.016 ft**	**ΔVert = -0.044 ft**	**PPM = 0.210**
	Δ3D = 0.047 ft	**ΔX = 0.005 ft**	**ΔY = 0.039 ft**	**ΔZ = -0.025 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV3-PV43-PV44	**Length = 222898.429 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = -0.049 ft**	**PPM = 0.225**
	Δ3D = 0.050 ft	**ΔX = 0.015 ft**	**ΔY = 0.041 ft**	**ΔZ = -0.026 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV13-PV43-PV44	**Length = 222898.434 ft**	**ΔHoriz = 0.007 ft**	**ΔVert = -0.029 ft**	**PPM = 0.132**
	Δ3D = 0.029 ft	**ΔX = 0.007 ft**	**ΔY = 0.018 ft**	**ΔZ = -0.022 ft**

Loop: 202-505-507

Vector ID	From	To	Start Time
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM
507 --> 505 (PV40)	507	505	4/13/2023 10:13:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV39-PV40-PV44	**Length = 72817.691 ft**	**ΔHoriz = 0.016 ft**	**ΔVert = 0.007 ft**	**PPM = 0.243**
	Δ3D = 0.018 ft	**ΔX = 0.007 ft**	**ΔY = -0.016 ft**	**ΔZ = -0.002 ft**

Loop: 202-203-101

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 101 (PV17)	203	101	4/5/2023 9:56:22 AM
202 --> 101 (PV18)	202	101	4/5/2023 9:56:42 AM

PV5-PV17-PV18	**Length = 269892.937 ft**	**ΔHoriz = 0.015 ft**	**ΔVert = 0.022 ft**	**PPM = 0.101**
	Δ3D = 0.027 ft	**ΔX = -0.018 ft**	**ΔY = -0.004 ft**	**ΔZ = 0.020 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 101 (PV17)	203	101	4/5/2023 9:56:22 AM
202 --> 101 (PV18)	202	101	4/5/2023 9:56:42 AM

PV3-PV17-PV18	**Length = 269892.944 ft**	**ΔHoriz = 0.013 ft**	**ΔVert = 0.017 ft**	**PPM = 0.079**
	Δ3D = 0.021 ft	**ΔX = -0.009 ft**	**ΔY = -0.002 ft**	**ΔZ = 0.019 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 101 (PV17)	203	101	4/5/2023 9:56:22 AM
202 --> 101 (PV18)	202	101	4/5/2023 9:56:42 AM

PV13-PV17-PV18	**Length = 269892.949 ft**	**ΔHoriz = 0.001 ft**	**ΔVert = 0.038 ft**	**PPM = 0.139**
	Δ3D = 0.038 ft	**ΔX = -0.017 ft**	**ΔY = -0.025 ft**	**ΔZ = 0.023 ft**

Loop: 201-505-507

Vector ID	From	To	Start Time
201 --> 505 (PV37)	201	505	4/13/2023 10:13:42 AM
507 --> 505 (PV40)	507	505	4/13/2023 10:13:42 AM
201 --> 507 (PV42)	201	507	4/13/2023 9:15:42 AM

PV37-PV40-PV42	**Length = 371537.054 ft**	**ΔHoriz = 0.015 ft**	**ΔVert = 0.059 ft**	**PPM = 0.165**
	Δ3D = 0.061 ft	**ΔX = -0.011 ft**	**ΔY = -0.041 ft**	**ΔZ = 0.045 ft**

Loop: 202-203-505

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM

PV3-PV38-PV39	**Length = 222677.812 ft**	**ΔHoriz = 0.015 ft**	**ΔVert = -0.007 ft**	**PPM = 0.074**
	Δ3D = 0.016 ft	**ΔX = 0.007 ft**	**ΔY = 0.013 ft**	**ΔZ = 0.007 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM

PV5-PV38-PV39	**Length = 222677.805 ft**	**ΔHoriz = 0.014 ft**	**ΔVert = -0.002 ft**	**PPM = 0.063**
	Δ3D = 0.014 ft	**ΔX = -0.003 ft**	**ΔY = 0.012 ft**	**ΔZ = 0.007 ft**

Vector ID	From	To	Start Time

202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 505 (PV38)	203	505	4/13/2023 10:13:42 AM
202 --> 505 (PV39)	202	505	4/13/2023 10:13:42 AM

PV13-PV38-PV39	**Length = 222677.817 ft**	**ΔHoriz = 0.005 ft**	**ΔVert = 0.013 ft**	**PPM = 0.063**
	Δ3D = 0.014 ft	**ΔX = -0.001 ft**	**ΔY = -0.009 ft**	**ΔZ = 0.010 ft**

Loop: 102-202-101

Vector ID	From	To	Start Time
102 --> 202 (PV8)	102	202	4/5/2023 8:59:42 AM
202 --> 101 (PV18)	202	101	4/5/2023 9:56:42 AM
102 --> 101 (PV16)	102	101	4/5/2023 9:56:22 AM

PV8-PV18-PV16	**Length = 115073.206 ft**	**ΔHoriz = 0.013 ft**	**ΔVert = 0.010 ft**	**PPM = 0.142**
	Δ3D = 0.016 ft	**ΔX = -0.011 ft**	**ΔY = 0.003 ft**	**ΔZ = 0.012 ft**

Loop: 202-203-602

Vector ID	From	To	Start Time
202 --> 203 (PV13)	202	203	4/13/2023 8:59:42 AM
203 --> 602 (PV27)	203	602	4/6/2023 12:40:37 PM
202 --> 602 (PV29)	202	602	4/6/2023 12:40:42 PM

PV13-PV27-PV29	**Length = 473612.594 ft**	**ΔHoriz = 0.012 ft**	**ΔVert = 0.087 ft**	**PPM = 0.185**
	Δ3D = 0.087 ft	**ΔX = -0.032 ft**	**ΔY = -0.067 ft**	**ΔZ = 0.047 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV5)	202	203	4/6/2023 9:59:42 AM
203 --> 602 (PV27)	203	602	4/6/2023 12:40:37 PM
202 --> 602			

(PV29)	202	602	4/6/2023 12:40:42 PM	
PV5-PV27-PV29	**Length = 473612.582 ft**	**ΔHoriz = 0.004 ft**	**ΔVert = 0.071 ft**	**PPM = 0.151**
	Δ3D = 0.072 ft	**ΔX = -0.033 ft**	**ΔY = -0.046 ft**	**ΔZ = 0.044 ft**

Vector ID	From	To	Start Time
202 --> 203 (PV3)	202	203	4/5/2023 8:59:42 AM
203 --> 602 (PV27)	203	602	4/6/2023 12:40:37 PM
202 --> 602 (PV29)	202	602	4/6/2023 12:40:42 PM
PV3-PV27-PV29	**Length = 473612.589 ft**	**ΔHoriz = 0.004 ft**	**ΔVert = 0.066 ft**	**PPM = 0.140**
	Δ3D = 0.066 ft	**ΔX = -0.024 ft**	**ΔY = -0.044 ft**	**ΔZ = 0.043 ft**

Loop: 505-507-501

Vector ID	From	To	Start Time
507 --> 505 (PV40)	507	505	4/13/2023 10:13:42 AM
507 --> 501 (PV45)	507	501	4/13/2023 10:48:27 AM
505 --> 501 (PV46)	505	501	4/13/2023 10:48:27 AM
PV40-PV45-PV46	**Length = 40596.637 ft**	**ΔHoriz = 0.011 ft**	**ΔVert = 0.023 ft**	**PPM = 0.638**
	Δ3D = 0.026 ft	**ΔX = -0.012 ft**	**ΔY = -0.022 ft**	**ΔZ = 0.006 ft**

Loop: 502-507-501

Vector ID	From	To	Start Time
507 --> 502 (PV41)	507	502	4/13/2023 9:15:42 AM
507 --> 501 (PV45)	507	501	4/13/2023 10:48:27 AM
502 --> 501 (PV47)	502	501	4/13/2023 10:48:27 AM

PV41-PV45-PV47	**Length = 26859.339 ft**	**ΔHoriz = 0.008 ft**	**ΔVert = 0.012 ft**	**PPM = 0.528**
	Δ3D = 0.014 ft	**ΔX = -0.011 ft**	**ΔY = -0.009 ft**	**ΔZ = 0.002 ft**

Loop: 203-502-507

Vector ID	From	To	Start Time
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM
507 --> 502 (PV41)	507	502	4/13/2023 9:15:42 AM
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM

PV34-PV41-PV43	**Length = 184666.273 ft**	**ΔHoriz = 0.008 ft**	**ΔVert = 0.036 ft**	**PPM = 0.202**
	Δ3D = 0.037 ft	**ΔX = -0.022 ft**	**ΔY = -0.021 ft**	**ΔZ = 0.022 ft**

Loop: 202-502-507

Vector ID	From	To	Start Time
202 --> 502 (PV35)	202	502	4/13/2023 8:59:42 AM
507 --> 502 (PV41)	507	502	4/13/2023 9:15:42 AM
202 --> 507 (PV44)	202	507	4/13/2023 9:15:42 AM

PV35-PV41-PV44	**Length = 59042.672 ft**	**ΔHoriz = 0.007 ft**	**ΔVert = 0.029 ft**	**PPM = 0.512**
	Δ3D = 0.030 ft	**ΔX = -0.017 ft**	**ΔY = -0.014 ft**	**ΔZ = 0.021 ft**

Loop: 103-202-602

Vector ID	From	To	Start Time
202 --> 103 (PV11)	202	103	4/6/2023 10:08:12 AM
202 --> 602 (PV29)	202	602	4/6/2023 12:40:42 PM
103 --> 602 (PV25)	103	602	4/6/2023 12:40:37 PM

PV11-PV29-PV25	**Length = 300017.271 ft**	**ΔHoriz = 0.007 ft**	**ΔVert = 0.019 ft**	**PPM = 0.066**
	Δ3D = 0.020 ft	**ΔX = -0.013 ft**	**ΔY = -0.007 ft**	**ΔZ = 0.013 ft**

Loop: 502-505-501

Vector ID	From	To	Start Time
505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM
505 --> 501 (PV46)	505	501	4/13/2023 10:48:27 AM
502 --> 501 (PV47)	502	501	4/13/2023 10:48:27 AM

PV36-PV46-PV47	**Length = 39371.798 ft**	**ΔHoriz = 0.007 ft**	**ΔVert = -0.031 ft**	**PPM = 0.805**
	Δ3D = 0.032 ft	**ΔX = 0.010 ft**	**ΔY = 0.026 ft**	**ΔZ = -0.016 ft**

Loop: 203-502-501

Vector ID	From	To	Start Time
203 --> 502 (PV34)	203	502	4/13/2023 8:59:42 AM
502 --> 501 (PV47)	502	501	4/13/2023 10:48:27 AM
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM

PV34-PV47-PV49	**Length = 206874.727 ft**	**ΔHoriz = 0.006 ft**	**ΔVert = -0.019 ft**	**PPM = 0.098**
	Δ3D = 0.020 ft	**ΔX = 0.008 ft**	**ΔY = 0.017 ft**	**ΔZ = -0.008 ft**

Loop: 502-505-507

Vector ID	From	To	Start Time
505 --> 502 (PV36)	505	502	4/13/2023 10:13:42 AM
507 --> 505			4/13/2023 10:13:42

(PV40)	507	505	AM	
507 --> 502 (PV41)	507	502	4/13/2023 9:15:42 AM	
PV36-PV40-PV41	**Length = 18793.894 ft**	**ΔHoriz = 0.001 ft**	**ΔVert = -0.019 ft**	**PPM = 1.017**
	Δ3D = 0.019 ft	**ΔX = 0.009 ft**	**ΔY = 0.012 ft**	**ΔZ = -0.011 ft**

Loop: 203-507-501

Vector ID	From	To	Start Time	
203 --> 507 (PV43)	203	507	4/13/2023 9:15:42 AM	
507 --> 501 (PV45)	507	501	4/13/2023 10:48:27 AM	
203 --> 501 (PV49)	203	501	4/13/2023 10:48:27 AM	
PV43-PV45-PV49	**Length = 207551.319 ft**	**ΔHoriz = 0.001 ft**	**ΔVert = -0.044 ft**	**PPM = 0.213**
	Δ3D = 0.044 ft	**ΔX = 0.019 ft**	**ΔY = 0.029 ft**	**ΔZ = -0.028 ft**

Date: 4/20/2023 7:57:21 PM	Project: R:\TBC\Projects\Network\2267-0130-Monitoring\2267-0130-Monitoring-Network.vce	Trimble Business Center

KSN Inc
711 N. Pershing Ave
Stockton, CA 95203
Phone: 209-946-0268

Project File Data		**Coordinate System**	
Name:	R:\TBC\Projects\Network\2267-0130-Monitoring\2267-0130-Monitoring-Network.vce	Name:	United States/NAD83
Size:	157 KB	Zone:	California Zone 2 0402
Modified:	4/25/2023 12:45:08 PM (UTC:-7)	Datum:	NAD83(2011)
Time zone:	Pacific Standard Time	Global reference datum:	NAD83(2011)
Reference number:		Global reference epoch:	2010
Description:		Geoid:	GEOID18 (Conus)
Comment 1:		Vertical datum:	NAVD88
Comment 2:		Calibrated site:	
Comment 3:			

Network Adjustment Report

Adjustment Settings

Set-Up Errors

GNSS

Error in Height of Antenna: 0.002 ft

Centering Error: 0.002 ft

Covariance Display

Horizontal:

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.000

Three-Dimensional

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.000

Adjustment Statistics

Number of Iterations for Successful Adjustment:	2
Network Reference Factor:	0.98
Chi Square Test (95%):	Passed
Precision Confidence Level:	DRMS
Degrees of Freedom:	98

Post Processed Vector Statistics

Reference Factor:	0.98
Redundancy Number:	98.00
A Priori Scalar:	1.00

Control Coordinate Comparisons

Values shown are control coordinates minus adjusted coordinates.

Point ID	ΔNorthing (US survey foot)	ΔEasting (US survey foot)	ΔElevation (US survey foot)	ΔHeight (US survey foot)
201	?	?	?	0.124
202	?	?	?	0.092

Control Point Constraints

Point ID	Type	North σ (US survey foot)	East σ (US survey foot)	Height σ (US survey foot)	Elevation σ (US survey foot)
201	Global	Fixed	Fixed		
202	Global	Fixed	Fixed		
203	Global	Fixed	Fixed	Fixed	
Fixed = 0.000003(US survey foot)					

Adjusted Grid Coordinates

	Northing	Northing Error	Easting	Easting Error	Elevation	Elevation Error	

Point ID	(US survey foot)	(US survey foot)	(US survey foot)	(US survey foot)	(US survey foot)	(US survey foot)	Constrai
101	2050672.95	0.011	6639568.54	0.009	45.26	0.040	
102	2050270.73	0.006	6625872.81	0.006	40.46	0.031	
103	2123687.12	0.007	6573545.99	0.006	44.28	0.031	
201	2201017.19	?	6612505.46	?	2119.14	0.021	LL
202	2001341.67	?	6643182.77	?	42.12	0.016	LL
203	2001011.35	?	6746077.48	?	124.47	?	LLh
501	2034560.66	0.010	6648713.31	0.008	43.19	0.024	
502	2026492.95	0.004	6658568.54	0.003	41.45	0.019	
505	2028248.40	0.004	6666310.18	0.004	23.56	0.021	
507	2025473.28	0.004	6657416.86	0.003	26.60	0.020	
509	2024589.68	0.005	6657107.98	0.004	41.31	0.020	
601	2130671.58	0.016	6567107.29	0.013	43.71	0.051	
602	2130670.69	0.015	6567381.66	0.012	43.20	0.041	

Adjusted Geodetic Coordinates

Point ID	Latitude	Longitude	Height (US survey foot)	Height Error (US survey foot)	Constraint
101	N38°47'34.20320"	W121°43'36.01988"	-54.00	0.040	
102	N38°47'30.59860"	W121°46'29.02276"	-58.99	0.031	
103	N38°59'37.08011"	W121°57'29.52741"	-54.06	0.031	
201	N39°12'20.99669"	W121°49'14.10397"	2024.50	0.021	LL
202	N38°39'26.44795"	W121°42'52.32606"	-58.76	0.016	LL
203	N38°39'17.97133"	W121°21'15.19309"	24.56	?	LLh

501	N38°44'54.64415"	W121°41'41.19646"	-56.53	0.024	
502	N38°43'34.54843"	W121°39'37.17418"	-58.50	0.019	
505	N38°43'51.60371"	W121°37'59.39233"	-76.36	0.021	
507	N38°43'24.51114"	W121°39'51.75480"	-73.39	0.020	
509	N38°43'15.78790"	W121°39'55.69352"	-58.70	0.020	
601	N39°00'46.14198"	W121°58'51.06626"	-54.65	0.051	
602	N39°00'46.13259"	W121°58'47.58993"	-55.15	0.041	

Adjusted ECEF Coordinates

Point ID	X (US survey foot)	X Error (US survey foot)	Y (US survey foot)	Y Error (US survey foot)	Z (US survey foot)	Z Error (US survey foot)	3D Error (US survey foot)	Constraint
101	-8588042.51	0.020	-13890757.97	0.030	13039369.02	0.024	0.043	
102	-8599808.51	0.014	-13883740.86	0.021	13039081.66	0.019	0.032	
103	-8619799.34	0.014	-13816981.58	0.021	13096290.56	0.020	0.032	
201	-8561736.19	?	-13797596.07	?	13157584.45	?	?	LL
202	-8601325.61	?	-13918833.84	?	13000869.02	?	?	LL
203	-8513937.62	?	-13973162.23	?	13000251.39	?	?	LLh
501	-8585618.37	0.013	-13904135.80	0.018	13026781.87	0.017	0.028	
502	-8579917.22	0.009	-13913610.24	0.013	13020460.00	0.012	0.020	
505	-8572746.89	0.009	-13916745.10	0.014	13021794.88	0.013	0.021	

507	-8581228.11	0.009	-13913534.50	0.013	13019658.47	0.012	0.020	
509	-8581789.61	0.009	-13913850.26	0.014	13018979.13	0.013	0.021	
601	-8622931.37	0.024	-13809842.54	0.035	13101720.01	0.035	0.055	
602	-8622698.73	0.021	-13809988.04	0.030	13101718.96	0.027	0.045	

Error Ellipse Components

Point ID	Semi-major axis (US survey foot)	Semi-minor axis (US survey foot)	Azimuth
101	0.016	0.013	172°
102	0.009	0.008	174°
103	0.010	0.008	161°
501	0.014	0.012	159°
502	0.005	0.005	169°
505	0.006	0.005	169°
507	0.006	0.005	168°
509	0.006	0.006	172°
601	0.022	0.018	173°
602	0.021	0.017	11°

Adjusted GNSS Observations

Transformation Parameters

Azimuth Rotation: 0.020 sec **(DRMS)** 0.003 sec

Scale Factor: 0.99999981 **(DRMS)** 0.00000002

Observation ID		Observation	A-posteriori Error	Residual	Standardized Residual

202 --> 203 (PV13)	**Az.**	90°21'53.9"	0.003 sec	-0.033 sec	-2.068
	ΔHt.	83.314 ft	0.016 ft	0.000 ft	-0.006
	Ellip Dist.	102901.176 ft	0.002 ft	-0.022 ft	-3.205
202 --> 505 (PV39)	**Az.**	40°51'38.0"	0.023 sec	-0.139 sec	-2.890
	ΔHt.	-17.603 ft	0.018 ft	0.013 ft	0.288
	Ellip Dist.	35482.478 ft	0.004 ft	-0.004 ft	-0.473
202 --> 203 (PV3)	**Az.**	90°21'53.9"	0.003 sec	-0.009 sec	-0.623
	ΔHt.	83.314 ft	0.016 ft	0.020 ft	0.684
	Ellip Dist.	102901.176 ft	0.002 ft	-0.017 ft	-2.760
201 --> 203 (PV4)	**Az.**	146°22'36.2"	0.003 sec	0.023 sec	2.712
	ΔHt.	-1999.941 ft	0.021 ft	0.029 ft	0.579
	Ellip Dist.	240526.204 ft	0.005 ft	0.018 ft	1.284
203 --> 502 (PV34)	**Az.**	286°38'28.6"	0.009 sec	0.005 sec	0.269
	ΔHt.	-83.058 ft	0.019 ft	0.008 ft	0.177
	Ellip Dist.	91149.090 ft	0.004 ft	-0.022 ft	-2.413
202 --> 201 (PV15)	**Az.**	351°26'43.5"	0.003 sec	-0.018 sec	-2.100
	ΔHt.	2083.255 ft	0.020 ft	0.036 ft	0.761
	Ellip Dist.	202034.136 ft	0.004 ft	0.033 ft	2.320
201 --> 502 (PV33)	**Az.**	165°19'40.7"	0.005 sec	-0.021 sec	-1.986
	ΔHt.	-2083.000 ft	0.022 ft	0.006 ft	0.106
	Ellip Dist.	180515.262 ft	0.005 ft	0.027 ft	1.712
502 --> 509 (PV52)	**Az.**	217°42'59.2"	0.270 sec	0.236 sec	1.802
	ΔHt.	-0.202 ft	0.005 ft	-0.002 ft	-1.784
	Ellip Dist.	2399.261 ft	0.003 ft	-0.001 ft	-0.471
202 --> 509 (PV55)	**Az.**	31°06'03.9"	0.034 sec	0.054 sec	0.682
	ΔHt.	0.053 ft	0.017 ft	0.008 ft	0.170
	Ellip Dist.	27101.145 ft	0.004 ft	-0.018 ft	-1.568
202 --> 507 (PV44)	**Az.**	30°42'52.0"	0.027 sec	-0.081 sec	-1.565
	ΔHt.	-14.635 ft	0.017 ft	0.015 ft	0.395
	Ellip Dist.	28018.587 ft	0.004 ft	0.000 ft	-0.035
505 --> 502 (PV36)	**Az.**	257°27'18.8"	0.076 sec	0.067 sec	0.838

	ΔHt.	17.858 ft	0.010 ft	-0.023 ft	-1.559
	Ellip Dist.	7938.700 ft	0.003 ft	0.004 ft	1.290
203 --> 101 (PV17)	**Az.**	295°24'15.4"	0.019 sec	-0.002 sec	-0.073
	ΔHt.	-78.559 ft	0.040 ft	-0.049 ft	-0.311
	Ellip Dist.	117525.486 ft	0.010 ft	-0.022 ft	-1.528
202 --> 501 (PV50)	**Az.**	9°37'56.5"	0.053 sec	-0.174 sec	-1.086
	ΔHt.	2.224 ft	0.022 ft	-0.038 ft	-0.749
	Ellip Dist.	33678.366 ft	0.009 ft	0.041 ft	1.434
201 --> 202 (PV1)	**Az.**	171°22'43.6"	0.003 sec	0.009 sec	1.084
	ΔHt.	-2083.255 ft	0.020 ft	0.029 ft	0.664
	Ellip Dist.	202034.136 ft	0.004 ft	0.019 ft	1.413
202 --> 203 (PV5)	**Az.**	90°21'53.9"	0.003 sec	-0.016 sec	-0.936
	ΔHt.	83.314 ft	0.016 ft	0.015 ft	0.381
	Ellip Dist.	102901.176 ft	0.002 ft	-0.010 ft	-1.373
201 --> 203 (PV14)	**Az.**	146°22'36.2"	0.003 sec	0.011 sec	1.280
	ΔHt.	-1999.941 ft	0.021 ft	-0.023 ft	-0.430
	Ellip Dist.	240526.204 ft	0.005 ft	0.021 ft	1.365
203 --> 507 (PV43)	**Az.**	285°49'50.7"	0.009 sec	-0.002 sec	-0.090
	ΔHt.	-97.949 ft	0.020 ft	0.044 ft	0.726
	Ellip Dist.	91979.001 ft	0.004 ft	-0.017 ft	-1.312
201 --> 102 (PV9)	**Az.**	175°02'44.6"	0.008 sec	0.010 sec	0.710
	ΔHt.	-2083.491 ft	0.033 ft	0.043 ft	0.663
	Ellip Dist.	151350.412 ft	0.007 ft	0.013 ft	1.163
505 --> 509 (PV51)	**Az.**	248°32'55.7"	0.082 sec	-0.139 sec	-0.886
	ΔHt.	17.656 ft	0.010 ft	0.015 ft	1.132
	Ellip Dist.	9903.519 ft	0.004 ft	-0.007 ft	-0.973
201 --> 202 (PV2)	**Az.**	171°22'43.6"	0.003 sec	0.004 sec	0.458
	ΔHt.	-2083.255 ft	0.020 ft	0.004 ft	0.062
	Ellip Dist.	202034.136 ft	0.004 ft	0.018 ft	1.091
102 --> 202 (PV8)	**Az.**	160°39'34.5"	0.022 sec	-0.014 sec	-0.607
	ΔHt.	0.236 ft	0.029 ft	-0.005 ft	-0.146

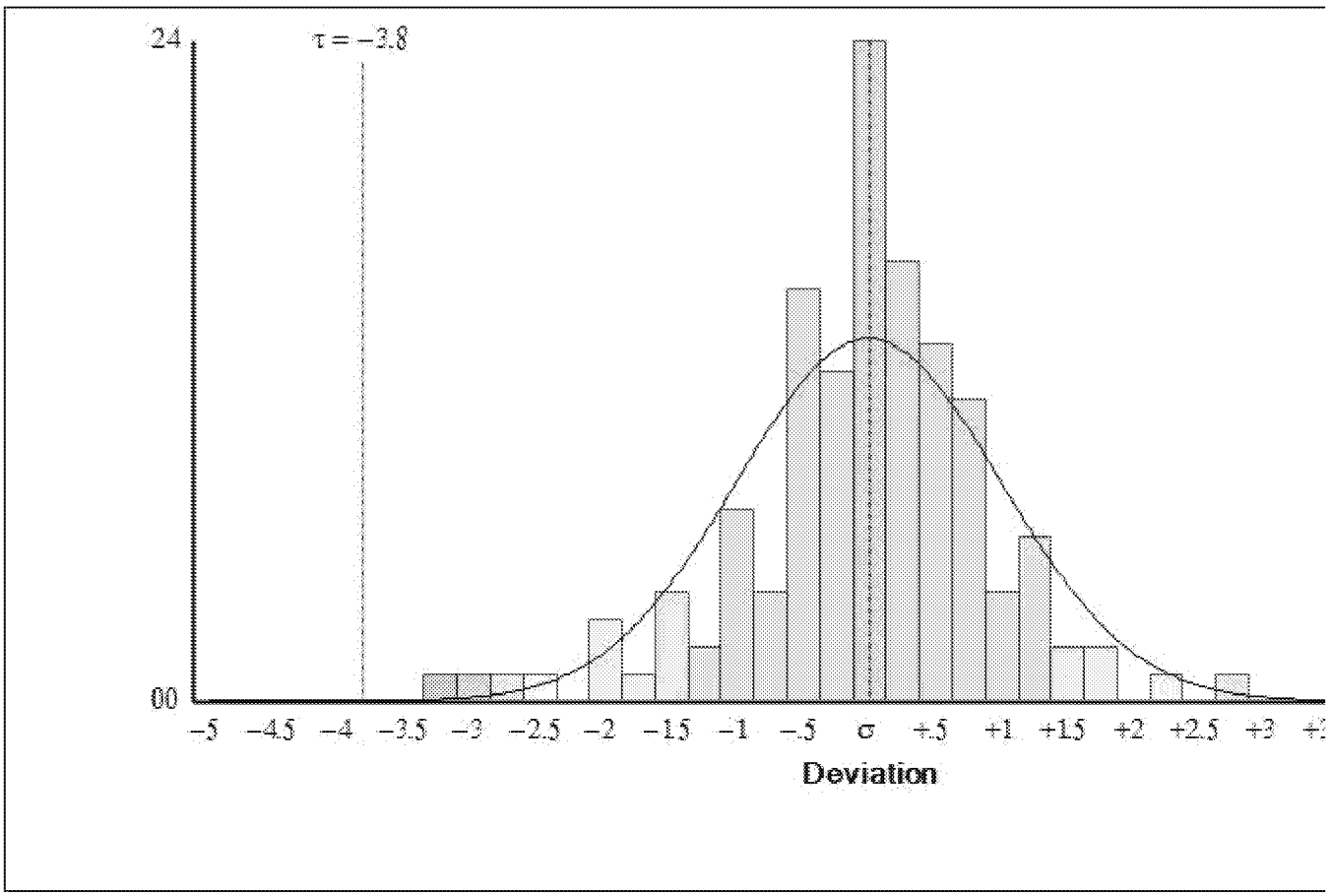
	Ellip Dist.	51904.161 ft	0.006 ft	0.007 ft	1.078
507 --> 502 (PV41)	**Az.**	48°41'25.5"	0.337 sec	-0.232 sec	-1.069
	ΔHt.	14.891 ft	0.004 ft	0.000 ft	0.214
	Ellip Dist.	1538.312 ft	0.002 ft	-0.001 ft	-0.625
507 --> 505 (PV40)	**Az.**	72°52'52.9"	0.068 sec	0.032 sec	0.462
	ΔHt.	-2.968 ft	0.010 ft	0.004 ft	0.274
	Ellip Dist.	9316.859 ft	0.003 ft	0.003 ft	1.010
102 --> 101 (PV16)	**Az.**	88°27'35.7"	0.175 sec	-0.112 sec	-0.573
	ΔHt.	4.990 ft	0.037 ft	-0.007 ft	-0.207
	Ellip Dist.	13702.632 ft	0.009 ft	-0.009 ft	-0.993
202 --> 502 (PV35)	**Az.**	31°38'07.6"	0.025 sec	-0.038 sec	-0.888
	ΔHt.	0.255 ft	0.017 ft	-0.014 ft	-0.446
	Ellip Dist.	29485.877 ft	0.004 ft	0.000 ft	0.017
201 --> 505 (PV37)	**Az.**	162°48'54.8"	0.005 sec	0.006 sec	0.422
	ΔHt.	-2100.858 ft	0.023 ft	-0.049 ft	-0.677
	Ellip Dist.	180967.624 ft	0.005 ft	0.017 ft	0.849
201 --> 203 (PV6)	**Az.**	146°22'36.2"	0.003 sec	0.008 sec	0.826
	ΔHt.	-1999.941 ft	0.021 ft	0.016 ft	0.240
	Ellip Dist.	240526.204 ft	0.005 ft	0.011 ft	0.606
203 --> 102 (PV7)	**Az.**	292°41'22.8"	0.010 sec	0.012 sec	0.824
	ΔHt.	-83.549 ft	0.031 ft	-0.017 ft	-0.314
	Ellip Dist.	129914.822 ft	0.006 ft	-0.007 ft	-0.608
203 --> 602 (PV27)	**Az.**	306°22'11.9"	0.013 sec	0.006 sec	0.125
	ΔHt.	-79.710 ft	0.041 ft	-0.091 ft	-0.786
	Ellip Dist.	220796.274 ft	0.012 ft	-0.019 ft	-0.472
201 --> 507 (PV42)	**Az.**	165°45'44.5"	0.005 sec	-0.008 sec	-0.630
	ΔHt.	-2097.890 ft	0.022 ft	0.006 ft	0.093
	Ellip Dist.	181212.521 ft	0.005 ft	0.010 ft	0.498
103 --> 602 (PV25)	**Az.**	318°35'30.6"	0.280 sec	-0.026 sec	-0.221
	ΔHt.	-1.092 ft	0.031 ft	0.007 ft	0.575
	Ellip Dist.	9315.787 ft	0.011 ft	0.001 ft	0.316

505 --> 501 (PV46)	**Az.**	289°57'53.3"	0.098 sec	-0.091 sec	-0.563
	ΔHt.	19.827 ft	0.018 ft	0.014 ft	0.513
	Ellip Dist.	18696.027 ft	0.009 ft	-0.004 ft	-0.268
203 --> 505 (PV38)	**Az.**	289°15'33.1"	0.010 sec	-0.017 sec	-0.552
	ΔHt.	-100.917 ft	0.021 ft	0.000 ft	-0.005
	Ellip Dist.	84294.506 ft	0.004 ft	0.000 ft	0.021
203 --> 601 (PV28)	**Az.**	306°19'42.2"	0.013 sec	0.002 sec	0.059
	ΔHt.	-79.207 ft	0.051 ft	-0.002 ft	-0.010
	Ellip Dist.	221018.944 ft	0.014 ft	-0.023 ft	-0.548
103 --> 601 (PV26)	**Az.**	317°21'16.6"	0.277 sec	-0.014 sec	-0.161
	ΔHt.	-0.590 ft	0.042 ft	0.000 ft	-0.038
	Ellip Dist.	9500.254 ft	0.013 ft	0.002 ft	0.507
201 --> 509 (PV53)	**Az.**	165°55'31.9"	0.006 sec	-0.002 sec	-0.063
	ΔHt.	-2083.202 ft	0.022 ft	0.053 ft	0.443
	Ellip Dist.	181992.779 ft	0.006 ft	-0.002 ft	-0.046
203 --> 501 (PV49)	**Az.**	289°25'08.2"	0.019 sec	0.005 sec	0.050
	ΔHt.	-81.090 ft	0.024 ft	-0.005 ft	-0.063
	Ellip Dist.	102988.728 ft	0.009 ft	-0.020 ft	-0.437
203 --> 103 (PV10)	**Az.**	305°49'11.9"	0.006 sec	-0.001 sec	-0.167
	ΔHt.	-78.617 ft	0.031 ft	-0.001 ft	-0.030
	Ellip Dist.	211714.614 ft	0.007 ft	0.006 ft	0.403
502 --> 501 (PV47)	**Az.**	309°31'07.0"	0.134 sec	-0.079 sec	-0.381
	ΔHt.	1.968 ft	0.017 ft	0.006 ft	0.231
	Ellip Dist.	12737.157 ft	0.009 ft	-0.004 ft	-0.286
202 --> 101 (PV18)	**Az.**	355°59'22.9"	0.039 sec	-0.016 sec	-0.212
	ΔHt.	4.754 ft	0.038 ft	-0.011 ft	-0.273
	Ellip Dist.	49466.757 ft	0.011 ft	0.006 ft	0.261
202 --> 103 (PV11)	**Az.**	330°31'54.2"	0.008 sec	0.002 sec	0.235
	ΔHt.	4.696 ft	0.030 ft	0.008 ft	0.223
	Ellip Dist.	140785.730 ft	0.007 ft	0.002 ft	0.251
201 --> 103 (PV12)	**Az.**	206°51'08.9"	0.016 sec	-0.001 sec	-0.040

	ΔHt.	-2078.559 ft	0.033 ft	0.013 ft	0.184
	Ellip Dist.	86597.073 ft	0.007 ft	0.003 ft	0.246
507 --> 501 (PV45)	**Az.**	316°26'51.0"	0.134 sec	0.044 sec	0.234
	ΔHt.	16.859 ft	0.017 ft	-0.005 ft	-0.222
	Ellip Dist.	12583.861 ft	0.009 ft	-0.001 ft	-0.039
202 --> 602 (PV29)	**Az.**	329°48'15.9"	0.018 sec	0.006 sec	0.120
	ΔHt.	3.604 ft	0.041 ft	-0.004 ft	-0.041
	Ellip Dist.	149917.156 ft	0.013 ft	-0.003 ft	-0.067

Histogram of Standardized Residuals

Critical Tau Value: 3.8
Observations Failing the Tau Test: 0



Covariance Terms

From Point	To Point		Components	A-posteriori Error	Horiz. Precision (Ratio)	3D Precision (Ratio)
102	101	**Az.**	88°27'35.7"	0.175 sec	1 : 1449448	1 : 1449359
		ΔHt.	4.990 ft	0.037 ft		
		ΔElev.	4.803 ft	0.037 ft		
		Ellip Dist.	13702.629 ft	0.009 ft		
102	201	**Az.**	355°04'28.4"	0.008 sec	1 : 24813150	1 : 24984016
		ΔHt.	2083.490 ft	0.033 ft		
		ΔElev.	2078.685 ft	0.033 ft		
		Ellip Dist.	151350.383 ft	0.006 ft		
102	202	**Az.**	160°39'34.5"	0.022 sec	1 : 8547475	1 : 8546639
		ΔHt.	0.236 ft	0.029 ft		
		ΔElev.	1.663 ft	0.029 ft		
		Ellip Dist.	51904.152 ft	0.006 ft		
102	203	**Az.**	112°25'35.8"	0.009 sec	1 : 22871610	1 : 22865603
		ΔHt.	83.549 ft	0.031 ft		
		ΔElev.	84.017 ft	0.031 ft		
		Ellip Dist.	129914.798 ft	0.006 ft		
103	201	**Az.**	26°45'56.5"	0.016 sec	1 : 13132241	1 : 13216117
		ΔHt.	2078.558 ft	0.033 ft		
		ΔElev.	2074.864 ft	0.033 ft		
		Ellip Dist.	86597.057 ft	0.007 ft		
103	202	**Az.**	150°22'44.2"	0.009 sec	1 : 19598325	1 : 19597938
		ΔHt.	-4.696 ft	0.030 ft		
		ΔElev.	-2.158 ft	0.030 ft		
		Ellip Dist.	140785.703 ft	0.007 ft		
103	203	**Az.**	125°26'28.7"	0.006 sec	1 : 30997971	1 : 30994512

		ΔHt.	78.617 ft	0.031 ft		
		ΔElev.	80.196 ft	0.031 ft		
		Ellip Dist.	211714.574 ft	0.007 ft		
103	601	**Az.**	317°21'16.6"	0.277 sec	1 : 714496	1 : 714443
		ΔHt.	-0.590 ft	0.042 ft		
		ΔElev.	-0.570 ft	0.042 ft		
		Ellip Dist.	9500.252 ft	0.013 ft		
103	602	**Az.**	318°35'30.5"	0.280 sec	1 : 817210	1 : 817072
		ΔHt.	-1.092 ft	0.031 ft		
		ΔElev.	-1.079 ft	0.031 ft		
		Ellip Dist.	9315.785 ft	0.011 ft		
201	502	**Az.**	165°19'40.6"	0.004 sec	1 : 47642884	1 : 47636326
		ΔHt.	-2082.999 ft	0.022 ft		
		ΔElev.	-2077.687 ft	0.022 ft		
		Ellip Dist.	180515.228 ft	0.004 ft		
201	505	**Az.**	162°48'54.8"	0.004 sec	1 : 43977574	1 : 43914872
		ΔHt.	-2100.858 ft	0.023 ft		
		ΔElev.	-2095.577 ft	0.023 ft		
		Ellip Dist.	180967.590 ft	0.004 ft		
201	507	**Az.**	165°45'44.5"	0.004 sec	1 : 45519363	1 : 45508545
		ΔHt.	-2097.890 ft	0.022 ft		
		ΔElev.	-2092.544 ft	0.022 ft		
		Ellip Dist.	181212.486 ft	0.004 ft		
201	509	**Az.**	165°55'31.9"	0.005 sec	1 : 39739148	1 : 39751052
		ΔHt.	-2083.202 ft	0.022 ft		
		ΔElev.	-2077.828 ft	0.022 ft		
		Ellip Dist.	181992.745 ft	0.005 ft		
202	101	**Az.**	355°59'22.9"	0.039 sec	1 : 4333247	1 : 4334024
		ΔHt.	4.754 ft	0.038 ft		
		ΔElev.	3.139 ft	0.038 ft		

		Ellip Dist.	49466.748 ft	0.011 ft		
202	201	**Az.**	351°26'43.5"	0.000 sec	1 : 0	1 : 999133407
		ΔHt.	2083.255 ft	0.020 ft		
		ΔElev.	2077.022 ft	0.020 ft		
		Ellip Dist.	202034.098 ft	0.000 ft		
202	203	**Az.**	90°21'53.9"	0.000 sec	1 : 0	1 : 7446985837
		ΔHt.	83.314 ft	0.016 ft		
		ΔElev.	82.354 ft	0.016 ft		
		Ellip Dist.	102901.157 ft	0.000 ft		
202	501	**Az.**	9°37'56.5"	0.053 sec	1 : 3558830	1 : 3560499
		ΔHt.	2.224 ft	0.022 ft		
		ΔElev.	1.068 ft	0.022 ft		
		Ellip Dist.	33678.360 ft	0.009 ft		
202	502	**Az.**	31°38'07.6"	0.024 sec	1 : 8323286	1 : 8327503
		ΔHt.	0.255 ft	0.017 ft		
		ΔElev.	-0.665 ft	0.017 ft		
		Ellip Dist.	29485.871 ft	0.004 ft		
202	505	**Az.**	40°51'38.0"	0.023 sec	1 : 9442059	1 : 9445229
		ΔHt.	-17.603 ft	0.018 ft		
		ΔElev.	-18.555 ft	0.018 ft		
		Ellip Dist.	35482.471 ft	0.004 ft		
202	507	**Az.**	30°42'52.0"	0.027 sec	1 : 7524305	1 : 7526685
		ΔHt.	-14.635 ft	0.017 ft		
		ΔElev.	-15.522 ft	0.017 ft		
		Ellip Dist.	28018.582 ft	0.004 ft		
202	509	**Az.**	31°06'03.9"	0.033 sec	1 : 6076624	1 : 6078003
		ΔHt.	0.053 ft	0.017 ft		
		ΔElev.	-0.806 ft	0.017 ft		
		Ellip Dist.	27101.140 ft	0.004 ft		

202	602	**Az.**	329°48'15.8"	0.018 sec	1 : 11074554	1 : 11067359
		ΔHt.	3.604 ft	0.041 ft		
		ΔElev.	1.078 ft	0.041 ft		
		Ellip Dist.	149917.127 ft	0.014 ft		
203	101	**Az.**	295°24'15.3"	0.019 sec	1 : 11752496	1 : 11730363
		ΔHt.	-78.559 ft	0.040 ft		
		ΔElev.	-79.214 ft	0.040 ft		
		Ellip Dist.	117525.464 ft	0.010 ft		
203	201	**Az.**	326°40'11.1"	0.000 sec	1 : 0	1 : 1377889939
		ΔHt.	1999.941 ft	0.021 ft		
		ΔElev.	1994.668 ft	0.021 ft		
		Ellip Dist.	240526.159 ft	0.000 ft		
203	501	**Az.**	289°25'08.1"	0.018 sec	1 : 11543391	1 : 11529973
		ΔHt.	-81.090 ft	0.024 ft		
		ΔElev.	-81.285 ft	0.024 ft		
		Ellip Dist.	102988.708 ft	0.009 ft		
203	502	**Az.**	286°38'28.5"	0.008 sec	1 : 27234266	1 : 27210521
		ΔHt.	-83.058 ft	0.019 ft		
		ΔElev.	-83.019 ft	0.019 ft		
		Ellip Dist.	91149.073 ft	0.003 ft		
203	505	**Az.**	289°15'33.0"	0.010 sec	1 : 22943773	1 : 22926023
		ΔHt.	-100.917 ft	0.021 ft		
		ΔElev.	-100.908 ft	0.021 ft		
		Ellip Dist.	84294.490 ft	0.004 ft		
203	507	**Az.**	285°49'50.7"	0.009 sec	1 : 26118847	1 : 26097149
		ΔHt.	-97.949 ft	0.020 ft		
		ΔElev.	-97.876 ft	0.020 ft		
		Ellip Dist.	91978.983 ft	0.004 ft		
203	601	**Az.**	306°19'42.2"	0.014 sec	1 : 15431891	1 : 15411749

		ΔHt.	-79.207 ft	0.051 ft		
		ΔElev.	-80.766 ft	0.051 ft		
		Ellip Dist.	221018.902 ft	0.014 ft		
203	602	**Az.**	306°22'11.9"	0.013 sec	1 : 17825045	1 : 17798953
		ΔHt.	-79.710 ft	0.041 ft		
		ΔElev.	-81.275 ft	0.041 ft		
		Ellip Dist.	220796.232 ft	0.012 ft		
502	501	**Az.**	309°31'07.0"	0.134 sec	1 : 1399034	1 : 1398304
		ΔHt.	1.968 ft	0.017 ft		
		ΔElev.	1.733 ft	0.017 ft		
		Ellip Dist.	12737.154 ft	0.009 ft		
502	505	**Az.**	77°26'17.6"	0.076 sec	1 : 2899606	1 : 2897906
		ΔHt.	-17.859 ft	0.010 ft		
		ΔElev.	-17.890 ft	0.010 ft		
		Ellip Dist.	7938.699 ft	0.003 ft		
502	507	**Az.**	228°41'34.6"	0.337 sec	1 : 626094	1 : 626433
		ΔHt.	-14.891 ft	0.004 ft		
		ΔElev.	-14.857 ft	0.004 ft		
		Ellip Dist.	1538.312 ft	0.002 ft		
502	509	**Az.**	217°42'59.2"	0.270 sec	1 : 757035	1 : 756970
		ΔHt.	-0.202 ft	0.005 ft		
		ΔElev.	-0.141 ft	0.005 ft		
		Ellip Dist.	2399.260 ft	0.003 ft		
505	501	**Az.**	289°57'53.3"	0.098 sec	1 : 2149810	1 : 2147823
		ΔHt.	19.827 ft	0.018 ft		
		ΔElev.	19.623 ft	0.018 ft		
		Ellip Dist.	18696.023 ft	0.009 ft		
505	507	**Az.**	252°54'03.2"	0.068 sec	1 : 3255572	1 : 3255609
		ΔHt.	2.968 ft	0.010 ft		
		ΔElev.	3.032 ft	0.010 ft		

		Ellip Dist.	9316.857 ft	0.003 ft		
505	509	**Az.**	248°32'55.7"	0.082 sec	1 : 2549249	1 : 2548405
		ΔHt.	17.656 ft	0.010 ft		
		ΔElev.	17.749 ft	0.010 ft		
		Ellip Dist.	9903.517 ft	0.004 ft		
507	501	**Az.**	316°26'50.9"	0.134 sec	1 : 1359294	1 : 1358644
		ΔHt.	16.859 ft	0.017 ft		
		ΔElev.	16.591 ft	0.017 ft		
		Ellip Dist.	12583.858 ft	0.009 ft		

Date: 4/25/2023 1:26:54 PM	Project: R:\TBC\Projects\Network\2267-0130-Monitoring\2267-0130-Monitoring-Network.vce	Trimble Business Center

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL  5, 2023
 AF9711 ***********************************************************************
 AF9711  CORS         -  This is a GPS Continuously Operating Reference Station.
 AF9711  DESIGNATION -  SUTTER BUTTES CORS ARP
 AF9711  CORS_ID      -  SUTB
 AF9711  PID          -  AF9711
 AF9711  STATE/COUNTY-  CA/SUTTER
 AF9711  COUNTRY      -  US
 AF9711  USGS QUAD    -  SUTTER BUTTES (2018)
 AF9711
 AF9711                         *CURRENT SURVEY CONTROL
 AF9711  ______________________________________________________________________
 AF9711* NAD 83(2011) POSITION- 39 12 20.99669(N) 121 49 14.10397(W)   ADJUSTED
 AF9711* NAD 83(2011) ELLIP HT-   617.106 (meters)        (06/??/19)   ADJUSTED
 AF9711* NAD 83(2011) EPOCH    -  2010.00
 AF9711  ______________________________________________________________________
 AF9711  GEOID HEIGHT     -        -28.846 (meters)                     GEOID18
 AF9711  NAD 83(2011) X   - -2,609,622.426 (meters)                     COMP
 AF9711  NAD 83(2011) Y   - -4,205,515.719 (meters)                     COMP
 AF9711  NAD 83(2011) Z   -  4,010,439.785 (meters)                     COMP
 AF9711
 AF9711  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AF9711  Standards:
 AF9711         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AF9711            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 AF9711  ------------------------------------------------------------------
 AF9711  NETWORK    0.33   0.52           0.14   0.12   0.26      0.08969100
 AF9711  ------------------------------------------------------------------
 AF9711
 AF9711
 AF9711.The coordinates were established by GPS observations
 AF9711.and adjusted by the National Geodetic Survey in June 2019.
 AF9711
 AF9711.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AF9711.been affixed to the stable North American Tectonic Plate.
 AF9711
 AF9711.The coordinates are valid at the epoch date displayed above
 AF9711.which is a decimal equivalence of Year/Month/Day.
 AF9711
 AF9711.Due to the release of the International GNSS Service (IGS) 2014
 AF9711.realization of the International Terrestrial Reference Frame of 2014
 AF9711.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
 AF9711.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
 AF9711.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
 AF9711.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
 AF9711.currently published epoch of 2010.00.
 AF9711
 AF9711.Additional information on MYCS2 is available at
 AF9711.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
 AF9711
 AF9711.Significant digits in the geoid height do not necessarily reflect accuracy.
 AF9711.GEOID18 height accuracy estimate available here.
 AF9711
 AF9711.The PID for the CORS L1 Phase Center is DH4794.
 AF9711
 AF9711.Click photographs - Photos may exist for this station.
```

```
AF9711
AF9711.The XYZ, and position/ellipsoidal ht. are equivalent.
AF9711
AF9711.The ellipsoidal height was determined by GPS observations
AF9711.and is referenced to NAD 83.
AF9711
AF9711. The following values were computed from the NAD 83(2011) position.
AF9711
AF9711;                    North         East     Units Scale Factor Converg.
AF9711;SPC CA 2     -   670,871.381 2,015,495.696   MT  0.99991690   +0 06 47.2
AF9711;SPC CA 2     - 2,201,017.19  6,612,505.46   sFT  0.99991690   +0 06 47.2
AF9711;UTM  10      - 4,340,280.993   601,832.566   MT  0.99972768   +0 44 44.1
AF9711
AF9711!             -  Elev Factor  x  Scale Factor =   Combined Factor
AF9711!SPC CA 2     -   0.99990319  x   0.99991690  =   0.99982010
AF9711!UTM  10      -   0.99990319  x   0.99972768  =   0.99963090
AF9711
AF9711_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFJ0183240280(NAD 83)
AF9711
AF9711                           SUPERSEDED SURVEY CONTROL
AF9711
AF9711  ELLIP H (06/27/12)  617.102  (m)                        GP(2010.00) 0 0
AF9711  NAD 83(2011)-  39 12 20.99675(N)    121 49 14.10395(W) AD(2010.00) c
AF9711  NAD 83(2011)-  39 12 20.99675(N)    121 49 14.10393(W) AD(2010.00) c
AF9711  ELLIP H (08/??/11)  617.102  (m)                        GP(2010.00) c c
AF9711  ELLIP H (02/10/07)  617.072  (m)                        GP(2007.00)
AF9711  NAD 83(2007)-  39 12 20.99625(N)    121 49 14.10300(W) AD(2007.00) c
AF9711  NAD 83(CORS)-  39 12 20.99460(N)    121 49 14.10094(W) AD(2002.00) c
AF9711  ELLIP H (08/??/06)  617.111  (m)                        GP(2002.00) c c
AF9711  NAD 83(CORS)-  39 12 20.99441(N)    121 49 14.10145(W) AD(2002.00) c
AF9711  ELLIP H (03/??/02)  617.107  (m)                        GP(2002.00) c c
AF9711  NAD 83(CORS)-  39 12 20.99317(N)    121 49 14.09892(W) AD(1997.00) c
AF9711  ELLIP H (07/??/98)  617.157  (m)                        GP(1997.00) c c
AF9711
AF9711.Superseded values are not recommended for survey control.
AF9711
AF9711.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AF9711.See file dsdata.pdf to determine how the superseded data were derived.
AF9711
AF9711_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
AF9711_MARK LOGO: BART
AF9711_MAGNETIC: N = NO MAGNETIC MATERIAL
AF9711
AF9711                           STATION DESCRIPTION
AF9711
AF9711'DESCRIBED BY NATIONAL GEODETIC SURVEY 2019
AF9711'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
AF9711'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
AF9711'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
AF9711'   https://geodesy.noaa.gov/corsdata/coord/coord_14
AF9711'   https://geodesy.noaa.gov/corsdata/station_log
AF9711'   https://geodesy.noaa.gov/CORS
1        National Geodetic Survey,   Retrieval Date = APRIL  5, 2023
AF9713 ***********************************************************************
AF9713  HT_MOD      -  This is a Height Modernization Survey Station.
AF9713  CORS        -  This is a GPS Continuously Operating Reference Station.
AF9713  DESIGNATION -  SUTTER BUTTES CORS POINT
AF9713  CORS_ID     -  SUTB
AF9713  PID         -  AF9713
AF9713  STATE/COUNTY-  CA/SUTTER
AF9713  COUNTRY     -  US
AF9713  USGS QUAD   -  SUTTER BUTTES (2018)
AF9713
AF9713                          *CURRENT SURVEY CONTROL
AF9713  ______________________________________________________________________
```

```
AF9713* NAD 83(2011) POSITION- 39 12 20.99669(N) 121 49 14.10397(W)   ADJUSTED
AF9713* NAD 83(2011) ELLIP HT-   617.057 (meters)        (06/??/19)   ADJUSTED
AF9713* NAD 83(2011) EPOCH   -  2010.00
AF9713* NAVD 88 ORTHO HEIGHT -   645.96  (meters)     2119.3   (feet) GPS OBS
AF9713  ____________________________________________________________________
AF9713  NAVD 88 orthometric height was determined with an earlier geoid model
AF9713  GEOID HEIGHT    -        -28.846 (meters)                    GEOID18
AF9713  NAD 83(2011) X  - -2,609,622.406 (meters)                    COMP
AF9713  NAD 83(2011) Y  - -4,205,515.687 (meters)                    COMP
AF9713  NAD 83(2011) Z  -  4,010,439.754 (meters)                    COMP
AF9713  LAPLACE CORR    -          2.58  (seconds)                   DEFLEC18
AF9713
AF9713  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AF9713  Standards:
AF9713         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
AF9713            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
AF9713  ------------------------------------------------------------------
AF9713  NETWORK    0.33   0.52           0.14   0.12   0.26      0.08969100
AF9713  ------------------------------------------------------------------
AF9713
AF9713
AF9713.The horizontal coordinates were established by GPS observations
AF9713.and adjusted by the National Geodetic Survey in June 2019.
AF9713
AF9713.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AF9713.been affixed to the stable North American Tectonic Plate.
AF9713
AF9713.The horizontal coordinates are valid at the epoch date displayed above
AF9713.which is a decimal equivalence of Year/Month/Day.
AF9713
AF9713.Due to the release of the International GNSS Service (IGS) 2014
AF9713.realization of the International Terrestrial Reference Frame of 2014
AF9713.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
AF9713.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
AF9713.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
AF9713.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
AF9713.currently published epoch of 2010.00.
AF9713
AF9713.Additional information on MYCS2 is available at
AF9713.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
AF9713
AF9713.The orthometric height was determined by GPS observations and a
AF9713.high-resolution geoid model using precise GPS observation and
AF9713.processing techniques.
AF9713
AF9713.Significant digits in the geoid height do not necessarily reflect accuracy.
AF9713.GEOID18 height accuracy estimate available here.
AF9713
AF9713.Click photographs - Photos may exist for this station.
AF9713
AF9713.The XYZ, and position/ellipsoidal ht. are equivalent.
AF9713
AF9713.The Laplace correction was computed from DEFLEC18 derived deflections.
AF9713
AF9713.The ellipsoidal height was determined by GPS observations
AF9713.and is referenced to NAD 83.
AF9713
AF9713. The following values were computed from the NAD 83(2011) position.
AF9713
AF9713;                   North         East     Units Scale Factor Converg.
AF9713;SPC CA 2     -   670,871.381 2,015,495.696   MT  0.99991690   +0 06 47.2
AF9713;SPC CA 2     - 2,201,017.19  6,612,505.46   sFT  0.99991690   +0 06 47.2
AF9713;UTM  10      - 4,340,280.993   601,832.566   MT  0.99972768   +0 44 44.1
AF9713
AF9713!             -  Elev Factor  x  Scale Factor =   Combined Factor
```

```
AF9713!SPC CA 2      -   0.99990320  x   0.99991690  =   0.99982011
AF9713!UTM  10       -   0.99990320  x   0.99972768  =   0.99963090
AF9713
AF9713_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFJ0183240280(NAD 83)
AF9713
AF9713                           SUPERSEDED SURVEY CONTROL
AF9713
AF9713  NAD 83(2011)-  39 12 20.99675(N)    121 49 14.10393(W) AD(2010.00) A
AF9713  ELLIP H (08/??/11)  617.053  (m)                       GP(2010.00) 4 1
AF9713  ELLIP H (02/10/07)  617.044  (m)                       GP(2007.00)
AF9713  NAD 83(2007)-  39 12 20.99590(N)    121 49 14.10315(W) AD(2007.00) 0
AF9713  NAD 83(CORS)-  39 12 20.99460(N)    121 49 14.10094(W) AD(2002.00) A
AF9713  ELLIP H (08/??/06)  617.063  (m)                       GP(2002.00) 4 1
AF9713  NAD 83(CORS)-  39 12 20.99441(N)    121 49 14.10145(W) AD(2002.00) A
AF9713  ELLIP H (03/??/02)  617.059  (m)                       GP(2002.00) 4 1
AF9713  NAD 83(CORS)-  39 12 20.99317(N)    121 49 14.09892(W) AD(1997.00) A
AF9713  ELLIP H (07/??/98)  617.109  (m)                       GP(1997.00) 4 1
AF9713  NAVD 88 (06/22/10)  645.94   (m)  GEOID09 model used   GPS OBS
AF9713  NAVD 88 (10/28/05)  645.90   (m)  UNKNOWN model used   GPS OBS
AF9713  NAVD 88 (04/03/01)  645.9    (m)  UNKNOWN model used   GPS OBS
AF9713  NAVD 88 (01/02/01)  645.91   (m)  UNKNOWN model used   GPS OBS
AF9713
AF9713.Superseded values are not recommended for survey control.
AF9713
AF9713.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AF9713.See file dsdata.pdf to determine how the superseded data were derived.
AF9713
AF9713_MARKER: Z = SEE DESCRIPTION
AF9713_SETTING: 0 = UNSPECIFIED SETTING
AF9713_SP_SET: ANTENNA REFERENCE POINT
AF9713_STAMPING: NONE
AF9713_MARK LOGO: BART
AF9713_MAGNETIC: N = NO MAGNETIC MATERIAL
AF9713
AF9713  HISTORY     - Date     Condition        Report By
AF9713  HISTORY     - 20080101 MONUMENTED       FRAME
AF9713
AF9713                            STATION DESCRIPTION
AF9713
AF9713'THIS MONUMENT IS ASSOCIATED WITH CORS SITE 'SUTB'
AF9713'LATEST INFORMATION INCLUDING POSITIONS AND VELOCITIES
AF9713'ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
AF9713'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
AF9713'   https://geodesy.noaa.gov/corsdata/coord/coord_14
AF9713'   https://geodesy.noaa.gov/corsdata/station_log
AF9713'   https://geodesy.noaa.gov/CORS
AF9713'RECOVERED IN GOOD CONDITION.



*** retrieval complete.
Elapsed Time = 00:00:04
```

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL  5, 2023
 DH8725 ***********************************************************************
 DH8725  HT_MOD      -  This is a Height Modernization Survey Station.
 DH8725  CORS        -  This is a GPS Continuously Operating Reference Station.
 DH8725  DESIGNATION -  SACRAMENTO COOP CORS ARP
 DH8725  CORS_ID     -  SACR
 DH8725  PID         -  DH8725
 DH8725  STATE/COUNTY-  CA/SACRAMENTO
 DH8725  COUNTRY     -  US
 DH8725  USGS QUAD   -  CITRUS HEIGHTS (2018)
 DH8725
 DH8725                        *CURRENT SURVEY CONTROL
 DH8725  ______________________________________________________________________
 DH8725* NAD 83(2011) POSITION- 38 39 17.97133(N) 121 21 15.19309(W)   ADJUSTED
 DH8725* NAD 83(2011) ELLIP HT-     7.485 (meters)        (06/??/19)   ADJUSTED
 DH8725* NAD 83(2011) EPOCH   -  2010.00
 DH8725* NAVD 88 ORTHO HEIGHT -    37.97  (meters)      124.6   (feet) GPS OBS
 DH8725  ______________________________________________________________________
 DH8725  NAVD 88 orthometric height was determined with geoid model    GEOID09
 DH8725  GEOID HEIGHT    -        -30.473 (meters)                     GEOID09
 DH8725  GEOID HEIGHT    -        -30.454 (meters)                     GEOID18
 DH8725  NAD 83(2011) X  - -2,595,053.377 (meters)                     COMP
 DH8725  NAD 83(2011) Y  - -4,259,028.365 (meters)                     COMP
 DH8725  NAD 83(2011) Z  -  3,962,484.550 (meters)                     COMP
 DH8725
 DH8725  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 DH8725  Standards:
 DH8725         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 DH8725            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 DH8725  ------------------------------------------------------------------
 DH8725  NETWORK    0.18   0.48           0.07   0.07   0.24      0.09093200
 DH8725  ------------------------------------------------------------------
 DH8725
 DH8725
 DH8725.The coordinates were established by GPS observations
 DH8725.and adjusted by the National Geodetic Survey in June 2019.
 DH8725
 DH8725.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 DH8725.been affixed to the stable North American Tectonic Plate.
 DH8725
 DH8725.The coordinates are valid at the epoch date displayed above
 DH8725.which is a decimal equivalence of Year/Month/Day.
 DH8725
 DH8725.Due to the release of the International GNSS Service (IGS) 2014
 DH8725.realization of the International Terrestrial Reference Frame of 2014
 DH8725.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
 DH8725.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
 DH8725.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
 DH8725.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
 DH8725.currently published epoch of 2010.00.
 DH8725
 DH8725.Additional information on MYCS2 is available at
 DH8725.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
 DH8725
 DH8725.The orthometric height was determined by GPS observations and a
 DH8725.high-resolution geoid model using precise GPS observation and
```

DH8725.processing techniques.
DH8725
DH8725.Significant digits in the geoid height do not necessarily reflect accuracy.
DH8725.GEOID18 height accuracy estimate available here.
DH8725
DH8725.The PID for the CORS L1 Phase Center is DI1709.
DH8725
DH8725.Click photographs - Photos may exist for this station.
DH8725
DH8725.The XYZ, and position/ellipsoidal ht. are equivalent.
DH8725
DH8725.The ellipsoidal height was determined by GPS observations
DH8725.and is referenced to NAD 83.
DH8725
DH8725. The following values were computed from the NAD 83(2011) position.
DH8725
DH8725;   North   East   Units Scale Factor Converg.
DH8725;SPC CA 2   -   609,909.478 2,056,208.528   MT 0.99994262   +0 24 25.7
DH8725;SPC CA 2   - 2,001,011.35 6,746,077.48   sFT 0.99994262   +0 24 25.7
DH8725;UTM 10   - 4,279,776.703   643,204.811   MT 0.99985254   +1 01 41.4
DH8725
DH8725!   - Elev Factor x Scale Factor =   Combined Factor
DH8725!SPC CA 2   -   0.99999883 x   0.99994262 =   0.99994145
DH8725!UTM 10   -   0.99999883 x   0.99985254 =   0.99985137
DH8725
DH8725_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH4320479776(NAD 83)
DH8725
DH8725   SUPERSEDED SURVEY CONTROL
DH8725
DH8725 ELLIP H (06/27/12)   7.537 (m)   GP(2010.00) 0 0
DH8725 NAD 83(2011)- 38 39 17.97143(N)   121 21 15.19362(W) AD(2010.00) c
DH8725 NAD 83(2011)- 38 39 17.97131(N)   121 21 15.19332(W) AD(2010.00) c
DH8725 ELLIP H (08/??/11)   7.475 (m)   GP(2010.00) c c
DH8725 NAD 83(CORS)- 38 39 17.96927(N)   121 21 15.19007(W) AD(2002.00) c
DH8725 ELLIP H (03/??/06)   7.482 (m)   GP(2002.00) c c
DH8725
DH8725.Superseded values are not recommended for survey control.
DH8725
DH8725.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DH8725.See file dsdata.pdf to determine how the superseded data were derived.
DH8725
DH8725_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
DH8725
DH8725   STATION DESCRIPTION
DH8725
DH8725'DESCRIBED BY NATIONAL GEODETIC SURVEY 2019
DH8725'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND
DH8725'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DH8725'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DH8725'   https://geodesy.noaa.gov/corsdata/coord/coord_14
DH8725'   https://geodesy.noaa.gov/corsdata/station_log
DH8725'   https://geodesy.noaa.gov/CORS

*** retrieval complete.
Elapsed Time = 00:00:03

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL  5, 2023
 DG8213 ***********************************************************************
 DG8213  CORS         -  This is a GPS Continuously Operating Reference Station.
 DG8213  DESIGNATION -  WOODLAND1_CN2004 CORS ARP
 DG8213  CORS_ID      -  P271
 DG8213  PID          -  DG8213
 DG8213  STATE/COUNTY-  CA/YOLO
 DG8213  COUNTRY      -  US
 DG8213  USGS QUAD    -  GRAYS BEND (2018)
 DG8213
 DG8213                        *CURRENT SURVEY CONTROL
 DG8213  ______________________________________________________________________
 DG8213* NAD 83(2011) POSITION- 38 39 26.44795(N) 121 42 52.32606(W)   ADJUSTED
 DG8213* NAD 83(2011) ELLIP HT-   -17.881 (meters)        (08/??/22)   ADJUSTED
 DG8213* NAD 83(2011) EPOCH    -  2010.00
 DG8213  ______________________________________________________________________
 DG8213  GEOID HEIGHT     -        -30.747 (meters)                     GEOID18
 DG8213  NAD 83(2011) X   - -2,621,689.302 (meters)                     COMP
 DG8213  NAD 83(2011) Y   - -4,242,469.058 (meters)                     COMP
 DG8213  NAD 83(2011) Z   -  3,962,672.821 (meters)                     COMP
 DG8213
 DG8213  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 DG8213  Standards:
 DG8213         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 DG8213            Horiz  Ellip           SD_N   SD_E   SD_h      (unitless)
 DG8213  ------------------------------------------------------------------
 DG8213  NETWORK    0.27   0.83           0.13   0.09   0.42      0.07966200
 DG8213  ------------------------------------------------------------------
 DG8213
 DG8213
 DG8213.The coordinates were established by GPS observations
 DG8213.and adjusted by the National Geodetic Survey in August 2022.
 DG8213
 DG8213.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 DG8213.been affixed to the stable North American Tectonic Plate.
 DG8213
 DG8213.The coordinates are valid at the epoch date displayed above
 DG8213.which is a decimal equivalence of Year/Month/Day.
 DG8213
 DG8213.Due to the release of the International GNSS Service (IGS) 2014
 DG8213.realization of the International Terrestrial Reference Frame of 2014
 DG8213.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
 DG8213.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
 DG8213.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
 DG8213.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
 DG8213.currently published epoch of 2010.00.
 DG8213
 DG8213.Additional information on MYCS2 is available at
 DG8213.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
 DG8213
 DG8213.Significant digits in the geoid height do not necessarily reflect accuracy.
 DG8213.GEOID18 height accuracy estimate available here.
 DG8213
 DG8213.The PID for the CORS L1 Phase Center is DR1476.
 DG8213
 DG8213.Click photographs - Photos may exist for this station.
```

```
DG8213
DG8213.The XYZ, and position/ellipsoidal ht. are equivalent.
DG8213
DG8213.The ellipsoidal height was determined by GPS observations
DG8213.and is referenced to NAD 83.
DG8213
DG8213. The following values were computed from the NAD 83(2011) position.
DG8213
DG8213;                    North         East     Units Scale Factor Converg.
DG8213;SPC CA 2     -   610,010.160 2,024,846.159   MT  0.99994232   +0 10 47.9
DG8213;SPC CA 2     - 2,001,341.67  6,643,182.77   sFT  0.99994232   +0 10 47.9
DG8213;UTM  10      - 4,279,536.918   611,847.625   MT  0.99975405   +0 48 11.0
DG8213
DG8213!             -  Elev Factor  x  Scale Factor =   Combined Factor
DG8213!SPC CA 2     -   1.00000281  x   0.99994232  =   0.99994513
DG8213!UTM  10      -   1.00000281  x   0.99975405  =   0.99975685
DG8213
DG8213_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH1184779536(NAD 83)
DG8213
DG8213                           SUPERSEDED SURVEY CONTROL
DG8213
DG8213  NAD 83(2011)-  38 39 26.44796(N)    121 42 52.32634(W) AD(2010.00) c
DG8213  ELLIP H (06/??/19)  -17.771  (m)                       GP(2010.00) c c
DG8213  ELLIP H (06/27/12)  -17.643  (m)                       GP(2010.00) 0 0
DG8213  NAD 83(2011)-  38 39 26.44836(N)    121 42 52.32631(W) AD(2010.00) c
DG8213  NAD 83(2011)-  38 39 26.44819(N)    121 42 52.32645(W) AD(2010.00) c
DG8213  ELLIP H (08/??/11)  -17.688  (m)                       GP(2010.00) c c
DG8213  NAD 83(CORS)-  38 39 26.44614(N)    121 42 52.32300(W) AD(2002.00) c
DG8213  ELLIP H (03/??/08)  -17.677  (m)                       GP(2002.00) c c
DG8213  NAD 83(CORS)-  38 39 26.44585(N)    121 42 52.32283(W) AD(2002.00) c
DG8213  ELLIP H (12/??/04)  -17.670  (m)                       GP(2002.00) c c
DG8213
DG8213.Superseded values are not recommended for survey control.
DG8213
DG8213.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DG8213.See file dsdata.pdf to determine how the superseded data were derived.
DG8213
DG8213_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA
DG8213
DG8213                           STATION DESCRIPTION
DG8213
DG8213'DESCRIBED BY NATIONAL GEODETIC SURVEY 2022
DG8213'STATION IS A GPS CORS.  LATEST INFORMATION INCLUDING POSITIONS AND
DG8213'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DG8213'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DG8213'   https://geodesy.noaa.gov/corsdata/coord/coord_14
DG8213'   https://geodesy.noaa.gov/corsdata/station_log
DG8213'   https://geodesy.noaa.gov/CORS
1       National Geodetic Survey,   Retrieval Date = APRIL  5, 2023
DG8215 ***********************************************************************
DG8215  HT_MOD      -  This is a Height Modernization Survey Station.
DG8215  CORS        -  This is a GPS Continuously Operating Reference Station.
DG8215  DESIGNATION -  WOODLAND1_CN2004 CORS GRP
DG8215  CORS_ID     -  P271
DG8215  PID         -  DG8215
DG8215  STATE/COUNTY-  CA/YOLO
DG8215  COUNTRY     -  US
DG8215  USGS QUAD   -  GRAYS BEND (2018)
DG8215
DG8215                          *CURRENT SURVEY CONTROL
DG8215  ______________________________________________________________________
DG8215* NAD 83(2011) POSITION- 38 39 26.44795(N) 121 42 52.32606(W)   ADJUSTED
DG8215* NAD 83(2011) ELLIP HT-   -17.889 (meters)        (08/??/22)   ADJUSTED
DG8215* NAD 83(2011) EPOCH    -  2010.00
DG8215* NAVD 88 ORTHO HEIGHT -    13.17  (meters)       43.2   (feet) GPS OBS
```

DG8215 _____
DG8215 NAVD 88 orthometric height was determined with an earlier geoid model
DG8215 GEOID HEIGHT - -30.747 (meters) GEOID18
DG8215 NAD 83(2011) X - -2,621,689.298 (meters) COMP
DG8215 NAD 83(2011) Y - -4,242,469.052 (meters) COMP
DG8215 NAD 83(2011) Z - 3,962,672.816 (meters) COMP
DG8215 LAPLACE CORR - 2.00 (seconds) DEFLEC18
DG8215
DG8215 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DG8215 Standards:

DG8215	FGDC (95% conf, cm)		Standard deviation (cm)			CorrNE
DG8215	Horiz	Ellip	SD_N	SD_E	SD_h	(unitless)
DG8215						
DG8215 NETWORK	0.27	0.83	0.13	0.09	0.42	0.07966200

DG8215 ----------
DG8215
DG8215
DG8215.The horizontal coordinates were established by GPS observations
DG8215.and adjusted by the National Geodetic Survey in August 2022.
DG8215
DG8215.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
DG8215.been affixed to the stable North American Tectonic Plate.
DG8215
DG8215.The horizontal coordinates are valid at the epoch date displayed above
DG8215.which is a decimal equivalence of Year/Month/Day.
DG8215
DG8215.Due to the release of the International GNSS Service (IGS) 2014
DG8215.realization of the International Terrestrial Reference Frame of 2014
DG8215.(ITRF2014), NGS reprocessed all NOAA CORS Network and some IGS stations
DG8215.using data collected between 1/1/1996 and 1/30/2017. The resulting ITRF2014
DG8215.epoch 2010.00 coordinates, referred to as Multi-Year CORS Solution 2
DG8215.(MYCS2), were transformed to NAD 83 (2011/PA11/MA11) maintaining the
DG8215.currently published epoch of 2010.00.
DG8215
DG8215.Additional information on MYCS2 is available at
DG8215.https://geodesy.noaa.gov/CORS/news/mycs2/mycs2.shtml
DG8215
DG8215.The orthometric height was determined by GPS observations and a
DG8215.high-resolution geoid model using precise GPS observation and
DG8215.processing techniques.
DG8215
DG8215.Significant digits in the geoid height do not necessarily reflect accuracy.
DG8215.GEOID18 height accuracy estimate available here.
DG8215
DG8215.Click photographs - Photos may exist for this station.
DG8215
DG8215.The XYZ, and position/ellipsoidal ht. are equivalent.
DG8215
DG8215.The Laplace correction was computed from DEFLEC18 derived deflections.
DG8215
DG8215.The ellipsoidal height was determined by GPS observations
DG8215.and is referenced to NAD 83.
DG8215
DG8215. The following values were computed from the NAD 83(2011) position.
DG8215

DG8215;	North	East	Units	Scale Factor	Converg.
DG8215;SPC CA 2 -	610,010.160	2,024,846.159	MT	0.99994232	+0 10 47.9
DG8215;SPC CA 2 -	2,001,341.67	6,643,182.77	sFT	0.99994232	+0 10 47.9
DG8215;UTM 10 -	4,279,536.918	611,847.625	MT	0.99975405	+0 48 11.0

DG8215

DG8215! -	Elev Factor	x	Scale Factor	=	Combined Factor
DG8215!SPC CA 2 -	1.00000281	x	0.99994232	=	0.99994513
DG8215!UTM 10 -	1.00000281	x	0.99975405	=	0.99975686

DG8215
DG8215_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH1184779536(NAD 83)

```
DG8215
DG8215                          SUPERSEDED SURVEY CONTROL
DG8215
DG8215  NAD 83(2011)-  38 39 26.44796(N)    121 42 52.32634(W) AD(2010.00) A
DG8215  ELLIP H (06/??/19)  -17.779  (m)                       GP(2010.00) 4 1
DG8215  NAD 83(2011)-  38 39 26.44819(N)    121 42 52.32645(W) AD(2010.00) A
DG8215  ELLIP H (08/??/11)  -17.696  (m)                       GP(2010.00) 4 1
DG8215  NAD 83(CORS)-  38 39 26.44614(N)    121 42 52.32300(W) AD(2002.00) A
DG8215  ELLIP H (03/??/08)  -17.685  (m)                       GP(2002.00) 4 1
DG8215  NAD 83(CORS)-  38 39 26.44585(N)    121 42 52.32283(W) AD(2002.00) A
DG8215  ELLIP H (12/??/04)  -17.678  (m)                       GP(2002.00) 4 1
DG8215  NAVD 88 (06/22/10)   13.15   (m)  GEOID09 model used   GPS OBS
DG8215
DG8215.Superseded values are not recommended for survey control.
DG8215
DG8215.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DG8215.See file dsdata.pdf to determine how the superseded data were derived.
DG8215
DG8215_MARKER: Z = SEE DESCRIPTION
DG8215_SETTING: 0 = UNSPECIFIED SETTING
DG8215_STAMPING: UNKNOWN
DG8215_MARK LOGO: NONE
DG8215_MAGNETIC: N = NO MAGNETIC MATERIAL
DG8215_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DG8215
DG8215  HISTORY     - Date     Condition        Report By
DG8215  HISTORY     - 20080101 MONUMENTED       FRAME
DG8215
DG8215                           STATION DESCRIPTION
DG8215
DG8215'THIS MONUMENT IS ASSOCIATED WITH CORS SITE 'P271'
DG8215'LATEST INFORMATION INCLUDING POSITIONS AND VELOCITIES
DG8215'ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE
DG8215'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.
DG8215'   https://geodesy.noaa.gov/corsdata/coord/coord_14
DG8215'   https://geodesy.noaa.gov/corsdata/station_log
DG8215'   https://geodesy.noaa.gov/CORS
DG8215'RECOVERED IN GOOD CONDITION.



