

Agent Strawman
For Discussion Purposes
June 29, 2020

Vision: (can mission be considered the vision or is an independent statement necessary for vision?)

Mission Statement:

To create a flexible, resilient water storage system that reliably delivers environmental, water supply, flood control, and recreation benefits to its investors while responsibly managing its entrusted water resources for the betterment of all California.

Values:

In fulfilling this mission, the Authority will perform its activities in a manner that upholds these core values: (these are words to describe current and/or future ways we do business, we would add one or two sentences to each value to explain how it is applied to us).

1. Safety
2. Trust and Integrity (alternative Open and Transparent) Being a resource for reliable, thoughtful information and analysis
3. Respect and honor for the local community (alternative Being a good neighbor)
4. Responsible Environmental Stewards (alternative Environmental Sensitivity)
5. Partnership/Teamwork
6. Fiscally responsible
7. Innovative/Proactive
8. Respectful of Differences, Inclusion of all, appreciative of Statewide Diversity of Communities

Here is the current vision/mission/values which is Section 2 of the Nov 2016 Bylaws:

2 Sites Project Authority's Mission, Vision & Values

2.1. Mission: (Restatement). "[T]o be a proponent and facilitator to design and potentially acquire, construct, manage, govern, and operate Sites Reservoir and related facilities; to increase and develop water supplies; to improve the operation of the state's water system; and to provide a net improvement in ecosystem and water quality conditions in the Sacramento River system and the Delta."

2.2. Vision Statement: Fulfill state and federal mandates to provide a new supply of safe, reliable, affordable water. Sites Reservoir will augment water delivery reliability to agricultural and urban water users, while adding environmental flows that benefit the Delta and Sacramento Valley watershed ecosystems. Sites will enhance the state water system, providing flexible and resilient storage under future climate change conditions.

2.3. Values: Those involved with all activities of the Authority should:

- Transact all business in an open and honest manner, except that communications shall not be disclosed when occurring in closed sessions of the Board of Directors or a committee, or are otherwise privileged and confidential, and certain documents may be exempt from disclosure under the Public Records Act;
- Communicate effectively;
- Build trust and confidence, both internally and externally to the Authority;
- Make decisions that are fiscally prudent;
- Utilize best-in-class processes and procedures, particularly in development of project controls for both management of risk and ensuring appropriate levels of quality.

Authority Committee Chartering Document

Status: **Ad Hoc**

- **Leader:** Gary Evans (Colusa County)
- **Members (2):** Lee McDaniel (Glenn County)
Jeff Sutton (TCCA)
Logan Dennis (GCID)
- **Staff Support:**
 1. The External Affairs Manager
 2. Legal counsel on an as needed basis.
 3. Other specialty advisors or experts on an as needed basis.
- **Formation:** March 22, 2019
- **Expires:** TBD

Related Documents:

- Attachment A: Work Group Chartering Process, General Requirements

Purpose: To advise the Authority on Real Estate, Land Management and Site Facilities issues, including land use changes caused by proposed project facilities for incorporation into both the EIR/S and Reclamation’s congressionally mandated Feasibility Report.

Meeting Frequency: When either the Leader determines or an Authority Board Member requests that a potential issue exists to warrant convening the ad hoc committee to develop a recommended resolution or response for the Authority Board to then consider and act upon.

Committee Roles and Responsibilities:

- The primary focus of this Committee will be:
 - Issues and activities relating to the Sites Project Authority’s Real Estate program including temporary-rights-of-entry (TROE), property acquisition and landowner engagement activities.
 - Issues and activities relating to the Site Project Authority’s Land Management program including policies for the management of Authority

Status:	For Work Group Leader’s consideration	Prepared:	Phase:	2	Version:	A
Purpose:	Informational	Checked:	Date:			
Caveat:	Subject to change	QA/QC:	Ref/File #:			
File:			Page:	1	of	2

acquired property, management of easements (project and mitigation), and other land management activities.

- Issues and activities relating to the planning and development of the project's proposed recreation facilities and other public lands.
- Issues and activities relating to coordination with local agencies regarding project planning activities, facilities siting issues and changes in local land use.

From: Flores, Amparo [aflores@zone7water.com]
Sent: 7/1/2020 2:09:07 PM
To: Tull, Robert/SAC [Robert.Tull@jacobs.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites Reservoir - Operations Work Group Feb 14, 2020 - Agenda and Discussion Materials - CONFIDENTIAL

Greetings, Rob. I hope you're doing well.

Is there a more updated (concise is good!) description of project operations? We have a consultant looking at how Sites could benefit our water system operations, and it would be helpful to have a good overview document we can share. This effort is also intended to help Zone 7 develop and evaluate different demand scenarios for Sites.

Thanks,
Amparo

Amparo Flores, P.E., Ph.D.
Integrated Planning Manager
Principal Engineer
Zone 7 Water Agency
aflores@zone7water.com | (925) 454-5019

*We are hiring three Associate Engineers! For more info, please check out: <https://www.zone7water.com/working-here>.
Feel free to share, and/or contact me with any questions.*

From: Tull, Robert/SAC <Robert.Tull@jacobs.com>
Sent: Friday, February 14, 2020 4:24 PM
To: Rob Kunde <rkunde@wrmswd.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; rcooke1956@gmail.com; Chilmakuri,Chandra Sekhar <cchilmakuri@mw2h.com>; ccwd2@frontiernet.net; cwang@mw2h.com; druiz@westsidewd.com; jsutton@tccanal.com; RCheng@cvwd.org; tbettner@gcid.net; wvanderwaal@rd108.org; aforsythe@sitesproject.org; ckao@valleywater.org; dmarks@scvwa.org; eleitterman@valleywater.org; Flores, Amparo <aflores@zone7water.com>; lReyburn@cvwd.org; RNeudeck@mw2h.com; Leaf, Rob/SAC <Rob.Lead@jacobs.com>; Jim Watson <jwatson@sitesproject.org>; Mercado, Wes <wmercado@zone7water.com>
Subject: RE: Sites Reservoir - Operations Work Group Feb 14, 2020 - Agenda and Discussion Materials - CONFIDENTIAL

All,

Attached is the draft Sites Project Operations Plan that was developed in June 2016. The plan was never finalized as it was recognized that additional work would be required, but the draft plan provided the basis for the development of the Sac Valley local preferred alternative D that was included in the public draft EIR/EIS and the CWC WSIP application.

Let me know if you have any questions.

Thanks,
Rob

From: Rob Kunde <rkunde@wrmswd.com>
Sent: Thursday, February 13, 2020 12:23 PM
To: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; rcooke1956@gmail.com; Chilmakuri,Chandra Sekhar <cchilmakuri@mw2h.com>; ccwd2@frontiernet.net; cwang@mw2h.com; druiz@westsidewd.com; jsutton@tccanal.com; RCheng@cvwd.org; Tull, Robert/SAC <Robert.Tull@jacobs.com>; tbettner@gcid.net; wvanderwaal@rd108.org; aforsythe@sitesproject.org; ckao@valleywater.org; dmarks@scvwa.org;

eleitterman@valleywater.org; AFlores@zone7water.com; IReyburn@cvwd.org; RNeudeck@mw dh2o.com; Leaf, Rob/SAC <Rob.Lead@jacobs.com>; Jim Watson <jwatson@sitesproject.org>; wmercado@zone7water.com

Subject: [EXTERNAL] Sites Reservoir - Operations Work Group Feb 14, 2020 - Agenda and Discussion Materials - CONFIDENTIAL

Ladies and Gentlemen:

Attached find the Agenda and 2 attachments for discussion on tomorrow's conference call. I recommend you review the appropriate North of Delta or South of Delta attachment prior to the call.

Robert J. Kunde, P.E.

Retired Annuitant

Wheeler Ridge-Maricopa Water Storage District

12109 Highway 166, Bakersfield, CA 93313

cell: 661-345-3719 email: rkunde@wrnwdsd.com

From: Heydinger, Erin

Sent: Monday, February 10, 2020 1:44 PM

To: Heydinger, Erin; rcooke1956@gmail.com; cchilmakuri@mw dh2o.com; ccwd2@frontiernet.net; cwang@mw dh2o.com; druiz@westsidewd.com; jsutton@tccanal.com; RCheng@cvwd.org; robert.tull@jacobs.com; tbettner@gcid.net; wvanderwaal@rd108.org; aforsythe@sitesproject.org; ckao@valleywater.org; dmarks@scvwa.org; eleitterman@valleywater.org; AFlores@zone7water.com; IReyburn@cvwd.org; RNeudeck@mw dh2o.com; Leaf, Rob/SAC; Jim Watson; wmercado@zone7water.com; Rob Kunde

Subject: Sites Ad-Hoc Operations Work Group

When: Friday, February 14, 2020 2:00 PM-4:00 PM.

Where: Webex Conference Call and Screenshare

Hi all,

Below is the call-in and screen share information for the Operations WG. If you are using your computer and dialing in on your phone, please be sure to turn the volume down on your computer and mute your computer microphone to avoid feedback.

Thanks!

Erin

Erin Heydinger, PE, PMP

HDR

2379 Gateway Oaks Dr, #200

Sacramento, CA 95833

D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

-- Do not delete or change any of the following text. --

When it's time, join your Webex meeting here.

Meeting number (access code): 730 079 176

Meeting password: kJmnmMb7B72

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[1-844-531-9388](#) United States of America Toll free

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You can also dial 173.243.2.68 and enter your meeting number.

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From: Alicia Forsythe [aforsythe@sitesproject.org]
Sent: 7/1/2020 3:57:22 PM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: 3 month look ahead

Yes, based on the update to the OA tracking sheet, items were either combined with other items or as we know more about schedule, items were pushed out.

For example, we have a few of the permitting items were moved to October as in hindsight, we'll just have a more complete project description in August / September and need a little more time to develop an analysis of major regulatory decisions and the permitting strategy. We also pushed a few items into December when we would expect to have modeling results and could firm up net environmental benefits and benefits to the State / Feds.

Hope this helps. Happy to chat if you'd like more info.

Ali

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

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From: Jerry Brown <jbrown@sitesproject.org>
Sent: Wednesday, July 1, 2020 2:29 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: 3 month look ahead

I see that we eliminated most of the OA items of the August calendar. Whats the thinking behind that and what are we saying for the July quarterly update? Let me know tomorrow before noon since I meet with chairs at 1pm. thanks

Authority Committee Chartering Document

Status: **Ad Hoc**

- **Leader:** Gary Evans (Colusa County)
- **Members (3):** Lee McDaniel (Glenn County)
Jeff Sutton (TCCA)
Logan Dennis (GCID)
- **Staff Support:**
 1. The External Affairs Manager
 2. Legal counsel on an as needed basis.
 3. Other specialty advisors or experts on an as needed basis.
- **Formation:** March 22, 2019
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acquired property, management of easements (project and mitigation), and other land management activities.

- Issues and activities relating to the planning and development of the project's proposed recreation facilities and other public lands.
- Issues and activities relating to coordination with local agencies regarding project planning activities, facilities siting issues and changes in local land use.

From: Micko, Steve/SAC [Steve.Micko@jacobs.com]
Sent: 7/2/2020 12:30:39 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites Modeling Scenario A Info Request

Thank you Ali!

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Thursday, July 2, 2020 9:37 AM
To: Micko, Steve/SAC <Steve.Micko@jacobs.com>
Subject: [EXTERNAL] FW: Sites Modeling Scenario A Info Request

Including you also

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

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From: Alicia Forsythe
Sent: Thursday, July 2, 2020 9:30 AM
To: Eric Leitterman <ELeitterman@valleywater.org>; Tull, Robert/SAC <Robert.Tull@jacobs.com>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Below are more details on the Scenario A criteria. I think this confirms and adds details to some of the info you have in your summary table Eric.

Attachment 1. CDFW Operations Scenarios A.

This attachment provides modeling assumptions of Sites Project operations scenario used to evaluate the release capacity of Sites Reservoir – Scenario A. Both scenarios were developed by Jacobs in consultation with CDFW in December of 2019.

Criteria	Scenario A
Reservoir Size	1.0 MAF, 1.3 MAF, or 1.5 MAF
GCC Maintenance Window	2 weeks (Jan/Feb)
Wilkins Slough Bypass Flow	8,000 cfs Jan-Dec
Fremont Weir Notch	Prioritize the Fremont Weir Notch, Yolo Bypass preferred alternative, flow over weir within 1%
Flows into the Sutter Bypass System ¹	No restriction due to flow over Moulton, Colusa, and Tisdale Weirs
Freeport Bypass Flow	Modeled WaterFix Criteria (applied on a daily basis)

	Pulse & Post-Pulse Protection (applied on a moving 7-day average) Pulse = Oct-Mar (35,000 cfs off-ramp) Post-Pulse (3 levels) = Oct-Jun Level 1 starts Oct 1 st
Net Delta Outflow Index (NDOI) Prior to Project Diversions	44,500 cfs between March 1st and May 31st

Scenario A assumes the following:

- Pulse flow protection modeled as protecting the first pulse October – May. Pulse flow protection is the cessation of diversions for 7 days during pulses of 15,000 cfs to 25,000 cfs as measured at Bend Bridge. Modeled WaterFix Freeport criteria applied on a daily basis October – June. Modeled WaterFix NDOI criteria applied using 44,500 cfs between March and May as a surrogate.

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From: Eric Leitnerman <Eleitnerman@valleywater.org>
Sent: Wednesday, July 1, 2020 11:23 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Tull, Robert/SAC <Robert.Tull@jacobs.com>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Great. Thanks Ali.

ERIC LEITNERMAN
ASSISTANT ENGINEER II - CIVIL
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Water Supply Division
Tel. (408) 630-2669 / Cell. (408) 784-4966
eleitnerman@valleywater.org

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From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 1, 2020 11:19 AM

To: Tull, Robert/SAC <Robert.Tull@jacobs.com>; Eric Leitnerman <ELeitnerman@valleywater.org>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>

Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>

Subject: RE: Sites Modeling Scenario A Info Request

Hi all – I am checking with Rob Leaf to see if he’s available. In the meantime, I’ll send out an invite to hold 9 to 10 AM. We’ll adjust the time depending on Rob Leaf’s availability.

Ali

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

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From: Tull, Robert/SAC <Robert.Tull@jacobs.com>

Sent: Wednesday, July 1, 2020 10:43 AM

To: Eric Leitnerman <ELeitnerman@valleywater.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>

Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>

Subject: RE: Sites Modeling Scenario A Info Request

I am available Thursday. To have a meaningful discussion we will need Rob Leaf on the call to address the specifics

Topics of we would like to discuss include:

- The basis for the 30 TAF yield range in the executive prospectus
- The Fremont Weir assumptions and how much input CDFW had on them
- What is meant by strict interpretation of the WaterFix ITP criteria for Scenario A

Rob T.

From: Eric Leitnerman <ELeitnerman@valleywater.org>

Sent: Tuesday, June 30, 2020 11:17 AM

To: Alicia Forsythe <aforsythe@sitesproject.org>

Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>

Subject: [EXTERNAL] RE: Sites Modeling Scenario A Info Request

Hi Ali,

Any chance we can do that the meeting earlier in the morning (some time between 8 to 10)? We are working to on an internal deadline for updates to one of our Board Committees, and have to have it in by 4pm Thursday due to the Friday being a holiday for us.

ERIC LEITNERMAN

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eleitterman@valleywater.org

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www.valleywater.org

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Tuesday, June 30, 2020 10:42 AM
To: Eric Leitterman <Eleitterman@valleywater.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>; Leaf, Rob/SAC <Rob.Leaf@jacobs.com>
Subject: RE: Sites Modeling Scenario A Info Request

Hi Eric – I think Rob Tull is back from a few days off tomorrow. I am not sure what his schedule look like for the end of this week.

Below are a few possible dates / times for a discussion. Please let me know what works for you and your team and I can check in with Rob when he returns tomorrow.

Thursday, July 2 – 10 am to 11 am
Thursday, July 2 – 11 am to noon
Thursday, July 2 – 3 pm to 4 pm
Thursday, July 2 – 4 pm to 5 pm

Ali

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Reservoir Project | 916.880.0676 |
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From: Eric Leitterman <Eleitterman@valleywater.org>
Sent: Monday, June 29, 2020 10:30 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Hi Ali,

I thought the Ops call we had earlier this month was very helpful, but we still have a few more questions. Would it be possible to have a quick call with you and Rob sometime this week to discuss?

Topics of we would like to discuss include:

- The basis for the 30 TAF yield range in the executive prospectus
- The Freemont Weir assumptions and how much input CDFW had on them
- What is meant by strict interpretation of the WaterFix ITP criteria for Scenario A

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From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Tuesday, June 2, 2020 12:47 PM
To: Eric Leitterman <Eleitterman@valleywater.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Hi Eric – We actually plan to cover this in our next Ad Hoc Operations and Engineering Work Group meeting. We’re working on getting that scheduled now. It looks like it will be sometime the week of June 8. Does this issue hold for you all until then or do we need to chat earlier?

Ali

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

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From: Eric Leitterman <Eleitterman@valleywater.org>
Sent: Monday, June 1, 2020 2:55 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Hi Ali,

Wanted to follow up with you to determine if we should schedule a meeting this week or if the requested info will be provided in the Ops/Facilities workgroup.

ERIC LEITTERMAN

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eleitterman@valleywater.org

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From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Friday, May 29, 2020 1:31 PM
To: Eric Leitnerman <Eleitterman@valleywater.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: RE: Sites Modeling Scenario A Info Request

Hi Eric – Thanks for the email. We’d be happy to chat with you and the team. We are setting up another work group meeting and I think we’ll be adding this to the agenda. Let me check and circle back with you on Monday.

Hope you have a great weekend!

Ali

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From: Eric Leitnerman <Eleitterman@valleywater.org>
Sent: Friday, May 29, 2020 10:11 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Katrina Jessop <KJessop@valleywater.org>; Cindy Kao <CKao@valleywater.org>; Rob Tull <Robert.Tull@CH2M.com>
Subject: Sites Modeling Scenario A Info Request

Hi Ali,

As I recall during the last Sites Ops and Facilities Workgroup Call on 5/18, participants that wanted additional information on the scenarios in the Board Packets should get in touch with you so you could help us on a 1:1 basis. As I

have mentioned before Santa Clara would like to have a better understanding of the Scenario A modeling assumptions and results. Would it be possible to set up 30 min call next week with you and CH2M/Jacobs staff to discuss?

To assist in this discussion I have attached a Modeling Assumptions Table I created to help our staff understand some of the changes in Sites Modeling Assumptions. I am hoping that our discussion can verify some of the text in red.

I have also attached a copy of the executive prospectus that was sent out to Sites Participants for our discussion of the results. It would be helpful for us at Santa Clara to better understand how Scenario A and Scenario Be results are captured in the table in the lower right corner of the 2nd page.

ERIC LEITTERMAN

ASSISTANT ENGINEER II - CIVIL

Imported Water Unit

Water Supply Division

Tel. (408) 630-2669 / Cell. (408) 784-4966

eleitterman@valleywater.org

Santa Clara Valley Water District is now known as:



Clean Water • Healthy Environment • Flood Protection

5750 Almaden Expressway, San Jose CA 95118

www.valleywater.org

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From: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Sent: 7/2/2020 4:14:55 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Forrest, Michael [michael.forrest@aecom.com]; Spranza, John [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Jeff Herrin (Jeff.Herrin@aecom.com) [Jeff.Herrin@aecom.com]; Smith, Michael (orange) [michael.g.smith@aecom.com]; Barnes, Joseph [joseph.barnes@aecom.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Zarchi, Idit [Idit.Zarchi@aecom.com]; Rude, Pete/RDD [Pete.Rude@jacobs.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings
Importance: High

Hey folks

Here are agenda items for the few meetings. I will update the meeting invites accordingly (to identify whether HR or HC team needs to attend). Thank you all for your patience.

July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)
- How roads and bridge would be constructed.

July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

July 31, 2020 – “as needed” – On our calendars but nothing scheduled yet for topics.

Jelica Arsenijevic

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

D 916-679-8854
M 209-329-6897

hdrinc.com/follow-us

-----Original Appointment-----

From: Arsenijevic, Jelica
Sent: Thursday, July 2, 2020 12:52 PM
To: Arsenijevic, Jelica; 'Alicia Forsythe'; Forrest, Michael; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Jeff Herrin (Jeff.Herrin@aecom.com); Smith, Michael (orange); Barnes, Joseph; Berryman, Ellen; Luu, Henry; Zarchi, Idit; Rude, Pete/RDD
Subject: Sites: Focus Data Needs/Assumption Meetings
When: Occurs every Friday effective 7/10/2020 until 7/31/2020 from 9:00 AM to 11:00 AM (UTC-08:00) Pacific Time (US

& Canada).

Where: WebEx

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

Many thanks to ICF for providing suggested meeting topics. I'm waiting to hear from them on the final "schedule". Once they are finalized, I will revise the invite to align with who should be on the call (either HR or HC or maybe both). The engineers have a desire to alternate weeks.

As we inch closer to providing the information for the project description, there may be a need to have additional meetings during the week.

Thank you so much!

Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

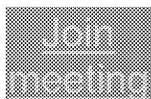
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-- Do not delete or change any of the following text. --

**When
it's
time,
join
your
Webex
meeting
here.**

Meeting
number
(access
code): 146
158 6715

Meeting
password:
tA3unEjpu93



Tap to join from a mobile device (attendees only)

[+1-408-418-9388..1461586715##](tel:+1-408-418-9388..1461586715##) United States Toll

Join by phone

+1-408-418-9388 United States Toll

[Global call-in numbers](#)

Join from a video system or application

Dial [1461586715@meethdr.webex.com](tel:1461586715@meethdr.webex.com)

You can also dial 173.243.2.68 and enter your meeting number.

**Join using Microsoft Lync or Microsoft
Skype for Business**

Dial

[1461586715.meethdr@lync.webex.com](tel:1461586715.meethdr@lync.webex.com)

If you are a
host, [click
here](#) to view
host
information.

Need help? Go to

<http://help.webex.com>

Work Group Chartering Document

Status:

Ad Hoc

- **Leaders:** Chair Vice Chair
Thad Bettner, GCID Heather Dyer (SBVMWD)
- **Members (9):** Mike Azevedo (Colusa Co.) Randall Neudeck (MWD)
Robert Cheng (CVWD) Bill Vanderwaal (DWD)
Jeff Davis (SGPWA)
Rob Kunde (WR-M WSD)
Eric Leitterman (Valley Water)
- **Expertise:** PCWA/Roseville for Lower American River
Staff from participating agencies who have specific expertise that is relevant to the matter being addressed by this work group.
- **Staff Support:**
 1. Environmental Planning and Permitting Manager.
 2. Legal counsel on an as needed basis.
 3. Other specialty advisors or experts, including consultant team members on an as needed basis.
- **Re-Adoption of Charter:** June 17, 2020
- **Expires:** End of the Phase 2 Reservoir Project Agreement

Related Documents:

- Attachment A: Work Group Chartering Process, General Requirements

Purpose: To advise the Reservoir Committee on all environmental planning and permitting aspects of the development and implementation of pre-construction, construction, and mitigation actions for the Sites Reservoir Project.

Meeting Frequency: When either the Leader determines or the Reservoir Committee Chairperson requests that a potential issue exists to warrant convening the work group to develop a recommended resolution or response for the Reservoir Committee to then consider and act upon.

Work Group's Roles and Responsibilities:

- The primary focus of this work group is to review and provide input to:
 1. The Authority's adoption of CEQA Guidelines, revisions to those Guidelines, if any, and proposed environmental policies.
 2. The Authority's development, completion, and implementation of all environmental planning and permitting aspects of pre-construction, construction, environmental commitments, and mitigation actions for the Sites Reservoir Project.

NOTE: The review of operations or construction permits and approvals has been assigned to the Reservoir Operations and Engineering Work Group (e.g., Dam Safety, Traffic).

SITES PROJECT AUTHORITY
P.O. Box 517
122 OLD HIGHWAY 99 WEST
MAXWELL, CALIFORNIA 95955
www.SitesProject.org

JERRY BROWN, EXECUTIVE DIRECTOR
925.260.7417

YOLANDA TIRADO, CLERK
530.438.2309
Boardclerk@SitesProject.org

Board of Directors

FRITZ DURST, RECLAMATION DISTRICT 108, CHAIR
JEFF SUTTON, TEHAMA-COLUSA CANAL AUTHORITY, VICE-CHAIR
GARY EVANS, COLUSA COUNTY SUPERVISOR
LEIGH MCDANIEL, GLENN COUNTY SUPERVISOR
LOGAN DENNIS, GLENN-COLUSA IRRIGATION DISTRICT
BRUCE HOUDESHEDT, PLACER COUNTY WATER AGENCY/CITY OF ROSEVILLE
DOUG PARKER, WESTSIDE WATER DISTRICT
JOE MARSH, COLUSA COUNTY WATER DISTRICT
JEFF HARRIS, CITY OF SACRAMENTO/SACRAMENTO COUNTY WATER AGENCY
DON BADER, BUREAU OF RECLAMATION (COST-SHARE PARTNER, NON-VOTING)
ROB COOKE, CA DEPARTMENT OF WATER RESOURCES (EX-OFFICIO, NON-VOTING)

Associate Members (NON-VOTING)

GREG JOHNSON, WESTERN CANAL WATER DISTRICT
JAMIE TRAYNHAM, TC 4 DISTRICTS

June 24, 2020 1:30 p.m. *Sites Project Authority* *Minutes*

CALL TO ORDER & ROLL CALL:

Chairman Durst called the Sites Project Authority Board of Directors meeting to order at the hour of 1:30 p.m., followed by the Pledge of Allegiance.

INTRODUCTIONS:

Chairman Durst asked those present to introduce themselves. (**Attachment A**)

AGENDA APPROVAL:

It was moved by Director Dennis, seconded by Director Parker to approve the June 24, 2020 Sites Project Authority Agenda. Motion carried: All Directors present voted yes.

PERIOD OF PUBLIC COMMENT:

Chairman Durst called for public comment. Hearing none, he closed the period of public comment.

1. **CONSENT AGENDA:** It was moved by Director Harris, seconded by Director Dennis to approve Consent Agenda Item Numbers 1.1 through 1.3 as follows:
 - 1.1 Approval of the May 21, 2020 Phase 2 Reservoir Committee Meeting Minutes.
 - 1.2 Acceptance of the Sites Project Authority Treasurer's Report as presented in Attachment 1.2A.

-
- 1.3 Approval of the Payment of Claims as presented in Attachment 1.3A with supporting details provided in Attachment 1.3B.

Motion carried: All Directors present voted yes.

2. Action Items:

- 2.1 Consider acceptance of the 2020-2021 Sites Project State Agency Legislative Activity Priorities.

Mr. Spesert provided an overview of the 2020-2021 Sites Project State Agency Legislative Activities Priorities, stating these priorities would be the Committee's and Team's focus through December 2021. He added any adjustments/refinements would be presented to the RC and AB prior to being incorporated, with updates as needed. Brief discussion followed.

Action: It moved by Director Evans, seconded by Director Harris to accept the 2020-2021 Sites Project State Agency Legislative Activity Priorities. Motion carried: All Directors present voted yes.

- 2.2 Consider approval of the Authority's negotiation approach for permits and operating agreements.

Ms. Forsythe provided an overview of the Authority's negotiation approach for permits and operating agreements with state and federal agencies.

Chairman Durst stated the Executive Director would be given the authority as the lead in these negotiations, with 2 teams working under him, the Work Group which would deal with technical issues and the Negotiating Team who would evolve some of the principles. Brief discussion followed.

Action: It was moved by Director Sutton, seconded by Director Dennis to approve the Authority's negotiation approach for permits and operating agreements. Motion carried: All Directors present voted yes.

3. Discussion and Information Items:

- 3.1 Receive status update on preliminary participation levels, outreach efforts related to maintaining project subscription in Second Amendment to 2019 Reservoir Project Agreement (Amendment 2) and the process of rebalancing participation. **(Attachment A, B & C)**

Mr. Robinette provided an update regarding the following:

- Preliminary Participation Levels.
- Outreach and Rebalancing.
- Schedule.
- Cash Call Timing.
- Process for a participant securing a position in the participation queue and steps involved.

Mr. Robinette also spoke to a request from Colusa County regarding an alternate payment plan based on their unique situation. He stated the alternate payment plan proposed by the County was analyzed by the Project team and the Team determined that it was prudent and reasonable to accept the alternate payment plan and made a finding of equivalency for the following reasons:

- The same total dollars are to be paid and there is no lesser commitment as compared to any of the other participating members.
- The timing of the alternate payments is such that on a cash flow basis there is no redirected impacts on other participating members.
- The administrative burden of the alternate plan is offset by the proposed additional year of rent relief for the Authority's use of the Maxwell office building which is owned by the County.

Discussion followed with no action taken.

3.2 Receive status update on draft 2020 Final Federal Feasibility Report.

Mr. Brown provided an update on the draft 2020 Final Federal Feasibility Report, stating the approved 2020-21 Sites Federal Government Affairs Priorities includes completion of the Final Federal Feasibility Report to qualify for federal funding and serves as a basis for the State's feasibility analysis required for WSIP funding. Mr. Brown spoke to the following:

- Potential benefits for north and south of delta, new supplies for incremental level 4 refuges and improvement for migrating fish in north of delta rivers and streams.
- WIIN Act construction funds.
- Differences between the draft 2020 FFFR and VP7 (the Authority's preferred alternative).
- "Right sized" Project.
- WIIN Act deadlines.
- Benefit cost ratio.
- Key WIIN Act criteria (determination of feasibility by December 2020 and initiation of construction by 2022).
- Feasibility Report Review Process.

Mr. Brown stated the draft 2020 FFR is currently going through policy review and will be sent to Washington DC in July where it will undergo numerous reviews by OMB and the Secretary of Interior who will then submit the final determination to Congress. Discussion followed with no action taken.

3.3 Review and Comment on the objectives and alternatives for the Revised Environmental Impact Report/Environmental Impact Statement to focus efforts in developing a more complete project description on schedule. **(Attachment A & B)**

Ms. Forsythe provided an overview on the objectives and alternatives for the Revised Environmental Impact Report/Environmental Impact Statement. She spoke to the following:

Overview:

- Work on the preparation of the Revised EIR/EIS, updates to the Biological Assessment and design efforts.
- Key first step is the development of a Revised Project Description,
 - Serves as the foundation of the Revised EIR/EIS,
 - Preferred Project is foundation of the Biological Assessment and Sites Feasibility Report.
- Soliciting early input to reduce rework and maintain schedule.

Building Block to September Decision:

- Environmental Planning and Permitting Key Milestones
 - September, RC and AB to review and approve
 - More complete project description
 - Recommendation on Preferred Project
- Necessity of staying on schedule.

Objectives - Background

- CEQA Guidelines – require that a project description contain a clear statement of the project objectives, including the underlying purpose of the Project.
- Staff proposing revisions to objectives to:
 - Better reflect goals of RC and AB as described in the Value Planning Report and messaging documents
 - Add clarity and specificity to improve understanding of the foundation of the Project.
- Improve environmental, agricultural and municipal water supply reliability in a cost-effective manner for Project Participants.
- Improve cold water pool management in Shasta Reservoir through coordination and exchanges with Reclamation to benefit anadromous fish.
- Enhance the Delta ecosystem by providing water to convey food resources from the floodplain to the Delta thereby improving the food chain and quality of the Delta's estuarine habitat for the benefit of pelagic fishes in the north Delta (e.g. Cache Slough.)
- Provide improvements in state-wide water supply reliability to enhance opportunities for fish protection, habitat management and other environmental needs.
- Provide local and regional amenities, including development of recreational facilities, reduction of local flood damage and maintaining community connectivity through roadway modifications.

Alternatives – Background:

- CEQA Guidelines require that an EIR analyze a reasonable range of alternatives that would:
 - Satisfy and attain most of the basic objectives of the project
 - Avoid or substantially lessen any of the significant effects of the project

-
- Staff proposing revisions to alternatives to better align with Value Planning Report.
 - Alternatives – Key Components and Differences of the Facilities/Operations, Action Alternative 1 (Derived from VP7 and Action Alternative 2 (Includes Parts of VP5 and VP6).
 - Next Steps:
 - Continue development and refinement of more complete project description, including:
 - Objectives
 - Action Alternatives
 - No Action Alternatives
 - Recommended Preferred Project
 - Return to RC and AB in September with:
 - More complete project description
 - Recommend Preferred Project for the purpose of the CEQA analysis
 - Coordinate with Reclamation and Sites legal counsel for input.

Discussion followed regarding Alternative 1 and Alternative (Conveyance Release/Dunnigan Release and Route to West side of Reservoir) with no action taken.

- 3.4 Review and comment on the approach for discussions with the California Department of Water Resources on a Sites Coordinated Operations Agreement. **(Attachment A)**

Mr. Brown stated Staff is reinitiating technical discussion with DWR on a Sites Coordinated Operations Agreement (COA). He stated Sites COA would address the following key items:

1. Coordination of Sites water deliveries with DWR's operation of the State Water Project.
2. Sites water accounting in the context of the COA) for CVP and SWP.
3. Conveyance and operational losses.
4. Exchanges and transfers from Sites-participants to non-Sites SWP contractors.
5. Water rights and point of delivery considerations.

Brief discussion followed with no action taken.

- 3.5 Receive status update on the Colusa Basin Drain evaluation and Dunnigan Pipeline alignment review.

Mr. Luu provided an update on the Colusa Basin Drain evaluation and the Dunnigan Pipeline alignment. He stated the Dunnigan Pipeline alignment analysis is progressing well, with no fatal flaws having been identified to date. He stated further the consultant team is refining the alignment to reduce impacts to properties and landowner operations as well as minimizing environmental impacts to Bird Creek. He further stated a hydraulic study of

the CBD has been initiated and the analysis would confirm whether releases into the CBD are viable. He said a determination of a go/no-go on releases to the CBD would be made by August 2020. And should the use of the CBD not be feasible an alternative extending the Dunnigan Pipeline alignment to the river would still exist. Brief discussion followed with no action taken.

3.6 Receive status update on the approach for Regulatory Agency Technical Working Group. **(Attachment A)**

Ms. Forsythe stated staff have reinitiated efforts on the development and submittal of key permits for the Sites Project as reflected in the Amendment 1B Work Plan. She stated two technical working groups would be established to facilitate regular communication and coordination with state, federal and local agencies with jurisdiction over all or portions of the Project.

She stated Group 1: Interagency General Update would meet on a quarterly basis to update and coordinate with all state, federal and local regulatory and/or partnering agencies; Group 2: Fishery and Operations Technical Meetings would focus, as needed on fishery and operations meetings to review and discuss the modeling approach, analysis approach, operational criteria and the resulting effects to species of the Project. She also spoke to Potential Attendees of each of the Technical Working Groups.

Mr. Spesert suggested including local agencies such as the Fire Department, Sheriff's Department, School Districts, etc. Brief discussion followed with no action taken.

4. Reports:

4.1 Member's Reports:

4.1.1 Chairpersons' Report:

Chairman Durst provided a brief update on various matters related to the Sites Project. He also stated Chairman Bettner, Executive Director Brown and he meet on a regular monthly basis.

4.1.2 Workgroup Chairpersons' Report:

Land Management

None.

Director Evans stated a kickoff meeting was held with AECOM and Glenn-Colusa regarding road issues.

Budget & Finance

Ms. Traynham provided and update on the following:

-
- Audit Report (completed and signed).
 - Revised Credit Reimbursement Policy.

Legislative & Outreach

Director Sutton provided a brief update regarding Legislative and Outreach matters.

4.1.3 Reservoir Committee Participant Reports:

None.

4.2 Executive Director's Reports:

- Monthly status report. (**Attachment A**)
- Updated Message Platform.
- Update on concerns raised by M & I Agencies re: 2020 Urban Water Management Plan and added requirement of making findings of reducing reliance on Delta supplies.
- Work conduct of Authority Agents and Consultants re: needs for and responsibilities of conduct within the workplace.
- Federal and State Budgets:
 - WIIN Act Appropriations for fiscal year 2021 announced.
 - Bond funding made it through as related to Sites Project.
- Strategic Planning Session update planned for end of July 2020.
- Communications:
 - Revised Message Platform has been added to the Home Board Package.
 - Town Hall meetings to be held on July 14 and July 15, 2020.
 - Landowner Newsletter re: right sized project has gone out.

Ms. Katz provided an update on outreach to the community and entities interested in the Town Hall meetings.

5. Future Meetings and Schedules:

5.1 Suggested Future Agenda Items.

Mr. Brown provided a brief update of matters to be heard on future Agendas. Brief discussion followed with no action taken.

5.2 Upcoming meetings:

RESERVOIR COMMITTEE

THURSDAY, JULY 16, 2020 1:00 PM

Sites Project Office, 122 Old Highway 99W Maxwell, CA 95955

(TELECONFERENCING AND VIDEO LINK WILL BE PROVIDED AS AN OPTION)

AUTHORITY BOARD

WEDNESDAY, JULY 22, 2020 1:30PM

Sites Project Office, 122 Old Highway 99W Maxwell, CA 95955

(TELECONFERENCING AND VIDEO LINK WILL BE PROVIDED AS AN OPTION)

Chairman Durst adjourned the meeting at 3:35 p.m.

Fritz Durst, Chairman

Yolanda Tirado, Board Clerk

Meeting: **Phase 2 Reservoir Project Agreement**

2020 June 18

Subject: **Reservoir Committee Meeting**

1:00 PM – 4:00 PM

Location: Maxwell Project Office
122 Old Highway 99W, Maxwell, CA 95955

Call in: **1-408-418-9388**
Code: **146 887 2482**
WebEx Link

Chair: Thad Bettner (Glenn-Colusa Irrigation District)

Vice Chair: Jeff Davis (San Geronio Pass Water Agency)

Treasurer: Jamie Traynham (Davis Water District)

MINUTES

CALL TO ORDER:

Vice-Chairman Davis called the meeting to order at 1:00 p.m., followed by the Pledge of Allegiance.

ROLL CALL:

Roll was called (See Attachment A), which resulted in 17 eligible representatives. This equated to 88% of the current participation percentage being in attendance, which is greater than the 50% needed to have a quorum of the Reservoir Committee.

ATTENDANCE:

See Attachment B.

AGENDA APPROVAL:

It was moved by Traynham, seconded by Tincher to approve the June 18, 2020 Reservoir Committee Agenda, as presented. Motion carried unanimously.

PERIOD OF PUBLIC COMMENT:

Vice-chairman Davis called for public comment. Hearing none, he closed the period of public comment.

1. CONSENT AGENDA:

Vice-Chairman Davis made time to consider Consent Agenda Item Numbers 1.1 through 1.3.

Ms. Kao stated there was an inaccuracy in the Reservoir Committee Minutes of May 21, 2021, page 3, under Agenda Item 2.1B "Two-Step Cash Call Process" second bullet "...19 out of 21 agencies...". She stated it was actually 17 out of 21 agencies. Brief discussion followed.

Action: It was moved by Tincher, seconded by Marks to approve Consent Agenda Item Numbers 1.1 through 1.3 as follows:

Status:	Issued for Use	Version:	A
Purpose:	Informational	Date:	2020 June 18
Caveat 1:	Subject to change	Ref/File #:	
Caveat 2:		Page:	1 of 8

- 1.1 Approve the May 21, 2020 Phase 2 Reservoir Committee Meeting Minutes.
- 1.2 Accept the Sites Project Authority Treasurer's Report as presented in Attachment 1.2A. **(Attachment A)**
- 1.3 Approve the Payment of Claims as presented in Attachment 1.3A with supporting details provided in Attachment 1.3B. **(Attachments A, B & C)**

Motion carried unanimously.

2. Action Items:

- 2.1 Mr. Spesert stated staff worked with the Authority Ad Hoc Legislative & Outreach Committee to develop a list of State level legislative and government priorities to focus on activities to better align with key project milestones. He stated further State activities would be implemented in coordination with Sites Federal government affairs/legislative priorities and any adjustments would be taken back to the Reservoir Committee and Authority Board before being incorporated with updates provided on significant progress. Discussion followed.

Action: It was moved by Cheng, seconded by Tincher to accept the 2020-2021 Sites Project State Agency Legislative Activity Priorities. **(Attachment A)** Motion carried unanimously.

INTRODUCTIONS:

Executive Director Brown stated Introductions were not taken at the beginning of the meeting and requested that Introductions be done at this time.

The Sites Staff, Consultants and members of the public introduced themselves.

- 2.2 Approve the Authority's negotiation approach for permits and operating agreements. **(Attachment A)**

Executive Director Brown spoke to the need for the Authority Board and the Reservoir Committee to establish an approach on negotiating permits and agreement approvals to advance the project.

Ms. Forsythe provided an overview of the Authority's negotiation approach for permits and operating agreements with state and federal agencies. She spoke to the purpose of the Workgroups, Role of the lead negotiator and negotiating team as well as member involvement. Discussion followed.

Action: It was moved by Nuedeck, seconded by Vanderwaal to approve the Authority's negotiation approach for permits and operating agreements. Motion carried unanimously.

3. Discussion and Information Items:

- 3.1 Receive status update on preliminary participation levels, outreach efforts related to maintaining project subscription in Second Amendment to 2019 Reservoir Project Agreement (Amendment 2) and the process of rebalancing participation. **(Attachment A, B & C)**

Mr. Robinette stated based on the soft call survey and some informal responses, staff has a working assumption that project participation in the Sacramento Valley will drop about 13,000 AF. He spoke to the following:

- Preliminary Participation Levels.
- Outreach and Rebalancing.
- Schedule.
- Cash Call Timing.
- Process for a participant securing a position in the participation queue and steps involved.

Mr. Robinette spoke to a request from Colusa County regarding an alternate payment plan based on their unique situation. He stated the alternate payment plan proposed by the County was analyzed by the Project team and the Team determined that it was prudent and reasonable to accept the alternate payment plan.

Vice-Chairman Davis stated Dan Ruiz, representative for Westside Water District through the chat box wanted it known that the Westside WD Board had no material update.

Ms. Kao expressed concern regarding the 16,000 AF noted in the preliminary soft call survey results and requested that asterisks be placed next to Santa Clara County's column. She stated staff has not established a staff recommendation on the 16,000 AF but are evaluating a 16,000 AF level. Executive Director Brown stated the edit would be made.

Mr. Evans informed the RC members that the Colusa County Board of Supervisors on Tuesday, June 16, 2020 approved the Phase 2 Participation Agreement.

Discussion followed with no action taken.

- 3.2 Receive status update on draft 2020 Final Federal Feasibility Report.

Mr. Brown provided an update on the draft 2020 Final Federal Feasibility Report, stating the approved 2020-21 Sites Federal Government Affairs Priorities includes completion of the Final Federal Feasibility Report to qualify for federal funding and serves as a basis for the State's feasibility analysis required for WSIP funding. Mr. Brown spoke to the following:

- Potential benefits for north and south of delta, new supplies for incremental level 4 refuges and improvement for migrating fish in north of delta rivers and streams.
- WIIN Act construction funds.

- Differences between the draft 2020 FFR and VP7 (the Authority's preferred alternative).
- Project costs.
- "Right sized" Project.
- WIIN Act deadlines.
- Benefit cost ratio.
- Key WIIN Act criteria (determination of feasibility by December 2020 and initiation of construction by 2022).
- Feasibility Report Review Process.

Mr. Brown stated the draft 2020 FFR is currently going through policy review and will be sent to Washington DC in July where it will undergo numerous reviews by OMB and the Secretary of Interior who will then submit the final determination to Congress. Discussion followed with no action taken.

3.3 Review and Comment on the objectives and alternatives for the Revised Environmental Impact Report/Environmental Impact Statement to focus efforts in developing a more complete project description on schedule. **(Attachment A & B)**

Ms. Forsythe provided an overview on the objectives and alternatives for the Revised Environmental Impact Report/Environmental Impact Statement. She spoke to the following:

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Building Block to September Decision:

- Environmental Planning and Permitting Key Milestones
 - September, RC and AB to review and approve
 - More complete project description
 - Recommendation on Preferred Project
- Necessity of staying on schedule.

Objectives - Background

- CEQA Guidelines – require that a project description contain a clear statement of the project objectives, including the underlying purpose of the Project.
- Staff proposing revisions to objectives to:
 - Better reflect goals of RC and AB as described in the Value Planning Report and messaging documents
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- Improve environmental, agricultural and municipal water supply reliability in a cost-effective manner for Project Participants.
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- Enhance the Delta ecosystem by providing water to convey food resources from the floodplain to the Delta thereby improving the food chain and quality of the Delta's estuarine habitat for the benefit of pelagic fishes in the north Delta (e.g. Cache Slough.)
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 - Satisfy and attain most of the basic objectives of the project
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- Staff proposing revisions to alternatives to better align with Value Planning Report.
- Alternatives – Key Components and Differences of the Facilities/Operations, Action Alternative 1 (Derived from VP7 and Action Alternative 2 (Includes Parts of VP5 and VP6).
- Next Steps:
 - Continue development and refinement of more complete project description, including:
 - Objectives
 - Action Alternatives
 - No Action Alternatives
 - Recommended Preferred Project
- Return to RC and AB in September with:
 - More complete project description
 - Recommend Preferred Project for the purpose of the CEQA analysis
- Coordinate with Reclamation and Sites legal counsel for input.

Discussion followed regarding Alternative 1 and Alternative 2 (Conveyance Release/Dunnigan Release and Route to West side of Reservoir) and climate change with no action taken.

- 3.4 Review and comment on the approach for discussions with the California Department of Water Resources on a Sites Coordinated Operations Agreement. **(Attachment A)**

Ms. Forsythe stated Staff is reinitiating technical discussions with DWR on a Sites Coordinated Operations Agreement (COA). She stated the Sites COA would address the following key items:

1. Coordination of Sites water deliveries with DWR's operation of the State Water Project.
2. Sites water accounting in the context of the Coordinated Operations Agreement for the CVP and SWP.
3. Conveyance and operational losses.
4. Exchanges and transfers from Sites-participants to non-Sites SWP contractors.
5. Water rights and point of delivery considerations.

She also spoke to the following:

- Sites Reservoir Project Schedule – Milestones and Scheduled dates.
- DWR/Sites Term Sheet Developments Schedules.
- Next Steps.

Discussion followed with no action taken.

- 3.5 Receive status update on the Colusa Basin Drain evaluation and Dunnigan Pipeline alignment review.

Mr. Luu provided an update on the Colusa Basin Drain evaluation and the Dunnigan Pipeline alignment. He stated the Dunnigan Pipeline alignment analysis is progressing well, with no fatal flaws having been identified to date. He stated further the consultant team is refining the alignment to reduce impacts to properties and landowner operations as well as minimizing environmental impacts to Bird Creek. He further stated a hydraulic study of the CBD has been initiated and the analysis would confirm whether releases into the CBD are viable. He said a determination of a go/no-go on releases to the CBD would be made by August 2020. And should the use of the CBD not be feasible an alternative extending the Dunnigan Pipeline alignment to the river would still exist. Discussion followed regarding environmental benefits and timing of water release south of the Delta with no action taken.

- 3.6 Receive status update on the approach for Regulatory Agency Technical Working Group. **(Attachment A)**

Ms. Forsythe stated staff have reinitiated efforts on the development and submittal of key permits for the Sites Project as reflected in the Amendment 1B Work Plan. She stated two technical working groups would be established to facilitate regular communication and coordination with state, federal and local agencies with jurisdiction over all or portions of the Project.

She stated Group 1: Interagency General Update and Coordination Meetings would meet on a quarterly basis to update and coordinate with all state, federal and local regulatory and/or partnering agencies; Group 2: Fishery and Operations Technical Meetings would focus, as needed on fishery and operations meetings to review and discuss the modeling approach, analysis

approach, operational criteria and the resulting effects to species of the Project. She also spoke to Potential Attendees of each of the Technical Working Groups. Brief discussion followed with no action taken.

4. Reports:

4.1 Member's Reports:

4.1.1 Chairpersons' Report:

None.

4.1.2 Workgroup Chairpersons' Report:

Reservoir Operations & Engineering

Mr. Kunde stated the Reservoir Operations and Engineering Work group is meeting every three weeks and progress is being made.

Budget & Finance

Ms. Traynham stated the Budget and Finance Work Group is working on revising the Credit Reimbursement Policy and should be to the Reservoir Committee for consideration in July 2020.

Coordination

Vice-chairman Davis provided a brief update on activities of the Coordination Work Group.

4.1.3 Reservoir Committee Participant Reports:

This time is set aside to allow Representatives or their Alternates an opportunity to disclose/discuss items related to the Sites Project.

None.

4.2 Executive Director's Reports:

- Monthly status report. **(Attachment A)**
- Message Platform Update.
- Delta Stewardship letter regarding consistency determination concerns.
- Memo regarding reporting and responsibility requirements as it relates to conduct matters within the workplace.
- Governor's/State Budget.
- Strategic Planning Session updates.
- Communications regarding the following:

- o Revised Message Platform has been added to the Home Board Package.
- o Town Hall meetings to be held on July 14 and July 15, 2020.
- o Landowner Newsletter re: right sized project will be out soon.

5. Future Meetings and Schedules:

5.1 Suggested Future Agenda Items.

Brief discussion followed regarding possible Agenda Items for future Agendas.

5.2 Upcoming meetings:

Reservoir Committee

Thursday, July 16, 2020 1:00 PM
Sites Project Office, 122 Old Highway 99W Maxwell, CA 95955
(Teleconferencing and video link will be provided as an option)

Authority Board

Wednesday, July 22, 2020 1:30pm
Sites Project Office
(Teleconferencing and video link will be provided as an option)

Vice-Chairman Davis adjourned the meeting at 3:36 p.m.

Vice-Chairman
Jeff Davis

Executive Director
Jerry Brown

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/6/2020 9:55:37 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [John.Spranza@hdrinc.com]
CC: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Subject: RE: Sites water quality working group-Mercury and Selenium modeling.
Attachments: summary_april_2017.pdf

Mercury is a statewide issue – we have had to address it at Nacimiento and San Antonio reservoirs on my other current project. The water boards have been developing a “Statewide Mercury Control Program for Reservoirs”:

https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs/#peerreview

From: Alicia Forsythe [mailto:aforsythe@sitesproject.org]
Sent: Monday, July 6, 2020 9:26 AM
To: Spranza, John <John.Spranza@hdrinc.com>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: RE: Sites water quality working group-Mercury and Selenium modeling.

Thanks John. Let’s discuss at our 2:30 PM call today.

I wonder how much of an issue this really is. Does Shasta or East Park Reservoir have mercury or selenium issues? I remember being briefed on mercury issues in CVP reservoirs when the SWRCB came out with some mercury data request a few years ago. But I think I recall it being Folsom as the potentially the biggest concern because of the historic mining in the watershed. I cant recall though.

I’ve never really heard of selenium being an issue in the Sacramento River watershed.

I guess I would just like to understand if we even think we have an issue here that needs modeling first. Or if we can gather empirical data from other reservoirs in the Sac Valley and understand the potential issue (if there is one) and magnitude (assuming there might be an issue). I also wonder how someone is going to model this with such little data in the Sites watershed itself.

Anyway, lets talk at 2:30 PM today on this.

Ali

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

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From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Wednesday, July 1, 2020 4:26 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: FW: Sites water quality working group-Mercury and Selenium modeling.

Ali,

Steve brings up an excellent point, RBI is not on ICF's team and I do think that we will need to have the mercury and selenium modeling done for this round given the comments we have received.

What are your thoughts on reaching out to them and getting a scope and budget for the modeling?

John Spranza

D 916.679.8858 M 818.640.2487

From: Micko, Steve/SAC [<mailto:Steve.Micko@jacobs.com>]

Sent: Wednesday, July 1, 2020 1:47 PM

To: Spranza, John <John.Spranza@hdrinc.com>

Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>

Subject: RE: Sites water quality working group

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi John,

Another area of interest for WQ is Mercury and Selenium modeling. Typically, RBI conducts modeling of Mercury and Selenium in the Delta. Jacobs did not do Mercury and Selenium previously, so RBI is not in our contract. Can you please check if RBI is on ICF's contract as part of the effect analysis?

Best,
Steve

From: Heydinger, Erin <Erin.Heydinger@hdrinc.com>

Sent: Monday, June 29, 2020 1:08 PM

To: Spranza, John <John.Spranza@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>; Lecky, Jim <Jim.Lecky@icf.com>; aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Monique Briard (monique.briard@icf.com) <monique.briard@icf.com>; Williams, Nicole (Nicole.Williams@icf.com) <Nicole.Williams@icf.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; anne.huber@icf.com; Herrin, Jeff <jeff.herrin@aecom.com>

Subject: [EXTERNAL] RE: Sites water quality working group

Hi John,

Rob, Ali, and I spoke about this at our ops meeting last week. CH, under the ops contract, will be doing reservoir temperature modeling and will also provide an analysis on water temperature in the CBD to the river. I need to follow up with Rob on other potential constituents of concern/water quality parameters beyond temperature. We still need to determine exactly how the temperature impacts Funks and Stone Corral will be evaluated, but for now we do plan to have some modeling data on water released from the reservoir.

Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

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Draft_0002739

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Monday, June 29, 2020 12:56 PM
To: Micko, Steve/SAC <Steve.Micko@jacobs.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>; Lecky, Jim <Jim.Lecky@icf.com>; aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Monique Briard (monique.briard@icf.com) <monique.briard@icf.com>; Williams, Nicole (Nicole.Williams@icf.com) <Nicole.Williams@icf.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; anne.huber@icf.com; Herrin, Jeff (jeff.herrin@aecom.com) <jeff.herrin@aecom.com>
Subject: RE: Sites water quality working group

Hey Folks,

Time is moving quick and there are a few action items that I still need input on from Erin, Steve, Jim, Anne. Can you give this a look and let me know the status. I would like to get the temperature modeling meeting scheduled in the next 2 weeks.
Thanks.

John Spranza

D 916.679.8858 M 818.640.2487

From: Spranza, John
Sent: Thursday, June 18, 2020 1:45 PM
To: Micko, Steve/SAC <Steve.Micko@jacobs.com>; Erin Heydinger (Erin.Heydinger@hdrinc.com) <Erin.Heydinger@hdrinc.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>; 'Lecky, Jim' <Jim.Lecky@icf.com>; aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>; Monique Briard (monique.briard@icf.com) <monique.briard@icf.com>; Williams, Nicole (Nicole.Williams@icf.com) <Nicole.Williams@icf.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; 'anne.huber@icf.com' <anne.huber@icf.com>; Herrin, Jeff (jeff.herrin@aecom.com) <jeff.herrin@aecom.com>
Cc: Jeriann Alexander (jalexander@fugro.com) <jalexander@fugro.com>
Subject: Sites water quality working group

Good Afternoon,

Attached are the notes and Action Items identified in Monday's meeting, please let me know if you have any questions or edits. Folks with AI's are Erin, Steve, Jim, Anne and I. I am thinking that the next meeting will be the week we return from the July 4th holiday but am open to other suggestions.

I have also attached the information I put together for the Salt Lake, that document has a list of next steps to address the Salt lake. If you could please review the document and send me any thoughts you might have on the next steps I would appreciate it.

Thank you.
John

John Spranza, MS, CCN
Senior Ecologist / Regulatory Specialist

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Draft_0002740

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Sites Reservoir Feasibility Study
Technical Memorandum

**Mitigation Measure Evaluation
and Cost Estimate**

October 2016

Prepared for

Sites Project Authority

Prepared by

AECOM

2020 L Street, Suite 400
Sacramento, CA 95811

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Attachments

- Attachment 1 Site Plans for Alternatives A through D
- Attachment 2 Sites Reservoir Mitigation Cost Summary
- Attachment 3 High Cost Mitigation Measure Measures
- Attachment 4 Detailed Cost Assumptions by Resource
- Attachment 5 Anticipated Land Use Impacts (Alternative C)
- Attachment 6 Vegetation Community and Habitat Impacts (Alternative C)
- Attachment 7 Air Quality Impacts (Alternative C)

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1.0 ABSTRACT

For the Sites Project Authority (Authority), AECOM has developed a planning-level cost estimate for implementing measures necessary to mitigate anticipated environmental impacts resulting from the construction, operation, and maintenance of the Sites Reservoir Alternative C.

The cost estimate includes a summary of costs for relevant mitigation measures followed by detailed cost estimate worksheets with assumptions. To support the preparation of the I cost estimate, AECOM held a series of mitigation cost development workshops. In addition to cost development, AECOM evaluated mitigation-related schedule constraints and recommendations for modifying mitigation measures. This technical memorandum is comprised of the following:

- Study Objective
- Background
- Mitigation Costs
- Key Cost Assumptions
- Recommended Mitigation Measure Modifications
- Mitigation Related Schedule Constraints
- Recommendations and Next Steps

2.0 STUDY OBJECTIVE

The purpose of this assignment was to develop feasibility-level costs for mitigation measure implementation, identify any project schedule constraints related to implementing the mitigation measures, provide recommendations for changes to the mitigation measures, and identify next steps for mitigation planning. This assignment is intended to inform ongoing project planning and requests for grant funding.

3.0 BACKGROUND

In 2013, a planning-level cost estimate for implementation of the North-of-the-Delta-Offstream Storage (NODOS) Mitigation Monitoring Plan was prepared (DWR and Reclamation 2013). At the time these costs were developed, details regarding mitigation measures were limited. The purpose of this memorandum is to present a more detailed update to previous mitigation cost estimates to inform ongoing project planning and requests for grant funding. In May 2016, AECOM held a series of mitigation-related workshops with the Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) Team comprised of California Department of Water Resources (DWR), U.S. Bureau of Reclamation (Reclamation), and CH2M HILL staff.

During the workshops, a total of 155 mitigation measures from the NODOS Preliminary Administrative Draft EIR were reviewed (DWR 2013: Appendix 1A). Cost assumptions, potential

schedule impacts associated with implementing the mitigation measures, and recommended modifications to the measures that could potentially reduce project costs were discussed. The 2013 mitigation cost estimate was also reviewed. Assumptions developed during the workshops were used to update the mitigation costs.

4.0 MITIGATION COSTS

Mitigation costs for Alternative C are based on the environmental impact analysis and implementing the mitigation measures from the NODOS Preliminary Administrative Draft Environmental Impact Report (DWR 2013). These costs can be readily scaled to Alternative A or B and will inform the development of costs for Alternative D currently under development by the Authority. Conceptual site plans for each of these Alternatives are provided as Attachment 1. Alternative C is comprised of a 1.81 million acre-feet reservoir formed by two large dams and nine saddle dams. It includes two hydropower pumping and generating facilities, a forebay/afterbay reservoir adjacent to the existing Tehama-Colusa Canal, a terminal regulating reservoir adjacent to the Glenn-Colusa Canal, large diameter pipelines (TRR and Delevan), power transmission lines, a fish-screened intake/discharge facility on the Sacramento River and three designated recreation areas. The project components associated with Alternative C are the most comparable to the Authority-preferred alternative (Alternative D) that is currently being developed.

Wherever possible, AECOM followed the estimating instructions contained in Reclamation's Cost Estimating Handbook (Reclamation, 1989) and Reclamation's Manual, Directives and Standards, FAC 09-01, FAC 09-02, and FAC 09-03.

The allowances and contingencies by component applied to mitigation cost estimates are presented in Table 1. The mobilization/demobilization allowance and design and construction contingencies were applied to develop the field cost. The non-contract cost allowance was then applied to the field cost to arrive at the construction cost.

Escalation of construction costs to a Notice to Proceed date has not been included in the estimate. This was done to avoid confusion and double counting, because escalation is a factor included in the benefit-cost feasibility analysis of the project following several possible design and construction scheduling options.

This analysis is limited to implementing mitigation measures not already included in the costs associated with the design, construction, and operations and maintenance (O&M) activities for Alternative C.

Table 1. Cost Estimate Allowances and Contingencies for Mitigation Costs

Component	Value	Basis for Assigned Allowance or Contingency
Mobilization/Demo bilization	2%	Approximately 65% of the mitigation costs are associated with real estate actions, 19% of the costs with environmental and cultural resources monitoring, and the remaining 16% for restoration. Mobilization/demobilization for monitoring largely consists of the mobilization and demobilization of environmental monitoring staff with pickup trucks and infrequent short-term monitoring by watercraft. In this case mobilization/demobilization costs are likely to be in the range of 1% to 2%.
Design Contingency	12%	Covers minor unlisted items, minor design and scope changes, and cost estimating refinements. This is the area of greatest uncertainty prior to the negotiation of permits. We recommend increasing the design contingency from 10% to 12%.
Procurement Strategy	1%	The most significant effort will be associated with procuring mitigation credits. The construction contractors selected for facility construction will perform the bulk of the restoration and construction related tasks. There will be a real estate contractor and one or two environmental monitoring contracts. There may be some small landscaping contracts. Most of the oversight throughout will likely be performed by the environmental contractor who will work for the Authority.
Escalation to Notice to Proceed	—	This will be addressed in the Basis of Estimate Report consistent with the overall project cost estimate.
Construction Contingency	2%	Only 16% of the total mitigation is anticipated to include construction costs related to restoration. The construction contingency for real estate and monitoring should be very low.
Non-Contract Costs	4%	Approximately \$52 million in monitoring costs is already included in the mitigation estimates. We do not anticipate another layer of construction management. There will be some design, but the design will be highly constrained by the permits.

Source: Data compiled by AECOM in 2016

Table 2 presents a summary of estimated construction phase mitigation costs by category. A detailed cost breakdown by mitigation category and measure is presented Attachment 2.

Table 2. Construction Phase Mitigation Costs for Alternative C

Mitigation Category	Estimated Cost
Vegetation Communities/Botanical Resources	\$91,800,000
Wetlands/Surface Waters	\$83,000,000
Aquatic Resources	\$56,000,000
Wildlife Habitat	\$53,000,000
Cultural/Historic/Paleontological Resources	\$35,000,000
Land and Agriculture	\$31,000,000
Air Quality	\$200,000
Total	\$350,000,000

Notes:

Source: Data compiled by AECOM in 2016

Table 3 presents a summary of O&M phase mitigation costs.

Table 3. O&M Phase Mitigation Costs for Alternative C

Mitigation Category	Estimated Annual Cost ¹
Vegetation Communities/Botanical Resources	\$85,000
Wetlands/Surface Waters/Groundwater	\$275,000 ²
Aquatic Resources	\$775,000 ³
Wildlife Habitat	12,400 ⁴
Cultural/Historic/Paleontological Resources	\$9,000
Land and Agriculture	----- ⁵
Air Quality	\$5,000 ⁶
Flood Control and Management	\$4,320,000 ⁷
Total	\$5,481,400

Notes:

1. Costs include mobilization, contingency and escalation
2. Costs include for *Mitigation Measure GWRES-2* (\$25,000) and *Mitigation Measure SWQual-1a* (\$250,000).
3. Costs include an annual contingency for *Mitigation Measure Fish-1b* (\$500,000 per year) and annual on-site restoration land management for *Mitigation Measure Fish-1e* (\$275,000 per year).
4. Estimated costs are associated with on-site restoration land management for *Mitigation Measure Wild-3c* and *Bot-1a* (10 acres); and *Wet-1a* (21 acres) for a total of 31 acres of on-site restoration monitoring.
5. No ongoing costs are assumed for agricultural and conservation easements
6. Estimated annual cost is associated with stationary source permitting fees anticipated for using the emergency back-up generators at the pumping plants
7. Estimated annual cost associated with maintaining stream flow of 10 cfs between Oct-May in Funks and Stone Corral creeks as specified in *Mitigation Measure Flood-1*; Cost assumes average of 30 days per month; \$450 per acre-feet of water (AF); 1 cfs provides 2 AF/day

Source: Data compiled by AECOM in 2016

Attachment 3 presents a summary of the mitigation measures that have the highest cost. Detailed assumptions for mitigation categories presented in Table 1 are included in Attachment 4. Quantities for estimating project costs are derived from the impact analysis in the NODOS Preliminary Administrative Draft Environmental Impact Report for Alternative C (DWR 2013). To simplify documentation, quantity tables used in the analysis are presented as Attachments 5 and 6.

The total estimated costs associated with impacts on vegetation communities, wetlands and special-status species habitat were developed by first calculating the land mitigation requirements using applicable mitigation ratios and estimated land impacts presented on a per-acre basis.

The range of mitigation ratios used for cost estimating were derived from mitigation ratios used in previously implemented projects, including the CALFED Programmatic EIR/EIS, Shasta Lake Water Resources Investigation EIR/EIS, and Los Vaqueros Expansion Investigation EIR/EIS.

On-site mitigation through land acquisition and restoration was assumed for all temporary and permanent impacts to streams, aquatic habitat as prescribed in Mitigation Measures *Fish 1-e*, *Wild-3c*, *Bot-1a*; and *Wet-1a*. All other permanent impacts to natural community and terrestrial special-status species habitat are assumed to be mitigated off-site through the purchase of credits from a mitigation bank.

To estimate costs for off-site mitigation, the mitigation land acreages were then multiplied by a mitigation bank cost range to obtain cost ranges for mitigation of effects on natural communities and special-status species habitat. A detailed breakdown of the mitigation land needs and associated costs for each natural community and focus special-status species is provided in Attachment 6.

On-site mitigation costs for restoration prescribed in Mitigation Measures *Fish 1-e*, *Wild-3c*, *Bot-1a*; and *Wet-1a*, it was assumed that two acres of land for every mitigation acre would be needed for restoration. This conservative approach does not take into account the existing habitat function acquired land. If land acquired is of high habitat value, then less acres of land may be needed for on-site restoration. Annual mitigation land management and monitoring costs for on-site restoration were assumed to be \$400 per acre.

5.0 AIR QUALITY MITIGATION

Air quality in California is regulated at the Federal, state, and local levels. The pollutants of greatest concern in the project area of Glenn and Colusa counties are:

- Ozone
- Ozone precursors (Nitrogen oxides (NO_x) and Reactive Organic Gases (ROG))
- Particulate matter (PM₁₀) from vehicle and equipment exhaust
- Particulate matter (PM₁₀) from soil disturbance and wind erosion (fugitive dust)
- PM₁₀ precursors (NO_x, ROG, and Sulphur oxides (SO_x)).

Table 4 compares the proposed Sites Reservoir project with the Folsom Dam Safety Improvement project. Both projects are located in the Sacramento Valley Air Basin but are regulated by different air pollution control districts. Unlike the Folsom Dam project, the proposed Sites Reservoir project would be located in federally-designated attainment zones for ozone and PM₁₀. Therefore, no federal General Conformity de minimis standards would be applicable since all National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency (EPA) would be met. However, the project would be located in a state-designated nonattainment zone for PM₁₀ similar to the Folsom Dam project.

Table 4. Comparison with Folsom Dam Safety Improvements Project

	Folsom Dam Safety Improvements	Sites Reservoir1
Project Location	Sacramento, Placer, and El Dorado counties	Glenn and Colusa counties
Air Basin	Lower Sacramento Valley	Upper Sacramento Valley
Air District	Sacramento Metro AQMD	Glenn County APCD and Colusa County APCD
Federal Attainment Status (NAAQS) ²		
Ozone	Non-attainment, serious for 8-hour average	Unclassified/Attainment
NOx	Attainment	Unclassified/Attainment
ROG	Not applicable	Not applicable
PM ₁₀	Non-attainment, moderate	Unclassified
PM _{2.5}	Attainment	Unclassified/Attainment
CO	Attainment/Maintenance	Unclassified/Attainment
SOx	Attainment	Unclassified
State Attainment Status (CAAQS) ²		
Ozone	Non-attainment	Attainment
NOx	Attainment	Attainment
ROG	Not applicable	Not applicable
PM ₁₀	Non-attainment	Non-attainment
PM _{2.5}	Attainment	Attainment
CO	Attainment	Unclassified
SOx	Attainment	Attainment
Local AQMD/APCD Construction-Related Significance Threshold ²		
PM ₁₀	50 µg per cubic meter	Level B > 25 lbs per day Level C > 137 lbs per day ³
NOx	85 lbs per day	Level B > 80 lbs per day Level C > 137 lbs per day ³
ROG	Sacramento County - none; El Dorado and Placer counties – 82 lbs. per day	Level B > 25 lbs per day Level C > 137 lbs per day ³
Local Fees for Exceeding Threshold	If mitigated NOx emissions still exceed 85 lbs per day, SMAQMD's policy is to charge a mitigation fee of \$14,300 per ton excess (at time of construction) (\$18,260 per ton excess as of July 2016)	See Table 5 for stationary emission sources only Glenn and Colusa counties currently do not have a program or mechanism to collect mitigation fees for CEQA project-related emissions beyond the New Source Review permitting programs for stationary sources

Notes for Table 4

¹ Status is as of December 2015

² PM_{2.5} – Particulate matter less than or equal to a 2.5 microns
PM₁₀ – Particulate matter less than or equal to a nominal 10 microns
NOx – Nitrogen oxides (ozone and PM₁₀ precursor)
SOx – Sulphur oxides (PM₁₀ precursor)
CO – Carbon monoxide
ROG – Reactive Organic Gases (ozone and PM₁₀ precursor)

³ Level C – If emissions from a project would exceed the Level C thresholds, mitigation measures (BAMMs and SMMs⁴), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance. (from Tehama County Air Pollution Control District; Glenn and Colusa counties expected to have similar requirements)

⁴ BAMMS – Best Available Mitigation Measures
SMMs – Standard Mitigation Measures

Source: Folsom Dam Safety and Flood Damage Reduction Draft EIS/EIR Chapter 3 (Reclamation 2006) and Sites Reservoir - Preliminary Administrative Draft EIR Chapter 24 (DWR 2013)

New pollutant sources that meet the definition of a Stationary Source, such as on-site concrete and asphalt batch plants and operational aggregate quarries, will need to be permitted by the local air pollution control districts in Glenn and Colusa counties. Permit fees to allow construction of stationary sources (Authority to Construct permits) and annual permit fees to allow ongoing operation of stationary sources (Permits to Operate) are discussed in the Districts' air quality rules and regulations. These New Source Review (NSR) requirements in Glenn and Colusa counties only apply to sources that meet the definition of a stationary source. Table 5 summarizes the NSR permitting fee schedule for stationary sources. Glenn County has a similar fee schedule.

