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RECLAMATION DISTRICT NO. 1000
BOARD OF TRUSTEES
REGULAR BOARD MEETING

FRIDAY, OCTOBER 20, 2023
8:00 A.M.

DISTRICT OFFICE

1633 GARDEN HIGHWAY
SACRAMENTO, CA 95833

Members of the public may participate in this meeting in person. Members of the public will have an opportunity to address the Board during Public Comment. Comments may also be emailed prior to the meeting to kking@rd1000.org.

1. **PRELIMINARY**

   1.1. Call Meeting to Order
   1.2. Roll Call
   1.3. Approval of Agenda
   1.4. Pledge of Allegiance
   1.5. Conflict of Interest

2. **PRESENTATIONS**

   No Scheduled Presentations

3. **PUBLIC COMMENT (NON-AGENDA ITEMS)**

   Any person desiring to speak on a matter which is not scheduled on this agenda may do so under the Public Comments section. Speaker times are limited to three (3) minutes per person on any matter within RD 1000's jurisdiction, not on the Agenda.

   Public comments on agenda or non-agenda items during the Board of Trustees meeting are for the purpose of informing the Board to assist Trustees in making decisions. Please address your comments to the President of the Board. The Board President will request responses from staff, if appropriate. Please be aware the California Government Code prohibits the Board from taking any immediate action on an item which does not appear on the agenda unless the item meets stringent statutory requirements (see California Government Code Section 54954.2 (a)).

   Public comments during Board meetings are not for question and answers. Should you have questions, please do not ask them as part of your public comments to the Board. Answers will not be provided during Board meetings. Please present your questions to any member of RD 1000 staff via e-mail, telephone, letter, or in-person at a time other than during a Board meeting.

4. INFORMATIONAL ITEMS

4.1. GENERAL MANAGER'S REPORT: Update on activities since the Sept. 2023 Board Meeting.

4.2. OPERATIONS MANAGER'S REPORT: Update on activities since the Sept. 2023 Board Meeting.

4.3. DISTRICT COUNSEL'S REPORT: Update on activities since the Sept. 2023 Board Meeting.

5. CONSENT CALENDAR

The Board considers all Consent Calendar items to be routine and will adopt them in one motion. There will be no discussion on these items before the Board votes on the motion, unless Trustees, staff or the public request specific items be discussed and/or removed from the Consent Calendar.

5.1. APPROVAL OF MINUTES: Approval of Minutes from the September 8, 2023 Board Meeting.

5.2. TREASURER'S REPORT: Approve Treasurer's Report for September 2023.

5.3. EXPENDITURE REPORT: Review and Accept Report for September 2023.

5.4. BUDGET TO ACTUAL REPORT: Review and Accept Report for September 2023.

5.5. WARRANT FOR FUND TRANSFER: Review and Consider Approval of Warrant for Transferring Funds between Investment Accounts.

5.6. PROFESSIONAL SERVICES AGREEMENT: Review and Consider Authorizing the General Manager to Execute a Professional Services Agreement with KSN, INC. for Pumping Plant 8 – Final Design.

6. SCHEDULED ITEMS

6.1. AUTHORIZATION TO OPPOSE INITIATIVE 21-0042A1: Review and Consider Adoption of Resolution No. 2023-10-01 Authorizing General Manager to Join the "NO "on Initiative 21-0042A1 coalition, on behalf of Reclamation District No. 1000.

6.2. CALMUTUAL (JPRIMA) ELECTION OF BOARD DIRECTORS: Review and Consider Selection of CalMutual Board of Directors.

7. BOARD OF TRUSTEE'S COMMENTS/REPORTS

7.1. BOARD ACTIVITY UPDATES:

7.1.1. RD 1000 Committee Meetings Since Last Board Meeting

- Urbanization Committee (Lee Reeder & Smith) September 21, 2023
- Executive Committee (Lee Reeder & Gilbert) October 4, 2023

8. CLOSED SESSION

8.1. CONFERENCE WITH LEGAL COUNSEL – Anticipated Litigation (Pursuant to Gov. Code § 54956.9(d)(4).) Number of Cases: (1)

9. RECONVENE TO OPEN SESSION

9.1. REPORT ON CLOSED SESSION: Report any reportable action taken by the Board during Closed Session.

10. ADJOURN

RECLAMATION DISTRICT 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 4.1**

TITLE: **General Manager's Report – October 2023**

SUBJECT: **Update on Activities Since the September 2023 Board of Trustees Meeting**

EXECUTIVE SUMMARY:

This Staff Report is intended to report the noteworthy activities and events of the District. Noteworthy activities from September 2023 is provided below:

1. **Administration Services**
   a. Human Resources
      i. No Update.
   b. Fiscal Year 2023-2024 Budget
      i. Budget Timeline: The intent of the schedule provided below is to outline the steps and milestones necessary to have a final budget ready for the Trustees to consider for adoption at the July 2023 scheduled Board Meeting.
         - **Personnel Committee** (April 5th) – Met and reviewed Staff's recommendation on Cost-of-Living Adjustments (COLA), Salary Adjustments, and Benefits including Retirement Contributions.
         - **Operations Committee** (Week of April 11th) – Met and reviewed Budget assumptions for Operations & Maintenance (O&M) and Capital Improvement Program (CIP).
         - **Finance Committee** (Week of April 17th) – Met and reviewed Draft Budget and Projected Cash Flow Analysis.
         - **RD 1000 Board Meeting** (May 12, 2023) - Present Draft Budget to Trustees for review and comment. Staff to receive comments from the Trustees and adjust as directed.
         - **RD 1000 Board Meeting** (June 16, 2023) – Present Final Budget to Trustees for consideration of adoption.

2. **District Operations**
   a. Routine Operations & Maintenance:
      i. District Crews continue to perform routine maintenance and operations of the District's infrastructure. See Agenda Item 4.2 for information regarding activities performed in September2023.

b. Status Of District Pumping Plants

i. PUMPING PLANT #1A

- Fully Operational

ii. PUMPING PLANT #1B

- Fully Operational
- Emergency generator operational

iii. PUMPING PLANT #2

- Pump #1 MCC Cabinet failure. MCC switch gear order has been placed, ETA is July 2024.

iv. PUMPING PLANT #3

- Fully operational

v. PUMPING PLANT #4

- Pump testing complete. Still waiting for dual voltage switch gear and permanent power from PG&E. Temporary power for the motor heaters has been complete.

vi. PUMPING PLANT #5

- Fully operational

vii. PUMPING PLANT #6

- Pumps 1-3 fully operational. Diagnosis of pump #4 needs to be performed, motor will not turn.

viii. PUMPING PLANT #8

- Pumps #4 & #5 are non-operational due to shorted conductors from the motors to the MCC cabinets, repairs will be performed during the non-flood season.

3. Capital Improvement Projects

a. CIP Update

i. KSN is developing a preliminary design concept-based project phasing as it relates to Pumping Plant #8, including potential property acquisition and construction drawings. The report is expected to be complete this month.

4. Development Project Updates

a. MAP

i. Reviewed updated drainage study and provided comments. Pending mapping north of I-5. All modeling supports the need for installing the new pump in spare bay at Plant 3 (spare bay previously financed by MAP). Additional meetings forthcoming.

ii. Confirmed approach with Wood Rodgers, and provided Caltrans drainage as-builts.

b. Upper West Side

i. Financing plan review comments provided.

ii. A meeting with SMUD was held on 7/26 associated to new OH on orchard lane. The District is to assist with developing cross sections to help determine OHE easement offset from WDC.

iii. Wood Rodgers provided updated drainage study on 9/22/2023.

iv. Update meeting scheduled for 10/6/2023.

c. City of Sacramento Discharge Pipes

i. Sac City has discontinued work at Sump 58 (Lower NEMDC).

d. Sutter Pointe

i. Provided review comments related to updated drainage pump station on 4/24. A majority of the comments have been addressed.

ii. Provided approval for pump outfall on 6/15, pending resubmittal on grading for east side toe of levee.

iii. Application comments provided on 9/20/2023.

e. Anton Dev Co Fong Ranch Road

i. Preliminary land use plan provided. Concerns about the layout that encroaches on the levee and required setbacks. Bridge is no longer being considered. City Parks and Rec plans for Fong Ranch Park reviewed related to area north of B Drain. Drainage comments provided.

f. Panhandle

i. Panhandle 105 rough grading has commenced.

g. Northpointe Industrial Park

i. Provided feedback to designer on 4/19.

h. Ninos Parkway Trail – B Drain

i. Met with Dewberry and City 9/25 to discuss drainage along trail. Dewberry to investigate options. Additional meetings are forthcoming.

i. MAP Schnitzer

   i. Meeting scheduled to review M-7 drainage canal piping. Piping of drain was rejected by RD 1000. County wants to avoid ditch crossing, may require culvert extension.

j. Airport South Industrial

   i. Met with the City to discuss comments related to the last drainage plan.
   ii. Additional meeting forthcoming to discuss the Powerline Road widening M-7 ditch relocation.
   iii. Meeting with City is scheduled for 9/12 related to ULDC needs. RD1000 comments have no net impact to 200-year.

k. Russel at Truxel Apartments (Fong Ranch Road)

   i. Submitted comments to developer 08/17/2023.

5. General Engineering Updates

a. Basin-wide Hydraulic Model

   i. Reviewed draft work maps and provided comments. Flood plan limits are generally less with new 2D maps. There are a number of isolated areas that could be removed at City/County options.
   ii. Currently checking culvert sizes in model and updating for completed Greenbriar work. Expect updated model and maps mid-May. Need to schedule meetings with City/Counties on mapping requirements.

b. Facility Mapping Tool

   i. Working with M&H to complete field mapping tool (GIS)

c. PGCC Culvert Video Inspections

   i. Working with M&H to perform.

d. Howsley Bridge

   i. No further action at this time. Reach E plans have been coordinated with future work. Conditional permit endorsement provided to the CVFPB.

   ii. Geotechnical borings are planned for this summer.

e. USACE O&M Manual

   i. The O&M manual was adopted at the April 28, 2023 CVFPB meeting.

6. **Natomas Levee Improvement Projects**

The Corps continues to work with the State and SAFCA on borrow for the project. The Corps is evaluating needs for each Reach and available sources to minimize delays and maximize efficiency.

The Corps completed their flood risk assessment for the remaining contracts in Reach E, F, G, Pump Plant 5, Highway 99 and Reach I contract 2.

a. Reach A

i. The Contract was awarded in September 2021 to Ahtna-Great Lakes (joint venture) for the base contract levee work. Construction is currently in progress and is expected to continue for a duration of three years.

ii. Modifications to Plant 1B and 1A have been included in the project. The contract includes the provisions in the agreement between the District and SAFCA to ensure Plant 1A and 1B are operational during the flood season throughout the project and partial operation of Plant 1B during the irrigation season for rice drainage.

iii. SAFCA/State continue coordinating with the Corps on SMUD, AT&T and PGE relocations which are underway. The team is also working with the City of Sacramento on waterline and service connections along Garden Highway.

b. Reach B

i. Construction continued on Reach B including relocation of the Riverside Canal and replacement of other Natomas Water Company facilities. This project is 97% complete, a majority of the remaining tasks are related to the borrow site, including weir and culvert crossings.

ii. Outfall, discharge pipes, pumps and electrical replacement have been completed. O&M training and official pump testing is complete. Project is expected to be complete this year.

iii. Construction at the I-5 window crossing the Sacramento River south of Bayou Road which began in 2021 is essentially complete with a punch list of final items needed to close out the project.

c. Reach C

i. The Reach C project is complete, and the District is providing the operation and maintenance.

d. Reach D

i. The reconstruction of Pumping Plant 4, discharge pipes and outfall structure is substantially complete. The plant will be non-operational a portion of this flood season as the electrical protection equipment delivery is scheduled for January 2024. Temporary power installation for pump motor heaters is complete.

ii. The Corps is working on the package to turn the previously completed levee improvements in Reach D over to the non-federal sponsors (and RD 1000) though the District has effectively taken over the O&M of the levee.

e. Reach E

i. PG&E relocations are complete, AT&T service pole relocations are in progress. Levee grading work has commenced. Slurry wall working pad and cu replacements are in progress.

ii. SAFCA has acquired all the right of way for construction and utility relocations and has physical possession of the property. This includes the Brookfield property which could yield sufficient borrow for the remainder of the Natomas project.

f. Reach F

i. The Corps is working with the State, SAFCA and RD 1000 to close out comments from the 95% and 100 % design. Final plans and specifications are to be completed by October 2023. The Corps has an issue with their internal review process which could delay the final design.

ii. Critical issues include right of way acquisition (some which require relocations); relocation of existing WAPA tower (lead time for relocation more than a year); utility relocations and borrow source.

iii. The contract for tree removal within the levee footprint is schedule for award in November 2023 with work complete by February 2024. Levee construction award is scheduled for November 2024 with construction in 2025 and 2026.

g. Reach G

i. See notes above for Reach F as Reaches F and G are combined into a single design and construction contract.

h. Reach H

i. Construction at Reach H continues, including fence relocations, landside lower patrol road and I-80 berm. This project is expected to continue through 2023 as utility relocations and retaining wall modifications remain.

i. Reach I

   i. Construction of the cutoff wall has been completed and project finalization and turnover to SAFCA and the District is in progress. A final construction report has been submitted for SAFCA and the District to review.

   ii. Design for the Reach I Contract 2 to construct a patrol / maintenance road and perform levee slope flattening has been completed. SAFCA is working on real estate acquisition and coordination with utilities for relocation. All tree removal has been completed. Letter of Acceptance sent to SAFCA. O&M manual was provided by the USACE

j. Other Projects

   i. Plant 5 replacement—The Corps has awarded the design contract to the Stantec/Kleinfelder team. The new pumping plant will be located approximately 400 feet east from the current location. The Corps is working with the State, SAFCA and RD 1000 to close out comments from the 95% Design meeting on 8/2. The current schedule is for construction in 2024.

   ii. Highway 99 Window – HDR Engineers are doing the design for the closure of the Highway 99 crossing gap at the Natomas Cross Canal. The 100% plans were submitted and reviewed by the design team in October with no significant issues identified. Caltrans is now engaged with the project and provided their comments on the proposed lane closures to allow the cutoff wall constructed across the travel lanes but concur in general with the proposal. The schedule has shifted for Caltrans review with scheduled award in November 2023 and construction in 2024.

7. Miscellaneous

a. Sacramento Area Flood Control Agency (SAFCA)

   i. Board Meeting – September 21, 2023 (Attachment No. 1)

b. League of California Cities

   i. The League of California Cities and others last week filed an amicus brief urging the U.S. Supreme Court to review a lower court's ruling on an Oregon city's encampment policy. (Attachment No. 2)

   ii. Cal Cities backs state-led legal challenge against deceptive 'taxpayer protection' ballot measure. (Attachment No. 3)

c. Northern California Water Association

   i. 2023 State Legislative Summary (Attachment No. 4)

d. California Special Districts Association

  i. Governor, Legislature File Preelection Challenge to Business Roundtable Initiative – CSDA Files Letter in Support (Attachment No. 5)

  ii. California Special Districts Magazine - Volume 18, Issue 5, September - October 2023 (Attachment No. 6)

ATTACHMENTS:

1. SAFCA Board Meeting – September 21, 2023
2. League of California Cities - Amicus Brief
3. League of California Cities - Deceptive 'Taxpayer Protection' Ballot Measure
4. Northern California Water Association - 2023 State Legislative Summary
5. CSDA - Governor, Legislature File Preelection Challenge
6. CSDA - Magazine - Volume 18, Issue 5, September - October 2023

STAFF RESPONSIBLE FOR REPORT:

_______________________________________ Date: 10/13/2023

Kevin L. King, General Manager

Sacramento Area Flood Control Agenc

Board of Directors Action Summary of

September 21, 2023 - 3:00 PM

Sacramento County Administration Building
Board of Supervisors' Chambers - 700 H Street
Sacramento County, CA 95814

This Meeting of the Sacramento Area Flood Control District met in person at the Sacramento County Administration Building, referenced above.

Documents and materials related to Agenda Items are available on SAFCA's website at https://agendanet.saccounty.gov/SAFCA/Meetings/Search?dropid=7&mtids=130

Directors Present: **Bains, Holloway, Jennings, Kenne Olmstead, Sloan, Serna., and Tala**

Directors Absent: **Avdis, Conant, Kaplan, Shah**

ROLL CALL

PUBLIC COMMENTS - Public Comment made by Joseph Prioriello

SEPARATE MATTERS

1. Information - History of How Two Projects Ended up so Different and the Resulting Impact on Real Estate Requirements

CLOSED SESSION

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 7145 Natomas Road, Elverta CA 95626
Sutter County APN: 35-170-044
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Mark and Raquel Stevenson on behalf of the Stevenson Family 2005 Trust
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 9149 E. Levee Road, Elverta, CA 95626
Sacramento County APN: 201-0051-001
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Eugene Fernandez on behalf of 9140 East Levee Road, LLC
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 8569 Natomas Road, Elverta, CA 95626
Sutter County APN: 35-280-013
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Eugene Fernandez on behalf of 9149 East Levee Road, LLC
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 5921 E. Levee Road, Sacramento CA 95835
Sacramento County APN: 201-0320-018; 201-0320-019
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Brian Manning, Esq. on behalf of Twin Rivers Unified School District
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 7495 Natomas Road, Elverta CA 95626
Sutter County APN: 35-170-080

Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Jacklyn Powell, Esq. on behalf of Homeward Bound Golden Retriever Rescue & Sanctuary, Inc.
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 7281 Natomas Road, Elverta CA 95626
Sutter County APN: 35-170-079
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Glenn Chadaris
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 6301 E. Levee Road, Rio Linda, CA 95673
Sacramento County APN: 201-0320-025
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Brian Manning, Esq. on behalf of the Alice Krumenacher Trust and the Marie Krumenacher Trust
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 6801 E. Levee Road, Rio Linda, CA 95673
Sacramento County APN: 201-0200-024
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: John Norman on behalf of Brookfield California Landholdings, LLC
Under Negotiation: Price and terms of payment

Government Code Section 54956.8 - Conference with Real Property Negotiators.
Property: 5701 Sorrento Road, Sacramento, CA 95835
Sacramento County APN: 201-0540-073
Agency Negotiators: Richard M. Johnson, Jason D. Campbell, John A. Bassett, Jeremy D. Goldberg, Matt DeGroot, Lyndee Russell
Negotiating Party: Chris Stump on behalf of Meritage Homes of California Inc.
Under Negotiation: Price and terms of payment

CONSENT MATTERS

Motion by Director Holloway and seconded by Director Talamantes, approving Resolution Nos: 2023-100; 2023-101; 2023-102; 2023-103; 2023-104; and 2023-105 of Consent Matters

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

2. Approving the Action Summary for August 17, 2023

3. Resolution No. 2023-100 - Authorizing the Executive Director to Execute Amendment No. 6 to Contract No. 1382 with John H. Dodds for Legal Services

4. Resolution No. 2023-101 - Confirming Equity Adjustment for Five SAFCA Positions

5. Resolution No. 2023-102 - Authorizing the Executive Director to Execute Amendment No. 3 to Contract No. 1518 with the United Auburn Indian Community to Provide Tribal Monitoring Services

6. Resolution No. 2023-103 - Authorizing the Executive Director to Negotiate and Execute an Agreement with the Regents of the University of California for Forecast Informed Reservoir Operations Planning in the American River Basin

7. Resolution No. 2023-104 - Authorizing the Executive Director to Execute Amendment No. 3 to the Funding Agreement with the State of California, Department of Water Resources for the Lower Elkhorn Basin Levee Setback Project, Interior Drainage and Pump Station, Yolo County, California

8. Resolution No. 2023-105 - Authoring the Executive Director to Execute Amendment No. 12 to Contract No. 773 with MBK Engineers for Program Management Services Related to the Natomas Levee Improvement Program

SEPARATE MATTERS

9. Public Hearing Resolution of Necessity No. 2023-106 - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach F Component of Phase 4b of the Natomas Levee Improvement Project - Fee Interest, a Permanent Electrical and Communication Facilities Easement and a Temporary Construction Easement Acquisition over Portions of Sacramento County Assessor's Parcel Number 201-0051-001, 9149 East Levee Road, Elverta, CA 95626 - Property Owner: 9140 East Levee Road, LLC
This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Presentation by Matt DeGroot. Chairman Kennedy opened the public hearing, no comments were received, Chairman Kennedy closed the public hearing. Motion by Director Talamantes seconded by Director Holloway, to approve Resolution No. 2023-106

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

10. Public Hearing Resolution of Necessity No. 2023-107 - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach F Component of Phase 4b of the Natomas Levee Improvement Project - Fee Interest and a Temporary Construction Easement Acquisition Over Portions of Sutter County APN: 35-280-013 - 8569 Natomas Road, Elverta, CA 95626 - Property Owner: 9149 East Levee Road, LLC
This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Presentation by Matt DeGroot. Chairman Kennedy opened the public hearing, no comments were received, Chairman Kennedy closed the public hearing. Motion by Director Talamantes seconded by Director Holloway, to approve Resolution No. 2023-107

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

11. Public Hearing Resolution of Necessity No. 2023-108 - Continued from the August 17, 2023 Board of Director’s Meeting - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach F Component of Phase 4b of the Natomas Levee Improvement Project - Fee Interest, a Permanent Electrical and Communication Facilities Easement and a Temporary

Construction Easement Acquisition Over Portions of Sacramento County APN: 201-0110-017 - 8757 E. Levee Road, Elverta, CA 95626 - Property Owner: De Wit Farms, LLC

This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Presentation by Matt DeGroot stating staff's recommendation that this Item be dropped from the Agenda as agreement had been reached with De Wit Farms, LLC. Motion by Director Kennedy and seconded by Director Holloway, to drop this Item from the Agenda.

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

12. Public Hearing Resolution of Necessity No. 2023-109 - Continued from the August 17, 2023 Board of Director's Meeting - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach F Component of Phase 4b of the Natomas Levee Improvement Project - Fee Interest, a Permanent Electrical and Communication Facilities Easement, and a Temporary Construction Easement Acquistion Over Portions of Sutter County APN: 35-170-044 - 7145 Natomas Road, Elverta, CA 95626 - Property Owner: Mark C. Stevenson and Raquel A. Stevenson, as Co-Trustees of The Stevenson Family Trust, Dated November 7, 2005

This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Presentation by Matt DeGroot. Chairman Kennedy opened the public hearing, no comments were received, Chairman Kennedy closed the public hearing. Motion by Director Serna seconded by Director Talamantes to approve Resolution No. 2023-109

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

13. Public Hearing Resolution of Necessity No. 2023-110 - Continued from the June 15, 2023 Board of Director's Meeting - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach G Component of of Phase 4b of the Natomas Levee Improvement Project - Fee Interest, a Permanent Electrical and Communication Facilities Easement, and a Temporary Construction Easement Acquisition Over Portions of Sacramento County APN:

201-0190-007 - 7851 E. Levee Road, Elverta, CA 95626 - Property Owner: Richard L. Driggs as Trustee of the Driggs Trust

This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Presentation by Matt DeGroot stating staff's recommendation that this Item be dropped from the Agenda as agreement had been reached with Richard L. Driggs as Trustee of the Driggs Trust. Motion by Director Kennedy and seconded by Director Serna to drop this Item from the Agenda.

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

14. Public Hearing Resolution of Necessity No. 2023-111 - Authorizing an Eminent Domain Action to Condemn Certain Real Property Interests for the Reach G Component of Phase 4b of the Natomas Levee Improvement Project - Fee Interest and a Temporary Construction Easement Acquisition Over Portions of Sacramento County APNs: 201-0320-018 and 201-0320-019 - 5921 E. Levee Road, Sacramento, CA 95835 - Property Owner: Twin Rivers Unified School District

This Item Requires a 2/3 or Nine Member Vote to Pass the Resolution

Motion by Director Kennedy and seconded by Director Serna, approving staff recommendation to continue this Item, for two months, to the November 16, 2023, Board of Director's Meeting

AYES: Talamantes, Jennings, Holloway, Bains, Serna, Kennedy, Olmstead, Martian, Sloan
NOES: (None)
ABSTAIN: (None)
ABSENT: Kaplan, Shah, Avdis, Conant
RECUSAL: (None)

RECIEVE AND FILE

15. Information - Executive Director's Report for September 21, 2023

ADJOURN

Respectfully submitted,
Lyndee Russell

Cal Cities urges SCOTUS to review ruling on anti-camping ordinances

Sep 27, 2023

The League of California Cities and others last week filed an **amicus brief**urging the U.S. Supreme Court to review a lower court's **ruling on an Oregon city's encampment policy**. The brief highlights the unworkability of the ruling and provides examples of how local governments in California are creatively and proactively using many tools (including anti-camping ordinances) to protect the health and welfare of their entire communities (including unhoused residents).

Case background

Grants Pass, Oregon, enacted an ordinance several years ago that prohibited sleeping or camping on public property. In 2018, it amended the ordinance in response to a pivotal legal ruling, *Martin v. City of Boise*.

In *Martin v. City of Boise,* the **U.S. Court of Appeals for the 9th Circuit**held that enforcing an anti-sleeping ordinance when there is a greater number of homeless people in a jurisdiction than available shelter spaces violates the Eighth Amendment prohibition against cruel and unusual punishment.

The city's 2018 amendments removed the prohibition on sleeping, but the ordinance continued to prohibit camping. A homeless individual in Grants Pass brought a class action lawsuit (*Johnson v. City of Grants Pass*) challenging the ordinance on behalf of "all involuntarily homeless persons" in Grants Pass.

The city tried to get the lawsuit thrown out, but the district court was not persuaded. It found that there were more homeless people than shelter beds in Grants Pass. Therefore, the plaintiffs had a valid class action claim for violation of the Eighth Amendment.

Grants Pass appealed and the 9th Circuit affirmed the district court's ruling. The court even went a bit further than it had gone in *Martin v. City of Boise.* It held that a person's right to sleep outdoors includes sleeping with rudimentary forms of protection from the elements, such as blankets and shelter. Grants Pass and several local governments unsuccessfully tried to persuade the 9th Circuit to rehear the case.

As a last resort, Grants Pass filed a petition in late August asking the U.S. Supreme Court to review the ruling and address the following question: “Does the enforcement of generally applicable laws regulating camping on public property constitute ‘cruel and unusual punishment’ prohibited by the Eighth Amendment?”

Next steps

The petition has drawn support from many local governments and local government associations with impacted members. State governments are supporting the petition too, including Gov. Gavin Newsom. The Supreme Court’s **docket**contains a full list with links to the numerous amicus briefs filed.

Cal Cities will continue to monitor this case and will report further when the Supreme Court rules on the petition. In the meantime, cities with questions about the impact of the cases should consult with their city attorney.

LEAGUE OF CALIFORNIA CITIES

Cal Cities backs state-led legal challenge against deceptive 'taxpayer protection' ballot measure

Sep 27, 2023

The California Legislature, Gov. Gavin Newsom, and voter John Burton on Tuesday filed an emergency petition with the California Supreme Court seeking to remove the **"Taxpayer Protection and Government Accountability Act" initiative (https://www.calcities.org/news/post/2023/08/09/an-existential-threat-to-cities-is-on-the-2024-ballot)** from the November 2024 Ballot.

The California Business Roundtable (CBRT) — a group of the state's wealthiest corporations — is sponsoring the initiative.

The Legislature and others argue the CBRT initiative unlawfully revises the state constitution and cripples essential state and local government functions. The League of California Cities plans to file an amicus letter in support of the petition and a pre-election review of the initiative.

"If this measure passes, it will upend and jeopardize city revenue streams needed to provide essential local services," **said Carolyn Coleman, Cal Cities Executive Director and CEO (https://www.calcities.org/news/post/2023/09/27/cal-cities-supports-legal-challenge-against-taxpayer-protection-ballot-measure)** . "Our residents expect and rely upon fire, police, and a wide range of other services — including shelter for those experiencing homelessness, safe streets and roads, the maintenance of playgrounds and sidewalks, and garbage removal. But with this measure, residents will get less."

If passed, the CBRT ballot measure would expand the definition of what constitutes a tax and raise the voter approval threshold for local taxes. The initiative would also limit certain fees to the least amount necessary to provide the service. Governments would need to defend those fees with clear and convincing evidence. This ambiguity could lead to thousands of costly lawsuits.

“Given what’s at stake, our cities deserve clarity sooner rather than later regarding the validity of this measure,” Coleman said.

Crucially, the CBRT ballot measure would apply to any tax and certain fees adopted after Jan. 1, 2022. Local governments would have one year to ask voters to reapprove those taxes. The initiative would also impose new requirements for the ballot materials used to submit taxes to voters.

Writ petitions are generally heard as a matter of discretion. Pre-election ballot measure reviews are conducted when the validity of an initiative is in serious doubt, and where the matter can be resolved before unnecessary expenditures of time and effort have been placed into a futile election campaign.

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WATER BRIEFINGS

2023 STATE LEGISLATIVE SUMMARY

A publication from the Northern California Water Association SEPTEMBER 2023

The State Legislature reconvened on January 4 in Sacramento for the start of the two-year 2023-24 legislative session. One-third of the Legislature was new, creating a new political landscape and shake-up of previous legislative priorities. Governor Gavin Newsom faced a state budget deficit for the first time since taking office and had to balance budget cuts with his previous commitments to fund climate resiliency projects and programs throughout the State. This year, NCWA provided advocacy on a variety of topics that are important to the Sacramento Valley including: water rights; improving information and data; groundwater; healthy rivers and landscapes; water resources management, and funding opportunities for our members and partners.

Due to the increased legislative focus on water rights, NCWA and its members obtained additional lobbying support through Kirk Kimmleshue and Soyla Fernandez, who represent the lobbying firm of Fernandez Jensen Kimmleshue Government Affairs. Kirk and Soyla's lobbying efforts and respected relationships in the State Capitol were paramount to our success this year in the water rights legislative discussions.

A summary of state legislative bills that NCWA was engaged on is below. The Governor has until October 14 to sign or veto bills passed by the Legislature on or before September 14. We will provide an updated legislative summary on October 14.

Water Rights

Following last year's legislative proposals on water rights policy and the release of Planning and Conservation League's (PCL) report Updating California Water Laws to Address Drought and Climate Change, various water rights bills have been introduced and discussed in the California Legislature in 2023. California's existing water rights structure and system are working in the Sacramento Valley to serve water for multiple benefits, including cities and rural communities, farms and ranches, fish and wildlife, recreation, and hydropower. Tribes in the Sacramento Valley depend upon the exercise of water rights for their communities, farms, and food processing and many disadvantaged communities depend upon water rights and the delivery of affordable and high-quality water supplies. The water rights system also allows water to spread out and slow down on the landscape, which is dependent upon a modern water system and essential to a functional Sacramento Valley where water serves multiple benefits.

This year, NCWA, along with a large coalition of water, business, and agricultural interests, spent a lot of time in the State Capitol educating newly-elected legislators on the importance of the current water rights system. NCWA, along with the larger coalition, were successful in our efforts to halt legislative measures that proposed major overhauls of the water rights system, which were unnecessary and threatened to create widespread instability and disruption to our economy, environment, the water management landscape, and our way of life.

**Please note that the electronic version of this document contains various links, where you can click on either the link or the documents shown to see more detailed information.*

SB 389 **(Allen)** SB 389 would authorize the State Water Resources Control Board (SWRCB) to investigate the diversion and use of water from a stream system to determine whether the diversion and use are based on upon appropriation, riparian right, or other basis of right. NCWA was successful in working with the author's office to address some remaining concerns, which made us comfortable removing our opposition. SB 389 is on its way to the Governor's desk and we expect him to sign the measure into law.

AB 460 **(Bauer-Kahan)** AB 460 would provide broad statutory authority for the State Water Resources Control Board (SWRCB) to issue interim relief orders to apply or enforce a variety of statutes, doctrines, and water policies. AB 460 (Bauer-Kahan) was set to be heard in Senate Natural Resources and Water Committee on Tuesday, June 27. The hearing on the bill was cancelled by the author, making the measure a two-year bill. Lobbying efforts by NCWA, its members, and the large opposition coalition were successful and the author was unable to secure the votes needed to pass the bill out of the committee. AB 460 can still be heard next year and will remain in the Senate Natural Resources and Water Committee until that time.

AB 1337 **(Wicks)** AB 1337 would give the SWRCB statutory authority to curtail the diversion or use of water under any claim of right during any water year. AB 1337 was set to be heard in Senate Natural Resources and Water Committee on July 10. The hearing on the bill was cancelled by the author, making the measure a two-year bill. Lobbying efforts by NCWA, its members, and the large opposition coalition were successful and the author was unable to secure the votes needed to pass the bill out of the committee. AB 1337 can still be heard next year and will remain in the Senate Natural Resources and Water Committee until that time.

AB 1205 **(Bauer-Kahan)** AB 1205 would require the SWRCB to conduct a study and report to the Legislature and appropriate policy committees on the existence of speculation or profiteering by an investment fund in the sale, transfer, or lease of an interest in any surface water right or groundwater right previously put to beneficial use on agricultural lands. In its original form, AB 1205 would have declared profiteering by an investment fund in the sale, transfer, or lease of an interest in any surface water right or groundwater right previously put to beneficial use on agricultural lands as a waste or an unreasonable use of water. Lobbying efforts, including NCWA, were successful in securing amendments to ensure the bill would only require a study for these important issues. NCWA, along with the larger coalition, has removed its opposition to the bill. AB 1205 was ordered to the inactive file by its co-author Senator Hurtado. The bill was likely parked for the year due to the current economic climate and budget deficit in the State. Most study bills are costly, and the SWRCB assigned an estimated price tag of $450,000 per year for three years for staffing costs as well as between $6 million and $15 million over three years for contracting costs (General Fund) to prepare the study and report required by this bill. AB 1205 can still be heard next year and will remain on the Senate inactive file until that time.

SB 756 **(Laird)** SB 756 enhances the enforcement authorities of the SWRCB and the nine Regional Water Quality Control Boards as it relates to unlicensed cannabis cultivation. **SB 756 was signed into law on September 1, 2023 and will take effect on January 1, 2024**.

For a detailed description on NCWA's approach to these bills, see Observations on a Modern Water Rights System in the Sacramento Valley.

Improving Information and Data

There is a significant need for the State to improve information and data collection efforts to support the existing water rights administration. Modernizing the water rights information system should be a foundational element to strengthening and supporting the existing water rights system in California. Enhanced water rights data and technologies are integral to the modernization of our water management system in California. This year, bills were introduced that supported a combination of measurement (including new and reactivated stream gages, enhanced snow surveys and forecasts) with data and technology (such as digitizing records, enabling forecast-informed reservoir operations, and improving the water right data management system) to improve the water unavailability methodology that provides the basis for implementing the water rights priority system and to verify water rights. NCWA was actively supportive of the following measures that would improve information and data collection:

AB 30 **(Ward)** AB 30 renames the previous Atmospheric Rivers Program within DWR to the Atmospheric Rivers Research and Forecast Improvement Program: Enabling Climate Adaptation Through Forecast-Informed Reservoir Operations and Hazard Resiliency (AR/FIRO) Program. AB 30 requires DWR to research, develop, and implement new observations, prediction models, novel forecasting methods, and tailored decision support systems to improve predictions of atmospheric rivers and their impacts on water supply, flooding, post-wildfire debris flows, and environmental conditions. Lastly, the bill requires DWR to utilize relevant information to operate reservoirs in a manner that improves flood protection in the state and to reoperate flood control and water storage facilities to capture water generated by atmospheric rivers and other storms. **AB 30 was signed into law on September 1, 2023 and will take effect on January 1, 2024.**

SB 361 **(Dodd)** SB 361 would require DWR and the SWRCB, upon appropriation of funds by the Legislature, to reactivate, upgrade, and install new stream gages. The bill would also require the DWR and the SWRCB to use the recommendations and data provided in the California Stream Gaging Prioritization Plan 2022 to complete specified actions by 2030. Additionally, SB 361 would require the data from all stream gages operating with any public money to be published as provisional data within 10 days of collection and made publicly available on the state's open water data platforms. SB 361 was held on the Senate Appropriations Committee Suspense File. It is considered a two-year measure and can be heard next year in the same Committee.

UPWARD – The 2023 State Budget allocated $31.5M for the Updating Water Rights Data for California (UPWARD) modernization project, which is a foundational piece of California's broader water rights modernization effort. This one-time contract funds will allow the UPWARD project to be completed on time and with adequate functionality. The SWRCB has formed the UPWARD Advisory Group to engage with experts and interested parties who are willing to lend their skills, guidance, and knowledge to help the SWRCB achieve the goals of the UPWARD project. The Sacramento Valley will be represented well on the Advisory Group with Marc Van Camp, representing MBK Engineers and Ivy Brittain, representing NCWA, among others.

Groundwater

The sustainable management of groundwater resources is critical to the economic, social and environmental fabric in the Sacramento Valley and is an essential element of ridgetop to river mouth water management.

AB 1563 **(Bennett)** AB 1563 is a re-introduction of last year's AB 2201 by the same author. The bill would require a county to forward permit requests for the construction of new groundwater wells, the

the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval. AB 1563 would also prohibit a county, city, or any other water well permitting agency from approving a permit for a new groundwater well or for an alteration to an existing well in a basin subject to the act and classified as a critically overdrafted basin unless specified conditions are met. Lobbying efforts by NCWA, its members, and the larger opposition coalition were successful and the author chose to cancel the bill's hearing in Senate Governance and Finance Committee. AB 1563 can still be heard next year and will remain in its respective Committee until that time. NCWA has been working with DWR to fashion local solutions to avoid another re-introduction of similar legislation.

SB 659 **(Ashby)** SB 659 is a measure sponsored by the Regional Water Authority, and supported by NCWA. SB 659 would establish the California Water Supply Solutions Act of 2023 to require the Department of Water Resources (DWR), as part of the 2028 update, and each subsequent update thereafter to the California Water Plan, to provide actionable recommendations to develop additional groundwater recharge opportunities that increase the recharge of the state's groundwater basins, as provided. SB 659 would require the recommendations to identify immediate opportunities and potential long-term solutions to increase the state's groundwater supply, and include, among other things, best practices to advance all benefits of groundwater recharge. The bill is headed to the Governor's desk where we expect him to sign the measure into law.