*** retrieval complete.
Elapsed Time = 00:00:04
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.7
1        National Geodetic Survey,   Retrieval Date = APRIL 30, 2015
 AI5056 ***********************************************************************
 AI5056  HT_MOD      -  This is a Height Modernization Survey Station.
 AI5056  DESIGNATION -  CODY
 AI5056  PID         -  AI5056
 AI5056  STATE/COUNTY-  CA/YOLO
 AI5056  COUNTRY     -  US
 AI5056  USGS QUAD   -  ELDORADO BEND (1973)
 AI5056
 AI5056                         *CURRENT SURVEY CONTROL
 AI5056  ______________________________________________________________________
 AI5056* NAD 83(2011) POSITION- 38 47 30.59962(N) 121 46 29.02277(W)   ADJUSTED
 AI5056* NAD 83(2011) ELLIP HT-   -17.618 (meters)        (06/27/12)   ADJUSTED
 AI5056* NAD 83(2011) EPOCH   -  2010.00
 AI5056* NAVD 88 ORTHO HEIGHT -    12.67  (meters)       41.6   (feet) GPS OBS
 AI5056  ______________________________________________________________________
 AI5056  NAVD 88 orthometric height was determined with geoid model    GEOID09
 AI5056  GEOID HEIGHT    -        -30.40  (meters)                     GEOID09
 AI5056  GEOID HEIGHT    -        -30.34  (meters)                     GEOID12B
 AI5056  NAD 83(2011) X  - -2,621,227.014 (meters)                     COMP
 AI5056  NAD 83(2011) Y  - -4,231,772.900 (meters)                     COMP
 AI5056  NAD 83(2011) Z  -  3,974,320.290 (meters)                     COMP
 AI5056  LAPLACE CORR    -          2.48  (seconds)                    DEFLEC12B
 AI5056
 AI5056  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AI5056  Standards:
 AI5056         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AI5056            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 AI5056  ------------------------------------------------------------------
 AI5056  NETWORK    0.33   0.49          0.15   0.11   0.25     -0.06617237
 AI5056  ------------------------------------------------------------------
 AI5056  Click here for local accuracies and other accuracy information.
 AI5056
 AI5056
 AI5056.The horizontal coordinates were established by GPS observations
 AI5056.and adjusted by the National Geodetic Survey in June 2012.
 AI5056
 AI5056.NAD 83(2011) refers to NAD 83 coordinates where the reference
 AI5056.frame has been affixed to the stable North American tectonic plate. See
 AI5056.NA2011 for more information.
 AI5056
 AI5056.The horizontal coordinates are valid at the epoch date displayed above
 AI5056.which is a decimal equivalence of Year/Month/Day.
 AI5056
 AI5056.The orthometric height was determined by GPS observations and a
 AI5056.high-resolution geoid model using precise GPS observation and
 AI5056.processing techniques.
 AI5056
 AI5056.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AI5056
```

AI5056.The Laplace correction was computed from DEFLEC12B derived deflections.
AI5056
AI5056.The ellipsoidal height was determined by GPS observations
AI5056.and is referenced to NAD 83.
AI5056
AI5056. The following values were computed from the NAD 83(2011) position.
AI5056
AI5056;   North   East   Units Scale Factor Converg.
AI5056;SPC CA 2   -   624,923.801 2,019,570.071   MT 0.99992766   +0 08 31.3
AI5056;SPC CA 2   - 2,050,270.84 6,625,872.81   sFT 0.99992766   +0 08 31.3
AI5056;UTM 10   - 4,294,389.386   606,410.350   MT 0.99973943   +0 46 03.7
AI5056
AI5056!   - Elev Factor x Scale Factor =   Combined Factor
AI5056!SPC CA 2   -   1.00000276 x   0.99992766 =   0.99993042
AI5056!UTM 10   -   1.00000276 x   0.99973943 =   0.99974219
AI5056
AI5056   SUPERSEDED SURVEY CONTROL
AI5056
AI5056 NAD 83(2007)- 38 47 30.59910(N)   121 46 29.02194(W) AD(2007.00) 0
AI5056 ELLIP H (02/10/07) -17.614 (m)   GP(2007.00)
AI5056 NAD 83(1998)- 38 47 30.59722(N)   121 46 29.01978(W) AD(2002.53) 1
AI5056 ELLIP H (02/03/03) -17.586 (m)   GP(2002.53) 4 1
AI5056 NAD 83(1998)- 38 47 30.59651(N)   121 46 29.01915(W) AD(1999.51) 1
AI5056 ELLIP H (05/12/00) -17.530 (m)   GP(1999.51) 4 1
AI5056 NAVD 88 (02/03/03)   12.75   (m) UNKNOWN model used   GPS OBS
AI5056 NAVD 88 (05/12/00)   12.81   (m) GEOID99 model used   GPS OBS
AI5056
AI5056.Superseded values are not recommended for survey control.
AI5056
AI5056.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AI5056.See file dsdata.txt to determine how the superseded data were derived.
AI5056
AI5056_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH0641094389(NAD 83)
AI5056
AI5056_MARKER: DD = SURVEY DISK
AI5056_SETTING: 50 = ALUMINUM ALLOY ROD W/O SLEEVE (10 FT.+)
AI5056_STAMPING: CODY 1999
AI5056_MARK LOGO: CA-113
AI5056_PROJECTION: RECESSED 7 CENTIMETERS
AI5056_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AI5056_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AI5056_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AI5056+SATELLITE: SATELLITE OBSERVATIONS - January 01, 2008
AI5056_ROD/PIPE-DEPTH: 6.1 meters
AI5056
AI5056 HISTORY   - Date   Condition   Report By
AI5056 HISTORY   - 1999   MONUMENTED   FRAME
AI5056 HISTORY   - 20020826 GOOD   FRAME
AI5056 HISTORY   - 20080101 GOOD   FRAME
AI5056
AI5056   STATION DESCRIPTION
AI5056
AI5056'DESCRIBED BY FRAME SURVEYING AND MAPPING 1999 (JHF)
AI5056'THE STATION IS LOCATED ABOUT 5.5 MI (8.9 KM) EAST OF ZAMORA AND ABOUT
AI5056'3 MI (4.8 KM) WEST OF KNIGHTS LANDING. TO REACH THE STATION FROM THE
AI5056'INTERSECTION OF INTERSTATE HIGHWAY 5 AND COUNTY ROAD E10, ROAD 13, IN
AI5056'ZAMORA, GO EAST ON ROAD E10 FOR ABOUT 3.0 MI (4.8 KM) TO THE
AI5056'INTERSECTION OF ROAD 97. CONTINUE EAST ON ROAD E10 FOR ABOUT 2.5 MI
AI5056'(4.0 KM) TO THE END OF ROAD E10 AND THE INTERSECTION OF STATE HIGHWAY
AI5056'113 AND COUNTY ROAD E11, ROAD 99E. TURN RIGHT AND GO SOUTH ON HIGHWAY

AI5056'113 FOR ABOUT 0.1 MI (0.2 KM) TO THE STATION ON THE RIGHT JUST PAST A
AI5056'LARGE MILLING AND STORAGE PLANT. THE STATION IS A 2 1/2 IN YOLO
AI5056'COUNTY DISK SET INSIDE AN ALUMINUM LOGO CAP. IT IS ABOUT 40 M (131.2
AI5056'FT) SOUTH-SOUTHEAST OF THE SOUTHEAST CORNER OF A LARGE CORRUGATED
AI5056'METAL BUILDING, 21.4 M (70.2 FT) WEST-SOUTHWEST OF AND ACROSS HIGHWAY
AI5056'113 FROM A POWER POLE WITH TRANSFORMER, 10.5 M (34.4 FT) WEST OF THE
AI5056'CENTERLINE OF THE HIGHWAY AND 0.8 M (2.6 FT) EAST OF A CARSONITE
AI5056'WITNESS POST.
AI5056
AI5056   STATION RECOVERY (2002)
AI5056
AI5056'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2002 (JHF)
AI5056'RECOVERED AS DESCRIBED.
AI5056
AI5056   STATION RECOVERY (2008)
AI5056
AI5056'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2008 (JHF)
AI5056'RECOVERED AS DESCRIBED.

*** retrieval complete.
Elapsed Time = 00:00:03

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = MARCH 23, 2023
 AI5062 ***********************************************************************
 AI5062  HT_MOD      -  This is a Height Modernization Survey Station.
 AI5062  DESIGNATION -  F 859 RESET
 AI5062  PID         -  AI5062
 AI5062  STATE/COUNTY-  CA/YOLO
 AI5062  COUNTRY     -  US
 AI5062  USGS QUAD   -  KNIGHTS LANDING (2018)
 AI5062
 AI5062                        *CURRENT SURVEY CONTROL
 AI5062  ______________________________________________________________________
 AI5062* NAD 83(2011) POSITION- 38 47 34.20283(N) 121 43 36.01997(W)   ADJUSTED
 AI5062* NAD 83(2011) ELLIP HT-   -16.101 (meters)        (06/27/12)   ADJUSTED
 AI5062* NAD 83(2011) EPOCH    -  2010.00
 AI5062* NAVD 88 ORTHO HEIGHT -    14.15  (meters)       46.4   (feet) GPS OBS
 AI5062  ______________________________________________________________________
 AI5062  NAVD 88 orthometric height was determined with geoid model    GEOID09
 AI5062  GEOID HEIGHT    -        -30.345 (meters)                     GEOID09
 AI5062  GEOID HEIGHT    -        -30.255 (meters)                     GEOID18
 AI5062  NAD 83(2011) X  - -2,617,640.746 (meters)                     COMP
 AI5062  NAD 83(2011) Y  - -4,233,911.740 (meters)                     COMP
 AI5062  NAD 83(2011) Z  -  3,974,407.842 (meters)                     COMP
 AI5062  LAPLACE CORR    -          1.48  (seconds)                    DEFLEC18
 AI5062
 AI5062  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AI5062  Standards:
 AI5062         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AI5062            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 AI5062  ------------------------------------------------------------------
 AI5062  NETWORK    0.37   0.57          0.17   0.12   0.29     -0.01214013
 AI5062  ------------------------------------------------------------------
 AI5062  Click here for local accuracies and other accuracy information.
 AI5062
 AI5062
 AI5062.The horizontal coordinates were established by GPS observations
 AI5062.and adjusted by the National Geodetic Survey in June 2012.
 AI5062
 AI5062.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AI5062.been affixed to the stable North American tectonic plate. See
 AI5062.NA2011 for more information.
 AI5062
 AI5062.The horizontal coordinates are valid at the epoch date displayed above
 AI5062.which is a decimal equivalence of Year/Month/Day.
 AI5062
 AI5062.The orthometric height was determined by GPS observations and a
 AI5062.high-resolution geoid model using precise GPS observation and
 AI5062.processing techniques.
 AI5062
 AI5062.Significant digits in the geoid height do not necessarily reflect accuracy.
 AI5062.GEOID18 height accuracy estimate available here.
 AI5062
 AI5062.Click photographs - Photos may exist for this station.
 AI5062
 AI5062.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AI5062
 AI5062.The Laplace correction was computed from DEFLEC18 derived deflections.
```

```
AI5062
AI5062.The ellipsoidal height was determined by GPS observations
AI5062.and is referenced to NAD 83.
AI5062
AI5062. The following values were computed from the NAD 83(2011) position.
AI5062
AI5062;                    North         East     Units Scale Factor Converg.
AI5062;SPC CA 2     -   625,046.355 2,023,744.537   MT  0.99992757   +0 10 20.4
AI5062;SPC CA 2     - 2,050,672.92  6,639,568.54   sFT  0.99992757   +0 10 20.4
AI5062;UTM  10      - 4,294,557.480   610,582.467   MT  0.99975058   +0 47 52.2
AI5062
AI5062!             -  Elev Factor  x  Scale Factor =   Combined Factor
AI5062!SPC CA 2     -   1.00000253  x   0.99992757  =   0.99993010
AI5062!UTM  10      -   1.00000253  x   0.99975058  =   0.99975311
AI5062
AI5062_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH1058294557(NAD 83)
AI5062
AI5062                           SUPERSEDED SURVEY CONTROL
AI5062
AI5062  NAD 83(2007)-  38 47 34.20221(N)    121 43 36.01912(W) AD(2007.00) 0
AI5062  ELLIP H (02/10/07)  -16.112  (m)                       GP(2007.00)
AI5062  NAD 83(1998)-  38 47 34.20109(N)    121 43 36.01796(W) AD(2004.69) B
AI5062  ELLIP H (09/28/05)  -16.121  (m)                       GP(2004.69) 4 1
AI5062  NAD 83(1998)-  38 47 34.20043(N)    121 43 36.01698(W) AD(2002.53) 1
AI5062  ELLIP H (02/03/03)  -16.080  (m)                       GP(2002.53) 4 1
AI5062  NAD 83(1998)-  38 47 34.19939(N)    121 43 36.01591(W) AD(1999.51) 1
AI5062  ELLIP H (05/12/00)  -16.054  (m)                       GP(1999.51) 4 1
AI5062  NAVD 88 (02/03/03)   14.20   (m)  UNKNOWN model used   GPS OBS
AI5062  NAVD 88 (05/12/00)   14.23   (m)  GEOID99 model used   GPS OBS
AI5062
AI5062.Superseded values are not recommended for survey control.
AI5062
AI5062.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AI5062.See file dsdata.pdf to determine how the superseded data were derived.
AI5062
AI5062_MARKER: DB = BENCH MARK DISK
AI5062_SETTING: 38 = SET IN THE ABUTMENT OR PIER OF A LARGE BRIDGE
AI5062_SP_SET: BRIDGE SIDEWALK
AI5062_STAMPING: F 859 RESET 1993
AI5062_MARK LOGO: CGS
AI5062_MAGNETIC: N = NO MAGNETIC MATERIAL
AI5062_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AI5062_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AI5062+SATELLITE: SATELLITE OBSERVATIONS - January 01, 2008
AI5062
AI5062  HISTORY     - Date     Condition        Report By
AI5062  HISTORY     - 1993     MONUMENTED       LOCENG
AI5062  HISTORY     - 20020826 GOOD             FRAME
AI5062  HISTORY     - 20041005 GOOD             CADT
AI5062  HISTORY     - 20080101 GOOD             FRAME
AI5062
AI5062                           STATION DESCRIPTION
AI5062
AI5062'DESCRIBED BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1993
AI5062'THE STATION IS LOCATED ABOUT 0.4 MI (0.6 KM) SOUTHWEST OF THE TOWN OF
AI5062'KNIGHTS LANDING IN THE BRIDGE OVER KNIGHTS LANDING RIDGE CUT.  TO
AI5062'REACH THE STATION FROM THE INTERSECTION OF STATE HIGHWAY 113, LOCUST
AI5062'AVENUE, AND COUNTY ROAD E8, ROAD 102, ABOUT 0.4 MI (0.6 KM) SOUTHWEST
AI5062'OF KNIGHTS LANDING, GO NORTHEAST ON HIGHWAY 113 FOR ABOUT 0.05 MI
AI5062'(0.08 KM) TO THE STATION ON THE LEFT IN THE SOUTHWEST CORNER OF THE
AI5062'BRIDGE.  THE STATION IS ABOUT 96 M (315.0 FT) NORTHEAST OF THE
AI5062'INTERSECTION OF HIGHWAY 113 AND ROAD E8, 6.7 M (22.0 FT) NORTHWEST OF
AI5062'THE CENTERLINE OF HIGHWAY 113, 4.6 M (15.1 FT) NORTHEAST OF THE
AI5062'SOUTHWEST END OF THE BRIDGE, 0.2 M (0.7 FT) SOUTHEAST OF THE BRIDGE
AI5062'WALL AND SET IN THE SIDEWALK OVER THE BRIDGE ABUTMENT.
```

```
AI5062
AI5062                          STATION RECOVERY (2002)
AI5062
AI5062'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2002 (JHF)
AI5062'RECOVERED AS DESCRIBED.
AI5062
AI5062                          STATION RECOVERY (2004)
AI5062
AI5062'RECOVERY NOTE BY CALTRANS 2004 (RLM)
AI5062'THE STATION WAS RECOVERED AS DESCRIBED. THIS STATION WAS OCCUPIED AS
AI5062'PART OF A  CALTRANS NORTH REGION OFFICE OF SURVEYORS GPS HEIGHT
AI5062'MODERNIZATION PROJECT.
AI5062
AI5062                          STATION RECOVERY (2008)
AI5062
AI5062'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2008 (JHF)
AI5062'RECOVERED AS DESCRIBED.



*** retrieval complete.
Elapsed Time = 00:00:03
```

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL  3, 2023
 DL9206 ***********************************************************************
 DL9206  HT_MOD      -  This is a Height Modernization Survey Station.
 DL9206  DESIGNATION -  WAYNE
 DL9206  PID         -  DL9206
 DL9206  STATE/COUNTY-  CA/COLUSA
 DL9206  COUNTRY     -  US
 DL9206  USGS QUAD   -  DUNNIGAN (2018)
 DL9206
 DL9206                        *CURRENT SURVEY CONTROL
 DL9206  ______________________________________________________________________
 DL9206* NAD 83(2011) POSITION- 38 59 37.07262(N) 121 57 29.54130(W)   ADJUSTED
 DL9206* NAD 83(2011) ELLIP HT-   -15.826 (meters)        (06/27/12)   ADJUSTED
 DL9206* NAD 83(2011) EPOCH    -  2010.00
 DL9206* NAVD 88 ORTHO HEIGHT -    14.12  (meters)       46.3   (feet) GPS OBS
 DL9206  ______________________________________________________________________
 DL9206  NAVD 88 orthometric height was determined with geoid model    GEOID09
 DL9206  GEOID HEIGHT    -        -29.982 (meters)                     GEOID09
 DL9206  GEOID HEIGHT    -        -29.973 (meters)                     GEOID18
 DL9206  NAD 83(2011) X  - -2,627,320.722 (meters)                     COMP
 DL9206  NAD 83(2011) Y  - -4,211,424.783 (meters)                     COMP
 DL9206  NAD 83(2011) Z  -  3,991,757.577 (meters)                     COMP
 DL9206  LAPLACE CORR    -          4.77  (seconds)                    DEFLEC18
 DL9206
 DL9206  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 DL9206  Standards:
 DL9206         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 DL9206            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 DL9206  ------------------------------------------------------------------
 DL9206  NETWORK    0.49   0.69          0.23   0.15   0.35      0.00299752
 DL9206  ------------------------------------------------------------------
 DL9206  Click here for local accuracies and other accuracy information.
 DL9206
 DL9206
 DL9206.The horizontal coordinates were established by GPS observations
 DL9206.and adjusted by the National Geodetic Survey in June 2012.
 DL9206
 DL9206.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 DL9206.been affixed to the stable North American tectonic plate. See
 DL9206.NA2011 for more information.
 DL9206
 DL9206.The horizontal coordinates are valid at the epoch date displayed above
 DL9206.which is a decimal equivalence of Year/Month/Day.
 DL9206
 DL9206.The orthometric height was determined by GPS observations and a
 DL9206.high-resolution geoid model using precise GPS observation and
 DL9206.processing techniques.
 DL9206
 DL9206.Significant digits in the geoid height do not necessarily reflect accuracy.
 DL9206.GEOID18 height accuracy estimate available here.
 DL9206
 DL9206.Click photographs - Photos may exist for this station.
 DL9206
 DL9206.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 DL9206
 DL9206.The Laplace correction was computed from DEFLEC18 derived deflections.
```

```
DL9206
DL9206.The ellipsoidal height was determined by GPS observations
DL9206.and is referenced to NAD 83.
DL9206
DL9206. The following values were computed from the NAD 83(2011) position.
DL9206
DL9206;                    North         East     Units Scale Factor Converg.
DL9206;SPC CA 2     -   647,300.898 2,003,620.491   MT  0.99991593   +0 01 34.9
DL9206;SPC CA 2     - 2,123,686.36  6,573,544.89   sFT  0.99991593   +0 01 34.9
DL9206;UTM  10      - 4,316,585.984   590,219.910   MT  0.99970023   +0 39 20.1
DL9206
DL9206!             -  Elev Factor  x  Scale Factor =   Combined Factor
DL9206!SPC CA 2     -   1.00000248  x   0.99991593  =   0.99991841
DL9206!UTM  10      -   1.00000248  x   0.99970023  =   0.99970271
DL9206
DL9206_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SEJ9021916585(NAD 83)
DL9206
DL9206                           SUPERSEDED SURVEY CONTROL
DL9206
DL9206  NAD 83(2007)-  38 59 37.07181(N)    121 57 29.53946(W) AD(2007.00) B
DL9206  ELLIP H (06/22/10)  -15.843  (m)                       GP(2007.00) 3 2
DL9206
DL9206.Superseded values are not recommended for survey control.
DL9206
DL9206.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DL9206.See file dsdata.pdf to determine how the superseded data were derived.
DL9206
DL9206_MARKER: DD = SURVEY DISK
DL9206_SETTING: 50 = ALUMINUM ALLOY ROD W/O SLEEVE (10 FT.+)
DL9206_STAMPING: WAYNE 2008
DL9206_MARK LOGO: CADWR
DL9206_PROJECTION: RECESSED 6 CENTIMETERS
DL9206_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DL9206_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DL9206_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DL9206+SATELLITE: SATELLITE OBSERVATIONS - January 01, 2008
DL9206_ROD/PIPE-DEPTH: 6    meters
DL9206
DL9206  HISTORY     - Date     Condition        Report By
DL9206  HISTORY     - 20080101 MONUMENTED       FRAME
DL9206
DL9206                           STATION DESCRIPTION
DL9206
DL9206'DESCRIBED BY FRAME SURVEYING AND MAPPING 2008 (JHF)
DL9206'THE STATION IS LOCATED IN COLUSA COUNTY, ABOUT 6.8 MI NORTHEAST OF
DL9206'DUNNIGAN, 5.6 MI SOUTHEAST OF ARBUCKLE, AND 4KM SOUTHEAST OF COLLEGE
DL9206'CITY.
DL9206'
DL9206'TO REACH THE STATION FROM THE INTERSECTION OF INTERSTATE 5 AND
DL9206'HILLGATE ROAD IN ARBUCKLE, GO EAST FOR 0.1 MI TO THE END OF HILLGATE
DL9206'ROAD AND THE INTERSECTION WITH ROAD 99W.  TURN RIGHT AND GO SOUTHEAST
DL9206'ON ROAD 99W FOR 0.1 MI TO THE INTERSECTION WITH GRIMES-ARBUCKLE ROAD,
DL9206'A SIDE ROAD LEFT.  TURN LEFT AND GO EAST ON GRIMES-ARBUCKLE ROAD FOR
DL9206'2.1 MI TO A 90-DEGREE TURN TO THE NORTH IN GRIMES-ARBUCKLE ROAD AND
DL9206'THE INTERSECTION OF TULE ROAD TO THE EAST.  GO STRAIGHT AND HEAD EAST
DL9206'ON TULE ROAD FOR 1.9 MI TO THE EAST LEVEE OF THE COLUSA BASIN DRAINAGE
DL9206'CANAL.  TURN RIGHT AND GO SOUTHEAST, THROUGH THE GATE, ON THE LEVEE
DL9206'ROAD FOR 1.8 MI AND THE STATION ON THE LEFT. GATE ACCESS IS CONTROLLED
DL9206'BY RECLAMATION DISTRICT 108, 975 WILSON BEND ROAD, GRIMES,
DL9206'530.437.2221.
DL9206'
DL9206'THE STATION IS A 2 1/2 IN DISK SET ON TOP OF AN ALUMINUM ROD SET
DL9206'INSIDE A PVC PIPE AND BELOW AN ALUMINUM ACCESS COVER.  IT IS 15.0 FT
DL9206'EAST OF THE CENTERLINE OF THE LEVEE ROAD AND 1.1 FT WEST OF A WITNESS
DL9206'POST.
```

```
*** retrieval complete.
Elapsed Time = 00:00:04
```

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.14
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL  3, 2023
 AI5070 ***********************************************************************
 AI5070  HT_MOD      -  This is a Height Modernization Survey Station.
 AI5070  DESIGNATION -  SM NO 15
 AI5070  PID         -  AI5070
 AI5070  STATE/COUNTY-  CA/YOLO
 AI5070  COUNTRY     -  US
 AI5070  USGS QUAD   -  GRAYS BEND (2018)
 AI5070
 AI5070                        *CURRENT SURVEY CONTROL
 AI5070  ______________________________________________________________________
 AI5070* NAD 83(2011) POSITION- 38 43 51.60578(N) 121 37 59.39431(W)   ADJUSTED
 AI5070* NAD 83(2011) ELLIP HT-    -23.221 (meters)        (06/27/12)   ADJUSTED
 AI5070* NAD 83(2011) EPOCH    -  2010.00
 AI5070* NAVD 88 ORTHO HEIGHT -     7.27  (meters)       23.9   (feet) GPS OBS
 AI5070  ______________________________________________________________________
 AI5070  NAVD 88 orthometric height was determined with geoid model    GEOID09
 AI5070  GEOID HEIGHT    -        -30.543 (meters)                     GEOID09
 AI5070  GEOID HEIGHT    -        -30.457 (meters)                     GEOID18
 AI5070  NAD 83(2011) X  - -2,612,978.520 (meters)                     COMP
 AI5070  NAD 83(2011) Y  - -4,241,832.367 (meters)                     COMP
 AI5070  NAD 83(2011) Z  -  3,969,051.101 (meters)                     COMP
 AI5070  LAPLACE CORR    -         -0.87  (seconds)                    DEFLEC18
 AI5070
 AI5070  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AI5070  Standards:
 AI5070         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 AI5070            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 AI5070  ------------------------------------------------------------------
 AI5070  NETWORK    0.35   0.55          0.16   0.12   0.28     -0.00934785
 AI5070  ------------------------------------------------------------------
 AI5070  Click here for local accuracies and other accuracy information.
 AI5070
 AI5070
 AI5070.The horizontal coordinates were established by GPS observations
 AI5070.and adjusted by the National Geodetic Survey in June 2012.
 AI5070
 AI5070.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AI5070.been affixed to the stable North American tectonic plate. See
 AI5070.NA2011 for more information.
 AI5070
 AI5070.The horizontal coordinates are valid at the epoch date displayed above
 AI5070.which is a decimal equivalence of Year/Month/Day.
 AI5070
 AI5070.The orthometric height was determined by GPS observations and a
 AI5070.high-resolution geoid model using precise GPS observation and
 AI5070.processing techniques.
 AI5070
 AI5070.Significant digits in the geoid height do not necessarily reflect accuracy.
 AI5070.GEOID18 height accuracy estimate available here.
 AI5070
 AI5070.Click photographs - Photos may exist for this station.
 AI5070
 AI5070.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AI5070
 AI5070.The Laplace correction was computed from DEFLEC18 derived deflections.
```

```
AI5070
AI5070.The ellipsoidal height was determined by GPS observations
AI5070.and is referenced to NAD 83.
AI5070
AI5070. The following values were computed from the NAD 83(2011) position.
AI5070
AI5070;                    North         East     Units Scale Factor Converg.
AI5070;SPC CA 2      -   618,211.413 2,031,895.357   MT  0.99993361   +0 13 52.6
AI5070;SPC CA 2      - 2,028,248.61  6,666,310.02   sFT  0.99993361   +0 13 52.6
AI5070;UTM  10       - 4,287,812.958   618,805.946   MT  0.99977381   +0 51 19.0
AI5070
AI5070!              -  Elev Factor  x  Scale Factor =   Combined Factor
AI5070!SPC CA 2      -   1.00000364  x   0.99993361  =   0.99993725
AI5070!UTM  10       -   1.00000364  x   0.99977381  =   0.99977745
AI5070
AI5070_U.S. NATIONAL GRID SPATIAL ADDRESS: 10SFH1880587812(NAD 83)
AI5070
AI5070                            SUPERSEDED SURVEY CONTROL
AI5070
AI5070  NAD 83(2007)-  38 43 51.60561(N)    121 37 59.39391(W) AD(2007.00) 0
AI5070  ELLIP H (02/10/07)  -23.227  (m)                       GP(2007.00)
AI5070  NAD 83(1998)-  38 43 51.60394(N)    121 37 59.39252(W) AD(2004.69) B
AI5070  ELLIP H (09/28/05)  -23.249  (m)                       GP(2004.69) 4 1
AI5070  NAD 83(1998)-  38 43 51.60375(N)    121 37 59.39187(W) AD(2002.53) 1
AI5070  ELLIP H (02/03/03)  -23.153  (m)                       GP(2002.53) 4 1
AI5070  NAD 83(1998)-  38 43 51.60353(N)    121 37 59.39048(W) AD(1999.51) 1
AI5070  ELLIP H (05/12/00)  -23.191  (m)                       GP(1999.51) 4 1
AI5070  NAVD 88 (02/03/03)    7.33   (m)  UNKNOWN model used   GPS OBS
AI5070  NAVD 88 (05/12/00)    7.30   (m)  GEOID99 model used   GPS OBS
AI5070
AI5070.Superseded values are not recommended for survey control.
AI5070
AI5070.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AI5070.See file dsdata.pdf to determine how the superseded data were derived.
AI5070
AI5070_MARKER: DD = SURVEY DISK
AI5070_SETTING: 2 = OBJECT DRIVEN INTO GROUND
AI5070_STAMPING: SM NO 15
AI5070_MARK LOGO: CA-113
AI5070_MAGNETIC: N = NO MAGNETIC MATERIAL
AI5070_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AI5070+STABILITY: SURFACE MOTION
AI5070_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AI5070+SATELLITE: SATELLITE OBSERVATIONS - January 01, 2008
AI5070
AI5070  HISTORY      - Date     Condition        Report By
AI5070  HISTORY      - 1999     MONUMENTED       CA-113
AI5070  HISTORY      - 20020826 GOOD             FRAME
AI5070  HISTORY      - 20041005 GOOD             CADT
AI5070  HISTORY      - 20080101 GOOD             FRAME
AI5070
AI5070                            STATION DESCRIPTION
AI5070
AI5070'DESCRIBED BY YOLO COUNTY CALIFORNIA 1999
AI5070'THE STATION IS LOCATED ABOUT 9 MI (14.5 KM) NORTHEAST OF WOODLAND,
AI5070'ABOUT 7 MI (11.3 KM) SOUTH OF KNIGHTS LANDING AND ALONG THE EAST SIDE
AI5070'OF THE YOLO BYPASS.  TO REACH THE STATION FROM THE INTERSECTION OF
AI5070'INTERSTATE HIGHWAY 5 AND COUNTY ROAD E8, ROAD 102, ABOUT 2 MI (3.2 KM)
AI5070'EAST OF WOODLAND, GO EAST ON HIGHWAY 5 FOR ABOUT 5 MI (8.0 KM) TO THE
AI5070'ROAD 22 OFF-RAMP.TAKE THE OFF-RAMP EAST AND THEN SOUTH FOR 0.2 MI (0.3
AI5070'KM) TO A T-INTERSECTION, ROAD 118.  TURN LEFT AND GO EAST FOR 0.5 MI
AI5070'(0.8 KM) TO A T-INTERSECTION, OLD RIVER ROAD. TURN LEFT AND GO
AI5070'NORTHWEST ON OLD RIVER ROAD, PASSING UNDER HIGHWAY 5, FOR 0.2 MI (0.3
AI5070'KM) TO A SIDE ROAD RIGHT, ROAD 117.  TURN RIGHT AND GO NORTHERLY ON
AI5070'ROAD 117 FOLLOWING THE WEST BANK OF THE SACRAMENTO RIVER, FOR ABOUT 6
```

AI5070'MI (9.7 KM) TO A SIDE ROAD LEFT, ROAD 16. TURN LEFT AND GO WEST ON
AI5070'ROAD 16 FOR 2.05 MI (3.30 KM) TO THE BASE OF A LEVEE AND A FORK IN THE
AI5070'ROAD. TAKE THE LEFT FORK AND GO SOUTHWEST FOR 0.05 MI (0.08 KM) TO
AI5070'THE TOP OF THE LEVEE AND A GATE. CONTINUE SOUTH ALONG THE LEVEE ROAD
AI5070'THROUGH THE GATE FOR 1.2 MI (1.9 KM) TO A DIRT SIDE ROAD LEFT AND AN
AI5070'ABANDONED TWO STORY CONCRETE PUMPING PLANT. TURN LEFT AND GO EAST ON
AI5070'THE DIRT ROAD TO THE BASE OF THE LEVEE AND THE STATION ON THE RIGHT.
AI5070'THE STATION IS A YOLO COUNTY SURVEYOR DISK SET INSIDE A WELL CASING
AI5070'WITH THE WORD GROUND ON THE TOP OF THE WELL MONUMENT COVER. IT IS
AI5070'ABOUT 30 M (98.4 FT) EAST OF THE CENTERLINE OF THE LEVEE ROAD, 15.2 M
AI5070'(49.9 FT) NORTHEAST OF THE NORTHEAST CORNER OF THE CONCRETE BUILDING,
AI5070'13.4 M (44.0 FT) NORTH OF THE NORTHWEST CORNER OF A 3 M (9.8 FT) BY 3
AI5070'M (9.8 FT) CORRUGATED METAL BUILDING AT THE HEAD OF AN IRRIGATION
AI5070'CANAL, 7.2 M (23.6 FT) EAST OF THE CENTERLINE OF THE DIRT ROAD, SET
AI5070'ABOUT MIDWAY BETWEEM TWO 0.1 M (0.3 FT) IRON PIPES WHICH PROJECT ABOUT
AI5070'1.2 M (3.9 FT) AND INSIDE THE WELL MONUMENT.
AI5070
AI5070   STATION RECOVERY (2002)
AI5070
AI5070'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2002 (JHF)
AI5070'RECOVERED AS DESCRIBED.
AI5070
AI5070   STATION RECOVERY (2004)
AI5070
AI5070'RECOVERY NOTE BY CALTRANS 2004 (RLM)
AI5070'THE STATION WAS RECOVERED AS DESCRIBED. THIS STATION WAS OCCUPIED AS
AI5070'PART OF A CALTRANS NORTH REGION OFFICE OF SURVEYORS GPS HEIGHT
AI5070'MODERNIZATION PROJECT.
AI5070
AI5070   STATION RECOVERY (2008)
AI5070
AI5070'RECOVERY NOTE BY FRAME SURVEYING AND MAPPING 2008 (JHF)
AI5070'RECOVERED AS DESCRIBED.

*** retrieval complete.
Elapsed Time = 00:00:04

From: Angela Bezzone [bezzone@mbkengineers.com]
Sent: 5/23/2023 11:00:27 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Naomi Tanaka [tanaka@mbkengineers.com]
Subject: FW: Sites Diversion Forecast - May 16th, 2023
Attachments: FW: [EXTERNAL] Spring Pulse Schedule

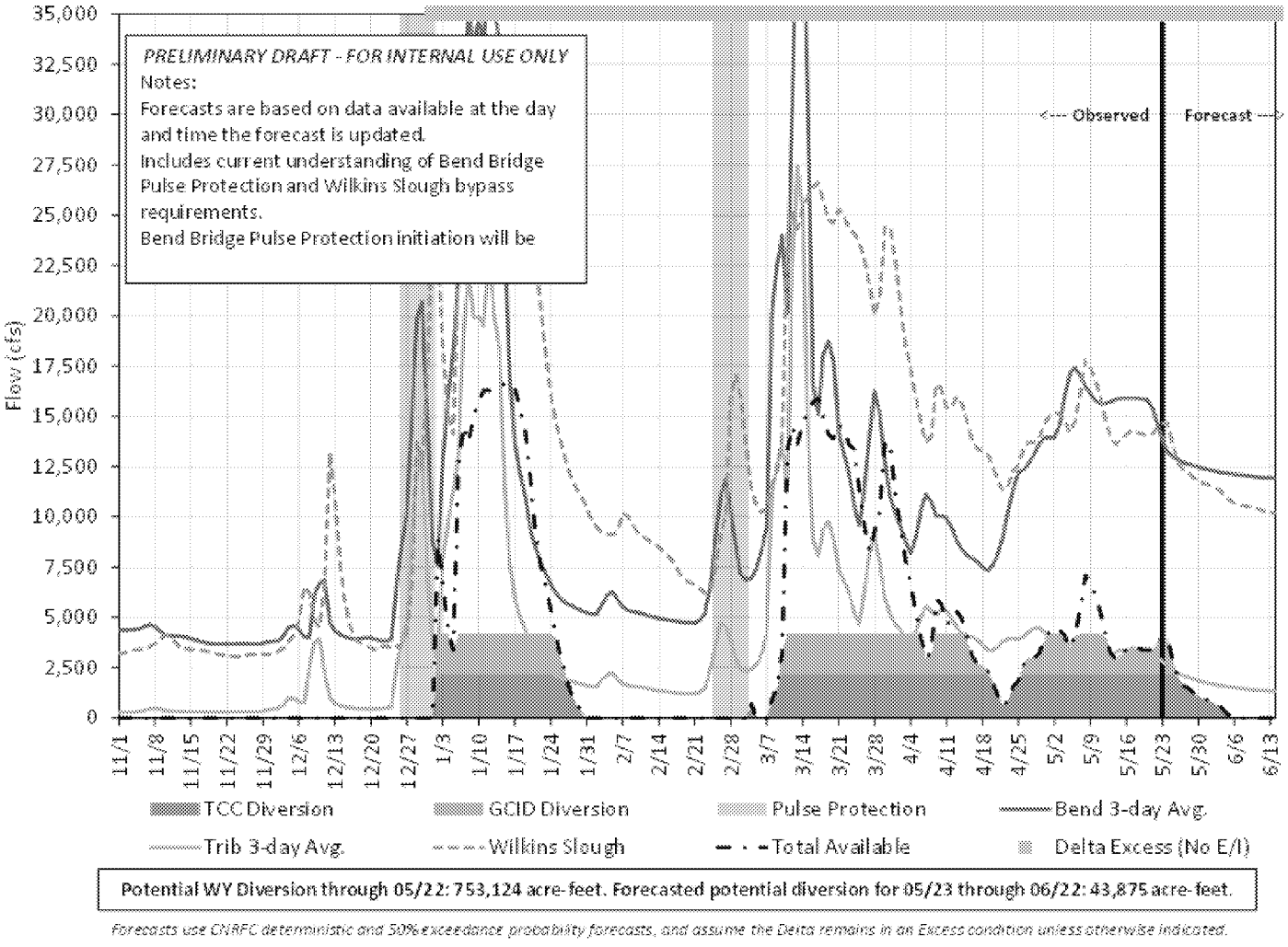
Hi Ali –

Naomi and I are happy to meet and chat about this! In the meantime, I wanted to send you some notes to look at since Jerry wants something for next week.

We received the attached email from Reclamation regarding their scheduled pulse flows 4/24 - 4/28 and 5/8 - 5/14. We used this information, along with an assumed one day travel time from Keswick to Red Bluff and another day travel time from Red Bluff to Hamilton City, to estimate when Sites should not have diverted to protect the pulse flows. The first screenshot below shows these calcs considering two scenarios. 1) No diversions during just the pulse flows factoring in travel time, equaling the 85 TAF reductive to diversions mentioned by Naomi below. 2) A more conservative assumptions that no diversions from the start of the first pulse flow through the end of the second, factoring in travel time, and equaling 154 TAF.

The second screenshot below shows the potential diversions to date as about 753 TAF. Using the reduction from scenario 1 above, this would reduce this year's potential diversions to about 670 TAF to date. Using scenario 2, the potential diversions would be about 600 TAF. We could definitely create a range of potential diversions as Jerry mentioned so that it comes across as even more of a best guess estimate. I am also happy to work with you to get this in front of Reclamation for their thoughts to!

Reach	Diversion Calculations						
Parameter	TCC Diversion	GCID Diversion	Total Diversion				
Date / Units	cfs	cfs	cfs				
4/20/2023	1,800	0	1,800				
4/21/2023	1,100	0	1,100		Not available due to pulse flows		
4/22/2023	600	0	600				
4/23/2023	900	0	900		AF		AF
4/24/2023	1,600	0	1,600				
4/25/2023	1,900	0	1,900		3,769		3,769
4/26/2023	2,200	500	2,700		5,355		5,355
4/27/2023	2,200	800	3,000		5,950		5,950
4/28/2023	2,200	800	3,000		5,950		5,950
4/29/2023	2,200	1,000	3,200		6,347		6,347
4/30/2023	2,200	1,700	3,900		3,372		7,736
5/1/2023	2,200	2,000	4,200				8,331
5/2/2023	2,200	2,000	4,200				8,331
5/3/2023	2,200	2,000	4,200				8,331
5/4/2023	2,200	1,900	4,100				8,132
5/5/2023	2,200	1,300	3,500				6,942
5/6/2023	2,200	1,900	4,100				8,132
5/7/2023	2,200	2,000	4,200				8,331
5/8/2023	2,200	2,000	4,200				8,331
5/9/2023	2,200	2,000	4,200		8,331		8,331
5/10/2023	2,200	2,000	4,200		8,331		8,331
5/11/2023	2,200	2,000	4,200		8,331		8,331
5/12/2023	2,200	1,800	4,000		7,934		7,934
5/13/2023	2,200	1,000	3,200		6,347		6,347
5/14/2023	2,200	700	2,900		5,752		5,752
5/15/2023	2,200	1,000	3,200		6,347		6,347
5/16/2023	2,200	1,200	3,400		2,380		2,380
5/17/2023	2,200	1,400	3,600				
5/18/2023	2,200	1,300	3,500		84,496		153,719



From: Jerry Brown <jbrown@sitesproject.org>
Sent: Tuesday, May 23, 2023 7:27 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Naomi Tanaka <tanaka@mbkengineers.com>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

Oh, one more thing. My next presentation where this will come up is next Thursday for ACWA Region 2. Can we have an updated estimate before then? thanks

From: Jerry Brown <jbrown@sitesproject.org>
Date: Monday, May 22, 2023 at 4:28 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

I'm fine with holding off but at this juncture, let's make our own best estimate of "adjusted amounts of divertable water during pulse conditions" by analyzing when the pulse flows occurred and then backing off/out those amounts from our calculation without engaging with Reclamation since this is the SPAs operations tool. It is understood that the tool is intended for estimating purposes and is not a substitute for the laws, rules, regulations and approvals that the SPA will operate the project to. Thanks

---

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Monday, May 22, 2023 at 12:45 PM
To: Jerry Brown <jbrown@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – Before we do that, I think we should develop some parameters around Reclamation's pulse flows. And then share those with Reclamation to make sure they agree. And then back out those numbers. While this will take a little bit of time, I'd like to make sure that we can defend in our numbers that we ARE NOT diverting water released for the purpose of the environment/fishery and NOT rediverting CVP water into Sites. I just want to be careful that we don't get pushback that we can't defend from Reclamation or NGOs on the numbers.

Angela, maybe you, Naomi and I schedule 30 minutes to talk about our current assumptions on this water and then figure out how to document those and true them up with Reclamation?

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, May 22, 2023 11:54 AM
To: Naomi Tanaka <tanaka@mbkengineers.com>; Alicia Forsythe <aforsythe@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

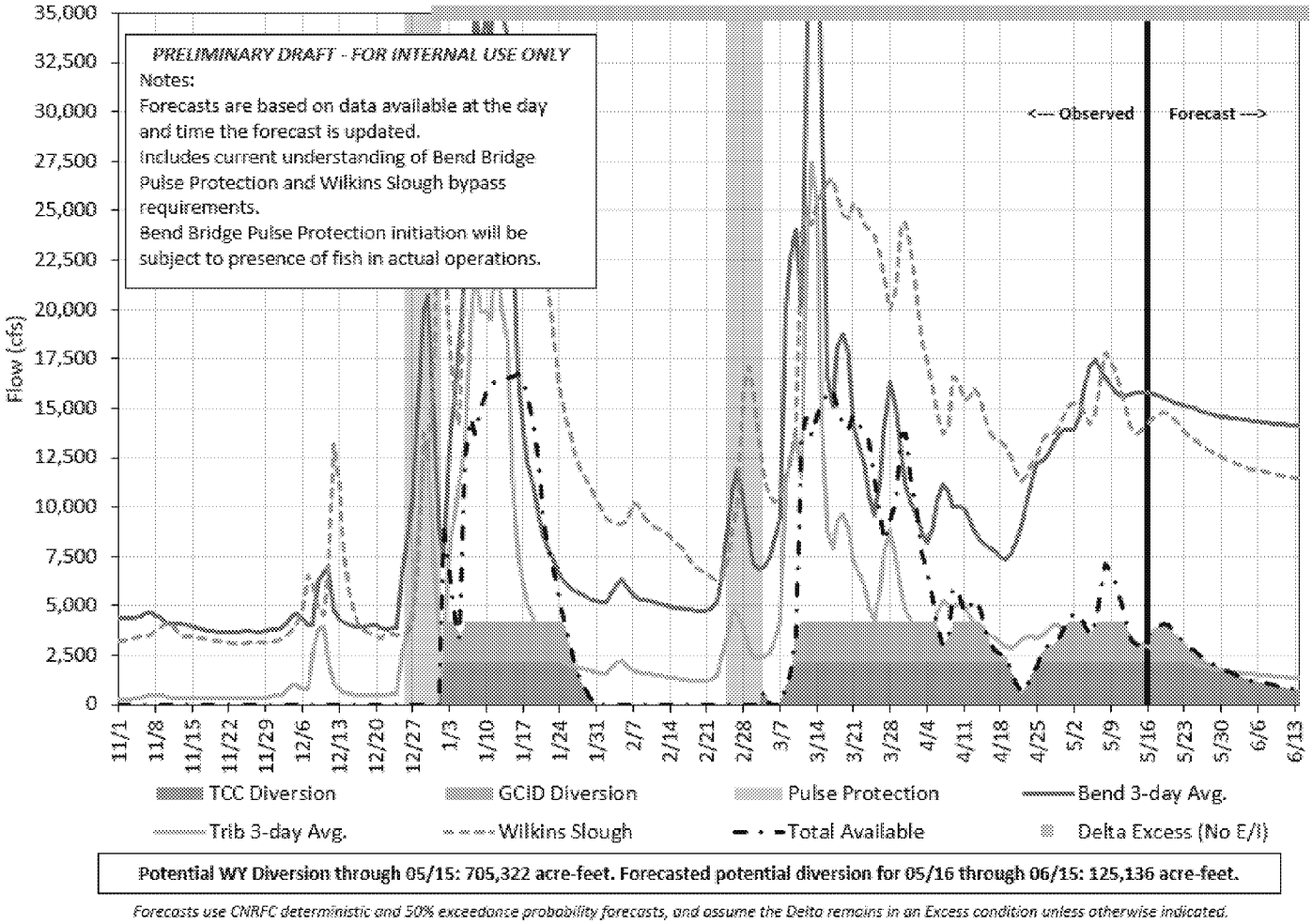
Is it okay to update our projection of "what Sites could have diverted this year" from ~500,000af to ~700,000af?

From: Naomi Tanaka <tanaka@mbkengineers.com>
Date: Tuesday, May 16, 2023 at 1:30 PM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Sites Diversion Forecast - May 16th, 2023

Good afternoon All,

Based on current conditions, we estimate that about 705 TAF could potentially be diverted to date. However, Reclamation had two spring pulse flow events scheduled from 4/24 - 4/28 and 5/8 - 5/14. Assuming a one-day travel time from Keswick to Bend Bridge, we estimate that Sites diversions may have been reduced by about 85 TAF based on no Sites diversions to protect the pulse flows. The forecast indicates the potential to divert another 125 TAF over the next 30 days. In addition, the Sacramento River flows are steadily decreasing over the 30-day forecast, reducing projected diversions. Also of note, the Sites diversion season would end on June 14, so the current forecast period includes the remainder of the potential diversions for the year.

We will monitor the forecast and send another update after the end of the diversion season.



As always, if you have any questions, please let me or Angela know, thank you!

Naomi Tanaka, E.I.T.
Assistant Engineer
MBK Engineers

455 University Avenue, Suite 100
Sacramento, CA 95825
Office: 916-456-4400, ext. 183

From: Naomi Tanaka [tanaka@mbkengineers.com]
Sent: 5/12/2023 1:39:03 PM
To: Angela Bezzone [bezzone@mbkengineers.com]
Subject: FW: [EXTERNAL] Spring Pulse Schedule

From: Yuen Lenh <lenh@mbkengineers.com>
Sent: Friday, May 12, 2023 10:35 AM
To: Anne Williams <williams@mbkengineers.com>; Naomi Tanaka <tanaka@mbkengineers.com>
Subject: RE: [EXTERNAL] Spring Pulse Schedule

Hi Anne and Naomi,

Here is a comparison table of the scheduled vs. actual releases at Keswick. The yellow cells indicate the two spring pulses that were scheduled to occur.

Keswick Releases (cfs)		
Date	**Scheduled**	**Actual**
4/24/2023	7500	7403
4/25/2023	7500	8520
4/26/2023	8000	8506
4/27/2023	8000	8592
4/28/2023	6800	8671
4/29/2023	6000	8939
4/30/2023	6000	9678
5/1/2023	6000	10175
5/2/2023	6000	10096
5/3/2023	6000	10124
5/4/2023	6000	12020
5/5/2023	6000	12975
5/6/2023	6000	13074
5/7/2023	6000	12971
5/8/2023	11700	13038
5/9/2023	11900	13088
5/10/2023	12200	12913
5/11/2023	12500	13091
5/12/2023	10625	
5/13/2023	9031	
5/14/2023	7677	
5/15/2023	7000	

Let me know if you have any questions!

Thanks,
Yuen

From: Patton, Thomas K <tpatton@usbr.gov>
Sent: Friday, May 12, 2023 9:47 AM
To: Anne Williams <williams@mbkengineers.com>
Cc: Yuen Lenh <lenh@mbkengineers.com>; Naomi Tanaka <tanaka@mbkengineers.com>
Subject: Re: [EXTERNAL] Spring Pulse Schedule

Hi Anne
Attached is the latest file for spring pulse flow. I think M4 was the preferred scenario. I am free after 3:00 today.

Tom Patton
Central Valley Operations
US Bureau of Reclamation
916.979.2196
tpatton@usbr.gov

From: Anne Williams <williams@mbkengineers.com>
Sent: Friday, May 12, 2023 8:46 AM
To: Patton, Thomas K <tpatton@usbr.gov>
Cc: Yuen Lenh <lenh@mbkengineers.com>; Naomi Tanaka <tanaka@mbkengineers.com>
Subject: [EXTERNAL] Spring Pulse Schedule

Hi Tom – can you please send me the Excel with the final spring pulse schedule (even though we aren't really operating to). Thank you!

Also, have a few questions about the SRTTG discussion yesterday. Are you around this afternoon to chat?

Anne

From: Angela Bezzone [bezzone@mbkengineers.com]
Sent: 5/23/2023 11:09:53 AM
To: Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]; Naomi Tanaka [tanaka@mbkengineers.com]; JP Robinette [jrobinette@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
CC: Spranza, John [john.spranza@hdrinc.com]
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – I will work with Ali to have an updated estimate in time for your presentation.

Angela

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Tuesday, May 23, 2023 7:27 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Naomi Tanaka <tanaka@mbkengineers.com>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

Oh, one more thing. My next presentation where this will come up is next Thursday for ACWA Region 2. Can we have an updated estimate before then? thanks

From: Jerry Brown <jbrown@sitesproject.org>
Date: Monday, May 22, 2023 at 4:28 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

I'm fine with holding off but at this juncture, let's make our own best estimate of "adjusted amounts of divertable water during pulse conditions" by analyzing when the pulse flows occurred and then backing off/out those amounts from our calculation without engaging with Reclamation since this is the SPAs operations tool. It is understood that the tool is intended for estimating purposes and is not a substitute for the laws, rules, regulations and approvals that the SPA will operate the project to. Thanks

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Monday, May 22, 2023 at 12:45 PM
To: Jerry Brown <jbrown@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – Before we do that, I think we should develop some parameters around Reclamation's pulse flows. And then share those with Reclamation to make sure they agree. And then back out those numbers. While this will take a little bit of time, I'd like to make sure that we can defend in our numbers that we ARE NOT diverting water released for the

purpose of the environment/fishery and NOT rediverting CVP water into Sites. I just want to be careful that we don't get pushback that we can't defend from Reclamation or NGOs on the numbers.

Angela, maybe you, Naomi and I schedule 30 minutes to talk about our current assumptions on this water and then figure out how to document those and true them up with Reclamation?

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, May 22, 2023 11:54 AM
To: Naomi Tanaka <tanaka@mbkengineers.com>; Alicia Forsythe <aforsythe@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

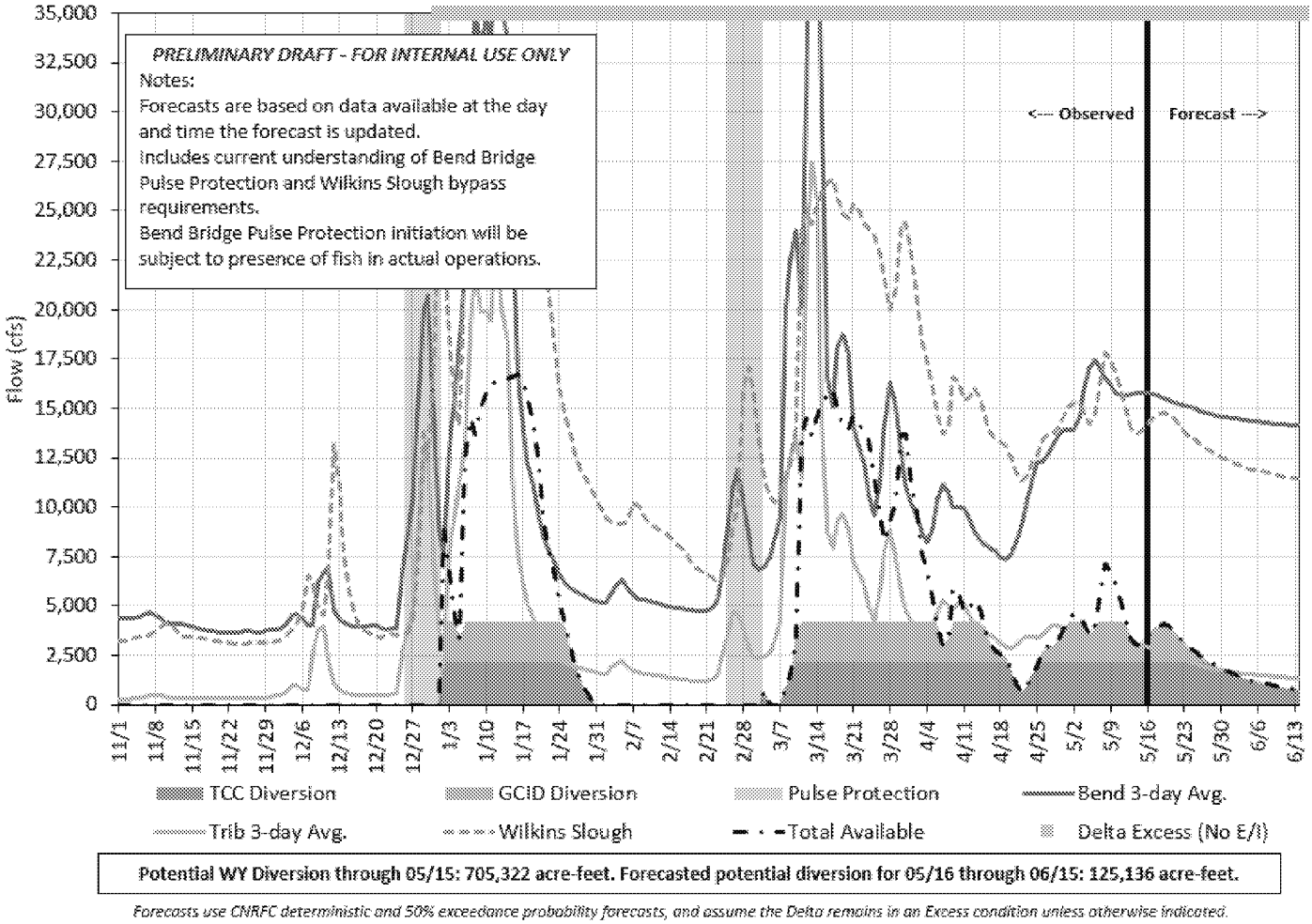
Is it okay to update our projection of "what Sites could have diverted this year" from ~500,000af to ~700,000af?

From: Naomi Tanaka <tanaka@mbkengineers.com>
Date: Tuesday, May 16, 2023 at 1:30 PM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Sites Diversion Forecast - May 16th, 2023

Good afternoon All,

Based on current conditions, we estimate that about 705 TAF could potentially be diverted to date. However, Reclamation had two spring pulse flow events scheduled from 4/24 - 4/28 and 5/8 - 5/14. Assuming a one-day travel time from Keswick to Bend Bridge, we estimate that Sites diversions may have been reduced by about 85 TAF based on no Sites diversions to protect the pulse flows. The forecast indicates the potential to divert another 125 TAF over the next 30 days. In addition, the Sacramento River flows are steadily decreasing over the 30-day forecast, reducing projected diversions. Also of note, the Sites diversion season would end on June 14, so the current forecast period includes the remainder of the potential diversions for the year.

We will monitor the forecast and send another update after the end of the diversion season.



As always, if you have any questions, please let me or Angela know, thank you!

Naomi Tanaka, E.I.T.
Assistant Engineer
MBK Engineers

455 University Avenue, Suite 100
Sacramento, CA 95825
Office: 916-456-4400, ext. 183

From: Heydinger, Erin@DWR [Erin.Heydinger@water.ca.gov]
Sent: 5/23/2023 3:38:17 PM
To: Angela Bezzone [bezzone@mbkengineers.com]; Alicia Forsythe [aforsythe@sitesproject.org]; steve.micko@jacobs.com
CC: Okita, David@DWR [David.Okita@water.ca.gov]; Chris Campbell [c.campbell@cbecoeng.com]
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hey Angela,

I just had a chance to get caught up on Sites still with Chris at cbec. Do you and Steve have availability during the week of 6/5 to discuss your questions with the cbec team? Here are some times that work for us:

- 6/5 anytime in the afternoon
- 6/7 12:30-3:30
- 6/8 3-5
- 6/9 12-3

Thanks!
Erin

Erin Heydinger, PE, PMP
Supervising Engineer
Division of Integrated Science and Engineering
Ecosystem Improvements Branch
Phone: (916) 873-4099
She/her/hers

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, May 16, 2023 11:44 AM
To: Angela Bezzone <bezzone@mbkengineers.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Angela,

I recently accepted a new position here at DWR, and as such my role on this effort will have to be reduced. However, you are in good hands – Erin Heydinger will take over as DWR coordinator. I will work on getting Chris and Erin up to speed and we will send an update soon.

Thank you,

-Josh

From: Angela Bezzone <bezzone@mbkengineers.com>
Sent: Tuesday, May 16, 2023 7:41 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris

Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh & Chris –

Just following up on this. Should we find a time to meet to discuss the questions below?

Thanks,
Angela

From: Angela Bezzone
Sent: Monday, April 24, 2023 3:37 PM
To: 'Martinez, Josh@DWR' <Joshua.Martinez@water.ca.gov>; Alicia Forsythe <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Sorry for the late response. Time has gotten away from me!

Chris – The Sites team has created timeseries for flow at Wilkins Slough and into the Tisdale Weir. Are there other boundary flow conditions in the model that we should provide data for? Also, can you confirm what is used for the baseline in TUFLOW (e.g., CDEC gage data)?

Please let me know if you'd like to find time to discuss.

Thanks,

Angela Bezzone, P.E.

MBK Engineers
455 University Ave Suite 100
Sacramento, CA 95825

(916) 456-4400 – Phone
(775) 450-6408 – Cell
(916) 456-0253 – Fax

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, April 18, 2023 8:26 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

Just trying to run this to ground. I've looped in Chris Campbell from cbec as he will oversee the modeling on our end. Rather than waiting to schedule a meeting, perhaps we can communicate modeling needs via this email. Again, this goal is to make sure the Sites team knows exactly what inputs the DWR modeling team will need to run the updated diversion rates through the Big Notch model.

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Phone: (916) 835-8778
PLEASE NOTE NEW PHONE NUMBER!
Joshua.Martinez@water.ca.gov

From: Martinez, Josh@DWR
Sent: Monday, April 10, 2023 11:53 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

We haven't been able to run this task to ground just yet due to vacations over the last few weeks. I think a quick technical check-in would be the most expeditious way to find a path forward. Our modeling team is available:

- 4/17 10-1
- 4/19 10-1, 2-3

Would any of these time slots work for your team?

Thanks,

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 29, 2023 9:48 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Just wanted to check in on this. I think we're ready to send information over. Just wanted to confirm the boundary conditions.

I am out next week (April 4 to April 11, returning April 12), but Angela and Steve can work with you to get the modeling inputs.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Thursday, March 23, 2023 4:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

I heard from the modeling team earlier this morning. It sounds like they will have a list of specific model inputs we will need from your team sometime tomorrow or early next week.

Also, please ignore my question re: baseline modeling from my previous email. Erin and I spoke and it would be best to have a baseline run with consistent inputs to improve our confidence in model results.

I'll be in touch soon. Thanks again.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 22, 2023 10:04 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – We're honing in on this and expect to wrap up our part here shortly. Did you have a chance to check in with modeling team on the boundary conditions? Also, what is the baseline in TuFLow? Is this gage data?

If it make sense to have a quick call on these items to wrap these up, let me know and I can work to get something scheduled.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, March 10, 2023 10:42 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

Thanks for the update, Erin and I just connected on this issue yesterday. I'm glad to see your team is making progress. I'll reach out to our modeling team to get the exact inputs that we would need to run our models.

Regarding the No Action data, wouldn't that simply be the existing TUFLOW dataset we have already modeled (i.e., our existing Big Notch flow model already excludes Sites operations)? I want to make sure I am understanding this request.

Thanks again, and have a safe weekend all.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Friday, March 10, 2023 10:26 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – I just realized that I talked with the team earlier this week and then completely forgot to close the loop with you. Apologies.

We're working on a few last items on both the Daily Divertible Tool and the Historical Analysis. We expect to finish these up early next week and then have an internal call scheduled next Wednesday to compare the results of the two and decide which one to use. And we expect to get you input data by next Friday, March 17.

Can you confirm the boundary conditions/input data that the team would need to run TuFlow? We want to make sure we're getting you want the team needs.

Also, we were planning to provide both a No Action and With Sites Project input data. Can both be run through TuFlow? We just want to make sure that we're comparing a with and without on the same baseline to assess the potential changes of the Sites Project.

Hope everyone has a good weekend and stays safe in all this crazy weather!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Alicia Forsythe
Sent: Saturday, February 25, 2023 3:29 PM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Thanks Josh. Super helpful! I'll talk with the team next week and we will get back to you ASAP but no later than March 8 (and hopefully sooner).

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

CONFIDENTIALITY NOTICE: This communication with its contents may contain confidential and/or legally privileged information. It is solely for the use of the intended recipient(s). Unauthorized interception, review, use or disclosure is prohibited and may violate applicable laws including the Electronic Communications Privacy Act. If you are not the intended recipient, please contact the sender and destroy all copies of the communication.

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, February 24, 2023 3:53 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

The DWR team just met with our modeling team to discuss options for this latest flow analysis, and it turns out they recently expanded our modeled period of record by five additional years. Rather than ending in 2012, our updated period of record is 1996-2017. We now have more options than we originally discussed in today's meeting.

Given your familiarity with the various Sites flow datasets, which of the following approaches would the Sites team have the most confidence in?

1. Expand our 2009-2012 analysis to 2009-2017 using the latest protective measures. This allows us to use Sites Daily Divertible Tool, with higher confidence in Sites diversions.
2. Proceed with the option we settled on in our meeting of using the Sites Historical Analysis data as bookends, using the expanded 2000-2017 analysis (as opposed to our previously agreed upon 2000-2012 period). While this would cover a broader period of record, it sounds like there may be lower confidence with the Historical Analysis diversion data compared to the Daily Divertible Tool used in Option 1.

The DWR team is comfortable with either approach and our modelers expect a similar turnaround time for both options. Our current estimate is having results no later than the end of April. Please let us know how you would like to proceed.

Thank you again for a productive meeting this morning. I hope you all have a dry weekend!

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Office: (916) 376-9725
Mobile: (916) 835-8778
Joshua.Martinez@water.ca.gov

-----Original Appointment-----
From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, February 22, 2023 8:43 AM
To: Alicia Forsythe; Spranza, John; Micko, Steve/SAC; Angela Bezzone; Martinez, Josh@DWR; Heydinger, Erin@DWR; Pitts, Adrian; Hassrick, Jason@ICF; Hendrick, Mike; Lecky, Jim
Subject: Sites and Big Notch Project - Modeling Discussion
When: Friday, February 24, 2023 10:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

We'll focus on modeling and the best Sites tool/Big Notch tool to update the modeling with the Sites recent diversion criteria

---

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

Meeting ID: 229 028 116 612
Passcode: SvgU2R
Download Teams | Join on the web

Or call in (audio only)

+1 916-538-7066,,917981187# United States, Sacramento

Phone Conference ID: 917 981 187#
Find a local number | Reset PIN

Learn More | Meeting options

From: Micko, Steve [Steve.Micko@jacobs.com]
Sent: 5/23/2023 4:38:00 PM
To: Angela Bezzone [bezzone@mbkengineers.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Angela – My availability is in orange below.

Thanks,
Steve

From: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>
Sent: Tuesday, May 23, 2023 3:38 PM
To: Angela Bezzone <bezzone@mbkengineers.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Micko, Steve <Steve.Micko@jacobs.com>
Cc: Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: [EXTERNAL] RE: Sites and Big Notch Project - Modeling Discussion

Hey Angela,

I just had a chance to get caught up on Sites still with Chris at cbec. Do you and Steve have availability during the week of 6/5 to discuss your questions with the cbec team? Here are some times that work for us:

- 6/5 anytime in the afternoon After 2:30 PM
- 6/7 12:30-3:30 1 – 3 PM
- 6/8 3-5 3 – 5 PM
- 6/9 12-3 12 – 3 PM

Thanks!
Erin

Erin Heydinger, PE, PMP
Supervising Engineer
Division of Integrated Science and Engineering
Ecosystem Improvements Branch
Phone: (916) 873-4099
She/her/hers

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, May 16, 2023 11:44 AM
To: Angela Bezzone <bezzone@mbkengineers.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Angela,

I recently accepted a new position here at DWR, and as such my role on this effort will have to be reduced. However, you are in good hands – Erin Heydinger will take over as DWR coordinator. I will work on getting Chris and Erin up to speed and we will send an update soon.

Thank you,

-Josh

From: Angela Bezzone <bezzone@mbkengineers.com>
Sent: Tuesday, May 16, 2023 7:41 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh & Chris –

Just following up on this. Should we find a time to meet to discuss the questions below?

Thanks,
Angela

From: Angela Bezzone
Sent: Monday, April 24, 2023 3:37 PM
To: 'Martinez, Josh@DWR' <Joshua.Martinez@water.ca.gov>; Alicia Forsythe <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Sorry for the late response. Time has gotten away from me!

Chris – The Sites team has created timeseries for flow at Wilkins Slough and into the Tisdale Weir. Are there other boundary flow conditions in the model that we should provide data for? Also, can you confirm what is used for the baseline in TUFLOW (e.g., CDEC gage data)?

Please let me know if you'd like to find time to discuss.

Thanks,

Angela Bezzone, P.E.

MBK Engineers
455 University Ave Suite 100
Sacramento, CA 95825

(916) 456-4400 – Phone
(775) 450-6408 – Cell
(916) 456-0253 – Fax

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, April 18, 2023 8:26 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC

<Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

Just trying to run this to ground. I've looped in Chris Campbell from cbec as he will oversee the modeling on our end. Rather than waiting to schedule a meeting, perhaps we can communicate modeling needs via this email. Again, this goal is to make sure the Sites team knows exactly what inputs the DWR modeling team will need to run the updated diversion rates through the Big Notch model.

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Phone: (916) 835-8778
PLEASE NOTE NEW PHONE NUMBER!
Joshua.Martinez@water.ca.gov

From: Martinez, Josh@DWR
Sent: Monday, April 10, 2023 11:53 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

We haven't been able to run this task to ground just yet due to vacations over the last few weeks. I think a quick technical check-in would be the most expeditious way to find a path forward. Our modeling team is available:

- 4/17 10-1
- 4/19 10-1, 2-3

Would any of these time slots work for your team?

Thanks,

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 29, 2023 9:48 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Angela Bezzone <bezzone@mbkengineers.com>; Micko,

Steve/SAC <Steve.Micko@jacobs.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Just wanted to check in on this. I think we're ready to send information over. Just wanted to confirm the boundary conditions.

I am out next week (April 4 to April 11, returning April 12), but Angela and Steve can work with you to get the modeling inputs.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Thursday, March 23, 2023 4:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

I heard from the modeling team earlier this morning. It sounds like they will have a list of specific model inputs we will need from your team sometime tomorrow or early next week.

Also, please ignore my question re: baseline modeling from my previous email. Erin and I spoke and it would be best to have a baseline run with consistent inputs to improve our confidence in model results.

I'll be in touch soon. Thanks again.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 22, 2023 10:04 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – We're honing in on this and expect to wrap up our part here shortly. Did you have a chance to check in with modeling team on the boundary conditions? Also, what is the baseline in TuFLow? Is this gage data?

If it make sense to have a quick call on these items to wrap these up, let me know and I can work to get something scheduled.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, March 10, 2023 10:42 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

Thanks for the update, Erin and I just connected on this issue yesterday. I'm glad to see your team is making progress. I'll reach out to our modeling team to get the exact inputs that we would need to run our models.

Regarding the No Action data, wouldn't that simply be the existing TUFLOW dataset we have already modeled (i.e., our existing Big Notch flow model already excludes Sites operations)? I want to make sure I am understanding this request.

Thanks again, and have a safe weekend all.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Friday, March 10, 2023 10:26 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – I just realized that I talked with the team earlier this week and then completely forgot to close the loop with you. Apologies.

We're working on a few last items on both the Daily Divertible Tool and the Historical Analysis. We expect to finish these up early next week and then have an internal call scheduled next Wednesday to compare the results of the two and decide which one to use. And we expect to get you input data by next Friday, March 17.

Can you confirm the boundary conditions/input data that the team would need to run TuFlow? We want to make sure we're getting you want the team needs.

Also, we were planning to provide both a No Action and With Sites Project input data. Can both be run through TuFlow? We just want to make sure that we're comparing a with and without on the same baseline to assess the potential changes of the Sites Project.

Hope everyone has a good weekend and stays safe in all this crazy weather!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Alicia Forsythe
Sent: Saturday, February 25, 2023 3:29 PM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Thanks Josh. Super helpful! I'll talk with the team next week and we will get back to you ASAP but no later than March 8 (and hopefully sooner).

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

CONFIDENTIALITY NOTICE: This communication with its contents may contain confidential and/or legally privileged information. It is solely for the use of the intended recipient(s). Unauthorized interception, review, use or disclosure is prohibited and may violate applicable laws including the Electronic Communications Privacy Act. If you are not the intended recipient, please contact the sender and destroy all copies of the communication.

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, February 24, 2023 3:53 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

The DWR team just met with our modeling team to discuss options for this latest flow analysis, and it turns out they recently expanded our modeled period of record by five additional years. Rather than ending in 2012, our updated period of record is 1996-2017. We now have more options than we originally discussed in today's meeting.

Given your familiarity with the various Sites flow datasets, which of the following approaches would the Sites team have the most confidence in?

1. Expand our 2009-2012 analysis to 2009-2017 using the latest protective measures. This allows us to use Sites Daily Divertible Tool, with higher confidence in Sites diversions.
2. Proceed with the option we settled on in our meeting of using the Sites Historical Analysis data as bookends, using the expanded 2000-2017 analysis (as opposed to our previously agreed upon 2000-2012 period). While this would cover a broader period of record, it sounds like there may be lower confidence with the Historical Analysis diversion data compared to the Daily Divertible Tool used in Option 1.

The DWR team is comfortable with either approach and our modelers expect a similar turnaround time for both options. Our current estimate is having results no later than the end of April. Please let us know how you would like to proceed.

Thank you again for a productive meeting this morning. I hope you all have a dry weekend!

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Office: (916) 376-9725
Mobile: (916) 835-8778
Joshua.Martinez@water.ca.gov

-----Original Appointment-----
From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, February 22, 2023 8:43 AM
To: Alicia Forsythe; Spranza, John; Micko, Steve/SAC; Angela Bezzone; Martinez, Josh@DWR; Heydinger, Erin@DWR; Pitts, Adrian; Hassrick, Jason@ICF; Hendrick, Mike; Lecky, Jim
Subject: Sites and Big Notch Project - Modeling Discussion
When: Friday, February 24, 2023 10:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

We'll focus on modeling and the best Sites tool/Big Notch tool to update the modeling with the Sites recent diversion criteria

---

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

Meeting ID: 229 028 116 612
Passcode: SvgU2R
Download Teams | Join on the web

Or call in (audio only)
+1 916-538-7066,,917981187# United States, Sacramento
Phone Conference ID: 917 981 187#
Find a local number | Reset PIN

Learn More | Meeting options

CALIFORNIA-NEVADA CONFERENCE OF OPERATING ENGINEERS
OF THE INTERNATIONAL UNION OF OPERATING ENGINEERS

1121 L STREET, SUITE 206 • SACRAMENTO, CALIFORNIA 95814
AREA CODE (916) 440-8710

May 23, 2023

California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Re: Approval of Water Right Permit for the Sites Reservoir Project. - SUPPORT

Dear Chair E. Joaquin Esquivel,

On behalf of the California-Nevada Conference of Operating Engineers we write to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions.

The International Union of Operating Engineers is a progressive, diversified trade union that primarily represents operating engineers, who work as heavy equipment operators, mechanics, and surveyors in the construction industry. Our organization prides itself on standing ready to provide highly trained workers to support the building of our state's critical infrastructure.

The State of California has been experiencing large swings between drought and flood and these swings are becoming more severe. While the 2023 storms provided trillions of gallons of water that assisted in replenishing the States existing aquifers and reservoirs, the State unfortunately missed an opportunity to store much of that water to be used in dry years. Simply put, the State of California needs more water storage capacity.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind amid our changing climate. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir

under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs.

Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use generally during dry periods when it is needed most. Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife and store it for future use by project participants. Sites Reservoir would be in the public interest because it would conserve and use water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

For these reasons, The California-Nevada Conference of Operating Engineers encourages the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Sincerely,

Tim Cremins

Tim Cremins
International Union of Operating Engineers

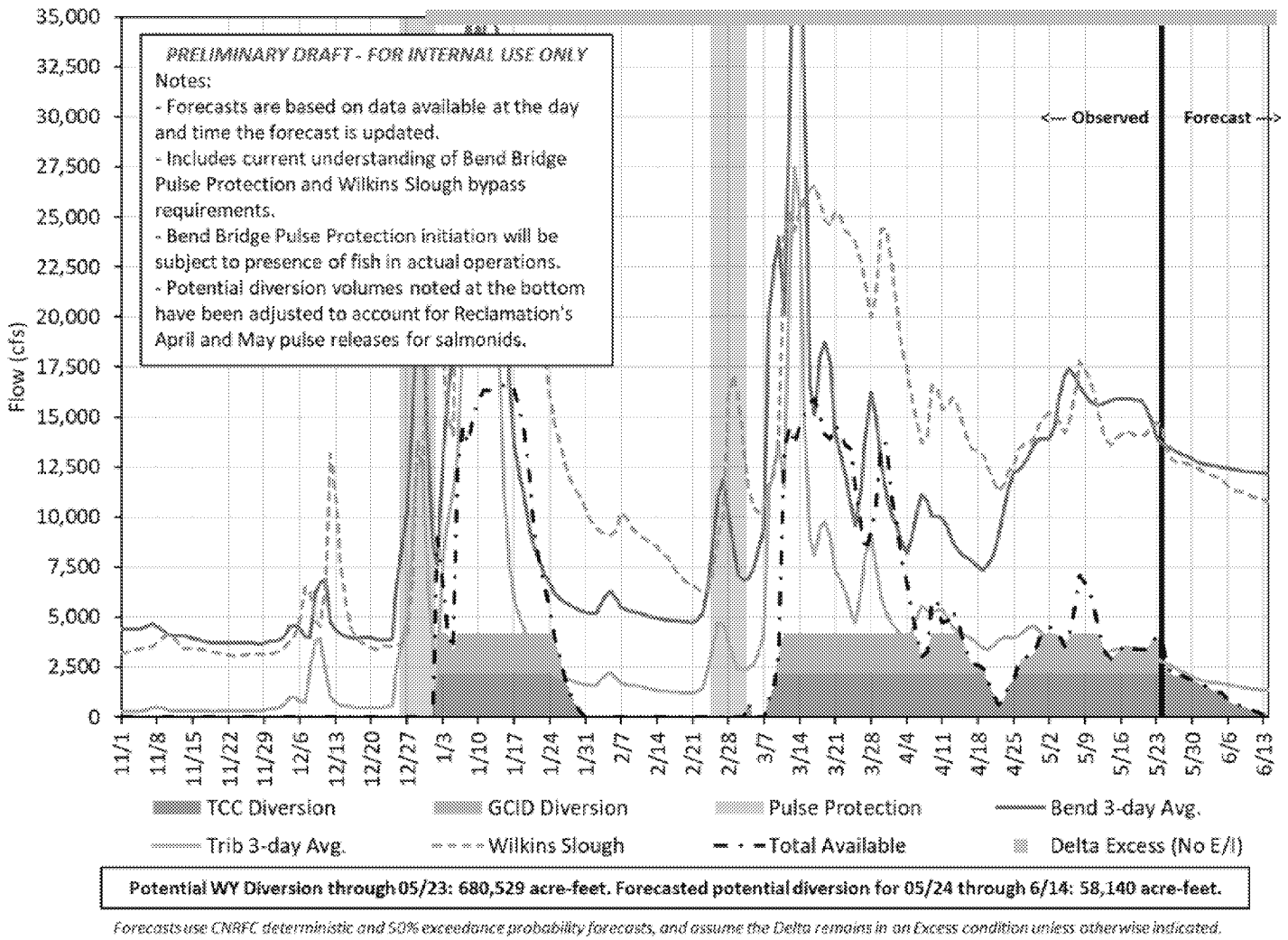
From: Naomi Tanaka [tanaka@mbkengineers.com]
Sent: 5/24/2023 4:46:08 PM
To: Jerry Brown [jbrown@sitesproject.org]; JP Robinette [jrobinette@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Spranza, John [john.spranza@hdrinc.com]
CC: Angela Bezzone [bezzone@mbkengineers.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Hi All,

Angela, Ali, and I met this afternoon to discuss the adjustment to potential diversions and have estimated the pulse flows would have decreased diversions by about 81 TAF, resulting in what is shown in the Potential WY Diversion text box below the forecast figure that runs through 6/14, the end of the Sites diversion season. We have added an explanation that the pulse flow adjustment has been made to the Potential WY Diversion text box, even though it is not reflected in the graphic. As shown, Sites could have diverted about 680 TAF to date, with a projection of about 58 TAF more by 6/14.

We will send an update out after the end of the diversion season with final estimates.

Let us know if you have any other questions. Thank you!



Forecasts use CNRFC deterministic and 50% exceedance probability forecasts, and assume the Delta remains in an Excess condition unless otherwise indicated.

Naomi Tanaka, E.I.T.

Assistant Engineer
MBK Engineers

455 University Avenue, Suite 100
Sacramento, CA 95825
Office: 916-456-4400, ext. 183

From: Angela Bezzone <bezzone@mbkengineers.com>
Sent: Tuesday, May 23, 2023 11:10 AM
To: 'Jerry Brown' <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Naomi Tanaka <tanaka@mbkengineers.com>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – I will work with Ali to have an updated estimate in time for your presentation.

Angela

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Tuesday, May 23, 2023 7:27 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Naomi Tanaka <tanaka@mbkengineers.com>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

Oh, one more thing. My next presentation where this will come up is next Thursday for ACWA Region 2. Can we have an updated estimate before then? thanks

From: Jerry Brown <jbrown@sitesproject.org>
Date: Monday, May 22, 2023 at 4:28 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

I'm fine with holding off but at this juncture, let's make our own best estimate of "adjusted amounts of divertable water during pulse conditions" by analyzing when the pulse flows occurred and then backing off/out those amounts from our calculation without engaging with Reclamation since this is the SPAs operations tool. It is understood that the tool is intended for estimating purposes and is not a substitute for the laws, rules, regulations and approvals that the SPA will operate the project to. Thanks

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Monday, May 22, 2023 at 12:45 PM
To: Jerry Brown <jbrown@sitesproject.org>, Naomi Tanaka <tanaka@mbkengineers.com>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: RE: Sites Diversion Forecast - May 16th, 2023

Jerry – Before we do that, I think we should develop some parameters around Reclamation's pulse flows. And then share those with Reclamation to make sure they agree. And then back out those numbers. While this will take a little bit of time, I'd like to make sure that we can defend in our numbers that we ARE NOT diverting water released for the purpose of the environment/fishery and NOT rediverting CVP water into Sites. I just want to be careful that we don't get pushback that we can't defend from Reclamation or NGOs on the numbers.

Angela, maybe you, Naomi and I schedule 30 minutes to talk about our current assumptions on this water and then figure out how to document those and true them up with Reclamation?

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, May 22, 2023 11:54 AM
To: Naomi Tanaka <tanaka@mbkengineers.com>; Alicia Forsythe <aforsythe@sitesproject.org>; JP Robinette <jrobinette@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Spranza, John <john.spranza@hdrinc.com>; Angela Bezzone <bezzone@mbkengineers.com>
Subject: Re: Sites Diversion Forecast - May 16th, 2023

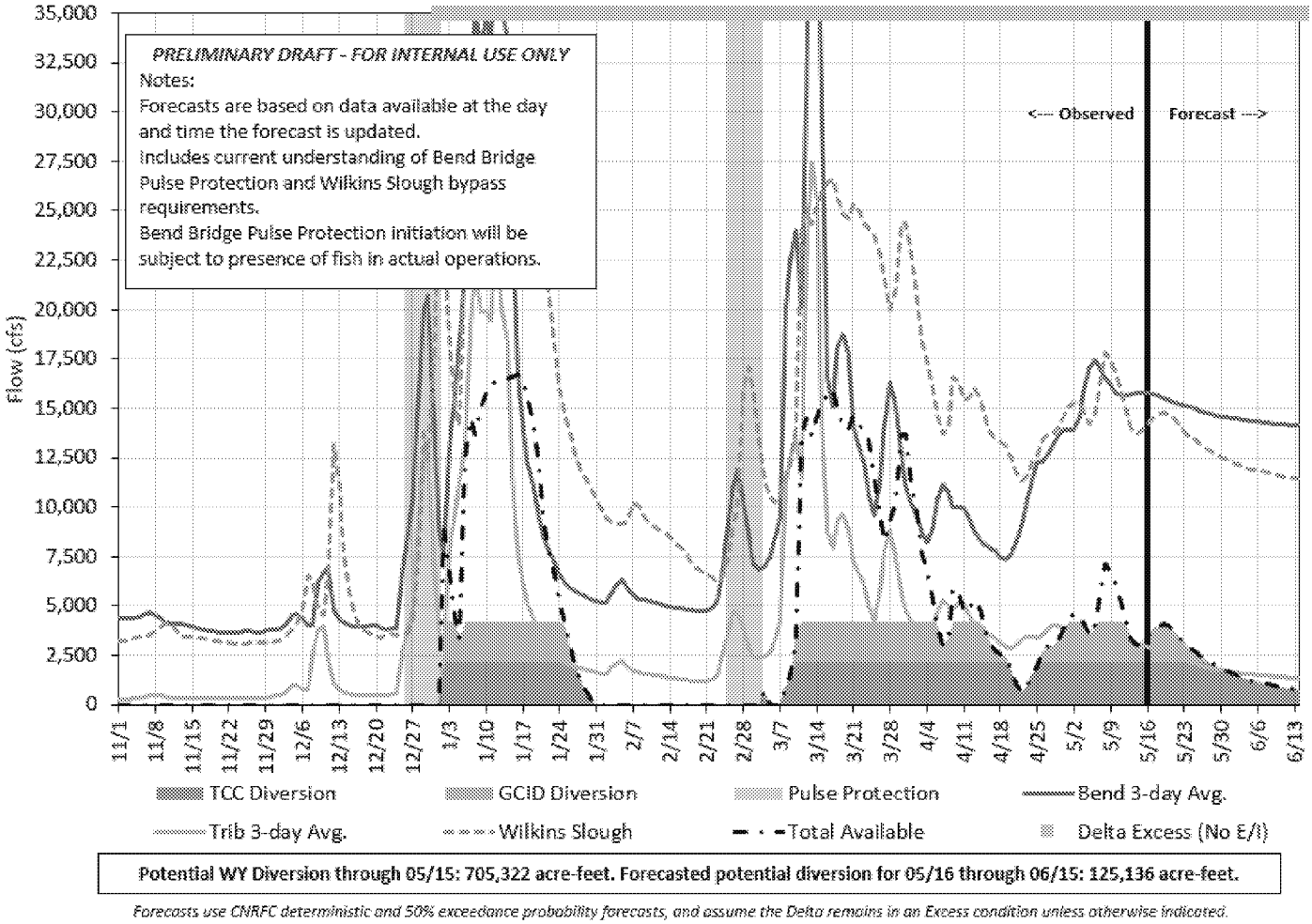
Is it okay to update our projection of "what Sites could have diverted this year" from ~500,000af to ~700,000af?

From: Naomi Tanaka <tanaka@mbkengineers.com>
Date: Tuesday, May 16, 2023 at 1:30 PM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, JP Robinette <jrobinette@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: "Spranza, John" <john.spranza@hdrinc.com>, Angela Bezzone <bezzone@mbkengineers.com>
Subject: Sites Diversion Forecast - May 16th, 2023

Good afternoon All,

Based on current conditions, we estimate that about 705 TAF could potentially be diverted to date. However, Reclamation had two spring pulse flow events scheduled from 4/24 - 4/28 and 5/8 - 5/14. Assuming a one-day travel time from Keswick to Bend Bridge, we estimate that Sites diversions may have been reduced by about 85 TAF based on no Sites diversions to protect the pulse flows. The forecast indicates the potential to divert another 125 TAF over the next 30 days. In addition, the Sacramento River flows are steadily decreasing over the 30-day forecast, reducing projected diversions. Also of note, the Sites diversion season would end on June 14, so the current forecast period includes the remainder of the potential diversions for the year.

We will monitor the forecast and send another update after the end of the diversion season.



As always, if you have any questions, please let me or Angela know, thank you!

Naomi Tanaka, E.I.T.
Assistant Engineer
MBK Engineers

455 University Avenue, Suite 100
Sacramento, CA 95825
Office: 916-456-4400, ext. 183

Sites Project Community Working Group Meeting Highlights

Our Core Values – Safety, Trust and Integrity, Respect for Local Communities, Environmental Stewardship, Shared Responsibility and Shared Benefits, Accountability and Transparency, Proactive Innovation, Diversity, and Inclusivity
Our Commitment – To live up to these values in everything we do

Meeting Information:

Date:	May 18, 2023	**Location:**	122 Old Hwy 99W, Maxwell
Start Time:	2:30 p.m.	**Finish Time:**	4:30 p.m.
Purpose:	Local Community Working Group		

Meeting Participants:

Anastacia Allen – Colusa County Agriculture
Brenda Haynes – Congressman Doug LaMalfa
Conner McDonald – CDM West
Eliana Pimente – Assemblymember Aguiar-Curry
Elijah Navarro – Assemblymember Aguiar-Curry
Eric Paden – Maxwell Inn Bar – Grill
Evan Cragin – Assemblymember Aguiar-Curry
Gary Evans – Supervisor, Colusa County
Jennifer Diaz – Colusa County Chamber of Commerce
Jerry Brown – Sites Project Authority
Joyce Bond – Stonyford Museum
JP Robinette – Sites Project Authority
Juleah Cordi –Assemblymember Gallagher
Kenny Cohen – Maxwell Fire Department
Kent Boes – County of Colusa
Kevin Spesert – Sites Project Authority
Kurt Chambers – Maxwell Public Utility District
Mariah Hugo – Katz & Associates
Marlena Spaticman – Glenn Co. Business Association
Summer Shadley – Maxwell Unified School District 8
Tom Arnold – Glenn County B.O.S.
Vicki Doll – Chabin Concepts
Wendy Tyler – Colusa County
Mary Hester – Stonyford Museum
Michael West – Colusa County Office of Education
Mike Azevedo – Colusa County Public Works
Mike Bradwell – Colusa County Sheriff's Department
Nadine Bailey – Family Water Alliance
Randal Toews – Kanawha Glenn Fire District
Rob Timm – Sour Robs
Robert Kunde – Wheeler Ridge – Maricopa Water Storage District
Sam Perkins – Senator Brian Dahle
Sandra Yarbrough – Sites Project Authority
Sara Katz – Katz & Associates
Steve Geiger – Colusa County Community Development
Wes LeRoux – Neil's Controlled Blasting

Welcome & Introductions

Sara Katz (meeting facilitator) welcomed attendees to the fourth meeting of the Sites Project Authority's Local Community Working Group (LCWG). Meeting attendees introduced themselves and the organizations they represent.

Sites Reservoir Project Update

Sites Project Authority Executive Director Jerry Brown provided an update on the Sites Reservoir Project with an emphasis on project progress, finances, and funding opportunities.

- If Sites Reservoir was fully operational at the time of the 2023 storms, 500,000 acre-feet could have been diverted from the floods and to the Reservoir. The filling opportunities could continue if Lake Shasta spills. The current monitoring shows that the Project capabilities are in line with modeling projections. The Authority will continue to monitor conditions and adjust forecasts as needed.
- The Authority submitted the WIFIA application on March 30, 2023. The Authority's Board of Directors will receive the updated Plan of Finance at their May board meeting.
- The timeline for the Environmental Impact Report (EIR) was adjusted. The draft document was released for public review in November 2021; the public comment period closed in January 2022. The final document is now expected to be completed in August 2023 instead of early 2023. This delay can help prevent litigation and allow for revisions to address concerns raised in the comments received on the draft document.
- The Water Rights Permit application was submitted to the State Board in May 2023. The board is expected to complete the review in May 2023 instead of April 2023. This will then move into a mandated public review and protest period for 60 days, starting in early June.
- Geotechnical investigations and related field work resumed in April 2023. It continues at various locations in and around Sites Valley and is expected to be complete in December 2024.

The updated project schedule includes the following changes from the timeline communicated during Meeting 3:

- Receiving Water Rights was extended by 4 months
- Construction start was adjusted for early land acquisition
- Period of construction was extended to 7 years

The Authority will also continue to review project construction and operations oversight considerations, which are made by local and participant interests.

WORKFORCE

External Affairs Manager Kevin Spesert presented the Multi-Craft Core Curriculum (MC3) from the North American Building Trades Union (NABTU).

NABTU's Building Trades Apprenticeship Readiness Program is geared toward young people and adults who are transitioning careers. MC3 is the education foundation that introduces students to building trades. This collaboration is between local trade councils and local community groups, construction contractors, government agencies, and schools.

MC3 covers nine units in which participants meet for five weeks or 120 hours. The course includes on-hand learning experiences, such as simulators. The regional program requires 140 hours with the additional 20 hours focusing on finances and professional development. Participants receive a $550 stipend to help cover the cost of transportation. The stipend increases to $800 for plumbers. Upon

graduation, if a student is accepted to an apprenticeship program, they receive funding to cover necessary tools and equipment.

The regional program will be led by Plumbers, Pipefitting, and HVACR Technicians UA Local 228 in Marysville, Calif. The next course is from May 30 to June 30, 2023. Most classes are from Monday through Friday, 9 a.m. to 3 p.m. However, the schedule is flexible. Local groups can decide to meet over the weekends instead. To be eligible, participants must:

- Be 18 years old
- Have a valid driver's license
- Have a high school diploma or GED
- Have reliable transportation
- Have a working cell phone

The MC3 Training Coordinator met with the Colusa County Superintendent on May 11, 2023. The next steps include scheduling meetings with the Glenn County Superintendent, presenting to the LCWG at Meeting 5 on July 20, 2023, and establishing a steering committee to support recruitment and outreach.

C: People need training in Colusa County instead of driving to Redding or hours away. The participants here will get an overview of blueprints, the construction industry, and what's expected on the job, such as character, etiquette, and soft skills.
Q: What's the size of the target population?
A: The first cohort could start with 30 participants. Even if 10 complete the process, that's considered a success. Some projects, such as the Keystone pipeline, required employment from 15% of the local population.
C: Jobs opportunities should look at the local workforce, which is the Authority's priority. However, we must have the workforce trained and ready to go. This program can create a pathway.
Q: Does the certificate have an expiration date? Some participants may pause before applying for the apprenticeship program.
A: The Authority will confirm if the certificates expire.
Q: Has the program reached out to community colleges?
C: Vicki Doll volunteered to introduce the Sites and MC3 Training Coordinator to the community colleges.
Q: What is the plan for recruiting 30 participants, since the group starts soon?
A: Kevin and the MC3 team will meet with Glenn County. Once they approve the program, the team will set up a steering committee to help oversee, recruit, and connect with the community.

Other recommendations include speaking to high school students, connecting with parents who are already in the trades, and attending career days and local schools and colleges.

ECONOMIC OUTLOOK

Vicki Doll, principal at Chabin Concepts, Inc., explained the Colusa County Comprehensive Economic Development Strategy (CEDS). It's the foundational element for defining sources and uses of funds from the project within the community. CEDS is a grant process that enables Sites to apply for federal funding from the Economic Development Administration (EDA).

CEDS separates into four sections:

- Analysis of economic conditions (Examines the current state of funding and challenges)
- SWOT analysis (Drives the implementation plan)

- Vision and goals
- Strategic direction and implementation roadmap (Includes workforce development, DEI, and resiliency)

Vicki explained that CEDS establishes a five-year plan with annual updates to the following:

- Goals: Diversify its economic base, improve, and maintain physical and social infrastructure, and preserve and balance rural values
- Strategic direction: Enhance business climate, improve economic competitiveness, and cultivate talent
- Priority initiatives: Build Sites Reservoir, develop the I-5 corridor, and support local business and entrepreneurship.

The analysis of economic conditions and SWOT analysis is complete. The next steps are to host committee meetings, receive public input over 30 days, identify development areas, collect capital improvement plans, submit the final document for public review to the CEDS approval committee, and then submit the document to the EDA.

The Community Economic Resilience Fund (CERF) provides $600 million for 13 regions across California, with Colusa County in Sacramento's region. Vicki concluded the presentation and shared the contact information with the team (ColusaCountyCEDS.com, [HYPERLINK "mailto:Audrey@chabinconcepts.com"], [HYPERLINK "mailto:vicki@chabinconcepts.com"]).

C: Colusa County does not receive much if it's included in the Sacramento region.

C: Feedback is so valuable. The Authority wants to collaborate with the community on benefits, but there is limited engagement.

C: Colusa County sent surveys and marketed through different channels about community improvement. Only 225 of 22,000 residents responded. The feedback came mostly from the City of Colusa, so their input will be recognized more.

C: Focus groups at coffee shops and bars are sometimes more effective than surveys.

Other recommendations include establishing a subcommittee for funding or hosting a separate meeting to focus on funding. This should be discussed at the next meeting.

LOCAL GOVERNMENT REVENUE

Jerry Brown and Wendy Tyler, the administrative officer to Colusa County, presented the socioeconomic effects of the Project with modeling conducted in 2017. The analysis identified potential effects on the regional and local economy using the IMPLAN modeling.