Table 5. Colusa County Fee Schedule for Permitting Stationary Sources¹

Permit	Fee Schedule
Authority to Construct Permit	\$228.00 (fee covers the review of the project emissions, air quality impacts, and the preparation of an air quality summary analysis report)
Annual Operating Permit	\$110 plus the following:
For sources up to 1 ton per year	\$238
For sources 1 to 5 tons per year	\$279
For sources 5 to 10 tons per year	\$380
For sources 10 to 15 tons per year	\$465
For sources 15 to 20 tons per year	\$549
For sources 20 to 25 tons per year	\$744 plus \$39 for every ton or fraction of ton over 25 tons

Source: Email communication from Casey Ryan, Air Pollution Standards Officer II, Colusa County APCD (March 22, 2016)

For CEQA, construction-related emissions for all project-related sources (i.e., mobile, area, fugitive, and stationary sources) must be estimated. Table 6 defines the Levels of Significance for the pollutants of concern. Attachment 7 includes tables extracted from the Preliminary Administrative Draft EIR that summarize the preliminary CEQA analysis. These tables are further summarized in Table 7.

Table 6. Thresholds of Significance for Pollutants of Concern

Pollutant	Level A	Level B	Level C
NOx	Less than or equal to 25 lbs/day	Greater than 25 lbs per day	Greater than 137 lbs per day
ROG	Less than or equal to 25 lbs/day	Greater than 25 lbs per day	Greater than 137 lbs per day
PM ₁₀	Less than or equal to 25 lbs/day	Greater than 80 lbs per day	Greater than 137 lbs per day
Level of Significance	Potentially Significant Impacts	Potentially Significant Impacts	Significant Impacts
Required CEQA Document	Mitigated Negative Declaration (MND) or Negative Declaration	MND or Environmental Impact Report (EIR)	EIR
Mitigation		Mitigation measures, Best Available Mitigation Measures (BAMMs) and Standard Mitigation Measures (SMMs), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance.	

Source: Tehama County Air Pollution Control District Air Quality Planning & Permitting Handbook (April 2015)

Based on a preliminary impact analysis of the construction, operation, and maintenance of project facilities, the project will have significant impacts to air quality before mitigation. Glenn and Colusa counties currently do not have a program or mechanism to collect mitigation fees for CEQA project-related emissions beyond the NSR permitting programs for stationary sources.

Table 7. Summary of Preliminary CEQA Impact Analysis (from Attachment 7 tables)

Pollutant	Level A Significance Threshold Exceeded	Level B Significance Threshold Exceeded	Level C Significance Threshold Exceeded
NOx	Construction – Yes O&M – Yes	Construction – Yes O&M – Yes	Construction – Yes O&M – No
ROG	Construction – Yes O&M – Yes	Construction – Yes O&M – Yes	Construction – Yes O&M – No
PM ₁₀	Construction – Yes O&M – No	Construction – Yes O&M – No	Construction – Yes O&M – No

The following mitigation measures are proposed to be implemented:

- Air Qual-1a: Develop a Fugitive Dust Control Plan
- Air Qual-1b: Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions.

Descriptions of the mitigation measures and cost estimate cost assumptions are described in Appendix 4I. The mitigation implementation costs are included in Tables 2 and 3.

Because engineering studies indicate that anticipated construction materials can be sourced within the same air basin as the project, additional mitigation costs associated with the transport of materials through areas with more stringent air emissions regulations would be avoided.

The concrete batch plants and quarry operations activities during construction are considered stationary emission sources and would require a permit to construct/operate from the local air district.

Table 8. Summary of Air Quality Mitigation Measures

Impact	Project Facilities	Level of Significance before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Air Qual-1 Conflict with an applicable Air Quality Plan, contribute substantially to an Air Quality Violation, and/or Result in a Cumulative Considerably Net Increase of Nonattainment Pollutants	All Primary Area Project Facilities (construction)	Significant	Air Qual-1a Develop a Fugitive Duct Control Plan	Significant and unavoidable for emissions of PM ₁₀
			Air Qual-1b Implement measures to reduce equipment and vehicle exhaust emissions	Significant and unavoidable for emissions of NO _x , PM ₁₀ , and ROG Less than Significant for emissions of SO _x , CO, and PM _{2.5}
	All Primary Area Project Facilities (O&M)	Significant	Air Qual-1a Develop a Fugitive Duct Control Plan	Less than Significant
			Air Qual-1b Implement measures to reduce equipment and vehicle exhaust emissions	Less than Significant
GHG-1: Generation of Cumulative GHG Emissions	CVP Operational Emissions	Potentially Significant	No Feasible Mitigation	Potentially Significant and Unavoidable

Source: Preliminary Administrative Draft EIR Chapter 24 Air Quality Table 24-14 and Chapter 25 Climate Change and Greenhouse Gas Emissions Table 25-15 (DWR, 2013)

6.0 KEY COST ASSUMPTIONS

The following presents a summary of the key assumptions for developing costs presented in Tables 2 and 3. Detailed assumptions specific to each mitigation measure can be found in Attachment 4.

- Natural community and special-status species habitat impacts identified for Alternative C are assumed to be of high quality and suitable to support special-status species. A detailed evaluation of existing habitat may identify some land of degraded habitat value or highly disturbed. For that reason, the mitigation requirements and associated costs may be less for some areas and lower than estimated in Table 1.
- No overlap in land needed for mitigation for natural communities and special-status species except for agricultural land types and ponds is assumed for this cost estimate. A more detailed habitat assessment and land evaluation will eventually be needed to identify more precise impacts from the selected alternative on natural communities and special-status species habitats. Agency coordination would also be required to determine land types necessary to meet mitigation requirements.
- With the exception of Bald and Golden Eagle, giant garter snake, California red-legged frog, western pond turtle and burrowing owl, this cost estimate assumes that habitat requirements for other special-status species that may be affected by the project are met by compensation for the different natural community type effects. Mitigation requirements for valley elderberry longhorn beetle are assumed to be met as part of on-site restoration prescribed in Mitigation Measure *Fish-1e*.
- Specialized pre-construction surveys (e.g., for rare plants) were assumed to be performed at the same pace as protocol-level surveys for consistency; however, specialized preconstruction surveys would likely be performed much faster than protocol-level surveys. For that reason, the survey costs may be less than estimated.
- The majority of costs estimated for cultural and paleontological resources are contingency-related in the event of discovery of unidentified resources and/or human remains during construction activities. These estimates are based on known site conditions and experience on similar projects.
- Except for permitting and associated fees related to air quality, the mitigation costs do not include costs associated with any other permits needed for the project including preparation of permit applications or coordination with regulatory agencies for approvals.

7.0 RECOMMENDED MITIGATION MEASURE MODIFICATIONS

During review of the proposed mitigation measures, it was noted that several mitigation measures may require further evaluation or modification. Such modifications would also assist with refining the estimated range of costs associated with mitigation measure implementation. These measures include the following:

- **Mitigation Measure *Fish-1a*:** Increase stocking frequency of coldwater fish species. Further evaluation is needed to confirm potential effects to coldwater fish species and how stocking frequency would reduce these effects.
- **Mitigation Measure *Fish 1b*:** Mitigation monitoring and reporting plan for potential reduced flows into Yolo Bypass. Further evaluation of anticipated project operations and associated changes in Yolo Bypass flows is needed. Future analyses may indicate that this is a benefit and not an impact.
- **Mitigation Measure *Fish-1e*:** Implement Habitat Restoration Actions. This mitigation measure specifies on-site restoration requirements associated with Stone Corral and Funks creeks. It is recommended that these requirements be further developed and incorporated into the project description so that secondary (indirect) impacts associated with proposed restoration are evaluated as part of the EIR/EIS.
- **Mitigation Measure *Flood-1*:** Maintain permanent low flow releases into Stone Corral and Funks Creeks Downstream of Sites and Golden Gate Dams. This mitigation measure specifies a downstream flow performance standard of 10 cubic feet per second (cfs). Confirmation of the 10 cfs flow performance standard should be performed prior to finalization of project operations costs.
- **Mitigation Measure *Rec-4a*:** Extend the Existing Dinosaur Point Boat Ramp at San Luis Reservoir. The need for this mitigation measure to address changes in San Luis Reservoir from project operations and feasibility of implementation needs to be further evaluated.
- **Mitigation Measure *Rec-4b*:** Extend the Basalt Campground Water Intake at San Luis Reservoir. The need for this mitigation measure to address changes in San Luis Reservoir from project operations and feasibility of implementation needs to be further evaluated.

8.0 MITIGATION RELATED SCHEDULE CONSTRAINTS

Schedule constraints as a result of implementing mitigation measures include the following:

- Mitigation Measure *Wild-2d* requires the development of various planning documents and performance of Golden Eagle telemetry studies for 3 to 5 years prior to construction and then 3 to 5 years post construction. This mitigation measure impacts when construction of the project can begin.
- Several watershed hydrological studies are required as mitigation to inform or provide guidance regarding how to avoid and/or minimize impacts to natural springs, swales and wetland areas. These studies are to be performed prior to the finalization of project designs.
- Various mitigation measures specify construction work window constraints, including the following:

- All in-water work activities will be limited to July through September (Mitigation Measure *Fish-1f*).
- Demolition and structure removal work activities are to be avoided during bat maternity season from mid-April through August 31, and outside of the winter months when bats could be hibernating (Mitigation Measure *Wild-1b*).
- Construction activities within 0.5 mile of nesting Golden Eagles must be avoided between March 1 and August 15 (Mitigation Measure *Wild-2d*).
- Construction activities for the Delevan Pipeline Intake/Discharge Facility in vicinity of giant garter snake habitat will be limited from May 1 through October 1 (Mitigation Measure *Wild-2e*).
- Construction activity in the vicinity of burrows occupied by nesting burrowing owls must be avoided from February 1 through August 31; the peak nesting season occurs from April 15 through July 15 (Mitigation Measure *Wild-2g*).
- Construction activity for the Delevan Pipeline Intake/Discharge Facility in vicinity of riparian and orchard vegetation must be avoided between mid-June through August (Mitigation Measure *Wild-2i*).

9.0 RECOMMENDATIONS AND NEXT STEPS

The recommended next steps to address mitigation requirements are as follows:

- Several mitigation measures require the avoidance and/or minimization of impacts to sensitive habitats. It is recommended that during finalization of project designs further evaluation of possible avoidance or minimization be performed to reduce mitigation requirements and costs, and impacts to project schedule. These avoidance measures may include adjusting facility footprints, determining alternative routes, or modifications to construction methods.
- Mitigation requirements for Golden Eagle include up to five years of telemetry surveys prior to construction. These studies would assist with identifying nesting and foraging locations of Golden Eagle in the project area as well as suitable areas to implement habitat mitigation for Golden Eagle. It is recommended that preparation of these monitoring plans be initiated in consultation with regulatory agencies in the near-term in order to minimize impact to the construction schedule.
- Mitigation requirements for implementation of Habitat Restoration Actions (Mitigation Measure *Fish-1e*) specify on-site restoration requirements associated with Stone Corral and Funks creeks. It is recommended that these requirements be further developed and incorporated into the project description of the EIR/EIS. Restoration strategies that target habitats for multiple species could significantly reduce the overall area of land needed for off-site mitigation by simultaneously meeting the requirements of natural communities and of one or more special-status species on the same area of land. The final approach

for onsite restoration should also consider the feasibility of meeting off-site mitigation requirements.

- The feasibility of using mitigation banks for meeting off-site mitigation requirements for the loss of habitat and agriculture should be further evaluated. It is recommended that anticipated mitigation requirements be further discussed with mitigation banks within the project area (e.g., Westervelt) and county staff. In the event that off-site mitigation requirements cannot be fully achieved, additional on-site mitigation may need to be considered.
- Further discussion with the Glenn and Colusa County Air Pollution Control Districts is planned by the EIS/EIR team (CH2M Hill) to confirm if additional air quality mitigation would be required for constructing and operating the proposed project.

10.0 REFERENCES

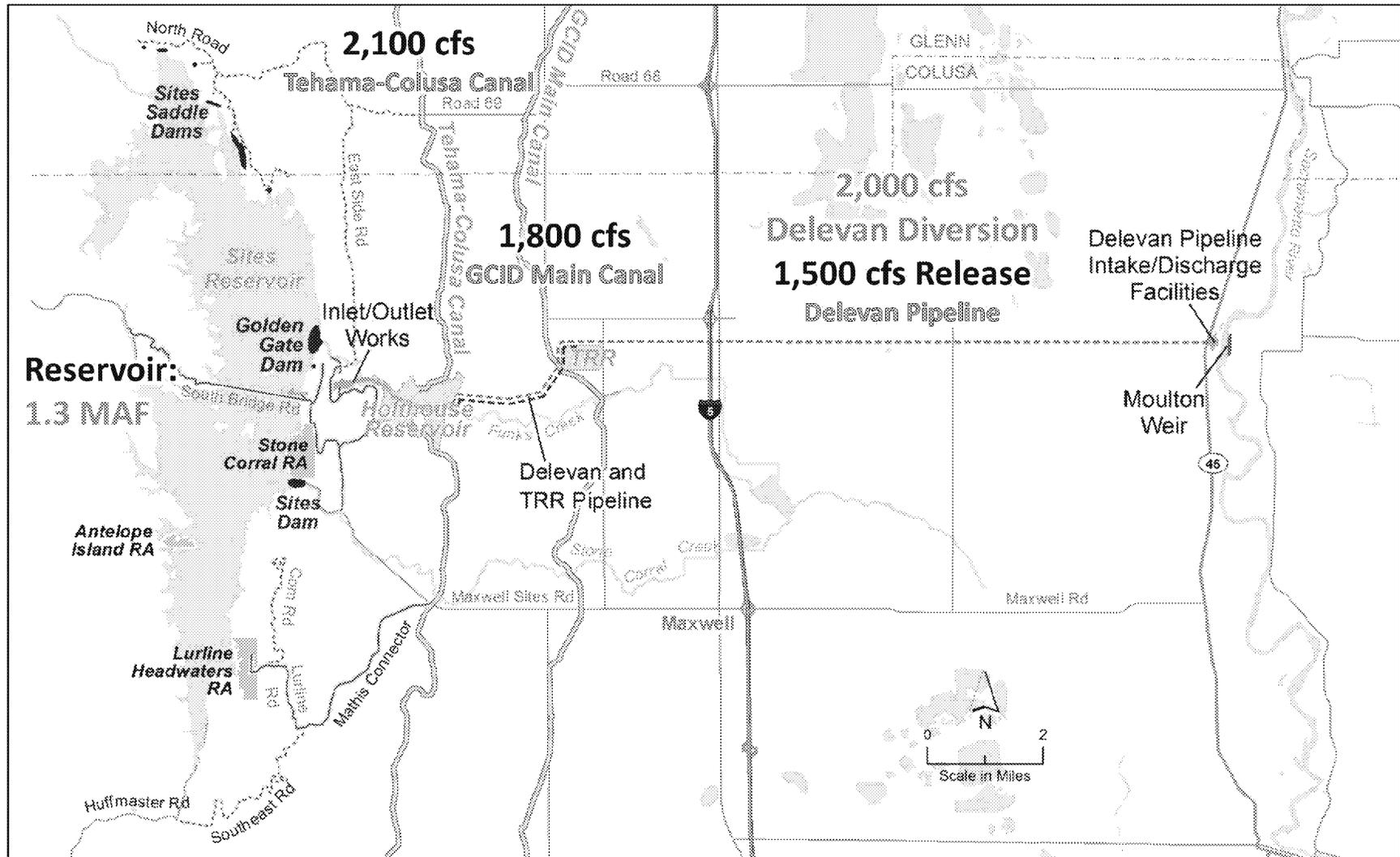
DWR and Reclamation 2013. *Mitigation Monitoring Plan Costs for North-of-the-Delta Off stream Storage*. Prepared for the California Department of Water Resource and United States Department of Interior, Bureau of Reclamation. Sacramento, CA. November.

DWR 2013. *NODOS Preliminary Administrative Draft Environmental Impact Report*. Sacramento, CA. December. Available online:
http://www.water.ca.gov/storage/northdelta/prelim_admin_draft_eir_index.cfm

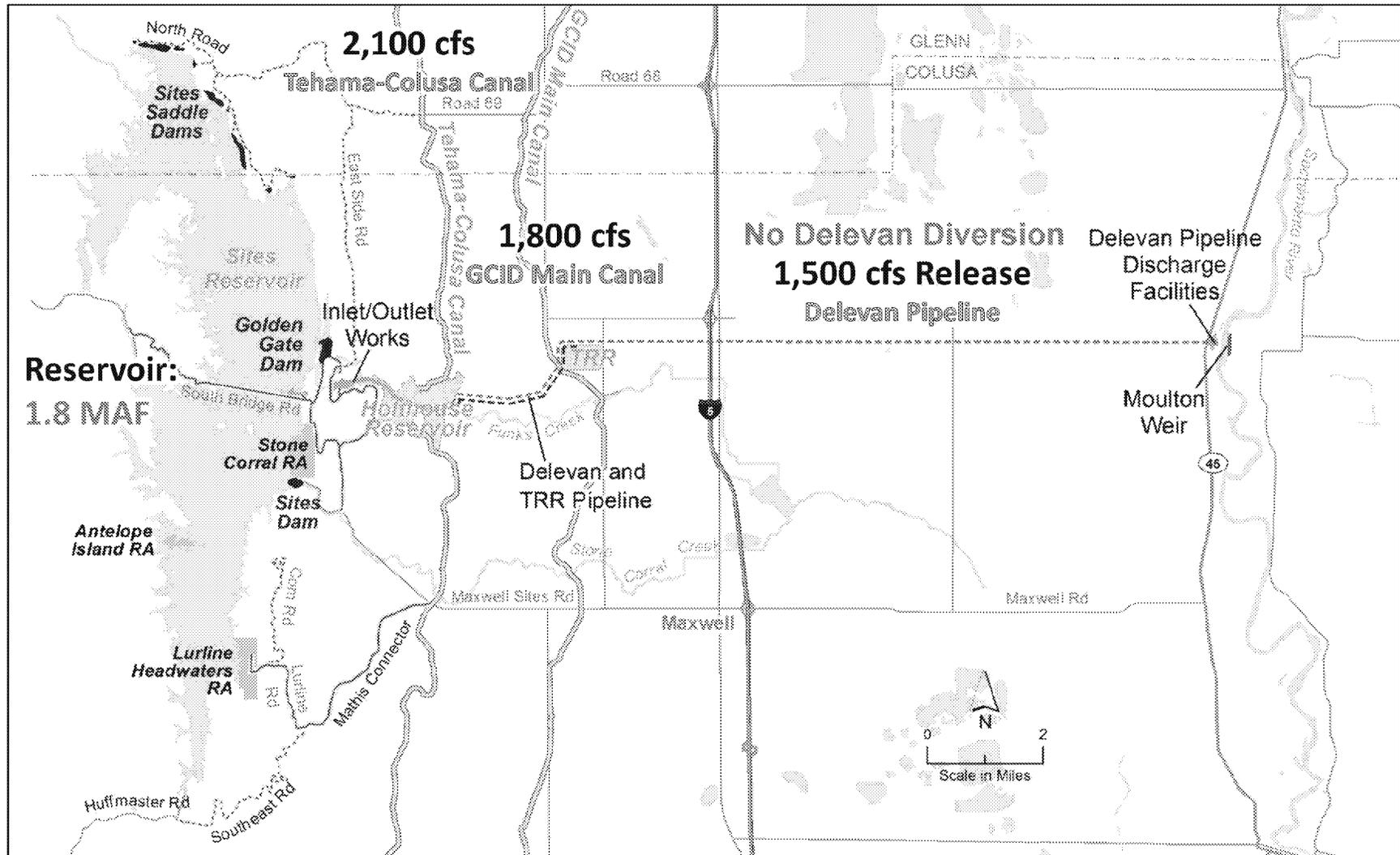
Reclamation 2006. *Folsom Dam Safety and Flood Damage Reduction Draft Environmental Impact Statement/Environmental Impact Report*. Folsom, CA. December. Available online. http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=1808

ATTACHMENT 1

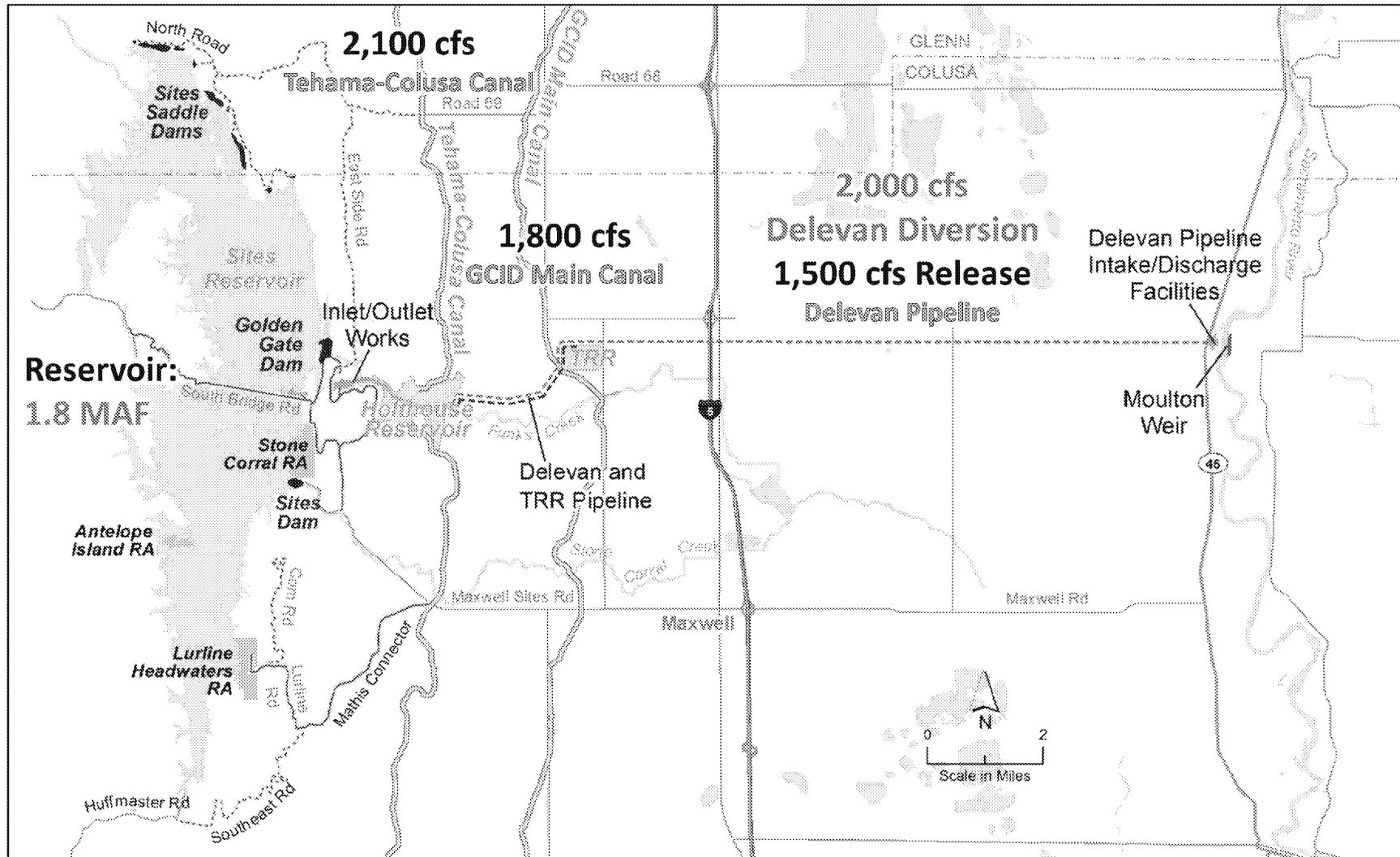
Site Plans for Alternatives A through D



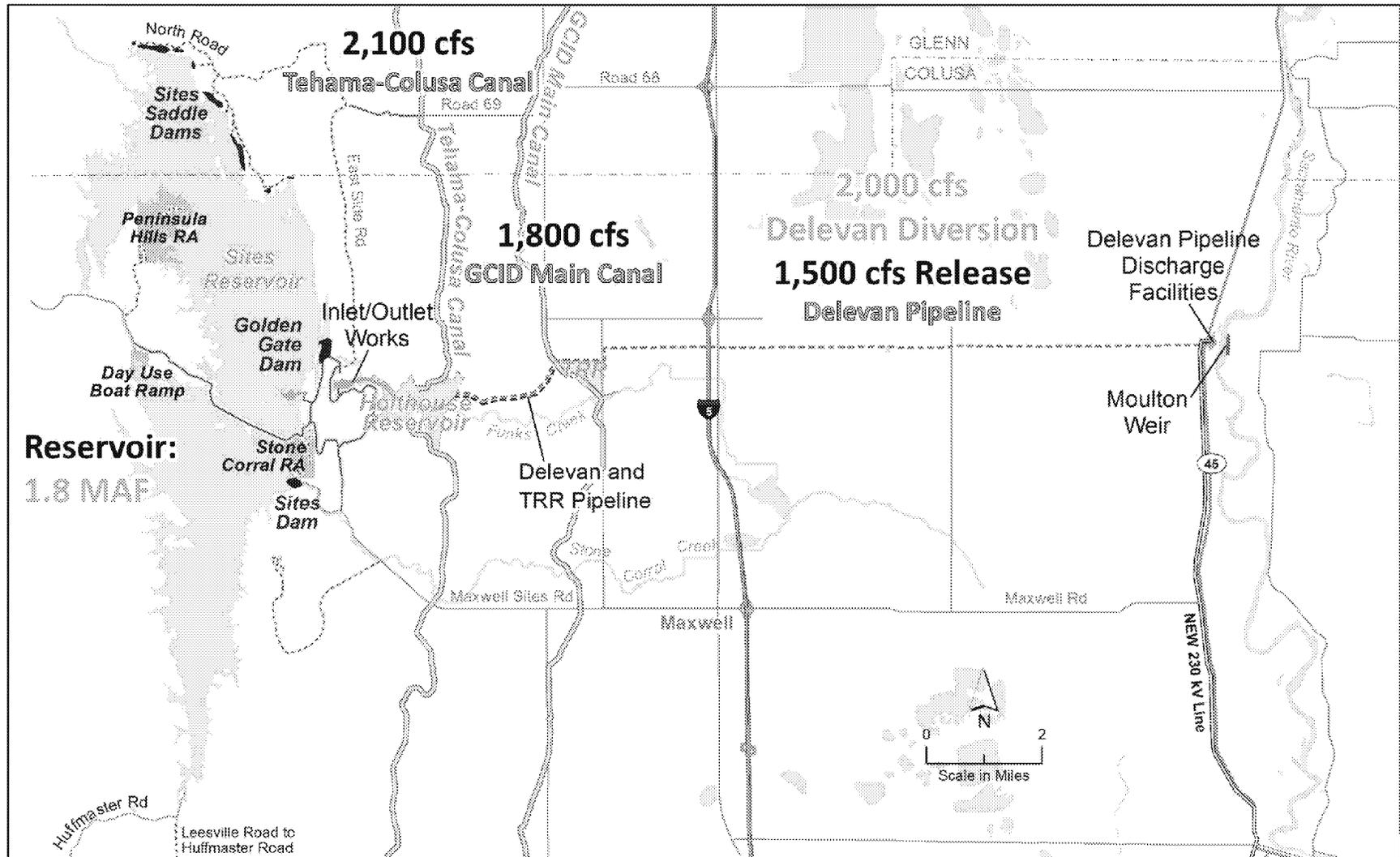
ALTERNATIVE A SITE PLAN



ALTERNATIVE B SITE PLAN



ALTERNATIVE C SITE PLAN



ALTERNATIVE D SITE PLAN

ATTACHMENT 2

Sites Reservoir Mitigation Cost Summary

SITES RESERVOIR JOINT POWERS AUTHORITY		ESTIMATE WORKSHEET				SHEET 02 OF 10	
FEATURE: NODOS Project Project Mitigation and Monitoring Plan Resource Category Cost Estimates Surface Water Quality				PROJECT: NODOS Alternative C			
		W/OID:		ESTIMATE LEVEL: Planning			
		REGION:		UNIT PRICE LEVEL: 2016			
		FILE: #N/A					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Surface Water Quality					
	1	SWQual-1a	SWQ	1.0	ea	\$1,500,000.00	\$1,500,000.00
		SWQual-1b	SWQ				
	2	Clear & Grub		1.0	ea	\$5,000.00	\$5,000.00
	3	Earthwork - excavate around springs (est. 3 springs)		50.0	yd3	\$3.27	\$163.50
	4	Grout Injection (est. 3.33 yd3 per spring)		10.0	yd3	\$100.00	\$1,000.00
	5	Concrete Transit Trucking		60.0	yd3	\$22.71	\$1,362.60
	6	Backfill, Concrete site capping		50.0	yd3	\$50.00	\$2,500.00
	7	Spreading/compaction - excavated materials		100.0	yd3	\$0.82	\$82.00
SUBTOTAL THIS SHEET							\$1,510,108.10
QUANTITIES				PRICES			
BY <i>Loren Murray</i>		CHECKED <i>Anthony Quinfall</i>		BY <i>Loren Murray</i>		CHECKED <i>Joseph Barnes</i>	
DATE PREPARED 05/26/16		PEER REVIEW / DATE		DATE PREPARED 05/26/16		PEER REVIEW / DATE	

PLANT ACCOUNT		PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			<i>Wild-1[x]; Wild-2[x]</i>					
	1		Blue oak woodland (GE; SH; WSF)(4:1)	Wild-2	3550.0	acre	\$3,000.00	\$10,650,000.00
	2		Deciduous orchard (GGS)	Wild-2c	46.2	acre	\$4,500.00	\$207,900.00
	3		Dryland grain and seed crops (SH)(0.5:1)	Wild-1a	166.6	acre	\$2,000.00	\$333,200.00
	4		Irrigated row and field crops (SH)(0.5:1)	Wild-1a	77.8	acre	\$2,500.00	\$194,500.00
	5		Pasture (GSC; FH; BO; WTK)(1:1)		72.7	acre	\$4,500.00	\$327,150.00
	6		Rice (GGS)(3:1 perm ac./ 1:1 temp ac.)	Wild-2c	1752.7	acre	\$4,500.00	\$7,887,150.00
	7		Valley foothill riparian (3:1) (GGS; VELB CTS; BE; SH; WYBC; VRI; WPT; RT)		334.6	acre	\$3,000.00	\$1,003,800.00
	8		Blue Oak woodland/mixed (<i>Bot-[x]</i>)	Bot-2a	52.0	acre	\$3,000.00	\$156,000.00
			<i>Wild-1b</i>					
	9		Implement bat exclusion measures	Wild-1b	18.0	days	\$1,600.00	\$28,800.00
			<i>Wild-2b</i>					
	9		Bald eagle nest removal	Wild-2b	3.0	Nest	\$11,960.00	\$35,880.00
			<i>Wild-2d</i>					
	10		Golden eagle pre-/post-construction satellite telemetry studies	Wild-2d	7.0	Years	\$290,000.00	\$2,030,000.00
	11		Golden Eagle Monitoring Plan	Wild-2d	1.0	LS	\$150,000.00	\$150,000.00
	12		Golden eagle Protection Plan	Wild-2d	1.0	LS	\$150,000.00	\$150,000.00
	13		Independent Expert (Pete Bloom)	Wild-2d	1.0	LS	\$120,000.00	\$120,000.00
	14		Helicopter survey - nesting population	Wild-2d	4.0	Survey	\$10,800.00	\$43,200.00
	15		Helicopter detraction actions	Wild-2d	3.0	Nest	\$17,940.00	\$53,820.00
			<i>Wild-2g</i>					
	16		Pre-constr survey western burrowing owls	Wild-2g	16500.0	acre	\$200.00	\$3,300,000.00
			<i>Wild-2h</i>					
	17		Pre-constr survey western pond turtle	Wild-2h	1712.5	acre	\$200.00	\$342,500.00
			<i>Wild-4</i>					
	18		Awareness training (human disturbance)	Wild-4	1.0	LS	\$100,000.00	\$100,000.00
	19		Pre-constr surveys /monitoring during construction	Wild-4	10.0	Year	\$1,664,000.00	\$16,640,000.00
SUBTOTAL THIS SHEET								\$43,753,900.00
QUANTITIES				PRICES				
BY Loren Murray	CHECKED Anthony Quintrall	BY Loren Murray	CHECKED Joseph H. Barnes					
DATE PREPARED 05/26/16	PEER REVIEW / DATE	DATE PREPARED 05/26/16	PEER REVIEW / DATE					

PLANT ACCOUNT		PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			Wet-1[x]					
	1		Alkaline wetlands (2:1; onsite)		74.0	acre	\$150,000.00	\$11,100,000.00
	2		Emergent wetlands (3:1; offsite)		7.2	acre	\$100,000.00	\$720,000.00
	3		Seasonal wetlands (3:1)		547.2	acre	\$100,000.00	\$54,720,000.00
SUBTOTAL THIS SHEET								\$66,540,000.00

QUANTITIES		PRICES	
BY <i>Loren Murray</i> Loren Murray	CHECKED <i>Anthony Quinlan</i> Anthony Quinlan	BY <i>Loren Murray</i> Loren Murray	CHECKED <i>Joseph H. Barnes</i> Joseph Barnes
DATE PREPARED 05/26/16	PEER REVIEW / DATE	DATE PREPARED 05/26/16	PEER REVIEW / DATE

PLANT ACCOUNT		PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Cultural Resources								
<i>Cul-1a</i>								
	1		Remaining surveys for avoidance	Cul-1a	1000.0	acre	\$40.00	\$40,000.00
			Complete desktop evaluations	Cul-1a	1.0	LS	\$100,000.00	\$100,000.00
<i>Cul-1b</i>								
			Conduct Archeological Recovery	Cul-1b				
	2		Ethnographic Studies/Inventory	Cul-1b	1.0	LS	\$250,000.00	\$250,000.00
	3		Evaluation of NRHP/CRHR eligib	Cul-1b	10.0	sites	\$250,000.00	\$2,500,000.00
	4		Test Pitting, excavation and exam.	Cul-1b	1.0	LS	\$100,000.00	\$100,000.00
	5		Preparation and Curation	Cul-1b	1000.0	boxes	\$5,000.00	\$5,000,000.00
<i>Cul-1c</i>								
	6		Resources discovery during Construction	Cul-1c	10.0	ea.	\$400,000.00	\$4,000,000.00
<i>Cul-1e</i>								
	7		Future Operational Impacts Agmts	Cul-1e	1.0	LS	\$200,000.00	\$200,000.00
<i>Cul-2a</i>								
	8		Properties/Resources Treatment	Cul-2a	1.0	LS	\$1,000,000.00	\$1,000,000.00
<i>Cul-2b</i>								
	9		HABS/HAER Documentation	Cul-2b	1.0	LS	\$1,000,000.00	\$1,000,000.00
<i>Cul-3</i>								
	10		Tribal Consultation for impacts to TCPs	Cul-3	4.0	Tribes	\$500,000.00	\$2,000,000.00
<i>Cul-4a</i>								
	11		Relocations of known cemeteries	Cul-4a	250.0	Persons	\$4,000.00	\$1,000,000.00
	12		Midden grave site (unofficial cemetery)	Cul-4a	1.0	LS	\$10,000,000.00	\$10,000,000.00
<i>Cul-4b</i>								
	13		Human remains discovery/treatment	Cul-4b	100.0	Persons	\$5,000.00	\$500,000.00
SUBTOTAL THIS SHEET								\$27,690,000.00
QUANTITIES				PRICES				
BY <i>Loren Murray</i> Loren Murray	CHECKED <i>Anthony Quintal</i> Anthony Quintal	BY <i>Loren Murray</i> Loren Murray	CHECKED <i>Joseph H. Barnes</i> Joseph Barnes					
DATE PREPARED 05/26/16	PEER REVIEW / DATE	DATE PREPARED 05/26/16	PEER REVIEW / DATE					

PLANT ACCOUNT		PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
			Air Quality Impacts					
			Air Qual - 1a					
		1	Fugitive Dust Control Plan		1.0	LS	\$100,000.00	\$100,000.00
			Air Qual - 1b					
		2	Equipment/Vehicle Emissions Reduction		10.0	year	\$5,000.00	\$50,000.00
SUBTOTAL THIS SHEET								\$150,000.00
QUANTITIES				PRICES				
BY <i>Loren Murray</i>		CHECKED <i>Anthony Quinlan</i>		BY <i>Loren Murray</i>		CHECKED <i>Joseph Barnes</i>		
Loren Murray		Anthony Quinlan		Loren Murray		Joseph Barnes		
DATE PREPARED		PEER REVIEW / DATE		DATE PREPARED		PEER REVIEW / DATE		
05/26/16				05/26/16				

ATTACHMENT 3

High Cost Mitigation Measures

Attachment 3. High Cost Mitigation Components

Mitigation Measure	High Cost Component/Activity	Estimated Costs¹ (\$million)
<i>Bot-1a; Bot-2e Wild 1a; Wild 2b</i>	Mitigation for loss of annual grasslands	68.5
<i>Bot-1a; Wet-2a; Wild 1a</i>	Mitigation for loss of seasonal wetlands	54.7
<i>Bot-1a; Wet-1a; Fish-1e; Wild-3c</i>	Riparian/Stream restoration	44.3
<i>Bot-1a; Wet-2b</i>	Mitigation for loss of alkaline wetlands	11.1
<i>Bot-1a; Wild 1a</i>	Mitigation for loss of Blue Oak woodland	10.7
<i>Cul-4a</i>	Native American (Midden) grave repatriation	10.0
<i>Cul-1b</i>	Archeological resources recovery	7.9
<i>Bot-1a; Wild 1a; Wild 2c; Land-4a</i>	Mitigation for loss of rice fields, giant garter snake habitat and prime farmland	7.9
<i>Land 4a</i>	Ag lands conservation easements for loss of prime farmland	12.5
<i>Land 5c</i>	Williamson Act contract cancellation fees	5.0

Notes:

¹ Estimated costs include mobilization, contingency, and escalation

Source: Data compiled by AECOM in 2016

ATTACHMENT 4

Detailed Cost Assumptions by Resource

Botanical Resources

Wetland and other Waters of the U.S.

Terrestrial Biological Resources

Aquatic Resources

Surface Water Quality

Cultural Resources

Paleontological Resources

Land Use

Air Quality

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-1a:</i> Implement Vegetation Community Mitigation Measures Recommended by USFWS	A Habitat Evaluation Procedures (HEP) assessment of the Primary Study Area was conducted under the lead of USFWS. A determination of appropriate mitigation measures for the habitat types that would be adversely affected within the Primary Study Area shall be made using the results of the HEP assessment, as well as through consultation with USFWS pursuant to the Fish and Wildlife Coordination Act. Mitigation measures could include but not be limited to protection, enhancement, restoration, or conservation easement.	Refer to vegetation community impacts spreadsheet – Attachment 6.
<i>Bot-1b:</i> Conduct Watershed Hydrological Studies	DWR and Reclamation shall conduct hydrological studies to determine how much of the grassy upland acts as a watershed for the alkaline wetland swale that feeds the downstream alkaline marsh. The studies shall provide guidance regarding how to avoid impacts to the grasslands that direct water to the marsh.	Costs to be included in project construction and O&M costs. Cost to include study only. \$300,000 to \$700,000 (studies) O&M monitoring and reporting for wetlands. \$20,000 per year
<i>Bot-1c:</i> Avoid/Minimize Loss or Disturbance of Vegetation by Refining the Siting of Facilities and Implementing BMPs	DWR and Reclamation shall implement BMPs, protective measures such as fencing and erosion, sedimentation, and dust control, and where possible refine the siting of facilities to minimize construction disturbance to sensitive vegetation communities.	Costs for protective measures to be included in project construction and O&M costs.
<i>Bot-1d:</i> Conduct Groundwater Hydrological Studies	DWR and Reclamation shall conduct hydrological studies to determine the effects of groundwater pressure on the alkaline habitat quality of the swale and the marsh. Measures may include protection of nearby similar vegetation communities, or USFWS may determine the effects are unavoidable and there may be no means of mitigation if there are no equivalent nearby vegetation communities that are feasible to protect or enhance.	Cost to include groundwater hydrology studies focused on impacts to alkaline habitat only. \$300,000 to \$700,000 (studies) O&M for groundwater and alkaline habitat monitoring. \$25,000 per year

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-1e:</i> Minimize Impacts by Siting Facilities Away from Drainage Swales and Implementing BMPs	DWR and Reclamation shall implement measures that mitigate impacts within the Holthouse Reservoir Complex to alkaline wetland vegetation in the on-site swale to avoid sedimentation of the swale during Project construction, according to recommendations received during consultation with USFWS.	Costs to be included in project construction and O&M costs.
<i>Bot-1f:</i> Implement BMPs to Avoid Disturbance of Marsh Vegetation in Adjacent Delevan National Wildlife Refuge	DWR and Reclamation shall set back all construction activities and equipment at least 20 feet away from the strip of marshy vegetation along the south end of the Delevan Pipeline construction disturbance area bordering the north edge of Delevan NWR. In addition, construction workers shall be prohibited from entering the NWR. BMPs, including signage on existing fencing, shall also be used to minimize erosion, sedimentation, and dust.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated. Engineers to evaluate tunneling construction methods to avoid impacts.
<i>Bot-2a:</i> Conduct Pre-Construction Surveys for <i>Sidalcea keckii</i> and <i>Amsinckia lunaris</i> ; if Found, Compensate According to USFWS Guidelines	If either plant species is found during the Project pre-construction surveys, DWR and Reclamation shall immediately report the location and size of occurrences to CDFG and USFWS. If found, DWR and Reclamation shall compensate for the loss or temporary disturbance of either species according to USFWS guidelines, which could include protection of known occurrences in nearby habitat.	Assume total acreage to be surveyed is 4,000 to 5,000 acres. Assume survey 6 acres per day for protocol level studies at \$100 per hour. Assume 2 staff and 3 surveys. \$3,200,000 to \$4,000,000 (surveys)
<i>Bot-2b:</i> Avoid Occurrences of CNPS List 1B and State- or Federally-Listed Plant Species	DWR and Reclamation shall avoid occurrences of <i>Sidalcea keckii</i> , <i>Amsinckia lunaris</i> , and <i>Lotus rubriflorus</i> by refining the siting of facilities where feasible, and minimizing construction impacts with protection measures and BMPs, such as fencing and erosion, dust, and sedimentation control.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated. Engineers to evaluate tunneling construction methods to avoid impacts.

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-2c:</i> Conduct Pre-Construction Surveys for Rare Alkaline Wetland Species in the Managed Alkaline Wetland Parcel of the Delevan Pipeline	DWR and Reclamation shall conduct pre-construction surveys to determine if rare alkaline wetland species are present. If determined to be present during the pre-construction surveys, DWR and Reclamation shall compensate for the loss and temporary disturbance of alkaline wetland species according to USFWS guidelines, which could include protection of known occurrences in nearby habitat.	Assume 14 acres to be surveyed. Assume 2 staff and 3 surveys. Assume 6 acres per day for protocol level studies at \$100 per hour. \$11,200 (surveys)
<i>Bot-2d:</i> Conduct Pre-Construction Surveys for Special-Status Plant Species	DWR and Reclamation shall conduct pre-construction surveys to determine if habitats that support special-status species are present.	Assume mitigation applies to unsurveyed grassland areas associated with the Delevan project components(13 miles long and 1,000 feet wide = 1,575 acres). Assume two staff and three surveys per year for 8 years. Assume: 10 acres per day for protocol level studies at \$100 per hour. \$756,000 (surveys)
<i>Bot-2e:</i> Compensate for Loss or Disturbance of CNPS List 4 Species According to CDFG Guidelines	DWR and Reclamation shall compensate for the loss of 13 occurrences CNPS List 4 species pursuant to consultation with DFG, which could include protection of known occurrences in nearby habitat. DWR and Reclamation shall also compensate for the temporary disturbance of four CNPS List 4 species pursuant to consultation with DFG, which could include preserving habitat available for recolonization by three of the four species by revegetating with local natives and using weed-free mulch to prevent post-construction takeover by weeds.	Refer to vegetation community impacts spreadsheet – Attachment 6.

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-3a:</i> Implement Preventive Actions by Following Weed Control BMPs; Minimize Exposed Ground; Reduce Weed Seed by Removal of On-Site and Off-Site Weeds	DWR and Reclamation shall minimize the introduction of new weed seeds into the construction disturbance area or transport weed seeds between construction disturbance areas by following weed control BMPs (e.g., equipment washing). DWR and Reclamation shall minimize the exposed ground within the construction disturbance area that is available for weed colonization or spread by mulching with weed-free materials or planting the exposed ground with native cover crops local to the Project area. In addition, DWR and Reclamation shall reduce the weed seed that is available for invasion into the Project construction disturbance area by appropriate removal of on-site weeds and by implementing selective adjacent off-site weed removal.	Costs to be included in project construction and O&M costs. O&M for weed management. \$10,000/year
<i>Bot-3b:</i> Implement Avoidance Measures in Areas Adjacent to the Delevan National Wildlife Refuge	During construction of the Delevan Pipeline and Power Transmission Line, DWR and Reclamation shall avoid the placement of large staging areas within the portion of the construction disturbance area that borders the Delevan NWR.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated with mitigation measure. Engineers to evaluate jack and bore and/or tunneling construction methods to avoid impacts.
<i>Bot-4:</i> Implement Vegetation Monitoring in Coordination with USFWS	DWR and Reclamation, in coordination with USFWS, shall monitor the effects of human activities on the health of sensitive areas adjacent to Project facilities.	Timing after construction/during operation of recreation facilities. Assume monitoring at Stone Corral and Peninsula Hills Recreation Areas and assume costs will be rolled up into O&M costs for recreation facilities. O&M for vegetation monitoring \$25,000 per year

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wet-1a:</i> Implement Compensatory Mitigation Measures for Streams pursuant to USACE Determination within the Watershed in which the Impacts</p>	<p>Compensatory mitigation for streams shall be provided for each significant impact identified by the USACE determination according to ratios determined by the USACE for the appropriate category and degree of severity of loss or impact. Mitigation shall occur within the watershed in which the impacts occur:</p> <ul style="list-style-type: none"> • Sites Reservoir & Dams, Recreation Areas— Funks/Hunter/Antelope/Grapevine/Stone Corral Creek watersheds. • Delevan Pipeline Intake Facilities, Delevan Pipeline Discharge Facility— Sacramento River adjacent to facility location. • Road Relocations, Funks Reservoir, Holthouse Reservoir Complex, Sites Inlet/Outlet Structure and associated facilities, Field Office Maintenance Yard, Electrical Switchyard—Funks Creek watershed. 	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-1b:</i> Reroute Canals to Ensure Continued Hydrological Connection, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination</p>	<p>For impacts to canals, mitigation shall include re-routing the canals to ensure continued hydrological connection to traditional waters of the U.S. Loss of emergent wetland habitat from within canals shall be mitigated for in other ways, as recommended by the USACE.</p>	<p>Costs associated with avoidance measures, BMPs and to be included in project construction and O&M costs.</p>
<p><i>Wet-1c:</i> Restore Ponds to Original Condition, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Same Hydrologic Unit in which the Ponds Occur</p>	<p>The pond located 3.5 miles west of the Sacramento River within the Delevan Pipeline construction disturbance area should be restored after construction is completed to its current condition as an agricultural pond. If restoration is not possible, compensatory mitigation measures, pursuant to USACE determination, shall be implemented within the Hunters Creek-Logan Creek watershed downstream of their confluence.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wet-2a:</i> Conserve, Enhance, Restore, or Create Seasonal Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>For the seasonal wetlands located along the edge of Funks Reservoir, alter the extent of dredging so that the slope of the reservoir bottom is more tapered at this point</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2b:</i> Conserve, Enhance, Restore, or Create Alkaline Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>The local saline spring areas further upslope in same geological formation as the springs that feed Salt Lake shall be enhanced. These springs are located outside of the Sites Reservoir footprint but in the creases of the foothills due north of Salt Lake. Some of them may be able to be expanded, and could possibly be partially protected from grazing impacts with the installation of protective fencing.</p> <p>A conservation agreement shall be entered into with Reclamation to manage and protect the entire alkaline wetland area southeast of Holthouse Reservoir. Management shall include burning and grazing regimes similar to those used effectively on the Sacramento NWR.</p> <p>A purchase or conservation agreement shall be entered into with the utilities or other landowners to protect and manage other saline/alkaline wetland habitats in parcels east of the Tehama-Colusa (T-C) Canal, north of the Primary Study Area. Protected areas might include a potential alkaline wetland area southeast of the Colusa Generating Station located along the T-C Canal.</p> <p>For the Holthouse Reservoir alkaline wetlands, a hydrogeological study shall be conducted to determine the direction and sources of water supplying the seeps, swales, and main wetland area, to better inform evaluation of potential effects of placing the dam and reservoir in proximity of the wetland’s west edge. The study shall include testing of the wetland area’s water and soils, and may allow for development of minimization measures.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wet-2c:</i> Conserve, Enhance, Restore, or Create Vernal Pools Equivalent to the Type of Vernal Pools Adversely Impacted, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination</p>	<p>For vernal pools, the type of vernal pools conserved elsewhere shall be equivalent to the type lost from the Primary Study Area – most likely, clay pan and alkaline vernal pools. Consultation with vernal pool experts shall occur to ensure ecological equivalence.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2d:</i> Conserve, Enhance, Restore, or Create Emergent Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>[Text not included in previous draft of EIS/R]</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2e:</i> Conserve, Enhance, Restore, or Create Comparable Riparian Wetlands in the Inner Coast Range Foothills, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination</p>	<p>For the two-acre riparian wetland and waters of Funks Creek lost to Holthouse Reservoir, a comparable area in the inner coast range foothills shall be selected for restoration and conservation.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-1a:</i> Implement a Combination of Habitat Protection, Enhancement, Restoration, or Conservation Easement Measures, in Consultation with USFWS	For all three action alternatives, the acreage of permanent habitat loss within the Recreation Areas and the Road Relocations, as well as the temporary habitat disturbance within the construction disturbance areas for most facilities, was estimated. Because these acres are estimated, it may be possible to avoid impacts to certain habitat types. A Habitat Evaluation Procedures assessment of the Primary Study Area was conducted under the lead of USFWS. A determination of appropriate mitigation measures for the habitat types that would be adversely affected within the Primary Study Area shall be made using the results of the HEP assessment, as well as through consultation with USFWS pursuant to the Fish and Wildlife Coordination Act. Mitigation measures could include but not be limited to protection, enhancement, restoration, or conservation easement.	Refer to habitat impacts spreadsheet – Attachment 6.
<i>Wild-1b:</i> Implement Bat Exclusion Measures Prior to Demolition of Existing Structures	Prior to structure demolition, structures shall be inspected by a qualified biologist to determine if bats are present and if present, to determine if the structure is being used as a day, night, or maternity roost. If a roost is present, appropriate bat exclusion measures shall be implemented at least five to seven days prior to structure demolition outside of the maternity season, which can range from mid-April through August 31, and outside of the winter months when bats could be hibernating. Bat exclusion measures could include one-way devices such as polypropylene netting, plastic sheeting, or tube-type excluders that would be placed at all active entry points. If a roost is present in a structure located outside of a reservoir inundation area, possible avoidance measures could include retaining the structure.	Costs for bat exclusion measures to be included in project construction and O&M costs. Assume 89 structures to be surveyed. Trees that provide bat roosting habitat to be surveyed with other species surveys. Assume one-time survey. Assume five structures per day (18 days total) and two staff at \$100 per hour. \$28,800 (surveys)
<i>Wild-2a:</i> Obtain Permit for Bald Eagle Nest Tree Removal, Remove Nest Tree Outside of Breeding Season, and Create Suitable Habitat	A permit to remove or relocate an eagle nest shall be obtained from USFWS. The bald eagle nest tree shall be removed outside of the breeding season, which ranges from January through July, to avoid direct impacts. Dam construction activities shall not occur during the breeding season until the nest tree is removed. After construction is complete, the filling of Sites Reservoir and Holthouse Reservoir would create new fish-bearing lacustrine habitat in an area that is surrounded by suitable bald eagle nest trees. Following inundation, releases downstream of Golden Gate Dam would restore flows to Funks Creek to maintain fisheries and bald eagle habitat.	Costs to prepare a plan to remove nest included in Mitigation Measure <i>Wild-2d</i> .

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2b:</i> Implement Protective Actions to Prevent Bank Swallows from Nesting in the Cut Banks of Project Construction Trenches</p>	<p>Construction of the pipelines shall begin in May due to giant garter snake restrictions. May falls within the bank swallow breeding season (ranging from mid-March through July). Protective action shall be taken to prevent bank swallows from attempting to nest within the cut banks of the pipeline trenches. Actions shall include the placement of a mesh net on all cut banks during the bank swallow nesting season, and implementation of Mitigation Measure Wild-3a to ensure that trenches are backfilled within 72 hours of pipeline installation.</p>	<p>Costs to be included in project construction and O&M costs.</p>
<p><i>Wild-2c:</i> Conduct Pre-Construction Surveys for Giant Garter Snakes and Implement Protective Actions; Conduct Project Construction Activity Between May 1 and October 1 in Giant Garter Snake Habitat; Compensate for Temporary Disturbance of Habitat According to USFWS Guidelines</p>	<p>Protective actions shall be taken to avoid or minimize impacts to the giant garter snake. Protective actions and mitigation measures shall comply with the USFWS’s Programmatic Biological Opinion (USFWS, 1997).</p>	<p>Costs associated with avoidance measures, BMPs and to be included in project construction and O&M costs.</p> <p>Assume GGS preconstruction survey and monitoring costs included in Mitigation Measure <i>Wild-4</i>.</p>
<p><i>Wild-2d:</i> Implement Avoidance and Minimization Measures at Historic or Active Golden Eagle Nest Sites; Conduct Satellite Telemetry Studies Pre- and Post-Construction to Determine Territory Size; Prepare a Golden Eagle Protection Plan and a Golden Eagle Monitoring Plan; Mitigate for Loss of Annual Grassland Foraging Habitat</p>	<p>Construction activities shall be modified to ensure that nesting Golden Eagles are protected. To avoid impacts to nesting Golden Eagles at Peninsula Hills, construction of the recreation area would be deferred. To avoid or minimize possible impacts to nesting Golden Eagles in other construction areas, some or all of the following measures shall be implemented:</p> <ul style="list-style-type: none"> • A bird detraction program shall be implemented near historic Golden Eagle nest sites to discourage eagles from returning to those sites. • Construction near recently active nest sites shall start outside the active nesting season. The nesting period for Golden Eagles is between March 1 and August 15. • If groundbreaking activities begin during the nesting period, a qualified biologist shall perform a pre-construction survey 14 to 30 days before the start of each new construction phase to search for Golden Eagle nest sites in appropriate habitat within 0.5 mile of proposed activities. If active nests 	<p>Nests located at three of the restoration areas and downstream of Site Dam. Located in Stone Corral and Peninsula Hills, Lurline Headwaters.</p> <p>Assume general pre-construction survey/clearance costs included in Mitigation Measure <i>Wild-4</i>.</p> <p>Telemetry Studies (assume 3 to 5 years prior to construction and then 3 to 5 years post construction). Assume \$175 per hour for two staff. Assume 400 hours per year.</p> <p>\$840,000 to \$1,400,000 (\$140,000 per year)</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
	<p>are not identified, no further action is required and construction may proceed.</p> <ul style="list-style-type: none"> If active nests are identified, a minimum 0.5 mile buffer zone around active Golden Eagle nests shall be implemented. Buffer zones shall remain until young have fledged. For activities conducted with agency approval within this buffer zone, a qualified biologist shall monitor construction activities and the eagle nest(s) to monitor eagle reactions to activities. If activities are deemed to have a negative effect on nesting eagles, the biologist shall immediately inform the construction manager that work should be halted, and CDFG and USFWS will be consulted. For Golden Eagles that begin nesting within the buffer zone after start of construction, the same avoidance and minimization measures as described for active eagle nests found before start of construction (0.5 mile buffer) shall be implemented. A buffer of less than 0.5 mile may be used if there is a visual barrier, such as a hill or dense trees, between the construction activity and the nest. <p>To assess the impact of this loss of foraging habitat, the following measures shall be implemented prior to the start of Project construction:</p> <ul style="list-style-type: none"> A Golden Eagle Monitoring Plan shall be prepared. Satellite telemetry studies shall be conducted for three to five years prior to the start of construction to establish the number of Golden Eagles and the size of their territories. Surveys shall be conducted by permitted biologists. A Golden Eagle Protection Plan shall be prepared. 	<p>Assume 10 sites for telemetry studies and equipment \$15,000 per site.</p> <p>\$150,000</p> <p>Helicopter Surveys – Four surveys for nesting population study (timing when vegetation is not on trees), helicopter costs – \$950 per hour for 7 hours.</p> <p>\$26,600 (\$6,600 per survey)</p> <p>Expert assistance.</p> <p>\$120,000</p> <p>Preparation of a Golden Eagle Protection Plan.</p> <p>\$150,000</p> <p>Preparation of a Golden Eagle Monitoring Plan.</p> <p>\$150,000</p> <p>Bird Detraction Program.</p> <p>\$300,000</p> <p>Helicopter assist with implementation \$2,750 per hour for 6 hours and two staff at \$120 per hour for three nests.</p> <p>\$53,820</p> <p>Avoidance and minimization measures (including 0.5 mile work exclusion around active nests) to be included in the construction and</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-2e</i> : Implement Protective Actions to Minimize Impacts to the Ringtail, and Restore Connectivity of Riparian Corridor	The fully-protected ringtail was observed within the riparian habitat that would be removed during construction of the Delevan Pipeline Intake/Discharge Facilities. The removal of riparian habitat within the footprint of the facilities would further reduce connectivity of the riparian corridor at that location. Implementation of Mitigation Measure Wild-3c would restore that connectivity. To minimize potential direct impacts to the ringtail, riparian vegetation removal shall not occur during the early pup-rearing season, which ranges from May 1 through June 15. Efforts to restore riparian corridor connectivity could include other habitat enhancements, such as providing ringtail nesting cavities and planting food sources.	O&M costs. Mitigation Measure <i>Wild-2d</i> total costs — \$1,790,420 to \$2,350,420 Assume mitigation costs to restore connectivity included in <i>Wild-3c</i> .

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2f</i>: Implement Protective Actions to Avoid or Minimize Impacts to Elderberry Plants; Where Avoidance is not Possible, Transplant or Replace Plants, According to USFWS Guidelines</p>	<p>There are two elderberry shrubs located within the potential construction disturbance area for Sites Reservoir and Dams that could be completely avoided by establishing and maintaining a 100-foot-wide or wider buffer around them. Construction crews shall be briefed regarding the need to avoid these plants, and signs shall be posted during construction to avoid the buffer area. After Project construction is complete, this area would not be affected by Project operation or maintenance.</p> <p>The elderberry shrub immediately adjacent to the footprint of the Delevan Pipeline Intake/Discharge Facility is located on the edge of an irrigation canal that is situated along an existing access road. Because of its proximity to the road, it would not be possible to establish a 100-foot-wide buffer. It would also not be possible to establish a 100-foot-wide buffer for the shrubs located immediately adjacent to the existing Maxwell Sites Road. Consultation with USFWS would be initiated for possible approval to encroach on the buffer. Otherwise, appropriate mitigation measures shall be implemented.</p> <p>The elderberry shrubs within the footprint of Sites Reservoir, Sites Dam, and Golden Gate Dam, as well as the one shrub within the footprint of the Delevan Pipeline Intake/Discharge Facility, would not be avoided by Project construction, and therefore, shall be transplanted or replaced, depending on the likelihood of survival post-transplantation. Transplantation procedures shall comply with USFWS's 1999 Conservation Guidelines for the Elderberry Longhorn Beetle (USFWS, 1999). If transplantation is not feasible, USFWS general guidelines require replacement of elderberry plants in designated mitigation areas. Elderberry plants are typically replaced at a ratio of 2:1 for stems greater than one inch in diameter at ground level with no adult emergence holes, 3:1 for stems where emergence holes are documented in less than 50 percent of the shrubs, and 5:1 for stems greater than one inch in diameter with emergence holes.</p> <p>Mitigation measures already required for the loss of riparian habitat pursuant to the mitigation for loss of wildlife habitat types described above could potentially compensate for the native planting requirement for elderberry plant mitigation.</p>	

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2g</i>: Conduct Pre-Construction Surveys for Western Burrowing Owls; If Owls are Found, Implement Protective Actions</p>	<p>Pre-construction surveys shall be conducted in annual grasslands within the footprint of Sites Reservoir and within the construction disturbance area of the Road Relocations to determine if burrowing owls are present. These surveys shall be conducted within 30 days of ground-disturbing construction activities or the start of the filling of reservoir. Surveys shall be conducted by a qualified biologist in compliance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC, 1993). If burrowing owl burrows are found, protective measures shall be implemented.</p> <p>Protective measures may include avoidance of occupied burrows during the nesting season, which is from February 1 through August 31, with the peak of the season occurring from April 15 through July 15. Any unoccupied burrows located within the immediate construction area shall be excavated using hand tools, and then filled to prevent reoccupation.</p> <p>If destruction of occupied burrows is unavoidable, such as within the footprint of Sites Reservoir, burrow entrances shall be altered, outside of the nesting season, to allow resident owls to exit but not re-enter the burrow. Owls shall be excluded from burrows by installing one-way doors in burrow entrances. One-way doors shall be left in place for at least 48 hours to ensure owls have left the burrow before the start of construction. Other possible mitigation could include the creation of artificial burrows in adjacent suitable habitat.</p> <p>Loss of annual grassland habitat shall be compensated for with implementation of the mitigation for loss of wildlife habitat types described above.</p>	<p>Assume 16,500 acres – one time survey</p> <p>1 acre per hour two staff at \$100 per hour.</p> <p>\$3,300,000 (surveys)</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2h:</i> Conduct Pre-Construction Surveys and Provide a Biological Monitor During Project Construction for the Western Pond Turtle; If Found, Turtles shall be Captured and Relocated by a Qualified Biologist</p>	<p>Before construction activities begin, a qualified biologist shall conduct western pond turtle surveys along creeks and other ponded areas within the footprint of Sites Reservoir, Sites Dam, and Holthouse Reservoir, as well as along the irrigation canals within the construction disturbance area of the Delevan Pipeline. Adjacent upland areas shall also be examined for evidence of nests or individual turtles. A Project biologist shall be responsible for conducting the survey and relocating any turtles found within footprints or construction disturbance areas. If a nest is observed, a biologist with appropriate permits and prior approval from CDFG shall move eggs to a suitable location or facility for incubation. However, some individuals may be undetected or enter sites after surveys are conducted, and could be subject to mortality. A biological monitor shall, therefore, be present during Project construction to minimize take.</p>	<p>Include Delevan pipeline area (1,575 acres) and canal (23.2 acres) and valley foothill riparian (VFR) habitat (114.3 acres) Assume one acre per hour, two staff, one time survey. \$342,500 (surveys)</p>
<p><i>Wild-2i:</i> Conduct Pre-Construction Surveys for the Western Yellow-Billed Cuckoo and Schedule Construction Activities to Avoid Impacts to Nest Sites</p>	<p>The yellow-billed cuckoo breeding season ranges from mid-June through August. To minimize direct impacts to this species, riparian and orchard vegetation removal within the footprint of the Delevan Pipeline Intake/Discharge Facility shall occur outside of these dates. If construction activities are scheduled to occur during the breeding season, preconstruction surveys shall be conducted in riparian and orchard habitat within the construction disturbance area of the Delevan Pipeline Intake/Discharge Facility to confirm that cuckoos are not actively nesting in or near the area. If active nests are identified, a minimum 500-foot construction buffer shall be established around any nest sites. All construction shall be avoided where active nests are discovered until the cuckoos have finished nesting. Loss of valley foothill riparian and deciduous orchard habitat shall be compensated for with implementation of the mitigation for loss of wildlife habitat types described above.</p>	<p>ACREAGE VFR at Intakes only – 13 acres. Assume one time survey, two staff, four acres per hour \$650 (survey)</p>
<p><i>Wild-3a:</i> During Project Construction, Backfill Trenches within 72 hours of Pipeline Installation and Provide an Escape Ramp for Trapped Wildlife</p>	<p>Pipeline trenches shall be backfilled within 72 hours of pipeline installation to prevent potential impacts to trapped wildlife. The trench shall be inspected for wildlife before it is filled. At the end of each day, a ramp shall be placed at the end of the trench at an approximate 45 degree slope to allow trapped wildlife to escape. In addition to a ramp, the trench shall be covered to prevent wildlife from falling in.</p>	

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-3b</i> : Construct Transmission Lines and Associated Equipment Following Suggested Practices for Avian Protection on Power Lines	Transmission lines, poles, and associated equipment shall be properly fitted with wildlife protective devices to isolate and insulate structures to prevent injury or mortality to wildlife, especially avian species. Protective measures shall follow the guidelines provided in Suggested Practices for Avian Protection on Power Lines (APLIC, 2006), and shall include insulating hardware or conductors against simultaneous contact, using poles that minimize impacts to birds, and increasing the visibility of conductors or wires to prevent or minimize bird collisions	Costs to be included in project construction and O&M costs.
<i>Wild-3c</i> : Restore Riparian Habitat Connectivity	After the Delevan Pipeline Intake/Discharge Facilities are constructed, riparian habitat connectivity shall be restored to provide a travel corridor for terrestrial wildlife. The entire length of the land side of the new levee associated with the facilities shall be planted with riparian vegetation. Where the levee approaches SR 45, fencing shall be installed to protect wildlife from vehicles. Vegetation shall be monitored, and irrigated if necessary, to ensure survival.	Lands acquired for the Intake/Discharge facilities will be adequate to also accommodate incorporation of riparian connectivity mitigation.
<i>Wild-4</i> : Implement Avoidance and Minimization Measures	Measures to avoid or minimize human disturbance impacts associated with Project construction and maintenance activities.	<p>Awareness Training. \$50,000 to \$200,000</p> <p>Preconstruction surveys/monitoring assume 8 full-time staff (FTE) for 10 years. Surveys + Monitoring \$1,660,000 per year (\$16,600,000 surveys)</p> <p>Project design avoidance measure costs to be included in project construction and O&M costs.</p>

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Fish-1a:</i> Increase stocking frequency of coldwater fish species	Text to be developed	No cost associated with this measure.
<i>Fish-1b:</i> Prepare and Implement a Mitigation Monitoring and Reporting Plan	<p>DWR and Reclamation shall prepare and implement a Mitigation Monitoring and Reporting Plan to mitigate for expected significant reduced flows through the Yolo Bypass (all alternatives), which could include the following mitigation measure:</p> <ul style="list-style-type: none"> • Modifications to the Fremont Weir to allow additional flow for inundation of the Yolo Bypass has been identified as a fisheries habitat improvement action by other projects or programs and may be implemented before the NODOS Project is authorized. If modifications occur before implementation of the NODOS Project, this impact would be reduced to less than significant and would not require mitigation. If the modifications are not yet implemented, mitigation measures for the NODOS Project could include modification of the weir to offset potentially reduced flows through the Yolo Bypass and associated habitat availability for splittail and other fish species of primary management concern. 	<p>Details related to mitigation need to be further evaluated as part of EIR/EIS revisions – measure may also include benefits.*</p> <p>O&M costs \$500,000/annually(contingency)</p>
<i>Fish-1c:</i> Prepare and Implement a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESCP) Prior to the Initiation of Construction Activities	DWR and Reclamation shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESCP) prior to the initiation of construction activities.	Costs to be included in project construction and O&M costs.
<i>Fish-1d:</i> Prepare and Implement a Spill Prevention and Hazardous Materials Management Plan Prior to the Initiation of Construction Activities	DWR and Reclamation shall prepare a Spill Prevention and Hazardous Materials Management Plan (developed as part of the SWPPP) that would be designed to minimize the potential for chemical spills and seepage during construction, operation, and maintenance activities.	Costs to be included in project construction and O&M costs.