For more information on the importance of recharge in the Sacramento Valley, see Groundwater Beneath Sacramento Valley Offers Hope in Dry Times.

Healthy Rivers and Landscapes

By taking a nature-based approach from the ridgetops in the Sierra Nevada and Coast Range to the river mouth of the San Francisco Bay, we can help create a vibrant and healthy ecosystem in our rivers and the Delta that is functional for people and fish and wildlife throughout the region. This means investing in healthy rivers and the landscapes that support them for fish and wildlife habitat, nourishment and sustenance for our farm fields, high-quality drinking water for all communities, recreation opportunities, hydropower, and healthy forests.

AB 345 **(Wilson)** SB 345 would authorize DWR or the SWRCB to provide advance payments to local agencies for projects that restore habitat for threatened and endangered species under state or federal law or improve flood protection. AB 345 is on its way to the Governor's desk and we expect him to sign the measure into law.

AB 809 **(Bennett)** AB 809 is a measure sponsored by California Trout, and supported by NCWA. AB 809 would require DWR to establish the California Monitoring Program to collect comprehensive data on anadromous salmonid populations, in coordination with relevant agencies to inform salmon and steelhead recovery, conservation, and management activities. The bill would also authorize the department to consult with local agencies, tribes, conservation organizations, and academic institutions to carry out monitoring efforts under the program. The bill is headed to the Governor's desk where we expect him to sign the measure into law.

Water Resources Management

NCWA and water resources managers throughout the Sacramento Valley are continually improving water management to promote regional sustainability and ensure that adequate water supplies are available for multiple benefits in the Sacramento Valley, which includes food, salmon, local communities and birds.

AB 754 **(Papan)** AB 754 would have required a water shortage contingency plan to include, if a single reservoir constitutes at least 50% of the total water supply, an identification of the dam and description of existing reservoir management operations, as specified, and if the reservoir is owned and operated by the urban water supplier, a description of operational practices and approaches. NCWA, its members, and the large opposition coalition were successful in defeating the measure. AB 754 was held in the Senate Appropriations Committee and is considered dead for the remainder of the legislative session.

AB 1044 **(Gallagher)** On August 31, 2023, the first round of applications for the California Small Agricultural Business Drought and Flood Relief Grant Program opened, and will ultimately award up to $95 million in drought and flood relief grants to eligible small agricultural businesses to cover part of costs incurred from California's extreme drought from 2019 to 2022 and 2023 storm flooding conditions. AB 1044 would appropriate $100,000,000 from the General Fund to the Governor's Office of Business and Economic Development (GO-Biz) to provide additional grants under the program. Likely due to the nature of the State's budget deficit, AB 1044's hearing in the Assembly Appropriations Committee was postponed. The bill can still be heard next year.

SB 366 **(Caballero)** SB 366 would revise and recast requirements for the contents of updates to the California Water Plan and would require DWR to develop a long-term water supply planning target for 2050. The bill would establish an interim target of 10 million acre-feet of additional water by 2040. SB 366 was held in the Assembly Water, Parks, and Wildlife Committee by the author, and will likely be heard next year following further stakeholder discussions.

SB 753 **(Caballero)** SB 753 expands the existing felony of intentionally or with gross negligence causing substantial environmental harm to surface or ground water to the conditions for which a person 18 years of age or over who plants, cultivates, harvests, dries, or processes more than six living cannabis plants, or any part thereof, punishable by imprisonment in a county jail for 16 months, or two or three years. **SB 753 is headed to the Governor's desk where we expect him to sign the measure into law**.

Potential Climate Bond

The Legislature, at the Governor's direction, has been working on a climate resiliency bond to make whole the $54.3 billion that was initially proposed in the 2021-22 state budgets for climate projects. Due to a budget deficit this year, the 2023 state budget fell 5% short of that funding with a $2.9 billion reduction from climate change programs. To help address this shortfall, there are currently four legislative bond proposals making their way through the legislature: AB 305 **(Villapudua),** AB 1567 **(Garcia),** SB 638 **(Eggman)** and SB 867 **(Allen)**. SB 867 and SB 638 so far have garnered the most attention and could merge into one vehicle during negotiations amongst legislators and stakeholders over the fall and into next year. Any potential climate resiliency bond would appear on the November 2024 General Election ballot.

For a detailed description of NCWA's priorities in a potential climate bond, see Advancing Healthy Rivers and Landscapes in the Sacramento Valley from Ridgetop to River Mouth: Our Priorities for a Legislative Bond.

2023 State Budget

On June 27, Governor Newsom signed SB 101 (Skinner), the Budget Act of 2023, into law. The $310.8 billion budget agreement, reached by the Governor Newsom, Senate President pro Tempore

Atkins and then-Assembly Speaker Rendon, and approved by both houses of the Legislature, closed a $32 billion budget deficit. Despite the budget deficit, the final budget still included all previously committed Healthy Rivers and Landscapes (Voluntary Agreements) funding as well as $51.4 billion in climate projects out of $54.3 billion that was initially proposed in the 2021-22 state budgets.

Governor's Infrastructure Package

On May 19, Governor Newsom unveiled his new proposals to "Build California's Clean Future, Faster." The proposals facilitate and streamline project approval and completion to maximize California's share of federal infrastructure dollars and expedite the implementation of projects that meet the state's ambitious economic, climate, and social goals.

Along with his proposal, Governor Newsom signed an executive order and introduced a series of legislative infrastructure budget proposals. Most pieces of his legislative proposals made it into the final budget and speeds up construction processes, expedites court review for legal challenges, streamlines permitting for projects, addresses cumbersome CEQA processes across the board and maximizes federal dollars for climate projects that cut pollution.

NCWA, along with the State Water Contractors, provided support for the Governor's infrastructure proposal. For more detail, see Newsom's Infrastructure Package Will Get More Clean Water to Californians.

The final budget agreement includes support for the associated budget trailer and the following policy bills:

- SB 122 (Committee on Budget and Fiscal Review) – Public Resources Trailer Bill
    - ◊ Requires DWR, upon appropriation by the Legislature, to develop and administer the Dam Safety and Climate Resilience Local Assistance Program to provide state funding for repairs, rehabilitation, enhancements, and other dam safety projects at existing state jurisdictional dams and associated facilities that were in service prior to January 1, 2023, subject to prescribed criteria.
    - ◊ Includes most of the Governor's proposed Drought and Flood Streamlining trailer bill language, which seeks to codify recent executive orders, including Executive Order N-4-23, which suspended regulations and restrictions on permitting and use to enable water users to divert flood stage water for the purpose of boosting groundwater recharge. The language also expands the State Water Board's enforcement authority by allowing them to issues a cease-and-desist order to any regulation violation, as opposed to just emergency regulation violations as it stands currently.
    - ◊ Adds "aquifers" to a list of examples of aquatic or vegetated terrestrial open spaces for purposes of this definition of natural infrastructure.
- SB 146 – Progressive Design Build, Job Order Contracting, NEPA Assignment (Gonzalez and Friedman)
    - ◊ Authorizes DWR and the Department of Transportation to use the progressive design-build procurement process for the construction of up to 8 public works projects per department for a project that is estimated to exceed $25,000,000 in total price, and prescribes that process.
    - ◊ Specifies that the above provisions do not apply to procurement by DWR for the design or construction of through-Delta conveyance facilities of the Sacramento-San Joaquin Delta

or seawater desalination projects. seawater desalination projects.

- SB 147 – Fully Protected Species (Ashby)
    - ◊ Authorizes, until December 31, 2033, the Department of Fish and Wildlife to issue a permit under CESA that would authorize the take of a fully protected species resulting from impacts attributable to the implementation of specified projects if certain conditions are satisfied, including, among others, the conditions required for the issuance of an incidental take permit.
    - ◊ Removes the American peregrine falcon, brown pelican, and thicktail chub as fully protected species.
- SB 149 – Expedited Judicial Review, Administrative Record Reform (Caballero and Becker)
    - ◊ Authorizes, under CEA, a public agency to deny the request of the plaintiff or petitioner to prepare the record of proceedings, as provided, in which case the bill would require the public agency or the real party in interest to bear the costs of preparation and certification of the record of proceedings and would prohibit the recovery of those costs from the plaintiff or petitioner.
    - ◊ Also requires the court to schedule a case management conference within 30 days of the filing of an action to review the scope, timing, and cost of the record of proceedings.

For more information on the state budget and related measures, see here.

If you have any questions or would like additional information, please contact me at ivyb@norcalwater.org.

AGENDA ITEM 4.1
ATTACHMENT NO. 5

Blog Viewer

Governor, Legislature File Preelection Challenge to Business Roundtable Initiative – CSDA Files Letter in Support

By Vanessa Gonzales posted 9 days ago

0 LIKE

By @Mustafa Hessabi

Last week, Governor Gavin Newsom joined the State Legislature and former President pro Tempore of the California State Senate John Burton to file an emergency petition for writ of mandate with the California Supreme Court, asking the court to conduct preelection review of the so-called "Taxpayer Protection and Government Accountability Act" (Initiative #1935 Contact us th sure from being placed on the November 2024 ballot.

Initiative #1935, sponsored by the California Business Roundtable ("CBRT"), is the most consequential proposal to limit the ability of the state and local governments to enact, modify, or expand taxes, assessments, fees, and property-related charges since the passage of Proposition 218 (1996) and Proposition 26 (2010). If passed by voters in 2024, the CBRT voter limitation initiative would impose a host of new requirements that would result in the loss of billions of dollars annually in critical state and local funding. You can find more information and analysis regarding the voter limitation initiative on the CSDA Take Action webpage.

The Governor and fellow Petitioners argue the CBRT initiative is an unlawful attempt to revise the California constitution and would gravely interfere with essential government functions. The Governor's petition asserts that, "the Measure would restructure the power among the legislative branch, the executive branch, local governments, and the initiative process to create new requirements for adopting laws that result in additional money being paid to the government, whether a 'tax' or not."

The brief states that "[s]uch far-reaching changes to the foundational powers of the government would amount to an unlawful constitutional revision." Furthermore, the brief argues that the California Supreme Court must review this matter urgently given that provisions in the initiative would retroactively impose all of its requirements to January 1, 2022, and would render any non-compliant state or local tax, fee, charge, or administrative fee unlawful unless it has been reenacted within 12 months of passage of the measure to comply with the new requirements. A copy of the brief filed on behalf of the Governor and other Petitioners can be found HERE.

Following the filing of the Governor's preelection challenge to the CBRT voter limitation initiative, CSDA moved swiftly along with other local government groups to support the action, filing a letter in support of the petition with the California Supreme Court. Joined by the California Association of Sanitation Agencies (CASA), the California Municipal Utilities Association (CMUA), the California State Association of Counties (CSAC), and the League of California Cities (Cal Cities), CSDA and local government partners urged the Supreme Court to conduct preelection review of the initiative. In particular, the letter highlights the uncertainty the measure creates for local government finance; the questionable and undefined terms and phrases used throughout the initiative; and the risks posed given that measure would invalidate every local government revenue measure adopted after January 1, 2022 that did not anticipate its requirements unless reapproved by voters in the 12 months following the measure's late-2024 effective date. A copy of the letter filed on behalf of CSDA in support of the Governor's petition can be found HERE.

CSDA will continue to monitor this case and whether the California Supreme Court grants preelection review. Stay tuned to *CSDA eNews* and Advocacy News for more information.

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AGENDA ITEM 4.1
ATTACHMENT NO. 6

CALIFORNIA SPECIAL DISTRICTS

A Publication of the California Special Districts Association
Volume 18, Issue 5 • September-October 2023

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California Special Districts Alliance

The California Special Districts Alliance is a collaborative partnership between the California Special Districts Association (CSDA), the CSDA Finance Corporation (CSDAFC), and the Special District Risk Management Authority (SDRMA). These three highly respected statewide organizations join forces to help special districts in California better serve their communities.

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Are You Taking Advantage of All that Membership Brings?

Elaine Magner, CSDA President

It has been a pleasure to serve as California Special Districts Association President this year. As this is the last issue of *California Special Districts* magazine to include a message from the President in 2023, I wanted to use the space to express my appreciation for the many businesses and professionals who support the mission of CSDA through educational presentations and sponsorships at events, and membership.

CSDA's core in-person events offer special district professionals the opportunity to expand their knowledge in educational sessions (often, business and professional members sharing expertise), network with peers, and meet the exhibitors who provide products and services to special districts.

Event sponsorships heighten attendees' experience at events. Sponsorships help provide keynote speakers, meals and refreshments, and opportunities that facilitate engagement with fellow attendees. As a board president, as well as a frequent attendee, I would like to thank the many sponsors who have stepped up to provide generous support and ongoing participation.

CSDA's endorsed affiliate members have been curated to fit the needs of CSDA special district members. They provide value added benefits and enhanced services for special districts. If you are not familiar with the value-added benefits that come with membership, please accept my invitation to reach out to CSDA to inquire at membership@csda.net.

To the many valuable business members who provide special district services across the state, and are frequent exhibitors and speakers at CSDA events, such as those who attended the Annual Conference & Exhibitor Showcase, thank you for your participation and support. The mutual benefit of membership that brings you access to special districts, and in turn provides access to the services and products you offer, allows our special district members to maximize their effectiveness and achieve their mission.

I'd like to remind our district members that CSDA provides easy access to business members through the Buyers Guide which is accessible to members at csda.net. CSDA works hard to provide impactful member benefits, be sure you are taking advantage of all that is offered!

CSDA Special District Leadership Academy Conference

Comprehensive Governance Leadership Conferences for Elected and Appointed Directors/Trustees

October 22 – 25, 2023 – Sonoma County (Santa Rosa)

Participate in the Special District Leadership Academy Conference as a first-time attendee and complete all four modules of the Academy during this two and a half-day event. Participate as a returning attendee for all new content each year, including establishing a board culture, campaign contribution prohibitions, public outreach, social media, financial reporting, and more!

This conference content is based on CSDA's Special District Leadership Academy (SDLA) groundbreaking, curriculum-based continuing education program, which recognizes the necessity for the board and general manager to work closely toward a common goal. SDLA provides the knowledge base to perform essential governance responsibilities and is designed for both new and experienced special district board members.

Completing the first-time track of this conference qualifies for six hours of governance training for the Special District Leadership Foundation (SDLF) District of Distinction and meets the SDLA requirement for the Certificate in Special District Governance.

SDLF

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CSDA News

CSDA Board of Directors Seat C Election Results

The results are in! Congratulations to our incumbents who have all successfully secured another three years on the CSDA Board of Directors. We also welcome new Board Members in our Bay Area and Central Networks.

Northern Network:
Fred Ryness, Director, Burney Water District

Sierra Network:
Pete Kampa, CSDM, General Manager, Groveland Community Services District

Bay Area Network:
Antonio Martinez, Director, Contra Costa Water District

Coastal Network:
Vincent Ferrante, Commissioner, Moss Landing Harbor District

Central Network:
Curtis Jorritsma, District Manager, Hilmar County Water District

Southern Network:
Arlene Schafer, Director, Costa Mesa Sanitary District

2023 CSDA Award Winners Announced

A big congratulations to all of this year's CSDA Annual Award winners! Individuals and districts both received awards acknowledging their achievements in various areas including exceptional public outreach, leadership, and innovations! The awards were presented at this year's CSDA Annual Conference & Exhibitor Showcase held August 28 – 31, 2023 in Monterey.

1. **Exceptional Public Outreach & Advocacy Award (Large District Category)**
Tahoe City Public Utility District for its Tahoe City Public Utility District Takes Action to Protect Communities from Wildfires

2. **Exceptional Public Outreach & Advocacy Award (Small District Category)**
Reclamation District No. 1000 for its public relations campaign 4Natomas - Levees. Lift Pumps. Lives. Longevity.

3. **Innovative Project of the Year Award (Large District Category)**
Orange County Water District and Orange County Sanitation District for their Recycling 100 Percent Local Reclaimable Wastewater Flows into High-Quality Drinking Water

4. **Innovative Program of the Year Award (Small District Category)**
Camarillo Health Care District for its Adventures in Virtual Reality

5. **Excellence in Technology Award**
Soquel Creek Water District for Using Innovative Technologies to Ensure a Sustainable Water Supply

6. **Chapter of the Year Award**
Tuolumne County Special Districts Association

7. **William Hollingsworth Award of Excellence**
Vincent Ferrante, Moss Landing Harbor District

8. **Staff Member of the Year Award**
Bridgette Burton, Management Analyst/Board Secretary, Big Bear Area Regional Wastewater Agency

9. **Board Member of the Year Award**
Charley Wolk was unable to attend. Accepting on his behalf were Fallbrook Public Utility District General Manager Jack Bebee and Board Member Jennifer Demeo.

10. **General Manager of the Year Award**
Peter J. Kampa, CSDM, Groveland Community Services District

11. **Ralph Heim Public Outreach & Advocacy Award**
Emily Barnett, Communication Services & Governmental Relations Manager, Central Contra Costa Sanitary District


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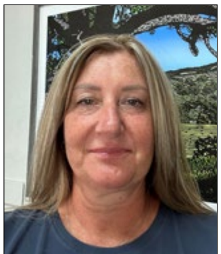
You Ask We Answer

Questions Appear in CSDA Online Communities

Board Members' Pay

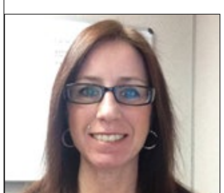


Q: Candi Bingham, General Manager, River Pines Public Utility District

Hello, CalPERS is telling us that our board members should be "employees," receive W-2's, and have the appropriate taxes taken out. Their stipends are only $75 a month. Our CPA has always told me that they are to be given 1099's. My board members have told me that if they have to pay taxes, they will all resign. We are such a small district; I do not know how we can do this. Is CalPERS correct?

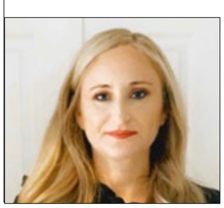
A: LaDawn Allen, Interim Accountant III, Elsinore Valley Municipal Water District

Hi Candi, We pay our board members as employees and they receive W-2s. I hope you find a resolution that works. Being a small district does have unique challenges.



A: Kristen Baker, District Bookkeeper, Delano Mosquito Abatement District

Hi Candi, Our Board Members are treated as employees, with Worker's Compensation and taxes. They receive $100 minus taxes per month they attend, and we give them W-2's just as a regular employee gets. We too are a small district; I have been in my current position for just over 2 years and pay has been handled the same way since at least 1995 that I am aware of.



A: Christal Martinez, Executive Director, North Kern – South Tulare Hospital District

Hi Candi, We are a small district as well. We pay our board members as employees. You can remind your board members that they are able to complete their tax withholding paperwork however they would like, which can affect how much they pay in taxes on their checks. At the end of the day, they're paying taxes on it as a 1099 employee as well, just not until the end of the year.

Engage with your peers and ask questions on CSDA's Open Forum community!

https://www.csda.net/communities-home

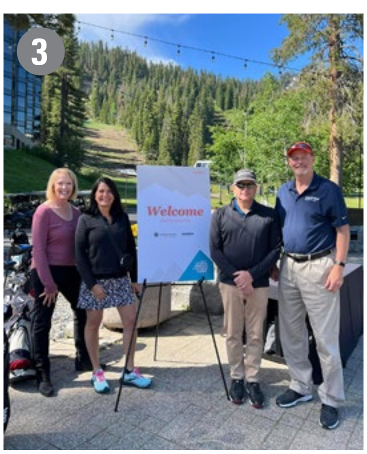
CSDA Disclaimer: This section is not intended to be legal advice. Members should always seek legal counsel. The information contained here is for general reference purposes only.

In Review

General Manager Leadership Summit

June 25-27, 2023, Olympic Valley

1. Combat veteran Dr. Jannell MacAulay gave the inspiring opening keynote address “Command Your Mindset.”
2. Keynote Speaker Pete Blank gave a motivating leadership keynote on “The Magic of Employee Engagement.”
3. Representatives from Umpqua Bank (left) and Centrica Business Solutions (right) – thank you for sponsoring golf!
4. California CLASS’ Tom Tight presented “Designing a Well-Balanced Liquidity Strategy in the Face of Uncertainty.”
5. Attendees enjoy the networking receptions.
6. (L-R): CSDA’s Kyle Packham, CalPERS’ Michael Cohen, National Special Districts Coalition’s Cole Arreola-Karr, and CSDA’s Aaron Avery presented on “State of CA Pensions and Latest from Inside our State and Federal Capitols.”
7. We appreciate our attendees, sponsors, and exhibitors!
8. CSDA’s General Manager Leadership Summit crew hopes everyone had an amazing time!
9. S’mores event after reception sponsored by California Class.



Get a Hold of Us

We are always on the lookout for articles and topic ideas.

For editorial inquiries, contact
CSDA Communications Specialist
Vanessa Gonzales, at 877.924.2732 or
membership@csda.net.

For advertising inquiries, contact CSDA at
877.924.2732 or advertising@csda.net.

California Special Districts Association
1112 I Street, Suite 200
Sacramento, CA 95814
toll-free: 877.924.2732
www.csda.net

Meetings & Events

CSDA Conferences

Special District Leadership Academy
Santa Rosa, October 22 – 25

Board Secretary / Clerk Conference
Monterey, November 6 – 8

Upcoming Workshops

Organizational Development**
October 4-5

The Brown Act in an Endemic World*
October 11-12

HR Boot Camp for Special Districts**
October 18-19

Financial Management for Special Districts**
October 25-26

Workshop: How to Get Started with a DEIB Program
November 6, Seaside

Workshop: Tips for Managing the Records Retention Lifecycle
November 6, Seaside

**Virtual workshop*

***Virtual workshop and part of the Essential Leadership Skills Certificate*

Upcoming Webinars

Best Practices for Board/Staff Roles & Communication
October 10

Ethics AB 1234 Compliance Training
October 17

Sexual Harassment Prevention for Supervisors
October 24

Grant Writing 201
October 31

Sexual Harassment Prevention for Non-Supervisors
November 7

SPANISH Sexual Harassment Prev. for Non-Supervisors
November 7

Guide to New Board Member Orientations
November 14

SCAN ME

Go to the CSDA Events Page
https://qrco.de/bddc8t

Send Your Breaking News to Us

Send articles or ideas to membership@csda.net for consideration in the *California Special Districts magazine*, *CSDA eNews*, the CSDA website, or on our social media channels.

Endure it or Embrace it: **How Do You Roll with Change?**

By Kristin Withrow, CSDA Communications Specialist

There is a universal truth: Change happens. Relationships evolve, children grow up, technology shifts, co-workers move on, accidents happen. Humans do not remain static, either. Every day is slightly different, from miniscule happenings to unexpected monumental events that turn everything upside down. Your mindset, your reaction, and your attitude are the elements you have control over. To the rest, we must endure or embrace.

The CSDA Board Secretary/Clerk Conference Keynote Speaker this year is Merlyna Valentine, an educator and international public speaker who will be presenting a story of change that inspires audiences to embrace an optimistic, thoughtful mindset in the face of adversity.

"All of us will face some form of adversity that we didn't choose, and we have to figure out how to move forward, to maintain an outlook that allows us to come out of it better and not bitter." Merlyna Valentine

The thing about change and adversity is that it's subjective. Some people naturally bend to situations while others resist in an effort to maintain the status quo. Merlyna's life-changing experience left her no choice but to change, and she discovered a resilience along the way that she uses to teach and inspire others. She noted three cornerstones to embrace when change happens: Possibilities, Perseverance, and Perspective.

Sometimes change happens unexpectedly and quickly. When big moments arise, it can be hard to pivot from one reality to the next. According to Merlyna, the first step is to see the possibilities presented by the new landscape that has arrived in your life. "Life is full of possibilities, but they can be disguised as challenges, barriers, even roadblocks," she said. Develop a mindset that seeks to break through perceived limitations, to seek out creative, innovative solutions that transform stop signs into yield signs. "Proceed with caution, but continue moving forward," she advised.

Once the possibilities in situations have been envisioned, move into a mindset of perseverance to continue forward in a set direction. "You might not know how strong you are until being strong is your only choice," she said. People

> *"All of us will face some form of adversity that we didn't choose, and we have to figure out how to move forward, to maintain an outlook that allows us to come out of it better and not bitter."*
>
> *Merlyna Valentine*

have a natural tendency to retreat to a position that is safe and easy, but in a changing situation the building of resilience and perseverance toward an outcome will have better results.

To persevere on the journey, it is critical to consider a fuel supply to build resilience. Merlyna described a 'resilience account' like a bank account – to be successful, it needs to have a positive balance. A resilience bank is filled by the moments, people and situations in life that bring joy and passion, and along the way define a sense of purpose. Passion is a catalyst that drives strength and resilience. Merlyna poses a question to her audiences, "If we find what brings us joy, what refuels and re-energizes us, why don't we do that more often?" These deposits in the resilience bank help us be ready when it is time to make withdrawals.

Underlying all the big P's that Merlyna has defined in her journey (Possibilities, Perseverance, Perspective), and even some of the lower-case p's (passion, purpose, process), it is Perspective that underlies it all. In her experience, her perspective shifted once she started focusing on possibilities and knew she would overcome adversity through perseverance. The importance of the P's leads to another p – it's personal. Build upon the foundations provided by seeing the Possibilities, building your resilience to Persevere, and maintaining your Perspective before adversity strikes. By understanding yourself and developing your skills in times of success, you'll have a full bank of resilience and a mindset primed for success to bring yourself through those inevitable times of tumult.

2023 BOARD SECRETARY/CLERK
CONFERENCE

Merlyna Valentine
2023 Board Secretary/Clerk Conference Keynote Speaker

***Merlyna** is a motivational speaker with a unique story about her journey of perseverance. She helps people learn to embrace change and live life to the fullest. She is the author of 'Living Life Without Limb-Its: A Story of How to Embrace Change, Persevere Tough Times, and Live Life to the Fullest!' and the children's book 'Daisy the Extra Special Flower.' Learn more at sherovalentine.net or follow her on Facebook @merlynavalentine or Instagram and Twitter @MerlynaInspires.*

Got Governance?

Difficult Conversations: **Ethics Complaints Against a Board Member**

By Steven Miller, Partner, Hanson Bridgett LLP

Imagine you are the general manager of a community services district. At 9:00 p.m. one evening, you receive an anonymous email, cc'd to the local newspaper and to all board members, that accuses one board member of improperly using district facilities for her personal gain. In short order, you receive phone calls from the board president and the accused board member—who, by the way, are usually on different sides of most issues before the district. You also receive a request under the California Public Records Act from the local newspaper for all emails and other written documents, including on personal devices, that relate to the subject underlying the anonymous email complaint.

Few issues are as sensitive and disruptive as a complaint lodged against a sitting board member. But complaints and their resolution are usually shrouded in secrecy, without the transparency often necessary to learn any meaningful lessons that could help a district chart a course in the aftermath of a complaint. An ethics complaint may raise legal challenges for a district. But even if a complaint does not allege significant fraud or other criminal behavior, a complaint alleging board member ethical misconduct presents political and practical challenges that, at a minimum, may cause an enormous distraction from the administration of the district and its important mission.

This short article suggests a framework for how to address a situation like this one. While facts and circumstances of each situation are unique, this framework is designed to help guide you through this process. Even though I am a lawyer, I suggest an approach that is not necessarily guided only by a traditional legal risk assessment.

I suggest that the crucial question to ask yourself at the outset of the process—and then to check in again and again—is how to define success. What is the best or desired outcome from this complaint? This is often not an easy question to answer.

First, of course, you must protect the district legally. A successful outcome must include managing such risk to the district. But from my nearly 20 years of ethics practice, the most common risks I see from situations like this one are not strictly legal. Rather, an often-ignored risk is to a district's culture. A mis-handled ethics complaint could foster a culture of secrecy and mistrust, not only among staff, but critically among the public. If not handled properly, an ethics complaint like this one could lead to increased Public Records Act requests and increased hostility at public meetings. This can create a vicious cycle which only leads to more and more tensions between the district and the public and between the board and staff, more dissension among the board, and less and less staff cohesion. What once might have been a model of a well-run district now demonstrates with increasing frequency examples of dysfunctional governance. Once the public's trust is lost, it is very difficult to regain.

Avoiding this pitfall is not always easy. District leaders should be guided by transparency and a well-tuned ethical compass. Some practice pointers from my experience:

Closed session discussions should not be the default response. Even when allowed by the Brown Act (and a closed session may not be an option for board discussions of many ethics complaints), holding difficult conversations in public will promote a culture of transparency and may prevent public charges of cover-ups and conspiracy.

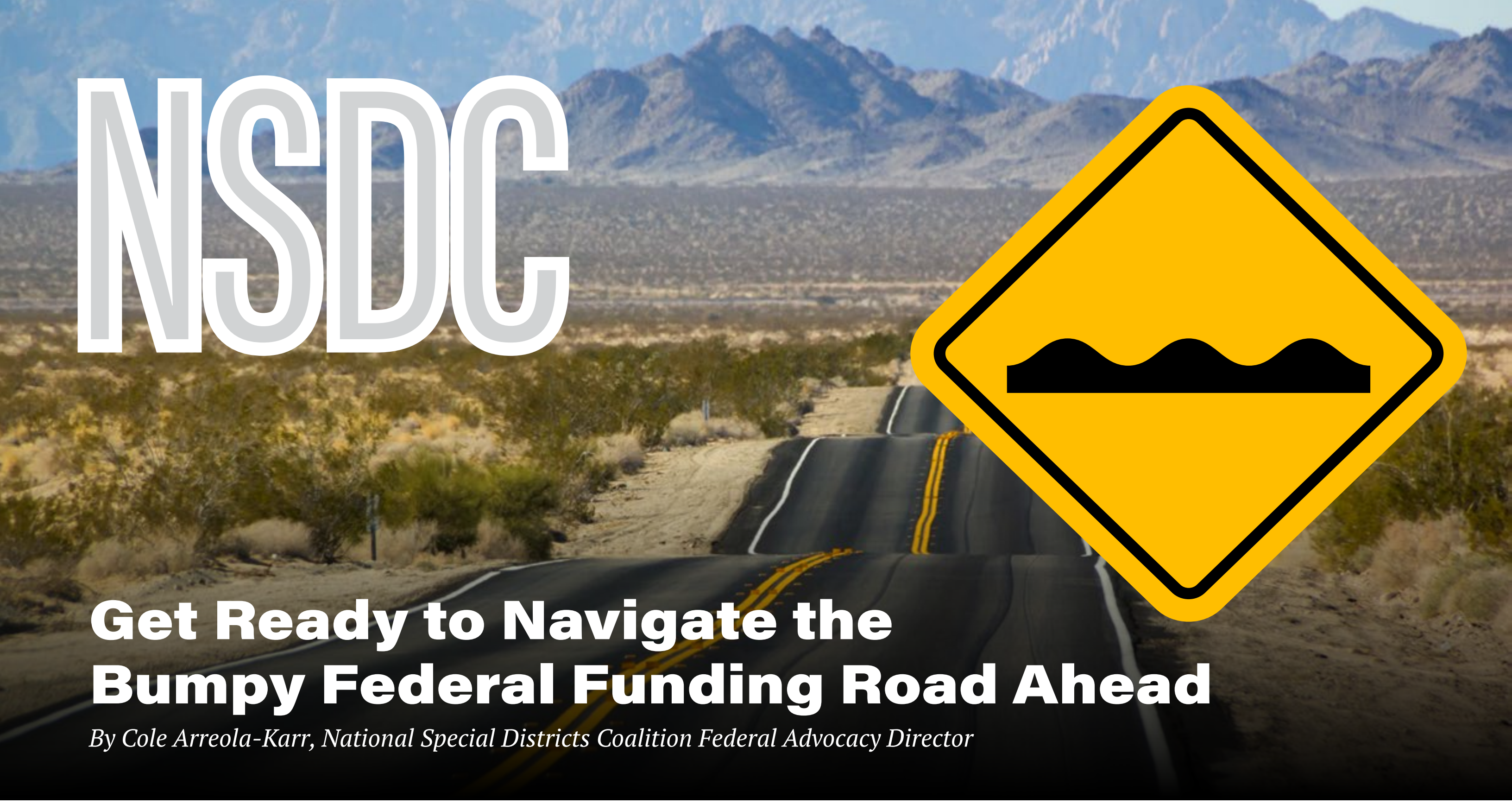
Err on the side of independence. When a respondent to an ethics complaint is a board member, it may be very difficult to conduct an internal investigation that will have credibility with the public. Engaging an outside investigator is usually a prudent course of action. Consider making the investigator's written report public.

Support your staff. Pay attention to the impacts of a complaint on your staff. They may need your protection from angry members of the public and even from intrusive board members.

Use this as an opportunity to refresh district policies. Do you have a Code of Conduct for board members? When was it last updated? Does it include a section on process that will help navigate the response to a complaint? In particular, does it describe options for a board that wants to enforce a finding that a board member has violated the Code of Conduct?

Use this as an opportunity to improve your district's ethical hygiene. I am all in favor of the required AB 1234 training. But training programs specific to your district and your board members may also be helpful. Consider including a standing five minute "Good Governance Hot Topics" item on board meeting agendas to help impart useful information and promote and restore the district's ethical reputation. Develop a curriculum of bespoke training that works for your board and your district.

Steven Miller *is the independent ethics investigator/evaluator for the City of Sacramento Ethics Commission and the City of San Jose Board of Fair Campaign and Political Practices (formerly Ethics Commission). He is general counsel to two special districts and advises on ethics, governance, contracts and procurement, and regulatory matters throughout the State. He is a partner with the law firm Hanson Bridgett LLP. You can reach Steven at smiller@hansonbridgett.com.*



NSDC

Get Ready to Navigate the Bumpy Federal Funding Road Ahead

By Cole Arreola-Karr, National Special Districts Coalition Federal Advocacy Director

Finding common ground on the extent of federal government spending and the amount of federal services provided has long been the core of bitter partisan squabbles in Washington. This battle has been on full display in 2023 through the Fiscal Year 2024 federal appropriations process. As this process continues, we know one thing is certain: There will be cuts to federally-supported programs in the coming years.

As the nation's local governments begin to brace for significant reductions in federal funds, it is critical for special districts to prepare themselves for a more competitive grant environment.

The National Special Districts Coalition (NSDC), through its partnership with The Ferguson Group (TFG), is a premiere resource for special districts as they seek to traverse the increasingly rugged federal grants landscape. NSDC/TFG services are designed to reduce the burden many special districts face in their approach to funding opportunities with a variety of professional resources to guide the way.

Educational webinars are among the grant programming benefits CSDA members may access as a benefit of the association's NSDC founding membership. California's special districts are encouraged to access the 2023 NSDC Webinar Series covering grants strategy, advocacy, and earmarks. These recorded webinars have been made available on www.csda.net.

Beyond this, CSDA members have access to a range of tools at their disposal to navigate the at-times complicated and overwhelming grants process. These resources are well suited for a range of programming needs and the stages of their development – whether a special district has specific project needs or is just beginning their funding search for potential projects.

Namely, NSDC's premier grants resource was launched in partnership with TFG in January 2022. Entitled the "Project Idea Portal," this platform is designed for NSDC-affiliated special districts to submit information on infrastructure needs or community programming for which funding opportunities are sought. Districts may submit details of their projects via the webform, which TFG's grants team will review and work with the district to identify potential grant and finance opportunities. Within a week of submission, the Grants Team will respond with potential opportunities befitting of the needs, which may include a relevant "General Grants Guide" offering information on a number of authorized federal grants. Special districts may request a meeting with the Grants Team for consultation and further questions.

Special districts utilizing the Project Idea Portal or other NSDC grants services may, but are not obligated to, seek further engagement with TFG's full grant services using a competitive, grandfathered and discounted offer to NSDC members. Information submitted via the Microsoft Form is not shared with third parties.

TFG's general grant guides offered through NSDC provide a wealth of information on authorized federal grant and financing programs on a range of policy topics including:

- Broadband
- Cybersecurity
- Economic and community development
- Fire protection
- Libraries and museums
- Mental Health
- Parks and Recreation
- Rural development
- Transportation
- Water and wastewater

Each guide includes information on specific programming, examples of successful projects, details of funding requirements such as cost sharing, and contact information for federal agencies implementing the programs.

Furthermore, NSDC members may receive weekly updates on newly opened federal grant opportunities of general interest to special districts. These announcements are regularly provided through NSDC's state and regional special district associations and organizations. California's special districts receive this weekly listing directly in their inboxes each Tuesday with *CSDA eNews*.

Finally, CSDA members have access to appropriations and earmark support. Each year, Congress must pass 12 appropriations bills to ensure funding for federal programs. Members of Congress generally begin seeking stakeholder input on federal funding and program needs to effectively represent constituent needs. NSDC and TFG offer information and guidance on the Appropriations process for members as well as with the congressional earmarks program. Earmarks assistance requests may also be submitted via the Project Idea Portal.

The Coalition is excited to continue offering these important resources to California's special districts providing essential services to tens of millions of Californians.

For more questions or more information, contact Cole Arreola-Karr, NSDC Federal Advocacy Director, at colek@nationalspecialdistricts.org.

The Project Idea Portal can be accessed at www.nationalspecialdistricts.org/advocacy/grants.

MOVERS & SHAKERS

Joanne Yen Le

Congratulations to Coachella Valley Water District's new Director of Environmental Services **Joanne Yen Le**. Yen Le comes to the position with broad and extensive experience in environmental services, wastewater programs, drinking water systems, stormwater program management and laboratory leadership.

Helix Water District

The Climate Registry has recognized **Helix Water District** as a Water-Energy Leader Gold organization after the district reduced its electric use by 15% and greenhouse gas emissions by 40%. The Climate Registry made the announcement this month after the University of San Diego's Energy Policy Initiative Center confirmed the district's 2019 and 2021 total greenhouse gas emissions are 40% lower than those in 2009. EPIC's findings were verified by a third party.