The overall effect of the Project will be an increase in direct labor income and total labor income. The project construction will lead to an increase in construction-related jobs and income. The overall effects indicate the increase in total labor income would be between $59,676,000 and $66,607,000. However, existing agricultural land will be disturbed during construction, which results in reduced agricultural income and jobs.

The estimates of jobs created vary. The Revised Draft Environmental Impact Report (RDEIR) indicates that approximately 600 direct and indirect jobs will be created. The State feasibility report indicates 1,100 to 2,000 workers will be employed during peak construction. These increases will affect the local community.

Q: How and where will there be temporary disturbances in agriculture?
A: The effects will be primarily on the grazing properties in the valley. There are temporary effects: the agricultural community loses land and jobs increase income.
Q: Will they be compensated?
A: Compensation will be for the use of their property.
Q: The increase in labor income of $60 million is an overall benefit, but how much will come to Colusa County? That income share doesn't reach our communities.
A: The target is 10%, but the Authority will continue reviewing the socioeconomic analysis.
C: Regarding labor, some laborers will need certain special requirements, skills, and experience to work on the project.
Q: How can we keep employees housed locally to support our economy?
A: Using the PG&E plant project as an example, there was a percentage requirement for lower-skilled laborers to be in the project area.
C: Project and employment information is available online for the Authority to reference from Lake Shasta.

Recommendations include researching the economic benefits to the region and previous examples from other reservoir projects.

C: Consider investors for hotels and homes. People are watching the project and feel motivated. A person is preparing his quarry for this project.
Q: How much air pollution will there be? Yuba County & Sutter County asked about the potential truck traffic.
A: Sand and gravel are in a 35-mile radius.
C: When removing property, those taxes are removed from the district. The renovations and developer impact fees should also be considered.

Regarding the recreational economic effects, Sites Reservoir is expected to add approximately $2.4 million annually in revenue to local and regional economies. The LCWG discussed if the estimate was too high, so the Authority will analyze the findings.

Following this analysis, the Authority will move on to the next steps for economic development and local government revenue:

- Economic Development: Continue working on CEDS to finalize the plan, coordinate with other CEDS in the region and identify funding opportunities to leverage Sites investment for local cost match.
- Local Government Revenue: Coordinate with the three counties, identify the "Developer Agreement" conditions, and update estimates.

COMMUNITY BENEFITS

Kevin Spesert shared the results of a thorough review of federal funding sources, such as grants, that could help community priorities of transportation, broadband, and economic development. Kevin reviewed grants from the U.S. Department of Transportation, the Department of Commerce, the Economic Development Administration, and the Department of Housing and Urban Development. A "local champion" is needed from the community and could support the Project through grant applications and implementation.

Kevin shared the collaboration that would take place between the community and the Authority, which includes a steering committee that focuses on federal and state funding opportunities.

- The local agency and community can establish priorities, identify opportunities, and develop implementation strategies.
- The Authority can leverage resources and make connections, participate in the steering committee, and provide technical support to secure potential funding.

Kevin explained that the hardest part for a rural community is figuring out where to start. However, the Authority can help support the process. They can work with local officials and identify other connections to federal and state representatives. A survey could be sent to LCWG members to determine interest and meeting frequency for a proposed steering committee to consider the issues, opportunities, and required next steps.

Sara Katz announced that the next meeting will be held from 2:30-4:30 p.m., on July 20, at the Sites Project Authority Office. She adjourned the meeting at 4:30 p.m.

Proposed Discussion Topics for the 7/20 Local Community Working Group Meeting
Mid-year review
MC3 Training presentation
Engineering update
Environmental update

Future Meetings

- July 20, 2023
- September 21, 2023
- November 16, 2023

From: Alicia Forsythe [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A6CDF06A7E904B65BAA21702A82AD329-AFORSYTHE]
Sent: 5/25/2023 8:59:17 AM
To: Leahigh, John@DWR [John.Leahigh@water.ca.gov]; Cooke, Robert@DWR [Robert.Cooke@water.ca.gov]
Subject: Sites Project - Contact at San Luis Reservoir for Inlet/Outlet Tower Operations Discussion

Hi Rob and John – We are working on a few questions around the design of our inlet/outlet tower, number of ports needed, and water quality considerations in port design. I hear you all operate San Luis Reservoir and we were thinking that it might be a good example of how Sites might operate.

Is there someone that we can talk to at San Luis about the inlet/outlet tower design and operations?

We are specifically interested in the number of ports, if/how those are used to manage for water quality (both in putting water into the reservoir and in taking water out), and any water quality monitoring at the reservoir. Ultimately, I think we'd love to bring a small group down to San Luis and have a discussion and possible tour (if that's an option).

Any leads you can provide on a contact would be greatly appreciated!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Angela Bezzone [bezzone@mbkengineers.com]
Sent: 5/25/2023 11:47:19 AM
To: 'Heydinger, Erin@DWR' [Erin.Heydinger@water.ca.gov]; Alicia Forsythe [aforsythe@sitesproject.org]; steve.micko@jacobs.com
CC: Okita, David@DWR [David.Okita@water.ca.gov]; Chris Campbell [c.campbell@cbecoeng.com]
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Erin,

Thanks for circling back on this! Steve's and my availability is in red below.

Angela

From: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>
Sent: Tuesday, May 23, 2023 3:38 PM
To: Angela Bezzone <bezzone@mbkengineers.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hey Angela,

I just had a chance to get caught up on Sites still with Chris at cbec. Do you and Steve have availability during the week of 6/5 to discuss your questions with the cbec team? Here are some times that work for us:

- 6/5 anytime in the afternoon 3:30-5:00
- 6/7 12:30-3:30 No
- 6/8 3-5 Yes
- 6/9 12-3 2:00-3:00

Thanks!
Erin

Erin Heydinger, PE, PMP
Supervising Engineer
Division of Integrated Science and Engineering
Ecosystem Improvements Branch
Phone: (916) 873-4099
She/her/hers

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, May 16, 2023 11:44 AM
To: Angela Bezzone <bezzone@mbkengineers.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris

Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Angela,

I recently accepted a new position here at DWR, and as such my role on this effort will have to be reduced. However, you are in good hands – Erin Heydinger will take over as DWR coordinator. I will work on getting Chris and Erin up to speed and we will send an update soon.

Thank you,

-Josh

From: Angela Bezzone <bezzone@mbkengineers.com>
Sent: Tuesday, May 16, 2023 7:41 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh & Chris –

Just following up on this. Should we find a time to meet to discuss the questions below?

Thanks,
Angela

From: Angela Bezzone
Sent: Monday, April 24, 2023 3:37 PM
To: 'Martinez, Josh@DWR' <Joshua.Martinez@water.ca.gov>; Alicia Forsythe <aforsythe@sitesproject.org>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Sorry for the late response. Time has gotten away from me!

Chris – The Sites team has created timeseries for flow at Wilkins Slough and into the Tisdale Weir. Are there other boundary flow conditions in the model that we should provide data for? Also, can you confirm what is used for the baseline in TUFLOW (e.g., CDEC gage data)?

Please let me know if you'd like to find time to discuss.

Thanks,

Angela Bezzone, P.E.

MBK Engineers
455 University Ave Suite 100
Sacramento, CA 95825

(916) 456-4400 – Phone

(775) 450-6408 – Cell
(916) 456-0253 – Fax

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Tuesday, April 18, 2023 8:26 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>; Chris Campbell <c.campbell@cbecoeng.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

Just trying to run this to ground. I've looped in Chris Campbell from cbec as he will oversee the modeling on our end. Rather than waiting to schedule a meeting, perhaps we can communicate modeling needs via this email. Again, this goal is to make sure the Sites team knows exactly what inputs the DWR modeling team will need to run the updated diversion rates through the Big Notch model.

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Phone: (916) 835-8778
PLEASE NOTE NEW PHONE NUMBER!
Joshua.Martinez@water.ca.gov

From: Martinez, Josh@DWR
Sent: Monday, April 10, 2023 11:53 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Cc: Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

We haven't been able to run this task to ground just yet due to vacations over the last few weeks. I think a quick technical check-in would be the most expeditious way to find a path forward. Our modeling team is available:

- 4/17 10-1
- 4/19 10-1, 2-3

Would any of these time slots work for your team?

Thanks,

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 29, 2023 9:48 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Angela Bezzone <bezzone@mbkengineers.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – Just wanted to check in on this. I think we're ready to send information over. Just wanted to confirm the boundary conditions.

I am out next week (April 4 to April 11, returning April 12), but Angela and Steve can work with you to get the modeling inputs.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

---

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Thursday, March 23, 2023 4:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>; Okita, David@DWR <David.Okita@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

I heard from the modeling team earlier this morning. It sounds like they will have a list of specific model inputs we will need from your team sometime tomorrow or early next week.

Also, please ignore my question re: baseline modeling from my previous email. Erin and I spoke and it would be best to have a baseline run with consistent inputs to improve our confidence in model results.

I'll be in touch soon. Thanks again.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, March 22, 2023 10:04 AM

To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – We're honing in on this and expect to wrap up our part here shortly. Did you have a chance to check in with modeling team on the boundary conditions? Also, what is the baseline in TuFLow? Is this gage data?

If it make sense to have a quick call on these items to wrap these up, let me know and I can work to get something scheduled.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, March 10, 2023 10:42 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Ali,

Thanks for the update, Erin and I just connected on this issue yesterday. I'm glad to see your team is making progress. I'll reach out to our modeling team to get the exact inputs that we would need to run our models.

Regarding the No Action data, wouldn't that simply be the existing TUFLOW dataset we have already modeled (i.e., our existing Big Notch flow model already excludes Sites operations)? I want to make sure I am understanding this request.

Thanks again, and have a safe weekend all.

-Josh

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Friday, March 10, 2023 10:26 AM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>;

Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi Josh – I just realized that I talked with the team earlier this week and then completely forgot to close the loop with you. Apologies.

We're working on a few last items on both the Daily Divertible Tool and the Historical Analysis. We expect to finish these up early next week and then have an internal call scheduled next Wednesday to compare the results of the two and decide which one to use. And we expect to get you input data by next Friday, March 17.

Can you confirm the boundary conditions/input data that the team would need to run TuFlow? We want to make sure we're getting you want the team needs.

Also, we were planning to provide both a No Action and With Sites Project input data. Can both be run through TuFlow? We just want to make sure that we're comparing a with and without on the same baseline to assess the potential changes of the Sites Project.

Hope everyone has a good weekend and stays safe in all this crazy weather!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Alicia Forsythe
Sent: Saturday, February 25, 2023 3:29 PM
To: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Thanks Josh. Super helpful! I'll talk with the team next week and we will get back to you ASAP but no later than March 8 (and hopefully sooner).

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Martinez, Josh@DWR <Joshua.Martinez@water.ca.gov>
Sent: Friday, February 24, 2023 3:53 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Spranza, John <john.spranza@hdrinc.com>; steve.micko@jacobs.com; Angela Bezzone <bezzone@mbkengineers.com>; Heydinger, Erin@DWR <Erin.Heydinger@water.ca.gov>; Pitts, Adrian <adrian.pitts@icf.com>; Hassrick, Jason@ICF <jason.hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>
Cc: McCalvin, Catherine@DWR <Catherine.McCalvin@water.ca.gov>; Vasquez, Elizabeth@DWR <Elizabeth.Vasquez@water.ca.gov>
Subject: RE: Sites and Big Notch Project - Modeling Discussion

Hi all,

The DWR team just met with our modeling team to discuss options for this latest flow analysis, and it turns out they recently expanded our modeled period of record by five additional years. Rather than ending in 2012, our updated period of record is 1996-2017. We now have more options than we originally discussed in today's meeting.

Given your familiarity with the various Sites flow datasets, which of the following approaches would the Sites team have the most confidence in?

1. Expand our 2009-2012 analysis to 2009-2017 using the latest protective measures. This allows us to use Sites Daily Divertible Tool, with higher confidence in Sites diversions.
2. Proceed with the option we settled on in our meeting of using the Sites Historical Analysis data as bookends, using the expanded 2000-2017 analysis (as opposed to our previously agreed upon 2000-2012 period). While this would cover a broader period of record, it sounds like there may be lower confidence with the Historical Analysis diversion data compared to the Daily Divertible Tool used in Option 1.

The DWR team is comfortable with either approach and our modelers expect a similar turnaround time for both options. Our current estimate is having results no later than the end of April. Please let us know how you would like to proceed.

Thank you again for a productive meeting this morning. I hope you all have a dry weekend!

-Josh

Joshua Martinez
Restoration Ecology Unit Manager
Division of Integrated Science and Engineering
Office: (916) 376-9725
Mobile: (916) 835-8778
Joshua.Martinez@water.ca.gov

-----Original Appointment-----
From: Alicia Forsythe <aforsythe@sitesproject.org>

Sent: Wednesday, February 22, 2023 8:43 AM
To: Alicia Forsythe; Spranza, John; Micko, Steve/SAC; Angela Bezzone; Martinez, Josh@DWR; Heydinger, Erin@DWR; Pitts, Adrian; Hassrick, Jason@ICF; Hendrick, Mike; Lecky, Jim
Subject: Sites and Big Notch Project - Modeling Discussion
When: Friday, February 24, 2023 10:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

We'll focus on modeling and the best Sites tool/Big Notch tool to update the modeling with the Sites recent diversion criteria

---

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

Meeting ID: 229 028 116 612
Passcode: SvgU2R
Download Teams | Join on the web

Or call in (audio only)
+1 916-538-7066,,917981187# United States, Sacramento
Phone Conference ID: 917 981 187#
Find a local number | Reset PIN

Learn More | Meeting options

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 5/25/2023 1:56:12 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: Sites Reservoir Project_ 5_24_23 Hydrology/Bioassessment Surveys (Email Summary)
Attachments: 4.JPG; 5.JPG

FYI

John Spranza

D 916.679.8858 M 818.640.2487

From: Peters, Jeff <Jeff.Peters@icf.com>
Sent: Thursday, May 25, 2023 9:20 AM
To: Spranza, John <John.Spranza@hdrinc.com>; Arsenijevic, Jelica <jelica.arsenijevic@hdrinc.com>; Conner McDonald <conner@cmdwest.com>
Cc: Tannourji, Danielle <Danielle.Tannourji@icf.com>; Hassrick, Jason <Jason.Hassrick@icf.com>
Subject: Sites Reservoir Project_ 5_24_23 Hydrology/Bioassessment Surveys (Email Summary)

Hello all,

Per your request, here is a brief summary of the monitoring activities that occurred on Wednesday, 5/24/23. The name of this location on Stone Corral Creek within the umbrella of the Aquatic Study Plan is SCC-BA-1. Representative photographs are attached.

- The ICF Hydrology and Bioassessment Team (Jeff Peters and Jeff Kozlowski) met at the Site Authority office in downtown Maxwell at 9 am. Other ICF staff (i.e., cultural resources, botanical resources) from other disciplines were present as well.

- Basic water quality measurements using a YSI were recorded; however, no samples were sent to the lab.

- ICF measured streamflow in a nearby location (0.25 cfs).

- ICF downloaded the data from the HOBO water surface/temperature probe, as well as the air pressure probe on the right bank (viewed facing downstream). ICF also measured the water surface along the cross section that was established on 4-20-23.

- ICF could still not install a high-flow stilling well to house a water surface/temperature probe (due to excessive depth in the pool along the cross section that is the best local candidate) and will have to install such a set-up prior to the beginning of the 2023/2024 rainy season.

- The ICF Bioassessment Team performed a longitudinal profile topographic survey along the bioassessment sampling reach. All bioassessment data has now been collected and will soon be QA/QC'd and sent to the appropriate vendor for analysis.

- ICF noted that due the low streamflow conditions of 0.25 cfs and the shallow water depths, another (most likely final) set of stage measurements will need to be taken soon (preferably during the week of June 19). ICF will most likely pull the HOBO hardware from the stream at this time.

Let me know if you need additional information,

JP

Jeff Peters, M.A.
Geomorphologist and Restoration Specialist
ICF (formerly Jones & Stokes)
980 9th Street, Suite 1200
Sacramento, CA 95814
O: 916-737-3000 / D: 916-231-9603 / M: 916-752-0984
Jeff.Peters@icf.com

PLEASE NOTE THAT I WILL BE IN THE FIELD DURING MOST OF THE MONTH OF MAY AND EMAIL RESPONSES MAY BE DELAYED

From: Leahigh, John@DWR [John.Leahigh@water.ca.gov]
Sent: 5/26/2023 5:25:50 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Cooke, Robert@DWR [Robert.Cooke@water.ca.gov]
CC: Leahigh, John@DWR [John.Leahigh@water.ca.gov]
Subject: RE: Sites Project - Contact at San Luis Reservoir for Inlet/Outlet Tower Operations Discussion

Hi Ali,

I'm in the process of gathering information internally on the best ways to address your request. I'll likely be in touch next week with some additional thoughts.

Have a great weekend!

John W. Leahigh, P.E.
Assistant Division Manager, Water Management
Division of Operations and Maintenance
State Water Project
O: (916) 902-9876
1516 Ninth Street,
Sacramento, CA 95814

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, May 25, 2023 8:59 AM
To: Leahigh, John@DWR <John.Leahigh@water.ca.gov>; Cooke, Robert@DWR <Robert.Cooke@water.ca.gov>
Subject: Sites Project - Contact at San Luis Reservoir for Inlet/Outlet Tower Operations Discussion

Hi Rob and John – We are working on a few questions around the design of our inlet/outlet tower, number of ports needed, and water quality considerations in port design. I hear you all operate San Luis Reservoir and we were thinking that it might be a good example of how Sites might operate.

Is there someone that we can talk to at San Luis about the inlet/outlet tower design and operations?

We are specifically interested in the number of ports, if/how those are used to manage for water quality (both in putting water into the reservoir and in taking water out), and any water quality monitoring at the reservoir. Ultimately, I think we'd love to bring a small group down to San Luis and have a discussion and possible tour (if that's an option).

Any leads you can provide on a contact would be greatly appreciated!

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

Purpose of Fault Trenches Memorandum

To:	JP Robinette (Sites Authority), Henry Luu (HDR)
CC:	Jeriann Alexander (Fugro)
Date:	May 26, 2023
From:	Ben Aldridge
Quality Review:	Mike Forrest, Phil Respess
Authority Agent Review:	Henry Luu
Subject:	Purpose of Fault Trenches

This memorandum provides an overview of the purpose of the fault trench explorations that are proposed to be completed as part of design of the reservoir facilities. In total, 11 fault trenches are proposed to investigate the identified faults in the project area that have potential to impact the reservoir facilities. The faults in the vicinity of the reservoir facilities were previously investigated by WLA (2002), but additional information is required to complete design of the Sites Reservoir Project. Specifically, further refinement of the location of the faults, age of faulting, and potential offset will be evaluated. In addition, the information obtained from the fault trenches will be incorporated in the deterministic and probabilistic seismic hazard analyses.

The following sections summarize each fault trench planned and what information will be obtained. Note that the locations shown in the referenced figures in the Geotechnical Investigation Work Plan (GIWP) (Fugro, 2023) are approximate and will be verified in the field based on geologic mapping observations, recent LiDAR, and other observations made while onsite.

1.0 Golden Gate Dam Fault Trenches

Golden Gate Dam has three faults in the vicinity of the dam footprint, which are GG-1, GG-2, and S-3, as shown in Figure 1. Fault GG-1 and S-3 are sufficiently constrained as being outside the proposed dam footprint and are therefore not investigated as part of investigations for Golden Gate Dam. Fault GG-2 crosses through the right abutment of Golden Gate Dam, including a portion of the core on the right abutment. An alternative dam alignment is being considered that would require an additional saddle dam in a low point in the sandstone ridge just south of the current dam alignment. Fault GG-2 is mapped as crossing through this low spot in the ridge.

To investigate these faults, four trenches are proposed, as summarized in the following subsections. The fault trenches will be used to help design the embankment for potential fault offset (including estimating the amount of potential fault offset) and provide input into the selection of the dam axis alignment and dam footprint.

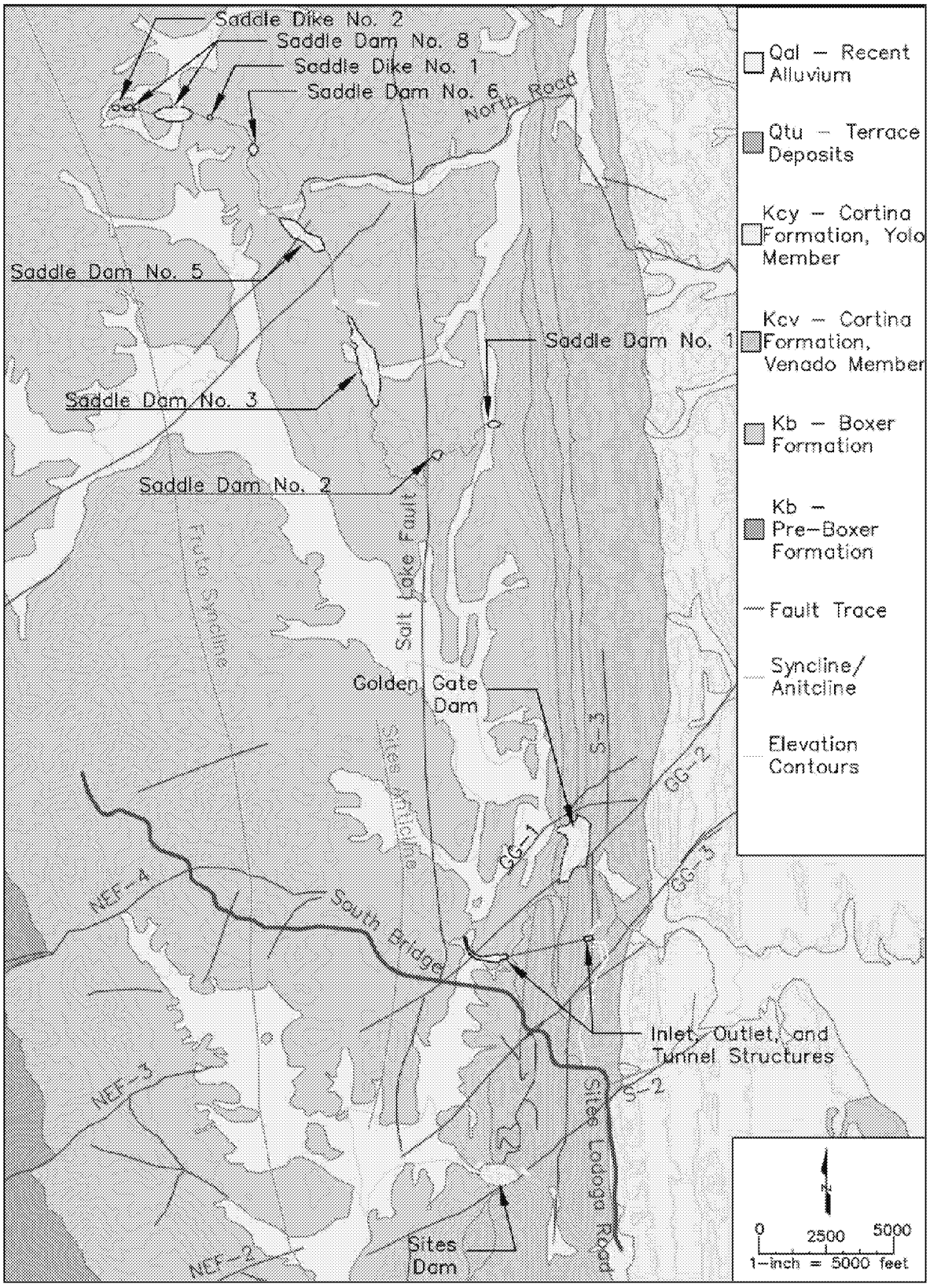


FIGURE 1: SITES RESERVOIR PROJECT GEOLOGIC MAP

1.1 GG-T-001 and GG-T-002

Fault trench GG-T-001 and GG-T-002 are located on the right abutment of the proposed alignment for Golden Gate Dam, cutting across fault GG-2, as shown in Figure 3.2 of the GIWP (Fugro, 2023). GG-T-001 is located near the downstream toe of the proposed dam alignment but still on the right abutment and GG-T-002 is located on the right abutment but on the upstream side of the embankment. GG-T-002 is southwest of GG-T-003 by about 800 feet.

The purpose of these fault trenches is to confirm the GG-2 fault location, the width of the fault, and the orientation and mechanism of the fault in this area. In addition, the trenches will be used to assess the age of unfaulted deposits in order to evaluate the fault age/activity. The fault trenches are planned to extend at least 50 to 100 feet on either side of the fault to determine the width of the deformation zone.

1.2 GG-T-003

Fault trench GG-T-003 is located outside of the Golden Gate Dam footprint next to fault trench FT-5 from WLA (2002), as shown in Figure 3.1 of the GIWP (Fugro, 2023). The fault trench will cut across fault GG-2 and is primarily intended to establish the age of unfaulted deposits via optically stimulated luminescence (OSL) or similar dating. This information will be used to evaluate the fault age/activity.

1.3 GG-T-004

Fault trench GG-T-004 is located south of the proposed Golden Gate Dam at a low point in the sandstone ridge where a saddle dam may be added if the upstream alternative alignment for Golden Gate Dam is selected. The location of GG-T-004 is shown in Figure 3.2 and 3.2 in the GIWP (Fugro, 2023). Fault GG-2 is mapped as crossing through this area and the location of this fault may influence the selection of the location of the saddle dam.

The purpose of GG-T-004 is to confirm the GG-2 fault location, the width of the fault, and the orientation and mechanism of the fault in this area. In addition, the trench will be used to assess the age of unfaulted deposits, which will be used to evaluate the fault age/activity. The fault trench is planned to extend at least 50 to 100 feet on either side of the fault to determine the width of the deformation zone.

2.0 Sites Dam Fault Trenches

Fault S-2 crosses along the downstream right groin of Sites Dam with some of the proposed dam footprint being within the potential wider fault zone, as mapped by WLA (2002) (Figure 1). In addition, the fault passes near the proposed downstream outlet of the Sites Diversion tunnel but does not currently cross the outlet structure footprint.

To investigate this fault, two trenches are proposed, S-T-001 and S-T-002, as shown in Figure 4.1 of the GIWP (Fugro, 2023). Fault trench S-T-001 is located along the right abutment of the dam and fault trench S-T-002 is located to the north at the edge of the outlet for the diversion outlet system. The purpose of both fault trenches in this area is to confirm the location, width, and the orientation and mechanism of the fault. In addition, the trench will be used to assess the age of unfaulted deposits, which will be used to evaluate the fault age/activity. The fault trenches will be used in the design of the

embankment for potential fault offset (including estimating the amount of potential fault offset) and design of the outlet to be outside the area of potential faulting.

3.0 Inlet-Outlet Facility Fault Trenches

Two faults bound the extents of the proposed Inlet-Outlet (I-O) facility. Fault GG-2 is located on the west side of the I-O facility and fault S-3 is located on the east side of the facility, as shown in Figure 1. The location of these faults influences the location of the portals and tunnel. To confirm the fault location and obtain other specific information for evaluation and design of the inlet-outlet facility, three fault trenches are proposed, as described in the following subsections.

3.1 IO-T-001 and IO-T-003

Fault trenches IO-T-001 and IO-T-003 are located on the west side of the ridge that makes up the rim of the reservoir, as shown in Figure 11.1 of the GIWP (Fugro, 2023). These fault trenches will be used to investigate fault GG-2. Fault trench IO-T-001 is located immediately north of the approach channel for the I-O facility, near the western portal and intake structure and IO-T-003 is located further north along GG-2 between the I-O facility and Golden Gate Dam.

The purpose of these fault trenches is to confirm the location, width, and the orientation and mechanism of the fault in this area. It is possible that if the fault alignment is slightly different, the alignment of the I-O facility could be adjusted to shorten the overall length. In addition, the trench will be used to assess the age of unfaulted deposits, which will be used to evaluate the fault age/activity.

3.2 IO-T-002

Fault trench IO-T-002 is located on the east side of the I-O facility near the eastern portal near the location where the connection to the conveyance system will be located, as shown in Figure 11.2 of the GIWP (Fugro, 2023). The purpose of the fault trench is to confirm the location, width, and the orientation and mechanism of the fault in this area. In addition, the trench will be used to assess the age of unfaulted deposits, which will be used to evaluate the fault age/activity.

The fault trench in this location will be used to confirm the position of the portal and will inform any necessary adjustments to the portal location. In addition, the information obtained will be used to design the conveyance pipe where it crosses the fault, including the potential amount of fault offset.

4.0 Saddle Dam Fault Trenches

In the northern portion of the proposed reservoir, saddle dams are proposed to close several low points in the topography. The Salt Lake Fault and an unnamed fault have been identified as passing through this area. The Salt Lake Fault passes approximately 250 feet west of Saddle Dam 2 and the unnamed fault or shear zone is mapped as passing through center of Saddle Dam 5 slightly askew to the dam axis. Little is known about the unnamed fault but it is described as a northeast-trending shear zone that was inferred based on subtle vegetation changes, subtle breaks in slopes, lineaments in the topography, an abundance of white calcareous float in the soil, and offsets mapped in the conglomerate ridge that comprises part the left abutment.

To learn more about these two faults, two fault trenches are proposed. Fault trench SD2-T-001 will be used to investigate the Salt Lake Fault where it crosses near Saddle Dam 2 and fault trench SD5-T-001

will be used to investigate the unnamed fault crossing through Saddle Dam 5. The approximate location of these fault trenches are shown in Figure 6.1 (Saddle Dam 2) and Figure 8.1 and 8.2 (Saddle Dam 5) of the GIWP (Fugro, 2023). The purpose of the fault trenches will be to confirm the location, width, and the orientation and mechanism of the faults. In addition, the trenches will be used to assess the age of unfaulted deposits, which will be used to evaluate the age/activity of the faults. The fault trenches will be used in the design of the embankments for potential fault offsets, including estimating the amount of potential fault offset.

5.0 Citations

California Department of Water Resources (DWR). 2003. Geologic Feasibility Report, Sites Reservoir Project, Appendix to Engineering Feasibility Report, Project Geology Report No. 94-30-02. July.

Fugro. 2023. Geotechnical Investigation Work Plan – Proposed Sites Reservoir Area, Glenn and Colusa Counties, California, Revised Final Draft. March 17.

William-Lettis and Associates, Inc. (WLA). 2002. Phase II Fault and Seismic Hazards Investigation, North of Delta Offstream Storage Integrated Storage Investigations. September.

From: Harris, Melissa [Melissa.Harris@icf.com]
Sent: 5/30/2023 10:52:00 AM
To: Spranza, John [john.spranza@hdrinc.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Huber, Anne [Anne.Huber@icf.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Erecius, Lesa [Lesa.Erecius@icf.com]; Briard, Monique [Monique.Briard@icf.com]
Subject: RE: Sites: Appendix 2D draft RMP description

Hello John,

Can you please confirm that there are no changes to Appendix 2D? We need to finalize our changes and need any feedback immediately to meet our schedule. My apologies if you have already followed up with Anne and I am out of the loop.

Melissa

Melissa Harris, PMP
916.210.5916 (direct)
980 9th Street Suite 1200, Sacramento, CA, 95814, USA

From: Huber, Anne <Anne.Huber@icf.com>
Sent: Wednesday, May 24, 2023 2:57 PM
To: John Spranza <John.Spranza@hdrinc.com>
Cc: aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Erecius, Lesa <Lesa.Erecius@icf.com>; Harris, Melissa <Melissa.Harris@icf.com>; Briard, Monique <Monique.Briard@icf.com>
Subject: Sites: Appendix 2D draft RMP description

Hi John,

I placed the current version of the RMP portion of Appendix 2D (section 2D.3) on the Sites Authority SharePoint site located here: draft 2D.3
The file name is "V2-008-App02D_RMP section 2D.3_24May2023.docx". I was not sure where to put this file, so please move it to wherever it might belong.

Yellow highlights in the file indicate the most recent changes, but you should probably review the whole thing. It's possible we will want to make additional changes as we finish responding to comments. Any late substantive changes will be highlighted for easy detection. Please review as soon as possible since your input could affect other parts of the EIR/EIS. We particularly want to know if all commitments are acceptable. Please use track changes.

Thanks!
-Anne

From: JP Robinette [jrobinette@sitesproject.org]
Sent: 5/30/2023 12:38:45 PM
To: Jeff Kivett [JKivett@BrwnCald.com]
Subject: Fw: Construction Schedule - Working Draft
Attachments: Sites Summary Schedule for O&E with dates no footer_2023.05.24.pdf; Sites Summary Schedule for O&E without dates no footer_2023.05.24.pdf

For our discussion today. Is this the same schedule you are looking at? The gap between 30 and 60% design is huge. Also, the late start on the big dams looks odd.

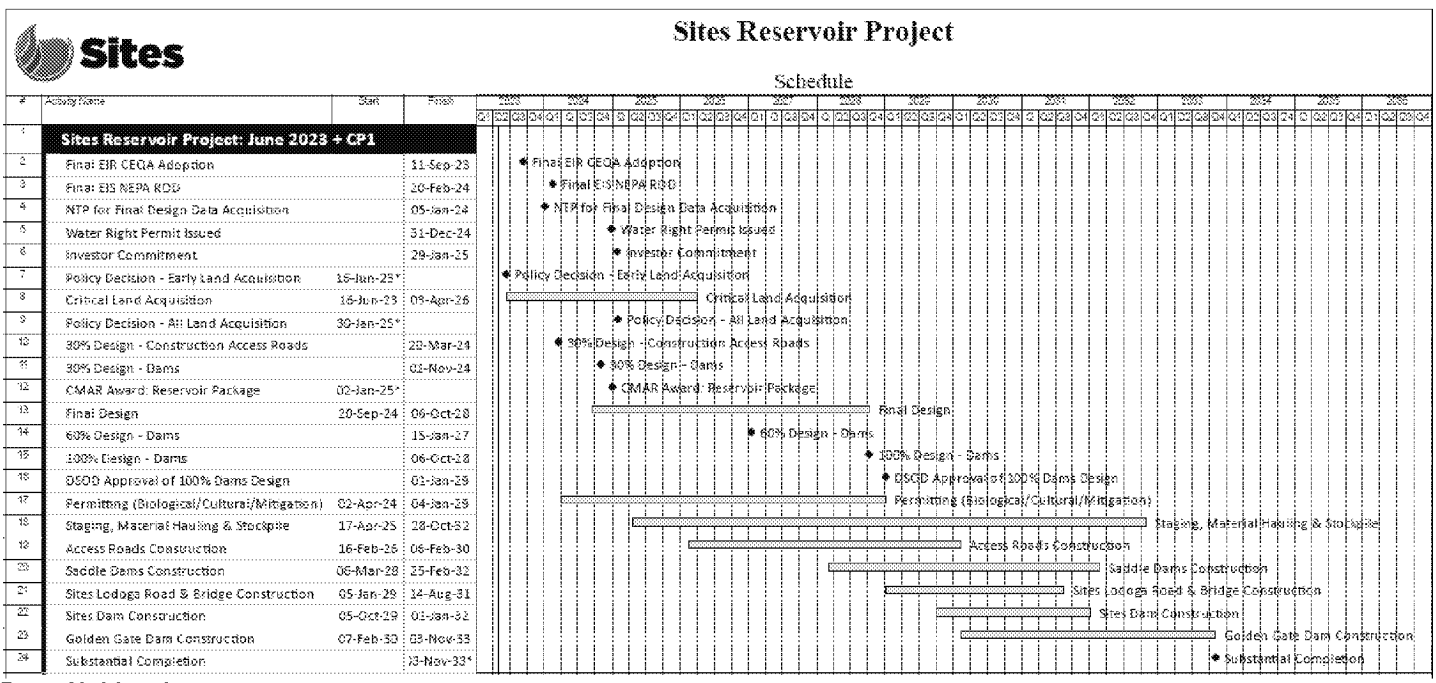
From: Marcus Maltby <mmaltby@BrwnCald.com>
Sent: Tuesday, May 30, 2023 11:51 AM
To: JP Robinette <jrobinette@sitesproject.org>
Cc: Luu, Henry <henry.luu@hdrinc.com>; David Hubbard <Dhubbard@BrwnCald.com>
Subject: Construction Schedule - Working Draft

Hey JP – How does the attached look? Is this the right detail for the June Board?

I'll put some time on our calendar to discuss messaging for the Board meeting and how this might fit in with some of the other agenda topics.

From: David Hubbard <Dhubbard@BrwnCald.com>
Sent: Wednesday, May 24, 2023 12:52 PM
To: Luu, Henry <henry.luu@hdrinc.com>; Marcus Maltby <mmaltby@BrwnCald.com>
Subject: RE: Notes from Schedule Meeting with JP

Okay fellas, new versions attached. With and without dates. Both are without footer/legend.

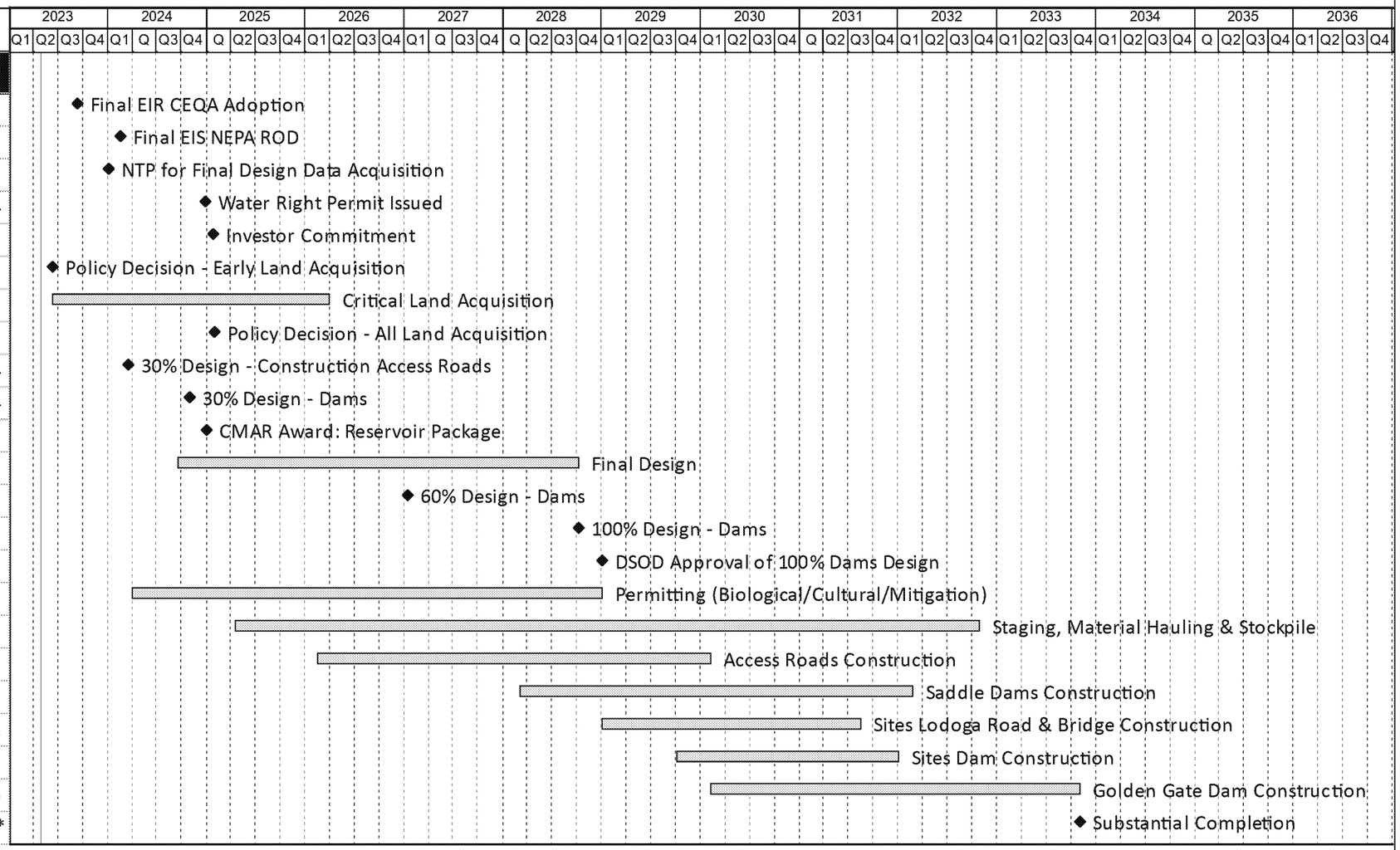


Dave Hubbard
Project Controls
Brown and Caldwell
Cell: 832.840.1789
dhubbard@brwncald.com

Sites Reservoir Project

Schedule

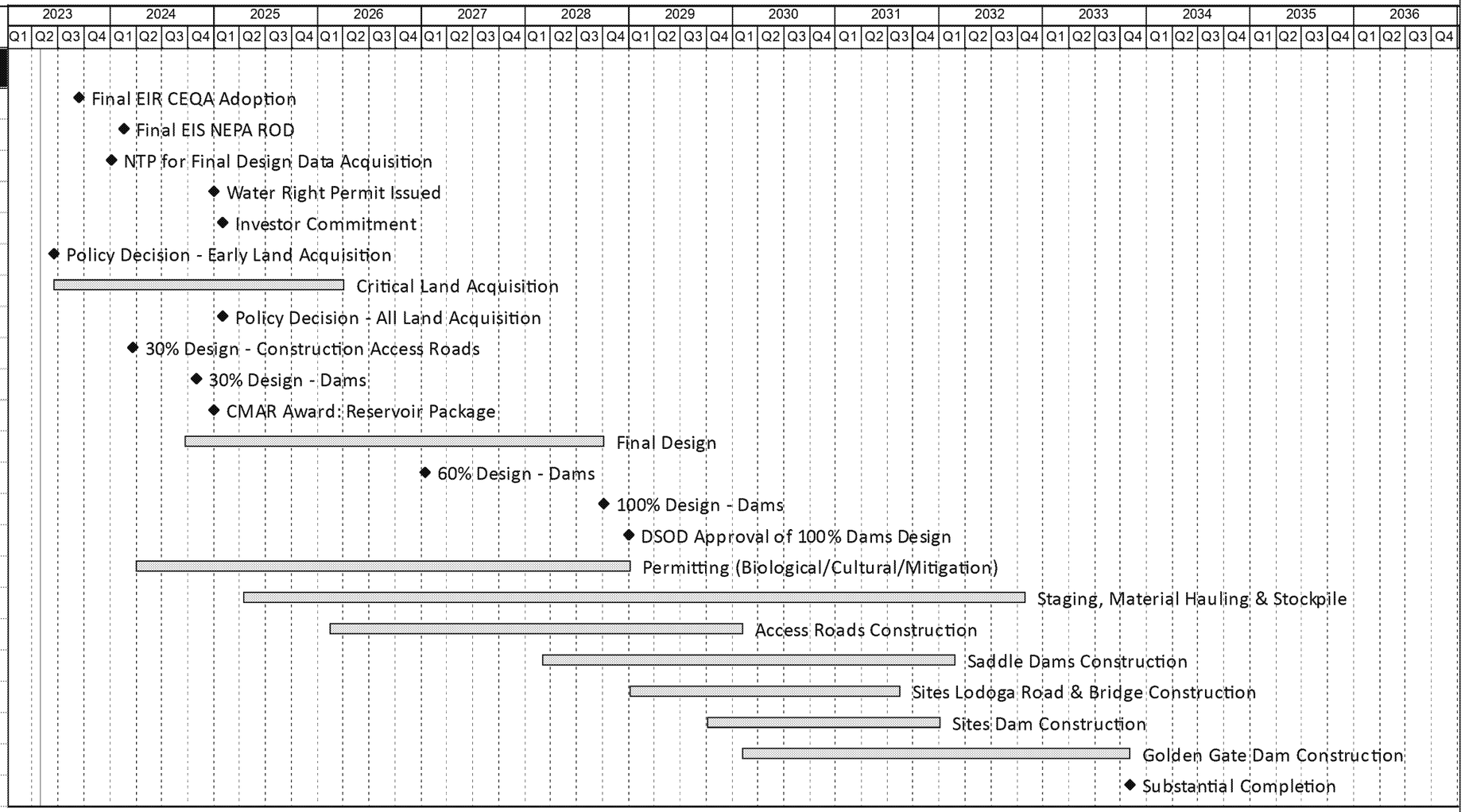
#	Activity Name	Start	Finish
1	**Sites Reservoir Project: June 2023 + CP1**		
2	Final EIR CEQA Adoption		11-Sep-23
3	Final EIS NEPA ROD		20-Feb-24
4	NTP for Final Design Data Acquisition		05-Jan-24
5	Water Right Permit Issued		31-Dec-24
6	Investor Commitment		29-Jan-25
7	Policy Decision - Early Land Acquisition	16-Jun-23*	
8	Critical Land Acquisition	16-Jun-23	03-Apr-26
9	Policy Decision - All Land Acquisition	30-Jan-25*	
10	30% Design - Construction Access Roads		20-Mar-24
11	30% Design - Dams		01-Nov-24
12	CMAR Award: Reservoir Package	02-Jan-25*	
13	Final Design	20-Sep-24	06-Oct-28
14	60% Design - Dams		15-Jan-27
15	100% Design - Dams		06-Oct-28
16	DSOD Approval of 100% Dams Design		01-Jan-29
17	Permitting (Biological/Cultural/Mitigation)	02-Apr-24	04-Jan-29
18	Staging, Material Hauling & Stockpile	17-Apr-25	28-Oct-32
19	Access Roads Construction	16-Feb-26	06-Feb-30
20	Saddle Dams Construction	06-Mar-28	25-Feb-32
21	Sites Lodoga Road & Bridge Construction	05-Jan-29	14-Aug-31
22	Sites Dam Construction	05-Oct-29	01-Jan-32
23	Golden Gate Dam Construction	07-Feb-30	03-Nov-33
24	Substantial Completion		)3-Nov-33*



Sites Reservoir Project

Schedule

#	Activity Name
1	**Sites Reservoir Project: June 2023 + CP1**
2	Final EIR CEQA Adoption
3	Final EIS NEPA ROD
4	NTP for Final Design Data Acquisition
5	Water Right Permit Issued
6	Investor Commitment
7	Policy Decision - Early Land Acquisition
8	Critical Land Acquisition
9	Policy Decision - All Land Acquisition
10	30% Design - Construction Access Roads
11	30% Design - Dams
12	CMAR Award: Reservoir Package
13	Final Design
14	60% Design - Dams
15	100% Design - Dams
16	DSOD Approval of 100% Dams Design
17	Permitting (Biological/Cultural/Mitigation)
18	Staging, Material Hauling & Stockpile
19	Access Roads Construction
20	Saddle Dams Construction
21	Sites Lodoga Road & Bridge Construction
22	Sites Dam Construction
23	Golden Gate Dam Construction
24	Substantial Completion



Meeting: **Sites Legislative & Outreach Committee**

Locations: Maxwell Project Office, 122 Old Highway 99W, Maxwell, CA 95955
See below for alternate meeting locations.

Call in: **1-916-538-7066** Code: 882 212 870# Click here to join the meeting

Committee Chair: Jeff Sutton (AB Vice-Chair/Tehama-Colusa Canal Authority)

Staff Lead: Kevin Spesert, External Affairs Manager

AGENDA

Wednesday, May 31, 2023, Noon - 1:00 PM

NO ACTION or DECISION WILL BE TAKEN

ROLL CALL & CALL TO ORDER:

- Introductions.
- Period for Public Comment.

People may speak about any subject of concern, provided it is within the committee's jurisdiction. The time allotted for receiving such public communication shall be limited to 3 minutes per person. Note: No action shall be taken on comments made during this period.

1. Discussion and Information Items:

1.1 Review the Governor's permit reform legislation proposal.

1.2 Receive an update on the federal legislation STREAM Act (Feinstein).

2. Upcoming Meetings:

Special Joint Reservoir Committee & Authority Board Meeting
TBD, June 2023

Joint Reservoir Committee & Authority Board Meeting
Friday, June 16, 2023 (9:00 am-noon)

Legislative & Outreach Committee
To Be Determined

All meetings are in-person at 122 Old Hwy 99W, CA 95955 & Virtual. Virtual information will be provided before all meetings at Sitesproject.org.

ADJOURN

ADA COMPLIANCE: Upon request, agendas will be made available in alternative formats to accommodate persons with disabilities. In addition, any person with a disability who requires a modification or accommodation to participate or attend this meeting may request the necessary accommodations. Please make your request to the Board Clerk, specifying your disability, the format in which you would like to receive this Agenda, and any other accommodation required no later than 24 hours before the start of the meeting.

Alternate Meeting Locations:

Glenn-Colusa ID, 344 East Laurel Street, Willows, CA 95988

Metropolitan Water District, 700 North Alameda Street, Los Angeles, CA 90012

San Bernardino Valley Municipal WD, 380 E. Vanderbuilt Way, San Bernardino, CA 92408

Tehama-Colusa Canal Authority, 5513 Highway 162, Willows, CA 95988

Reclamation District 108, 975 Wilson Bend Road, Grimes, CA 95950

Zone 7 Water Agency, 100 North Canyons Parkway, Livermore, CA 94511

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 5/30/2023 3:03:49 PM
To: Lecky, Jim [jim.lecky@icf.com]; Garello, Michael [mike.garello@hdrinc.com]; Luu, Henry [henry.luu@hdrinc.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: Sites Project Fish Screen Discussion
Attachments: RE: Sites HC: GCID Intake Facilities Improvement - Work Plan Draft TM - At high flows; GCID_Main_Canal_Hec_Ras_Analysis_EmgStorage_and_TRRsize(May 10 2023).pdf

Hi Folks,

I'm linking up Sites Reservoir design (Henry) and aquatics (Jim and I) with HDR's fish screen team to start discussing the Hamilton City Pumping Plant's fish screen cleaner's performance (see attached email and slides 30-33 in the pdf). Basic issue, the project wants to pump under very high flows, above 10,000 cfs and up to 100k but testing at 20,000 cfs indicated that the cleaner is not performing well under what would be moderate project operations.

I'd like to get this group on a Teams meeting to talk through the issue and see if we can come up with some concepts to allow for the targeted diversion range. Would any of the times not work:

Friday June 6
1-2
2-3
Mon June 5
10-11
12-1
2-3

John Spranza, MS, CCN
Senior Aquatic Ecologist / Regulatory Specialist
Fisheries Section Lead – Northern California
He/Him

HDR
2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916.679.8858 M 818.640.2487
john.spranza@hdrinc.com

hdrinc.com/follow-us
hdrinc.com/follow-us

DUCKS UNLIMITED

March 26, 2023
California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Chair E. Joaquin Esquivel,

We are writing to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions. For example, rice fields provide key seasonal habitat to waterfowl and a host of other species. Having a dedicated water supply that can help ensure that habitat is maintained at sufficient levels during drier years is critical to support the wildlife that depend on it.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind amid our changing climate. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs. Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use generally during dry periods when it is needed most.

Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife, and store it for future use by project participants. Sites Reservoir would be in the

public interest because it would conserve and use water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

For these reasons, Ducks Unlimited encourages the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Regards,

Marc Engstrom
Director of Public Policy, California

State Building and Construction Trades Council of California

ANDREW MEREDITH
PRESIDENT

J. TOM BACA
SECRETARY-TREASURER

Established 1901
Chartered By
BUILDING AND CONSTRUCTION TRADES DEPARTMENT
AFL - CIO

May 25, 2023

California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

RE: Approval of a Water Right Permit for the Proposed Sites Reservoir - SUPPORT

Dear Chair E. Joaquin Esquivel:

On behalf of the State Building and Construction Trades Council, AFL-CIO, I write to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

The State Building and Construction Trades Council of California, AFL-CIO, represents nearly half a million working women and men in the construction industry, including roughly 70,000 enrolled in our state-of-the-art apprenticeship programs around the state.

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind amid our changing climate. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs.

Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use generally during dry periods when it is needed most. Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife and store it for future use by project participants. Sites Reservoir would be in the public interest because it would conserve and use

1231 I Street, Suite 302 • Sacramento, CA 95814-2933 • (916) 443-3302 • FAX (916) 443-8204

water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

For these reasons, we encourage the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Sincerely,

ANDREW J. MEREDITH
President

AJM:bp
opeiu#29/afl-cio

Sites Reservoir

Roadway Design Workshop with Colusa County

May 31, 2023

Sites

1

Overview: Project Goals & Design Considerations

Howard Michael

Sites

Today's Meeting Goals

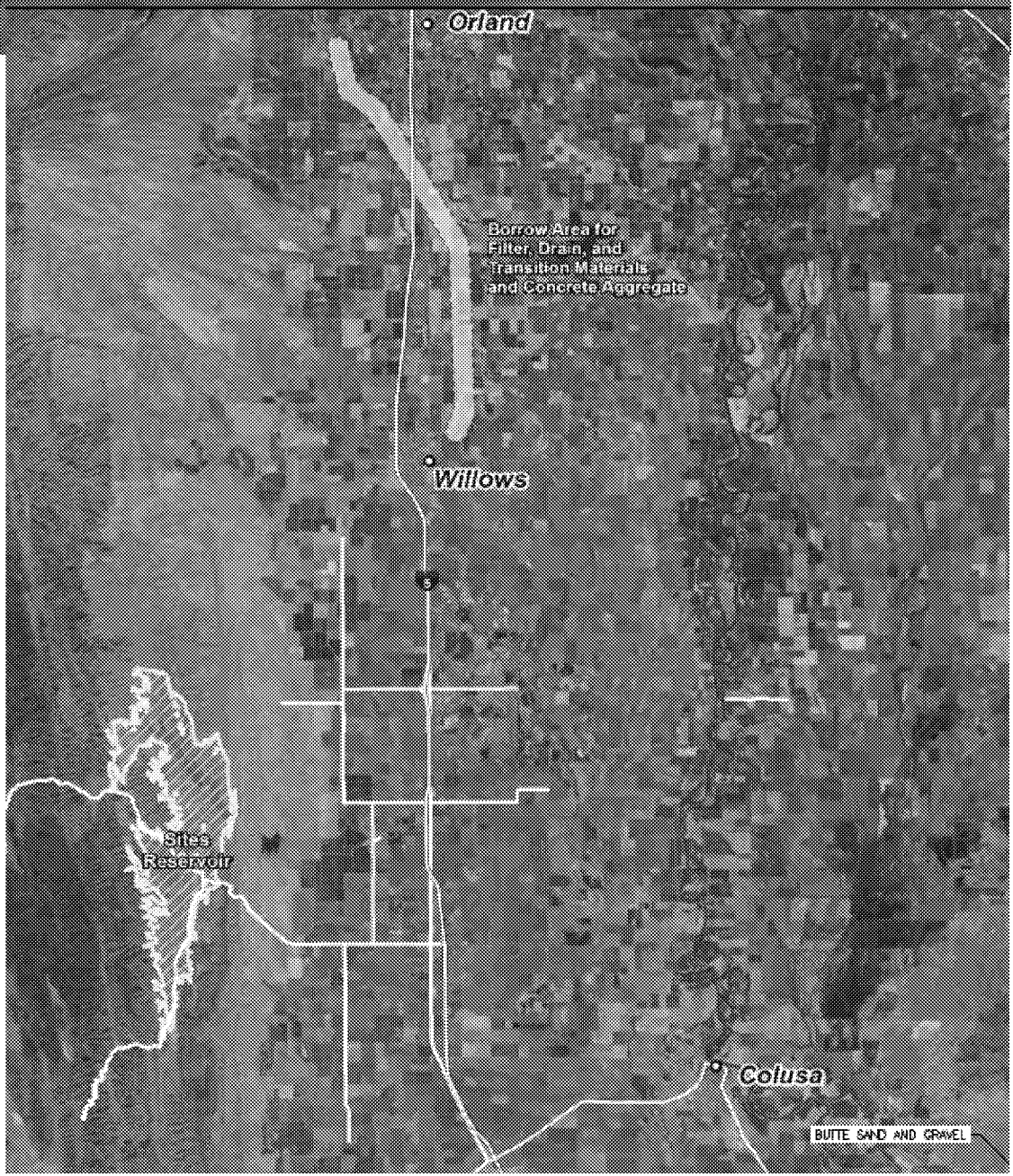
- County Roads Design Concurrence
- Select Dirks Road Extension Alternate Southerly Access or maintain McDermott/Maxwell-Sites Southerly Access

Objectives

- Public safety – avoid, minimize, manage commingling of public with construction traffic
- Provide public and landowner access
- Provide safe and efficient access to construction sites to expedite the completion of construction

Challenge for HR – Truck Trips

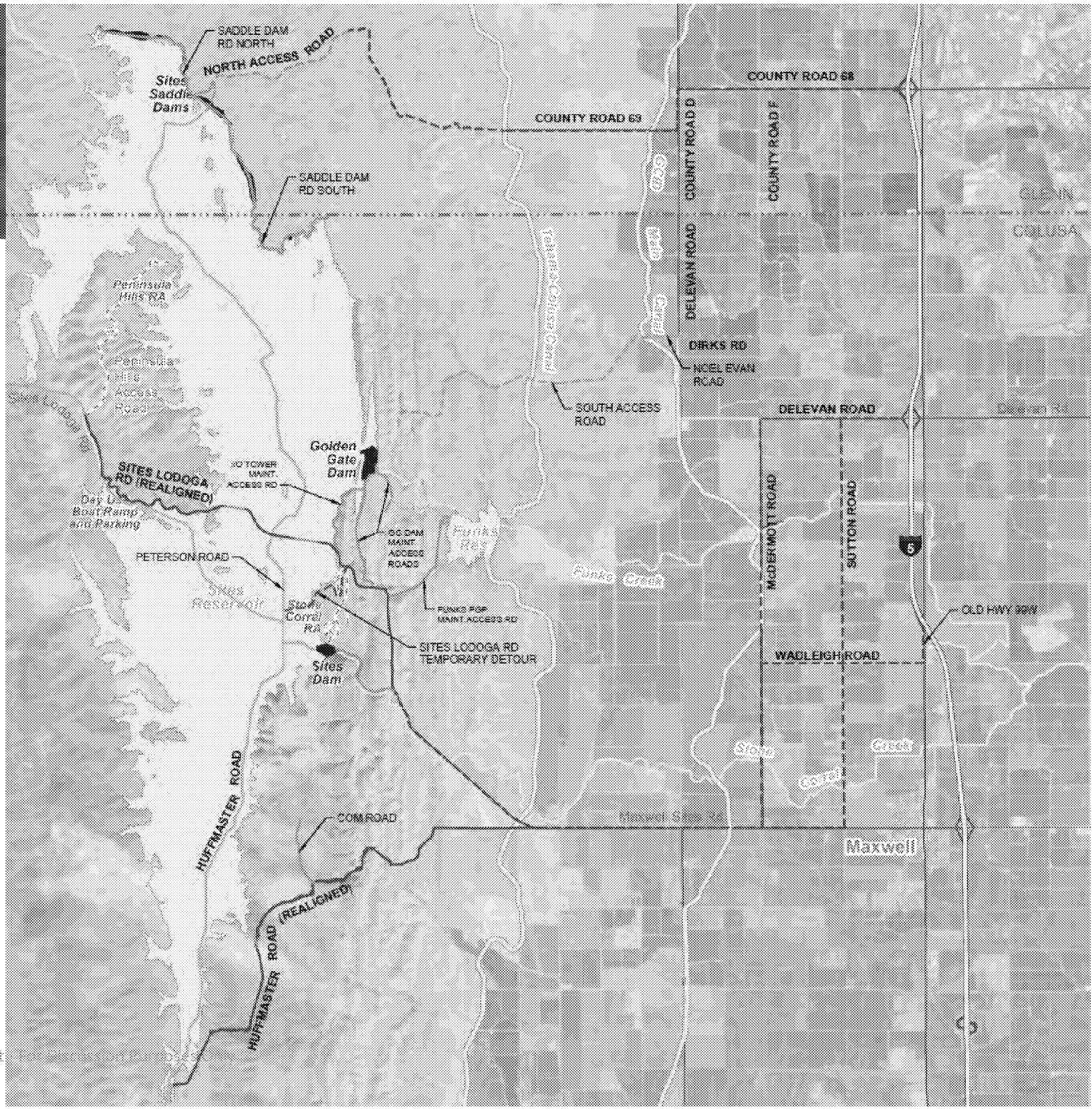
- Minimize trips
- Appropriate routes for off-site deliveries
- Construction AADT:
  - ~ 30 to 35 Trucks/hour each way per day (6,000 to 7,000 tons)



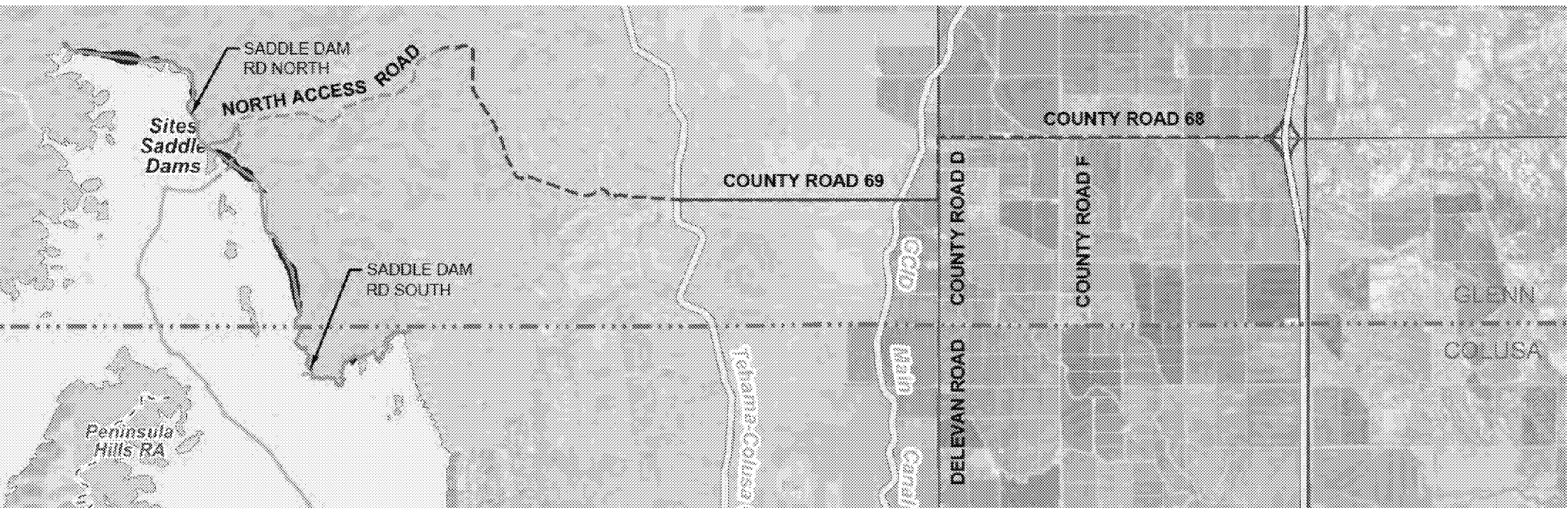
Summary of Truck Traffic

	Year 1-5	Year 6-10	10-40 Years
Description of activities	Dam construction. Primarily, vehicles on the roads will be haul trucks. Use of small trucks will be minimal with occasional large double trailer trucks traveling to each site.	Construction ends and startup begins. More small trucks than haul trucks, although some hauling may occur as construction timelines change and worksites shut down.	Very minimal haul trucks/large trucks traveling the roads. Primarily small trucks using roads.
Southern Access AADTT Values			
2-axle	150 Assumed 50 small trucks per job site for workers/etc.	150 Assumed 50 small trucks per job site.	150 Assumed 50 small trucks per job site
3-axle	15 ^same as reasoning above	30 Assumed 10 vehicles per job site.	30 Assumed 10 small trucks per job site
4-axle	155 Total loads per day for southern access	15 Assumed 10 trucks per job site	9 Assumed 3 trucks per job site.
5-axle	3 1 large truck per job site	1 One large truck per day	0 No large trucks
Northern Access AADTT Values			
2-axle	80 Assumed 8 small truck per job site for workers/etc.	80 Assumed 8 small trucks per job site	80 Assumed 8 small trucks per job site
3-axle	10 ^same as reasoning above	20 ^same as reasoning above	20 Assumed 2 trucks per job site because saddle dams/dikes likely not accessed often by this vehicle type
4-axle	72 Total loads per day for northern access	10 Assumed 1 truck per job site	5 Assumed 1 truck per every other job site.
5-axle	2 1 large truck services dikes and one for saddle dams	1 One large truck per day	0 No large trucks

Roadway Overview Map

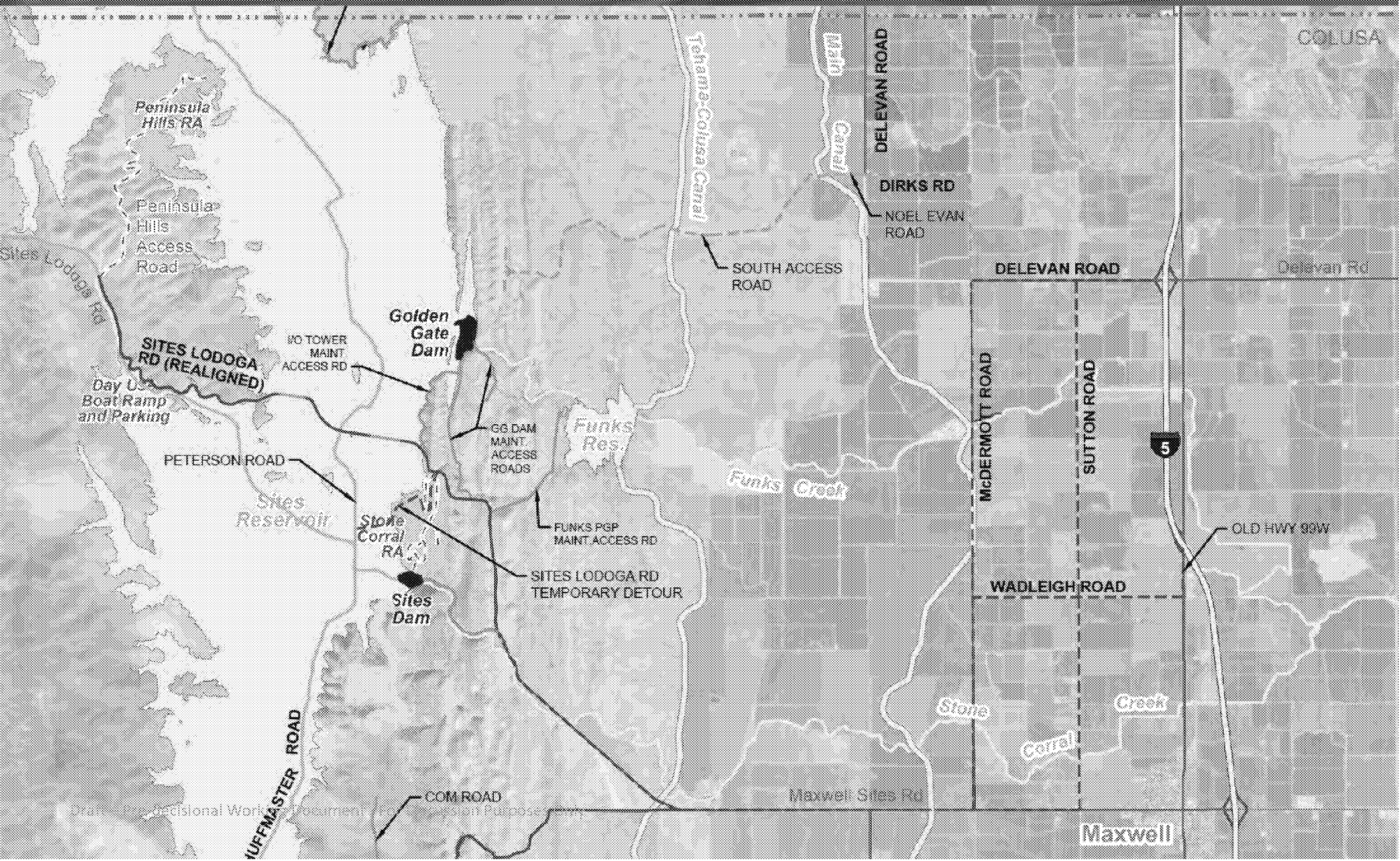


Northerly Construction Access Route



Not included in today's presentation

Southerly Construction Access Route Options



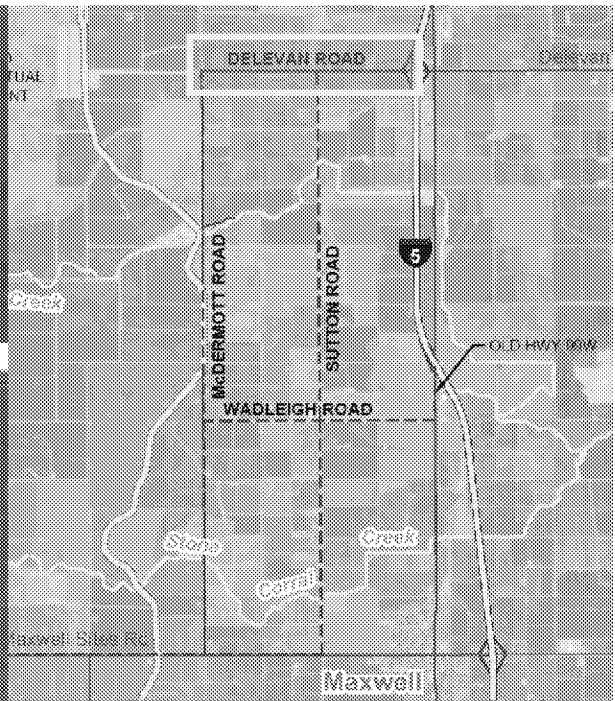
2

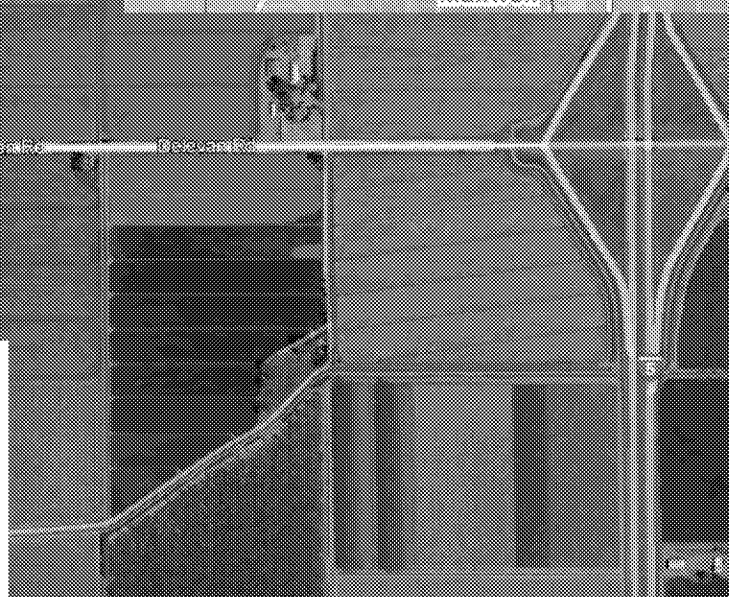
Valley Floor County Roads

Howard Michael

Sites

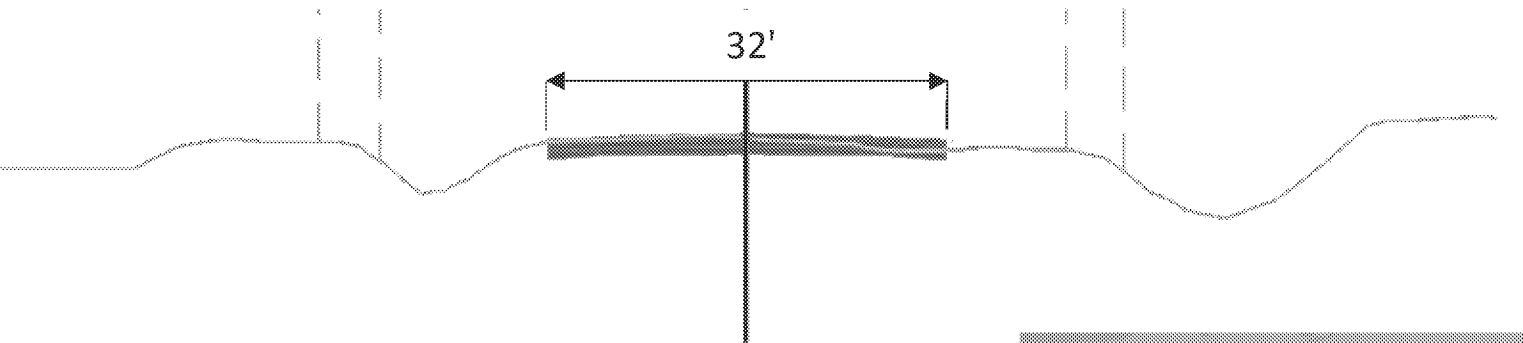
Delevan Road Alignment





- Functional Classification – Local Collector (Rural)
- Design Speed – 55 mph
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2% to 5% (maintain existing)
- Side Slopes – 2:1 to 4:1 (non-recoverable, non-traversable)
- Clear Recovery Zone – 14 ft from ETW
- Vertical Grades – Maintain existing

Delevan Road Typical Cross Section



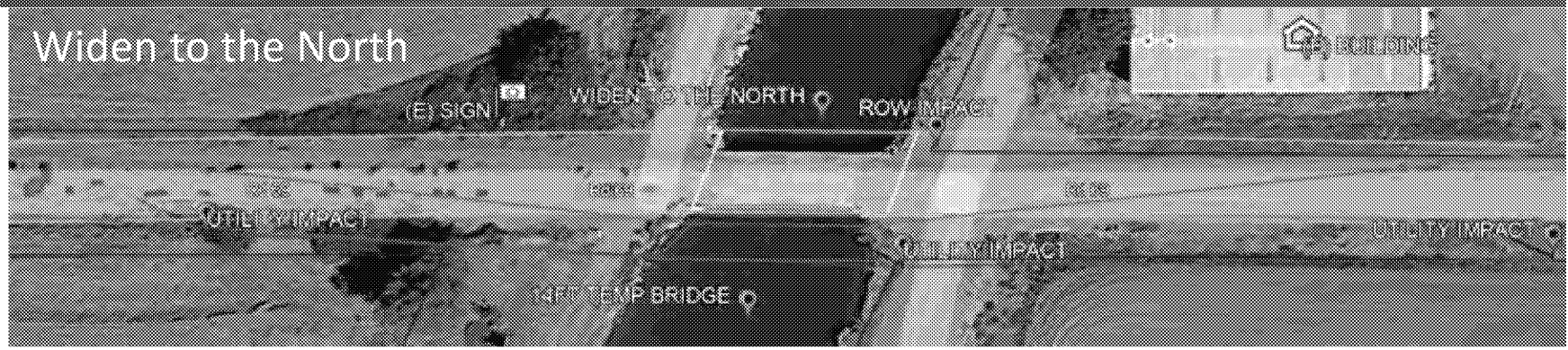
- Existing Road = 24 ft, no shoulders
- Existing OH Utility Poles to the north

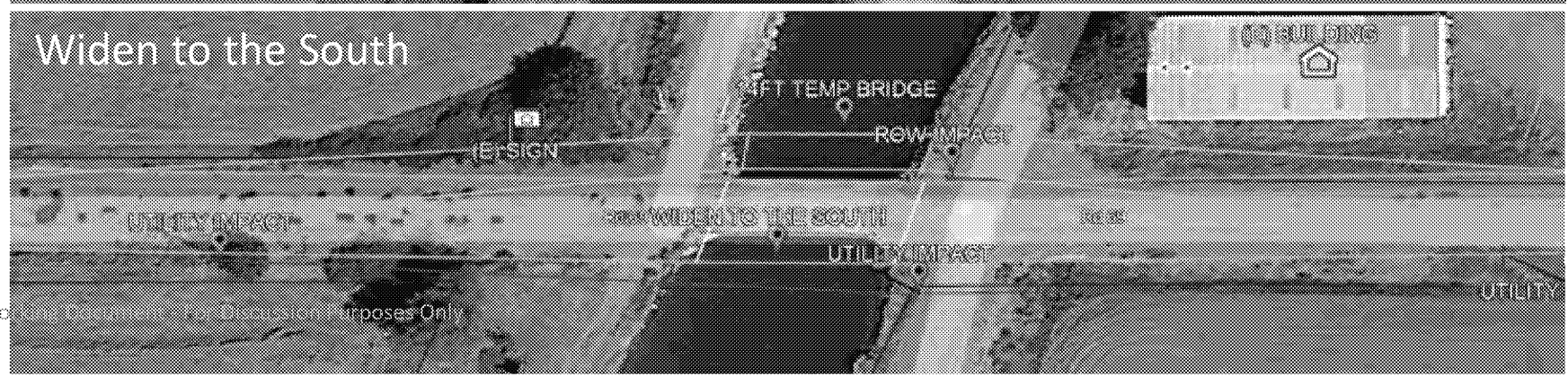
- 40 yr Total Design Life = 8 yr Construction + 32 yrs
- Calculated TI = 9
- Widen roadbed for shoulders

Existing Delevan Road Looking East

Existing Bridges

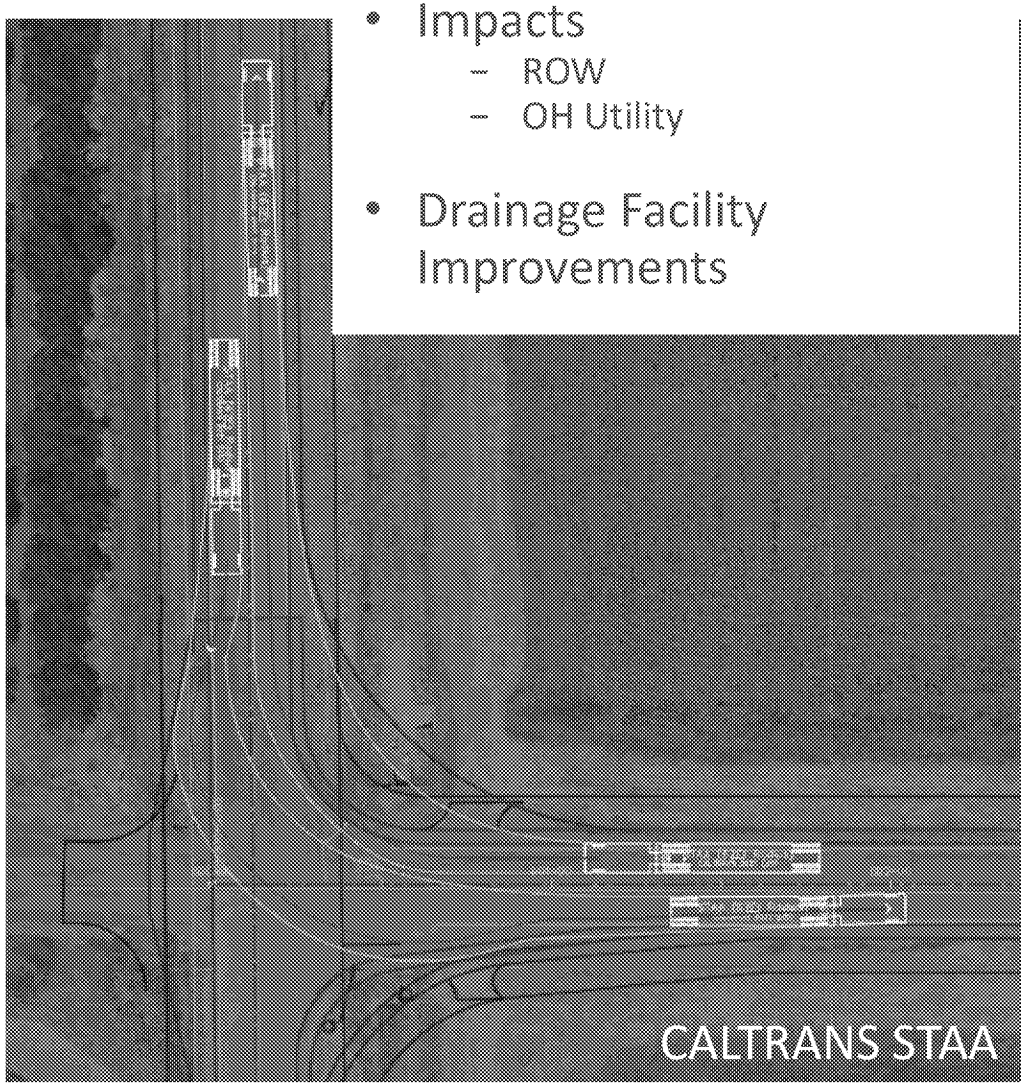
- Perform Load Ratings
  - Widen Exist
  - Replace
- Impacts
  - ROW
  - OH Utility
  - Building
- Temp Bridge Cost
  - Rent
  - Purchase





Intersection Improvements

- Accommodate Two-way Truck Turning/Off-Tracking
- Permit trucks occupy complete intersection
  - Pilot vehicle
  - Infrequent access
- Impacts
  - ROW
  - OH Utility
- Drainage Facility Improvements

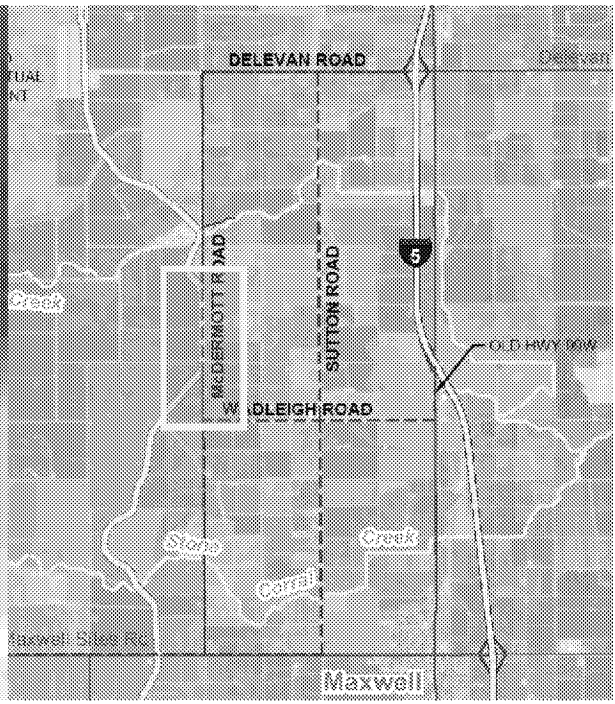


Evaluation of McDermott Road

Howard Michael

Sites

McDermott Road



- Exist 30/35 mph curves
- Sub-standard sight distance
- Exist Width ~10 ft
- OH Utility pole conflict
- Property and Canal constraints

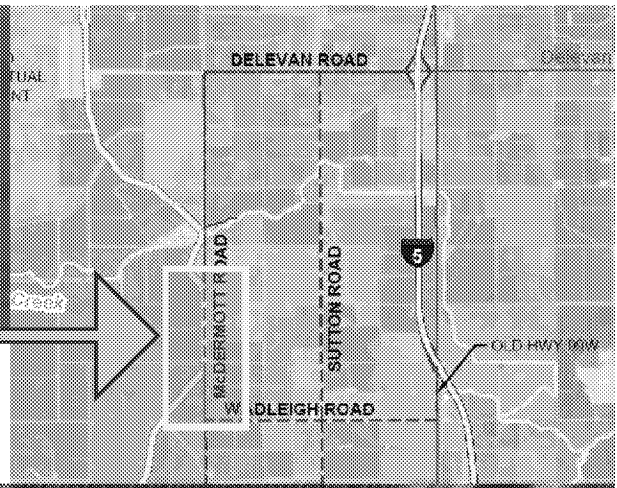
Existing McDermott Road
Looking South

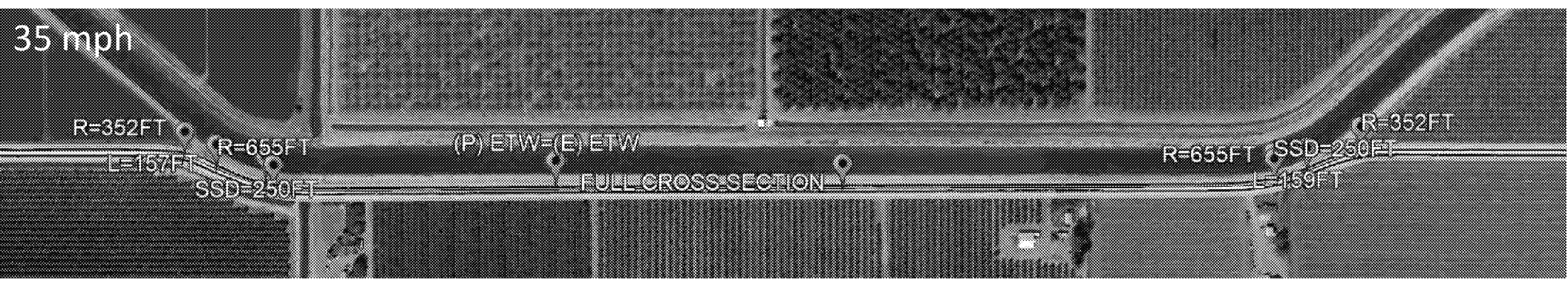
McDermott Road

- Exist 30/35 mph curves
- Sub-standard sight distance
- Exist Width ~10 ft
- OH Utility pole conflict
- Property and Canal constraints