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Fish-1e</i>: Implement Habitat Restoration Actions</p>	<p>To minimize disturbance to aquatic habitat, construction personnel shall participate in an environmental awareness training program provided by a qualified biologist. Construction personnel shall be informed about any sensitive biological resources associated with the proposed Project and that disturbance of sensitive habitat or special-status species would be a violation of the Endangered Species Act and the Clean Water Act.</p>	<p>Costs to include restoration at a ratio of 2:1 for linear stream miles inundated with the following project components:</p> <ul style="list-style-type: none"> • Sites Reservoir Inundation Area and Sites Dams • Holthouse Reservoir Complex, the Sites Reservoir Inlet/Outlet Structure, and the Sites Pumping/Generating Plant • Delevan Pipeline <p>Delevan Pipeline Intake Facilities and Delevan Pipeline Discharge Facility.</p> <p>Assume acquisition of 681 acres at \$2,500 per acre.</p> <p>O&M cost for restoration land management —681 acres at \$400 per acre.</p> <p>\$275,000</p>

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Fish-1f</i>: Perform In-Water Pile Driving July Through September During Daylight Hours</p>	<p>In-water pile driving shall only occur during July through September during daylight hours. This time period takes into consideration the migratory patterns of salmonids; pile driving shall occur after the cessation of the outmigration of juvenile salmon and before the initiation of the upstream migration of adults returning to spawn. To avoid impacts to the majority of fish species of primary management concern, sheet pile installation and in-stream heavy equipment activity shall be coordinated with USFWS, USBR, CDFG, and NMFS to avoid and or minimize potential impacts. If feasible, a vibratory hammer shall be used, and pile driving shall commence at low energy levels and slowly build to impact force. In addition, underwater sound levels shall be monitored to ensure that pile driving activities do not create underwater sound levels that exceed NMFS' noise thresholds (i.e., accumulated sound exposure level of 183 dB and a peak pressure of 206 dB).</p>	<p>Costs to be included in project construction and O&M costs.</p>
<p><i>Fish-1g</i>: Design Fish Screen in Compliance with NMFS and CDFG Criteria</p>	<p>Fish screen at the Delevan Pipeline Intake Facilities shall be designed to comply with NMFS and CDFG fish screening criteria. The Delevan Pipeline Intake Facilities or Discharge Facility shall be designed to minimize hydraulic and physical habitat that is suitable for non-native predatory fish species. The facility shall be designed in coordination with NMFS and CDFG to ensure incorporation of the best available scientific and engineering knowledge of fish screen design to minimize predation potential on fish species of primary management concern. These design criteria shall minimize or avoid increased habitat suitability for non-native predatory fish species. However, a monitoring and adaptive management program shall be implemented to ensure that losses resulting from predatory fish are minimized.</p>	<p>Costs to be included in project construction and O&M costs.</p>

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Fish-1h</i>: Prepare and Implement a Fish Salvage and Rescue Plan</p>	<p>The fish screen at the Delevan Pipeline Intake Facilities shall be designed to comply with NMFS and CDFG fish screening criteria. In addition, a Fish Salvage and Rescue Plan shall be developed and approved by NMFS and CDFG prior to initiation of construction activities, and could include the following measure:</p> <ul style="list-style-type: none"> • A qualified biologist shall provide construction monitoring throughout all phases of the project. If spawning activities for sensitive fish species are encountered during construction activities, the monitoring biologist shall be authorized to stop construction activities until appropriate corrective measures are completed or it is determined that the fish would not be harmed. If possible, all fish species shall be allowed to independently move away from the area. Fish that become entrapped in any side channel where construction work is taking place shall be netted, transported to the river, and released according to the Fish Salvage and Release Plan. 	<p>Costs include preparation of a Fish Salvage and Rescue Plan and anticipated level of effort for fish salvage operations (contingency costs)</p> <p>\$520,000 (contingency)</p>

Attachment 4E. Surface Water Quality

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>SW Qual -1(a):</i> Implement a Water Quality Monitoring, Modeling, and Operations Coordination Program to Protect Beneficial Uses</p>	<p>A comprehensive water monitoring program, including analysis of water quality conditions at the Project intake/discharge locations on the Sacramento River, as well as major Project conveyance and impoundment features, shall be implemented. This monitoring program shall include a network of automated real-time water monitoring locations at these locations, with data available to operators on the SCADA control system to allow real-time adaptive alteration in diversion amounts based on these conditions. This would allow operators to select the best quality waters to fill Sites Reservoir and potentially avoid importation of poor quality water that may affect the quality of Project water deliveries. This strategy could require additional modeling of Project water quality conditions to better understand the complex chemical interactions and physical and biological processes that affect contaminant levels. In addition, fish in Sites Reservoir shall be sampled and analyzed for mercury and other potential contaminants that may have deleterious effects to human and wildlife consumers. Results from these analyses shall be submitted to the Office of Environmental Health Hazard Assessment (OEHHA) for determination of the threats to consumers of fish in Sites Reservoir. Determination of adverse health effects to consumers would lead to educational postings at access points and public media to reduce exposure to contaminated fish.</p>	<p>Cost for infrastructure (monitoring devices, SCADA, etc.) and O&M of would be included in project construction and O&M costs.</p> <p>Water quality sampling necessary to determine how facilities should be operated is included in O&M costs.</p> <p>Supplemental mitigation cost \$1,500,000</p> <p>O&M annual cost \$250,000</p>
<p><i>SW Qual-1(b):</i> Excavate and Remove, or Consolidate and Cap, Salt Lake</p>	<p>The Salt Lake site within the footprint of Sites Reservoir would be either excavated and removed or consolidated and capped by an impermeable cover to avoid dissolution of the salt deposit into the reservoir waters. Salt Lake is fed by upslope salt springs, is many decades old, and the salt pan has accumulated to an unknown thickness over this time by evaporation. After removal/capping of the salt pan, the salt spring inputs to a completed Sites Reservoir would be diluted by high quality Sacramento River imports to a level that would be less than significant to water quality.</p>	<p>Mitigation cost would include removal (clearing and grubbing) and removal of surface materials, jet grouting of concrete and capping of Salt Lake and site grading.</p> <p>\$10,000 to \$15,000</p>
<p><i>SW Qual-1(c) to SW-Qual-1(l)</i></p>	<p>Mitigation measures associated with implementation of SWPPP, BMPs and other related construction practices.</p>	<p>Mitigation costs would be included in project construction and O&M costs.</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1a</i>: Avoid Impacts to Historical Resources/Historic Properties</p>	<p>If feasible, impacts to identified historical resources/historic properties, including prehistoric and historic-era archaeological sites, buildings and structures, TCPs, and human remains shall be avoided. Methods of avoidance may include, but are not limited to, Project re-design, or, when appropriate, deeding the site into a permanent conservation easement; incorporation of sites into parks, greenspace, or other open space; and protection measures, such as fencing.</p>	<p>Assumption \$40 per acre for remaining surveys and field documentation.</p> <p>\$32,500 to \$50,000 (surveys)</p> <p>Approximately 790 acres not yet surveyed. Additional areas to be defined – transmission line footprint and confirm pipeline alignments and Leesburg road.</p> <p>Costs should also include geo-archeology studies to determine the potential for buried resources. Timing of studies could be performed during construction.</p> <p>Assume \$100,000 prior to construction (timing of desktop evaluations – during EIR/EIS).</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1b</i>: Conduct Archaeological Data Recovery</p>	<p>If it is infeasible to avoid impacts to archaeological sites that have been determined to be eligible for listing on the CRHR or the NRHP, additional research including, but not necessarily limited to, archaeological excavation shall be conducted. This work shall be directed by a qualified archaeologist who meets the U.S. Secretary of Interior’s professional standards, and shall include preparation of a research design; additional archival and historical research to supplement the research design, when appropriate; archaeological excavation; analysis of artifacts, features, and other attributes of the resource; and preparation of a technical report documenting the methods and results of the investigation in accordance with the California Office of Historic Preservation Guidelines for Archaeological Research Design (1991). The purpose of this work is to recover a sufficient quantity of data to compensate for damage to or destruction of a resource that is eligible for the CRHR pursuant to criterion 4 of CCR 4852(b) or the NRHP pursuant to 36 CFR 60.4(d). The procedures to be used in this data recovery program shall be determined in consultation with responsible agencies and interested parties such as Native American tribes, as appropriate, within the parameters of the PA.</p>	<p>Ethnographic Studies and Inventory with Evaluation. \$200,000 to \$1,500,000 (Could be performed in phases – initial outreach (\$200,000 to \$500,000) should occur during EIR/EIS). Costs for determining eligibility for sites in areas not yet surveyed and/or buried (Assume another 10 sites could be discovered.) \$2,500,000 to \$5,000,000 Documentation costs. \$100,000 Curation costs – Assume \$5,000 a box and 1,000 boxes. \$5,000,000 to \$10,000,000 <i>Cul-1b</i> total—\$7,800,000 to \$16,600,000</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1c:</i> Immediately Halt Construction if Cultural Resources are Discovered and Implement an Accidental Discovery Plan</p>	<p>Not all cultural resources are visible on the ground surface. Protocols for addressing the accidental discovery of archaeological resources that are not visible on the ground surface during Project construction will be outlined in an Accidental Discovery Plan, as directed by the PA. If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any Project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius, with a minimum of 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation deemed necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource. Mitigation measures shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming construction activities at the archaeological site. All of the activities identified above shall be detailed in an Accidental Discovery Plan developed prior to construction so that all parties are aware of the actions required if buried archaeological resources are uncovered during Project construction. Discoveries of human remains shall be treated as described below for Mitigation Measure Cul-4b.</p>	<p>Assume contingency costs to address stop work to be included in project construction and O&M costs.</p> <p>Preparation of Accidental Discovery Plan.</p> <p>\$250,000 to \$400,000</p> <p>Field assessments after accidental discoveries are encountered during construction. Assume 10 to 20 accidental discoveries.</p> <p>\$4,000,000 to \$8,000,000 (contingency)</p>
<p><i>Cul-1d:</i> Protection of Archaeological Sites by Capping</p>	<p>Capping archaeological sites that are considered historical resources with soil, gravels, rock, or specific kinds of vegetation can be a viable way to protect the deposits under some circumstances. For example, sites subject to inundation and water level fluctuations may be protected from erosion by applying a layer of gravel/rock (rip-rap), soil, cloth, or some combination of treatments. In such circumstances, regular monitoring would be required to evaluate the efficacy of the mitigation, and to identify if and when it is necessary to refresh the protection. A layer of soil, i.e., sterile fill, might also be placed over a site where construction of a building was planned, such that all construction disturbance would occur in the fill</p>	<p>Capping costs to be included in project construction and O&M costs.</p> <p>Assume monitoring to be included in construction and O&M costs.</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Cul-1e:</i> Develop Agreement Documents to Address Potential Future Operational Impacts to Cultural Resources	<p>Protocols for addressing potential future operations impacts at Sites Reservoir and at existing facilities within the Extended Study Area shall be addressed in the PA. This may include preparation of Memoranda of Agreement for specific facilities and/or development of a Cultural Resources Management Plan, depending on the lead agency in charge of the facility. Management of historical resources/historic properties under such agreement documents might include standard measures for identification of historical resources/historic properties where needed, assessment of project impacts, and application of specific mitigation measures, as well as protocols for resource monitoring or stabilization techniques. Such agreement documents shall be developed in consultation with responsible agencies and interested parties, such as Native American tribes, as appropriate, within the parameters of the PA.</p>	<p>Preparation of MOA and PA and/or Cultural Resources Management Plan in consultation with responsible agencies and interested parties, such as Native American tribes, as appropriate. \$200,000 to \$500,000</p>
<i>Cul-2a:</i> Follow the Secretary of the Interior’s Standards for the Treatment of Historical Resources/Historic Properties	<p>Because construction of Project facilities has the potential to modify buildings or structures that are considered historical resources/historic properties, any alterations, including relocation, to historic buildings or structures shall conform to the Secretary of the Interior’s Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995).</p>	<p>Assume no built environment resources have been determined to be eligible; however, a railroad and quarry may be eligible. \$1,000,000 to \$2,000,000</p>
<i>Cul-2b:</i> Record Built Environment Resources to Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) Standards	<p>If avoidance or relocation of a building or structure that is considered eligible for the CRHR or NRHP is not feasible, and the resource must be demolished, a qualified architectural historian who meets the U.S. Secretary of Interior’s professional standards shall be retained to document the impacted historical architectural resource to Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) specifications. HABS and HAER documentation packages shall be entered into the Library of Congress as well as the NWIC or NEIC of the CHRIS.</p>	<p>Assume costs to include preparation of HABS and HAER documentation. \$1,000,000 to \$2,000,000</p>
<i>Cul-3:</i> Consult with Native American Communities regarding How to Mitigate for Impacts to TCPs	<p>TCPs are often locations on the landscape that have sacred or other special meaning to Native American communities. Associated characteristics, such as an archaeological deposit, are not always present. Early and meaningful consultation with Native American communities shall occur to identify ways to mitigate impacts to TCPs. Interpretive programs, establishing or enhancing locations for traditional plants, or a visitor’s center, are examples of ways to address these important issues. Consultation with Native American communities shall occur.</p>	<p>Cost components are related to <i>Cult-1 (e)</i>. Assume costs for ongoing consultation with tribes. Assume 4+ tribes and costs to include AB52 compliance. \$2,000,000 to \$4,000,000</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Cul-4a</i> : Relocation of Known Cemeteries	Consultation shall occur with the entity (County, City, private) that has jurisdiction over the cemetery, and interested parties as appropriate, to identify a satisfactory place that is protected from future disturbance for the relocation of human remains. Similarly, if Native American burials are known to exist in an archaeological site, the Project proponent shall work with the appropriate tribe to identify a satisfactory location for re-interment of burials in a protected location.	Assume two cemeteries: Town of Sites Cemetery – Assume 150 individuals and \$3,000 for each individual grave site. \$450,000 Native American Cemetery – 100 individuals and \$5,000 for each individual grave site. \$500,000 Midden Grave Sites – Assume \$10,000,000 to \$20,000,000 Total - \$10,950,000 to \$20,950,000

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-4b</i>: Immediately Halt Construction if Human Remains are Discovered and Implement a Burial Treatment Plan</p>	<p>Project construction activities have the potential to have unanticipated significant impacts to buried human remains where there is no surface indication of their presence. In these circumstances, the requirements of California Health and Human Safety Code 7050.5 must be followed. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the potentially damaging excavation must halt in the area of the remains and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Pursuant to the provisions of California Public Resources Code Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. All of the activities identified above shall be detailed in a Burial Treatment Plan, as directed by the PA, and developed in consultation with local Native American tribes prior to Project construction so that all parties are aware of the actions required if buried human remains are uncovered during Project construction.</p>	<p>Preparation and implementation of a Burial Treatment Plan. \$500,000 to \$800,000 Contingency costs to be included in project construction and O&M costs. Assume accidental discoveries - \$500,000 to \$1,000,000 (contingency)</p>

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Paleo-1a</i> : Retain a Qualified Paleontological Resource Specialist Prior to the Start of Construction	DWR and Reclamation shall retain a qualified Paleontological Resource Specialist at least 90 days prior to the start of construction.	No anticipated costs
<i>Paleo-1b</i> : Consultation with the Paleontological Resource Specialist Prior to and During Project Construction	At least 30 days prior to the start of Project construction, DWR and Reclamation shall provide maps or drawings to the Paleontological Resource Specialist that shows the planned construction footprint. Maps shall identify all areas of the Project where ground disturbance is anticipated. (Site grading plan and plan and profile drawings for the utility lines are appropriate for this purpose). The plan drawings shall show the location, depth, and extent of all ground disturbances affecting paleontologically sensitive sediment. If Project construction proceeds in phases, maps and drawings may be submitted prior to the start of each phase. In addition, the proposed schedule of each Project phase shall be provided to the Paleontological Resource Specialist. Before work commences on affected phases, DWR and Reclamation shall notify the Paleontological Resource Specialist of any construction phase scheduling changes. If paleontological resources monitoring is ongoing, DWR and Reclamation shall ensure that the Paleontological Resource Specialist or Paleontological Resource Monitor consults weekly with the Project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.	Paleontological resource specialist staffing for plans and drawing reviews. \$250,000 to \$500,000

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Paleo-1c:</i> Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan</p>	<p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist prepares a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources.</p> <p>The PRMMP shall also provide guidance for preparation of a Paleontological Resources Report by the designated Paleontological Resource Specialist at the conclusion of ground-disturbing activities that may affect paleontological resources. The Paleontological Resources Report shall include an analysis of the collected fossil materials and related information, including a description and inventory of recovered fossil materials, a map showing the location of paleontological resources encountered, determinations of sensitivity and significance, and a statement by the Paleontological Resource Specialist that Project impacts to paleontological resources have been mitigated below the level of significance.</p>	<p>Preparation of Paleontological Resources Monitoring and Mitigation Plan and Paleontological Resources Report.</p> <p>\$200,000 to \$300,000</p>
<p><i>Paleo-1d:</i> Conduct Paleontological Resources Awareness Training</p>	<p>Prior to ground disturbance and for the duration of Project construction activities involving ground disturbance, the Paleontological Resource Specialist shall prepare, and DWR and Reclamation shall conduct, weekly paleontological resources awareness training.</p>	<p>Paleontological resource specialist staffing for weekly construction meetings.</p> <p>\$50,000 to \$200,000</p>

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Paleo-1e:</i> Conduct Monitoring During Project Construction and Prepare Monthly Reports</p>	<p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) monitor construction excavations consistent with the PRMMP in areas where potential fossil-bearing materials have been identified, both at reservoir sites and along any constructed linear facilities associated with the Project. In the event that the Paleontological Resource Specialist determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the Paleontological Resource Specialist shall notify DWR and Reclamation.</p> <p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) have the authority to halt or redirect construction if paleontological resources are encountered. DWR and Reclamation shall ensure that there is no interference with monitoring activities, as directed by the Paleontological Resource Specialist.</p> <p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist prepares and submits monthly summaries of monitoring and other paleontological resources management activities. The summary shall include the name(s) of the Paleontological Resource Specialist or Paleontological Resource Monitor(s) active during the month, general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered descriptions of samplings, if any, and a list of identified fossils. A final section of the report shall address any issues or concerns about the Project relating to paleontological resources mitigation activities, including any incidents of non-compliance or any changes to the monitoring plan by the Paleontological Resource Specialist. If no monitoring took place during the month, the report shall include an explanation as to why monitoring was not conducted.</p>	<p>Paleontological resource specialist staffing for construction monitoring. \$250,000 to \$2,000,000</p>
<p><i>Paleo-1f:</i> Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan</p>	<p>DWR and Reclamation, through the designated Paleontological Resource Specialist, shall ensure that all components of the PRMMP are adequately performed during construction.</p>	<p>Paleontological resource specialist project staffing for oversight of plan implementation \$100,000 to \$250,000</p>

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Land-2a:</i> To the Extent Possible, Work with Glenn County to Encourage the County to Modify or Amend the Glenn County General Plan to Bring it into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn County to modify or amend its General Plan for consistency with proposed Project land uses, or to implement other appropriate measures to minimize conflicts between the Project and County policies.	Assume coordination only \$50,000 to \$100,000
<i>Land-2b:</i> Execute an Agreement with NRCS to Amend WRP Easement Contract and Conduct Post-Construction Wetland Restoration	Prior to the start of Project construction, DWR and Reclamation shall execute an agreement with NRCS to amend the existing WRP easement contract to allow the construction and operation of the Delevan Transmission Line and Delevan Pipeline. Project Engineers shall design the transmission line and the construction contractor shall install the transmission line tower footings to span the parcel of land that has the WRP easement (a distance of approximately 680 feet). Project Engineers shall design the pipeline and the construction contractor shall install the pipeline to avoid the wetlands in the subject parcel of land, to the extent feasible. The pipeline length across the subject parcel is approximately 650 feet. Upon completion of pipeline installation, the area that was disturbed by Project construction shall be restored to a functional wetland condition.	Estimate costs for agreement/amendments. Cost of Post construction restoration. Costs for additional monitoring or management of the additional restored area. Assume 3:1 mitigation ratio—see Attachment 5. Refer to wetland mitigation.
<i>Land-3a:</i> To the Extent Possible, Work with Glenn and Colusa Counties to Encourage the Counties to Modify or Amend the Glenn County and Colusa County General Plans' Land Use Designations to Bring them into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn and Colusa counties to modify or amend the counties' General Plan land use designations, or to implement other appropriate measures to eliminate the Project's conflicts with those designations	Estimate costs for coordination only—costs included in <i>Land-2a</i> .

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Land-3b:</i> Execute an Agreement with Maxwell Irrigation District to Minimize and Avoid Short-term and Long-Term Impacts to Existing Facilities and Operations	Prior to the start of Project construction, DWR and Reclamation shall execute an agreement with the Maxwell Irrigation District to ensure that Project construction and operation of the Delevan Pipeline Intake Facilities or the Delevan Pipeline Discharge Facility will not adversely affect the operation of the existing adjacent Maxwell Irrigation District facility.	Costs associated with implementing the agreement would be included under project construction and operation costs. \$50,000 to \$100,000
<i>Land-4a:</i> Enter into Agricultural Conservation Easements with Glenn and Colusa Counties	Establish agricultural conservation easements with Glenn and Colusa counties for lands used for agricultural production to ensure agriculture remains viable in perpetuity and to prevent incompatible development on the selected parcels.	Estimate costs to establish agricultural easements and ongoing reporting/monitoring requirements. Assume 1:1 mitigation ratio—see Attachment 4. \$5,000,000 (land easements)
<i>Land-5a:</i> To the Extent Possible, Work with Glenn and Colusa Counties to Encourage the Counties to Modify or Amend the Glenn County and Colusa County General Plans' Zoning Designations to Bring them into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn and Colusa counties to modify or amend the counties' zoning designations, or to implement other appropriate measures to eliminate the Project's conflicts with those designations.	Estimate costs for coordination only—costs included in <i>Land-2a</i> .
<i>Land-5b:</i> Acquire Lands through Eminent Domain	During the Project land acquisition process, DWR and Reclamation shall acquire parcels through eminent domain.	Estimate costs for mitigation measure to be included as part of real estate evaluation.

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Land-5c:</i> For Land Permanently Acquired other than by Eminent Domain, Seek County Approvals to Rescind Williamson Act Contracts and Enter into Open Space Contracts or Open Space Easements</p>	<p>Prior to permanently acquiring lands other than by eminent domain during the land acquisition process, DWR and Reclamation shall seek County approvals to rescind Williamson Act Contracts and enter into Open Space Use Agreements or Open Space Easements with the counties.</p>	<p>Costs include fee for cancelling Williamson Act contract and establishing open space easements and ongoing reporting/monitoring requirements.</p> <p>Assume approximately \$2,500 per acre—see Attachment 4.</p> <p>Williamson Act Contract cancellation fees (12.5%) approximately.</p> <p>\$5,040,000 (fees)</p>

Attachment 4I. Air Quality

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Air Qual -1a:</i> Develop a Fugitive Dust Control Plan	The Fugitive Dust Control Plan shall include avoidance and minimization measures and BMPs to reduce fugitive PM10 and PM2.5 emissions.	Preparation of Fugitive Dust Control Plan. \$100,000 Costs associated with plan implementation to be included in project construction costs.
<i>Air Qual -1b:</i> Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions	<ul style="list-style-type: none"> • All construction equipment shall be maintained according to manufacturer’s specifications. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). • During all construction activities, diesel -fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the ARB’s Statewide Portable Equipment Registration Program. • All fleets of diesel -fueled off -road vehicles shall comply with the emissions standards pursuant to CCR Title 13, Section 2449. To the extent feasible, operate off -road vehicles with engines certified to the Tier 2 or newer emissions standards. • All on -road trucks shall be operated in compliance with the emission standards per CCR Title 13, Section 2025. To the extent feasible, operate on -road trucks with engines certified to the 2007 model year or newer heavy -duty diesel engine emissions standards. • To the extent feasible, electric equipment shall be operated. • Alternatively fueled construction equipment shall be used, to the extent feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel. • Electricity used to power facilities and equipment shall be generated by renewable energy sources with state -of -the -art emissions control systems, to the extent feasible. 	<p>Costs associated with emissions controls to be included in project construction costs.</p> <p>See Attachment 7 for emissions estimates for construction and O&M.</p> <p>Assume permit will be required for stationary emission sources (i.e., concrete batch plant and quarry operations) during 10-year construction period.</p> <p>\$5,000 per year (permit fees)</p> <p>—</p> <p>Assume permit will be required for stationary emission sources (i.e., back-up emergency generators at the pumping plants) during O&M phase of the project.</p> <p>\$5,000 per year (permit fees)</p>

ATTACHMENT 5

Anticipated Land Use Impacts (Alternative C)

Attachment 5: Designated Land Uses Subject to Impacts (Alternative C)

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)		Mitigation Acreage	Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance		
Number of Potentially Affected Parcels	278	209	NA	NA	NA	NA	NA
Acreage of Potentially Affected Parcels	19,636	26,425	NA	NA	NA	NA	NA
Zoning Designation of Potentially Affected Parcels (Acres)							
Agricultural Preserve	2,100	24,753	NA	NA	NA	NA	NA
Exclusive Agriculture	2,055	1,030	NA	NA	NA	NA	NA
Foothill Agriculture/Forestry	0	450	NA	NA	NA	NA	NA
Floodway	0	14	NA	NA	NA	NA	NA
Intensive Agriculture	0	0	NA	NA	NA	NA	NA
Light or Heavy Industrial	19	0	NA	NA	NA	NA	NA
N/A	43	174	NA	NA	NA	NA	NA
No Information Available	0	1	NA	NA	NA	NA	NA
Designation Undetermined	15,419	3	NA	NA	NA	NA	NA
Total	19,636	26,425	NA	NA	NA	NA	NA
FMMP Designation of Potentially Affected Parcels (Acres)							
Urban and Built-up Land	1	0 ^c	NA	NA	NA	NA	NA
Grazing Land	369	2,601	NA	NA	NA	NA	NA
Farmland of Local Importance	1,624	21,514 ^d	*May or may not need to mitigate for this particular FMMP category (Low range of costs excludes this FMMP designation).	1:1*	NA	1,624	
Local Potential Farmland	144	1,414		NA	NA	NA	NA

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)		Mitigation Acreage	Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance		
Prime Farmland	960	606 ^d	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	960	
Farmland of Statewide Importance	0 ^c	0 ^c	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	0 ^c	
Unique Farmland	1,001	7	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	1,001	
Water	0	3	NA	NA	NA	NA	NA
Other Land	123	287	NA	NA	NA	NA	NA
Designation Undetermined	15,414	3 ^d	NA	NA	NA	NA	NA
Total	19,636	26,425	--	--	--	1,961 to 3,585	--
Number of Potentially Affected Parcels with Williamson Act Contracts	136	113	--	--	--	--	--
Acreage of Potentially Affected Parcels with Williamson Act Contracts	16,126	22,689	--	--	--	--	--

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)		Mitigation Acreage	Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance		
Number of Potentially Affected Parcels with WRP Easements	1	0	--	--	--	--	--
Number of Potentially Affected Acres with WRP Easements	7	0	--	--	--	21	Assume cost comparable to obtaining mitigation credits.

Notes:

- ¹ Acreages for land use impacts for Alternative C are from Tables 20-27 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013).
- ^a Totals may not match due to the rounding of individual acreages that comprise the totals.
- ^b A total of 2.5 acres would under Alternative A and C would be permanently disturbed from transmission line poles, but due to pole locations being currently unknown, the affected FMMP category cannot currently be determined. Therefore, 2.5 acres under Alternative A and C of land more than the total listed in Long-Term Impacts would be permanently affected.
- ^c There is less than one acre in these categories, but more than zero.

FMMP = Farmland Mapping and Monitoring Program
 WRP = Wetland Reserve Program

ATTACHMENT 6

Vegetation Community and Habitat Impacts (Alternative C)

Attachment 6. Acres of Habitat/Wetlands Subject to Alternative C Impacts^{1,a}

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site)	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance	Restoration/Mitigation Banking	Permanent Loss ^b	Temporary Disturbance			Low	High
Botanical Resource/Vegetation Community										
Annual grassland	Sidalcea keckii and Amsinckia lunaris	13,694.7	2,091.5	Assume 4,000 to 5,000 acres support CNPS recommends 1:1 for species Mitigation for permanent loss would be off-site mitigation.	1:1 to 3:1	1:1		\$2,000 to \$2,500 per acre Temporary mitigation included in construction costs	\$35,389,400	\$115,210,250
Alkaline wetland		0.5	14.0	*May affect an additional 14 acres of wetland (per MM Bot-1a) See wetlands impacts below	2:1 to 3:1	--			below	below
Blue oak woodland	Sidalcea keckii and Amsinckia lunaris and Lotus rubriflorus	478.6	353.5	*All known occurrences of <i>Lotus rubriflorus</i> are on private land or utility corridors (assume 5 to 10% of the acreage would include plant species) CNPS recommends 1:1 for species	1:1			\$2,500 to \$3,000 per acre	\$59,825	\$143,580
Blue oak savanna		375.5	269.7		see below			\$2,500 to \$3,000 per acre	below	below
Blue oak /mixed chaparral	Lotus rubriflorus	33.4	21.1	Assume 5-10% acreage to include plant species) CNPS recommends 1:1 for species	1:1			\$2,500 to \$3,000 per acre	\$4,175	\$10,020
Canal		9.1	14.1	Impacts mostly associated with Holthouse Reservoir 7.1 acres is the existing TC canal (no GGS) 0.9 acre for regulating reservoir (TRR) GCID improvements associated with temporary disturbance.	1:1 to 3:1		Assume 1 acre permanent loss for GGS Assume no suitable habitat would be temp disturbed.	\$20,000 per acre	\$20,000	\$60,000
Chamise		0.6	2.1	Assume no mitigation needed; can be avoided					--	--
Crops/agriculture		700.0	2,307.7	No additional mitigation required beyond agricultural impacts					--	--
Fremont cottonwood riparian		1.1	0.0	See VFR					below	below
Fresh emergent wetland		0.0	4.5	See VFR					below	below
Mixed chaparral		0.8	1.8	See VFR					below	below
Pond		22.4	226.6	See VFR					below	below
Open water		1.6	0.0	See VFR					below	below
Urban/disturbed		90.8	46.9	See VFR					below	below
Valley foothill riparian		82.6	4.0	See VFR					below	below
Valley oak riparian		26.5	0.1	See VFR					below	below
Valley oak woodland		3.5	0.0		1:1 to 3:1			\$2,500 to \$3,000 per acre	\$8,750	\$31,500
Botanical Resources TOTAL		15,521.7	5,357.6						\$35,482,150	\$115,455,350

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site)	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance	Restoration/Mitigation Banking	Permanent Loss ^b	Temporary Disturbance			Low	High
Wildlife Habitats										
Barren		0.2	21.4	Assume no mitigation needed					--	--
Blue oak woodland	CRLF (also associated with blue oak foothill pine), GE; SH; WSF	887.5	644.3		2:1 to 5:1	1:1		\$2,500 to \$3,000 per acre	\$6,048,250	\$15,245,400
Canal	GGS, WPT	9.1	14.1	Assume no mitigation needed	3:1 for GGS*	1:1 for GGS*			above	above
Chamise-redshank chaparral		0.6	2.1	Assume no mitigation needed; can be avoided					--	--
Deciduous orchard	*confirm whether associated with GGS (pg. 14-6)	15.4	175.1	Include for GGS for any Orchard east of I-5	3:1 for GGS*	1:1 for GGS*	Assume 15.4 permanent only	\$4,000 to 5,000 per acre	\$184,800	\$231,000
Dryland grain and seed crops	SH - Swainson's hawk	333.2	214.5	Assume 25%-50% acreage would be suitable foraging habitat.	0.5:1	--		\$2,000 per acre	\$83,300	\$166,600
Eucalyptus		0	46.2	Assume no mitigation requirement	--	--			--	--
Fresh emergent wetland	GGS; CRLF; GSC4, GE	0.5	18.5		3:1 for GGS*	1:1 for GGS*	20.0		below	below
Irrigated row and field crops	SH - Swainson's hawk	155.6	225.7	Assume 25%-50% acreage would be suitable foraging habitat.	0.5:1			\$2,500 per acre	\$48,625	\$97,250
Lacustrine	BE	22.4	226.6	Assume no mitigation needed; reservoir will be expanded					--	--
Mixed chaparral		0.8	1.8						above	above
Pasture	GSC, FH; BO; WTK	72.7	241.2		1:1	--		\$4,000 to \$5,000 per acre	\$290,800	\$363,500
Rice	GGS	122.9	1,383.6	Assume all rice suitable GGS habitat	3:1 for GGS*	1:1 for GGS*	1,752.3	\$4,000 to \$5,000 per acre	\$7,009,200	\$8,761,500
Riverine	BE, BS	1.6	0	Associated with fish screen Assume on-site restoration	2:1 to 3:1	--		Costs to be estimated as part of project design and construction	NA	NA
Urban/disturbed		90.8	46.9						--	--
Valley foothill riparian	GGS; VELB; CTS; BE; SH, WYBC; VRI; WPT; RT	110.2	4.1	The mitigation for loss of other wildlife habitat types could potentially compensate for the native planting requirement for elderberry plant mitigation. Elderberry plants are typically replaced at a ratio of 2:1 for stems greater than one inch in diameter; 3:1 for stems where emergence holes are documented in less than 50 percent of the shrubs, and 5:1 for stems greater than one inch in diameter with emergence holes 672 elderberry stems surveyed within the proposed Sites Reservoir footprint; emergence holes were found on 18 stems. [ASSUME 3:1 for VELB mitigation]	3:1 for GGS* 4:1	1:1 for GGS*		\$2,500 to \$3,000 per acre	\$836,750	\$1,004,100
Valley oak woodland	SH	3.5	0	See botanical above				\$2,500 to \$3,000 per acre	above	above
Wildlife Habitats TOTAL	--	15,521.7	5,357.6		--	--			\$14,501,725	\$25,869,350

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site) Restoration/Mitigation Banking	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance			Low	High
Wetland Type										
Alkaline		37.0	--	Includes an additional 19.5 acres adjacent to Assume a total of 27 acres requiring mitigation. Assume off-site mitigation	2:1 to 3:1		150k to 200k/acre		\$8,100,000	\$27,000,000
Emergent		2.4	--	Assume off-site mitigation	1:1 to 5:1		100k to 150k/acre		\$240,000	\$1,800,000
Riparian		25.0	--	Riparian wetland mitigation assumed to be covered under VFR.					above	above
Seasonal		182.4	--		1:1 to 5:1		100k to 150k/acre		\$18,240,000	\$136,800,000
Vernal Pool		5.5	--	Vernal pool mitigation assumed to be covered under annual grassland					above	above
Wetlands TOTAL		252.3	--						\$26,580,000	\$165,600,000
Total Pond Acres ^d		35.8	--	Assume no mitigation needed. It is assumed that ponds within pipeline alignment can be avoided. Other "pond" impacts would be mitigated as part of vegetation community mitigation likely to include pond features like grassland or riparian.					--	--
Total Streams		227.7		Assume on-site restoration	2:1		455.4		NA	NA
Streams 0-5 Feet Wide		6.0	--	Assume on-site restoration	2:1		12		NA	NA
Streams 5-10 Feet Wide		15.1	--	Assume on-site restoration	2:1		30.2		NA	NA
Streams 10-15 Feet Wide		13.3	--	Assume on-site restoration	2:1		26.6		NA	NA
Streams <15 Feet Wide		77.0	--	Assume on-site restoration	2:1		144		NA	NA
Streams >15 Feet Wide		116.3	--	Assume on-site restoration	2:1		232.6		NA	NA
Other Waters of the US TOTAL			--						NA	NA

Notes:

¹Acreages for Botanical Resource/Vegetation Community impacts for Alternative C are from Table 13-29; Acreages for Wildlife Habitats impacts for Alternative C are from Table 14-24; Acreages for Wetland Type impacts for Alternative C are from Table 15-20 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)

State-Federally-Listed Species Associations within Primary Study Area Vegetation Communities

- 1 – Vegetation and Habitat associations are taken from Table 14-3 (Golden Eagle, Western Pond Turtle) and Table 14-5 for Foothill Yellow Legged Frog in DWR 2013.
- 2 – Mitigation ratio for GGS is up to 6:1, if construction is performed during active season (May 1 to October 1).
- 3 – Wildlife habitat for Northern spotted owl - Douglas Fir, redwood, mixed hardwood conifer (MHC)
- 4 – Wildlife habitat for Greater Sandhill crane - Freshwater emergent marsh, Wet Meadow and PAS (Table 14-3) - Wintering habitat in Primary Study Area
- 5 – Wildlife habitat for Ringtail (Riparian habitats)
- 6 – Wildlife habitat for Willow flycatcher (MRI, WTM)
- 7 – Wildlife habitat for Pacific fisher (MHC, SMC)
- 8– Wildlife habitats for bat species (structures, woodland habitats, and orchards near intake)
- 9 – Wildlife habitats for Burrowing owl (Annual grassland and edge of blue oak woodland)

BE - Bald eagle	PF - Pacific fisher
BS - Bank swallow	NSO - Northern spotted owl
BO - Burrowing Owl	RT - Ringtail
CRLF - California red-legged frog	SH - Swainson's hawk
CTS - California tiger salamander	VP Invertebrates - Conservancy fairy shrimp, Vernal pool fairy shrimp, Vernal pool tadpole shrimp
FYLF - Foothill Yellow Legged Frog	VELB - Valley elderberry longhorn beetle
FH - Ferruginous hawk	WF - Willow flycatcher
GE - Golden Eagle	WPT - Western Pond Turtle
GGS - Giant garter snake	WYBC - Western yellow-billed cuckoo
GSC - Greater Sandhill crane	WSF - Western Spadefoot

Botanical Resources/Vegetation Communities

- ^a Total permanent vegetation loss acreage includes the footprint of Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline Road, Delevan Pipeline Electrical Switchyard, and the Delevan Pipeline Intake Facilities. Total permanent loss acreage also includes the estimated permanent loss from construction within the footprint of the Recreation Areas, within the construction disturbance area for the Road Relocations, and from construction of the transmission tower footings associated with the Delevan Transmission Line.
- ^b Total temporary disturbance acreage includes the footprint of the Recreation Areas (minus the acreage of estimated permanent loss) and footprint of the existing Funks Reservoir, as well as the defined construction disturbance areas for the Road Relocations (minus the acreage of estimated permanent loss), Delevan and TRR pipelines, Holthouse to T-C Canal Pipeline, TRR to Funks Creek Pipeline, Delevan Transmission Line, and GCID Canal Facilities Modifications. Total temporary disturbance acreage also includes the estimated construction disturbance areas (outside of the footprints) for Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, and Delevan Pipeline Intake Facilities.
- ^c Total acreage does not include acreage associated with the Project Buffer.

Wildlife Habitats

- ^a Calculated acreage does not include acres associated with the Project Buffer because the location and extent of disturbance is not yet specified.
- ^b Total permanent habitat loss acreage includes the footprint of Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline Road, Delevan Pipeline Electrical Switchyard, and the Delevan Pipeline Intake Facilities. Total permanent loss acreage also includes the estimated permanent loss from construction within the footprint of the Recreation Areas, within the construction disturbance area for the Road Relocations, and from construction of the transmission tower footings associated with the Delevan Transmission Line.
- ^c Total temporary disturbance acreage includes the footprint of the Recreation Areas (minus the acreage of estimated permanent loss) and the footprint of the existing Funks Reservoir, as well as the defined construction disturbance areas for the Road Relocations (minus the acreage of estimated permanent loss), Delevan Pipeline, TRR Pipeline, Holthouse to T-C Canal Pipeline, TRR to Funks Creek Pipeline, Delevan Transmission Line, and GCID Canal Facilities Modifications. Total temporary disturbance acreage also includes the estimated construction disturbance areas for Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Tunnel from Sites Pumping Generating Plant to Sites Inlet/Outlet Structure, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, and Delevan Pipeline Intake Facilities.

Wetlands and Waters of the US

- ^a The northwest 0.5 acre of swale feeding marsh is within proposed footprint, but hydrologically connected to a 20-acre (estimated minimum area) marsh/swale/vernal pool complex. Wetlands themselves equal 13 acres; entire complex with connecting upland watersheds equal 20 to 40 acres.
- ^b Ponds counted separately from streams.
- ^c Includes 6.1 acres for Salt Lake. All other pond acreages are stock ponds.
- ^d Acres of wetlands and other waters of the U.S. types are unknown because the Project Buffer was added after surveys were conducted; consequently, wetland/WUS features were not mapped.
- ^e Total acreage does not include acreage associated with the Project Buffer, which has not been surveyed or mapped.
- ^f Primary Study Area is defined as the Project facility footprints except for the Delevan Pipeline, which also includes a wider construction disturbance area corridor, and for Holthouse Reservoir complex, where Alkaline wetlands potentially affected include acres adjacent to dam footprint as well as overlapping with the footprint.

ATTACHMENT 7

Air Quality Impacts (Alternative C)

Attachment 7A. Average Daily Emission Rates for Criteria Pollutants by Year for Construction of Alternatives C¹

Construction Year	Emissions (pounds per day)					
	NOx	PM10	PM2.5	ROG	CO	SOx
2013	2,171	344	124	247	833	3
2014	4,487	860	274	508	1,749	6
2015	4,012	765	246	455	1,565	5
2016	4,061	770	250	460	1,593	5
2017	2,286	528	153	257	920	3
2018	990	319	83	109	412	1
2019	990	319	83	109	412	1
2020	892	298	76	98	360	1
2021	98	21	8	11	52	0
Significance Threshold (lb/day)	137	137	n/a	137	n/a	n/a

Notes:

- ¹ Emissions estimates are from Appendix 24 Table 24A.B-1 for construction emissions for Alternatives B and C in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)
- ² The average daily construction emission rates in lb/day for each construction year are the sum of the average daily emission rates estimated for each of the project features that would be constructed in the indicated construction year.
- ³ Bolded values indicate an exceedance of the significance threshold.
- ⁴ Significance Threshold is from Tehama County APCD Level C: Greater than 137 pounds per day of emissions. If emissions from a project would exceed the Level C thresholds, mitigation measures (BAMMs and SMMs), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance (TCAPCD 2009).

Attachment 7B. Construction On-Site Concrete Batch Plant PM10 Emissions¹

Project Feature	Total Concrete Mass (tons)	Number of Days	Daily Rate (tons/day)	PM10 Emissions (lb/day)
Tunnel - Inlet and Outlet Including Sites Pump Plant	77,515	194	400	10.14
Pipelines - Delevan and TRR	11,100	28	396	10.07
Dams & Sites Inundation	85,951	215	400	10.14
TRR Pump Plant	55,500	139	399	10.13
Funks Reservoir Modification	23,773	59	403	10.22
Sacramento River Intake & P/G Plant	55,500	139	399	10.13
Paved Roads & Bridges	186,110	310	600	14.81
GCID Canal & Headworks	21,090	35	603	14.86
Transmission Lines	16,095	40	402	10.20
Recreation	8,780	44	200	5.49

Batch Plants Controlled Emission Factors ^a		
Sand Transfer ^d	0.000297	lb PM10/ton cement
Aggregate Transfer ^d	0.00099	lb PM10/ton cement
Cement Unloading to Storage Silo	0.00034	lb PM10/ton cement
Cement Supplement Unloading to Storage Silo	0.0049	lb PM10/ton cement
Weigh Hopper Loading ^d	0.00072	lb PM10/ton cement
Truck Loading ^c	0.016	lb PM10/ton cement
Total	0.023	lb PM10/ton cement

Notes:

¹ Emissions estimates are from Appendix 24 Table 24A.B-11 for concrete batch plant PM10 emissions for Alternatives B and C in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)

^a Emission factors from AP-42, Section 11.12, June 2006

^b The batch plants will have dust control equipment and was assumed to control dust emissions with an efficiency of 70% during sand and aggregate transfer. Source for control efficiency: BAAQMD Permit Handbook, Section 11.5 Concrete Batch Plants, March 2009

^c It was assumed the truck loading process would also include dust controls. Therefore, the controlled truck loading emission factor was used.

Attachment 7C. Summary of Criteria Pollutant Emissions for Operations and Maintenance of Alternatives¹

Summary O&M Emissions (lb/day)						
	NOx	PM10	PM2.5	ROG	CO	SOx
Total Average Daily Emissions (lb/day)	33	7	7	38	1308	0.1
TCAPCD Threshold (lb/day), Level A	< 25	< 25		< 25		
Threshold Exceeded?	Yes, subject to standard mitigation measures	No		Yes, subject to standard mitigation measures		
TCAPCD Threshold (lb/day), Level B	> 25	> 25		> 25		
Threshold Exceeded?	Yes, incorporate Best Available Mitigation Measures	No		Yes, incorporate Best Available Mitigation Measures		
TCAPCD Threshold (lb/day), Level C	> 137	> 137		> 137		
Threshold Exceeded?	No	No		No		

Notes:

¹ Emissions estimates are from Appendix 24 Table 24A.D-1 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)
² It was assumed that sedans/pickups would travel at a speed of 15 mph which equates to 3 roundtrips per hour at a distance of 5 miles per roundtrip.
³ There would be a total of 60 employees supporting work at all sites so the employee commute emissions are represented under the "Reservoirs, Recreation Facilities, Dams, Roads, Bridges" category but this covers all O&M employees.

Sites Water Quality Meeting



Sites Reservoir Project

Date: June 15, 2020

Location: Webex

Time: 10:00 am – 11:00 am

Purpose: Re-initiate discussions and approach for addressing the water quality comments made on the Draft EIR/S and identify and discuss new items associated with the revised Project.

Invitees:

Ali Forsythe, Sites Authority
Steve Micko, Jacobs
Jeff Herrin, AECOM
Pete Rude, Jacobs

Monique Briard, ICF
Anne Huber, ICF
Nicole Williams, ICF
Jim Lecky, ICF

Erin Heydinger, Integration
John Spranza, Integration
Laurie Warner Herson,
Integration

Action Item	Owner	Deadline	Notes
1 Environmental to discuss valve for flow into SC and Funks Creeks also for temperature control gate design.	Spranza/Herrin/Lecky	7-15-20	In Process
2 Identify gaps in water quality modeling needed.	Erin/Steve	7-1-20	
3 Schedule meeting for temperature model needs-CBD	Erin	7-1-20	
5 Review potential constituents of concern for CBD and Yolo	Anne	7-1-20	2017 EIR/S has these listed in chapter 7
6 Consult with RD 108 and North Delta Flow Group from DWR on food for fish programs	Jim	7-1-20	
7 Funks and SC Creek temp future assessment approach	Erin	TBD	Pending outcome of #2 and #3
8 Circulate Salt lake document and follow up on next steps identified therein	Spranza	6-19-20	Complete
9 Coordinate with MBK on existing data and proposed CBD work	Spranza	7-1-20	Complete
10 Schedule meeting; focused is modeling and temperature	Spranza	6-30-20	In Process

Agenda:

Discussion Topic	Topic Leader	Est Time
1. Overview and Purpose <ul style="list-style-type: none"> a. Introductions and Overview b. Previous Water Quality Topics <ul style="list-style-type: none"> i. EIR/EIS Comments ii. Trinity River iii. Others? c. New Water Quality Topics <ul style="list-style-type: none"> i. Colusa Basin Drain ii. Discharge Temperature iii. VA Conflicts iv. Others? 	John Spranza	20 min
2. Addressing Water Quality Topics <ul style="list-style-type: none"> a. Previous Efforts b. Current Efforts c. Additional Efforts Needed 	John Spranza	30 min
3. Next Steps	Group discussion	10 min

Meeting Notes

- 1) Mercury issues from Jerry Bowles need to be further addressed
- 2) Baseflow requirements for Funks and SC Creeks need to be developed
- 3) Design team needs input from environmental for design of valves for channel forming flows and fish flows
- 4) Design team needs input from environmental for design of temperature control gates
- 5) Reservoir water quality model has been deferred to Phase II workplan
 - Future flows through Funks and SC Creeks will include:
 - Existing allocated water rights
 - Channel forming flows
 - Fish flows (Fish and Game Code 5937 to ensure that fish below reservoirs are in "good condition)
 - Emergency releases
- 6) Temperature modeling for the reservoir releases will likely be needed to determine:
 - Release temperature for SC and Funks creeks
 - In lake water temperature assessment for temperature modeling through discharge facilities, including Colusa Basin Drain and Sacramento River.
- 7) Need to loop in MBK to assess what data/model they are aware of that could be used for temp in CBD and have them collaborate with this group as appropriate
- 8) Consult with RD 108 and North Delta Flow Group from DWR on food for fish program and any existing WQ data that may be available.



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DELTA STEWARDSHIP COUNCIL

A California State Agency

May 2, 2018

Chair
Randy Fiorini

Rob Thomson, Project Manager
Sites Project Authority
P.O. Box 517
Maxwell, CA 95955

Members
Frank C. Damrell, Jr.
Michael Gatto
Maria Mehranian
Susan Tatayon
Skip Thomson
Ken Weinberg

Executive Officer
Jessica R. Pearson

Via email: EIR-EIS-Comments@SitesProject.org

RE: Revised Comments on Draft Environmental Impact Report/Environmental Impact Statement for the Sites Reservoir Project, SCH#2001112009

Dear Mr. Thomson:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement/Environmental Impact Report (Draft EIR/EIS) for the Sites Reservoir Project (Project) dated August 2017. The Delta Stewardship Council (Council) previously sent a letter with comments on the Draft EIR/EIS on January 16, 2018. This letter supersedes comments previously provided by the Council on the Draft EIR/EIS. Please replace our January 16, 2018 letter with this version.

In March 2017, the Council transmitted comments on the Notice of Preparation for this project. Thank you for your consideration of our comments. Below we describe that Council staff believe the Project does not meet the definition of a covered action under the Delta Plan.

The Draft EIR/EIS describes the proposed project facilities to be located in Glenn and Colusa counties. The Project proposes the following facilities: up to 11 dams; a pumping plant with associated power facilities; use of two existing Sacramento River diversions and associated canals; a proposed new inlet/outlet structure and pipeline; potential power generation facilities, up to five recreational areas; and miscellaneous roads and bridges for access. The Project would divert water from the Sacramento River west to the proposed reservoir facilities for water storage until water is withdrawn from the reservoir to serve various Project partner entities.

"Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."

– CA Water Code §85054

The Draft EIR/EIS lists the Project primary objectives to:

- Enhance water management flexibility in the Sacramento Valley.
- Increase reliability of California water supplies.
- Provide storage and operational benefits for programs to enhance water supply reliability, both locally and State-wide, benefit Delta water quality, and improve ecosystems by providing:
 - Net improvements in ecosystem conditions in Sacramento River system and Delta
 - Net improvements in water quality conditions in the Sacramento River system and Delta
 - Net improvements in State-wide water supply reliability for agricultural and urban uses to help meet water demands during drought periods and emergencies, or to address shortages resulting from regulatory and environmental restrictions
 - Net improvements in water supply reliability for fish protection, habitat management (including refuges), and other environmental water needs

The Draft EIR/EIS states that the Sites Authority has submitted an application to the California Water Commission's Water Storage Investment Program (WSIP) to seek partial funding for public benefits from the Project under the Proposition 1 (Prop 1) Water Quality, Supply, and Infrastructure Improvement Act of 2014. A project is not eligible for WSIP funding "...unless it provides measurable improvements to the Delta ecosystem or to the tributaries to the Delta". (See Water Code section 79752.)

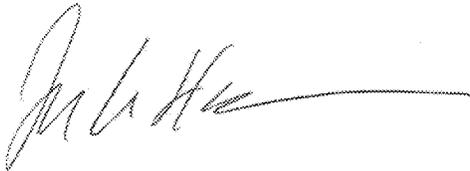
Based on the Project objectives, Council staff believe your Project would provide benefits to the Delta that are supportive of the coequal goals. As stated in the Project's primary objectives, the Project's proposed operations will provide, "net improvements in ecosystem conditions and water quality in the Sacramento River system and Delta", as well as, "net improvements in water supply reliability for fish protection, habitat management and other environmental water needs". Furthermore, eligibility for Prop 1 funding for which you have applied requires the Project to provide "measurable improvements to the Delta ecosystem or to the tributaries to the Delta". (See Water Code section 79752.) However, Council staff believe that the Project does not meet the definition of a covered action, as the construction and ongoing operation of improvements at the Sites Reservoir would be located upstream from the Delta, outside the legal Delta boundary (See Water Code section 85057.5.).

The Draft EIR/EIS acknowledges the Council's jurisdiction and responsibility in Table 1-1 in the Introduction of the Draft EIR/EIS. The Council recommends that the 2009 Delta Reform Act, and the Delta Plan also be listed under section 4.2 *State Policies or Approvals under Chapter 4 Environmental Compliance and Permit Summary* of the Draft EIR/EIS.

Rob Thomson, Project Manager
Sites Project Authority
May 2, 2018
Page 3

Council staff look forward to continued coordination through the Sites Reservoir approval and implementation processes. I encourage you to contact my staff Anthony Navasero (Anthony.Navasero@deltacouncil.ca.gov) with your questions, comments, or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Henderson", with a long horizontal flourish extending to the right.

Jeff Henderson, AICP
Deputy Executive Officer
Delta Stewardship Council

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/7/2020 12:01:22 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Small Water Quality Working Group

Yup, you are right. I was thinking of the CDFW AI's. Thanks.

1	Ali to discuss deal vs. analysis approach with Jerry and get direction	Ali	6/5/20
2	Discuss potential creation of a Sites BON for staff to use in negotiations	Ali	6/10/20

John Spranza

D 916.679.8858 M 818.640.2487

From: Alicia Forsythe [mailto:aforsythe@sitesproject.org]
Sent: Tuesday, July 7, 2020 7:04 AM
To: Spranza, John <John.Spranza@hdrinc.com>
Subject: RE: Small Water Quality Working Group

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hey John – I think the remaining 2 action items are for Erin, not me. I completed the doodle poll. My availability isn't that great, so please continue without me if that works best for the group. We can catch up later.

Ali

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

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From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Monday, July 6, 2020 1:45 PM
To: Micko, Steve/SAC <Steve.Micko@jacobs.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>; Lecky, Jim <Jim.Lecky@icf.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Monique Briard (monique.briard@icf.com) <monique.briard@icf.com>; Williams, Nicole (Nicole.Williams@icf.com) <Nicole.Williams@icf.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; anne.huber@icf.com; Herrin, Jeff (jeff.herrin@aecom.com) <jeff.herrin@aecom.com>
Subject: Small Water Quality Working Group

Good Afternoon,

Please see the attached outstanding Action Items for the small water quality working group in preparation for the next meeting. A doodle poll for the next meeting is here:

<https://doodle.com/poll/yhbr8fxig8nfh6gz>

Thank you

John Spranza, MS, CCN
Senior Ecologist / Regulatory Specialist

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

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From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/7/2020 2:23:28 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Jim Lecky (jim.Lecky@icf.com) [jim.Lecky@icf.com]; Monique Briard (monique.briard@icf.com) [monique.briard@icf.com]; CFitzer@esassoc.com; Tull, Robert/SAC (Robert.Tull@jacobs.com) [Robert.Tull@jacobs.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Leaf, Rob/SAC (Rob.Leaf@jacobs.com) [Rob.Leaf@jacobs.com]
Subject: CDFW Diversion Criteria Meeting 3-Doodle poll
Attachments: 2020_0520_CDFW Strat Session 2_AGN_AI-Notes.docx

Importance: High

Folks,

We did not have enough participation to get this scheduled so I am sending out a revised set of dates. If you could please take the poll I will get this in the books:

<https://doodle.com/poll/hfmen6t2hznehtha>

Please review the action items as well. Thanks.

Monique and Jim, feel free to forward to the new team members.

John

John Spranza, MS, CCN
Senior Ecologist / Regulatory Specialist

HDR
2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916.679.8858 M 818.640.2487
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CDFW 2020 Strategy Session #2 Meeting Agenda



Sites Reservoir Project

Date: May 20, 2020

Location:

WebEx

Call in : 408-418-9388, access code: 961 415 679

Time: 2:30 pm – 4:00 pm

Purpose: Discuss and develop 2020 CDFW ITP approach

Invitees:

Ali Forsythe, Sites Authority
John Spranza, HDR
Erin Heydinger, HDR

Rob Tull, Jacobs
Chris Fitzer, ESA

Monique Briard, ICF
Jim Lecky, ICF

Agenda:

Discussion Topic	Topic Leader	Est Time
1. Review of Action Items	John	5 min
2. Update on Recent CDFW Meetings a. Meeting context and goals	Ali	10 min
3. Review/Discuss Strategy Table	All	30 min
4. Discuss Strategy/Next steps	All	30 min
5. Review New Action Items	John	5 min

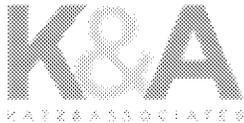
Action Item	Owner	Deadline	Notes	
1	Ali to discuss deal vs. analysis approach with Jerry and get direction	Ali	6/5/20	
2	Discuss potential creation of a Sites BON for staff to use in negotiations	Ali	6/10/20	
3	Refine tax table for backward iteration of fishery effects and then determine the yield and engineering inputs needed to incorporate into the BON	Tull/Lecky	TBD	This is likely several Action Items and needs to be discussed
4	Review/revise upstream diversion criteria for DS benefit protections	Lecky	After AI 1 is complete	

Notes

1. No real diversion criteria at Ham City and Red Bluff
2. Need to identify what a reasonably foreseeable project is:
 - Tisdale Notch is in process (NOP) but spring rearing flows are just conceptual wish list
 - Identify methodology to differentiate and analyze an actual project from a conceptual one
3. Travel time from Shasta to Delta needs to be incorporated into the project analysis as conditions at diversions can be very different from downstream conditions.
 - Shasta to Delta is about 5-6 days
 - Hamilton to KL is 3-ish days
 - Shasta to Keswick is about 1 day
 - By the time the flood peak hits the Delta the conditions at the diversions would be 3-4 days in the past
 - Tax table was an approach to address that.
 - Flow protections at the diversions could be used and that would propagate those protections or benefits for fish downstream
 - Can there be a correlation from 44.5K NDOI back to conditions at the diversions to account for time of travel and allow real-time operations?
 - The daily model could do the backward iteration
4. Criteria at diversion facilities that includes the backward iteration would need to be chosen with the downstream criteria in mind.
 - a. Would be analyzed to see the effect of that criteria (negative and beneficial)
 - b. Adjust criteria at diversion to minimize/maximize effect
 - c. Mitigate the residual impacts
5. Members are not in total agreement on CDFW approach (deal or analysis) and that needs to be addressed in Res Com and Board
 - a. AI: Ali to discuss with Jerry and get direction
6. Res Com and Board could provide the equivalent to a Basis of Negotiation (BON) that would define the range of acceptable criteria that sites staff can negotiate to without further approval from RC or Board.
 - a. AI: Refine tax table to backward iteration of fishery effects and then determine the yield and engineering inputs needed to incorporate into the BON
7. May need to rely on a CDFW policy decision for our proposed permit criteria
 - a. Optimize project and acknowledge impacts and benefits
 - b. Compare to the CDFW scenarios
 - c. Define the yield and cost requirements in the BON
 - d. Educate CDFW about the rationale for upstream protections and how they relate to downstream benefits and effects to areas they are concerned with (ITP)
 - e. Elevate to CDFW MGT to make a decision (accept, reject or conditionally accept with revision) based on benefits and effects not staff-proposed downstream criteria.
8. Will need to campaign with NGOs that highlight the benefits and objectives of the project
 - a. Temperature relief for winter run
 - b. Back to back dry years
 - c. Coldwater pool
 - d. Protect hydrograph, etc.

From: Sara M. Katz [SKatz@KatzandAssociates.com]
Sent: 7/8/2020 3:43:26 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Boling, Robert M. [Robert.Boling@hdrinc.com]
CC: Sarah Rossetto [srossetto@KatzandAssociates.com]
Subject: RE: "In the Can" questions for Sites Reservoir Town Hall Sessions

Thanks so much Team Sites! We will pass these questions along to the Resource Panel as "Pre-Submitted" questions and also prepare powerpoint slides that have these questions listed. It will be our intent to get these asked, either through an advanced question by me to one of the Resource panel members, or a similar question will be raised during the open Q&A sessions. Thanks again.



Sara M. Katz

Founder/CEO

☎ **858.452.0031** · 📠 **858.926.4001**

[San Diego](#) · [Los Angeles](#) · [San Francisco](#)

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 8, 2020 3:40 PM
To: Kevin Spesert <kspesert@sitesproject.org>; Boling, Robert M. <Robert.Boling@hdrinc.com>; Sara M. Katz <SKatz@KatzandAssociates.com>
Cc: Sarah Rossetto <srossetto@KatzandAssociates.com>
Subject: RE: "In the Can" questions for Sites Reservoir Town Hall Sessions

And mine –

1. How will Sites benefit the environment?
2. How will decisions be made on the use and benefits of the environmental water (Proposition 1 water)?
3. How has the right-sized project changed the projects construction and operations impacts?
4. How have you changed diversion criteria for diversion of Sites water?
5. How will you coordinate and collaborate with non-governmental organizations, how can we provide more detailed input?

Ali

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

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Draft_0002836

From: Kevin Spesert <kspesert@sitesproject.org>

Sent: Wednesday, July 8, 2020 11:19 AM

To: Boling, Robert M. <Robert.Boling@hdrinc.com>; Sara M. Katz <SKatz@KatzandAssociates.com>; Alicia Forsythe <aforsythe@sitesproject.org>

Cc: Sarah Rossetto <srossetto@KatzandAssociates.com>

Subject: RE: "In the Can" questions for Sites Reservoir Town Hall Sessions

Robert – These are good ones

Here are mine...

1. When will the Authority start acquiring property for the project?
2. How is the Authority working to address impacts of the project to the local communities and landowners?
3. How will the project provide flood protect benefits to the region?
4. How will the project benefit the local/regional economy?
5. What type of recreation opportunities will be created by the project?

Thanks!

Kevin

From: Boling, Robert M. <Robert.Boling@hdrinc.com>

Sent: Wednesday, July 8, 2020 10:02 AM

To: Sara M. Katz <SKatz@KatzandAssociates.com>; Kevin Spesert <kspesert@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>

Cc: Sarah Rossetto <srossetto@KatzandAssociates.com>

Subject: RE: "In the Can" questions for Sites Reservoir Town Hall Sessions

Here are 5 questions from me

- 1) How does the new Sites reservoir fit into the Governor's Resiliency Plan?
- 2) Will there be opportunities to continue to refine/optimize the project defined under Value Planning?
- 3) What federal involvement is assumed in the cost per acre foot? Could additional federal involvement reduce the repayment costs?
- 4) When can the investors start receiving water from Sites?
- 5) Is there an opportunity to get additional money from the State under Prop 1 as other projects slow down or fall out of the program?

From: Sara M. Katz [<mailto:SKatz@KatzandAssociates.com>]

Sent: Monday, July 6, 2020 2:40 PM

To: Kevin Spesert <kspesert@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Boling, Robert M. <Robert.Boling@hdrinc.com>

Cc: Sarah Rossetto <srossetto@KatzandAssociates.com>

Subject: "In the Can" questions for Sites Reservoir Town Hall Sessions

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Team Sites – I have previously off-lined with you and asked for your help in developing five “in the can” questions that we can advance, as or when needed, during the Town Hall meetings next week. Kevin’s focus is all things local to Sac

Valley (flooding, recreation, economy etc.), Robert's niche would be Value Planning type questions re engineering & operations, and Ali would hone in on Sites and the Environment/Permitting etc.

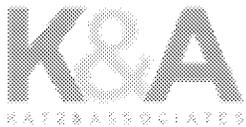
I would ask that you take a look at the Sites message platform as you prepare these questions. We want not only to advance questions that are germane to Sites 2.0 (my descriptor ☺), but to also look to advance some of our key messages in the form of a question.

Examples: With the decisions associated with the Value Planning efforts, how is Sites Reservoir now more affordable? (Operations/Engineering)

How does Sites Reservoir really help the environment? (Environment)

Happy to further discuss as or if needed. Can you please have your sample questions to be my lunchtime on Wednesday so I can consolidate and then determine where we may still have some "question" voids? Thanks in advance.

Sara



Sara M. Katz

Founder/CEO

or: **858.452.0031** · **858.926.4001**

[San Diego](#) · [Los Angeles](#) · [San Francisco](#)

From: Unsworth, Ellen [Ellen.Unsworth@icf.com]
Sent: 7/9/2020 3:34:04 PM
To: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; John Spranza [John.Spranza@hdrinc.com]; 'Laurie Warner Herson' [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Rude, Pete/RDD [Pete.Rude@jacobs.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

This is so helpful. Thank you.

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Thursday, July 9, 2020 3:26 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hello folks

Hey folks

The PowerPoint for tomorrow is available on SharePoint -
https://sitesreservoirproject.sharepoint.com/:b:/r/ProjectDescription/Reference%20Docs/Data%20Needs%20Focus%20Meeting%20Materials/20200710_EnvPerm_Eng_HC_Presentation_Jacobs.pdf?csf=1&web=1&e=1sUO4I

Many thanks to Pete for providing it!

Thank you all for your hard work! Talk to you tomorrow.

-----Original Appointment-----

From: Arsenijevic, Jelica
Sent: Thursday, July 2, 2020 12:52 PM
To: Arsenijevic, Jelica; Luu, Henry; 'Alicia Forsythe'; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Berryman, Ellen; Rude, Pete/RDD
Subject: Sites: Focus Data Needs/Assumption Meetings
When: Friday, July 10, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: WebEx

Revised to capture meeting attendees for each meeting:

Meeting 3 – July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

Meeting 4 – July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)

- How roads and bridge would be constructed.

Meeting 5 – July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

Meeting 6 – “as needed” – on Calendar but Nothing Schedule Yet for Topics.

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

Many thanks to ICF for providing suggested meeting topics. I'm waiting to hear from them on the final “schedule”. Once they are finalized, I will revise the invite to align with who should be on the call (either HR or HC or maybe both). The engineers have a desire to alternate weeks.

As we inch closer to providing the information for the project description, there may be a need to have additional meetings during the week.

Thank you so much!

Jelica

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

<< OLE Object: Picture (Device Independent Bitmap) >>

2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

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host, [click
here](#) to view
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information.

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From: Rude, Pete/RDD [Pete.Rude@jacobs.com]
Sent: 7/9/2020 8:20:54 PM
To: Unsworth, Ellen [Ellen.Unsworth@icf.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; John Spranza [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings
Attachments: 20200710_EnvPerm_Eng_HC_Presentation_Jacobs(rev1).pptx

Good evening folks. A revised version attached – I changed slide 11 due to call we had this afternoon with GCID. I did not load this up to sharepoint. Talk with you all in the morning.

Peter H. Rude, PE (CA, HI, CO) /Jacobs/ Civil Engineer & Principal Project Manager
1-530-229-3396 (office)/ 1-530-917-4164 (mobile)/ 2525 Airpark Drive, Redding, CA 96001
pate.rude@jacobs.com / www.jacobs.com

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Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

<< OLE Object: Picture (Device Independent Bitmap) >>

2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

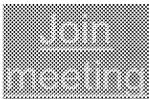
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From: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Sent: 7/10/2020 11:07:13 AM
To: 'Unsworth, Ellen' [Ellen.Unsworth@icf.com]
CC: Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [John.Spranza@hdrinc.com]; 'Laurie Warner Herson' [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; 'Berryman, Ellen' [Ellen.Berryman@icf.com]; Rude, Pete/RDD [Pete.Rude@jacobs.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings
Attachments: Sites: Data Needs - Additional Information Available

Hey Ellen

The design drawings were part of the documents I linked folks to on July 1st. They live on SharePoint in the Data Needs folder. Please confirm that you received the original email. Totally understand that there are so many emails flying around!

<https://sitesreservoirproject.sharepoint.com/ProjectDescription/Reference%20Docs/Forms/AllItems.aspx?id=%2FProjectDescription%2FReference%20Docs%2FWSSIP%2FFeasibility%5FProject%20Features%20%20Check%20Set%2006292020%2FHC%5FSites%5FConveyance%5FTO%2D1%5FProgress%2DPrint%5F2020%2D06%2D29%28rev1%29%2Epdf&parent=%2FProjectDescription%2FReference%20Docs%2FWSSIP%2FFeasibility%5FProject%20Features%20%20Check%20Set%2006292020>

Jelica Arsenijevic
Environmental Project Manager

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Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

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-----Original Appointment-----

From: Arsenijevic, Jelica
Sent: Thursday, July 2, 2020 12:52 PM
To: Arsenijevic, Jelica; Luu, Henry; 'Alicia Forsythe'; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Berryman, Ellen; Rude, Pete/RDD
Subject: Sites: Focus Data Needs/Assumption Meetings
When: Friday, July 10, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: WebEx

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From: Unsworth, Ellen [Ellen.Unsworth@icf.com]
Sent: 7/10/2020 11:16:47 AM
To: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
CC: Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; John Spranza [John.Spranza@hdrinc.com]; 'Laurie Warner Herson' [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Rude, Pete/RDD [Pete.Rude@jacobs.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Thanks, Jelica.

I've used your July 1 email several times and really appreciate all the links you provided. I don't see the link below in that email, but super appreciate that you provided it. Thanks again.

Ellen

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Friday, July 10, 2020 11:07 AM
To: Unsworth, Ellen <Ellen.Unsworth@icf.com>
Cc: Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>
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Sent: Thursday, July 2, 2020 12:52 PM
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Jelica Arsenijevic
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From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/13/2020 10:09:41 AM
To: Monique Briard (monique.briard@icf.com) [monique.briard@icf.com]; Jim Lecky (jim.Lecky@icf.com) [jim.Lecky@icf.com]; Greenwood, Marin [Marin.Greenwood@icf.com]; Hassrick, Jason [Jason.Hassrick@icf.com]; mike.hendrick@icf.com
CC: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole (Nicole.Williams@icf.com) [Nicole.Williams@icf.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Leaf, Rob/SAC (Rob.Leaf@jacobs.com) [Rob.Leaf@jacobs.com]; Alicia Forsythe [ali@forsythe-group.com]
Subject: FW: North Delta Flow Action 2020 Monitoring Work Plan
Attachments: 2020 Work Plan for North Delta Flow Action_v4.pdf; PPT_NorthDeltaFlowAction2020_Monitoring_program_meeting_July_2020.pdf

Morning,

Attached are two documents from DWR's North Delta Flow Group you might find interesting; Ali and I have been trading off on attending these for the last several months. The "North Delta Flow Action" is an adaptive management approach that redirects agricultural drainage or Sacramento River water into Yolo Bypass for up to 2-4 weeks in the summer to generate a moderate flow pulse of ~27 TAF (i.e. a managed 'flow action') to move food resources downstream, with the goal of enhancing the quantity and quality of food for Delta Smelt and other species in the North Delta and lower San Francisco Estuary .

The first attachment is a PowerPoint that highlights the North Delta Flow Group's 2020 proposed flow action that was given last Monday. As 2020 is a non-event year, DWR will not be having the flows through the Colusa Basin Drain to benefit food production and the PT discusses this and the rationale. There's other good information in the presentation that shows timing, duration and effects of previous Flow Actions as well as identifying water quality monitoring locations and data in the study area that would be applicable to us.

The second document is the actual Technical Report for the Work Plan and has some great details on the history of the Actions and the past results, more on the long and detailed side of things if you should be interested.

Anyway, this Action will likely benefit from Sites water given that DWR and CDFW will own Site's storage and could use that water instead of buying water for these actions. This should also fit nicely into our proposed mitigation approach and adaptive management plan.

I'd be happy to have a conversation about this should anyone wish to.

John

John Spranza

D 916.679.8858 M 818.640.2487

From: Twardochleb, Laura@DWR [mailto:Laura.Twardochleb@water.ca.gov]
Sent: Wednesday, July 8, 2020 6:40 PM
To: Twardochleb, Laura@DWR <Laura.Twardochleb@water.ca.gov>
Cc: Davis, Brittany E.@DWR <Brittany.E.Davis@water.ca.gov>
Subject: North Delta Flow Action 2020 Monitoring Work Plan

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear NDFA Stakeholders,

Thanks to those who were able to attend the 2020 North Delta Flow Action Monitoring Plan meeting on Monday. As I mentioned during the meeting, we have been working to finalize the 2020 monitoring work plan for this no-action year. I am attaching a draft of the work plan for your review. Please direct any questions about the work plan to Brittany Davis (cc'd here) and me. Thanks for your continued engagement with the project.

Regards,
Laura

Laura Twardochleb, PhD
Senior Environmental Scientist (Specialist)
Office of Water Quality and Estuarine Ecology
CA Department of Water Resources
Office: (916) 376-9760

From: Unsworth, Ellen [Ellen.Unsworth@icf.com]
Sent: 7/13/2020 12:44:35 PM
To: Rude, Pete/RDD [Pete.Rude@jacobs.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; John Spranza [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hi All.

Thanks for a very helpful Meeting 3. Below is a list of follow up questions from ICF and also a list of the action items we noted.