Adam House

The Sacramento Metropolitan Fire District Board of Directors hosted a momentous swearing-in ceremony welcoming the appointment of **Fire Chief Adam A. House**. Chief House will serve as the district's seventh Fire Chief. His selection will succeed the distinguished service of Interim Fire Chief Dan Haverty. Chief House holds the distinction of being the first Fire Chief to serve continuously as a member of Metro Fire since its inception in 2000.

Chief Keith McReynolds (left) of North County Fire Protection District welcomes the City of Vista Fire Department's newest **Chief Gerard Washington** (right).

San Bernardino Valley CEO/General Manager Heather Dyer, staff, Esri founder and president Jack Dangermond, and Esri team members celebrate receiving the Special Achievement in GIS Award at the 2023 Esri User Conference. Photo credit: Esri

Esri, the global leader in geographic information and intelligence, presented **San Bernardino Valley Municipal Water District** with the Special Achievement in GIS (SAG) Award on July 12, 2023, at the annual Esri User Conference (Esri UC). Selected from hundreds of thousands of users worldwide, San Bernardino Valley received the award for its innovative use of mapping and analytics technology in water resources management.

"San Bernardino Valley is a regional agency tasked with approaching complex problems of today and tomorrow through collaboration, bold leadership, and innovative ideas," said Heather Dyer, San Bernardino Valley CEO/ General Manager. "The GIS technology made available through Esri allows us to make science-based decisions for a resilient water supply and healthy watershed."

Paul Hughes

Congratulations to the new General Manager of South Tahoe Public Utility District, **Paul Hughes**, on his appointment in August. "The Board interviewed great candidates and unanimously selected Paul Hughes," said David Peterson, Board President. "He is an outstanding leader, outstanding fiscal manager, and outstanding problem solver."

Maximize incentives to accelerate clean energy projects

Special Districts in California face similar challenges in implementing comprehensive energy infrastructure projects. Common barriers often include budget constraints, competing organizational needs, and insufficient staffing.

However, with the Inflation Reduction Act (IRA), the total project investment can now be offset with direct pay, enabling non-taxable entities to address deferred maintenance, improve energy and operational efficiency, and progress sustainability goals.

- Performance-based contracts can allow public entities to take advantage of incentives without impacting budget.
- American Rescue Plan Act funds can be used in addition to tax incentives available through the IRA and other utility rebates.

Download our guide to learn how non-taxable organizations can maximize benefits of federal tax credits and deductions available through new provisions in the Inflation Reduction Act.

Scan the QR code to download:

Contact: Dan Mitchell
Email: dan.mitchell@centrica.com
Phone: 949-842-6150

centricabusinesssolutions.com

centrica Business Solutions

Who We Are Campaign

By Vanessa Gonzales, CSDA Communications Specialist & Shelby Golden, CRPD Communication & Marketing Analyst

Cordova Recreation & Park District (CRPD) is an independent special district established in 1958. CRPD proudly serves communities within Sacramento County including the City of Rancho Cordova and the communities of Gold River, Larchmont, Mather, Riviera East, Rosemont East, and additional unincorporated portions of Sacramento County.

Many residents have difficulties understanding which agency might be responsible for various services and whether the service is a function of the city, county, or other local government. Particularly, many residents often assume the City of Rancho Cordova is the service provider for parks and recreation in the area. CRPD's Marketing & Communications staff identified the need to help increase community understanding of their role as the park and recreation service provider in the community. Through discussing community needs with various staff members at multiple locations, community input and CRPD goals, staff identified the need to create a video series and developed content necessary to meet those goals.

Through input received from community outreach, CRPD staff isolated key topics to develop the Who We Are campaign. This campaign features a series of videos which currently cover topics "Welcome to CRPD!," "What is a Special District?," "Making Cents of it All" and "The People of CRPD." There are additional episodes in the process of being developed where CRPD staff will dive into topics such as park planning, recreation, golf, CRPD Board of Directors, and more. With four episodes currently published, CRPD has received an amazingly positive response from not only the residents, but staff and other agencies as well. The videos have also served as an information reference whether it be on the CRPD website, at community centers or when participating at community events.

As this is a universal struggle for special districts throughout California, staff developed the Who We Are campaign in an effort to help change public perception. CRPD's goal was to help educate the community in a fun and easily understandable way. By developing this campaign, CRPD also strived to increase effective communications with the community. CRPD researched which methods of communication had previously had the highest level of engagement and discovered that videos were gaining much higher viewer rates than stagnant content. Staff invested in select technology to help improve the overall video quality for the campaign. In wanting to make fun and relatable content, all the videos featured footage of real staff members, program participants, and community members.

To increase viewer rates and create more dynamic and engaging content, CRPD reached out to California Special Districts Association's Senior Public Affairs Field Coordinator Dane Wadlé as a guest speaker for one of the main videos in the Who We Are series. One of the most pressing questions CRPD receives is "What is a Special District?" In episode 2 of the video series, this question is answered and Wadlé highlights the importance of special districts and how they are a benefit to the community.

Once the videos were finalized, CRPD utilized various social media channels to promote the content and share it with the community. This campaign was published on CRPD's YouTube channel and Facebook page. In addition, CRPD has shared flyers at various community events and has submitted a handout with relevant QR codes to be handed out to all new residents in Rancho Cordova through the Explore Rancho Cordova program. By providing this information to new residents, staff will be addressing and improving CRPD's identity within the greater Rancho Cordova area.

CRPD has seen an increase in overall content engagement since the Who We Are campaign first few episodes have released. Episode 1 was published on November 8, 2022, and had the highest engagement for the entire month of November. This trend continued for the following episodes. CRPD is excited to release additional episodes in this series to further enhance the community's understanding of the importance of CRPD within the community and the role and services they provide to further elevate the wellbeing of the community. In addition to measuring the success through social media metrics, staff have received verbal acknowledgements and praise from community members, board members and fellow agencies on this campaign.

Check out the videos:

https://qrco.de/beKOpc

Watch Video

Innovative Technology Ensures Sustainable Water Supply for Soquel Creek Water District

By Vanessa Gonzales, CSDA Communications Specialist

Soquel Creek Water District (District), located in Soquel, California, is responsible for providing drinking water to the communities of Aptos, La Selva Beach, Opal Cliffs, Rio Del Mar, Seascape, Soquel, and portions of the City of Capitola. The District relies 100% on groundwater, and unlike most communities in California, they do not receive any state or federal imported water. Their only source of water is locally sourced from the Santa Cruz Mid-County Groundwater Basin, which is one of 21 basins in California that are critically overdrafted and under mandate to be sustainable by 2040. The overdraft has occurred because more water is being pumped out annually than is naturally recharged through rainfall, leaving the area susceptible to seawater intrusion to fill the gap.

Since the 1980's, the District has been aware that seawater intrusion was present in the aquifers at both ends of its operating area. Traditional coastal monitoring wells have been installed to measure water levels and salinity. "We knew we had seawater intrusion creeping inland, but we didn't know how far off the coast the interface was," said District General Manager Ron Duncan. "Our hydrologist warned that if the District did not find a supplemental water supply, we would be in danger of losing our production wells to seawater intrusion, which would destroy the basin water supply."

In 2017, Duncan received a call from a trade ambassador from Denmark. The ambassador indicated there was technology developed that would map the District's freshwater and seawater interface off the coast. Initially, Duncan dismissed the call as a prank or an exaggerated capability. When the ambassador phoned again, Duncan learned more about the technology's functionality and was intrigued.

After consulting with the City and County of Santa Cruz and Central Water District, Duncan introduced the idea to map the coastline of the Santa Cruz Mid-County Groundwater Agency (MGA), which oversees the groundwater management activities of the Santa Cruz Mid-County Groundwater Basin. The District and the MGA established a plan to test whether the technology could accurately detect the interface where seawater was meeting freshwater and threatening the groundwater basin.

The District contracted with two Danish companies, SkyTEM and Ramboll, to conduct a proof-of-concept study. A geophysical survey would be created using an airborne electromagnetic technology to create a 3-D model of the groundwater basin. Outside of three small trials in Europe, the project was the first instance using the new technology over seawater in the world!

Airborne electromagnetics (AEM) is a geophysical method initially developed to map bodies of ore for the mining industry. It works by measuring variations in the electrical conductivity of the ground. The electrical conductivity of rock and soil depends on its composition and water content.

The SkyTEM helicopter, with what looks like a wide magnetic basket hanging from it, collected measurements to identify where the freshwater and saltwater interface occurred offshore – essential information used to understand the immediate risk to coastal wells from seawater contamination. Data collected during this survey assisted scientists in mapping groundwater salinity. The survey was conducted in a grid of 15 flight lines parallel to the coastline and 12 lines perpendicular to the coastline. Two of the perpendicular lines in the southeastern part of the survey were extended inland to calibrate against existing monitoring well data that the District collected. The helicopter flew over 300 km and obtained readings 600 ft below the seafloor.

The data showed variations in salinity in the upper 300 feet to a distance of approximately 3,000 feet from the coastline. In layperson's terms, the AEM mapping and data confirmed that seawater intrusion is imminently threatening the entire service area, and if no action is taken, it will continue to advance and contaminate the District's drinking water wells and the other wells in the region.

"Scientific data produced by this study confirmed the proof-of-concept and validated the sense of urgency of the water crisis in Santa Cruz County," noted Carla Christensen, District Board President. "This hardcore evidence inspired additional national and scholarly attention with confirming peer reviews from the Department of the Interior U.S. Geological Survey and Stanford University."

Using the science and data from the water quality sampling and AEM mapping, the District moved plans forward to develop a new water supply. To combat the threat of seawater intrusion and replenish the basin, the District Board approved the Pure Water Soquel (PWS) project in 2018. PWS will take highly treated wastewater and recycle it by purifying it using state-of-the-art, proven four-step advanced treatment processes including ozone, microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. This high-quality water will be stored in the groundwater basin and will serve as a seawater intrusion barrier to prevent saltwater from intruding further inland. Construction of the project, which will provide a reliable, sustainable, and drought-proof water supply for today and future generations, is anticipated to be complete in 2024.

CSDA is proud to recognize Soquel Creek Water District with the 2023 Excellence in Technology Award for this impressive international partnership and advanced technology achievement.

"We can only know where we're going if we know where we've been"

Maya Angelou

1850
Swamp Land Act gives states federal swamp land with the condition that the land must be reclaimed

1862
The Great Flood of 1862 is the worst in California's flood history

1911
AB1475 establishes RD1000

1914
Pumping Plant 1A is the first district pumping plant built

1910's

1917
Plant 2 was constructed

1930's

1938
Great Flood of 1938 prompts the construction of Pumping Plant 3

1950's

1955
Great Flood of 1955 causes historic flooding north of Natomas

1960's

1964
Pumping Plants 4 and 5 were constructed to accommodate development

1970's

1974
Pumping Plant 6 was constructed to control stormwater runoff in S. Natomas

1980's

1986
Great flood of 1986 tested the pumping capacity of District infrastructure

2000's

2006
Great Flood of 2006 resulted in Plant 2 nearly being lost in a sinkhole

2008
FEMA remaps Natomas flood plain decertifying the levees and placed a building moratorium

2020's

2020
Board Adopts Capital Improvement Plan targeting infrastructure needs

2021
Board Adopts Comprehensive Financial Plan.

2023
Prop 218 Stormwater Feeis approved by the voters funding $96M toward infrastructure projects

2024
District begins CIP construction work, ensuring a flood-safe future for Natomas

ESTABLISHED 1911
NATOMAS
RD1000
FLOOD PROTECTION

Providing flood protection and public safety to residents, businesses, schools, and agriculture in the Natomas Basin since 1911

Learn More!

Small District Wins Big

4Natomas – Levees. Lift Pumps. Lives. Longevity.

By Kristin Withrow, CSDA Communications Specialist

When Reclamation District No. 1000 (RD1000) adopted a capital improvement plan identifying critical infrastructure needs to continue to fulfill its mission to keep the neighborhoods and businesses in the Natomas Basin in Sacramento safe from flooding, the district realized the projects and capital assets required were extensive. After a long and detailed process to identify the financial impact of the needed upgrades, it was determined a fee would be necessary. The district knew they needed to bring the public along on the system's upgrade journey to gain their support for the needed Prop 218 Stormwater Fee.

To help the community understand the needs and benefits of the improvements, they developed a robust outreach campaign. The duty to spend public monies with transparency and due diligence is taken seriously by special districts such as RD1000. They knew the first step was to help the residents they serve understand the history, the flood risk, and the projected future risks in the area.

The Sacramento region has been identified as the second-most likely area to experience a catastrophic flood in the United States – just one spot behind New Orleans. With the devastating impact of Hurricane Katrina in 2005 serving as a warning sign in the region, the district needed the public to know of the prediction that their service area would experience a 'mega-flood' within the next 30 years. Katrina caused an estimated $161 billion in damage and the loss of over 1800 lives. The dire prediction was coupled with the information that the district's current equipment includes some units that are as much as 100 years old.

The necessary improvements were calculated at a cost of just over $96 million over thirty years, including massive equipment upgrades for pumps designed to take water away from the interior storm drain system, as well as removal of silt and debris from drainage ditches and canals, and ongoing maintenance, vegetation removal and interior levee controls.

The district also realized it would need to dramatically improve its visibility in the community. Like so many communities, the majority of residents living in the area did not know the district existed. Many were surprised to learn they were living in a flood zone.

Thus, was created the '4Natomas' public awareness campaign designed to introduce the district to its public and provide a communication line to educate everyone in the area of the situation and the identified solutions. The campaign centered around '4' core principles: Levees. Lift Pumps. Lives. Longevity.

continued on page 28...

The goal was to create compelling messages that were easily understood and conveyed the role of the district, the danger of flooding, the importance of protecting against the risk of flooding, and the critical need to replace the antiquated infrastructure.

They created a website for the 4Natomas campaign to provide a landing place of educational information for their outreach materials. They also refreshed their primary website to make it easier to navigate for people who were researching the district or wanting to learn more about its operations.

District staff attended community events, acting as participants and sponsors of booths for jamborees and concerts in the park. They supported the local Fall festival and festive Santa in Natomas event to create brand awareness through sponsorship recognition banners. At every event, they handed out promotional merchandise with their 4Natomas brand logo and a QR code for more information.

They utilized billboards, radio advertising and even movie theater ads. They went on local news stations for interviews about the possibility of floods in the area, and their plan to prevent it. The public relations team created a video capturing the history of the district changing from agricultural to urban environments, the dangers and costs of flooding, their maintenance process, and explained how the vital infrastructure pumped water out of the district's region. They published a series of stories in the local *N Magazine.*

"The first article was about infrastructure projects and CIP Improvements; it also discussed the district's responsibilities in operating and maintaining the interior canal drainage system. Every month we educated the public on how an urban Natomas Basin elevates the flood risk and the essential work by RD1000 to protect even more lives, property, and infrastructure such as the Sacramento International Airport, and California Interstate-5," said General Manager Kevin King.

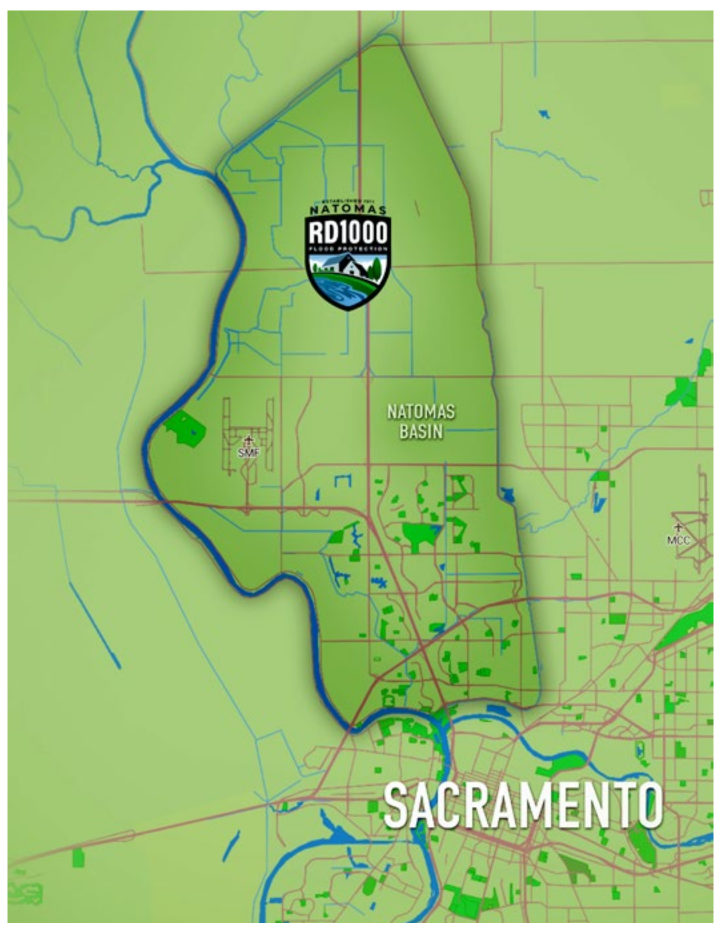
Knowing there was no substitute for meeting people personally, King began hosting regular meetings with the district's Board of Directors and nearby homeowner groups, businesses and elected officials. Meeting by meeting, the District broadcast their message of education and outreach. During the Covid-19 closures, King conducted over 25 Zoom meetings with homeowners associations.

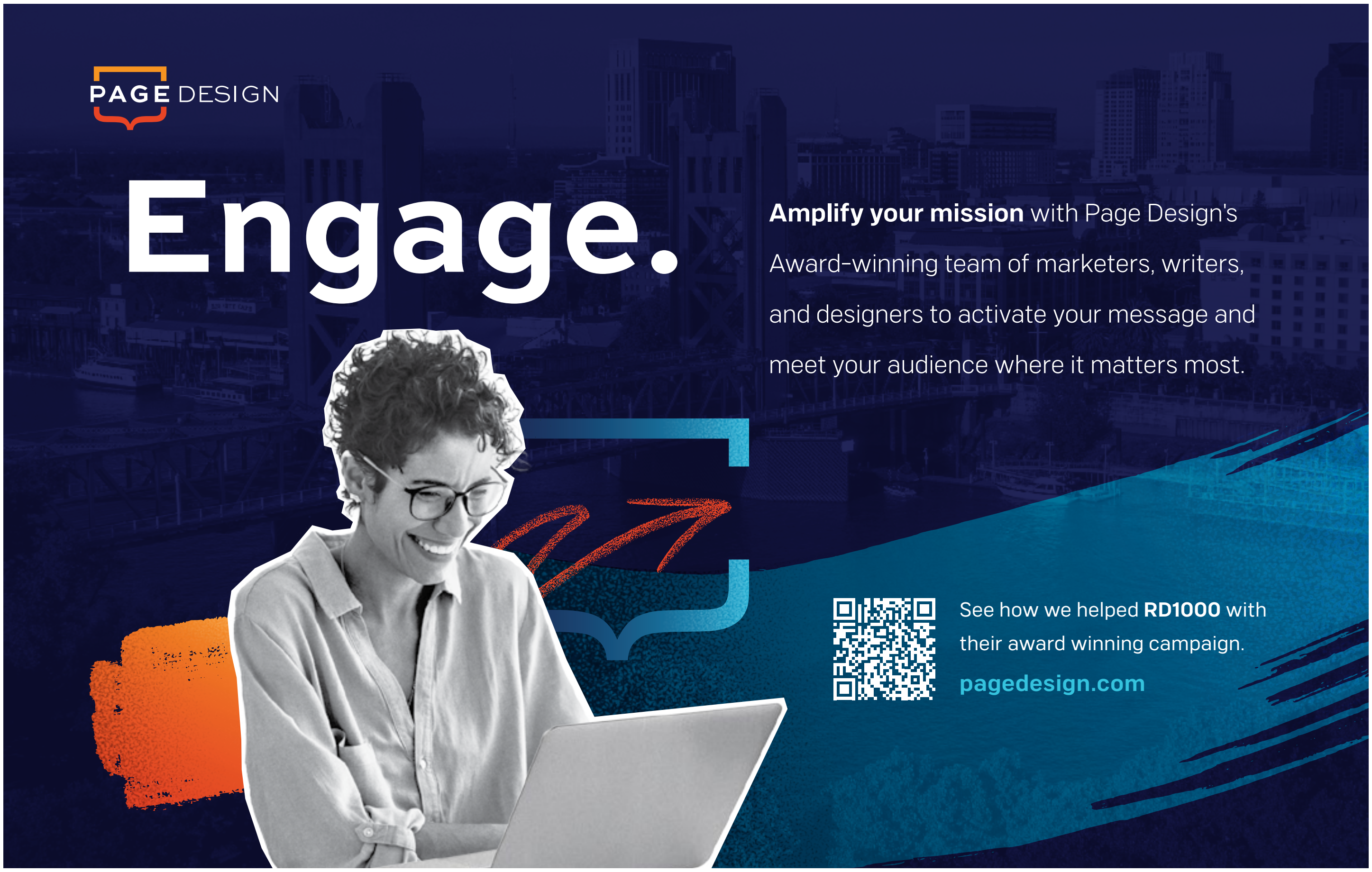
They created a thirty-year flood protection plan that they shared with the community and sought participation to inform the plan.

The District met and garnered the support of Sacramento City Councilmembers; Sacramento County Board Supervisors; CA Assemblymember Kevin McCarty; Congresswoman Doris Matsui, and Congressman Ami Berra. Managers and Board members also met with flood prevention partners: Sacramento Area Flood Control Agency (SAFCA) and the Central Valley Flood Protection Board (CVFPB).

At every opportunity, they introduced the new Stormwater Fee they needed to implement to fund the project. The widespread, cohesive message paid off with the support of a $96 million Prop 218 Stormwater Fee in March of 2023, ensuring a funding source that will enable the district to provide a flood safe future for Natomas for generations to come.

As a result of their impressive efforts, Reclamation District 1000 is the winner of the 2023 CSDA Award for Exceptional Public Outreach and Advocacy by a Small District. Check out their video at https://youtu.be/k2rmSW0FbLE to learn more.

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From the Capitol

Assemblymember Gregg Hart Sees Critical Role of Special Districts

Assemblymember Gregg Hart was elected to the California State Assembly in November of 2022 to represent the 37th Assembly District serving Santa Barbara and San Luis Obispo counties. His background includes roles in local government such as County Supervisor, City Councilmember and Planning Commissioner. This year, he authored AB 557, a CSDA sponsored bill that would extend the ability of local government to meet remotely under statewide-declared emergency. CSDA caught up with Asm. Hart to ask about his experience in his first term.

The following has been edited for space.

How does your background as a local government official impact your knowledge and understanding of special districts?

Over the years, I have worked closely with my special district colleagues and seen firsthand the critical role special districts serve to improve governance, cost efficiency and the quality of public services.

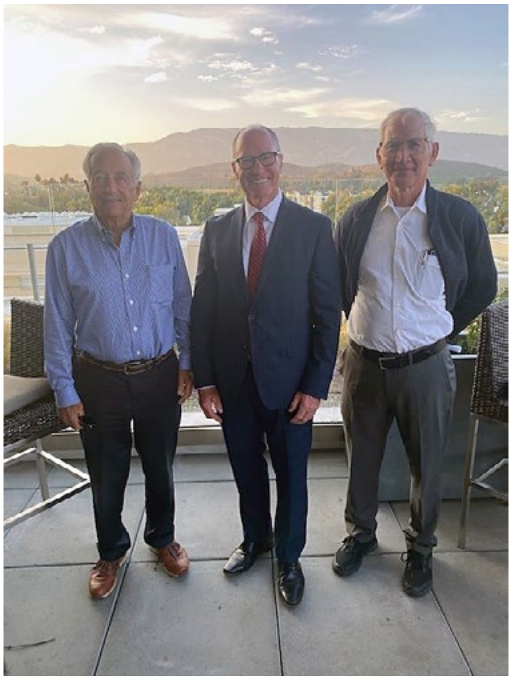
Santa Barbara County has forged strong, successful partnerships with our special districts, ensuring efficient and quality service delivery that caters to the unique needs of our residents. This collaboration has been instrumental in delivering essential services such as water supply, fire protection, transportation, and more.

Many special districts are required to work with the Coastal Commission. As a former Coastal Commissioner, what advice do you have for special districts in such collaborations?

The Coastal Commission can be a complex agency to navigate. I recommend becoming familiar with the California Coastal Act. Understanding the goals, policies, and provisions of the Act can provide valuable insights into the Commission's decision-making process.

I encourage special districts that need coastal development permits to engage with the Commission staff and relevant stakeholders as early as possible. Pre-application meetings can be beneficial in understanding the Commission's expectations and requirements, which can help shape your plans accordingly.

The Coastal Commission values public input and involvement. Be prepared to engage with the public, respond to concerns, and demonstrate how your project



Left: Against a beautiful Santa Barbara sunset, Asm. Gregg Hart (center) enjoyed meeting with Vandenberg Village Community Services District Board Members Ron Stassi (left) and Steve Heuring (right).

Right: Asm. Hart (center) and CSDA Public Affairs Field Coordinator Charlotte Hollifield (right) recognized Goleta Sanitary District Director George Emerson (left) for his years of service to the District, Chapter, and CSDA Board.

aligns with the community's interests and the Coastal Act's objectives. Patience is key, as it may take time to address concerns, resolve issues, and obtain necessary approvals. Keep track of updates, changes in regulations, and relevant public meetings or hearings related to coastal development.

This year, you're authoring AB 557, sponsored by CSDA, that would extend the ability of local governmental bodies to meet remotely under a statewide-declared emergency. Why did you feel it was important to carry this bill?

As Chair of the Santa Barbara County Board of Supervisors during the peak of the pandemic, I saw how important it was for other local jurisdictions and special districts to use emergency authority for remote meetings. Using teleconferencing, we successfully conducted business and ensured public engagement in a safe manner that protected everyone.

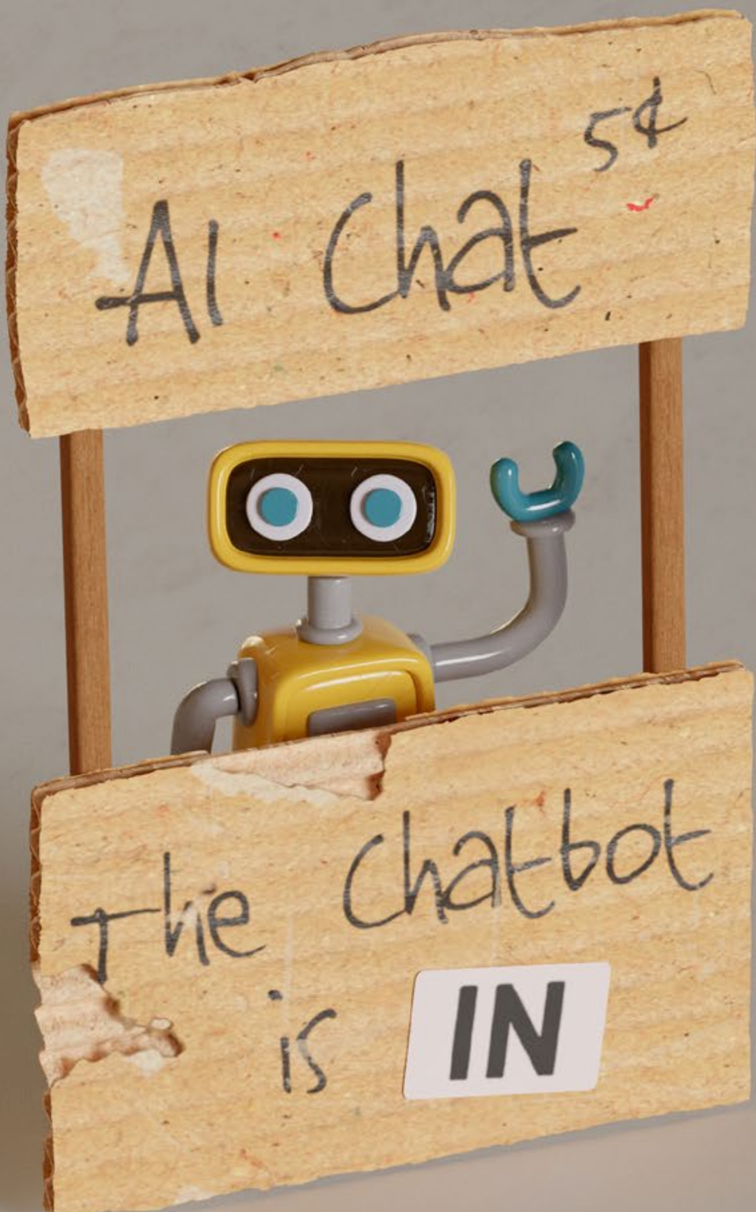
It is evident that preparing for future emergencies is crucial. Recent events, such as catastrophic floods and devastating wildfires, further highlight the significance of AB 557. This legislation will allow local governments to meet remotely during crises, enhance overall preparedness, and strengthen public access to crucial decision- making processes. By enabling broad access to remote meetings, we foster transparency, inclusivity, and responsiveness in times of emergency.

What tips do you have for special districts to effectively interact with their elected representatives?

The most effective public servants build and maintain positive relationships with their constituents, colleagues, and community leaders. Building trust requires investing time and good communication skills.

Elected officials at every level of government benefit from hearing about success stories and positive outcomes resulting from the district's initiatives. Demonstrating the district's contributions to the community's well-being will earn the support and appreciation of elected representatives.

Tech Tips



ChatGPT in the Public Sector: **4 Tips to Help You Get Started**

By Zacc Dukowitz, excerpted from an AI guide for government created by OpenGov, available at opengov.com/article/ai-for-government/

AI is all over the news lately.

Some municipalities, like the City of San Jose, are issuing guidelines to help public sector employees understand how to use tools like OpenAI's ChatGPT and Google's Bard safely. Others are simply banning AI altogether, at least for the time being.

And the applications seem endless. Before long we may see ChatGPT helping those in the public sector plan strategic budgeting, create annual reports, or even analyze backlogs of deferred maintenance to prioritize the order in which they're done.

While it's true that generative AI has the potential to streamline your work, increasing productivity and saving time, it's important to orient yourself on how to use it and the pitfalls to avoid.

Here are four tips for using ChatGPT in the public sector.

1. **DON'T RELY ON CHATGPT FOR FACTS OR DATA**
   ChatGPT can make things up. The word coined for this phenomenon is a hallucination—and because of hallucinations, you shouldn't trust ChatGPT to produce facts or data for you.

   To put it another way, if you ask ChatGPT a question about an event in history, or about a local law affecting your special district, it may produce an answer—even if the event never happened.

   On the other hand, if you provide data to ChatGPT and have it analyze that data, you can trust the results. Just don't trust it to create its own data or facts.

2. **DON'T SHARE SENSITIVE INFORMATION**
   If you're using a free ChatGPT account, then any information you enter will be used to train it and will be in it forever.

   » To avoid privacy concerns: Don't input private data or personal data, such as emails, birthdays, or social security numbers, into ChatGPT or other generative AI tools.
   » Consider opening a paid account so you can retain ownership of your data. *Double check with your CIO or IT lead about this before assuming that a paid account will protect your privacy.
   » Turn off data sharing as best you can.

3. **WORK ON YOUR PROMPTS**
   To get the best outputs from ChatGPT, make sure you spend time on the prompt you're using. If your prompt is short and lacks detail, the results probably won't be that good, and may require a lot of work to get closer to the level of quality you want. To make better writing prompts, try using the RELIC formula:
   » Role — describe the ideal persona for doing the writing you need.
   » Exclusion — is there anything you don't want included in the output?
   » Length — how many words do you want the output to be?
   » Inspiration — provide an example piece of writing that can be used to guide tone, style, and voice for ChatGPT's writing.
   » Context — why are you doing this task and how will the output be used?

   Don't worry about using all five every time. Instead, use these five types of information as guidelines. And if you don't like the result, you can always try providing more detail—especially for the persona.

4. **ITERATE, ITERATE, ITERATE**
   If you don't like the initial output you get, ask ChatGPT to try again.

   Provide specifics when you do this, such as, "That was good, but please write it again and make sure you use the voice of a public sector professional who is writing for other public sector professionals."

   Keep trying until you get what you want.

OpenGov is the leader in modern cloud software for cities, counties, state agencies, school districts, and special districts. They are a CSDA Business Affiliate with a mission to power more effective and accountable government. OpenGov serves thousands of public sector leaders and their organizations.

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What's So Special

Adventures in VR

By Vanessa Gonzales, CSDA Communications Specialist & Kara Ralston, Camarillo Health Care District CEO

“This is trippy!” We will never forget this description of the Camarillo Health Care District’s “*Adventures in VR*” program. We’ll also never forget, and never tire of, the feeling of changing someone’s life and sense of well-being through our services.

There is no denying that the COVID-19 pandemic exacerbated already existing risks of isolation, loneliness, and depression, especially for older adults. With so many services moving immediately into online-only access, digital literacy also became a significant issue, as most medical providers offered tele-health visits only during the depths of the pandemic. As you might imagine, many households of older adults didn’t have all the computers, cameras and other equipment needed for telehealth, and also didn’t have the digital literacy (skill set) needed to use it for regular and preventive health care.

So as the various pandemic restrictions began lifting, the Camarillo Health Care District (District) needed to re-emerge into a very different world, which required very different thinking to address these exacerbated issues of isolation, loneliness, depression, and now digital literacy. The question was: How do we help with such difficult issues in a way that is engaging enough for people who want to participate, and how do we fund it?

The answer was…you guessed it…with virtual reality (VR)! According to the study “*Impact of Virtual Reality Experience on Older Adults’ Well Being*” published by MIT’s Integrated Design & Management and MIT AgeLab, “VR is believed to be beneficial to older adults due to its immersive interaction capabilities. Participants who used the VR system reported being less socially isolated, being less likely to show signs of depression, experiencing positive affects more frequently, and feeling better about their overall well-being.”

We were hooked, and the rest has become history. Following research on the emerging use of VR in health care, and a special COVID-19 Community Relief appropriation from our Assemblymember Jacqui Irwin, the District launched “*Adventures in VR*,” a virtual reality program that teaches digital literacy while having fun and sharing experiences as a group, thereby addressing loneliness and depression. The program is broadly inclusive and addresses some socio-economic factors, as many households don’t have discretionary income to purchase VR equipment. Now we just had to get people to try it!

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The term "virtual reality" is new to quite a large segment of the population, but true to the MIT studies, the immersive and interactive elements of the program drew people in. "*Adventures in VR*" offered a way for people to "travel" (virtually) again, some of whom are unable due to physical or financial challenges, or other issues such as being full-time caregivers for loved ones. Some of the VR programs include "BRINK Traveler," "Wander," AARP's "Alcove" and "National Geographic Explore VR." Wander and BRINK Traveler are 360-degree, immersive applications of specific locations, such as state and national parks, historic landmarks, and cityscapes at true scale. The Alcove application features 360-degree immersive video and includes virtual hot-air balloon rides over the Swiss Alps and Kenya, guided bus tours in Tokyo, Dubai and other international cities, USA road trips by car, and exploration of major cities, historical landmarks, and other locations around the world.

"It's so invigorating…it's the feeling of actually being there!" said a 68-year-old retiree who stopped traveling to care for her husband. The time she spends with VR provides some much-needed respite, and an opportunity to socialize over common experiences with others in the class. District CEO Kara Ralston added, "Offering such an exciting opportunity for people of every age and ability, coupled with fantastic results of addressing loneliness, depression and digital literacy is what we live for."

Since the launch of the program in late 2022, more than 250 people have been served, between the ages of 22 and 96, with a 95% approval survey! With validation that our wacky idea was working, we approached the City of Camarillo and applied to their community grant program to fund a pilot Mobile VR program so that we could take the VR experience to those who are homebound. What a moving experience that has been!

That's where we heard, for the first time, the program's new motto: "This is trippy!" shared by an 80+ year-old homebound resident. This program fully embraces our purpose of changing aging through innovative health and wellness and has literally moved our staff to tears watching how their program is affecting people and changing lives. This ***is*** very trippy, and we encourage you to try a virtual reality experience if you haven't yet!

As a result of their impressive efforts, Camarillo Health Care District is the winner of the 2023 CSDA Award for Innovative Program of the Year by a Small District. Check out their video at https://youtu.be/rFpm32jPl8o to learn more.

Legal Brief

New Campaign Finance Law Creates Potential Pitfalls for Local Officials

by Craig Steele,[1] Richards, Watson & Gerson

California's Political Reform Act[2] ("PRA") is the main conflict of interest law that governs the activities of local public officials. Throughout the history of the PRA, campaign contributions to elected officials have never created a conflict of interest requiring action by the recipient, until now[3]. SB 1439, effective January 1, 2023, will require new vigilance by elected and appointed officials about the identity and interests of campaign contributors.

This article is not legal advice on the full text and specific application of SB 1439 but is intended to be a broad overview for local elected officials and staff, with concepts to consider and discuss with your counsel.

Following SB 1439, if an elected or appointed official of a local agency[4] willfully or knowingly receives a campaign contribution of more than $250 from a party or participant with a financial interest[5] (or their agent) in a proceeding before the agency within the preceding 12 months, the officer must disclose the contribution on the record of the proceeding before the decision is made and recuse themselves from the decision. Further, elected and appointed officials now cannot solicit, accept, or direct a campaign contribution[6] of more than $250 from the party, participant with a financial interest, or their agents, while the proceeding is pending and for 12 months after it concludes.

The term "proceeding" includes many types of local government licenses, permits, or entitlements for use, and all contracts, except competitively bid, labor, and personal employment contracts[7]. The time frames imposed by Government Code Section 84308 kick-in when the agency begins consideration of one of these governmental proceedings and lasts while the decision is pending.

It is understandable that an official must avoid conflicts of interest associated with a party who is a campaign contributor of more than $250 in the 12 months prior to a governmental decision. Similarly, the ban on soliciting campaign contributions of over $250 from the party to a governmental decision for 12 months after the decision is relatively straightforward. But SB 1439's new concept, that campaign contributions of more than $250 from participants with a financial interest in a proceeding also can create a conflict of interest for the recipient, will be a much more difficult provision to comply with.

