Operations & Engineering Workgroup

May 13, 2026

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Agenda

1.1 Budgetary Considerations for Lower CBD within Baseline Report
1.2 Discuss process for updating program schedule and budget for Baseline Report

Engineering and Construction Manager's Report

Agenda Item 1.1

Budgetary Considerations for Lower CBD within Baseline Report

Rob Natoli

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Current Cost Included for the Lower CBD

RN1

- Current estimate includes the following Lower CBD Costs
  - Risk based contingency for river – $64,750,000

Slide 4

RN1 Review / confirm
Rob Natoli, 2026-04-28T22:43:15.266

RN1 0 Anything else we are carrying in the current estimate?
Lower CBD Embankments?
Other Lower CBD Improvements?
Rob Natoli, 2026-04-29T18:58:26.612

RP1 1 The HC May 2025 revised 30% cost estimate does not include any lower CBD improvements. In the risk based design contingency of 18% we do hav
a general contingency portion for unknown items that is $89 M
Rude, Pete/RDD, 2026-05-01T15:28:14.388

Lower CBD Potential Cost Additions

- **West bank and internal berm improvements**
  - Level of Service Assessment: To protect Ag Land from inundation with 1,000 cfs of Project Flow, need about 5. 8 miles of west bank improvements (5% design)
  - **$18 Million construction cost for 5.8 miles of west bank improvements**
  - Two years of additional planning/permitting
  - Update CEQA/NEPA documents for change of project scope by adding west bank improvements, then amend associated permits RN1
- **Potential water losses**
  - Potential water loss down KLRC – Negligible with Wallace Weir closed
  - **Conveyance water losses in CBD estimated at around 2 to 5%**
  - Unauthorized potential take of water - TBD

Slide 5

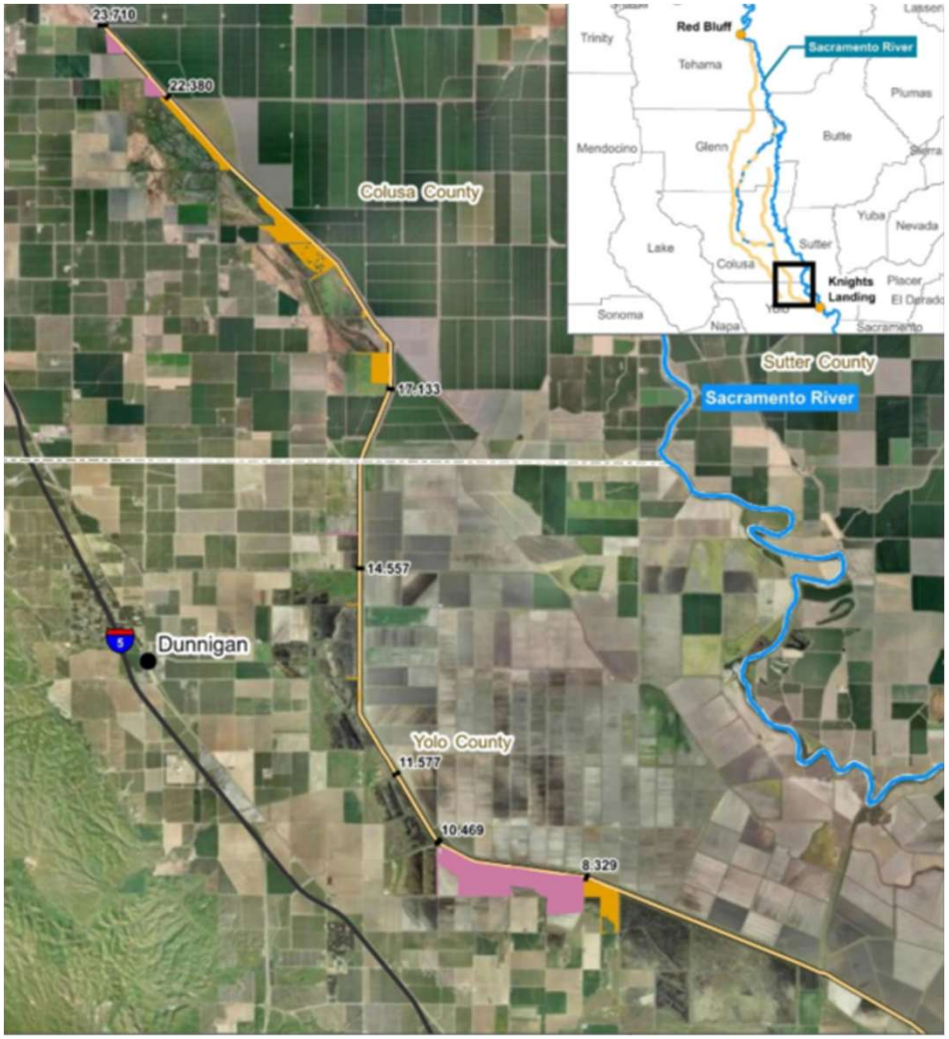
RN1 Confirm with Spranza?
Rob Natoli, 2026-04-29T23:39:27.815