Questions/Clarifications

- In addition to a new headgate structure, what other improvements would be made to the GCID main canal?
- Will information be available on the TCCA and GCID shutdown periods?
- For GCID - Pete indicated the canal is 1,800 cfs but pipe under canal is 900 cfs. Can you clarify this? Will more information on this design become available?
- Is this a complete list of the items we discussed for in-channel work? Please let us know if there are additional in-channel locations.
 - Funks Pipeline—generally skirting Funks Creek but two large fills may affect the creek?
 - TRR Pipeline—goes under the canal, so no in-channel work?
 - TRR Pipeline—will be buried in trench where it goes across the TRR.
 - Dunnigan Pipeline—Level and Flow Control Gates on TCC Inlet Structure will require in-channel work?
 - Dunnigan Pipeline—in-channel work at CBD for energy dissipating control structure?
 - Dunnigan Pipeline—in-channel work at Sacramento River for energy dissipating control structure?
- Emergency drawdown of Reservoir via Funks: provide clarification as to how this would work with respect to HC?
 - From Nicole's HC notes: "emergency release of 16,000 cfs, where do we release it and what's the flood inundation area based on this release".
 - This seems to contradict information provided by HR (or maybe we don't understand or Nicole's notes are wrong): "Release water out through I/O Tunnel into Funks Reservoir, Funks Creek, over to TRR at a rate of 20,000 cfs; Funks reservoir has an existing spillway and the spillway is in excess of the release; spillway is designed for 22,000 cfs; unsure how the water will be handled by HC coming out of the tunnel and in some way manage it to Funks and TRR"
- Confirm a total of 4 pipelines from Funks Reservoir (2 from Funks, 2 from TRR, extending through Funks) going into Manifold, which would then connect to 2 pipelines into the Reservoir/I-O works; confirm manifold will be designed by HC. Would manifold and the HC pipelines be above ground?

Action Items

- HC/Pete/Henry to confirm the information Nicole sent regarding the 2017 EIR and the modifications to GCID system appropriately so that ICF can incorporate the 2017 information into the Revised PD, if appropriate
- Integration/Jelica to provide previous tech memo/information regarding Funks PGP for ICF to get familiar and know what questions to ask; but don't develop a project description.
- ICF to review the July 20th deliverable from HC.
- Ali to connect with Reclamation regarding Funks bathymetry survey.
- Integration/John - Operations folks have priorities listed in modeling for diversions (either at Red Bluff or Hamilton City); currently priority is Red bluff and then Hamilton city, but would be taken simultaneously; to be confirmed

Thanks again.
Ellen U

From: Rude, Pete/RDD <Pete.Rude@jacobs.com>

Sent: Thursday, July 9, 2020 8:21 PM

To: Unsworth, Ellen <Ellen.Unsworth@icf.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforssythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>

Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Good evening folks. A revised version attached – I changed slide 11 due to call we had this afternoon with GCID. I did not load this up to sharepoint. Talk with you all in the morning.

Peter H. Rude, PE (CA, 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: Unsworth, Ellen <Ellen.Unsworth@icf.com>

Sent: Thursday, July 09, 2020 3:34 PM

To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforssythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>

Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

This is so helpful. Thank you.

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>

Sent: Thursday, July 9, 2020 3:26 PM

To: Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforssythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>

Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hello folks

Hey folks

The PowerPoint for tomorrow is available on SharePoint -

[https://sitesreservoirproject.sharepoint.com/:b:/r/ProjectDescription/Reference%20Docs/Data%20Needs%20Focus%20Meeting%20Materials/20200710 EnvPerm Eng HC Presentation Jacobs.pdf?csf=1&web=1&e=1sUO4I](https://sitesreservoirproject.sharepoint.com/:b:/r/ProjectDescription/Reference%20Docs/Data%20Needs%20Focus%20Meeting%20Materials/20200710%20EnvPerm%20Eng%20HC%20Presentation%20Jacobs.pdf?csf=1&web=1&e=1sUO4I)

Many thanks to Pete for providing it!

Thank you all for your hard work! Talk to you tomorrow.

-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 12:52 PM

To: Arsenijevic, Jelica; Luu, Henry; 'Alicia Forsythe'; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Berryman, Ellen; Rude, Pete/RDD

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From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/15/2020 12:43:29 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]; Conner McDonald [conner@cmdwest.com]; john.spranza@hdrinc.com; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Subject: RE: Sites: Data Needs Meeting Schedule

Yes, we had a discussion on our integration team call this morning. I agree that this is more policy than technical and included Kevin when I forwarded the email(s) to Connor. We need to queue up a discussion on the related Reservoir Management Plan.

From: Alicia Forsythe [mailto:aforsythe@sitesproject.org]
Sent: Wednesday, July 15, 2020 12:23 PM
To: Kevin Spesert <kspesert@sitesproject.org>; Conner McDonald <conner@cmdwest.com>; john.spranza@hdrinc.com; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: Fwd: Sites: Data Needs Meeting Schedule

Hi all - see the email trail below. Let's talk about this on our Monday internal team call. I think we need to reconsider some of this - especially the whole parcel acquisition and fencing the entire reservoir. I see a lot of this as policy decisions and not all technical. This is potentially a lot of extra land to acquire and then maintain. It's going to get expensive and become a challenge over time.

Ali

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

From: Williams, Nicole <Nicole.Williams@icf.com>
Sent: Tuesday, July 14, 2020 4:30 PM
To: John Spranza; Unsworth, Ellen; Arsenijevic, Jelica; Alicia Forsythe
Cc: 'Laurie Warner Herson'; Luu, Henry; Berryman, Ellen
Subject: RE: Sites: Data Needs Meeting Schedule

Hello,

Thanks John. I think that's a good question regarding the fencing.

Basically, we'd like to confirm the Authority still committed to description of the project buffer as described in the 2017 EIR/EIS. This would mean purchasing the parcels as described previously, and, yes, potentially a lot of fencing. I believe it also means the buffers John describes below would be within the area identified as the "project buffer"; i.e., the temporary construction buffers would be within the "project buffer".

To me, the previous description of the project buffer is beyond standard temporary construction buffers typically described for facilities and used for impact analysis. It is more of a "project feature" as it is defined by parcels purchased out to existing boundaries and these parcels would remain undeveloped. Because of this, it suggests the Authority would need to think through how to manage the project buffer once all the facilities were constructed, which wasn't really fully described in the 2017 document (e.g., managing cows if they do get into the project buffer, appropriate fire management, appropriate vegetation management to reduce the potential for invasive species, etc.).

Note, in the response to comments, I believe we attempted to soften the fencing language, I'm trying to find the response.

Perhaps the project buffer could be an agenda item for the PD team meeting tomorrow?

Cheers, Nicole

NICOLE L. WILLIAMS
Senior Environmental Planner
ICF
o 916.231.9614
icf.com

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Tuesday, July 14, 2020 3:58 PM
To: Unsworth, Ellen <Ellen.Unsworth@icf.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Hi,
So what you have below is exactly how it was described in last year's Admin Draft BA. Other buffers we will need would be those associated with construction such as:

1. General assumption for a temporary impact area (aka buffer) adjacent construction areas. The engineers will need to provide that distance from the edge of the construction envelope based on anticipated means and methods of construction: 50, 100, 200 ft to accommodate trucks turning around, equipment movement, short-term construction material placement , etc.
2. Assumed buffer for any vegetation clearing during construction. We used 100 feet from construction envelope for geotech would that be the same for all activities. If it is, then that would be within the area identified in #1 as temporary impacts, but we still need to know what that distance from the construction envelope would be.
3. Other envelopes where some offset would be needed to accommodate project construction, storage, maintenance, dewatering or other similar activities that could have temporary impacts.
4. In-water construction envelopes.

Ali, does the Authority really want to fence that reservoir? I'm going to guess that is well over 100 miles of fence line. \$\$\$

John Spranza

D 916.679.8858 M 818.640.2487

From: Unsworth, Ellen [<mailto:Ellen.Unsworth@icf.com>]
Sent: Tuesday, July 14, 2020 2:57 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Spranza, John <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Subject: RE: Sites: Data Needs Meeting Schedule

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Thanks, Jelica. Sorry I wasn't more clear. I'm asking about the area called Project Buffer in the 2017 doc. Here's how it was described then.

The Project buffer (Figure 3-1) would consist of the total amount of land that would be acquired for the Project beyond the facility footprints, out to the nearest existing parcel boundaries. If the nearest parcel boundary is less than 100 feet beyond the facility footprint, the Project Buffer would extend beyond the parcel boundary to result in at least a 100-foot buffer. The proposed Project Buffer would surround the proposed Sites Reservoir Complex, Holthouse Reservoir Complex, including all facilities located between these two facilities; the proposed TRR and associated facilities; and the proposed Delevan Pipeline Intake/Discharge Facilities.⁷ Because the intent of the Project Buffer is to create a "buffer" around Project facilities, while following existing parcel boundaries, the area and width of the buffer around Project facilities would vary. The Project Buffer would serve several purposes:

- Avoiding splitting parcels and rendering parcel remnants unusable by existing landowners
- Providing a buffer between Project facilities and adjacent existing land uses to avoid potential conflicts in land uses
- Preventing shoreline development around the proposed Sites Reservoir
- Preventing livestock access to the reservoirs, and prevent livestock wastes from entering the proposed reservoirs

Construction. The lands within the Project Buffer would remain undeveloped; the existing vegetation would be maintained as wildlife habitat and protected from fuelwood harvest, grazing, and other forms of environmental degradation. Existing structures would be demolished, and the remaining land would be managed as wildlife habitat. Existing agricultural lands would not be maintained as agriculture but would be converted and managed as wildlife habitat.

The Project Buffer boundary would be fenced using standard three-strand barbed wire fences with posts in areas where the parcels are not already fenced, so that the entire Project Buffer boundary would be fenced. A fuel break would be constructed around the perimeter of the Project Buffer.

Operations. Not applicable.

Maintenance. Maintenance activities that are proposed to be undertaken within the Project Buffer boundary include fence maintenance and periodic boundary fuel break maintenance.

Could the engineers tell us how the Project Buffer will be the same or different. Also, what construction activities would occur there? Based on the above, it looks like no construction activities, but I'm not sure that is correct now.

Thanks.

Ellen

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>

Sent: Tuesday, July 14, 2020 2:47 PM

To: Unsworth, Ellen <Ellen.Unsworth@icf.com>

Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; John Spranza <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>

Subject: RE: Sites: Data Needs Meeting Schedule

Hey Ellen

We are working to answer your questions.

Laurie informed us that the revised draft EIR/EIS will not use the same approach as the 2017 EIR/EIS. The Revised Draft EIR/EIS will not have a primary study area (as described in the EIR/EIS work plan)

Are you asking the engineering team for a buffer area to accommodate temporary access and staging?

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
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M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

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From: Unsworth, Ellen [<mailto:Ellen.Unsworth@icf.com>]
Sent: Tuesday, July 14, 2020 9:52 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Spranza, John <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Subject: RE: Sites: Data Needs Meeting Schedule

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Ok. Thanks, Jelica.

That leads me to another question. Will any of the tech memos include a description of the project buffer area? The types of questions we need answered include:

1. Is buffer around any areas other than reservoir complex and the regulating reservoirs?
2. What construction activities would occur in the buffer area?
3. What operation activities would occur in the buffer area?
4. Will the buffer area be fenced as described in the 2017 doc?

Thanks.
Ellen

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Tuesday, July 14, 2020 9:06 AM
To: Unsworth, Ellen <Ellen.Unsworth@icf.com>
Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; John Spranza <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Hey Ellen

I did ask Henry for specific dates, but because material needs to be reviewed prior to distributing...we agreed to "end of July" and "end of August" dates for distribution. We cannot distribute material that has not been reviewed as there may be incorrect information. Hope you understand...standard QA/QC procedure.

To reiterate – all draft memo's will be available by end of July. All final memo's will be available by end of August.

Jelica Arsenijevic
Environmental Project Manager

Draft_0002864

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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Jelica.Arsenijevic@hdrinc.com

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From: Unsworth, Ellen [<mailto:Ellen.Unsworth@icf.com>]
Sent: Tuesday, July 14, 2020 8:40 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Spranza, John <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Subject: RE: Sites: Data Needs Meeting Schedule

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Hi Jelica. Thanks. I think we were hoping to get more of a "July 20th type date" (that was shared on the phone— see below), so that way we could prepare ourselves, line up internal reviews of draft documents, indicate sources/dates in our working documents, and prepare for the various conference calls.

Is what I filled out below about right? Are we missing any topics? Did we get any of the dates wrong?

Team	Topic	File Name	Status
HR	Geology and Seismicity	Sites Reservoir_Geology Seismicity TM_Draft	Draft provided
HR	Main and Saddle Dams – basis of design	Design Criteria TM_Draft_HR2.6	Draft provided
HR	I/O Tower and Tunnels – basis of design (including mechanical and electrical components)		I thought I heard 7/29 on one of the calls, but can't exactly remember
HR/HC	Funks and Stone Corral Creek – emergency	TM R1 05292020 Final Draft 1.5 Reservoir levels and emergency releases	Per HC 7/10 call – this sounds like more detail for Funks might come Fall/TO2 For other emergency releases – ICF to use need to look at the HR May 29 and HC June memos.

	reservoir releases	Emergency Drawdown Facilities TM(rev1)	
HR	Diversion – diversion plan during construction		I thought I heard 7/29 on one of the calls, but can't exactly remember
HR	Roads and Bridge – basis of design		Draft prior to 7/17? (call is scheduled for 7/17)
HC	Geotechnical		?
HC	Hydraulic		Draft Due 7/20
HC	Site Civil		Draft Due 7/20
HC	Structural		Draft Due 7/20
HC	Mechanical		Draft Due 7/20
HC	Electrical		Seems like based on HC 7/10 phone call this won't come until later discussions with WAPA/PGE
HC	Power Transmission		Seems like based on HC 7/10 phone call this won't come until later discussions with WAPA/PGE
HC	Substations		?

Thank for your help.
Ellen U

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>

Sent: Friday, July 10, 2020 12:05 PM

To: Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>

Cc: 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; John Spranza <John.Spranza@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>

Subject: FW: Sites: Data Needs Meeting Schedule

Hello

All memo's (listed below) will be completed by end of August.

Draft memo's will be completed by end of July.

Final memo's will be completed by end of August.

Henry will share the memos as we get them!

Hope this helps.

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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Jelica.Arsenijevic@hdrinc.com

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From: Luu, Henry
Sent: Monday, July 6, 2020 4:56 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Yes – HC and HR have a list of key project features they are preparing basis of design and TMs for. These include the ones that are currently in draft form on SharePoint:

HR

Geology and Seismicity
Main and Saddle Dams – basis of design
I/O Tower and Tunnels – basis of design (including mechanical and electrical components)
Funks and Stone Corral Creek – emergency reservoir releases
Diversion – diversion plan during construction
Roads and Bridge – basis of design

HC

Geotechnical
Hydraulic
Site Civil
Structural
Mechanical
Electrical
Power Transmission
Substations

Henry H. Luu, PE
D 916.679.8857 M 916.754.7566

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From: Arsenijevic, Jelica
Sent: Monday, July 6, 2020 2:48 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

One more thing (hit send too soon)...are there any other memo's being prepared between now and end of August?

Jelica Arsenijevic

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From: Arsenijevic, Jelica
Sent: Monday, July 6, 2020 2:44 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Oh! Thanks. Nicole and I both missed it. Sorry!!

Jelica Arsenijevic

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

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From: Luu, Henry
Sent: Monday, July 6, 2020 2:27 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

The link I sent last week is the latest. The Emergency Release TM for a 1.5MAF is in that same folder @ <https://sitesreservoirproject.sharepoint.com/:b:/r/Engineering%26Geotechnical/WSIP%20Feasibility/Technical%20Memorandums/Draft/TM%20R1%2005292020%20Final%20Draft%201.5%20MAF%20Reservoir%20Levels%20and%20Emergency%20Release.pdf?csf=1&web=1&e=BRAP5>.

Henry N. Luu, PE
D 916.679.8857 M 916.754.7566

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From: Arsenijevic, Jelica
Sent: Monday, July 6, 2020 2:23 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Hey there

Where on SharePoint? All I know is the ones that were uploaded by you.

I think Joe was referring to an end of May memo regarding emergency spillway release.

Jelica Arsenijevic

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

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M 209-329-6897

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From: Luu, Henry
Sent: Monday, July 6, 2020 2:02 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule

Jelica,

All of the TM received to date is on SharePoint. Can you elaborate what the memo Joe mentioned covers?

Henry H. Luu, PE
D 916.679.8857 M 916.754.7566

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From: Arsenijevic, Jelica
Sent: Monday, July 6, 2020 1:56 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Subject: RE: Sites: Data Needs Meeting Schedule
Importance: High

Hey Henry

Forgot to follow up with you on last week's call regarding a list and copies of technical memos prepared thus far (other than the ones posted on SharePoint already in the feasibility folder). For example: Joe Barnes mentioned a memo last week (dated end of May) and we don't have that one.

Jelica Arsenijevic

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

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-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 1:00 PM

To: Luu, Henry

Subject: Sites: Data Needs Meeting Schedule

When: Thursday, July 2, 2020 4:00 PM-5:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: WebEX

Hey Henry

Let's hash out the meeting schedule together. I don't think it'll take an hour for us to discuss, but figure I'd block out the time. Need to send the meeting topics out to group ASAP. A few other things to discuss too, including:

Getting list of tech memo's prepared thus far.

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information.

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From: Rude, Pete/RDD [Pete.Rude@jacobs.com]
Sent: 7/15/2020 8:38:28 PM
To: Unsworth, Ellen [Ellen.Unsworth@icf.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; John Spranza [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings
Attachments: TM R1 05292020 Final Draft 1.5 MAF Reservoir Levels and Emergency Release.pdf

Hi Ellen,

Please see my responses below and HR Draft TM attached. Hope to present more detail on our next call on July 24.

Peter H. Rude, PE (CA, 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: Unsworth, Ellen <Ellen.Unsworth@icf.com>
Sent: Monday, July 13, 2020 12:45 PM
To: Rude, Pete/RDD <Pete.Rude@jacobs.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>
Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

Hi All.

Thanks for a very helpful Meeting 3. Below is a list of follow up questions from ICF and also a list of the action items we noted.

Questions/Clarifications

- In addition to a new headgate structure, what other improvements would be made to the GCID main canal? (phr: we have request into GCID)
- Will information be available on the TCCA and GCID shutdown periods? (phr: we have request into GCID)
- For GCID - Pete indicated the canal is 1,800 cfs but pipe under canal is 900 cfs. Can you clarify this? Will more information on this design become available? (phr: we have request into GCID)
- Is this a complete list of the items we discussed for in-channel work? Please let us know if there are additional in-channel locations.
 - Funks Pipeline—generally skirting Funks Creek but two large fills may affect the creek? (phr: I hope not – TBD. Please note that the Funks and TRR Pipelines skirt Funks Creek as they make their way west to the Sites Inlet/Outlet Tunnels)
 - TRR Pipeline—goes under the canal, so no in-channel work? (phr: TRR goes under GCID Main Canal and TC Canal – however if construction is staged correctly during 6 week winter shut down period – we may trench through the Canals- a lot cheaper; GCID Main Canal is earth lined whereas TC Canal is concrete lined)
 - TRR Pipeline—will be buried in trench where it goes across the TRR.(phr: The TRR does not exist so TRR will be buried in trench near TRR. The TRR pipeline will be in water work as it crosses Funks Reservoir – probably sheet pile cofferdam so work would be in the dry.)
 - Dunnigan Pipeline—Level and Flow Control Gates on TCC Inlet Structure will require in-channel work? (phr: yes but remember TC Canal is concrete lined so no bugs and bunny problems. Again this tie in would be done during winter shut down period)
 - Dunnigan Pipeline—in-channel work at CBD for energy dissipating control structure? (phr: yes with cofferdam for construction work in the dry)

- Dunnigan Pipeline—in-channel work at Sacramento River for energy dissipating control structure? (phr: yes with cofferdam for construction work in the dry)
- Emergency drawdown of Reservoir via Funks: provide clarification as to how this would work with respect to HC?
- From Nicole's HC notes: "emergency release of 16,000 cfs, where do we release it and what's the flood inundation area based on this release". (phr: TBD during Task Order #2 flood modeling effort during the fall of 2020)
- This seems to contradict information provided by HR (or maybe we don't understand or Nicole's notes are wrong): "Release water out through I/O Tunnel into Funks Reservoir, Funks Creek, over to TRR at a rate of 20,000 cfs; Funks reservoir has an existing spillway and the spillway is in excess of the release; spillway is designed for 22,000 cfs; unsure how the water will be handled by HC coming out of the tunnel and in some way manage it to Funks and TRR" (phr: in my discussions with HR its been 16,000 cfs coming out of I/O tunnels. See attached HR Draft TM on Emergency Flow)
- Confirm a total of 4 pipelines from Funks Reservoir (2 from Funks, 2 from TRR, extending through Funks) going into Manifold, which would then connect to 2 pipelines into the Reservoir/I-O works; confirm manifold will be designed by HC. Would manifold and the HC pipelines be above ground? (phr: 2 from Funks and 2 from TRR, with all four running on the south side of Funks Creek to I/O tunnels. Manifold designed by HC. Above or below ground TBD by end of August)

Action Items

- HC/Pete/Henry to confirm the information Nicole sent regarding the 2017 EIR and the modifications to GCID system appropriately so that ICF can incorporate the 2017 information into the Revised PD, if appropriate (phr: in process with GCID)
- Integration/Jelica to provide previous tech memo/information regarding Funks PGP for ICF to get familiar and know what questions to ask; but don't develop a project description.
- ICF to review the July 20th deliverable from HC.
- Ali to connect with Reclamation regarding Funks bathymetry survey.
- Integration/John - Operations folks have priorities listed in modeling for diversions (either at Red Bluff or Hamilton City); currently priority is Red bluff and then Hamilton city, but would be taken simultaneously; to be confirmed

Thanks again.
Ellen U

From: Rude, Pete/RDD <Pete.Rude@jacobs.com>

Sent: Thursday, July 9, 2020 8:21 PM

To: Unsworth, Ellen <Ellen.Unsworth@icf.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>

Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Good evening folks. A revised version attached – I changed slide 11 due to call we had this afternoon with GCID. I did not load this up to sharepoint. Talk with you all in the morning.

Peter H. Rude, PE (CA, 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: Unsworth, Ellen <Ellen.Unsworth@icf.com>

Sent: Thursday, July 09, 2020 3:34 PM

To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Berryman, Ellen

<Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>

Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

This is so helpful. Thank you.

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>

Sent: Thursday, July 9, 2020 3:26 PM

To: Luu, Henry <Henry.Luu@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; John Spranza <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Rude, Pete/RDD <Pete.Rude@jacobs.com>

Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hello folks

Hey folks

The PowerPoint for tomorrow is available on SharePoint -

https://sitesreservoirproject.sharepoint.com/:b:/r/ProjectDescription/Reference%20Docs/Data%20Needs%20Focus%20Meeting%20Materials/20200710_EnvPerm_Eng_HC_Presentation_Jacobs.pdf?csf=1&web=1&e=1sUO4I

Many thanks to Pete for providing it!

Thank you all for your hard work! Talk to you tomorrow.

-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 12:52 PM

To: Arsenijevic, Jelica; Luu, Henry; 'Alicia Forsythe'; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Berryman, Ellen; Rude, Pete/RDD

Subject: Sites: Focus Data Needs/Assumption Meetings

When: Friday, July 10, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).

Where: WebEx

Revised to capture meeting attendees for each meeting:

Meeting 3 – July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

Meeting 4 – July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)
- How roads and bridge would be constructed.

Meeting 5 – July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

Meeting 6 – “as needed” – on Calendar but Nothing Schedule Yet for Topics.

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

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Thank you so much!

Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

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Technical Memorandum Draft

Prepared for: Sites Authority
 Project: Sites Reservoir Project
 HR-60632561
 Date: May 29, 2020
 Subject: Funks and Stone Corral Creeks
 Reservoir Operating Elevations and Emergency Release Management
 Prepared by: Joseph Barnes, PE
 Reviewed by: Mike Forrest, PE, Jeff Herrin

1.0 PURPOSE

The Sites Project Authority (Authority) is preparing a feasibility-level evaluation for a 1.5-million-acre-foot (MAF) reservoir as a preferred option for the Sites Reservoir Project. This reservoir would be in the same location as the reservoir studied previously by the California Department of Water Resources, Division of Engineering (DWR), and the U. S. Bureau of Reclamation (Reclamation). It would also include constructing similar main dams and saddle dams to form the reservoir.

This Technical Memorandum (TM) provides guidance on reservoir water levels, flood routing, and drawing down the reservoir in the event of an emergency. In addition, the Authority may also choose to evaluate a 1.3 MAF reservoir in the future as another alternative reservoir project. For this reason, information for a 1.3 MAF Reservoir is also provided in this TM where it can be easily derived from work on the 1.5 MAF Reservoir.

2.0 RESERVOIR OPERATING WATER LEVELS

The reservoir operating water levels are based on area-capacity information provided by DWR in their preliminary design report for the main dams and saddle dams¹. This information should be verified once new topographic information becomes available for the project. Table 2-1 provides a summary of water level information for each Reservoir.

Table 2-1 Operating Water Levels

Nominal Reservoir Gross Storage	1.5 MAF	1.3 MAF
Maximum Normal Operating Water Elevation	498 feet	482 feet
Minimum Normal Operating Water Elevation	340 feet	340 feet
Top of Dead Pool	300 feet	300 feet
Active Storage Capacity ¹	1.4 MAF	1.2 MAF

1. Between minimum normal operating water elevation (El. 340.0 feet) and maximum normal operating elevation

The minimum normal operating water level and top of dead pool provided in Table 2-1 are the same as used in all previous reservoir studies.

¹ DWR – Figure 2, Sites Reservoir Engineering Feasibility Study, Golden Gate, Sites, and Saddle Dams, February 2003.

3.0 FLOOD CONTROL SPILLWAY

Background: Sites Reservoir is primarily an off-stream reservoir located in a small drainage area. Because the runoff to the reservoir from the Probable Maximum Flood (PMF) could be contained fully within the reservoir in the freeboard zone with adequate residual freeboard, previous DWR reservoir designs did not include a flood control spillway.

Design PMF: DWR prepared an updated PMF study using Hydrometeorological Report 58 to develop Probable Maximum Precipitation (PMP) over the reservoir basin. Study details are provided in a Memorandum prepared by DWR². Precipitation was dispersed over the subbasins and reservoir and non-infiltrated rainwater was routed down to the reservoir using U.S. Army Corp of Engineers Hydrologic Modeling System (HEC-HMS). Table 3-1 summarizes the study results.

Table 3-1 PMF Study Results

3-Day PMP Rainfall Total	20.63 inches
Total Volume Influx	78,422 acre-feet
Peak Inflow	68,500 cfs

AECOM believes the inflow hydrograph from the DWR study is still adequate for use in the current feasibility study. However, consultation with DSOD will be necessary prior to final design to finalize PMF selection and spillway design criteria.

Design Basis: DSOD will likely require a passive flood control spillway regardless of the reservoir’s ability to fully contain PMF runoff. Topography strongly favors locating a spillway at the north end of the reservoir in conjunction with one of the smaller saddle dams for the 1.5 MAF reservoir.

For the feasibility study, the following criteria are recommended and applied:

- a. The primary criteria for spillway sizing will be the ability to safely pass flows from unplanned over pumping into the reservoir. For the 1.5 MAF reservoir the over pumping rate would be 3,900 cfs originating from the TRR and GCID Canal systems. The same rate would apply for the 1.3 MAF reservoir.
- b. The spillway crest elevation will be set at the maximum normal operating water surface elevation for the reservoir.
- c. The spillway can also pass flow during a PMF flood event. However, the over pumping event and PMF overflow event are assumed to be separate events due to the low probability of simultaneous occurrence.
- d. The size of the spillway is selected so that the peak outflow for the PMF routing closely matches the steady state spillway flow from the over pumping event.

Level pool flood routing (Modified Puls Method) was used for flood routing through the reservoir and spillway. The spillway was assumed to be a concrete structure with ogee crest similar to the one used in the recent Reclamation feasibility study for a 1.8 MAF reservoir. The rating curve for the spillway crest was estimated in accordance with the procedures presented in Section 9.12 of the Design of Small Dams.³ Table 3-2 summarizes the results of the routing.

² Memorandum, Sites Reservoir PMF Analysis, DWR Division of Engineering, August 12, 2004

³ U. S. Department of the Interior, Bureau of Reclamation, Design of Small Dams, third edition, 1987.

Table 3-2 Flood Routing

Nominal Reservoir Gross Storage	1.5 MAF	1.3 MAF
Spillway Crest Elevation	498 feet	482 feet
Spillway Crest Length	80 feet	65 feet
Maximum Depth over Spillway	5.33 feet	6.21 feet
Maximum Flood Elevation	503.33 feet	488.21 feet
Peak Discharge	3,908 cfs	4,076 cfs

The peak discharge from flood routing in Table 3-2 closely matches the over pumping rate. The effects of both over pumping and PMF routing have a similar influence on selecting the recommended freeboard.

4.0 EMERGENCY DRAWDOWN

Criteria: Below is a summary of the applicable DSOD criteria for emergency reservoir drawdown that is the basis for sizing the emergency release facilities. Note that the criteria require sizing the outlet works for the worst-case condition were evacuation needed with a full reservoir. If the reservoir is at a lower elevation when evacuation is needed, release rates would be lower.

- a. Emergency release facilities must be able to reduce the depth of water in the reservoir by 10 percent of the reservoir depth within 7 days.
- b. Reservoir depth is defined as the elevation difference between the maximum normal operating water elevation and the top of dead pool elevation.
- c. The emergency release facilities must be able to drain the reservoir to dead pool within 90 to 120 days.

Table 4-1 summarizes drawdown requirements

Table 4-1 Emergency Drawdown Requirements

Reservoir Size	1.5 MAF	1.3 MAF
Maximum Normal Operating Water Elevation	498 feet	482 feet
Reservoir Depth Above Dead Pool	198 feet	182 feet
10 Percent of Depth	19.8 feet	18.2 feet
7-Day, 10 Percent Release Volume Required ¹	249,000 acre-feet	214,500 acre-feet

1. Based on area-capacity curve

Application: AECOM prepared a feasibility-level evaluation of an emergency drawdown system that would meet the DSOD criteria, which is described below. There is no requirement that would prevent distributing the emergency release to multiple locations around the reservoir. For the 1.5 MAF reservoir, release locations would include Stone Corral Creek at Sites Dam, Funks Creek below the downstream portal of the I/O tunnels near Golden Gate Dam, and up to three locations at the large saddle dams at the north end of the reservoir where reservoir head is adequate to release a significant amount of water during the first seven days.

Table 4-2 provides a summary of the facilities selected for an emergency release study.

Table 4-2 Assumed Emergency Release Facilities for Feasibility Evaluation

Locations	I/O Tunnel Golden Gate	Sites Dam	Saddle Dam No. 3	Saddle Dam No. 5
Energy Dissipating Valves (Number/Size)	4, 90-inch	1, 72-inch	2, 54-inch	2, 54-inch
Valve Discharge Center Line elevation	216 feet	250 feet	450 feet	450 feet
Gross head with Normal Maximum Water Surface	282 feet	248 feet	48 feet	48 feet
Assumed Head Loss Upstream to Valve	30 feet	10 feet	10 feet	10 feet
Net Head on Valve	252 feet	238 feet	38 feet	38 feet
Discharge Coefficient (Cd)	0.71	0.71	0.71	0.71
Maximum Release per Valve	3,996 cfs	2,485 cfs	559 cfs	559 cfs
Total Release (Maximum)	15,984 cfs	2,485 cfs	1,118 cfs	1,118 cfs
Total Maximum Release All Valves	20,705 cfs			

Table 4-2 includes the following considerations:

- a. Releases at the north end of the reservoir would be at Saddle Dams No. 3 and 5. Release facilities would include an intake in the reservoir at or below Elevation 450.0 feet, short steel lined tunnels through the ridge away from the left abutments of both dams, energy dissipation valve structure, and local erosion protection measures at the discharge structure.
- b. Releases at Sites Dam to Stone Corral Creek would be made through facilities incorporated into the construction diversion tunnel on the left abutment of the dam.
- c. Releases from the I/O Tunnel near Golden Gate Dam would be made through an energy dissipation valve structure into Funks Reservoir. Valve center line is assumed to be at Elevation 216.0 feet, two feet above the top of Funks Dam (Elevation 214.0 feet). The existing spillway at Funks Dam is capable of passing flows up to 22,000 cfs based on a gate structure rating curve on the design drawings.
- d. The discharge coefficient for the valves was based on vendor information.

Drawdown Study Results: The outlet facilities and characteristics identified in Table 4-2 were used to verify the ability to draw down the reservoir in compliance with the DSOD criteria. The results of the analysis are presented on Figure 4-1 and Figure 4-2. Analysis approach and findings are summarized as follows:

- a. The 7-day and 90-day criteria are met.
- b. During the first 7 days, the discharge varies from 20,705 cfs down to 19,415 cfs.
- c. At the end of day seven, releases at the saddle dams would be terminated as the head on the valves is significantly reducing, and the emergency release rates at the two other locations can be reduced by approximately 40 percent by partially closing the valves. This will help manage downstream impacts and still achieve lowering in 90 days. On Day 8, release rate would be dropped from approximately 19,415 cfs to approximately 10,700 cfs.
- d. As the reservoir level approaches dead pool elevation, the flow from the valves would be further reduced in steps to avoid air entrainment and poor valve performance as the submergence decreases over the low-level inlet in the reservoir.
- e. Meeting the 90-day criteria rather than 120 days was selected for this study. In consultation with DSOD, it may be possible to obtain concurrence to use 120 days, but this study assumes 90-days in the event the longer time is not accepted.

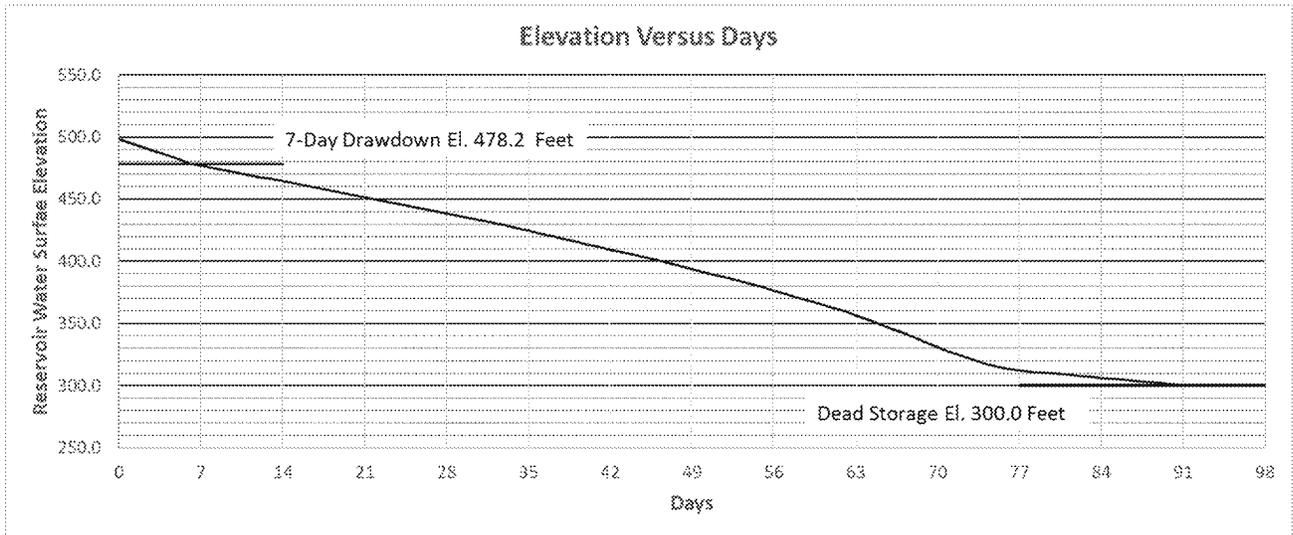


Figure 4-1 Reservoir Elevation Versus Days, 1.5 MAF Reservoir

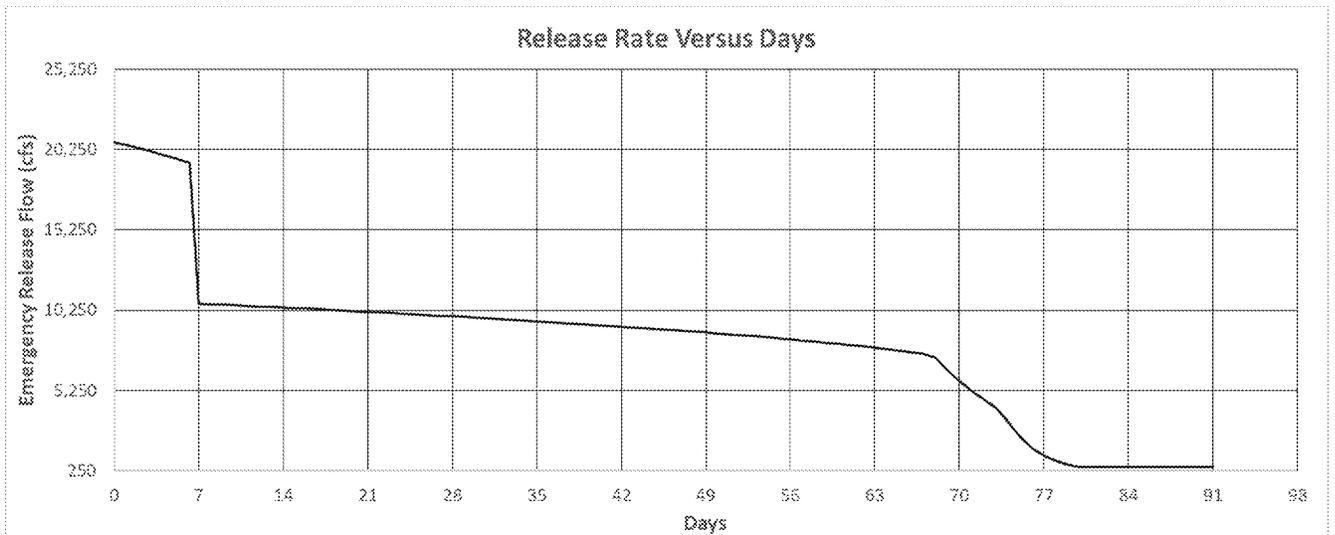


Figure 4-2 Emergency Release Flow Versus Days, 1.5 MAF Reservoir

Table 4-3 provides a summary of the releases at each location during the first seven days.

Table 4-3 Summary of 7-Day Releases, 1.5 MAF Reservoir

Locations	I/O Tunnel Golden Gate	Sites Dam	Saddle Dam No. 3	Saddle Dam No. 5
7-Day Starting Release Rate	15,984 cfs	2,485 cfs	1,118 cfs	1,118 cfs
7-Day Ending Release Rate	15,442 cfs	2,385 cfs	794 cfs	794 cfs

The release approach described above was selected to demonstrate that the DSOD criteria can be met for the 1.5 MAF reservoir. Equipment selections and release rates can be varied as design progresses as long as analyses shows that criteria are being met.

For the 1.3 MAF reservoir, the release approach described above would still be applicable with a minor adjustment in energy dissipation valve sizing. However, the ability to make releases at the north saddle dams would reduce due to topography and reduced reservoir water levels.

As mentioned previously, the intent of this TM is to identify the emergency drawdown criteria that would apply to the 1.5 MAF reservoir and identify an emergency release scenario to demonstrate that the criteria can be met. The benefits of discharging more water out the north end of the reservoir to reduce flows in Funks and Stone Corral Creeks is understood. There is opportunity to add at least one additional outlet at the north end at Saddle Dam No. 9 for the 1.5 MAF reservoir. In addition, it may be possible to identify other tunnel locations through the ridge away from the saddle dams that can also be used for making additional releases. The costs and benefits of such alternatives can be further evaluated in the next phase of the project.

From: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Sent: 7/16/2020 10:22:36 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Forrest, Michael [michael.forrest@aecom.com]; Spranza, John [John.Spranza@hdrinc.com]; 'Laurie Warner Herson' [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; 'Unsworth, Ellen' [Ellen.Unsworth@icf.com]; Jeff Herrin (Jeff.Herrin@aecom.com) [Jeff.Herrin@aecom.com]; Smith, Michael (orange) [michael.g.smith@aecom.com]; Barnes, Joseph [joseph.barnes@aecom.com]; 'Berryman, Ellen' [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Zarchi, Idit [Idit.Zarchi@aecom.com]
CC: Michael, Howard [howard.michael@aecom.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks!

Michael Forrest and team sent over discussion points for tomorrow's meeting (thank you HR Team ☺). Drawings will be reviewed tomorrow and will be provided later today.

**Focus Data Needs/Assumption Meetings
Friday, July 17, 2020**

1. Roads Overview – Construction; Local; Maintenance

Table 1 – Sites Project Roads & Purposes

Roads	Road Purposes By Agency	
	Colusa County ²	Glenn County ²
1 Road 68		Local / Construction
2 Road D		Local / Construction
3 Road 69		Local / Construction
4 North Road (Access Road – Road 69)		Construction / Maintenance
5 Delevan Road	Local / Construction	
6 McDermott Road	Local / Construction	Local / Construction
7 Saddle Dam Road – North (5 - 9)		Construction / Maintenance
8 Saddle Dam Road – South (1 - 5)	Maintenance	Maintenance
9 Sites Lodoga Road Realignment (Alt 1 Causeway)	Local	
10 Day Use Boat Ramp (westside)	Local	
11 Peninsula Hills Recreation Area	Local	
12 Potential Access Rd A (O&M//PGP/GG Dam)	Maintenance	
13 Potential Access Rd B (O&M//PGP/GG Dam)	Maintenance	
14 Potential Access Rd C (O&M//PGP/GG Dam)	Maintenance	
15 Stone Corral Recreation Area / Sites Dam	Local	

16 Comm Road (Vista Point)	Local	
17 Huffmaster Road Realignment	Local	
18 Sites Lodoga Road Realignment (Alt 4)	Local	

Notes:

- 1) Huffmaster Road realignment is the easterly segment of Sites Lodoga Road Realignment (Alt 4) from Huffmaster Road to Maxwell Sites Road. This is the south road to the southern residents.
- 2) Local access includes local road for public use and recreational access

2. **Borrow Sites – Off Site (illustrated on Drawing STS-315-C-2002)**

- a. A site near Orland, about 30 miles north of Maxwell on I-5
- b. Butte Sand and Gravel along State Route 20 near the town of Sutter, 23 miles east of Williams, which is 8 miles south of Maxwell
- c. Saddle Dam Sandstone Quarry, which is located immediately east and adjacent to the reservoir site

3. **Key Local Roads (paved)**

- d. Sites Lodoga Road Realignment (Alt 1 Causeway)
- e. Huffmaster Road Realignment (easterly segment of Sites Lodoga Road Realignment (Alt 4))

4. **Other Local Roads (Recreation Areas - paved)**

- f. Stone Corral Recreation Area
- g. Day Use Boat Ramp
- h. Peninsula Hills Recreation Area

5. **Construction/Maintenance Access Roads**

- i. Golden Gate Dam – crest (A1 – gravel), I/O Tower (B1 & 2 – gravel), Funks Reservoir (C1 – paved), Golden Gate Dam – east base (C2 – gravel)
- j. Comm Tower Road
- k. Road 68, Road D, Road 69, North Road (Access Road)
- l. Delevan Road, McDermott Road (north to Road 68)
- m. Delevan Road, McDermott Road (south), Maxwell Sites Road

6. **Eastside Road (REMOVED)**

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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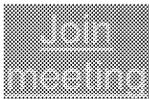
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Sent: 7/16/2020 7:44:26 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Forrest, Michael [michael.forrest@aecom.com]; Spranza, John [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings
Attachments: RD-2020-07-16_Progress Print_ROADWAY SET_Env Mtg_reduced_7-17-20.pdf; STS-315-C-2002_7-17-20.pdf

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Jelica

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Sent: Thursday, July 16, 2020 10:23 AM
To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; 'Unsworth, Ellen' <Ellen.Unsworth@icf.com>; Jeff Herrin (Jeff.Herrin@aecom.com) <Jeff.Herrin@aecom.com>; Smith, Michael (orange) <michael.g.smith@aecom.com>; Barnes, Joseph <joseph.barnes@aecom.com>; 'Berryman, Ellen' <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Zarchi, Idit <Idit.Zarchi@aecom.com>
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- d. Sites Lodoga Road Realignment (Alt 1 Causeway)
- e. Huffmaster Road Realignment (easterly segment of Sites Lodoga Road Realignment (Alt 4))

4. **Other Local Roads (Recreation Areas - paved)**

- f. Stone Corral Recreation Area
- g. Day Use Boat Ramp
- h. Peninsula Hills Recreation Area

5. **Construction/Maintenance Access Roads**

- i. Golden Gate Dam – crest (A1 – gravel), I/O Tower (B1 & 2 – gravel), Funks Reservoir (C1 – paved), Golden Gate Dam – east base (C2 – gravel)
- j. Comm Tower Road
- k. Road 68, Road D, Road 69, North Road (Access Road)
- l. Delevan Road, McDermott Road (north to Road 68)
- m. Delevan Road, McDermott Road (south), Maxwell Sites Road

6. Eastside Road (REMOVED)

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

hdrinc.com/follow-us

-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 12:52 PM

To: Arsenijevic, Jelica; 'Alicia Forsythe'; Forrest, Michael; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Jeff Herrin (Jeff.Herrin@aecom.com); Smith, Michael (orange); Barnes, Joseph; Berryman, Ellen; Luu, Henry; Zarchi, Idit

Cc: Michael, Howard

Subject: Sites: Focus Data Needs/Assumption Meetings

When: Friday, July 17, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).

Where: WebEx

Revised to capture meeting attendees for each meeting:

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of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

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Jelica

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Environmental Project Manager

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Jelica.Arsenijevic@hdrinc.com

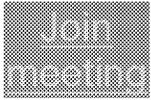
hdrinc.com/follow-us

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**Operations, Environmental Planning, and Environmental Permitting
Permits and Agreements Needed for the Sites Reservoir Project and Lead Negotiator, Negotiations Team
Focused on Activities Thru End of 2022
Revised Draft – July 17, 2020**

Permit / Agreement	Agency With	Purpose / Key Components Addressed	Negotiations Timeframe	Tiered from EIR/EIS	Lead Negotiator*	Negotiations Team	Work Group*
Sites / Reclamation Operations Agreement	Bureau of Reclamation	<ol style="list-style-type: none"> 1. Coordination of Sites water deliveries with Reclamation’s operation of the Central Valley Project (CVP). 2. Exchanges with Shasta and Folsom reservoirs (Within Year and Real-time) 3. Sites water accounting in the context of the Coordinated Operations Agreement for the CVP and State Water Project (SWP). 4. Conveyance and operational losses. 5. Exchanges and transfers from Sites-participants to non-Sites CVP contractors. 6. Water rights and point of delivery considerations. 7. Note, need to determine if this agreement will also cover Warren Act contract, modifications to Federal Facilities (Funks, turnout for Dunnigan pipeline, etc.), and land license / lease of lands (for any facilities located of Federal lands). Might be best to have these as separate agreements as there are separate standard form of contracts and requirements for these in Reclamation. 	<p>Now thru spring 2022</p> <p>Term Sheet 6/2021</p> <p>Final Agreement spring 2022</p>	Yes	Erin Heydinger		Ops and Engineering

Permit / Agreement	Agency With	Purpose / Key Components Addressed	Negotiations Timeframe	Tiered from EIR/EIS	Lead Negotiator*	Negotiations Team	Work Group*
Sites / State Operations Agreement	Department of Water Resources	<ol style="list-style-type: none"> 1. Coordination of Sites water deliveries with DWR's operation of the SWP. 2. Exchanges with Oroville reservoir 3. Sites water accounting in the context of the Coordinated Operations Agreement for the Central Valley Project (CVP) and State Water Project (SWP). 4. Conveyance and operational losses. 5. Exchanges and transfers from Sites-participants to non-Sites SWP contractors. 6. Water rights and point of delivery considerations. 	<p>Now thru spring 2022</p> <p>Term Sheet 6/2021</p> <p>Final Agreement spring 2022</p>	Yes	Ali Forsythe (with Erin Heydinger for consistency with Sites / Reclamation Operations Agreement)	Should generally be same team as above	Ops and Engineering
Sites / Water Service Agreement	Sites Reservoir Committee	<ol style="list-style-type: none"> 1. Roles of the Sites Project Authority (JPA) and the Reservoir Committee 2. Delegation (operations plan, other?) 3. Allocation of capital costs and operating costs (fixed and variable, beneficiary pays) 4. Definition of project vs. non-project costs. 5. Storage as a benefit (consistent with the storage policy) 6. Definition of water marketplace 7. Conflict resolution 	<p>11/2020 thru spring 2022</p> <p>Term Sheet 6/2021</p> <p>Final Agreement spring 2022</p>	Must be consistent with and cant be signed until CEQA completed	JP Robinette		Authority Board Coordination Committee? (TBD)
Sites / GCID Operations Agreement	Glenn Colusa Irrigation District	<ol style="list-style-type: none"> 1. Use of GCID facilities 2. Operations and maintenance responsibilities 3. Roles and responsibilities between the Authority and GCID 4. Costs and Payments 5. Modification to GCID facilities (here or separate?) 	<p>1/2021 thru spring 2022</p> <p>Term Sheet 6/2021</p> <p>Final Agreement spring 2022</p>	Must be consistent with and cant be signed until CEQA completed	JP Robinette		Ops and Engineering

Permit / Agreement	Agency With	Purpose / Key Components Addressed	Negotiations Timeframe	Tiered from EIR/EIS	Lead Negotiator*	Negotiations Team	Work Group*
Sites / TCCA Operations Agreement	Tehama-Colusa Canal Authority	<ol style="list-style-type: none"> 1. Use of TCC facilities 2. Operations and maintenance responsibilities 3. Roles and responsibilities between the Authority and TCCA 4. Costs and Payments 5. Modification to TCC facilities (here or separate?) <p>Who has authority to grant use and modification permissions (TCCA or Reclamation)? Need to determine how this agreement dovetails with Reclamation Warren Act contract, facility modification agreement, and land license.</p>	<p>1/2021 thru spring 2022</p> <p>Term Sheet 6/2021</p> <p>Final Agreement spring 2022</p>	Must be consistent with and cant be signed until CEQA completed	JP Robinette		Ops and Engineering
Biological Assessment	Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service	<ol style="list-style-type: none"> 1. Compliance with Federal ESA requirements for construction and operations, including incidental take of listed species. 2. Compliance with related statue such as the Migratory Bird Treaty Act, Magnuson Stevens Fishery Conservation and Management Act, etc. 	<p>9/2020 thru early 2022</p> <p>Submit BA 6/2021</p> <p>BO target early 2022</p>	Yes	Jerry Brown **	<p>Operations Team:</p> <p>Construction Team:</p>	Enviro Planning and Permitting
Eagle Take Permit	Bureau of Reclamation and U.S. Fish and Wildlife Service	Compliance with the Bald and Golden Eagle Act	<p>9/2020 thru early 2022</p> <p>Submit Application 6/2021</p> <p>Permit target early 2022</p>	Yes	Jerry Brown **	Likely same as Construction Team above (may need input from Operations Team also)	Enviro Planning and Permitting
State Incidental Take Permit – Operations	CA Department of Fish and Wildlife	Compliance with State ESA (Section 2081.1 of Fish and Game Code) for operations, including incidental take of listed species.	<p>9/2020 thru late 2022</p> <p>Submit Application 12/2021</p> <p>ITP target late 2022</p>	Yes	Jerry Brown **	Same as Operations Team above	Enviro Planning and Permitting

Permit / Agreement	Agency With	Purpose / Key Components Addressed	Negotiations Timeframe	Tiered from EIR/EIS	Lead Negotiator*	Negotiations Team	Work Group*
State Incidental Take Permit – Construction	CA Department of Fish and Wildlife	Compliance with State ESA (Section 2081.1 of Fish and Game Code) for construction, including incidental take of listed species.	9/2020 thru late 2022 Submit Application 12/2021 ITP target late 2022	Yes	Jerry Brown **	Same as Construction Team above	Enviro Planning and Permitting
Section 106 Programmatic Agreement	Bureau of Reclamation; State Historic Preservation Officer; Tribes	Compliance with Section 106 of the National Historic Preservation Act thru completion of a Programmatic Agreement.	9/2020 thru 12/2021	Yes	Kevin Spesert		Enviro Planning and Permitting
AB 52	Tribes	Compliance with AB 52	Now thru end of EIR effort (spring 2022)	Yes	Kevin Spesert	Same as Section 106	Enviro Planning and Permitting
Water Right Permit	State Water Resources Control Board	Compliance with California Water Code.	9/2020 thru end of 2022	Yes	Ali Forsythe		Enviro Planning and Permitting
Clean Water Act Section 404 and River and Harbors Act Section 10	Army Corps of Engineers	Compliance with Clean Water Act Section 404 for construction and operations.	9/2020 thru end of 2022	Yes	Ali Forsythe		Enviro Planning and Permitting
Clean Water Act Section 401 and 402 (NPDES Permit) and Porter Cologne Water Quality Control Act	State Water Resources Control Board	Compliance with Clean Water Act Section 401 and 402, and the Porter Cologne Water Quality Control Act.	9/2020 thru end of 2022	Yes	Ali Forsythe	Same as 404	Enviro Planning and Permitting
Rivers and Harbor Act, Section 14 (USC Section 408)	Army Corps of Engineers	Compliance with River and Harbors Act Section 408 for actions in and near a Federally-authorized flood control project.	9/2020 thru end of 2022	Yes	Ali Forsythe		Enviro Planning and Permitting
Central Valley Flood Protection Board Encroachment Permit	Central Valley Flood Protection Board	Compliance with Title 23 of the California Code of Regulations (CCR Title 23, Div 1 Central Valley Flood Protection Board (July 2014))	9/2020 thru end of 2022	Must be consistent with and cant be signed until CEQA completed	Ali Forsythe	Same as RHA Section 14	Enviro Planning and Permitting

Permit / Agreement	Agency With	Purpose / Key Components Addressed	Negotiations Timeframe	Tiered from EIR/EIS	Lead Negotiator*	Negotiations Team	Work Group*
Sites/Colusa Basin Drain Authority Operations Agreement	???	1. Use of CBD for conveyance 2. Operations and maintenance responsibilities 3. Roles and responsibilities between the Authority and CBD	9/2020 thru end of 2022	Must be consistent with and cant be signed until CEQA completed	JP Robinette or Kevin Spesert (if lands agreements)		Ops and Engineering / Possibly Lands also
WSIP Public Benefits – Biological	CA Department of Fish and Wildlife	Comply with Prop 1 requirements for public benefits	1/2021 thru end of 2022	Must be consistent with and cant be signed until CEQA completed	Jerry Brown		Enviro Planning and Permitting
WSIP Public Benefits – Flood and Recreation	CA Department of Water Resources	Comply with Prop 1 requirements for public benefits	1/2021 thru end of 2022	Must be consistent with and cant be signed until CEQA completed	Ali Forsythe		Enviro Planning and Permitting
2022 and Beyond Permits (Would need to verify the need for some of these depending on final alternative selected)							
Lake and Streambed Alteration Agreement	CDFW	Comply with Section 1600 of Fish and Game Code			Ali Forsythe		Enviro Planning and Permitting
State Land Use Lease (Need TBD)	California State Lands Commission	Work on sovereign land; specifically, below OHWM of Sacramento River			Ali Forsythe		Enviro Planning and Permitting
SMARA mining permit	Glenn and Colusa Counties	Borrow pitting exceeding 1 acre or removal of more than 1,000 cubic yards of material			Ali Forsythe		Enviro Planning and Permitting
Plan Approval	DWR- Div. of Safety of Dams	Water Code, Div. 3, Part 1 & 2			Henry Luu		Ops and Engineering
Permit to Construct/Operate	Air Districts	Warren-Alquist Act and Clean Air Act			Ali Forsythe or Henry Luu (determine later)		Enviro Planning and Permitting
Encroachment Permits	Caltrans	Allow construction and operations of facilities that impact state highways			Henry Luu		Enviro Planning and Permitting

* None of these can be negotiated in isolation. It is the Lead Negotiators responsibility to determine when and how to bring in other Authority Agents, Integration Team members, and Service Area providers when topics range outside of their core area. It is also the Lead Negotiators responsibility to coordinate with additional Work Groups for topics that may fall in more than one Work Group focus area.

** Ali will lead efforts for Sites and brief Jerry on a regular basis including more extensive briefings with Integration and the Service Area team prior to negotiations. Consider if Ali Forsythe takes over in June 2021 (after recusal period is completed).

From: Forrest, Michael [michael.forrest@aecom.com]
Sent: 7/17/2020 3:51:58 PM
To: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Michael, Howard [howard.michael@aecom.com]; Doctolero, Vanessa [vanessa.doctolero@aecom.com]; Herrin, Jeff [jeff.herrin@aecom.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File
Attachments: SITES RESERVOIR PROJECT LIMITS.kmz

All,

As discussed today, attached is the Roads KMZ file for your use.

Please let me know if you have any questions.

Thanks,

Mike
Cell: 925-998-6875

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Thursday, July 16, 2020 7:44 PM
To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>
Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks

Here are the drawings that will be reviewed during tomorrow's meeting. Apologies for late email.

Jelica

From: Arsenijevic, Jelica
Sent: Thursday, July 16, 2020 10:23 AM
To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; 'Unsworth, Ellen' <Ellen.Unsworth@icf.com>; Jeff Herrin (Jeff.Herrin@aecom.com) <Jeff.Herrin@aecom.com>; Smith, Michael (orange) <michael.g.smith@aecom.com>; Barnes, Joseph <joseph.barnes@aecom.com>; 'Berryman, Ellen' <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Zarchi, Idit <Idit.Zarchi@aecom.com>
Cc: Michael, Howard <howard.michael@aecom.com>
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks!

Michael Forrest and team sent over discussion points for tomorrow's meeting (thank you HR Team ☺). Drawings will be reviewed tomorrow and will be provided later today.

Focus Data Needs/Assumption Meetings
Friday, July 17, 2020

1. Roads Overview – Construction; Local; Maintenance

Table 1 – Sites Project Roads & Purposes

	Roads	Road Purposes By Agency	
		Colusa County ²	Glenn County ²
1	Road 68		Local / Construction
2	Road D		Local / Construction
3	Road 69		Local / Construction
4	North Road (Access Road – Road 69)		Construction / Maintenance
5	Delevan Road	Local / Construction	
6	McDermott Road	Local / Construction	Local / Construction
7	Saddle Dam Road – North (5 - 9)		Construction / Maintenance
8	Saddle Dam Road – South (1 - 5)	Maintenance	Maintenance
9	Sites Lodoga Road Realignment (Alt 1 Causeway)	Local	
10	Day Use Boat Ramp (westside)	Local	
11	Peninsula Hills Recreation Area	Local	
12	Potential Access Rd A (O&M//PGP/GG Dam)	Maintenance	
13	Potential Access Rd B (O&M//PGP/GG Dam)	Maintenance	
14	Potential Access Rd C (O&M//PGP/GG Dam)	Maintenance	
15	Stone Corral Recreation Area / Sites Dam	Local	
16	Comm Road (Vista Point)	Local	
17	Huffmaster Road Realignment	Local	
18	Sites Lodoga Road Realignment (Alt 4)	Local	

Notes:

1) Huffmaster Road realignment is the easterly segment of Sites Lodoga Road Realignment (Alt 4) from Huffmaster Road to Maxwell Sites Road. This is the south road to the southern residents.

2) Local access includes local road for public use and recreational access

2. Borrow Sites – Off Site (illustrated on Drawing STS-315-C-2002)

a. A site near Orland, about 30 miles north of Maxwell on I-5

b. Butte Sand and Gravel along State Route 20 near the town of Sutter, 23 miles east of Williams, which is 8 miles south of Maxwell

c. Saddle Dam Sandstone Quarry, which is located immediately east and adjacent to the reservoir site

3. Key Local Roads (paved)

d. Sites Lodoga Road Realignment (Alt 1 Causeway)

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Environmental Project Manager

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Unsworth, Ellen; Jeff Herrin (Jeff.Herrin@aecom.com); Smith, Michael (orange); Barnes, Joseph; Berryman, Ellen; Luu, Henry; Zarchi, Idit

Cc: Michael, Howard

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Jelica

Jelica Arsenijevic
Environmental Project Manager

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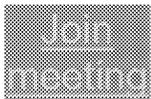
Jelica.Arsenijevic@hdrinc.com

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(access
code): 146
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Meeting
password:
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Join by phone

+1-408-418-9388 United States Toll

[Global call-in numbers](#)

Join from a video system or application

Dial [1461192767@meethdr.webex.com](tel:1461192767@meethdr.webex.com)

You can also dial 173.243.2.68 and enter your meeting number.

**Join using Microsoft Lync or Microsoft
Skype for Business**

Dial
[1461192767.meethdr@lync.webex.com](tel:1461192767.meethdr@lync.webex.com)

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host, [click](#)
[here](#) to view

host
information.

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<http://help.webex.com>

From: Jerry Brown [jbrown@sitesproject.org]
Sent: 7/20/2020 3:04:12 PM
To: Luu, Henry [Henry.Luu@hdrinc.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Boling, Robert M. [Robert.Boling@hdrinc.com]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: August Agenda Item - Engr Feasibility Update

This is a follow-up to our “risk update” discussion this morning during agenda development. I would like to see us reference the objective of this item to our work plan goal #4 below. Are we intending to discuss “Engineering Feasibility Approach For Improved Cost Certainty” where we review the facilities engineering we’ll be conducting as part of Amendment 2 to arrive as a more certain cost estimate in 18 months and are we seeking their feedback on that direction to see if we left anything out. If yes, lets use this description in our 3 month look ahead and this objective. If no, please explain.

1. Work Plan Goals

The project goals are based on near-term priorities as directed by the Reservoir Committee and the Authority Board and form the basis of the work plan. The project goals of this work plan are to:

1. Improve certainty related to the reservoir’s operations (fills; releases; levels of local, state, and federal investment; etc.) and degree of operational integration with the State Water Project and Central Valley Project (cooperative operations agreement) to produce benefits for both water supply and reliability purposes and water dedicated to environmental purposes.
2. Improve certainty related to the project’s permitability through earlier and more focused consultations with permitting agencies that will allow the team to efficiently and effectively prepare applications for key federal and state permits and the state’s water rights.
3. Largely complete the environmental analysis and documentation as required under CEQA and NEPA.
4. Improve certainty surrounding the project’s affordability by advancing engineering and implementing risk management to improve the accuracy of the cost estimates, and by pursuing low-interest financing and potential grants.
5. Continue to cultivate and strengthen partnerships with local landowners, communities, and key stakeholders that represent environmental, business, labor, and other interests.
6. Meet the January 1, 2022, Prop 1 (WSIP) milestone to remain eligible to receive the \$775M in construction funding.
7. Identify continued participation Go/No-Go decision points with staggered cash calls.
8. Develop a plan of finance and a successor participation agreement, including a work plan, to advance the Sites Project beyond December 31, 2021.

From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 7/20/2020 3:30:16 PM
To: Jerry Brown [jbrown@sitesproject.org]; Luu, Henry [Henry.Luu@hdrinc.com]; Boling, Robert M. [Robert.Boling@hdrinc.com]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: August Agenda Item - Engr Feasibility Update

Hi Jerry,

I think that is reasonable and it does support that goal. That will be a good way to frame up that discussion. As a bit of background, we took our draft Amendment 1B Work Plan to the Reservoir Committee in December and received feedback that they wanted a high-level, qualitative risk assessment done on the Value Planning project done before the end of 1B. I think it was Bill Vanderwaal and a couple of others that were pushing for that. Based on that discussion, we added the risk assessment to the final Work Plan that was approved in January. Here's the snippet from that:

9. Qualitative Risk Assessment

Revise existing Risk Assessment based on new information. The updated risk assessment will update the risk register developed in 2018 and will allow for improved certainty on the cost estimates provided in the Value Planning effort.

Deliverable Description: Risk workshop, outcomes technical memorandum draft by March 19, 2020.

Authority Agent Lead: Jim Watson
Staff Lead: Robert Boling
Target Budget Amount: \$78,000

Note that the date got pushed back to better align with the VP report, which was completed in April. I think framing it up as responding to their request as a "must have" deliverable by the end of 1B, plus trying to get a jump start on the Amendment 2 goals would work. This work has helped us be proactive in determining the work needed during Amendment 2 and will lay the groundwork for the more thorough risk assessment we will do next year. One more thought – I think renaming the document is just fine. I do think it will be important to be sure we communicate (verbally) that these two deliverables are the same so they are aware we are being responsive to their request that we amend the 1B Work Plan to include this product.

Erin

PS – here's the link to the Amendment 1B Work Plan I pulled this from: https://3hm5en24txyp2e4cxyxaklbs-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/09-2-Res-Comm_Staff-Report_Amendment-1B-Staff-Report.pdf

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, July 20, 2020 3:04 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Boling, Robert M. <Robert.Boling@hdrinc.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: August Agenda Item - Engr Feasibility Update

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

This is a follow-up to our “risk update” discussion this morning during agenda development. I would like to see us reference the objective of this item to our work plan goal #4 below. Are we intending to discuss “Engineering Feasibility Approach For Improved Cost Certainty” where we review the facilities engineering we’ll be conducting as part of Amendment 2 to arrive as a more certain cost estimate in 18 months and are we seeking their feedback on that direction to see if we left anything out. If yes, lets use this description in our 3 month look ahead and this objective. If no, please explain.

1. Work Plan Goals

The project goals are based on near-term priorities as directed by the Reservoir Committee and the Authority Board and form the basis of the work plan. The project goals of this work plan are to:

1. Improve certainty related to the reservoir’s operations (fills; releases; levels of local, state, and federal investment; etc.) and degree of operational integration with the State Water Project and Central Valley Project (cooperative operations agreement) to produce benefits for both water supply and reliability purposes and water dedicated to environmental purposes.
2. Improve certainty related to the project’s permitability through earlier and more focused consultations with permitting agencies that will allow the team to efficiently and effectively prepare applications for key federal and state permits and the state’s water rights.
3. Largely complete the environmental analysis and documentation as required under CEQA and NEPA.
4. Improve certainty surrounding the project’s affordability by advancing engineering and implementing risk management to improve the accuracy of the cost estimates, and by pursuing low-interest financing and potential grants.
5. Continue to cultivate and strengthen partnerships with local landowners, communities, and key stakeholders that represent environmental, business, labor, and other interests.
6. Meet the January 1, 2022, Prop 1 (WSIP) milestone to remain eligible to receive the \$775M in construction funding.
7. Identify continued participation Go/No-Go decision points with staggered cash calls.
8. Develop a plan of finance and a successor participation agreement, including a work plan, to advance the Sites Project beyond December 31, 2021.

From: Sara M. Katz [SKatz@KatzandAssociates.com]
Sent: 7/21/2020 7:11:57 AM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
Subject: Re: SOS Podcast

Thanks Jerry. I will listen to this later today.

Sent from my iPhone

On Jul 21, 2020, at 6:49 AM, Jerry Brown <jbrown@sitesproject.org> wrote:

Tom Stokely talks about Sites (after the discussion Ali and I had with them 1 ½ weeks ago). He also talks about the Shasta dam raise and the tunnel project. He's definitely a win/lose kind of guy.

Ali – can you send the Sites comment letter he references from December 2019 (38 groups signatory)? Also I've seen something that says we've categorized comments and identified how we're addressing them in the R&R EIR. Can you send that doc too? thanks

<https://lostcoastoutpost.com/2020/jul/18/econews-report-proposed-new-central-valley-dam-cou/>

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/21/2020 8:21:32 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: CDFW ITP Approach Outline

Good point, I will bring that up with Monique and Lecky/Mike.

John Spranza

D 916.679.8858 M 818.640.2487

From: Alicia Forsythe [mailto:aforsythe@sitesproject.org]
Sent: Tuesday, July 21, 2020 5:46 AM
To: Spranza, John <John.Spranza@hdrinc.com>
Subject: RE: CDFW ITP Approach Outline

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks John. We need to make sure that we define reasonable foreseeable in the context of CEQA. We should put together some criteria for what is reasonable foreseeable and then ID if the projects meet those criteria. We should do the same for projects to include in the cumulative analysis. This will need to be a blend of permitting and CEQA needs as the modeling will be completed for both.

Appreciate you keeping this moving!

Ali

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

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From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Monday, July 20, 2020 2:41 PM
To: Alicia Forsythe <ali@forsythe-group.com>
Subject: FW: CDFW ITP Approach Outline

FYI

John Spranza

D 916.679.8858 M 818.640.2487

From: Briard, Monique [mailto:Monique.Briard@icf.com]
Sent: Monday, July 20, 2020 2:23 PM

To: Spranza, John <John.Spranza@hdrinc.com>

Subject: RE: CDFW ITP Approach Outline

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

John, Are you available for a call on Wed either before noon or after 230? Thanks, Monique

From: Spranza, John <John.Spranza@hdrinc.com>

Sent: Monday, July 20, 2020 11:05 AM

To: Lecky, Jim <Jim.Lecky@icf.com>; Hassrick, Jason <Jason.Hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>

Cc: Briard, Monique <Monique.Briard@icf.com>; Greenwood, Marin <Marin.Greenwood@icf.com>; Wilder, Rick <Rick.Wilder@icf.com>

Subject: RE: CDFW ITP Approach Outline

An additional topic that you might want to talk about internally today was for the group to identify actions/projects that are reasonably foreseeable and should be included in the initial Jacob's screening analysis and other items that could be included at a later date should if desired. Here is what I have come up with for discussion with the group, feel free to modify.