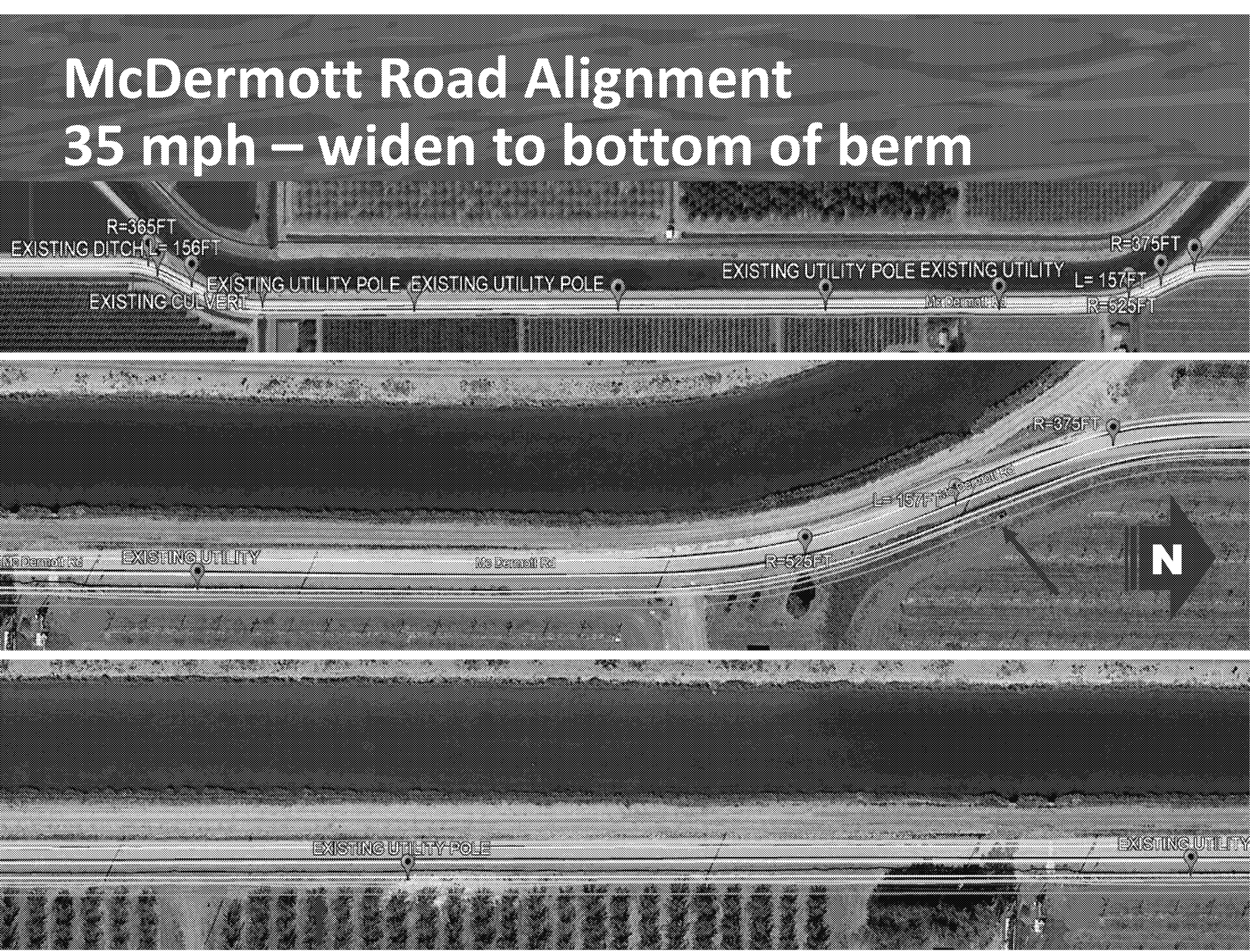
Existing McDermott Road Looking South

McDermott Road Alignment Options





McDermott Road Alignment
35 mph – widen to bottom of berm



McDermott Road Alignment
35 mph – maintain EP near berm

Draft_0025140

McDermott Road Alignment
55 mph – maintain EP near berm

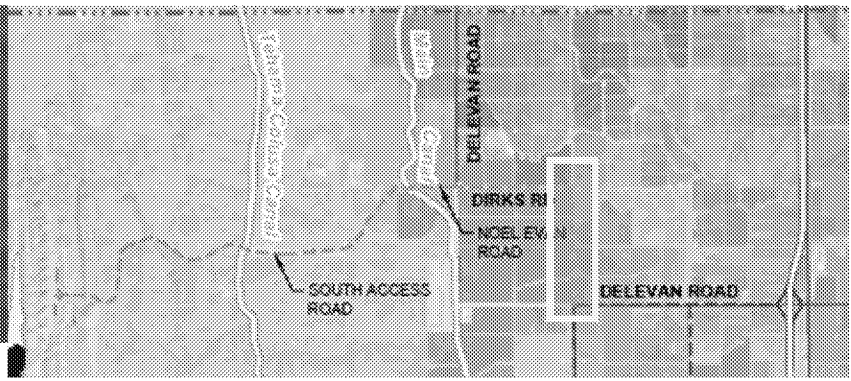
Draft_0025141

Alternate Southerly Access: McDermott Road

Howard Michael

Sites

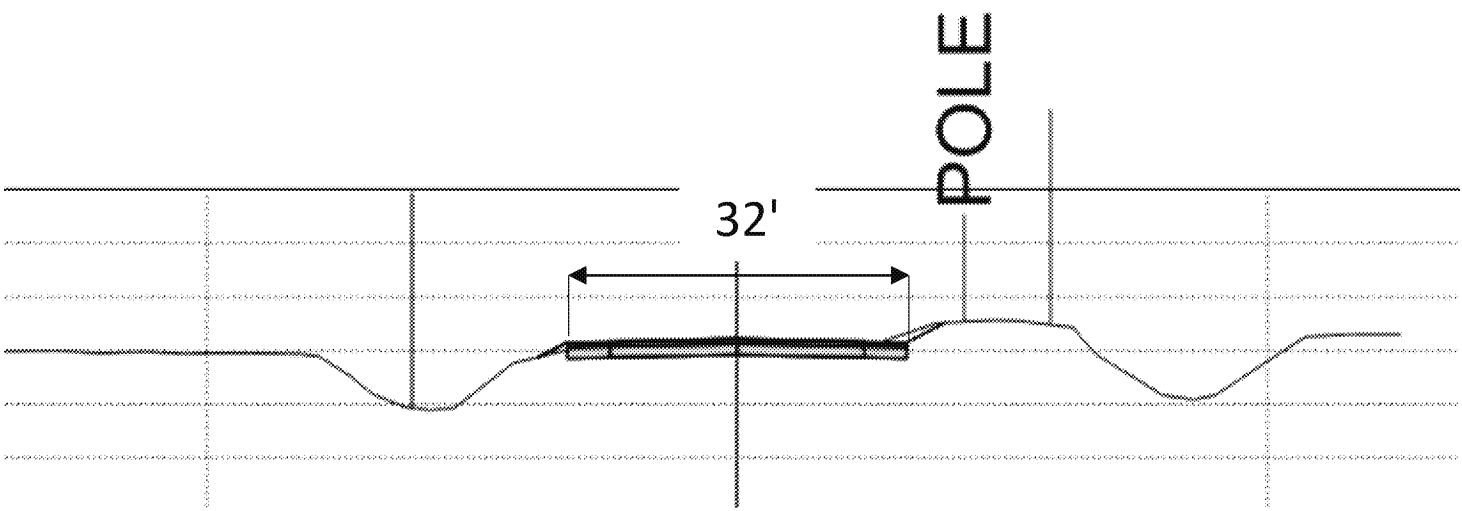
McDermott Rd Alignment Between Delevan Rd & Dirks Rd

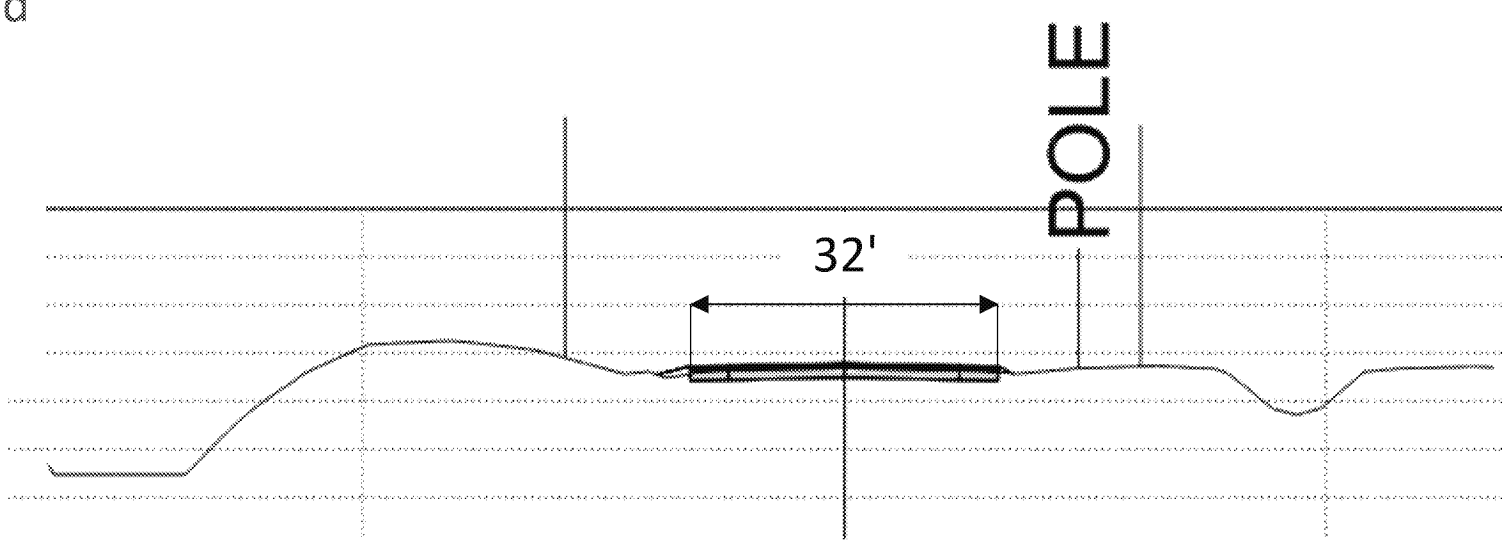


- Functional Classification – Local Collector (Rural)
- Design Speed – 55 mph
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2% to 5%
- Side Slopes – 2:1 to 4:1 (non-recoverable, non-traversable)
- Clear Recovery Zone – 14 ft from ETW
- Vertical Grades – Maintain Existing

McDermott Rd Typical Cross Sections Between Delevan Rd & Dirks Rd

- 40 yr Total Design Life = 8 yr Construction + 32 yrs
- Calculated TI = 9
- Widen roadbed for shoulders
- North of the existing bridge - ~700 ft proposed EP is 3.5+ ft clear of power poles



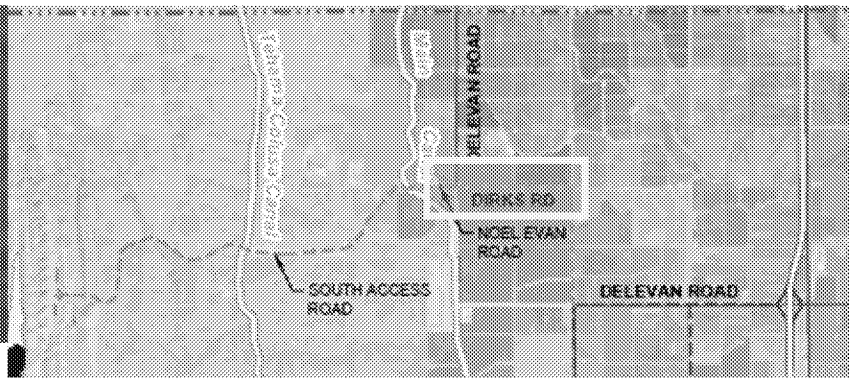


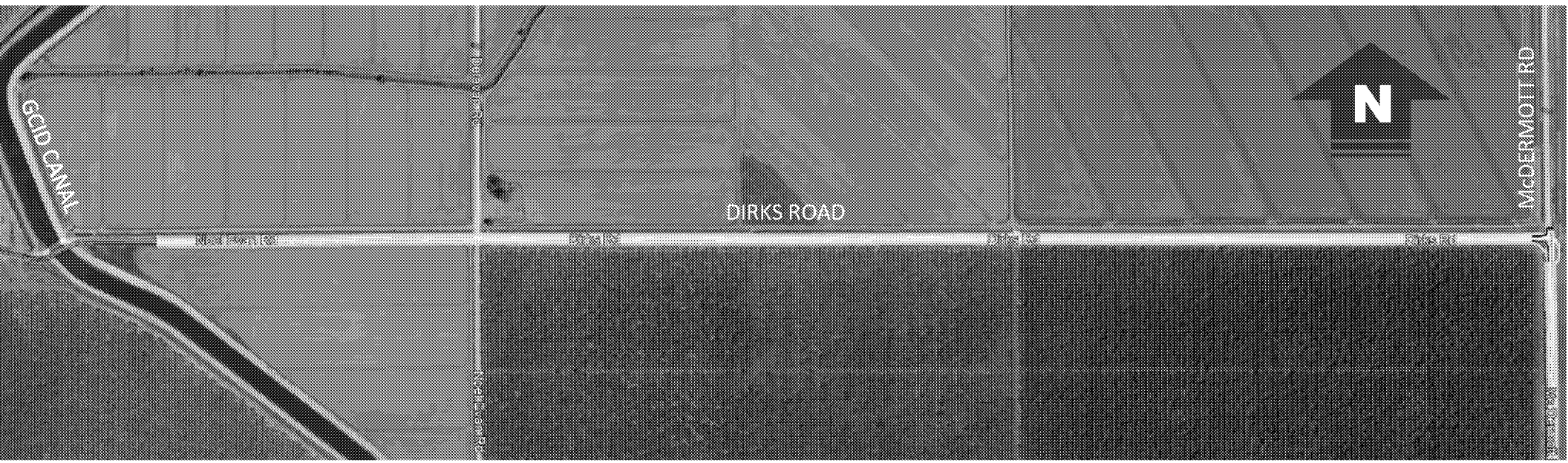
Alternate Southerly Access: Dirks Road Extension

Howard Michael

Sites

Dirks Road Alignment

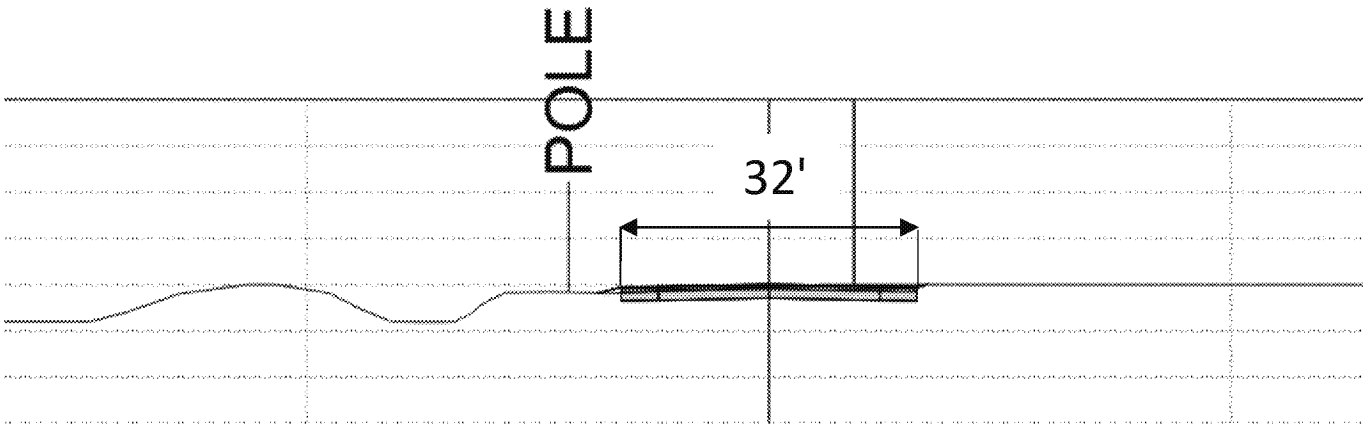


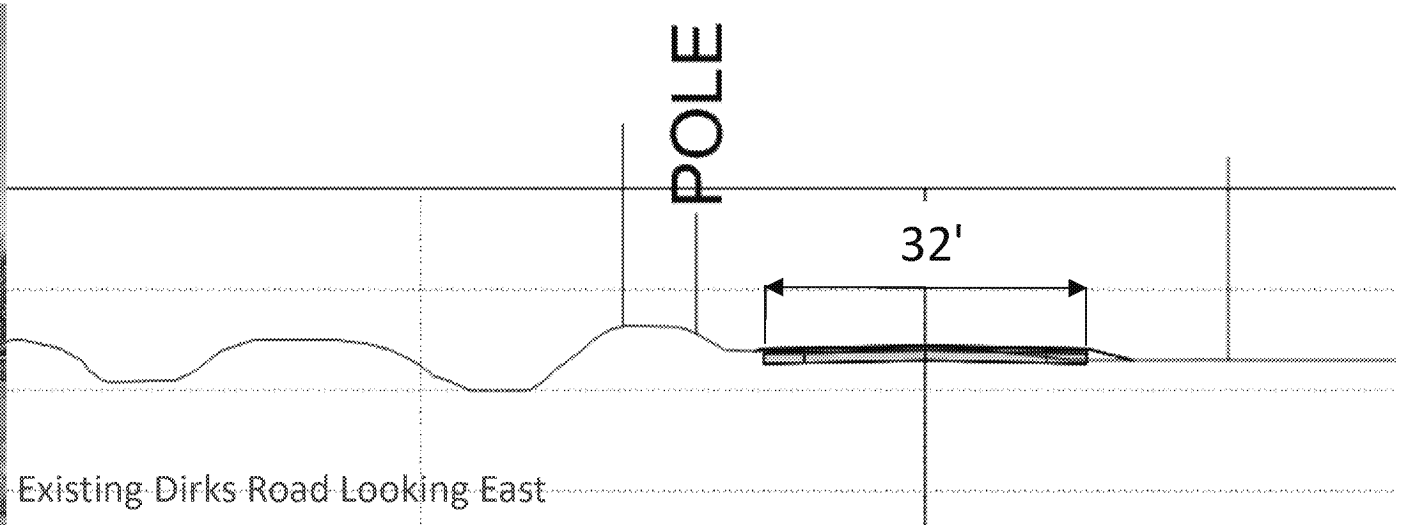


- Functional Classification – Local Collector (Rural)
- Design Speed – 55 mph
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2% to 5%
- Side Slopes – 2:1 to 4:1 (non-recoverable, non-traversable)
- Clear Recovery Zone – 14 ft from ETW
- Vertical Grades – Maintain Existing

Dirks Road Typical Cross Sections

- 40 yr Total Design Life =
  8 yr Construction + 32 yrs
- Calculated TI = 9
- Widen pavement for shoulders



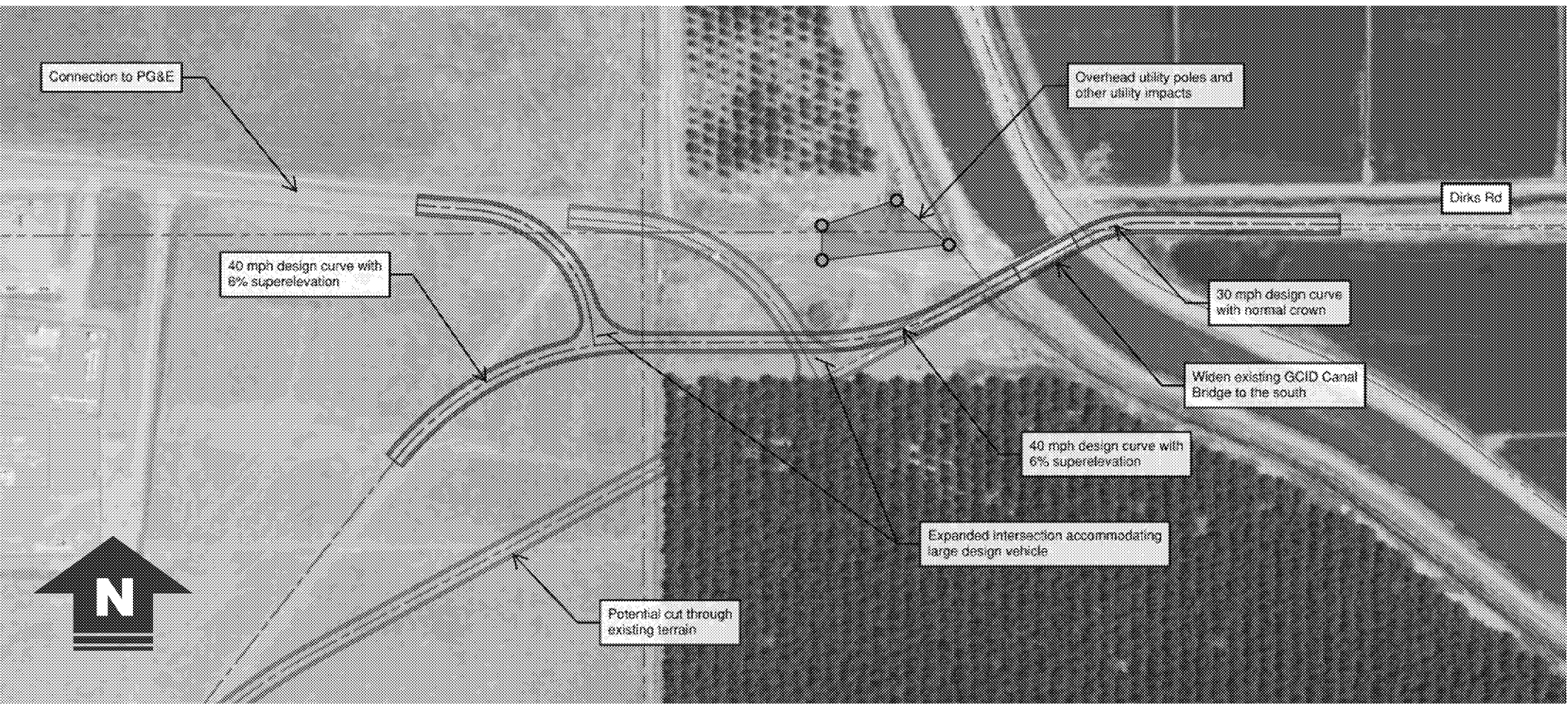


Existing Dirks Road Looking East

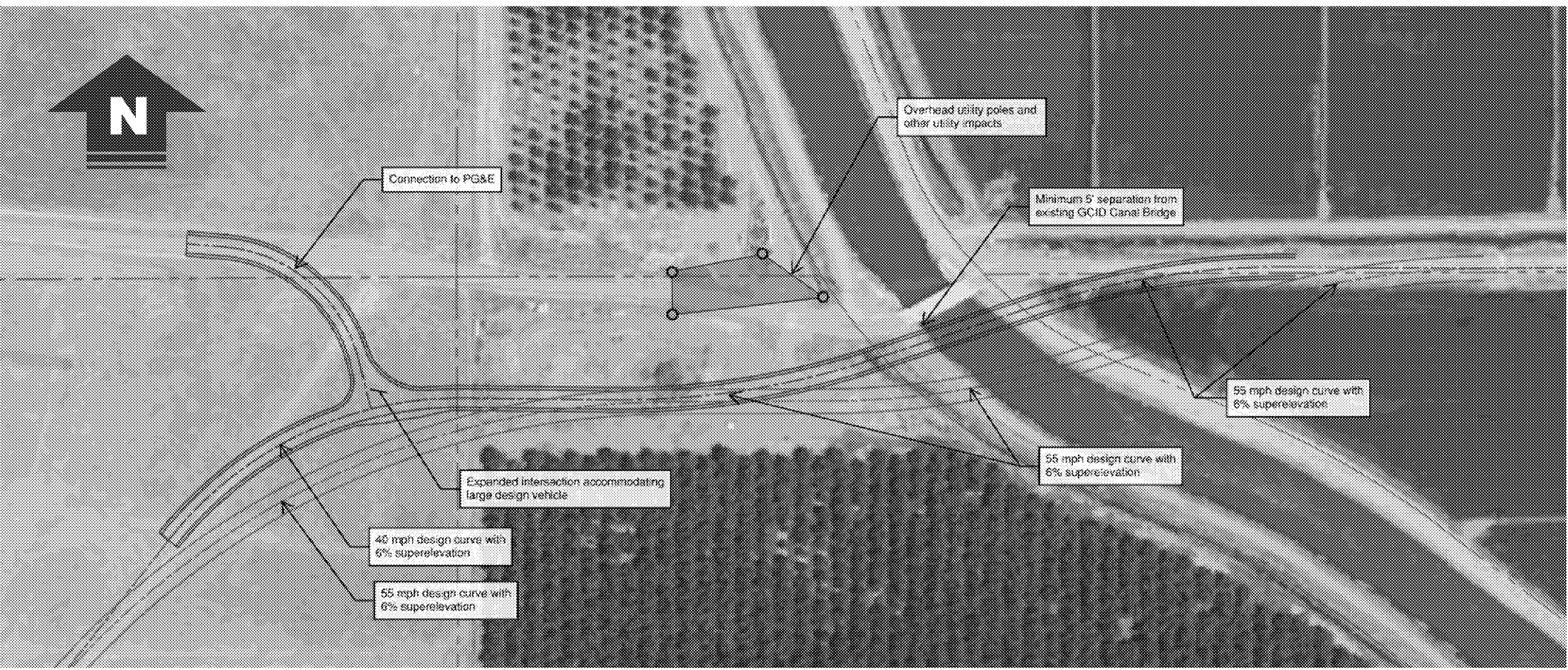
Dirks Road Exist GCID Bridge

- Perform Load Ratings
  - Widen Exist
  - Replace
- Impacts
  - ROW
  - OH Utility
  - Building
- Temp Bridge Cost
  - Rent
  - Purchase

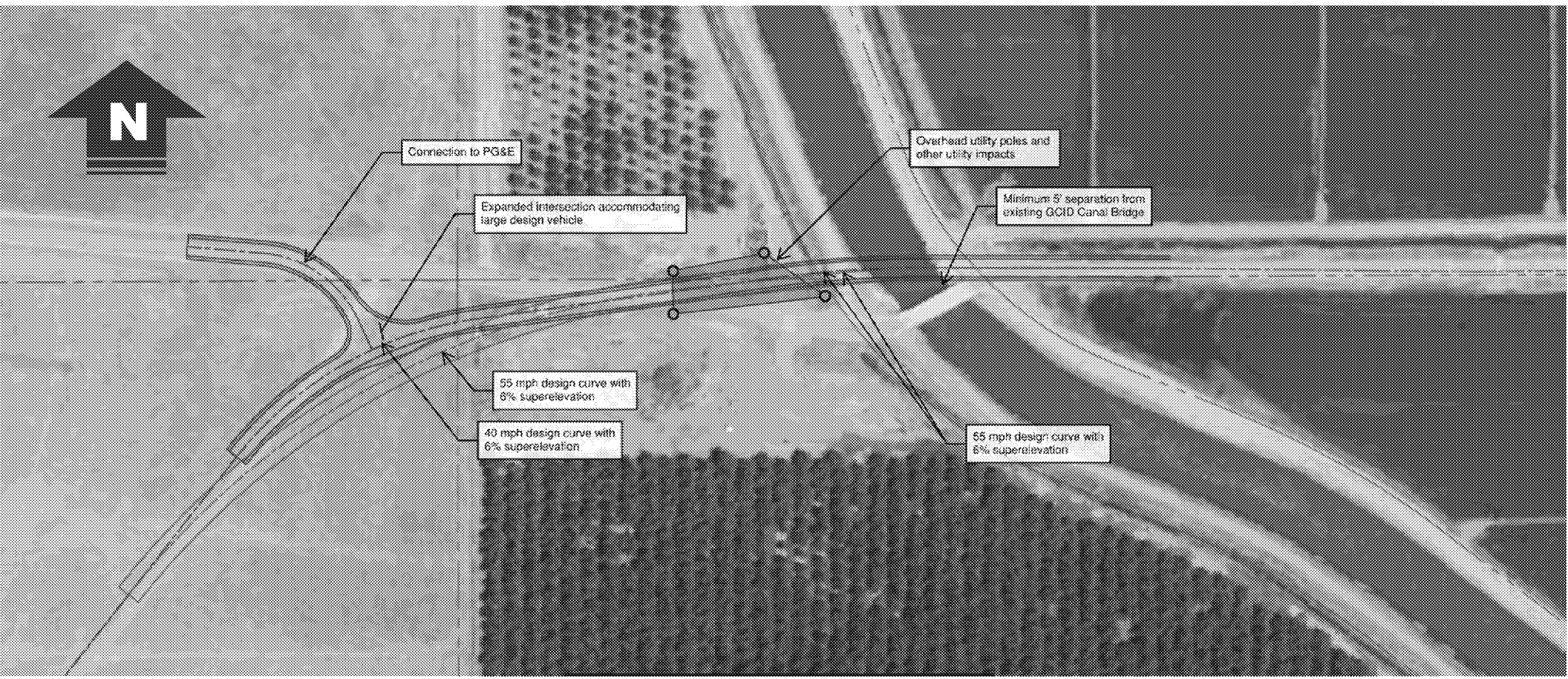
Dirks Road GCID Bridge
Alt 1: Bridge Widen to South



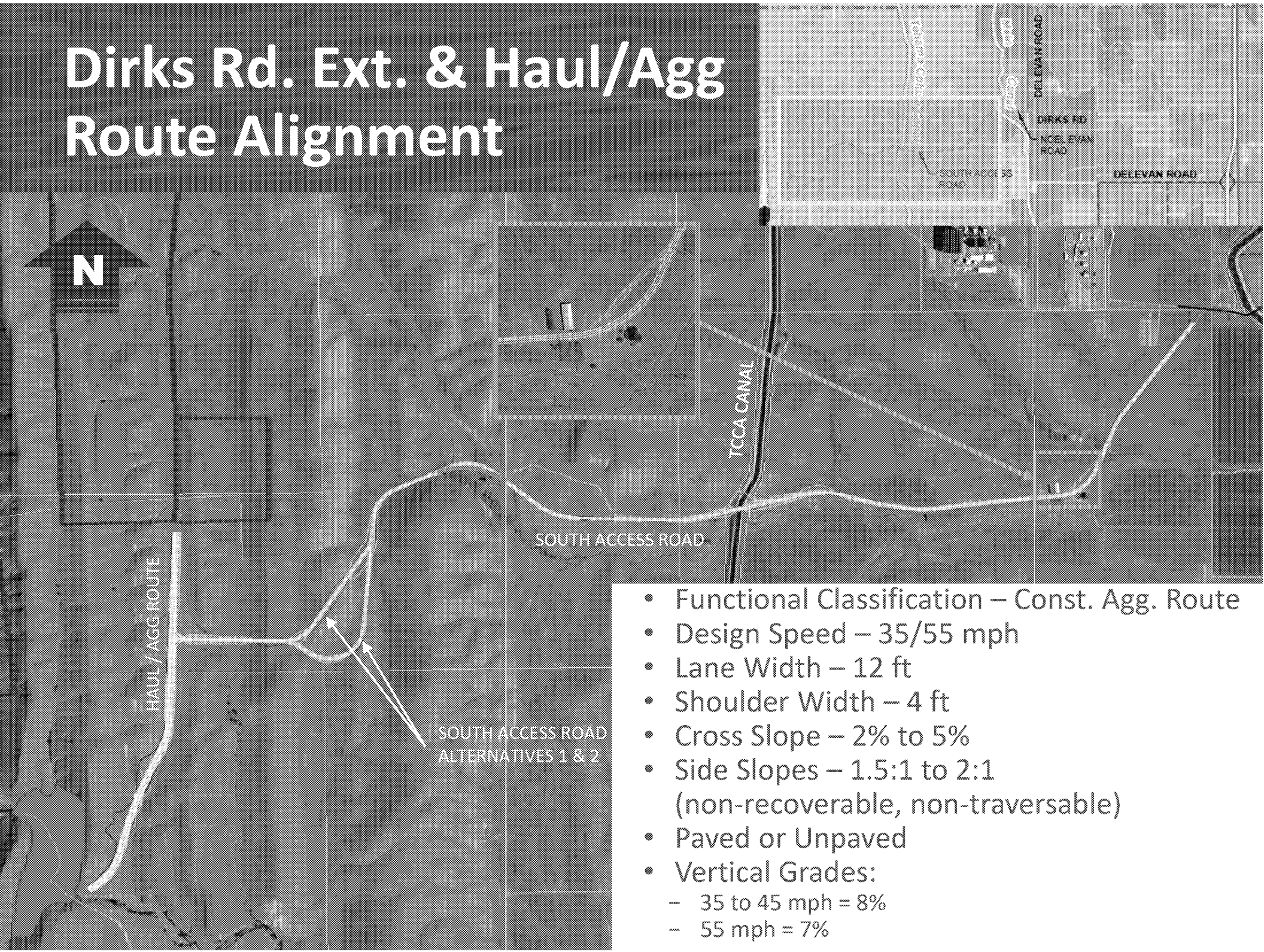
Dirks Road GCID Bridge
Alt 2: 55 mph – 6% Superelevation



Dirks Road GCID Bridge
Alt 3: Through Existing Poles
55 mph – 6% Superelevation



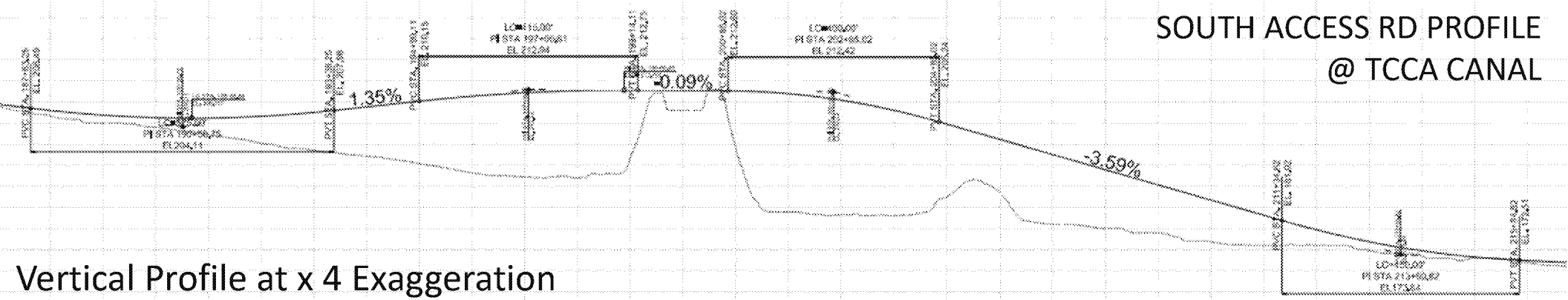
Dirks Rd. Ext. & Haul/Agg Route Alignment



- Functional Classification – Const. Agg. Route
- Design Speed – 35/55 mph
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2% to 5%
- Side Slopes – 1.5:1 to 2:1 (non-recoverable, non-traversable)
- Paved or Unpaved
- Vertical Grades:
  - 35 to 45 mph = 8%
  - 55 mph = 7%

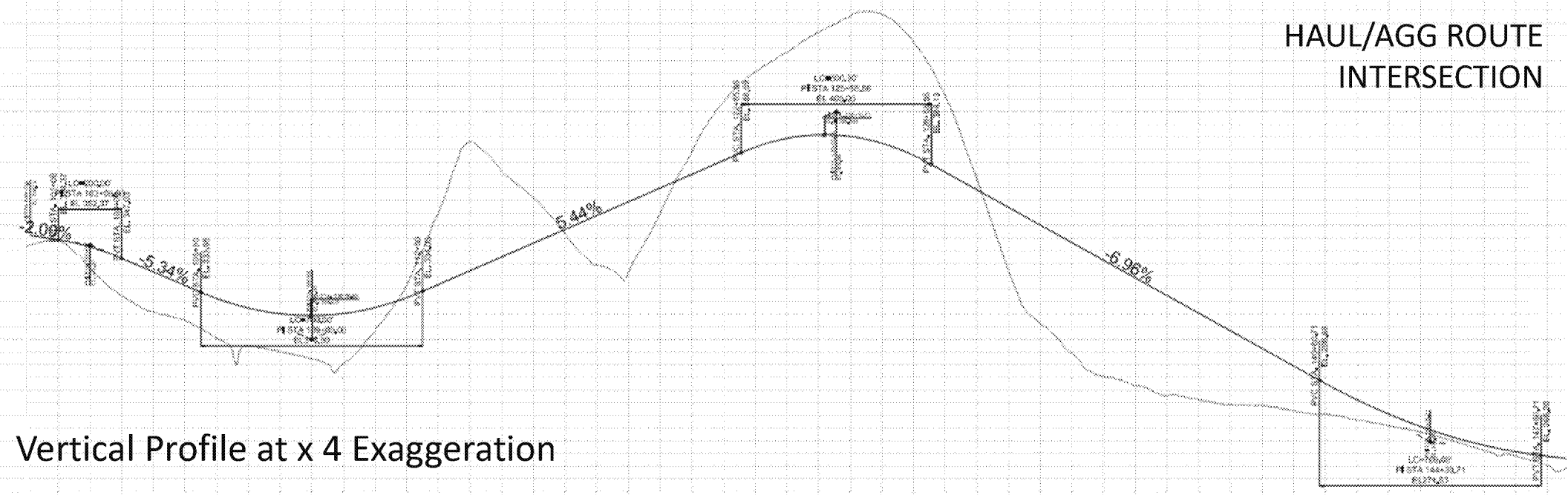
Dirks Rd. Ext. & Haul/Agg Route Alignment

SOUTH ACCESS RD PROFILE
@ TCCA CANAL



Vertical Profile at x 4 Exaggeration

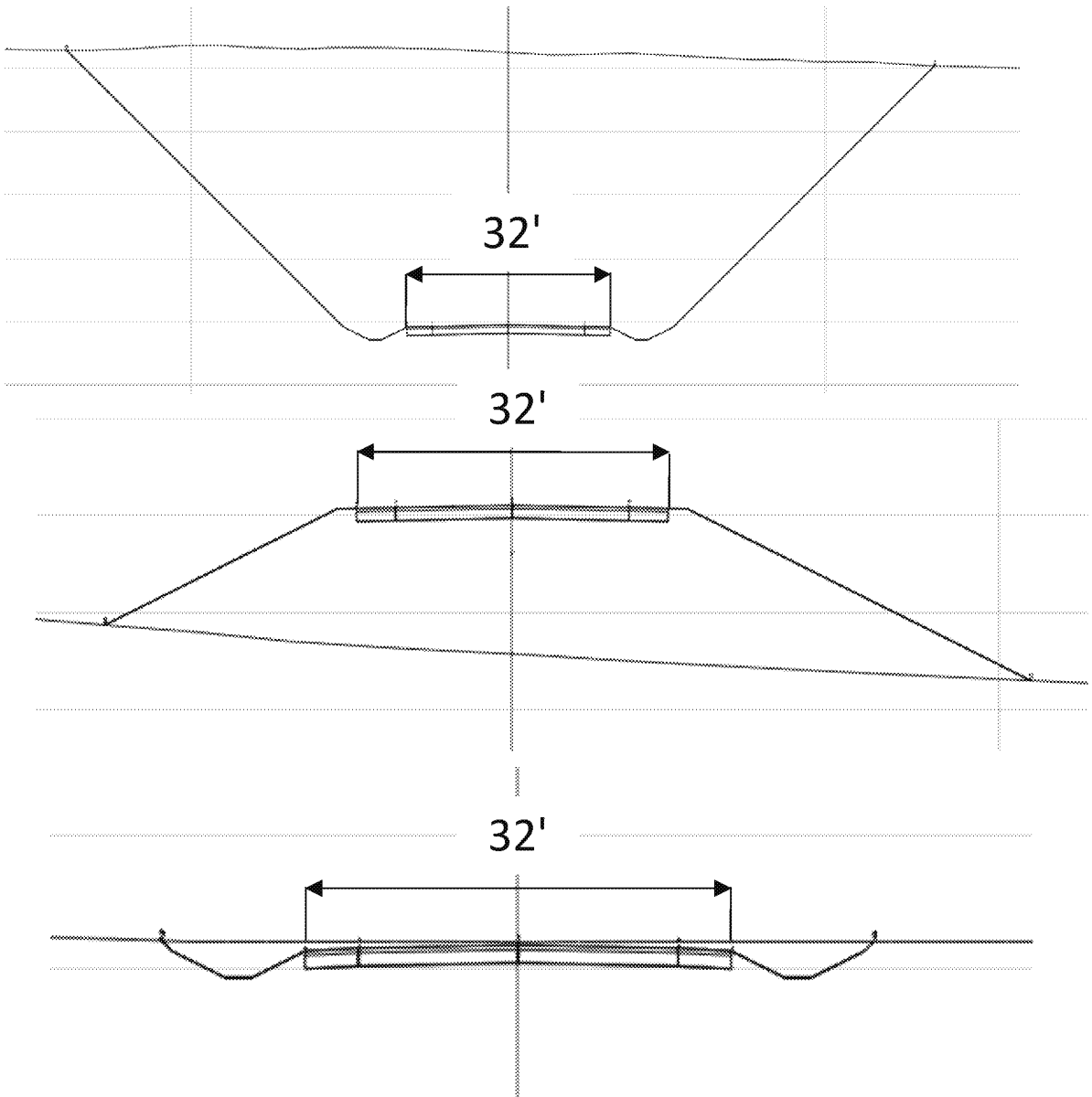
HAUL/AGG ROUTE
INTERSECTION



Vertical Profile at x 4 Exaggeration

Dirks Rd. Ext. & Haul/Agg Route Alignment

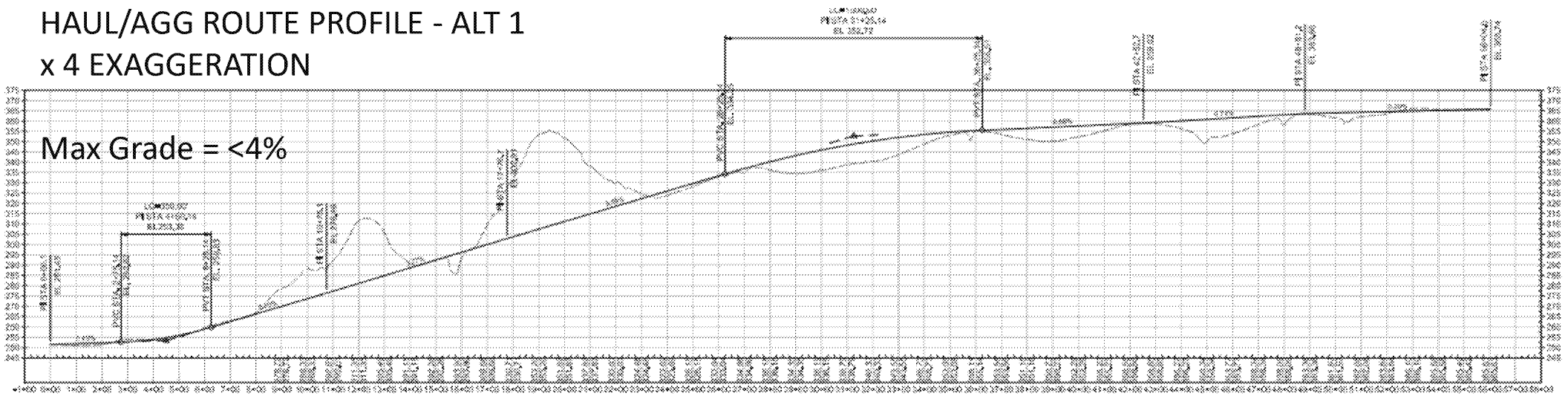
- 40 yr Total Design Life =
  8 yr Construction + 32 yrs
- Calculated TI = 9
- Paved or Gravel



Haul/Agg Route Profile

HAUL/AGG ROUTE PROFILE - ALT 1
x 4 EXAGGERATION

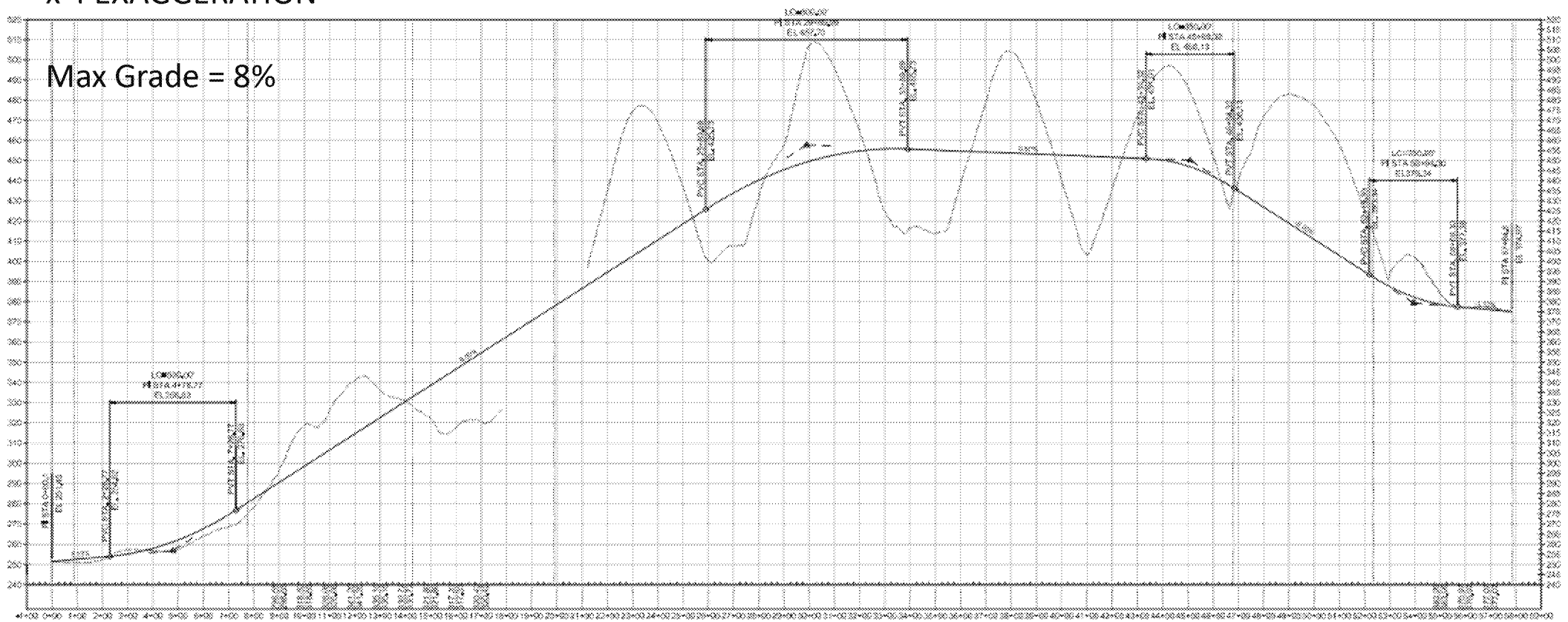
Max Grade = <4%



Haul/Agg Route Profile

HAUL/AGG ROUTE PROFILE - ALT 2
x 4 EXAGGERATION

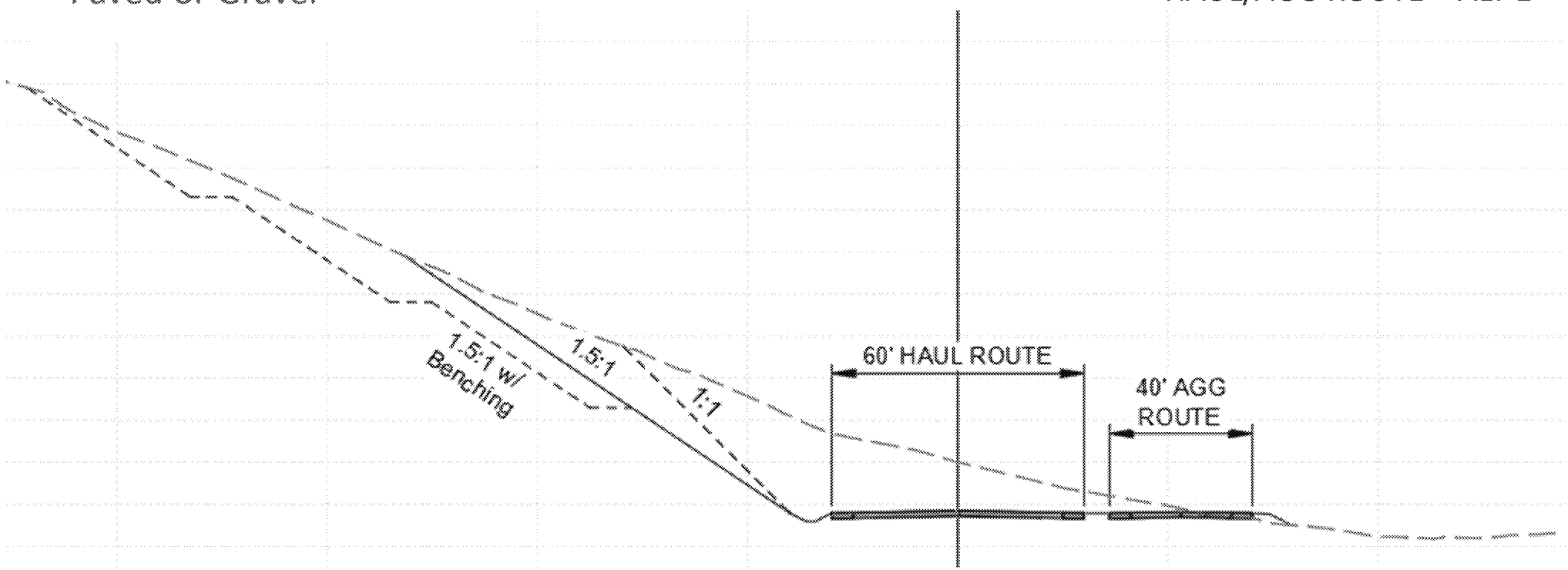
Max Grade = 8%



Haul/Agg Route
Typical Cross Sections

- 40 yr Total Design Life =
  8 yr Construction + 32 yrs
- Calculated TI = 9
- Paved or Gravel

HAUL/AGG ROUTE – ALT 1



Haul/Agg Route
Typical Cross Sections

- 40 yr Total Design Life =
  8 yr Construction + 32 yrs
- Calculated TI = 9
- Paved or Gravel

HAUL/AGG ROUTE - ALT 2

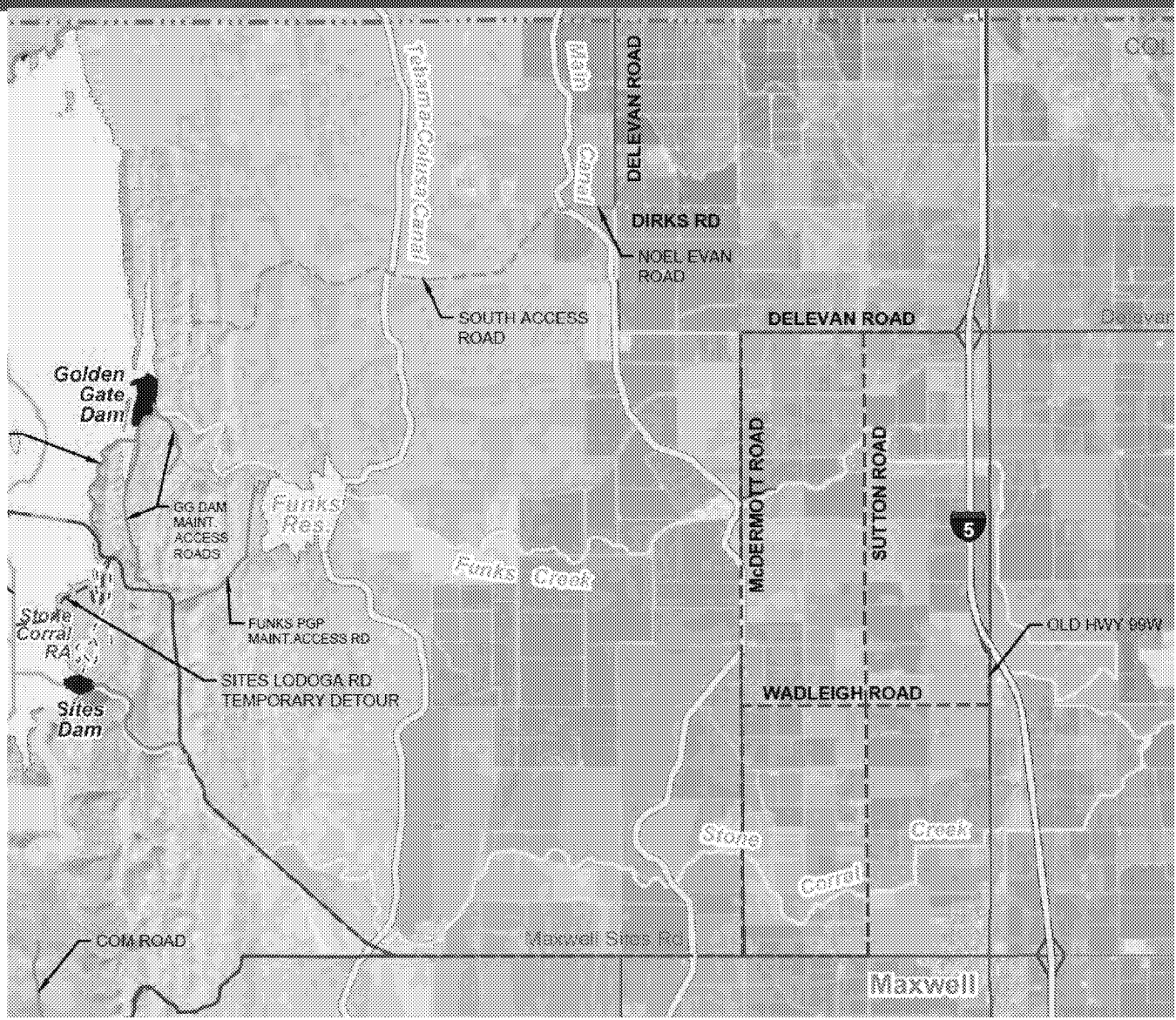
Dirks Rd Extension Alternate Southerly Access vs. McDermott/Maxwell-Sites Southerly Access

DIRKS vs. McDERMOTT

- Access Efficiency
- Property Impacts
- Safety
  - Construction + Agg Equip Traffic
  - Construction + Local traffic
- Community Impact
- Utility Impacts

DIRKS 35 mph vs. 55 mph

- Travel Time/Cost vs. Cost to Construct
  - 2 min/trip = 34,000 hrs



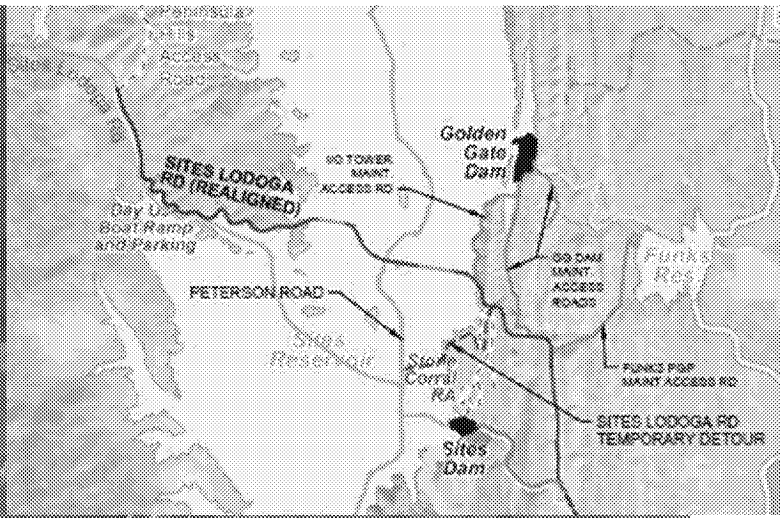
3

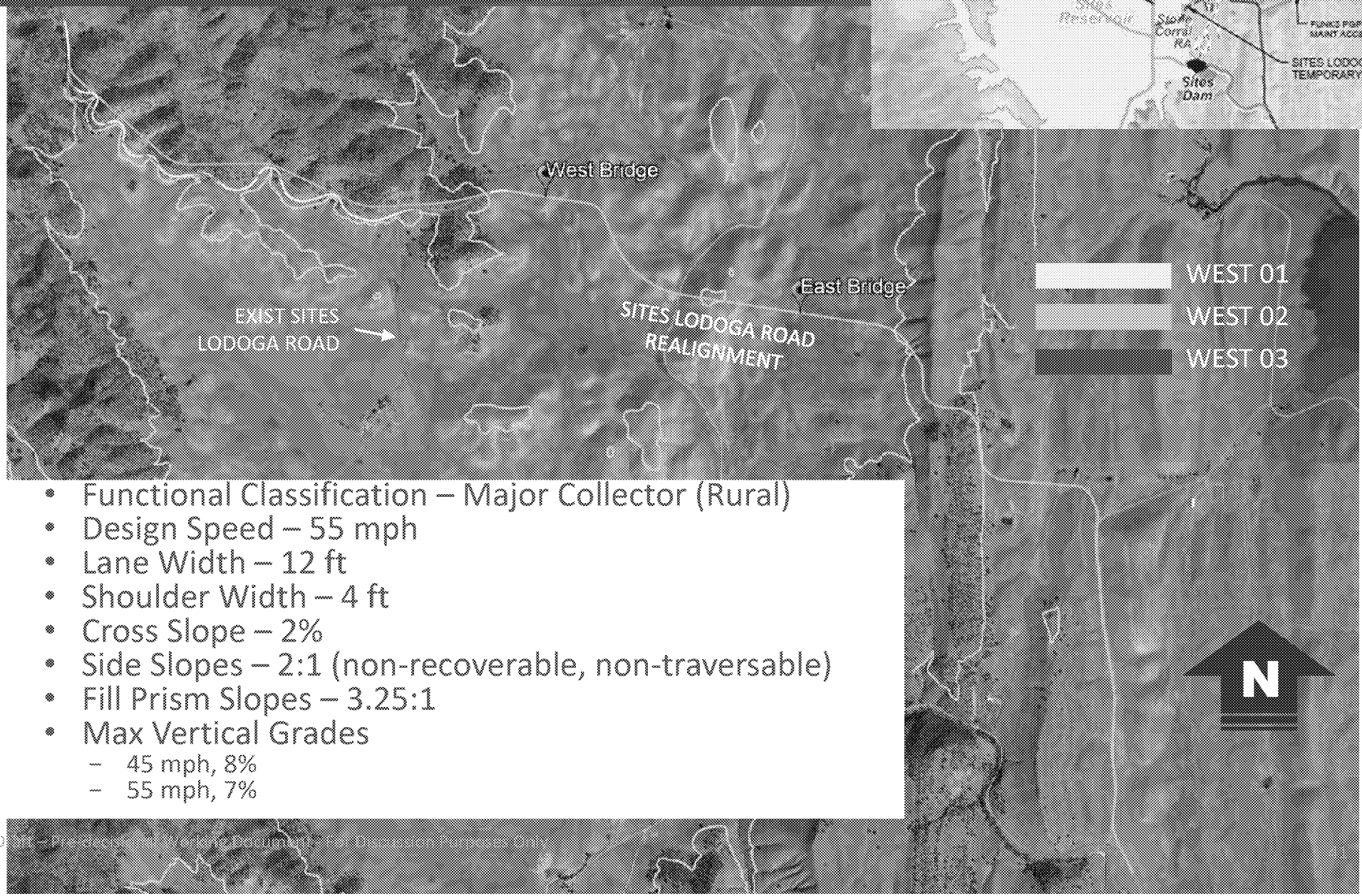
Sites Lodoga Road Realignment

Howard Michael

Sites

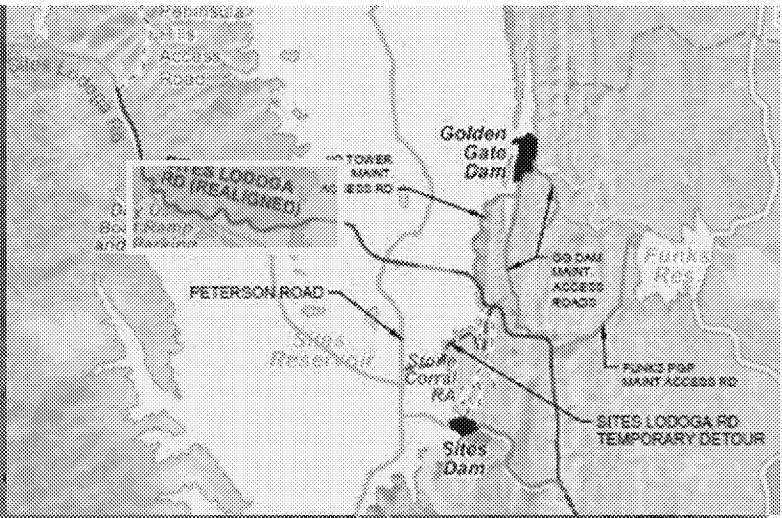
Sites Lodoga Road Realignment





- Functional Classification – Major Collector (Rural)
- Design Speed – 55 mph
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2%
- Side Slopes – 2:1 (non-recoverable, non-traversable)
- Fill Prism Slopes – 3.25:1
- Max Vertical Grades
  - 45 mph, 8%
  - 55 mph, 7%

Sites Lodoga Road Alignment West Portion



CL ALIGN
FILL
CUT

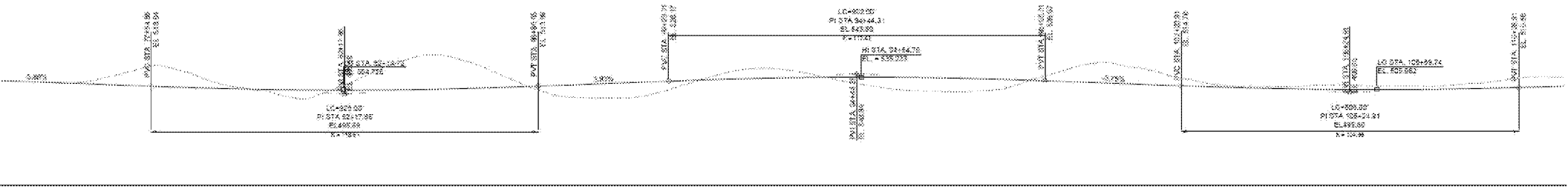
H: 45 mph, R=715'
H: 45 mph, R=715'
H: 45 mph, R=715'
H: 45 mph, R=715'
H: 45 mph, R=715'
H: 45 mph, R=715'
H: <40 mph, R=400'
H: 45 mph, R=715'
H: <40 mph, R=400'
H: 45 mph, R=715'
H: <45 mph, R=600'
H: 45 mph, R=715'

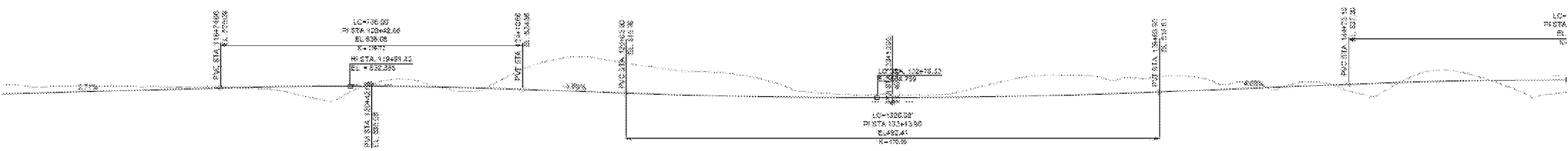
EXIST SITES LODOGA RD

N

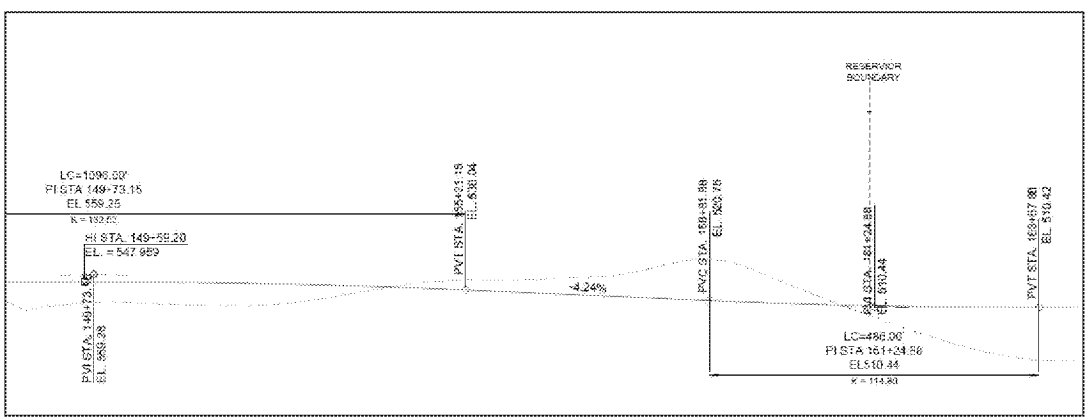
- Mostly 45 mph Alignment
- Horiz. governs for operating speed
- Vert. grades ≤ 5%, meets or exceeds standard sight distance

Sites Lodoga Road Profile West Portion





- Profiles at 1:1 (No Exaggeration)
- Max Grades ≤ 5%



Sites Lodoga Road Realignment Wildlife Crossing

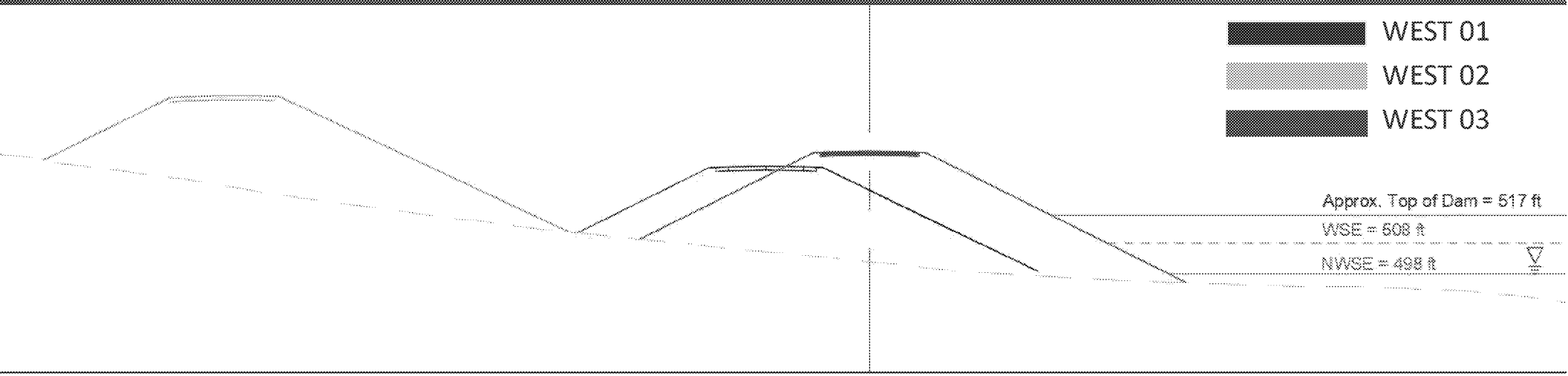
Wildlife Crossing General Guidance (from meeting 2023-05-03)

- 3’ to 5’ dia. approx. every half mile
- 10’ x 10’ bottomless culvert every 1 to 1.5 miles

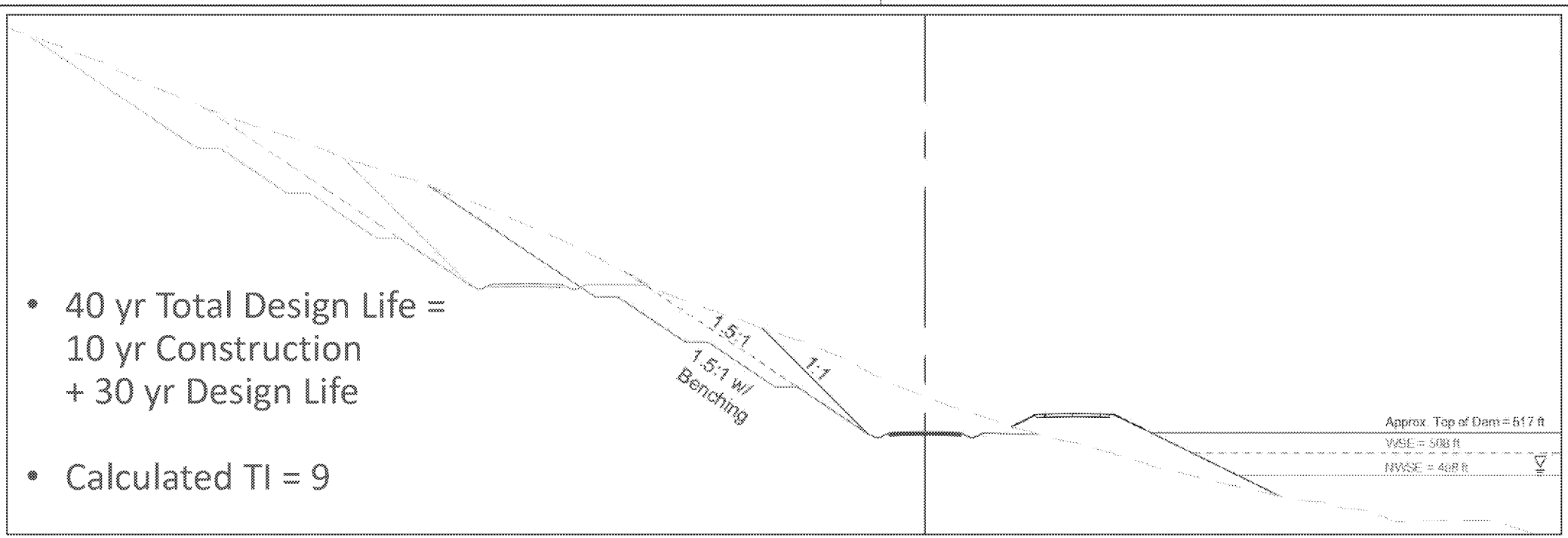
Sites Lodoga Road Realignment
Wildlife Crossing General Guidance

Wildlife Crossing Guild	Representative/Umbrella Species	Wildlife Crossing Siting[1]	Target Spacing[2] (Miles)	Maximum Length[3] (Feet)	Minimum Width[3] (Feet)	Minimum Height[3] (Feet)
Conditions Specialist	Western Spadefoot (Spea hammondii)	Adjacent to aquatic pools and along migratory/dispersal pathways within grasslands and some woodlands May require specialized amphibian crossings where larger multi-species crossings are not proposed	TBD	TBD	3	3
Cover Obligate (terrestrial)	Gopher snake (Pituophis catenifer)	All habitats	0.5	260	3	3
Cover Obligate (aerial)	Wrentit (Chamaea fasciata)	Uplands, shrublands	0.5	260	10	15
Semi-Aquatic Obligate	California Red-legged frog (Rana draytonii)	Aquatic and riparian crossings	0.5	260	Fully span channel and banks	3-4 freeboard
Semi-Aquatic Obligate (aerial)	Yellow warbler (Setophaga petechia)	Aquatic and riparian crossings	0.5	260	Fully span channel and banks	15
Medium-Structure Generalist	Bobcat (Lynx rufus)	Upland and riparian/aquatic habitats	0.5	260	5	5
Large-Structure Generalist	Mule deer (Odocoileus hemionus)	Upland and riparian/aquatic habitats	1	260	20	15
Openness Obligate	Tule Elk (Cervus canadensis nannodes)	Uplands (overpass) and riparian/aquatic habitats (viaduct/large underpass) In most cases species requires overpass structure. Viaducts or large bridges may be applicable in some cases	1	Not Applicable	130 (Overpass)	Not Applicable
Aerial Specialist	Long-eared myotis (Myotis evotis)	Upland and riparian/aquatic habitats, edges and flyways	1	260	20	20

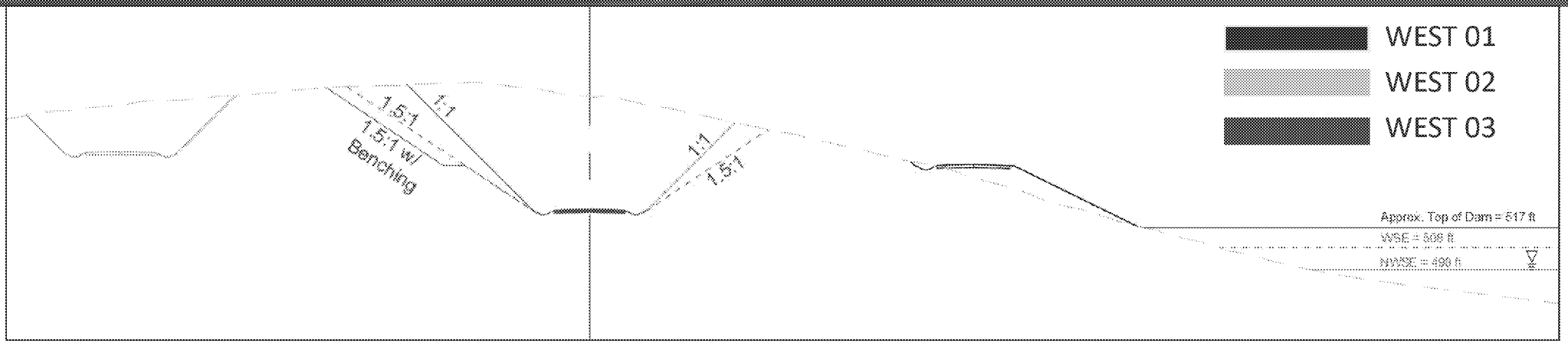
Sites Lodoga Rd Typical Cross Sections West Portion Evaluation

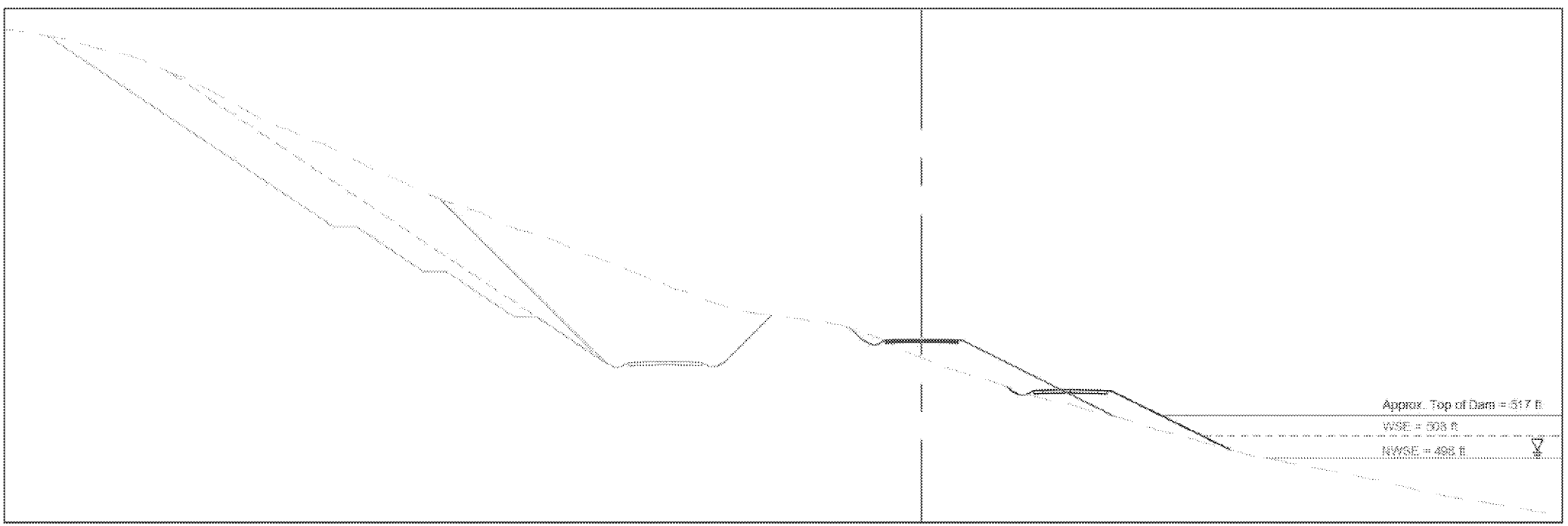


- 40 yr Total Design Life = 10 yr Construction + 30 yr Design Life
- Calculated TI = 9

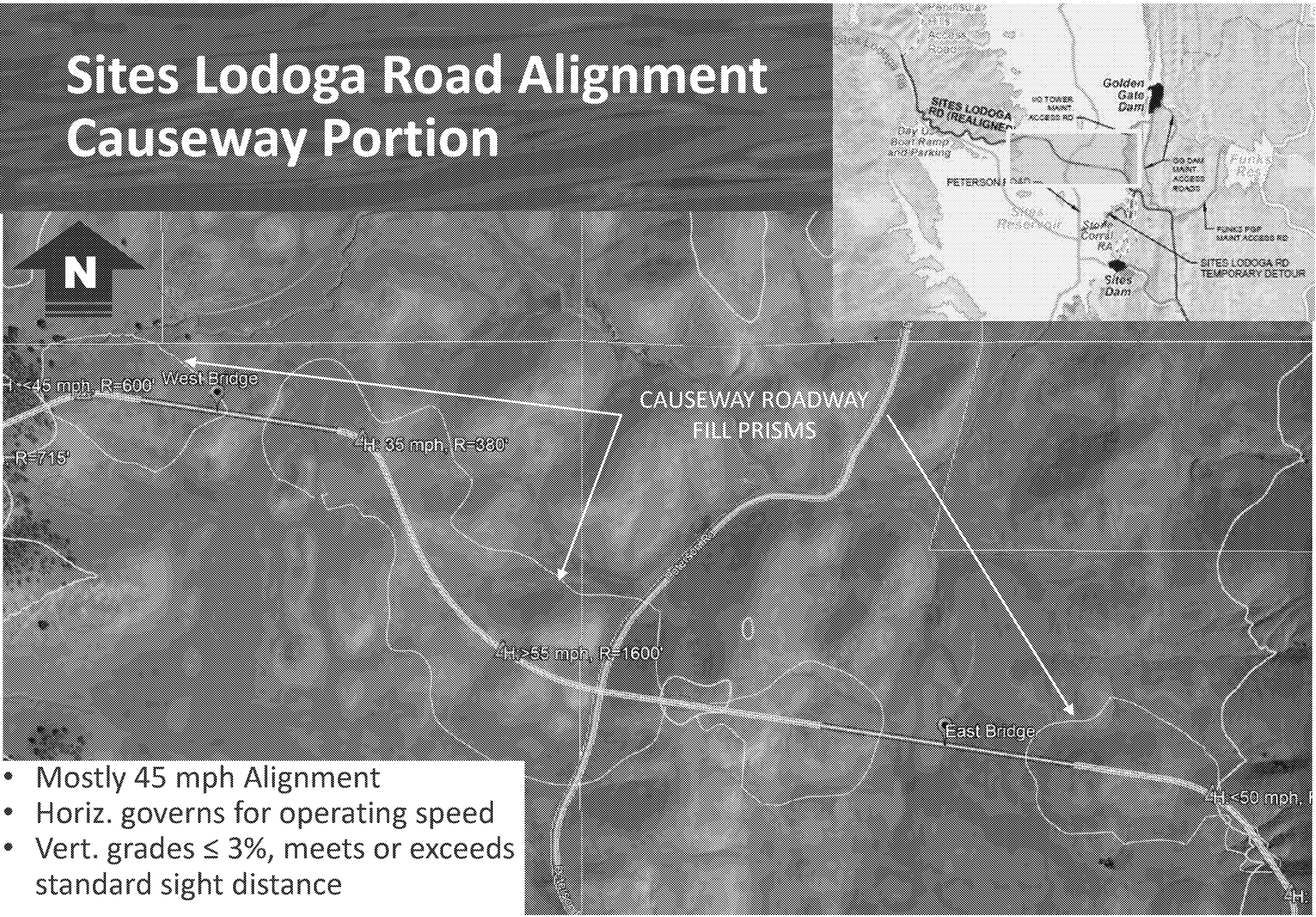


Sites Lodoga Rd Typical Cross Sections West Portion Evaluation



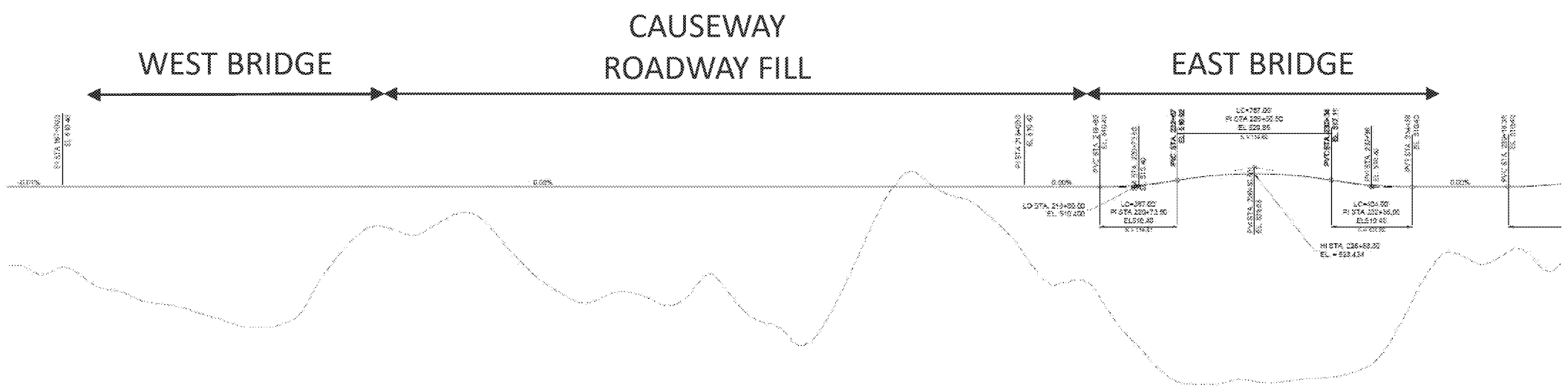


Sites Lodoga Road Alignment
Causeway Portion



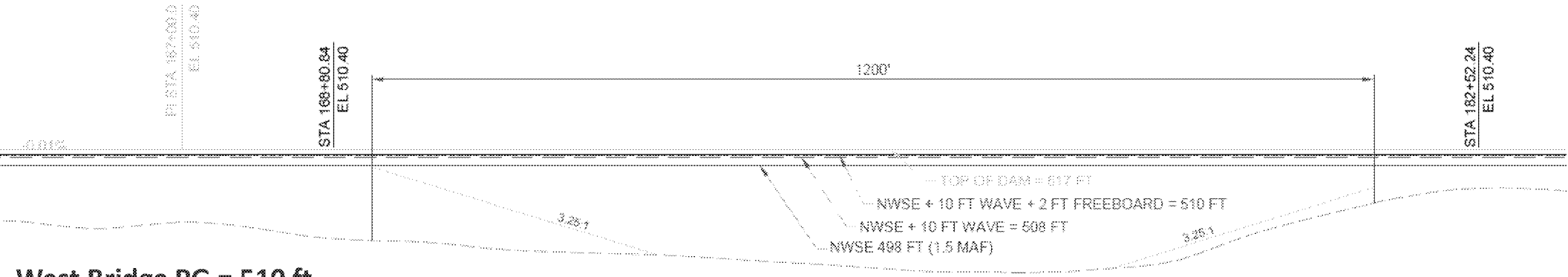
- Mostly 45 mph Alignment
- Horiz. governs for operating speed
- Vert. grades ≤ 3%, meets or exceeds standard sight distance

Sites Lodoga Road Profile
Causeway Overall Profile In Reservoir

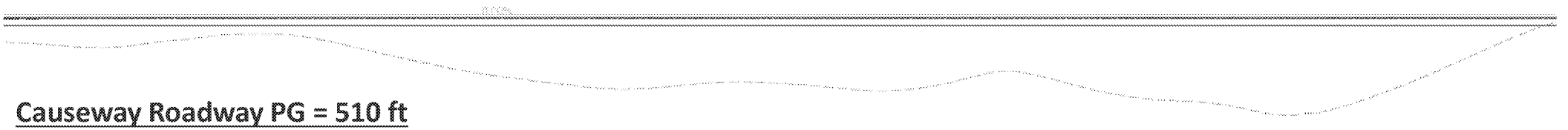


- Max Grade ≤ 3% (Flat on West Bridge and Causeway Roadway portions)

Sites Lodoga Road Profile
West Bridge & Causeway Portion



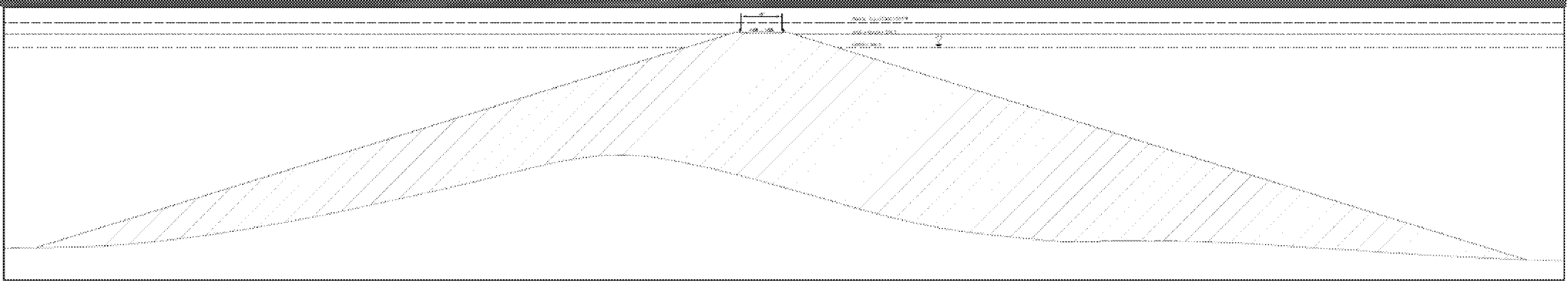
West Bridge PG = 510 ft
NWSE = 498 ft (1.5 MAF)
Wave = 10 ft
Freeboard = 2 ft