NR1 0 Richard to check with Permitting re what changes expected with no berms.
Newens, Richard, 2026-04-30T00:13:46.372

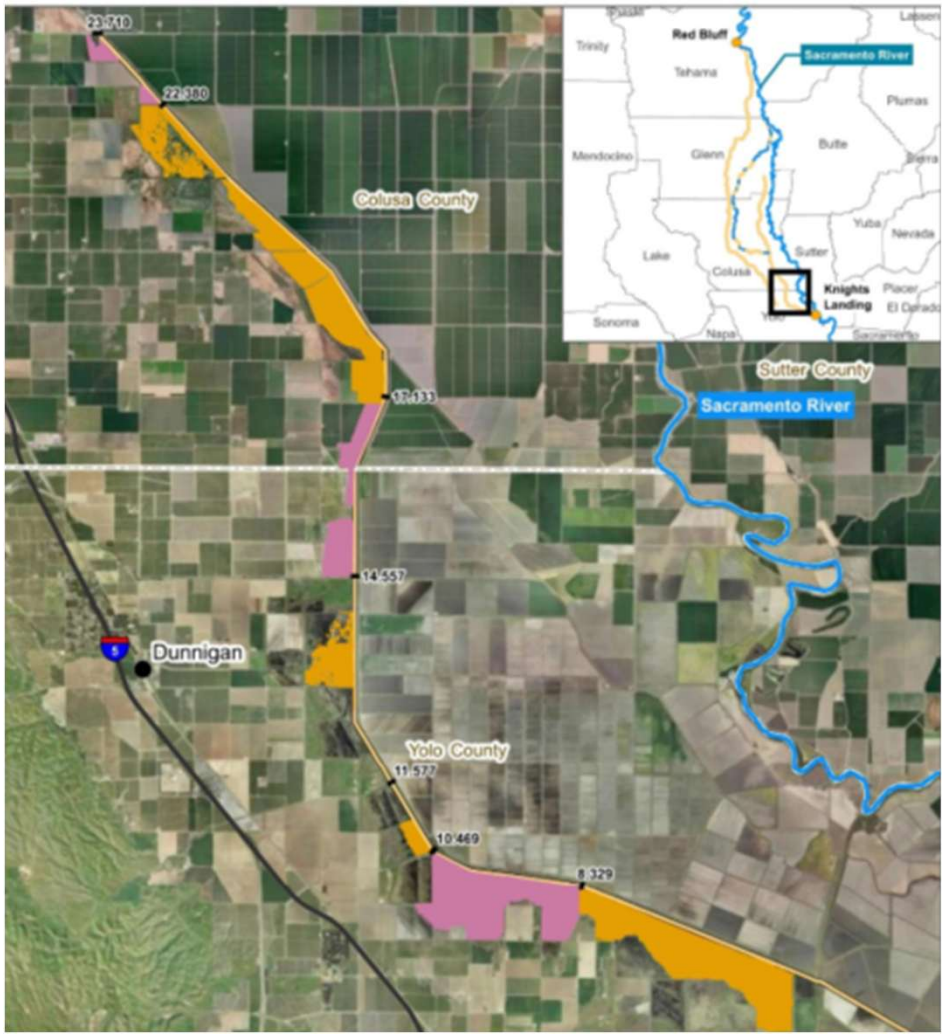
NR1 1 From Spranza:

If no improvements are made to the west bank, it appears we would revert to what was originally analyzed in the EIR/EIS and the associated permits. Under that scenario, mitigation costs would likewise revert, and the additional 12% identified below would be removed.
Newens, Richard, 2026-05-01T15:03:32.179

3/26 Lower CBD Working Group Modeling Results Presented



Ambient Conditions during Late August Peak Flow (1,870+/- cfs)



Ambient Peak (1,870 cfs) + 1,000 cfs from Sites

RN1

Transitioning Focus to Operational Solutions in the Lower CBD

Landowner feedback on conservation easement land impacts	O&M impacts Waterway access onto properties
New Berms expose Sites to assume flood risk in winter operations due to real or perceived impacts	Inundation and drain back impacts
Ag Landowners/farmers stated preference for crop damage compensation when impacted vs. berms to protect	
Need to modulate or turn off Sites flows when GCID rice drain or a fall storms hit Lower CBD to avoid inundation impacts	i.e. Operate to max. WSEL levels / max flows in the CBD
Recommended Assumption: No berm improvements in the Lower CBD. No berm costs added to the Baseline budget.	

Slide 7

RN1 Clean up

Rob Natoli, 2026-04-29T23:35:16.598

Potential NPV Costs of Measurement Differential (i.e. Losses)

- NPV Calculation Assumptions:
  - $2,000/AF
  - 50-year lifecycle (1st 8 years no water)
  - 2% discount rate
  - Water right application – Top Speed scenario used, used average annual flow
- NPV Results for estimated loss range:

50-year NPV w/ 2% Losses	50-year NPV w/ 5% Losses
$134m	$334m

- Pipeline to River Construction Cost Addition $315m

Recall: Conveyance water losses in CBD estimated around 2 to 5%

Key Takeaway: The NPV cost of losses around 5% are similar to the construction costs of a pipeline to the river

RP1

Pipeline to River Considerations

- Preliminary Assessment of Pipeline to River
  - Access, crop, and leased land impacts
  - Discharge location coordination
  - CBD benefits missed = missed opportunity
- Meeting planned with RD 108 to discuss Pipeline to River in more detail in Late May
- Once decision made to start pipeline to river, flowing water through pipe will take 6-7(+/-) years
  - Time and costs associated with Design, CEQA/NEPA, Geotech, permitting, land acquisition/easements, final design, construction, O&M
  - **Total other costs: $75m**

RN2

Slide 9

RP1 I would review this slide with Lewis or Jordan before I would present it, as it paints them into a corner. Might leave out first bullet point. Second bullet could be reworded by taking out the words "understanding of" then its just generic and does not implicate RD108. Happy to discuss.
Rude, Pete/RDD, 2026-05-01T15:33:50.816

NR1 0 Agreed. Also suggest replacing the word “issues” with something like “Preliminary assessment”.
Newens, Richard, 2026-05-01T20:33:28.140

RN2 JP – per Jerry, he wants to make sure we capture these additional costs outside of capital, that goes against most other conversations/direction to date. $38m for mitigation is from John Spranza. The others are my rough estimates.
Rob Natoli, 2026-05-11T18:47:02.640

RN2 0 Main question here is: Do we want to include this? If so, do we bump up the baseline budget increase to cover it?