- Approach to Sites current modeling analysis needs to take into account project time/schedule requirements of WISP and the members. This necessitates some up-front planning for what biological protections should be included in the initial screening analysis to ensure we can divert sufficient water and then carried through to the initial full modeling run by Jacobs/Hendrix to see effect of the project.
 - Reasonably Foreseeable Actions and/or Protections to include in initial screening (open for discussion):
 - Fremont Weir Notch
 - Effect would be to habitat (timing and duration of inundation)
 - Delta Conveyance Project
 - Applicable VA Components
 - Wilkins Slough 5,000 cfs (do we want to add 8,000 April/May)
 - Fish Screen Operational Limitations
 - Others?
 - Other Actions related to, but not included in the initial screening analyses that could be included at a later date (open for discussion)
 - Sutter Bypass protections
 - Flow over weirs: Tisdale, Moulton, Colusa, etc,
 - Changes to timing and duration of inundation
 - Wilkins Slough 8,000 April/May
 - Pulse Protections
 - Scaled diversion at Red Bluff and Hamilton City

John Spranza

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From: Spranza, John

Sent: Monday, July 20, 2020 9:13 AM

To: 'Lecky, Jim' <Jim.Lecky@icf.com>; Hassrick, Jason <Jason.Hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>

Cc: Briard, Monique <Monique.Briard@icf.com>; Greenwood, Marin <Marin.Greenwood@icf.com>; Wilder, Rick <Rick.Wilder@icf.com>

Subject: RE: CDFW ITP Approach Outline

Hey Jim,
I have a few answers:

The 230k includes the following:

Member	Reservoir Participation (AFY)
Public Water Agencies	
North of Delta	52,142
South of Delta	140,750
Subtotal Public Water Agencies	192,892
State of CA	~ 40,000
Total Requirement	~230,000

So I would think we would want to start our analysis and initial ask for 250k or more to ensure we have negotiation room.

John Spranza

D 916.679.8858 M 818.640.2487

From: Lecky, Jim [mailto:Jim.Lecky@icf.com]

Sent: Friday, July 17, 2020 10:42 AM

To: Spranza, John <John.Spranza@hdrinc.com>; Hassrick, Jason <Jason.Hassrick@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>

Cc: Briard, Monique <Monique.Briard@icf.com>; Greenwood, Marin <Marin.Greenwood@icf.com>; Wilder, Rick <Rick.Wilder@icf.com>

Subject: RE: CDFW ITP Approach Outline

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Hi John, See my comments and additions to your outline below in red text. Technically CDFW management always makes the decision, but they are more likely to encourage staff to explore flexibility in CDFW rules and process than over rule them. Also, I think a workshop environment would allow for a better understanding and exploration of options than the process we went through re the Governor's water resiliency plan. So I suggest we bolster the workshop part of the process and if we get stuck use the negotiation lead to elevate the process for additional direction from CDFW management to the ICF team and CDFW staff then head back to the workshop setting to resolve the sticky issues. At the end of the day some the sticky issues will be punted to adaptive management as a way to get closure, but we will need to be honest about the limits of adaptive management e.g. we can't agree to adaptive management measures that would prelude filling the reservoir.

I am available for call. If you want to discuss of need further explanation. Cheers.

From: Spranza, John <John.Spranza@hdrinc.com>

Sent: Thursday, July 16, 2020 3:42 PM

To: Hassrick, Jason <Jason.Hassrick@icf.com>; Lecky, Jim <Jim.Lecky@icf.com>; Hendrick, Mike <Mike.Hendrick@icf.com>

Cc: Briard, Monique <Monique.Briard@icf.com>

Subject: CDFW ITP Approach Outline

Hey Guys,

I am putting together the notes and action items from the CDFW diversion meeting #3 and would like your thoughts on the revised ITP approach I have provided below. This approach assumes we will need CDFW management, not staff, to make a decision to issue an ITP as the CDFW diversion criteria staff provided last year is a no project for us. I tried to smooth out the process to address Jason's "wonky" comment (which I agree with) while still trying to work within our schedule and budget by incorporating some biological protections up front. To keep the approach as simple as possible it does not incorporate the BA process which would be moving concurrently, with a draft BA going out to Reclamation in mid-March while the draft Operations ITP Application would not be complete until October 2021.

If you would like we could have a call with just us to go through and edit/revise/refine this so that we all agree on the approach and can have this ready to present to Ali later this month and the ad-hoc committee in August.

Approach to development of diversion criteria with an anticipated CDFW Policy Approach to approved ITP: REVISED¹

1. Define the yield and cost requirements of the project
 - a. Annualized release is 230k – 240k AF at \$650-\$710 per AF without WIFIA or \$600-660 with WIFIA loans.
- So I think these are the numbers Jason was interested in. The question is: Can we obtain that amount of water without undermining current conservation efforts.
- How much of that 230K-240KAF is allocated to the state for the Yolo Bypass food production benefit and refuge supply
2. Craft upstream protections and if needed a tax table. Optimize diversion criteria to:
 - a. Maximize Optimize benefits/protections (probably can't maximize both)
 - b. Minimize impacts where possible upfront via incorporation of upstream/instream protections to avoid/minimize key downstream effects
 - c. Achieve the identified benefits in WISP (how much "yield" is allocated to this? Does that affect overall cost/AF for water users?)
 3. Run screening model on concept diversion criteria to ensure "1a" criteria is met.
 - a. If met, go to 4
 - b. If not, repeat 2 and 3 until it is met
 4. Run full model sequence on diversion criteria and compare to:
 - a. With and Without Project to determine effect
 - b. CDFW scenarios We already know these scenarios don't work. I guess we will need this analysis to more the process forward, but the focus should be on element 4(a).
 5. Further optimize diversion criteria if possible to reduce effect and rerun full model sequence for delivery to ICF 11/9/2020
 6. Provide diversion criteria, model results and accompanying analysis to Negotiation Lead
 - a. Brief on main points and components that could cause concern to CDFW fishery/ITP staff
 7. Provide diversion criteria, modeling results and initial analysis to CDFW staff for informal discussions
 8. Convene (2 or 3) workshops (These will be really important to ensure CDFW understands the models used and the results produced so the results actually get weighed in the decision making process) with Sites ITP technical team in late 2020/early-mid 2021. (Unlike last year, we define our project and diversion criteria without trying to negotiate it upfront with CDFW.) (Inviting NMFS and FWS to these workshops and holding them on a schedule consistent with BA development timelines would be helpful)
 9. ~~Educate CDFW staff and~~ ICF negotiation lead elevates to CDFW management unresolvable issues about the rationale for upstream protections and how they relate to downstream benefits and effects to areas they are concerned with (ITP) for determination of path forward.
 10. Work with CDFW Staff (under direction of CDFW management) to revise operations criteria, conservation measures, and adaptive management strategy. This may require a third iteration of the models. If that is not possible then maybe we move the workshops up to between steps 3 and 4.
 11. Submit ITP and brief ITP Negotiation Lead on results and insights from #7

12. Negotiation Lead to potentially elevate to CDFW management to make a policy-based decision (accept, reject or conditionally accept with revision) if staff have significant concerns and would resist permit based on lack of CDFW-proposed downstream criteria that was provided in CDFW scenario.

¹The order of these have been revised based on 7/14/20 discussion to reflect the need to define a project

John Spranza, MS, CCN

Senior Ecologist / Regulatory Specialist

HDR

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From: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Sent: 7/21/2020 11:15:08 AM
To: Forrest, Michael [michael.forrest@aecom.com]; Michael, Howard [howard.michael@aecom.com]
CC: Jeff Herrin (Jeff.Herrin@aecom.com) [Jeff.Herrin@aecom.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Williams, Nicole [Nicole.Williams@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Spranza, John [John.Spranza@hdrinc.com]; 'Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: Questions from last week's data-needs call

Good morning

Thank you again for last week's meeting. Tremendously helpful for the overall team. Could you please review the below questions from ICF and provide input/guidance?

Thank you again.

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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Jelica.Arsenijevic@hdrinc.com

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From: Berryman, Ellen [mailto:Ellen.Berryman@icf.com]
Sent: Tuesday, July 21, 2020 10:51 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>
Subject: Questions from last week's data-needs call

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Questions/Clarifications (note: apologies if we are blurring into assumptions regarding means/methods, just let us know if the information will be forthcoming in September or won't be provided to the level of detail of our ask):

1. Confirm the only difference between Alternative 1 (1.3 MAF) reservoir and Alternative 1 is the Bridge and the Southern Road (e.g., realignment/improvement of Huffmaster and does not extend all the way to Ladoga). In other words, all OTHER permanent and construction roads would be the same between Alternative 1 and Alternative 2.
2. Should the Orland and Butte/Sand and Gravel be referred to as "offsite borrow areas" or "offsite quarries"?
3. Are the following assumptions still true:
 - a. There are over 30 offsite borrow locations that could be used for high-quality aggregates. We assume the number 30 covers the entire swath of the "Orland Borrow Area". If not, please identify the potential number – especially if lower than 30.

- b. It is anticipated that all earth and rockfill (approximately 80 percent of materials required) would come from onsite sources (within the reservoir area) and all aggregate (approximately 20 percent of material required) would come from existing, offsite, commercial source (e.g., Orland or Butte/Sand and Gravel)
 - c. Main areas of alluvial deposits in the reservoir area encompass roughly 36 million cubic yards of material for either dam material option 1a (earth-rock mix) and option 1b (earthen).
4. Do we (or will we):
- a. Have an approximate idea of the total amount (cubic yards) of offsite high quality aggregate need for things like filters/drains for dam material option 1a (earth-rock mix) and option 1b (earthen) from Orland and Butte/Sand and Gravel?
 - b. Have potential haul routes from the Orland to the dam locations? Or is it: "use whatever roads are available to get to I5 and then follow the construction routes that are being improved to the reservoir site"?
 - c. Have some type of general descriptions of the Orland borrow area and Butte/Sand and Gravel or standard descriptions of these types of borrow area (e.g., owner/operator information? General size? General land uses surrounding them?)
5. Would construction traffic (or the transportation management plan) use the improved construction routes during typical construction times/daytime only (e.g., 7am to 7pm)? Or are you expecting construction traffic/trips to occur outside of daylight hours? Alternatively, would the following restriction still be applicable: Nighttime construction would not be conducted between 10:00 p.m. and 7:00 a.m. within 1,000 feet of occupied residences.

ACTION ITEMS

- 1. AECOM to identify stock pile areas in the temporary footprint in GIS; particularly if they are OUTSIDE of the reservoir footprint
- 2. AECOM will review KMZ road file and provide to Integration/ICF permitting team (DONE)
- 3. John/Ellen B. will look at alignments and provided feedback to road alignment adjustments regarding avoiding wetlands and resources (may also be a good idea for other ICF resource specialists to review)
- 4. Integration (Henry) upload road tech memo into the sharepoint PD folder (DONE -Jelica uploaded 7/21/2020)

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/21/2020 2:16:31 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; John Spranza (john.spranza@hdrinc.com) [john.spranza@hdrinc.com]; Jelica Arsenijevic (Jelica.Arsenijevic@hdrinc.com) [Jelica.Arsenijevic@hdrinc.com]; Linda Fisher (linda.fisher@hdrinc.com) [linda.fisher@hdrinc.com]; Kevin Spesert [kspesert@sitesproject.org]; Luu, Henry [Henry.Luu@hdrinc.com]; Conner McDonald [conner@cmdwest.com]
Subject: Project Buffer
Attachments: Project Buffer.docx

Good afternoon,

Per our meeting on Monday and at Ali's request, I am attaching a word version of the section of the 2017 Draft EIR/EIS that describes the "Project Buffer." As we discussed, we need to revisit this concept (described in the EIR/EIS project description as a component of the project) and provide some thoughts/recommendations. In addition to the description of the buffer, I have included a copy of Table 3-2 which provides acreage of the various project components. You will see that the Buffer Area (under Alt A in the 2017 Draft EIR/EIS) is 12,000 acres; the reservoir footprint itself is 15,300 acres. So clearly it would be a huge area subject to long-term management.

Please review and mark up with any comments/edits. We will continue the discussion during next week's meeting.

Thank you,

Laurie

**Table 3-2
Permanent Facility Footprint – Alternative A**

Complex Name	Size (acres)
Sites Reservoir Complex	15,300
Holthouse Reservoir Complex	600
Terminal Regulating Reservoir Complex	300
Delevan Pipeline Complex	25
Overhead Power Lines and Substations	20
Project Buffer	12,000

Note: Acreages are based on permanent footprint; overlap of facilities (e.g., the Sites Pumping/Generating Plant located within the footprint for the Sites Inlet/Outlet Approach Channel) occurs in some cases. Construction footprint estimates are conservative and are described in resource analysis chapters, where applicable.

3.1.1.6 Project Buffer

The Project buffer (Figure 3-1) would consist of the total amount of land that would be acquired for the Project beyond the facility footprints, out to the nearest existing parcel boundaries. If the nearest parcel boundary is less than 100 feet beyond the facility footprint, the Project Buffer would extend beyond the parcel boundary to result in at least a 100-foot buffer. The proposed Project Buffer would surround the proposed Sites Reservoir Complex, Holthouse Reservoir Complex, including all facilities located between these two facilities; the proposed TRR and associated facilities; and the proposed Delevan Pipeline Intake/Discharge Facilities.¹ Because the intent of the Project Buffer is to create a “buffer” around Project facilities, while following existing parcel boundaries, the area and width of the buffer around Project facilities would vary. The Project Buffer would serve several purposes:

- Avoiding splitting parcels and rendering parcel remnants unusable by existing landowners
- Providing a buffer between Project facilities and adjacent existing land uses to avoid potential conflicts in land uses
- Preventing shoreline development around the proposed Sites Reservoir
- Preventing livestock access to the reservoirs, and prevent livestock wastes from entering the proposed reservoirs

Construction. The lands within the Project Buffer would remain undeveloped; the existing vegetation would be maintained as wildlife habitat and protected from fuelwood harvest, grazing, and other forms of environmental degradation. Existing structures would be demolished, and the remaining land would be managed as wildlife habitat. Existing agricultural lands would not be maintained as agriculture but would be converted and managed as wildlife habitat.

¹The proposed Sites/Delevan Overhead Power Line, Delevan Pipeline, TRR Pipeline, and TRR Pipeline Road would not have an associated buffer. These Project facilities would not require additional lands for long-term operation and maintenance. The Delevan and TRR pipelines would be underground features that would have periodic aboveground structures that include access structures, blowoff structures, air valve structures, and an outlet and energy dissipater structure. The TRR Pipeline Road would be located above the TRR Pipeline. The Sites/Delevan Overhead Power Line would result in aboveground development only at each overhead power line tower/pole.

The Project Buffer boundary would be fenced using standard three-strand barbed wire fences with posts in areas where the parcels are not already fenced, so that the entire Project Buffer boundary would be fenced. A fuel break would be constructed around the perimeter of the Project Buffer.

Operations. Not applicable.

Maintenance. Maintenance activities that are proposed to be undertaken within the Project Buffer boundary include fence maintenance and periodic boundary fuel break maintenance.

From: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Sent: 7/22/2020 9:15:10 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Spranza, John [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]
CC: Rude, Pete/RDD [Pete.Rude@jacobs.com]; Luu, Henry [Henry.Luu@hdrinc.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks

For Fridays data needs meeting, please review the HC information in the SharePoint Project description reference doc folder -

<https://sitesreservoirproject.sharepoint.com/ProjectDescription/Reference%20Docs/Forms/AllItems.aspx?viewid=b52d0e33%2D52b4%2D4e87%2D973f%2D50d6af1b9645&id=%2FProjectDescription%2FReference%20Docs%2FWSP%20Feasibility%5FDraft%20Technical%20Memorandums%2FHC%20Files>

Pete will go through some plans sets , but the above link should provide you information to generate your questions.

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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-----Original Appointment-----

From: Arsenijevic, Jelica
Sent: Thursday, July 2, 2020 12:52 PM
To: Arsenijevic, Jelica; 'Alicia Forsythe'; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Berryman, Ellen; Luu, Henry; Rude, Pete/RDD
Subject: Sites: Focus Data Needs/Assumption Meetings
When: Friday, July 24, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: WebEx

Revised to capture meeting attendees for each meeting:

July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)
- How roads and bridge would be constructed.

July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

July 31, 2020 “as needed” – on Calendar but Nothing Schedule Yet for Topics.

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

Many thanks to ICF for providing suggested meeting topics. I'm waiting to hear from them on the final “schedule”. Once they are finalized, I will revise the invite to align with who should be on the call (either HR or HC or maybe both). The engineers have a desire to alternate weeks.

As we inch closer to providing the information for the project description, there may be a need to have additional meetings during the week.

Thank you so much!

Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

<< OLE Object: Picture (Device Independent Bitmap) >>

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From: Leaf, Rob/SAC [Rob.Leaf@jacobs.com]
Sent: 7/22/2020 2:32:59 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Tull, Robert/SAC [Robert.Tull@jacobs.com]; Micko, Steve/SAC [Steve.Micko@jacobs.com]
Subject: RE: Sties - A few Questions on DCR2019

Ali et al,

As I have mentioned in other discussions, Reclamation is now publicly and actively pursuing an updated baseline model. Reclamation will use this as the future baseline for NEPA, feasibility, cost allocation and other studies.

This updated baseline model will include

- Refinements of the ROC on LTO Proposed Action model
- Improvements from the DCR 2019.
- ITP actions with some selected refinements based on ongoing discussions with fish agencies.
- Other updates for new information since ROC on LTO
- Near term climate scenario, likely the 2035 CT developed for the ITP.

For schedule, Reclamation is pushing to complete this effort by the end of August 2020.

The Reclamation Sites team has been advised regarding this development.

Given this development, I think we need to update the Sites Project baseline plan to include:

- Availability of this model, assuming completed by end of August 2020
- Consideration of the ITP actions with selected refinements (modified from the DWR ITP or DCR 2019 ITP actions)
- Consistency of CEQA/NEPA list of included actions and assumptions
- Possible use of near term climate scenario for the baseline and what additional climate scenarios would be considered (including WSIP 2030 and 2070)

Rob

From: Leaf, Rob/SAC
Sent: Wednesday, July 15, 2020 8:17 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Tull, Robert/SAC <Robert.Tull@jacobs.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>
Subject: RE: Sties - A few Questions on DCR2019

Ali,

Yes, DWR released the Draft Final DCR 2019 on Friday 07/10/2019.

The report, addendum, and studies are posted at: <https://water.ca.gov/Library/Modeling-and-Analysis/Central-Valley-models-and-tools/CalSim-2/DCR2019>

Public comments will be accepted until July 22, 2020 and Final DCR will be released on July 31, 2020.

Two models were released, one at historical climate/hydrology and one at a future projected climate scenario 2035 CT and 45cm of SLR (same as used for ITP).

The models are CalSim II based and the period of record is 1922-2003.

We now have the option of using the DCR 2019, however I don't think this removes the issue of a potential secondary baseline or gap analysis.

Let's talk through this update at this morning's meeting.
My schedule is a bit uncertain tomorrow – I may be on the road at that time.

Rob

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 15, 2020 5:30 AM
To: Leaf, Rob/SAC <Rob.Leaf@jacobs.com>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: [EXTERNAL] Sties - A few Questions on DCR2019
Importance: High

Hi Rob – I am getting ready for Reservoir Committee this week and had a few questions on DCR2019.

1. I heard you say that DWR released a draft on 7/10 and a final is expected later this month, correct?
2. It continues with a Calsim II framework, correct?
3. Does it extend the period of record at all? What is the period of record in the model?

Also, I expect that the discussion will be pretty high level at Reservoir Committee and Authority Board. However, if you want to call in, that would be fantastic.

Reservoir Committee is 7/16 from 1 to 4 PM. We'll likely be on this topic around 2 PM. I can text you as we are getting close so you can call in. I will also be calling in and do not plan to attend in person.

We can catch up on Authority Board after Reservoir Committee.

Ali

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

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CDFW 2020 Strategy Session #2 Meeting Agenda



Sites Reservoir Project

Date: July 14, 2020

Location:

WebEx

Call in : 408-418-9388, access code: 146 539 3309

Time: 1:00 pm – 2:30 pm

Purpose: Discuss and develop 2020 CDFW ITP approach and diversion criteria

Invitees:

Ali Forsythe, Sites Authority
John Spranza, HDR
Erin Heydinger, HDR

Rob Tull, Jacobs
Chris Fitzer, ESA
Rob Leaf, Jacobs

Monique Briard, ICF
Jim Lecky, ICF
Jason Hassrick, ICF
Mike Hendrick, ICF

Agenda:

Discussion Topic	Topic Leader	Est Time
1. Introductions for New Members	John	5 min
2. Review and Discussion of Action Items	John	15 min
3. Update on Recent CDFW Meetings a. ITP Staffing and Schedule	John	5 min
4. Update on Baseline, Modeling and Cold Water Benefits	Erin/Rob Leaf	15 min
5. Define "Reasonably Foreseeable Project"	John	15 min
6. Discuss AI-3 and AI-4	Jim/Leaf/Tull	20 min
7. Open Discussion	All	10 min
8. Next Steps	John	5 min

Action Item	Owner	Deadline	Notes
1. Refine tax table for backward iteration of fishery effects and then determine the yield and engineering inputs needed to incorporate into the BON	Tull/Lecky	TBD	
2. Review/revise upstream diversion criteria for DS benefit protections	ICF and Spranza	7/28/20	Currently being revised by ICF per discussions with Integration

	and NDOI, Freeport and OMR requirements from ITP			
3	Matrix for reasonably foreseeable projects and rational for inclusion/exclusion	ICF and Spranza	7/28/20	Currently being revised by ICF per discussions with Integration.
4	Memo on fish in good condition (5937)	ICF	8/7/20	

Potential General CDFW Policy Approach to ITP: REVISED¹

- a. Define the yield and cost requirements of the project
 - o Annualized release is 230k – 240k AF at \$650-\$710 per AF without WIFIA or \$600-660 with WIFIA loans.
- b. Optimize project to minimize impact where possible and achieve the identified benefits in WISP
- c. Run model and compare to:
 - o With and Without Project effect
 - o CDFW scenarios
- d. Further optimize if possible with CDFW
- e. Acknowledge impacts and benefits to CDFW and educate CDFW staff and management about the rational for upstream protections and how they relate to downstream benefits and effects to areas they are concerned with (ITP)
- f. Submit ITP and brief ITP Negotiation Lead
- g. Elevate to CDFW management to make a decision (accept, reject or conditionally accept with revision) if staff have significant concerns and would resist permit based on benefits and effects not staff-proposed downstream criteria.

¹The order of these have been revised based on 7/14/20 discussion to reflect the need to define a project and is in the process of being further refined by ICF/Integration

Notes

- Project’s range for deliverable water is 230k – 240k AF and \$650-\$710 per AF without WIFIA or \$600-660 with WIFIA loans.
- Breakdown of water allotment is as follows:

Member	Reservoir Participation (AFY)
Public Water Agencies	
o North of Delta	o 52,142
o South of Delta	o 140,750
<i>Subtotal Public Water Agencies</i>	<i>192,892</i>
State of CA	o ~ 40,000
Total Requirement	o ~230,000

- DCR 2019 final in July
- DWR will use CalSim III for Delta Conveyance
 - o Calsim III expected September 2020
- Los Vaqueros analysis is taking a different and non-compatible approach to ours. Details to come from additional discussions with Rob Leaf.

- Current Shasta coldwater pool sensitivity analysis (5/20/20) indicates that August and September releases in Tier 2 and 3 years that result from the exchanges could, on average, decrease monthly average temperature at Sacramento River below Clear Creek (CCR) by up to 0.4 degrees Fahrenheit in August and September. This decrease in temperature would, on average, reduce temperature-based egg mortality by about 5% in those years. (memo here: <https://sitesreservoirproject.sharepoint.com/:f:/r/envpermitting/Data%20and%20Background%20Information/Operations%20Modeling%20Documents?csf=1&web=1&e=gMCTLu>)
 - **Sites Benefits to ROC on LTO Cold Water Pool Management Summary**
 - Tier 1 years:
 - No benefit
 - Tier 2 years:
 - Decreasing releases in April through June could preserve Shasta cold water pool for more targeted release in the hatching period (described above).
 - Tier 3 years:
 - Decreasing releases in April through June could preserve Shasta cold water pool for more targeted release in the hatching period (described above).
 - Tier 4 years:
 - Little benefit – On its own, Sites could not benefit Shasta cold water pool in an appreciable manner. In combination with intervention measures, Sites may prove beneficial.
- Jacobs is currently working on modeling the project with and without federal investment.
- Approach to Sites current modeling analysis needs to take into account project time/schedule requirements. This necessitates some up-front planning for what biological protections should be included in the initial screening analysis and then carried through to the initial full modeling run. The following are items that could be considered for the initial screening analysis:
 - Reasonably Foreseeable Actions and/or Protections to include in initial screening. These would have a draft CEQA or NEPA document or part of a BO or ITP that (open for discussion):
 - Fremont Weir Notch
 - Effect to habitat (timing and duration of inundation)
 - Delta Conveyance Project/Water Fix(WF has Draft EIR)
 - VA's
 - Wilkins Slough 8,000 April/May)
 - Fish Screen Limitations
 - Others
 - Other Actions related to, but not included in the initial screening analyses that could be included at a later date (open for discussion)
 - Sutter Bypass protections
 - Flow over weirs: Tisdale, Moulton, Colusa, etc,
 - Changes to timing and duration of inundation
 - Pulse Protections
 - Scaled diversion at Red Bluff and Hamilton City
- Federal Investment is still undetermined and Jacobs is working on a model with and without federal investment.
- Jacobs also has a model that can vary flows at each Sutter weirs should we wish to use that.

From: Forrest, Michael [michael.forrest@aecom.com]
Sent: 7/23/2020 9:07:14 AM
To: Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
CC: Herrin, Jeff [jeff.herrin@aecom.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Williams, Nicole [Nicole.Williams@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Spranza, John [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Michael, Howard [howard.michael@aecom.com]
Subject: FW: Questions from last week's data-needs call
Attachments: Sites_Offsite Quarries_Figure 1.pdf

Jelica, et al.,

Please see our responses in blue below.

Thanks,

Mike

Michael Forrest
Vice President
Direct: 510-874-3012
Cell: 925-998-6875
michael.forrest@aecom.com

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From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Tuesday, July 21, 2020 11:15 AM
To: Forrest, Michael <michael.forrest@aecom.com>; Michael, Howard <howard.michael@aecom.com>
Cc: Herrin, Jeff <jeff.herrin@aecom.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Spranza, John <John.Spranza@hdrinc.com>; 'Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: [EXTERNAL] FW: Questions from last week's data-needs call

Good morning

Thank you again for last week's meeting. Tremendously helpful for the overall team. Could you please review the below questions from ICF and provide input/guidance?

Thank you again.

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



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Sacramento, CA 95833
D 916-679-8854
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Jelica.Arsenijevic@hdrinc.com

hdrinc.com/follow-us

From: Berryman, Ellen [<mailto:Ellen.Berryman@icf.com>]
Sent: Tuesday, July 21, 2020 10:51 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>
Subject: Questions from last week's data-needs call

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Questions/Clarifications (note: apologies if we are blurring into assumptions regarding means/methods, just let us know if the information will be forthcoming in September or won't be provided to the level of detail of our ask):

1. Confirm the only difference between Alternative 1 (1.3 MAF) reservoir and Alternative 1 is the Bridge and the Southern Road (e.g., realignment/improvement of Huffmaster and does not extend all the way to Ladoga). Please clarify the question. ".....Alt 1 (1.3 MAF) reservoir and Alt 1 is the Bridge and the Southern Road....." is not clear what is being asked. In other words, all OTHER permanent and construction roads would be the same between Alternative 1 and Alternative 2. All permanent and construction roads are the same for reservoir Alternatives 1 and 2. These roads are needed regardless of the reservoir alternative.
2. Should the Orland and Butte/Sand and Gravel be referred to as "offsite borrow areas" or "offsite quarries"? Use offsite quarries.
3. Are the following assumptions still true:
 - a. There are over 30 offsite borrow locations that could be used for high-quality aggregates. We assume the number 30 covers the entire swath of the "Orland Borrow Area". If not, please identify the potential number – especially if lower than 30. We have not performed a detailed inventory of the potential borrow locations in the Orland area. Please see attached Figure 1 for locations of some potential borrow locations. Note that some borrow locations may be inactive.
 - b. It is anticipated that all earth and rockfill (approximately 80 percent of materials required) would come from onsite sources (within the reservoir area) and all aggregate (approximately 20 percent of material required) would come from existing, offsite, commercial source (e.g., Orland or Butte/Sand and Gravel) To be confirmed based on quantity estimates that are in progress; drafts to be completed by 7/31/20.
 - c. Main areas of alluvial deposits in the reservoir area encompass roughly 36 million cubic yards of material for either dam material option 1a (earth-rock mix) and option 1b (earthen). To be confirmed based on quantity estimates that are in progress; drafts to be completed by 7/31/20. This alluvial deposit quantity is more than needed (for the core zone).

4. Do we (or will we):

- a. Have an approximate idea of the total amount (cubic yards) of offsite high quality aggregate need for things like filters/drains for dam material option 1a (earth-rock mix) and option 1b (earthen) from Orland and Butte/Sand and Gravel? We will have this info for Option 1a only, which requires the largest amount of sand and gravel. Will also need sand and gravel materials for concrete structures.
- b. Have potential haul routes from the Orland to the dam locations? Or is it: "use whatever roads are available to get to I5 and then follow the construction routes that are being improved to the reservoir site"? Haul routes are not specifically defined from the source as it is not known what area the contractor will mine from. However, our draft Technical Memo (Roads and Bridge) describes the access to involve I-5 south to Road 68.
- c. Have some type of general descriptions of the Orland borrow area and Butte/Sand and Gravel or standard descriptions of these types of borrow area (e.g., owner/operator information? General size? General land uses surrounding them?) Below is a general description of the Orland borrow area. We do not yet have a description of the Butte/Sand and Gravel area, or the other details you have requested.

Sand and gravel will be needed for filter, drain, transition materials within the dam and for concrete structures for the Sites Project. Based on the US-Mining.com website, there are several sand and gravel mines within a 40 mile radius of the Sites Project reservoir site. The primary source of aggregate for these mines are alluvial deposits associated with historic abandoned river channels.

Sand and gravel mines with larger capacity are located between Willows and Orland to the east of Sites. The travel distance between the town of Sites and Willows is approximately 27 road miles, while the travel distance to Orland is 43 road miles. These mines are sourcing material from the historic abandoned channel of Stony Creek, which has an estimated capacity in excess of 100 million cubic yards. As such, mines in this area could potentially provide a source of aggregates for the project. Aggregate from these sources has been used by local batch plants for making concrete.

A plan showing potential aggregate borrow sites is presented on Figure 1 (not all are in the Orland area).

5. Would construction traffic (or the transportation management plan) use the improved construction routes during typical construction times/daytime only (e.g., 7am to 7pm)? Or are you expecting construction traffic/trips to occur outside of daylight hours? Alternatively, would the following restriction still be applicable: Nighttime construction would not be conducted between 10:00 p.m. and 7:00 a.m. within 1,000 feet of occupied residences. For HR, nighttime construction would not be conducted between 10:00 p.m. and 7:00 a.m. within 1,000 feet of occupied residences.

ACTION ITEMS

1. AECOM to identify stock pile areas in the temporary footprint in GIS; particularly if they are OUTSIDE of the reservoir footprint - OK
2. AECOM will review KMZ road file and provide to Integration/ICF permitting team (DONE)
3. John/Ellen B. will look at alignments and provided feedback to road alignment adjustments regarding avoiding wetlands and resources (may also be a good idea for other ICF resource specialists to review)
4. Integration (Henry) upload road tech memo into the sharepoint PD folder (DONE -Jelica uploaded 7/21/2020)

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/23/2020 1:18:59 PM
To: Herrin, Jeff [jeff.herrin@aecom.com]; Luu, Henry [Henry.Luu@hdrinc.com]
CC: Forrest, Michael [michael.forrest@aecom.com]; Rude, Pete/RDD (Pete.Rude@jacobs.com) [Pete.Rude@jacobs.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Jim Lecky (jim.Lecky@icf.com) [jim.Lecky@icf.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Releases to Stone Corral and Funks Creeks for Environmental Purposes

Thanks Jeff, you captured the items well. Construction water is something we will need to discuss, if it is clean there should not be too much of a problem, but if it's dirty or substantially different in temperature or other key water quality metrics from the receiving water, that could be a concern to the agencies.

Let's add that to the list to follow up on.

John

John Spranza

D 916.679.8858 M 818.640.2487

From: Herrin, Jeff [mailto:jeff.herrin@aecom.com]
Sent: Thursday, July 23, 2020 11:21 AM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Cc: Forrest, Michael <michael.forrest@aecom.com>; Rude, Pete/RDD (Pete.Rude@jacobs.com) <Pete.Rude@jacobs.com>; Spranza, John <John.Spranza@hdrinc.com>
Subject: Releases to Stone Corral and Funks Creeks for Environmental Purposes

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Henry,

I had a discussion with John Spranza and Jim Lecky today regarding releases to Stone Corral and Funks Creeks. There are several issues that the Environmental Team is studying that will affect the design. We will need to meet downstream requirements for aquatic species and for water rights. Issues include:

- John is concerned about dewatering Funks Creek in between Golden Gate Dam and Funks Reservoir. I don't believe the current design addresses this. This is a Jacobs/AECOM interface facility and we need to give some thought into providing flow to the creek.
- I believe that releases from Funks Reservoir to Funks Creek can continue to be managed by TCCA without any change in their current operating procedures or new facilities to support the release. I don't believe Jacobs plans to modify this release.
- We will likely need some evaluation of how releases from the I/O tower to Funks Reservoir will be managed for flood control purposes, but that may be a preliminary engineering issue.
- We will likely need to pass all water coming into the reservoir downstream for water rights (however we can hold water up to 30 days in the reservoir, so we don't need to release as fast as the water comes in)
- Jim Lecky indicated that we would likely need to pick either 100 cfs or 400 cfs as our upper bound on flow to Stone Corral Creek. This would be a winter operation to pass the hydrograph.
- We will also need a 10 cfs flow into Stone Corral Creek for summer operations. We would like to avoid releasing extremely cold, anoxic water from the bottom of the reservoir to the extent practicable. Energy dissipation may help with this. We would want to be able to release water all the way down to the deadpool to avoid drying up the creek in a drought.
- We want to minimize the length of dewatering Stone Corral Creek downstream of Sites Dam.

We did not discuss passing water during construction through Stone Corral Creek (this could be a high flow rate), but that probably needs to get factored into John's analysis. This seems like a topic for one of our Monday meetings.

Thanks,

Jeff Herrin

Water Resources Planner, Water Business Unit, Sacramento, CA

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From: Jerry Brown [jbrown@sitesproject.org]
Sent: 7/23/2020 1:31:36 PM
To: Charles Gardiner [Charles@catalystgroupca.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Joe Trapasso [jtrapasso@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
CC: Linadria Porter [linadria@catalystgroupca.com]; Peter Bluhon [peter@bluhon.com]; Deborah Kollars (dkollars@comcast.net) [dkollars@comcast.net]
Subject: Re: Initial Draft Strategic Plan
Attachments: Mission-Values Agent Strawman.docx

Here's what we came up with for vision/mission/values.

From: Charles Gardiner <Charles@catalystgroupca.com>
Date: Thursday, July 23, 2020 at 11:58 AM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, Joe Trapasso <jtrapasso@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: Linadria Porter <linadria@catalystgroupca.com>, Peter Bluhon <peter@bluhon.com>, "Deborah Kollars (dkollars@comcast.net)" <dkollars@comcast.net>
Subject: Initial Draft Strategic Plan

Attached is the current iteration of the initial draft strategic plan for review and discussion tomorrow at 4:00. I know your team has been working on mission, vision, and values, so we are interested to see your next iteration of those. For now, what is in this draft is our thoughts on your previous draft. We can compare and discuss tomorrow.

The Goals and Strategies section is intended to synthesize a lot of ideas and activities into some high-level direction for the boards and you. We are sure the content is incomplete, but we think the structure allows everyone to see what is most important. For example, one of the concerns we heard from you is that there are big issues and risks that are not on the radar screen for decision-makers. So, for each objective, we have a specific place to highlight the challenges and risks to be addressed. We have also listed who the key players are in each objective. These are the types of things we want to refine with you before this goes to the boards on August 7. We can also refine things like the schedule and timeline before this goes out.

Looking forward to hearing your thoughts.

Please forward this to JP or others who may also be on the call.

Charles

Charles L. Gardiner
Principal
The Catalyst Group, Inc.
(415) 419-5133 (Office)
(415) 999-0316 (Mobile)
www.CatalystGroupCA.com



Agent Strawman
For Discussion Purposes
June 29, 2020

Vision: Advancing responsible water management for generations of Californians.

Mission Statement:

To create a flexible, resilient water storage system that reliably delivers environmental, water supply, flood control, and recreation benefits to its investors while responsibly managing its entrusted water resources for the betterment of all California.

Values:

In fulfilling this mission, the Authority will perform its activities in a manner that upholds these core values: (these are words to describe current and/or future ways we do business, we would add one or two sentences to each value to explain how it is applied to us).

1. Safety – We put the safety of all those working on the project or potentially impacted by its operations as our top priority, full stop and with no exceptions.
2. Trust and Integrity (alternative Open and Transparent). We operate in all that we do to provide trusted work products, we at all times operate with the highest of integrity, and we hold ourselves to the highest standards for thoughtful information and analysis.
3. Respect and honor for the local community. We realize there are local residents that are giving up more than others to make the project a reality and we seek to ensure they are made whole and honored for their sacrifices to the greater good.
4. Responsible Environmental Stewards (alternative Environmental Sensitivity). We see ourselves as partners with the environment and hold our duty to be responsible stewards of natural resources in the highest regard.
5. Partnership/Teamwork. With such a challenging task at hand we must work as a team – the Board, investors, the service providers, We believe in collaboration through partnering for shared interest as opposed to solutions that create winners and losers.
6. Fiscally responsible. Like our investors fiduciary duty to their constituents, we have a responsibility to manage investor contributions to the project in the same way their constituents demand of them.
7. Innovative/Proactive – Even though the facilities we’re building are centuries old technologies, our attention to problem solving is to bring advanced systems that stand the test of time so the system we build is performing to standards and in good order 100 years from now.
8. Respectful of Differences, Inclusion of all, appreciative of Statewide Diversity of Communities – We appreciate and embrace the uniqueness of all the areas of California affected by water management and we seek to understand all of these points of view to create a project for all of California.

Here is the current vision/mission/values which is Section 2 of the Nov 2016 Bylaws:

2 Sites Project Authority's Mission, Vision & Values

2.1. Mission: (Restatement). "[T]o be a proponent and facilitator to design and potentially acquire, construct, manage, govern, and operate Sites Reservoir and related facilities; to increase and develop water supplies; to improve the operation of the state's water system; and to provide a net improvement in ecosystem and water quality conditions in the Sacramento River system and the Delta."

2.2. Vision Statement: Fulfill state and federal mandates to provide a new supply of safe, reliable, affordable water. Sites Reservoir will augment water delivery reliability to agricultural and urban water users, while adding environmental flows that benefit the Delta and Sacramento Valley watershed ecosystems. Sites will enhance the state water system, providing flexible and resilient storage under future climate change conditions.

2.3. Values: Those involved with all activities of the Authority should:

- Transact all business in an open and honest manner, except that communications shall not be disclosed when occurring in closed sessions of the Board of Directors or a committee, or are otherwise privileged and confidential, and certain documents may be exempt from disclosure under the Public Records Act;
- Communicate effectively;
- Build trust and confidence, both internally and externally to the Authority;
- Make decisions that are fiscally prudent;
- Utilize best-in-class processes and procedures, particularly in development of project controls for both management of risk and ensuring appropriate levels of quality.

From: Williams, Nicole [Nicole.Williams@icf.com]
Sent: 7/23/2020 3:19:59 PM
To: Forrest, Michael [michael.forrest@aecom.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
CC: Herrin, Jeff [jeff.herrin@aecom.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; John Spranza [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Michael, Howard [howard.michael@aecom.com]
Subject: RE: Questions from last week's data-needs call

Hi Mike – many thanks. All helpful and clear information. You provided the answer needed in #1 even though it was confusing given the typo (the first Alternative 1 should have been Alternative 2). Have a good afternoon.

Cheers, Nicole

NICOLE L. WILLIAMS
Senior Environmental Planner
ICF
o 916.231.9614
icf.com

From: Forrest, Michael <michael.forrest@aecom.com>
Sent: Thursday, July 23, 2020 9:07 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: Herrin, Jeff <jeff.herrin@aecom.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; John Spranza <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Michael, Howard <howard.michael@aecom.com>
Subject: FW: Questions from last week's data-needs call

Jelica, et al.,

Please see our responses in blue below.

Thanks,

Mike

Michael Forrest
Vice President
Direct: 510-874-3012
Cell: 925-998-6875
michael.forrest@aecom.com

AECOM
300 Lakeside Dr., Suite 400,
Oakland, CA 94612
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Fax: 510-874-3268
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Sent: Tuesday, July 21, 2020 11:15 AM
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Subject: [EXTERNAL] FW: Questions from last week's data-needs call

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Thank you again.

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

hdrinc.com/follow-us

From: Berryman, Ellen [<mailto:Ellen.Berryman@icf.com>]
Sent: Tuesday, July 21, 2020 10:51 AM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Cc: Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>
Subject: Questions from last week's data-needs call

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Sent: 7/23/2020 5:04:28 PM
To: Williams, Nicole [Nicole.Williams@icf.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
CC: Herrin, Jeff [jeff.herrin@aecom.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; John Spranza [John.Spranza@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Michael, Howard [howard.michael@aecom.com]
Subject: RE: Questions from last week's data-needs call

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Mike

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From: Jerry Brown [jbrown@sitesproject.org]
Sent: 7/23/2020 5:09:02 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: Re: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham
Attachments: NGO March 2019 Letter .docx

Flag: Follow up

Let's discuss this during our 1v1 call tomorrow.

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Thursday, July 9, 2020 at 3:45 PM
To: Jerry Brown <jbrown@sitesproject.org>
Subject: FW: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

My summary email from the Advisory Committee meeting.

Ali

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

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From: Alicia Forsythe
Sent: Friday, January 10, 2020 8:44 AM
To: John Spranza (john.spranza@hdrinc.com) <john.spranza@hdrinc.com>; Jim Lecky (jim.Lecky@icf.com) <jim.Lecky@icf.com>; Jim Watson (jwatson@SitesProject.org) <jwatson@SitesProject.org>; Thad Bettner (tbettner@gcid.net) <tbettner@gcid.net>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Jelica Arsenijevic (Jelica.Arsenijevic@hdrinc.com) <Jelica.Arsenijevic@hdrinc.com>; Linda Fisher (linda.fisher@hdrinc.com) <linda.fisher@hdrinc.com>; Tull, Robert/SAC <Robert.Tull@jacobs.com>
Subject: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

Hi all – I attended the meeting of the California Advisory Committee on Salmon and Steelhead Trout yesterday. It's a group that is established by the State legislature to make recommendations to the Director of CDFW. Their webpage is here: <https://fisheries.legislature.ca.gov/content/california-advisory-committee-salmon-and-steelhead-trout-cac>. The group is comprised of commercial fisheries reps, recreational fishing reps, Tribes, NGOs, and public seats (which are occupied by NGOs). The roster is here: <https://fisheries.legislature.ca.gov/sites/fisheries.legislature.ca.gov/files/CAC%20Member%20list%20November%202019%20for%20web%20site.pdf>.

There were about 20 folks at the meeting and on the phone. About 5 were from CDFW. Rest from commercial and recreational fishing organizations and NGOs. Two true public. Kristal was there for the whole meeting. Chad Dibble and Josh (cant remember his last night right now) was there for the afternoon, which included the Sites discussion.

Overall the discussion was good. They are quite informal in their meeting structure. We talked for about an hour on Sites. Tom Stokley led it off and actually did a really nice job talking about the project and trying to be balanced while

stating his concerns. Kristal responded to a few things and then responded to the first few questions. Then committee members starting asking me questions. We got into all kinds of topics – bypass criteria, Trinity impacts, Water Resilience Portfolio, funding, costs and affordability, where is the water diverted and released, release temperatures, who are our participants (water to Westlands?), can the participants afford it, right sizing, selling water to Sites and following Sac Valley lands, how would environmental water be used / fishery benefits, temperature mixing in Sites, right-sizing, recirculation of the EIR, etc.

I thought it was a really good discussion and they were very open and asked lots of questions. From a fisheries perspective, their concerns seemed to focus around diversions / bypass flows and water temperature of the discharge water.

Tom was measured, balanced and more factual in his concerns, mostly focusing on a theme of ‘there are so many unanswered questions, they have to recirculate the EIR to address these’. John McMannis, PCFFA was on the phone also and was very emotionally strong in his opposition, even interrupting me, which the folks in the room clearly did not appreciate and the committee chair stopped him.

Chad answered one question on what does the Resiliency Strategy mean when it talks about accelerating state permits for Sites. He basically said that he doesn’t quite know but he thinks it means to make it a priority in CDFW and continue the dialogue. I think this calmed fears quite a bit as of course, the President announced the NEPA changes yesterday, which I think the group found concerning and was wondering if the State planned to exempt the project from CEQA or something.

In the end, the group decided to send the attached letter to Chuck. I will note that the recreational and commercial fishing guide folks in the room and Trout Unlimited all said that they aren’t opposed to Sites, they simply would like more information and a better understand of impacts to fish. Trout Unlimited (Matt Clifford) also notably stated that they didn’t agree with the 15,000 cfs in the letter as they simply weren’t sure that was the right number and the letter presented no science to back that up. But the individual noted that they didn’t see value in trying to wordsmith it and would approve as is.

The group was very thankful to me for attending and asked that I come back and provide updates as the project progresses.

I have reached out to Tom Stokely as both this meeting and the Humboldt meeting were really spurred by him. He is willing to chat with us. I am thinking that just Jim Lecky, John and I go talk with him. I am not sure that he can change his position on this as Sites is a project that CWIN would likely oppose simply on principle, but thinking that we might be able to cool his jets a bit if he feels heard and we can use a better understanding of his concerns as we move forward.

Let me know if you have any questions or concerns. I do think that the sooner we can make a statement on recirculation, the more likely we are to calm some of the concerns out there. We’ll be teeing this up for a work group discussion later this month.

Thad please feel free to pass this onto the group that will be meeting with Chuck later this month. Not sure if Chuck will bring up this letter at the meeting but we wouldn’t want to surprise our Sites team if he does. And thanks for the heads up on this meeting. I had never heard of this group before.

Ali

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

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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: Tom Stokely <tgstoked@gmail.com>
Sent: Thursday, January 9, 2020 12:35 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Draft letter for CACSST today

I thought you ought to see this before we talk about it.

TS

March 2019 letter from: Save California Salmon, California Sportfishing Protection Alliance, California Water Impact Network, Environmental Water Caucus, Southern California Watershed Alliance, Friends of the River, Pacific Coast Federation of Fishermen’s Associations & Institute for Fisheries Resources, Safe Alternatives for our Forest Environment, Butte Environmental Council, Sacramento Valley Chapter of the California Native Plant Society, Protect American River Canyons, Fly Fishers of Davis, Coast Action Group, Friends of the River, Sacramento River Council, Planning and Conservation League, The Environmental Justice Coalition for Water, Golden Gate Salmon Association, Conservation Fly Fishers International Northern California Council, The Bay Institute, Winnemem Wintu Tribe, Water Climate Trust, Chico 350, Women’s International League for Peace And Freedom Earth Democracy.

Specific List of Issues That Must Be Addressed in a Recirculated Draft EIS/EIR For the Sites Project	How Sites Team is addressing the comment in the Revised and Recirculated Draft EIR/EIS
Foreseeable Impacts to Trinity River Water Temperature Objectives Associated with Sites Project Operations Need to be Evaluated with an Accurate Temperature Model.	
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Inaccurate Existing (Baseline) TRD Water Operations.	
Incomplete Cumulative Impact Assessment Pertaining to TRD Operations.	
Mitigation for Trinity/Lower Klamath Impacts. Effective mitigation measures must be recommended to ensure that fishery/fish habitat management objectives for the Trinity River and lower Klamath River will be met. The Bureau of Reclamation has used the auxiliary outlet on Trinity Dam to release colder water during drier years, but this action results in the loss of power generation and this impact on CVP power generation needs to be evaluated as it relates to revised Trinity operations as proposed for Sites.	
Narrow Scope of Alternatives.	
No Action Alternative and Existing Conditions. Assuming the existing conditions and No Action alternatives are the same is inappropriate, compromises the ability to compare impacts across alternatives, and may minimize the magnitude of some of the impacts. The faulty assumption that State and Federal water contractors would be projected to use their full contracted water volumes (2030 projected	

conditions) does not reflect the current water management (existing condition) and likely provides inaccurate impact results. Because of this, the no action alternative minimizes potential impacts and greatly reduces the mitigation responsibilities required under CEQA.	
Sites Project Water Rights and Potential Unforeseen/Undisclosed Impacts.	
Cumulative Impacts.	
Sites Reservoir Operating Procedures/Priorities Absent.	
Compliance with California Endangered Species Act (CESA).	
Tribal Consultation and Mitigation Absent.	
Hydropower Licensing.	
Environmental Baseline/Modeling.	
Bypass Flows and Diversion Rates.	
Reduced Delta Outflows and impacts on Delta Smelt and Other Important Bay-Delta Species.	
Delta and Longfin Smelt Impacts due to Old and Middle River Reverse Flows.	
Water Quality and Beneficial Use Impacts.	
Sacramento River Flow and Temperature Modeling.	
Sacramento River Temperature Effects.	
Impacts to Floodplain Habitat.	
Evaluation of Fishery Impacts Lacking.	
Water Quality – Toxic Metals.	
Methylmercury.	
Noxious Algal Blooms.	
Water Quality – Salinity.	
Geomorphology.	
Entrainment Losses of Native Fish.	
Fish Screens.	
Impacts on Funks and Stone Corral creeks.	
Reservoir Fishery Impacts from Pumping Plant Operation:	
Recreation.	
Wildlife Mitigation Actions.	
Need for a Natural Community Conservation Plan (NCCP).	
Nesting Birds.	
Giant Garter Snake.	

<p>Botanical Surveys. Information contained in the DEIS/EIR is insufficient to determine the impacts on botanical resources within the Sites Project area. Botanical surveys must be redone, data included in the DEIS/EIR are from the late 1990's and early 2000's, and must include all areas affected by the project. Accepted scientific protocols should be used to conduct these surveys.</p> <p>Botanical Resources Mitigation.</p>	

From: Rude, Pete/RDD [Pete.Rude@jacobs.com]
Sent: 7/23/2020 7:39:33 PM
To: Luu, Henry [Henry.Luu@hdrinc.com]; Arsenijevec, Jelica [Jelica.Arsenijevec@hdrinc.com]
Subject: FW: Sites HC: GCID Main Canal Information

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Hi Henry and Jelica – we are starting to get information from GCID per below. Please pass on to ICF. I will go over some of this tomorrow in our 9am call. Thanks.

Peter H. Rude, PE (CA, 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: Rude, Pete/RDD
Sent: Thursday, July 23, 2020 7:37 PM
To: Holly Dawley <hdawley@gcid.net>
Cc: Zac Dickens <zdickens@gcid.net>; Jered Shipley <jshipley@gcid.net>; Jeremy Richardson <jrichardson@gcid.net>; Luu, Henry <Henry.Luu@hdrinc.com>; Smith, Jeff/SAC <Jeff.Smith1@jacobs.com>
Subject: RE: Sites HC: GCID Main Canal Information

Hi Holly and team,

Thanks for the initial information below. This is very helpful and all this information is related to Conveyance. We have a ways to go but progress is being made!

Peter H. Rude, PE (CA, 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: Holly Dawley <hdawley@gcid.net>
Sent: Thursday, July 23, 2020 12:26 PM
To: Rude, Pete/RDD <Pete.Rude@jacobs.com>
Cc: Zac Dickens <zdickens@gcid.net>; Jered Shipley <jshipley@gcid.net>; Jeremy Richardson <jrichardson@gcid.net>
Subject: [EXTERNAL] RE: Sites HC: GCID Main Canal Information

Hi Pete,

We had a good internal discussion today regarding your questions and the write up in the previous EIR/EIS draft. I know you are focused on the conveyance portion of the project, so I am not sure if all our comments are relevant to your work, but here goes:

EIR/EIS:

- A. The document states that all construction activities will occur within the existing GCID ROW. This seems extremely unlikely.
- B. The document discusses the potential for temporary bypasses if construction is not staged or completed during the winter maintenance shutdown. There are space limitations at the construction sites that make a bypass seem prohibitive. Construction sequencing seems to need a discussion.
- C. The document discusses maintenance activities that include dredging the intake and main channels. We no longer operate a dredge outside of the forebay. This will need to be re-evaluated.

Pete's Questions:

1. New headgate structure with canal lining and new UPRR Siphon are both confirmed. We are checking to see if we can locate design drawings of the original headgate structure, but that is unlikely. It essentially is a gate structure mounted to a county bridge. We would advocate leaving the bridge in place and creating an entirely new structure for GCID operations. We would not need heavy load bridge decking, but would need decking robust enough for equipment operations. In order to streamline maintenance during our shutdown period, there is a list of smaller improvements that will be required to wheel Sites water. These include:
 - a. Graveling maintenance roads
 - b. Replacing turnouts
 - c. Replacing cross-drainage structures
 - d. Potentially lining short reaches to reduce seepage
2. Engineering will provide Jacobs a map identifying the major improvements with Canal MPs. We will need to work through the smaller improvements and get those to you.
3. The TRR WSE should be maintained at 123.0 – 123.2 year round. We can discuss the finalization of that number.
4. We suspect that the MC capacity at the TRR is more like 1,200 cfs, but we are confirming that. If the capacity is 1,200-cfs, we will also let you know where the Main Canal capacity reaches 1,800-cfs.
5. We would like to look at 3-6 hrs of storage at the TRR depending on size and cost. Four hours would be something that might be comfortable.
6. We suspect that the capacity just downstream of the TRR is closer to 1,100-cfs, but we are confirming.
7. The 41-1 capacities seem within reason. The summer flows might be closer to 170-cfs, but we are confirming.
8. We do not know the capacity of the private ditch (MC115). There is a 48-inch pipe there.

Good luck with your meeting tomorrow. Let me know if there is something else we can provide in the near-term.
Holly

From: Rude, Pete/RDD <Pete.Rude@jacobs.com>
Sent: Wednesday, July 15, 2020 8:14 PM
To: Holly Dawley <hdawley@gcid.net>
Cc: Smith, Jeff/SAC <Jeff.Smith1@jacobs.com>; Luu, Henry <Henry.Luu@hdrinc.com>
Subject: Sites HC: GCID Main Canal Information

Hi Holly,

Great to have you on the call last Thursday with the GCID, Sites, and Jacobs team. I think you had to drop off a few minutes early and Thad nominated you to be the GCID point of contact for us on the Sites Project. I apologize in advance for the long list, but unfortunately documentation on previous GCID work by others for Sites is sparse. Based on the call there are a number of items we need help on:

- 1) GCID said there were three improvements on the GCID Main Canal upstream of the Sites Project Facilities that start at the Sites Terminal Regulating Reservoir (TRR). 1) Replace headgates at Hamilton City, 2) replace UPRR Siphon at Willows, 3) Misc canal improvements if the canal 6wk shut down period in Jan/Feb is going to get reduced to 2 wks. Attached is the description we have of these 3 items that was in the 2017 public draft EIR/EIS. Can you please verify these items?
- 2) We need to be able to locate these facilities so it makes sense to GCID and us. TCCA has given us Mile Posts along their main canal. Can GCID provide something similar – maybe a map?
- 3) Please confirm at the TRR (basically where the GCID Main Canal crosses Funks Creek) that the Main Canal WS Elev are kept during the summer between 123.0 and 123.2, during the winter its kept at 121.8, and that the current winter shut down period for maintenance is 6 weeks from Jan 1 – Feb 15.
- 4) Zach was going to confirm that the Main Canal Capacity up to the TRR is 1,800 cfs. Please check with him.
- 5) Please confirm that GCID would like 2 to 3 hours of storage at the TRR at 1,800 cfs if we have pump failure at TRR.
- 6) Please confirm that the Main Canal capacity past the TRR is 900 cfs. We heard that the Funks Creek Siphon is limited to 900 cfs but we want to confirm that.

7) Please confirm that Lateral 41-1 parallel to McDurmitt Rd near the TRR has a capacity of 140-150cfs in the summer and winter flows are about 80 cfs.

8) Please confirm the private ditch capacity and the type of structure that leads from GCID MC to the private ditch (MC 115 R?) that heads south west off the MC about a mile upstream of Funks Creek Crossing. Any drawings would be great.

That should be enough to get you started 😊.

Thanks

Peter H. Rude, PE (CA, HI, CO) / Jacobs / Civil Engineer & Principal Project Manager
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From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 7/27/2020 10:22:56 AM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: checking for accuracy

Sounds good...

Jerry - do you want to send out the consolidated email to Amparo...or do you want me to send it out

-----Original Message-----

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, July 27, 2020 10:18 AM
To: Kevin Spesert <kspesert@sitesproject.org>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Re: checking for accuracy

Let's consolidate our feedback to Amparo in a single email.

Incorrect Statement: " However, there could also be a problem for Zone 7 or any other Sites partner, said Jennings of the sport-fishing alliance. Sites will be shallower than most reservoirs, which would heat the water above 56 degrees F."

Correction: The release of the Sites water to the Sacramento River will be accomplished in a manner that does not significantly impact the temperature of the water flowing in the river.

On 7/27/20, 9:30 AM, "Kevin Spesert" <kspesert@sitesproject.org> wrote:

Thanks Amparo...I will take a look at it...I have also included Jerry and Ali...

Jerry/Ali - please review the below article and do a quick fact check and respond back ASAP

Thanks!

Kevin

-----Original Message-----

From: Flores, Amparo <aflores@zone7water.com>
Sent: Monday, July 27, 2020 9:24 AM
To: Kevin Spesert <kspesert@sitesproject.org>
Subject: FW: checking for accuracy
Importance: High

Could you please help with the fact check on Sites Reservoir (e.g., temperature issues)? We need to respond to this reporter asap. Sorry for the rush. Thanks.

-----Original Message-----

From: Pryor, Valerie <vpryor@zone7water.com>
Sent: Monday, July 27, 2020 8:28 AM
To: Flores, Amparo <aflores@zone7water.com>
Subject: FW: checking for accuracy

Any accuracy issues?

-----Original Message-----

From: ron mcnicoll <ronbiz23@comcast.net>
Sent: Monday, July 27, 2020 4:16 AM
To: Pryor, Valerie <vpryor@zone7water.com>
Subject: checking for accuracy

CAUTION - This email came from outside of Zone 7 Water Agency. Do not open attachments or click on links in suspicious emails.

Valerie,
I wrote this story about a court settlement that will have some impact on zone 7.

Could you please look it over for accuracy?
If you want to be quoted on anything, please let me know.

TEchnically my deadline is 1 pm Monday, but I have some flex in that.

Ron

story on delta agreement

Landmark River Settlement Heralds Implications for Zone 7

By Ron McNicoll

Using a common law public trust doctrine that dates back many centuries in world history, non-profit plaintiffs say they have made a landmark settlement agreement with the State Water Resources Control Board (SWRCB) to save Delta fish species and their environment.

Public trust doctrine says that for example the land between high and low tide is for the benefit of all, and cannot be appropriated for private use. It grew out of a Byzantine Empire notion that the seashores, air and running water was common to everyone. England held the same doctrine by the 13th Century.

The victorious plaintiffs who sued the water board in 2015 used the public interest doctrine to ensure the best environmental considerations for Californians, said Bill Jennings, executive director of the California Sport Fishing Protection Alliance (CSSFPA).

Two other plaintiffs joined in the suit. They are the California Water Impact Network (CWIN) and AquAlliance.

The suit alleged that the water resources board showed an "overarching pattern and practice of failure to comply with the public trust doctrine" in such things as implementing Sacramento River temperature management requirements, failure to ensure good conditions for fish below dams, and acceptance of water quality that was below minimum Clean Water Act standards.

"The water board's long-standing pattern and practice of inadequately implementing foundational environmental laws has brought the Central Valley aquatic ecosystem to the brink of collapse. This settlement agreement is a major step forward, compelling the state water board to fulfill crucial legal requirements it had previously ignored," said Jennings.

The Sacramento River carries the flow for the Central Valley Project, which was begun in the 1930s with federal assistance, and irrigates farmlands and cities in the Central Valley.

Zone 7 obtains its water from a different source, the State Water Project, which was begun in the late 1950s by Gov. Pat Brown. The water source is the dammed-up Lake Oroville, north of Sacramento.

Lake Oroville flows into the Delta, which then acts as a conduit for the water that goes to Zone 7 from Clifton Court Forebay in the south Delta, near Discovery Bay. There it enters the South Bay Aqueduct near Tracy and is carried to treatment plants in the Tri-Valley.

Zone 7 has several stakes in the settlement agreement. One is that if the settlement victors can force the state water board to adhere better to stringent standards, the Delta water quality could improve.

The other impact would be on Sites Reservoir, which Zone 7 so far has been helping develop at the planning level and engineering level. There are 20 other water agencies signed up for Sites, which would be 75 miles northwest of Sacramento.

Sites would be completed in 2030, and store rainwater and snow melt. It could even have water available during droughts, if there are no previous contractual obligations that would interfere with it.

However, there could also be a problem for Zone 7 or any other Sites partner, said Jennings of the sport-fishing alliance. Sites will be shallower than most reservoirs, which would heat the water above 56 degrees F. Putting fish into the Sacramento River at that temperature or warmer is the kind of thing the three suit plaintiffs have said the state water board has been doing illegally.

Zone 7 has spent \$1.3 million since 2016 in helping finance the initial environmental and engineering studies for Sites. The board, as recommended by staff in a virtual meeting July 15, committed another \$1 million for further studies. The vote was unanimous, subject to successful negotiations between the Sites entity and Zone 7 General Manager Valerie Pryor. Zone 7 has \$2.8 million in a water acquisition fund.

Sites scaled back the size of the reservoir from 1.8 million AF (acre foot) to 1.5 AF. (An acre foot is 1 acre of water to a depth of 1 foot. It can serve two households for a year.) By reducing the projected reservoir size, the Sites authority reduced the cost from \$5.5 billion to a range of \$3 billion to \$3.3 billion, in an effort to entice more agencies to participate.

Board and staff talked about some of the risks in investing in Sites. President Olivia Sanwong said that she attended a virtual town meeting to learn more. She reported that at times there might not be water available because of weather conditions. "Their climate modeling is impressive, but in a worst case, we might not have access to it," said Sanwong.

Vice-president Angela Ramirez Holmes asked whether any other investor would pick up the Zone 7 share, if the agency votes to drop out. Staff member Amparo Flores said Zone 7 would get credit from what it had invested.

#

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/27/2020 10:53:24 AM
To: Luu, Henry [Henry.Luu@hdrinc.com]
CC: Heydinger, Erin (Erin.Heydinger@hdrinc.com) [Erin.Heydinger@hdrinc.com]; Spranza, John [John.Spranza@hdrinc.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Conner McDonald [conner@cmdwest.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: Sites Reservoir: Preliminary project description for the EIR/EIS - Figures?

Hi Henry --

Nicole has raised some questions regarding use of the recent plans/profiles for project description figures and the appropriate timing for development of the figures (see below). I am leaning towards having ICF put placeholders in the text for the August preliminary project description deliverable, assuming that recent submittals are subject to change but I wanted to check with you first on status/timing.

Also, we need to develop the Alternative 1 and Alternative 2 overview figures that we started in June and have those ready for the August EPP Work Group meeting. I am hoping that this will be easier now since we have the preliminary drawings. Who would be the lead for developing those figures?

We can discuss other items (see my initial responses in red) on Nicole's list as a group today on our internal PD call.

Thanks,

Laurie

From: Williams, Nicole [mailto:Nicole.Williams@icf.com]
Sent: Monday, July 27, 2020 9:28 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Unsworth, Ellen <Ellen.Unsworth@icf.com>; Briard, Monique <Monique.Briard@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>
Subject: Sites Reservoir: Preliminary project description for the EIR/EIS - Figures?

Hi Laurie,

I'm trying to figure out if we should include figures in the EIR/EIS preliminary alternatives description at the end of August. Below are a few factors I'm considering and I'd appreciate your thoughts:

1. The "re-do factor" – how stable do we think the current figures are and would we need to re-do them in the fall? HR/HC have given us a lot of great figures over the past few weeks (e.g., borrow areas, HR road alignments/bridge location, Dunnigan pipeline alignment) that ultimately would end up in the alternatives description in December. But I'm unclear just how stable they are right now. Do you have a sense if dramatic changes will occur between now and the end of August (when final TMs are submitted)?
2. The "publicly-disclosed factor" - is it okay to show features like the Dunnigan pipeline on figures if land owners have not been contacted? Pete mentioned this on the 7/24 HC call that all the drawings are internal only. How long is that going to remain/
3. The "help-please factor" - I would need help with a few of the figures to make sure they are complimentary of the text. See list below of the figures I'm interested in.
4. Finally, can you remind me, do we have a figure template?

Proposed Preliminary Alternatives Description Figure List

1. The Alt 1 and Alt 2 overall figures – my understanding is engineering is working on two figures for the Ad Hoc Reservoir Committee. This seems like something we should include even if it continues to be tweaked. Could also use Project Site Plan on the cover of Sites_Reservoir_HC_TO-1_Progress-Print_2020-07-20_Rev_1 [Also need now for Work Group]
2. Figure 2 Construction Access Roads from Roads & Bridge Draft TM_HR2.96 – no changes – would just need high quality PDF of the figure to drop into a template [Coordinate w/AECOM?]
3. Figure 3 Sites/Ladoga Road Realignment Figure from Roads & Bridge Draft TM_HR2.96 – would need to make sure the alternative titles/labels are correct. {Coordinate w/AECOM?}
4. Attachment 1 RD-2020-07-16_ProgressPrint_RoadwaySet_EnvMtg_Reduced_7-17-20 – remove construction roads and only show the bridge alternative that we are evaluating. Per our 7/20 Monday EIR/EIS check in, the Authority/Integration need to confirm, but sounds like we'll evaluate the Earthen Fill Prism to Reduce Bridge Length option. Could we add that to the Wed. 7/29 PD Team meeting, so that everyone hears what the EIR/EIS will be evaluating? [need to add to 7/29 agenda, need to confirm approach and coordinate with AECOM for revised drawing/pdf]
5. Figure showing recreation areas and roads within recreation areas – I remember seeing this in a power point presentation or pdf deck of the roads that showed a really nice detail of the recreation areas, but now I cannot find it. No changes would be needed, we'd just need a high quality pdf of the figure to drop into a template. [Prop 1 Application?]
6. Figure showing Dunnigan Alignment and facility footprint on the TCC and CBD and at Sacramento river, differentiating between EIR/EIS Alternative 1 and Alternative 2 – I think there will be figures we can pull from eventually, but right now some of the figures I've seen seem too detailed (HC figures of the alignment with the TCE and PE) and we don't have the details of some facilities (e.g., Sacramento River footprint). [timing?]

Cheers, Nicole

NICOLE L. WILLIAMS | Senior Environmental Planner | (o) 916.231.9614 | (m) 530.867.0470 | nicole.williams@icf.com | icf.com
ICF | 980 9th Street Suite 1200 Sacramento CA 95814 |



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From: Williams, Nicole [Nicole.Williams@icf.com]
Sent: 7/27/2020 10:59:03 AM
To: Laurie Warner Herson (laurie.warner.herson@phenixenv.com) [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]
CC: Briard, Monique [Monique.Briard@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]
Subject: Sites Reservoir: Possible Discussion Topics for PD Team Meeting

Hi Ali and Laurie, I was thinking about possible discussion topics for the Wed. PD team meeting and the following came to mind, so I wanted to send them along, in case you think these might be relevant.

1. Dam fill material to be evaluated in EIR/EIS (i.e., confirm earth/rock mixture only) – Authority/Integration update
2. Bridge to be evaluated EIR/EIS (i.e., confirm Earthen Fill Prism type bridge for Reduced Bridge Length only) – Authority/Integration update
3. Project Buffer (i.e., excluded for evaluation in EIR/EIS) – Authority/Integration update
4. TRR location – general discussion; based on our Friday call it seems like the location of the TRR is a bit up in the air and I think we're going to need to figure out how to deal with that in the CEQA/NEPA document and BA
5. Figures – general discussion

Cheers, Nicole

NICOLE L. WILLIAMS | Senior Environmental Planner | (o) 916.231.9614 | (m) 530.867.0470 | nicole.williams@icf.com | icf.com
ICF | 980 9th Street Suite 1200 Sacramento CA 95814 |



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From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 7/27/2020 11:18:39 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]; Jerry Brown [jbrown@sitesproject.org]; AFlores@zone7water.com
Subject: RE: checking for accuracy

Amparo...

In addition to Ali's comments below...here are a couple of other observations...

1 - Per Ali's comment (and documentation from the RWQB Sac River Plan)... the 56 degree requirement is really not an accurate representation of the requirements applicable to Sites releases as our release location would be well below Hamilton City...and that the release of the Sites water to the Sacramento River will be accomplished in a manner that does not significantly impact the temperature of the water flowing in the river.

2 - "Sites would be completed in 2030, and store rainwater and snow melt." - while generally correct...the VAST majority of the water stored in Sites would be from stormwater that is diverted from the Sacramento River during major storm events, typically in the winter months. Snow melt is generally in the river later into the spring and early summer and not typically when Sites would be taking water from the Sacramento River...it is important to note that Sites will only capture water AFTER all other water rights and regulatory/environmental requirements are met. One other thing to note...the vast majority of the water captured and stored by Sites would be stormwater draining into the Sacramento River from the ephemeral streams below Keswick (Shasta) Dam during major storm events and typically in the winter months..

3 - "...in an effort to entice more agencies to participate." - I think a better way of saying this would be that the reduction in the size of the project...and the associated cost savings...increases the affordability of the project for our participants.

Please give me a call if you have any questions.

Thanks!

Kevin

-----Original Message-----

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Monday, July 27, 2020 10:26 AM
To: Kevin Spesert <kspesert@sitesproject.org>; Jerry Brown <jbrown@sitesproject.org>; AFlores@zone7water.com
Subject: RE: checking for accuracy

The Regional Water Quality Control Board's Basin Plan for the Sacramento River states (page 47 of 201 in the PDF of page 3-13 of the plan):

At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature. Temperature changes due to controllable factors shall be limited for the water bodies specified as described in Table 3-7. To the extent of any conflict with the above, the more stringent objective applies.

Table 3-7 states:

The temperature shall not be elevated above 56°F in the reach from Keswick Dam to Hamilton City nor above 68°F in the reach from Hamilton City to the I Street Bridge during periods when temperature increases will be detrimental to the fishery.

The 56 degree requirement is in the Regional Water Quality Control Board's Basin Plan for the Sacramento River from Keswick Dam to Hamilton City. It is 68 degrees from Hamilton City to the I Street Bridge -- "during periods when temperature increases will be detrimental to the fishery." Sites releases will come into the Sacramento River downstream of Hamilton City and thus, would be subject to the Hamilton City to the I Street Bridge requirement of 68 degrees along with the requirement to increase no more than 5 degrees.