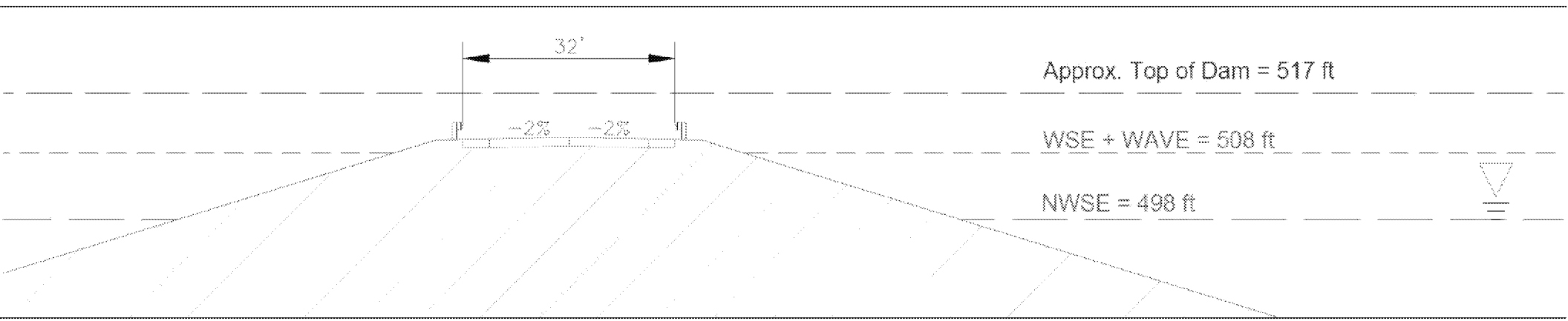


Causeway Roadway PG = 510 ft
NWSE = 498 ft
Wave = 10 ft
Freeboard = 2 ft

Vertical Profile at 1:1 (No Exaggeration)

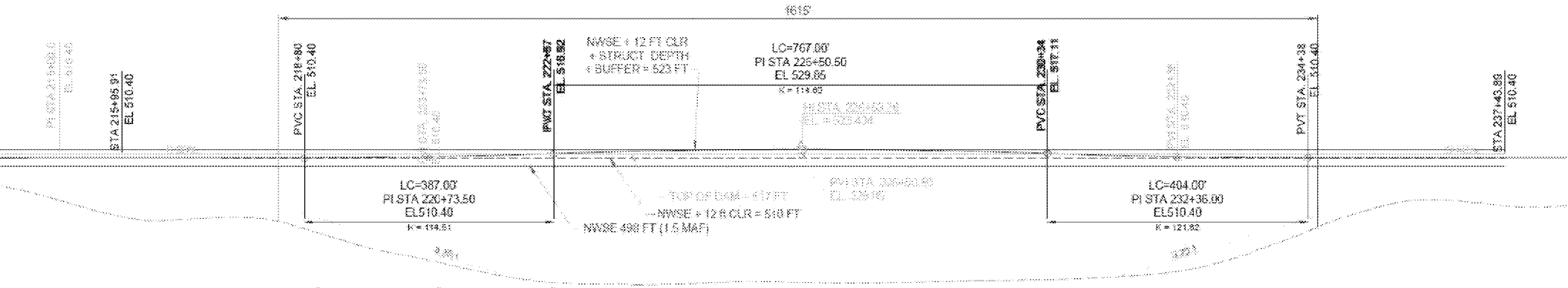
Sites Lodoga Rd Typical Cross Sections Fill Prism





- 40 yr Total Design Life = 10 yr Construction+ 30 yr Design Life
- Side Slopes = 3.25:1
- 2 ft below bottom of structural section
- Plan for Settlement

Sites Lodoga Road Profile
East Bridge



East Bridge PG = Varies from 510 ft to 523 ft

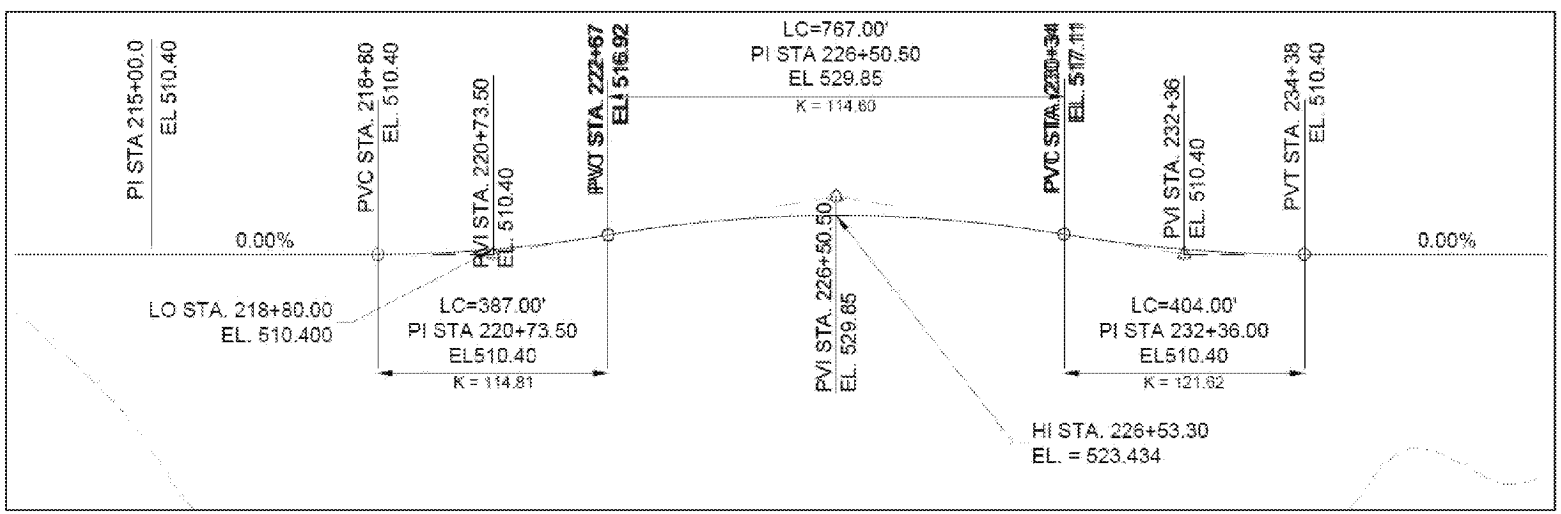
NWSE = 498 ft (1.5 MAF)

Vertical Vessel/Boat Clr = 12 ft

Structure Depth = 12.5 ft

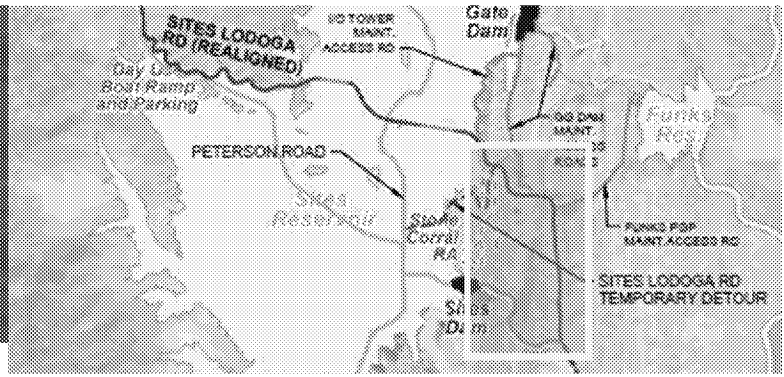
Buffer = 0.5 ft

Vertical Profile at 1:1 (No Exaggeration)

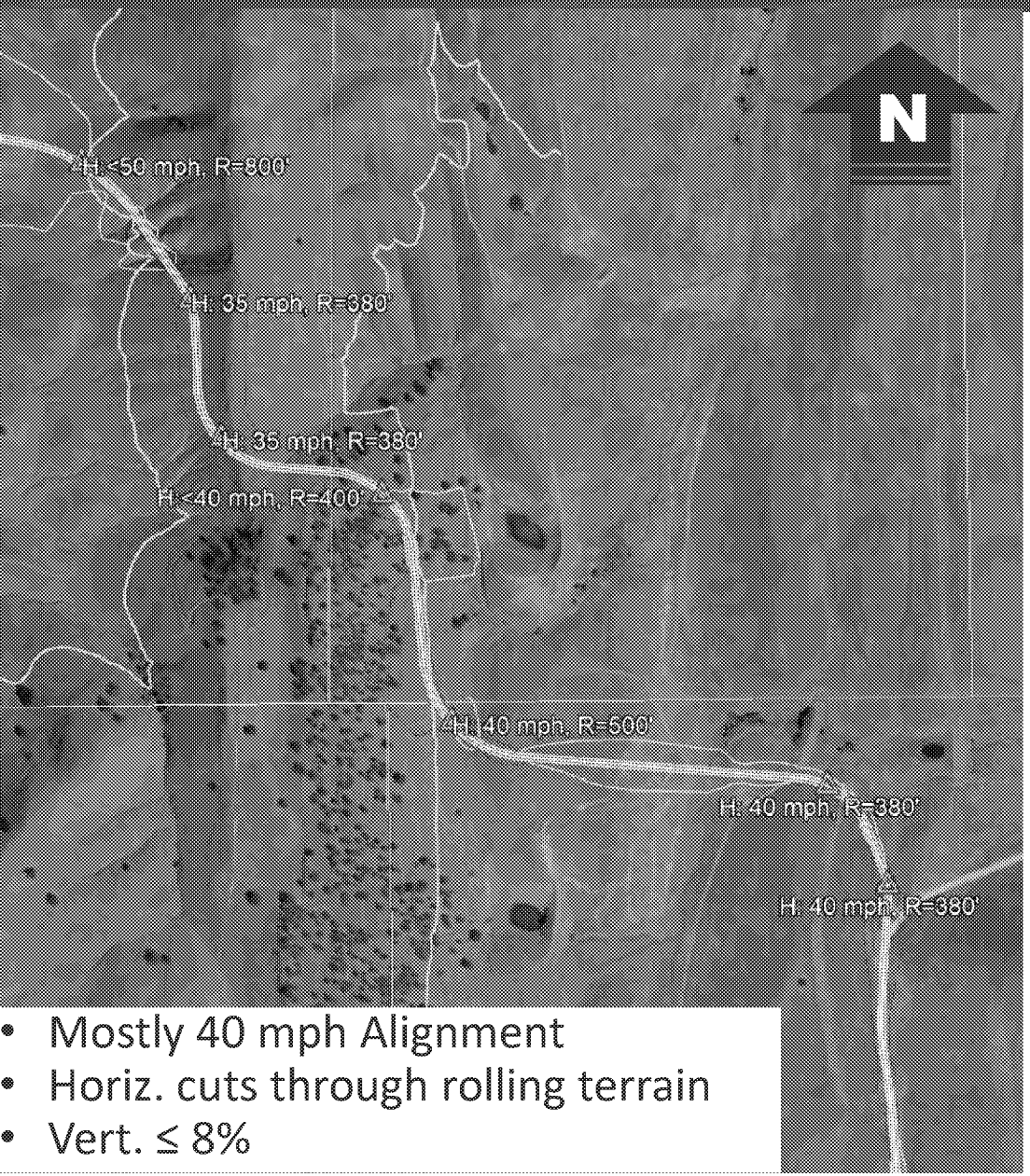


Vertical Profile at x5 Exaggeration

Sites Lodoga Road Alignment
East Portion

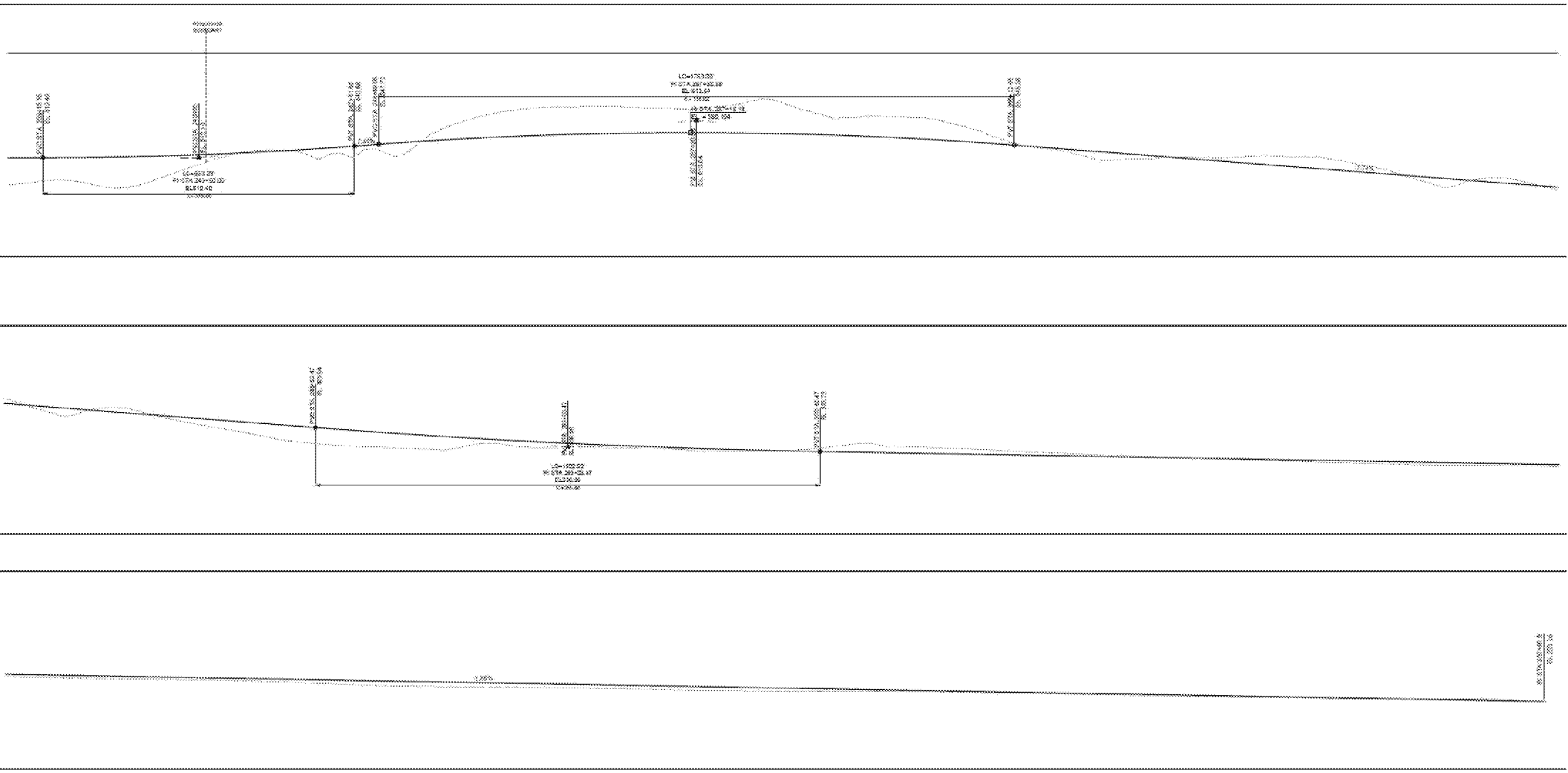


- 55 mph Alignment
- Horiz. Match Exist Road
- Vert. ≤ 3%



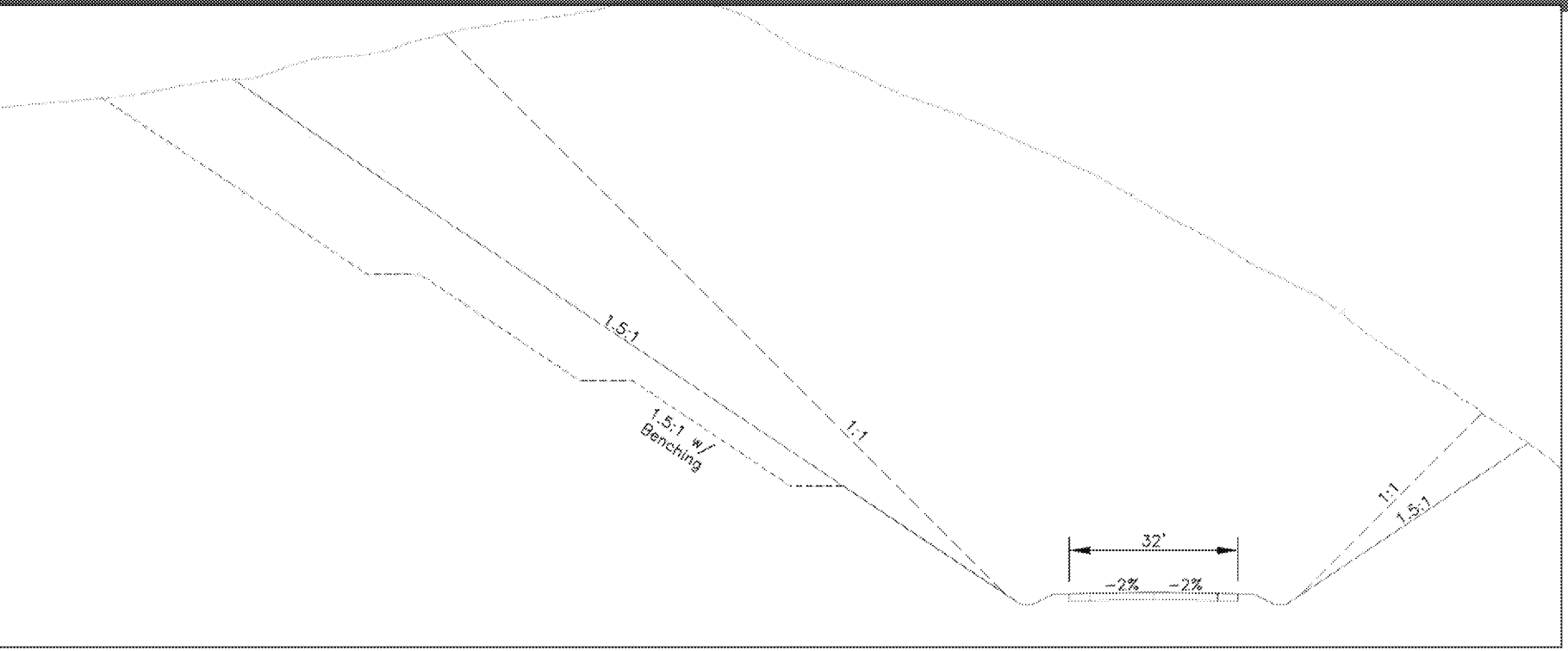
- Mostly 40 mph Alignment
- Horiz. cuts through rolling terrain
- Vert. ≤ 8%

Sites Lodoga Road Profile East Portion

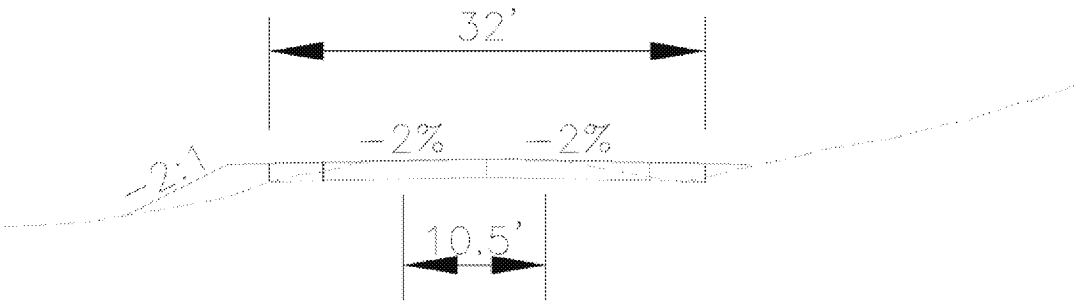


Vertical Profile at 1:1 (No Exaggeration)

Sites Lodoga Rd Typical Cross Sections East Portion



- 40 yr Total Design Life = 10 yr Construction+ 30 yr Design Life
- Retaining Wall Considerations vs. Benching
- Widen Exist (width < 12 ft)



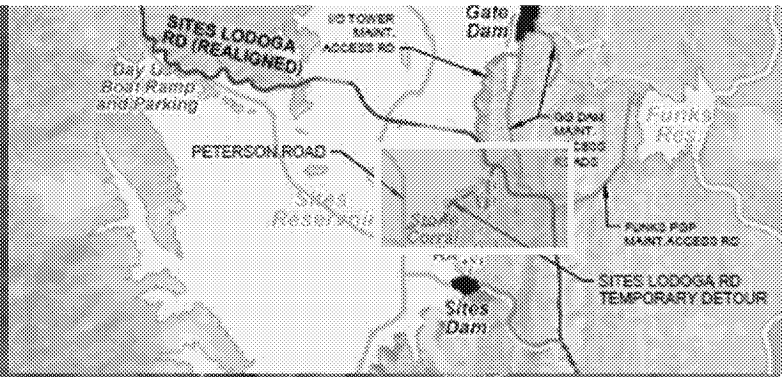
Sites Lodoga Road Temporary Detour

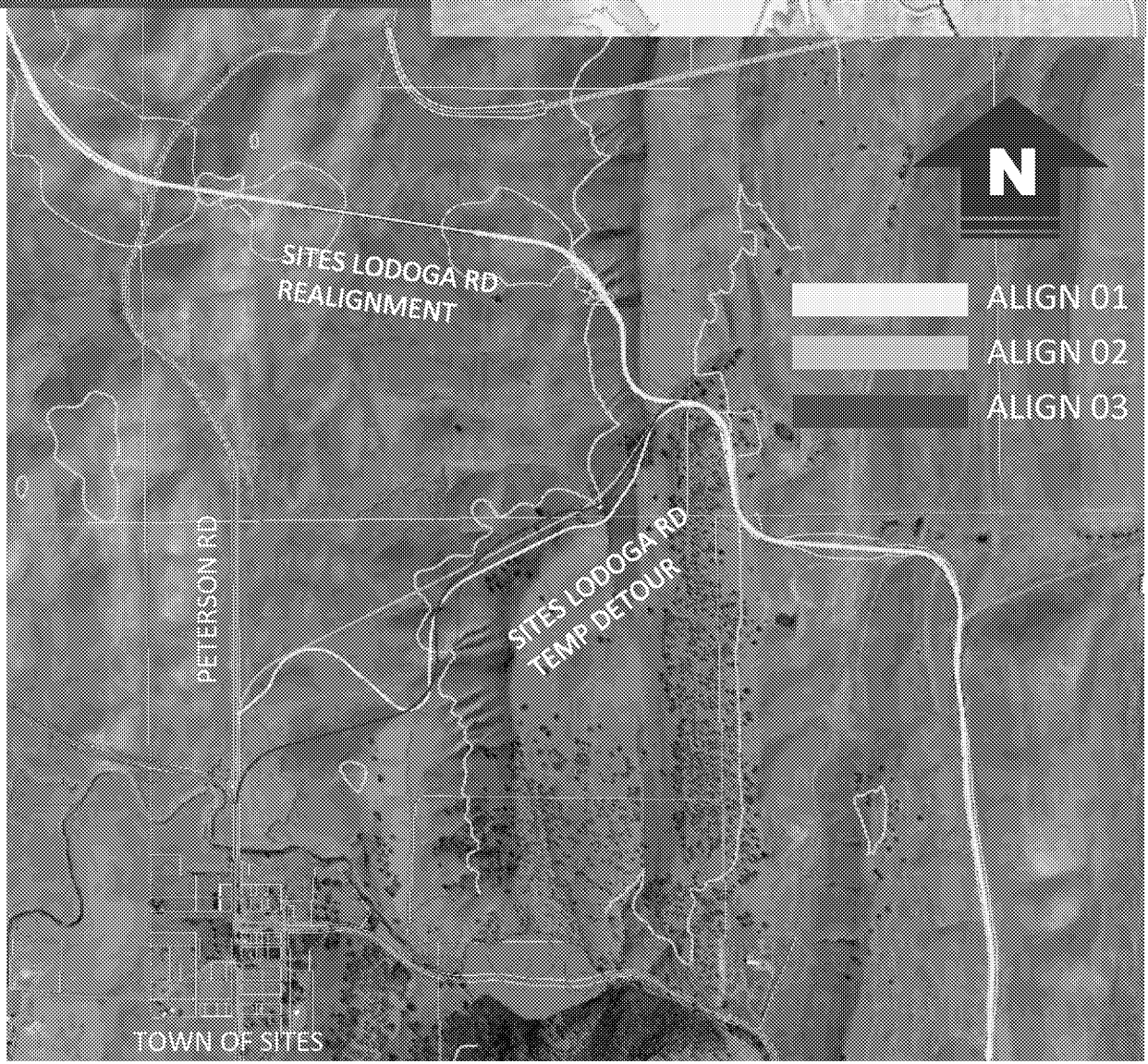
Howard Michael

Sites

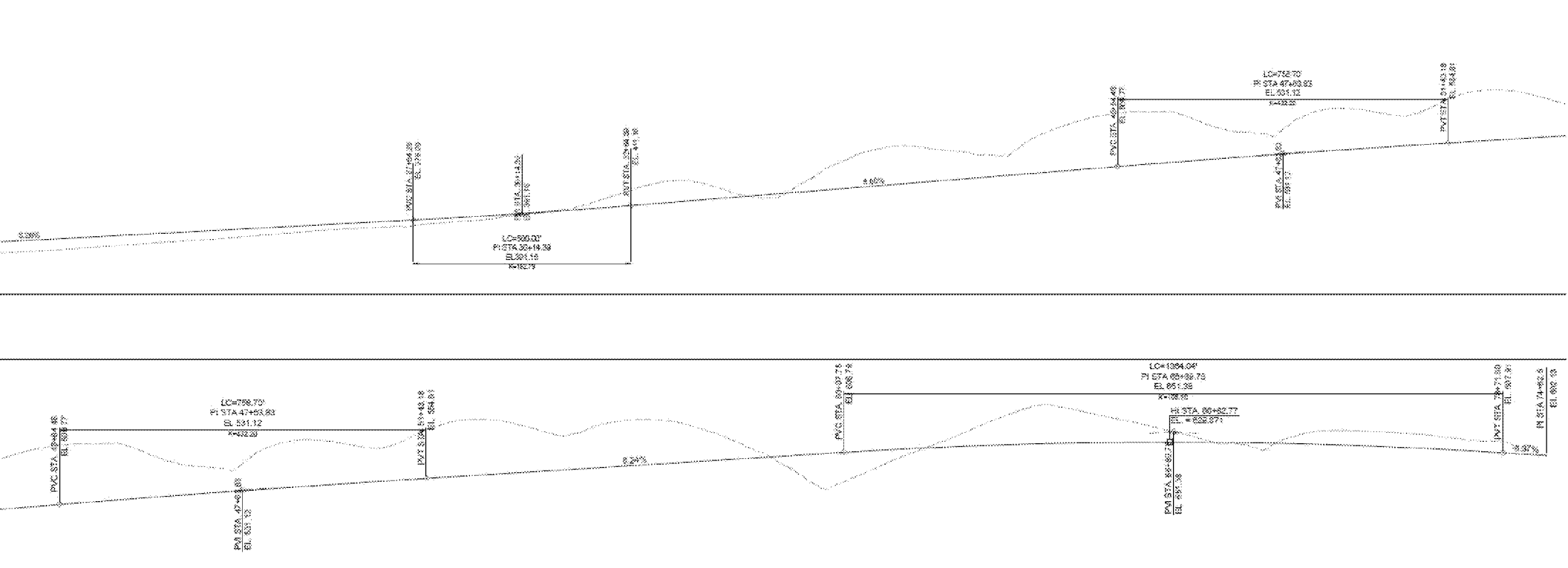
Sites Lodoga Road Temporary Detour Alignment

- Functional Classification – Local (Rural)/Construction Access
- Design Speed – 55 mph
- Paved
- Lane Width – 12 ft
- Shoulder Width – 4 ft
- Cross Slope – 2%
- Side Slopes – 2:1 (non-recoverable, non-traversable)
- Max Vertical Grade, 8%





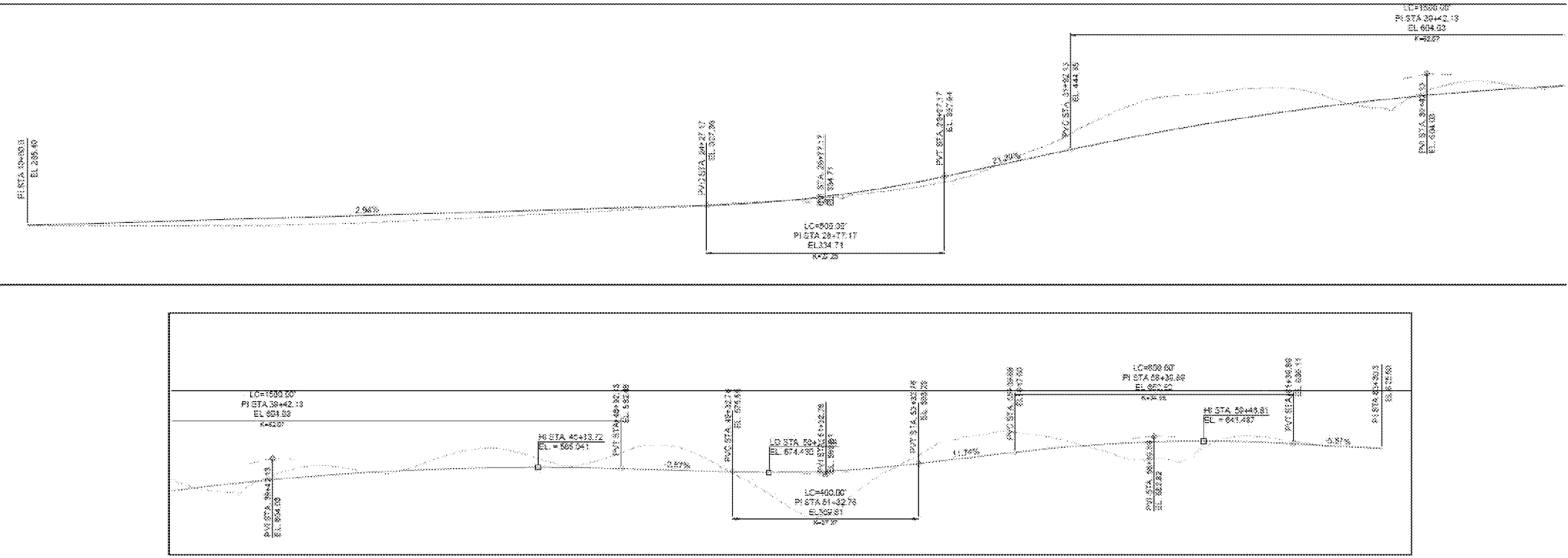
Sites Lodoga Road Temporary Detour Profile Align 01



Vertical Profile at 1:1 (No Exaggeration)

- Mostly 45 mph Alignment
- Horiz. governs for operating speed
- Vert. grades ≤ 8%, Significant Earthwork

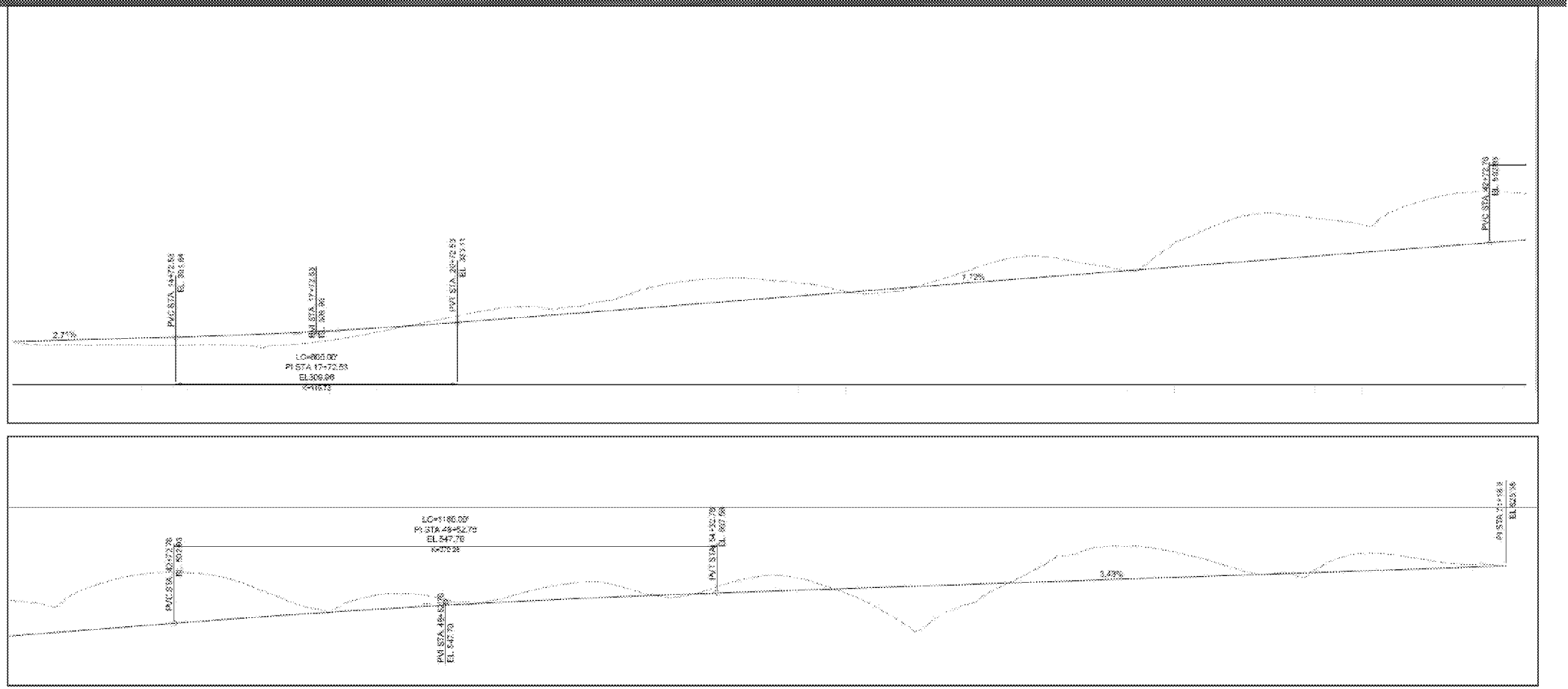
Sites Lodoga Road Temporary Detour Profile Align 02



- Mostly ≤ 35 mph Alignment
- Vertical governs for operating speed
- Vert. grades too steep

Vertical Profile at 1:1 (No Exaggeration)

Sites Lodoga Road Temporary Detour Profile Align 03

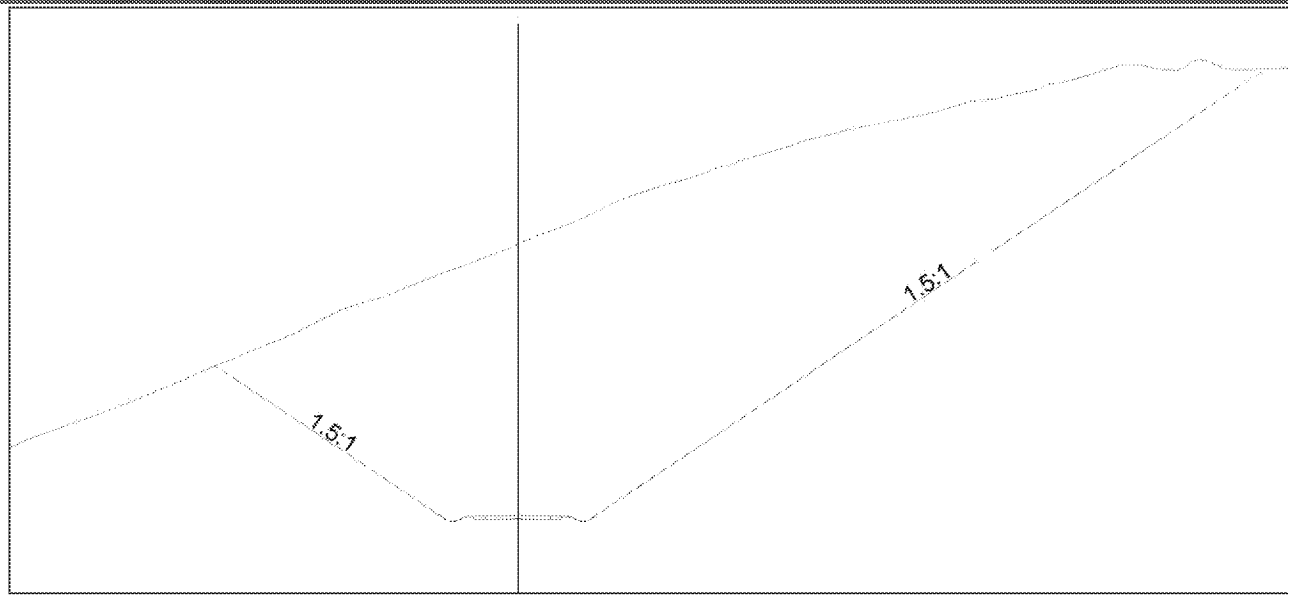


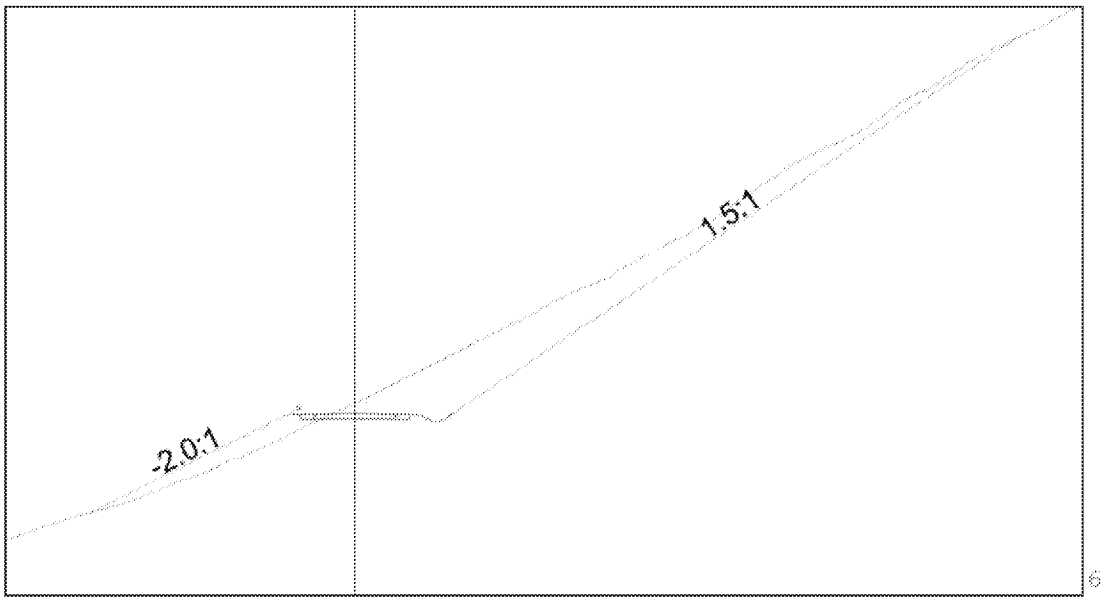
- Mostly 45 to 50 mph Alignment
- Horiz. governs for operating speed
- Vert. grades ≤ 8%, Optimize/Balance Earthwork

Vertical Profile at 1:1 (No Exaggeration)

Sites Lodoga Rd Temporary Detour Typical Cross Sections

- Total Design Life = +10 yr Construction
- Retaining Wall Considerations vs. Benching





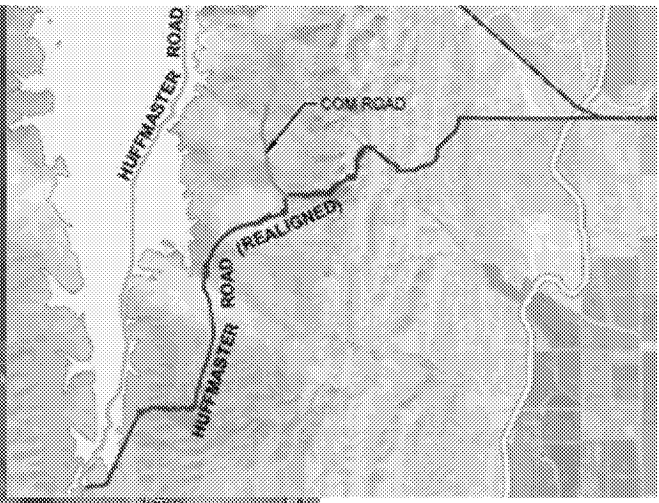
4

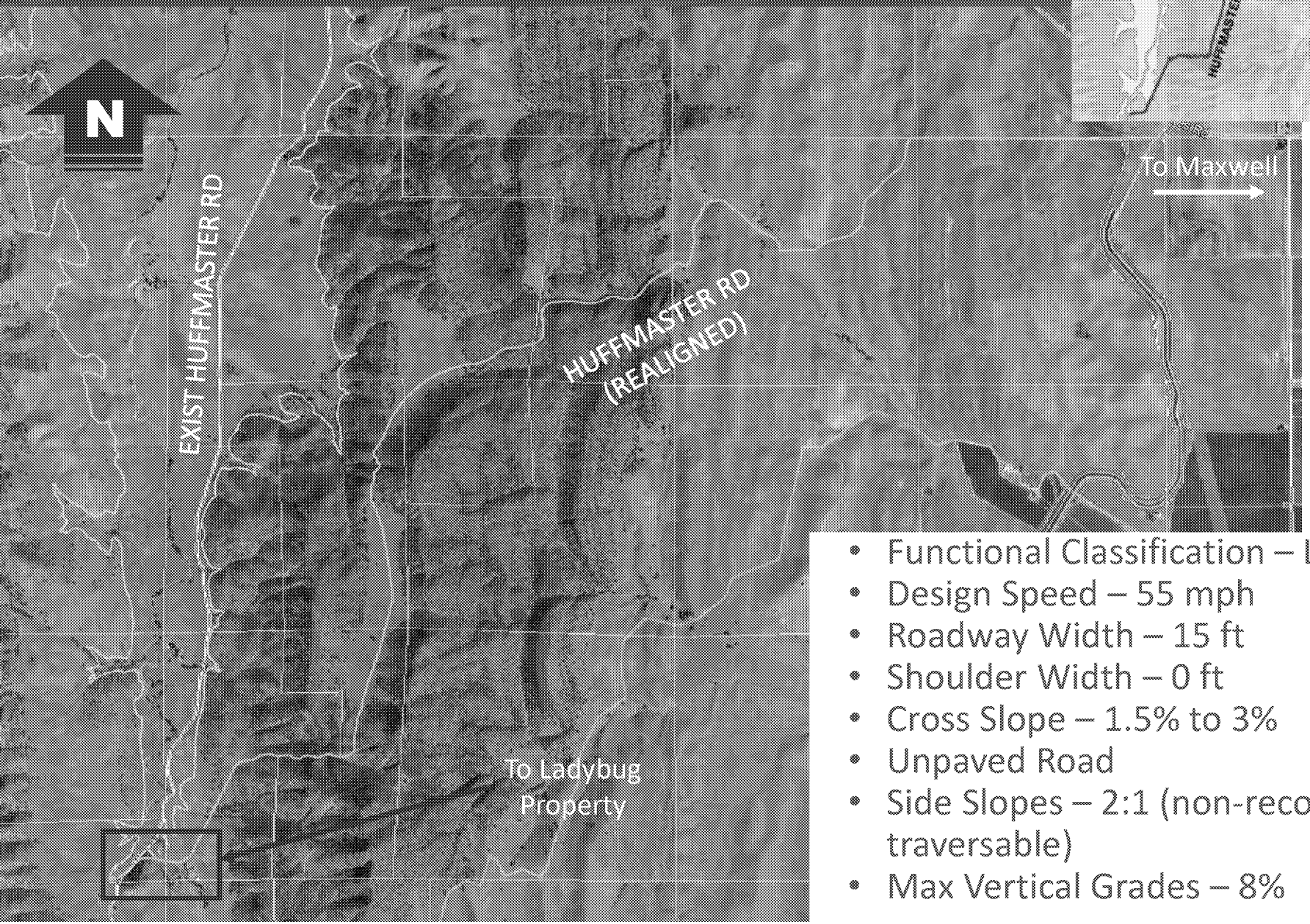
Huffmaster Road Realignment

Howard Michael

Sites

Huffmaster Road Realignment - Conceptual





- Functional Classification – Local (Rural)
- Design Speed – 55 mph
- Roadway Width – 15 ft
- Shoulder Width – 0 ft
- Cross Slope – 1.5% to 3%
- Unpaved Road
- Side Slopes – 2:1 (non-recoverable, non-traversable)
- Max Vertical Grades – 8%

Questions?

"Every Day is Earth Day on the Farm"

FWA

Family Water Alliance, Inc.

May 15, 2023

California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Chair E. Joaquin Esquivel,

Family Water Alliance, Inc. (FWA) is writing to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

For the last 30 years FWA has been a voice for family farms. In addition to advocacy for farmers, we also created the Sacramento Valley Fish Screen Program. This program has installed 43 screens that make irrigation water safe for endangered salmon. We believe that Sites Reservoir will also be of benefit to endangered salmon and other endangered species.

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures, and stores storm water flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions. Last year's drought and this year's rain, is a perfect example of how water from Sites could have been used to protect salmon and other endangered species such as Western Pond Turtles and Giant Garter Snakes.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind amid our changing climate. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs.

Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use generally during dry periods when it is needed most. Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife, and store it for future use by project participants. Sites Reservoir would be in the public interest because it would conserve and use water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

For these reasons, FWA encourages the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Sincerely,

Nadine Bailey

Nadine Bailey

COO/Family Water Alliance, Inc.

2963 Davison Court, Suite A • Colusa, California 95932 • (530) 438-2026

From: Alicia Forsythe [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A6CDF06A7E904B65BAA21702A82AD329-AFORSYTHE]
Sent: 5/31/2023 10:35:20 AM
To: Hunt, Shane D [shunt@usbr.gov]; Dekar, Melissa D [mdekar@usbr.gov]; Jacobson, Allison M [ajacobson@usbr.gov]
Subject: FW: Framework Programmatic Sites Description
Attachments: 20230508_Sites Text for Request for Programmatic Consultation Clean.docx

See attached and below. Apologies for forgetting to send this on earlier.

I have not heard anything since the email below.

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Mooney, David M <dmmooney@usbr.gov>
Sent: Friday, May 12, 2023 11:55 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Pinero, Janice A <JPinero@usbr.gov>; Manzo, Mario A <MManzo@usbr.gov>
Subject: Fw: Framework Programmatic Sites Description

Ali,

The Sites Programmatic Framework text went to the Agencies today after initial Reclamation review and edits. We will reach out to you when we get comments back and setup times as necessary to talk through finalizing language. Thank you for preparing the description and I look forward to moving the Sites Project to the next steps.

Take care.
Dave

David Mooney
Bay-Delta Office Manager, Bureau of Reclamation
(916) 200-9214 (Mobile)
(916) 414-2401 (Office)
(916) 414-2400 (Main)

From: Pinero, Janice A <JPinero@usbr.gov>
Sent: Thursday, May 11, 2023 7:18 PM
To: Grimaldo, Lenny@DWR <lenny.grimaldo@water.ca.gov>; cathy.marcinkevage <cathy.marcinkevage@noaa.gov>; garwin.yip <garwin.yip@noaa.gov>; Mooney, David M <dmmooney@usbr.gov>; Affonso, Jana <jana_Affonso@fws.gov>; Affonso, Jana <jana_Affonso@fws.gov>; Ratcliff, Donald (Donnie) <donald_ratcliff@fws.gov>; Allen, Kaylee <kaylee_allen@fws.gov>; Manzo, Mario A <MManzo@usbr.gov>; White, Kristin N <knwhite@usbr.gov>;

Wilkinson, Chris@DWR <christopher.wilkinson@water.ca.gov>; White, Molly@DWR <molly.white@water.ca.gov>; howard.brown <howard.brown@noaa.gov>; brooke.jacobs@wildlife.ca.gov <brooke.jacobs@wildlife.ca.gov>; Davis-Fadtke, Kristal@Wildlife <kristal.davis-fadtke@wildlife.ca.gov>
Subject: Framework Programmatic Sites Description

Hello All,

Attached please find the draft Framework Programmatic Description for the Sites Project. We need to develop introductory language for this action and how it fits with the Proposed Action but the description of the project is attached.

Take care, Janice

Framework Programmatic for Sites Reservoir

Reclamation is expected to be a funding partner in the Sites Project, an offstream storage project in the Antelope Valley, west of the City of Maxwell, California, and anticipates entering into one or more agreements with the Sites Project Authority (Authority) to partially fund construction of the project under the WIIN Act, consistent with the polices, guidelines, and procedures of the CVPIA.

In 1992 the CVPIA amended the Central Valley Project Authorizations Act of August 26, 1937, by adding mitigation, protection, and restoration of fish and wildlife to the project purpose of that Act and by authorizing a number of fish and wildlife restoration activities including:

- Development of flows of suitable quality, quantity, and timing to protect all life stages of anadromous fish;
- Development of short pulse flows to facilitate migration of juvenile fish from the upper Sacramento River to the Delta; and
- Elimination, to the extent possible, of losses of anadromous fish due to flow fluctuations caused by the operation of Central Valley Project storage or re-regulating facility.

In 2016, the WIIN Act authorized Reclamation to participate in funding State-led storage projects (e.g., California's Water Storage Investment Program Projects). In return for the Federal cost-share investment in the State led storage project, a proportional share of the project benefits will be Federal benefits, which may include water supplies dedicated to specific purposes such as environmental enhancement and wildlife refuges.

Sites Reservoir Project

Reclamation's role in the Sites Reservoir Project is as a funding partner for the Project. Reclamation will acquire a water storage account in Sites Reservoir and an additional water supply it may use to supplement supplies in dry and critically dry water years and to enhance its ability to achieve the flow measures in the CVPIA for improvement in anadromous fish habitat mentioned above.

The Authority will own and operate the Sites Project to take advantage of the unappropriated flows associated with winter-storms and changing patterns in precipitation associated with climate change. The Sites Project is intended to provide a supplemental dry year water supply and provide an additional resource to address the environmental impacts of water development in the Sacramento River Basin. The components of the Sites Project are listed in Table 1. The Sites Project is sufficiently developed for consideration at a programmatic level consistent with the authorities cited above and the Sites Project's CEQA/NEPA analysis (published on November 12, 2021) is included in this biological assessment by reference. The Sites Project will undergo further review and consultation prior to its final authorization and that additional review will be informed by sufficient detail to allow the development of an appropriate incidental take statement for the Sites Project.

Guiding Principles for the Programmatic Consultation on the Sites Project

To ensure that future authorization of the Sites Project is consistent with Reclamation's polices, guidelines, and procedures for its authorization, funding, or operation of water project, Reclamation and

the Authority propose the following guiding principles to avoid, minimize and mitigate adverse effects of the Sites Project.

Upper Sacramento River

Utilize the additional water supply provide by the Sites Project to address adverse effects of the CVP on salmonid and sturgeon habitat in the Sacramento River above the Red Bluff Pumping Plant by:

1) Optimizing the use of Reclamation's storage to facilitate the following:
   - Enhancing conservation of the coldwater pool in Shasta Lake for use in managing temperatures in salmonid spawning habitat downstream of Keswick Dam particularly in dry water year types;
   - Enhancing pulse flows envisioned in this biological assessment at appropriate times, particularly in years with natural pulse events are minimal, to stimulate migration of juvenile salmon downstream toward the Delta; and
   - Enhancing flow stability to minimize or preclude losses of salmon redds due to flow fluctuations associated with management of Shasta Lake for fall storage.

2) Implementing additional mitigation actions as necessary and appropriate to improve spawning and rearing habitat for anadromous fish in the Upper Sacramento River.

Sacramento River from Red Bluff Pumping Plant to the Knight's Landing

1) Implement pulse flow criteria to provide migrating anadromous fish an opportunity to migrate past the diversion locations with minimum exposure to diversions.

2) Utilize best available science to establish flow levels necessary to provide migratory and rearing habitat to minimize effects to juvenile anadromous fish survival and facilitate their movement out of the river toward the delta and bays.

3) Find opportunities to develop and/or restore additional side channel habitat to offset adverse effects to salmonid migratory and rearing habitat associated with diversions of flow to Sites Reservoir

Below Knights Landing and in the Delta

1) Cooperate in the monitoring of the Fremont Weir Big Notch Project to assess what effect, if any, diversions of flow the Sites Reservoir have on the effectiveness of the Big Notch Project in the entrainment of juvenile anadromous fish through the notch on the floodplain habitat in the Yolo Bypass and the passage of anadromous fish from the Yolo Bypass into the Sacramento River. If necessary, implement operational measures to avoid diminishing the performance of the Big Notch Project.

2) Monitor and mitigate effects of diversions to Sites Reservoir on habitat for Delta pelagic fish species through identification of opportunities to develop addition flood plain habitat to improve productivity of those fish populations.

3) Adhere to constraints imposed on water exports by making deliveries to south of the Delta project participants during designated transfer windows and consistent maintenance of flow requirements

imposed on water project exports to minimize adverse effects of reverse flows in the interior Delta channels.

Suisun Bay, San Pablo, and San Francisco Bay

1) Cooperate with the fisheries resource agencies to monitor effects of diversions to the Sites Reservoir on the location of X2 and Delta outflow and, as appropriate, identify opportunities to offset any adverse effects to critical habitat through appropriate mitigation measures or adaptive management actions.

Adaptive Management

1) Cooperate with and, as appropriate, participate in ongoing and planned habitat and population monitoring programs conducted by the resources agencies to ensure information pertinent to assessing the effects of the Sites Project on endangered and threatened fish in the action area.

2) Design studies, in cooperation with resource agencies, to test modifications to operations that may be implemented by Reclamation and the Authority to remedy or lessen unanticipated effects of the Sites Project identified by the monitoring program.

3) Cooperate with the resource agencies to evaluate results of studies and determine whether changes in project operations are necessary and appropriate to address unanticipated adverse effects of the Sites Project.

Table 1-1. Components of the Proposed Sites Project

Sites Project Activity	Description
Construction	Construction of all Project facilities and initial filling of Sites Reservoir
Diversions to Sites Reservoir, Operating Criteria, and Diversion Criteria	All aspects of diversion of water at Red Bluff Pumping Plant, Hamilton City Pump Station, Stone Corral Creek, and Funks Creek, including the use of excess capacity in the Tehama-Colusa Canal and Glenn-Colusa Irrigation District Main Canal to convey water to the reservoir and storage of water in Sites Reservoir
Water Conveyance and Releases from Sites Reservoir	Releases of water from Sites Reservoir into the Tehama-Colusa Canal, Glenn-Colusa Irrigation District Main Canal, Stone Corral Creek, and Funks Creek. Conveyance of water from the Tehama-Colusa Canal into the Dunnigan Pipeline and subsequent release into the Colusa Basin Drain and ultimately into the Sacramento River or Yolo Bypass
Coordination with CVP and SWP	Exchanges with Shasta Lake and Lake Oroville, including Reclamation's investment in Sites Reservoir
Flood Control	Flood control benefits to the communities of Maxwell and Colusa, local agricultural lands, rural residences, and Interstate 5 by impounding Funks Creek and Stone Corral Creeks
Emergency Releases	Operation of facilities to meet Division of Safety of Dams criteria and requirements for emergency reservoir drawdown

Sites Project Activity	Description
Energy Generation and Energy Use	The generation of energy in operations and use of energy for operations
Operations and Management Plans	These plans generally described the operations and management of the Sites reservoir, lands around the reservoir, and recreation activities—generally pulling information from various parts of the NEPA/CEQA document into one document for the purposes of effective and efficient real-time operations
Surveys and Reassessment	Occupancy and protocol-level species surveys to refine direct and indirect effects to endangered, threatened and/or candidate species
Conservation Measures	Measures incorporated into the Sites Project to minimize effects on species
Aquatic Monitoring and Adaptive Management	Describes how the Sites Project will interact with existing monitoring and science programs, discusses the proposed framework and governance, and describes the process for adaptive management, including operational criteria and conservation measures
Terrestrial Monitoring and Adaptive Management	The Authority will develop plans, subject to USFWS approval, identifying specific locations for the compensatory measures for each species and the monitoring, performance criteria, and adaptive management measures that will be implemented to ensure the compensatory lands will be adequately managed and monitored for each species in perpetuity
Compensatory Mitigation for Temporary and Permanent Impacts	Species-specific compensatory mitigation will be completed prior to construction, operations, and other activities at the ratios or acreages identified for each species

File Provided Natively

May 31, 2023

TO: E. Joaquin Esquivel, Chair
California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

FR: California Business Properties Association
Building Owners & Managers Assn of California
California Business Roundtable
Orange County Business Council
NFIB – Small Business Association
California Manufacturing & Technology Assn
California Building Industry Association
NAIOP California
Southern California Leadership Council

RE: ***Support for Sites Reservoir Permit***

On behalf of the listed organizations, we are writing to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

Located ten miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs.

Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use during dry periods when it is needed most. Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife, and store it for future use by project participants. Sites Reservoir would be in the public interest because it would conserve and use water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

For these reasons, we encourage the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Thank you for taking our views into consideration. Please contact Matthew Hargrove, President/CEO at CA Business Properties Association if you have any questions (916-443-4676 or mhargrove@cbpa.com).

May 25, 2023

E. Joaquin Esquivel
Chair, California State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Re: Sites Reservoir water right permit

Dear Chair Esquivel,

On behalf of our respective organizations, we are writing to encourage the State Water Resources Control Board (State Water Board) to approve a water right permit for the proposed Sites Reservoir, a unique, multi-benefit water storage project that would provide a reliable water supply for California's environment, communities, and farms for decades to come.

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River for California communities, farms, and businesses. When integrated with the state's existing water management system, it would increase the total amount of managed water in storage and create additional flexibility to adapt to changing conditions.

California's economic security depends on adequate and reliable freshwater. Today, snowmelt from the Sierra Nevada Mountains comprises approximately one third of California's total water supply. Scientists from Lawrence Berkeley National Laboratories estimate climate change will reduce the Sierra Snowpack to functional zero most years beginning in the 2040s, even as overall precipitation is projected to remain relatively stable. Expanding California's water storage capacity is necessary for adapting to shifting climate patterns and strengthening California's drought resilience. That's why in August 2022, Governor Newsom announced a new goal to expand water storage by 3.7 million acre-feet by 2030. Sites Reservoir will help meet this goal and ensure our regions are continuously served by adequate and reliable freshwater throughout the 21st century.

Sites Reservoir is a modern, once-in-a-generation water project designed with both environmental values and water supply needs in mind amid our changing climate. It is an off-stream facility that does not dam a major river system and does not threaten fish migration or spawning. Additionally, diversions would occur through existing state-of-

the-art fish screens according to highly protective operating and permit conditions. Finally, through its investment in Sites Reservoir under Proposition 1, the state is creating a first-of-its-kind environmental water asset for California with dedicated storage for current and future environmental needs.

Sites Reservoir is a flexible storage system inherently designed to adapt to California's changing climate by capturing and storing water when flows are high for use generally during dry periods when it is needed most. Climate projections show future precipitation will mostly come in the form of rain and not snow, and Sites Reservoir is specifically designed to capture and store this rain for future use. Sites Reservoir will increase the resiliency of water supplies because it will capture water that is surplus to existing water rights and in a manner that will not unreasonably affect fish and wildlife, and store it for future use by project participants. Sites Reservoir would be in the public interest because it would conserve and use water that is in excess of downstream demands, environmental needs, and Delta water quality requirements.

Sites Reservoir has broad and diverse support from cities, counties, water agencies, and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California which are working together to advance the project. Now, more than ever, California needs to address its statewide water management challenges though innovative solutions that address our state's need for a sustainable water supply.

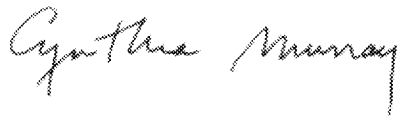
For these reasons, our organizations encourage the State Water Board to timely approve a water right permit for the Sites Reservoir project.

Sincerely,

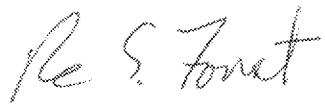
Adrian Covert
Senior Vice President, Public Policy
Bay Area Council

Derrick Seaver
President & CEO
San Jose Chamber of Commerce

John Coleman
President & CEO
Bay Planning Coalition



Cynthia Murray
President & CEO
North Bay Leadership Council



Rosanne Foust
President & CEO
SAMCEDA

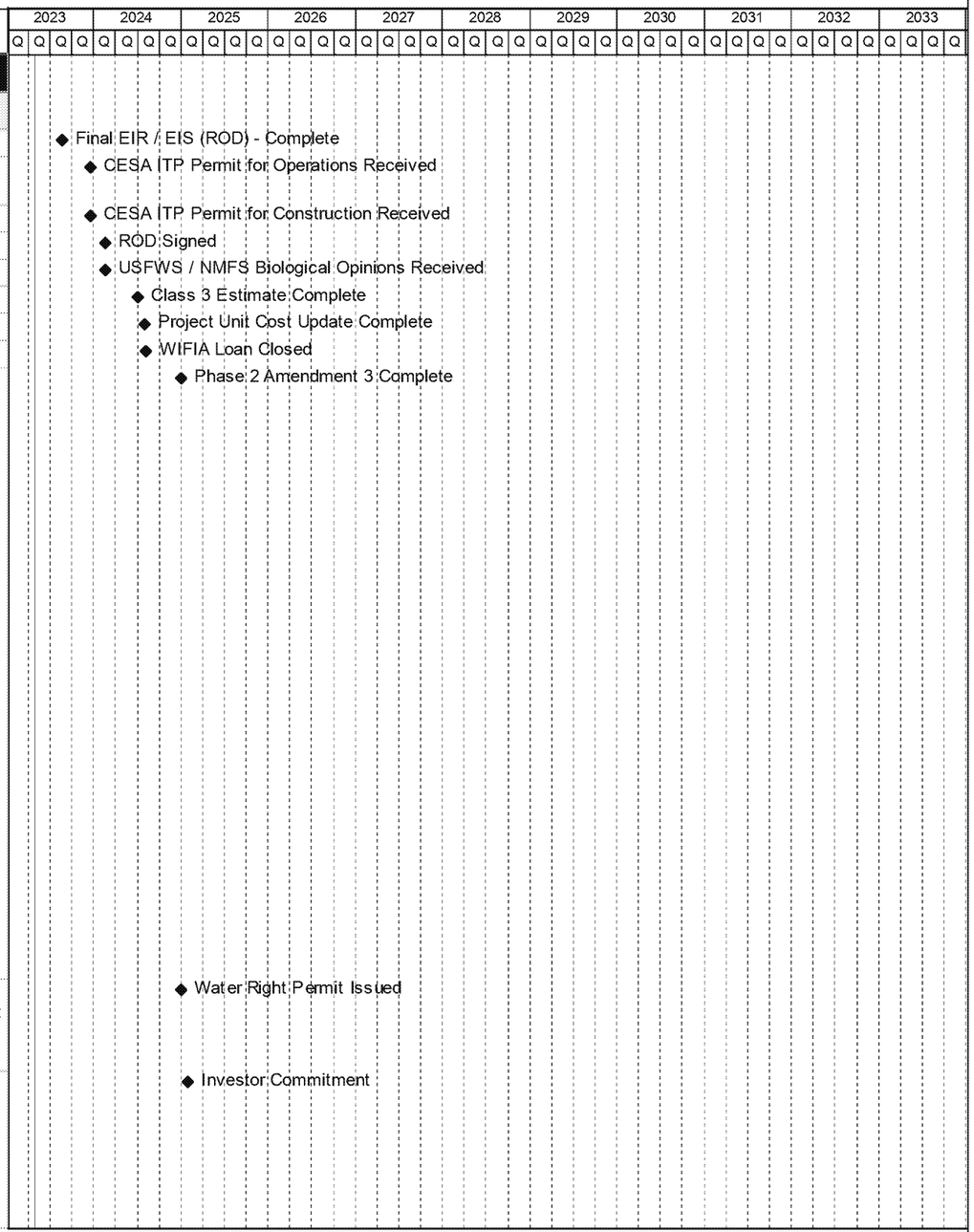
Charles Wilson
Executive Director & CEO
Southern California Water Committee

Rodney Fong
President & CEO
San Francisco Chamber of Commerce

Sites Reservoir Project

Schedule with Predecessor and Successor Details

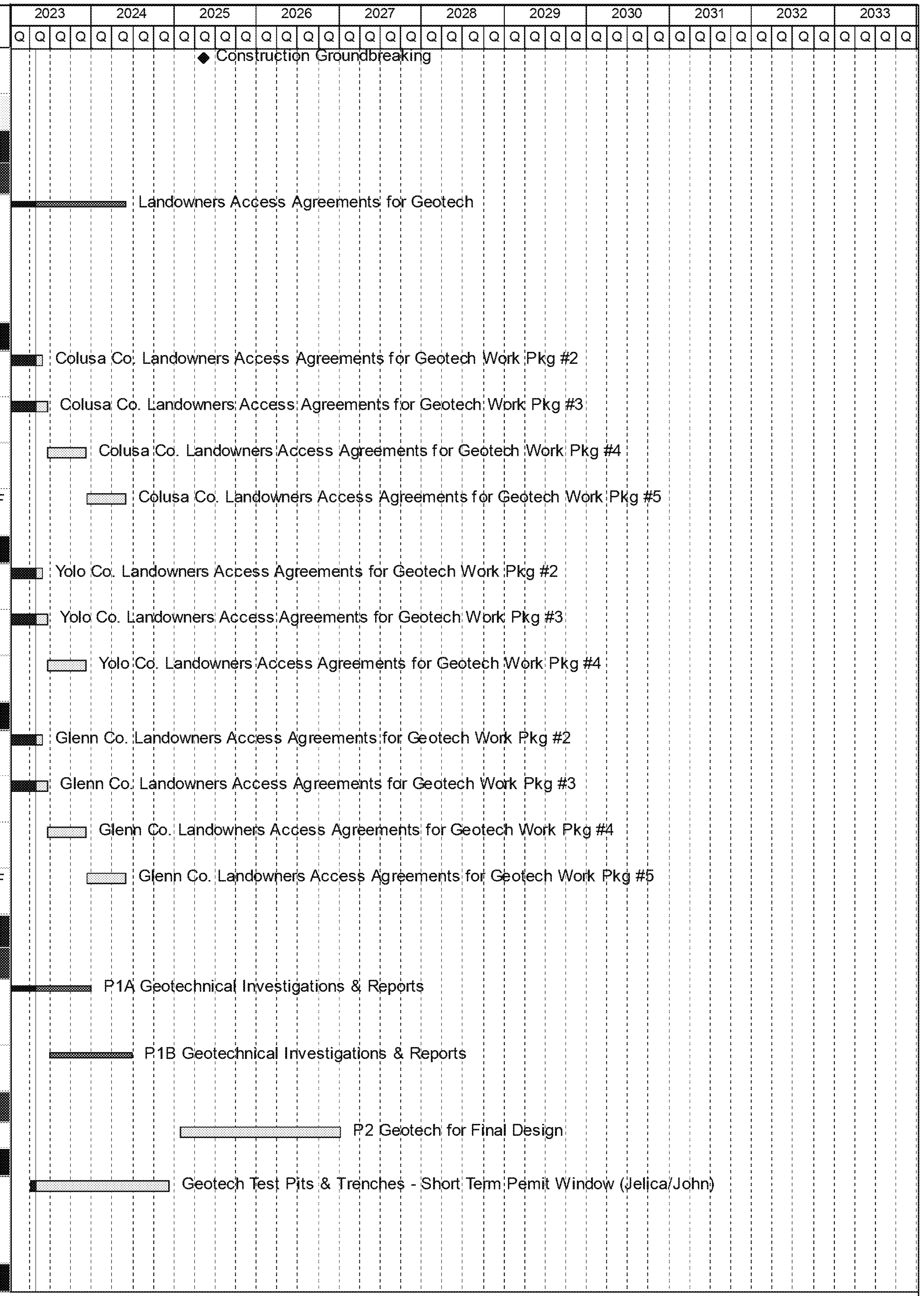
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
1	**Sites Reservoir Project: June 2023 + CP1**		2811	01-Sep-20 A	09-Mar-34	0		
2	**Project Milestones**		435	18-Aug-23	09-May-25	2298		
3	MS-1200	Final EIR / EIS (ROD) - Complete	0		18-Aug-23	2733	EIR-250: FF	
4	MS-1320	CESA ITP Permit for Operations Received	0		20-Dec-23	236	2081-120: FF, OP-1005: FS	MS-1500: FF
5	MS-1340	CESA ITP Permit for Construction Received	0		20-Dec-23	236	2081-220: FF	MS-1500: FF
6	MS-1300	ROD Signed	0		20-Feb-24	195	EIR-450: FS	Refuge: FF, MS-1500:
7	MS-1150	USFWS / NMFS Biological Opinions Received	0		20-Feb-24	2607	BA-220: FF	
8	MS-1700	Class 3 Estimate Complete	0		05-Jul-24	99	C3E-1000: FF	MS-1500: FF
9	MS-1450	Project Unit Cost Update Complete	0		30-Jul-24	82	CU-1000: FF	MS-1500: FS
10	MS-1600	WIFIA Loan Closed	0		07-Aug-24	98	KD-2600: FF	MS-5000: FF
11	MS-5000	Phase 2 Amendment 3 Complete	0		31-Dec-24*	0	A1210: FS, STA-120: FF, KD-1200: FF, KD-1230: FF, KD-1130: FF, KD-1120: FF, KD-1210: FF, AB-2300: FF, BF-1300: FF, KD-1240: FF, KD-1320: FF, KD-1360: FF, KD-1340: FF, KD-1350: FF, KD-1430: FF, KD-1410: FF, KD-1400: FF, RE-1030: FF, RE-1040: FF, A1230: FF, A1110: FF, A1120: FF, A1130: FF, A1140: FF, KD-1100: FF, A1150: FF, A1160: FF, A1170: FF, KD-1190: FF, USFWS-160: FF, KD-1420: FF, KD-1440: FF, AF-1300: FF, USDA-1060: FF, KD-1510: FF, USDA-1070: FF, WSIP-1260: FF, 401-220: FF, MI-1100: SF, MS-1500: FF, KD-1310: FF, MS-1600: FF, KD-1300: FF	
12	MS-1400	Water Right Permit Issued	0		31-Dec-24*	-64	WRP-120: FF, OP-1005: FS	KD-1310: FF 5, MS-1500: FF 20, A1200: FF, X19: FF, X289.OE2: FF
13	MS-1500	Investor Commitment	0		29-Jan-25	-43	WIFIA-230: FS, KD-1290: FF, CU-1000: FF 5, MS-1400: FF 20, KD-1480: FF, MS-1320: FF, MS-1340: FF, MS-1300: FF, MS-1450: FS, MS-1700: FF	PA-1100: FS, P2-GEO: FS, MS-5000: FF, KD-1310: FF 22, KD-1300: FF, MS-3000: FS 71, X7.OE2: FF



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

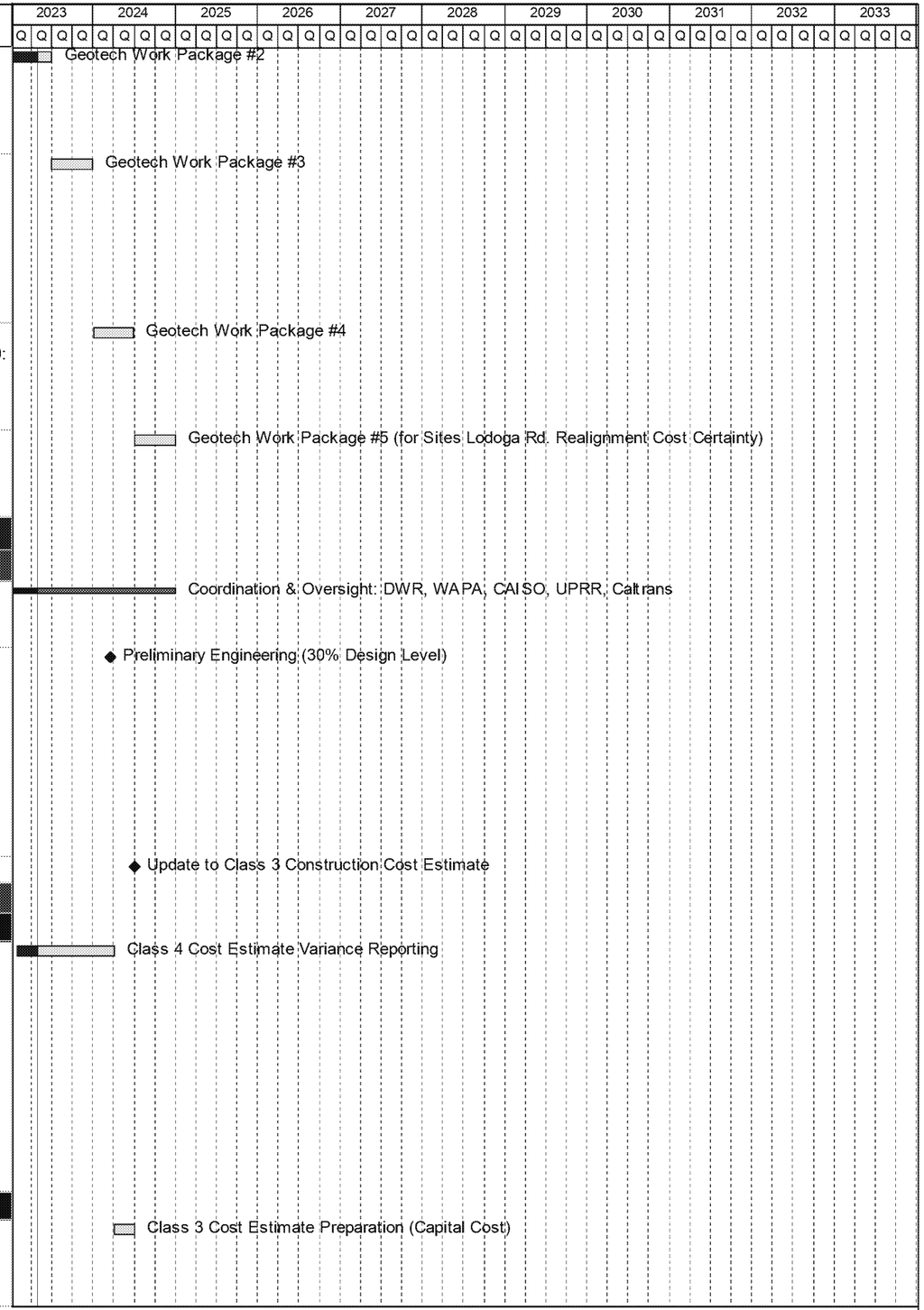
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
14	MS-3000	Construction Groundbreaking	0	09-May-25		2298	AF-1300: FS 5, MS-1500: FS 71	
15	**Geotech Program**		942	03-Jan-22 A	08-Jan-27	1869		
16	**Real Estate**		275	22-Mar-22 A	30-May-24	64		
17	**Land Access Agreements**		275	22-Mar-22 A	30-May-24	64		
18	A1250	Landowners Access Agreements for Geotech	275	22-Mar-22 A	30-May-24	64	LAAG-1500: FF, LAAY-1400: FF, LAAC-1500: FF, LAAG-1100: SS, LAAY-1100: SS, LAAC-1100: SS	
19	**Colusa County**		275	22-Mar-22 A	30-May-24	64		
20	LAAC-1200	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #2	20	22-Mar-22 A	26-May-23	79	LAAC-1100: SS	LAAC-1300: FF, GWP-1200: FF
21	LAAC-1300	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #3	35	03-Jan-23 A	19-Jun-23	64	LAAC-1200: FF	LAAC-1400: FS, GWP-1300: FS
22	LAAC-1400	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #4	120	20-Jun-23	08-Dec-23	64	LAAC-1300: FS	LAAC-1500: FS, GWP-1400: FS
23	LAAC-1500	Colusa Co. Landowners Access Agreements for Geotech Work Pkg #5	120	11-Dec-23	30-May-24	64	LAAC-1400: FS	A1250: FF, RE-1050: FF 20, GWP-1500: FS
24	**Yolo County**		155	22-Mar-22 A	08-Dec-23	74		
25	LAAY-1200	Yolo Co. Landowners Access Agreements for Geotech Work Pkg #2	20	22-Mar-22 A	26-May-23	85	LAAY-1100: SS	LAAY-1300: FF, GWP-1200: FF
26	LAAY-1300	Yolo Co. Landowners Access Agreements for Geotech Work Pkg #3	35	03-Jan-23 A	19-Jun-23	70	LAAY-1200: FF	LAAY-1400: FS, GWP-1300: FS
27	LAAY-1400	Yolo Co. Landowners Access Agreements for Geotech Work Pkg #4	120	20-Jun-23	08-Dec-23	74	LAAY-1300: FS	A1250: FF, GWP-1400: FS, RE-1050: FF 20
28	**Glenn County**		275	22-Mar-22 A	30-May-24	64		
29	LAAG-1200	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #2	20	22-Mar-22 A	26-May-23	79	LAAG-1100: SS	LAAG-1300: FF, GWP-1200: FF
30	LAAG-1300	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #3	35	03-Jan-23 A	19-Jun-23	64	LAAG-1200: FF	LAAG-1400: FS, GWP-1300: FS
31	LAAG-1400	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #4	120	20-Jun-23	08-Dec-23	64	LAAG-1300: FS	LAAG-1500: FS, GWP-1400: FS
32	LAAG-1500	Glenn Co. Landowners Access Agreements for Geotech Work Pkg #5	120	11-Dec-23	30-May-24	64	LAAG-1400: FS	A1250: FF, RE-1050: FF 20, GWP-1500: FS
33	**Geotechnical Engineering**		942	06-Sep-22 A	08-Jan-27	1869		
34	**Key Deliverables**		296	06-Sep-22 A	28-Jun-24	61		
35	KD-2015	P1A Geotechnical Investigations & Reports	168	06-Sep-22 A	29-Dec-23	61	GWP-1300: FF, GWP-1200: FF, GWP-1100: SS	
36	KD-2025	P1B Geotechnical Investigations & Reports	252	03-Jul-23	28-Jun-24	61	GWP-1400: FF, GWP-1300: SS	
37	**Geotechnical Investigations**		942	02-Jan-23 A	08-Jan-27	1869		
38	P2-GEO	P2 Geotech for Final Design	500	30-Jan-25	08-Jan-27	1869	MS-1500: FS	
39	**Test Pits & Trenches**		410	10-Apr-23 A	11-Dec-24	80		
40	TPT-1200	Geotech Test Pits & Trenches - Short Term Pemit Window (Jelica/John)	410	10-Apr-23 A	11-Dec-24	80	USFWS-130: FS, TPT-1100: FS	GWP-1500: FF, GWP-1200: SF 40, GWP-1300: SF 100, GWP-1400: SS 160
41	**Work Packages**		421	02-Jan-23 A	30-Dec-24	2390		



Remaining Level of Effort — Remaining Work
Actual Level of Effort — Critical Remaining Work
Actual Work — ◆ Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

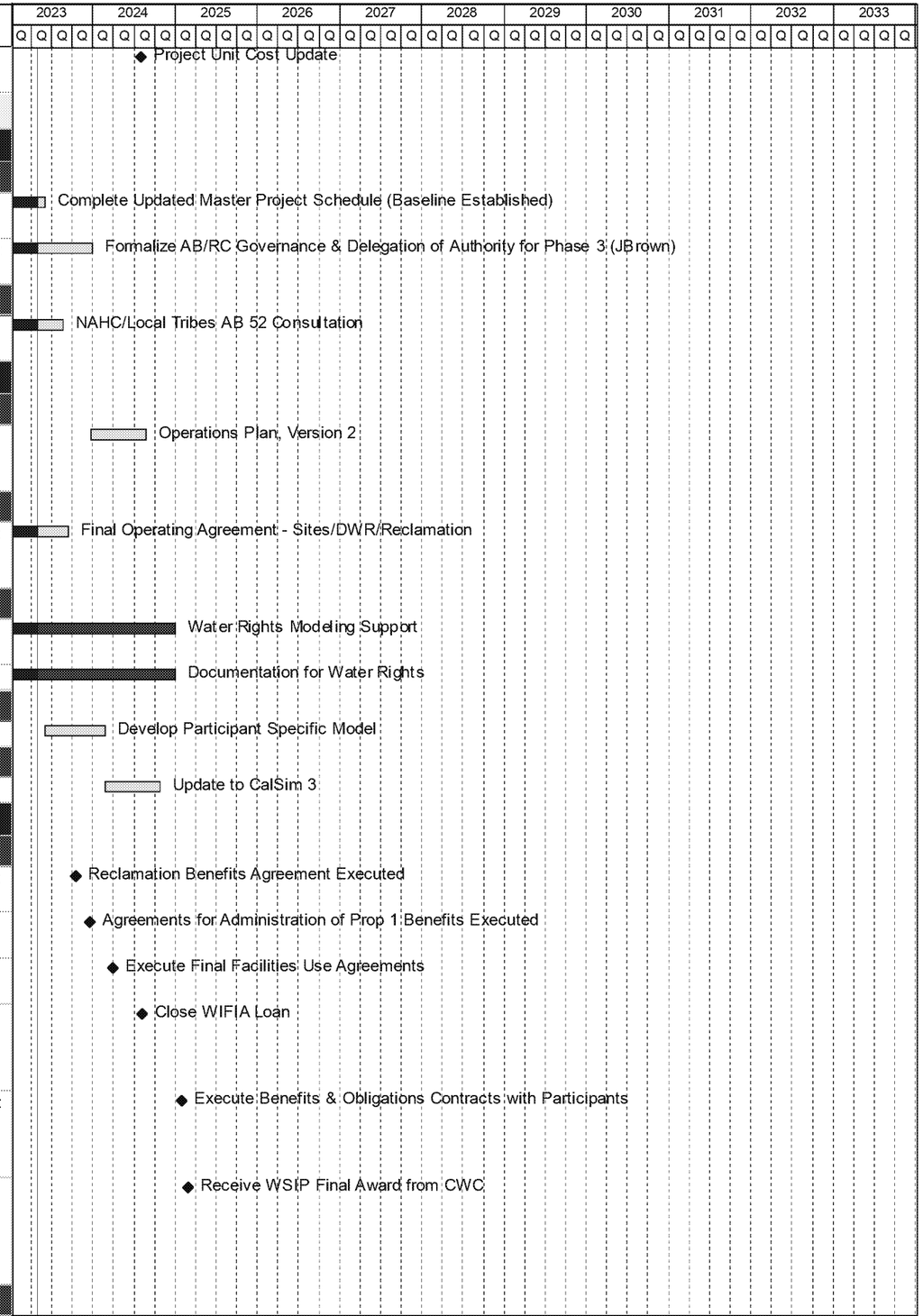
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
42	GWP-1200	Geotech Work Package #2	44	02-Jan-23 A	30-Jun-23	61	LAAY-1200: FF, LAAG-1200: FF, LAAC-1200: FF, EA-200: FS, TPT-1200: SF 40, GWP-1100: FS 2	KD-2015: FF, KD-2020: FF 120, KD-2090: FF 120, GWP-1300: FS
43	GWP-1300	Geotech Work Package #3	124	03-Jul-23	29-Dec-23	61	IS-205: FS, LAAY-1300: FS, LAAG-1300: FS, LAAC-1300: FS, EA-200: FS, TPT-1200: SF 100, GWP-1200: FS	KD-2025: SS, KD-2015: FF, KD-2030: FF, KD-1660: FF, KD-2040: FF, KD-2050: FF, KD-2060: FF, KD-1650: FF, KD-2100: FF, C4E-1000: FF 15, GWP-1400: FS
44	GWP-1400	Geotech Work Package #4	128	02-Jan-24	28-Jun-24	61	IS-205: FS, LAAY-1400: FS, LAAG-1400: FS, LAAC-1400: FS, EA-200: FS, TPT-1200: SS 160, GWP-1300: FS	GWP-1500: FS, KD-2025: FF, C3E-1000: SF 132
45	GWP-1500	Geotech Work Package #5 (for Sites Lodoga Rd. Realignment Cost Certainty)	125	01-Jul-24	30-Dec-24	2390	GWP-1400: FS, IS-205: FS, LAAG-1500: FS, LAAC-1500: FS, TPT-1200: FF	
46	**Preliminary Engineering**		421	03-Jan-22 A	30-Dec-24	0		
47	**Key Deliverables**		421	03-Jan-22 A	30-Dec-24	0		
48	A1180	Coordination & Oversight: DWR, WAPA, CAISO, UPRR, Caltrans	418	03-Jan-22 A	30-Dec-24	0	A1110: FF, A1120: FF, A1130: SS, A1140: SS, A1160: FF, A1150: FF	
49	KD-1180	Preliminary Engineering (30% Design Level)	0		20-Mar-24	71	KD-2100: FF, KD-2090: FF, KD-2080: FF, KD-2070: FF, KD-2060: FF, KD-2050: FF, KD-2040: FF, KD-2030: FF, KD-2020: FF, KD-2010: FF, KD-1650: FF, KD-1640: FS, KD-1660: FF, KD-1630: FF	C3E-1000: FS
50	KD-1190	Update to Class 3 Construction Cost Estimate	0		05-Jul-24	121	C3E-1000: FF	MS-5000: FF
51	**Cost Estimate**		317	30-Jan-23 A	30-Jul-24	77		
52	**Class 4 Cost Estimate Variance Reporting**		235	30-Jan-23 A	03-Apr-24	126		
53	C4E-1000	Class 4 Cost Estimate Variance Reporting	235	30-Jan-23 A	03-Apr-24	126	KD-1630: FF 10, KD-1660: FF 10, KD-1650: FF 10, GWP-1300: FF 15, CE-1570: FF, KD-2010: FF 10, KD-2020: FF 10, KD-2030: FF 10, KD-2040: FF 10, KD-2050: FF 10, KD-2060: FF 10, KD-2090: FF 10, KD-2100: FF 10	C3E-1000: FF
54	**Class 3 Cost Estimate**		82	04-Apr-24	30-Jul-24	77		
55	C3E-1000	Class 3 Cost Estimate Preparation (Capital Cost)	65	04-Apr-24	05-Jul-24	61	KD-1180: FS, RE-1050: FF 2, CE-1570: FS, GWP-1400: SF 132, C4E-1000: FF	KD-1190: FF, KD-1210: FF 60, MS-1700: FF, CU-1000: FS 17