Most folks input has been this is a construction cost estimate, so do not include. We don't know these numbers yet. Jerry's comment I recorded above is looking through a different lens.
Rob Natoli, 2026-05-13T15:48:47.606

JR2 1 Yes, we need to include all costs.
JP Robinette, 2026-05-13T18:52:49.959

Recommend Cost Changes for Baseline Budget

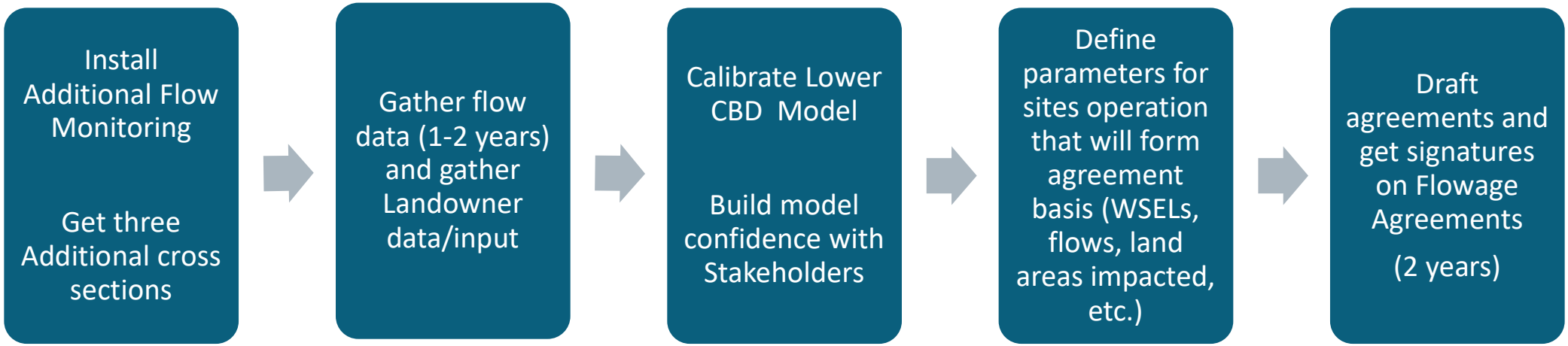
1. Add costs to cover a pipeline to river to the Baseline Budget
   - Effectively carries a hybrid alternative forward (L CBD + pipeline)
   - Budget acknowledges NPV costs of Lower CBD 5%+/- loss potential
   - **Adds $325m ($315m + $75m – $65m) to Baseline Budget**

2. Initiate 30% design, BODR, and other schedule critical tasks for Pipeline to River as operational parameters/flowage agreements in the Lower CBD analysis is advanced

***Anticipated decision timeline for Lower CBD, Pipeline to River, or Hybrid is 2-3 years out.*

RN1

Key Steps to Setting Operational Parameters and Establishing Flowage Agreements



- Process on hold until 2027
- Calibrated model needed to hone Lower CBD Sites capacity impacts during transfer window from:
  - 2 weeks +/- of rice field drain (Late August/Early Sept)
  - Fall storms
- Operational Parameters timeline: 2029-30
- Flowage Agreement timeline: 2031-32

Slide 11

RN1 This is a potential bullpen slide – but this is the why for the “decision timeframe”
Rob Natoli, 2026-05-11T19:05:13.304

Agenda Item 1.2

Process for Updating Program Schedule and Budget for Baseline Report

Rob Natoli and Kyle Hughes

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Key Terms

Constant dollars (real dollars) = your "apples-to-apples" view. You pick a **base year** (e.g., 2026) and express *all* costs in that year's purchasing power (inflation removed).

Year-of-expenditure (YOE) / nominal dollars = "actual dollars based on the project schedule." You escalate each cost element to the year it's spent (inflation included). This is what cash flow / financing / budget authority usually cares about.