See Section 3.1.19 and Table 3-7 in the basin plan (page 47 of 201) here:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf.

I think the author is attributing this 56 degree requirement to the plaintiffs, but its really not an accurate representation of the requirements applicable to Sites releases as our release location would be well below Hamilton City.

Ali

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

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Sent: Monday, July 27, 2020 9:30 AM
To: Flores, Amparo <aflores@zone7water.com>
Cc: Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: checking for accuracy
Importance: High

Thanks Amparo...I will take a look at it...I have also included Jerry and Ali...

Jerry/Ali - please review the below article and do a quick fact check and respond back ASAP

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story on delta agreement

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Sites would be completed in 2030, and store rainwater and snow melt. It could even have water available during droughts, if there are no previous contractual obligations that would interfere with it.

However, there could also be a problem for Zone 7 or any other Sites partner, said Jennings of the sport-fishing alliance. Sites will be shallower than most reservoirs, which would heat the water above 56 degrees F. Putting fish into the Sacramento River at that temperature or warmer is the kind of thing the three suit plaintiffs have said the state water board has been doing illegally.

Zone 7 has spent \$1.3 million since 2016 in helping finance the initial environmental and engineering studies for Sites. The board, as recommended by staff in a virtual meeting July 15, committed another \$1 million for further studies. The vote was unanimous, subject to successful negotiations between the Sites entity and Zone 7 General Manager Valerie Pryor. Zone 7 has \$2.8 million in a water acquisition fund.

Sites scaled back the size of the reservoir from 1.8 million AF (acre foot) to 1.5 AF. (An acre foot is 1 acre of water to a depth of 1 foot. It can serve two households for a year.) By reducing the projected reservoir size, the Sites authority reduced the cost from \$5.5 billion to a range of \$3 billion to \$3.3 billion, in an effort to entice more agencies to participate.

Board and staff talked about some of the risks in investing in Sites. President Olivia Sanwong said that she attended a virtual town meeting to learn more. She reported that at times there might not be water available because of weather conditions. “Their climate modeling is impressive, but in a worst case, we might not have access to it,” said Sanwong.

Vice-president Angela Ramirez Holmes asked whether any other investor would pick up the Zone 7 share, if the agency votes to drop out. Staff member Amparo Flores said Zone 7 would get credit from what it had invested.

#

Sites Water Quality Meeting



Sites Reservoir Project

Date: July 15, 2020

Location: WebEx
1-408-418-9388,,1467135647

Time: 11:00 am – 12:00 am

Purpose: Continue discussions of the actions needed to address the water quality comments made on the Draft EIR/S and identify and discuss new items associated with the revised Project.

Invitees:

Ali Forsythe, Sites Authority
Steve Micko, Jacobs
Jeff Herrin, AECOM
Pete Rude, Jacobs

Monique Briard, ICF
Anne Huber, ICF
Nicole Williams, ICF
Jim Lecky, ICF

Erin Heydinger, Integration
John Spranza, Integration
Laurie Warner Herson,
Integration

Action Item	Owner(s)	Deadline	Notes	
1	Environmental to discuss valve for flow into SC and Funks Creeks also for temperature control gate design.	Spranza/Herrin/Lecky	7-15-20	Complete: Outstanding questions in 7/23/20 email from Jeff to HC/HR
2	Memo for fish in good condition	ICF	8-28-20	
3	Follow up on EFH and longfin occurrence	ICF	8-28-20	
4	Mercury methylation in Yolo Bypass	Huber/Lecky/Micko	8-7-20	
5	Description of water quality during filling or reservoir	Micko/Huber	8-14-20	
6	Continue salinity calculations and check potential need for modeling for salinity in reservoir and creeks (Salt Lake)	Spranza/Huber	7-31-20	In process
7	Construction water discussion and minimum flow sources for SC and Funks during dam construction.	Micko/ Spranza/Williams	8-7-20	In Process
8	Follow up on modeling: reservoir and creek temperature and salinity	Spranza	7-30-20	In Process-follow-up meeting needed

9	Compare cost of bypass turnout vs mitigation for Funks Creek below Golden Gate Dam	Rude/Herrin/Spranza	8-7-20	
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Agenda:

Discussion Topic	Topic Leader	Est Time
1. Review of previous actions items	John	15 min
2. Stone Corral and Funks Creek	Jim/Jeff	15
3. Water Quality Topics <ul style="list-style-type: none"> a. Mercury-Methylation b. Mercury Delta loading c. Selenium 	John Spranza	15 min
4. Developing/Continuing Topics	John/Group	10
5. Next Steps	Group discussion	5 min

Meeting Notes

- Funks and Stone Corral Creeks
 - Hydraulic and temperature changes to each creek will occur due to location of Sites and Golden Gate Dams
 - 90% of historic base flow would result in minimal to no effect of species composition and channel
 - 80% of historic base flow would result in some, but not-significant effect to species composition and channel.
 - Stone Corral
 - Gauge data October 1957 to September 1985; near Sites Dam location
 - 80% of historical flow is 0-200 cfs
 - Approximate Average Flows:
 - May-June, 10 cfs
 - July-Oct, 0 cfs
 - November, <1 cfs
 - Dec – March, wet (need flow)
 - Listed as Essential Fish Habitat for spring-run Chinook
 - One occurrence of longfin smelt
 - Bypass tunnel adjacent to Sites dam (north abutment) would pass water for construction and could also be used to pass environmental flows for Stone Corral.
 - Several valves would be needed to step down the flows in this tunnel to under 400 cfs, smallest being somewhere in the 0-10 cfs range.
 - Inlet for bypass tunnel would need to be designed as a stand-alone intake. Somewhere around 300 ft. elevation to ensure that water can still be passed at dead pool
 - What about the source of when reservoir is filling?
 - Change in temperature from warm to cool/cold until warming to ambient occurs.
 - Funks Creek
 - No gauge data but use of Stone Corral data is a good surrogate
 - Portion of Funks (approx. 1.2 miles) would be dewatered
 - John and Jim discussed with Jeff Herrin and Pete Rude: Turnout for 10 cfs to be included in design and cost to be compared with mitigation cost for creek.

- TCCA operates the existing gates at Funks Dam and would continue to do so post project. The source of the water would change to include the inflow from Sites Reservoir via I/O near Golden Gate Dam
 - Change in temperature from warm to cool/cold until warming to ambient occurs.
- Water Quality Constituents
 - Mercury and Selenium
 - RBI working with Jacobs to do initial review to determine if detailed Hg and Se modeling needs to be done or if qualitative approach would suffice
 - Mercury methylation in Yolo Bypass also needs to be assessed
 - Anne, Jim and Steve to discuss
 - Temperature modeling in reservoir and below reservoir is being discussed.
 - John to call Rob Leaf
 - Salinity modeling in and below reservoir is being discussed
 - John and Anne working this through. Will call Rob Leaf to see if salinity can be added to temperature modeling
 - Source of salinity is Salt Lake
 - Attempting to gain access for current salinity measurements: Kevin is working the request
- Fish in Good condition (Ca F&GC 5937)
 - ICF to provide memo for record documenting a management plan to meet the requirements of 5937
 - Flows
 - Flow regime
 - Target species
 - Channel forming flows
 - Integration and HR to work on costs for water and facilities needed to meet memo's plan
- CBD Modeling
 - Jacobs has temperature modeling through CBD in scope
 - Change in CBD
 - Change in Yolo
- Need to discuss and describe water quality of the reservoir as it fills for permits and EIR/EIS.
 - Look at 2017 and Steve to follow up.

Sent: 7/27/2020 2:32:50 PM
To: Jerry Brown [jbrown@sitesproject.org]
Subject: RE: August 18th Water Storage Update for the Water and Environmental Task Force

I have the reminder set. Your Bio is due this

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, July 27, 2020 1:52 PM
To: Marcia Kivett <MKivett@sitesproject.org>
Subject: FW: August 18th Water Storage Update for the Water and Environmental Task Force

Please set a reminder for me to get Kevin a draft doc for him to polish by August 10. thanks

From: Gary Darling <gary@darlingh2o.com>
Date: Monday, July 27, 2020 at 11:58 AM
To: Jerry Brown <jbrown@sitesproject.org>, "Marguerite Patil (mpatil@ccwater.com)" <mpatil@ccwater.com>, Garth Hall <ghall@valleywater.org>
Cc: Lindy Lavender <lindy@eblcmail.org>, "mcintyre@dsrsd.com" <mcintyre@dsrsd.com>, "Bob Whitley (rdwhitley@mindspring.com)" <rdwhitley@mindspring.com>, Dave Requa <dave@requa.org>, Dave Richardson <drichardson@woodardcurran.com>
Subject: August 18th Water Storage Update for the Water and Environmental Task Force

Greetings Jerry, Marguerite and Garth. Thanks for agreeing to present to our August 18 Water and Environmental Task Force meeting to bring our members up to speed on the reservoir projects that most impact the Bay Area water supplies. We expect that we will have great attendance (50 plus). The Zoom meeting will start promptly at 8:30 and each presenter will have 20 minutes to talk, then we will open it up to questions with a closing time of 10am.

Since 20 minutes is a pretty short timeframe for you to present and a desire by our team that you all cover similar territory we have the following suggestions on what to cover:

1. Brief project overview (location, size including water supply/storage benefits, schedule and cost)
2. Description of NET environmental benefits that will be used to convince NGOs to support your project and regulatory agencies to permit
2. Challenges to getting to construction including:
 - a. Strategies related to partnerships and funding at the local, state and federal levels
 - b. Strategy on avoiding, minimizing and then mitigating impacts to protected aquatic and terrestrial species in order to accelerate permitting & construction
 - c. Others?
3. Issues that the 3 projects can work together on (e.g.: state and federal funding and timing, regulatory agency priorities, editorials advocating public support, etc.)
4. What can the East Bay Leadership Water and Environmental Task Force do that would be helpful?

Timing:

1. Please provide a brief bio to myself and Lindy by the end of this week (August 31).
2. Please provide your PowerPoint to myself and Lindy by August 14th.

Please do not hesitate to reach out to me if you would like to discuss further. Thanks, Gary

Gary W. Darling

Darling H2O Consulting Inc.

925-382-4350

gary@darlingh2o.com

www.darlingh2o.com

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/27/2020 3:03:36 PM
To: Luu, Henry [Henry.Luu@hdrinc.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: Sites Reservoir: Working file/calculations related to Salt Lake
Attachments: RE: Salt Lake

So we are NOT okay with sending anything yet given the errors Anne identified below in the 2017 EIR. Let me review and then get back to you tomorrow.

John Spranza

D 916.679.8858 M 818.640.2487

From: Huber, Anne [mailto:Anne.Huber@icf.com]
Sent: Monday, July 27, 2020 2:58 PM
To: Spranza, John <John.Spranza@hdrinc.com>; Jeriann Alexander (jal Alexander@fugro.com) <jalexander@fugro.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Erecius, Lesa <Lesa.Erecius@icf.com>
Subject: FW: Sites Reservoir: Working file/calculations related to Salt Lake

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Everyone,

I've attached information from Lyna regarding the original Salt Lake evaluation. A few key points based on this information are:

- The 0.75% in the report was a typo; it should have been 0.0075%.
- 7,200 umhos/cm was used for the analysis because it was thought to represent salinity "when the springs are running."
- The analysis estimated 75 af/y of salt spring inflow to the reservoir per year. The calculation assumed this inflow mixed completely into the whole reservoir and disappeared at the end of the year. Peter Lawson had the following to say about this assumption: "The only other thing I was thinking about was a simple water budget/mixing cell for the lake accounting for annual inflows/outflows but I think your calculations are probably sufficient to make our point."
- There was some email discussion of adding text about how "there is no way that the spring has 100+ feet of head on it, so if we flood the area with 200 feet of water it makes sense that the spring flow should all but cease", but I didn't see any discussion about this concept in the 2017 draft report.

There are a few related things I'm wondering about, some of which we already discussed:

- A question for Jeriann: If we knew the spring was fed by less than 100 feet of head, as opposed to having water squeezed upward from below, would that matter? Even if there is less than 100 feet of head, couldn't the water still be squeezed out with pressure from above, as opposed to just being forced out by gravity?
- The assumption of 7,200 umhos/cm seems low because this EC was measured during the rainy season and as such may represent a combination of spring water and rain input. The value of 194,100 umhos/cm was measured when

the springs were running, based on the comment about bubbling, but this value seems too high since it may represent the effect of salt accumulated at the surface after many years of evaporation. John and Kevin Spesert are investigating the possibility of new measurements, but in the absence of such measurements, I'm wondering if there is general information about the EC of salt seeps in the coast range that might be helpful – maybe another question for Jeriann.

- It seems likely that the salty water will accumulate at the bottom of the reservoir, with some uncertainty about whether it will mix with the rest of the reservoir during fall turnover. Do we know all the outlet elevations? If some are deep in the reservoir, the salty water might continually be released with the outflow so it would not accumulate. If 0.1 cfs of spring flow is continually released with the outflow, the EC of the outflow would depend on the reservoir release and the EC of the spring flow and may vary between 171 and 2,109 umhos/cm (see table). Maybe the worst-case scenario would be if the salty water accumulated at the bottom of the reservoir before a low-level release commenced, resulting in an initial release that could be composed entirely of spring water. It seems like this scenario could be avoided with monitoring and at least occasionally releases from the bottom of the reservoir.

Estimated EC (umhos/cm) of reservoir release assuming 0.1 cfs salt spring flow is continually mixed with reservoir release and that Sacramento River EC is 170 umhos/cm.

Spring EC (umhos/cm)	Reservoir Release (cfs)	
	10	1,000
7,200	240	171
194,100	2,109	189

Thanks,
-Anne

From: Black, Lyna/RDD <Lyna.Black@jacobs.com>
Sent: Sunday, July 26, 2020 9:58 AM
To: Huber, Anne <Anne.Huber@icf.com>; Williams, Nicole <Nicole.Williams@icf.com>
Cc: Oliver, Mark/RDD <Mark.Oliver1@jacobs.com>
Subject: RE: Sites Reservoir: Working file/calculations related to Salt Lake

Hi Nicole and Anne,
We worked with AECOM quite a bit related to Salt Lake.
I believe attached from Gwen is what you're looking for. If not, let me know.
Thanks!
Lyna

Lyna Black | Jacobs | Project Manager/Environmental Planner
O:+01.530.229.3295 | M:+01.530.680.5276 | lyna.black@jacobs.com
2525 Airpark Drive | Redding, CA 96001

From: Huber, Anne <Anne.Huber@icf.com>
Sent: Friday, July 24, 2020 2:08 PM

To: Williams, Nicole <Nicole.Williams@icf.com>; Black, Lyna/RDD <Lyna.Black@jacobs.com>

Cc: Oliver, Mark/RDD <Mark.Oliver1@jacobs.com>

Subject: [EXTERNAL] RE: Sites Reservoir: Working file/calculations related to Salt Lake

Hi Nicole and Lyna,

Just a little clarification:

The figure of 0.75% was given as the high end of the range of percentages and I think the calculations assumed 0.1 cfs.

Thanks,

-Anne

From: Williams, Nicole <Nicole.Williams@icf.com>

Sent: Friday, July 24, 2020 1:50 PM

To: Black, Lyna/RDD <Lyna.Black@jacobs.com>; Huber, Anne <Anne.Huber@icf.com>

Cc: Oliver, Mark/RDD <Mark.Oliver1@jacobs.com>

Subject: Sites Reservoir: Working file/calculations related to Salt Lake

Hi Lyna, I am wondering if you happen to have at your fingertips (or with relatively little digging) the working files used to calculate the information related to the Salt Lake that's in the 2017 EIR/EIS. We're taking another look at the assumptions/calculations and the concept of capping and it would be helpful to have the working equations used. For example, looking for the working file showing the calculation that supports that 1 cfs released by the Salt Lake would equal 0.75% of the reservoir.

Hi Anne, please weigh in with any further clarification or if I messed up the 0.75%.

Cheers, Nicole

NICOLE L. WILLIAMS | Senior Environmental Planner | (o) 916.231.9614 | (m) 530.867.0470 | nicole.williams@icf.com | icf.com

ICF | 980 9th Street Suite 1200 Sacramento CA 95814 |

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Draft_0002969

From: Buchholz, Gwendolyn/SAC [Gwendolyn.Buchholz@jacobs.com]
Sent: 3/22/2017 6:04:32 PM
To: Lawson, Peter/RDD [Peter.Lawson@jacobs.com]
CC: Buchholz, Gwendolyn/SAC [Gwendolyn.Buchholz@jacobs.com]; Oliver, Mark/RDD [Mark.Oliver1@jacobs.com]; Black, Lyna/RDD [Lyna.Black@jacobs.com]
Subject: RE: Salt Lake
Attachments: Copy of Salt_Spring_ET.xlsx

Here is what I wrote, I am also including my additions to your spreadsheet.

All scenarios were found to be less-than-significant.

ALTERNATIVE A

Introduction of Saline Water into Sites Reservoir from Salt Lake

As described in Chapter 3, the springs which provide water to the Salt Lake would be grouted to reduce the amount of highly saline water from entering Sites Reservoir. However, the effectiveness of the grouting measures are not known at this time. Therefore, the water quality impact analysis for Sites Reservoir includes the following “worst-case” evaluation assuming that salt water continues to enter the reservoir in a similar manner as historic seepage.

Based upon observations of the Salt Lake in 2017, it appears that the main body of Salt Lake is approximately 15 acres and could be 5 to 10 feet deep. This would result in a volume of 150 acre-feet. Evaporation rates for freshwater near Sites is approximately 5 feet/year, and saline water evaporates more slowly than freshwater. However, for this evaluation, the more conservative evaporation rate was assumed. To maintain the main body of the Salt Lake, approximately 75 acre-feet/year would need to seep from the springs into the Salt Lake (at a long-term average rate of 0.1 cfs).

As described in Section 7.2, Salt Lake becomes very small especially in drier years. Therefore, it was assumed that seepage from the springs was very low in Dry and Critical water years.

The average monthly storage in Sites Reservoir under Alternative A in Wet, Above Normal, and Below Normal water years ranges from 800,000 to 1,050,000 acre-feet. The annual volume of saline water that currently seeps into Salt Lake would represent 0.008 percent to 0.009 percent of the total annual volume in Sites Reservoir under Alternative A. Assuming that the salinity of the saline water was an average of 7,200 micromhos/centimeter and the salinity of the Sacramento River water near Colusa was 170 micromhos/centimeter; the addition of the saline water that historically has formed Salt Lake would increase the overall salinity of Sites Reservoir by less than 1 micromhos/centimeter (0.4 percent).

ALTERNATIVE B

Under Alternative B, the potential for changes in salinity in Sites Reservoir related to potential seepage from the springs near Salt Lake if the grout seal does not reduce seepage would result in an increase in EC of less than 0.5 micromhos/centimeter (0.2 percent). The high salinity water from the Salt Lake area would represent less 0.005 percent to 0.75 percent of the total water in Sites Reservoir under Alternative B.

ALTERNATIVE C

Under Alternative C, the potential for changes in salinity in Sites Reservoir related to potential seepage from the springs near Salt Lake if the grout seal does not reduce seepage would result in an increase in EC of less than 0.5 micromhos/centimeter (0.2 percent). The high salinity water from the Salt Lake area would represent less 0.005 percent to 0.75 percent of the total water in Sites Reservoir under Alternative B.

ALTERNATIVE D

Under Alternative D, the potential for changes in salinity in Sites Reservoir related to potential seepage from the springs near Salt Lake if the grout seal does not reduce seepage would result in an increase in EC of less than 0.5

micromhos/centimeter (0.2 percent). The high salinity water from the Salt Lake area would represent less 0.005 percent to 0.75 percent of the total water in Sites Reservoir under Alternative B.

Gwen Buchholz
Cell 916-468-3441

From: Lawson, Peter/RDD
Sent: Wednesday, March 22, 2017 2:28 PM
To: Buchholz, Gwendolyn/SAC <Gwendolyn.Buchholz@CH2M.com>
Subject: RE: Salt Lake

Perfect. I should be in the office tomorrow and will add what is needed in the morning.

Peter Lawson P.G., C.Hg.
Senior Principal Hydrogeologist
D 530 229 3383
C 530 949 0870
CH2M

From: Buchholz, Gwendolyn/SAC
Sent: Wednesday, March 22, 2017 2:26 PM
To: Lawson, Peter/RDD <Peter.Lawson@CH2M.com>
Subject: RE: Salt Lake

I am writing this section this afternoon, I will send you my excerpt.

I will address "if the grout does not work – what is the water quality"

I think you need to address the 100-foot of head may actually reduce the seepage rate.

Gwen Buchholz
Cell 916-468-3441

From: Lawson, Peter/RDD
Sent: Wednesday, March 22, 2017 2:21 PM
To: Buchholz, Gwendolyn/SAC <Gwendolyn.Buchholz@CH2M.com>

Cc: Oliver, Mark/RDD <Mark.Oliver@CH2M.com>

Subject: RE: Salt Lake

Well you are getting the same flux rate I did with a different approach (75 ac-ft/yr = 44 gpm) so that is good. And you performed the same dilution calculation that I was planning with the same inputs but I got distracted this morning. The only other thing I was thinking about was a simple water budget/mixing cell for the lake accounting for annual inflows/outflows but I think your calculations are probably sufficient to make our point.

I also agree that there is no way that the spring has 100+ feet of head on it, so if we flood the area with 200 feet of water it makes sense that the spring flow should all but cease.

So overall I feel that we have sufficient data here to dismiss the impacts to surface water quality as less-than-significant. The only choice left to be made is how much of this information we want to put into the section. You are by far the expert there.

P

Peter Lawson P.G., C.Hg.
Senior Principal Hydrogeologist

D 530 229 3383

C 530 949 0870

CH2M

From: Buchholz, Gwendolyn/SAC

Sent: Wednesday, March 22, 2017 1:07 PM

To: Lawson, Peter/RDD <Peter.Lawson@CH2M.com>

Cc: Buchholz, Gwendolyn/SAC <Gwendolyn.Buchholz@CH2M.com>

Subject: Salt Lake

Peter

What if we think about the Head of freshwater forcing the salt water back into the localized groundwater – but, since that groundwater will not be accessible, there would be no environmental impact.

Then, for water quality, if we use 15 acres and assume 10-feet deep (I saw the Google Earth image, and if it is any deeper, it would run downhill) = 150 acre-foot average size.

If we use the assumption of 5 feet evap/year – the total evaporated volume would be 75 acre-feet/year.

In years where the volume is generally maintained, the influent would be up to 75 acre-feet/year.

In years where the pond has fully evaporated, the influent would be between 75 and 150 acre-feet/year depending upon how long it takes to refill the pond.

If it is 75 acre-feet/year at a constant rate over 12 months, it would be 0.1 cfs (which sounds better than 46 gpm).

Looking at the Sites Reservoir Storage, the average volume is 1.0 to 1.4 MAF each month except in Critical water years – when the springs probably do not flow well.

75 acre-feet/year would represent less than 0.005% to 0.008% of the total volume in Sites Reservoir.

The reported EC in Salt Lake is 7,200 when the springs are running, and Sac R EC is reported at 170. So this flow would increase the EC in Sites from 170 to 170.5 – or a 0.3% increase – not significant.

Also, see attached USGS topo of Salt Lake – it definitely will be inundated

Gwen Buchholz
Cell 916-468-3441

File Provided Natively

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/27/2020 5:03:06 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

Ok, this was the letter submitted to the CWC - we had included it in our list of EIR/EIS comment letters and were addressing the comments in the RTCs. It should be relatively easy (but will take some time) to pull the info together to demonstrate work underway to address issues raised.

From: Alicia Forsythe [mailto:aforsythe@sitesproject.org]
Sent: Monday, July 27, 2020 4:50 PM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: FW: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

Here's the start of what Jerry sent to me on the NGO comment matrix. We can do this differently, but this gives some idea of what he is thinking.

Ali

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

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From: Jerry Brown <jbrown@sitesproject.org>
Sent: Thursday, July 23, 2020 5:09 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Re: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

Let's discuss this during our 1v1 call tomorrow.

From: Alicia Forsythe <aforsythe@sitesproject.org>
Date: Thursday, July 9, 2020 at 3:45 PM
To: Jerry Brown <jbrown@sitesproject.org>
Subject: FW: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

My summary email from the Advisory Committee meeting.

Ali

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

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From: Alicia Forsythe

Sent: Friday, January 10, 2020 8:44 AM

To: John Spranza (john.spranza@hdrinc.com) <john.spranza@hdrinc.com>; Jim Lecky (jim.Lecky@icf.com) <jim.Lecky@icf.com>; Jim Watson (jwatson@SitesProject.org) <jwatson@SitesProject.org>; Thad Bettner (tbettner@gcid.net) <tbettner@gcid.net>; Kevin Spesert <kspesert@sitesproject.org>

Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Jelica Arsenijevic (Jelica.Arsenijevic@hdrinc.com) <Jelica.Arsenijevic@hdrinc.com>; Linda Fisher (linda.fisher@hdrinc.com) <linda.fisher@hdrinc.com>; Tull, Robert/SAC <Robert.Tull@jacobs.com>

Subject: Sites - Advisory Committee on Salmon and Steelhead Letter to Bonham

Hi all – I attended the meeting of the California Advisory Committee on Salmon and Steelhead Trout yesterday. It's a group that is established by the State legislature to make recommendations to the Director of CDFW. Their webpage is here: <https://fisheries.legislature.ca.gov/content/california-advisory-committee-salmon-and-steelhead-trout-cac>. The group is comprised of commercial fisheries reps, recreational fishing reps, Tribes, NGOs, and public seats (which are occupied by NGOs). The roster is here: <https://fisheries.legislature.ca.gov/sites/fisheries.legislature.ca.gov/files/CAC%20Member%20list%20November%202019%20for%20web%20site.pdf>.

There were about 20 folks at the meeting and on the phone. About 5 were from CDFW. Rest from commercial and recreational fishing organizations and NGOs. Two true public. Kristal was there for the whole meeting. Chad Dibble and Josh (cant remember his last night right now) was there for the afternoon, which included the Sites discussion.

Overall the discussion was good. They are quite informal in their meeting structure. We talked for about an hour on Sites. Tom Stokley led it off and actually did a really nice job talking about the project and trying to be balanced while stating his concerns. Kristal responded to a few things and then responded to the first few questions. Then committee members starting asking me questions. We got into all kinds of topics – bypass criteria, Trinity impacts, Water Resilience Portfolio, funding, costs and affordability, where is the water diverted and released, release temperatures, who are our participants (water to Westlands?), can the participants afford it, right sizing, selling water to Sites and following Sac Valley lands, how would environmental water be used / fishery benefits, temperature mixing in Sites, right-sizing, recirculation of the EIR, etc.

I thought it was a really good discussion and they were very open and asked lots of questions. From a fisheries perspective, their concerns seemed to focus around diversions / bypass flows and water temperature of the discharge water.

Tom was measured, balanced and more factual in his concerns, mostly focusing on a theme of 'there are so many unanswered questions, they have to recirculate the EIR to address these'. John McMannis, PCFFA was on the phone also and was very emotionally strong in his opposition, even interrupting me, which the folks in the room clearly did not appreciate and the committee chair stopped him.

Chad answered one question on what does the Resiliency Strategy mean when it talks about accelerating state permits for Sites. He basically said that he doesn't quite know but he thinks it means to make it a priority in CDFW and continue the dialogue. I think this calmed fears quite a bit as of course, the President announced the NEPA changes yesterday, which I think the group found concerning and was wondering if the State planned to exempt the project from CEQA or something.

In the end, the group decided to send the attached letter to Chuck. I will note that the recreational and commercial fishing guide folks in the room and Trout Unlimited all said that they aren't opposed to Sites, they simply would like more information and a better understand of impacts to fish. Trout Unlimited (Matt Clifford) also notably stated that they didn't agree with the 15,000 cfs in the letter as they simply weren't sure that was the right number and the letter presented no science to back that up. But the individual noted that they didn't see value in trying to wordsmith it and would approve as is.

The group was very thankful to me for attending and asked that I come back and provide updates as the project progresses.

I have reached out to Tom Stokely as both this meeting and the Humboldt meeting were really spurred by him. He is willing to chat with us. I am thinking that just Jim Lecky, John and I go talk with him. I am not sure that he can change his position on this as Sites is a project that CWIN would likely oppose simply on principle, but thinking that we might be able to cool his jets a bit if he feels heard and we can use a better understanding of his concerns as we move forward.

Let me know if you have any questions or concerns. I do think that the sooner we can make a statement on recirculation, the more likely we are to calm some of the concerns out there. We'll be teeing this up for a work group discussion later this month.

Thad please feel free to pass this onto the group that will be meeting with Chuck later this month. Not sure if Chuck will bring up this letter at the meeting but we wouldn't want to surprise our Sites team if he does. And thanks for the heads up on this meeting. I had never heard of this group before.

Ali

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

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From: Tom Stokely <tgstoked@gmail.com>
Sent: Thursday, January 9, 2020 12:35 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Draft letter for CACSST today

I thought you ought to see this before we talk about it.

TS

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/29/2020 8:30:35 AM
To: Marc VanCamp (Vancamp@mbkengineers.com) [Vancamp@mbkengineers.com]; Anne Williams (williams@mbkengineers.com) [williams@mbkengineers.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: Follow up on Phase 1b water rights call

Morning all,

Thanks for making time for a call yesterday, I have a few notes from our meeting.

- 1) SharePoint site link for water rights is here, please let me know if you have any access issues: <https://sitesreservoirproject.sharepoint.com/WaterRights/SitePages/Home.aspx>
- 2) The general thinking is that there would be enough information to still have a meeting with State Board staff in October (and maybe a Board member too). This would allow time to get the new water rights legal team under contract and up to speed.
- 3) An updated project description that has the general project features and operations would be needed for the meeting.
- 4) A brief highlight of changes from Alt D would be helpful as well.
- 5) Areas of discussion for the meeting could include:
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 - c. Water Routing
 - d. Project Benefits
 - e. CDFW Discussions and Coordination Activities
- 6) A discussion with David Guy would be potentially helpful as he has regular discussions with State Board members and may have some insight.
 - a. Ali to follow up or delegate this.

Lastly, I have a question for Marc and Anne, who should we be contacting to get the meeting on the books with the Board? Do you have any recommendations on who to talk to (and who not to)?

Feel free to revise the above items and send back around.

John

John Spranza, MS, CCN
Senior Ecologist / Regulatory Specialist

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



For Immediate Release:

July 29, 2020

Contact: Sara M. Katz

(619) 813-9551

Sites Reservoir Named in Governor's Water Resilience Portfolio

Sacramento, Calif. – Sites Reservoir has been named as one of several water projects in the state's final Water Resilience Portfolio released yesterday. Five years of historic drought have underscored the need for multi-benefit, regional investments, outlined in the comprehensive water portfolio. The portfolio assesses and recommends a number of local and regional strategies and actions to help California plan for more extreme droughts and floods, rising temperatures, declining fish populations, aging infrastructure and population growth.

"We thank the Newsom Administration for their dedication to this important issue, and are pleased that our state's leaders are committed to advancing Sites Reservoir in a way that serves the environment and water supply needs for people and farms. Just as the Water Resilience Portfolio aims to help California adapt to a changing climate and new and increased environmental stressors, so does Sites Reservoir," said Fritz Durst, chairman for the Sites Project Authority.

Sites Reservoir is a generational opportunity to construct a multi-benefit water storage project that helps restore flexibility, reliability, and resiliency to our statewide water supply. Sites is an off-stream facility that does not dam a major river system and would not block fish migration or spawning. Sites captures and stores stormwater flows from the Sacramento River—after all other water rights and regulatory requirements are met—for release primarily in dry and critical years for environmental use and for California communities, farms, and businesses when it is so desperately needed. One of Sites Reservoir's greatest strengths is in its broad statewide representation including cities, counties, water and irrigation districts throughout the Sacramento Valley, San Joaquin Valley, Bay Area, and Southern California.

"Sites Reservoir embodies many of the characteristics the state is looking for in the future of California's water supply," said Jerry Brown, executive director for the Sites Project Authority. "It's designed with a changing climate in mind, it has broad statewide participation and support from local stakeholders, it will benefit both the environment and water supplies and provides many additional benefits including flood control, recreational features, job creation and more."

Sites Reservoir will increase California's existing water supply by providing 1.5 million acre-feet of additional storage capacity to the state during times of drought. Extensive modeling has indicated that Sites Reservoir performs better and provides the most benefit to the people and environment of California, under the most challenging climate change scenarios.

Sites Reservoir would also provide federal and state resource agencies with a dedicated and reliable supply of water they can manage to provide environmental benefits, especially during drier years. A substantial portion of the project's water would be dedicated to environmental flows, which would help to improve conditions for Delta smelt, and help preserve the cold-water pool in Lake Shasta later into the summer months to support salmon development, spawning and rearing. In addition, it would improve the habitat for migratory birds and other native species.

In the coming months, the Sites Project Authority will continue to strengthen partnerships with local landowners, communities, and key stakeholders that represent environmental, business, labor, and other interests and continue to pursue funding to move the project forward through the planning and feasibility stage, and into implementation beginning in 2022.

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 and critical water years, and especially during extended drought periods. Additional information can be found at www.sitesproject.org or on Facebook and Twitter at @SitesProject.

From: Marc VanCamp [Vancamp@mbkengineers.com]
Sent: 7/29/2020 3:10:47 PM
To: Spranza, John [John.Spranza@hdrinc.com]; Anne Williams [williams@mbkengineers.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Follow up on Phase 1b water rights call

John:

The likely candidate at the Division of Water Rights is Erik Ekdahl. He will bring in who he feels needed which, unfortunately we can not control. The BOD member that would be productive is Sean McQuire. Ali should verify this if/when she speaks to David Guy. I did let David know that I made this suggestion.

All the best,

Marc Van Camp
vancamp@mbkengineers.com

MBKEngineers

455 University Avenue, Suite 100
Sacramento, CA 95825-6579
Voice: (916) 456-4400
Fax: (916) 456-0253
<http://www.mbkengineers.com>

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Wednesday, July 29, 2020 8:31 AM
To: Marc VanCamp <Vancamp@mbkengineers.com>; Anne Williams <williams@mbkengineers.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>
Subject: Follow up on Phase 1b water rights call

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a. Ali to follow up or delegate this.

Lastly, I have a question for Marc and Anne, who should we be contacting to get the meeting on the books with the Board? Do you have any recommendations on who to talk to (and who not to)?

Feel free to revise the above items and send back around.

John

John Spranza, MS, CCN
Senior Ecologist / Regulatory Specialist

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

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From: Robert Cheng [RCheng@cvwd.org]
Sent: 7/29/2020 3:22:13 PM
To: Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Project map/Shasta exchanges
Attachments: AltDvsVP7.pptx

Hi Erin,

Thanks so much for sending this over. I wanted to see if you or Ali can take a look at the graphic that I generated based on the pdf that you sent over to describe the differences in flow paths between what was originally discussed for the \$5.2 b project vs. VP7. I want to make sure that I'm understanding the key differences and will be using this as part of my Board presentation for the discussion on cost-cutting measures. Please feel free to modify/edit if I'm not getting this right.

Thanks.
Robert

From: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Sent: Wednesday, July 29, 2020 2:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Robert Cheng <RCheng@cvwd.org>
Subject: RE: Project map/Shasta exchanges

Hi Robert,

See attached for slide 3. We will also be sending this out to the full Workgroup shortly in an action item follow-up email.

Please let me know if you have any questions on it or on the animation more generally; we hope to have it ready over the next few weeks.

Thank you,
Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 12:43 PM
To: Robert Cheng <RCheng@cvwd.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

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Hi Robert – We're making a few changes to that Slide 3 based on comments at the Work Group meeting and should have it out shortly. I've copied Erin who can give us an ETA on getting it out.

On the exchanges – these would occur primarily if Reclamation is not an investment partner / does not buy into Sites. We would work out an agreement with Reclamation to outline parameters for exchanges. We are in the very

early stages of development of a term sheet with them for exchanges. If Reclamation is not an investment partner, they will not allow for carryover of “Sites” water in Shasta. Thus the exchanges move water into Shasta in the spring and back out in the fall – all within the same calendar year with no carryover from year to year.

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We’ve talked about these items in detail with Reclamation and I think we have a good sense of their comfort level on these along with how they would want to approach things like risk and liability. We’re just now starting work on a term sheet with them with the goal of finishing the term sheet in July 2021. The mechanics will be easier to work out – things like risk and liability will take more time (for example, how does Sites water fit into spill priorities, who controls water in Shasta and determines when its subsequently released, etc.). We want to make sure we are taking time to work thru these issues to make sure that the Sites partners are protected and aren’t put at undue risk / or taking all of the risk as part of the exchange. There should be some balance there as we are both realizing benefits but also both have some risks.

Hope this helps. Happy to chat if you’d like to discuss this.

Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Tuesday, July 28, 2020 3:54 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Project map/Shasta exchanges

Hi Ali,

Good discussion on Friday during the Sites E&O meeting, and I didn’t mean to put you on the spot with the request for the map. I am working on the presentation for Board approval, and one of the key slides that I was thinking would be a good visual for the changes in the project would be one that provided a simple layout of the the water flow into and out of the reservoir. Most of the graphics that I have seen to date, including the VP7 project map just doesn’t do a great job of showing that on one graphic, so I was happy to see what you presented on Friday. My plan is to show the flow of the water as it was originally envisioned, through the Delevan pipeline, and the flow as currently being discussed, using the existing canals for filling the reservoir and then using the Colusa Basin Drain for water delivery. This graphic would also show the cost savings by eliminating or modifying proposed facilities. I wanted to make sure that I communicated the need for this graphic, and although the animation would be good, I understand the reluctance in sharing that if you don’t feel that is quite ready yet. At this point, it would be great if a simple graphic as what you showed in Slide 3 (I think) could be shared, but whatever else that you might be able to provide would be welcome as well.

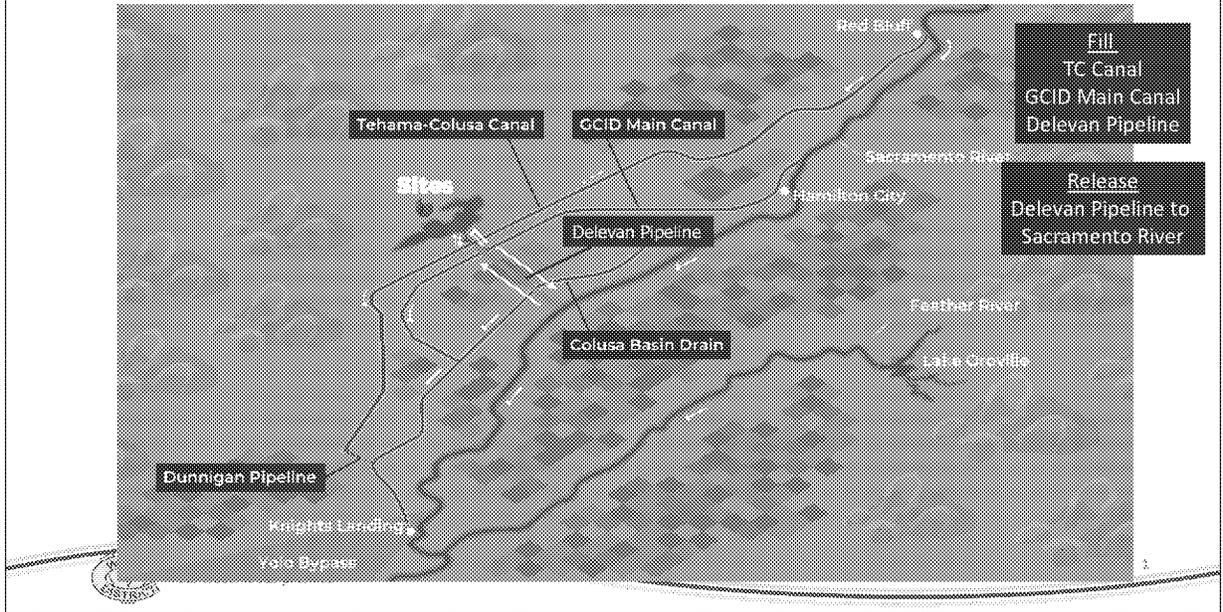
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the Feds have to buy into a portion of Sites in order to have this water available, or would they work out a deal with a Sites project participant to make this concept work? These details might have been discussed and I was just not paying attention, but I do expect questions like this during my discussion with the Board if I am portraying this as a project benefit.

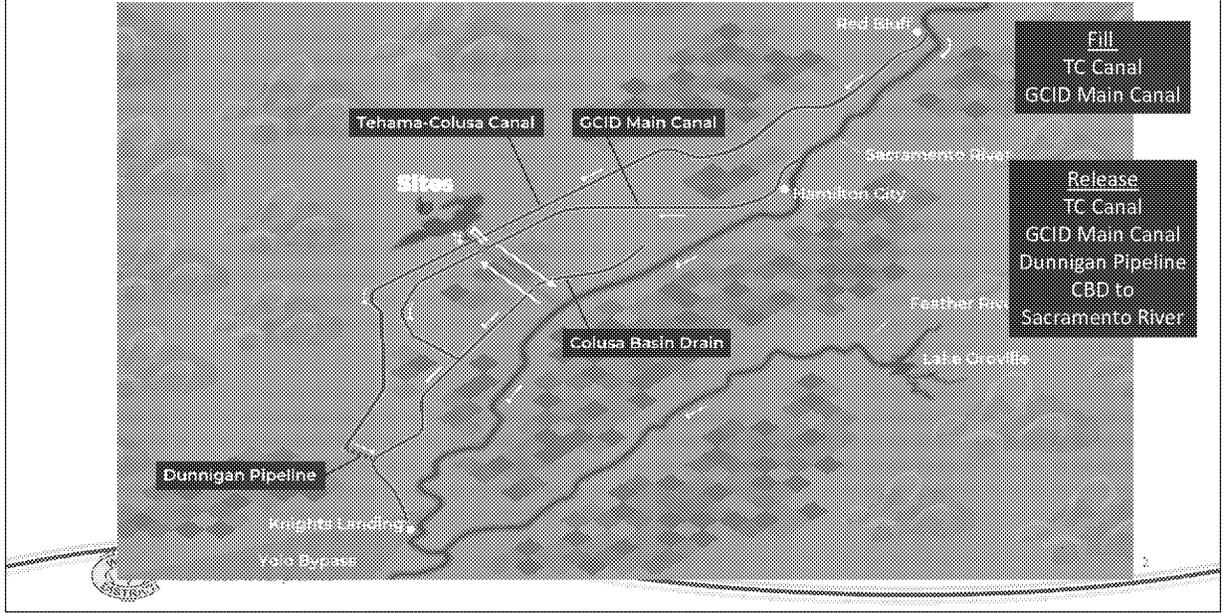
Thanks,
Robert

Robert C. Cheng, Ph.D., P.E.
Assistant General Manager
Coachella Valley Water District

Alternative D



VP7



From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 7/29/2020 3:42:33 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Project map/Shasta exchanges
Attachments: CVWD Graphic_AltDvsVP7.pptx

How does this look? Added a little text on TCC and GCID for Alt D (maybe it doesn't matter for Coachella?) and sort of blocked out Dunnigan.

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

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From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 3:36 PM
To: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: FW: Project map/Shasta exchanges

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Erin - I made a few changes that I texted you about. What do you think? Wonder if we can cover up the Dunnigan Pipeline callout in Alt D.

Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Wednesday, July 29, 2020 3:22 PM
To: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: Project map/Shasta exchanges

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To: Alicia Forsythe <aforsythe@sitesproject.org>; Robert Cheng <RCheng@cvwd.org>
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Sent: Wednesday, July 29, 2020 12:43 PM
To: Robert Cheng <RCheng@cvwd.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
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Ali

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Tuesday, July 28, 2020 3:54 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Project map/Shasta exchanges

Hi Ali,

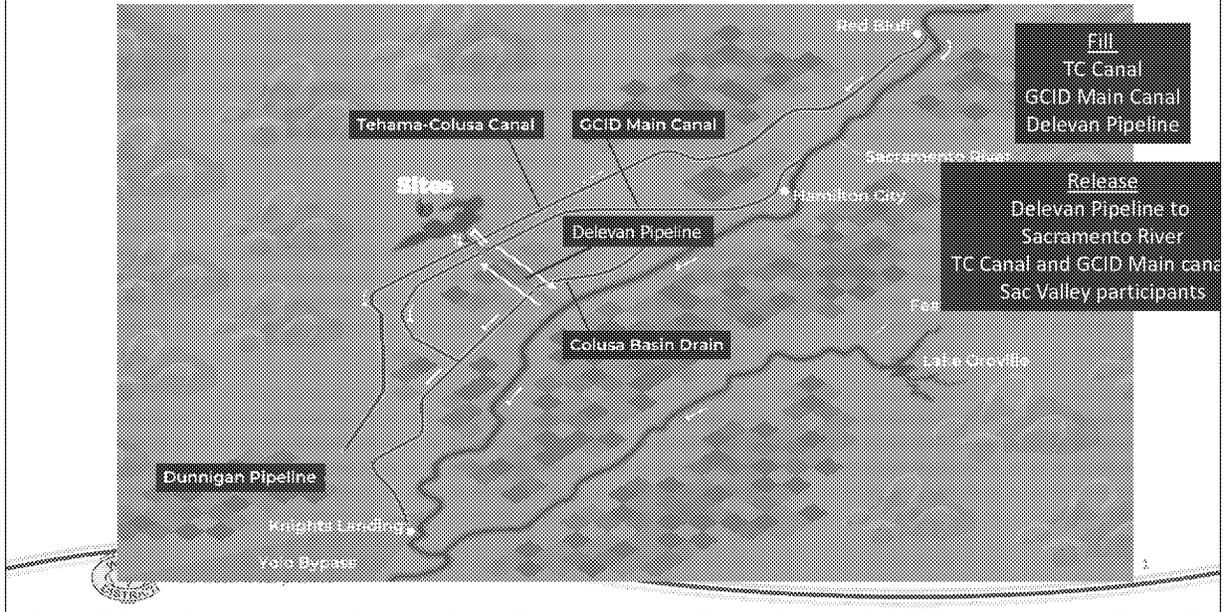
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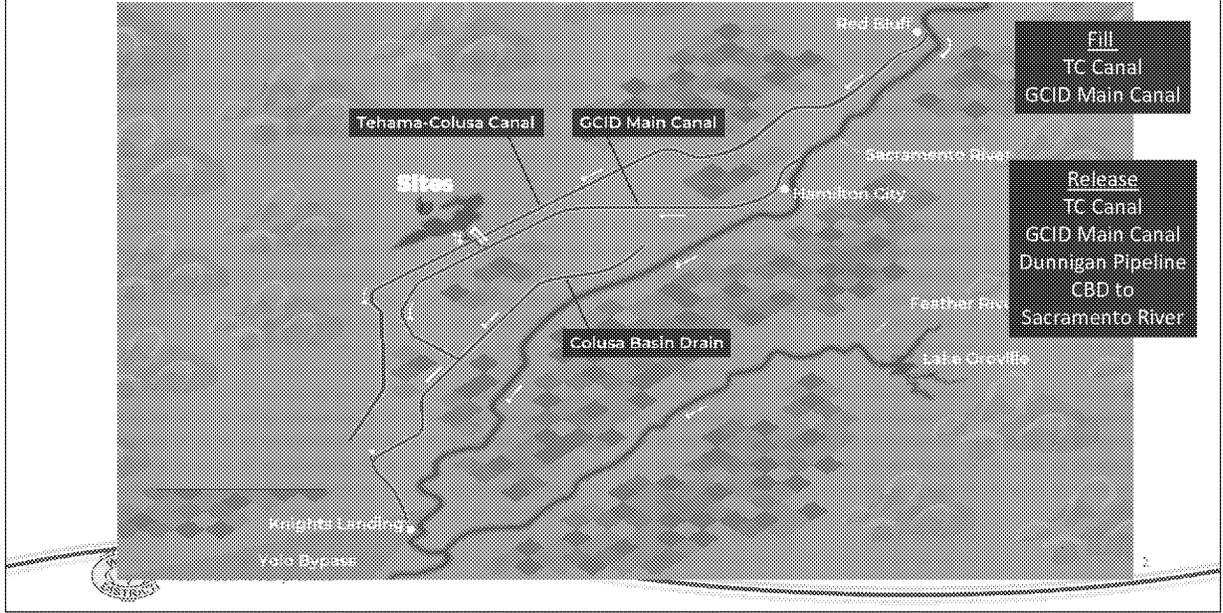
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Robert

Robert C. Cheng, Ph.D., P.E.
Assistant General Manager
Coachella Valley Water District

Alternative D



VP7



From: Robert Cheng [RCheng@cvwd.org]
Sent: 7/29/2020 3:49:11 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Subject: RE: Project map/Shasta exchanges

Thanks Ali, I appreciate your patience in helping my understanding.

Robert

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 3:28 PM
To: Robert Cheng <RCheng@cvwd.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

Yep, you have this correct.

In short, is it correct to say that the cold water pool in Shasta is of benefit to Reclamation only, since they need the environmental release water to fulfill their obligations (no benefits to the State Water Project side as the State is buying into their share of Sites)? – Yes. The cold water really benefits Reclamation. Cold water is a big component of their operations and working with NMFS and the state board. Reclamation can only “control” temperatures for about the 20 to 30 miles of the Sacramento River below Shasta (Keswick actually, which is the ‘afterbay’ to Shasta). So the benefits of the cold water pool don’t extend very far down the Sacramento River but are hugely important in those 20 to 30 miles below Shasta for salmon spawning (and specifically winter-run spawning). It very indirectly helps the SWP contractors as if the salmon are better, we’re all better. But there are no direct benefits to the State or SWP contractors of this water. And the State didn’t buy this benefit under Prop 1 as they were concerned about whether it would be realized (as it relies on Reclamation).

For the Sites participants’ side, is the benefit of gaining carryover storage in Shasta, which allows for additional operational flexibility? – Yes. Additional operational flexibility and specifically additional release capacity. We can move Sites water out of Shasta a lot faster than moving 1,000 cfs in the Dunnigan release.

You’ve got this all correct!

Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
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To: Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

Hi Ali,

Thanks for the response, and I did received the graphic from Erin, so thank you for that.

With respect to the Shasta exchanges, I think that I'm tracking the various pieces as you describe below, namely having storage with carryover in Shasta the benefit as it helps to expand the storage volume and would potentially allow for the Sites investors to have a larger volume to store their water, and therefore more flexibility in how/when we move the water. In return, it sounds like the additional water in Shasta would allow for the water to stay colder for longer, and therefore have benefits for the environment through releases for the salmon later in the year.

In short, is it correct to say that the cold water pool in Shasta is of benefit to Reclamation only, since they need the environmental release water to fulfill their obligations (no benefits to the State Water Project side as the State is buying into their share of Sites)?

For the Sites participants' side, is the benefit of gaining carryover storage in Shasta, which allows for additional operational flexibility?

It may be worth a call if I'm still not getting this correctly.

Thanks,
Robert

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 12:43 PM
To: Robert Cheng <RCheng@cvwd.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

Hi Robert – We're making a few changes to that Slide 3 based on comments at the Work Group meeting and should have it out shortly. I've copied Erin who can give us an ETA on getting it out.

On the exchanges – these would occur primarily if Reclamation is not an investment partner / does not buy into Sites. We would work out an agreement with Reclamation to outline parameters for exchanges. We are in the very early stages of development of a term sheet with them for exchanges. If Reclamation is not an investment partner, they will not allow for carryover of "Sites" water in Shasta. Thus the exchanges move water into Shasta in the spring and back out in the fall – all within the same calendar year with no carryover from year to year.

If Reclamation is an investor / buys into Sites, they would then allow for carryover of water in Shasta. We'd would be able to realize a similar mutual benefit as the exchanges – but to a greater extent as being able to carry water over in Shasta and having Shasta higher coming into the spring has a great potential to bolster the cold water pool in Shasta to benefit salmon in the subsequent fall.

We've talked about these items in detail with Reclamation and I think we have a good sense of their comfort level on these along with how they would want to approach things like risk and liability. We're just now starting work on a term sheet with them with the goal of finishing the term sheet in July 2021. The mechanics will be easier to work out – things like risk and liability will take more time (for example, how does Sites water fit into spill priorities, who controls water in Shasta and determines when its subsequently released, etc.). We want to make sure we are taking time to work thru these issues to make sure that the Sites partners are protected and aren't put at undue risk / or taking all of the risk as part of the exchange. There should be some balance there as we are both realizing benefits but also both have some risks.

Hope this helps. Happy to chat if you'd like to discuss this.

Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Tuesday, July 28, 2020 3:54 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Project map/Shasta exchanges

Hi Ali,

Good discussion on Friday during the Sites E&O meeting, and I didn't mean to put you on the spot with the request for the map. I am working on the presentation for Board approval, and one of the key slides that I was thinking would be a good visual for the changes in the project would be one that provided a simple layout of the the water flow into and out of the reservoir. Most of the graphics that I have seen to date, including the VP7 project map just doesn't do a great job of showing that on one graphic, so I was happy to see what you presented on Friday. My plan is to show the flow of the water as it was originally envisioned, through the Delevan pipeline, and the flow as currently being discussed, using the existing canals for filling the reservoir and then using the Colusa Basin Drain for water delivery. This graphic would also show the cost savings by eliminating or modifying proposed facilities. I wanted to make sure that I communicated the need for this graphic, and although the animation would be good, I understand the reluctance in sharing that if you don't feel that is quite ready yet. At this point, it would be great if a simple graphic as what you showed in Slide 3 (I think) could be shared, but whatever else that you might be able to provide would be welcome as well.

On a slightly different topic, I was thinking about the benefits of the project as being discussed, and Shasta exchange seems to surface fairly regularly. I understand that there may be an opportunity for more water to be stored in Shasta to meet cold water pool requirements for fish releases, and using Sites releases to meet delivery obligations to contractors. What I am less clear about is the terms of this exchange, which I'm sure is still being worked out. Would the Feds have to buy into a portion of Sites in order to have this water available, or would they work out a deal with a Sites project participant to make this concept work? These details might have been discussed and I was just not paying attention, but I do expect questions like this during my discussion with the Board if I am portraying this as a project benefit.

Thanks,
Robert

Robert C. Cheng, Ph.D., P.E.
Assistant General Manager
Coachella Valley Water District

From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 7/29/2020 9:00:20 PM
To: Robert Cheng [RCheng@cvwd.org]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Project map/Shasta exchanges
Attachments: Conveyances_n_Weirs-w-counties.jpg; Conveyances_n_Weirs.jpg

Hi Robert,

See attached for those figures, slightly updated. As you know, they are out of date as they relate to VP7.

Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Heydinger, Erin
Sent: Wednesday, July 29, 2020 4:50 PM
To: 'Robert Cheng' <RCheng@cvwd.org>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: Project map/Shasta exchanges

Hi Robert,

I will check with Jacobs/CH on that. I believe that figure came from the 2017 draft EIR and I saw Rob Tull pull it up recently.

Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Robert Cheng <RCheng@cvwd.org>
Sent: Wednesday, July 29, 2020 4:44 PM
To: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: Project map/Shasta exchanges

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Erin,

Thanks for checking and I did put in a request to Jerry a few weeks ago before I realized that you were working on these maps. At that time I found the attached map in a hardcopy form but don't recall exactly where I got it from. I think that I will use the map that you sent over as it is much clearer to walk through, but was wondering if you might have access to the native electronic file for the map attached?

Thanks again,
Robert

From: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Sent: Wednesday, July 29, 2020 4:24 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Robert Cheng <RCheng@cvwd.org>
Subject: RE: Project map/Shasta exchanges

Hi Robert,

I got a similar request through the grapevine from Jerry related to figure development and want to be sure that all of your needs are met for your Board presentation with what Ali sent over? Please let us know if you need any additional figures and we'll see what we have available.

Thanks!
Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 4:08 PM
To: Robert Cheng <RCheng@cvwd.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Robert – Erin and I both took a quick look at this. We made just a few changes in the attached:

1. Alt D – Covered up the call out for Dunnigan pipeline so its not confusing. Added TC and GCID main canal releases as “secondary”. I know it might look odd, but literally, the TC canal just ends. I moving the release box down as it was falling off the page and also so the label for the Feather River and Lake Oroville wasn't covered up to help orient folks.
2. VP7 – Deleted the Delevan pipeline (line) and arrows

These look great!

Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Wednesday, July 29, 2020 3:22 PM
To: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Subject: RE: Project map/Shasta exchanges

Hi Erin,

Thanks so much for sending this over. I wanted to see if you or Ali can take a look at the graphic that I generated based on the pdf that you sent over to describe the differences in flow paths between what was originally discussed for the \$5.2 b project vs. VP7. I want to make sure that I'm understanding the key differences and will be using this as part of my Board presentation for the discussion on cost-cutting measures. Please feel free to modify/edit if I'm not getting this right.

Thanks.
Robert

From: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Sent: Wednesday, July 29, 2020 2:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Robert Cheng <RCheng@cvwd.org>
Subject: RE: Project map/Shasta exchanges

Hi Robert,

See attached for slide 3. We will also be sending this out to the full Workgroup shortly in an action item follow-up email.

Please let me know if you have any questions on it or on the animation more generally; we hope to have it ready over the next few weeks.

Thank you,
Erin

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Alicia Forsythe <aforsythe@sitesproject.org>
Sent: Wednesday, July 29, 2020 12:43 PM
To: Robert Cheng <RCheng@cvwd.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: Project map/Shasta exchanges

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

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Ali

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

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From: Robert Cheng <RCheng@cvwd.org>
Sent: Tuesday, July 28, 2020 3:54 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>
Subject: Project map/Shasta exchanges

Hi Ali,

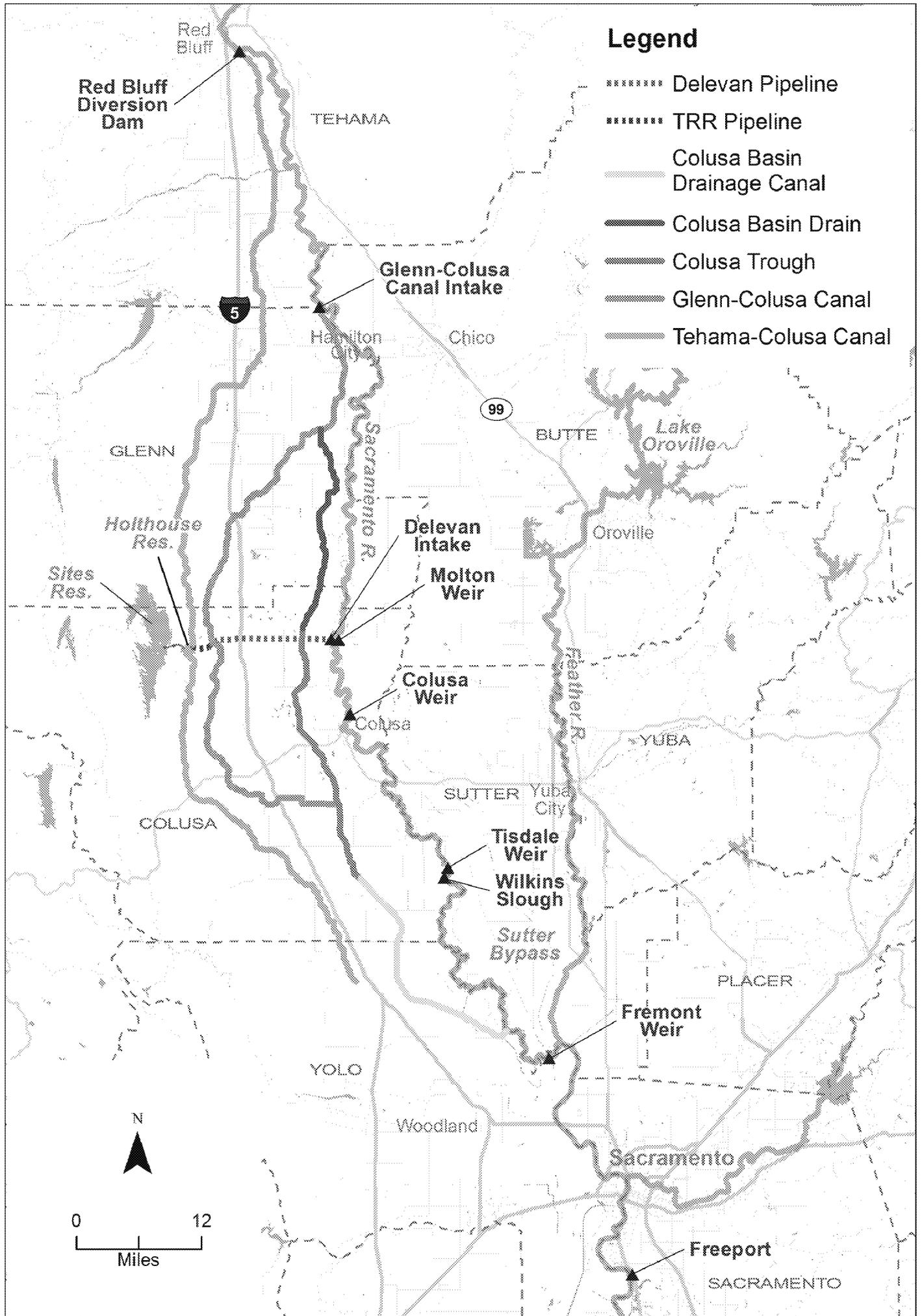
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Thanks,
Robert

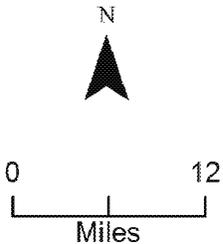
Robert C. Cheng, Ph.D., P.E.

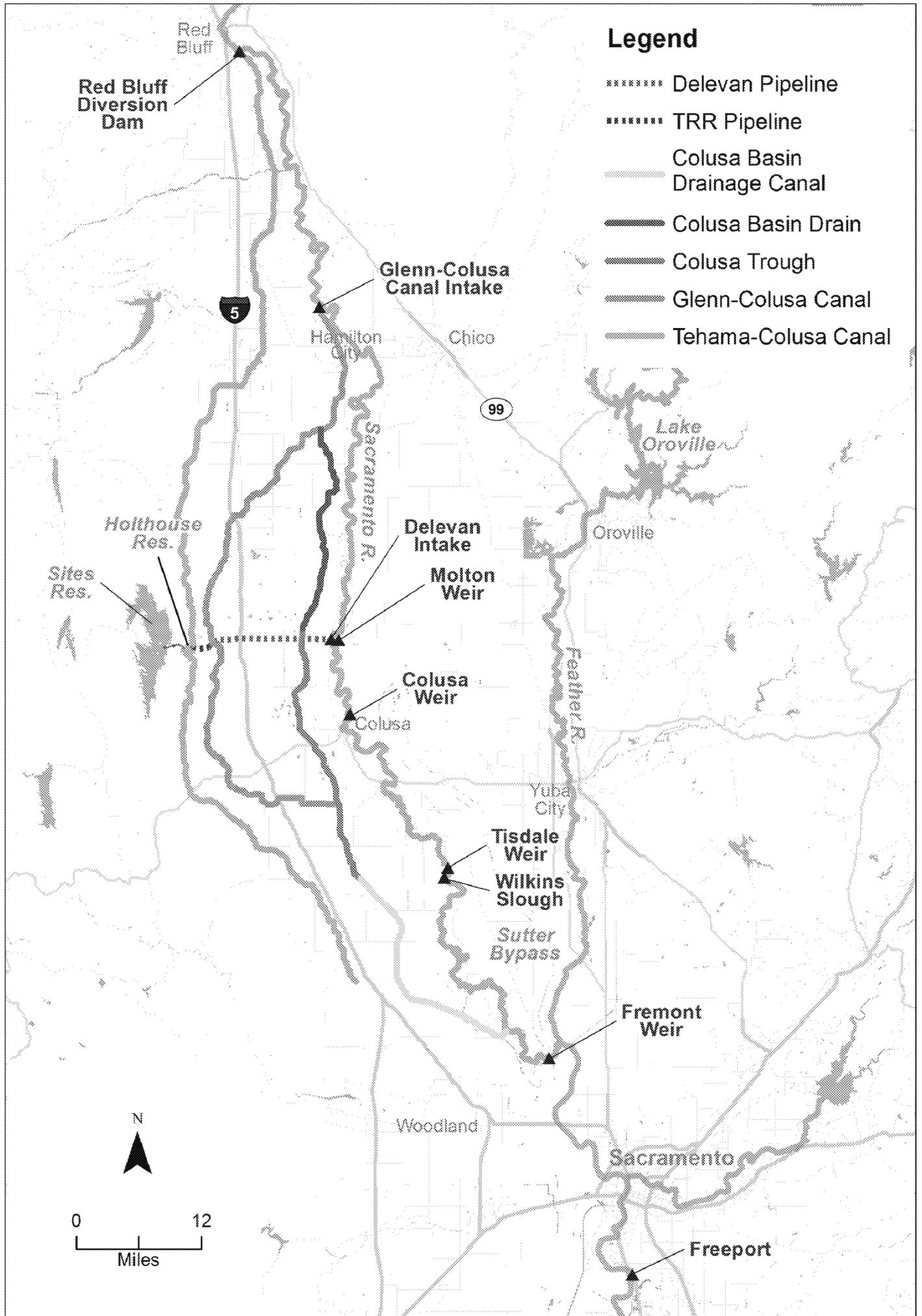
Assistant General Manager
Coachella Valley Water District

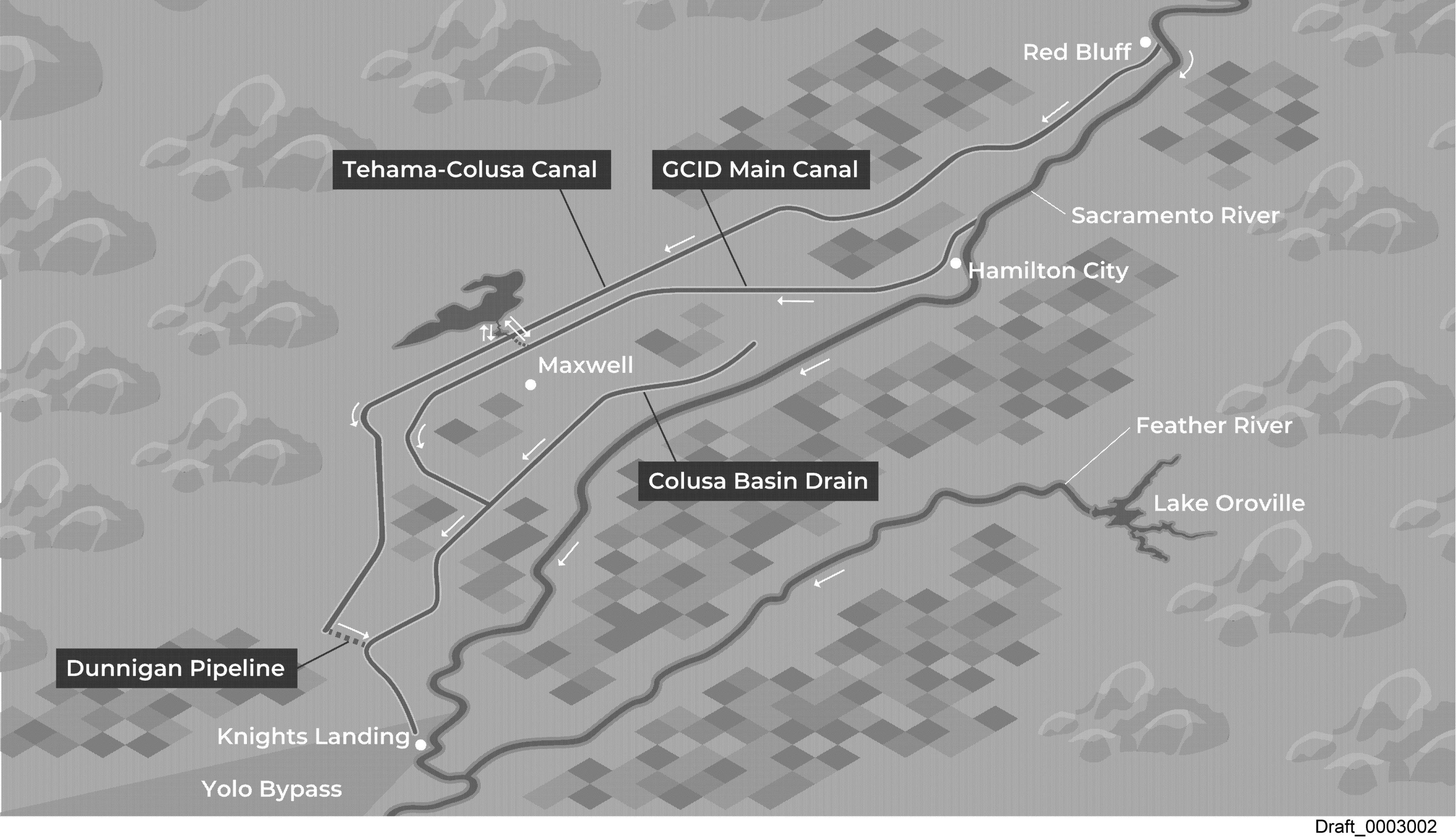


Legend

- Delevan Pipeline
- TRR Pipeline
- Colusa Basin Drainage Canal
- Colusa Basin Drain
- Colusa Trough
- Glenn-Colusa Canal
- Tehama-Colusa Canal







Tehama-Colusa Canal

GCID Main Canal

Red Bluff

Sacramento River

Hamilton City

Maxwell

Colusa Basin Drain

Feather River

Lake Oroville

Dunnigan Pipeline

Knights Landing

Yolo Bypass

From: Marcia Kivett [MKivett@sitesproject.org]
Sent: 7/30/2020 8:15:43 AM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: NGO

Do you want me to start reaching out to past individuals who you have not met with?

Steve Rotherth - He was with American Rivers and recently started DWR as Chief of Division of Multiple Benefit Initiatives.

Richard Collins - Water and Power Law Group

Curtis Knight/Jacob Katz - CalTrout

Renee Henry - Trout Unlimited

Linda LaZotte - I know this is Valley Water, but she is on the list.