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

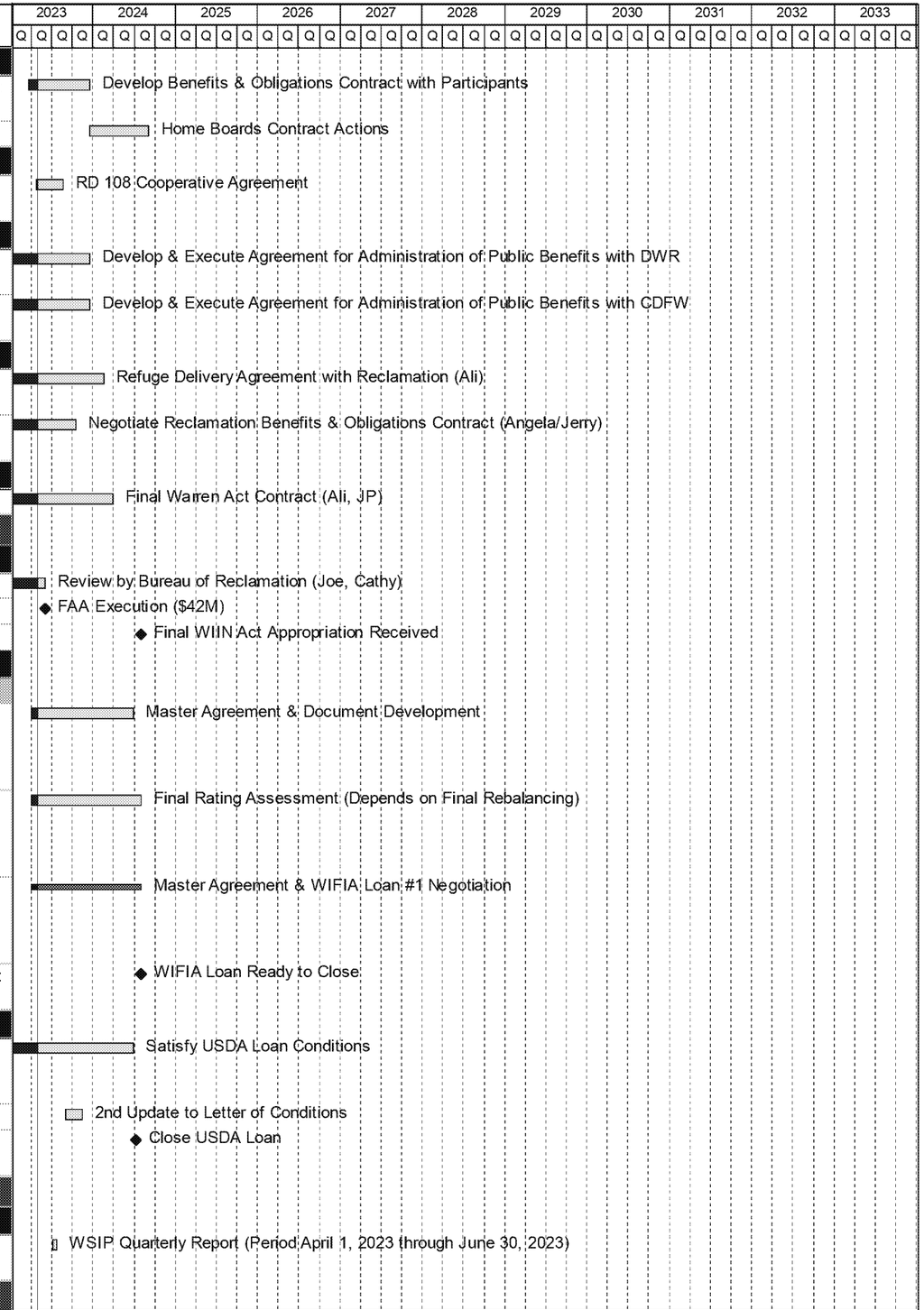
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
56	CU-1000	Project Unit Cost Update	0		30-Jul-24	77	OS-1150: FF, C3E-1000: FS 17	MS-1500: FF 5, MS-1450: FF
57	**Project Development**		1542	01-Sep-20 A	27-Apr-29	1269		
58	**Planning**		168	01-Sep-20 A	31-Dec-23	253		
59	**Key Deliverables**		168	24-Jan-22 A	31-Dec-23	253		
60	KD-1130	Complete Updated Master Project Schedule (Baseline Established)	22	24-Jan-22 A	31-May-23	399	CS-1400: FF 40	MS-5000: FF
61	KD-1290	Formalize AB/RC Governance & Delegation of Authority for Phase 3 (JBrown)	245	06-Sep-22 A	31-Dec-23	327	MS-1100: FS 14	BO-1300: SF, MS-1500: FF
62	**NAHC/Local Tribes AB 52 Consultation**		78	01-Sep-20 A	18-Aug-23	22		
63	STA-120	NAHC/Local Tribes AB 52 Consultation	78	01-Sep-20 A	18-Aug-23	22	EIR-250: FF	MS-5000: FF, OP-470: SF, OP-450: SF
64	**Reservoir Operations & Modeling**		422	03-Jan-22 A	31-Dec-24	-1		
65	**Operations Plan - Version 2**		172	21-Dec-23	23-Aug-24	86		
66	KD-1510	Operations Plan, Version 2	172	21-Dec-23	23-Aug-24	86	KD-1370: FS, KD-1380: FS, OP-475: FS, OP-1005: FS	MS-5000: FF
67	**Final Sites DWR/Reclamation Operating Agreement**		93	19-Apr-22 A	11-Sep-23	156		
68	OP-1005	Final Operating Agreement - Sites/DWR/Reclamation	93	19-Apr-22 A	11-Sep-23	156	EIR-380: FF	KD-1510: FS, KD-1240: FS, MS-1400: FS, MS-1320: FS
69	**Water Rights Modeling**		422	03-Jan-22 A	31-Dec-24	-1		
70	A1200	Water Rights Modeling Support	422	03-Jan-22 A	31-Dec-24	-1	WRP-120: FF, MS-1400: FF	A1210: FF
71	A1210	Documentation for Water Rights	422	03-Jan-22 A	31-Dec-24	-1	A1200: FF	MS-5000: FS
72	**Sites Specific Model**		183	01-Jun-23	21-Feb-24	42		
73	OS-1150	Develop Participant Specific Model	183	01-Jun-23	21-Feb-24	42	A1220: FS 51	A1230: FS, CU-1000: F
74	**Update to CalSim 3**		174	22-Feb-24	25-Oct-24	42		
75	A1230	Update to CalSim 3	174	22-Feb-24	25-Oct-24	42	OS-1150: FS	MS-5000: FF
76	**Project Agreements & Funding**		522	01-Jun-21 A	21-May-25	2289		
77	**Key Deliverables**		345	17-Oct-23	28-Feb-25	-43		
78	KD-1260	Reclamation Benefits Agreement Executed	0		17-Oct-23	302	WIIN-1170: FF, WIIN-1140: FS	KD-1310: FS, KD-1300: FF
79	KD-1520	Agreements for Administration of Prop 1 Benefits Executed	0		15-Dec-23	216	PB-1200: FF, PB-1100: FF	KD-1310: FF 45
80	KD-1230	Execute Final Facilities Use Agreements	0		28-Mar-24	190	FED-090: FF, FO-1040: FF, FO-1020: FF	MS-5000: FF
81	KD-2600	Close WIFIA Loan	0		07-Aug-24	98	WIFIA-230: FS, WIFIA-220: FF 5, WIFIA-210: FF 5, KD-1255: FF	MS-1600: FF
82	KD-1300	Execute Benefits & Obligations Contracts with Participants	0		29-Jan-25	-21	BO-1400: FS, KD-1260: FF, BO-1300: FF, WIIN-1170: FF, MS-1500: FF	KD-1310: FS, MS-5000: FF
83	KD-1310	Receive WSIP Final Award from CWC	0		28-Feb-25	-43	KD-1260: FS, KD-1300: FS, EIR-450: FF, EIR-380: FF, KD-1520: FF 45, MS-1400: FF 5, MS-1500: FF 22	MS-5000: FF
84	**Inter-Agency Agreements**		341	01-Jun-21 A	03-Sep-24	2470		



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

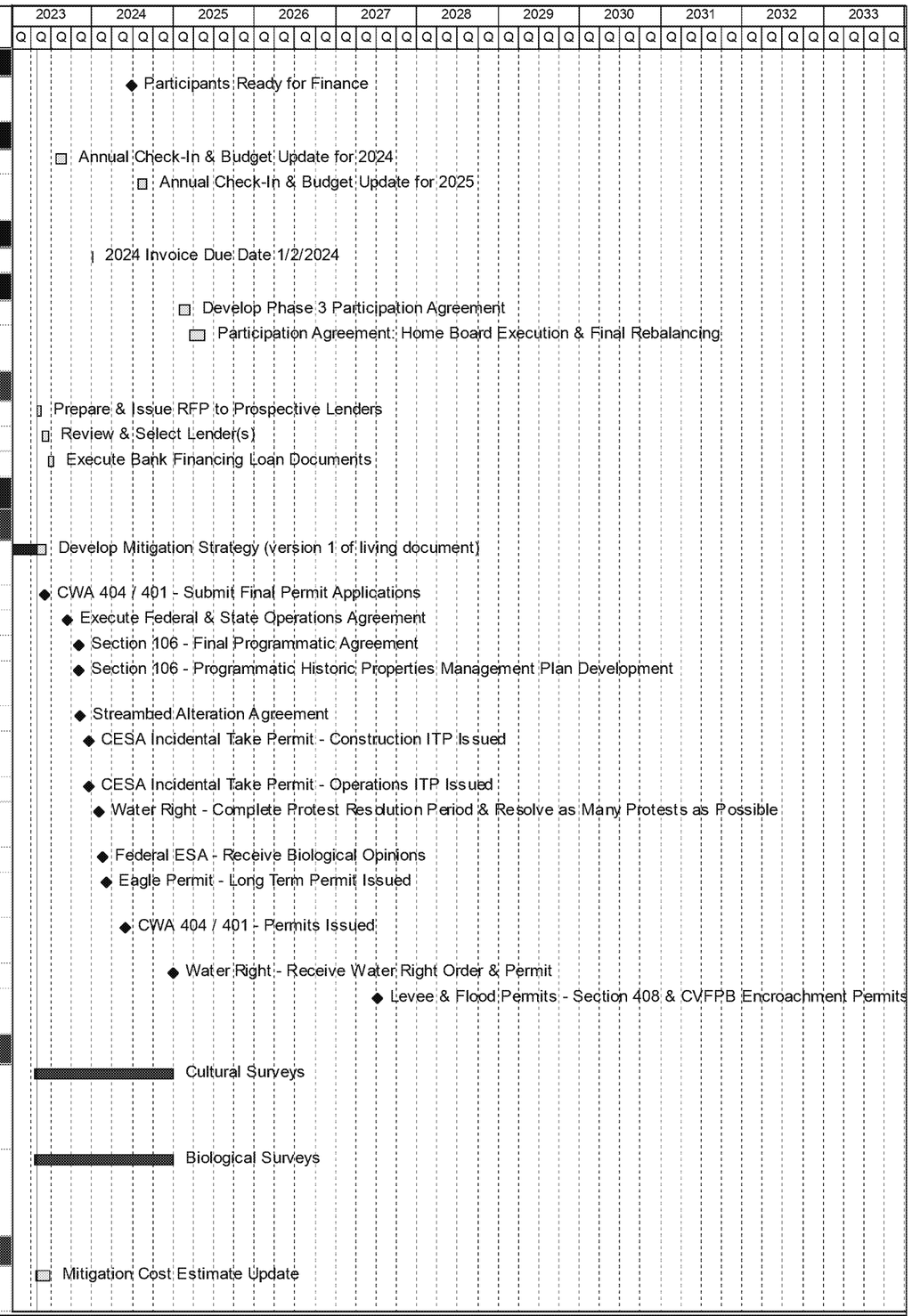
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
85		**Benefits & Obligations Contract with Participants**	341	20-Mar-23 A	03-Sep-24	80		
86	BO-1300	Develop Benefits & Obligations Contract with Participants	160	20-Mar-23 A	15-Dec-23	81	BO-1100: FS 49, KD-1290: SF	BO-1400: FS, KD-1300: FF
87	BO-1400	Home Boards Contract Actions	180	18-Dec-23	03-Sep-24	80	BO-1300: FS	KD-1300: FS
88		**Facility Use Agreeements**	78	24-Apr-23 A	18-Aug-23	343		
89	FO-1040	RD 108 Cooperative Agreement	78	24-Apr-23 A	18-Aug-23	343	FO-1020: SS 351, FO-1020: FS 45	KD-1230: FF
90		**Agreements for Administration of Public Benefits**	160	31-Mar-22 A	15-Dec-23	216		
91	PB-1100	Develop & Execute Agreement for Administration of Public Benefits with DWR	160	31-Mar-22 A	15-Dec-23	216	MS-1000: SS	KD-1520: FF
92	PB-1200	Develop & Execute Agreement for Administration of Public Benefits with CDFW	160	31-Mar-22 A	15-Dec-23	216	MS-1000: SS	KD-1520: FF
93		**Federal Funding Committment**	204	12-Dec-22 A	20-Feb-24	2607		
94	Refuge	Refuge Delivery Agreement with Reclamation (Ali)	201	12-Dec-22 A	20-Feb-24	2615	MS-1300: FF, WIIN-1170: SS	
95	WIIN-1170	Negotiate Reclamation Benefits & Obligations Contract (Angela/Jerry)	119	16-Dec-22 A	17-Oct-23	302	WIIN-1180: FS	Refuge: SS, KD-1260: FF, KD-1300: FF
96		**US Bureau of Reclamation Warren Act**	231	01-Jun-21 A	28-Mar-24	190		
97	FED-090	Final Warren Act Contract (Ali, JP)	231	01-Jun-21 A	28-Mar-24	190	EIR-450: FF	KD-1230: FF
98		**Federal Funding**	318	10-Jun-22 A	31-Jul-24	2493		
99		**WIIN Act FAA**	318	10-Jun-22 A	31-Jul-24	2493		
100	WIIN-1190	Review by Bureau of Reclamation (Joe, Cathy)	31	10-Jun-22 A	31-May-23	3935		WIIN-1210: FF
101	WIIN-1210	FAA Execution ($42M)	0		31-May-23	3935	WIIN-1190: FF	
102	WIIN-1200	Final WIIN Act Appropriation Received	0		31-Jul-24	2501	WIFIA-230: FF	
103		**WIFIA Loan**	318	04-Apr-23 A	31-Jul-24	81		
104		**WIFIA Negotiation**	318	04-Apr-23 A	31-Jul-24	81		
105	WIFIA-210	Master Agreement & Document Development	296	04-Apr-23 A	28-Jun-24	81	WIFIA-140: FS 3	FC-1290: FF, WIFIA-240: FF, WIFIA-240: SS, WIFIA-230: FF,
106	WIFIA-220	Final Rating Assessment (Depends on Final Rebalancing)	318	04-Apr-23 A	31-Jul-24	81	WIFIA-210: SS	WIFIA-240: FF, WIFIA-240: SS, WIFIA-230: FF, KD-2600: FF 5
107	WIFIA-240	Master Agreement & WIFIA Loan #1 Negotiation	315	04-Apr-23 A	31-Jul-24	81	WIFIA-220: FF, WIFIA-210: FF, WIFIA-220: SS, WIFIA-210: SS	
108	WIFIA-230	WIFIA Loan Ready to Close	0		31-Jul-24	81	WIFIA-220: FF, WIFIA-210: FF	MS-1500: FS, KD-2600: FS, WIIN-1200: FF
109		**USDA Loan**	301	02-Sep-22 A	08-Jul-24	2510		
110	USDA-1060	Satisfy USDA Loan Conditions	296	02-Sep-22 A	28-Jun-24	120		USDA-1040: SS 32, MS-5000: FF, USDA-1070: FF 5
111	USDA-1080	2nd Update to Letter of Conditions	50	01-Sep-23	14-Nov-23	2679	USDA-1050: FF 300	
112	USDA-1070	Close USDA Loan	0		08-Jul-24	120	USDA-1040: FS, USDA-1060: FF 5	MS-5000: FF
113		**State Funding (Water Storage Investment Program, **	15	05-Jul-23	25-Jul-23	361		
114		**WSIP Early Funding Administration**	15	05-Jul-23	25-Jul-23	361		
115	WSIP-1260	WSIP Quarterly Report (Period April 1, 2023 through June 30, 2023)	15	05-Jul-23	25-Jul-23	361	WSIP-1250: FS 50	MS-5000: FF
116		**Local Funding**	462	26-Jul-23	21-May-25	2289		



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

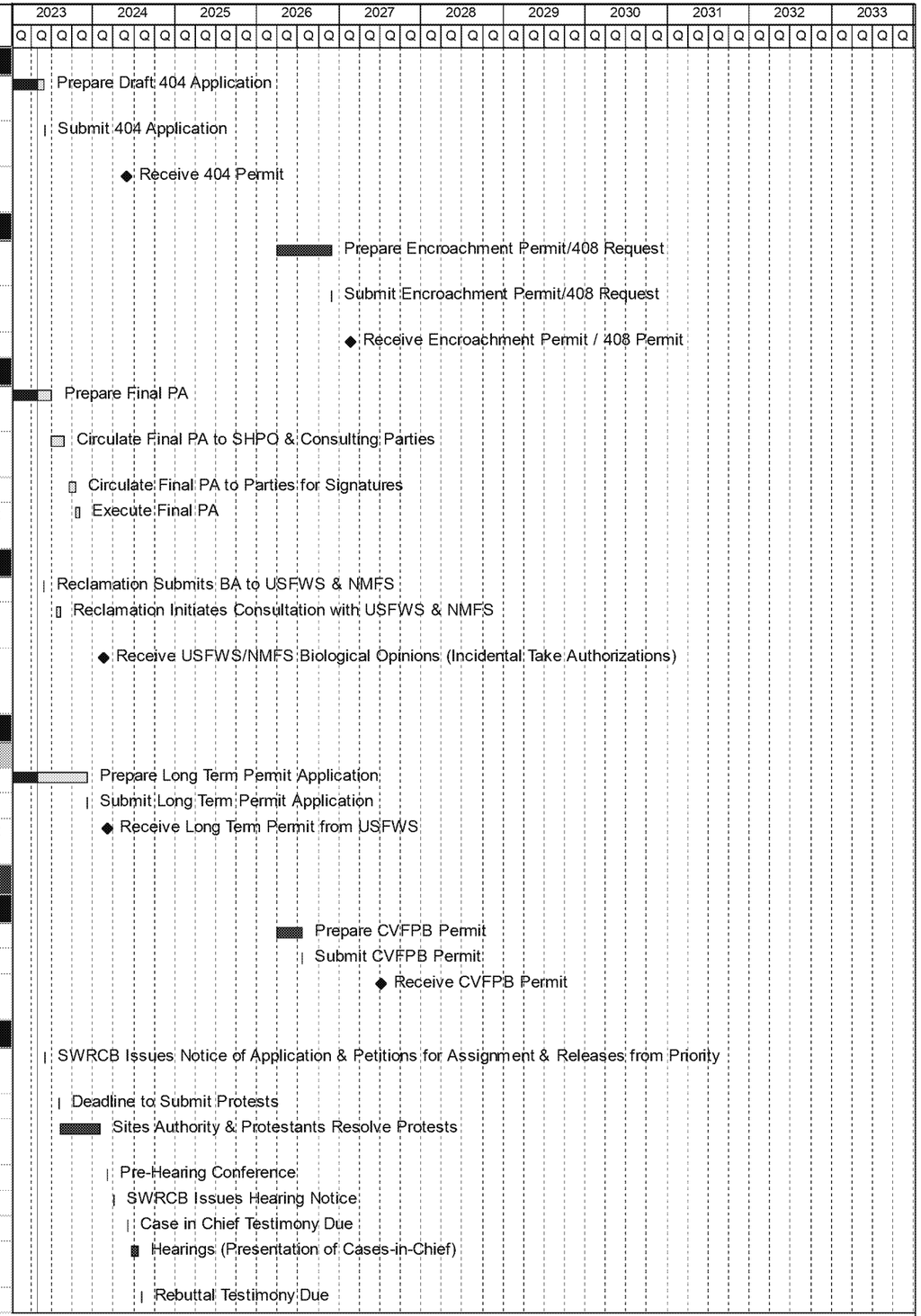
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
117	**Finance Check-Ins**		0	28-Jun-24	28-Jun-24	2523		
118	FC-1290	Participants Ready for Finance	0		28-Jun-24	2523	WIFIA-210: FF, FC-1280: FF 64	
119	**Acre/Feet Participation (Reservoir Committee Cash Call**		283	26-Jul-23	05-Sep-24	78		
120	AF-1200	Annual Check-In & Budget Update for 2024	30	26-Jul-23	06-Sep-23	78	AF-1100: FS 223	AF-1300: FS 223
121	AF-1300	Annual Check-In & Budget Update for 2025	30	25-Jul-24	05-Sep-24	78	AF-1200: FS 223	MS-3000: FS 5, MS-5000: FF
122	**Authority Board (Dues)**		1	02-Jan-24	02-Jan-24	0		
123	AB-2300	2024 Invoice Due Date 1/2/2024	1	02-Jan-24	02-Jan-24*	0	AB-2200: FS	MS-5000: FF
124	**Phase 3 Participation Agreement**		80	30-Jan-25	21-May-25	2289		
125	PA-1100	Develop Phase 3 Participation Agreement	30	30-Jan-25	12-Mar-25	2289	MS-1500: FS	PA-1200: FS
126	PA-1200	Participation Agreement: Home Board Execution & Final Rebalancing	50	13-Mar-25	21-May-25	2289	PA-1100: FS	
127	**Bank Financing (if needed)**		50	01-May-23	11-Jul-23	371		
128	BF-1100	Prepare & Issue RFP to Prospective Lenders	15	01-May-23	19-May-23	371	WIFIA-140: SS	BF-1200: FS
129	BF-1200	Review & Select Lender(s)	20	22-May-23	19-Jun-23	371	BF-1100: FS	BF-1300: FS
130	BF-1300	Execute Bank Financing Loan Documents	15	20-Jun-23	11-Jul-23	371	BF-1200: FS	MS-5000: FF
131	**Permitting**		1071	04-Jan-21 A	08-Jul-27	1740		
132	**Key Deliverables**		1071	21-Nov-22 A	08-Jul-27	1740		
133	KD-1460	Develop Mitigation Strategy (version 1 of living document)	29	21-Nov-22 A	09-Jun-23	260	MS-1100: FS 14	CE-1570: FF 7
134	KD-1390	CWA 404 / 401 - Submit Final Permit Applications	0		31-May-23	2789	404-120: FF, 401-210: I	
135	KD-1240	Execute Federal & State Operations Agreement	0		11-Sep-23	328	OP-1005: FS	MS-5000: FF
136	KD-1350	Section 106 - Final Programmatic Agreement	0		31-Oct-23	292	106-102: FS	MS-5000: FF
137	KD-1360	Section 106 - Programmatic Historic Properties Management Plan Development	0		31-Oct-23	292	106-102: FS, 106-081: FF 20	MS-5000: FF
138	KD-1420	Streambed Alteration Agreement	0		07-Nov-23	287	1600-220: FF	MS-5000: FF
139	KD-1370	CESA Incidental Take Permit - Construction ITP Issued	0		20-Dec-23	86	2081-220: FS	KD-1510: FS
140	KD-1380	CESA Incidental Take Permit - Operations ITP Issu	0		20-Dec-23	86	2081-120: FS	KD-1510: FS
141	KD-1320	Water Right - Complete Protest Resolution Period & Resolve as Many Protests as Possible	0		02-Feb-24	229	WRP-116: FS, WRP-110: FS 280	MS-5000: FF
142	KD-1340	Federal ESA - Receive Biological Opinions	0		20-Feb-24	217	BA-220: FF	MS-5000: FF
143	KD-1440	Eagle Permit - Long Term Permit Issued	0		06-Mar-24	206	USFWS-160: FS, MS-1000: SS	MS-5000: FF
144	KD-1400	CWA 404 / 401 - Permits Issued	0		31-May-24	145	404-130: FS, 401-220: FF	MS-5000: FF
145	KD-1330	Water Right - Receive Water Right Order & Permit	0		31-Dec-24	2389	WRP-120: FF	
146	KD-1410	Levee & Flood Permits - Section 408 & CVFPB Encroachment Permits Issued	0		08-Jul-27	-650	CVFPB-220: FF, 408-170: FF	MS-5000: FF
147	**Field Surveys**		421	17-Apr-23 A	30-Dec-24	0		
148	RE-1030	Cultural Surveys	421	17-Apr-23 A	30-Dec-24	0	LAAG-1100: FS, LAAY-1100: FS, LAAC-1100: FS 80, GWP-1100: FS 41	MS-5000: FF
149	RE-1040	Biological Surveys	421	17-Apr-23 A	30-Dec-24	0	LAAG-1100: FS, LAAY-1100: FS, LAAC-1100: FS 67, GWP-1100: FS 41	MS-5000: FF
150	**Federal Agency Agreements & Permits**		972	04-Feb-21 A	19-Feb-27	-551		
151	CE-1570	Mitigation Cost Estimate Update	40	25-Apr-23 A	26-Jun-23	256	KD-1460: FF 7	C3E-1000: FS, C4E-1000: FF



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

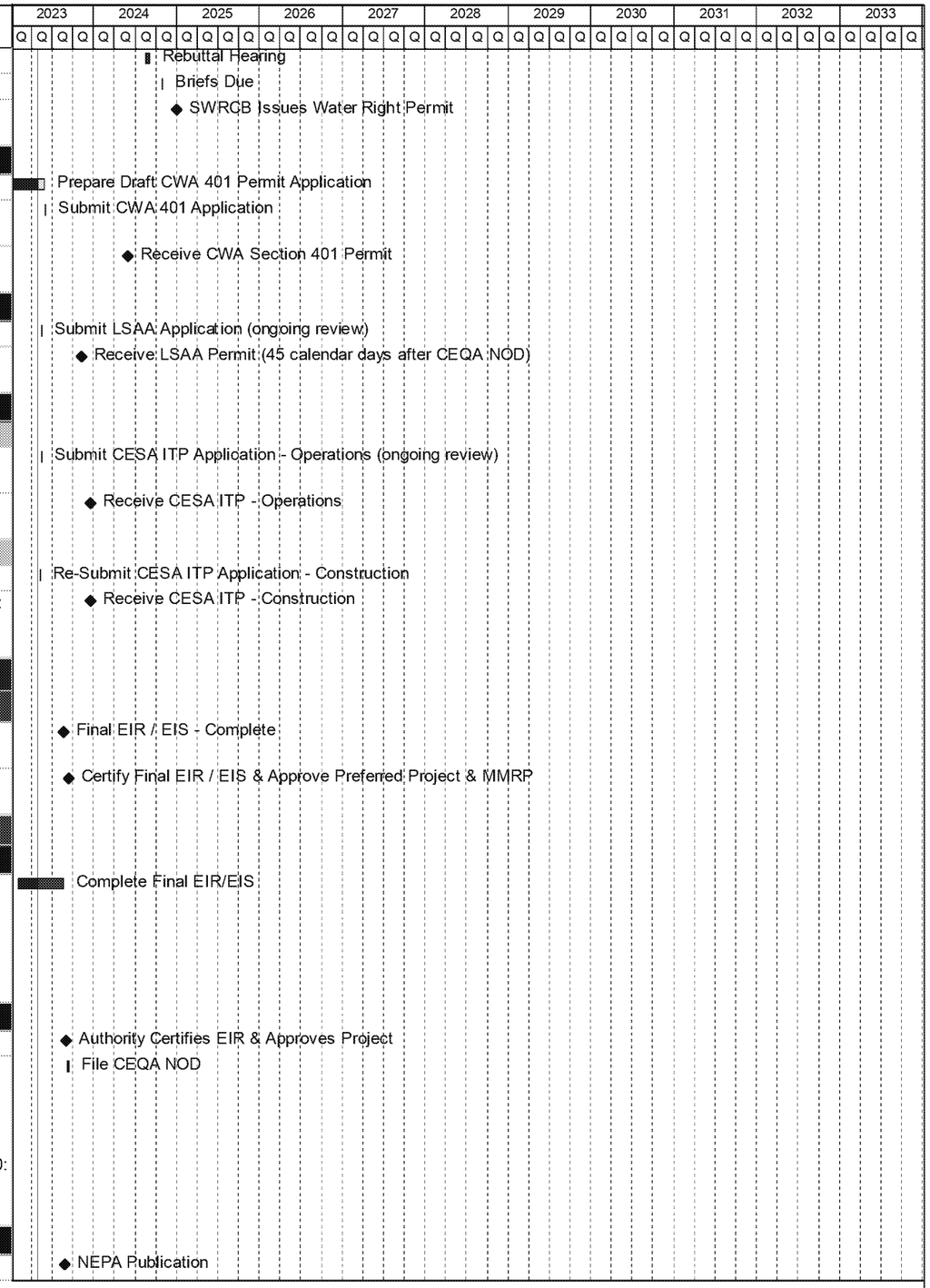
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
152		**Clean Water Act Section 404**	276	04-Feb-21 A	31-May-24	145		
153	404-050	Prepare Draft 404 Application	21	04-Feb-21 A	30-May-23	145	EIR-250: SF 20	408-150: FF, 404-120: FS
154	404-120	Submit 404 Application	1	31-May-23	31-May-23	145	404-050: FS	404-130: FF 254, KD-1390: FF
155	404-130	Receive 404 Permit	0		31-May-24	145	404-120: FF 254, 401-220: FF	KD-1400: FS
156		**US Army Corps of Engineers Rivers & Harbors Act Sect**	233	01-Apr-26	19-Feb-27	-551		
157	408-150	Prepare Encroachment Permit/408 Request	172	01-Apr-26	26-Nov-26	-551	KD-1110: FS, 404-050: FF, EIR-450: FF	408-160: FS
158	408-160	Submit Encroachment Permit/408 Request	1	27-Nov-26	27-Nov-26	-551	EIR-450: FS, 408-150: FS	408-170: FF 60
159	408-170	Receive Encroachment Permit / 408 Permit	0		19-Feb-27	-551	408-160: FF 60	KD-1410: FF
160		**Advisory Council on Historic Preservation NHPA Sectio**	129	14-Mar-22 A	31-Oct-23	231		
161	106-081	Prepare Final PA	44	14-Mar-22 A	30-Jun-23	231	106-072: FS	KD-1360: FF 20, 106-092: FS
162	106-092	Circulate Final PA to SHPO & Consulting Parties	40	03-Jul-23	28-Aug-23	231	106-081: FS	106-102: FS, 106-096: FS 15
163	106-096	Circulate Final PA to Parties for Signatures	20	20-Sep-23	17-Oct-23	231	106-092: FS 15	106-102: FS
164	106-102	Execute Final PA	10	18-Oct-23	31-Oct-23	231	EIR-250: FS, 106-092: FS, 106-096: FS	KD-1360: FS, KD-1350: FS, EIR-450: FS
165		**USFWS & NMFS Endangered Species Act Section 7**	184	30-May-23	20-Feb-24	22		
166	BA-210	Reclamation Submits BA to USFWS & NMFS	1	30-May-23	30-May-23	22	BA-200: FS 55	BA-215: SS 39
167	BA-215	Reclamation Initiates Consultation with USFWS & NMFS	10	25-Jul-23	07-Aug-23	22	BA-210: SS 39	BA-220: FF 135
168	BA-220	Receive USFWS/NMFS Biological Opinions (Incidental Take Authorizations)	0		20-Feb-24	22	BA-215: FF 135	WRP-117d: FS, KD-1340: FF, EIR-450: FS, MS-1150: FF
169		**USFWS Bald Eagle Protection Act**	215	27-Jul-22 A	06-Mar-24	206		
170		Long Term Permit	215	27-Jul-22 A	06-Mar-24	206		
171	USFWS-140	Prepare Long Term Permit Application	151	27-Jul-22 A	04-Dec-23	206	USFWS-120: FS	USFWS-150: FS
172	USFWS-150	Submit Long Term Permit Application	1	05-Dec-23	05-Dec-23	206	USFWS-140: FS	USFWS-160: FF 63
173	USFWS-160	Receive Long Term Permit from USFWS	0		06-Mar-24	206	USFWS-150: FF 63	MS-5000: FF, KD-1440: FS
174		**State Agency Agreements & Permits**	1071	04-Jan-21 A	08-Jul-27	1740		
175		**Central Valley Flood Protection Board (CVFPB) Levee E**	332	01-Apr-26	08-Jul-27	-650		
176	CVFPB-200	Prepare CVFPB Permit	81	01-Apr-26	22-Jul-26	-650	KD-1110: FS	CVFPB-210: FS
177	CVFPB-210	Submit CVFPB Permit	1	23-Jul-26	23-Jul-26	-650	CVFPB-200: FS	CVFPB-220: FF 250
178	CVFPB-220	Receive CVFPB Permit	0		08-Jul-27	-650	EIR-380: FS, CVFPB-210: FF 250	KD-1410: FF
179		**SWRCB Water Right Permit**	398	05-Jun-23	31-Dec-24	-64		
180	WRP-115b	SWRCB Issues Notice of Application & Petitions for Assignment & Releases from Priority	1	05-Jun-23	05-Jun-23	-64	WRP-115a: FS 24	WRP-115c: FS 42
181	WRP-115c	Deadline to Submit Protests	1	04-Aug-23	04-Aug-23	-64	WRP-115b: FS 42	WRP-116: FS
182	WRP-116	Sites Authority & Protestants Resolve Protests	122	07-Aug-23	02-Feb-24	-64	WRP-115c: FS	KD-1320: FS, WRP-117a: FS 21
183	WRP-117a	Pre-Hearing Conference	1	06-Mar-24	06-Mar-24	-64	WRP-116: FS 21	WRP-117b: FS 21
184	WRP-117b	SWRCB Issues Hearing Notice	1	05-Apr-24	05-Apr-24	-64	WRP-117a: FS 21	WRP-117c: FS 42
185	WRP-117c	Case in Chief Testimony Due	1	06-Jun-24	06-Jun-24	-64	WRP-117b: FS 42	WRP-117d: FS 10
186	WRP-117d	Hearings (Presentation of Cases-in-Chief)	20	21-Jun-24	19-Jul-24	-64	BA-220: FS, WRP-117c: FS 10	WRP-117e: FS 10
187	WRP-117e	Rebuttal Testimony Due	1	05-Aug-24	05-Aug-24	-64	WRP-117d: FS 10	WRP-117f: FS 10



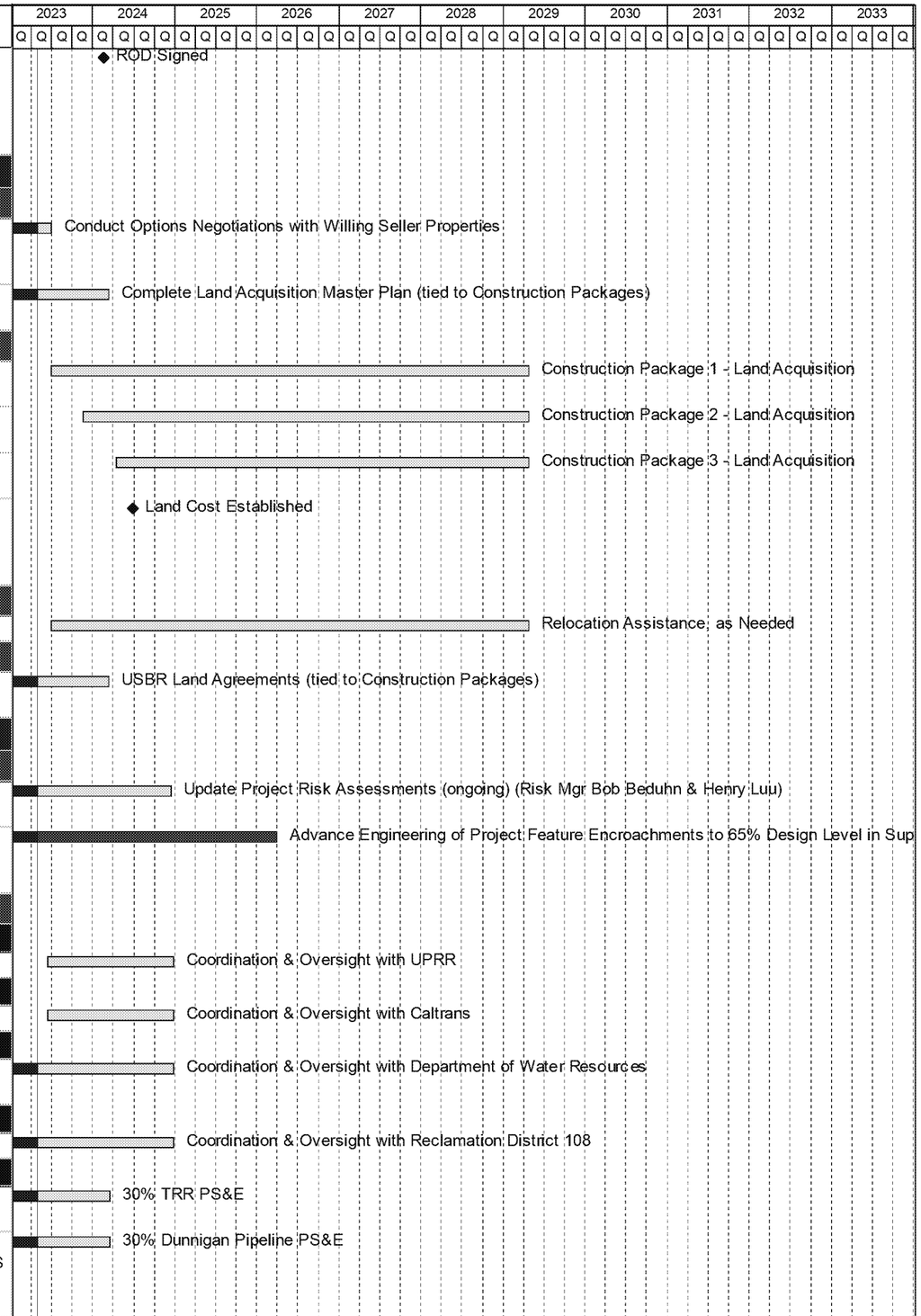
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
188	WRP-117f	Rebuttal Hearing	10	20-Aug-24	03-Sep-24	-64	WRP-117e: FS 10	WRP-117g: FS 40
189	WRP-117g	Briefs Due	1	30-Oct-24	30-Oct-24	-64	WRP-117f: FS 40	WRP-120: FS 40
190	WRP-120	SWRCB Issues Water Right Permit	0		31-Dec-24	-64	EIR-380: FS, WRP-117g: FS 40	A1200: FF, MS-1400: FF, KD-1330: FF
191	**SWB CWA Section 401 Water Quality Certification**		276	04-Jan-21 A	31-May-24	145		
192	401-200	Prepare Draft CWA 401 Permit Application	21	04-Jan-21 A	30-May-23	145	EIR-250: SF 20	401-210: FS
193	401-210	Submit CWA 401 Application	1	31-May-23	31-May-23	145	401-200: FS	401-220: FS 254, KD-1390: FF
194	401-220	Receive CWA Section 401 Permit	0		31-May-24	145	401-210: FS 254	MS-5000: FF, KD-1400: FF, 404-130: FF
195	**CDFW Streambed Alteration Agreements**		122	17-May-23	07-Nov-23	287		
196	1600-210	Submit LSAA Application (ongoing review)	1	17-May-23	17-May-23	287	1600-200: FS 76	1600-220: FF 121
197	1600-220	Receive LSAA Permit (45 calendar days after CEQA NOD)	0		07-Nov-23	287	EIR-380: FF 33, 1600-210: FF 121	KD-1420: FF
198	**CDFW Incidental Take Permits**		155	11-May-23	20-Dec-23	2648		
199	**ITP - CESA (Se 2081) Operations**		151	17-May-23	20-Dec-23	86		
200	2081-110	Submit CESA ITP Application - Operations (ongoing review)	1	17-May-23	17-May-23	86	2081-100: FS 76	2081-215: FF -4, 2081-120: FF 150
201	2081-120	Receive CESA ITP - Operations	0		20-Dec-23	86	EIR-380: FF 33, 2081-110: FF 150	2081-220: FF, KD-1380: FS, MS-1320: FF
202	**ITP - CESA (Se 2081) Construction**		155	11-May-23	20-Dec-23	2648		
203	2081-215	Re-Submit CESA ITP Application - Construction	1	11-May-23	12-May-23	2807	2081-110: FF -4	
204	2081-220	Receive CESA ITP - Construction	0		20-Dec-23	86	EIR-380: FF 33, 2081-120: FF, 2081-210: FF 60	KD-1370: FS, MS-1340: FF
205	**Environmental**		204	01-Feb-23 A	20-Feb-24	2607		
206	**Key Deliverables**		15	18-Aug-23	11-Sep-23	2718		
207	KD-1470	Final EIR / EIS - Complete	0		18-Aug-23	2733	MS-1000: SS, EIR-250: FF	
208	KD-1480	Certify Final EIR / EIS & Approve Preferred Project & MMRP	0		11-Sep-23	306	EIR-380: FF	MS-1500: FF
209	**EIR/EIS**		204	01-Feb-23 A	20-Feb-24	156		
210	**Final EIR/Final EIS**		78	01-Feb-23 A	18-Aug-23	-172		
211	EIR-250	Complete Final EIR/EIS	78	01-Feb-23 A	18-Aug-23	-172	EIR-210: FS, EIR-220: FS	106-102: FS, 404-050: SF 20, EIR-440: FF 5, EIR-370: FF 10, MS-1200: FF, KD-1470: FF, STA-120: FF, 401-200: SF 20
212	**Authority Certifies EIR & Approves Project & File NOD**		5	01-Sep-23	11-Sep-23	-172		
213	EIR-370	Authority Certifies EIR & Approves Project	0		01-Sep-23	-172	EIR-250: FF 10	EIR-380: FS
214	EIR-380	File CEQA NOD	5	05-Sep-23	11-Sep-23	-172	EIR-370: FS	KD-1310: FF, CVFPB-220: FS, 2081-220: FF 33, 2081-120: FF 33, 1600-220: FF 33, WRP-120: FS, KD-1480: FF, OP-1005: FF, X1.OE2: FF
215	**ROD**		121	25-Aug-23	20-Feb-24	156		
216	EIR-440	NEPA Publication	0		25-Aug-23	255	EIR-250: FF 5	EIR-450: FS 22



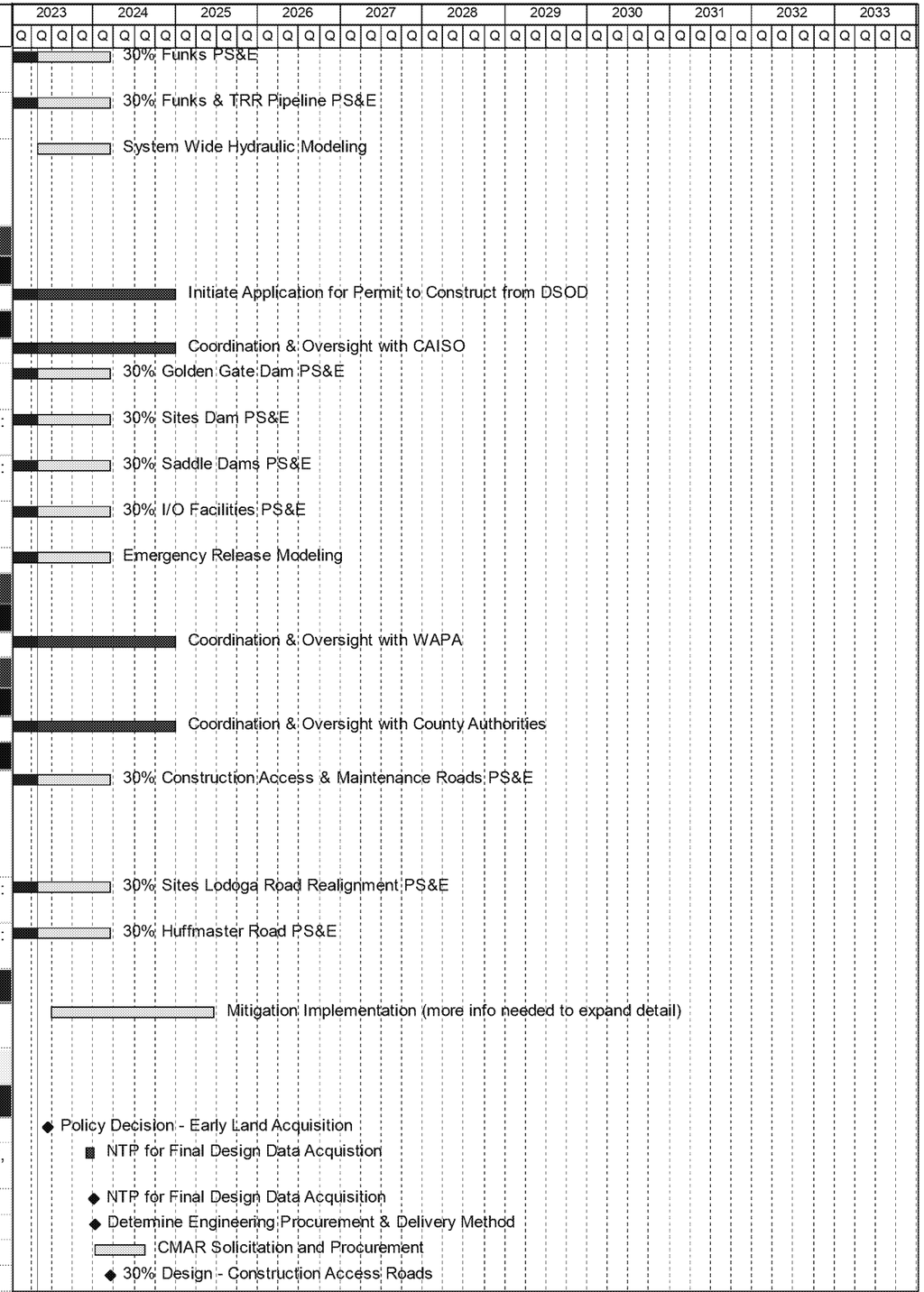
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
217	EIR-450	ROD Signed	0		20-Feb-24	156	106-102: FS, BA-220: FS, EIR-440: FS 22	KD-1310: FF, 408-150: FF, FED-100: FF, 408-160: FS, FED-090: FF, MS-1300: FS, X2.OE2: FF
218	**Real Estate**		1542	02-Nov-20 A	27-Apr-29	1269		
219	**Key Deliverables**		218	01-Jul-22 A	11-Mar-24	159		
220	KD-1500	Conduct Options Negotiations with Willing Seller Properties	42	01-Jul-22 A	28-Jun-23	117	KD-1495: FF, KD-1495: SS 85	MI-1100: FS, RE-1060: FS, RE-1070: FS, RE-1080: FS
221	KD-1490	Complete Land Acquisition Master Plan (tied to Construction Packages)	218	03-Oct-22 A	11-Mar-24	159	MS-1100: FS, FED-100: FF	RE-1060: SS
222	**Land Acquisition**		1500	29-Jun-23	27-Apr-29	117		
223	RE-1060	Construction Package 1 - Land Acquisition	1500	29-Jun-23	27-Apr-29	117	KD-1500: FS, KD-1490: SS	RE-1070: SS 100, RE-1100: SS
224	RE-1070	Construction Package 2 - Land Acquisition	1400	20-Nov-23	27-Apr-29	117	KD-1500: FS, RE-1060: SS 100	RE-1080: SS 100
225	RE-1080	Construction Package 3 - Land Acquisition	1300	15-Apr-24	27-Apr-29	117	KD-1500: FS, RE-1070: SS 100	RE-1050: SF
226	RE-1050	Land Cost Established	0		27-Jun-24	64	LAAC-1500: FF 20, LAAG-1500: FF 20, LAAY-1400: FF 20, RE-1080: SF	C3E-1000: FF 2
227	**Relocation**		1500	29-Jun-23	27-Apr-29	1269		
228	RE-1100	Relocation Assistance, as Needed	1500	29-Jun-23	27-Apr-29	1269	RE-1060: SS	
229	**USBR - Land Agreement**		218	02-Nov-20 A	11-Mar-24	159		
230	FED-100	USBR Land Agreements (tied to Construction Packages)	218	02-Nov-20 A	11-Mar-24	159	EIR-450: FF	KD-1490: FF
231	**Preliminary Engineering**		739	03-Jan-22 A	31-Mar-26	-318		
232	**Key Deliverables**		739	31-Oct-22 A	31-Mar-26	-318		
233	KD-1210	Update Project Risk Assessments (ongoing) (Risk Mgr Bob Beduhn & Henry Luu)	413	31-Oct-22 A	16-Dec-24	8	CS-1400: FS, C3E-1000: FF 60	MS-5000: FF
234	KD-1110	Advance Engineering of Project Feature Encroachments to 65% Design Level in Support of Permitting	739	01-Nov-22 A	31-Mar-26	-650	KD-1140: FS, KD-1120: FF	CVFPB-200: FS, 408-150: FS
235	**Conveyance (Pipelines, Pump Stations, Canals)**		420	03-Jan-22 A	27-Dec-24	1		
236	**UPRR Oversight & Review**		390	13-Jun-23	27-Dec-24	1		
237	A1110	Coordination & Oversight with UPRR	390	13-Jun-23	27-Dec-24	1	KD-1630: SS 155	A1180: FF, MS-5000: F
238	**Caltrans Oversight & Review**		390	13-Jun-23	27-Dec-24	1		
239	A1120	Coordination & Oversight with Caltrans	390	13-Jun-23	27-Dec-24	1	KD-1630: SS 155	A1180: FF, MS-5000: F
240	**DWR Operations Oversight & Review (KLOG)**		420	03-Jan-22 A	27-Dec-24	1		
241	A1130	Coordination & Oversight with Department of Water Resources	420	03-Jan-22 A	27-Dec-24	1	MS-1000: SS	A1180: SS, MS-5000: FF
242	**RD 108 Oversight & Review**		420	03-Jan-22 A	27-Dec-24	1		
243	A1140	Coordination & Oversight with Reclamation District	420	03-Jan-22 A	27-Dec-24	1	MS-1000: SS	A1180: SS, MS-5000: F
244	**Design & Analyses**		225	18-Oct-22 A	20-Mar-24	71		
245	KD-2020	30% TRR PS&E	225	18-Oct-22 A	20-Mar-24	71	KD-1150: FS, KD-1140: FF, GWP-1200: FF 120	KD-1180: FF, KD-2080: FF, C4E-1000: FF 10
246	KD-1630	30% Dunnigan Pipeline PS&E	225	31-Oct-22 A	20-Mar-24	1	KD-1140: FS, GWP-1100: FF 175	C4E-1000: FF 10, KD-1180: FF, A1110: SS 155, A1120: SS 155, KD-2080: FF



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

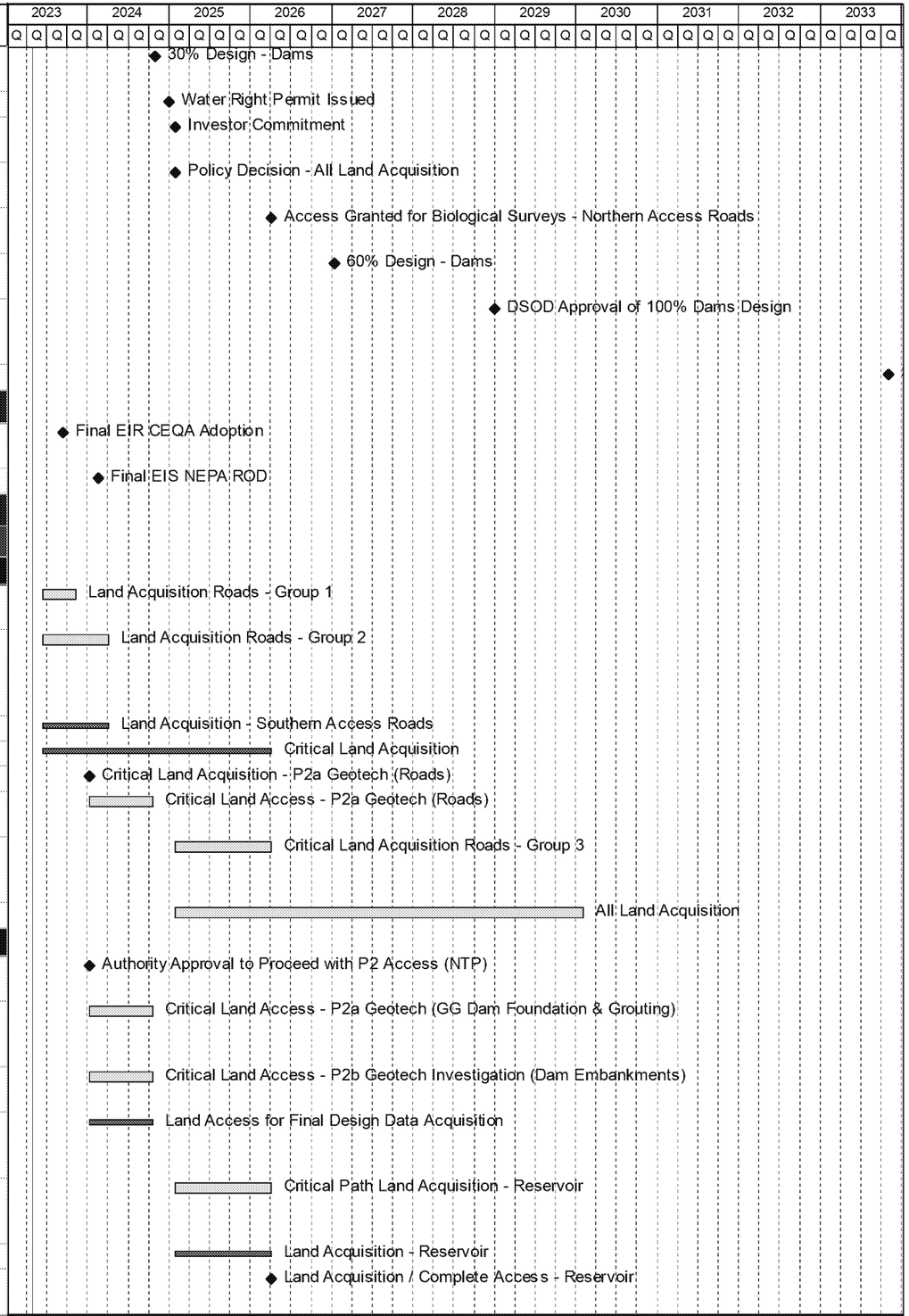
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
247	KD-2010	30% Funks PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1100: FF 175	KD-1180: FF, KD-2080: FF, C4E-1000: FF 10
248	KD-2030	30% Funks & TRR Pipeline PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	KD-1180: FF, KD-2080: FF, C4E-1000: FF 10
249	KD-2080	System Wide Hydraulic Modeling	225	01-May-23	20-Mar-24	71	KD-1140: FS, KD-1630: FF, KD-2010: FF, KD-2020: FF, KD-2030: FF, KD-2060: FF	KD-1180: FF
250	**Reservoir (Dams, Tunnels)**		421	03-Jan-22 A	30-Dec-24	0		
251	**DSOD Oversight & Review**		421	01-Feb-22 A	30-Dec-24	0		
252	KD-1100	Initiate Application for Permit to Construct from DS(	421	01-Feb-22 A	30-Dec-24	0	MS-1000: SS	MS-5000: FF
253	**Design & Analyses**		421	03-Jan-22 A	30-Dec-24	0		
254	A1160	Coordination & Oversight with CAISO	421	03-Jan-22 A	30-Dec-24	0	MS-1000: SS	A1180: FF, MS-5000: F
255	KD-1660	30% Golden Gate Dam PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	C4E-1000: FF 10, KD-1180: FF
256	KD-2040	30% Sites Dam PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	KD-1180: FF, C4E-1000: FF 10
257	KD-2050	30% Saddle Dams PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	KD-1180: FF, C4E-1000: FF 10
258	KD-2060	30% I/O Facilities PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	KD-1180: FF, KD-2080: FF, C4E-1000: FF 10
259	KD-2070	Emergency Release Modeling	225	05-Jan-23 A	20-Mar-24	71	KD-1140: FS 45	KD-1180: FF
260	**Electrical (Substation, Switchyard, Transmission Lin**		421	03-Jan-22 A	30-Dec-24	0		
261	**WAPA Oversight & Review**		421	03-Jan-22 A	30-Dec-24	0		
262	A1150	Coordination & Oversight with WAPA	421	03-Jan-22 A	30-Dec-24	0	MS-1000: SS	A1180: FF, MS-5000: F
263	**Roads & Bridges**		421	03-Jan-22 A	30-Dec-24	0		
264	**County Oversight & Review**		421	03-Jan-22 A	30-Dec-24	0		
265	A1170	Coordination & Oversight with County Authorities	421	03-Jan-22 A	30-Dec-24	0	MS-1000: SS	MS-5000: FF
266	**Design & Analyses**		225	31-Oct-22 A	20-Mar-24	71		
267	KD-1650	30% Construction Access & Maintenance Roads PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	C4E-1000: FF 10, KD-1180: FF, X379: FS 125, X307.OE2: FF, X809.OE2: FS 200, X819: FS
268	KD-2090	30% Sites Lodoga Road Realignment PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1200: FF 120	KD-1180: FF, C4E-1000: FF 10
269	KD-2100	30% Huffmaster Road PS&E	225	31-Oct-22 A	20-Mar-24	71	KD-1140: FS, GWP-1300: FF	KD-1180: FF, C4E-1000: FF 10
270	**Mitigation Implementation**		500	29-Jun-23	19-Jun-25	379		
271	MI-1100	Mitigation Implementation (more info needed to expand detail)	500	29-Jun-23	19-Jun-25	379	KD-1500: FS	MS-5000: SF
272	**CP-1: Reservoir**		2778	16-Jun-23	09-Mar-34	0		
273	**CP-1 Milestones**		2688	16-Jun-23	03-Nov-33	90		
274	X309.OE2	Policy Decision - Early Land Acquisition	0	16-Jun-23*		681		X15.b: FS, X15.c: FS
275	X4	NTP for Final Design Data Acquistion	23	01-Dec-23*	05-Jan-24	0		X299.OE2: FF, X20: FS, X8.OE2: FS, X5: FS
276	X299.OE2	NTP for Final Design Data Acquisition	0		05-Jan-24	2639	X4: FF	
277	X5	Determine Engineering Procurement & Delivery Met	0	08-Jan-24		844	X4: FS	X6: FS
278	X6	CMAR Solicitation and Procurement	160	08-Jan-24	20-Aug-24	844	X5: FS	X147: FS
279	X307.OE2	30% Design - Construction Access Roads	0		20-Mar-24	2586	KD-1650: FF	



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

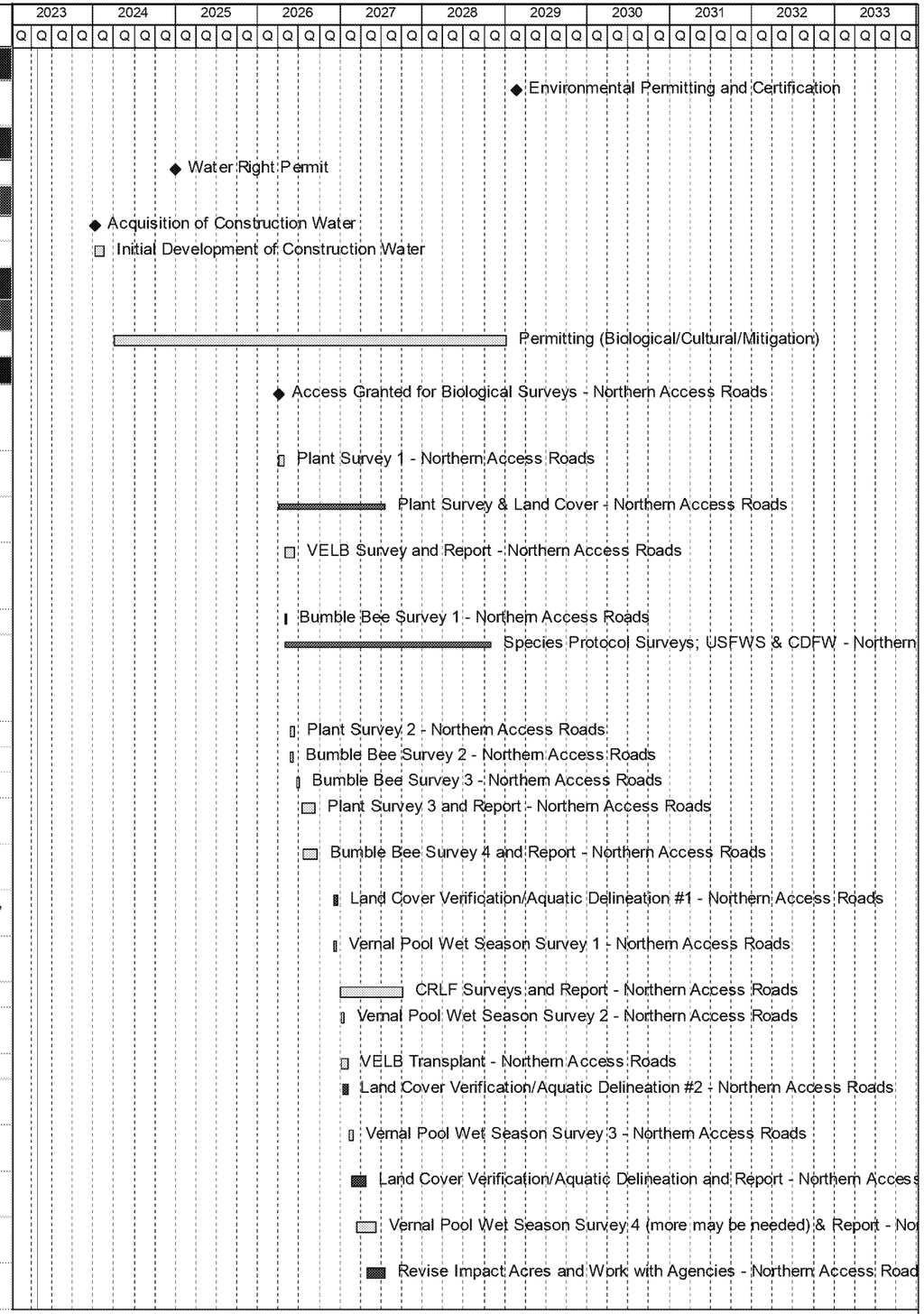
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
280	X297.OE2	30% Design - Dams	0		01-Nov-24	2427	X92: FF, X82: FF, X72: FF	
281	X289.OE2	Water Right Permit Issued	0		31-Dec-24	192	MS-1400: FF	X7.OE2: FF
282	X7.OE2	Investor Commitment	0		29-Jan-25	172	MS-1500: FF, X289.OE2: FF	X319.OE2: FS
283	X319.OE2	Policy Decision - All Land Acquisition	0	30-Jan-25*		172	X7.OE2: FS	X15.d: FS, X15.f.OE12: SS
284	X809.OE2	Access Granted for Biological Surveys - Northern Access Roads	0	06-Apr-26		2069	X15.c: FS, X15.d: FS, KD-1650: FS 200	
285	X300.OE2	60% Design - Dams	0		15-Jan-27	1864	X140: FF, X96: FF, X85: FF, X75: FF	
286	X298.OE2	DSOD Approval of 100% Dams Design	0		01-Jan-29	1354	X80: FF, X295.OE2: FF, X295.OE2: FS, X124: SF, X135: SF	
287	X290	Substantial Completion	0		03-Nov-33*	0	X285.OE2: FF, X296: F	
288	**Final EIR / EIS**		111	11-Sep-23	20-Feb-24	2607		
289	X1.OE2	Final EIR CEQA Adoption	0		11-Sep-23	-172	EIR-380: FF	X68: FS, X14: FS, X13: FS, X12: FS, X11: FS
290	X2.OE2	Final EIS NEPA ROD	0		20-Feb-24	2607	EIR-450: FF	
291	**Real Estate**		1709	16-Jun-23	01-Feb-30	1069		
292	**Land Access and Acquisition**		1709	16-Jun-23	01-Feb-30	1069		
293	**Roads**		1709	16-Jun-23	01-Feb-30	1069		
294	X15.b	Land Acquisition Roads - Group 1	100	16-Jun-23	06-Nov-23	943	X309.OE2: FS	X160: FS, X15.e.OE2: SS, X819: FS
295	X15.c	Land Acquisition Roads - Group 2	200	16-Jun-23	01-Apr-24	681	X309.OE2: FS	X160: FS, X152: FS, X15.e.OE2: FF, X379: FS, X809.OE2: FS, X819: FS, X15.f.OE2:
296	X15.e.OE2	Land Acquisition - Southern Access Roads	200	16-Jun-23	01-Apr-24	681	X15.b: SS, X15.c: FF	
297	X15.f.OE2	Critical Land Acquisition	709	16-Jun-23	03-Apr-26	172	X15.c: SS, X15.d: FF	
298	X11	Critical Land Acquisition - P2a Geotech (Roads)	0	08-Jan-24		2639	X1.OE2: FS, X8.OE2: I	
299	X14	Critical Land Access - P2a Geotech (Roads)	200	08-Jan-24	16-Oct-24	479	X1.OE2: FS, X8.OE2: FS	X291.OE2: FF, X291.OE2: SS, X70: FS
300	X15.d	Critical Land Acquisition Roads - Group 3	300	30-Jan-25	03-Apr-26	172	X319.OE2: FS, X305.OE2: FS	X152: FS, X15: FF, X809.OE2: FS, X379: FS, X15.f.OE2: FF
301	X15.f.OE12	All Land Acquisition	1300	30-Jan-25	01-Feb-30	1069	X319.OE2: SS	
302	**Reservoir**		570	08-Jan-24	03-Apr-26	773		
303	X8.OE2	Authority Approval to Proceed with P2 Access (NTP)	0	08-Jan-24		353	X4: FS	X14: FS, X13: FS, X12: FS, X11: FS
304	X12	Critical Land Access - P2a Geotech (GG Dam Foundation & Grouting)	200	08-Jan-24	16-Oct-24	353	X1.OE2: FS, X8.OE2: FS	X291.OE2: FF, X291.OE2: SS, X64.OE2: FS, X69: FS
305	X13	Critical Land Access - P2b Geotech Investigation (Dam Embankments)	200	08-Jan-24	16-Oct-24	1143	X1.OE2: FS, X8.OE2: FS	X291.OE2: FF, X291.OE2: SS, X71: FS
306	X291.OE2	Land Access for Final Design Data Acquisition	200	08-Jan-24	16-Oct-24	1143	X14: FF, X13: FF, X12: FF, X14: SS, X13: SS, X12: SS	
307	X15	Critical Path Land Acquisition - Reservoir	300	30-Jan-25	03-Apr-26	621	X305.OE2: FS, X15.d: FF	X292.OE2: FF, X292.OE2: SS, X46: FS, X16: FS
308	X292.OE2	Land Acquisition - Reservoir	300	30-Jan-25	03-Apr-26	621	X15: FF, X15: SS	
309	X16	Land Acquisition / Complete Access - Reservoir	0		03-Apr-26	621	X15: FS	X65.OE2: FS, X35: FS, X30: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

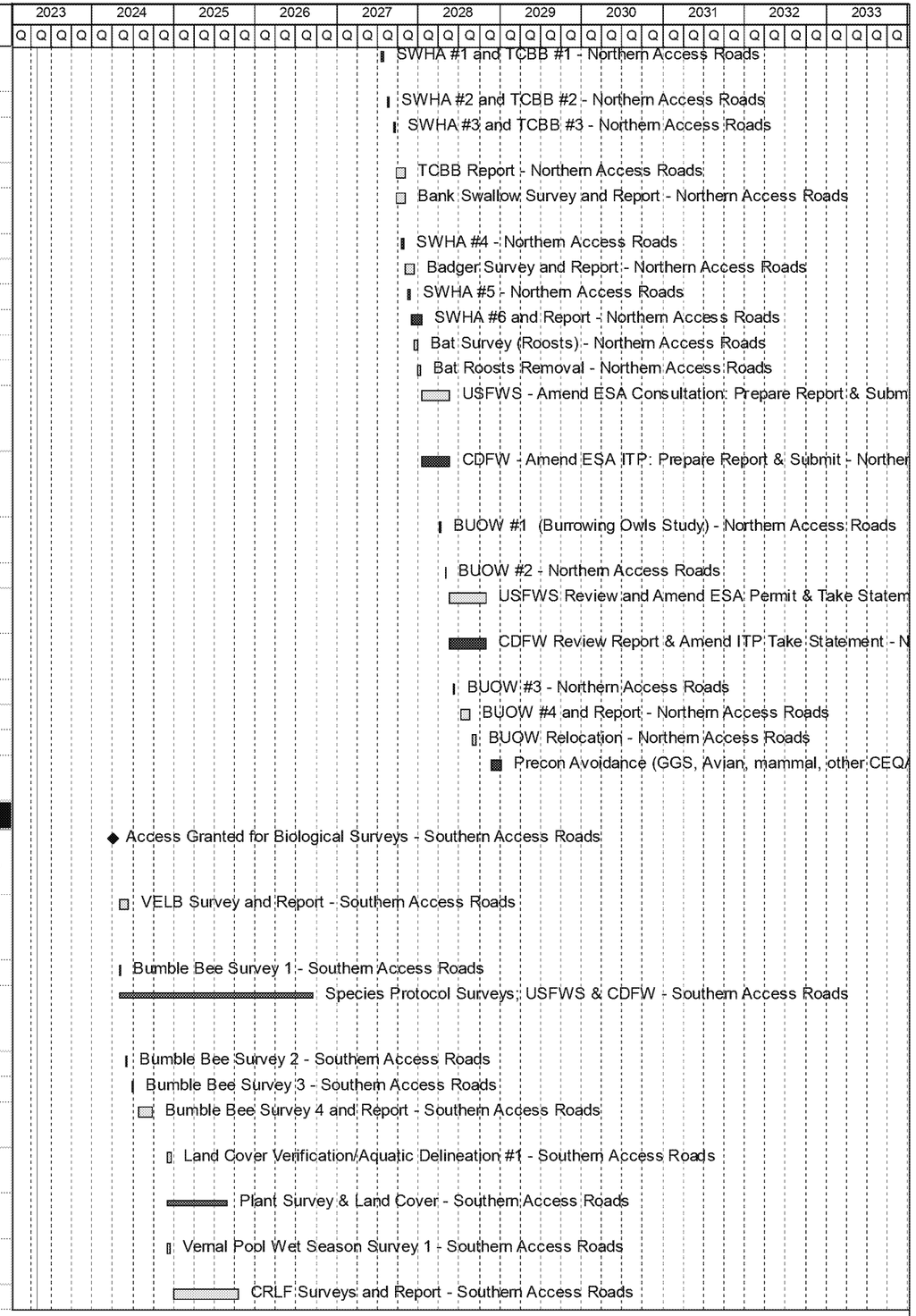
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
310	**Environmental**		0	19-Feb-29	19-Feb-29	1229		
311	X18	Environmental Permitting and Certification	0	19-Feb-29		1229	X66.OE2: FS, X62: FS, X160: FS	X286.OE2: SF
312	**Water**		250	08-Jan-24	31-Dec-24	2299		
313	X19	Water Right Permit	0		31-Dec-24	2299	MS-1400: FF	X286.OE2: FF
314	**Construction Water**		30	08-Jan-24	16-Feb-24	1049		
315	X20	Acquisition of Construction Water	0	08-Jan-24*		1049	X4: FS	X150: FS, X21: FS
316	X21	Initial Development of Construction Water	30	08-Jan-24	16-Feb-24	1049	X20: FS	X150: FS
317	**Sites Reservoir Permitting, Mitigation and Cultura**		1872	02-Apr-24	25-Jun-31	706		
318	**Permitting**		1228	02-Apr-24	04-Jan-29	1350		
319	X293	Permitting (Biological/Cultural/Mitigation)	1228	02-Apr-24	04-Jan-29	1350		
320	**Northern Access Roads - Baseline Surveys & Revised E**		719	06-Apr-26	04-Jan-29	1350		
321	X379	Access Granted for Biological Surveys - Northern Access Roads	0	06-Apr-26		172	KD-1650: FS 125, X15.c: FS, X15.d: FS	X649: FS, X419: SS, X389: FS, X329.OE2: FS, X619: FS
322	X389	Plant Survey 1 - Northern Access Roads	15	06-Apr-26*	24-Apr-26	349	X379: FS	X779.OE2: SS, X399: FS 20
323	X779.OE2	Plant Survey & Land Cover - Northern Access Roads	337	06-Apr-26	20-Jul-27	127	X449: FF, X389: SS, X419: SS, X409: FF	
324	X619	VELB Survey and Report - Northern Access Roads	30	30-Apr-26*	10-Jun-26	341	X379: FS	X729: FS, X659: SS, X629: FS 150, X789.OE2: SS
325	X659	Bumble Bee Survey 1 - Northern Access Roads	5	30-Apr-26	06-May-26	341	X619: SS	X669: FS 15
326	X789.OE2	Species Protocol Surveys; USFWS & CDFW - Northern Access Roads	656	30-Apr-26	02-Nov-28	1395	X759: FF, X739: FF, X629: FF, X509: SS, X459: SS, X619: SS, X499: FF	
327	X399	Plant Survey 2 - Northern Access Roads	15	25-May-26	12-Jun-26	349	X389: FS 20	X409: FS 20
328	X669	Bumble Bee Survey 2 - Northern Access Roads	5	28-May-26	03-Jun-26	341	X659: FS 15	X679: FS 15
329	X679	Bumble Bee Survey 3 - Northern Access Roads	5	25-Jun-26	01-Jul-26	341	X669: FS 15	X689: FS 15
330	X409	Plant Survey 3 and Report - Northern Access Roads	45	13-Jul-26	11-Sep-26	349	X399: FS 20	X749: FS, X729: FS, X779.OE2: FF
331	X689	Bumble Bee Survey 4 and Report - Northern Access Roads	45	23-Jul-26	23-Sep-26	341	X679: FS 15	X749: FS
332	X419	Land Cover Verification/Aquatic Delineation #1 - Northern Access Roads	15	02-Dec-26*	22-Dec-26	0	X379: SS	X579: SS, X429: FS 15, X779.OE2: SS
333	X579	Vernal Pool Wet Season Survey 1 - Northern Access Roads	10	03-Dec-26*	16-Dec-26	1551	X419: SS	X589: FS 15
334	X649	CRLF Surveys and Report - Northern Access Roads	200	04-Jan-27*	08-Oct-27	1464	X379: FS	X729: FS
335	X589	Vernal Pool Wet Season Survey 2 - Northern Access Roads	10	07-Jan-27	20-Jan-27	1551	X579: FS 15	X599: FS 15
336	X629	VELB Transplant - Northern Access Roads	20	07-Jan-27	03-Feb-27	1851	X619: FS 150	X789.OE2: FF
337	X429	Land Cover Verification/Aquatic Delineation #2 - Northern Access Roads	15	13-Jan-27	02-Feb-27	0	X419: FS 15	X439: FS 15
338	X599	Vernal Pool Wet Season Survey 3 - Northern Access Roads	10	11-Feb-27	24-Feb-27	1551	X589: FS 15	X609: FS 15
339	X439	Land Cover Verification/Aquatic Delineation and Report - Northern Access Roads	45	24-Feb-27	27-Apr-27	0	X429: FS 15	X449: FS
340	X609	Vernal Pool Wet Season Survey 4 (more may be needed) & Report - Northern Access Roads	60	18-Mar-27	09-Jun-27	1551	X599: FS 15	X729: FS
341	X449	Revise Impact Acres and Work with Agencies - Northern Access Roads	60	28-Apr-27	20-Jul-27	0	X439: FS	X779.OE2: FF, X509: FS, X459: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

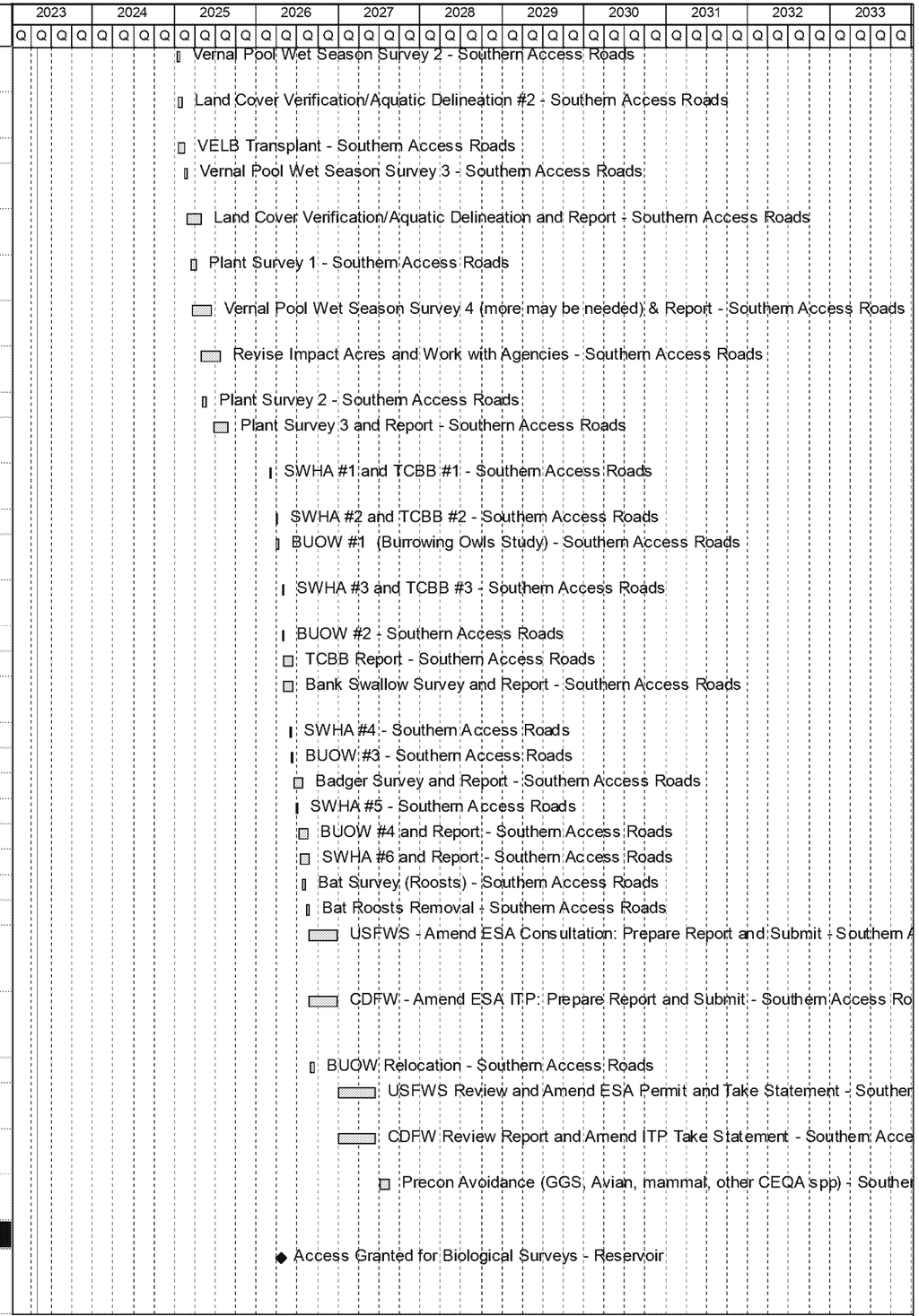
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
342	X509	SWHA #1 and TCBB #1 - Northern Access Roads	5	21-Jul-27*	27-Jul-27	0	X449: FS	X789.OE2: SS, X519: FS 15
343	X519	SWHA #2 and TCBB #2 - Northern Access Roads	5	18-Aug-27	24-Aug-27	0	X509: FS 15	X529: FS 15
344	X529	SWHA #3 and TCBB #3 - Northern Access Roads	5	15-Sep-27	21-Sep-27	0	X519: FS 15	X639: FS, X569: FS, X539: FS 20
345	X569	TCBB Report - Northern Access Roads	30	22-Sep-27	02-Nov-27	52	X529: FS	X749: FS
346	X639	Bank Swallow Survey and Report - Northern Access Roads	30	22-Sep-27	02-Nov-27	52	X529: FS	X749: FS, X699: FS
347	X539	SWHA #4 - Northern Access Roads	5	20-Oct-27	26-Oct-27	0	X529: FS 20	X549: FS 15
348	X699	Badger Survey and Report - Northern Access Roads	30	03-Nov-27	14-Dec-27	1607	X639: FS	X709: FS
349	X549	SWHA #5 - Northern Access Roads	5	17-Nov-27	23-Nov-27	0	X539: FS 15	X559: FS 7
350	X559	SWHA #6 and Report - Northern Access Roads	30	03-Dec-27	13-Jan-28	0	X549: FS 7	X749: FS, X729: FS
351	X709	Bat Survey (Roosts) - Northern Access Roads	10	15-Dec-27	28-Dec-27	1607	X699: FS	X719: FS
352	X719	Bat Roosts Removal - Northern Access Roads	10	29-Dec-27	11-Jan-28	1607	X709: FS	
353	X729	USFWS - Amend ESA Consultation: Prepare Report & Submit - Northern Access Roads	90	14-Jan-28	18-May-28	1395	X649: FS, X619: FS, X609: FS, X559: FS, X409: FS	X739: FS
354	X749	CDFW - Amend ESA ITP: Prepare Report & Submit - Northern Access Roads	90	14-Jan-28	18-May-28	0	X689: FS, X639: FS, X569: FS, X559: FS, X409: FS	X759: FS
355	X459	BUOW #1 (Burrowing Owls Study) - Northern Access Roads	5	03-Apr-28*	07-Apr-28	1434	X449: FS	X789.OE2: SS, X469: FS 15
356	X469	BUOW #2 - Northern Access Roads	5	01-May-28	05-May-28	1434	X459: FS 15	X479: FS 20
357	X739	USFWS Review and Amend ESA Permit & Take Statement - Northern Access Roads	120	19-May-28	02-Nov-28	1395	X729: FS	X789.OE2: FF
358	X759	CDFW Review Report & Amend ITP Take Statement - Northern Access Roads	120	19-May-28	02-Nov-28	0	X749: FS	X789.OE2: FF, X769: FS 15
359	X479	BUOW #3 - Northern Access Roads	5	05-Jun-28	09-Jun-28	1434	X469: FS 20	X489: FS 20
360	X489	BUOW #4 and Report - Northern Access Roads	30	10-Jul-28	18-Aug-28	1434	X479: FS 20	X499: FS
361	X499	BUOW Relocation - Northern Access Roads	15	28-Aug-28*	15-Sep-28	1429	X489: FS	X789.OE2: FF
362	X769	Precon Avoidance (GGS, Avian, mammal, other CEQA spp) - Northern Access Roads	30	24-Nov-28	04-Jan-29	0	X759: FS 15	X155.OE2: FS, X175: FS
363	**Southern Access Roads - Baseline Surveys & Revised E**		866	02-Apr-24	17-Aug-27	1712		
364	X819	Access Granted for Biological Surveys - Southern Access Roads	0	02-Apr-24		843	KD-1650: FS, X15.b: FS, X15.c: FS	X1089: FS, X859: SS, X829: FS 7, X1059: FS, X1239.OE2: FS
365	X1059	VELB Survey and Report - Southern Access Roads	30	30-Apr-24*	11-Jun-24	1203	X819: FS	X1169: FS, X1099: SS, X1069: FS 150, X1229.OE2: SS
366	X1099	Bumble Bee Survey 1 - Southern Access Roads	5	30-Apr-24	06-May-24	1203	X1059: SS	X1109: FS 15
367	X1229.OE2	Species Protocol Surveys; USFWS & CDFW - Southern Access Roads	607	30-Apr-24	16-Sep-26	1951	X1069: FF, X949: SS, X899: SS, X1059: SS, X1159: FF, X939: FF	
368	X1109	Bumble Bee Survey 2 - Southern Access Roads	5	29-May-24	04-Jun-24	1203	X1099: FS 15	X1119: FS 15
369	X1119	Bumble Bee Survey 3 - Southern Access Roads	5	26-Jun-24	02-Jul-24	1203	X1109: FS 15	X1129: FS 15
370	X1129	Bumble Bee Survey 4 and Report - Southern Access Roads	45	25-Jul-24	26-Sep-24	1203	X1119: FS 15	X1189: FS
371	X859	Land Cover Verification/Aquatic Delineation #1 - Southern Access Roads	15	02-Dec-24*	20-Dec-24	867	X819: SS	X1019: SS, X869: FS 15, X1219.OE2: SS
372	X1219.OE2	Plant Survey & Land Cover - Southern Access Roads	187	02-Dec-24	26-Aug-25	972	X889: FF, X829: SS, X859: SS, X849: FF	
373	X1019	Vernal Pool Wet Season Survey 1 - Southern Access Roads	10	03-Dec-24*	16-Dec-24	2063	X859: SS	X1029: FS 15
374	X1089	CRLF Surveys and Report - Southern Access Roads	200	03-Jan-25*	14-Oct-25	1978	X819: FS	X1169: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