Summary of Schedule and Budget Updates for Baseline Report



Constant dollars updates



Value Engineering



Schedule Updates



Year-of-Expenditure (YOE) Updates

Constant Dollar Updates

Escalation

- Update from 2024 to 2026 dollars via Reclamation Indices
- Will result in percent increase to Constant Dollar Cost Estimate

Lower CBD

- As discussed in O&E Topic 1.1 above
- Adds $325m to function as a captured contingency for a Pipeline to the Sacramento River / or cost coverage for losses

Value Engineering

Evaluating / Refreshing Value Engineering for:

Conveyance, Reservoir and Roads, Mitigation, O&M

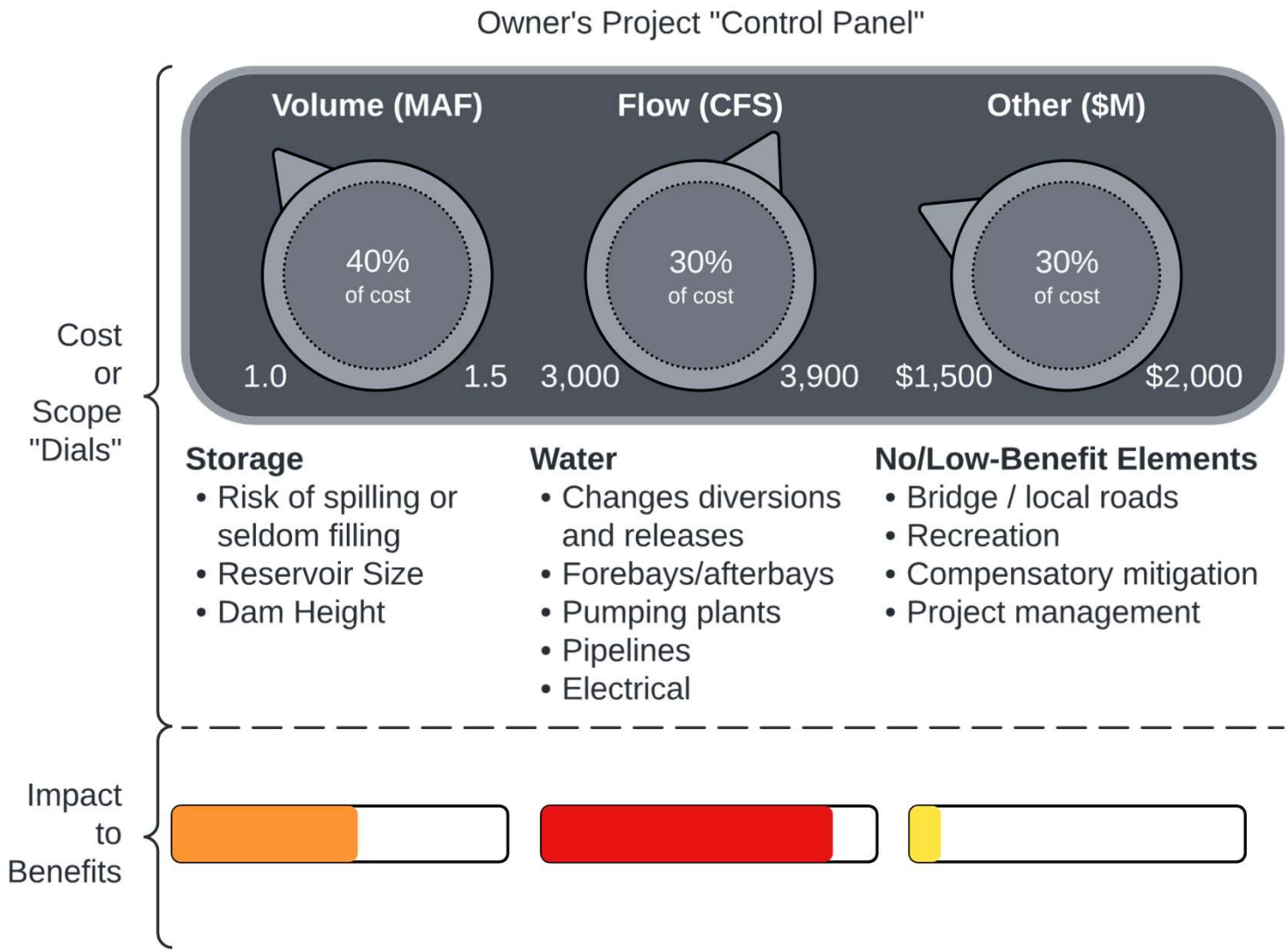
Value Engineering Opportunities being developed by Area