Delta Stewardship Council Staff - - need to check in if delta plan consistency is required per Randy Fiorini

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/30/2020 10:37:05 AM
To: Forrest, Michael [michael.forrest@aecom.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Michael, Howard [howard.michael@aecom.com]; Doctolero, Vanessa [vanessa.doctolero@aecom.com]; Herrin, Jeff [jeff.herrin@aecom.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File
Attachments: Wetlands on road alignments.kmz

Hi Mike,

ICF was able to do some high level landcover mapping of areas that would be best avoided if possible. We completely appreciate the current level of design, the need for flexibility in the proposed alignments in certain areas and the tradeoffs between the cost/benefit of biological avoidance vs construction footprint that will need to be assessed, but this will provide some level of guidance on areas to avoid if possible.

Ellen Berryman from ICF would be the best person to contact with questions and concerns on the mapping. I am also available to discuss items as well.

Thanks.
John

John Spranza

D 916.679.8858 M 818.640.2487

From: Forrest, Michael [mailto:michael.forrest@aecom.com]
Sent: Friday, July 17, 2020 3:52 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Michael, Howard <howard.michael@aecom.com>; Doctolero, Vanessa <vanessa.doctolero@aecom.com>; Herrin, Jeff <jeff.herrin@aecom.com>
Subject: RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

All,

As discussed today, attached is the Roads KMZ file for your use.

Please let me know if you have any questions.

Thanks,

Mike
Cell: 925-998-6875

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Sent: Thursday, July 16, 2020 7:44 PM
To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>
Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks
 Here are the drawings that will be reviewed during tomorrow's meeting. Apologies for late email.

Jelica

From: Arsenijevic, Jelica
Sent: Thursday, July 16, 2020 10:23 AM
To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; 'Unsworth, Ellen' <Ellen.Unsworth@icf.com>; Jeff Herrin (Jeff.Herrin@aecom.com) <Jeff.Herrin@aecom.com>; Smith, Michael (orange) <michael.g.smith@aecom.com>; Barnes, Joseph <joseph.barnes@aecom.com>; 'Berryman, Ellen' <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Zarchi, Idit <Idit.Zarchi@aecom.com>
Cc: Michael, Howard <howard.michael@aecom.com>
Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks!
 Michael Forrest and team sent over discussion points for tomorrow's meeting (thank you HR Team ☺).
 Drawings will be reviewed tomorrow and will be provided later today.

Focus Data Needs/Assumption Meetings
Friday, July 17, 2020

1. Roads Overview – Construction; Local; Maintenance

Table 1 – Sites Project Roads & Purposes

	Roads	Road Purposes By Agency	
		Colusa County ²	Glenn County ²
1	Road 68		Local / Construction
2	Road D		Local / Construction
3	Road 69		Local / Construction
4	North Road (Access Road – Road 69)		Construction / Maintenance

5	Delevan Road	Local / Construction	
6	McDermott Road	Local / Construction	Local / Construction
7	Saddle Dam Road – North (5-9)		Construction / Maintenance
8	Saddle Dam Road – South (1-5)	Maintenance	Maintenance
9	Sites Lodoga Road Realignment (Alt 1 Causeway)	Local	
10	Day Use Boat Ramp (westside)	Local	
11	Peninsula Hills Recreation Area	Local	
12	Potential Access Rd A (O&M//PGP/GG Dam)	Maintenance	
13	Potential Access Rd B (O&M//PGP/GG Dam)	Maintenance	
14	Potential Access Rd C (O&M//PGP/GG Dam)	Maintenance	
15	Stone Corral Recreation Area / Sites Dam	Local	
16	Comm Road (Vista Point)	Local	
17	Huffmaster Road Realignment	Local	
18	Sites Lodoga Road Realignment (Alt 4)	Local	

Notes:

- 1) Huffmaster Road realignment is the easterly segment of Sites Lodoga Road Realignment (Alt 4) from Huffmaster Road to Maxwell Sites Road. This is the south road to the southern residents.
- 2) Local access includes local road for public use and recreational access

2. Borrow Sites – Off Site (illustrated on Drawing STS-315-C-2002)

- a. A site near Orland, about 30 miles north of Maxwell on I-5
- b. Butte Sand and Gravel along State Route 20 near the town of Sutter, 23 miles east of Williams, which is 8 miles south of Maxwell
- c. Saddle Dam Sandstone Quarry, which is located immediately east and adjacent to the reservoir site

3. Key Local Roads (paved)

- d. Sites Lodoga Road Realignment (Alt 1 Causeway)
- e. Huffmaster Road Realignment (easterly segment of Sites Lodoga Road Realignment (Alt 4))

4. Other Local Roads (Recreation Areas - paved)

- f. Stone Corral Recreation Area
- g. Day Use Boat Ramp
- h. Peninsula Hills Recreation Area

5. **Construction/Maintenance Access Roads**

- i. Golden Gate Dam – crest (A1 – gravel), I/O Tower (B1 & 2 – gravel), Funks Reservoir (C1 – paved), Golden Gate Dam – east base (C2 – gravel)
- j. Comm Tower Road
- k. Road 68, Road D, Road 69, North Road (Access Road)
- l. Delevan Road, McDermott Road (north to Road 68)
- m. Delevan Road, McDermott Road (south), Maxwell Sites Road

6. **Eastside Road (REMOVED)**

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

hdrinc.com/follow-us

-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 12:52 PM

To: Arsenijevic, Jelica; 'Alicia Forsythe'; Forrest, Michael; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Jeff Herrin (Jeff.Herrin@aecom.com); Smith, Michael (orange); Barnes, Joseph; Berryman, Ellen; Luu, Henry; Zarchi, Idit

Cc: Michael, Howard

Subject: Sites: Focus Data Needs/Assumption Meetings

When: Friday, July 17, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).

Where: WebEx

Revised to capture meeting attendees for each meeting:

July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)
- How roads and bridge would be constructed.

July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

July 31, 2020 “as needed” – on Calendar but Nothing Schedule Yet for Topics.

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

Many thanks to ICF for providing suggested meeting topics. I'm waiting to hear from them on the final “schedule”. Once they are finalized, I will revise the invite to align with who should be on the call (either HR or HC or maybe both). The engineers have a desire to alternate weeks.

As we inch closer to providing the information for the project description, there may be a need to have additional meetings during the week.

Thank you so much!

Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

<< OLE Object: Picture (Device Independent Bitmap) >>

2379 Gateway Oaks Drive, Suite 200
Sacramento, CA 95833
D 916-679-8854
M 209-329-6897

Jelica.Arsenijevic@hdrinc.com

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~ Do not delete or change any of the following text. ~

**When
it's
time,
join
your
Webex
meeting
here.**

Meeting
number
(access
code): 146
119 2767

Meeting
password:
tA3unEjpu93



Tap to join from a mobile device (attendees only)

+1-408-418-9388,,1461192767## United States Toll

Join by phone

+1-408-418-9388 United States Toll

Global call-in numbers

Join from a video system or application

Dial 1461192767@meethdr.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

**Join using Microsoft Lync or Microsoft
Skype for Business**

Dial

1461192767.meethdr@lync.webex.com

If you are a
host, click
here to view
host
information.

Need help? Go to

<http://help.webex.com>

From: Forrest, Michael [michael.forrest@aecom.com]
Sent: 7/30/2020 10:57:57 AM
To: Spranza, John [John.Spranza@hdrinc.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Williams, Nicole [Nicole.Williams@icf.com]; Unsworth, Ellen [Ellen.Unsworth@icf.com]; Berryman, Ellen [Ellen.Berryman@icf.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Michael, Howard [howard.michael@aecom.com]; Doctolero, Vanessa [vanessa.doctolero@aecom.com]; Herrin, Jeff [jeff.herrin@aecom.com]; Arsenijevic, Jelica [Jelica.Arsenijevic@hdrinc.com]
Subject: RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File

Thanks, John.

We will check this out.

Mike

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Thursday, July 30, 2020 10:37 AM
To: Forrest, Michael <michael.forrest@aecom.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Michael, Howard <howard.michael@aecom.com>; Doctolero, Vanessa <vanessa.doctolero@aecom.com>; Herrin, Jeff <jeff.herrin@aecom.com>; Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>
Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File

Hi Mike,

ICF was able to do some high level landcover mapping of areas that would be best avoided if possible. We completely appreciate the current level of design, the need for flexibility in the proposed alignments in certain areas and the tradeoffs between the cost/benefit of biological avoidance vs construction footprint that will need to be assessed, but this will provide some level of guidance on areas to avoid if possible.

Ellen Berryman from ICF would be the best person to contact with questions and concerns on the mapping. I am also available to discuss items as well.

Thanks.
John

John Spranza

D 916.679.8858 M 818.640.2487

From: Forrest, Michael [mailto:michael.forrest@aecom.com]
Sent: Friday, July 17, 2020 3:52 PM
To: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>; 'Alicia Forsythe' <aforsythe@sitesproject.org>; Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Michael, Howard <howard.michael@aecom.com>; Doctolero, Vanessa <vanessa.doctolero@aecom.com>; Herrin, Jeff <jeff.herrin@aecom.com>
Subject: RE: Sites: Focus Data Needs/Assumption Meetings - KMZ File

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

All,

As discussed today, attached is the Roads KMZ file for your use.

Please let me know if you have any questions.

Thanks,

Mike
Cell: 925-998-6875

From: Arsenijevic, Jelica <Jelica.Arsenijevic@hdrinc.com>

Sent: Thursday, July 16, 2020 7:44 PM

To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; Unsworth, Ellen <Ellen.Unsworth@icf.com>; Berryman, Ellen <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>

Subject: [EXTERNAL] RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks

Here are the drawings that will be reviewed during tomorrow's meeting. Apologies for late email.

Jelica

From: Arsenijevic, Jelica

Sent: Thursday, July 16, 2020 10:23 AM

To: 'Alicia Forsythe' <aforsythe@sitesproject.org>; Forrest, Michael <michael.forrest@aecom.com>; Spranza, John <John.Spranza@hdrinc.com>; 'Laurie Warner Herson' <laurie.warner.herson@phenixenv.com>; Williams, Nicole <Nicole.Williams@icf.com>; 'Unsworth, Ellen' <Ellen.Unsworth@icf.com>; Jeff Herrin (Jeff.Herrin@aecom.com) <Jeff.Herrin@aecom.com>; Smith, Michael (orange) <michael.g.smith@aecom.com>; Barnes, Joseph <joseph.barnes@aecom.com>; 'Berryman, Ellen' <Ellen.Berryman@icf.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Zarchi, Idit <Idit.Zarchi@aecom.com>

Cc: Michael, Howard <howard.michael@aecom.com>

Subject: RE: Sites: Focus Data Needs/Assumption Meetings

Hey folks!

Michael Forrest and team sent over discussion points for tomorrow's meeting (thank you HR Team ☺). Drawings will be reviewed tomorrow and will be provided later today.

Focus Data Needs/Assumption Meetings

Friday, July 17, 2020

1. **Roads Overview – Construction; Local; Maintenance**

Table 1 – Sites Project Roads & Purposes

Roads	Road Purposes By Agency		
	Colusa County ²		Glenn County ²
1	Road 68		Local / Construction
2	Road D		Local / Construction
3	Road 69		Local / Construction
4	North Road (Access Road – Road 69)		Construction / Maintenance
5	Delevan Road	Local / Construction	
6	McDermott Road	Local / Construction	Local / Construction
7	Saddle Dam Road – North (5 - 9)		Construction / Maintenance
8	Saddle Dam Road – South (1 - 5)	Maintenance	Maintenance
9	Sites Lodoga Road Realignment (Alt 1 Causeway)	Local	
10	Day Use Boat Ramp (westside)	Local	
11	Peninsula Hills Recreation Area	Local	
12	Potential Access Rd A (O&M//PGP/GG Dam)	Maintenance	
13	Potential Access Rd B (O&M//PGP/GG Dam)	Maintenance	
14	Potential Access Rd C (O&M//PGP/GG Dam)	Maintenance	
15	Stone Corral Recreation Area / Sites Dam	Local	
16	Comm Road (Vista Point)	Local	
17	Huffmaster Road Realignment	Local	
18	Sites Lodoga Road Realignment (Alt 4)	Local	

Notes:

1) Huffmaster Road realignment is the easterly segment of Sites Lodoga Road Realignment (Alt 4) from Huffmaster Road to Maxwell Sites Road. This is the south road to the southern residents.

2) Local access includes local road for public use and recreational access

2. Borrow Sites – Off Site (illustrated on Drawing STS-315-C-2002)

- a. A site near Orland, about 30 miles north of Maxwell on I-5
- b. Butte Sand and Gravel along State Route 20 near the town of Sutter, 23 miles east of Williams, which is 8 miles south of Maxwell
- c. Saddle Dam Sandstone Quarry, which is located immediately east and adjacent to the reservoir site
- 3. **Key Local Roads (paved)**
- d. Sites Lodoga Road Realignment (Alt 1 Causeway)
- e. Huffmaster Road Realignment (easterly segment of Sites Lodoga Road Realignment (Alt 4))
- 4. **Other Local Roads (Recreation Areas - paved)**
- f. Stone Corral Recreation Area
- g. Day Use Boat Ramp
- h. Peninsula Hills Recreation Area
- 5. **Construction/Maintenance Access Roads**
- i. Golden Gate Dam – crest (A1 – gravel), I/O Tower (B1 & 2 – gravel), Funks Reservoir (C1 – paved), Golden Gate Dam – east base (C2 – gravel)
- j. Comm Tower Road
- k. Road 68, Road D, Road 69, North Road (Access Road)
- l. Delevan Road, McDermott Road (north to Road 68)
- m. Delevan Road, McDermott Road (south), Maxwell Sites Road
- 6. **Eastside Road (REMOVED)**

Jelica Arsenijevic
Environmental Project Manager

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!



2379 Gateway Oaks Drive, Suite 200
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D 916-679-8854
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Jelica.Arsenijevic@hdrinc.com

hdrinc.com/follow-us

-----Original Appointment-----

From: Arsenijevic, Jelica

Sent: Thursday, July 2, 2020 12:52 PM

To: Arsenijevic, Jelica; 'Alicia Forsythe'; Forrest, Michael; Spranza, John; Laurie Warner Herson; Williams, Nicole; Unsworth, Ellen; Jeff Herrin (Jeff.Herrin@aecom.com); Smith, Michael (orange); Barnes, Joseph; Berryman, Ellen; Luu, Henry; Zarchi, Idit

Cc: Michael, Howard

Subject: Sites: Focus Data Needs/Assumption Meetings

When: Friday, July 17, 2020 9:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).

Where: WebEx

Revised to capture meeting attendees for each meeting:

July 10, 2020 – HC Team

- Diversion from Sacramento River at Red Bluff and Conveyance to Regulating Reservoirs
- Conveyance from Sites Reservoir to Knights Landing
- In-channel work

July 17, 2020 - HR

- Continuation of roads discussion (discuss those not covered in previous meeting)
- How roads and bridge would be constructed.

July 24, 2020 - HC

- Regulating reservoirs, pump stations, and intermediary conveyance, including Dunnigan pipeline. Information on Funks pumping/generating plant electrical switchyard, and TRR will be pulled from existing documents.

July 31, 2020 “as needed” – on Calendar but Nothing Schedule Yet for Topics.

Hello Folks

Per group consensus, we are going to have project feature specific data needs meetings every Friday morning for the next few weeks. I've made this a reoccurring meeting for the next 4 weeks. I'm including the core group of folks for the meetings – depending on the meeting, please carefully consider who else should attend before you hit the forward button.

Many thanks to ICF for providing suggested meeting topics. I'm waiting to hear from them on the final “schedule”. Once they are finalized, I will revise the invite to align with who should be on the call (either HR or HC or maybe both). The engineers have a desire to alternate weeks.

As we inch closer to providing the information for the project description, there may be a need to have additional meetings during the week.

Thank you so much!

Jelica

*Jelica Arsenijevic
Environmental Project Manager*

Due to COVID-19, I will be working from home. Please contact me via cell # listed below. Be safe out there!

<< OLE Object: Picture (Device Independent Bitmap) >>

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From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 7/31/2020 7:01:30 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]
CC: Kevin Spesert [kspesert@sitesproject.org]; Janis Offermann (Janis@Horizonh2o.com) [Janis@horizonh2o.com]
Subject: Re: Yocha Dehe Meeting Notes

Great comment - we will make the change. Should we have Janis share these notes with Laverne?

On Jul 31, 2020, at 6:58 AM, Alicia Forsythe <aforsythe@sitesproject.org> wrote:

Hi all – Sorry this has taken me so long. I have just one minor formatting comment – can we put the Tribe first in the list of attendees? As our first Americans and a different government / nation, I am just thinking that we should show deference to their important status by putting them first.

Super minor formatting, I know.

Ali

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

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From: Kevin Spesert <kspesert@sitesproject.org>
Sent: Wednesday, July 22, 2020 1:16 PM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Alicia Forsythe <aforsythe@sitesproject.org>
Cc: Janis Offermann (Janis@Horizonh2o.com) <Janis@Horizonh2o.com>
Subject: Re: Yocha Dehe Meeting Notes

No additional edits from me

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Wednesday, July 22, 2020 1:06 PM
To: Alicia Forsythe; Kevin Spesert
Cc: Janis Offermann (Janis@Horizonh2o.com)
Subject: FW: Yocha Dehe Meeting Notes

Good afternoon –

Just checking to see if either of you have any additional edits to these meeting notes.

Thank you,

Laurie

From: Laurie Warner Herson

Sent: Tuesday, July 14, 2020 3:25 PM

To: Kevin Spesert <kspesert@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>

Subject: Yocha Dehe Meeting Notes

Good afternoon,

Janis has provided some notes from our meeting with the Yocha Dehe. I have added some additional information to capture more of the discussion. Please review and provide any additional input/edits.

Thank you –

Laurie

Laurie Warner Herson

Principal/Owner

<image001.png>

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: Spranza, John [John.Spranza@hdrinc.com]
Sent: 7/31/2020 9:47:42 AM
To: Herrin, Jeff (jeff.herrin@aecom.com) [jeff.herrin@aecom.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Forrest, Michael [michael.forrest@aecom.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Monique Briard (monique.briard@icf.com) [monique.briard@icf.com]; Oakes, Harry [Harry.Oakes@icf.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Mitigation Follow Up
Attachments: Attch 1_CH Mitigation Tech Memo Update- Feb 2020.pdf

Thanks for bringing this up Jeff, it's a great point. I have a few questions so I can better frame this up in my head, and have added folks that I think may need to be involved in this discussion.

- 1) So just O&M, no R correct? This is for CWC and they are not looking at Replacement.
- 2) Will we need to add Replacement at some point for Reclamation's post-feasibility study activities/reassessment of benefits?
- 3) The O&M would be on an annual basis correct? And we are talking about the following areas:
 - a. Surface Water Quality,
 - b. Aquatic Resources,
 - c. Botanical Resources,
 - d. Wildlife Habitat,
 - e. Wetlands Habitat,
 - f. Cultural Resources,
 - g. Land Use (including Agricultural Land),
 - h. Paleontology, and
 - i. Air Quality.
- 4) Emergency management measures, can you expand on this a bit so I better understand the what and the why?
- 5) Would we need Mobilization, Design Contingency, Construction Contingency, Non Contract Cost and Escalation estimates as well?
- 6) CVP power has come up several times in the last week and I have not had it on my radar given my focus area. Laure, Erin and Ali, any thoughts on that?

Thanks.
John

John Spranza

D 916.679.8858 M 818.640.2467

Begin forwarded message:

From: "Herrin, Jeff" <jeff.herrin@aecom.com>
Date: July 30, 2020 at 9:04:35 AM PDT
To: John Spranza <jspranza70@gmail.com>
Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>, "Forrest, Michael" <michael.forrest@aecom.com>
Subject: Mitigation Follow Up

John,

Sorry I had to drop off early. Conflicting meetings.

Regarding mitigation for O&M – I think this will prompt comments from the Commission if we don't start to quantify it. There should be some emergency management measures identified. Also, the CVP power contractors are convinced that there are impacts to energy that will need to be characterized. I believe the current version of the Mitigation Plan in the EIR/S only looks at mitigation for construction impacts. Mark Oliver had assumed that mitigation for O&M would come through the permitting process and did not need to be addressed through the Mitigation Plan in the EIR/S. I'm not sure what CEQA/NEPA require, but we need to get our arms around those costs.

There was an update to the Mitigation Cost Estimate in February 2020 that you may not have received previously. I think it was part of the info from Reclamation that is somewhere on your SharePoint site. I've attached it here.

Jeff Herrin

Water Resources Planner, Water Business Unit, Sacramento, CA

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Sites Reservoir Feasibility Study Technical Memorandum

Mitigation Measure Evaluation and Cost Estimate

February 2020

Prepared for

U.S. Bureau of Reclamation

Prepared by

AECOM

2020 L Street, Suite 400
Sacramento, CA 95811

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Attachments

- Attachment 1 Sites Reservoir Mitigation Cost Summary
- Attachment 2 High Cost Mitigation Measure Measures
- Attachment 3 Detailed Cost Assumptions by Resource
- Attachment 4 Anticipated Land Use Impacts (Alternative C)
- Attachment 5 Vegetation Community and Habitat Impacts (Alternative C)
- Attachment 6 Air Quality Impacts (Alternative C)

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1.0 ABSTRACT

For the Sites Project Authority (Authority), AECOM has developed a planning-level cost estimate for implementing measures necessary to mitigate anticipated environmental impacts resulting from the construction, operation, and maintenance of the Sites Reservoir Alternative C.

The cost estimate includes a summary of costs for relevant mitigation measures followed by detailed cost estimate worksheets with assumptions. To support the preparation of the I cost estimate, AECOM held a series of mitigation cost development workshops. In addition to cost development, AECOM evaluated mitigation-related schedule constraints and recommendations for modifying mitigation measures. This technical memorandum is comprised of the following:

- Study Objective
- Background
- Mitigation Costs
- Key Cost Assumptions
- Recommended Mitigation Measure Modifications
- Mitigation Related Schedule Constraints
- Recommendations and Next Steps

2.0 STUDY OBJECTIVE

The purpose of this assignment was to develop feasibility-level costs for mitigation measure implementation, identify any project schedule constraints related to implementing the mitigation measures, provide recommendations for changes to the mitigation measures, and identify next steps for mitigation planning. This assignment is intended to inform ongoing project planning and requests for grant funding.

3.0 BACKGROUND

In 2013, a planning-level cost estimate for implementation of the North-of-the-Delta-Offstream Storage (NODOS) Mitigation Monitoring Plan was prepared (DWR and Reclamation 2013). At the time these costs were developed, details regarding mitigation measures were limited. The purpose of this memorandum is to present a more detailed update to previous mitigation cost estimates to inform ongoing project planning and requests for grant funding. In May 2016, AECOM held a series of mitigation-related workshops with the Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) Team comprised of California Department of Water Resources (DWR), U.S. Bureau of Reclamation (Reclamation), and CH2M HILL staff.

During the workshops, a total of 155 mitigation measures from the NODOS Preliminary Administrative Draft EIR were reviewed (DWR 2013: Appendix 1A). Cost assumptions, potential

schedule impacts associated with implementing the mitigation measures, and recommended modifications to the measures that could potentially reduce project costs were discussed. The 2013 mitigation cost estimate was also reviewed. Assumptions developed during the workshops were used to update the mitigation costs.

4.0 MITIGATION COSTS

Mitigation costs for Alternative C are based on the environmental impact analysis and implementing the mitigation measures from the NODOS Preliminary Administrative Draft Environmental Impact Report (DWR 2013). These costs can be readily scaled to Alternative A or B and will inform the development of costs for Alternative D currently under development by the Authority. Alternative C is comprised of a 1.81 million acre-feet reservoir formed by two large dams and nine saddle dams. It includes two hydropower pumping and generating facilities, a forebay/afterbay reservoir adjacent to the existing Tehama-Colusa Canal, a terminal regulating reservoir adjacent to the Glenn-Colusa Canal, large diameter pipelines (TRR and Delevan), power transmission lines, a fish-screened intake/discharge facility on the Sacramento River and three designated recreation areas. The project components associated with Alternative C are the most comparable to the Authority-preferred alternative (Alternative D) that is currently being developed.

Wherever possible, AECOM followed the estimating instructions contained in Reclamation's Cost Estimating Handbook (Reclamation, 1989) and Reclamation's Manual, Directives and Standards, FAC 09-01, FAC 09-02, and FAC 09-03.

The allowances and contingencies by component applied to mitigation cost estimates are presented in Table 1. The mobilization/demobilization allowance and design and construction contingencies were applied to develop the field cost. The non-contract cost allowance was then applied to the field cost to arrive at the construction cost.

Escalation of construction costs to a Notice to Proceed date has not been included in the estimate. This was done to avoid confusion and double counting, because escalation is a factor included in the benefit-cost feasibility analysis of the project following several possible design and construction scheduling options.

This analysis is limited to implementing mitigation measures not already included in the costs associated with the design, construction, and operations and maintenance (O&M) activities for Alternative C.

Table 1. Cost Estimate Allowances and Contingencies for Mitigation Costs

Component	Value	Basis for Assigned Allowance or Contingency
Mobilization/Demo bilization	2%	Approximately 65% of the mitigation costs are associated with real estate actions, 19% of the costs with environmental and cultural resources monitoring, and the remaining 16% for restoration. Mobilization/demobilization for monitoring largely consists of the mobilization and demobilization of environmental monitoring staff with pickup trucks and infrequent short-term monitoring by watercraft. In this case mobilization/demobilization costs are likely to be in the range of 1% to 2%.
Design Contingency	12%	Covers minor unlisted items, minor design and scope changes, and cost estimating refinements. This is the area of greatest uncertainty prior to the negotiation of permits. We recommend increasing the design contingency from 10% to 12%.
Procurement Strategy	1%	The most significant effort will be associated with procuring mitigation credits. The construction contractors selected for facility construction will perform the bulk of the restoration and construction related tasks. There will be a real estate contractor and one or two environmental monitoring contracts. There may be some small landscaping contracts. Most of the oversight throughout will likely be performed by the environmental contractor who will work for the Authority.
Escalation to Notice to Proceed	—	This will be addressed in the Basis of Estimate Report consistent with the overall project cost estimate.
Construction Contingency	2%	Only 16% of the total mitigation is anticipated to include construction costs related to restoration. The construction contingency for real estate and monitoring should be very low.
Non-Contract Costs	4%	Approximately \$52 million in monitoring costs is already included in the mitigation estimates. We do not anticipate another layer of construction management. There will be some design, but the design will be highly constrained by the permits.

Source: Data compiled by AECOM in 2016

Table 2 presents a summary of estimated construction phase mitigation costs by category. A detailed cost breakdown by mitigation category and measure is presented Attachment 1.

Table 2. Construction Phase Mitigation Costs for Alternative C

Mitigation Category	Estimated Cost
Vegetation Communities/Botanical Resources	\$70,066,000
Wetlands/Surface Waters	\$68,050,000
Aquatic Resources	\$46,488,000
Wildlife Habitat	\$43,754,000
Cultural/Historic/Paleontological Resources	\$39,100,000
Land and Agriculture	\$20,689,000
Air Quality	\$200,000
Mobilization, Design Contingency, Construction Contingency, Non Contract Cost	\$54,811,000
Total	\$343,957,000

Notes:

Source: Data compiled by AECOM in 2016

Table 3 presents a summary of O&M phase mitigation costs.

Table 3. O&M Phase Mitigation Costs for Alternative C

Mitigation Category	Estimated Annual Cost ¹
Vegetation Communities/Botanical Resources	\$85,000
Wetlands/Surface Waters/Groundwater	\$275,000 ²
Aquatic Resources	\$775,000 ³
Wildlife Habitat	12,400 ⁴
Cultural/Historic/Paleontological Resources	\$9,000
Land and Agriculture	----- ⁵
Air Quality	\$5,000 ⁶
Flood Control and Management	\$4,320,000 ⁷
Total	\$5,481,400

Notes:

1. Costs include mobilization, contingency and escalation
2. Costs include for *Mitigation Measure GWRES-2* (\$25,000) and *Mitigation Measure SWQual-1a* (\$250,000).
3. Costs include an annual contingency for *Mitigation Measure Fish-1b* (\$500,000 per year) and annual on-site restoration land management for *Mitigation Measure Fish-1e* (\$275,000 per year).
4. Estimated costs are associated with on-site restoration land management for *Mitigation Measure Wild-3c* and *Bot-1a* (10 acres); and *Wet-1a* (21 acres) for a total of 31 acres of on-site restoration monitoring.
5. No ongoing costs are assumed for agricultural and conservation easements
6. Estimated annual cost is associated with stationary source permitting fees anticipated for using the emergency back-up generators at the pumping plants
7. Estimated annual cost associated with maintaining stream flow of 10 cfs between Oct-May in Funks and Stone Corral creeks as specified in *Mitigation Measure Flood-1*; Cost assumes average of 30 days per month; \$450 per acre-foot of water (AF); 1 cfs provides 2 AF/day

Source: Data compiled by AECOM in 2016

Attachment 2 presents a summary of the mitigation measures that have the highest cost. Detailed assumptions for mitigation categories presented in Table 1 are included in Attachment 3. Quantities for estimating project costs are derived from the impact analysis in the NODOS Preliminary Administrative Draft Environmental Impact Report for Alternative C (DWR 2013). To simplify documentation, quantity tables used in the analysis are presented as Attachments 4 and 5.

The total estimated costs associated with impacts on vegetation communities, wetlands and special-status species habitat were developed by first calculating the land mitigation requirements using applicable mitigation ratios and estimated land impacts presented on a per-acre basis.

The range of mitigation ratios used for cost estimating were derived from mitigation ratios used in previously implemented projects, including the CALFED Programmatic EIR/EIS, Shasta Lake Water Resources Investigation EIR/EIS, and Los Vaqueros Expansion Investigation EIR/EIS.

On-site mitigation through land acquisition and restoration was assumed for all temporary and permanent impacts to streams, aquatic habitat as prescribed in Mitigation Measures *Fish 1-e*, *Wild-3c*, *Bot-1a*; and *Wet-1a*. All other permanent impacts to natural community and terrestrial special-status species habitat are assumed to be mitigated off-site through the purchase of credits from a mitigation bank.

To estimate costs for off-site mitigation, the mitigation land acreages were then multiplied by a mitigation bank cost range to obtain cost ranges for mitigation of effects on natural communities and special-status species habitat. A detailed breakdown of the mitigation land needs and associated costs for each natural community and focus special-status species is provided in Attachment 5.

On-site mitigation costs for restoration prescribed in Mitigation Measures *Fish 1-e*, *Wild-3c*, *Bot-1a*; and *Wet-1a*, it was assumed that assumed that two acres of land for every mitigation acre would be needed for restoration. This conservative approach does not take into account the existing habitat function acquired land. If land acquired is of high habitat value, then less acres of land may be needed for on-site restoration. Annual mitigation land management and monitoring costs for on-site restoration were assumed to be \$400 per acre.

5.0 AIR QUALITY MITIGATION

Air quality in California is regulated at the Federal, state, and local levels. The pollutants of greatest concern in the project area of Glenn and Colusa counties are:

- Ozone
- Ozone precursors (Nitrogen oxides (NO_x) and Reactive Organic Gases (ROG))
- Particulate matter (PM₁₀) from vehicle and equipment exhaust
- Particulate matter (PM₁₀) from soil disturbance and wind erosion (fugitive dust)
- PM₁₀ precursors (NO_x, ROG, and Sulphur oxides (SO_x)).

Table 4 compares the proposed Sites Reservoir project with the Folsom Dam Safety Improvement project. Both projects are located in the Sacramento Valley Air Basin but are regulated by different air pollution control districts. Unlike the Folsom Dam project, the proposed Sites Reservoir project would be located in federally-designated attainment zones for ozone and PM₁₀. Therefore, no federal General Conformity de minimis standards would be applicable since all National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency (EPA) would be met. However, the project would be located in a state-designated nonattainment zone for PM₁₀ similar to the Folsom Dam project.

Table 4. Comparison with Folsom Dam Safety Improvements Project

	Folsom Dam Safety Improvements	Sites Reservoir1
Project Location	Sacramento, Placer, and El Dorado counties	Glenn and Colusa counties
Air Basin	Lower Sacramento Valley	Upper Sacramento Valley
Air District	Sacramento Metro AQMD	Glenn County APCD and Colusa County APCD
Federal Attainment Status (NAAQS) ²		
Ozone	Non-attainment, serious for 8-hour average	Unclassified/Attainment
NOx	Attainment	Unclassified/Attainment
ROG	Not applicable	Not applicable
PM ₁₀	Non-attainment, moderate	Unclassified
PM _{2.5}	Attainment	Unclassified/Attainment
CO	Attainment/Maintenance	Unclassified/Attainment
SOx	Attainment	Unclassified
State Attainment Status (CAAQS) ²		
Ozone	Non-attainment	Attainment
NOx	Attainment	Attainment
ROG	Not applicable	Not applicable
PM ₁₀	Non-attainment	Non-attainment
PM _{2.5}	Attainment	Attainment
CO	Attainment	Unclassified
SOx	Attainment	Attainment
Local AQMD/APCD Construction-Related Significance Threshold ²		
PM ₁₀	50 µg per cubic meter	Level B > 25 lbs per day Level C > 137 lbs per day ³
NOx	85 lbs per day	Level B > 80 lbs per day Level C > 137 lbs per day ³
ROG	Sacramento County - none; El Dorado and Placer counties – 82 lbs. per day	Level B > 25 lbs per day Level C > 137 lbs per day ³
Local Fees for Exceeding Threshold	If mitigated NOx emissions still exceed 85 lbs per day, SMAQMD's policy is to charge a mitigation fee of \$14,300 per ton excess (at time of construction) (\$18,260 per ton excess as of July 2016)	See Table 5 for stationary emission sources only Glenn and Colusa counties currently do not have a program or mechanism to collect mitigation fees for CEQA project-related emissions beyond the New Source Review permitting programs for stationary sources

Notes for Table 4

- ¹ Status is as of December 2015
 - ² PM_{2.5} – Particulate matter less than or equal to a 2.5 microns
PM₁₀ – Particulate matter less than or equal to a nominal 10 microns
NO_x – Nitrogen oxides (ozone and PM₁₀ precursor)
SO_x – Sulphur oxides (PM₁₀ precursor)
CO – Carbon monoxide
ROG – Reactive Organic Gases (ozone and PM₁₀ precursor)
 - ³ Level C – If emissions from a project would exceed the Level C thresholds, mitigation measures (BAMMs and SMMs⁴), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance. (from Tehama County Air Pollution Control District; Glenn and Colusa counties expected to have similar requirements)
 - ⁴ BAMMS – Best Available Mitigation Measures
SMMs – Standard Mitigation Measures
- Source: Folsom Dam Safety and Flood Damage Reduction Draft EIS/EIR Chapter 3 (Reclamation 2006) and Sites Reservoir - Preliminary Administrative Draft EIR Chapter 24 (DWR 2013)

New pollutant sources that meet the definition of a Stationary Source, such as on-site concrete and asphalt batch plants and operational aggregate quarries, will need to be permitted by the local air pollution control districts in Glenn and Colusa counties. Permit fees to allow construction of stationary sources (Authority to Construct permits) and annual permit fees to allow ongoing operation of stationary sources (Permits to Operate) are discussed in the Districts' air quality rules and regulations. These New Source Review (NSR) requirements in Glenn and Colusa counties only apply to sources that meet the definition of a stationary source. Table 5 summarizes the NSR permitting fee schedule for stationary sources. Glenn County has a similar fee schedule.

Table 5. Colusa County Fee Schedule for Permitting Stationary Sources¹

Permit	Fee Schedule
Authority to Construct Permit	\$228.00 (fee covers the review of the project emissions, air quality impacts, and the preparation of an air quality summary analysis report)
Annual Operating Permit	\$110 plus the following:
For sources up to 1 ton per year	\$238
For sources 1 to 5 tons per year	\$279
For sources 5 to 10 tons per year	\$380
For sources 10 to 15 tons per year	\$465
For sources 15 to 20 tons per year	\$549
For sources 20 to 25 tons per year	\$744 plus \$39 for every ton or fraction of ton over 25 tons

Source: Email communication from Casey Ryan, Air Pollution Standards Officer II, Colusa County APCD (March 22, 2016)

For CEQA, construction-related emissions for all project-related sources (i.e., mobile, area, fugitive, and stationary sources) must be estimated. Table 6 defines the Levels of Significance for the pollutants of concern. Attachment 6 includes tables extracted from the Preliminary Administrative Draft EIR that summarize the preliminary CEQA analysis. These tables are further summarized in Table 7.

Table 6. Thresholds of Significance for Pollutants of Concern

Pollutant	Level A	Level B	Level C
NOx	Less than or equal to 25 lbs/day	Greater than 25 lbs per day	Greater than 137 lbs per day
ROG	Less than or equal to 25 lbs/day	Greater than 25 lbs per day	Greater than 137 lbs per day
PM ₁₀	Less than or equal to 25 lbs/day	Greater than 80 lbs per day	Greater than 137 lbs per day
Level of Significance	Potentially Significant Impacts	Potentially Significant Impacts	Significant Impacts
Required CEQA Document	Mitigated Negative Declaration (MND) or Negative Declaration	MND or Environmental Impact Report (EIR)	EIR
Mitigation		Mitigation measures, Best Available Mitigation Measures (BAMMs) and Standard Mitigation Measures (SMMs), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance.	

Source: Tehama County Air Pollution Control District Air Quality Planning & Permitting Handbook (April 2015)

Based on a preliminary impact analysis of the construction, operation, and maintenance of project facilities, the project will have significant impacts to air quality before mitigation. Glenn and Colusa counties currently do not have a program or mechanism to collect mitigation fees for CEQA project-related emissions beyond the NSR permitting programs for stationary sources.

Table 7. Summary of Preliminary CEQA Impact Analysis (from Attachment 6 tables)

Pollutant	Level A Significance Threshold Exceeded	Level B Significance Threshold Exceeded	Level C Significance Threshold Exceeded
NOx	Construction – Yes O&M – Yes	Construction – Yes O&M – Yes	Construction – Yes O&M – No
ROG	Construction – Yes O&M – Yes	Construction – Yes O&M – Yes	Construction – Yes O&M – No
PM ₁₀	Construction – Yes O&M – No	Construction – Yes O&M – No	Construction – Yes O&M – No

The following mitigation measures are proposed to be implemented:

- Air Qual-1a: Develop a Fugitive Dust Control Plan
- Air Qual-1b: Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions.

Descriptions of the mitigation measures and cost estimate cost assumptions are described in Appendix 4I. The mitigation implementation costs are included in Tables 2 and 3.

Because engineering studies indicate that anticipated construction materials can be sourced within the same air basin as the project, additional mitigation costs associated with the transport of materials through areas with more stringent air emissions regulations would be avoided.

The concrete batch plants and quarry operations activities during construction are considered stationary emission sources and would require a permit to construct/operate from the local air district.

Table 8. Summary of Air Quality Mitigation Measures

Impact	Project Facilities	Level of Significance before Mitigation	Mitigation Measure	Level of Significance After Mitigation
Air Qual-1 Conflict with an applicable Air Quality Plan, contribute substantially to an Air Quality Violation, and/or Result in a Cumulative Considerably Net Increase of Nonattainment Pollutants	All Primary Area Project Facilities (construction)	Significant	Air Qual-1a Develop a Fugitive Duct Control Plan	Significant and unavoidable for emissions of PM ₁₀
			Air Qual-1b Implement measures to reduce equipment and vehicle exhaust emissions	Significant and unavoidable for emissions of NO _x , PM ₁₀ , and ROG Less than Significant for emissions of SO _x , CO, and PM _{2.5}
	All Primary Area Project Facilities (O&M)	Significant	Air Qual-1a Develop a Fugitive Duct Control Plan	Less than Significant
			Air Qual-1b Implement measures to reduce equipment and vehicle exhaust emissions	Less than Significant
GHG-1: Generation of Cumulative GHG Emissions	CVP Operational Emissions	Potentially Significant	No Feasible Mitigation	Potentially Significant and Unavoidable

Source: Preliminary Administrative Draft EIR Chapter 24 Air Quality Table 24-14 and Chapter 25 Climate Change and Greenhouse Gas Emissions Table 25-15 (DWR, 2013)

6.0 KEY COST ASSUMPTIONS

The following presents a summary of the key assumptions for developing costs presented in Tables 2 and 3. Detailed assumptions specific to each mitigation measure can be found in Attachment 3.

- Natural community and special-status species habitat impacts identified for Alternative C are assumed to be of high quality and suitable to support special-status species. A detailed evaluation of existing habitat may identify some land of degraded habitat value or highly disturbed. For that reason, the mitigation requirements and associated costs may be less for some areas and lower than estimated in Table 1.
- No overlap in land needed for mitigation for natural communities and special-status species except for agricultural land types and ponds is assumed for this cost estimate. A more detailed habitat assessment and land evaluation will eventually be needed to identify more precise impacts from the selected alternative on natural communities and special-status species habitats. Agency coordination would also be required to determine land types necessary to meet mitigation requirements.
- With the exception of Bald and Golden Eagle, giant garter snake, California red-legged frog, western pond turtle and burrowing owl, this cost estimate assumes that habitat requirements for other special-status species that may be affected by the project are met by compensation for the different natural community type effects. Mitigation requirements for valley elderberry longhorn beetle are assumed to be met as part of on-site restoration prescribed in Mitigation Measure *Fish-1e*.
- Specialized pre-construction surveys (e.g., for rare plants) were assumed to be performed at the same pace as protocol-level surveys for consistency; however, specialized preconstruction surveys would likely be performed much faster than protocol-level surveys. For that reason, the survey costs may be less than estimated.
- The majority of costs estimated for cultural and paleontological resources are contingency-related in the event of discovery of unidentified resources and/or human remains during construction activities. These estimates are based on known site conditions and experience on similar projects.
- Except for permitting and associated fees related to air quality, the mitigation costs do not include costs associated with any other permits needed for the project including preparation of permit applications or coordination with regulatory agencies for approvals.

7.0 RECOMMENDED MITIGATION MEASURE MODIFICATIONS

During review of the proposed mitigation measures, it was noted that several mitigation measures may require further evaluation or modification. Such modifications would also assist with refining the estimated range of costs associated with mitigation measure implementation. These measures include the following:

- **Mitigation Measure *Fish-1a*:** Increase stocking frequency of coldwater fish species. Further evaluation is needed to confirm potential effects to coldwater fish species and how stocking frequency would reduce these effects.
- **Mitigation Measure *Fish 1b*:** Mitigation monitoring and reporting plan for potential reduced flows into Yolo Bypass. Further evaluation of anticipated project operations and associated changes in Yolo Bypass flows is needed. Future analyses may indicate that this is a benefit and not an impact.
- **Mitigation Measure *Fish-1e*:** Implement Habitat Restoration Actions. This mitigation measure specifies on-site restoration requirements associated with Stone Corral and Funks creeks. It is recommended that these requirements be further developed and incorporated into the project description so that secondary (indirect) impacts associated with proposed restoration are evaluated as part of the EIR/EIS.
- **Mitigation Measure *Flood-1*:** Maintain permanent low flow releases into Stone Corral and Funks Creeks Downstream of Sites and Golden Gate Dams. This mitigation measure specifies a downstream flow performance standard of 10 cubic feet per second (cfs). Confirmation of the 10 cfs flow performance standard should be performed prior to finalization of project operations costs.
- **Mitigation Measure *Rec-4a*:** Extend the Existing Dinosaur Point Boat Ramp at San Luis Reservoir. The need for this mitigation measure to address changes in San Luis Reservoir from project operations and feasibility of implementation needs to be further evaluated.
- **Mitigation Measure *Rec-4b*:** Extend the Basalt Campground Water Intake at San Luis Reservoir. The need for this mitigation measure to address changes in San Luis Reservoir from project operations and feasibility of implementation needs to be further evaluated.

8.0 MITIGATION RELATED SCHEDULE CONSTRAINTS

Schedule constraints as a result of implementing mitigation measures include the following:

- Mitigation Measure *Wild-2d* requires the development of various planning documents and performance of Golden Eagle telemetry studies for 3 to 5 years prior to construction and then 3 to 5 years post construction. This mitigation measure impacts when construction of the project can begin.
- Several watershed hydrological studies are required as mitigation to inform or provide guidance regarding how to avoid and/or minimize impacts to natural springs, swales and wetland areas. These studies are to be performed prior to the finalization of project designs.
- Various mitigation measures specify construction work window constraints, including the following:

- All in-water work activities will be limited to July through September (Mitigation Measure *Fish-1f*).
- Demolition and structure removal work activities are to be avoided during bat maternity season from mid-April through August 31, and outside of the winter months when bats could be hibernating (Mitigation Measure *Wild-1b*).
- Construction activities within 0.5 mile of nesting Golden Eagles must be avoided between March 1 and August 15 (Mitigation Measure *Wild-2d*).
- Construction activities for the Delevan Pipeline Intake/Discharge Facility in vicinity of giant garter snake habitat will be limited from May 1 through October 1 (Mitigation Measure *Wild-2e*).
- Construction activity in the vicinity of burrows occupied by nesting burrowing owls must be avoided from February 1 through August 31; the peak nesting season occurs from April 15 through July 15 (Mitigation Measure *Wild-2g*).
- Construction activity for the Delevan Pipeline Intake/Discharge Facility in vicinity of riparian and orchard vegetation must be avoided between mid-June through August (Mitigation Measure *Wild-2i*).

9.0 RECOMMENDATIONS AND NEXT STEPS

The recommended next steps to address mitigation requirements are as follows:

- Several mitigation measures require the avoidance and/or minimization of impacts to sensitive habitats. It is recommended that during finalization of project designs further evaluation of possible avoidance or minimization be performed to reduce mitigation requirements and costs, and impacts to project schedule. These avoidance measures may include adjusting facility footprints, determining alternative routes, or modifications to construction methods.
- Mitigation requirements for Golden Eagle include up to five years of telemetry surveys prior to construction. These studies would assist with identifying nesting and foraging locations of Golden Eagle in the project area as well as suitable areas to implement habitat mitigation for Golden Eagle. It is recommended that preparation of these monitoring plans be initiated in consultation with regulatory agencies in the near-term in order to minimize impact to the construction schedule.
- Mitigation requirements for implementation of Habitat Restoration Actions (Mitigation Measure *Fish-1e*) specify on-site restoration requirements associated with Stone Corral and Funks creeks. It is recommended that these requirements be further developed and incorporated into the project description of the EIR/EIS. Restoration strategies that target habitats for multiple species could significantly reduce the overall area of land needed for off-site mitigation by simultaneously meeting the requirements of natural communities and of one or more special-status species on the same area of land. The final approach

for onsite restoration should also consider the feasibility of meeting off-site mitigation requirements.

- The feasibility of using mitigation banks for meeting off-site mitigation requirements for the loss of habitat and agriculture should be further evaluated. It is recommended that anticipated mitigation requirements be further discussed with mitigation banks within the project area (e.g., Westervelt) and county staff. In the event that off-site mitigation requirements cannot be fully achieved, additional on-site mitigation may need to be considered.
- Further discussion with the Glenn and Colusa County Air Pollution Control Districts is planned by the EIS/EIR team (CH2M Hill) to confirm if additional air quality mitigation would be required for constructing and operating the proposed project.

10.0 REFERENCES

DWR and Reclamation 2013. *Mitigation Monitoring Plan Costs for North-of-the-Delta Off stream Storage*. Prepared for the California Department of Water Resource and United States Department of Interior, Bureau of Reclamation. Sacramento, CA. November.

DWR 2013. *NODOS Preliminary Administrative Draft Environmental Impact Report*. Sacramento, CA. December. Available online:
http://www.water.ca.gov/storage/northdelta/prelim_admin_draft_eir_index.cfm

Reclamation 2006. *Folsom Dam Safety and Flood Damage Reduction Draft Environmental Impact Statement/Environmental Impact Report*. Folsom, CA. December. Available online. http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=1808

Sites Reservoir Mitigation Cost Summary

FEATURE: NODOS Project Project Mitigation and Monitoring Plan Resource Category Cost Estimates				PROJECT: NODOS Alternative C			
				WOID:		ESTIMATE LEVEL:	
				REGION:		UNIT PRICE LEVEL:	
Summary Sheet				FILE: #N/A			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Surface Water Quality					\$1,510,108.10
		Aquatic Resources					\$46,487,500.00
		Botanical Resources					\$70,066,000.00
		Wildlife Habitat					\$43,753,900.00
		Wetlands Habitat					\$66,540,000.00
		Cultural Resources					\$37,890,000.00
		Land Use					\$20,689,375.00
		Paleontology					\$1,210,000.00
		Subtotal					\$288,146,883.10
		Mobilization	2%	+/-			\$5,762,937.66
		Subtotal with Mobilization					\$293,909,820.76
		Contract Cost Allowances (Sum of):	10%	+/-			\$29,390,982.08
		Design Contingencies, 10 % (+/-)					
		APS, 0 % (+/-). Type of procurement: Full and open sealed bid competition					
		CONTRACT COST					\$323,300,802.84
		Construction Contingencies	2%	+/-			\$6,466,016.06
		FIELD COST					\$329,766,818.89
		Non-Contract Costs	4%	+/-			\$13,190,672.76
		CONSTRUCTION COST (Unit Price Level May 2016)					\$342,957,491.65
		Escalation to Notice to Proceed (NTP) (separate calculation not included here)					\$342,957,491.65
		at		per year for		years	
		CONSTRUCTION COST (with Escalation to NTP)					\$342,957,491.65
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

High Cost Mitigation Measures

Attachment 3. High Cost Mitigation Components

Mitigation Measure	High Cost Component/Activity	Estimated Costs¹ (\$million)
<i>Bot-1a; Bot-2e Wild 1a; Wild 2b</i>	Mitigation for loss of annual grasslands	68.5
<i>Bot-1a; Wet-2a; Wild 1a</i>	Mitigation for loss of seasonal wetlands	54.7
<i>Bot-1a; Wet-1a; Fish-1e; Wild-3c</i>	Riparian/Stream restoration	44.3
<i>Bot-1a; Wet-2b</i>	Mitigation for loss of alkaline wetlands	11.1
<i>Bot-1a; Wild 1a</i>	Mitigation for loss of Blue Oak woodland	10.7
<i>Cul-4a</i>	Native American (Midden) grave repatriation	20.0
<i>Cul-1b</i>	Archeological resources recovery	7.9
<i>Bot-1a; Wild 1a; Wild 2c; Land-4a</i>	Mitigation for loss of rice fields, giant garter snake habitat and prime farmland	7.9
<i>Land 4a</i>	Ag lands conservation easements for loss of prime farmland	12.5
<i>Land 5c</i>	Williamson Act contract cancellation fees	5.0

Notes:

¹ Estimated costs include mobilization, contingency, and escalation

Source: Data compiled by AECOM in 2016

ATTACHMENT 3

Detailed Cost Assumptions by Resource

Botanical Resources

Wetland and other Waters of the U.S.

Terrestrial Biological Resources

Aquatic Resources

Surface Water Quality

Cultural Resources

Paleontological Resources

Land Use

Air Quality

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-1a:</i> Implement Vegetation Community Mitigation Measures Recommended by USFWS	A Habitat Evaluation Procedures (HEP) assessment of the Primary Study Area was conducted under the lead of USFWS. A determination of appropriate mitigation measures for the habitat types that would be adversely affected within the Primary Study Area shall be made using the results of the HEP assessment, as well as through consultation with USFWS pursuant to the Fish and Wildlife Coordination Act. Mitigation measures could include but not be limited to protection, enhancement, restoration, or conservation easement.	Refer to vegetation community impacts spreadsheet – Attachment 6.
<i>Bot-1b:</i> Conduct Watershed Hydrological Studies	DWR and Reclamation shall conduct hydrological studies to determine how much of the grassy upland acts as a watershed for the alkaline wetland swale that feeds the downstream alkaline marsh. The studies shall provide guidance regarding how to avoid impacts to the grasslands that direct water to the marsh.	Costs to be included in project construction and O&M costs. Cost to include study only. \$300,000 to \$700,000 (studies) O&M monitoring and reporting for wetlands. \$20,000 per year
<i>Bot-1c:</i> Avoid/Minimize Loss or Disturbance of Vegetation by Refining the Siting of Facilities and Implementing BMPs	DWR and Reclamation shall implement BMPs, protective measures such as fencing and erosion, sedimentation, and dust control, and where possible refine the siting of facilities to minimize construction disturbance to sensitive vegetation communities.	Costs for protective measures to be included in project construction and O&M costs.
<i>Bot-1d:</i> Conduct Groundwater Hydrological Studies	DWR and Reclamation shall conduct hydrological studies to determine the effects of groundwater pressure on the alkaline habitat quality of the swale and the marsh. Measures may include protection of nearby similar vegetation communities, or USFWS may determine the effects are unavoidable and there may be no means of mitigation if there are no equivalent nearby vegetation communities that are feasible to protect or enhance.	Cost to include groundwater hydrology studies focused on impacts to alkaline habitat only. \$300,000 to \$700,000 (studies) O&M for groundwater and alkaline habitat monitoring. \$25,000 per year

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-1e</i> : Minimize Impacts by Siting Facilities Away from Drainage Swales and Implementing BMPs	DWR and Reclamation shall implement measures that mitigate impacts within the Holthouse Reservoir Complex to alkaline wetland vegetation in the on-site swale to avoid sedimentation of the swale during Project construction, according to recommendations received during consultation with USFWS.	Costs to be included in project construction and O&M costs.
<i>Bot-1f</i> : Implement BMPs to Avoid Disturbance of Marsh Vegetation in Adjacent Delevan National Wildlife Refuge	DWR and Reclamation shall set back all construction activities and equipment at least 20 feet away from the strip of marshy vegetation along the south end of the Delevan Pipeline construction disturbance area bordering the north edge of Delevan NWR. In addition, construction workers shall be prohibited from entering the NWR. BMPs, including signage on existing fencing, shall also be used to minimize erosion, sedimentation, and dust.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated. Engineers to evaluate tunneling construction methods to avoid impacts.
<i>Bot-2a</i> : Conduct Pre-Construction Surveys for <i>Sidalcea keckii</i> and <i>Amsinckia lunaris</i> ; if Found, Compensate According to USFWS Guidelines	If either plant species is found during the Project pre-construction surveys, DWR and Reclamation shall immediately report the location and size of occurrences to CDFG and USFWS. If found, DWR and Reclamation shall compensate for the loss or temporary disturbance of either species according to USFWS guidelines, which could include protection of known occurrences in nearby habitat.	Assume total acreage to be surveyed is 4,000 to 5,000 acres. Assume survey 6 acres per day for protocol level studies at \$100 per hour. Assume 2 staff and 3 surveys. \$3,200,000 to \$4,000,000 (surveys)
<i>Bot-2b</i> : Avoid Occurrences of CNPS List 1B and State- or Federally-Listed Plant Species	DWR and Reclamation shall avoid occurrences of <i>Sidalcea keckii</i> , <i>Amsinckia lunaris</i> , and <i>Lotus rubriflorus</i> by refining the siting of facilities where feasible, and minimizing construction impacts with protection measures and BMPs, such as fencing and erosion, dust, and sedimentation control.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated. Engineers to evaluate tunneling construction methods to avoid impacts.

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-2c:</i> Conduct Pre-Construction Surveys for Rare Alkaline Wetland Species in the Managed Alkaline Wetland Parcel of the Delevan Pipeline	DWR and Reclamation shall conduct pre-construction surveys to determine if rare alkaline wetland species are present. If determined to be present during the pre-construction surveys, DWR and Reclamation shall compensate for the loss and temporary disturbance of alkaline wetland species according to USFWS guidelines, which could include protection of known occurrences in nearby habitat.	Assume 14 acres to be surveyed. Assume 2 staff and 3 surveys. Assume 6 acres per day for protocol level studies at \$100 per hour. \$11,200 (surveys)
<i>Bot-2d:</i> Conduct Pre-Construction Surveys for Special-Status Plant Species	DWR and Reclamation shall conduct pre-construction surveys to determine if habitats that support special-status species are present.	Assume mitigation applies to unsurveyed grassland areas associated with the Delevan project components(13 miles long and 1,000 feet wide = 1,575 acres). Assume two staff and three surveys per year for 8 years. Assume: 10 acres per day for protocol level studies at \$100 per hour. \$756,000 (surveys)
<i>Bot-2e:</i> Compensate for Loss or Disturbance of CNPS List 4 Species According to CDFG Guidelines	DWR and Reclamation shall compensate for the loss of 13 occurrences CNPS List 4 species pursuant to consultation with DFG, which could include protection of known occurrences in nearby habitat. DWR and Reclamation shall also compensate for the temporary disturbance of four CNPS List 4 species pursuant to consultation with DFG, which could include preserving habitat available for recolonization by three of the four species by revegetating with local natives and using weed-free mulch to prevent post-construction takeover by weeds.	Refer to vegetation community impacts spreadsheet – Attachment 6.

Attachment 4A. Botanical Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Bot-3a:</i> Implement Preventive Actions by Following Weed Control BMPs; Minimize Exposed Ground; Reduce Weed Seed by Removal of On-Site and Off-Site Weeds	DWR and Reclamation shall minimize the introduction of new weed seeds into the construction disturbance area or transport weed seeds between construction disturbance areas by following weed control BMPs (e.g., equipment washing). DWR and Reclamation shall minimize the exposed ground within the construction disturbance area that is available for weed colonization or spread by mulching with weed-free materials or planting the exposed ground with native cover crops local to the Project area. In addition, DWR and Reclamation shall reduce the weed seed that is available for invasion into the Project construction disturbance area by appropriate removal of on-site weeds and by implementing selective adjacent off-site weed removal.	Costs to be included in project construction and O&M costs. O&M for weed management. \$10,000/year
<i>Bot-3b:</i> Implement Avoidance Measures in Areas Adjacent to the Delevan National Wildlife Refuge	During construction of the Delevan Pipeline and Power Transmission Line, DWR and Reclamation shall avoid the placement of large staging areas within the portion of the construction disturbance area that borders the Delevan NWR.	Costs to be included in project construction and O&M costs. Avoidance will be included into designs. No additional costs associated with mitigation measure. Engineers to evaluate jack and bore and/or tunneling construction methods to avoid impacts.
<i>Bot-4:</i> Implement Vegetation Monitoring in Coordination with USFWS	DWR and Reclamation, in coordination with USFWS, shall monitor the effects of human activities on the health of sensitive areas adjacent to Project facilities.	Timing after construction/during operation of recreation facilities. Assume monitoring at Stone Corral and Peninsula Hills Recreation Areas and assume costs will be rolled up into O&M costs for recreation facilities. O&M for vegetation monitoring \$25,000 per year

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wet-1a</i> : Implement Compensatory Mitigation Measures for Streams pursuant to USACE Determination within the Watershed in which the Impacts	<p>Compensatory mitigation for streams shall be provided for each significant impact identified by the USACE determination according to ratios determined by the USACE for the appropriate category and degree of severity of loss or impact. Mitigation shall occur within the watershed in which the impacts occur:</p> <ul style="list-style-type: none"> • Sites Reservoir & Dams, Recreation Areas— Funks/Hunter/Antelope/Grapevine/Stone Corral Creek watersheds. • Delevan Pipeline Intake Facilities, Delevan Pipeline Discharge Facility— Sacramento River adjacent to facility location. • Road Relocations, Funks Reservoir, Holthouse Reservoir Complex, Sites Inlet/Outlet Structure and associated facilities, Field Office Maintenance Yard, Electrical Switchyard—Funks Creek watershed. 	Refer to wetland impacts spreadsheet – Attachment 6.
<i>Wet-1b</i> : Reroute Canals to Ensure Continued Hydrological Connection, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination	For impacts to canals, mitigation shall include re-routing the canals to ensure continued hydrological connection to traditional waters of the U.S. Loss of emergent wetland habitat from within canals shall be mitigated for in other ways, as recommended by the USACE.	Costs associated with avoidance measures, BMPs and to be included in project construction and O&M costs.
<i>Wet-1c</i> : Restore Ponds to Original Condition, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Same Hydrologic Unit in which the Ponds Occur	The pond located 3.5 miles west of the Sacramento River within the Delevan Pipeline construction disturbance area should be restored after construction is completed to its current condition as an agricultural pond. If restoration is not possible, compensatory mitigation measures, pursuant to USACE determination, shall be implemented within the Hunters Creek-Logan Creek watershed downstream of their confluence.	Refer to wetland impacts spreadsheet – Attachment 6.

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wet-2a:</i> Conserve, Enhance, Restore, or Create Seasonal Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>For the seasonal wetlands located along the edge of Funks Reservoir, alter the extent of dredging so that the slope of the reservoir bottom is more tapered at this point</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2b:</i> Conserve, Enhance, Restore, or Create Alkaline Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>The local saline spring areas further upslope in same geological formation as the springs that feed Salt Lake shall be enhanced. These springs are located outside of the Sites Reservoir footprint but in the creases of the foothills due north of Salt Lake. Some of them may be able to be expanded, and could possibly be partially protected from grazing impacts with the installation of protective fencing.</p> <p>A conservation agreement shall be entered into with Reclamation to manage and protect the entire alkaline wetland area southeast of Holthouse Reservoir. Management shall include burning and grazing regimes similar to those used effectively on the Sacramento NWR.</p> <p>A purchase or conservation agreement shall be entered into with the utilities or other landowners to protect and manage other saline/alkaline wetland habitats in parcels east of the Tehama-Colusa (T-C) Canal, north of the Primary Study Area. Protected areas might include a potential alkaline wetland area southeast of the Colusa Generating Station located along the T-C Canal.</p> <p>For the Holthouse Reservoir alkaline wetlands, a hydrogeological study shall be conducted to determine the direction and sources of water supplying the seeps, swales, and main wetland area, to better inform evaluation of potential effects of placing the dam and reservoir in proximity of the wetland's west edge. The study shall include testing of the wetland area's water and soils, and may allow for development of minimization measures.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>

Attachment 4B. Wetlands and Other Waters of the U.S.

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wet-2c:</i> Conserve, Enhance, Restore, or Create Vernal Pools Equivalent to the Type of Vernal Pools Adversely Impacted, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination</p>	<p>For vernal pools, the type of vernal pools conserved elsewhere shall be equivalent to the type lost from the Primary Study Area – most likely, clay pan and alkaline vernal pools. Consultation with vernal pool experts shall occur to ensure ecological equivalence.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2d:</i> Conserve, Enhance, Restore, or Create Emergent Wetlands, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination within the Watershed in which the Impacts Occur</p>	<p>[Text not included in previous draft of EIS/R]</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>
<p><i>Wet-2e:</i> Conserve, Enhance, Restore, or Create Comparable Riparian Wetlands in the Inner Coast Range Foothills, or Implement other Compensatory Mitigation Measures pursuant to USACE Determination</p>	<p>For the two-acre riparian wetland and waters of Funks Creek lost to Holthouse Reservoir, a comparable area in the inner coast range foothills shall be selected for restoration and conservation.</p>	<p>Refer to wetland impacts spreadsheet – Attachment 6.</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-1a:</i> Implement a Combination of Habitat Protection, Enhancement, Restoration, or Conservation Easement Measures, in Consultation with USFWS	For all three action alternatives, the acreage of permanent habitat loss within the Recreation Areas and the Road Relocations, as well as the temporary habitat disturbance within the construction disturbance areas for most facilities, was estimated. Because these acres are estimated, it may be possible to avoid impacts to certain habitat types. A Habitat Evaluation Procedures assessment of the Primary Study Area was conducted under the lead of USFWS. A determination of appropriate mitigation measures for the habitat types that would be adversely affected within the Primary Study Area shall be made using the results of the HEP assessment, as well as through consultation with USFWS pursuant to the Fish and Wildlife Coordination Act. Mitigation measures could include but not be limited to protection, enhancement, restoration, or conservation easement.	Refer to habitat impacts spreadsheet – Attachment 6.
<i>Wild-1b:</i> Implement Bat Exclusion Measures Prior to Demolition of Existing Structures	Prior to structure demolition, structures shall be inspected by a qualified biologist to determine if bats are present and if present, to determine if the structure is being used as a day, night, or maternity roost. If a roost is present, appropriate bat exclusion measures shall be implemented at least five to seven days prior to structure demolition outside of the maternity season, which can range from mid-April through August 31, and outside of the winter months when bats could be hibernating. Bat exclusion measures could include one-way devices such as polypropylene netting, plastic sheeting, or tube-type excluders that would be placed at all active entry points. If a roost is present in a structure located outside of a reservoir inundation area, possible avoidance measures could include retaining the structure.	<p>Costs for bat exclusion measures to be included in project construction and O&M costs.</p> <p>Assume 89 structures to be surveyed. Trees that provide bat roosting habitat to be surveyed with other species surveys.</p> <p>Assume one-time survey. Assume five structures per day (18 days total) and two staff at \$100 per hour.</p> <p>\$28,800 (surveys)</p>
<i>Wild-2a:</i> Obtain Permit for Bald Eagle Nest Tree Removal, Remove Nest Tree Outside of Breeding Season, and Create Suitable Habitat	A permit to remove or relocate an eagle nest shall be obtained from USFWS. The bald eagle nest tree shall be removed outside of the breeding season, which ranges from January through July, to avoid direct impacts. Dam construction activities shall not occur during the breeding season until the nest tree is removed. After construction is complete, the filling of Sites Reservoir and Holthouse Reservoir would create new fish-bearing lacustrine habitat in an area that is surrounded by suitable bald eagle nest trees. Following inundation, releases downstream of Golden Gate Dam would restore flows to Funks Creek to maintain fisheries and bald eagle habitat.	Costs to prepare a plan to remove nest included in Mitigation Measure <i>Wild-2d</i> .

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-2b:</i> Implement Protective Actions to Prevent Bank Swallows from Nesting in the Cut Banks of Project Construction Trenches	Construction of the pipelines shall begin in May due to giant garter snake restrictions. May falls within the bank swallow breeding season (ranging from mid-March through July). Protective action shall be taken to prevent bank swallows from attempting to nest within the cut banks of the pipeline trenches. Actions shall include the placement of a mesh net on all cut banks during the bank swallow nesting season, and implementation of Mitigation Measure Wild-3a to ensure that trenches are backfilled within 72 hours of pipeline installation.	Costs to be included in project construction and O&M costs.
<i>Wild-2c:</i> Conduct Pre-Construction Surveys for Giant Garter Snakes and Implement Protective Actions; Conduct Project Construction Activity Between May 1 and October 1 in Giant Garter Snake Habitat; Compensate for Temporary Disturbance of Habitat According to USFWS Guidelines	Protective actions shall be taken to avoid or minimize impacts to the giant garter snake. Protective actions and mitigation measures shall comply with the USFWS's Programmatic Biological Opinion (USFWS, 1997).	Costs associated with avoidance measures, BMPs and to be included in project construction and O&M costs. Assume GGS preconstruction survey and monitoring costs included in Mitigation Measure <i>Wild-4</i> .
<i>Wild-2d:</i> Implement Avoidance and Minimization Measures at Historic or Active Golden Eagle Nest Sites; Conduct Satellite Telemetry Studies Pre- and Post-Construction to Determine Territory Size; Prepare a Golden Eagle Protection Plan and a Golden Eagle Monitoring Plan; Mitigate for Loss of Annual Grassland Foraging Habitat	Construction activities shall be modified to ensure that nesting Golden Eagles are protected. To avoid impacts to nesting Golden Eagles at Peninsula Hills, construction of the recreation area would be deferred. To avoid or minimize possible impacts to nesting Golden Eagles in other construction areas, some or all of the following measures shall be implemented: <ul style="list-style-type: none"> • A bird detraction program shall be implemented near historic Golden Eagle nest sites to discourage eagles from returning to those sites. • Construction near recently active nest sites shall start outside the active nesting season. The nesting period for Golden Eagles is between March 1 and August 15. • If groundbreaking activities begin during the nesting period, a qualified biologist shall perform a pre-construction survey 14 to 30 days before the start of each new construction phase to search for Golden Eagle nest sites in appropriate habitat within 0.5 mile of proposed activities. If active nests 	Nests located at three of the restoration areas and downstream of Site Dam. Located in Stone Corral and Peninsula Hills, Lurline Headwaters. Assume general pre-construction survey/clearance costs included in Mitigation Measure <i>Wild-4</i> . Telemetry Studies (assume 3 to 5 years prior to construction and then 3 to 5 years post construction). Assume \$175 per hour for two staff. Assume 400 hours per year. \$840,000 to \$1,400,000 (\$140,000 per year)

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
	<p>are not identified, no further action is required and construction may proceed.</p> <ul style="list-style-type: none"> If active nests are identified, a minimum 0.5 mile buffer zone around active Golden Eagle nests shall be implemented. Buffer zones shall remain until young have fledged. For activities conducted with agency approval within this buffer zone, a qualified biologist shall monitor construction activities and the eagle nest(s) to monitor eagle reactions to activities. If activities are deemed to have a negative effect on nesting eagles, the biologist shall immediately inform the construction manager that work should be halted, and CDFG and USFWS will be consulted. For Golden Eagles that begin nesting within the buffer zone after start of construction, the same avoidance and minimization measures as described for active eagle nests found before start of construction (0.5 mile buffer) shall be implemented. A buffer of less than 0.5 mile may be used if there is a visual barrier, such as a hill or dense trees, between the construction activity and the nest. <p>To assess the impact of this loss of foraging habitat, the following measures shall be implemented prior to the start of Project construction:</p> <ul style="list-style-type: none"> A Golden Eagle Monitoring Plan shall be prepared. Satellite telemetry studies shall be conducted for three to five years prior to the start of construction to establish the number of Golden Eagles and the size of their territories. Surveys shall be conducted by permitted biologists. A Golden Eagle Protection Plan shall be prepared. 	<p>Assume 10 sites for telemetry studies and equipment \$15,000 per site.</p> <p>\$150,000</p> <p>Helicopter Surveys – Four surveys for nesting population study (timing when vegetation is not on trees), helicopter costs – \$950 per hour for 7 hours.</p> <p>\$26,600 (\$6,600 per survey)</p> <p>Expert assistance.</p> <p>\$120,000</p> <p>Preparation of a Golden Eagle Protection Plan.</p> <p>\$150,000</p> <p>Preparation of a Golden Eagle Monitoring Plan.</p> <p>\$150,000</p> <p>Bird Detraction Program.</p> <p>\$300,000</p> <p>Helicopter assist with implementation \$2,750 per hour for 6 hours and two staff at \$120 per hour for three nests.</p> <p>\$53,820</p> <p>Avoidance and minimization measures (including 0.5 mile work exclusion around active nests) to be included in the construction and</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
		O&M costs. Mitigation Measure <i>Wild-2d</i> total costs — \$1,790,420 to \$2,350,420
<i>Wild-2e</i> : Implement Protective Actions to Minimize Impacts to the Ringtail, and Restore Connectivity of Riparian Corridor	The fully-protected ringtail was observed within the riparian habitat that would be removed during construction of the Delevan Pipeline Intake/Discharge Facilities. The removal of riparian habitat within the footprint of the facilities would further reduce connectivity of the riparian corridor at that location. Implementation of Mitigation Measure <i>Wild-3c</i> would restore that connectivity. To minimize potential direct impacts to the ringtail, riparian vegetation removal shall not occur during the early pup-rearing season, which ranges from May 1 through June 15. Efforts to restore riparian corridor connectivity could include other habitat enhancements, such as providing ringtail nesting cavities and planting food sources.	Assume mitigation costs to restore connectivity included in <i>Wild-3c</i> .