A participant is defined as a person who lobbies, testifies in person, or otherwise communicates with an officer or employee of the agency for the purpose of influencing the decision-making, but is not a party to the decision. The officer must have actual knowledge of the participant's financial interest, or the participant must reveal facts

continued on page 38...

during the proceeding that make that person's financial interest apparent. The participant's financial interest might include a real property interest within 500 feet of the real property at issue; an economic interest in a business that could see an increase or decrease in customers; or a business relationship with the party that could increase the services provided to the party[8].

This new participant-based conflict of interest could create significant problems for local elected officials who accept campaign contributions over $250. In the case of a "participant," two facts are important to know to avoid violating Government Code Section 84308:

1. If a "participant" contributed over $250 to the official in the 12 months prior to a decision, and
2. If the "participant" has a financial interest in the governmental decision.

If the official knows those two things about a participant, they must disclose the contribution and immediately recuse themselves from the decision. This requirement is obviously perilous for local officials, not to mention fertile ground for those who want to force the recusal of a decision-maker in a matter. Those who watch these issues in your community may compare the identities of parties and participants to campaign disclosure reports and use arguable violations of Government Code Section 84308 for strategic or political advantage.

A helpful protection provided in SB 1439 is the official's ability to cure potential violations or inadvertent violations by returning contributions within a short time. Local officials and counsel should be aware of these provisions and the deadlines.

As noted, SB 1439 requires extra attention to avoid violations. And it may well be in your agency's interest to help officials comply with this new law. The following are some basic recommendations to help compliance:

1. Campaign committees must carefully monitor contribution amounts, and officials should consider self-limiting contributions to $250 or less for purposes of both the fundraising ban and the recusal requirement.
2. Committees should also ensure that multiple small donations from a repeat donor do not amount to over $250 within a 12-month period.
3. Public agency staff should consider whether it is practical to compile lists of donors of more than $250 for each official to help with compliance[9].

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1 Shareholder, Richards, Watson & Gerson; General Counsel, Nipomo Community Services District and City Attorney, City of Monrovia. My thanks to my colleague Natalie Kalbakian, whose research and input on this issue has been invaluable.

2 Government Code §§ 81000, et seq.

3 Much of the law that is discussed in this article already applied to appointed local officials.

4 See the definition in Government Code Section 82003

5 Assuming the official knows, or has reason to know, of the participant's financial interest. Government Code Section 84308(b).

6 Note that the term "contribution" includes contributions to federal, state, and local campaigns. Government Code Section 84308(a)(6).

7 Government Code Section 84308(a)(5)

8 Please consult the FPPC's regulations for a more detailed description.

9 This assistance by the agency is not a legal requirement.

Marketing Matters for Recruiting and Retaining Employees

By Melissa Asher, PMP, SHRM-SCP, CPS HR Consulting

Recruiting and retaining employees in today's competitive job market requires more than traditional methods, especially for public sector organizations. To be effective, progressive organizations are adopting marketing tactics to attract and engage talent. This article explores various marketing techniques that can be applied to the recruiting process, providing insights and strategies to optimize finding and retaining talent.

1. UNDERSTAND YOUR TARGET AUDIENCE

Define your ideal candidate profile by considering qualifications, skills, background, and motivations. Think through where your target candidates spend their time, both online and offline. This is critical to tailoring your message and knowing where to place your message to resonate with your desired talent pool. An example of this is to post a job opening for a financial position with the California Society of Municipal Finance Officers (CSMFO). Or, for recruiting in a rural area known for mountain biking, post on a Facebook group for mountain biking enthusiasts.

2. BUILD A STRONG EMPLOYER BRAND

Your employer brand plays a crucial role in attracting top candidates and can help you retain your current team. Develop a strong employer value proposition (EVP) that showcases your organization's unique culture, values, benefits, and career growth opportunities. This can be a focus on family, commitment to employee development, stability, care for the community served, flexibility, or other things that make your organization worth joining. Then consistently communicate your EVP through multiple channels, including your website (external and intranet), social media, and employee testimonials. Highlight what sets your organization apart and why candidates should choose to work with you. This is also an opportunity for your current employees to reconnect with and reinforce why they love working for your organization.

3. CREATE COMPELLING JOB DESCRIPTIONS

Craft job descriptions that go beyond a list of responsibilities and requirements. Apply marketing principles to make your job descriptions engaging and captivating. Use persuasive language, emphasize the impact and purpose of the role, and clearly outline the benefits and opportunities it offers. This is especially important for public sector jobs where unclear or technical language is often used. Your goal is to give prospective candidates reasons to apply. Tout the benefits and promote your organization (see EVP above). Make sure you are using short and descriptive job duties and leading with a clear job title that most people will understand. If you are really feeling ambitious, incorporate multimedia elements, like videos or infographics, to enhance your job posting.

4. UTILIZE SOCIAL MEDIA PLATFORMS

Leverage the power of social media to reach and engage with potential candidates and highlight your current employees. You probably already have a presence on some platforms, like Facebook or LinkedIn. Leverage that presence by posting regularly and include your job openings. Create and share compelling content, including employee stories, organization news, and industry insights. These can be short quotes from employees, photos of your work, short videos filmed with a mobile phone, or testimonials from your customers. Also, actively participate in relevant groups and discussions to raise your organization's profile in the industry and with potential candidates. Frequently promote your organization using your EVP language. It's okay to start small and increase your activity over time.

5. BUILD BRAND AMBASSADORS

Tap into your existing talent pool by building brand ambassadors. Brand ambassadors are current employees who represent the face, voice, values, culture, and attitude of your organization in a positive way to build awareness and interest in the organization. They will authentically communicate and connect with current and prospective employees through a variety of ways:

- Attending in-person events
- Posting and sharing organizational content
- Creating online content (i.e., blogs, newsletters, testimonials)
- Generating interest and leads in the community

These individuals create a positive "buzz" by spreading the word about your organization to as many people as possible through word-of-mouth marketing, event marketing, content marketing and social media marketing. This also builds a sense of pride, not only in the brand ambassadors, but across the organization as current employees see their colleagues touting why your organization is a great place to work.

6. OPTIMIZE CANDIDATE EXPERIENCE

One of the most important things you can do is to apply customer-centric principles to the candidate experience. Streamline the application process, provide regular updates, and offer personalized interactions. Set yourself apart by creating an application that is easy to complete, limiting supplemental questions, and providing clear communication and timely feedback to candidates. Don't become the black hole of applications. Quickly determine your best applicants and reach out to them personally for an initial screening conversation over the phone or via Zoom. These steps will create a positive impression of your organization throughout the hiring journey, making it more likely that you will snap top talent.

Incorporating marketing tactics into your recruiting efforts can revolutionize the way you attract top talent and keep your current workforce engaged. Tapping into the "why" for your organization is the first step, spreading the word as far and wide as you can, and putting thought and effort into creating a positive experience will give you a competitive edge in today's job market.

So, what is your EVP?

Melissa Asher is a Senior Leader at CPS HR Consulting, leading their Talent Acquisition division. CPS HR Consulting provides integrated HR solutions to the public sector. We offer unrivaled expertise in organizational strategy, recruitment and selection, classification and compensation, and training and development. CPS HR is a Diamond Level Business Affiliate of CSDA. www.cpshr.us

DISTRICTS MAKE THE DIFFERENCE

It's SO Easy to Boost Your Social Media Reach!

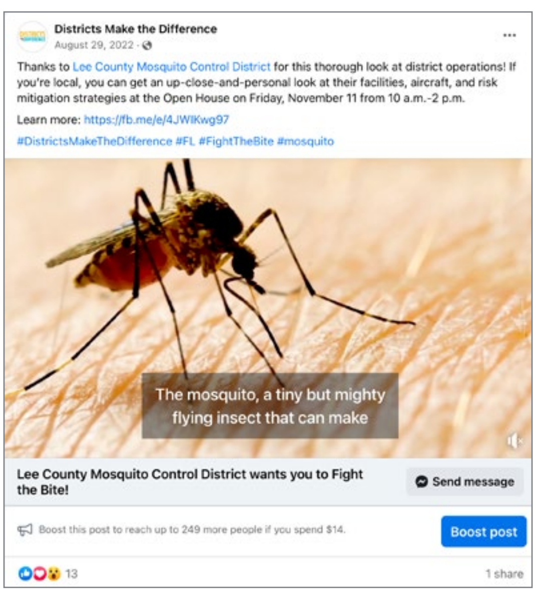
Join the Public Awareness Campaign for Special Districts

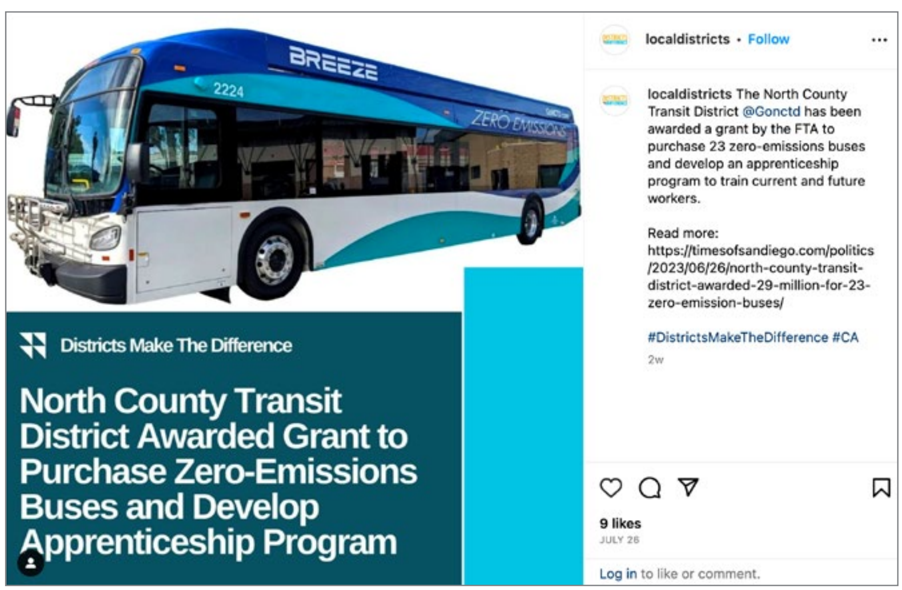
Districts Make The Difference (DMTD) is a public awareness campaign started by the California Special Districts Association and expanded across the United States by the National Special Districts Coalition (of which CSDA is a founding member). Special district professionals know all too well that the general public is unaware of the nuance of special districts as a distinctly local, separate layer of government that provides essential services they rely on in their daily lives.

By broadcasting compelling, positive stories through the Districts Make The Difference social media channels, the term 'special districts' becomes associated with local services and positive connotations. The campaign is also instrumental in helping legislators understand the role of districts and the need to specifically include special districts in their bills and funding to ensure they are effectively governing to the local level.

We invite all special districts across the country (there are more than 30,000 of them!) to join the campaign by tagging @LocalDistricts in social media posts that broadcast good news, accomplishments, awards and community events. The campaign routinely reaches out to special districts to develop stories, boost content, and share news releases. It is an effective way to broaden your message, gain followers and help other special districts see your good news stories!

In the first half of 2023, the Districts Make The Difference social media campaign had a viewership of 2.6 million people, with nearly 133,000 responses to the posts across Facebook, Instagram, Twitter and LinkedIn. If your district is posting on these platforms, simply add @LocalDistricts to your tags to gain an instant boost to your audience!





Are Special Events Harmless?

By Wendy Tucker, AU, SDRMA Member Services Manager

Does your district receive Use of Facility requests for weddings, parties, or to host a meeting? Does your district want to host your own event off-site? Is this covered under your insurance policy or does this require a separate special event policy?

“Special events” are typically one-time events outside the normal range of programs and activities. Many of the District’s hosted off-site events are likely covered under your general liability policy, but what about people or entities using district facilities? What additional risks may your district be taking on?

Read on for guidance on detecting your district’s vulnerabilities when allowing or hosting special events:

Facility Use Agreements

District as the Host – When renting off-site premises, most entities will require to be named as an additional insured and have specific insurance requirements. Read the agreement carefully and review with your insurance provider to determine if the event is covered under your existing policy or if a separate policy is needed. Depending on the size and type of activity, you may also want to check with your district’s legal counsel for any additional recommendations.

District as the Lessor - When allowing a member of the public or another entity to use district facilities, you should have an agreement in place requiring that the renter provide a certificate and endorsement naming the district as an additional insured.

The insurance requirements in the agreement should be relevant to what the activity is. For example, if an entity is using a meeting room to host a public meeting, $1M in general liability limits may be appropriate. However, if an entity is using facilities for a wedding or party where they will be serving or selling alcohol, in addition to the general liability you will need to require liquor liability. If the renter does not have insurance, they can purchase “Special Event Coverage” that will cover their event. Creating a checklist to use in conjunction with the use of a facilities/rental application will aid in ensuring that all insurance and safety checks have been completed.

Selling or Serving Alcohol

District as the Host – Some events may include serving or selling alcohol. If the district is hosting an event and alcohol is served, check with your insurance provider to confirm how coverage applies. Any hired vendors will need to name the district as an additional insured for liability and liquor liability. Additional considerations may include:

- Who will verify the age of the participants?
- Is there be a safety plan in place in case of disorderly conduct?
- Should security be provided?

District as the Lessor - If a renter is using the district's facilities, the general liability certificate and endorsement needs to include host liquor liability insurance. If they will be selling alcohol, they need to have a valid liquor sales license and have liquor liability covering the sale of alcohol.

Whether the district is hosting or allowing use of facilities to a renter, the links below provide important information regarding the CA ABC requirements (Alcoholic Beverage Control) as well as considerations for when security is required:

- www.abc.ca.gov/licensing/license-forms/event-authorization/
- apg-svcs.com/do-you-need-security-to-have-alcohol-for-an-event-in-california/

Outdoor Concerts/Markets/Parades

District as the Host - These types of events often involve street closures as well as multiple vendors, so consideration should be given to the potential risks. When hosting, whether on or off-site, the district should confirm with their insurance provider that no additional insurance is needed. The district should also require additional insured endorsements from any vendors and food trucks that include the appropriate coverage (i.e., liquor liability, general liability, auto liability, etc.). If the event includes closing off streets, be sure that an approved traffic safety plan is also in place.

District as the Lessor – If a renter is applying for use of facilities for this type of event, the use of facilities/rental agreement should include that any vendors used by the renter need to have the same insurance requirements as the renter. If the event has street closures, as noted above, a traffic safety plan should be in place. The California Manual on Uniform Traffic Control Devices at www.dot.ca.gov/trafficops/tcd/workzones.html can be referenced for more information.

Bounce Houses

District as the Host – Bounce house rentals are common at outdoor events, and while the bounce house company is responsible for the set up and tear down, the district should still develop a best practices list to ensure the safety of the users. The bounce house company should provide the district with a certificate and endorsement naming the district as an additional insured. The district may also consider having participants sign waivers prior to using the bounce house.

District as the Lessor – Along with the additional insured certificate and endorsement for the event with the bounce house, having best practices and safety measures to provide to the renter would be beneficial. Examples of best practices include, but are not limited to:

- Adult supervision of children is required at all times.
- The bounce house must be staked to the ground.
- If strong winds or thunderstorms arise, the bounce house will be immediately shut down.
- Ensure power cords and other tripping hazards are minimized.

While the goal for special districts is to provide a public service and support public activities, it is vital to make certain that you are transferring the risk where appropriate. Having policies and procedures in place for rentals/events will ensure that your district is following consistent guidelines. It is also important to understand what the risks are before engaging in one-time events, whether you are hosting or allowing the event on district premises. By implementing and following policies, procedures, and safety checklists, you will create a culture of consistency and safety which will ultimately assist in reducing the district's risk exposure and unintended consequences of allowing public events on your property. Talk with your risk manager and/or insurance provider to assist with the development of these important documents.

BUSINESS AFFILIATE
SPECIAL ACKNOWLEDGEMENTS

DIAMOND LEVEL

Actuarial Retirement Consulting, LLC
www.awenarc.com

AllPaid
www.AllPaid.com

California CAD Solutions (CALCAD)
www.calcad.com

California CLASS
www.californiaclass.com

CPS HR Consulting
www.cpshr.us

CSDA Finance Corporation
www.csdafinance.net

Enterprise Holdings
www.enterpriseholdings.com

GovDeals
www.govdeals.com

Special Districts Risk Management Authority
www.sdrma.org

Streamline
www.getstreamline.com

Umpqua Bank
www.umpquabank.com

Utility Cost Management, LLC
www.utilitycostmanagement.com

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allpaid

OC Cemetery Enhanced Customer Service with Allpaid

When Orange County Cemetery District began processing their credit card transactions with Allpaid in 2019, Finance and Accounting Manager Brenda Manriquez estimated the district was processing only 25% of its sales using credit cards. People who paid for services with a credit card before the district utilized Allpaid's convenient service had to come to the district's office and present their card to be swiped. Using Allpaid has allowed the district to take credit card payments over the phone, making it so convenient the district now sees closer to 75% of its transactions via credit card.

"Switching over from our old system was relatively seamless," said Manriquez. In addition, she noted the transaction reporting has been easy to customize and provides excellent access to each transaction as well as overview and analysis. "We have it set up so I get automatic emails of our transactions, and we get our reports every day with summaries and we can drill down to anything we need to," said Manriquez. She added, "If we ever have questions or problems, we can file a support ticket online and we have very good communication from Allpaid and we generally get resolution within an hour."

Overall, the district felt it was important to provide a more convenient payment method for their customers that allowed for online payments. From setting up their accounting codes to receiving transaction reports, the Proview system they use has been seamless and comprehensive in providing the functionality and reporting they need to keep their operations running smoothly.

Orange County Cemetery District is an accredited Gold Level District of Distinction member of CSDA. This accreditation demonstrates sound fiscal management policies and practices. As part of the accreditation, the district has also achieved the District Transparency Certificate of Excellence from the Special District Leadership Foundation.

GOLD LEVEL

Brown Armstrong Accountancy Corporation
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www.centricabusinesssolutions.com

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National Demographics Corporation (NDC)
www.ndcresearch.com

NBS
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Nextdoor, Inc.
www.nextdoor.com/

Nossaman, LLP
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www.sbemp.com

Tyler Technologies, Inc.
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Cash Flow Needs and Interim Financing: **An Opportunity to Fill the Gaps**

By Jennifer Bradlee, Best Best & Krieger LLP Of Counsel

No public agency is exempt from the occasional need to manage cash flow issues, including special districts. With the recent California fires, continual water supply problems, looming capital project schedules, and even the mismatch in timing of expenditures and receipt of revenues, there are a host of reasons that may leave a special district in need of a way to temporarily fill the funding gap.

While long-term financing options, such as bonds and enterprise revenue financings, are typically in the forefront in the world of municipal finance, short-term interim financing plans can be overlooked, but often necessary. And most special districts have a variety of options for obtaining temporary funding for the agency in time of need.

IDENTIFY REVENUE NEEDS

It is important for special districts to take a holistic approach to their revenue and cash flow needs. Special districts should have a solid understanding of their sources and timing of revenue, not only for operations but for capital projects as well.

Capital Project Funding

There are a variety of ways in which a special district can finance capital projects, including general obligation bonds, certificates of participation, enterprise revenue bonds, federal loans, and other common long-term financing vehicles. But at times, the project schedule or initial project and planning needs get out ahead of the source of the financed proceeds. For example, even though a special district may have obtained voter authority to issue bonds for a capital project, the time between voter authorization and the actual issuance of bonds and receipt of proceeds can be years. In this instance, the planning and initial costs for such a project are likely to already be underway. While some special districts may be able to shoulder the costs until they are reimbursed with financed proceeds, many others cannot absorb a hit to their general and/or reserve funds, even if temporary. Additionally, some sources of financed moneys, including certain federal lending programs, require a special district to obtain interim financing prior to the receipt of the loaned

continued on page 50...

proceeds. In these cases, special districts may be able to fill the gaps with a variety of interim financing vehicles.

Cash Flow Needs

In addition to capital projects, certain cash flow needs can leave a special district in need of interim funding. Special districts may experience a mismatch in the timing of the payment of expenditures and their receipt of revenues, including tax revenues. Other special districts may experience an unexpected increase in expenditures which can be caused by a variety of occurrences, including a heavy fire season or natural disaster, which depletes general fund or reserve moneys. In such cases, interim financing may not only be available, but may be the desired option, to cover a temporary need for operational moneys.

There are a variety of financing team members who assist special districts through the winding roads of municipal finance. And due to some of the complexities involved, it is important for special districts to reach out to team members early on in the process. From legal counsel to financial advisors, the earlier a special district reaches out, the easier the process becomes with more options available for consideration.

In order to even know where to start, a special district must first assess its financial needs and understand them. And while the process of obtaining interim financing may seem daunting, there are many team members available to special districts who are able to remove the burden and assist in problem solving. Because interim financing can become an important part of a capital project or operational plan for a special district, it is good to remember there is likely a way to fill the funding gaps.


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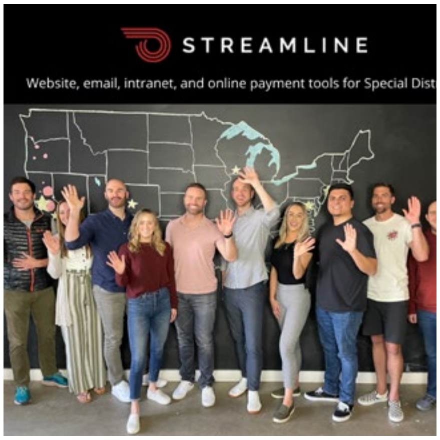
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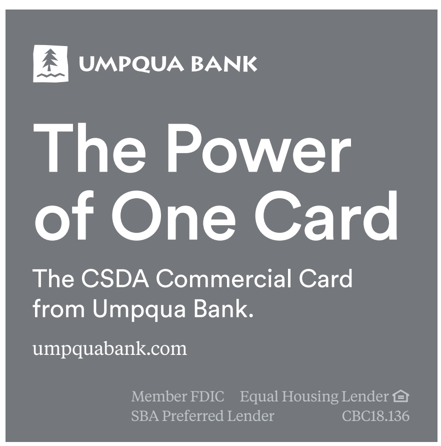
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RECLAMATION DISTRICT 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 4.2**

TITLE: **Operations Manager's Report – October 2023**

SUBJECT: **Update on Activities Since the September 2023 Board of Trustees Meeting**

EXECUTIVE SUMMARY:

This Staff Report is intended to inform the Board and serve as the official record of the activities the District's field staff engaged in for the month of September 2023. As well as provide information regarding District facility use and local weather impacts on District facilities and river levels. Noteworthy activities include mowing the inner and outer perimeters of the District, aquatic herbicide applications in areas such as the East Drain, Main Drain, and interior ditches. Additionally, staff carried out numerous homeless encampment postings and pumping plant trash rack repairs.

The Operations Manager's report was created to provide monthly updates to the Board of Trustees on field related activities within the District boundaries, as well as provide a historical record. This allows for the District and the public an opportunity to refer back to data trends over time regarding the weather impact on District facilities, crew activities, and local river and canal conditions as well as general District activities from month to month.

RECOMMENDATION:

There are no staff recommendations, the information provided is strictly informational.

ATTACHMENTS:

1. Operations Manager's Report Data Sheet

STAFF RESPONSIBLE FOR REPORT:

_______________________________ Date: 10/06/2023

Gabriel J. Holleman, Operations Manager

_______________________________ Date: 10/06/2023

Kevin L. King, General Manager

Operations Manager’s Report
September 2023

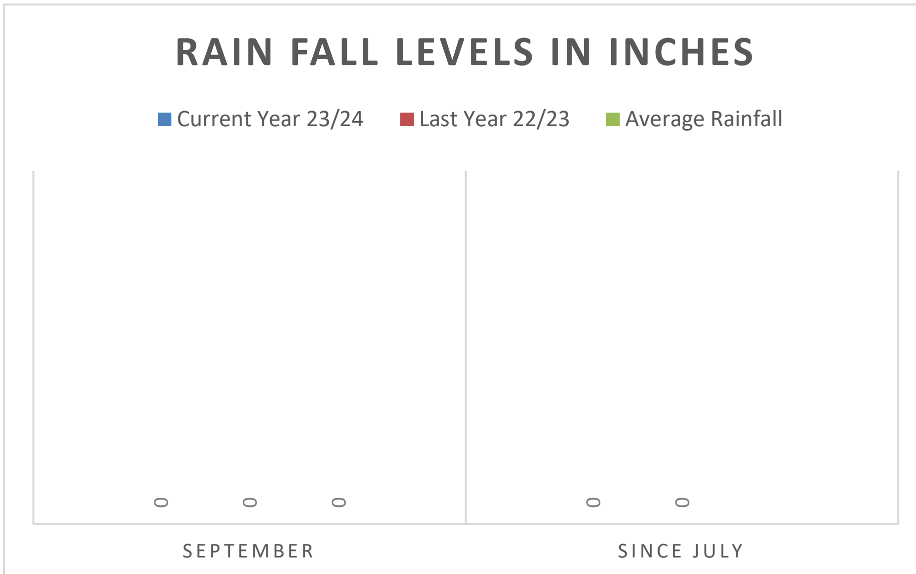
Rain Fall Totals:

September 2023

Rain Totals = 0”

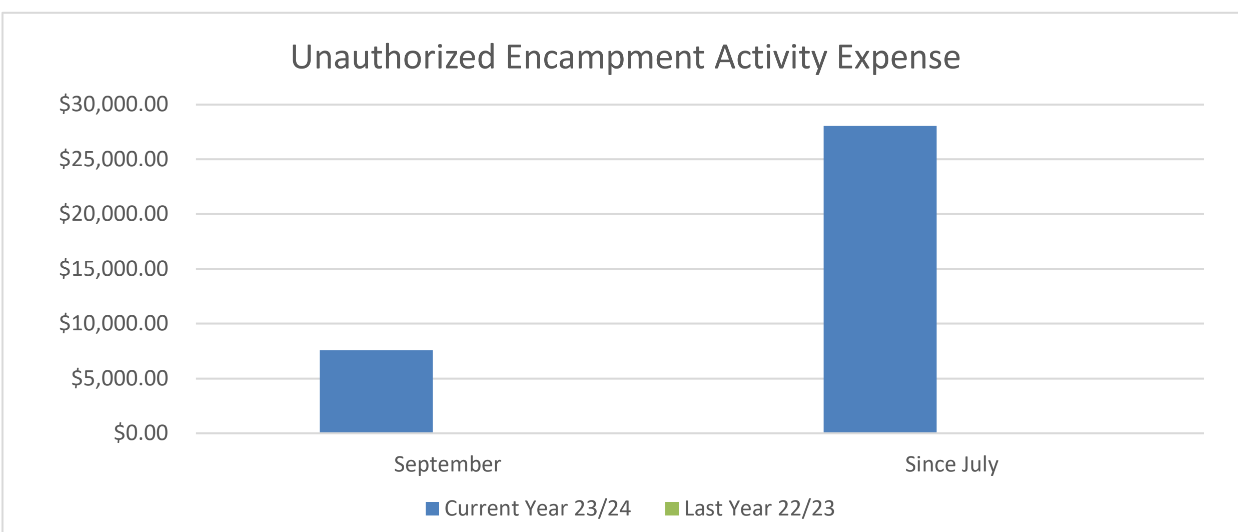
September Average = 0.29”

Rain Totals Since
July 1, 2023= 0”

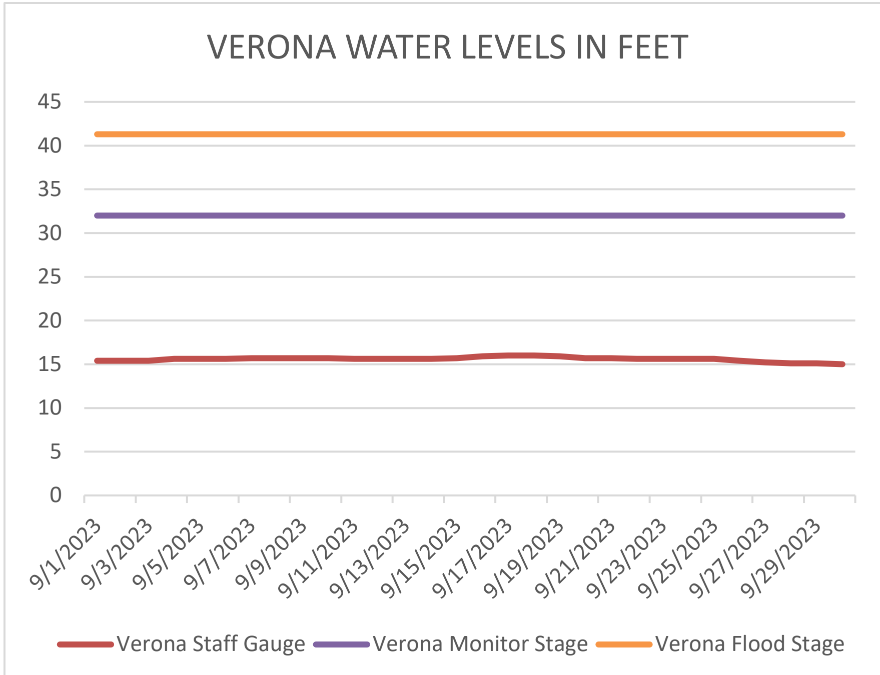


Unauthorized Encampment Activity During the month of September, the District spent a total of 53 hours on unauthorized encampment related activities, with a total cost to the District of $7,589.68. This total includes labor and quipment costs.

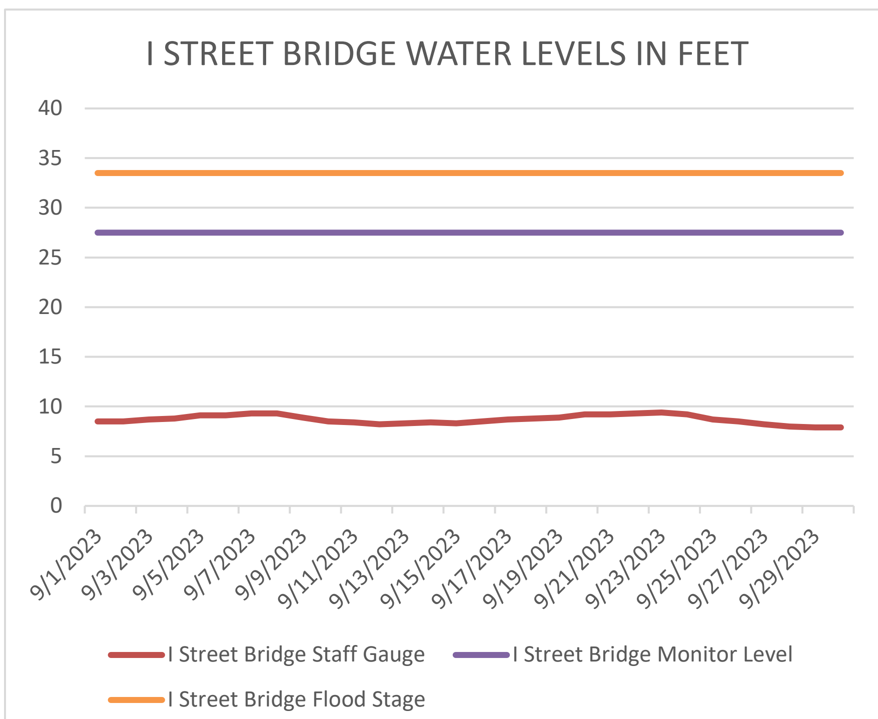
Unauthorized Encampment Activity – Year to Date This fiscal year to date the District has spent a total of 181 crew hours on unauthorized encampment activity for a total cost to the district of $28,038.48. This total includes labor,* equipment costs.



Verona River Levels:
H: 16’
L: 15’
Monitor Level: 32’
Flood Stage: 41.3’



I Street River Levels:
H: 9.4’
L: 7.9’
Monitor Level: 27.5’
Flood Stage: 33.5’



The chart below represents various activities the field crew spent their time working on during the month of September 2023.

RD 1000 Field Crew	*Field Hours Worked	Activity
	310	Mowing
	109	Equipment Maintenance & Repair
	95	Weed Control
	87	Pump Rounds
	80	Pumping Plant Maintenance
	58	Garbage/Debris Removal

**Hours worked do not include the Operations Manager's time.*

Pumping

Please review the pumping data below, specifically pertaining to pump totals in September. A total of 3975.7 acre-feet was pumped from the Basin, predominantly through the release of rice water.

Pumping Plant	Pump	Hours / Ac-ft
Plant 1B	Pump #2	125.1 Hrs / 1225.9 Ac-ft
Plant 2	Pump #2	8.9 Hrs / 25.8 Ac-ft
Plant 3	Pump #1	535.3 Hrs / 384.3 Ac-ft
	Pump #2	45.7 Hrs / 202.6 Ac-ft
Plant 8	Pump #1	49 Hrs / 514.5 Ac-ft

Safety Topics for the Month of September

Working Safely Around Underground Utilities at Excavation Sites

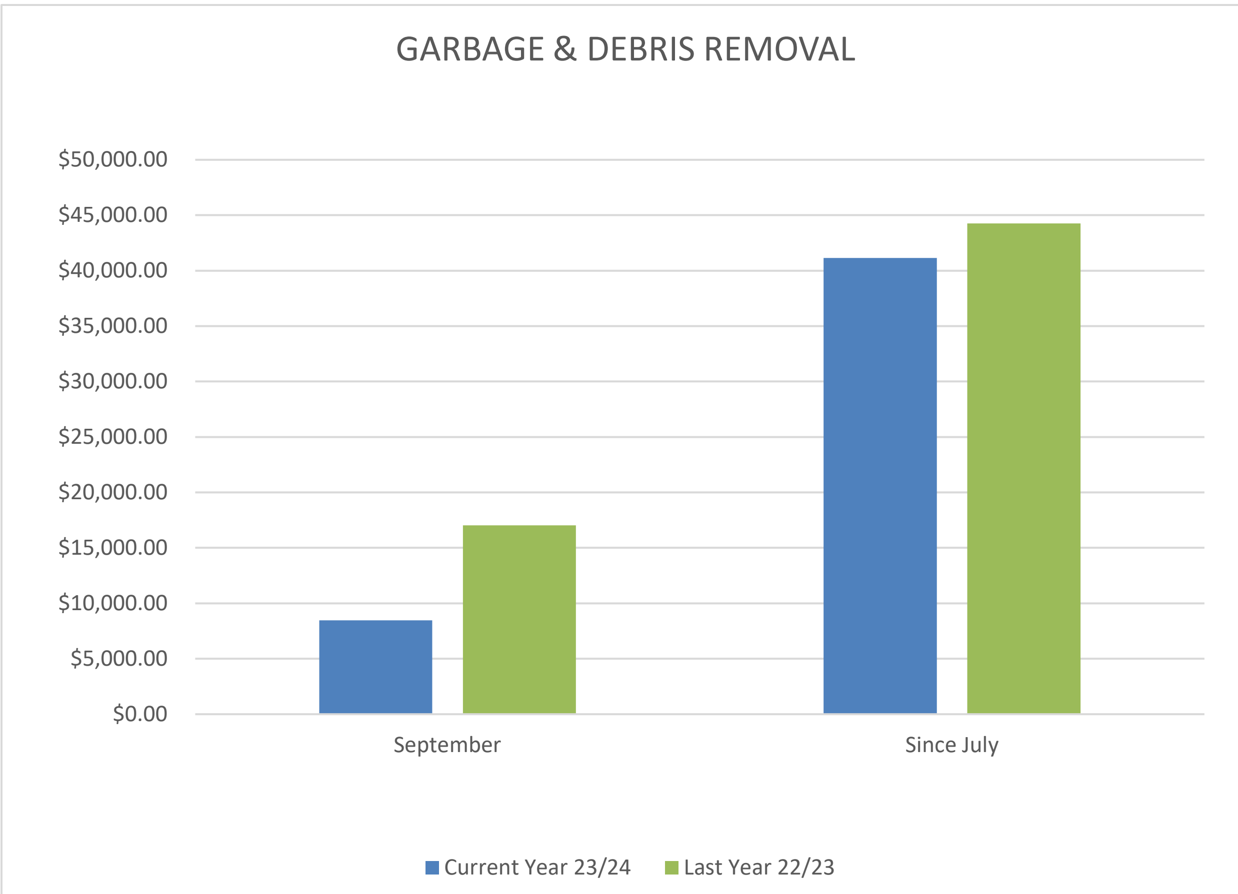
Using a Portable Latter to Get In and Out of Excavation Sites

Watch Out for Falling Objects When Working Inside Excavations

Be Aware of Potentially Hazardous Atmosphers Inside Excavations

Garbage & Debris Activity – During the month of September, the District spent a total of 58.50 crew hours on garbage removal activities with at total cost to the District of $8,474.80. This total includes labor and equipment costs.

Garbage & Debris Activity – Year to Date This fiscal year to date the District spent a total of 280.50 crew hours on garbage removal activities with at total cost to the District of $41,144.24. This total includes labor and equipment costs.