Value Engineering TM will be a Baseline Report Appendix

Not taking credit for Value Engineering Opportunity Savings in Baseline Report

What is not Included in the Value Engineering?

Value engineering ideas that move Control Panel "Dials" are excluded from current value engineering, except for the "Other" dial



Value Engineering by Area

Conveyance	• Reviewed Jacobs Value Planning from July 2025 • Two Meetings with Jacobs, created select new value engineering table entries, limited updates RN1
Reservoir and Roads	• AECOM, Barnard and Sites staff working to validate past VE ideas and identify new VE concepts RN2
Mitigation	• Pending Water Right, potential change in aquatic mitigation requirements
O&M	• Validated power cost and revenue assumptions based on current market conditions

Slide 18

RN1 Kyle - Please update. We can change the slide format too, if this doesn't work for you.
Rob Natoli, 2026-05-11T19:05:42.273

RN2 Henry, please update.
Rob Natoli, 2026-05-11T19:05:49.547

RN1

Reservoir and Roads – Value Engineering

- Barnard is working with AECOM and Staff to validate costs savings with previously identified VE concepts, such as the Golden Gate Dam realignment
- Barnard is looking at other VE / constructability concepts that have significant cost reduction potential, such as:
  - Optimized haul road alignments that reduce earthwork needs
  - Producing certain aggregate materials from onsite sources, as opposed to importing
  - Various design optimization concepts

Slide 19

RN1 Kyle slide - please update.
Rob Natoli, 2026-05-11T19:05:59.449

Schedule Update Plan

- Reservoir CMAR: Barnard is working with Staff to validate the Reservoir timeframes of the Board accepted Program 2033 completion schedule.
  - As part of this review, if a material change in the overall completion is recommended, a further update will be provided to the O&E Work Group.
  - What continues to be clear in coordination with Barnard is the schedule will be driven by the critical enabling activities that precede construction: land access/purchase, environmental surveying work, compensatory mitigation, permit authorizations, geotechnical investigations, developing access, design, and DSOD approvals.
- Conveyance side: No updates, updates pending CMAR onboarding in 2027

Year of Expenditure Updates

Use Barnard schedule updates/ programmatic schedule to apply dollars to actual years spent

Will build to larger number than Constant Dollar Estimate as majority of costs will have several years of escalation

Include both a Constant Dollar and Year of Expenditure cost in the Program Baseline Report.

Constant Dollar cost and schedule reviewed in June

Baseline Report delivered in July

Summary

- Leveraging CMAR – Builder perspective/Input
  - Constructability
  - Value Engineering
  - Schedule and cost verification is happening and being incorporated into the Baseline Report
  - Focusing on enabling activities, such as land acquisition and environmental surveying, continues to be paramount to schedule success
- Costs and Schedule updates
  - Questions? Clarifications?

Engineering and Construction Manager's Report

JP Robinette

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Engineering and Construction Manager's Report

- Conveyance CMAR Procurement
- Reservoir and Roads CMAR - Status Report
- Future Topics

Questions?

Thank you!

Upcoming Meetings:

Reservoir Committee and Authority Board:
Friday May 22 – 9 am to 12 pm

O&E Workgroup:
Wednesday July 8 – 1:30 to 3:30 pm

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