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2f.</i> Implement Protective Actions to Avoid or Minimize Impacts to Elderberry Plants; Where Avoidance is not Possible, Transplant or Replace Plants, According to USFWS Guidelines</p>	<p>There are two elderberry shrubs located within the potential construction disturbance area for Sites Reservoir and Dams that could be completely avoided by establishing and maintaining a 100-foot-wide or wider buffer around them. Construction crews shall be briefed regarding the need to avoid these plants, and signs shall be posted during construction to avoid the buffer area. After Project construction is complete, this area would not be affected by Project operation or maintenance.</p> <p>The elderberry shrub immediately adjacent to the footprint of the Delevan Pipeline Intake/Discharge Facility is located on the edge of an irrigation canal that is situated along an existing access road. Because of its proximity to the road, it would not be possible to establish a 100-foot-wide buffer. It would also not be possible to establish a 100-foot-wide buffer for the shrubs located immediately adjacent to the existing Maxwell Sites Road. Consultation with USFWS would be initiated for possible approval to encroach on the buffer. Otherwise, appropriate mitigation measures shall be implemented.</p> <p>The elderberry shrubs within the footprint of Sites Reservoir, Sites Dam, and Golden Gate Dam, as well as the one shrub within the footprint of the Delevan Pipeline Intake/Discharge Facility, would not be avoided by Project construction, and therefore, shall be transplanted or replaced, depending on the likelihood of survival post-transplantation. Transplantation procedures shall comply with USFWS's 1999 Conservation Guidelines for the Elderberry Longhorn Beetle (USFWS, 1999). If transplantation is not feasible, USFWS general guidelines require replacement of elderberry plants in designated mitigation areas. Elderberry plants are typically replaced at a ratio of 2:1 for stems greater than one inch in diameter at ground level with no adult emergence holes, 3:1 for stems where emergence holes are documented in less than 50 percent of the shrubs, and 5:1 for stems greater than one inch in diameter with emergence holes.</p> <p>Mitigation measures already required for the loss of riparian habitat pursuant to the mitigation for loss of wildlife habitat types described above could potentially compensate for the native planting requirement for elderberry plant mitigation.</p>	

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2g</i>: Conduct Pre-Construction Surveys for Western Burrowing Owls; If Owls are Found, Implement Protective Actions</p>	<p>Pre-construction surveys shall be conducted in annual grasslands within the footprint of Sites Reservoir and within the construction disturbance area of the Road Relocations to determine if burrowing owls are present. These surveys shall be conducted within 30 days of ground-disturbing construction activities or the start of the filling of reservoir. Surveys shall be conducted by a qualified biologist in compliance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC, 1993). If burrowing owl burrows are found, protective measures shall be implemented.</p> <p>Protective measures may include avoidance of occupied burrows during the nesting season, which is from February 1 through August 31, with the peak of the season occurring from April 15 through July 15. Any unoccupied burrows located within the immediate construction area shall be excavated using hand tools, and then filled to prevent reoccupation.</p> <p>If destruction of occupied burrows is unavoidable, such as within the footprint of Sites Reservoir, burrow entrances shall be altered, outside of the nesting season, to allow resident owls to exit but not re-enter the burrow. Owls shall be excluded from burrows by installing one-way doors in burrow entrances. One-way doors shall be left in place for at least 48 hours to ensure owls have left the burrow before the start of construction. Other possible mitigation could include the creation of artificial burrows in adjacent suitable habitat.</p> <p>Loss of annual grassland habitat shall be compensated for with implementation of the mitigation for loss of wildlife habitat types described above.</p>	<p>Assume 16,500 acres – one time survey</p> <p>1 acre per hour two staff at \$100 per hour.</p> <p>\$3,300,000 (surveys)</p>

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Wild-2h:</i> Conduct Pre-Construction Surveys and Provide a Biological Monitor During Project Construction for the Western Pond Turtle; If Found, Turtles shall be Captured and Relocated by a Qualified Biologist</p>	<p>Before construction activities begin, a qualified biologist shall conduct western pond turtle surveys along creeks and other ponded areas within the footprint of Sites Reservoir, Sites Dam, and Holthouse Reservoir, as well as along the irrigation canals within the construction disturbance area of the Delevan Pipeline. Adjacent upland areas shall also be examined for evidence of nests or individual turtles. A Project biologist shall be responsible for conducting the survey and relocating any turtles found within footprints or construction disturbance areas. If a nest is observed, a biologist with appropriate permits and prior approval from CDFG shall move eggs to a suitable location or facility for incubation. However, some individuals may be undetected or enter sites after surveys are conducted, and could be subject to mortality. A biological monitor shall, therefore, be present during Project construction to minimize take.</p>	<p>Include Delevan pipeline area (1,575 acres) and canal (23.2 acres) and valley foothill riparian (VFR) habitat (114.3 acres) Assume one acre per hour, two staff, one time survey. \$342,500 (surveys)</p>
<p><i>Wild-2i:</i> Conduct Pre-Construction Surveys for the Western Yellow-Billed Cuckoo and Schedule Construction Activities to Avoid Impacts to Nest Sites</p>	<p>The yellow-billed cuckoo breeding season ranges from mid-June through August. To minimize direct impacts to this species, riparian and orchard vegetation removal within the footprint of the Delevan Pipeline Intake/Discharge Facility shall occur outside of these dates. If construction activities are scheduled to occur during the breeding season, preconstruction surveys shall be conducted in riparian and orchard habitat within the construction disturbance area of the Delevan Pipeline Intake/Discharge Facility to confirm that cuckoos are not actively nesting in or near the area. If active nests are identified, a minimum 500-foot construction buffer shall be established around any nest sites. All construction shall be avoided where active nests are discovered until the cuckoos have finished nesting. Loss of valley foothill riparian and deciduous orchard habitat shall be compensated for with implementation of the mitigation for loss of wildlife habitat types described above.</p>	<p>ACREAGE VFR at Intakes only – 13 acres. Assume one time survey, two staff, four acres per hour \$650 (survey)</p>
<p><i>Wild-3a:</i> During Project Construction, Backfill Trenches within 72 hours of Pipeline Installation and Provide an Escape Ramp for Trapped Wildlife</p>	<p>Pipeline trenches shall be backfilled within 72 hours of pipeline installation to prevent potential impacts to trapped wildlife. The trench shall be inspected for wildlife before it is filled. At the end of each day, a ramp shall be placed at the end of the trench at an approximate 45 degree slope to allow trapped wildlife to escape. In addition to a ramp, the trench shall be covered to prevent wildlife from falling in.</p>	

Attachment 4C. Terrestrial Biological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Wild-3b:</i> Construct Transmission Lines and Associated Equipment Following Suggested Practices for Avian Protection on Power Lines	Transmission lines, poles, and associated equipment shall be properly fitted with wildlife protective devices to isolate and insulate structures to prevent injury or mortality to wildlife, especially avian species. Protective measures shall follow the guidelines provided in Suggested Practices for Avian Protection on Power Lines (APLIC, 2006), and shall include insulating hardware or conductors against simultaneous contact, using poles that minimize impacts to birds, and increasing the visibility of conductors or wires to prevent or minimize bird collisions	Costs to be included in project construction and O&M costs.
<i>Wild-3c:</i> Restore Riparian Habitat Connectivity	After the Delevan Pipeline Intake/Discharge Facilities are constructed, riparian habitat connectivity shall be restored to provide a travel corridor for terrestrial wildlife. The entire length of the land side of the new levee associated with the facilities shall be planted with riparian vegetation. Where the levee approaches SR 45, fencing shall be installed to protect wildlife from vehicles. Vegetation shall be monitored, and irrigated if necessary, to ensure survival.	Lands acquired for the Intake/Discharge facilities will be adequate to also accommodate incorporation of riparian connectivity mitigation.
<i>Wild-4:</i> Implement Avoidance and Minimization Measures	Measures to avoid or minimize human disturbance impacts associated with Project construction and maintenance activities.	<p>Awareness Training. \$50,000 to \$200,000</p> <p>Preconstruction surveys/monitoring assume 8 full-time staff (FTE) for 10 years.</p> <p>Surveys + Monitoring \$1,660,000 per year (\$16,600,000 surveys)</p> <p>Project design avoidance measure costs to be included in project construction and O&M costs.</p>

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Fish-1a:</i> Increase stocking frequency of coldwater fish species	Text to be developed	No cost associated with this measure.
<i>Fish-1b:</i> Prepare and Implement a Mitigation Monitoring and Reporting Plan	<p>DWR and Reclamation shall prepare and implement a Mitigation Monitoring and Reporting Plan to mitigate for expected significant reduced flows through the Yolo Bypass (all alternatives), which could include the following mitigation measure:</p> <ul style="list-style-type: none"> • Modifications to the Fremont Weir to allow additional flow for inundation of the Yolo Bypass has been identified as a fisheries habitat improvement action by other projects or programs and may be implemented before the NODOS Project is authorized. If modifications occur before implementation of the NODOS Project, this impact would be reduced to less than significant and would not require mitigation. If the modifications are not yet implemented, mitigation measures for the NODOS Project could include modification of the weir to offset potentially reduced flows through the Yolo Bypass and associated habitat availability for splittail and other fish species of primary management concern. 	<p>Details related to mitigation need to be further evaluated as part of EIR/EIS revisions – measure may also include benefits.*</p> <p>O&M costs</p> <p>\$500,000/annually(contingency)</p>
<i>Fish-1c:</i> Prepare and Implement a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESCP) Prior to the Initiation of Construction Activities	DWR and Reclamation shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and an Erosion and Sediment Control Plan (ESCP) prior to the initiation of construction activities.	Costs to be included in project construction and O&M costs.
<i>Fish-1d:</i> Prepare and Implement a Spill Prevention and Hazardous Materials Management Plan Prior to the Initiation of Construction Activities	DWR and Reclamation shall prepare a Spill Prevention and Hazardous Materials Management Plan (developed as part of the SWPPP) that would be designed to minimize the potential for chemical spills and seepage during construction, operation, and maintenance activities.	Costs to be included in project construction and O&M costs.

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Fish-1e</i>: Implement Habitat Restoration Actions</p>	<p>To minimize disturbance to aquatic habitat, construction personnel shall participate in an environmental awareness training program provided by a qualified biologist. Construction personnel shall be informed about any sensitive biological resources associated with the proposed Project and that disturbance of sensitive habitat or special-status species would be a violation of the Endangered Species Act and the Clean Water Act.</p>	<p>Costs to include restoration at a ratio of 2:1 for linear stream miles inundated with the following project components:</p> <ul style="list-style-type: none"> • Sites Reservoir Inundation Area and Sites Dams • Holthouse Reservoir Complex, the Sites Reservoir Inlet/Outlet Structure, and the Sites Pumping/Generating Plant • Delevan Pipeline <p>Delevan Pipeline Intake Facilities and Delevan Pipeline Discharge Facility.</p> <p>Assume acquisition of 681 acres at \$2,500 per acre.</p> <p>O&M cost for restoration land management —681 acres at \$400 per acre.</p> <p>\$275,000</p>

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Fish-1f</i> : Perform In-Water Pile Driving July Through September During Daylight Hours	In-water pile driving shall only occur during July through September during daylight hours. This time period takes into consideration the migratory patterns of salmonids; pile driving shall occur after the cessation of the outmigration of juvenile salmon and before the initiation of the upstream migration of adults returning to spawn. To avoid impacts to the majority of fish species of primary management concern, sheet pile installation and in-stream heavy equipment activity shall be coordinated with USFWS, USBR, CDFG, and NMFS to avoid and or minimize potential impacts. If feasible, a vibratory hammer shall be used, and pile driving shall commence at low energy levels and slowly build to impact force. In addition, underwater sound levels shall be monitored to ensure that pile driving activities do not create underwater sound levels that exceed NMFS' noise thresholds (i.e., accumulated sound exposure level of 183 dB and a peak pressure of 206 dB).	Costs to be included in project construction and O&M costs.
<i>Fish-1g</i> : Design Fish Screen in Compliance with NMFS and CDFG Criteria	Fish screen at the Delevan Pipeline Intake Facilities shall be designed to comply with NMFS and CDFG fish screening criteria. The Delevan Pipeline Intake Facilities or Discharge Facility shall be designed to minimize hydraulic and physical habitat that is suitable for non-native predatory fish species. The facility shall be designed in coordination with NMFS and CDFG to ensure incorporation of the best available scientific and engineering knowledge of fish screen design to minimize predation potential on fish species of primary management concern. These design criteria shall minimize or avoid increased habitat suitability for non-native predatory fish species. However, a monitoring and adaptive management program shall be implemented to ensure that losses resulting from predatory fish are minimized.	Costs to be included in project construction and O&M costs.

Attachment 4D. Aquatic Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Fish-1h</i>: Prepare and Implement a Fish Salvage and Rescue Plan</p>	<p>The fish screen at the Delevan Pipeline Intake Facilities shall be designed to comply with NMFS and CDFG fish screening criteria. In addition, a Fish Salvage and Rescue Plan shall be developed and approved by NMFS and CDFG prior to initiation of construction activities, and could include the following measure:</p> <ul style="list-style-type: none"> • A qualified biologist shall provide construction monitoring throughout all phases of the project. If spawning activities for sensitive fish species are encountered during construction activities, the monitoring biologist shall be authorized to stop construction activities until appropriate corrective measures are completed or it is determined that the fish would not be harmed. If possible, all fish species shall be allowed to independently move away from the area. Fish that become entrapped in any side channel where construction work is taking place shall be netted, transported to the river, and released according to the Fish Salvage and Release Plan. 	<p>Costs include preparation of a Fish Salvage and Rescue Plan and anticipated level of effort for fish salvage operations (contingency costs)</p> <p>\$520,000 (contingency)</p>

Attachment 4E. Surface Water Quality

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>SW Qual -1(a):</i> Implement a Water Quality Monitoring, Modeling, and Operations Coordination Program to Protect Beneficial Uses</p>	<p>A comprehensive water monitoring program, including analysis of water quality conditions at the Project intake/discharge locations on the Sacramento River, as well as major Project conveyance and impoundment features, shall be implemented. This monitoring program shall include a network of automated real-time water monitoring locations at these locations, with data available to operators on the SCADA control system to allow real-time adaptive alteration in diversion amounts based on these conditions. This would allow operators to select the best quality waters to fill Sites Reservoir and potentially avoid importation of poor quality water that may affect the quality of Project water deliveries. This strategy could require additional modeling of Project water quality conditions to better understand the complex chemical interactions and physical and biological processes that affect contaminant levels. In addition, fish in Sites Reservoir shall be sampled and analyzed for mercury and other potential contaminants that may have deleterious effects to human and wildlife consumers. Results from these analyses shall be submitted to the Office of Environmental Health Hazard Assessment (OEHHA) for determination of the threats to consumers of fish in Sites Reservoir. Determination of adverse health effects to consumers would lead to educational postings at access points and public media to reduce exposure to contaminated fish.</p>	<p>Cost for infrastructure (monitoring devices, SCADA, etc.) and O&M of would be included in project construction and O&M costs.</p> <p>Water quality sampling necessary to determine how facilities should be operated is included in O&M costs.</p> <p>Supplemental mitigation cost</p> <p>\$1,500,000</p> <p>O&M annual cost</p> <p>\$250,000</p>
<p><i>SW Qual-1(b):</i> Excavate and Remove, or Consolidate and Cap, Salt Lake</p>	<p>The Salt Lake site within the footprint of Sites Reservoir would be either excavated and removed or consolidated and capped by an impermeable cover to avoid dissolution of the salt deposit into the reservoir waters. Salt Lake is fed by upslope salt springs, is many decades old, and the salt pan has accumulated to an unknown thickness over this time by evaporation. After removal/capping of the salt pan, the salt spring inputs to a completed Sites Reservoir would be diluted by high quality Sacramento River imports to a level that would be less than significant to water quality.</p>	<p>Mitigation cost would include removal (clearing and grubbing) and removal of surface materials, jet grouting of concrete and capping of Salt Lake and site grading.</p> <p>\$10,000 to \$15,000</p>
<p><i>SW Qual-1(c) to SW-Qual-1(l)</i></p>	<p>Mitigation measures associated with implementation of SWPPP, BMPs and other related construction practices.</p>	<p>Mitigation costs would be included in project construction and O&M costs.</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1a</i>: Avoid Impacts to Historical Resources/Historic Properties</p>	<p>If feasible, impacts to identified historical resources/historic properties, including prehistoric and historic-era archaeological sites, buildings and structures, TCPs, and human remains shall be avoided. Methods of avoidance may include, but are not limited to, Project re-design, or, when appropriate, deeding the site into a permanent conservation easement; incorporation of sites into parks, greenspace, or other open space; and protection measures, such as fencing.</p>	<p>Assumption \$40 per acre for remaining surveys and field documentation.</p> <p>\$32,500 to \$50,000 (surveys)</p> <p>Approximately 790 acres not yet surveyed. Additional areas to be defined – transmission line footprint and confirm pipeline alignments and Leesburg road.</p> <p>Costs should also include geo-archeology studies to determine the potential for buried resources. Timing of studies could be performed during construction.</p> <p>Assume \$100,000 prior to construction (timing of desktop evaluations – during EIR/EIS).</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1b</i>: Conduct Archaeological Data Recovery</p>	<p>If it is infeasible to avoid impacts to archaeological sites that have been determined to be eligible for listing on the CRHR or the NRHP, additional research including, but not necessarily limited to, archaeological excavation shall be conducted. This work shall be directed by a qualified archaeologist who meets the U.S. Secretary of Interior's professional standards, and shall include preparation of a research design; additional archival and historical research to supplement the research design, when appropriate; archaeological excavation; analysis of artifacts, features, and other attributes of the resource; and preparation of a technical report documenting the methods and results of the investigation in accordance with the California Office of Historic Preservation Guidelines for Archaeological Research Design (1991). The purpose of this work is to recover a sufficient quantity of data to compensate for damage to or destruction of a resource that is eligible for the CRHR pursuant to criterion 4 of CCR 4852(b) or the NRHP pursuant to 36 CFR 60.4(d). The procedures to be used in this data recovery program shall be determined in consultation with responsible agencies and interested parties such as Native American tribes, as appropriate, within the parameters of the PA.</p>	<p>Ethnographic Studies and Inventory with Evaluation. \$200,000 to \$1,500,000 (Could be performed in phases – initial outreach (\$200,000 to \$500,000) should occur during EIR/EIS). Costs for determining eligibility for sites in areas not yet surveyed and/or buried (Assume another 10 sites could be discovered.) \$2,500,000 to \$5,000,000 Documentation costs. \$100,000 Curation costs – Assume \$5,000 a box and 1,000 boxes. \$5,000,000 to \$10,000,000 <i>Cul-1b</i> total—\$7,800,000 to \$16,600,000</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1c:</i> Immediately Halt Construction if Cultural Resources are Discovered and Implement an Accidental Discovery Plan</p>	<p>Not all cultural resources are visible on the ground surface. Protocols for addressing the accidental discovery of archaeological resources that are not visible on the ground surface during Project construction will be outlined in an Accidental Discovery Plan, as directed by the PA. If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any Project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius, with a minimum of 50 feet. A qualified archaeologist shall conduct a field investigation of the specific site and recommend mitigation deemed necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource. Mitigation measures shall be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before resuming construction activities at the archaeological site. All of the activities identified above shall be detailed in an Accidental Discovery Plan developed prior to construction so that all parties are aware of the actions required if buried archaeological resources are uncovered during Project construction. Discoveries of human remains shall be treated as described below for Mitigation Measure Cul-4b.</p>	<p>Assume contingency costs to address stop work to be included in project construction and O&M costs.</p> <p>Preparation of Accidental Discovery Plan.</p> <p>\$250,000 to \$400,000</p> <p>Field assessments after accidental discoveries are encountered during construction. Assume 10 to 20 accidental discoveries.</p> <p>\$4,000,000 to \$8,000,000 (contingency)</p>
<p><i>Cul-1d:</i> Protection of Archaeological Sites by Capping</p>	<p>Capping archaeological sites that are considered historical resources with soil, gravels, rock, or specific kinds of vegetation can be a viable way to protect the deposits under some circumstances. For example, sites subject to inundation and water level fluctuations may be protected from erosion by applying a layer of gravel/rock (rip-rap), soil, cloth, or some combination of treatments. In such circumstances, regular monitoring would be required to evaluate the efficacy of the mitigation, and to identify if and when it is necessary to refresh the protection. A layer of soil, i.e., sterile fill, might also be placed over a site where construction of a building was planned, such that all construction disturbance would occur in the fill</p>	<p>Capping costs to be included in project construction and O&M costs.</p> <p>Assume monitoring to be included in construction and O&M costs.</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-1e:</i> Develop Agreement Documents to Address Potential Future Operational Impacts to Cultural Resources</p>	<p>Protocols for addressing potential future operations impacts at Sites Reservoir and at existing facilities within the Extended Study Area shall be addressed in the PA. This may include preparation of Memoranda of Agreement for specific facilities and/or development of a Cultural Resources Management Plan, depending on the lead agency in charge of the facility. Management of historical resources/historic properties under such agreement documents might include standard measures for identification of historical resources/historic properties where needed, assessment of project impacts, and application of specific mitigation measures, as well as protocols for resource monitoring or stabilization techniques. Such agreement documents shall be developed in consultation with responsible agencies and interested parties, such as Native American tribes, as appropriate, within the parameters of the PA.</p>	<p>Preparation of MOA and PA and/or Cultural Resources Management Plan in consultation with responsible agencies and interested parties, such as Native American tribes, as appropriate. \$200,000 to \$500,000</p>
<p><i>Cul-2a:</i> Follow the Secretary of the Interior's Standards for the Treatment of Historical Resources/Historic Properties</p>	<p>Because construction of Project facilities has the potential to modify buildings or structures that are considered historical resources/historic properties, any alterations, including relocation, to historic buildings or structures shall conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995).</p>	<p>Assume no built environment resources have been determined to be eligible; however, a railroad and quarry may be eligible. \$1,000,000 to \$2,000,000</p>
<p><i>Cul-2b:</i> Record Built Environment Resources to Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) Standards</p>	<p>If avoidance or relocation of a building or structure that is considered eligible for the CRHR or NRHP is not feasible, and the resource must be demolished, a qualified architectural historian who meets the U.S. Secretary of Interior's professional standards shall be retained to document the impacted historical architectural resource to Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) specifications. HABS and HAER documentation packages shall be entered into the Library of Congress as well as the NWIC or NEIC of the CHRIS.</p>	<p>Assume costs to include preparation of HABS and HAER documentation. \$1,000,000 to \$2,000,000</p>
<p><i>Cul-3:</i> Consult with Native American Communities regarding How to Mitigate for Impacts to TCPs</p>	<p>TCPs are often locations on the landscape that have sacred or other special meaning to Native American communities. Associated characteristics, such as an archaeological deposit, are not always present. Early and meaningful consultation with Native American communities shall occur to identify ways to mitigate impacts to TCPs. Interpretive programs, establishing or enhancing locations for traditional plants, or a visitor's center, are examples of ways to address these important issues. Consultation with Native American communities shall occur.</p>	<p>Cost components are related to <i>Cult-1 (e)</i>. Assume costs for ongoing consultation with tribes. Assume 4+ tribes and costs to include AB52 compliance. \$2,000,000 to \$4,000,000</p>

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Cul-4a</i> : Relocation of Known Cemeteries	Consultation shall occur with the entity (County, City, private) that has jurisdiction over the cemetery, and interested parties as appropriate, to identify a satisfactory place that is protected from future disturbance for the relocation of human remains. Similarly, if Native American burials are known to exist in an archaeological site, the Project proponent shall work with the appropriate tribe to identify a satisfactory location for re-interment of burials in a protected location.	Assume two cemeteries: Town of Sites Cemetery – Assume 150 individuals and \$3,000 for each individual grave site. \$450,000 Native American Cemetery – 100 individuals and \$5,000 for each individual grave site. \$500,000 Midden Grave Sites – Assume \$10,000,000 to \$20,000,000 Total - \$10,950,000 to \$20,950,000

Attachment 4F. Cultural Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Cul-4b:</i> Immediately Halt Construction if Human Remains are Discovered and Implement a Burial Treatment Plan</p>	<p>Project construction activities have the potential to have unanticipated significant impacts to buried human remains where there is no surface indication of their presence. In these circumstances, the requirements of California Health and Human Safety Code 7050.5 must be followed. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, the potentially damaging excavation must halt in the area of the remains and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Pursuant to the provisions of California Public Resources Code Section 5097.98, the NAHC shall identify a Most Likely Descendent (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. All of the activities identified above shall be detailed in a Burial Treatment Plan, as directed by the PA, and developed in consultation with local Native American tribes prior to Project construction so that all parties are aware of the actions required if buried human remains are uncovered during Project construction.</p>	<p>Preparation and implementation of a Burial Treatment Plan. \$500,000 to \$800,000 Contingency costs to be included in project construction and O&M costs. Assume accidental discoveries - \$500,000 to \$1,000,000 (contingency)</p>

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Paleo-1a:</i> Retain a Qualified Paleontological Resource Specialist Prior to the Start of Construction	DWR and Reclamation shall retain a qualified Paleontological Resource Specialist at least 90 days prior to the start of construction.	No anticipated costs
<i>Paleo-1b:</i> Consultation with the Paleontological Resource Specialist Prior to and During Project Construction	At least 30 days prior to the start of Project construction, DWR and Reclamation shall provide maps or drawings to the Paleontological Resource Specialist that shows the planned construction footprint. Maps shall identify all areas of the Project where ground disturbance is anticipated. (Site grading plan and plan and profile drawings for the utility lines are appropriate for this purpose). The plan drawings shall show the location, depth, and extent of all ground disturbances affecting paleontologically sensitive sediment. If Project construction proceeds in phases, maps and drawings may be submitted prior to the start of each phase. In addition, the proposed schedule of each Project phase shall be provided to the Paleontological Resource Specialist. Before work commences on affected phases, DWR and Reclamation shall notify the Paleontological Resource Specialist of any construction phase scheduling changes. If paleontological resources monitoring is ongoing, DWR and Reclamation shall ensure that the Paleontological Resource Specialist or Paleontological Resource Monitor consults weekly with the Project superintendent or construction field manager to confirm area(s) to be worked the following week and until ground disturbance is completed.	Paleontological resource specialist staffing for plans and drawing reviews. \$250,000 to \$500,000

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Paleo-1c:</i> Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan</p>	<p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist prepares a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources.</p> <p>The PRMMP shall also provide guidance for preparation of a Paleontological Resources Report by the designated Paleontological Resource Specialist at the conclusion of ground-disturbing activities that may affect paleontological resources. The Paleontological Resources Report shall include an analysis of the collected fossil materials and related information, including a description and inventory of recovered fossil materials, a map showing the location of paleontological resources encountered, determinations of sensitivity and significance, and a statement by the Paleontological Resource Specialist that Project impacts to paleontological resources have been mitigated below the level of significance.</p>	<p>Preparation of Paleontological Resources Monitoring and Mitigation Plan and Paleontological Resources Report.</p> <p>\$200,000 to \$300,000</p>
<p><i>Paleo-1d:</i> Conduct Paleontological Resources Awareness Training</p>	<p>Prior to ground disturbance and for the duration of Project construction activities involving ground disturbance, the Paleontological Resource Specialist shall prepare, and DWR and Reclamation shall conduct, weekly paleontological resources awareness training.</p>	<p>Paleontological resource specialist staffing for weekly construction meetings.</p> <p>\$50,000 to \$200,000</p>

Attachment 4G. Paleontological Resources

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<p><i>Paleo-1e:</i> Conduct Monitoring During Project Construction and Prepare Monthly Reports</p>	<p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) monitor construction excavations consistent with the PRMMP in areas where potential fossil-bearing materials have been identified, both at reservoir sites and along any constructed linear facilities associated with the Project. In the event that the Paleontological Resource Specialist determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the Paleontological Resource Specialist shall notify DWR and Reclamation.</p> <p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist and Paleontological Resource Monitor(s) have the authority to halt or redirect construction if paleontological resources are encountered. DWR and Reclamation shall ensure that there is no interference with monitoring activities, as directed by the Paleontological Resource Specialist.</p> <p>DWR and Reclamation shall ensure that the Paleontological Resource Specialist prepares and submits monthly summaries of monitoring and other paleontological resources management activities. The summary shall include the name(s) of the Paleontological Resource Specialist or Paleontological Resource Monitor(s) active during the month, general descriptions of training and monitored construction activities; and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered descriptions of samplings, if any, and a list of identified fossils. A final section of the report shall address any issues or concerns about the Project relating to paleontological resources mitigation activities, including any incidents of non-compliance or any changes to the monitoring plan by the Paleontological Resource Specialist. If no monitoring took place during the month, the report shall include an explanation as to why monitoring was not conducted.</p>	<p>Paleontological resource specialist staffing for construction monitoring. \$250,000 to \$2,000,000</p>
<p><i>Paleo-1f:</i> Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan</p>	<p>DWR and Reclamation, through the designated Paleontological Resource Specialist, shall ensure that all components of the PRMMP are adequately performed during construction.</p>	<p>Paleontological resource specialist project staffing for oversight of plan implementation \$100,000 to \$250,000</p>

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Land-2a:</i> To the Extent Possible, Work with Glenn County to Encourage the County to Modify or Amend the Glenn County General Plan to Bring it into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn County to modify or amend its General Plan for consistency with proposed Project land uses, or to implement other appropriate measures to minimize conflicts between the Project and County policies.	Assume coordination only \$50,000 to \$100,000
<i>Land-2b:</i> Execute an Agreement with NRCS to Amend WRP Easement Contract and Conduct Post-Construction Wetland Restoration	Prior to the start of Project construction, DWR and Reclamation shall execute an agreement with NRCS to amend the existing WRP easement contract to allow the construction and operation of the Delevan Transmission Line and Delevan Pipeline. Project Engineers shall design the transmission line and the construction contractor shall install the transmission line tower footings to span the parcel of land that has the WRP easement (a distance of approximately 680 feet). Project Engineers shall design the pipeline and the construction contractor shall install the pipeline to avoid the wetlands in the subject parcel of land, to the extent feasible. The pipeline length across the subject parcel is approximately 650 feet. Upon completion of pipeline installation, the area that was disturbed by Project construction shall be restored to a functional wetland condition.	Estimate costs for agreement/amendments. Cost of Post construction restoration. Costs for additional monitoring or management of the additional restored area. Assume 3:1 mitigation ratio—see Attachment 5. Refer to wetland mitigation.
<i>Land-3a:</i> To the Extent Possible, Work with Glenn and Colusa Counties to Encourage the Counties to Modify or Amend the Glenn County and Colusa County General Plans' Land Use Designations to Bring them into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn and Colusa counties to modify or amend the counties' General Plan land use designations, or to implement other appropriate measures to eliminate the Project's conflicts with those designations	Estimate costs for coordination only—costs included in <i>Land-2a</i> .

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Land-3b:</i> Execute an Agreement with Maxwell Irrigation District to Minimize and Avoid Short-term and Long-Term Impacts to Existing Facilities and Operations	Prior to the start of Project construction, DWR and Reclamation shall execute an agreement with the Maxwell Irrigation District to ensure that Project construction and operation of the Delevan Pipeline Intake Facilities or the Delevan Pipeline Discharge Facility will not adversely affect the operation of the existing adjacent Maxwell Irrigation District facility.	Costs associated with implementing the agreement would be included under project construction and operation costs. \$50,000 to \$100,000
<i>Land-4a:</i> Enter into Agricultural Conservation Easements with Glenn and Colusa Counties	Establish agricultural conservation easements with Glenn and Colusa counties for lands used for agricultural production to ensure agriculture remains viable in perpetuity and to prevent incompatible development on the selected parcels.	Estimate costs to establish agricultural easements and ongoing reporting/monitoring requirements. Assume 1:1 mitigation ratio—see Attachment 4. \$5,000,000 (land easements)
<i>Land-5a:</i> To the Extent Possible, Work with Glenn and Colusa Counties to Encourage the Counties to Modify or Amend the Glenn County and Colusa County General Plans' Zoning Designations to Bring them into Consistency with the Proposed Project Land Uses	Prior to the start of Project construction, DWR and Reclamation shall, to the extent possible, work with Glenn and Colusa counties to modify or amend the counties' zoning designations, or to implement other appropriate measures to eliminate the Project's conflicts with those designations.	Estimate costs for coordination only—costs included in <i>Land-2a</i> .
<i>Land-5b:</i> Acquire Lands through Eminent Domain	During the Project land acquisition process, DWR and Reclamation shall acquire parcels through eminent domain.	Estimate costs for mitigation measure to be included as part of real estate evaluation.

Attachment 4H. Land Use

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Land-5c:</i> For Land Permanently Acquired other than by Eminent Domain, Seek County Approvals to Rescind Williamson Act Contracts and Enter into Open Space Contracts or Open Space Easements	Prior to permanently acquiring lands other than by eminent domain during the land acquisition process, DWR and Reclamation shall seek County approvals to rescind Williamson Act Contracts and enter into Open Space Use Agreements or Open Space Easements with the counties.	Costs include fee for cancelling Williamson Act contract and establishing open space easements and ongoing reporting/monitoring requirements. Assume approximately \$2,500 per acre—see Attachment 4. Williamson Act Contract cancellation fees (12.5%) approximately. \$5,040,000 (fees)

Attachment 4I. Air Quality

Mitigation Measure	Mitigation Measure Description	Cost Estimate Assumptions
<i>Air Qual -1a:</i> Develop a Fugitive Dust Control Plan	The Fugitive Dust Control Plan shall include avoidance and minimization measures and BMPs to reduce fugitive PM10 and PM2.5 emissions.	Preparation of Fugitive Dust Control Plan. \$100,000 Costs associated with plan implementation to be included in project construction costs.
<i>Air Qual -1b:</i> Implement Measures to Reduce Equipment and Vehicle Exhaust Emissions	<ul style="list-style-type: none"> • All construction equipment shall be maintained according to manufacturer's specifications. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). • During all construction activities, diesel -fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the ARB's Statewide Portable Equipment Registration Program. • All fleets of diesel -fueled off -road vehicles shall comply with the emissions standards pursuant to CCR Title 13, Section 2449. To the extent feasible, operate off -road vehicles with engines certified to the Tier 2 or newer emissions standards. • All on -road trucks shall be operated in compliance with the emission standards per CCR Title 13, Section 2025. To the extent feasible, operate on -road trucks with engines certified to the 2007 model year or newer heavy -duty diesel engine emissions standards. • To the extent feasible, electric equipment shall be operated. • Alternatively fueled construction equipment shall be used, to the extent feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel. • Electricity used to power facilities and equipment shall be generated by renewable energy sources with state -of -the -art emissions control systems, to the extent feasible. 	<p>Costs associated with emissions controls to be included in project construction costs.</p> <p>See Attachment 7 for emissions estimates for construction and O&M.</p> <p>Assume permit will be required for stationary emission sources (i.e., concrete batch plant and quarry operations) during 10-year construction period.</p> <p>\$5,000 per year (permit fees)</p> <p>—</p> <p>Assume permit will be required for stationary emission sources (i.e., back-up emergency generators at the pumping plants) during O&M phase of the project.</p> <p>\$5,000 per year (permit fees)</p>

ATTACHMENT 4

Anticipated Land Use Impacts (Alternative C)

Attachment 5: Designated Land Uses Subject to Impacts (Alternative C)

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)			Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance	Mitigation Acreage	
Number of Potentially Affected Parcels	278	209	NA	NA	NA	NA	NA
Acreage of Potentially Affected Parcels	19,636	26,425	NA	NA	NA	NA	NA
Zoning Designation of Potentially Affected Parcels (Acres)							
Agricultural Preserve	2,100	24,753	NA	NA	NA	NA	NA
Exclusive Agriculture	2,055	1,030	NA	NA	NA	NA	NA
Foothill Agriculture/Forestry	0	450	NA	NA	NA	NA	NA
Floodway	0	14	NA	NA	NA	NA	NA
Intensive Agriculture	0	0	NA	NA	NA	NA	NA
Light or Heavy Industrial	19	0	NA	NA	NA	NA	NA
N/A	43	174	NA	NA	NA	NA	NA
No Information Available	0	1	NA	NA	NA	NA	NA
Designation Undetermined	15,419	3	NA	NA	NA	NA	NA
Total	19,636	26,425	NA	NA	NA	NA	NA
FMMP Designation of Potentially Affected Parcels (Acres)							
Urban and Built-up Land	1	0 ^c	NA	NA	NA	NA	NA
Grazing Land	369	2,601	NA	NA	NA	NA	NA
Farmland of Local Importance	1,624	21,514 ^b	*May or may not need to mitigate for this particular FMMP category (Low range of costs excludes this FMMP designation).	1:1*	NA	1,624	
Local Potential Farmland	144	1,414		NA	NA	NA	NA

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)		Mitigation Acreage	Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance		
Prime Farmland	960	606 ^b	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	960	
Farmland of Statewide Importance	0 ^c	0 ^c	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	0 ^c	
Unique Farmland	1,001	7	Protection of land in same county with same FMMP designation with conservation easement (Mitigation costs presented in Land-4a)	1:1	NA	1,001	
Water	0	3	NA	NA	NA	NA	NA
Other Land	123	287	NA	NA	NA	NA	NA
Designation Undetermined	15,414	3 ^b	NA	NA	NA	NA	NA
Total	19,636	26,425	--	--	--	1,961 to 3,585	--
Number of Potentially Affected Parcels with Williamson Act Contracts	136	113	--	--	--	--	--
Acreage of Potentially Affected Parcels with Williamson Act Contracts	16,126	22,689	--	--	--	--	--

Descriptor	Acreage		Mitigation Approach	Anticipated Mitigation Ratio (as applicable)		Mitigation Acreage	Estimated Cost
	Permanent Loss ^b	Temporary Disturbance		Permanent Loss ^b	Temporary Disturbance		
	Number of Potentially Affected Parcels with WRP Easements	1		0	--		
Number of Potentially Affected Acres with WRP Easements	7	0	--	--	21	Assume cost comparable to obtaining mitigation credits.	

Notes:

- ¹ Acreages for land use impacts for Alternative C are from Tables 20-27 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013).
- ^a Totals may not match due to the rounding of individual acreages that comprise the totals.
- ^b A total of 2.5 acres would under Alternative A and C would be permanently disturbed from transmission line poles, but due to pole locations being currently unknown, the affected FMMP category cannot currently be determined. Therefore, 2.5 acres under Alternative A and C of land more than the total listed in Long-Term Impacts would be permanently affected.
- ^c There is less than one acre in these categories, but more than zero.

FMMP = Farmland Mapping and Monitoring Program

WRP = Wetland Reserve Program

ATTACHMENT 5

Vegetation Community and Habitat Impacts (Alternative C)

Attachment 6. Acres of Habitat/Wetlands Subject to Alternative C Impacts^{1,a}

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site)	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance	Restoration/Mitigation Banking	Permanent Loss ^b	Temporary Disturbance			Low	High
Botanical Resource/Vegetation Community										
Annual grassland	Sidalcea keckii and Amsinckia lunaris	13,694.7	2,091.5	Assume 4,000 to 5,000 acres support CNPS recommends 1:1 for species Mitigation for permanent loss would be off-site mitigation.	1:1 to 3:1	1:1		\$2,000 to \$2,500 per acre Temporary mitigation included in construction costs	\$35,389,400	\$115,210,250
Alkaline wetland		0.5	14.0	*May affect an additional 14 acres of wetland (per MM Bot-1a) See wetlands impacts below	2:1 to 3:1	--			below	below
Blue oak woodland	Sidalcea keckii and Amsinckia lunaris and Lotus rubriflorus	478.6	353.5	*All known occurrences of <i>Lotus rubriflorus</i> are on private land or utility corridors (assume 5 to 10% of the acreage would include plant species) CNPS recommends 1:1 for species	1:1			\$2,500 to \$3,000 per acre	\$59,825	\$143,580
Blue oak savanna		375.5	269.7		see below			\$2,500 to \$3,000 per acre	below	below
Blue oak /mixed chaparral	Lotus rubriflorus	33.4	21.1	Assume 5-10% acreage to include plant species) CNPS recommends 1:1 for species	1:1			\$2,500 to \$3,000 per acre	\$4,175	\$10,020
Canal		9.1	14.1	Impacts mostly associated with Holthouse Reservoir 7.1 acres is the existing TC canal (no GGS) 0.9 acre for regulating reservoir (TRR) GCID improvements associated with temporary disturbance.	1:1 to 3:1		Assume 1 acre permanent loss for GGS Assume no suitable habitat would be temp disturbed.	\$20,000 per acre	\$20,000	\$60,000
Chamise		0.6	2.1	Assume no mitigation needed; can be avoided					--	--
Crops/agriculture		700.0	2,307.7	No additional mitigation required beyond agricultural impacts					--	--
Fremont cottonwood riparian		1.1	0.0	See VFR					below	below
Fresh emergent wetland		0.0	4.5	See VFR					below	below
Mixed chaparral		0.8	1.8	See VFR					below	below
Pond		22.4	226.6	See VFR					below	below
Open water		1.6	0.0	See VFR					below	below
Urban/disturbed		90.8	46.9	See VFR					below	below
Valley foothill riparian		82.6	4.0	See VFR					below	below
Valley oak riparian		26.5	0.1	See VFR					below	below
Valley oak woodland		3.5	0.0		1:1 to 3:1			\$2,500 to \$3,000 per acre	\$8,750	\$31,500
Botanical Resources TOTAL		15,521.7	5,357.6						\$35,482,150	\$115,455,350

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site)	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance	Restoration/Mitigation Banking	Permanent Loss ^b	Temporary Disturbance			Low	High
Wildlife Habitats										
Barren		0.2	21.4	Assume no mitigation needed					--	--
Blue oak woodland	CRLF (also associated with blue oak foothill pine), GE; SH; WSF	887.5	644.3		2:1 to 5:1	1:1		\$2,500 to \$3,000 per acre	\$6,048,250	\$15,245,400
Canal	GGS, WPT	9.1	14.1	Assume no mitigation needed	3:1 for GGS*	1:1 for GGS*			above	above
Chamise-redshank chaparral		0.6	2.1	Assume no mitigation needed; can be avoided					--	--
Deciduous orchard	*confirm whether associated with GGS (pg. 14-6)	15.4	175.1	Include for GGS for any Orchard east of I-5	3:1 for GGS*	1:1 for GGS*	Assume 15.4 permanent only	\$4,000 to 5,000 per acre	\$184,800	\$231,000
Dryland grain and seed crops	SH - Swainson's hawk	333.2	214.5	Assume 25%-50% acreage would be suitable foraging habitat.	0.5:1	--		\$2,000 per acre	\$83,300	\$166,600
Eucalyptus		0	46.2	Assume no mitigation requirement	--	--			--	--
Fresh emergent wetland	GGS; CRLF; GSC4, GE	0.5	18.5		3:1 for GGS*	1:1 for GGS*	20.0		below	below
Irrigated row and field crops	SH - Swainson's hawk	155.6	225.7	Assume 25%-50% acreage would be suitable foraging habitat.	0.5:1			\$2,500 per acre	\$48,625	\$97,250
Lacustrine	BE	22.4	226.6	Assume no mitigation needed; reservoir will be expanded					--	--
Mixed chaparral		0.8	1.8						above	above
Pasture	GSC, FH; BO; WTK	72.7	241.2		1:1	--		\$4,000 to \$5,000 per acre	\$290,800	\$363,500
Rice	GGS	122.9	1,383.6	Assume all rice suitable GGS habitat	3:1 for GGS*	1:1 for GGS*	1,752.3	\$4,000 to \$5,000 per acre	\$7,009,200	\$8,761,500
Riverine	BE, BS	1.6	0	Associated with fish screen Assume on-site restoration	2:1 to 3:1	--		Costs to be estimated as part of project design and construction	NA	NA
Urban/disturbed		90.8	46.9						--	--
Valley foothill riparian	GGS; VELB; CTS; BE; SH, WYBC; VRI; WPT; RT	110.2	4.1	The mitigation for loss of other wildlife habitat types could potentially compensate for the native planting requirement for elderberry plant mitigation. Elderberry plants are typically replaced at a ratio of 2:1 for stems greater than one inch in diameter; 3:1 for stems where emergence holes are documented in less than 50 percent of the shrubs, and 5:1 for stems greater than one inch in diameter with emergence holes 672 elderberry stems surveyed within the proposed Sites Reservoir footprint; emergence holes were found on 18 stems. [ASSUME 3:1 for VELB mitigation]	3:1 for GGS* 4:1	1:1 for GGS*		\$2,500 to \$3,000 per acre	\$836,750	\$1,004,100
Valley oak woodland	SH	3.5	0	See botanical above				\$2,500 to \$3,000 per acre	above	above

Vegetation/Habitat Type	State-Federally-Listed Species Associations within Primary Study Area ^{1,2,3,4,5,6,7,8,9}	Acreage		Assumptions for Mitigation Approach (On-site/Off-site)	Anticipated Mitigation Ratio		Estimated Mitigation Acreage	Estimated Cost/Acre	Mitigation Cost	
		Permanent Loss ^b	Temporary Disturbance	Restoration/Mitigation Banking	Permanent Loss ^b	Temporary Disturbance			Low	High
Wildlife Habitats TOTAL	--	15,521.7	5,357.6		--	--			\$14,501,725	\$25,869,350
Wetland Type										
Alkaline		37.0	--	Includes an additional 19.5 acres adjacent to Assume a total of 27 acres requiring mitigation. Assume off-site mitigation	2:1 to 3:1		150k to 200k/acre		\$8,100,000	\$27,000,000
Emergent		2.4	--	Assume off-site mitigation	1:1 to 5:1		100k to 150k/acre		\$240,000	\$1,800,000
Riparian		25.0	--	Riparian wetland mitigation assumed to be covered under VFR.					above	above
Seasonal		182.4	--		1:1 to 5:1		100k to 150k/acre		\$18,240,000	\$136,800,000
Vernal Pool		5.5	--	Vernal pool mitigation assumed to be covered under annual grassland					above	above
Wetlands TOTAL		252.3	--						\$26,580,000	\$165,600,000
Total Pond Acres ^b		35.8	--	Assume no mitigation needed. It is assumed that ponds within pipeline alignment can be avoided. Other "pond" impacts would be mitigated as part of vegetation community mitigation likely to include pond features like grassland or riparian.					--	--
Total Streams		227.7		Assume on-site restoration	2:1		455.4		NA	NA
Streams 0-5 Feet Wide		6.0	--	Assume on-site restoration	2:1		12		NA	NA
Streams 5-10 Feet Wide		15.1	--	Assume on-site restoration	2:1		30.2		NA	NA
Streams 10-15 Feet Wide		13.3	--	Assume on-site restoration	2:1		26.6		NA	NA
Streams <15 Feet Wide		77.0	--	Assume on-site restoration	2:1		144		NA	NA
Streams >15 Feet Wide		116.3	--	Assume on-site restoration	2:1		232.6		NA	NA
Other Waters of the US TOTAL			--						NA	NA

Notes:

¹Acreages for Botanical Resource/Vegetation Community impacts for Alternative C are from Table 13-29; Acreages for Wildlife Habitats impacts for Alternative C are from Table 14-24; Acreages for Wetland Type impacts for Alternative C are from Table 15-20 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)

State-Federally-Listed Species Associations within Primary Study Area Vegetation Communities

- 1 – Vegetation and Habitat associations are taken from Table 14-3 (Golden Eagle, Western Pond Turtle) and Table 14-5 for Foothill Yellow Legged Frog in DWR 2013.
- 2 – Mitigation ratio for GGS is up to 6:1, if construction is performed during active season (May 1 to October 1).
- 3 – Wildlife habitat for Northern spotted owl - Douglas Fir, redwood, mixed hardwood conifer (MHC)
- 4 – Wildlife habitat for Greater Sandhill crane - Freshwater emergent marsh, Wet Meadow and PAS (Table 14-3) - Wintering habitat in Primary Study Area
- 5 – Wildlife habitat for Ringtail (Riparian habitats)
- 6 – Wildlife habitat for Willow flycatcher (MRI, WTM)
- 7 – Wildlife habitat for Pacific fisher (MHC, SMC)
- 8– Wildlife habitats for bat species (structures, woodland habitats, and orchards near intake)
- 9 – Wildlife habitats for Burrowing owl (Annual grassland and edge of blue oak woodland)

BE - Bald eagle	PF - Pacific fisher
BS - Bank swallow	NSO - Northern spotted owl
BO - Burrowing Owl	RT - Ringtail
CRLF - California red-legged frog	SH - Swainson's hawk
CTS - California tiger salamander	VP Invertebrates - Conservancy fairy shrimp, Vernal pool fairy shrimp, Vernal pool tadpole shrimp
FYLF - Foothill Yellow Legged Frog	VELB - Valley elderberry longhorn beetle
FH - Ferruginous hawk	WF - Willow flycatcher
GE - Golden Eagle	WPT - Western Pond Turtle
GGS - Giant garter snake	WYBC - Western yellow-billed cuckoo
GSC - Greater Sandhill crane	WSF - Western Spadefoot

Botanical Resources/Vegetation Communities

- ^a Total permanent vegetation loss acreage includes the footprint of Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline Road, Delevan Pipeline Electrical Switchyard, and the Delevan Pipeline Intake Facilities. Total permanent loss acreage also includes the estimated permanent loss from construction within the footprint of the Recreation Areas, within the construction disturbance area for the Road Relocations, and from construction of the transmission tower footings associated with the Delevan Transmission Line.
- ^b Total temporary disturbance acreage includes the footprint of the Recreation Areas (minus the acreage of estimated permanent loss) and footprint of the existing Funks Reservoir, as well as the defined construction disturbance areas for the Road Relocations (minus the acreage of estimated permanent loss), Delevan and TRR pipelines, Holthouse to T-C Canal Pipeline, TRR to Funks Creek Pipeline, Delevan Transmission Line, and GCID Canal Facilities Modifications. Total temporary disturbance acreage also includes the estimated construction disturbance areas (outside of the footprints) for Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, and Delevan Pipeline Intake Facilities.
- ^c Total acreage does not include acreage associated with the Project Buffer.

Wildlife Habitats

- ^a Calculated acreage does not include acres associated with the Project Buffer because the location and extent of disturbance is not yet specified.
- ^b Total permanent habitat loss acreage includes the footprint of Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, TRR Pipeline Road, Delevan Pipeline Electrical Switchyard, and the Delevan Pipeline Intake Facilities. Total permanent loss acreage also includes the estimated permanent loss from construction within the footprint of the Recreation Areas, within the construction disturbance area for the Road Relocations, and from construction of the transmission tower footings associated with the Delevan Transmission Line.
- ^c Total temporary disturbance acreage includes the footprint of the Recreation Areas (minus the acreage of estimated permanent loss) and the footprint of the existing Funks Reservoir, as well as the defined construction disturbance areas for the Road Relocations (minus the acreage of estimated permanent loss), Delevan Pipeline, TRR Pipeline, Holthouse to T-C Canal Pipeline, TRR to Funks Creek Pipeline, Delevan Transmission Line, and GCID Canal Facilities Modifications. Total temporary disturbance acreage also includes the estimated construction disturbance areas for Sites Reservoir and Dams, Sites Reservoir Inlet/Outlet Structure, Sites Pumping/Generating Plant, Tunnel from Sites Pumping Generating Plant to Sites Inlet/Outlet Structure, Sites Electrical Switchyard, Field Office Maintenance Yard, Holthouse Reservoir Complex, Holthouse Reservoir Electrical Switchyard, GCID Canal Connection to the TRR, TRR, TRR Pumping/Generating Plant, TRR Electrical Switchyard, and Delevan Pipeline Intake Facilities.

Wetlands and Waters of the US

- ^a The northwest 0.5 acre of swale feeding marsh is within proposed footprint, but hydrologically connected to a 20-acre (estimated minimum area) marsh/swale/vernal pool complex. Wetlands themselves equal 13 acres; entire complex with connecting upland watersheds equal 20 to 40 acres.
- ^b Ponds counted separately from streams.
- ^c Includes 6.1 acres for Salt Lake. All other pond acreages are stock ponds.
- ^d Acres of wetlands and other waters of the U.S. types are unknown because the Project Buffer was added after surveys were conducted; consequently, wetland/WUS features were not mapped.
- ^e Total acreage does not include acreage associated with the Project Buffer, which has not been surveyed or mapped.
- ^f Primary Study Area is defined as the Project facility footprints except for the Delevan Pipeline, which also includes a wider construction disturbance area corridor, and for Holthouse Reservoir complex, where Alkaline wetlands potentially affected include acres adjacent to dam footprint as well as overlapping with the footprint.

ATTACHMENT 6

Air Quality Impacts (Alternative C)

Attachment 7A. Average Daily Emission Rates for Criteria Pollutants by Year for Construction of Alternatives C¹

Construction Year	Emissions (pounds per day)					
	NOx	PM10	PM2.5	ROG	CO	SOx
2013	2,171	344	124	247	833	3
2014	4,487	860	274	508	1,749	6
2015	4,012	765	246	455	1,565	5
2016	4,061	770	250	460	1,593	5
2017	2,286	528	153	257	920	3
2018	990	319	83	109	412	1
2019	990	319	83	109	412	1
2020	892	298	76	98	360	1
2021	98	21	8	11	52	0
Significance Threshold (lb/day)	137	137	n/a	137	n/a	n/a

Notes:

- ¹ Emissions estimates are from Appendix 24 Table 24A.B-1 for construction emissions for Alternatives B and C in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)
- ² The average daily construction emission rates in lb/day for each construction year are the sum of the average daily emission rates estimated for each of the project features that would be constructed in the indicated construction year.
- ³ Bolded values indicate an exceedance of the significance threshold.
- ⁴ Significance Threshold is from Tehama County APCD Level C: Greater than 137 pounds per day of emissions. If emissions from a project would exceed the Level C thresholds, mitigation measures (BAMMs and SMMs), including off-site mitigation measures following the guidelines, may be required to reduce the overall air quality impacts of the project to a level of insignificance (TCAPCD 2009).

Attachment 7B. Construction On-Site Concrete Batch Plant PM10 Emissions¹

Project Feature	Total Concrete Mass (tons)	Number of Days	Daily Rate (tons/day)	PM10 Emissions (lb/day)
Tunnel - Inlet and Outlet Including Sites Pump Plant	77,515	194	400	10.14
Pipelines - Delevan and TRR	11,100	28	396	10.07
Dams & Sites Inundation	85,951	215	400	10.14
TRR Pump Plant	55,500	139	399	10.13
Funks Reservoir Modification	23,773	59	403	10.22
Sacramento River Intake & P/G Plant	55,500	139	399	10.13
Paved Roads & Bridges	186,110	310	600	14.81
GCID Canal & Headworks	21,090	35	603	14.86
Transmission Lines	16,095	40	402	10.20
Recreation	8,780	44	200	5.49

Batch Plants Controlled Emission Factors ^a		
Sand Transfer ^b	0.000297	lb PM10/ton cement
Aggregate Transfer ^b	0.00099	lb PM10/ton cement
Cement Unloading to Storage Silo	0.00034	lb PM10/ton cement
Cement Supplement Unloading to Storage Silo	0.0049	lb PM10/ton cement
Weigh Hopper Loading ^b	0.00072	lb PM10/ton cement
Truck Loading ^c	0.016	lb PM10/ton cement
Total	0.023	lb PM10/ton cement

Notes:

- ¹ Emissions estimates are from Appendix 24 Table 24A.B-11 for concrete batch plant PM10 emissions for Alternatives B and C in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)
- ^a Emission factors from AP-42, Section 11.12, June 2006
- ^b The batch plants will have dust control equipment and was assumed to control dust emissions with an efficiency of 70% during sand and aggregate transfer. Source for control efficiency: BAAQMD Permit Handbook, Section 11.5 Concrete Batch Plants, March 2009
- ^c It was assumed the truck loading process would also include dust controls. Therefore, the controlled truck loading emission factor was used.

Attachment 7C. Summary of Criteria Pollutant Emissions for Operations and Maintenance of Alternatives¹

Summary O&M Emissions (lb/day)						
	NOx	PM10	PM2.5	ROG	CO	SOx
Total Average Daily Emissions (lb/day)	33	7	7	38	1308	0.1
TCAPCD Threshold (lb/day), Level A	< 25	< 25		< 25		
Threshold Exceeded?	Yes, subject to standard mitigation measures	No		Yes, subject to standard mitigation measures		
TCAPCD Threshold (lb/day), Level B	> 25	> 25		> 25		
Threshold Exceeded?	Yes, incorporate Best Available Mitigation Measures	No		Yes, incorporate Best Available Mitigation Measures		
TCAPCD Threshold (lb/day), Level C	> 137	> 137		> 137		
Threshold Exceeded?	No	No		No		

Notes:

- ¹ Emissions estimates are from Appendix 24 Table 24A.D-1 in NODOS Preliminary Administrative Draft Environmental Impact Report (December 2013)
- ² It was assumed that sedans/pickups would travel at a speed of 15 mph which equates to 3 roundtrips per hour at a distance of 5 miles per roundtrip.
- ³ There would be a total of 60 employees supporting work at all sites so the employee commute emissions are represented under the "Reservoirs, Recreation Facilities, Dams, Roads, Bridges" category but this covers all O&M employees.

From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 7/31/2020 10:11:44 AM
To: Spranza, John [John.Spranza@hdrinc.com]; Herrin, Jeff (jeff.herrin@aecom.com) [jeff.herrin@aecom.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Forrest, Michael [michael.forrest@aecom.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Monique Briard (monique.briard@icf.com) [monique.briard@icf.com]; Oakes, Harry [Harry.Oakes@icf.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Mitigation Follow Up

The CVP power issue is something that has come up more lately and likely something we will need to work through with Reclamation for our term sheet next year. They will want to understand better how we will avoid impacts to CVP power generation. I have only just begun to start thinking about this but I expect it will come up in discussions with CVO within the next year.

Erin Heydinger PE, PMP
D 916.679.8863 M 651.307.9758

hdrinc.com/follow-us

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Friday, July 31, 2020 9:48 AM
To: Herrin, Jeff (jeff.herrin@aecom.com) <jeff.herrin@aecom.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Forrest, Michael <michael.forrest@aecom.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Monique Briard (monique.briard@icf.com) <monique.briard@icf.com>; Oakes, Harry <Harry.Oakes@icf.com>
Cc: aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>
Subject: RE: Mitigation Follow Up

Thanks for bringing this up Jeff, it's a great point. I have a few questions so I can better frame this up in my head, and have added folks that I think may need to be involved in this discussion.

- 1) So just O&M, no R correct? This is for CWC and they are not looking at Replacement.
- 2) Will we need to add Replacement at some point for Reclamation's post-feasibility study activities/reassessment of benefits?
- 3) The O&M would be on an annual basis correct? And we are talking about the following areas:
 - a. Surface Water Quality,
 - b. Aquatic Resources,
 - c. Botanical Resources,
 - d. Wildlife Habitat,
 - e. Wetlands Habitat,
 - f. Cultural Resources,
 - g. Land Use (including Agricultural Land),
 - h. Paleontology, and
 - i. Air Quality.
- 4) Emergency management measures, can you expand on this a bit so I better understand the what and the why?
- 5) Would we need Mobilization, Design Contingency, Construction Contingency, Non Contract Cost and Escalation estimates as well?
- 6) CVP power has come up several times in the last week and I have not had it on my radar given my focus area. Laure, Erin and Ali, any thoughts on that?

Thanks.
John

John Spranza

D 916.679.8858 M 818.640.2487

Begin forwarded message:

From: "Herrin, Jeff" <jeff.herrin@aecom.com>

Date: July 30, 2020 at 9:04:35 AM PDT

To: John Spranza <jspranza70@gmail.com>

Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>, "Forrest, Michael" <michael.forrest@aecom.com>

Subject: **Mitigation Follow Up**

John,

Sorry I had to drop off early. Conflicting meetings.

Regarding mitigation for O&M – I think this will prompt comments from the Commission if we don't start to quantify it. There should be some emergency management measures identified. Also, the CVP power contractors are convinced that there are impacts to energy that will need to be characterized. I believe the current version of the Mitigation Plan in the EIR/S only looks at mitigation for construction impacts. Mark Oliver had assumed that mitigation for O&M would come through the permitting process and did not need to be addressed through the Mitigation Plan in the EIR/S. I'm not sure what CEQA/NEPA require, but we need to get our arms around those costs.

There was an update to the Mitigation Cost Estimate in February 2020 that you may not have received previously. I think it was part of the info from Reclamation that is somewhere on your SharePoint site. I've attached it here.

Jeff Herrin

Water Resources Planner, Water Business Unit, Sacramento, CA

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From: Chad.Whittington@jacobs.com [Chad.Whittington@jacobs.com]
Sent: 7/31/2020 11:01:15 AM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: VP7 CalSim Study

Jacobs File Transfer System

Chad.Whittington@jacobs.com has sent you a file archive, with the following message:

This CalSim study (DCR2015_merge_SitesON_WaterFixOFF_CALSIM_DRAFT_11-25-19_P2b_1_5_scnB_1kPipe.7z) was developed for preliminary sensitivity analysis that was included in the Sites Project Value Planning Report, which evaluated conveyance facility sizing. This model was developed to evaluate the volume released from Sites under varying storage and conveyance capacities. It assumes a 1.5 MAF storage capacity, 1,000 cfs release capacity, and diversion criteria from Scenario B. The model assumes old Reclamation exchange logic that was used as a surrogate for the potential non-investment Reclamation exchange with no carry over storage. Consequently, it is not appropriate for detailed analysis of member deliveries or Shasta exchange. Additionally, all Value Planning sensitivity studies are based on a DCR2015 baseline. Future studies will be updated to reflect actions in the 2019 BiOps and 2020 SWP ITP.

If you trust Chad.Whittington@jacobs.com, use the URL below to pick up the file archive (you may need to copy and paste it into your browser):

Download URL: <https://jfft.jacobs.com/download.aspx?ID=3710cae8-bb90-4e81-955a-4262653d15ab&RID=b1c767eb-c569-4968-afbc-e06630f3044e>

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Download contents: dcr2015_merge_siteson_waterfixoff_calSIM_draft_11-25-19_p2b_1_5_scnb_1kpipe.7z

Distribution:

To:aforsythe@sitesproject.org, ELitterman@valleywater.org, Erin.Heydinger@hdrinc.com, KJessop@valleywater.org, Robert.Tull@jacobs.com, Steve.Micko@jacobs.com

Cc:

You have 15 days to pick up this file archive; after 15 day(s) (Midnight 8/15/2020), it will be deleted. This is an automated e-mail. Thank you for using the Jacobs File Transfer System.

From: Whittington, Chad/SAC [Chad.Whittington@jacobs.com]
Sent: 7/31/2020 11:02:15 AM
To: Eric Leitterman [ELeitterman@valleywater.org]; Alicia Forsythe [aforsythe@sitesproject.org]; Katrina Jessop [KJessop@valleywater.org]
CC: Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Micko, Steve/SAC [Steve.Micko@jacobs.com]; Tull, Robert/SAC [Robert.Tull@jacobs.com]
Subject: RE: Sites - CalSIM Model Request for Scenario B

Eric,

I have sent you a file transfer of the Scenario B Value Planning CalSim model (VP7). Let me know if you got the email titled "VP7 CalSim Study". It should include the following link to the transfer:

<https://jftt.jacobs.com/download.aspx?ID=3710cae8-bb90-4e81-955a-4262653d15ab&RID=049459e0-3fc3-4697-b7ba-b4413c71acc5>

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Best,

Chad Whittington
Jacobs
Water Resources Engineer | BIAF
916.286.0354
Chad.Whittington@jacobs.com

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Sacramento, CA 95833
USA
www.jacobs.com

From: Eric Leitterman <ELeitterman@valleywater.org>
Sent: Wednesday, July 29, 2020 3:56 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Katrina Jessop <KJessop@valleywater.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Whittington, Chad/SAC <Chad.Whittington@jacobs.com>
Subject: [EXTERNAL] RE: Sites - CalSIM Model Request for Scenario B

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ERIC LEITTERMAN

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eleitterman@valleywater.org



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5750 Almaden Expressway, San Jose CA 95118
www.valleywater.org

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Sent: Wednesday, July 29, 2020 3:06 PM
To: Eric Leitterman <Eleitterman@valleywater.org>; Katrina Jessop <Kjessop@valleywater.org>
Cc: Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Micko, Steve/SAC <Steve.Micko@jacobs.com>; Whittington, Chad/SAC <Chad.Whittington@jacobs.com>
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Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Reservoir Project | 916.880.0676 |
aforsythe@sitesproject.org | www.SitesProject.org

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CC: Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Micko, Steve/SAC [Steve.Micko@jacobs.com]; Tull, Robert/SAC [Robert.Tull@jacobs.com]
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Thanks Chad. I was able to download the model successfully I have also saved a copy of the caveats to the same folder.

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Sent: Friday, July 31, 2020 11:02 AM
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From: Oakes, Harry [Harry.Oakes@icf.com]
Sent: 7/31/2020 11:13:41 AM
To: John Spranza [John.Spranza@hdrinc.com]; Herrin, Jeff (jeff.herrin@aecom.com) [jeff.herrin@aecom.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Forrest, Michael [michael.forrest@aecom.com]; Heydinger, Erin [Erin.Heydinger@hdrinc.com]; Luu, Henry [Henry.Luu@hdrinc.com]; Briard, Monique [Monique.Briard@icf.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Mitigation Follow Up

There are a couple of ways that "O&M" will need to be addressed as it relates to the resource areas that ICF will be addressing (see list under #3 in John's email below).

First there are O&M related impacts & costs associated with Reservoir & Conveyance activities follow completion of construction. A couple of examples (which I'm making up) could be:

- Jurisdictional wetland or species impacts associated with periodic dredging of ponds/canals,
- take from operation and as-needed maintenance of pumps

My assumption is that the impacts associated with this type of O&M would be identified by the team as a whole during the planning and design and permitting phases and any environmental mitigation required would be outlined in the MMs. ICF would address costs for mitigation for on-going temporal impacts to biological resources, while others would address the cost of actually performing these types of O&M actions.

The second O&M cost – which ICF would address - would be cost related to maintaining or monitoring mitigation areas (e.g., long-term weed control on mitigation areas, Long-term land mngt costs).

Examples are presented on Pg ATT 4-4 of the report attached to John's last email. MMM Bot-3a pertains to weed management & Bot-4 cover some vegetation monitoring. Both include an O&M costs related to the establishment/maintenance of biological resource mitigation actions.

I hope this helps clear up some of the O&M discussion.

Harry

HARRY OAKES | Restoration Ecologist | Certified Arborist (ISA No. WE-6496A)
+1.916.231.9600 direct or +1.916.737.3000 main | harry.oakes@icf.com | icf.com
ICF | 980 9th Street, Suite 1200, Sacramento, CA 95814 USA | +1.916.752.7938 mobile

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From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Friday, July 31, 2020 9:48 AM
To: Herrin, Jeff (jeff.herrin@aecom.com) <jeff.herrin@aecom.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>; Forrest, Michael <michael.forrest@aecom.com>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Luu, Henry <Henry.Luu@hdrinc.com>; Briard, Monique <Monique.Briard@icf.com>; Oakes, Harry <Harry.Oakes@icf.com>
Cc: aforsythe (aforsythe@sitesproject.org) <aforsythe@sitesproject.org>
Subject: RE: Mitigation Follow Up

Thanks for bringing this up Jeff, it's a great point. I have a few questions so I can better frame this up in my head, and have added folks that I think may need to be involved in this discussion.

- 1) So just O&M, no R correct? This is for CWC and they are not looking at Replacement.
- 2) Will we need to add Replacement at some point for Reclamation's post-feasibility study activities/reassessment of benefits?
- 3) The O&M would be on an annual basis correct? And we are talking about the following areas:
 - a. Surface Water Quality,
 - b. Aquatic Resources,
 - c. Botanical Resources,
 - d. Wildlife Habitat,
 - e. Wetlands Habitat,
 - f. Cultural Resources,
 - g. Land Use (including Agricultural Land),
 - h. Paleontology, and
 - i. Air Quality.
- 4) Emergency management measures, can you expand on this a bit so I better understand the what and the why?
- 5) Would we need Mobilization, Design Contingency, Construction Contingency, Non Contract Cost and Escalation estimates as well?
- 6) CVP power has come up several times in the last week and I have not had it on my radar given my focus area. Laure, Erin and Ali, any thoughts on that?

Thanks.
John

John Spranza

D 916.679.8858 M 818.640.2487

Begin forwarded message:

From: "Herrin, Jeff" <jeff.herrin@aecom.com>
Date: July 30, 2020 at 9:04:35 AM PDT
To: John Spranza <jspranza70@gmail.com>
Cc: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>, "Forrest, Michael" <michael.forrest@aecom.com>
Subject: **Mitigation Follow Up**

John,

Sorry I had to drop off early. Conflicting meetings.

Regarding mitigation for O&M – I think this will prompt comments from the Commission if we don't start to quantify it. There should be some emergency management measures identified. Also, the CVP power contractors are convinced that there are impacts to energy that will need to be characterized. I believe the current version of the Mitigation Plan in the EIR/S only looks at mitigation for construction impacts. Mark Oliver had assumed that mitigation for O&M would come through the permitting process and did not need to be addressed through the Mitigation Plan in the EIR/S. I'm not sure what CEQA/NEPA require, but we need to get our arms around those costs.

There was an update to the Mitigation Cost Estimate in February 2020 that you may not have received previously. I think it was part of the info from Reclamation that is somewhere on your SharePoint site. I've attached it here.

Jeff Herrin
Water Resources Planner, Water Business Unit, Sacramento, CA
D +1-916-679-2084 IPT 264-679-2084
M +1-916-432-0956

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