Maintenance Work Schedule	1-Sep	Through	30-Sep	
Crew 1	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Beto Gutierrez				
Truck # 57	* Spraying activities in Zone K * Performed garbage/debris removals throughout the District	* Spraying activities in Zone D, J & K	* Spraying activities in Zone A, D , I & F * Attended spray license continuing education training in Lodi * Homeless encampment posting behind home depot, Unity Cirlce, Truxel Road and the C-1 channel.	* Spraying activities in Zone E, B, D &G * Inspected pump stations * Prepped for upcoming coontail treatment
Crew 2	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
John Chilton				
Truck # 56	Leave	* Mowing activities along the North Drain * Performed garbage/debris removals throughout the District	* Mowing activities along the North Drain and East Drain * Performed garbage/debris removals throughout the District	* Mowing activities along the North Drain, East Drain, West Drain and Garden Highway
Crew 3	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Taylor Tikalsky				
Truck # 55	* Tree trimming along Garden Hwy * Performed garbage/debris removals throughout the District	* Mowing activities along the North Drain, East Drain and Garden Hwy * Performed garbage/debris removals throughout the District	* Mowing activities along the East Drain * Attended spray license continuing education training in Lodi	* Mowing activities along the East Drain and Garden Hwy * Assisted with RSP delivery at the Corp Yard
Crew 4	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Bryan Hall				
Truck # 69	* Unit #53 - HVAC repairs * Unit #45 - Mower head repairs * Unit #17 - Hydraulic system repairs * Unit #39 - 3 point lift diagnoses * Performed garbage/debris removals throughout the District	* Unit #53 - HVAC repairs * Unit #54 - Mower deck repairs * Unit #39 - 3 point lift diagnoses	* Unit #45 - Mower head repairs * Unit #39 - 3 point lift diagnoses * Performed trash rack repairs at PP#1A, #2, #3 and #8	* Unit #65 - Hydraulic system repairs * Unit #45 - HVAC system repairs * Performed trash rack repairs at PP#1A and #3 * Performed hydraulic repairs at the San Juan pumping plant * Unit #54 - Mower repairs * Unit #54 - Drivetrain repairs
Crew 5	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Ray Lewis				
Truck: #58	Medical Leave	Medical Leave	Medical Leave	Medical Leave
Crew 6	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Michael Rhoads				
Truck: #59	* Mowing activities along the Lower GGS Canal * Beaver dam remvoal along the East Drain * Performed garbage/debris removals throughout the District	* Removed vegetation and debris behind pump station trash racks * Install locks on new gates along Reach B and H * Replaced motor start timers at Plant #3 * Replaced motro controllers at Plant #8	* Mowing activities along the East Drain * Homeless encampment posting behind home depot, Unity Cirlce, Truxel Road and the C-1 channel. * Attended spray license continuing education training in Lodi * Performed trash rack repairs at PP#1A, #2, #3 and #8	* Culvert replacement at the V-1 Drain * Performed trash rack repairs at PP#1A and #3 * Performed hydraulic repairs at the San Juan pumping plant
Crew 7	**1-Sep**	**8-Sep**	**15-Sep**	**22-Sep**
Mark Jenkins				
Truck #60	* Mowing activities along the Lower GGS Canal * Tree trimming along Garden Hwy * Performed garbage/debris removals throughout the District	* Mowing activities along the North Drain and Garden Hwy * Performed garbage/debris removals throughout the District	* Homeless encampment posting behind home depot, Unity Cirlce, Truxel Road and the C-1 channel. * Mowing activities along the East Drain * Performed garbage/debris removals throughout the District	* Mowing activities along the East Drain and Garden Hwy * Assisted with RSP delivery at the Corp Yard * Culvert replacement at the V-1 Drain

Homeless Encampment Activity Report
September 2023

The attachement below is intended to inform the Board of the homeless encampment activites durning the month of September. Following the direction of our SOP, the District is obligated to carry out three (3) postings at each encampment, as outlined below. Noteworthy activities include homeless encampments postings along East Drain, NEMDC and the Bannon Canal. Cleanup operations along the NEMDC, East Drain and the Bannon Canal Drain are tentivaley scheduled for October 9th and 16th.

September 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18 Truxel Rd -1st Posting Behind Home Depot - 1st Posting C-1 Channel - 1st Posting San Juan - 1st Posting Unity Circle- 1st Posting PP#8 Outfall- 1st Posting	19	20	21	22 Truxel Rd -2nd Posting Behind Home Depot - 2nd Posting C-1 Channel - 2nd Posting San Juan - 2nd Posting Unity Circle- 2nd Posting PP#8 Outfall- 2nd Posting	23
24	25	26 Truxel Rd - 3rd Posting Behind Home Depot - 3rd Posting C-1 Channel - 3rd Posting San Juan - 3rd Posting Unity Circle- 3rd Posting PP#8 Outfall- 3rd Posting	27	28	29	30

Below is a calendar related to homeless encampment acitivties for the month of October. Noteworthy activities include the removal of homeless encampments along the NEMDC, East Drain and the Bannon Canal.

October 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4	5	6	7
8	9	10	11 San Juan (NEMDC) Encampment Removal PP#8 Outfall (NEMDC) Encampment Removal	12 San Juan (NEMDC) Encampment Removal PP#8 Outfall (NEMDC) Encampment Removal	13 San Juan (NEMDC) Encampment Removal PP#8 Outfall (NEMDC) Encampment Removal	14
15	16	17 Truxel Rd Encampment Removal	18 Behind Home Depot Encampment Removal	19 C-1 Channel Encampment Removal Unity Circle Encampment Removal	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 4.3**

TITLE: **District Counsel's Report – October 2023**

SUBJECT: **Update on Activities Since the September 2023 Board of Trustees Meeting**

EXECUTIVE SUMMARY:

Reclamation District 1000's (RD 1000; District) General Counsel, Rebecca Smith and/or Scott Shapiro to provide verbal report of work performed during the month of September 2023.

ATTACHMENTS:

None

STAFF RESPONSIBLE FOR REPORT:

____ Date: 10/12/2023

Kevin L. King, General Manager

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 5.1**

TITLE: **Approval of Minutes**

SUBJECT: **Approval of Minutes from September 8, 2023 Regular Board Meeting**

EXECUTIVE SUMMARY:

This staff report serves as the official record of the Board of Trustees monthly meetings. This document details meeting participants, proof of items discussed, summaries of board meeting discussions, and the Board's actions. Staff recommends Board approval of meeting minutes from the following Board Meeting:

- September 8, 2023 Regular Board Meeting (Attachment No. 1)

The Ralph M. Brown Act (Gov. Code §54950 et seq.) governs meetings by public commissions, boards and councils, and public agencies in California. The Act facilitates public transparency and public participation in local government decisions. The Act also contains specific exemptions from the open meeting requirements where governmental agencies demonstrate a need for confidentiality. Reclamation District No. 1000 documents meetings of the Board of Trustees through Board Minutes to further comply with transparency.

RECOMMENDATION:

Staff recommends that the Board approve the Minutes from the following Board Meeting:

- September 8, 2023 Regular Board Meeting (Attachment No. 1)

ATTACHMENTS:

1. September 8, 2023 Regular Board Meeting

STAFF RESPONSIBLE FOR REPORT:

____________________ Date: 10/11/2023
Joleen Gutierrez, Administrative Service Manager

____________________ Date: 10/11/2023
Kevin L. King, General Manager

RECLAMATION DISTRICT NO. 1000
BOARD OF TRUSTEES MEETING

September 8, 2023
MEETING MINUTES

Members of the Board of Trustees and the public participated in this meeting in person and by teleconference. Present were Board President Elena Lee Reeder; Trustee Thomas Gilbert; Trustee Nick Avdis; Trustee Thomas Barandas; Trustee Edwin Perez; General Co-Counsel Rebecca Smith; General Manager Kevin King; Operations Manager Gabe Holleman; Administrative Services Manager Joleen Gutierrez and Administrative Assistant Christina Forehand.

1. PRELIMINARY

1.1. Call Meeting to Order

Board President Elena Lee Reeder called the meeting to order.

1.2. Roll Call

ASM Gutierrez called the roll.

Present: Trustee Lee Reeder, Gilbert, Avdis, Barandas, Perez
Absent: Trustee Bains, Smith

1.3. Approval of Agenda

There were no changes to the agenda.

MOVED/SECOND: Trustee Avdis/Trustee Perez
AYES: Trustee Lee Reeder, Gilbert, Avdis, Barandas, Perez
NOES: None
ABSENT: Trustee Bains, Smith

ABSTAIN: None

ACTION: The motion to approve the September 8, 2023, Board Meeting agenda is approved.

1.4. Pledge of Allegiance

Trustee Perez led the Pledge of Allegiance.

1.5. Conflict of Interest (*Any Agenda items that might be a conflict of interest to any Trustee should be identified by the Trustee involved)*

There were no conflicts identified by the Trustees.

2. <u>PRESENTATIONS</u>

No Scheduled Presentations

3. <u>PUBLIC COMMENT (NON-AGENDA ITEMS)</u>

Any person desiring to speak on a matter that is not scheduled on this agenda may do so under the Public Comments section. Speaker times are limited to three (3) minutes per person on any matter within RD 1000's jurisdiction not on the Agenda.

There were no public comments received or made.

4. <u>INFORMATIONAL ITEMS</u>

4.1. GENERAL MANAGER'S REPORT: Update on activities since the August 2023 Board Meeting.

General Manager Kevin King announced the District received CSDA's "Exceptional Outreach and Advocacy Award." Five trustees, the general manager, and the operations manager attended this conference. Greg from NBS and Eric from Page Design provided a 1.5-hour presentation about the District's various outreach project elements and how we navigated Prop 218. PR Newswire featured a press release of this achievement, and CSDA will also feature RD1000 in their September-October magazine edition (article: Small District Wins Big Award).

GM King made known the City of Sacramento has confirmed that the Highwater Jamboree will be held on October 21 at North Natomas Regional Park. Trustees are welcome to attend and help at the event. Set-up will begin at 7 a.m., and the event will run from 10 a.m. to 1 p.m.

GM King made known there is a statewide ballot initiative 21-0042A1 to amend the California Constitution (sponsored by the California Business Roundtable). As written, the initiative would restrict local and state governments and special districts from enacting, modifying, or expanding taxes, assessments, fees, and property-related (Prop 218 and Prop 26) charges. CSDA has issued a Take Action Brief, and GM King will submit a letter of opposition to CSDA on behalf of the District. General counsel is looking into the initiative and its challenges should it continue to move forward. Separately making its way through the legislature is ACA 13, an Assembly Constitutional Amendment that removes some troubling language from Initiative 21-0042A1. GM King will continue to monitor this legislation.

Trustee Barandas asked about the objective of the initiative. GM King explained that the purpose is to restrict new taxes, fees, and unjustifiable assessments. It would impact the ability to generate funds to provide essential services.

Trustee Perez inquired if the constitutionality of the retroactive date had been questioned. GM King explained that this was an ongoing conversation with the District's general counsel and that their legal opinion would be provided to the Trustees.

Trustee Gilbert asked about the supporters of the initiative, to which GM King stated that he had not yet read through the supporters. Trustee Lee Reeder expressed her concern.

Trustee Perez shared his plan to attend the Highwater Jamboree event and encouraged all Trustees to consider attending; many of our flood partners will attend.

4.2. OPERATIONS MANAGER'S REPORT: Update on activities since the August 2023 Board Meeting.

A copy of the Operation Manager's Report has been included in the September 8 Board packet.

GM King announced the City's stay on encampment removals still affects our ability to conduct trash removals; however, district crews will continue to remove trash around the district, avoiding campers.

GM King reported that RD1000 has prevented the re-establishment of homeless encampments along the NEMDC. Still, the current spending on additional security patrols may be unsustainable if we do not receive support from other partners; the District's level of participation may need to be reevaluated, and we would rethink our approach.

Trustee Avdis stated that as a member of the Regional Water Quality Control Board (RWQCB), trash removal from the region's waterways is a priority. The RWQCB recognizes RD1000's extensive cleanup efforts.

Trustee Lee Reeder stressed the importance of the Steelhead Creek Cleanup being more evenly balanced in cost and burden sharing.

Trustee Perez asked if the City's injunction affected RD1000's cleanup efforts, which OM Holleman confirmed.

4.3. DISTRICT COUNSEL'S REPORT: Update on activities since the August 2023 Board Meeting.

Co-Counsel Smith provided a verbal update of counsel's work during August 2023

Co-Counsel Smith informed the board that a legal analysis of Initiative 21-0042A1 would be provided. She informed the Board of a class action lawsuit against CalPERS alleging that CalPERS has underpaid. The district has been named in this action along with 1499 other agencies.

5. <u>CONSENT CALENDAR</u>

The Board considers all Consent Calendar items routine and will adopt them in one motion. There is no discussion on these items before the Board votes on the motion unless Trustees, staff, or the public request specific items be discussed and/or removed from the Consent Calendar.

MOVED/SECOND: Trustee Gilbert/Trustee Avdis
AYES: Trustee Lee Reeder, Gilbert, Avdis, Barandas, Perez
NOES: None
ABSENT: Trustee Bains, Smith
ABSTAIN: None
ACTION: The motion to approve the September 8, 2023, Consent Calendar is approved.

5.1. APPROVAL OF MINUTES: Approval of Minutes from the August 11, 2023 Board Meeting.

5.2. TREASURER'S REPORT: Approve Treasurer's Report for August 2023.

5.3. EXPENDITURE REPORT: Review and Accept Report for August 2023.

5.4. BUDGET TO ACTUAL REPORT: Review and Accept Report for August 2023.

5.5. FINANCIAL ASSISTANCE APPLICATION: Review and Consider Adoption of Resolution No. 2023-09-01: Authorizing the General Manager to Execute a Financial Assistance Application for Disaster Assistance with the California Governor's Office of Emergency Services.

6. SCHEDULED ITEMS

No Scheduled Items

7. BOARD OF TRUSTEE'S COMMENTS/REPORTS

7.1. BOARD ACTIVITY UPDATES:

7.1.1. RD 1000 Committee Meetings Since Last Board Meeting

- Executive Committee (Lee Reeder & Gilbert) August 22, 2023

7.1.2. RD 1000 Committees No Meetings Since Last Board Meeting

- Finance Committee
- Legal Committee
- Personnel Committee
- Operations Committee
- Urbanization Committee

8. CLOSED SESSION

There were no Closed Session items.

9. ADJOURN

Motioned by Trustee Perez and seconded by Trustee Barandas. All trustees said Aye. The motion to adjourn the meeting was approved.

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 5.2**

TITLE: **Treasurer's Report**

SUBJECT: **Approve Treasurer's Report for September 2023**

EXECUTIVE SUMMARY:

This Staff Report aims to inform the Board of the current total funds in the District's checking and money market accounts, Sacramento County Treasurer Fund, State Treasurer Local Agency Investment Fund (LAIF), and the City of Sacramento Pooled Investment Fund.

The attached report provides monthly beginning and ending balances for operations and maintenance cash flow. It includes the current month's receipts, fund-to-fund transfers, accounts payable, and payroll. The Treasurer's Report also features notable fund and cash flow items for September 2023.

The District maintains funds in the California State Controller Local Agency Investment Fund (LAIF), the Sacramento County Treasurer, and Bank of the West. In the fiscal year 2023-2024, the District will primarily rely on levied property assessments and the newly approved Stormwater Fee for its income. Sacramento and Sutter County property tax bills collect these assessments and fees.

The Board of Trustees approves a resolution annually that designates officers and signatories to the Operations and Maintenance Fund held by the Sacramento County Treasurer. The District's Financial Reserve Policy guides current, future, and unexpected funding requirements. In contrast, the District's Investment Policy guides investments made by the District of any surplus or reserve funds it may have.

RECOMMENDATION:

Staff recommends the Board approve the September 2023 Treasurer's Report.

ATTACHMENTS:

1. Treasurer's Report September 2023

STAFF RESPONSIBLE FOR REPORT:

______________________________ Date: 10/11/2023

Joleen Gutierrez, Administrative Services Manager

______________________________ Date: 10/11/2023

Kevin L. King, General Manager

Reclamation District 1000
Treasurer's Report
September 2023

AGENDA ITEM 5.2
ATTACHMENT NO. 1

Treasurer's Report for September 2023

September 2023		**Ending Balance @ 9/30/23**
Total Funds at 9/30/23		**9,082,691.33**
Bank of the West - Checking*	Included in O&M cash flow below	185,069.70
Bank of the West - Money Market	Included in O&M cash flow below	250,440.42
Bank of the West FMAP		379,533.01
Sacramento County Treasurer		4,485,449.22
State Treasurer - Local Agency Investment Fund		1,531,681.53
City of Sacramento - Pool A		2,250,517.45

September 2023 - Operations and Maintenance Cash Flow	**Money Market**	**FMAP**	**Operating Checking ***	**Combined O&M**
Beginning Balance at 9/1/23	300,440.09	421,357.55	107,146.72	828,944.36
Transfers to operating account from money market account	(500,000.00)	-	500,000.00	-
Transfers from LAIF to money market account	450,000.00	-	-	450,000.00
Transfers from FMAP to operating account		(41,825.00)	41,825.00	-
Monthly interest credit	0.33	0.46	-	0.79
Current months receipts	-	-	726.35	726.35
Accounts Payable*	-	-	(364,772.03)	(364,772.03)
Payroll	-	-	(99,856.34)	(99,856.34)
Ending Balance at 9/30/23	**250,440.42**	**379,533.01**	**185,069.70**	**815,043.13**

*See Attached Check Register

Current months receipts are made up of the following:

Vendor refund	333.99
Employee reimbursement	106.29
Developer receipt	189.00
Credit card incentive payment	97.07
	726.35

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 5.3**

TITLE: **Expenditure Report**

SUBJECT: **Review and Accept Reports for September 2023**

EXECUTIVE SUMMARY:

This Staff Report informs the Board of monthly expenditures and provides an explanation for any expenses outside of the usual course of business. Staff recommends that the Board review and accept the Expenditure Report for September 2023.

The Administrative Services Manager reviews, and the General Manager approves expenditures. This activity is disclosed monthly as an attachment to this staff report.

The Expenditure Report (Attachment 1) notes a few items: $36,960 to Brookman Protection Services for security patrol on the NEMDC, $89,777 to Nutrien for herbicides, $12,654 to NBS for the stormwater fee implementation, $12,212 to SCI for the annual assessment roll, and $39,829 to SMUD for power.

RECOMMENDATION:

Staff recommends that the Board review and accept the Expenditure Reports for September 2023.

ATTACHMENTS:

1. September 2023 Expenditure Report

STAFF RESPONSIBLE FOR REPORT:

_______________________________________ Date: 10/11/2023
Joleen Gutierrez, Administrative Services Manager

_______________________________________ Date: 10/11/2023
Kevin L. King, General Manager

September 2023 Expenditure Report – O&M

Type	Date	Num	Name	Memo	Debit	Credit	Balance
							107,146.72
1011.00 · Bank of the West O&M Checking							**107,146.72**
General Journal	09/04/2023			9/5/23 payroll activity		16,676.71	90,470.01
General Journal	09/04/2023			9/5/23 payroll activity		35,882.53	54,587.48
Bill Pmt -Check	09/05/2023	52013	Urban Roots	9/8/23 Employee Luncheon		1,697.63	52,889.85
Check	09/05/2023	EFT	Cal Pers			1,030.64	51,859.21
Bill Pmt -Check	09/06/2023	1002447763	Cal Pers	UAL Classic		9,430.08	42,429.13
Bill Pmt -Check	09/06/2023	24846448908	City of Sacramento	Acct 0010065857		73.82	42,355.31
Bill Pmt -Check	09/06/2023	24803528561	PG&E	Acct 8886406823-9		17.61	42,337.70
Bill Pmt -Check	09/06/2023	52014	ACWA JPIA	Inv 0700534		1,969.64	40,368.06
Bill Pmt -Check	09/06/2023	52015	Brookman Protection Services, Inc.	Inv 23-192, 23-193		36,960.00	3,408.06
Bill Pmt -Check	09/06/2023	52016	Denecochea Digital	Inv 70157		165.30	3,242.76
Bill Pmt -Check	09/06/2023	52017	Dossier Systems	Inv 142011		947.11	2,295.65
Bill Pmt -Check	09/06/2023	52018	Foster & Foster	Inv 28170		2,500.00	-204.35
Bill Pmt -Check	09/06/2023	52019	Jan-Pro	Inv 21594		440.00	-644.35
Bill Pmt -Check	09/06/2023	52020	Nutrien Ag Solutions, Inc.	Inv 52477250		89,777.30	-90,421.65
Bill Pmt -Check	09/06/2023	52021	Page Design Group	Inv 23-0290		2,062.50	-92,484.15
Bill Pmt -Check	09/06/2023	52022	Pape Machinery	Inv 14713888		1,724.38	-94,208.53
Bill Pmt -Check	09/06/2023	52023	Reclamation District 537	APN: 042-310-015		4,995.00	-99,203.53
Bill Pmt -Check	09/06/2023	52024	Smile Business Products	Inv 1142941		196.39	-99,399.92
Bill Pmt -Check	09/06/2023	52025	Streamline	Inv A14C0AB-0034		249.00	-99,648.92
Bill Pmt -Check	09/06/2023	52026	Supply Industrial Hardware LLC	Inv 572536		72.22	-99,721.14
Bill Pmt -Check	09/06/2023	52027	US Bank Corp	Acct ending 1506 & 5312		7,452.63	-107,173.77
Transfer	09/06/2023			Funds Transfer - Emerald Site Services Expense	41,825.00		-65,348.77
Transfer	09/06/2023			Funds Transfer	300,000.00		234,651.23
General Journal	09/06/2023		US Bank Corp	US Bank incentive payment	97.07		234,748.30
Bill Pmt -Check	09/08/2023	52028	Elena Lee Reeder	CSDA Monterey		984.73	233,763.57
Bill Pmt -Check	09/08/2023	52029	Edwin Perez	CSDA Monterey		1,325.12	232,438.45
Check	09/08/2023	EFT	ADP			110.10	232,328.35
Bill Pmt -Check	09/12/2023	09122023	Alhambra & Sierra Springs	Inv 6169212090823		114.95	232,213.40
Bill Pmt -Check	09/12/2023	238140590	Napa Auto Parts	Inv 392970		205.79	232,007.61
Bill Pmt -Check	09/12/2023	80079278134	Waste Management of Sacramento			1,225.56	230,782.05
Bill Pmt -Check	09/12/2023	25558661703	City of Sacramento	Acct 7029676079		52.70	230,729.35
Bill Pmt -Check	09/12/2023	52030	Airgas NCN	Inv 5502095593		513.13	230,216.22
Bill Pmt -Check	09/12/2023	52031	AT&T	Inv 20463788		760.25	229,455.97
Bill Pmt -Check	09/12/2023	52032	Basin Rentals	Inv 2854		3,243.75	226,212.22
Bill Pmt -Check	09/12/2023	52033	brandeditems, inc	Inv RVU2301		674.40	225,537.82

Bill Pmt -Check	09/12/2023	52034	Capital City Signs, Inc	Inv 21321	568.16	224,969.66
Bill Pmt -Check	09/12/2023	52035	Carson Landscape Industries	Inv 416381	894.00	224,075.66
Bill Pmt -Check	09/12/2023	52036	Cintas	Inv 4166684755	96.10	223,979.56
Bill Pmt -Check	09/12/2023	52037	Contour Sierra Aebi, LLC	Inv 14561, 14581	381.49	223,598.07
Bill Pmt -Check	09/12/2023	52038	Denecochea Digital	Inv 70184, 70181	261.01	223,337.06
Bill Pmt -Check	09/12/2023	52039	Gabriel Holleman	Employee Appreciation Reimbursement	55.68	223,281.38
Bill Pmt -Check	09/12/2023	52040	Interstate Oil Company	Inv 617826	3,910.77	219,370.61
Bill Pmt -Check	09/12/2023	52041	National Waterways Conference	Inv 487, 489	1,800.00	217,570.61
Bill Pmt -Check	09/12/2023	52042	NBS	Inv 202308-2684	12,654.00	204,916.61
Bill Pmt -Check	09/12/2023	52043	Robert G Merritt	Inv 1633	2,232.50	202,684.11
Bill Pmt -Check	09/12/2023	52044	SCI Consulting Group	Inv 10868	12,212.08	190,472.03
Bill Pmt -Check	09/12/2023	52045	Terrapin Technology Group	Inv 23-1457	1,607.19	188,864.84
Bill Pmt -Check	09/12/2023	52046	Thomas Smith	CSDA Reimbursement	1,214.62	187,650.22
Bill Pmt -Check	09/12/2023	52047	Valley Tire Center, Inc.	Inv 40006805, 40007544	783.92	186,866.30
Bill Pmt -Check	09/13/2023	52048	Kevin King		1,127.08	185,739.22
General Journal	09/15/2023			9/15/23 payroll	14,745.43	170,993.79
General Journal	09/15/2023			9/15/23 payroll	32,551.67	138,442.12
Bill Pmt -Check	09/15/2023	1002455951	Cal Pers	August Part 2	1,400.00	137,042.12
Bill Pmt -Check	09/19/2023	09192023	Alhambra & Sierra Springs	Inv 21217024091623	92.72	136,949.40
Bill Pmt -Check	09/19/2023	1002457571	Cal Pers	October 2023	22,342.81	114,606.59
Bill Pmt -Check	09/19/2023	26247097684	City of Sacramento	Acct 9432729750	189.58	114,417.01
Bill Pmt -Check	09/19/2023	9192023	Sacramento County Utilities	Acct 50005654895	113.70	114,303.31
Bill Pmt -Check	09/19/2023	91920232	Sacramento County Utilities	Acct 50005654877	113.70	114,189.61
Bill Pmt -Check	09/19/2023	52049	4imprint, Inc.	Inv 25865361	498.74	113,690.87
Bill Pmt -Check	09/19/2023	52050	Aqua Terra LLC	Inv 1006	9,556.00	104,134.87
Bill Pmt -Check	09/19/2023	52051	Aramark	Inv 25765365	859.33	103,275.54
Bill Pmt -Check	09/19/2023	52052	Blankenship & Associates, Inc.	Inv 8986	3,848.83	99,426.71
Bill Pmt -Check	09/19/2023	52053	Christina Forehand	Viking Shred	60.00	99,366.71
Bill Pmt -Check	09/19/2023	52054	Cintas		395.25	98,971.46
Bill Pmt -Check	09/19/2023	52055	County of Sacramento - Municipal Servces	Inv 72505	1,093.05	97,878.41
Bill Pmt -Check	09/19/2023	52056	Denecochea Digital	Inv 70187	1,039.43	96,838.98
Bill Pmt -Check	09/19/2023	52057	Interstate Oil Company	Inv 616654	2,006.70	94,832.28
Bill Pmt -Check	09/19/2023	52058	Jan-Pro	Inv 21757	80.00	94,752.28
Bill Pmt -Check	09/19/2023	52059	Pape Machinery		658.58	94,093.70
Bill Pmt -Check	09/19/2023	52060	Sacramento LAFCO	FY 2023-2024	427.00	93,666.70
Bill Pmt -Check	09/19/2023	52061	Snap-on Industrial		1,287.48	92,379.22
Bill Pmt -Check	09/19/2023	52062	T-Mobile	Inv 2023091111210	237.30	92,141.92
Bill Pmt -Check	09/19/2023	52063	US Bank Corp	Acct ending 1282	2,141.04	90,000.88

Bill Pmt -Check	09/19/2023	52064	Valley Hydraulics & Machine, Inc.	Inv 146734		17.71	89,983.17
Bill Pmt -Check	09/19/2023	52065	Yolo County Public Works	August 2023		1,459.20	88,523.97
Bill Pmt -Check	09/19/2023	52066	Thomas Smith	CSDA Conference		151.00	88,372.97
Bill Pmt -Check	09/26/2023	26941496888	City of Sacramento	Acct 6767564299		5.30	88,367.67
Bill Pmt -Check	09/26/2023	26908753313	PG&E	Acct 3702326178-9		73.92	88,293.75
Bill Pmt -Check	09/26/2023	63118060454	The Home Depot	Inv 5285044		97.99	88,195.76
Bill Pmt -Check	09/26/2023	2533445200	Verizon	Inv 9944336502		253.62	87,942.14
Bill Pmt -Check	09/26/2023	26941485622	City of Sacramento	Acct 5450844000		86.50	87,855.64
Bill Pmt -Check	09/26/2023	26941471357	City of Sacramento	Acct 2007944000		140.89	87,714.75
Bill Pmt -Check	09/26/2023	52067	4imprint, Inc.	Inv 25884525, 25906940		2,577.99	85,136.76
Bill Pmt -Check	09/26/2023	52068	Cintas	Inv 5173930471, 5175837028		333.36	84,803.40
Bill Pmt -Check	09/26/2023	52069	City of Sacramento - Revenue Division	Inv POLPAL 326054		30.00	84,773.40
Bill Pmt -Check	09/26/2023	52070	Civil Engineering Solutions, Inc	Inv 2021.01G-6, 2021.01F-6		8,333.90	76,439.50
Bill Pmt -Check	09/26/2023	52071	Denecochea Digital	Inv 70206		2,555.63	73,883.87
Bill Pmt -Check	09/26/2023	52072	Downey Brand LLP	Inv 590924, 590916		4,844.50	69,039.37
Bill Pmt -Check	09/26/2023	52073	Invoice Processing Department	Inv I712396169782		7.00	69,032.37
Bill Pmt -Check	09/26/2023	52074	J Franko Electric	Inv 23028		3,858.60	65,173.77
Bill Pmt -Check	09/26/2023	52075	MBK Engineers	Inv 12087		1,532.00	63,641.77
Bill Pmt -Check	09/26/2023	52076	Mead & Hunt	Inv 354658		5,237.25	58,404.52
Bill Pmt -Check	09/26/2023	52077	Montage Enterprises	Inv 106850		2,984.72	55,419.80
Bill Pmt -Check	09/26/2023	52078	Page Design Group	Inv 23-0311, 23-0310		6,142.74	49,277.06
Bill Pmt -Check	09/26/2023	52079	Pape Machinery	Inv 14778852, 14777628, 14778636		2,546.47	46,730.59
Bill Pmt -Check	09/26/2023	52080	Security & Asset Management, LP	INv 5245244		4,685.32	42,045.27
Bill Pmt -Check	09/26/2023	52081	Smile Business Products	Inv 1147329		263.81	41,781.46
Bill Pmt -Check	09/26/2023	52082	SMUD			39,829.98	1,951.48
Bill Pmt -Check	09/26/2023	52083	Verizon Connect Fleet USA LLC	Inv 374000045243		632.95	1,318.53
Transfer	09/27/2023			Funds Transfer	200,000.00		201,318.53
Deposit	09/27/2023		Miles Treaster & Associates	Refund of never received privacy panel	333.99		201,652.52
Deposit	09/27/2023		Kevin King	CSDA Conference	106.29		201,758.81
Payment	09/27/2023		Greenbriar		189.00		201,947.81
Bill Pmt -Check	09/28/2023	1002464064	Cal Pers	August 2023		16,878.11	185,069.70
					542,551.35	464,628.37	185,069.70
					542,551.35	464,628.37	185,069.70
TOTAL					**542,551.35**	**464,628.37**	**185,069.70**

Activity Summary

Transfers from Money Market account	500,000.00
Transfers from FMAP account	41,825.00

Current months receipts	726.35
Accounts payable disbursements	-364,772.03
Payroll disbursements	-99,856.34
Net activity	77,922.98

RECLAMATION DISTRICT NO. 1000

DATE: **OCTOBER 20, 2023** **AGENDA ITEM NO. 5.4**

TITLE: **Budget to Actual Report**

SUBJECT: **Review and Accept Report for September 2023**

EXECUTIVE SUMMARY:

The Budget to Actual report provides a monthly snapshot of how well the district meets its budget goals for the fiscal year. The monthly report contains a three-column presentation of actual expenditures, budgeted expenditures, and the budget percentage. Each line item compares budgeted amounts against real-to-date expenses. Significant budgeted line item variances (if any) will be explained below.

Attachment 1 provides a report for the month ending September 2023. The most significant Administrative expenditures to date include annual Worker's Compensation Insurance, Mitigation Land Expenses, and Annual Memberships. The most significant Operations expenditures include Herbicides, Shop Equipment, and Security Patrol.

BACKGROUND:

Annually, the Board of Trustees adopts the district's annual budget in June. Typically, three board committees review the draft budget prepared by staff. The Personnel Committee reviews the wage and benefits portion of the budget. The Operations Committee reviews the Capital expenditures Budget. After the two committees review and make recommendations regarding the budget, the final draft is prepared for the Finance Committee to consider. After review by the Finance Committee, the final Proposed Budget is presented to the entire Board for review and thirty days later for adoption at a regular Board meeting.

RECOMMENDATION:

Staff recommends the Board review and accept the Budget to Actual Report for September 2023.

ATTACHMENTS:

1. Budget to Actual Report September 2023

STAFF RESPONSIBLE FOR REPORT:

_________________________________ Date: 10/11/2023
Joleen Gutierrez, Administrative Services Manager

_________________________________ Date: 10/11/2023
Kevin L. King, General Manager

Reclamation District No. 1000
Budget to Actual Comparison
July 1, 2023 to September 30, 2023 (Three Months Ending of Fiscal 2024)

	Year to Date July 1, 2023 to September 30, 2023	Budget	Percent of Budget
Operation & Maintenance Income			
Property Assessments	-	4,025,874	0.00%
Rents	12,454	24,000	51.89%
Interest Income	10,041	80,000	12.55%
SAFCA - O/M Assessment	-	1,463,950	0.00%
Misc Income	20,905	-	Not budgeted
FMAP Grant	-	421,000	0.00%
Annuitant Trust Reimbursement	-	-	Not budgeted
FEMA/OES Reimbursement	-	100,000	0.00%
Security Patrol Reimbursement	9,200	60,000	15.33%
Total	**52,600**	**6,174,824**	0.85%
Restricted Fund			
Metro Airpark Groundwater Pumping	-	30,000	0.00%
Total Combined Income	**52,600**	**6,204,824**	**0.85%**
Administration, Operations and Maintenance - Expenses			
Administration			
Government Fees/Permits	-	21,950	0.00%
Legal	7,674	102,500	7.49%
Liability/Auto Insurance	-	197,000	0.00%
Office Supplies	589	25,000	2.36%
Computer Costs	7,912	42,600	18.57%
Accounting/Audit	11,325	57,000	19.87%
Admin. Services	(14,063)	24,500	-57.40%
Utilities (Phone/Water/Sewer)	3,755	35,700	10.52%
Mit. Land Expenses	4,995	5,500	90.82%
Administrative Consultants	24,866	81,500	30.51%
Assessment/Property Taxes (SAFCA - CAD)	-	11,500	0.00%
Admin - Misc./Other Expenses	4,367	2,800	155.96%
Memberships	26,096	37,600	69.40%
Office Maintenance & Repair	5,373	33,700	15.94%
Payroll Service	521	4,500	11.58%
Public Relations	17,629	90,000	19.59%
Small Office & Computer Equipment	5,574	20,750	26.86%
Election	-	45,500	0.00%
Conference/Travel/Professional Development	17,045	60,000	28.41%
Sub Total	**123,658**	**899,600**	**13.75%**
Personnel/Labor			
Wages	326,810	1,264,664	25.84%
Group Insurance	51,428	161,096	31.92%
Worker's Compensation Insurance	23,259	35,000	66.45%
OPEB - ARC	-	75,205	0.00%
Dental/Vision/Life	7,879	28,628	27.52%
Payroll Taxes	24,153	93,356	25.87%
Pension	60,393	340,941	17.71%
Continuing Education	1,928	12,000	16.07%
Trustee Fees	5,400	30,000	18.00%
Annuitant Health Care	26,124	97,631	26.76%
Sub Total	**527,374**	**2,138,521**	**24.66%**

Operations			
Power	75,315	490,000	15.37%
Supplies/Materials	8,396	23,000	36.50%
Herbicide	89,777	160,000	56.11%
Fuel	15,210	85,000	17.89%
Field Services	52,472	260,500	20.14%
Field Operations Consultants	5,361	16,200	33.09%
Equipment Rental	-	4,000	0.00%
Refuse Collection	8,029	50,000	16.06%
Equipment Repair/Service	4,927	40,000	12.32%
Equipment Parts/Supplies	14,422	35,000	41.21%
Facility Repairs	116,090	561,000	20.69%
Shop Equipment (not vehicles)	14,244	30,000	47.48%
Field Equipment	3,051	17,000	17.95%
Misc/Other 2	215	5,000	4.30%
Utilities - Field	6,843	16,891	40.51%
Government Fees/Permits - Field	30	3,500	0.86%
FEMA Permits	-	11,500	0.00%
Sub Total	**414,382**	**1,808,591**	**22.91%**
Equipment			
Equipment	-	260,000	0.00%
Sub Total	**-**	**260,000**	
Consulting/Contracts/Memberships			
Engineering/Technical Consultants	15,581	107,000	14.56%
Security Patrol	99,760	215,000	46.40%
Temporary Admin	2,898	20,000	14.49%
Sub Total	**118,239**	**342,000**	**34.57%**
FMAP Expenditures			
LOI/SWIF (Consultants)	1,532	-	Not budgeted
Equipment	-	-	Not budgeted
Operations & Maintenance (Field)	41,825	421,000	9.93%
Administrative	-	-	Not budgeted
Sub Total	43,357	**421,000**	**10.30%**
Total A, O & M Expenses	**1,227,010**	**5,869,712**	**20.90%**
Capital Expenses			
Capital Office Upgrades	3,831	125,000	3.06%
Capital RE Acquisition	-	-	Not budgeted
Capital Office Facility Repair	-	75,000	0.00%
Capital Facilities	41,360	975,000	4.24%
Sub Total	**45,191**	**1,175,000**	**3.85%**
Total All Expenditures	**1,272,201**	**7,044,712**	**18.06%**

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 5.5**

TITLE: **Warrant for Fund Transfer**

SUBJECT: **Review and Consider Approval of Warrant for Transferring Funds between Accounts**

EXECUTIVE SUMMARY:

Reclamation District 1000 maintains an Operation and Maintenance Fund with the Sacramento County Treasury pursuant to Water Code section 50657, and Reclamation District 1000 assumes responsibility for disbursement of such Revolving Fund. Funds held in the Reclamation District 1000 Operation and Maintenance fund held by the Sacramento County Treasurer may be withdrawn or paid solely by a warrant signed by any four or more Trustees of the District as identified in the District's approved Resolution No. 2022-12-02 (SEE ATTACHMENT #1).

REQUEST:

Staff requests a fund transfer via warrant for $1 million from the District's O/M Fund with the Sacramento County Treasury. One million dollars will replenish the District's LAIF fund for day-to-day District expenses and budgeted projects.

The State Controller's Local Agency Investment Fund (LAIF) fund serves as the District's primary fund for transfers between the District's 'local' bank accounts (money market/checking) to manage cash flow and cover the District's day-to-day expenses. The benefits of having available funds in LAIF are a competitive yield, higher liquidity, and same-day transfers.

RECOMMENDATION:

Staff recommends the Board approve a warrant for transferring funds between accounts.

ATTACHMENTS:

1. Resolution No. 2022-12-02 - Authorizing Officers and Trustees as Signatories to the Operations and Maintenance Funds Held by Sacramento County Treasurer.