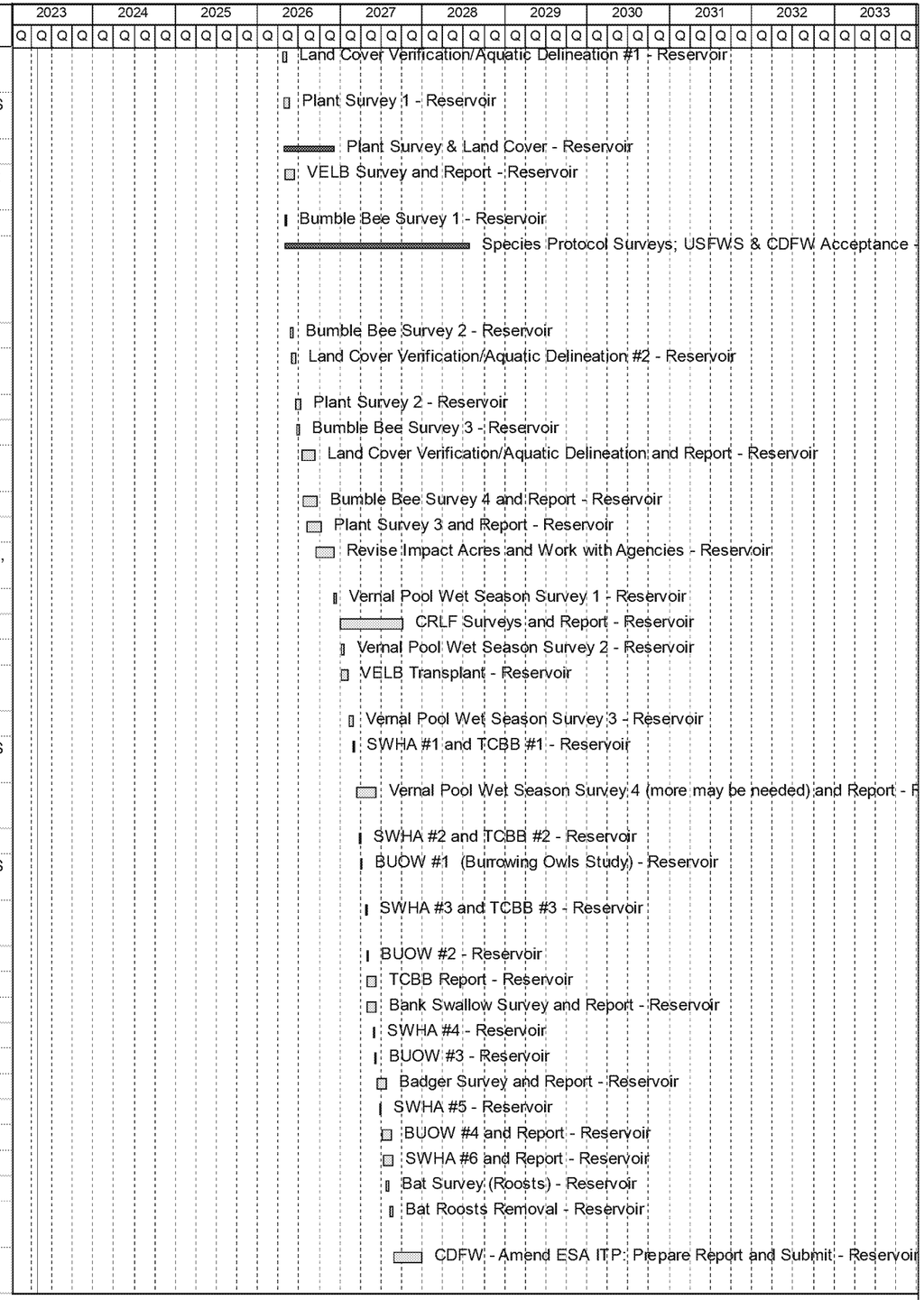
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
375	X1029	Vernal Pool Wet Season Survey 2 - Southern Access Roads	10	10-Jan-25	23-Jan-25	2063	X1019: FS 15	X1039: FS 15
376	X869	Land Cover Verification/Aquatic Delineation #2 - Southern Access Roads	15	16-Jan-25	05-Feb-25	867	X859: FS 15	X879: FS 15
377	X1069	VELB Transplant - Southern Access Roads	20	17-Jan-25	13-Feb-25	2358	X1059: FS 150	X1229.OE2: FF
378	X1039	Vernal Pool Wet Season Survey 3 - Southern Access Roads	10	14-Feb-25	27-Feb-25	2063	X1029: FS 15	X1049: FS 15
379	X879	Land Cover Verification/Aquatic Delineation and Report - Southern Access Roads	45	27-Feb-25	30-Apr-25	867	X869: FS 15	X889: FS
380	X829	Plant Survey 1 - Southern Access Roads	15	17-Mar-25*	04-Apr-25	972	X819: FS 7	X1219.OE2: SS, X839: FS 20
381	X1049	Vernal Pool Wet Season Survey 4 (more may be needed) & Report - Southern Access Roads	60	21-Mar-25	13-Jun-25	2063	X1039: FS 15	X1169: FS
382	X889	Revise Impact Acres and Work with Agencies - Southern Access Roads	60	01-May-25	25-Jul-25	867	X879: FS	X1219.OE2: FF, X949: FS, X899: FS
383	X839	Plant Survey 2 - Southern Access Roads	15	05-May-25	23-May-25	972	X829: FS 20	X849: FS 20
384	X849	Plant Survey 3 and Report - Southern Access Roads	45	24-Jun-25	26-Aug-25	972	X839: FS 20	X1189: FS, X1169: FS, X1219.OE2: FF
385	X949	SWHA #1 and TCBB #1 - Southern Access Roads	5	02-Mar-26*	06-Mar-26	717	X889: FS	X1229.OE2: SS, X959: FS 15
386	X959	SWHA #2 and TCBB #2 - Southern Access Roads	5	30-Mar-26	03-Apr-26	717	X949: FS 15	X969: FS 15
387	X899	BUOW #1 (Burrowing Owls Study) - Southern Access Roads	5	01-Apr-26*	07-Apr-26	1957	X889: FS	X1229.OE2: SS, X909: FS 15
388	X969	SWHA #3 and TCBB #3 - Southern Access Roads	5	27-Apr-26	01-May-26	717	X959: FS 15	X1079: FS, X1009: FS, X979: FS 20
389	X909	BUOW #2 - Southern Access Roads	5	29-Apr-26	05-May-26	1957	X899: FS 15	X919: FS 20
390	X1009	TCBB Report - Southern Access Roads	30	04-May-26	12-Jun-26	769	X969: FS	X1189: FS
391	X1079	Bank Swallow Survey and Report - Southern Access Roads	30	04-May-26	12-Jun-26	769	X969: FS	X1189: FS, X1139: FS
392	X979	SWHA #4 - Southern Access Roads	5	01-Jun-26	05-Jun-26	717	X969: FS 20	X989: FS 15
393	X919	BUOW #3 - Southern Access Roads	5	03-Jun-26	09-Jun-26	1957	X909: FS 20	X929: FS 20
394	X1139	Badger Survey and Report - Southern Access Road	30	15-Jun-26	24-Jul-26	1969	X1079: FS	X1149: FS
395	X989	SWHA #5 - Southern Access Roads	5	29-Jun-26	03-Jul-26	717	X979: FS 15	X999: FS 7
396	X929	BUOW #4 and Report - Southern Access Roads	30	08-Jul-26	18-Aug-26	1957	X919: FS 20	X939: FS
397	X999	SWHA #6 and Report - Southern Access Roads	30	15-Jul-26	25-Aug-26	717	X989: FS 7	X1189: FS, X1169: FS
398	X1149	Bat Survey (Roosts) - Southern Access Roads	10	27-Jul-26	07-Aug-26	1969	X1139: FS	X1159: FS
399	X1159	Bat Roosts Removal - Southern Access Roads	10	10-Aug-26	21-Aug-26	1969	X1149: FS	X1229.OE2: FF
400	X1169	USFWS - Amend ESA Consultation: Prepare Report and Submit - Southern Access Roads	90	26-Aug-26	29-Dec-26	1757	X1089: FS, X1059: FS, X1049: FS, X999: FS, X849: FS	X1179: FS
401	X1189	CDFW - Amend ESA ITP: Prepare Report and Submit - Southern Access Roads	90	26-Aug-26	29-Dec-26	717	X1129: FS, X1079: FS, X1009: FS, X999: FS, X849: FS	X1199: FS
402	X939	BUOW Relocation - Southern Access Roads	15	27-Aug-26*	16-Sep-26	1951	X929: FS	X1229.OE2: FF
403	X1179	USFWS Review and Amend ESA Permit and Take Statement - Southern Access Roads	120	30-Dec-26	15-Jun-27	1757	X1169: FS	
404	X1199	CDFW Review Report and Amend ITP Take Statement - Southern Access Roads	120	30-Dec-26	15-Jun-27	717	X1189: FS	X1209: FS 15
405	X1209	Precon Avoidance (GGS, Avian, mammal, other CEQA spp) - Southern Access Roads	30	07-Jul-27	17-Aug-27	717	X1199: FS 15	X163.OE2: FS
406	**Reservoir - Baseline Surveys & Revised ESA Consultati**		607	20-Apr-26	15-Aug-28	386		
407	X22	Access Granted for Biological Surveys - Reservoir	0	20-Apr-26		353	X75: SS	X63.OE2: FS, X62: FS, X49: FS, X26: SS, X23: FS 7



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

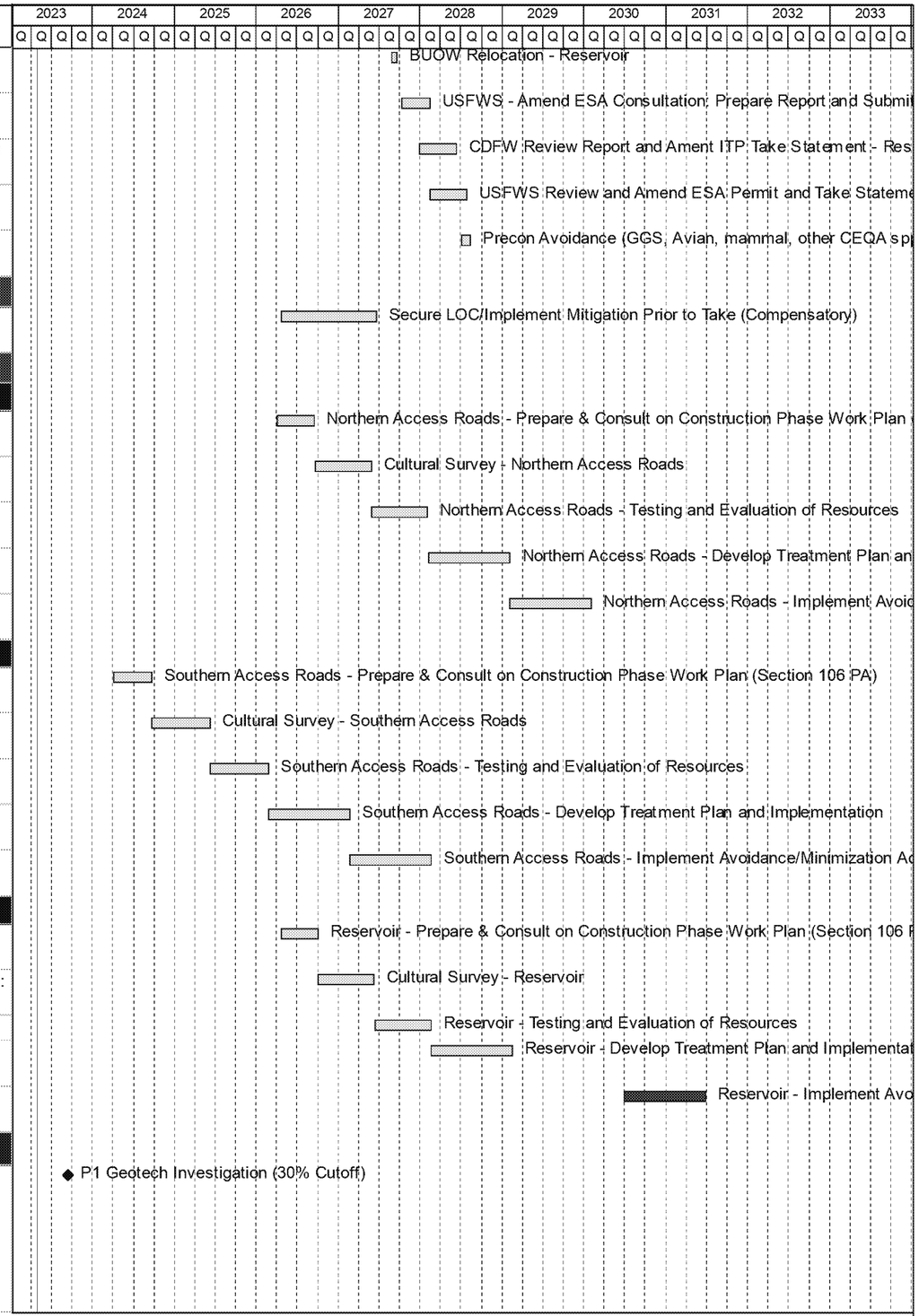
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
408	X26	Land Cover Verification/Aquatic Delineation #1 - Reservoir	15	20-Apr-26*	08-May-26	446	X22: SS	X42: SS, X27: FS 15
409	X23	Plant Survey 1 - Reservoir	15	29-Apr-26*	19-May-26	616	X22: FS 7	X301.OE2: SS, X24: FS 20
410	X301.OE2	Plant Survey & Land Cover - Reservoir	158	29-Apr-26	04-Dec-26	446	X29: FF, X23: SS	
411	X46	VELB Survey and Report - Reservoir	30	30-Apr-26*	10-Jun-26	625	X15: FS	X57: FS, X50: SS, X47: FS 150, X302.OE2: SS
412	X50	Bumble Bee Survey 1 - Reservoir	5	30-Apr-26	06-May-26	625	X46: SS	X51: FS 15
413	X302.OE2	Species Protocol Surveys; USFWS & CDFW Acceptance - Reservoir	587	30-Apr-26	28-Jul-28	398	X60: FF, X58: FF, X47: FF, X35: SS, X30: SS, X46: SS, X34: FF, X56: FF	
414	X51	Bumble Bee Survey 2 - Reservoir	5	28-May-26	03-Jun-26	625	X50: FS 15	X52: FS 15
415	X27	Land Cover Verification/Aquatic Delineation #2 - Reservoir	15	01-Jun-26	19-Jun-26	446	X26: FS 15	X28: FS 15
416	X24	Plant Survey 2 - Reservoir	15	17-Jun-26	07-Jul-26	616	X23: FS 20	X25: FS 20
417	X52	Bumble Bee Survey 3 - Reservoir	5	25-Jun-26	01-Jul-26	625	X51: FS 15	X53: FS 15
418	X28	Land Cover Verification/Aquatic Delineation and Report - Reservoir	45	13-Jul-26	11-Sep-26	446	X27: FS 15	X29: FS
419	X53	Bumble Bee Survey 4 and Report - Reservoir	45	23-Jul-26	23-Sep-26	625	X52: FS 15	X59: FS
420	X25	Plant Survey 3 and Report - Reservoir	45	05-Aug-26	06-Oct-26	616	X24: FS 20	X59: FS, X57: FS
421	X29	Revise Impact Acres and Work with Agencies - Reservoir	60	14-Sep-26	04-Dec-26	446	X28: FS	X301.OE2: FF, X35: FS, X30: FS
422	X42	Vernal Pool Wet Season Survey 1 - Reservoir	10	03-Dec-26*	16-Dec-26	485	X26: SS	X43: FS 15
423	X49	CRLF Surveys and Report - Reservoir	200	04-Jan-27*	08-Oct-27	398	X22: FS	X57: FS
424	X43	Vernal Pool Wet Season Survey 2 - Reservoir	10	07-Jan-27	20-Jan-27	485	X42: FS 15	X44: FS 15
425	X47	VELB Transplant - Reservoir	20	07-Jan-27	03-Feb-27	785	X46: FS 150	X302.OE2: FF, X267.OE2: FS
426	X44	Vernal Pool Wet Season Survey 3 - Reservoir	10	11-Feb-27	24-Feb-27	485	X43: FS 15	X45: FS 15
427	X35	SWHA #1 and TCBB #1 - Reservoir	5	01-Mar-27*	05-Mar-27	386	X16: FS, X29: FS	X302.OE2: SS, X36: FS 15
428	X45	Vernal Pool Wet Season Survey 4 (more may be needed) and Report - Reservoir	60	18-Mar-27	09-Jun-27	485	X44: FS 15	X57: FS
429	X36	SWHA #2 and TCBB #2 - Reservoir	5	29-Mar-27	02-Apr-27	386	X35: FS 15	X37: FS 15
430	X30	BUOW #1 (Burrowing Owls Study) - Reservoir	5	01-Apr-27*	07-Apr-27	630	X16: FS, X29: FS	X302.OE2: SS, X31: FS 15
431	X37	SWHA #3 and TCBB #3 - Reservoir	5	26-Apr-27	30-Apr-27	386	X36: FS 15	X48: FS, X41: FS, X38: FS 20
432	X31	BUOW #2 - Reservoir	5	29-Apr-27	05-May-27	630	X30: FS 15	X32: FS 20
433	X41	TCBB Report - Reservoir	30	03-May-27	11-Jun-27	438	X37: FS	X59: FS
434	X48	Bank Swallow Survey and Report - Reservoir	30	03-May-27	11-Jun-27	438	X37: FS	X59: FS, X54: FS
435	X38	SWHA #4 - Reservoir	5	31-May-27	04-Jun-27	386	X37: FS 20	X39: FS 15
436	X32	BUOW #3 - Reservoir	5	03-Jun-27	09-Jun-27	630	X31: FS 20	X33: FS 20
437	X54	Badger Survey and Report - Reservoir	30	14-Jun-27	23-Jul-27	643	X48: FS	X55: FS
438	X39	SWHA #5 - Reservoir	5	28-Jun-27	02-Jul-27	386	X38: FS 15	X40: FS 7
439	X33	BUOW #4 and Report - Reservoir	30	08-Jul-27	18-Aug-27	630	X32: FS 20	X34: FS
440	X40	SWHA #6 and Report - Reservoir	30	14-Jul-27	24-Aug-27	386	X39: FS 7	X59: FS, X57: FS
441	X55	Bat Survey (Roosts) - Reservoir	10	26-Jul-27	06-Aug-27	643	X54: FS	X56: FS
442	X56	Bat Roosts Removal - Reservoir	10	09-Aug-27	20-Aug-27	643	X55: FS	X267.OE2: FS, X302.OE2: FF
443	X59	CDFW - Amend ESA ITP: Prepare Report and Submit - Reservoir	90	25-Aug-27	28-Dec-27	386	X53: FS, X48: FS, X41: FS, X40: FS, X25: FS	X60: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

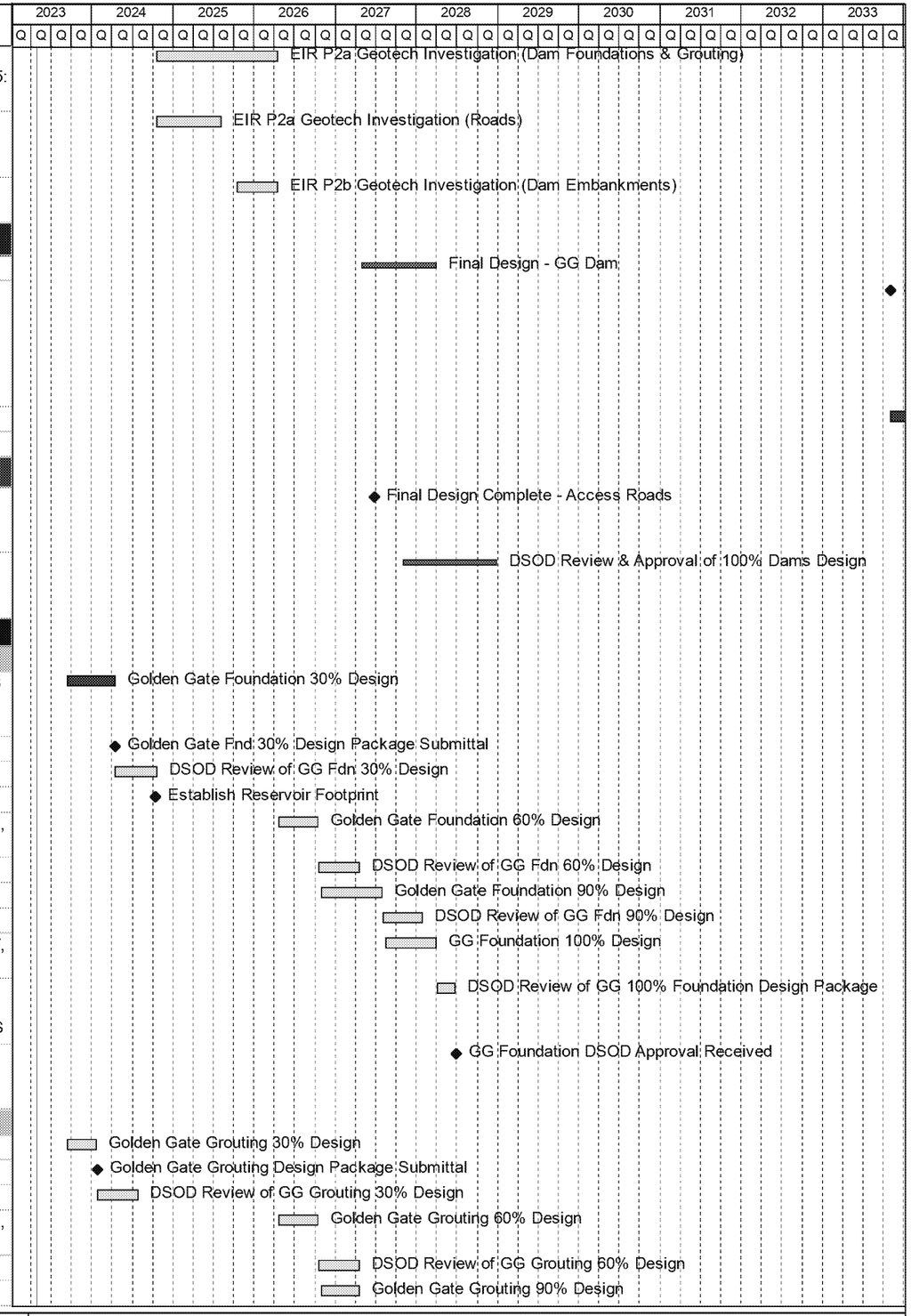
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
444	X34	BUOW Relocation - Reservoir	15	27-Aug-27*	16-Sep-27	624	X33: FS	X267.OE2: FS, X302.OE2: FF
445	X57	USFWS - Amend ESA Consultation: Prepare Report and Submit - Reservoir	90	11-Oct-27	11-Feb-28	398	X49: FS, X46: FS, X45: FS, X40: FS, X25: FS	X58: FS
446	X60	CDFW Review Report and Ament ITP Take Statement - Reservoir	120	29-Dec-27	13-Jun-28	386	X59: FS	X302.OE2: FF, X61: FS 15
447	X58	USFWS Review and Amend ESA Permit and Take Statement - Reservoir	120	14-Feb-28	28-Jul-28	398	X57: FS	X302.OE2: FF, X267.OE2: FS
448	X61	Precon Avoidance (GGS, Avian, mammal, other CEQA spp) - Reservoir	30	05-Jul-28	15-Aug-28	386	X60: FS 15	X267.OE2: FS
449	**Compensatory Mitigation**		305	20-Apr-26	18-Jun-27	528		
450	X62	Secure LOC/Implement Mitigation Prior to Take (Compensatory)	305	20-Apr-26	18-Jun-27	528	X22: FS	X66.OE2: FS, X18: FS
451	**Cultural Work**		1872	02-Apr-24	25-Jun-31	706		
452	**Northern Access Roads**		1000	06-Apr-26	01-Feb-30	1069		
453	X329.OE2	Northern Access Roads - Prepare & Consult on Construction Phase Work Plan (Section 106 PA)	120	06-Apr-26	18-Sep-26	199	X379: FS	X339.OE2: FS
454	X339.OE2	Cultural Survey - Northern Access Roads	180	21-Sep-26	28-May-27	199	X329.OE2: FS	X359.OE2: FS, X349.OE2: FS
455	X349.OE2	Northern Access Roads - Testing and Evaluation of Resources	180	31-May-27	04-Feb-28	199	X339.OE2: FS	X359.OE2: FS
456	X359.OE2	Northern Access Roads - Develop Treatment Plan and Implementation	260	07-Feb-28	02-Feb-29	199	X349.OE2: FS, X339.OE2: FS	X155.OE2: SS 40, X369: FS
457	X369	Northern Access Roads - Implement Avoidance/Minimization Activities During	260	05-Feb-29	01-Feb-30	1069	X359.OE2: FS	
458	**Southern Access Roads**		1000	02-Apr-24	21-Feb-28	1578		
459	X1239.OE2	Southern Access Roads - Prepare & Consult on Construction Phase Work Plan (Section 106 PA)	120	02-Apr-24	19-Sep-24	843	X819: FS	X1249.OE2: FS
460	X1249.OE2	Cultural Survey - Southern Access Roads	180	20-Sep-24	06-Jun-25	843	X1239.OE2: FS	X1269.OE2: FS, X1259.OE2: FS
461	X1259.OE2	Southern Access Roads - Testing and Evaluation of Resources	180	09-Jun-25	23-Feb-26	843	X1249.OE2: FS	X1269.OE2: FS
462	X1269.OE2	Southern Access Roads - Develop Treatment Plan and Implementation	260	24-Feb-26	22-Feb-27	843	X1259.OE2: FS, X1249.OE2: FS	X163.OE2: FS, X1279: FS
463	X1279	Southern Access Roads - Implement Avoidance/Minimization Activities During	260	23-Feb-27	21-Feb-28	1578	X1269.OE2: FS	
464	**Reservoir**		1353	20-Apr-26	25-Jun-31	0		
465	X63.OE2	Reservoir - Prepare & Consult on Construction Phase Work Plan (Section 106 PA)	120	20-Apr-26	02-Oct-26	353	X22: FS	X64.OE2: FS
466	X64.OE2	Cultural Survey - Reservoir	180	05-Oct-26	11-Jun-27	353	X12: FS, X63.OE2: FS	X66.OE2: FS, X65.OE2: FS
467	X65.OE2	Reservoir - Testing and Evaluation of Resources	180	14-Jun-27	18-Feb-28	353	X16: FS, X64.OE2: FS	X66.OE2: FS
468	X66.OE2	Reservoir - Develop Treatment Plan and Implementation	260	21-Feb-28	16-Feb-29	353	X65.OE2: FS, X62: FS, X64.OE2: FS	X67.OE2: FS, X18: FS
469	X67.OE2	Reservoir - Implement Avoidance/Minimization Activities During Construction	260	27-Jun-30	25-Jun-31	0	X267.OE2: FS, X66.OE2: FS	X271.OE2: FF
470	**P1 / P2 Geotech Investigations**		659	12-Sep-23	17-Apr-26	893		
471	X68	P1 Geotech Investigation (30% Cutoff)	0	12-Sep-23*		-172	X1.OE2: FS	X176: FS, X156: FS 260, X136: FS, X126: FS, X125: FS, X115: FS, X114: FS, X103: FS, X93: FS, X92: FS, X83: FS, X82: FS, X72: FS, X70: FS, X69: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

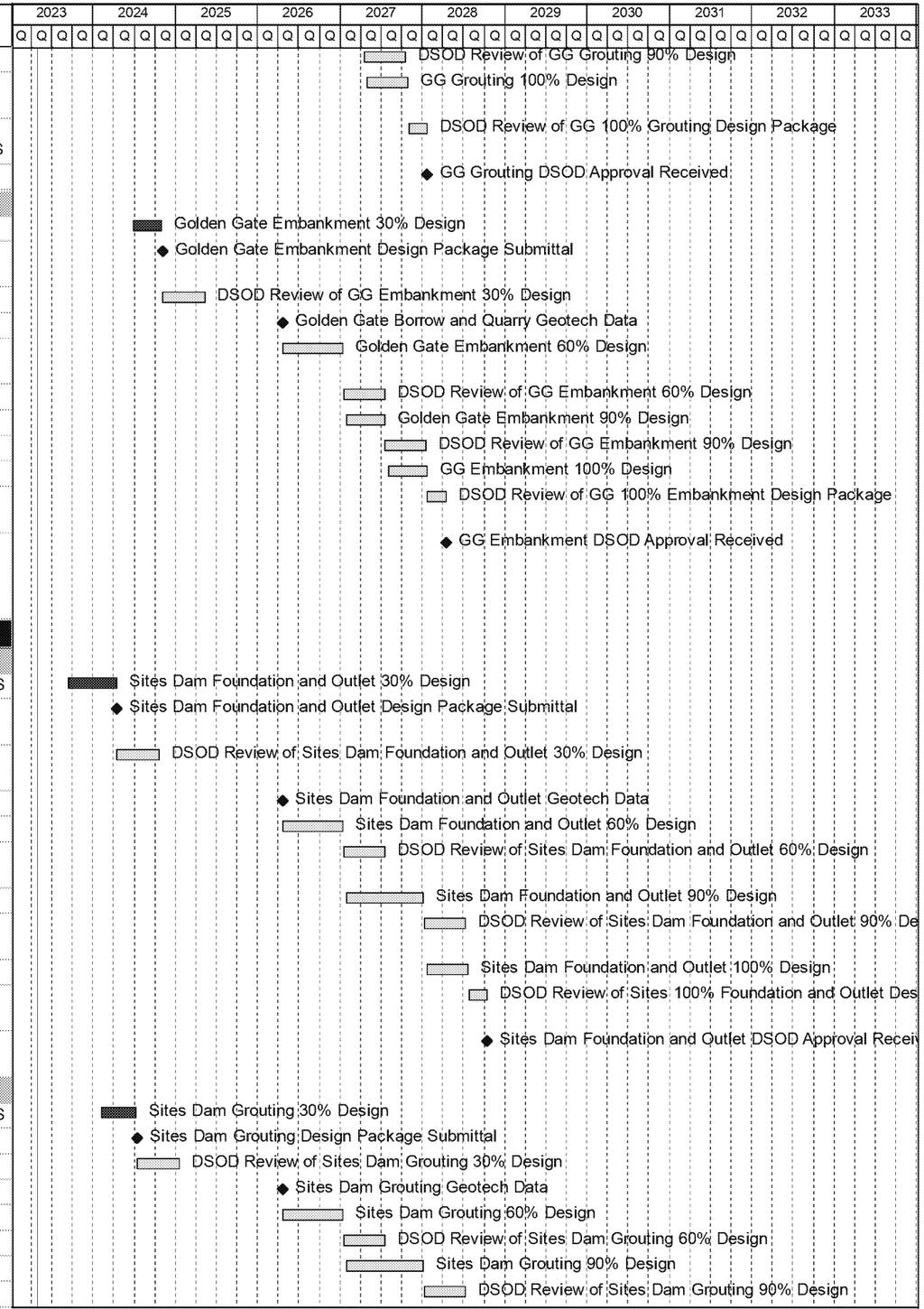
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
472	X69	EIR P2a Geotech Investigation (Dam Foundations & Grouting)	380	17-Oct-24	17-Apr-26	353	X68: FS, X12: FS	X139: FS, X117: FS, X106: FS, X85: FS, X75: FS, X71: SS 250
473	X70	EIR P2a Geotech Investigation (Roads)	200	17-Oct-24	01-Aug-25	479	X14: FS, X68: FS	X172: FS, X168: FS, X164: FS, X160: FS, X152: FS
474	X71	EIR P2b Geotech Investigation (Dam Embankments)	130	14-Oct-25*	17-Apr-26	893	X69: SS 250, X13: FS	X139: FS, X128: FS, X95: FS
475	**Reservoir Facilities**		2718	12-Sep-23	09-Mar-34	0		
476	X799.OE2	Final Design - GG Dam	240	03-May-27	31-Mar-28	1549	X79: FF, X89: SS	X270: FF
477	X286.OE2	Substantial Completion - Dams Ready for Commissioning	0		03-Nov-33	0	X229: FF, X18: SF, X19: FF, X167: FF, X195: FF, X212: FF, X237: FF, X239: FF, X285.OE2: FF, X266: FF, X171: FF, X175: FF, X240: FF	X287: FS
478	X287	Dams Startup and Commissioning	90	04-Nov-33	09-Mar-34	0	X286.OE2: FS	X288: FF
479	X288	Final Completion	0		09-Mar-34*	0	X287: FF	
480	**Engineering - Dams**		1364	12-Sep-23	01-Jan-29	1354		
481	X294.OE2	Final Design Complete - Access Roads	0		25-Jun-27	1749	X173: FF, X169: FF, X165: FF, X161: FF, X157: FF, X153: FF	X270: FF
482	X295.OE2	DSOD Review & Approval of 100% Dams Design	305	01-Nov-27	29-Dec-28	1354	X101: FF, X90: FF, X80: FF, X101: SS, X90: SS, X80: SS, X123: FF	X298.OE2: FF, X298.OE2: FS
483	**Golden Gate Dam Design**		1229	12-Sep-23	26-Jun-28	843		
484	**Golden Gate Foundation Design**		1229	12-Sep-23	26-Jun-28	423		
485	X72	Golden Gate Foundation 30% Design	151	12-Sep-23	16-Apr-24*	-152	X68: FS	X297.OE2: FF, X92: SS 200, X82: SS, X73: FS, X305.OE2: FF 125
486	X73	Golden Gate Fnd 30% Design Package Submittal	0	17-Apr-24		851	X72: FS	X74: FS
487	X74	DSOD Review of GG Fdn 30% Design	130	17-Apr-24	18-Oct-24	851	X73: FS	X75: SS 10
488	X305.OE2	Establish Reservoir Footprint	0		11-Oct-24	245	X72: FF 125	X15: FS, X15.d: FS
489	X75	Golden Gate Foundation 60% Design	130	20-Apr-26	16-Oct-26	353	X74: SS 10, X69: FS	X300.OE2: FF, X76: FS, X22: SS, X270: FF
490	X76	DSOD Review of GG Fdn 60% Design	130	19-Oct-26	16-Apr-27	423	X75: FS	X77: SS 10
491	X77	Golden Gate Foundation 90% Design	195	02-Nov-26	30-Jul-27	423	X76: SS 10	X78: FS
492	X78	DSOD Review of GG Fdn 90% Design	130	02-Aug-27	28-Jan-28	423	X77: FS	X79: SS 10
493	X79	GG Foundation 100% Design	165	16-Aug-27	31-Mar-28	423	X78: SS 10	X80: FS, X799.OE2: FF, X270: FF
494	X80	DSOD Review of GG 100% Foundation Design Package	60	03-Apr-28	23-Jun-28	423	X79: FS	X298.OE2: FF, X295.OE2: FF, X295.OE2: SS, X81: FS
495	X81	GG Foundation DSOD Approval Received	0	26-Jun-28		423	X80: FS	X271.OE2: FS, X267.OE2: FS, X245: FS, X200: FS
496	**Golden Gate Grouting Design**		1119	12-Sep-23	24-Jan-28	853		
497	X82	Golden Gate Grouting 30% Design	91	12-Sep-23	23-Jan-24*	48	X68: FS, X72: SS	X297.OE2: FF, X83: FS
498	X83	Golden Gate Grouting Design Package Submittal	0	24-Jan-24		1411	X82: FS, X68: FS	X84: FS
499	X84	DSOD Review of GG Grouting 30% Design	130	24-Jan-24	25-Jul-24	1411	X83: FS	X85: SS 10
500	X85	Golden Gate Grouting 60% Design	130	20-Apr-26	16-Oct-26	853	X69: FS, X84: SS 10	X300.OE2: FF, X86: FS, X270: FF
501	X86	DSOD Review of GG Grouting 60% Design	130	19-Oct-26	16-Apr-27	853	X85: FS	X88: FS, X87: SS 10
502	X87	Golden Gate Grouting 90% Design	120	02-Nov-26	16-Apr-27	853	X86: SS 10	X88: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

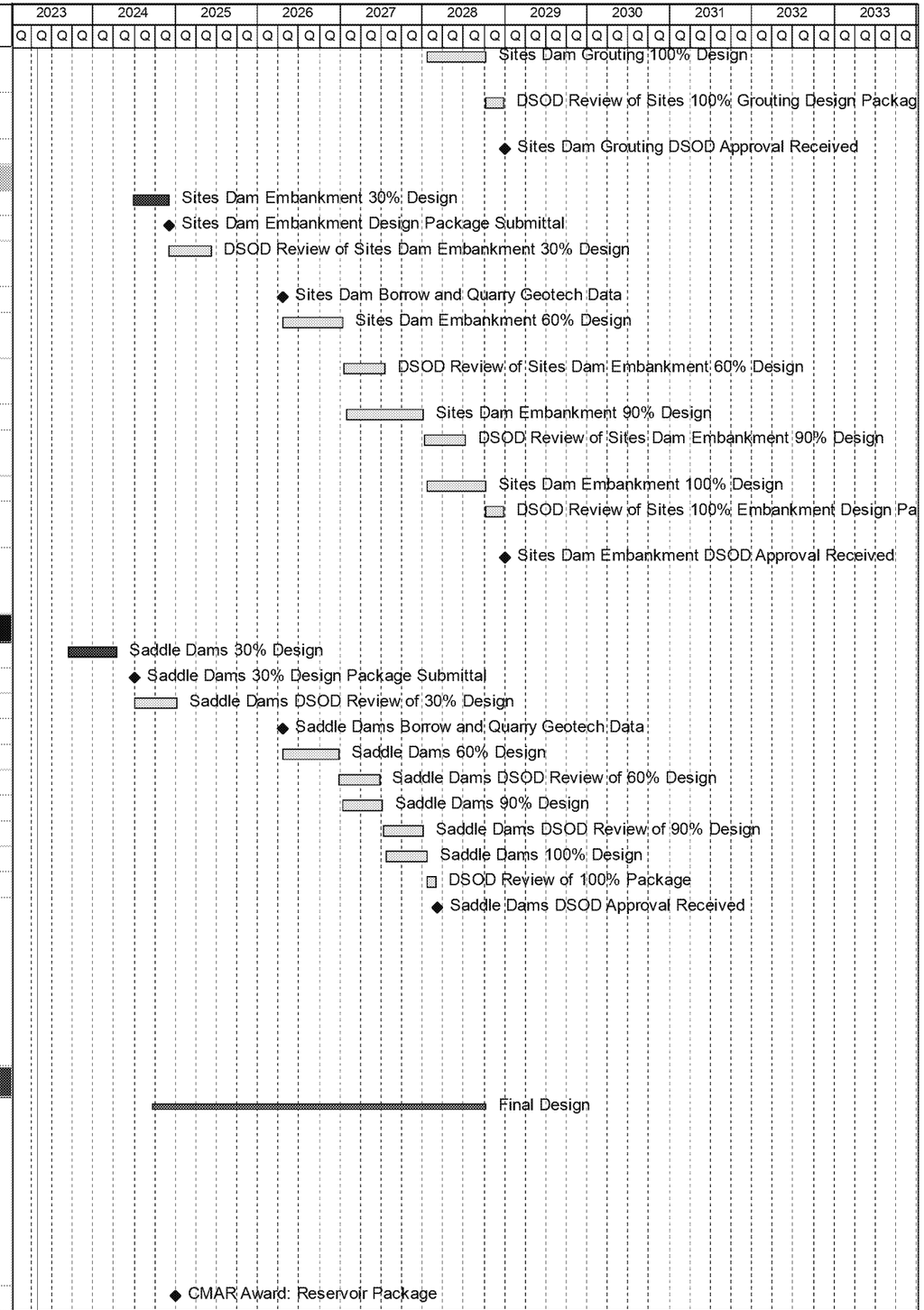
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
503	X88	DSOD Review of GG Grouting 90% Design	130	19-Apr-27	15-Oct-27	853	X86: FS, X87: FS	X89: SS 10
504	X89	GG Grouting 100% Design	130	03-May-27	29-Oct-27	853	X88: SS 10	X90: FS, X799.OE2: SS, X270: FF
505	X90	DSOD Review of GG 100% Grouting Design Package	60	01-Nov-27	21-Jan-28	853	X89: FS	X295.OE2: FF, X295.OE2: SS, X91: FS
506	X91	GG Grouting DSOD Approval Received	0	24-Jan-28		853	X90: FS	X275.OE2: FS
507	**Golden Gate Embankment Design**		979	26-Jun-24	17-Apr-28	893		
508	X92	Golden Gate Embankment 30% Design	91	26-Jun-24	01-Nov-24*	-152	X72: SS 200, X68: FS	X297.OE2: FF, X93: FS
509	X93	Golden Gate Embankment Design Package Submittal	0	04-Nov-24		1326	X68: FS, X92: FS	X94: FS
510	X94	DSOD Review of GG Embankment 30% Design	130	04-Nov-24	09-May-25	1326	X93: FS	X97: FS
511	X95	Golden Gate Borrow and Quarry Geotech Data	0	20-Apr-26		893	X71: FS	X96: FS
512	X96	Golden Gate Embankment 60% Design	195	20-Apr-26	15-Jan-27	893	X95: FS	X300.OE2: FF, X176: FS, X97: FS, X270: FF
513	X97	DSOD Review of GG Embankment 60% Design	130	18-Jan-27	16-Jul-27	893	X94: FS, X96: FS	X98: SS 10
514	X98	Golden Gate Embankment 90% Design	120	01-Feb-27	16-Jul-27	893	X97: SS 10	X99: FS
515	X99	DSOD Review of GG Embankment 90% Design	130	19-Jul-27	14-Jan-28	893	X98: FS	X100: SS 10
516	X100	GG Embankment 100% Design	125	02-Aug-27	21-Jan-28	893	X99: SS 10	X101: FS, X270: FF
517	X101	DSOD Review of GG 100% Embankment Design Package	60	24-Jan-28	14-Apr-28	893	X100: FS	X295.OE2: FF, X295.OE2: SS, X102:
518	X102	GG Embankment DSOD Approval Received	0	17-Apr-28		893	X101: FS	X283.OE2: FS, X282.OE2: FS, X281.OE2: FS, X280.OE2: FS
519	**Sites Dam Design**		1364	12-Sep-23	01-Jan-29	969		
520	**Sites Dam Foundation and Outlet Design**		1309	12-Sep-23	16-Oct-28	784		
521	X103	Sites Dam Foundation and Outlet 30% Design	151	12-Sep-23	16-Apr-24*	-172	X68: FS	X114: SS 100, X104: FS
522	X104	Sites Dam Foundation and Outlet Design Package Submittal	0	17-Apr-24		1282	X103: FS	X105: FS
523	X105	DSOD Review of Sites Dam Foundation and Outlet 30% Design	130	17-Apr-24	18-Oct-24	1282	X104: FS	X107: SS 10
524	X106	Sites Dam Foundation and Outlet Geotech Data	0	20-Apr-26		784	X69: FS	X129: FS, X107: FS
525	X107	Sites Dam Foundation and Outlet 60% Design	195	20-Apr-26	15-Jan-27	784	X105: SS 10, X106: FS	X108: FS, X270: FF
526	X108	DSOD Review of Sites Dam Foundation and Outlet 60% Design	130	18-Jan-27	16-Jul-27	784	X107: FS	X109: SS 10
527	X109	Sites Dam Foundation and Outlet 90% Design	245	01-Feb-27	07-Jan-28	784	X108: SS 10	X110: FS
528	X110	DSOD Review of Sites Dam Foundation and Outlet 90% Design	130	10-Jan-28	07-Jul-28	784	X109: FS	X111: SS 10
529	X111	Sites Dam Foundation and Outlet 100% Design	130	24-Jan-28	21-Jul-28	784	X110: SS 10	X112: FS, X270: FF
530	X112	DSOD Review of Sites 100% Foundation and Outlet Design	60	24-Jul-28	13-Oct-28	784	X111: FS	X113: FS
531	X113	Sites Dam Foundation and Outlet DSOD Approval Received	0	16-Oct-28		784	X112: FS	X246: FS, X241: FS
532	**Sites Dam Grouting Design**		1264	06-Feb-24	01-Jan-29	899		
533	X114	Sites Dam Grouting 30% Design	111	06-Feb-24	11-Jul-24*	-172	X103: SS 100, X68: FS	X125: SS 100, X115: FS
534	X115	Sites Dam Grouting Design Package Submittal	0	12-Jul-24		1217	X114: FS, X68: FS	X116: FS
535	X116	DSOD Review of Sites Dam Grouting 30% Design	130	12-Jul-24	17-Jan-25	1217	X115: FS	X118: FS
536	X117	Sites Dam Grouting Geotech Data	0	20-Apr-26		899	X69: FS	X118: FS
537	X118	Sites Dam Grouting 60% Design	195	20-Apr-26	15-Jan-27	899	X116: FS, X117: FS	X119: FS, X270: FF
538	X119	DSOD Review of Sites Dam Grouting 60% Design	130	18-Jan-27	16-Jul-27	899	X118: FS	X120: SS 10
539	X120	Sites Dam Grouting 90% Design	245	01-Feb-27	07-Jan-28	899	X119: SS 10	X121: FS
540	X121	DSOD Review of Sites Dam Grouting 90% Design	130	10-Jan-28	07-Jul-28	899	X120: FS	X122: SS 10



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

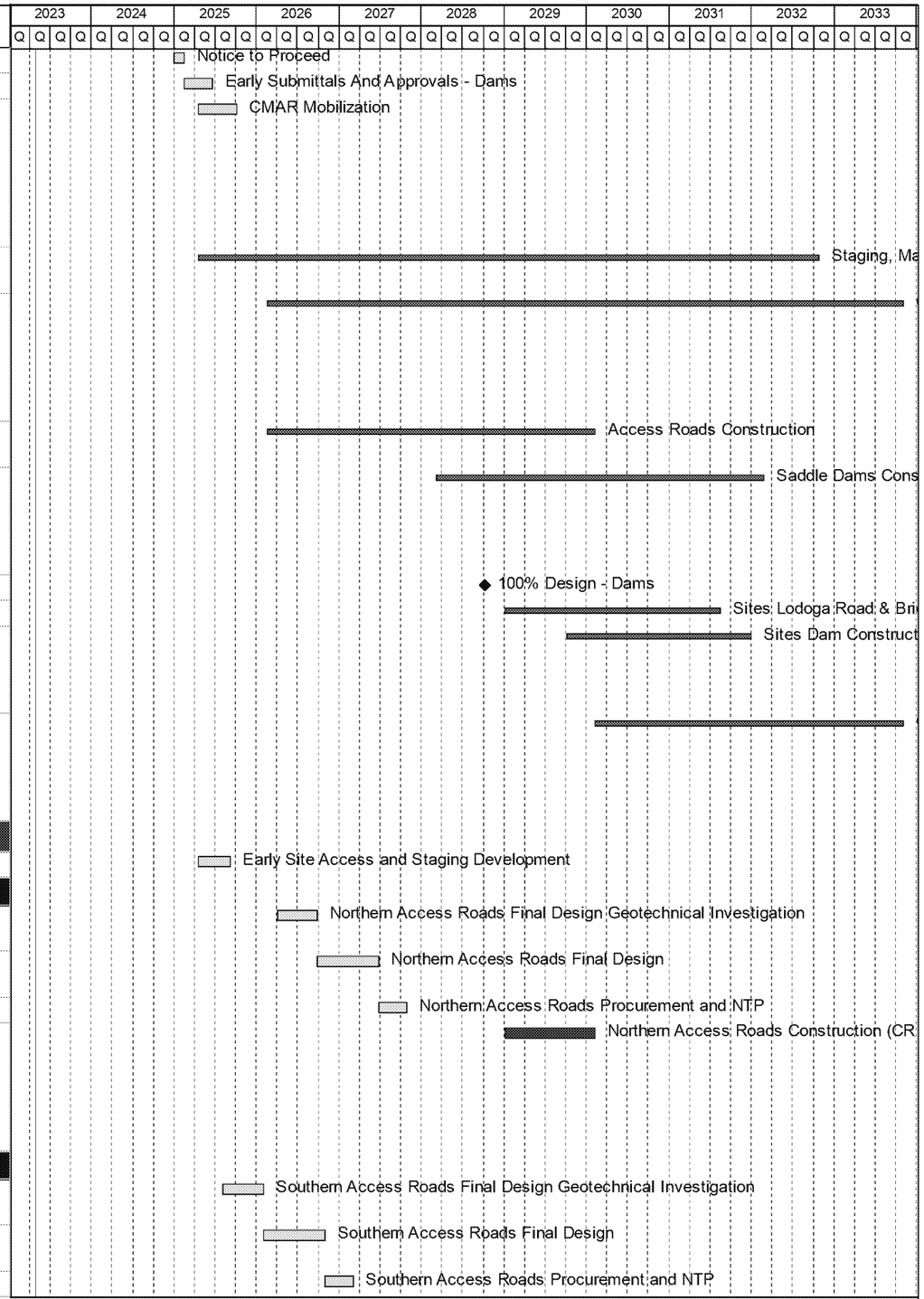
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
541	X122	Sites Dam Grouting 100% Design	185	24-Jan-28	06-Oct-28	899	X121: SS 10	X123: FS, X270: FF, X280: FF
542	X123	DSOD Review of Sites 100% Grouting Design Package	60	09-Oct-28	29-Dec-28	899	X122: FS	X124: FS, X295.OE2: FF
543	X124	Sites Dam Grouting DSOD Approval Received	0	01-Jan-29		899	X123: FS	X256: FS, X298.OE2: S
544	**Sites Dam Embankment Design**		1164	26-Jun-24	01-Jan-29	969		
545	X125	Sites Dam Embankment 30% Design	111	26-Jun-24	03-Dec-24*	-172	X114: SS 100, X68: FS	X126: FS
546	X126	Sites Dam Embankment Design Package Submittal	0	04-Dec-24		1187	X125: FS, X68: FS	X127: FS
547	X127	DSOD Review of Sites Dam Embankment 30% Design	130	04-Dec-24	09-Jun-25	1187	X126: FS	X129: FS
548	X128	Sites Dam Borrow and Quarry Geotech Data	0	20-Apr-26		969	X71: FS	X129: FS
549	X129	Sites Dam Embankment 60% Design	195	20-Apr-26	15-Jan-27	969	X127: FS, X128: FS, X106: FS	X130: FS
550	X130	DSOD Review of Sites Dam Embankment 60% Design	130	18-Jan-27	16-Jul-27	969	X129: FS	X131: SS 10
551	X131	Sites Dam Embankment 90% Design	245	01-Feb-27	07-Jan-28	969	X130: SS 10	X132: FS
552	X132	DSOD Review of Sites Dam Embankment 90% Design	130	10-Jan-28	07-Jul-28	969	X131: FS	X133: SS 10
553	X133	Sites Dam Embankment 100% Design	185	24-Jan-28	06-Oct-28	969	X132: SS 10	X134: FS
554	X134	DSOD Review of Sites 100% Embankment Design Package	60	09-Oct-28	29-Dec-28	969	X133: FS	X135: FS
555	X135	Sites Dam Embankment DSOD Approval Received	0	01-Jan-29		969	X134: FS	X264: FS, X263: FS, X262: FS, X261: FS, X298.OE2: SF
556	**Saddle Dam Designs**		1149	12-Sep-23	06-Mar-28	944		
557	X136	Saddle Dams 30% Design	151	12-Sep-23	16-Apr-24*	-12	X68: FS	X137: FS
558	X137	Saddle Dams 30% Design Package Submittal	0	01-Jul-24*		1270	X136: FS	X138: FS
559	X138	Saddle Dams DSOD Review of 30% Design	130	01-Jul-24	07-Jan-25	1270	X137: FS	X140: FS
560	X139	Saddle Dams Borrow and Quarry Geotech Data	0	20-Apr-26		944	X71: FS, X69: FS	X140: FS
561	X140	Saddle Dams 60% Design	180	20-Apr-26	25-Dec-26	944	X138: FS, X139: FS	X300.OE2: FF, X141: F
562	X141	Saddle Dams DSOD Review of 60% Design	130	28-Dec-26	25-Jun-27	944	X140: FS	X142: SS 10
563	X142	Saddle Dams 90% Design	130	11-Jan-27	09-Jul-27	944	X141: SS 10	X143: FS
564	X143	Saddle Dams DSOD Review of 90% Design	130	12-Jul-27	07-Jan-28	944	X142: FS	X144: SS 10
565	X144	Saddle Dams 100% Design	130	26-Jul-27	21-Jan-28	944	X143: SS 10	X145: FS
566	X145	DSOD Review of 100% Package	30	24-Jan-28	03-Mar-28	944	X144: FS	X146: FS
567	X146	Saddle Dams DSOD Approval Received	0	06-Mar-28		944	X145: FS	X231: FS, X230: FS, X227: FS, X226: FS, X225: FS, X224: FS, X217: FS, X213: FS, X207: FS, X196: FS, X193: FS, X192: FS, X191: FS, X190: FS, X183: FS, X179: FS
568	**CMAR Procurement**		2368	20-Sep-24	03-Nov-33	90		
569	X270	Final Design	1044	20-Sep-24	06-Oct-28	1414	X153: FF, X161: FF, X157: SS, X165: SS, X169: SS, X173: FF, X75: FF, X85: FF, X96: FF, X107: FF, X118: FF, X122: FF, X111: FF, X100: FF, X89: FF, X79: FF, X294.OE2: FF, X799.OE2: FF	
570	X147	CMAR Award: Reservoir Package	0	02-Jan-25*		754	X6: FS	X148: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
571	X148	Notice to Proceed	30	02-Jan-25	12-Feb-25	754	X147: FS	X150: FS, X149: FS
572	X149	Early Submittals And Approvals - Dams	90	13-Feb-25	19-Jun-25	754	X148: FS	X177: FS, X150: SS 45
573	X150	CMAR Mobilization	120	17-Apr-25	06-Oct-25	754	X21: FS, X20: FS, X149: SS 45, X148: FS	X267.OE2: FS, X241: FS, X213: FS, X196: FS, X179: FS, X176: FS, X174: FS, X170: FS, X166: FS, X162: FS, X158: FS, X154: FS, X151: SS
574	X276	Staging, Material Hauling & Stockpile	1959	17-Apr-25	28-Oct-32	355	X176: SS, X177: SS, X178: FF, X151: SS	
575	X296	Construction Summary	2014	16-Feb-26	03-Nov-33	0	X159: SS, X285.OE2: FF, X266: FF, X229: FF, X212: FF, X195: FF, X175: SS, X171: SS, X167: SS, X163.OE2: SS, X155.OE2: SS	X290: FF
576	X306	Access Roads Construction	1038	16-Feb-26	06-Feb-30	0	X155.OE2: FF, X163.OE2: SS, X159:	
577	X336	Saddle Dams Construction	1038	06-Mar-28	25-Feb-32	441	X179: SS, X180: SS, X181: SS, X182: SS, X187: FF, X195: FF, X212: FF, X240: FS, X213: SS	
578	X280	100% Design - Dams	0		06-Oct-28	1414	X122: FF	
579	X1289	Sites Lodoga Road & Bridge Construction	680	05-Jan-29	14-Aug-31	580	X175: SS, X175: FF	
580	X316	Sites Dam Construction	585	05-Oct-29	01-Jan-32	570	X241: SS, X253: FF, X258: FF, X266: FF, X246: SS, X248: SS, X242: SS, X243: SS	
581	X326	Golden Gate Dam Construction	976	07-Feb-30	03-Nov-33	0	X267.OE2: SS, X268: SS, X269: SS, X270.OE2: SS, X272: FF, X277.OE2: FF, X285.OE2: FF	
582	**Roads, Bridges, Access, and Site Development**		1788	20-Sep-24	14-Aug-31	580		
583	X151	Early Site Access and Staging Development	100	17-Apr-25	08-Sep-25	1953	X150: SS	X240: FS, X276: SS
584	**Northern Construction Access Roads (CR 68, CR 69, N.**		1003	06-Apr-26	06-Feb-30	0		
585	X152	Northern Access Roads Final Design Geotechnical Investigation	125	06-Apr-26	25-Sep-26	309	X70: FS, X15.c: FS, X15.d: FS	X153: FS
586	X153	Northern Access Roads Final Design	195	28-Sep-26	25-Jun-27	309	X152: FS	X294.OE2: FF, X154: FS, X270: FF
587	X154	Northern Access Roads Procurement and NTP	90	28-Jun-27	29-Oct-27	309	X153: FS, X150: FS	X155.OE2: FS
588	X155.OE2	Northern Access Roads Construction (CR 68, CR 69, N. Rd)	284	05-Jan-29	06-Feb-30	0	X359.OE2: SS 40, X154: FS, X769: FS	X296: SS, X281.OE2: FS, X267.OE2: FS, X225: FS, X208: FS, X196: FS, X191: FS, X179: FS, X306: FF, X163.OE2: SS
589	**Southern Construction Access Roads (Maxwell-Sites, S**		1084	04-Aug-25	04-Oct-29	355		
590	X160	Southern Access Roads Final Design Geotechnical Investigation	125	04-Aug-25	30-Jan-26	834	X70: FS, X15.b: FS, X15.c: FS	X161: FS, X18: FS
591	X161	Southern Access Roads Final Design	195	02-Feb-26	30-Oct-26	834	X160: FS	X294.OE2: FF, X162: FS, X270: FF
592	X162	Southern Access Roads Procurement and NTP	90	02-Nov-26	05-Mar-27	834	X161: FS, X150: FS	X163.OE2: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

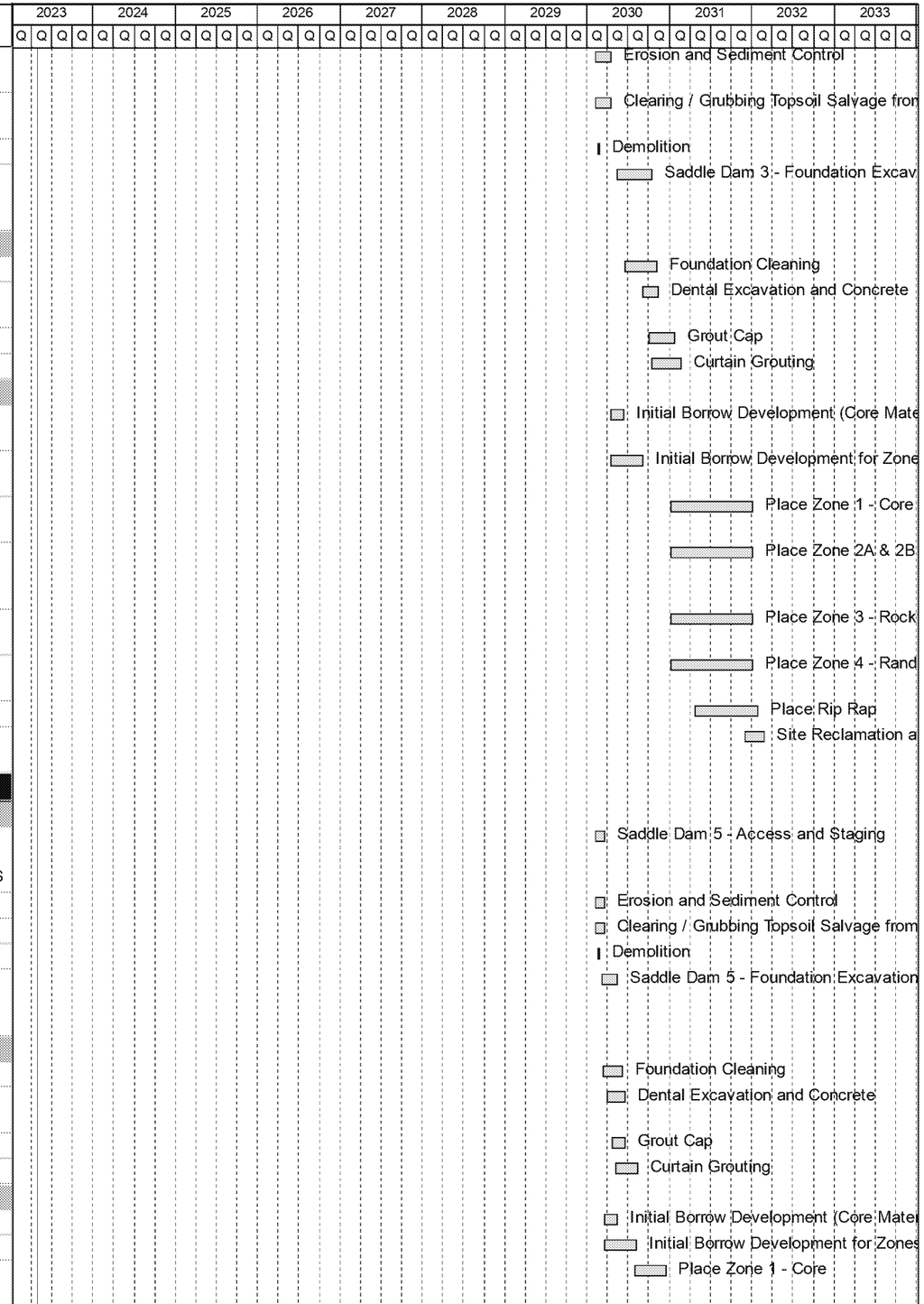
Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
593	X163.OE2	Southern Access Roads Construction (Maxwell-Sites, Shoo-fly, A-1)	195	05-Jan-29	04-Oct-29	355	X162: FS, X1269.OE2: FS, X1209: FS, X155.OE2: SS	X296: SS, X281.OE2: FS, X262: FS, X241: FS, X178: FS, X306: SS
594	**County Roads F, D, McDermott, Delevan**		554	20-Sep-24	20-Nov-26	838		
595	X156	Geotechnical Data - County Roads F, D, McDermitt, Delevan	0	20-Sep-24		842	X68: FS 260	X157: FS
596	X157	Final Design - County Roads F, D, McDermitt, Delevan	260	20-Sep-24	30-Sep-25	842	X156: FS	X294.OE2: FF, X158: FS, X270: SS
597	X158	Procurement and NTP - County Roads F, D, McDermitt, Delevan	90	07-Oct-25	13-Feb-26	838	X157: FS, X150: FS	X225: FS, X208: FS, X191: FS, X159: FS
598	X159	Construction - County Roads F, D, McDermott, Delevan	200	16-Feb-26	20-Nov-26	838	X158: FS	X296: SS, X267.OE2: FS, X178: FS, X306: SS
599	**Ancillary Roads B1, B2, C1, C2, Comm N., Comm South**		505	04-Aug-25	16-Jul-27	1644		
600	X164	Geotechnical Data - Ancillary Roads B1, B2, C1, C2, Comm N., Comm S.	0	04-Aug-25		1644	X70: FS	X165: FS
601	X165	Final Design - Ancillary Roads B1, B2, C1, C2, Comm N., Comm S.	195	04-Aug-25	08-May-26	1644	X164: FS	X294.OE2: FF, X166: FS, X270: SS
602	X166	Procurement and NTP - Ancillary Roads B1, B2, C1, C2, Comm N., Comm S.	90	11-May-26	11-Sep-26	1644	X165: FS, X150: FS	X167: FS
603	X167	Construction - Ancillary Roads B1, B2, C1, C2, Comm N., Comm South	220	14-Sep-26	16-Jul-27	1644	X166: FS	X296: SS, X286.OE2: FF
604	**Stone Corral Recreation Road to Sites Dam**		405	04-Aug-25	26-Feb-27	1744		
605	X168	Geotechnical Data - Stone Corral Recreation Road to Sites Dam	0	04-Aug-25		1744	X70: FS	X169: FS
606	X169	Final Design - Stone Corral Recreation Road to Sites Dam	195	04-Aug-25	08-May-26	1744	X168: FS	X294.OE2: FF, X170: FS, X270: SS
607	X170	Procurement and NTP - Stone Corral Recreation Road to Sites Dam	90	11-May-26	11-Sep-26	1744	X169: FS, X150: FS	X171: FS
608	X171	Construction - Stone Corral Recreation Road to Sites Dam	120	14-Sep-26	26-Feb-27	1744	X170: FS	X296: SS, X286.OE2: FF
609	**Sites Lodoga Road Realignment and Bridge**		1569	04-Aug-25	14-Aug-31	580		
610	X172	Geotechnical Data - Sites Lodoga Road Realignment and Bridge	0	04-Aug-25		929	X70: FS	X173: FS
611	X173	Final Design - Sites Lodoga Road Realignment and Bridge	390	04-Aug-25	05-Feb-27	929	X172: FS	X294.OE2: FF, X174: FS, X270: FF
612	X174	Procurement and NTP - Sites Lodoga Road Realignment and Bridge	150	08-Feb-27	03-Sep-27	929	X173: FS, X150: FS	X175: FS
613	X175	Construction - Sites Lodoga Road Realignment and Bridge	680	05-Jan-29	14-Aug-31	580	X174: FS, X769: FS	X296: SS, X286.OE2: FF, X1289: SS, X1289: FF
614	**Process and Haul Filter Materials to Project**		1509	18-Jan-27	28-Oct-32	355		
615	X176	Offsite Quarry Development	50	18-Jan-27	26-Mar-27	984	X150: FS, X96: FS, X68: FS	X177: FS, X276: SS
616	X177	Process Filter Materials	800	29-Mar-27	19-Apr-30	984	X176: FS, X149: FS	X178: SS 30, X276: SS
617	X178	Filter Material Haul to Stockpile	800	05-Oct-29	28-Oct-32	355	X163.OE2: FS, X159: FS, X177: SS 30	X281.OE2: SS 30, X262: SS 30, X208: SS 30, X191: SS 30, X276: FF
618	**Saddle Dams Construction**		1038	06-Mar-28	25-Feb-32	441		
619	**Saddle Dam 3**		535	07-Feb-30	25-Feb-32	441		
620	**Saddle Dam 3 Foundation Excavation**		180	07-Feb-30	16-Oct-30	441		
621	X179	Saddle Dam 3 - Access and Staging	50	07-Feb-30	17-Apr-30	441	X155.OE2: FS, X150: FS, X146: FS	X189: FS, X188: FS, X183: SS 20, X182: SS 10, X181: SS, X180: SS, X336: SS

Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

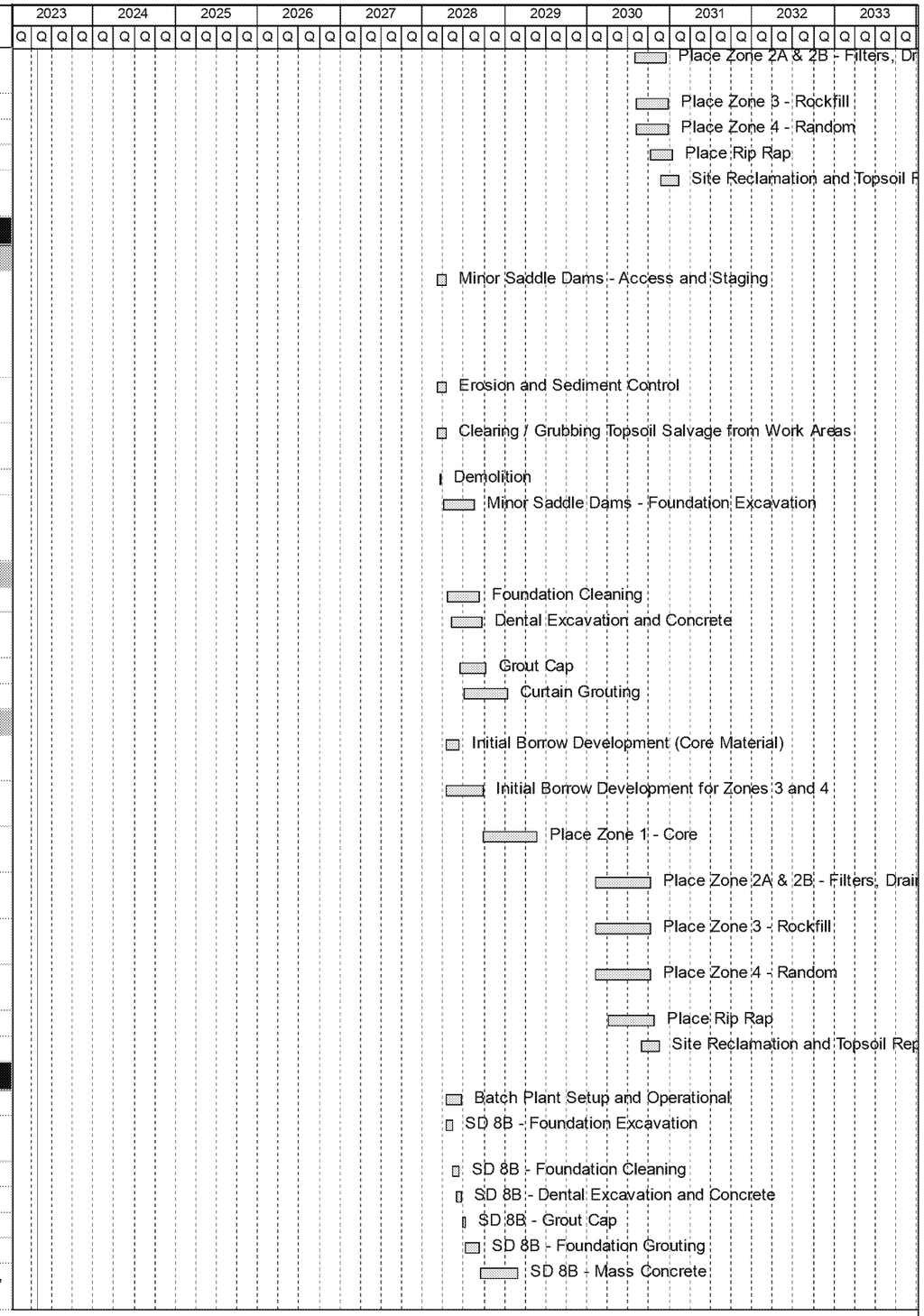
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
622	X180	Erosion and Sediment Control	50	07-Feb-30	17-Apr-30	491	X179: SS	X189: FS, X188: FS, X183: SS 20, X336: SS
623	X181	Clearing / Grubbing Topsoil Salvage from Work Areas	50	07-Feb-30	17-Apr-30	441	X179: SS	X189: FS, X188: FS, X183: FS 20, X336: SS
624	X182	Demolition	5	21-Feb-30	27-Feb-30	481	X179: SS 10	X183: SS 20, X336: SS
625	X183	Saddle Dam 3 - Foundation Excavation (Dbl Shift)	110	16-May-30	16-Oct-30	441	X146: FS, X182: SS 20, X181: FS 20, X180: SS 20, X179: SS 20	X185: FF 20, X184: FF 15
626	**Saddle Dam 3 - Foundation Preparation and Grouting**		175	20-Jun-30	19-Feb-31	441		
627	X184	Foundation Cleaning	100	20-Jun-30	06-Nov-30	486	X183: FF 15	X185: SS 10
628	X185	Dental Excavation and Concrete	50	05-Sep-30	13-Nov-30	441	X184: SS 10, X183: FF 20	X186: SS 20
629	X186	Grout Cap	80	03-Oct-30	22-Jan-31	441	X185: SS 20	X187: SS 10
630	X187	Curtain Grouting	90	17-Oct-30	19-Feb-31	441	X186: SS 10	X190: SS 60, X336: FF
631	**Saddle Dam 3 - Embankment**		485	18-Apr-30	25-Feb-32	441		
632	X188	Initial Borrow Development (Core Material)	40	18-Apr-30	12-Jun-30	611	X181: FS, X180: FS, X179: FS	X190: SS 20
633	X189	Initial Borrow Development for Zones 3 and 4	100	18-Apr-30	04-Sep-30	531	X181: FS, X180: FS, X179: FS	X193: FS, X192: FS
634	X190	Place Zone 1 - Core	260	09-Jan-31	07-Jan-32	441	X146: FS, X187: SS 60, X188: SS 20	X191: SS
635	X191	Place Zone 2A & 2B - Filters, Drains and Transitions	260	09-Jan-31	07-Jan-32	441	X178: SS 30, X146: FS, X158: FS, X155.OE2: FS, X190: SS	X192: SS
636	X192	Place Zone 3 - Rockfill	260	09-Jan-31	07-Jan-32	441	X146: FS, X189: FS, X191: SS	X193: SS
637	X193	Place Zone 4 - Random	260	09-Jan-31	07-Jan-32	441	X146: FS, X189: FS, X192: SS	X194: FF 15
638	X194	Place Rip Rap	200	24-Apr-31	28-Jan-32	441	X193: FF 15	X195: FF 20
639	X195	Site Reclamation and Topsoil Replacement	60	04-Dec-31	25-Feb-32	441	X194: FF 20	X296: FF, X286.OE2: FF, X336: FF
640	**Saddle Dam 5**		265	07-Feb-30	12-Feb-31	711		
641	**Saddle Dam 5 - Foundation Excavation**		70	07-Feb-30	15-May-30	716		
642	X196	Saddle Dam 5 - Access and Staging	30	07-Feb-30	20-Mar-30	711	X155.OE2: FS, X150: FS, X146: FS	X206: FS, X205: FS, X200: SS 20, X199: SS 10, X198: SS, X197: SS
643	X197	Erosion and Sediment Control	30	07-Feb-30	20-Mar-30	716	X196: SS	X200: SS 20
644	X198	Clearing / Grubbing Topsoil Salvage from Work Are	30	07-Feb-30	20-Mar-30	716	X196: SS	X200: SS 20
645	X199	Demolition	5	21-Feb-30	27-Feb-30	721	X196: SS 10	X200: FS
646	X200	Saddle Dam 5 - Foundation Excavation	50	07-Mar-30	15-May-30	716	X81: FS, X199: FS, X198: SS 20, X197: SS 20, X196: SS 20	X202: FF 15, X201: FF 15
647	**Saddle Dam 5 - Foundation Preparation and Grouting**		110	14-Mar-30	14-Aug-30	716		
648	X201	Foundation Cleaning	60	14-Mar-30	05-Jun-30	716	X200: FF 15	X202: SS 10
649	X202	Dental Excavation and Concrete	60	28-Mar-30	19-Jun-30	716	X201: SS 10, X200: FF 15	X203: SS 20
650	X203	Grout Cap	40	25-Apr-30	19-Jun-30	716	X202: SS 20	X204: SS 10
651	X204	Curtain Grouting	70	09-May-30	14-Aug-30	716	X203: SS 10	X207: SS 60
652	**Saddle Dam 5 - Embankment**		235	21-Mar-30	12-Feb-31	711		
653	X205	Initial Borrow Development (Core Material)	40	21-Mar-30	15-May-30	791	X196: FS	X207: SS 20
654	X206	Initial Borrow Development for Zones 3 and 4	100	21-Mar-30	07-Aug-30	711	X196: FS	X209: FS
655	X207	Place Zone 1 - Core	100	01-Aug-30	18-Dec-30	716	X146: FS, X205: SS 20, X204: SS 60	X208: SS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

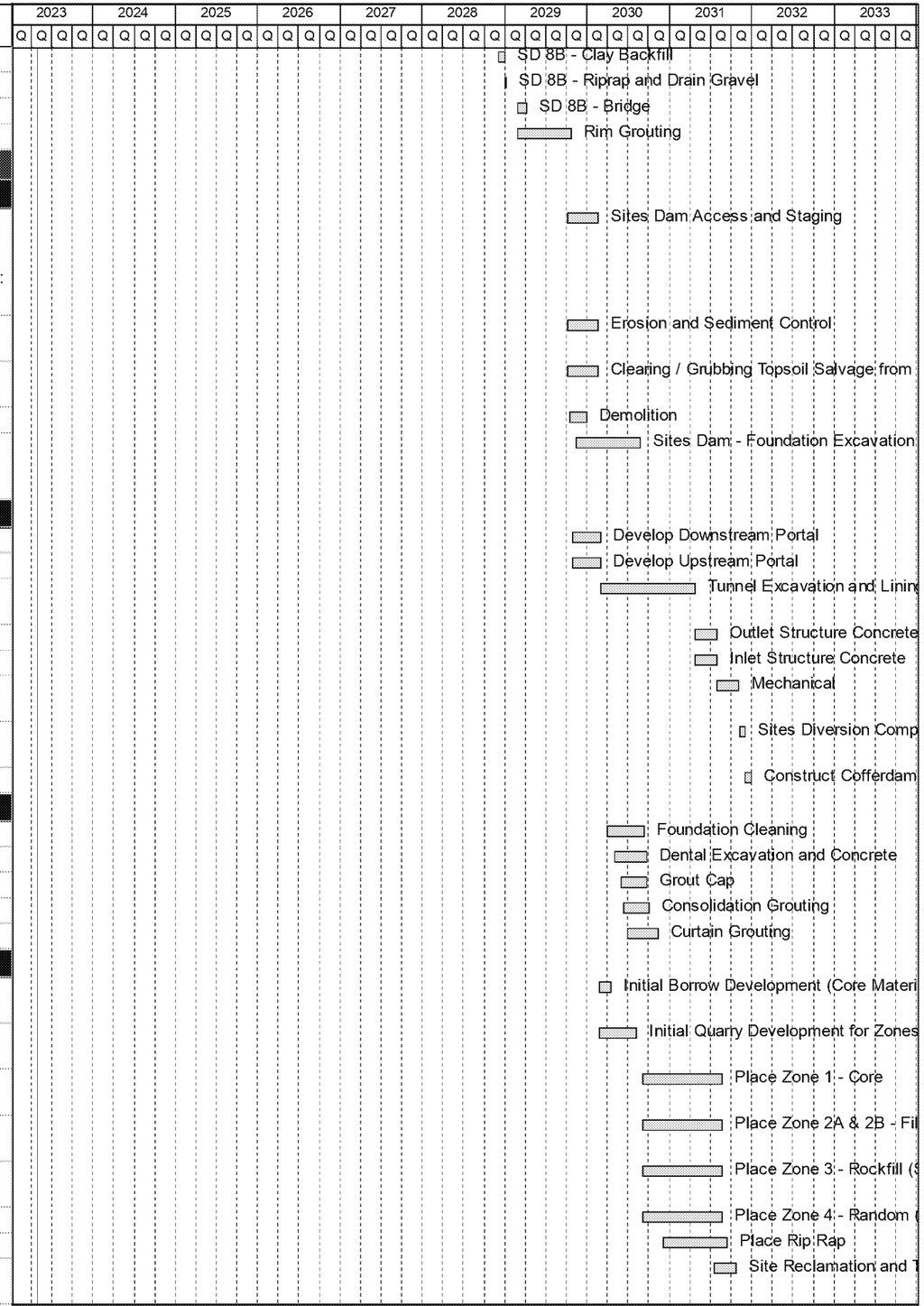
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
656	X208	Place Zone 2A & 2B - Filters, Drains and Transitions	100	01-Aug-30	18-Dec-30	716	X178: SS 30, X158: FS, X155.OE2: FS, X207:	X209: SS
657	X209	Place Zone 3 - Rockfill	100	08-Aug-30	25-Dec-30	711	X206: FS, X208: SS	X210: SS
658	X210	Place Zone 4 - Random	100	08-Aug-30	25-Dec-30	711	X209: SS	X211: FF 15
659	X211	Place Rip Rap	70	10-Oct-30	15-Jan-31	711	X210: FF 15	X212: FF 20
660	X212	Site Reclamation and Topsoil Replacement	60	21-Nov-30	12-Feb-31	711	X211: FF 20	X296: FF, X286.OE2: FF, X336: FF
661	**Minor Saddle Dams (SD1,SD2,SD6,SD8A, Dike 1, and Di**		708	06-Mar-28	20-Nov-30	771		
662	**Minor Saddle Dams Foundation Excavation**		120	06-Mar-28	18-Aug-28	1129		
663	X213	Minor Saddle Dams - Access and Staging	30	06-Mar-28	14-Apr-28	1051	X150: FS, X146: FS	X231: FS, X230: FS, X223: FS, X222: FS, X217: SS 20, X216: SS 10, X215: SS, X214: SS, X336: SS
664	X214	Erosion and Sediment Control	30	06-Mar-28	14-Apr-28	1051	X213: SS	X231: FS, X223: FS, X222: FS, X217: SS 20
665	X215	Clearing / Grubbing Topsoil Salvage from Work Areas	30	06-Mar-28	14-Apr-28	1051	X213: SS	X231: FS, X223: FS, X222: FS, X217: SS 20
666	X216	Demolition	5	20-Mar-28	24-Mar-28	1134	X213: SS 10	X217: FS
667	X217	Minor Saddle Dams - Foundation Excavation	100	03-Apr-28	18-Aug-28	1129	X146: FS, X216: FS, X215: SS 20, X214: SS 20, X213: SS 20	X219: FF 20, X218: FF 15
668	**Minor Saddle Dams - Foundation Preparation and Grouting**		190	24-Apr-28	12-Jan-29	1129		
669	X218	Foundation Cleaning	100	24-Apr-28	08-Sep-28	1129	X217: FF 15	X219: SS 10
670	X219	Dental Excavation and Concrete	100	08-May-28	22-Sep-28	1129	X218: SS 10, X217: FF 20	X220: SS 30
671	X220	Grout Cap	80	19-Jun-28	06-Oct-28	1129	X219: SS 30	X221: SS 10
672	X221	Curtain Grouting	140	03-Jul-28	12-Jan-29	1129	X220: SS 10	X224: SS 60
673	**Minor Saddle Dams - Embankment**		678	17-Apr-28	20-Nov-30	771		
674	X222	Initial Borrow Development (Core Material)	40	17-Apr-28	09-Jun-28	1224	X215: FS, X214: FS, X213: FS	X224: SS 20
675	X223	Initial Borrow Development for Zones 3 and 4	120	17-Apr-28	29-Sep-28	1124	X215: FS, X214: FS, X213: FS	X227: FS, X226: FS
676	X224	Place Zone 1 - Core	175	25-Sep-28	25-May-29	1129	X146: FS, X222: SS 20, X221: SS 60	X225: SS
677	X225	Place Zone 2A & 2B - Filters, Drains and Transitions	175	07-Feb-30	09-Oct-30	771	X146: FS, X158: FS, X155.OE2: FS, X224:	X226: SS
678	X226	Place Zone 3 - Rockfill	175	07-Feb-30	09-Oct-30	771	X223: FS, X146: FS, X225: SS	X227: SS
679	X227	Place Zone 4 - Random	175	07-Feb-30	09-Oct-30	771	X223: FS, X146: FS, X226: SS	X228: FF 10
680	X228	Place Rip Rap	145	04-Apr-30	23-Oct-30	771	X227: FF 10	X229: FF 20
681	X229	Site Reclamation and Topsoil Replacement	60	29-Aug-30	20-Nov-30	771	X228: FF 20	X296: FF, X286.OE2: F
682	**Saddle Dam 8B - Spillway**		398	17-Apr-28	24-Oct-29	1051		
683	X230	Batch Plant Setup and Operational	50	17-Apr-28	23-Jun-28	1051	X146: FS, X213: FS	X234: FS
684	X231	SD 8B - Foundation Excavation	20	17-Apr-28	12-May-28	1051	X146: FS, X215: FS, X214: FS, X213: FS	X232: FS
685	X232	SD 8B - Foundation Cleaning	20	15-May-28	09-Jun-28	1051	X231: FS	X233: SS 10
686	X233	SD 8B - Dental Excavation and Concrete	20	29-May-28	23-Jun-28	1051	X232: SS 10	X234: FS
687	X234	SD 8B - Grout Cap	12	26-Jun-28	11-Jul-28	1051	X230: FS, X233: FS	X235: FS
688	X235	SD 8B - Foundation Grouting	45	12-Jul-28	12-Sep-28	1051	X234: FS	X236: FS
689	X236	SD 8B - Mass Concrete	120	13-Sep-28	27-Feb-29	1051	X235: FS	X240: FS, X238: SS 60, X237: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