STAFF RESPONSIBLE FOR REPORT:

_______________________________ Date: 10/11/2023
Joleen Gutierrez, Administrative Services Manager

_______________________________ Date: 10/11/2023
Kevin L. King, General Manager

AGENDA ITEM 5.5
ATTACHMENT NO. 1

RD1000

RECLAMATION DISTRICT NO. 1000

RESOLUTION NO. 2022-12-02

A RESOLUTION OF THE BOARD OF TRUSTEES OF RECLAMATION DISTRICT NO. 1000 AUTHORIZING OFFICERS AND TRUSTEES AS SIGNATORIES TO THE OPERATIONS AND MAINTENANCE FUNDS HELD BY SACRAMENTO COUNTY TREASURER.

At a regular meeting of the Board of Trustees of Reclamation District No. 1000 held at the District Office on the 9th day of December 2022, the following resolution was approved and adopted:

WHEREAS, Reclamation District No. 1000 maintains an Operation and Maintenance Fund held by the Sacramento County Treasurer; and

WHEREAS, Reclamation District No. 1000 also maintains a Revolving Fund pursuant to Water Code Section 50657; and Reclamation District No. 1000 assumes responsibility for disbursement of such Revolving Fund and agrees to hold and save the Sacramento County Treasurer harmless from any improper disbursement of such Revolving Fund as required by Water Code Section 50658; and

WHEREAS, the Board of Trustees by this Resolution desires to set forth the names and specimen signatures of the Officers and Trustees of Reclamation District No. 1000 and set forth the names and required signatures for withdrawal or payment of funds from such accounts;

NOW THEREFORE BE IT RESOLVED THAT: The Board of Trustees of Reclamation District No. 1000 affirm the names and specimen signatures of the Trustees of Reclamation District No. 1000, as provided herein:

Nicholas Avdis	
Jag Bains	
Tom Barandas	Tom Barandas
Edwin Perez	
Thomas M. Gilbert	Thomas M. Gilbert
Elena Lee Reeder	Elena Lee Reeder
Thomas W. Smith	Thomas W. Smith

BE IT FURTHER RESOLVED THAT: The Board of Trustees of Reclamation District No. 1000 affirm the names and specimen signatures of the Officers of Reclamation District No. 1000, as provided herein:

Kevin L. King
General Manager

Joleen Gutierrez
District Secretary

BE IT FURTHER RESOLVED THAT: Funds held in the Reclamation District No. 1000 Operation and Maintenance Fund held by the Sacramento County Treasurer may be withdrawn or paid solely by warrant signed by any four or more of the Trustees of the District as identified in this resolution and attested to by the Secretary of the Board of Trustees or General Manager as identified in this resolution.

BE IT FURTHER RESOLVED THAT: Funds on deposit in the District's revolving fund may be withdrawn or paid by check signed by any one of the Trustees identified in this resolution or the District Manager or District Secretary as identified in this resolution, for amounts less than $20,000.00 and any two of the Trustees as identified in this resolution or the General Manager as identified and a Trustee as identified of this resolution for amounts exceeding $20,000.00.

BE IT FURTHER RESOLVED THAT: Funds on deposit in the District's revolving fund may be withdrawn or paid via electronic fund transfer (ACH) to specific vendors as provided in Exhibit A of this resolution. Electronic fund transfers paid to vendors specified in Exhibit A shall not exceed $20,000.00. If an amount to be paid via electronic transfer exceeds $20,000.00, a written authorization must be received from a Trustee as identified in this Resolution in addition to authorization by the General Manager, an email authorization is considered a written authorization. Amounts of $20,000.00 or less may be authorized by any of the Trustees identified in this resolution or the District Manager or District Secretary as identified in this resolution.

ON A MOTION BY Trustee ___Nick Avdis___, seconded by Trustee _Thomas W Smith, the foregoing resolution was passed and adopted by the Board of Trustees of Reclamation District No. 1000, this 9th day of December 2022, by the following vote, to wit:

AYES: 7	Trustees:	Avdis, Smith, Bains, Lee-Reeder, Gilbert, Barandas, Perez
NOES:	Trustees:	
ABSTAIN:	Trustees:	
RECUSE:	Trustees:	
ABSENT:	Trustees:	

Elena Lee Reeder

President, Board of Trustees

Reclamation District No. 1000

CERTIFICATION:

I, Joleen Gutierrez, Secretary of Reclamation District No. 1000, hereby certify that the foregoing Resolution 2022-12-02 was duly adopted by the Board of Trustees of Reclamation District No. 1000 at the regular meeting held on the 9th of December 2022 and made a part of the minutes thereof.

____
Joleen Gutierrez, District Secretary

EXHIBIT A

List of vendors approved by the Board to be paid electronically:

Vendor	Item(s) Paid
CalPERS	Pension/Health/Deferred Comp
PG&E	Utilities
City of Sacramento	Utilities
City of Sacramento – Dept of Finance	Quarterly City Pool A Fees
Verizon	Wireless Phone Service
Comcast	Internet Service
Smile Business	Office Equipment Maintenance
Alhambra	Water Service
Airgas	Shop Service
Berkshire Hathaway	Worker's Comp
Home Depot Credit	Shop Supplies
Napa Auto Parts	Equipment Supplies/Parts
Tractor Supply	Equipment Parts
Waste Management	Garbage/Recycling
ACWA JPIA	Dental/Vision/Life Insurance
US Healthworks	DOT Screening
Sacramento County Utilities	Utilities
Cintas	First Aid/Field Janitorial

RECLAMATION DISTRICT NO. 1000

DATE: **OCTOBER 20, 2023** **AGENDA ITEM NO. 5.6**

TITLE: **KSN Professional Services Agreement**

SUBJECT: **Review and Consider Authorizing the General Manager to Execute a Professional Services Agreement with KSN, INC. for Pumping Plant 8 – Final Design.**

EXECUTIVE SUMMARY:

Reclamation District No. 1000 (RD1000) has planned for major rehabilitation of Pumping Plant No. 8 (Plant 8), to include several upgrades and to address identified system operational and condition concerns. This scope of services (Attachment 1 – Exhibit "A") proposes to progress the initial design concepts provided in the Plant 8 Preliminary Design Report (Attachment 2 – KSN: March 2023) to the final, ready for construction stage. Improvements identified in the preliminary design will be developed to the final detail stage alongside an implementation schedule, final cost estimate, and cash-flow budget projection.

RECOMMENDATION:

Staff recommends the Board review and consider authorizing the General Manager to Execute the Professional Services Agreement for the Pumping Plant 8 (Attachment No. 1).

FINANCIAL IMPACT:

Budget impact of $538K in Fiscal Year 2023/2024.

ATTACHMENTS:

1. Professional Services Agreement – KSN
2. Plant 8 Preliminary Design Report – KSN: March 2023

STAFF RESPONSIBLE FOR REPORT:

____ Date: 10/13/2023

Kevin L. King, General Manager

Name of Project: Pumping Plant No. 8 Improvements - Final Design

RECLAMATION DISTRICT NO. 1000

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT is made and entered into in the City of Sacramento on October 20, 2023 by and between RECLAMATION DISTRICT NO. 1000, a public entity of the State of California, hereinafter referred to as District, and KJELDSEN, SINNOCK & NEUDECK, INC., hereinafter referred to as Consultant.

W I T N E S S E T H

WHEREAS, on September 1, 2023, the District requested a proposal for the pumping plant 8 final design improvements.

WHEREAS, pursuant to said request, Consultant submitted a proposal that was accepted by District for said services.

NOW THEREFORE, in consideration of their mutual promises, obligations and covenants hereinafter contained, the parties hereto agree as follows:

1. **Scope of Services**. The District hereby engages the Consultant, and the Consultant agrees to perform the services described in Exhibit A (the "Services"), in accordance with the terms of this Agreement. In case of conflict between this Agreement and any Exhibit hereto, this Agreement shall control over any Exhibit.

2. **Compensation.** Compensation for the Services shall be as follows: Lump-sum fixed price of $538,000 which includes labor, materials, equipment and supervision necessary to perform the work as described in Exhibit A. Additional services requested at the discretion of District for work not contemplated by this Agreement shall be billed on a time.

3. **Term**. The term of this Agreement shall be from the date this Agreement is made and entered, as first written above, until acceptance or completion of said services.

4. **Contract Extension and Cost Increases**. The term of the contract may be extended by mutual consent for an additional year. During this extended period, labor rates may be increased to reflect increased labor costs and overhead at each one-year contract anniversary, provided the District is notified of the increases in advance. Rates may be increased to reflect actual cost increases up to a percentage equal to the percentage increase in the U.S. Consumer Price Index/All Urban Consumers (CPI-U) from March in the previous year to March in the year of adjustment upon request of Contractor.

5. **Work Delays**. Should the Consultant be obstructed or delayed in the work required to be done hereunder by changes in the work or by any default, act, or omission of the District, or by strikes, fire, earthquake, or any other Act of God, or by the inability to obtain materials, equipment, or labor due to federal government restrictions arising out of defense or war programs, then the time of completion may, at the District's sole option, be extended for such periods as may be agreed upon by the District and the Consultant. In the event that there is insufficient time to grant such extensions prior to the completion date of the contract, the District may, at the time of acceptance of the work, waive liquidated damages that may have accrued for failure to complete on time, due to any of the above, after hearing evidence as to the reasons for such delay, and making a finding as to the causes of same.

6. **Termination**. If, during the term of the contract, the District determines that the Consultant is not faithfully abiding by any term or condition contained herein, the District may notify the Consultant in writing of such defect or failure to perform. This notice must give the Consultant a 10 (ten) calendar day notice of time thereafter in which to perform said work or cure the deficiency.

   If the Consultant has not performed the work or cured the deficiency within the ten days specified in the notice, such shall constitute a breach of the contract and the District may terminate the contract immediately by written notice to the Consultant to said effect. Thereafter, neither party shall have any further duties, obligations, responsibilities, or rights under the contract except, however, any and all obligations of the Consultant's surety shall remain in full force and effect, and shall not be extinguished, reduced, or in any manner waived by the termination thereof.

In said event, the Consultant shall be entitled to the reasonable value of its services performed from the beginning date in which the breach occurs up to the day it received the District's Notice of Termination, minus any offset from such payment representing the District's damages from such breach. "Reasonable value" includes fees or charges for goods or services as of the last milestone or task satisfactorily delivered or completed by the Consultant as may be set forth in the Agreement payment schedule; compensation for any other work, services or goods performed or provided by the Consultant shall be based solely on the District's assessment of the value of the work-in-progress in completing the overall work scope.

The District reserves the right to delay any such payment until completion or confirmed abandonment of the project, as may be determined in the District's sole discretion, so as to permit a full and complete accounting of costs. In no event, however, shall the Consultant be entitled to receive in excess of the compensation quoted in its proposal.

The District also reserves the right to terminate the contract for convenience, providing a 30 (thirty) calendar day notice, at any time upon a determination by the General Manager that termination of the contract is in the best interest of the District. In this case the Consultant will be paid compensation due and payable to the date of termination.

7. **Ability to Perform**. The Consultant warrants that it possesses, or has arranged through subcontracts, all capital and other equipment, labor, materials, and licenses necessary to carry out and complete the work hereunder in compliance with any and all applicable federal, state, county, city, and special district laws, ordinances, and regulations.

8. **Sub-contract Provisions**. No portion of the work pertinent to this contract shall be subcontracted without written authorization by the District, except that which is expressly identified in the Consultant's qualification proposal. Any substitution of sub-consultants must be approved in writing by the District. For any sub-contract for services in excess of $25,000, the subcontract shall contain all provisions of this agreement.

9. **Contract Assignment**. The Consultant shall not assign, transfer, convey or otherwise dispose of the contract, or its right, title or interest, or its power to

execute such a contract to any individual or business entity of any kind without the previous written consent of the District.

10. **Inspection**. The Consultant shall furnish District with every reasonable opportunity for District to ascertain that the services of the Consultant are being performed in accordance with the requirements and intentions of this contract. All work done and all materials furnished, if any, shall be subject to the District's inspection and approval. The inspection of such work shall not relieve Consultant of any of its obligations to fulfill its contract requirements.

11. **Record Retention and Audit**. For the purpose of determining compliance with various laws and regulations as well as performance of the contract, the Consultant and sub-consultants shall maintain all books, documents, papers, accounting records and other evidence pertaining to the performance of the contract, including but not limited to the cost of administering the contract. Materials shall be made available at their respective offices at all reasonable times during the contract period and for three years from the date of final payment under the contract. Authorized representatives of the District shall have the option of inspecting and/or auditing all records.

12. **Conflict of Interest**. The Consultant shall disclose any financial, business, or other relationship with the District that may have an impact upon the outcome of this contract, or any ensuing District project. The Consultant shall also list current clients who may have a financial interest in the outcome of this contract, or any ensuing District project which will follow. The Consultant staff shall provide a Conflict of Interest Statement where determined necessary by the District.

    The Consultant covenants that it presently has no interest, and shall not acquire any interest— direct, indirect or otherwise—that would conflict in any manner or degree with the performance of the work hereunder. The Consultant further covenants that, in the performance of this work, no sub-consultant or person having such an interest shall be employed. The Consultant certifies that no one who has or will have any financial interest in performing this work is an officer or employee of the District. It is hereby expressly agreed that, in the performance of the work hereunder, the Consultant shall at all times be deemed an independent Consultant and not an agent or employee of the District.

13. **Rebates, Kickbacks or Other Unlawful Consideration**. The Consultant warrants that this contract was not obtained or secured through rebates, kickbacks or other unlawful consideration, either promised or paid to any District employee. For breach or violation of the warranty, the District shall have the right in its discretion; to terminate the contract without liability; to pay only for the value of the work actually performed; to deduct from the contract price; or otherwise recover the full amount of such rebate, kickback or other unlawful consideration.

14. **Covenant Against Contingent Fees**. The Consultant warrants by execution of this contract that no person or selling agency has been employed, or retained, to solicit or secure this contract upon an agreement or understanding, for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Consultant for the purpose of securing business. For breach or violation of this warranty, the District has the right to annul this contract without liability; pay only for the value of the work actually performed, or in its discretion, to deduct from the contract price or consideration, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

15. **Compliance with Laws and Wage Rates**. The Consultant shall keep itself fully informed of and shall observe and comply with all applicable state and federal laws and county and City of Sacramento ordinances, regulations and adopted codes during its performance of the work. This includes compliance with prevailing wage rates and their payment in accordance with California Labor Code. For purposed of this paragraph, “construction” includes work performed during the design and preconstruction phases of construction, including but not limited to, inspection and land surveying work.

16. **Payment of Taxes**. The contract prices shall include full compensation for all taxes that the Consultant is required to pay.

17. **Permits, Licenses and Filing Fees**. The Consultant shall procure all permits and licenses, pay all charges and fees, and file all notices as they pertain to the completion of the Consultant’s work. The District will pay all application fees for permits required for the completion of the project including regulatory permit application fees. Consultant will provide a 10-day notice for the District to issue a check.

18. **Safety Provisions**. The Consultant shall conform to the rules and regulations pertaining to safety established by OSHA and the California Division of Industrial Safety.

19. **Public and Employee Safety**. Whenever the Consultant's operations create a condition hazardous to the public or District employees, it shall, at its expense and without cost to the District, furnish, erect and maintain such fences, temporary railings, barricades, lights, signs and other devices and take such other protective measures as are necessary to prevent accidents or damage or injury to the public and employees.

20. **Preservation of District Property**. The Consultant shall provide and install suitable safeguards, approved by the District, to protect District property from injury or damage. If District property is injured or damaged resulting from the Consultant's operations, it shall be replaced or restored at the Consultant's expense. The facilities shall be replaced or restored to a condition as good as when the Consultant began work.

21. **Immigration Act of 1986**. The Consultant warrants on behalf of itself and all sub-consultants engaged for the performance of this work that only persons authorized to work in the United States pursuant to the Immigration Reform and Control Act of 1986 and other applicable laws shall be employed in the performance of the work hereunder.

22. **Consultant Non-Discrimination**. In the award of subcontracts or in performance of this work, the Consultant agrees that it will not engage in, nor permit such sub-consultants as it may employ, to engage in discrimination in employment of persons on any basis prohibited by State or Federal law.

23. **Accuracy of Specifications**. The specifications for this project are believed by the District to be accurate and to contain no affirmative misrepresentation or any concealment of fact. Consultants are cautioned to undertake an independent analysis of any test results in the specifications, as District does not guaranty the accuracy of its interpretation of test results contained in the specifications package. In preparing its qualification proposal, the Consultant and all sub-consultants named shall bear sole responsibility for preparation errors resulting from any misstatements or omissions in the specifications that could easily have been ascertained by examining either the project site or accurate test data in the

District's possession. Although the effect of ambiguities or defects in the specifications will be as determined by law, any patent ambiguity or defect shall give rise to a duty of Consultant to inquire prior to submittal of the qualification proposal. Failure to so inquire shall cause any such ambiguity or defect to be construed against the Consultant. An ambiguity or defect shall be considered patent if it is of such a nature that the Consultant, assuming reasonable skill, ability and diligence on its part, knew or should have known of the existence of the ambiguity or defect. Furthermore, failure of the Consultant or sub-consultants to notify District in writing of specification defects or ambiguities prior to submittal of the qualification proposal shall waive any right to assert said defects or ambiguities subsequent to submittal of the qualification proposal.

To the extent that these specifications constitute performance specifications, the District shall not be liable for costs incurred by the successful Consultant to achieve the project's objective or standard beyond the amounts provided therefor in the qualification proposal.

In the event that, after awarding the contract, any dispute arises as a result of any actual or alleged ambiguity or defect in the specifications, or any other matter whatsoever, Consultant shall immediately notify the District in writing, and the Consultant and all sub-consultants shall continue to perform, irrespective of whether or not the ambiguity or defect is major, material, minor or trivial, and irrespective of whether or not a change order, time extension, or additional compensation has been granted by District. Failure to provide the hereinbefore described written notice within one (1) working day of Consultant's becoming aware of the facts giving rise to the dispute shall constitute a waiver of the right to assert the causative role of the defect or ambiguity in the plans or specifications concerning the dispute.

24. **Indemnification for Professional Liability**. To the fullest extent permitted by law, the Consultant shall indemnify, protect, defend and hold harmless the District and any and all of its officials, employees and agents ("Indemnified Parties") from and against any and all losses, liabilities, damages, costs and expenses, including attorney's fees and cost which arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant.

25. **Non-Exclusive Contract**. The District reserves the right to contract for the services from other consultants during the contract term.

26. **Standards**. Documents shall conform to industry Standards for technical reports and similar documents.

27. **Consultant Endorsement**. Technical reports, plans and specifications shall be stamped and signed by the Consultant where required.

28. **Required Deliverable Products and Revisions**. The Consultant will be required to provide documents addressing all elements of the work scope. District staff will review any documents or materials provided by the Consultant and, where necessary, the Consultant will respond to staff comments and make such changes as deemed appropriate. Submittals shall include the previous marked up submittal (returned to the Consultant) to assist in the second review. Changes shall be made as requested or a notation made as to why the change is not appropriate.

    Draft reports and plan submittals shall be submitted as paper copies or electronic files as determined by the District's General Manager.

    Final documents shall be submitted as camera-ready original, unbound, each page printed on only one (1) side, including any original graphics in place and scaled to size, ready for reproduction AND one electronic copy submitted in *Adobe Acrobat* format including all original stamps and signatures AND one (1) electronic copy submitted in *Microsoft Word* format. Electronic files shall be submitted on a USB Flash Drive or through a file transfer protocol site (FTP) and all files must be compatible with the *Microsoft* operating system.

29. **Ownership of Materials**. Upon completion of all work under this contract, ownership and title to all reports, documents, plans, specifications, and estimates produced as part of this contract will automatically be vested in the District and no further agreement will be necessary to transfer ownership to the District. The Consultant shall furnish the District all necessary copies of data needed to complete the review and approval process.

    It is understood and agreed that all calculations, drawings and specifications, whether in hard copy or machine-readable form, are intended for one-time use in the project for which this contract has been entered into.

The Consultant is not liable for claims, liabilities, or losses arising out of, or connected with the modification, or misuse by the District of the machine-readable information and data provided by the Consultant under this agreement. Further, the Consultant is not liable for claims, liabilities, or losses arising out of, or connected with any use by District of the project documentation on other projects, except such use as may be authorized in writing by the Consultant.

30. **Release of Reports and Information**. Any reports, information, data, or other material given to, prepared by or assembled by the Consultant as part of the work or services under these specifications shall be the property of District and shall not be made available to any individual or organization by the Consultant without the prior written approval of the District.

    The Consultant shall not issue any news release or public relations item of any nature, whatsoever, regarding work performed or to be performed under this contract without prior review of the contents thereof by the District and receipt of the District's written permission.

31. **Copies of Reports and Information**. If the District requests additional copies of reports, drawings, specifications, or any other material in addition to what the Consultant is required to furnish in limited quantities as part of the work or services under these specifications, the Consultant shall provide such additional copies as are requested, and District shall compensate the Consultant for the costs of duplicating of such copies at the Consultant's direct expense.

32. **Attendance at Meetings and Hearings**. As part of the work scope and included in the contract price is attendance by the Consultant at up to three (3) public meetings to present and discuss its findings and recommendations. Consultant shall attend as many "working" meetings with staff as necessary in performing work scope tasks.

33. **Requests for Review**. The Consultant shall respond to all requests for submittal review within two (2) weeks of receipt of the information from the District.

34. **Consultant Invoices**. The Consultant shall deliver a monthly invoice to the District, itemized by project work phase. Invoice must include a breakdown of hours billed and miscellaneous charges and any sub-consultant invoices, similarly broken down, as supporting detail.

35. Payment. For providing services as specified in this Agreement, District will pay and Consultant shall receive therefore compensation in a total sum not to exceed the individual agreed upon project fee. Should the Consultant's designs, drawings or specifications contain errors or deficiencies, the Consultant shall be required to correct them at no increase in cost to the District.

The Consultant shall be reimbursed for hours worked at the hourly rates attached to this agreement. Hourly rates include direct salary costs, employee benefits, overhead and fee. In addition, the Consultant shall be reimbursed for direct costs other than salary and vehicle cost that have been identified and are attached to this agreement. The Consultant's personnel shall be reimbursed for per diem expenses at a rate not to exceed that currently authorized for State employees under State Department of Personnel Administration rules.

36. Payment Terms. The District's payment terms are 30 days from the receipt and approval by the District of an original invoice and acceptance by the District of the materials, supplies, equipment or services provided by the Consultant (Net 30).

37. Resolution of Disputes. Any dispute, other than audit, concerning a question of fact arising under this contract that is not disposed of by agreement shall be decided by a committee consisting of the District's General Manager and the District's Administrative Services Manager, who may consider written or verbal information submitted by the Consultant. Not later than thirty (30) days after completion of all deliverables necessary to complete the project, the Consultant may request review by the District Board of Trustees of unresolved claims or disputes.

Any dispute concerning a question of fact arising under an audit of this contract that is not disposed of by agreement, shall be reviewed by the District's Administrative Services Manager. Not later than thirty (30) days after issuance of the final audit report, the Consultant may request a review by the District's Administrative Services Manager of unresolved audit issues. The request for review must be submitted in writing.

Neither the pendency of a dispute, nor its consideration by the District will excuse the Consultant from full and timely performance in accordance with the terms of this contract.

38. Agreement Parties.

District: Kevin L. King
General Manager
Reclamation District No. 1000
1633 Garden Highway
Sacramento, CA 95833

Consultant: Barry O'Regan
Principal
Kjeldsen, Sinnock & Neudeck, INC.
1355 Halyard Drive, Suite 100
West Sacramento, CA 95691

All written notices to the parties hereto shall be sent by United States mail, postage prepaid by registered or certified mail addressed as shown above.

39. Incorporation by Reference. District Request for pumping plant 8 improvements final design , are hereby incorporated in and made a part of this Agreement.

40. Amendments. Any amendment, modification or variation from the terms of this Agreement shall be in writing and shall be effective only upon approval by the District General Manager.

41. Working Out of Scope. If, at any time during the project, the consultant is directed to do work by persons other than the District General Manager and the Consultant believes that the work is outside of the scope of the original contract, the Consultant shall inform the General Manager immediately. If the General Manager and Consultant both agree that the work is outside of the project scope and is necessary to the successful completion of the project, then a fee will be established for such work based on Consultant's hourly billing rates or a lump sum price agreed upon between the District and the Consultant. Any extra work performed by Consultant without prior written approval from the District General Manager shall be at Consultant's own expense.

42. Complete Agreement. This written agreement, including all writings specifically incorporated herein by reference, shall constitute the complete agreement between the parties hereto. No oral agreement, understanding or representation not reduced to writing and specifically incorporated herein shall be of any force or effect, nor shall any such oral agreement, understanding or representation be binding upon the parties hereto. For and in consideration of the payments and agreements hereinbefore mentioned to be made and performed by District, Consultant agrees with District to do everything required by this Agreement, the said specification and incorporated documents.

43. **Authority to Execute Agreement**. Both District and Consultant do covenant that each individual executing this agreement on behalf of each party is a person duly authorized and empowered to execute Agreements for such party.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

RECLAMATION DISTRICT NO. 1000:	KJELDSEN, SINNOCK & NEUDECK, INC**.**
______________________________	______________________________
Kevin L. King, General Manager	Barry O'Regan, Principal

EXHIBIT "A"

Scope of Services
Reclamation District 1000
Pumping Plant No. 8 Improvements
Final Design
Scope of Services
October 6, 2023

Project Background and Understanding

Reclamation District No. 1000 (RD1000) has planned for major rehabilitation of Pumping Plant No. 8 (Plant 8), to include several upgrades and to address identified system operational and condition concerns. This scope of services proposes to progress the initial design concepts provided in the Plant 8 Preliminary Design Report (KSN, March 2023) to the final, ready for construction stage. Improvements identified in the preliminary design will be developed to the final detailed design stage alongside an implementation schedule, final cost estimate, and cash-flow budget projection. The specific improvements to be addressed from a final design level include:

1. Conversion of the exiting low voltage (480-volt) power systems, including coordination with SMUD, and motor starters to medium voltage (2400-volt).
2. Diesel powered backup generator integration.
3. Acquisition of a portion of the neighboring property to house the generators.
4. Pump motor improvements, such as VFD integration, to improve efficiency of the pump operation and meet capacity needs.
5. Pump Station wet well improvements to reduce pump cavitation including floor cones, wall fillets, pump lengthening, and an inlet divider.
6. Discharge pipe rehabilitation.
7. Coordination with Tesco for the integration of a SCADA system.
8. Structural steel platforms to support new elevated switchgear housing and transformers.
9. Geotechnical exploration and foundation design services for steel platforms.
10. Elevated gangplank and stairs for unrestricted pump access during high-water conditions.
11. Trash rack chain replacement.

This design effort will produce a final set of bid documents including ready for construction plans, specifications, and bid quantities that the District can release for public bidding within the next two and a half years as the schedule permits. A 100% design-level opinion of construction cost, with a future projection of costs to assume bidding and construction, will be prepared with a project phasing and cash flow projection to allow the District to make decisions on project procurement and implementation schedules.

Scope of Services

Task 1: Right of Way Services

The KSN team, including Monument Right of Way, will provide real estate services required to facilitate the acquisition of a specific portion of property from a neighboring parcel to provide space for the new backup generators. This process involves a series of strategic steps, potentially including a lot line adjustment, property appraisal, fee offer preparation, negotiation with property owners, and the seamless transfer of title. The primary goal of this scope of services is to facilitate a smooth, legally compliant, and successful acquisition process on behalf of RD1000.

The Right of Way team services will include several key components and may need a Lot Line Adjustment (LLA) depending on the local regulations. If required, the LLA process will include coordinating with the property owner, surveyors, and land planners and production of a lot line adjustment proposal and application through the local land authority, Sacramento County. If the County determines the project acquisition can proceed without the LLA, as is oftentimes the case in public works projects, this step can be bypassed. In either case the Right of Way team will conduct boundary research consisting of a search and survey of existing boundary monuments and topographic features essential for the LLA followed by the preparation and submission of documents to the local planning and zoning authorities for the property acquisition process.

Appraisal Services will next be engaged. A certified appraiser with expertise in the local real estate market will be retained by KSN to perform an appraisal of the property, developing a supported opinion of its fair market value while considering the proposed property line adjustment. The deliverable is an appraisal report, inclusive of comparative property analysis and valuation methodologies.

Proceeding to the Fee Offer Preparation stage, the KSN Right of Way team will work with RD1000 to prepare formal written offers to purchase the targeted portion of the neighboring parcel. Following this, negotiations will be initiated, with RD1000 providing representation in discussions with the current property owner or their authorized representatives. The Right of Way team's goal is to secure an agreement on sale terms, encompassing aspects such as price, timing, and other pertinent details, while facilitating communication among all parties involved.

Title Transfer Services come next, with the Right of Way team collaborating with a title company to conduct a comprehensive title search on both properties. This process may present any title issues or encumbrances that can arise during the due diligence process, alongside the coordination of the transfer of title and any necessary legal documentation. Selection of a title company, title and escrow costs will be covered under the cost of acquisition. Throughout the process, KSN will document all activities and communications related to the acquisition process, with regular status updates and reports provided to RD1000. These reports include progress on the lot line adjustment/acquisition, negotiation status, and title transfer.

Approaching the Closing and Escrow phase, the Right of Way team will facilitate the closing process, monitoring the secure transfer of funds and execution of legal documents, while coordinating with an escrow agent, if necessary, for a smooth and efficient closing. The process will conclude with a detailed Record of Survey map, showcasing observed property and new boundaries, monumentation, and any variances from previous records. The Right of Way team will coordinate with relevant regulatory bodies for conclusion of the acquisition with the submission of the finalized map to the County.

Throughout this intricate process, the KSN and Monument Right of Way team will work diligently such that all phases are executed seamlessly and efficiently. This collection of Right of Way services will guide and facilitate the property acquisition process, such that RD1000's objectives are met efficiently and in compliance with all relevant regulations and legal requirements.

Task 1 – Right of Way Deliverables

1. **Lot Line Adjustment Proposal & Approval (if necessary):**
    - A Lot Line Adjustment Proposal, including maps and descriptions of the specific portion of the property to be acquired.
    - Documents and applications submitted to local planning and zoning authorities.
    - Official approval documentation for the Lot Line Adjustment from the relevant authorities.
2. **Appraisal Report:**
    - A detailed appraisal report outlining the fair market value of the property including comparative property analysis and valuation methodologies used.
3. **Fee Offer Preparation and Negotiation Documentation:**
    - Formal written offers to purchase the property, including terms and conditions.
    - Documentation of legal counsel review for compliance with legal requirements.
    - Records of negotiations with the property owner, including any communications, meeting minutes, and changes in terms.
4. **Title Transfer Documentation:**
    - A comprehensive title search report for both properties.
    - Documentation addressing any title issues or encumbrances and their resolutions.
    - Finalized legal documents for the transfer of title.

5. **Closing and Escrow Documentation:**
    - Records of the closing process, including the transfer of funds and execution of legal documents.
    - If an escrow agent is used, documentation of coordination and communications with the agent.
    - Final closing statements and any related financial documents.
6. **Record of Survey Map**
    - A Record of Survey map showing final property boundaries and monumentation.

Task 2: Final Design Services

The KSN team, including J Calton Engineering for electrical and instrumentation, Precision Build USA for design of structures, and ENGEO for subsurface explorations and geotechnical guidance, will finalize the project design concepts identified in the preliminary design phase. The final design services task will include deliverables at three stages including the 60% design stage, 90% design stage, and a final ready for construction stage. The final design will include the following components:

Task 2.1 Civil Design

The scope of final civil design services for the Plant 8 improvements focuses on augmenting the efficiency, reliability, and longevity of the pumping systems. Central to KSN's civil design services is an integrative approach that weaves together all other phases of Plant 8's design, including tying in new electrical features and structural design components. Our team will work collaboratively with the electrical, structural, and geotechnical engineers, to coordinate design elements aligned with the overall project objectives.

A cornerstone of the civil scope is finalizing the preliminary design features to mitigate the existing pump cavitation issues. This involves completing the design for the pump column improvements to optimize submergence, and the modifications to the pump station's inlet structure, including the incorporation of floor cones, wall fillets, wall treatments, and a new divider wall, aiming to result in more uniform pressure and flow conditions at the pumps suction points. These design services will incorporate detailed engineering drawings, and specifications to for improvements to reduce cavitation in the troublesome pumps.

KSN's electrical team will design improvements for improving pumping operations and efficiency through the design and integration of reduced voltage soft starters (RVSS) and variable frequency drives (VFD) for the pumps. This project element is aimed at modulating pump speeds and reducing the inrush current during startup, thus optimizing energy use, and minimizing wear on the pump motors. Detailed integration plans and specifications and requirements for installation oversight will be included in the design documents.

Civil engineering services will also include the final designs for the discharge pipe rehabilitation and trash rack chain replacements. The pipe rehabilitation will address the critical issues uncovered in the pipeline video inspections to restore integrity and hydraulic capacity of the pipes. The trash rack chain replacement involves conducting an evaluation of the current drive chains, determining the material and design specifications for the new chains, and preparing replacement specifications and contract requirements.

The civil design services will encompass the overall project management and development of a project phasing plan that outlines the sequential staging of the project to achieve a logically organized and effectively managed project. This plan will be prepared with a cash flow and budget projection for expenditures across the project's timeline to facilitate optimal financial management and help align resources with the requirements of each project phase. Throughout the project, the civil team will provide consistent collaboration with RD1000, managing this design phase process.

Task 2.2 Electrical Design

Final electrical design will include refining and completing initial concepts to transition for the conversion of 480V electrical service to 2400V service. This will include continued coordination with both SMUD and the RD1000 system integrator, Tesco, to integrate control strategies and provide for SCADA implementation. The final design will establish electrical layouts and terminology for consistent communication across all electrical design drawings and documents. Plan sheets will be created, specifying design and installation requirements for all electrical systems. To facilitate project coordination and implementation, detailed project phasing plans will be developed to outline the sequence and timing of electrical work in alignment with RD1000’s overall schedule.

For power distribution, the design will provide finalized equipment elevations to guide proper installation and clearance, and single line diagrams with load calculations to illustrate the electrical distribution system and determine power requirements. To incorporate the new electrical elements into the Plant 8 layout, the design team will indicate the placement of electrical infrastructure and equipment in updated project site plans. For the existing control building, the design will include building modification plans to integrate new electrical modifications. For the new prefab switchgear building, the design will include detailed electrical layouts and equipment specifications in accordance with the site needs. A Lighting Plan will also be developed to provide optimal illumination with fixture layout, types, and specifications.

For pump systems, the electrical team will work with the civil team to provide detailed design layouts for reduced voltage soft starters (RVSS) and variable frequency (VFD) configurations. Schematics will be prepared to outline breaker configurations, protective relay settings, and a cable schedule to outline the types, sizes, and routing throughout the site. Individual schedules will be prepared for the panelboard, fixture details, and interconnects to illustrate how various electrical components and systems are all connected. For battery systems, the team will prepare design diagrams detailing layout, wiring, and specifications. Lastly, detailed drawings for PLC Interface Panels will be provided, including input/output data connections and wiring configurations.

Task 2.3 Structural Design

Structural Design Services will include integration of the proposed support facilities and features necessary to accommodate new electrical equipment and improve access within the Plant 8 site.

This task will commence with finalizing the design of the two proposed structural support platforms, including the switchgear housing platform and the transformer platform. Structural design will also include plans for a new isolated mat foundation for the two backup generators proposed to be located on the newly acquired portion of the neighboring southern parcel. The structural design will conclude with a new elevated steel gangway and stairway to replace the existing canal bank stairs. This will allow for unimpeded access from the canal bank to the pump platform, even in high water conditions within the canal.

Each segment of the structural work will include detailed design drawings, structural analysis reports, and engineering specifications, augmented by any supplementary documentation required for project construction.

Task 2.4 Geotechnical Design

To support the new structural platforms foundation design, a geotechnical exploration and design analysis will be conducted by the geotechnical engineering team. The design approach includes identifying the subsurface conditions of the site through detailed explorations, laboratory testing of soil samples, and the formulation of a design-level geotechnical exploration report.

To understand the subsurface conditions necessary for the design of the proposed platform foundations, explorations will be conducted at strategically targeted areas within the Plant 8 site. Explorations will include cone penetration tests and seismic cone penetration tests to varying depths, and a geotechnical boring to approximately 50 feet below existing grade. These explorations aim to provide a view of site-specific conditions, enabling the collection of soil samples and an evaluation of the liquefaction and corrosion potentials of the foundation soil. Following the field explorations, the gathered soil samples will undergo a series of laboratory tests to ascertain their engineering properties for the structural design support. All activities will be conducted in alignment with the Sacramento County Environmental Health Department requirements, including proper permitting and backfilling.

The culmination of the geotechnical field and testing process will be the development of a geotechnical exploration report, which will focus on potential geologic challenges, including the likelihood of liquefiable foundation soil. This report will provide mitigative strategies for identified hazards and provide design-level foundation suggestions for the proposed structures. The final geotechnical design will lay out a foundation for project development, addressing the unique geologic attributes of the site.

Task 2 – Final Design Deliverables

The final design services task will include three incremental submittal phases:

1. **60% Design Submittal:**
    - 60% design level Improvement Plans including fundamental Civil, Electrical, and Structural design plan sheets.
    - Construction Specifications Table of Contents.
    - Preliminary Structural Design Analysis.
    - Geotechnical Exploration Report.
    - RD1000 Review Log provided in Microsoft Excel format.
2. **90% Design Submittal:**
    - 90% design level Improvement Plans including complete set of Civil, Electrical, and Structural design plan sheets revised in accordance with 60% design comments.
    - 90% design level Construction Specifications.
    - 90% design level Engineer's Opinion of Probable Construction Cost.
    - Preliminary Project Phasing Plan and Cost Budget Cashflow Projection
    - Final Structural Design Analysis.
    - RD1000 Review Log with responses to 60% design comments. Submittal provided in Microsoft Excel format.
3. **Final Design Submittal:**
    - Final construction ready improvement plans updated in accordance with 90% design comments.
    - Final construction ready Construction Specifications and Bid Quantities.
    - Final Engineer's Opinion of Probable Construction Cost.
    - Final Project Phasing Plan and Cost Budget Cashflow Projection
    - RD1000 Review Log with final comment responses. Submittal provided in Microsoft Excel format.