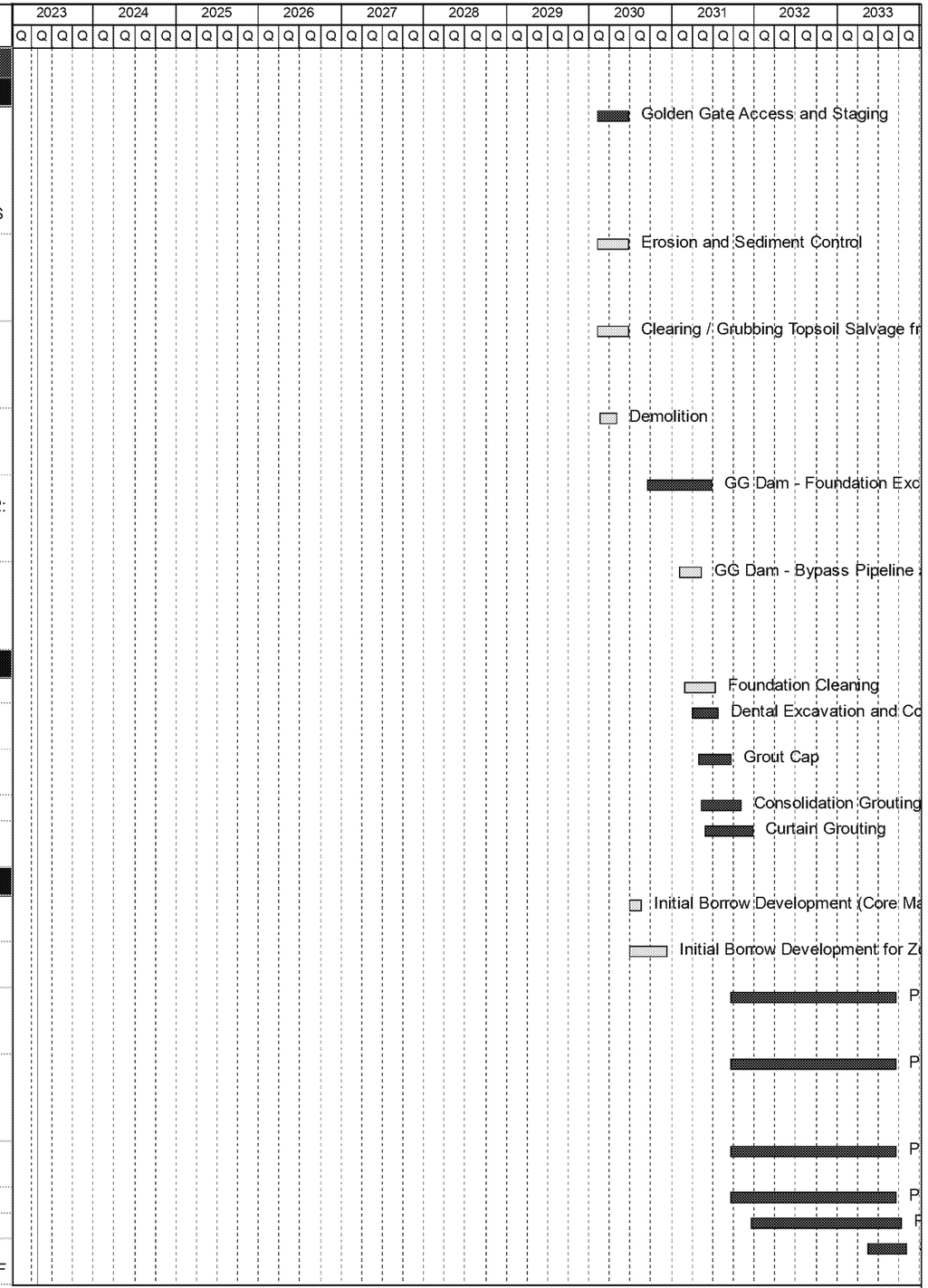
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
690	X238	SD 8B - Clay Backfill	20	06-Dec-28	02-Jan-29	1259	X236: SS 60	X239: FS
691	X239	SD 8B - Riprap and Drain Gravel	3	03-Jan-29	05-Jan-29	1259	X238: FS	X286.OE2: FF
692	X237	SD 8B - Bridge	30	28-Feb-29	10-Apr-29	1192	X236: FS	X286.OE2: FF
693	X240	Rim Grouting	171	28-Feb-29	24-Oct-29	1051	X236: FS, X151: FS	X286.OE2: FF, X336: F
694	**Sites Dam Construction**		585	05-Oct-29	01-Jan-32	570		
695	**Sites Dam Foundation Excavation**		230	05-Oct-29	22-Aug-30	530		
696	X241	Sites Dam Access and Staging	100	05-Oct-29	21-Feb-30	530	X150: FS, X113: FS, X163.OE2: FS	X260: FS, X259: FS, X248: SS 15, X246: SS 15, X245: SS 20, X244: SS 10, X243: SS, X242: SS, X316: SS
697	X242	Erosion and Sediment Control	100	05-Oct-29	21-Feb-30	540	X241: SS	X260: FS, X259: FS, X245: SS 20, X316: SS
698	X243	Clearing / Grubbing Topsoil Salvage from Work Areas	100	05-Oct-29	21-Feb-30	540	X241: SS	X260: FS, X259: FS, X245: SS 20, X316: SS
699	X244	Demolition	50	19-Oct-29	27-Dec-29	530	X241: SS 10	X245: SS 20
700	X245	Sites Dam - Foundation Excavation	200	16-Nov-29	22-Aug-30	530	X81: FS, X244: SS 20, X243: SS 20, X242: SS 20, X241: SS 20	X255: FF 20, X254: FF 15, X253: SS 30
701	**Sites Diversion Outlet Facility**		570	26-Oct-29	01-Jan-32	570		
702	X246	Develop Downstream Portal	90	26-Oct-29	28-Feb-30	570	X113: FS, X241: SS 15	X247: FS, X316: SS
703	X248	Develop Upstream Portal	90	26-Oct-29	28-Feb-30	870	X241: SS 15	X250: FS, X316: SS
704	X247	Tunnel Excavation and Lining - Double Shift	300	01-Mar-30	24-Apr-31	570	X246: FS	X251: FS, X250: FS, X249: FS
705	X249	Outlet Structure Concrete	70	25-Apr-31	31-Jul-31	570	X247: FS	X252: FS, X251: FS
706	X250	Inlet Structure Concrete	70	25-Apr-31	31-Jul-31	570	X248: FS, X247: FS	X252: FS, X251: FS
707	X251	Mechanical	70	01-Aug-31	06-Nov-31	570	X250: FS, X249: FS, X247: FS	X252: FS
708	X252	Sites Diversion Completion and Restoration	20	07-Nov-31	04-Dec-31	570	X251: FS, X250: FS, X249: FS	X253: FS
709	X253	Construct Cofferdam to El. 310	20	05-Dec-31	01-Jan-32	570	X252: FS, X245: SS 30	X316: FF
710	**Sites Dam - Foundation Preparation and Grouting**		165	29-Mar-30	14-Nov-30	865		
711	X254	Foundation Cleaning	120	29-Mar-30	12-Sep-30	910	X245: FF 15	
712	X255	Dental Excavation and Concrete	100	03-May-30	19-Sep-30	530	X245: FF 20	X256: SS 20
713	X256	Grout Cap	80	31-May-30	19-Sep-30	530	X124: FS, X255: SS 20	X257: SS 10
714	X257	Consolidation Grouting	80	14-Jun-30	03-Oct-30	530	X256: SS 10	X258: SS 10
715	X258	Curtain Grouting	100	28-Jun-30	14-Nov-30	530	X257: SS 10	X261: SS 50, X316: FF
716	**Sites Dam - Embankment**		435	22-Feb-30	23-Oct-31	530		
717	X259	Initial Borrow Development (Core Material)	40	22-Feb-30	18-Apr-30	650	X243: FS, X242: FS, X241: FS	X261: SS 20
718	X260	Initial Quarry Development for Zones 3 and 4	120	22-Feb-30	08-Aug-30	630	X243: FS, X242: FS, X241: FS	X263: SS 40
719	X261	Place Zone 1 - Core	250	06-Sep-30	21-Aug-31	530	X135: FS, X258: SS 50, X259: SS 20	X262: SS
720	X262	Place Zone 2A & 2B - Filters, Drains and Transitions	250	06-Sep-30	21-Aug-31	530	X178: SS 30, X135: FS, X163.OE2: FS, X261:	X263: SS
721	X263	Place Zone 3 - Rockfill (Some Dbl Shift)	250	06-Sep-30	21-Aug-31	530	X135: FS, X260: SS 40, X262: SS	X264: SS
722	X264	Place Zone 4 - Random (Some Dbl Shift)	250	06-Sep-30	21-Aug-31	530	X135: FS, X263: SS	X265: FF 15
723	X265	Place Rip Rap	200	06-Dec-30	11-Sep-31	530	X264: FF 15	X266: FF 30
724	X266	Site Reclamation and Topsoil Replacement	70	18-Jul-31	23-Oct-31	530	X265: FF 30	X296: FF, X286.OE2: FF, X316: FF



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
725	**Golden Gate Dam Construction**		976	07-Feb-30	03-Nov-33	0		
726	**GG Dam Foundation Excavation**		360	07-Feb-30	25-Jun-31	60		
727	X267.OE2	Golden Gate Access and Staging	100	07-Feb-30	26-Jun-30	0	X155.OE2: FS, X159: FS, X34: FS, X61: FS, X58: FS, X56: FS, X47: FS, X81: FS, X150: FS	X279: FS, X278: FS, X272: SS 100, X271.OE2: SS 20, X270.OE2: SS 10, X269: SS, X268: SS, X67.OE2: FS, X326: SS
728	X268	Erosion and Sediment Control	100	07-Feb-30	26-Jun-30	140	X267.OE2: SS	X279: FS, X278: FS, X272: SS 100, X271.OE2: SS 20, X326: SS
729	X269	Clearing / Grubbing Topsoil Salvage from Work Areas	100	07-Feb-30	26-Jun-30	140	X267.OE2: SS	X279: FS, X278: FS, X272: SS 100, X271.OE2: SS 20, X326: SS
730	X270.OE2	Demolition	50	21-Feb-30	01-May-30	130	X267.OE2: SS 10	X272: SS 100, X271.OE2: SS 20, X326: SS
731	X271.OE2	GG Dam - Foundation Excavation (Some Dbl Shift)	200	19-Sep-30	25-Jun-31	0	X81: FS, X270.OE2: SS 20, X269: SS 20, X268: SS 20, X267.OE2: SS 20, X67.OE2: FF	X274.OE2: FF 20, X273.OE2: FF 15, X272: SS 100
732	X272	GG Dam - Bypass Pipeline and U/S Cofferdam	70	06-Feb-31	14-May-31	90	X271.OE2: SS 100, X270.OE2: SS 100, X269: SS 100, X268: SS 100, X267.OE2: SS 100	X280.OE2: FS, X326: FF
733	**GG Dam - Foundation Preparation and Grouting**		215	27-Feb-31	24-Dec-31	0		
734	X273.OE2	Foundation Cleaning	100	27-Feb-31	16-Jul-31	15	X271.OE2: FF 15	X274.OE2: SS 10
735	X274.OE2	Dental Excavation and Concrete	80	03-Apr-31	23-Jul-31	0	X273.OE2: SS 10, X271.OE2: FF 20	X275.OE2: SS 20
736	X275.OE2	Grout Cap	100	01-May-31	17-Sep-31	0	X91: FS, X274.OE2: SS 20	X276.OE2: SS 10
737	X276.OE2	Consolidation Grouting	125	15-May-31	05-Nov-31	0	X275.OE2: SS 10	X277.OE2: SS 10
738	X277.OE2	Curtain Grouting	150	29-May-31	24-Dec-31	0	X276.OE2: SS 10	X280.OE2: SS 80, X326: FF
739	**GG Dam - Embankment**		876	27-Jun-30	03-Nov-33	0		
740	X278	Initial Borrow Development (Core Material)	40	27-Jun-30	21-Aug-30	300	X269: FS, X268: FS, X267.OE2: FS	X280.OE2: SS 20
741	X279	Initial Borrow Development for Zones 3 and 4	120	27-Jun-30	11-Dec-30	280	X269: FS, X268: FS, X267.OE2: FS	X282.OE2: SS 40
742	X280.OE2	Place Zone 1 - Core	525	18-Sep-31	21-Sep-33	0	X272: FS, X102: FS, X277.OE2: SS 80, X278: SS 20	X281.OE2: SS
743	X281.OE2	Place Zone 2A & 2B - Filters, Drains and Transitions	525	18-Sep-31	21-Sep-33	0	X178: SS 30, X102: FS, X155.OE2: FS, X163.OE2: FS, X280.OE2: SS	X282.OE2: SS
744	X282.OE2	Place Zone 3 - Rockfill (Some Dbl Shift)	525	18-Sep-31	21-Sep-33	0	X102: FS, X279: SS 40, X281.OE2: SS	X283.OE2: SS
745	X283.OE2	Place Zone 4 - Random (Some Dbl Shift)	525	18-Sep-31	21-Sep-33	0	X102: FS, X282.OE2: S	X284.OE2: FF 15
746	X284.OE2	Place Rip Rap	475	18-Dec-31	12-Oct-33	0	X283.OE2: FF 15	X285.OE2: FF 16
747	X285.OE2	Site Reclamation and Topsoil Replacement	120	20-May-33	03-Nov-33	0	X284.OE2: FF 16	X290: FF, X296: FF, X286.OE2: FF, X326: FF



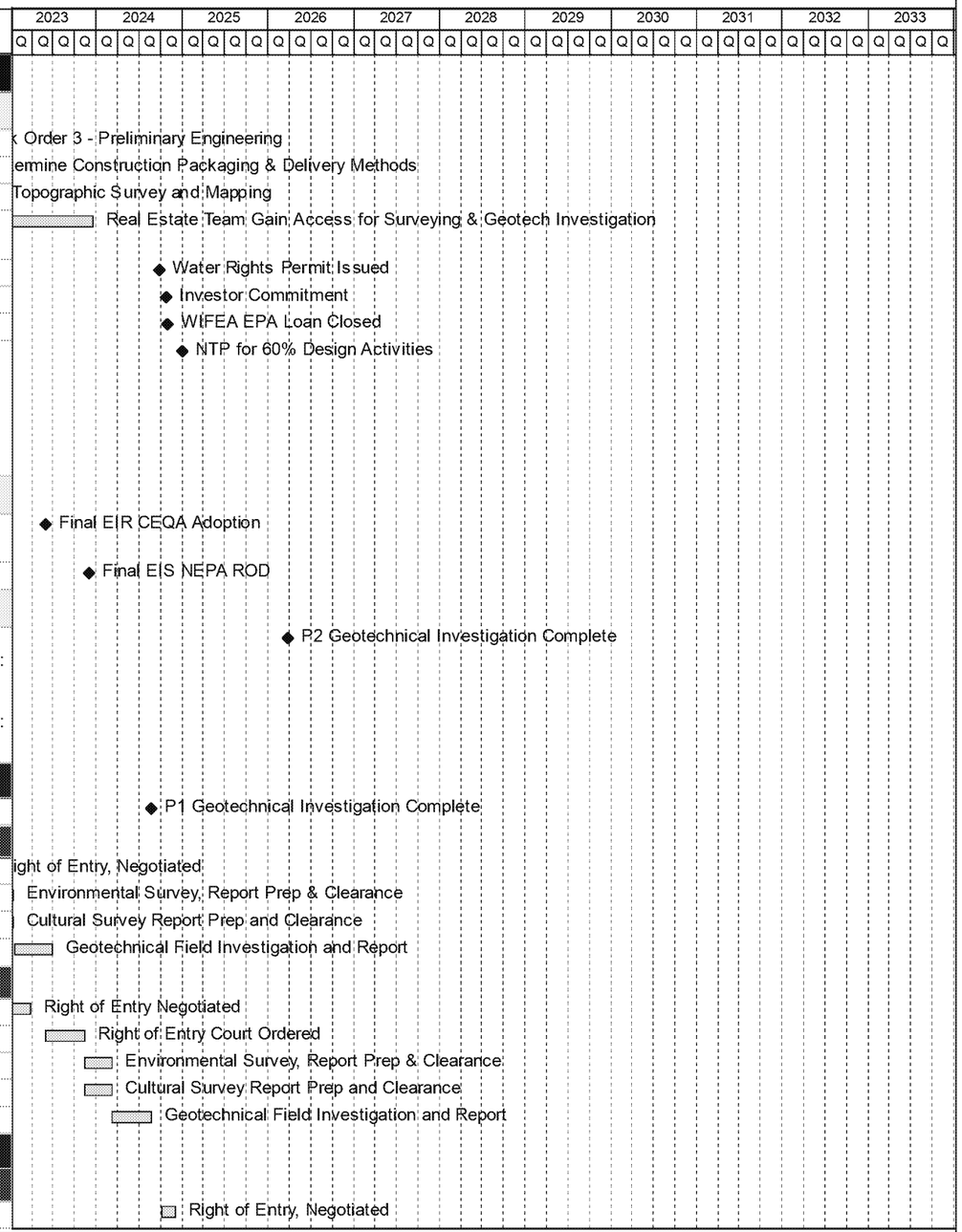
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: Sites June-2023 / Project Name: Sites Reservoir Project: June 2023 + CP1
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-May-23 / Print Date: 31-May-23

Sites Reservoir Project

Schedule with Predecessor and Successor Details

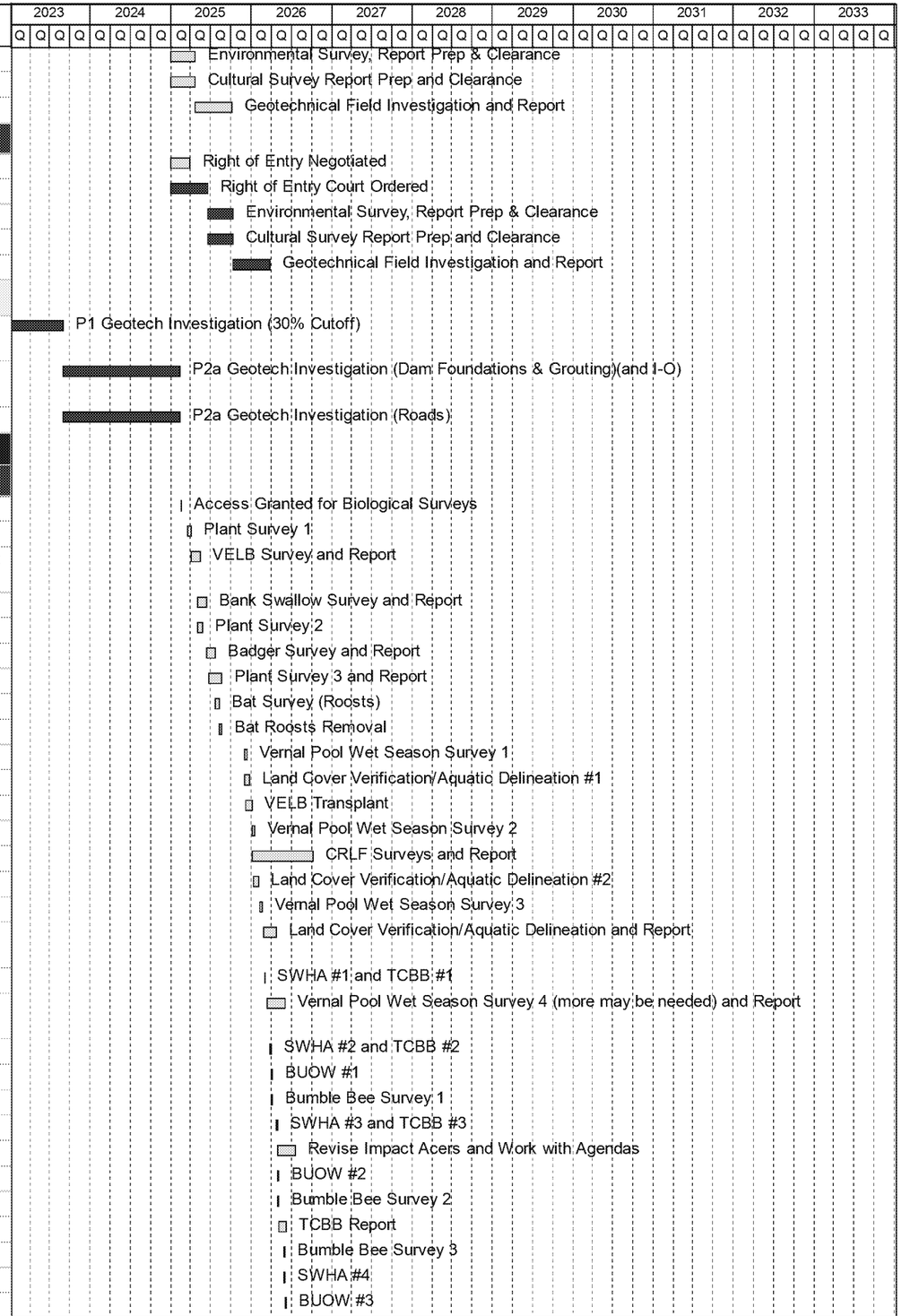
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
1	**Maxwell Sites Pumping and Generating Faci**		2484	03-Jan-22	11-Jul-31	0		
2	**CP-2 Milestones**		782	03-Jan-22	01-Jan-25	1702		
3	1	Start Task Order 3 - Preliminary Engineering	0	03-Jan-22*		2484		
4	2	Determine Construction Packaging & Delivery Meth	149	03-Jan-22	28-Jul-22	2335		
5	4	Topographic Survey and Mapping	225	03-Jan-22	11-Nov-22*	559		11: FS
6	3	Real Estate Team Gain Access for Surveying & Geotech Investigation	500	17-Jan-22*	15-Dec-23	1974		
7	5	Water Rights Permit Issued	0	26-Sep-24*		71		11: FS
8	10	Investor Commitment	0	24-Oct-24*		51		11: FS
9	9	WIFEA EPA Loan Closed	0	31-Oct-24*		46		11: FS
10	11	NTP for 60% Design Activities	0	01-Jan-25*		2	4: FS, 5: FS, 9: FS, 10: FS, 7: FS	28: SS -60, 29: FS, 30: FS, 33: FS, 34: FS, 65: FS, 189: FS, 205: FS, 221: FS, 238: FS, 257: FS, 271: FS, 287: FS, 306: FS, 319: FS
11	**Final EIR / EIS**		130	01-Jun-23	30-Nov-23	346		
12	7	Final EIR CEQA Adoption	0	01-Jun-23*		416		11: FS, 21: FS, 33: FS, 34: FS
13	8	Final EIS NEPA ROD	0	30-Nov-23*		346		33: FS
14	**Geotech Investigations MSPG Investigations**		954	01-Aug-22	27-Mar-26	1380		
15	38	P2 Geotechnical Investigation Complete	0	27-Mar-26		0	37: FS	189: FS -140, 205: FS -140, 221: FS -140, 238: FS -140, 257: FS -140, 271: FS -140, 287: FS -140, 306: FS -140, 319: FS -140
16	**Phase 1 Geotech investigation for Preliminary (30**		538	01-Aug-22	22-Aug-24	1796		
17	25	P1 Geotechnical Investigation Complete	0	22-Aug-24		1796	24: FS	
18	**Federal Access (USBR)**		240	01-Aug-22	30-Jun-23	2094		
19	15	Right of Entry, Negotiated	40	01-Aug-22*	23-Sep-22	2094		16: FS, 17: FS
20	16	Environmental Survey, Report Prep & Clearance	80	26-Sep-22	13-Jan-23	2094	15: FS	18: FS
21	17	Cultural Survey Report Prep and Clearance	80	26-Sep-22	13-Jan-23	2094	15: FS	18: FS
22	18	Geotechnical Field Investigation and Report	120	16-Jan-23	30-Jun-23	2094	16: FS, 17: FS	
23	**Private Access**		427	03-Jan-23	21-Aug-24	1796		
24	20	Right of Entry Negotiated	60	03-Jan-23*	27-Mar-23	1963		22: FS, 23: FS
25	21	Right of Entry Court Ordered	120	01-Jun-23*	15-Nov-23	1796	7: FS	22: FS, 23: FS
26	22	Environmental Survey, Report Prep & Clearance	80	16-Nov-23	06-Mar-24	1796	20: FS, 21: FS	24: FS
27	23	Cultural Survey Report Prep and Clearance	80	16-Nov-23	06-Mar-24	1796	20: FS, 21: FS	24: FS
28	24	Geotechnical Field Investigation and Report	120	07-Mar-24	21-Aug-24	1796	22: FS, 23: FS	25: FS
29	**Phase 2 Geotech Investigation for All MSPG Desig**		382	09-Oct-24	26-Mar-26	1380		
30	**Federal Access (USBR)**		260	09-Oct-24	07-Oct-25	1502		
31	28	Right of Entry, Negotiated	40	09-Oct-24*	03-Dec-24	1522	11: SS -60	29: FS, 30: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

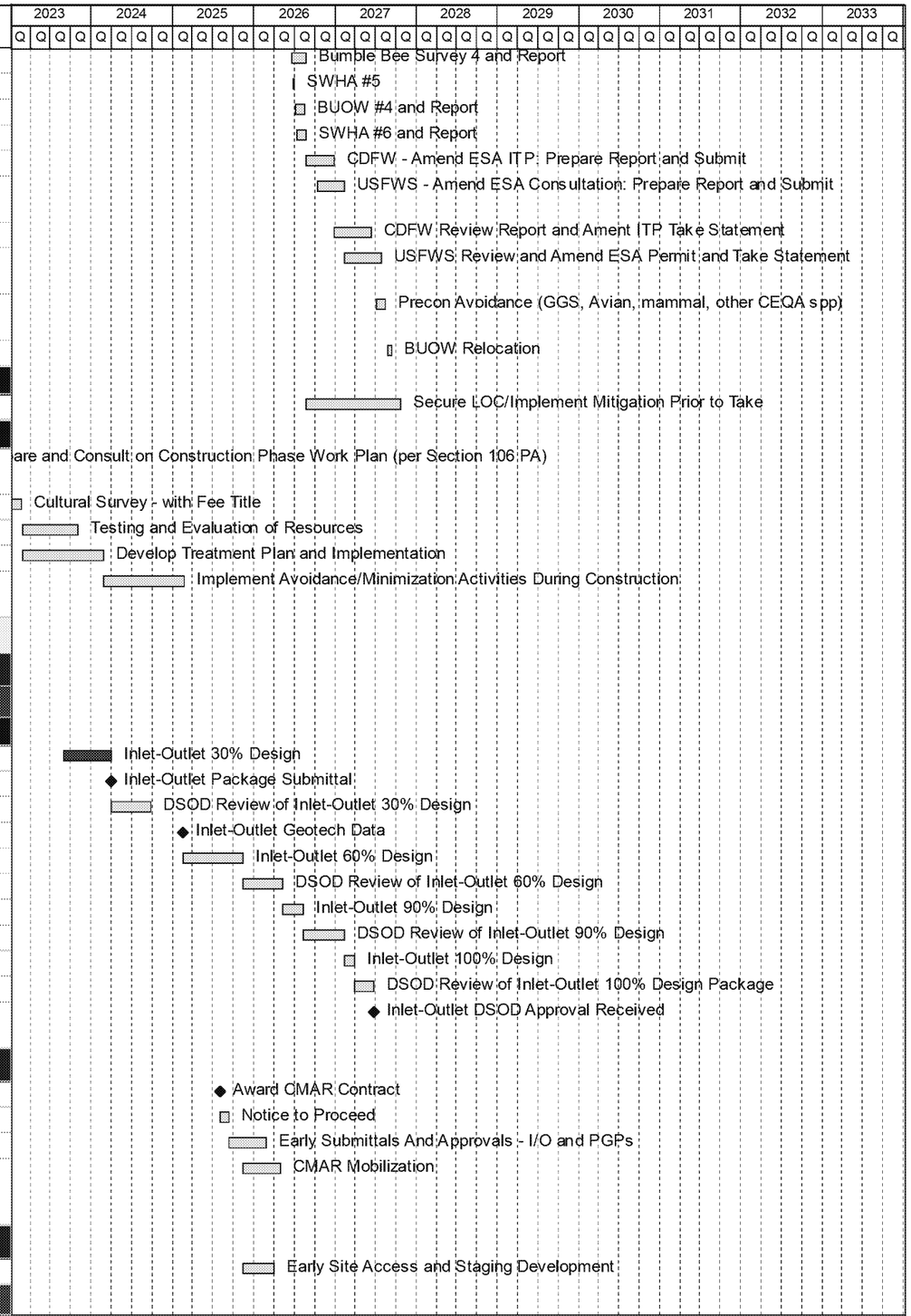
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
32	29	Environmental Survey, Report Prep & Clearance	80	01-Jan-25	22-Apr-25	1502	28: FS, 11: FS	31: FS
33	30	Cultural Survey Report Prep and Clearance	80	01-Jan-25	22-Apr-25	1502	28: FS, 11: FS	31: FS
34	31	Geotechnical Field Investigation and Report	120	23-Apr-25	07-Oct-25	1502	29: FS, 30: FS	
35	**Private Access**		320	03-Jan-25	26-Mar-26	0		
36	33	Right of Entry Negotiated	60	03-Jan-25*	27-Mar-25	60	11: FS, 7: FS, 8: FS	35: FS, 36: FS
37	34	Right of Entry Court Ordered	120	03-Jan-25*	19-Jun-25	0	11: FS, 7: FS	35: FS, 36: FS
38	35	Environmental Survey, Report Prep & Clearance	80	20-Jun-25	09-Oct-25	0	33: FS, 34: FS	37: FS
39	36	Cultural Survey Report Prep and Clearance	80	20-Jun-25	09-Oct-25	0	33: FS, 34: FS	37: FS
40	37	Geotechnical Field Investigation and Report	120	10-Oct-25	26-Mar-26	0	35: FS, 36: FS	38: FS
41	**IO Tunnel and Tower Geotechnical Investiga**		1517	03-Jan-22	26-Oct-27	967		
42	40	P1 Geotech Investigation (30% Cutoff)	230	14-Oct-22*	31-Aug-23	0		41: FS, 42: FS, 97: FS, 98: FS
43	41	P2a Geotech Investigation (Dam Foundations & Grouting)(and I-O)	380	01-Sep-23	13-Feb-25*	0	40: FS	100: FS
44	42	P2a Geotech Investigation (Roads)	380	01-Sep-23	13-Feb-25*	0	40: FS	116: FS, 121: FS
45	**Permitting**		1517	03-Jan-22	26-Oct-27	967		
46	**Baseline Surveys and Revised ESA Consultation**		1517	03-Jan-22	26-Oct-27	967		
47	45	Access Granted for Biological Surveys	1	14-Feb-25	14-Feb-25	1505	101: SS	46: FS 7, 49: SS
48	46	Plant Survey 1	15	17-Mar-25*	04-Apr-25	1534	45: FS 7	47: FS 20
49	69	VELB Survey and Report	30	01-Apr-25*	12-May-25	453		70: FS 150, 73: SS, 80: FS
50	71	Bank Swallow Survey and Report	30	01-May-25*	11-Jun-25	506		77: FS, 82: FS
51	47	Plant Survey 2	15	05-May-25	23-May-25	1534	46: FS 20	48: FS 20
52	77	Badger Survey and Report	30	12-Jun-25	23-Jul-25	1536	71: FS	78: FS
53	48	Plant Survey 3 and Report	45	23-Jun-25	22-Aug-25	1534	47: FS 20	
54	78	Bat Survey (Roosts)	10	24-Jul-25	06-Aug-25	1536	77: FS	79: FS
55	79	Bat Roosts Removal	10	07-Aug-25	20-Aug-25	1536	78: FS	
56	65	Vernal Pool Wet Season Survey 1	10	01-Dec-25*	12-Dec-25	249	11: FS	66: FS 15
57	49	Land Cover Verification/Aquatic Delineation #1	15	02-Dec-25*	22-Dec-25	1298	45: SS	50: FS 15
58	70	VELB Transplant	20	09-Dec-25	05-Jan-26	1438	69: FS 150	
59	66	Vernal Pool Wet Season Survey 2	10	05-Jan-26	16-Jan-26	249	65: FS 15	67: FS 15
60	72	CRLF Surveys and Report	200	05-Jan-26*	09-Oct-26	159		80: FS
61	50	Land Cover Verification/Aquatic Delineation #2	15	13-Jan-26	02-Feb-26	1298	49: FS 15	51: FS 15
62	67	Vernal Pool Wet Season Survey 3	10	09-Feb-26	20-Feb-26	249	66: FS 15	68: FS 15
63	51	Land Cover Verification/Aquatic Delineation and Report	45	24-Feb-26	27-Apr-26	1298	50: FS 15	52: FS
64	58	SWHA #1 and TCBB #1	5	02-Mar-26*	06-Mar-26	1272		59: FS 15
65	68	Vernal Pool Wet Season Survey 4 (more may be needed) and Report	60	16-Mar-26	05-Jun-26	249	67: FS 15	80: FS
66	59	SWHA #2 and TCBB #2	5	30-Mar-26	03-Apr-26	1272	58: FS 15	60: FS 15
67	53	BUOW #1	5	01-Apr-26*	07-Apr-26	1262		54: FS 15
68	73	Bumble Bee Survey 1	5	01-Apr-26*	07-Apr-26	192	69: SS	74: FS 15
69	60	SWHA #3 and TCBB #3	5	27-Apr-26	01-May-26	1272	59: FS 15	61: FS 20, 64: FS
70	52	Revise Impact Acers and Work with Agendas	60	28-Apr-26	20-Jul-26	1298	51: FS	
71	54	BUOW #2	5	29-Apr-26	05-May-26	1262	53: FS 15	55: FS 20
72	74	Bumble Bee Survey 2	5	29-Apr-26	05-May-26	192	73: FS 15	75: FS 15
73	64	TCBB Report	30	04-May-26	12-Jun-26	1324	60: FS	
74	75	Bumble Bee Survey 3	5	27-May-26	02-Jun-26	192	74: FS 15	76: FS 15
75	61	SWHA #4	5	01-Jun-26	05-Jun-26	1272	60: FS 20	62: FS 15
76	55	BUOW #3	5	03-Jun-26	09-Jun-26	1262	54: FS 20	56: FS 20



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

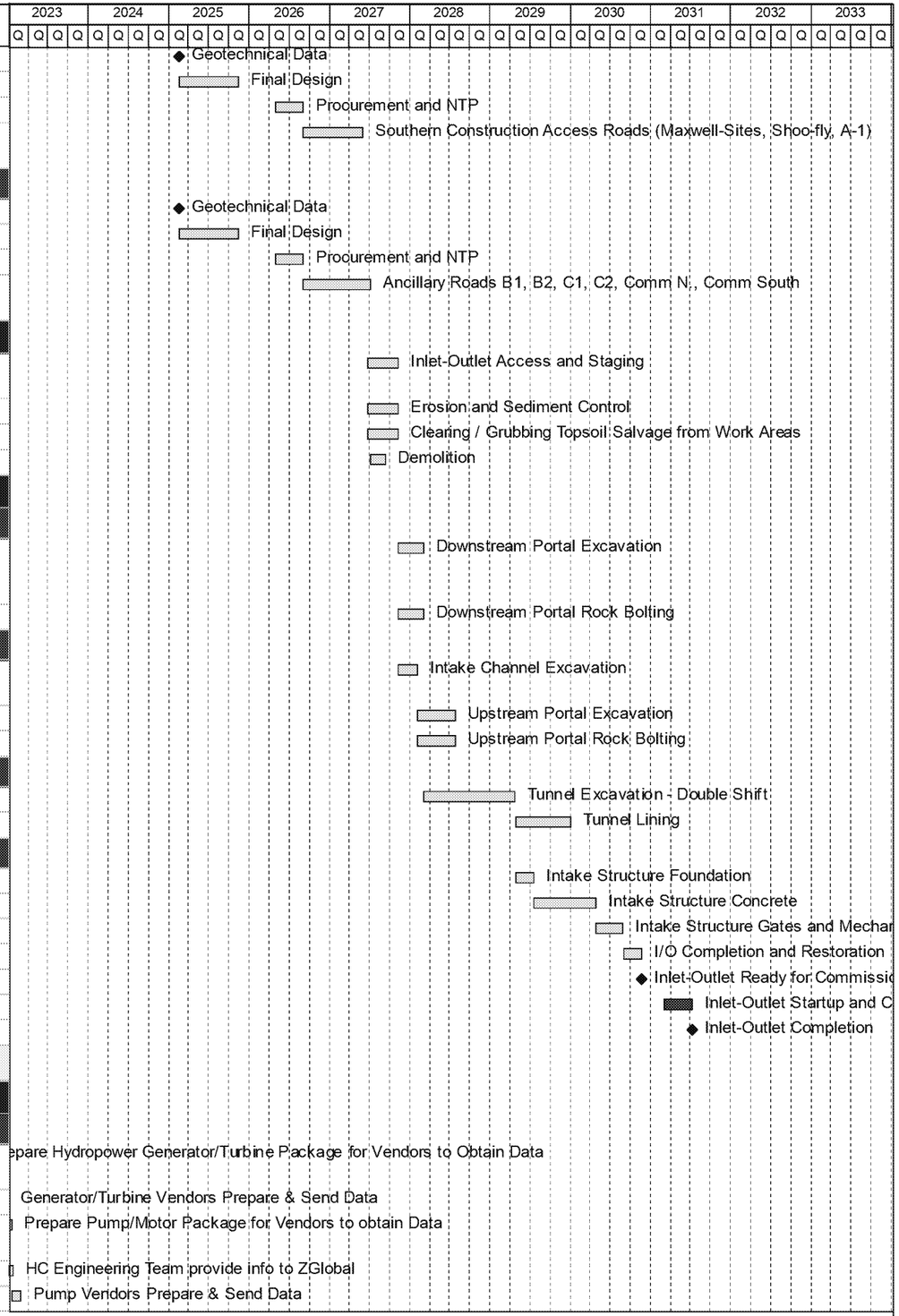
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
77	76	Bumble Bee Survey 4 and Report	45	24-Jun-26	25-Aug-26	192	75: FS 15	82: FS
78	62	SWHA #5	5	29-Jun-26	03-Jul-26	1272	61: FS 15	63: FS 7
79	56	BUOW #4 and Report	30	08-Jul-26	18-Aug-26	1262	55: FS 20	57: FS
80	63	SWHA #6 and Report	30	15-Jul-26	25-Aug-26	1272	62: FS 7	
81	82	CDFW - Amend ESA ITP: Prepare Report and Subı	90	26-Aug-26	29-Dec-26	192	71: FS, 76: FS	83: FS, 86: SS
82	80	USFWS - Amend ESA Consultation: Prepare Report and Submit	90	12-Oct-26	12-Feb-27	159	68: FS, 69: FS, 72: FS	81: FS
83	83	CDFW Review Report and Ament ITP Take Statem	120	30-Dec-26	15-Jun-27	192	82: FS	84: FS 15, 182: FS
84	81	USFWS Review and Amend ESA Permit and Take Statement	120	15-Feb-27	30-Jul-27	159	80: FS	182: FS
85	84	Precon Avoidance (GGS, Avian, mammal, other CEQA spp)	30	07-Jul-27	17-Aug-27	1017	83: FS 15	
86	57	BUOW Relocation	15	27-Aug-27*	16-Sep-27	995	56: FS	
87	**Compensatory Mitigation**		305	26-Aug-26	26-Oct-27	277		
88	86	Secure LOC/Implement Mitigation Prior to Take	305	26-Aug-26	26-Oct-27	277	82: SS	182: FS -180
89	**Cultural Work**		820	03-Jan-22	21-Feb-25	1664		
90	88	Prepare and Consult on Construction Phase Work Plan (per Section 106 PA)	120	03-Jan-22	17-Jun-22	1054		89: FS
91	89	Cultural Survey - with Fee Title	180	20-Jun-22	24-Feb-23	1054	88: FS	90: FS, 91: FS
92	90	Testing and Evaluation of Resources	180	27-Feb-23	03-Nov-23	2004	89: FS	
93	91	Develop Treatment Plan and Implementation	260	27-Feb-23	23-Feb-24	1054	89: FS	92: FS, 182: FS
94	92	Implement Avoidance/Minimization Activities During Construction	260	26-Feb-24	21-Feb-25	1664	91: FS	
95	**CONSTRUCTION PACKAGE #1 - RESERVOI**		2050	01-Sep-23	11-Jul-31	0		
96	**Engineering - Dams**		995	01-Sep-23	25-Jun-27	45		
97	**Inlet-Outlet Design**		995	01-Sep-23	25-Jun-27	45		
98	**Inlet-Outlet Design (CP#2 - MSPG)**		995	01-Sep-23	25-Jun-27	45		
99	97	Inlet-Outlet 30% Design	151	01-Sep-23	29-Mar-24*	0	40: FS	98: FS
100	98	Inlet-Outlet Package Submittal	0	01-Apr-24		339	97: FS, 40: FS	99: FS
101	99	DSOD Review of Inlet-Outlet 30% Design	130	01-Apr-24	27-Sep-24	339	98: FS	102: FS
102	100	Inlet-Outlet Geotech Data	0	14-Feb-25		45	41: FS	101: FS
103	101	Inlet-Outlet 60% Design	195	14-Feb-25	13-Nov-25	45	100: FS	45: SS, 102: FS
104	102	DSOD Review of Inlet-Outlet 60% Design	130	14-Nov-25	14-May-26	45	99: FS, 101: FS	103: FS
105	103	Inlet-Outlet 90% Design	65	15-May-26	13-Aug-26	45	102: FS	104: FS
106	104	DSOD Review of Inlet-Outlet 90% Design	130	14-Aug-26	11-Feb-27	45	103: FS	105: FS
107	105	Inlet-Outlet 100% Design	35	12-Feb-27	01-Apr-27	45	104: FS	106: FS
108	106	DSOD Review of Inlet-Outlet 100% Design Package	60	02-Apr-27	24-Jun-27	45	105: FS	107: FS
109	107	Inlet-Outlet DSOD Approval Received	0	25-Jun-27		45	106: FS	126: FS, 132: FS, 135: FS
110	**CMAR Procurement (CP#2 - MSPG)**		195	01-Aug-25	30-Apr-26	345		
111	109	Award CMAR Contract	0	01-Aug-25*		345	238: SS -30	110: FS
112	110	Notice to Proceed	30	01-Aug-25	11-Sep-25	345	109: FS	111: FS, 112: FS
113	111	Early Submittals And Approvals - I/O and PGPs	120	12-Sep-25	26-Feb-26	345	110: FS	112: SS 45
114	112	CMAR Mobilization	120	14-Nov-25	30-Apr-26	345	110: FS, 111: SS 45	114: SS, 118: FS, 123: FS, 126: FS, 132: FS, 135: FS
115	**Roads, Bridges, Access, and Site Development**		625	14-Feb-25	08-Jul-27	1045		
116	114	Early Site Access and Staging Development	100	14-Nov-25	02-Apr-26	1375	112: SS	
117	**Southern Construction Access Roads (Maxwell-Site**		600	14-Feb-25	03-Jun-27	1070		



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

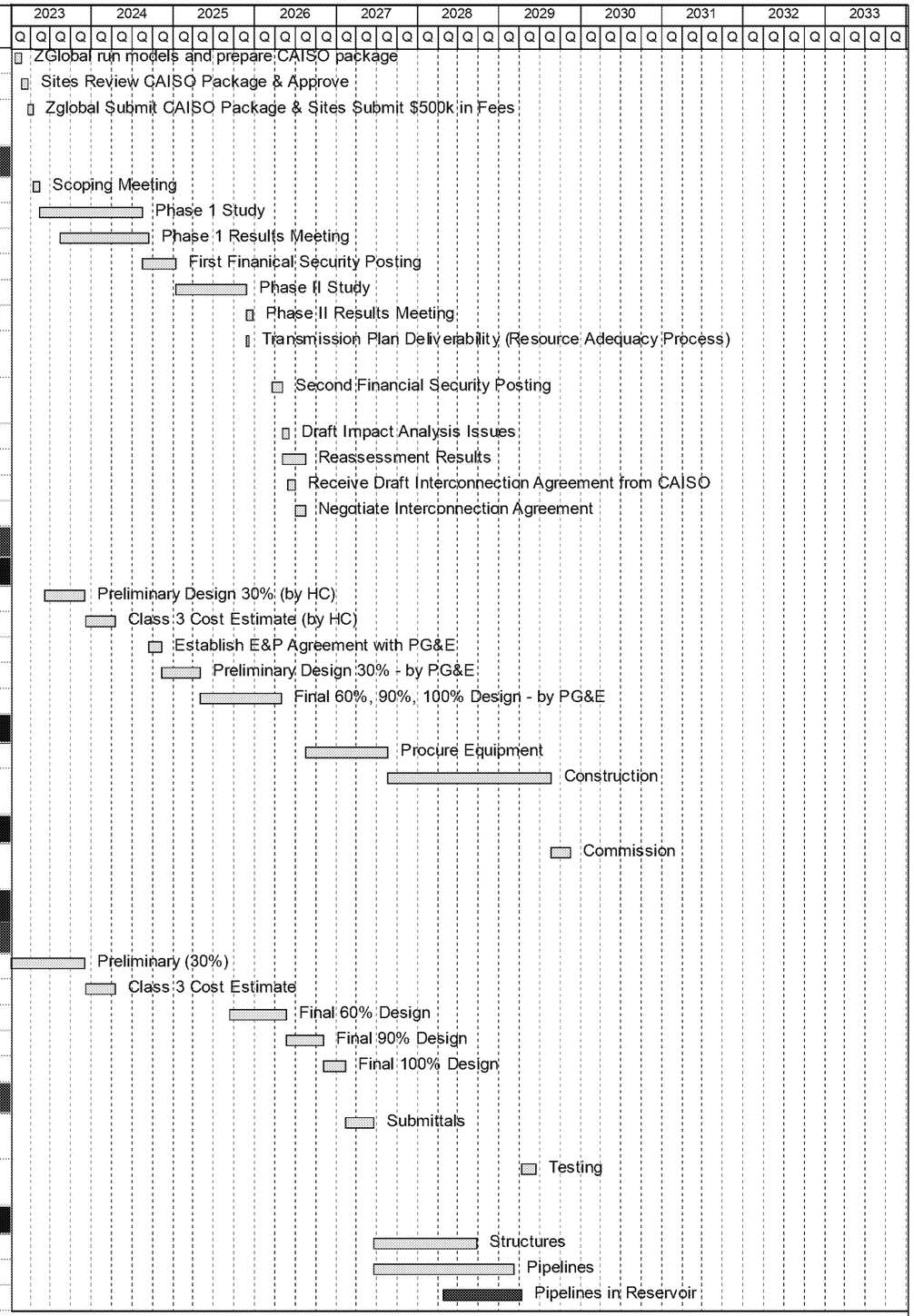
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
118	116	Geotechnical Data	0	14-Feb-25		1190	42: FS	117: FS
119	117	Final Design	195	14-Feb-25	13-Nov-25	1190	116: FS	118: FS
120	118	Procurement and NTP	90	01-May-26	03-Sep-26	1070	112: FS, 117: FS	119: FS
121	119	Southern Construction Access Roads (Maxwell-Sites, Shoo-fly, A-1)	195	04-Sep-26	03-Jun-27	1070	118: FS	
122	**Ancillary Roads B1, B2, C1, C2, Comm N., Comm So**		625	14-Feb-25	08-Jul-27	1045		
123	121	Geotechnical Data	0	14-Feb-25		1165	42: FS	122: FS
124	122	Final Design	195	14-Feb-25	13-Nov-25	1165	121: FS	123: FS
125	123	Procurement and NTP	90	01-May-26	03-Sep-26	1045	112: FS, 122: FS	124: FS
126	124	Ancillary Roads B1, B2, C1, C2, Comm N., Comm South	220	04-Sep-26	08-Jul-27	1045	123: FS	
127	**Inlet-Outlet Preliminary Work (CP#2 - MSPG)**		100	25-Jun-27	11-Nov-27	45		
128	126	Inlet-Outlet Access and Staging	100	25-Jun-27	11-Nov-27	45	107: FS, 112: FS	127: SS, 128: SS, 129: SS 10, 132: FS, 135:
129	127	Erosion and Sediment Control	100	25-Jun-27	11-Nov-27	45	126: SS	132: FS
130	128	Clearing / Grubbing Topsoil Salvage from Work Area	100	25-Jun-27	11-Nov-27	45	126: SS	132: FS
131	129	Demolition	50	09-Jul-27	16-Sep-27	85	126: SS 10	132: FS
132	**Inlet Outlet Facilities (CP#2 - MSPG)**		955	12-Nov-27	11-Jul-31	0		
133	**Develop Downstream Portal**		80	12-Nov-27	02-Mar-28	45		
134	132	Downstream Portal Excavation	80	12-Nov-27	02-Mar-28	45	107: FS, 112: FS, 126: FS, 127: FS, 128: FS, 129: FS	133: SS
135	133	Downstream Portal Rock Bolting	80	12-Nov-27	02-Mar-28	45	132: SS	139: FS
136	**Develop Upstream Portal**		185	12-Nov-27	27-Jul-28	240		
137	135	Intake Channel Excavation	60	12-Nov-27	03-Feb-28	240	107: FS, 112: FS, 126: FS	136: FS
138	136	Upstream Portal Excavation	125	04-Feb-28	27-Jul-28	240	135: FS	137: SS
139	137	Upstream Portal Rock Bolting	125	04-Feb-28	27-Jul-28	240	136: SS	142: FS
140	**Tunnels Excavation and Lining (Double Shift)**		480	03-Mar-28	03-Jan-30	305		
141	139	Tunnel Excavation - Double Shift	300	03-Mar-28	26-Apr-29	45	133: FS	140: FS, 142: FS
142	140	Tunnel Lining	180	27-Apr-29	03-Jan-30	305	139: FS	146: FS
143	**Intake and Outlet Structures**		575	27-Apr-29	11-Jul-31	0		
144	142	Intake Structure Foundation	60	27-Apr-29	19-Jul-29	45	137: FS, 139: FS	143: FS, 144: FS
145	143	Intake Structure Concrete	200	20-Jul-29	25-Apr-30	45	142: FS	144: FS, 145: FS
146	144	Intake Structure Gates and Mechanical	90	26-Apr-30	29-Aug-30	45	142: FS, 143: FS	145: FS
147	145	I/O Completion and Restoration	60	30-Aug-30	21-Nov-30	45	143: FS, 144: FS	146: FS, 231: FS
148	146	Inlet-Outlet Ready for Commissioning	0	22-Nov-30		75	140: FS, 145: FS	147: FS
149	147	Inlet-Outlet Startup and Commissioning	90	07-Mar-31	10-Jul-31	0	146: FS, 266: FS	148: FS
150	148	Inlet-Outlet Completion	0	11-Jul-31		0	147: FS	
151	**CONSTRUCTION PACKAGE #2 - MSPG FAC**		2362	22-Jun-22	10-Jul-31	0		
152	**POWER INTERCONNECTION (CAISO / PG&E DES**		1932	22-Jun-22	15-Nov-29	430		
153	**Prepare & Submit CAISO Package**		213	22-Jun-22	14-Apr-23	2149		
154	154	Prepare Hydropower Generator/Turbine Package for Vendors to Obtain Data	40	22-Jun-22	16-Aug-22*	145		155: FS
155	155	Generator/Turbine Vendors Prepare & Send Data	100	17-Aug-22	03-Jan-23	145	154: FS	156: FS
156	152	Prepare Pump/Motor Package for Vendors to obtain Data	10	03-Jan-23*	16-Jan-23	2183		153: FS
157	156	HC Engineering Team provide info to ZGlobal	15	04-Jan-23	24-Jan-23	145	155: FS	157: FS
158	153	Pump Vendors Prepare & Send Data	30	17-Jan-23	27-Feb-23	2183	152: FS	



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

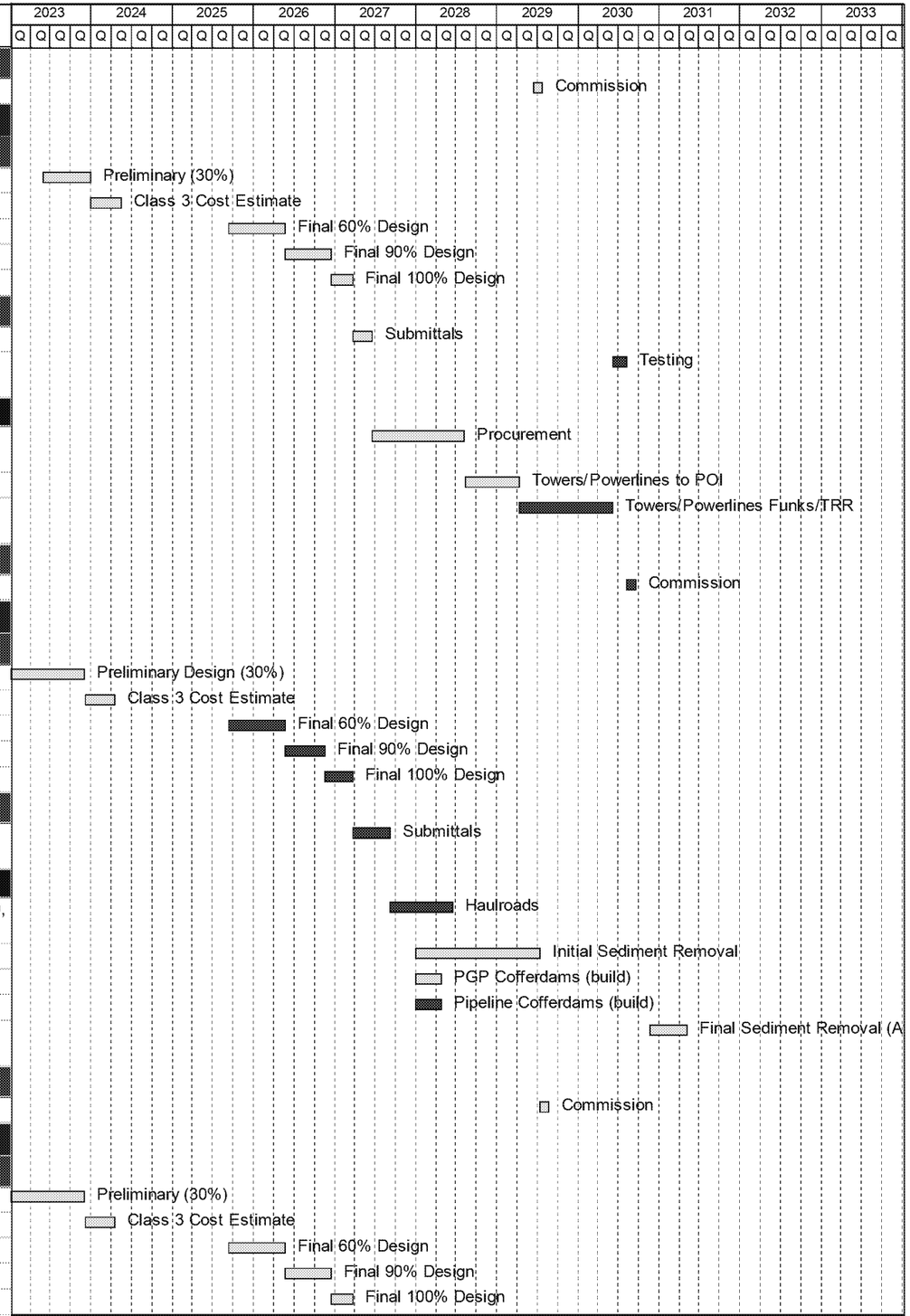
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
159	157	ZGlobal run models and prepare CAISO package	20	25-Jan-23	21-Feb-23	145	156: FS	158: FS
160	158	Sites Review CAISO Package & Approve	20	22-Feb-23	21-Mar-23	145	157: FS	159: FS
161	159	Zglobal Submit CAISO Package & Sites Submit $500k in Fees	18	22-Mar-23	14-Apr-23	145	158: FS	161: FS, 255: FF 30, 304: FF 30
162	**Respond to CAISO**		874	17-Apr-23	20-Aug-26	1275		
163	161	Scoping Meeting	21	17-Apr-23	15-May-23	145	159: FS	162: FS, 163: FS 66
164	162	Phase 1 Study	328	16-May-23	15-Aug-24	145	161: FS	164: FS
165	163	Phase 1 Results Meeting	283	16-Aug-23	13-Sep-24	224	161: FS 66	177: FS
166	164	First Finanical Security Posting	106	16-Aug-24	10-Jan-25	145	162: FS	165: FS
167	165	Phase II Study	226	13-Jan-25	24-Nov-25	145	164: FS	166: FS, 167: FS
168	166	Phase II Results Meeting	22	25-Nov-25	24-Dec-25	1446	165: FS	
169	167	Transmission Plan Deliverability (Resource Adequacy Process)	10	25-Nov-25	08-Dec-25	145	165: FS	168: FS 74
170	168	Second Financial Security Posting	31	23-Mar-26	04-May-26	145	167: FS 74	169: FS, 170: FS, 171: FS 18
171	169	Draft Impact Analysis Issues	23	05-May-26	04-Jun-26	1330	168: FS	
172	170	Reassessment Results	78	05-May-26	20-Aug-26	1275	168: FS	
173	171	Receive Draft Interconnection Agreement from CAI:	23	29-May-26	30-Jun-26	145	168: FS 18	172: FS
174	172	Negotiate Interconnection Agreement	37	01-Jul-26	20-Aug-26	145	171: FS	181: FS
175	**PG&E Point of Interconnection Substation**		1684	05-Jun-23	15-Nov-29	430		
176	**Engineering**		760	05-Jun-23	01-May-26	1354		
177	175	Preliminary Design 30% (by HC)	130	05-Jun-23	01-Dec-23*	1884		176: FS
178	176	Class 3 Cost Estimate (by HC)	100	04-Dec-23*	19-Apr-24	1884	175: FS	
179	177	Establish E&P Agreement with PG&E	40	16-Sep-24	08-Nov-24	224	163: FS	178: FS
180	178	Preliminary Design 30% - by PG&E	125	11-Nov-24*	02-May-25	224	177: FS	179: FS
181	179	Final 60%, 90%, 100% Design - by PG&E	260	05-May-25	01-May-26	224	178: FS	181: FS
182	**Construction - by PG&E**		785	21-Aug-26	23-Aug-29	145		
183	181	Procure Equipment	260	21-Aug-26	19-Aug-27	145	179: FS, 172: FS	182: FS
184	182	Construction	525	20-Aug-27	23-Aug-29	145	181: FS, 81: FS, 83: FS, 86: FS -180, 91: FS	184: FS
185	**Commissioning**		60	24-Aug-29	15-Nov-29	145		
186	184	Commission	60	24-Aug-29	15-Nov-29	145	182: FS	214: FS, 250: FS, 266: FS, 299: FS, 314: FS
187	**Funks/TRR Pipelines (DSOD Jurisdictional)**		1709	09-Jan-23	26-Jul-29	510		
188	**Engineering**		1069	09-Jan-23	11-Feb-27	1150		
189	187	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1884		188: FS
190	188	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	187: FS	
191	189	Final 60% Design	180	12-Sep-25	21-May-26	225	11: FS, 38: FS -140	190: FS
192	190	Final 90% Design	120	22-May-26	05-Nov-26	225	189: FS	191: FS
193	191	Final 100% Design	70	06-Nov-26	11-Feb-27	225	190: FS	193: FS
194	**Construction**		610	12-Feb-27	14-Jun-29	510		
195	193	Submittals	90	12-Feb-27	17-Jun-27	225	191: FS	195: FS, 196: FS, 197: FS
196	198	Testing	45	13-Apr-29	14-Jun-29	510	195: FS, 196: FS, 197: FS	200: FS
197	**Field Construction**		475	18-Jun-27	12-Apr-29	510		
198	195	Structures	330	18-Jun-27	21-Sep-28	655	193: FS	198: FS
199	196	Pipelines	450	18-Jun-27	08-Mar-29	225	193: FS	198: FS, 213: SS 250
200	197	Pipelines in Reservoir	250	28-Apr-28	12-Apr-29	0	193: FS, 230: FS	198: FS, 213: SS 250



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

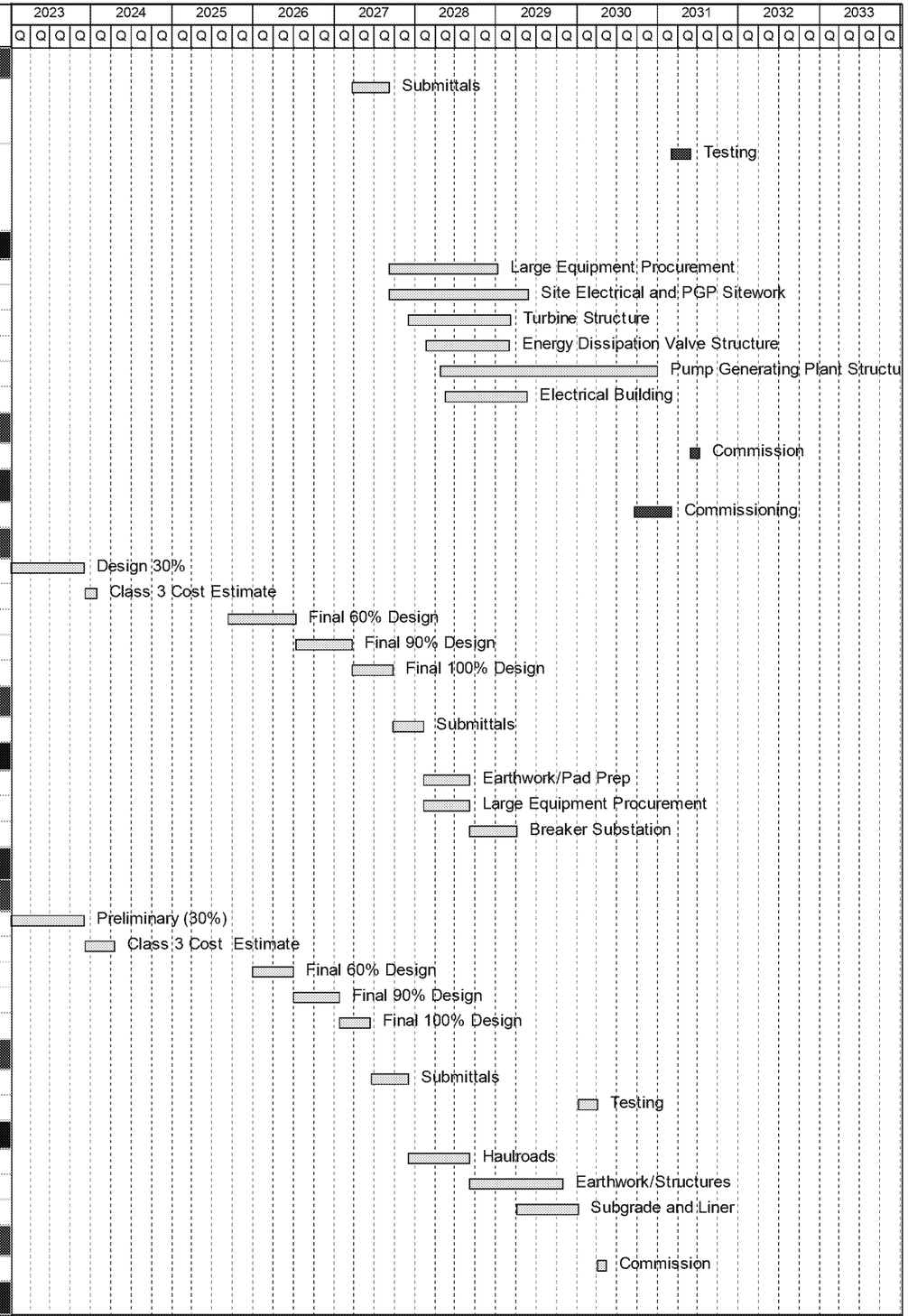
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
201	**Commissioning**		30	15-Jun-29	26-Jul-29	510		
202	200	Commission	30	15-Jun-29	26-Jul-29	510	198: FS	
203	**Transmission Powerlines**		1906	01-Jun-23	19-Sep-30	210		
204	**Engineering**		996	01-Jun-23	25-Mar-27	1120		
205	203	Preliminary (30%)	150	01-Jun-23*	27-Dec-23	1866		204: FS
206	204	Class 3 Cost Estimate	100	28-Dec-23	15-May-24	1866	203: FS	
207	205	Final 60% Design	180	12-Sep-25	21-May-26	175	11: FS, 38: FS -140	206: FS
208	206	Final 90% Design	150	22-May-26	17-Dec-26	175	205: FS	207: FS
209	207	Final 100% Design	70	18-Dec-26	25-Mar-27	175	206: FS	209: FS
210	**Construction**		880	26-Mar-27	08-Aug-30	0		
211	209	Submittals	60	26-Mar-27	17-Jun-27	175	207: FS, 240: FS	211: FS, 212: FS
212	214	Testing	45	07-Jun-30	08-Aug-30	0	211: FS, 212: FS, 213: FS, 184: FS	216: FS, 250: FS, 299: FS
213	**Field Construction**		775	18-Jun-27	06-Jun-30	0		
214	211	Procurement	300	18-Jun-27	10-Aug-28	175	209: FS	212: FS, 213: FS, 214: FS
215	212	Towers/Powerlines to POI	175	11-Aug-28	12-Apr-29	300	209: FS, 211: FS	214: FS
216	213	Towers/Powerlines Funks/TRR	300	13-Apr-29	06-Jun-30	0	196: SS 250, 211: FS, 197: SS 250	214: FS
217	**Commissioning**		30	09-Aug-30	19-Sep-30	0		
218	216	Commission	30	09-Aug-30	19-Sep-30	0	214: FS	266: FS, 314: FS
219	**Funks Reservoir**		2174	09-Jan-23	08-May-31	45		
220	**Engineering**		1099	09-Jan-23	25-Mar-27	1120		
221	219	Preliminary Design (30%)	235	09-Jan-23*	01-Dec-23	1884		220: FS
222	220	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	219: FS	
223	221	Final 60% Design	180	12-Sep-25	21-May-26	0	11: FS, 38: FS -140	222: FS
224	222	Final 90% Design	130	22-May-26	19-Nov-26	0	221: FS	223: FS
225	223	Final 100% Design	90	20-Nov-26	25-Mar-27	0	222: FS	225: FS
226	**Construction**		1075	26-Mar-27	08-May-31	45		
227	225	Submittals	120	26-Mar-27	09-Sep-27	0	223: FS	227: FS, 228: FS, 229: FS, 230: FS
228	**Field Construction**		955	10-Sep-27	08-May-31	45		
229	227	Haulroads	200	10-Sep-27	15-Jun-28	0	225: FS	228: SS 80, 229: SS 80, 230: SS 80
230	228	Initial Sediment Removal	400	31-Dec-27	12-Jul-29	490	225: FS, 227: SS 80	233: FS
231	229	PGP Cofferdams (build)	85	31-Dec-27*	27-Apr-28	45	225: FS, 227: SS 80	245: FS
232	230	Pipeline Cofferdams (build)	85	31-Dec-27*	27-Apr-28	0	225: FS, 227: SS 80	197: FS
233	231	Final Sediment Removal (After I/O and Golden Gate Dam nearly complete)	120	22-Nov-30	08-May-31	45	145: FS	
234	**Commissioning**		30	13-Jul-29	23-Aug-29	490		
235	233	Commission	30	13-Jul-29	23-Aug-29	490	228: FS	
236	**Funks Pumping Generating Plant**		2219	09-Jan-23	10-Jul-31	0		
237	**Engineering**		1099	09-Jan-23	25-Mar-27	1120		
238	236	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1884		237: FS
239	237	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	236: FS	
240	238	Final 60% Design	180	12-Sep-25	21-May-26	175	11: FS, 38: FS -140	109: SS -30, 239: FS
241	239	Final 90% Design	150	22-May-26	17-Dec-26	175	238: FS	240: FS
242	240	Final 100% Design	70	18-Dec-26	25-Mar-27	175	239: FS	209: FS, 242: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

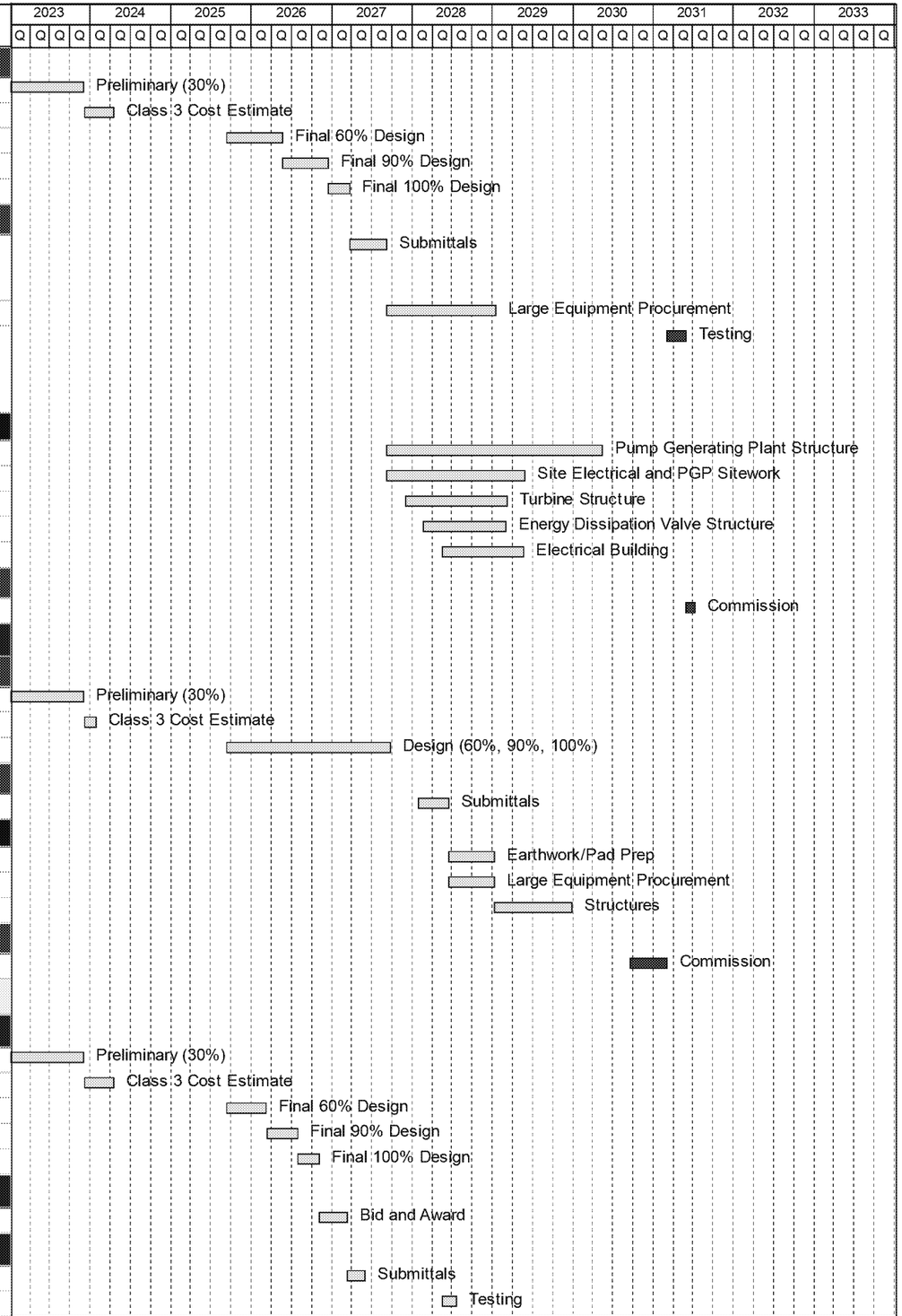
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
243	**Construction**		1090	26-Mar-27	29-May-31	30		
244	242	Submittals	120	26-Mar-27	09-Sep-27	210	240: FS	244: FS, 245: FS, 246: FS 60, 247: FS 120, 248: FS 180, 249: FS
245	250	Testing	60	07-Mar-31	29-May-31	0	249: FS, 245: FS, 246: FS, 248: FS, 247: FS, 214: FS, 266: FS, 184: FS	252: FS
246	**Field Construction**		865	10-Sep-27	02-Jan-31	135		
247	244	Large Equipment Procurement	350	10-Sep-27	11-Jan-29	650	242: FS	
248	249	Site Electrical and PGP Sitework	450	10-Sep-27	31-May-29	460	242: FS	250: FS
249	246	Turbine Structure	330	03-Dec-27	08-Mar-29	520	242: FS 60	250: FS
250	247	Energy Dissipation Valve Structure	265	25-Feb-28	01-Mar-29	525	242: FS 120	250: FS
251	245	Pump Generating Plant Structure	700	28-Apr-28	02-Jan-31	45	242: FS, 229: FS	250: FS
252	248	Electrical Building	265	19-May-28	24-May-29	465	242: FS 180	250: FS
253	**Commissioning**		30	30-May-31	10-Jul-31	0		
254	252	Commission	30	30-May-31	10-Jul-31	0	250: FS	
255	**Funks Substation**		2129	09-Jan-23	06-Mar-31	90		
256	266	Commissioning	120	20-Sep-30	06-Mar-31	0	216: FS, 184: FS	147: FS, 250: FS
257	**Engineering (Excludes PG&E]**		1229	09-Jan-23	23-Sep-27	990		
258	255	Design 30%	235	09-Jan-23*	01-Dec-23	1944	159: FF 30	256: FS
259	256	Class 3 Cost Estimate	40	04-Dec-23	26-Jan-24	1944	255: FS	
260	257	Final 60% Design	220	12-Sep-25	16-Jul-26	590	11: FS, 38: FS -140	258: FS
261	258	Final 90% Design	180	17-Jul-26	25-Mar-27	590	257: FS	259: FS
262	259	Final 100% Design	130	26-Mar-27	23-Sep-27	590	258: FS	261: FS
263	**Construction**		400	24-Sep-27	05-Apr-29	590		
264	261	Submittals	100	24-Sep-27	10-Feb-28	590	259: FS	263: FS, 264: FS
265	**Field Construction**		300	11-Feb-28	05-Apr-29	590		
266	263	Earthwork/Pad Prep	150	11-Feb-28	07-Sep-28	590	261: FS	265: FS
267	264	Large Equipment Procurement	150	11-Feb-28	07-Sep-28	740	261: FS	
268	265	Breaker Substation	150	08-Sep-28	05-Apr-29	590	263: FS	
269	**TRR West Reservoir**		1918	09-Jan-23	15-May-30	301		
270	**Engineering**		1158	09-Jan-23	16-Jun-27	1061		
271	269	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1884		270: FS
272	270	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	269: FS	
273	271	Final 60% Design	130	01-Jan-26	01-Jul-26*	301	11: FS, 38: FS -140	272: FS
274	272	Final 90% Design	150	02-Jul-26	27-Jan-27	301	271: FS	273: FS
275	273	Final 100% Design	100	28-Jan-27	16-Jun-27	301	272: FS	275: FS
276	**Construction**		730	17-Jun-27	03-Apr-30	301		
277	275	Submittals	120	17-Jun-27	01-Dec-27	301	273: FS	277: FS
278	280	Testing	60	10-Jan-30	03-Apr-30	301	278: FS, 279: FS	282: FS
279	**Field Construction**		550	02-Dec-27	09-Jan-30	301		
280	277	Haulroads	200	02-Dec-27	06-Sep-28	301	275: FS	278: FS
281	278	Earthwork/Structures	300	07-Sep-28	31-Oct-29	301	277: FS	279: FS -150, 280: FS
282	279	Subgrade and Liner	200	05-Apr-29	09-Jan-30	301	278: FS -150	280: FS
283	**Commissioning**		30	04-Apr-30	15-May-30	301		
284	282	Commission	30	04-Apr-30	15-May-30	301	280: FS	
285	**TRR West Pumping Generating Plant**		2219	09-Jan-23	10-Jul-31	0		



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

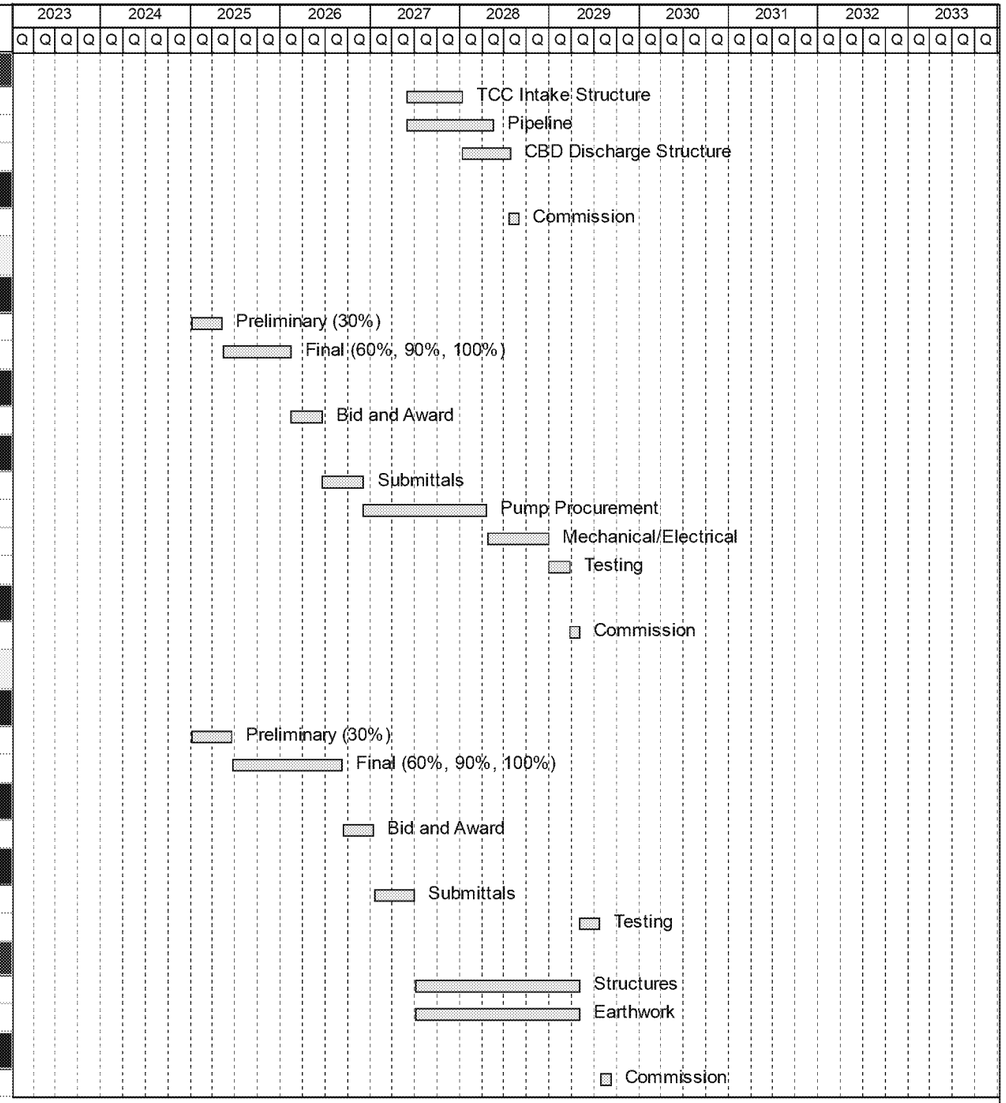
#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
286	**Engineering**		1099	09-Jan-23	25-Mar-27	1120		
287	285	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1884		286: FS
288	286	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	285: FS	
289	287	Final 60% Design	180	12-Sep-25	21-May-26	210	11: FS, 38: FS -140	288: FS
290	288	Final 90% Design	150	22-May-26	17-Dec-26	210	287: FS	289: FS
291	289	Final 100% Design	70	18-Dec-26	25-Mar-27	210	288: FS	291: FS
292	**Construction**		1090	26-Mar-27	29-May-31	30		
293	291	Submittals	120	26-Mar-27	09-Sep-27	210	289: FS, 321: FS	292: FS, 294: FS, 295: FS 60, 296: FS 120, 297: FS 180, 298: FS
294	292	Large Equipment Procurement	355	10-Sep-27*	18-Jan-29	645	291: FS	
295	299	Testing	60	07-Mar-31	29-May-31	0	214: FS, 297: FS, 294: FS, 295: FS, 296: FS, 298: FS, 314: FS, 184: FS	301: FS
296	**Field Construction**		700	10-Sep-27	16-May-30	210		
297	294	Pump Generating Plant Structure	700	10-Sep-27	16-May-30	210	291: FS	299: FS
298	298	Site Electrical and PGP Sitework	450	10-Sep-27	31-May-29	460	291: FS	299: FS
299	295	Turbine Structure	330	03-Dec-27	08-Mar-29	520	291: FS 60	299: FS
300	296	Energy Dissipation Valve Structure	265	25-Feb-28	01-Mar-29	525	291: FS 120	299: FS
301	297	Electrical Building	265	19-May-28	24-May-29	465	291: FS 180	299: FS
302	**Commissioning**		30	30-May-31	10-Jul-31	0		
303	301	Commission	30	30-May-31	10-Jul-31	0	299: FS	
304	**TRR West Substation**		2129	09-Jan-23	06-Mar-31	90		
305	**Engineering [excludes PG&E]**		1229	09-Jan-23	23-Sep-27	990		
306	304	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1944	159: FF 30	305: FS
307	305	Class 3 Cost Estimate	40	04-Dec-23	26-Jan-24	1944	304: FS	
308	306	Design (60%, 90%, 100%)	530	12-Sep-25	23-Sep-27	400	11: FS, 38: FS -140	308: FS 90
309	**Construction**		500	28-Jan-28	27-Dec-29	400		
310	308	Submittals	100	28-Jan-28	15-Jun-28	400	306: FS 90	310: FS, 311: FS
311	**Field Construction**		400	16-Jun-28	27-Dec-29	400		
312	310	Earthwork/Pad Prep	150	16-Jun-28	11-Jan-29	650	308: FS	
313	311	Large Equipment Procurement	150	16-Jun-28	11-Jan-29	400	308: FS	312: FS
314	312	Structures	250	12-Jan-29	27-Dec-29	400	311: FS	
315	**Commissioning**		120	20-Sep-30	06-Mar-31	0		
316	314	Commission	120	20-Sep-30	06-Mar-31	0	216: FS, 184: FS	299: FS
317	**CONSTRUCTION PACKAGE #5 - DUNNIGAN**		1474	09-Jan-23	31-Aug-28	745		
318	**Engineering**		999	09-Jan-23	05-Nov-26	1220		
319	317	Preliminary (30%)	235	09-Jan-23*	01-Dec-23	1884		318: FS
320	318	Class 3 Cost Estimate	100	04-Dec-23	19-Apr-24	1884	317: FS	
321	319	Final 60% Design	130	12-Sep-25	12-Mar-26	310	11: FS, 38: FS -140	320: FS
322	320	Final 90% Design	100	13-Mar-26	30-Jul-26	310	319: FS	321: FS
323	321	Final 100% Design	70	31-Jul-26	05-Nov-26	310	320: FS	291: FS, 323: FS
324	**Bid and Award**		90	06-Nov-26	11-Mar-27	745		
325	323	Bid and Award	90	06-Nov-26	11-Mar-27	745	321: FS	325: FS
326	**Construction**		360	12-Mar-27	27-Jul-28	770		
327	325	Submittals	60	12-Mar-27	03-Jun-27	745	323: FS	327: FS, 329: FS
328	330	Testing	45	19-May-28	20-Jul-28	745	327: FS, 329: FS	332: FS



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

#	Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float	Predecessor Details	Successor Details
329	**Field Construction**		300	04-Jun-27	27-Jul-28	770		
330	327	TCC Intake Structure	160	04-Jun-27	13-Jan-28	770	325: FS	328: FS, 330: FS
331	329	Pipeline	250	04-Jun-27	18-May-28	745	325: FS	330: FS
332	328	CBD Discharge Structure	140	14-Jan-28	27-Jul-28	770	327: FS	
333	**Commissioning**		30	21-Jul-28	31-Aug-28	745		
334	332	Commission	30	21-Jul-28	31-Aug-28	745	330: FS	
335	**CONSTRUCTION PACKAGE #6 - RED BLUFI**		1130	06-Jan-25	04-May-29	569		
336	**Engineering**		290	06-Jan-25	13-Feb-26	569		
337	335	Preliminary (30%)	90	06-Jan-25*	09-May-25	569		336: FS
338	336	Final (60%, 90%, 100%)	200	12-May-25	13-Feb-26	569	335: FS	338: FS
339	**Bid and Award**		90	16-Feb-26	19-Jun-26	569		
340	338	Bid and Award	90	16-Feb-26*	19-Jun-26	569	336: FS	340: FS
341	**Construction**		720	22-Jun-26	23-Mar-29	569		
342	340	Submittals	120	22-Jun-26	04-Dec-26	569	338: FS	341: FS
343	341	Pump Procurement	360	07-Dec-26	21-Apr-28	569	340: FS	342: FS
344	342	Mechanical/Electrical	180	24-Apr-28	29-Dec-28	569	341: FS	343: FS
345	343	Testing	60	01-Jan-29	23-Mar-29	569	342: FS	345: FS
346	**Commissioning**		30	26-Mar-29	04-May-29	569		
347	345	Commission	30	26-Mar-29	04-May-29	569	343: FS	
348	**CONSTRUCTION PACKAGE #7 - GCID IMPR**		1220	06-Jan-25	07-Sep-29	479		
349	**Engineering**		440	06-Jan-25	11-Sep-26	479		
350	348	Preliminary (30%)	120	06-Jan-25*	20-Jun-25	479		349: FS
351	349	Final (60%, 90%, 100%)	320	23-Jun-25	11-Sep-26	479	348: FS	351: FS
352	**Bid and Award**		90	14-Sep-26	15-Jan-27	479		
353	351	Bid and Award	90	14-Sep-26	15-Jan-27	479	349: FS	353: FS
354	**Construction**		660	18-Jan-27	27-Jul-29	509		
355	353	Submittals	120	18-Jan-27	02-Jul-27	479	351: FS	355: FS, 356: FS
356	357	Testing	60	07-May-29	27-Jul-29	479	356: FS	359: FS
357	**Field Construction**		480	05-Jul-27	04-May-29	569		
358	355	Structures	480	05-Jul-27	04-May-29	569	353: FS	
359	356	Earthwork	480	05-Jul-27	04-May-29	479	353: FS	357: FS
360	**Commissioning**		30	30-Jul-29	07-Sep-29	479		
361	359	Commission	30	30-Jul-29	07-Sep-29	479	357: FS	



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Project ID: TO3 Sites Conveyance / Project Name: Maxwell Sites Pumping and Generating Facilities CP2
Layout Name: Sites WBS w/ Pred Succ / TASK filter: Less than 100%.
Data Date: 01-Jan-22 / Print Date: 31-May-23

From: JP Robinette [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=F4D19AE1EBE142FBB3C5EF37126CEBC8-JROBINETTE]
Sent: 5/31/2023 5:31:57 PM
To: Luu, Henry [henry.luu@hdrinc.com]
Subject: My Notes from Roads Meeting with Colusa County Today

No action required, just sharing so you can correct me if needed.

Discussion with County on Southern Access

- Decided to have designers pursue Dirks Road Alignment. The County is highly supportive of this alignment and considers the original alignment a "non-starter".
- Input from LMC and O&E will occur late 2024 after environmental document discussions
- The bridge over Theresa Creek was upgraded by PG&E, Mike Azevedo sent as-builts
- 60-70% of traffic will use Southern Access (in Colusa County), 30-40% will use Northern Access (Glenn County)
- Recommend designing for higher speeds but use administrative controls, signage, and contract incentives/disincentives to encourage safe driving behaviors
- Develop work restrictions in specifications to account for seasonality of traffic for harvest, etc.
- The County is opposed to wildlife crossings being included in the realigned Sites-Lodoga Road

Bridge O&M

- County said they will need an agreement with the JPA. In the event of a bridge failure, the County cannot afford to replace.
- Example Agreements: They have requested the agreement on the bridge over Oroville from the county (Butte?) and not received anything. The team mentioned Placer County ownership of the bridge that was to be over Auburn Dam as an example.

Next Steps

- Meet with landowner on Dirks Road alignment and specification
- Meet with PG&E on the alignment and the bridge they own, review prior temporary bridge (footings remain) over GCID
- Request as-builts from TCCA on the bridge that crosses their canal
- Meet with Glenn County on the Northern Access
- Develop an agreement for the long-term O&M of the bridge