Task 3: Project Management and Coordination

KSN will provide coordination of the final Plant 8 design effort, including communication with RD1000 and the District Engineer Mead & Hunt. During this final design phase, KSN will plan for up to three site meetings and prepare for and attend the following meetings and workshops:

1. A final design kickoff meeting will be held to review project scope, schedule, and coordination.
2. For the expected twelve-month final design phase, KSN will coordinate monthly virtual coordination meetings to review project progress, questions, or to facilitate input from the team.
3. After delivery of the 60% and 90% design submittals, KSN will coordinate and host a review workshop with the District and District Engineer to discuss comments on the design documents.

Proposed Budget

KSN proposes to provide the above scope of services, subject to the below understandings and assumptions, on time and expenses basis with a proposed budget of $538,000. The below table summarizes the anticipated breakdown of costs, with the enclosed task hour breakdown identifying our anticipated level of effort.

Task	**Task Estimated Budget**
Task 1: Right of Way Services	$77,200
Task 2: Final Design	$418,800
Task 3: Project Management and Coordination	$42,000
Total	$538,000

Scope Understandings and Assumptions

Our proposed scope of services and budget are based on the following additional limitations, assumptions, and understandings:

1. Final project design will be developed in accordance with the recommendations provided in the Plant 8 Preliminary Design report published by KSN in March 2023.
2. Project right of way acquisition for generator placement is intended by way of RD1000 purchase of a portion of the Gini Family Trust property (APN: 237-0011-016) based on receptive preliminary discussions with the Gini Family.
3. If a Lot Line Adjustment is required by Sacramento County, the application fee will be paid directly by RD1000.
4. No design or documentation for road improvements adjacent to the site.
5. No direct PLC programming or SCADA programming is included, these services will be part of the Contractor’s scope via RD1000 preferred systems integrator, Tesco.
6. No hazardous materials investigations or remediation plans.
7. If required, CEQA document preparation and/or environmental permits will be prepared under separate scope or by others. Our proposed budget does not include coordination with a CEQA consultant for preparation of a project description.
8. If required, regulatory permits will be obtained under separate scope or by others unless otherwise specified.
9. If required, a Storm Water Pollution Prevention Plan (SWPPP) will be developed by others.
10. Public bidding services including bid hosting, public notices, contractor solicitations, and pre-bid job walks will be conducted under separate contract.
11. Construction management and construction inspection services will be provided under separate contract or by others.
12. Design services during construction will be provided under separate contract.
13. All project submittals and deliverables will be provided in PDF format unless otherwise specified.

AGENDA ITEM 5.6
ATTACHMENT NO. 2

PLANT 8 PRELIMINARY DESIGN REPORT
RECLAMATION DISTRICT 1000
SACRAMENTO, CALIFORNIA

PREPARED FOR:
KEVIN L. KING
GENERAL MANAGER

PREPARED BY:

Kjeldsen, Sinnock & Neudeck, Inc.
Civil Engineers & Land Surveyors
1550 Harbor Boulevard, Suite 212
West Sacramento, California 95691
Telephone Number: (916) 403-5900

March 2023
KSN No. 2433-0030

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS

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RECLAMATION DISTRICT 1000 PLANT 8 – PRELIMINARY DESIGN REPORT

FIGURES

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ENGINEER'S SEALS AND SIGNATURES

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

CONTRIBUTORS TO PRELIMINARY DESIGN REPORT

Kjeldsen, Sinnock, and Neudeck, Inc.

Jeffrey A. Mueller	PE C73738	Civil Engineering, Hydraulics
Patrick H. Mahoney	EIT173484	Civil Engineering, Hydraulics

Others

Steven L. Barfuss	Research Professor	Physical Modeling, Hydraulics
Zachary B. Sharp	Research Asst. Professor	Physical Modeling, Hydraulics
Manuel Najar	PE ChE6184	Pipe Coating Design
Jonn C. Calton	PE E14099	Electrical Engineering
Hazen Talbott	PE C79264	Structural Engineering

EXECUTIVE SUMMARY

This preliminary design report presents a comprehensive initial plan for improvements to Pumping Plant Number 8 that focus on increasing efficiency, reliability, and longevity of the system. The primary objectives are to address pump cavitation issues, rehabilitate discharge pipes, upgrade the electrical system from 480-volt to 2400-volt, and install a backup power system to ensure uninterrupted operations during power outages.

1. Pump Station Improvements to Reduce Cavitation:

   Cavitation within the pump system is a significant concern as it reduces efficiency and shortens the equipment lifespan. To address this issue, the report proposes the following measures:

   a. Optimized Pump Submergence: Lengthen pump columns to increase pump submergence and minimize the occurrence of cavitation.

   b. System Modifications: Modify the pump station's inlet structure with improvements including floor cones, wall fillets, wall treatments, and a new divider wall to provide more uniform pressure levels at the pump suction point to further reduce the potential for cavitation.

2. Discharge Pipe Rehabilitation:

   The original sections of discharge pipe have experienced substantial wear and deterioration over time, resulting in reduced efficiency and increased risk of failure. To address this, the report recommends the following steps:

   a. Pipe Condition Assessment: Conducted a thorough assessment using non-destructive closed-circuit television (CCTV) inspections testing method to identify areas of concern.

   b. Rehabilitation Techniques: Implement appropriate rehabilitation methods, including pipe blast cleaning, pipe wall repair, and new pipe coating to restore the pipe's structural integrity and hydraulic capacity.

   c. Preventive Maintenance: Establish a regular inspection and maintenance schedule to minimize future deterioration and extend the pipe's service life.

3. Electrical Upgrade from 480V to 2400V:

   To accommodate the increasing power demands of the pump station and enhance overall system performance, this report proposes an electrical upgrade from the existing 480V to a more robust 2400V system. The upgrade will involve:

   a. Transformer Replacement: Replace existing transformers with higher capacity units to handle the increased voltage requirements.

b. Switchgear Upgrade: Install new switchgear with appropriate voltage ratings and improved protective devices for enhanced system reliability and safety.

c. Pump Motor Replacement: Replace pump motors to accommodate the higher voltage, ensuring compatibility and improved efficiency.

4. Addition of a Backup Generator Power System:

   The current pump station lacks a reliable backup generator system, posing a significant risk to the continuity of operations during power outages. To address this, the report recommends the following:

   a. Backup Generator Options: Evaluate backup generator solutions, such as diesel and natural gas powered generators to determine the most suitable system based on capacity, response time, and maintenance requirements.

   b. System Integration: Seamlessly integrate the backup power system with the pump station's existing electrical infrastructure and control systems to ensure automatic activation during power outages.

5. Replace Trashrack Drive Chains

   Replacing aging drive chains on the Plant Trashrack is crucial to ensure efficient, reliable, and safe operation. Worn-out chains can compromise the trash rack's ability to remove debris, leading to reduced pump performance, increased risk of clogging, and potential damage to the pumping system. Timely replacement of drive chains helps maintain optimal functionality, minimize downtime, and prolong the life of the pumping plant equipment.

In conclusion, the proposed improvements will significantly enhance the pump station's efficiency, reliability, and service life, while ensuring a more resilient infrastructure to support the District’s critical flood control efforts. The next steps involve finalizing the design of the features recommended herein, obtaining necessary permits and approvals, and securing funding to proceed with the implementation of these vital improvements.

TABLE OF ABBREVIATIONS

CCTV: Closed-Circuit Television

CEQA: California Environmental Quality Act

CFS: cubic feet per second

DWR: California Department of Water Resources

HI: Hydraulic Institute

HMI: Human Machine Interface

HP: Horsepower

I: Interstate

IPA: Integrated Power Assembly

KSN: Kjeldsen, Sinnock & Neudeck, Inc.

MW: Megawatts

NAT: Natomas

NAVD 88: North American Vertical Datum of 1988

NDT: Non-Destructive Testing

NEMA: National Electrical Manufacturers Association

NEMDC: Natomas East Main District Canal

NLIP: Natomas Levee Improvement Program

NB: Natomas Basin

PDC: Power Distribution Centers

PA: Property Assessments

Plant: Pumping Plant

RD: Reclamation District

RVSS: Reduced Voltage Solid State

RPM: Revolutions Per Minute

SAFCA: Sacramento Area Flood Control Agency

SCADA: Supervisory Control and Data Acquisition

SMUD: Sacramento Municipal Utility District

SSPC: Society of Protective Coatings

USACE: U.S. Army Corps of Engineers

UWRL: Utah Water Research Laboratory

V: Volt

VAC: Volts of Alternating Current

VFD: Variable Frequency Drive

Section 1

Introduction

1.1 DISTRICT BACKGROUND

Reclamation District 1000 (District) is a public agency located in Sacramento, California. The District was created in 1911 to manage the flood control and drainage needs of the Natomas Basin, which covers approximately 55,000 acres in the northern Sacramento region. The District is governed by a five-member board of trustees who are elected by landowners within the district.

The primary responsibility of Reclamation District 1000 is to maintain levees and drainage facilities within the Natomas Basin to prevent flooding and protect public safety. This includes routine maintenance such as vegetation management, erosion control, and inspections of levees and drainage channels. In addition, the District is responsible for emergency response and flood control during times of high water or other natural disasters.

Reclamation District 1000 also provides other services to landowners within the district, including mosquito abatement, water management, and infrastructure improvements. The District has a number of ongoing projects aimed at improving infrastructure, including levee improvements and drainage system upgrades. The District is funded through a combination of property assessments and grants from federal and state agencies. Property owners within the district pay an annual assessment based on the assessed value of their property, which is used to fund district operations and maintenance. Reclamation District 1000 plays a critical role in protecting the Sacramento region from flooding and ensuring the safety of residents and property owners within the Natomas Basin. The district's ongoing efforts to improve infrastructure and maintain its facilities are essential to its continued success in fulfilling this mission.

1.2 PUMPING PLANTS

The Reclamation District 1000 drainage system consists of approximately 30 miles of main drainage canals, 150 miles of sub drainage canals, eight (8) exterior pumping plants, and two (2) interior pumping plants. This system collects stormwater runoff and agricultural drainage and discharges it out of the basin. The District's interior drainage canals are also used during the summer non-flood season to convey irrigation flows to cultivated lands primarily in the northern area of the basin.

The focus of this analysis is District Pumping Plant Number 8 (Plant 8) which is located on the southeast side of the District to the north of Interstate 80 at east end of District Canal C-1 where it terminates at Northgate Boulevard. See Figure 1-1 below for a map with Plant 8 location. With nine (9) vertical mixed-flow pumps capable of pumping approximately 780 cubic feet of water per second (CFS), Plant 8 is a critical component of the District's flood control and drainage system. Its ability to pump large volumes of water quickly and efficiently is essential to maintaining drainage and preventing flooding within the Natomas Basin, and to protecting the safety of residents and property owners in the region.

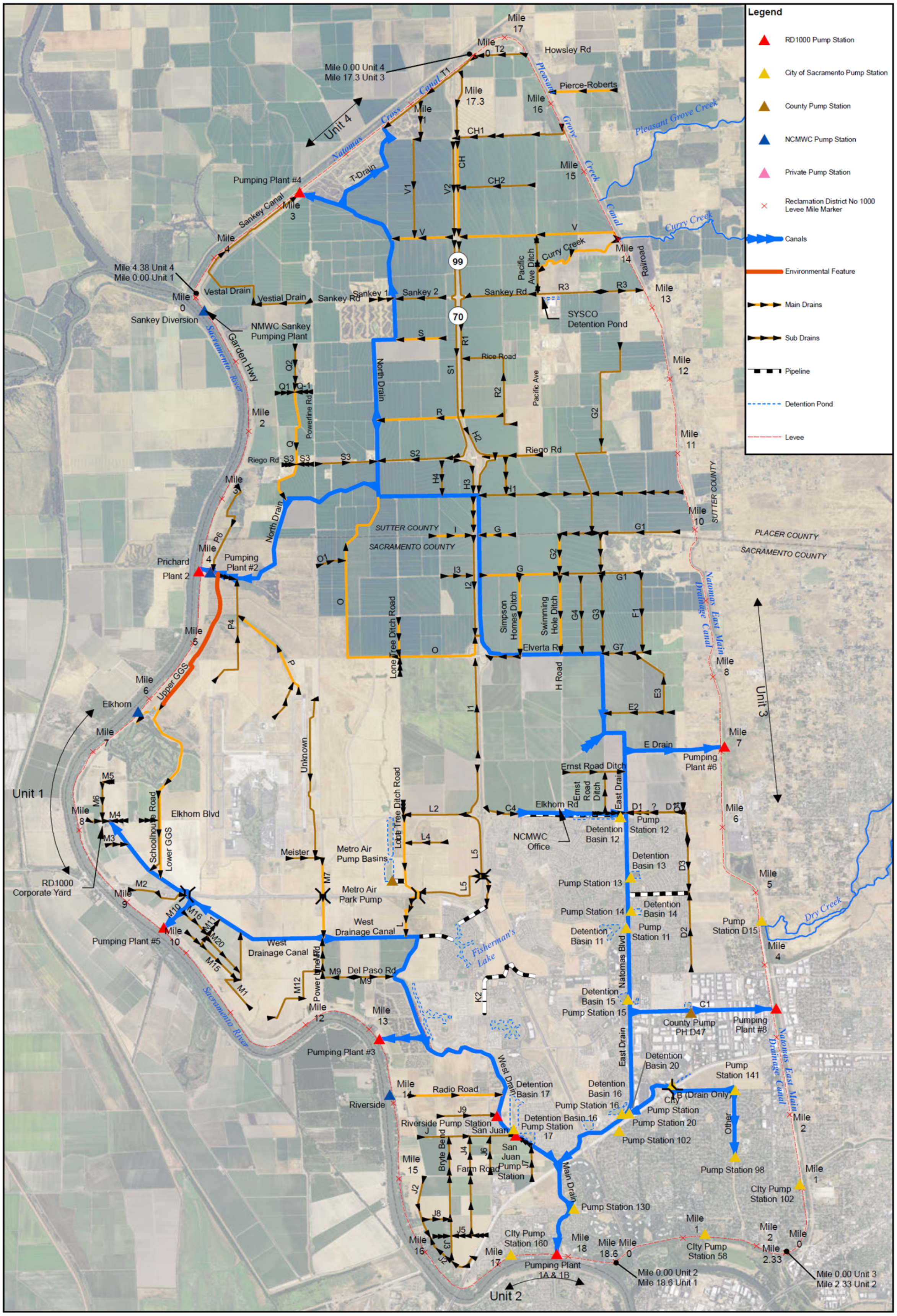


Figure 1-1
Reclamation District 1000 Facilities (Mead & Hunt 2016)

1.3 PROJECT PURPOSE

Reclamation District 1000 has planned for major rehabilitation of Pumping Plant Number 8 to include several upgrades and to address identified system operational and condition concerns which have negatively impacted its performance and efficiency. This preliminary design report will identify the means to address the improvements recommended for Plant 8, which includes the specific upgrades that will be made to the pumping plant facilities and equipment.

To further develop the improvement scope for the project this report presents the findings of the initial assessment of the plant's condition and operational issues and proposes a plan to address them. The report identifies and defines the means to implement the recommended improvements, such as the specific equipment and systems upgrades needed. It also provides a preliminary cost estimate for the project.

The overall purpose of the Preliminary Design Report is to provide a comprehensive and detailed strategy for the rehabilitation of Pumping Plant Number 8. This initial plan will help Reclamation District 1000 to secure funding and resources needed to carry the project from the final design stage through construction, ensuring the continued effectiveness of its flood control system.

The specific improvements to be addressed from a planning and preliminary design level include:

1. Improvements to existing pumping facilities based on physical hydraulic modeling results.
2. Review discharge pipe condition and pipe rehabilitation potential.
3. Conversion of the exiting low voltage (480-volt) power systems, motors, and motor starters to medium voltage (2400-volt), to match the District's other large pumping plant systems and improve efficiency.
4. Provide for dedicated backup power supply.
5. Integrating and updating pump station controls, including adding SCADA and security cameras.
6. Building and site improvements to accommodate the above elements, including property acquisition.
7. Replace chains on Trashracks.

Section 2

Pumping Plant Number 8

2.1 SITE CONFIGURATION

Pumping Plant Number 8 includes a total of nine (9) vertical mixed-flow pumps located outdoors on a concrete deck, with a single electrical and instrumentation building located on the slope high above the pump platform. A chain driven Trashrack screens are located immediately in front of the pump deck to collect and convey large debris up to the concrete deck before reaching the pumps. A steel deck above the platform allows access to the motors. Discharge pipes route under Northgate Boulevard, a heavily travelled road serving both industrial and residential traffic before reaching the levee and discharging into the Natomas East Main District Canal (NEMDC).

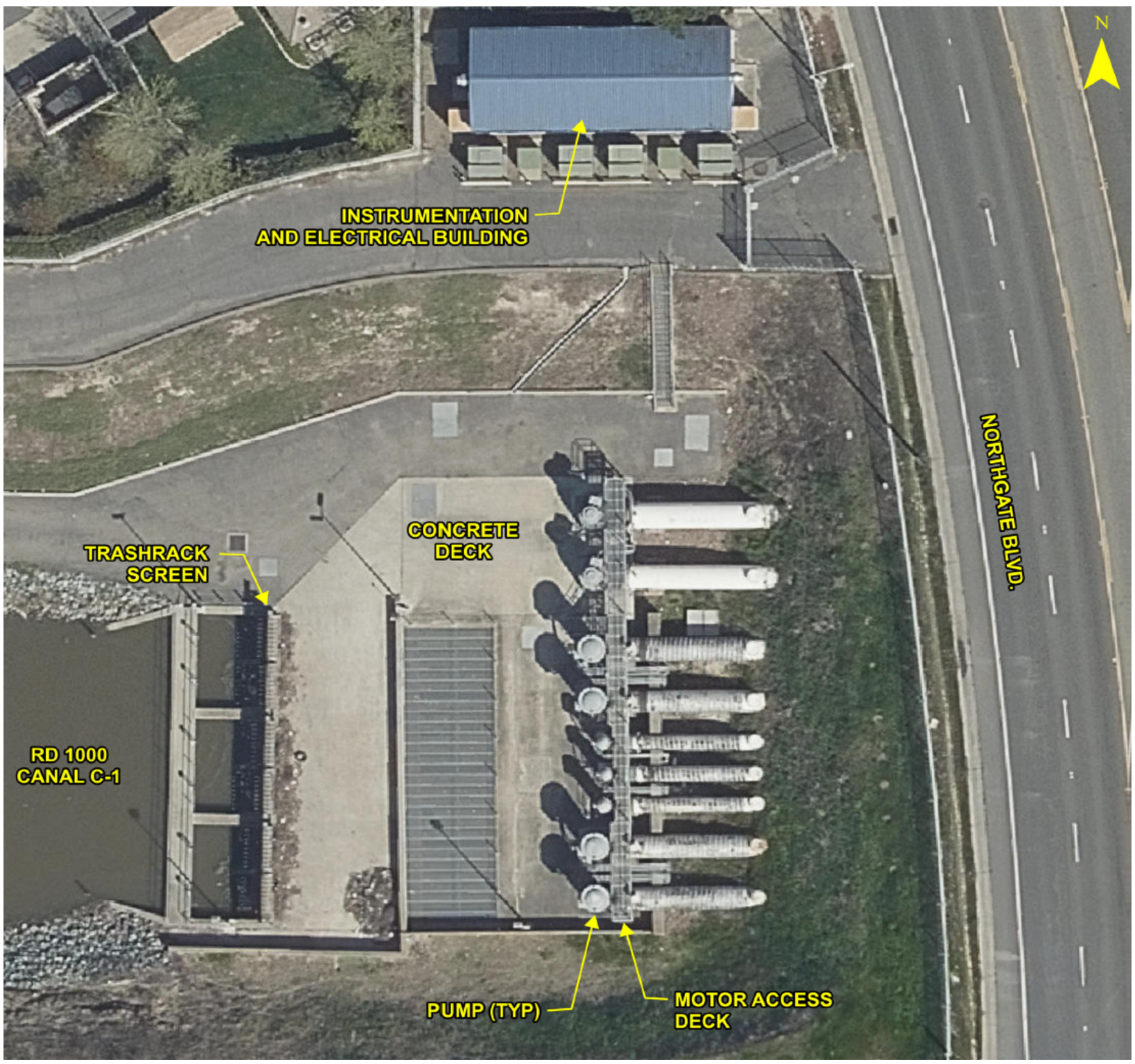


Figure 2-1
2023 Site Layout

2.1.1. HISTORY

The original Plant 8 facility was constructed in 1982 and included space for seven (7) pumps evenly positioned along the centerline of District drainage canal C-1. Five (5) pumps were initially installed with room left to accommodate the future installation of two (2) additional pumps on the south side of the pump platform. These two (2) additional pumps were added not long after the original project was completed. 2001, the District performed a Plant 8 improvement project that featured the addition of two more pumps. To accommodate these new pumps, the plant was expanded to the north by excavating into the existing canal bank and constructing new sections of concrete deck and drainage sump that connected to the old facilities with a new 45-degree sump entrance angle. See Figures 2-2 and 2-3 below for the original and improved plant layouts.

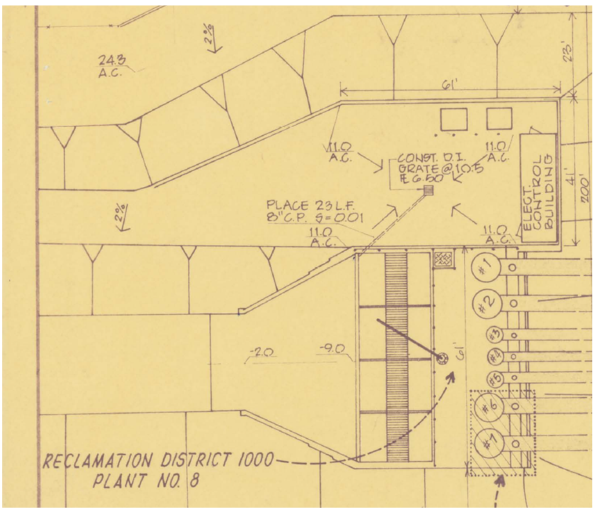


Figure 2-2
1982 Original Design Layout

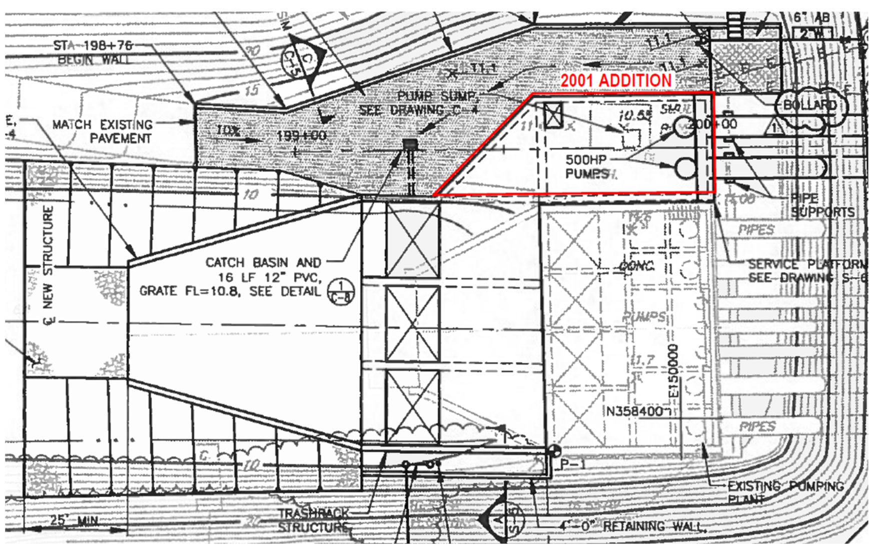


Figure 2-3
2001 Plant Expansion Design

2.2 PUMPS

The nine (9) vertical mixed-flow pumps operating at Plant 8 vary in size, discharge capacity, and manufacturer. See Figure 2-4 for the layout of the District Pumps and Table 2-1 for a summary of the different pump characteristics.

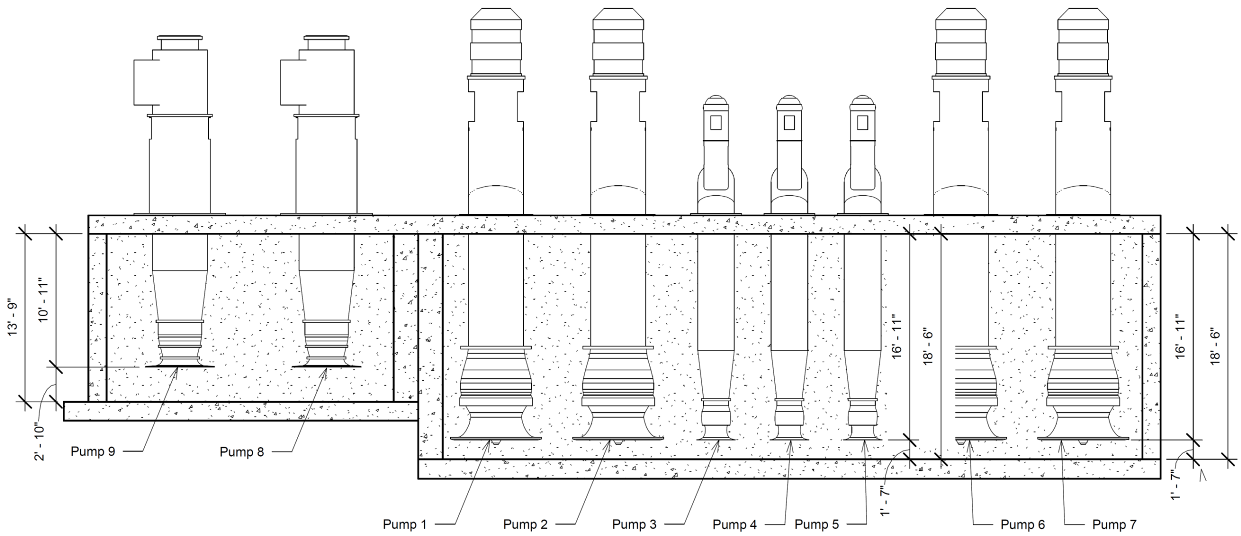


Figure 2-4
Pump Layout

Table 1 Pump and Motor Summary

Pump Unit No.	Pump Manufacturer	Pump Model	Pump Speed (RPM)	Discharge Pipe Diameter (inch)	Motor Horsepower	Capacity (CFS)
1	Cascade	42 MF	445	54	700	105
2	Cascade	42 MF	445	54	700	105
3	Aurora	24LM-4A	880	36	300	48
4	Aurora	24LM-4A	885	36	200	33
5	Aurora	24LM-4A	880	36	300	48
6	Cascade	42 MF	445	54	700	105
7	Cascade	42 MF	445	54	700	105
8	Flowserve	52 PMR	505	54	500	115
9	Flowserve	52 PMR	505	60	500	115

Total: 779

2.3 MOTORS

The nine (9) pumps at Plant 8 are all driven by the connected electric motors powered by 480-volt electric service provided by Sacramento Municipal Utilities Department (SMUD). These motors range in range in power (horsepower) and rotational speed (RPM) as indicated in Table 2-1.

The typical service life for a 480-volt electric motor that operates a vertical mixed flow pump can vary depending on several factors such as operating conditions, maintenance practices, and load demands. Electric motors are designed to last a long time and can generally operate for 30 years or more with proper maintenance and care. The service life of the motor can be extended by following the manufacturer's recommended maintenance schedule, checking the motor's temperature and lubrication, and keeping the motor clean and dry.

Extensive motor testing was not performed as part of this preliminary level of analysis, but based on age alone, the existing Plant 8 480-volt motors should be considered to be nearing the end of their effective service life.

Figure 2-5
Electric Motors

2.4 TRASHRACK SCREEN

A pump station Trashrack screen is a device that is designed to prevent debris such as trash, sticks, plastic, and other large objects from entering and clogging a pump station. If debris were to enter the pumps, it could cause damage to the impeller, motor, and other components, which could lead to costly repairs and downtime. The screen is installed at the inlet of the pump station and consists of a metal grid with closely spaced bars that allow water to pass through while trapping large objects. The trapped debris is then removed from the canal using a chain driven mechanical conveyance cleaning system.

The Plant 8 Trashrack screen is manufactured by Duperon Corporation and was installed in the 2001 expansion project. After 20+ years of continuous operation and canal submergence, the drive chains used to operate the debris collection conveyor system are showing signs of wear and corrosion. It is recommended that the District replace these drive chains. Coordination with Duperon should be included in the final phase of project design.

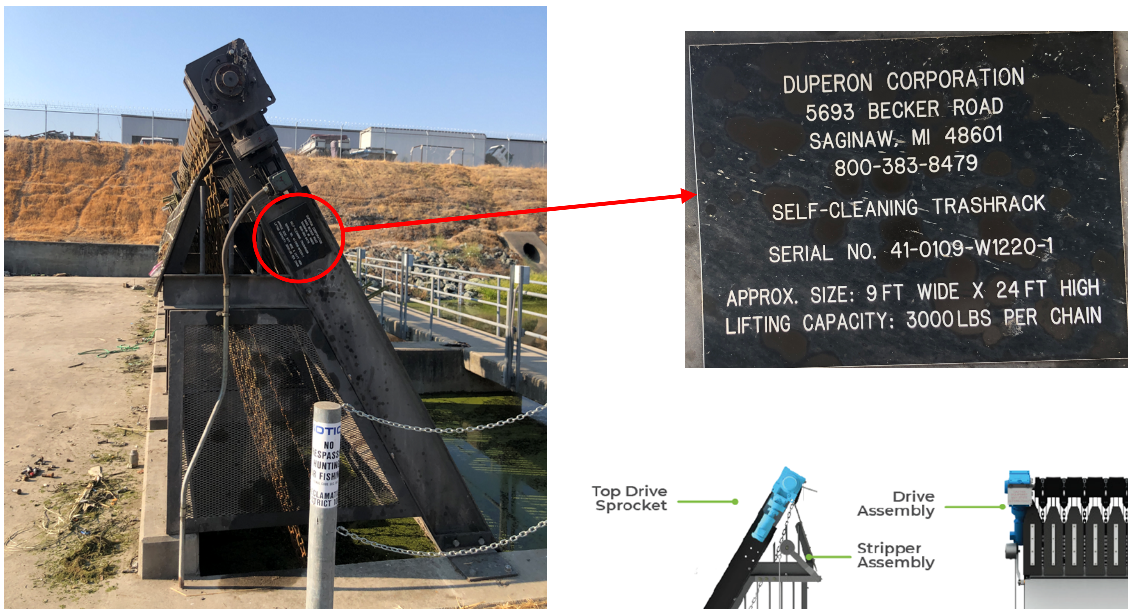


Figure 2-6
Plant 8 Duperon Trashrack

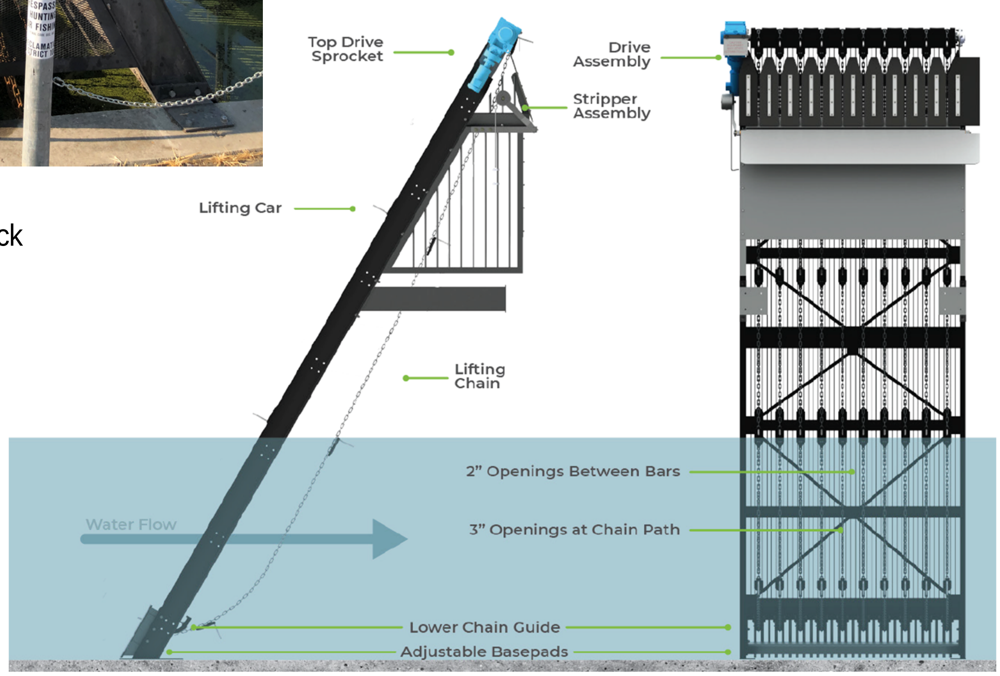


Figure 2-7
Duperon Trashrack Schematic

2.5 DISCHARGE PIPES

The nine (9) discharge pipes that convey drainage from the District's C-1 canal to the NEMDC range in size from 36 inches to 60 inches as indicated in Table 2-1. The discharge pipes are constructed of welded steel and contain an interior epoxy lining, and either an exterior coating or wrap to protect against corrosion and UV exposure.

A portion of the discharge pipes under the levee and outfall structure have recently been replaced as part of the recent the Natomas Levee Improvement Program (NLIP) implemented by the Sacramento Area Flood Control Agency (SAFCA) the U.S. Army Corps of Engineers (USACE), and California Department of Water Resources (DWR). The remaining upstream portions of the discharge pipes running from the levee back to the pumps, however, remain as originally installed.

The NLIP pipe improvements also included the installation of positive closure shutoff valves installed in a new valve vault constructed inside the top of the existing NEMDC west levee. With these improvements Plant 8 improvements recently completed by the USACE team, KSN's scope for this preliminary design analysis is limited to the NLIP project pipe connection point on the downstream side of the facility.

Figure 2-8
Original Discharge Pipes

2.6 INSTRUMENTATION AND ELECTRICAL BUILDING

The Plant 8 instrumentation and electrical building is located on the top of the north canal bank levee and serves as the control center for the pumping plant. Its primary function is to house the instrumentation and electrical equipment necessary to monitor and control the various pumps, valves, and other components of the pump station. The building includes sensors that monitor the levels and flows of water at different points throughout the pump station. This information is transmitted to a control panel where it is used to control the pumps to maintain the desired flow rates and levels.

For the electrical supply, the building includes switchgear, motor control centers, and other components that are used to distribute power to the various pumps and other equipment. The Plant 8 electrical building does not currently contain an onsite backup power system, such as generators or battery banks. This means the pump station cannot continue to operate during power outages without delivery, connection, and temporary operation of a backup power supply system.

Figure 2-9
Instrumentation and Electrical Building

Section 3
Hydraulics Analysis

3.1 PUMP OPERATIONS

As detailed in Section 2.2, Plant 8 houses nine (9) vertical mixed-flow pumps. See Figure 3-1 to review the pump layout. Table 3-1 below lists the pump operating sequence as provided by District operations personnel. The Table is structured to read from the bottom to top, with Pump 3 being the first pump to operate when the canal water level reaches 10.30'. Each subsequent pump starts as the water level increases moving up the table.

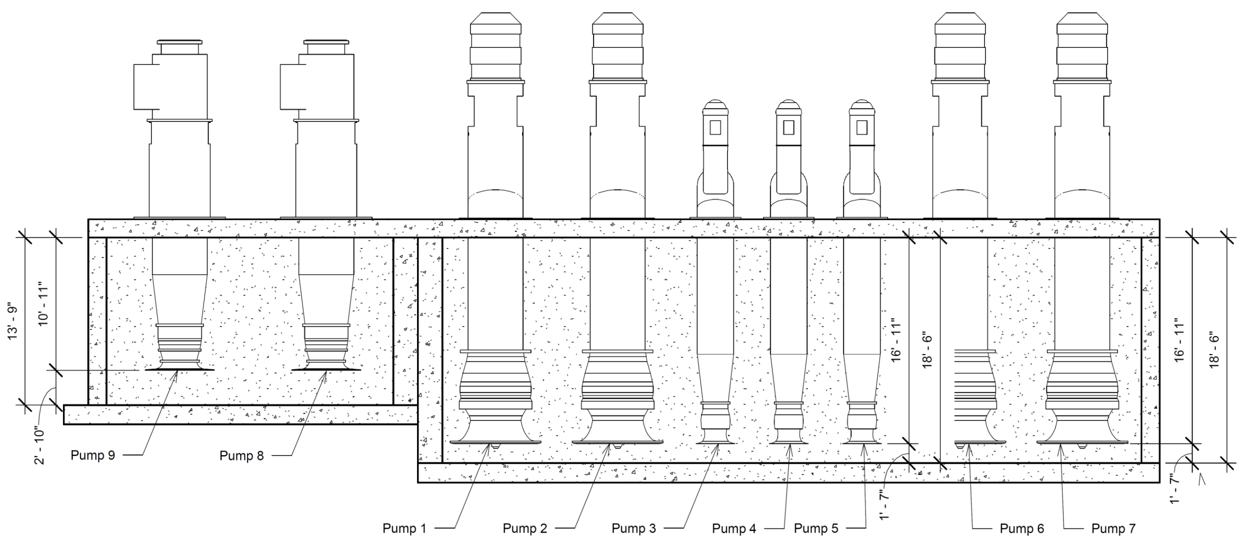


Figure 3-1
Pump Layout

Table 2 Pump Operating Level Sequence

Pump Unit No.	Pump Manufacturer	Pump Model	Motor Horsepower	Capacity (CFS)	Pump ON Level	Pump OFF Level
9	Flowserve	52 PMR	500	115	11.80	10.80
8	Flowserve	52 PMR	500	115	11.63	10.63
2	Cascade	42 MF	700	105	11.47	10.47
1	Cascade	42 MF	700	105	11.30	10.30
7	Cascade	42 MF	700	105	10.97	9.97
6	Cascade	42 MF	700	105	10.80	9.80
5	Aurora	24LM-4A	300	48	10.63	9.63
4	Aurora	24LM-4A	200	33	10.47	9.47
3	Aurora	24LM-4A	300	48	10.30	9.30

* Pump Levels reference NAVD 88

3.1.1. OPERATING SEQUENCE

Plant 8 is operated by trained personnel from Reclamation District 1000, who monitor water levels within the basin and activate the pumps as needed to maintain drainage and prevent flooding. During periods of high water or flooding, personnel may work around the clock to ensure that the plant is functioning properly and to respond to any emergencies or issues that may arise.

During routine conditions, the pumps are automatically operated based on a series of “On” and “Off” setpoints as listed in Table 3-1. The general sequence of operations begins with the smaller pumps initially activating one at a time to begin draining the canal, with the larger pumps following as the water level in the canal continues to rise.

The two newer pumps, Pumps 8 and 9, are the last pumps to join in the pumping succession which results in these two pumps receiving the least amount of operating time. This seems counterintuitive as one would expect the newer pumps to be operated more frequently than older pumps with 20 more years of operating wear and tear. Upon feedback from District operations personnel, however, it was revealed that Pumps 8 and 9 are limited to an exceedingly small operating window between higher canal levels only. Operating these two pumps outside that small window causes a phenomenon called cavitation.

3.1.1.1. Cavitation

Cavitation is the formation and subsequent collapse of bubbles in a fluid. It occurs when the pressure in the fluid drops below the vapor pressure, causing the fluid to vaporize and form bubbles. These bubbles then collapse as they move through areas of higher pressure, which can cause damage to the pump and decrease its efficiency. Some of the negative impacts of pump cavitation include:

1. Reduced Pump Efficiency: Pump cavitation reduces the efficiency of the pump by creating turbulence in the fluid flow, increasing the resistance to flow, and reducing the pump's ability to move fluids efficiently.

2. Damage to Pump Components: The implosion of bubbles created by cavitation can cause damage to the pump's impeller, casing, and other components. This damage can be costly to repair or replace and can lead to extended periods of downtime.

Eliminating pump cavitation can provide numerous benefits for a pumping system, including:

1. Increased Pump Efficiency: Eliminating cavitation can improve the pump's efficiency by reducing the turbulence and resistance to flow in the fluid. This can result in more effective and reliable fluid transport and reduced energy consumption.

2. Improved Pump Longevity: Eliminating cavitation can reduce the damage caused to the pump components, increasing their lifespan and reducing the need for costly repairs or replacements.

3. Reduced Operating Costs: Improved pump efficiency and longevity can result in significant cost savings over time, reducing operating costs and improving the overall profitability of the pumping system.

3.2 REVIEW OF EXISTING CONDITIONS

3.2.1. PUMP CURVE REVIEW

The first hydraulic review task undertaken was the analysis of the existing pump station system curve plotted against each of the nine (9) Plant 8 pump curves. This was a preliminary effort to confirm that both the high and low operating conditions for each pump landed within the limits of the pump station system curve. All nine (9) Plant 8 pump curves did meet this criteria with the exception of Pumps 8 and 9 missing the low level operating condition where the plant is experiencing a head condition of between 14-20'. See Appendix B for these curves.

3.2.2. DESIGN REVIEW

After review of the District operating staff's report, it was apparent that there were issues with the Plant 8 improvements that were added to the original facility. The original and subsequent 2001 Plant Expansion Project design plans were provided by the District for a preliminary evaluation of the cavitation source. The issue immediately evident is that the bottom floor for the added Pumps 8 and 9 chamber is nearly 5 feet higher than the original plant floor elevation as shown in Figure 3-1. This is a real concern with respect to minimum pump submergence which is a primary factor in pump cavitation.

3.2.2.1. Minimum Pump Submergence

Minimum pump submergence is the minimum depth of fluid that a pump should be submerged in to ensure proper operation. This depth is typically specified by the manufacturer and is important for several reasons:

1. Cavitation prevention: When the fluid level is too low, it can cause cavitation, which can cause damage to the pump impeller and reduce the pump's efficiency.

2. Cooling and lubrication: Many pumps rely on the fluid to cool and lubricate the bearings and other components. If the fluid level is too low, it can cause the pump to overheat, leading to premature failure.

3. Performance: Performance is affected by the amount of fluid that it's pumping. If the level is too low, it can cause the pump to run outside of its design parameters, leading to reduced performance and efficiency.

4. Safety: A pump that is not properly submerged can create a hazard if it draws in air or other gases, which can cause the pump to lose suction and lead to damage or injury.

3.3 PHYSICAL MODELING

With a culprit identified as the probable cause for cavitation, collaborations began with the Utah Water Research Laboratory (UWRL), at Utah State University, to perform physical modeling of the Plant 8 facility.

Physical modeling of a pumping plant involves creating a scaled-down physical replica of the pumping plant and conducting experiments to simulate the behavior of the plant under various conditions. This is done to optimize the design of the plant, to identify potential problems, and to test the performance of the plant under different operating conditions.

See Appendix A for the complete UWRL Physical Model Study.

3.3.1. Model Construction

To create a physical model of a pumping plant, the modeling team began by gathering data on the plant's design and operating characteristics. Working with a digital terrain model compiled by combining the 2021 KSN topographic survey and a digital model of the Plant 8 facility, the modelers created a scaled-down model of the plant, using wood, plastic, and metal. See Figures 3-2 and 3-3 for a depiction of the Plant 8 concrete inlet structure with, and without, the concrete deck surface. See Figures 3-4 and 3-5 for the physical model construction.

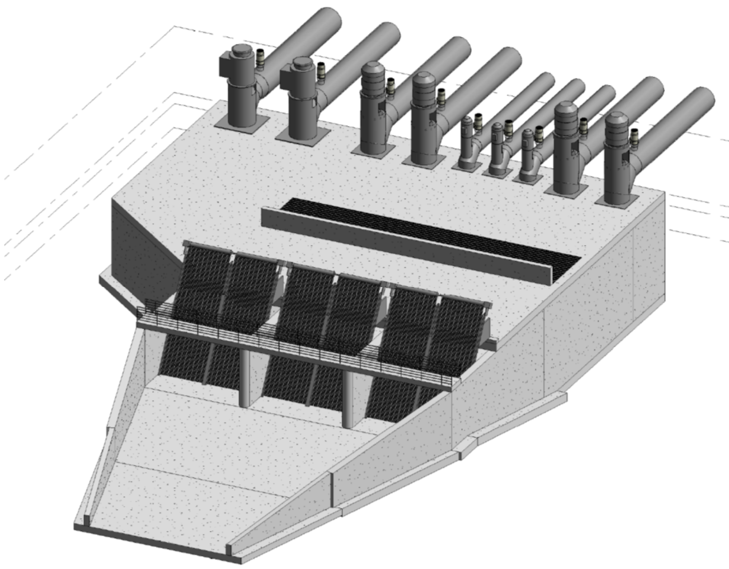


Figure 3-2
Concrete Inlet Structure Model with Top Deck

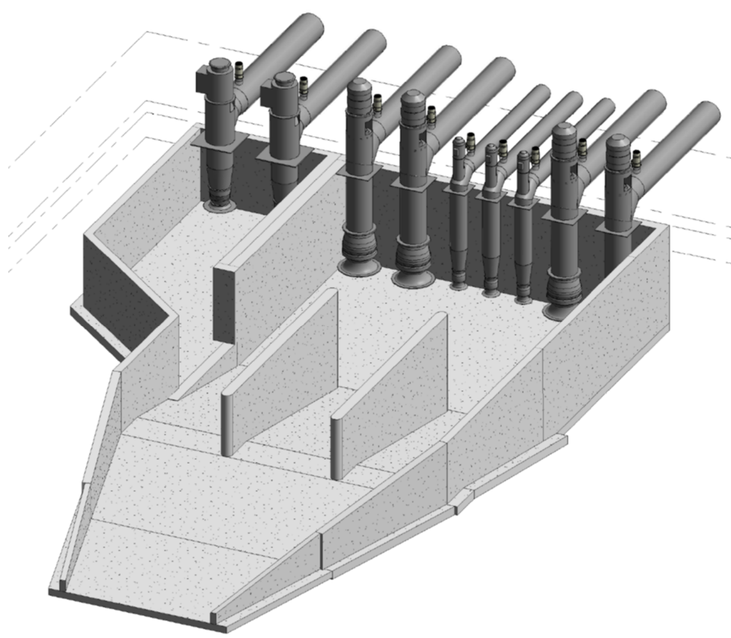


Figure 3-3
Concrete Inlet Structure Model without Top Deck

Figure 3-4
Physical Model Interior

Figure 3-5
Physical Model Exterior

3.3.2. Modeling Runs

With construction complete the scaled down Plant 8 model was placed in the controlled UWRL environment and modeling run experiments were conducted to simulate the behavior of the plant under various conditions. For example, the flow rate of the fluid being pumped would be varied and the level of the fluid in the facility was changed to simulate different operating conditions.

Sensors and measurement devices were then used to collect flow and velocity data on the performance of the model pumps. These measurements are recorded in combination with lab observations of flow issues such as vortices. This data is then analyzed and compared to industry design standards from the Hydraulic Institute (HI) to rank score the different operating conditions and problems present.

Several different modeling runs were conducted under varying operating configurations with different improvement alternatives to improve operating efficiencies of the Plant 8 pumps, with Pumps 8 and 9 targeted in particular. See Appendix A – UWRL Physical Model Study for the complete detailed analysis of the Physical modeling runs, conditions, and results.

3.3.3. Hydraulic Institute Modeling Fixes

Multiple repair alternatives were considered and added to the model in accordance with the hydraulic features identified in the HI Pump Intake Design Manual. Repair alternatives include the following:

3.3.3.1. Floor Cone

A floor cone consists of a cone-shaped funnel set into the floor immediately below the suction inlet of a pump. The hydraulic benefit of a floor cone under the intake of a suction pump is that it helps to maintain a consistent flow of fluid into the pump, which can improve the efficiency and performance of the pump by reducing velocity fluctuations.

When a pump is in operation, it draws fluid into its intake pipe through suction. This creates a low-pressure zone around the intake, which can cause fluid to flow towards the pump from all directions, including the surrounding floor or other surfaces. This can create turbulence and reduce the efficiency of the pump, as well as increase the risk of damage or wear to the pump impeller.

A floor cone placed beneath the pump's intake can help to mitigate these effects by providing a clear and unobstructed path for fluid to flow towards the pump. The cone catches any fluid that may accumulate around the pump and channels it towards the intake, helping to maintain a consistent flow of fluid and reducing turbulence. This helps improve the overall efficiency and performance of the pump.

3.3.3.2. Wall Fillets

Wall fillets in a pump station inlet structure are angled portions of the walls that are designed to promote smooth fluid flow and reduce turbulence in the inlet structure. These fillets are typically located where the walls of the inlet structure meet the floor or where two walls meet at an angle.

The purpose of wall fillets is to improve the hydraulic efficiency of the inlet structure by reducing friction and turbulence vortices in the fluid flow. Vortices can cause energy loss and reduce the efficiency of the pumping system. By creating smooth angles in the inlet structure, wall fillets help to minimize vortices and reduce energy losses, which can improve the overall efficiency of the system.

3.3.3.3. Divider Walls

A divider wall in a pump station inlet structure is a vertical wall that separates the incoming fluid flow into two or more streams dedicated to an individual suction pump. By splitting the incoming fluid flow into multiple independent streams, the hydraulic efficiency of the system can be improved. The wall also reduces turbulence and promotes a smoother flow pattern, which can reduce energy losses and further improve the performance of the pumping system.

3.3.3.4. Rounded Nose Cone

A rounded nose cone is a curved section of wall constructed along the front edge of a divider wall to promote smoother fluid flow and reduce turbulence in the incoming fluid stream. By smoothing the fluid flow, the rounded nose cone helps prevent the formation of eddies or vortices that can cause energy losses and reduce the efficiency of the pump.

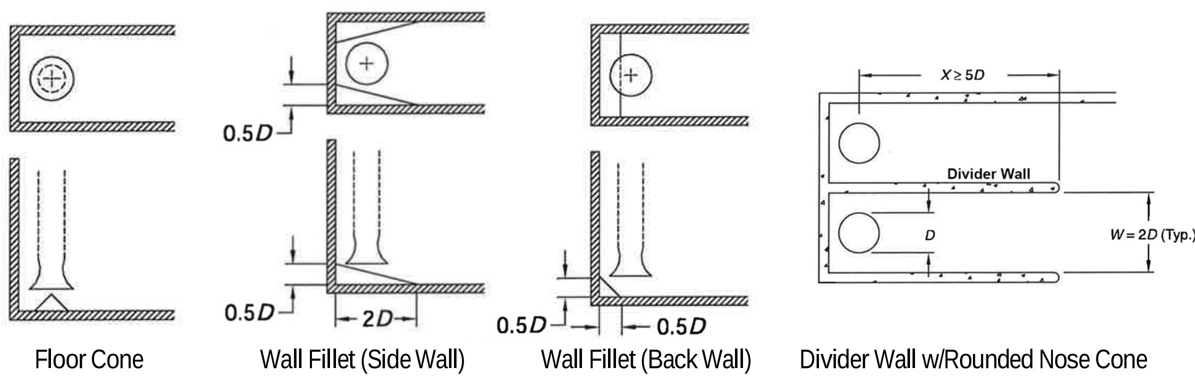


Figure 3-6
Hydraulic Institute Remedial Measures

3.4 RECOMMENDED HYDRAULIC FIXES

After all the modeling runs, improvement additions, data collection, and data analysis the UWRL team was not successful in removing all the flow problems in accordance with the Hydraulic Institute criteria. The modeling team was, however, able to significantly improve the flow conditions of the pumps using the minor modifications listed above. To achieve full compliance with HI criteria, major and costly renovations would likely be needed for the existing inlet structure including lowering floors and reconstructing substantial portions of the existing bays. This is not recommended.

It is recommended to implement measures identified in the physical modeling which can be added to the existing facility without major overhaul while still providing significant hydraulic improvements. The final modifications recommended to be included in the next stage of the Plant 8 design include the following:

1. Installing floor cones under each of the nine pumps to eliminate floor vortices.
2. Lowering pumps 8 and 9 from the current height of 0.5 times the Diameter of the pump column (0.5D) to the 0.3D height from the floor to increase pump submergence to reduce vortices.
3. Installing a divider wall between pumps 8 and 9. See Appendix H – Drawing S2.0 for the preliminary structural design of the divider wall.
4. Installing side and rear wall fillets around pumps 8 and 9.
5. Installing a rounded nose cone on the main divider wall between the pump bay containing pumps 1 through 7 and the pump bay containing pumps 8 and 9.

Section 4

Discharge Pipe Assessment

4.1 BACKGROUND

As described in Section 2.5, there are nine (9) pipes connected to Plant 8 which carry drainage flows discharged from the pumps located at the end of the C-1 canal out into the NEMDC. The discharge pipes are constructed of welded steel and contain an interior epoxy lining, and either an exterior coating or wrap to protect against corrosion and UV exposure.

A portion of the discharge pipes under the levee and outfall structure have recently been replaced as part of the recent the Natomas Levee Improvement Program (NLIP) implemented by the Sacramento Area Flood Control Agency (SAFCA) the U.S. Army Corps of Engineers (USACE), and California Department of Water Resources (DWR). The remaining upstream portions of the discharge pipes running from the levee back to the pumps, however, remain as originally installed.

4.2 PIPE ASSESSMENT

Based on visual inspection of the exposed pipes downstream of the pumps it was evident that the exterior coating has experienced deterioration though the years. The interior lining was expected to be in similar condition. This was expected as these pipes were not replaced as part of NLIP project. See Figure 4-1 below to view the exterior coating condition of the discharge pipes.

The next step of this preliminary design analysis was to inspect the interior pipes to evaluate the condition of the lining, pipe walls, and pipe shape (roundness). If the interior of the pipe was in similar condition to the pipe exterior with only superficial coating deterioration, then the pipe lining could simply be reapplied. If there were larger problems such as pipe buckling and deformation, a much more costly full pipe replacement may be necessary. It was time to investigate the integrity of the remaining portions of the discharge pipes not upgraded in the NLIP project.

4.2.1. CCTV Pipe Inspection

A CCTV (closed-circuit television) pipe inspection is a method of inspecting the interior of pipes using a specially designed camera system. This method allows for a detailed visual inspection of the condition and integrity of pipes, without the need for costly and disruptive excavation work.

During a CCTV pipe inspection, a camera is inserted into the pipe through a small access point, such as a cleanout or manhole. The camera is mounted on a flexible cable or powered crawler, which is then guided through the pipe by an operator. As the camera moves through the pipe, it captures high-resolution video footage of the interior of the pipe, which is transmitted to a monitor or recording device.

The operator can use the video footage to inspect the condition of the pipe, looking for cracks, corrosion, blockages, or other defects. They can also use the footage to measure the size and shape of the pipe, and to identify and log any areas where repairs or maintenance may be needed.

4.2.1.1. Plant 8 CCTV Inspection

A CCTV interior pipeline inspection was performed by 360 Pipeline Inspections LLC, on October 19, 2021. The purpose of the inspection was to investigate concerns with the integrity of the remaining portions of the discharge pipes not upgraded in the NLIP project.

Figure 4-1
CCTV Pipeline Inspection

The inspection of the interior pipe segments showed significant deterioration of the epoxy coating and surface corrosion of the pipe material in each of the 130-foot to 140-foot long segments between the access flange and the point of connection with the pipe replaced as part of the NLIP project. See Figure 4-1 for typical pipe damage.

Figure 4-2
Epoxy Lining Delamination and Corrosion

More concerning than the coating deterioration and wall corrosion was a hole observed in the wall of the Pump 6 pipe. The hole was located at the 1 o'clock position approximately 135' downstream of the Pump 6 pipe access point. The CCTV inspection photo for the hole is shown in Figure 4-3 where the gravel pipe bedding is visible through the hole. It was recommended that the District cease operations of Pump 6 until repairs to this damaged section of pipe could be completed. See Appendix C for the complete CCTV pipeline inspection report.

Figure 4-3
Pump 6 Pipe Wall Hole

4.3 REHABILITATE OR REPLACE

Upon discovery of the damage to the Plant 8 discharge pipes a specialized corrosion consultant, V&A Consulting Engineers, was brought in to analyze the pipe conditions and determine if it was still feasible to rehabilitate the pipes. If not, these sections of pipes would have to be replaced in full.

After careful evaluation of the CCTV inspection videos, photos, and report, it was determined that the remaining Plant 8 pipes not replaced in the NLIP project could all be salvaged with the appropriate treatments.

4.4 PIPE REHABILITATION

With the carefully performed blast cleaning, wall repair, and reapplication of the protective linings and coatings, the original sections of Plant 8 pipes can continue in service. The repaired and fully coated pipe will restore the corrosion resistance which will prolong the remaining lifespan of the pipe and reduce future maintenance costs. The protective lining will also provide improved flow capacity by reducing the friction and turbulence of fluid flowing through the pipe, which can improve flow capacity and reduce energy consumption.

The recommended pipe rehabilitation includes the following steps:

1. Apply an abrasive blast to all the steel pipe surfaces per Society of Protective Coatings (SSPC) Standard SP10: Near-White Metal Blast Cleaning with a minimum 3.5 mil deep surface profile.

2. Require the continuous use of dehumidification equipment to prevent rusting of the steel after it has completed the abrasive blast process.

3. Fill pits in the pipe wall with metal epoxy filler such as Belzona 1111, Sherwin Williams Steel Seam FT910, or similar product. Areas with very deep pits (>50% wall loss) or holes should be repaired by welding a ½ -inch thick repair plate to overlap the corroded area.

4. Recoat the steel surfaces with a flexible lining that can be applied at a minimum of 60 mils in one coat such as Carboline Reactamine 760, Global Eco Technologies Enduraflex 1988, Life Last DuraShield 210, Prime Coatings Utilithane 1600, or similar 100% solids content polyurethane coating.

See Appendix D for the complete Plant 8 Protective Lining Pre-Design Report.

4.5 PREVENTATIVE MAINTENANCE

A pipeline preventive maintenance schedule is a systematic plan designed to regularly inspect, monitor, and maintain the pipeline infrastructure associated with a pump station. The goal is to identify potential issues early, extend the service life of the pipeline, and minimize the risk of failures or disruptions. It is recommended that the District implement the schedule including the following activities:

1. Routine Visual Inspections: Conduct regular visual inspections of the pipeline, looking for signs of wear, corrosion, leaks, or damage. These inspections can be performed on a quarterly or annual basis, depending on the pipeline's condition.

2. Cleaning and Flushing: Periodically clean and flush any infrequently operated pipelines to remove accumulated debris, sediment, that could reduce flow capacity or contribute to pipe corrosion.

3. Interior Pipe Inspections: Utilize Non-Destructive Testing (NDT) methods, such as closed-circuit television (CCTV) inspections, acoustic monitoring, and/or inline inspection tools, to assess the internal condition of the pipeline. These tests help detect issues like cracks, corrosion, or leaks that may not be visible during routine visual inspections. Interior pipe inspections should be performed every two years or as needed based on the pipeline's condition.

4. Pressure Testing: Conduct periodic pressure tests to ensure the pipeline's integrity and confirm that it can withstand the required operating pressures. Pressure testing is typically performed every three to five years or after any major repair or modification work.

5. Cathodic Protection Monitoring: The existing cathodic protection system should be regularly monitored to ensure it is functioning correctly. This includes checking the system's voltage output, current levels, and inspecting sacrificial anodes for wear. Monitoring frequency can vary depending on the age of the system, but annual checks are recommended.

6. Valve and Fitting Maintenance: Inspect and maintain valves, fittings, and other pipeline components to ensure proper operation and prevent leaks. This may include lubricating valve stems, replacing worn seals or gaskets, and exercising valves to prevent seizing. Valve and fitting maintenance should be performed annually or as needed.

7. Record Keeping and Documentation: Maintain records of all inspection findings, maintenance activities, and repairs performed on the pipeline. This documentation helps track the pipeline's condition over time, identify trends, and plan future maintenance activities more effectively.

By adhering to a well-planned preventive maintenance schedule, the pumping plant operators can proactively address potential issues, optimize the performance of the pipeline, and reduce the likelihood of costly failures or service disruptions.

Section 5

Electrical Analysis and Upgrades

5.1 INTRODUCTION

Reclamation District No. 1000 has planned for major rehabilitation of Plant 8 to include upgrades to existing electrical and control systems. Upgrades to be addressed from a planning and preliminary design level include:

1. Conversion of the exiting low voltage (480-volt) power systems, motors, and motor starters to medium voltage (2400-volt), to match the District's other large pumping plant systems.
2. Provide dedicated backup power.
3. Integrating and updating pump station controls, including the addition of SCADA and security cameras.

5.2 BACKGROUND AND CONDITION ASSESSMENT RESULTS

Electrical improvement alternatives and requirements are developed based on site-specific requirements and constraints. Such improvement alternatives include:

1. Power system improvement alternatives and configuration including:
   a. Improvements to SMUD electrical service to meet desired 2400-volts of alternating current (VAC) medium voltage service requirements.
   b. Major electrical equipment preliminary sizing, including medium voltage switchgear, medium voltage motors and starters, and medium voltage standby power systems.
   c. Integration of variable speed drives for motor control of two 700 hp pumps.
2. Site alternatives to accommodate up to four electrical equipment location arrangements.

5.2.1. Condition Assessment Results

Since the existing major electrical equipment, operating at 480 VAC, will be replaced with District desired 2400 VAC equipment; a condition assessment of the existing electrical equipment was not performed.

The Plant Programmable Logic Controller (PLC) and panel mounted Human Machine Interface (HMI) have been recently upgraded and are in good working condition. The new 2400 VAC equipment will be connected to the same PLC and controlled from the same HMI as existing. This will result in the existing Instrumentation and Electrical building remaining in service.

The existing instrumentation equipment: forebay level, trash rack screen level, and pump low level switch are in satisfactory working condition, but it is recommended that these instruments be replaced, as they are ending useful life. This should be included in the next stage of project design.

5.3 ALTERNATIVES EVALUATION AND PHASING PLAN

The upgrade of electrical service to 2400 VAC involves several technical considerations, including the installation of a new transformer, switchgear, and distribution equipment. The existing electrical system would need to be evaluated to determine the necessary upgrades and modifications required to support the higher voltage. The new equipment must comply with relevant electrical codes and standards and be compatible with the existing electrical system. The power quality of the electrical service must also be considered, and the new equipment must ensure the reliability and stability of the power supply.

5.3.1. MEDIUM VOLTAGE SWITCHGEAR

The proposed 2400 VAC Switchgear, or MV Switchgear, shall be a "Main-Tie-Gen-Tie-Main" arrangement. See Figure 5-1 below for example of such arrangement.

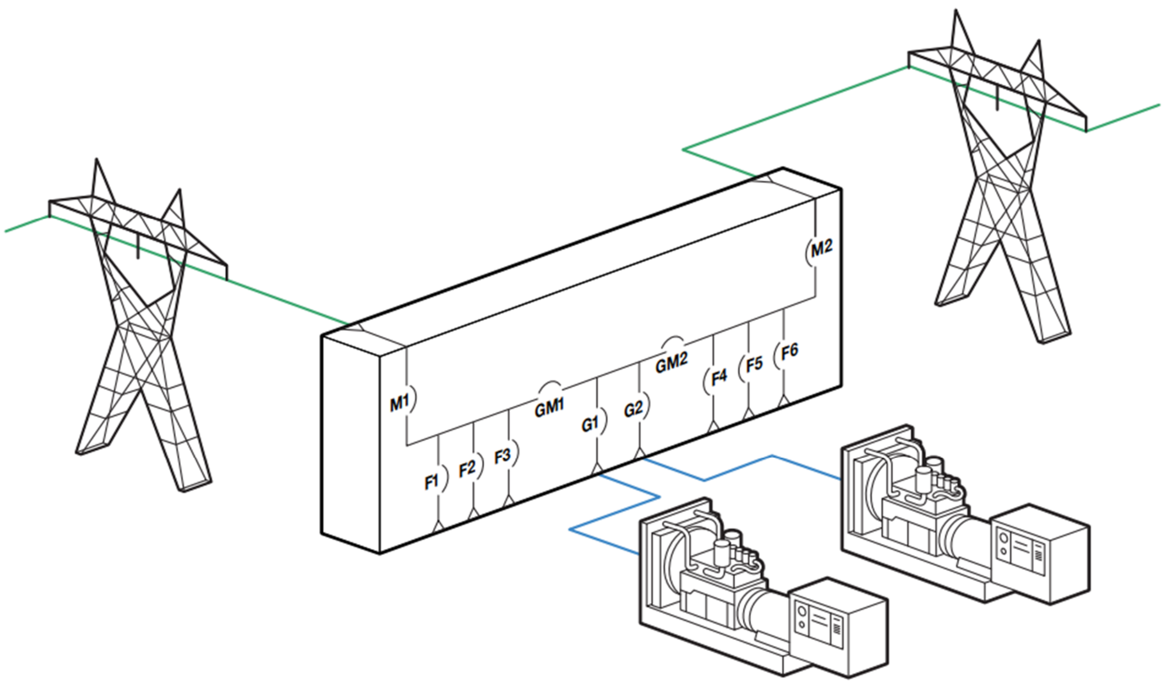


Figure 5-1
Example of Main Tie-Gen-Tie Main MV Switchgear Configuration

The 2400 VAC Switchgear shall have two SMUD 2400 VAC services connected, and a back-up power system consisting of two 2500 KW Generators to add an onsite emergency power supply. The proposed MV Switchgear's outdoor enclosure is a walk in, integrated power assembly (IPA) house. The integrated power assembly house is a complete solution. The IPA is fabricated off-site, complete with all the electrical equipment assembled into the housing, including lighting, receptacles, HVAC, doors with panic hardware, and equipment rear access doors. IPA houses are also referred to as Power Distribution Centers (PDC) by some manufacturers. See Figure 5-2 below for picture of an IPA house.

Figure 5-2
Integrated Power Assembly House

The IPA will be completely fabricated, assembled, tested, configured, and ready for use upon delivery and reconnection. It is recommended to have the electrical equipment installed within an indoor environment to protect from heat, dust, rodents, etc., as well as provide a weatherproof environment for maintenance and operational staff. IPA housing units are typically less costly by an average of 14% compared to structures built on site. The IPA will contain the SMUD Metering Structures, Main Breakers, Tie Breakers, Generator Breakers, and the medium voltage motor starters. It is proposed that the IPA sit atop an elevated steel superstructure constructed on driven piers in the existing north canal bank. Geotechnical explorations will need to be conducted in the next phase of project design to determine the size and depth of the drilled piers. The IPA is constructed on a welded I-beam base, therefore allowing to be mechanically connected to the proposed steel superstructure.

5.3.2. Medium Voltage Motors

The existing 480-volt pump motors cannot be directly operated from a new 2400 VAC electrical service; however, a step-down transformer can be used to convert 2400 VAC electrical service to the 480 VAC service required by the existing pump motors. While this option allows the District to keep the existing pump motors while still using the new 2400V electrical service for other parts of the system, it is not recommended due to the age of the existing pump motors and because it would negate the drastic efficiency improvement provided by 2400-volt motors. The existing 480-volt motors could also be rewired to accommodate 2400 VAC service, but this is not recommended due to the losses in efficiency and motor life compared to a new motor.

Therefore, it is recommended to install new 2400-volt electric motors. Further analysis and motor selection will be conducted in the final stage of project design. The motor starters shall remain reduced voltage solid state (RVSS) type, however it is recommended that two of the pump motors be driven by variable frequency drives (VFD).

5.3.3. Variable Frequency Drives

A variable frequency drive (VFD) optimizes pump operations by precisely controlling motor speed, torque, and performance. Key benefits include energy savings, improved process control, reduced wear and tear, soft start and stop, minimized water hammer, and system diagnostics and protection. By using a VFD, pump systems achieve enhanced performance, energy efficiency, and reduced maintenance costs while extending equipment life. It is recommended that two of the larger 700 horsepower pump motors shall be fitted with new VFDs. The design and selection of the VFDs will be conducted in the final phase of project design.

5.3.4. Medium Voltage Generators

It is proposed that the standby power source be 2400 VAC Generators housed in Level 2 sound attenuating non-walk-in type enclosures. Assuming all the pumps need to operate, there will be two MV Generators, each sized at 2.5 MW, with synchronizing controllers. Detailed analysis in the next design phase will review with the District the number of pumps required to operate on standby power and fuel storage criteria, but this preliminary design analysis will assume all pumps are required to operate. Fuel tank(s) will be located near the MV Generators, with access for filling of same tanks. See Figure 5-3 below for example of Generator within non-walk-in type sound attenuating enclosure.

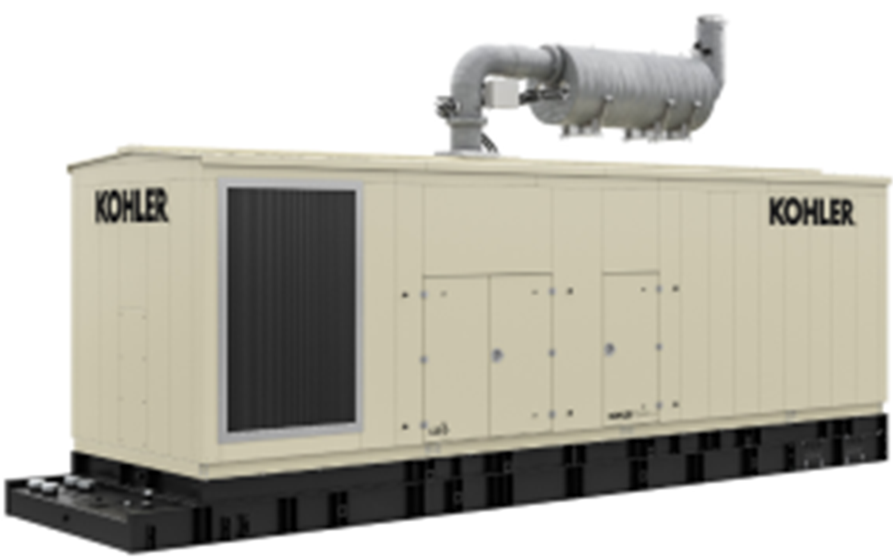


Figure 5-3
Generator within Sound Attenuating Enclosure

The Generators are constructed on a welded I-beam base, therefore allowing them to be mechanically connected to the proposed steel superstructure. It is recommended that the District select a diesel fueled generator due to its quicker response during step-up load transitions (starting of additional pumps). Natural gas fueled generators are less responsive than diesel generators to load transitions; hence the running motor starters may experience Hertz transients during these load transitions which cause nuisance trips, typically based on low Hertz (less than 60 Hz). Refer to Appendix E for a more in-depth Diesel Generator vs Natural Gas Generator evaluation.

5.3.5. Alternative Evaluation and Phasing Plan – Electrical

The alternative locations for the MV Switchgear and MV Generators on the site follow below. The dimensions of the site drawing rectangular images are based on actual equipment dimensions (from major manufacturers) plus 5' working clearances on long side of equipment, and 6' clearances on each short side of equipment. The MV Generators have 5' clearance on both long sides of the equipment as there are doors on each side. The overall dimensions, including clearances, as shown on the site plans are:

- MV Switchgear and Starters within IPA plus clearances: 102' x 25'
- MV Generator No. 1 within Sound Attenuating Enclosure plus clearances: 57' x 22'
- MV Generator No. 2 within Sound Attenuating Enclosure plus clearances: 57' x 22'

The overall weights are:

- MV Switchgear and Starters within IPA: 245,000 pounds
- MV Generator No. 1 within Sound Attenuating Enclosure: 133,000 pounds
- MV Generator No. 2 within Sound Attenuating Enclosure: 133,000 pounds

See Appendix F - Drawing E-2 for proposed Equipment Elevations.

5.3.5.1. Alternative 1 Equipment Location

This alternative locates the MV Switchgear and MV Generators between the existing Control Building and the pump station. The advantages to this Alternative are:

- New MV Switchgear is located close to Pumping Plant loads.
- New MV Switchgear is located close to the proposed location of SMUD transformers.
- New MV Switchgear is located close to the existing Control Building which will still house the existing PLC Panel with HMI.
- New MV Generators are located close to new MV Switchgear.
- All new equipment in the same proximity.
- Maintains existing paved roadway access.
- No conduits crossing existing underground pipelines.

See Appendix G - Drawing E-3 for Site Alternative 1 - Equipment Location.

5.3.5.2. Alternative 2 Equipment Location

This alternative locates the new MV Switchgear between the existing Control Building and the pump station, and the new MV Generators to the south of the pumping plant. The advantages to this location are:

- New MV Switchgear is located close to Pumping Plant loads.
- New MV Switchgear is located close to the proposed location of SMUD transformers.
- New MV Switchgear is located close to the existing Control Building which will still house the existing PLC Panel with HMI.
- MV Generators could be anchored to slab on grade.
- Maintains existing paved roadway access.

See Appendix G - Drawing E-4 for Site Alternative 2 - Equipment Location.

5.3.5.3. Alternative 3 Equipment Location

This alternative locates all new electrical equipment to the south of the pumping plant. The advantages to this location are:

- New MV Switchgear is located close to Pumping Plant loads.
- New electrical equipment can be located on slab on grade.
- New MV Generators are located close to new MV Switchgear.

See Appendix G - Drawing E-5 for Site Alternative 3 - Equipment Location.

5.3.5.4. Alternative 4 Equipment Location

This alternative locates the new MV Switchgear between the existing Control Building and the pump station, and the new MV Generators on a newly acquired portion of the adjoining property immediately south of the pumping plant. The advantages to this location are the same as Alternative 3 with the following additional benefits:

- Maintains the existing undeveloped access route and gate along the top of the south C-1 Canal bank.
- Provides an improved and secured area to locate the generators.
- Improved ingress/egress access to and from generators from Northgate Blvd. via previously developed property driveway.

See Appendix G - Drawing E-6 for Site Alternative 4 - Equipment Location.

5.4 BASIS OF DESIGN FOR RECOMMENDED ALTERNATIVE

Alternative 4 is the recommended alternative based on the above advantages listed above. See Figure 5-4.

Figure 5-4
Recommended Equipment Location Alternative

5.4.1. Basis of Design – Electrical Equipment

The electrical system shall be designed for reliability and safety and sized for operational redundancy. Two new SMUD 2400 VAC services shall be routed to two new medium voltage metering sections located within the IPA. Each service shall be sized to carry the full plant load, offering 100% redundancy. SMUD will provide new transformers to step down their distribution voltage of 12kV to the proposed service voltage of 2400 VAC. These transformers shall be located on the District site, meeting SMUD requirements, and ideally near the IPA based on the selected site alternative. For Alternative 4, the IPA and SMUD transformers would be supported on steel platforms constructed on the northern canal bank just south of the existing electrical building. The steel platforms would be supported by drilled piers driven into the canal bank. Geotechnical explorations will need to be conducted in the next phase of project design to determine the size and depth of the drilled piers. See Appendix H – Drawings S1.0 and S1.1 for the IPA and transformer preliminary framing plans.

The 5kV Switchgear shall be designed around Eaton Metal-Clad Switchgear but supplied by the IPA supplier. The 5kV Starters shall be designed around Eaton Ampgard Starters but supplied by the IPA supplier. Protective relays shall be based on Schweitzer Engineering Laboratories (SEL) products, or District standard protective relay if applicable. The MV breakers shall have “maintenance mode” selector switches to reduce arc flash potential while maintenance is being done. The new 480 VAC sources to provide low voltage power to new equipment, and the existing Control Building, shall be connected to an automatic transfer switch (ATS), and tied into redundant sources of the MV Switchgear. Hence if one half of the medium voltage switchgear is out of service, the low voltage source can transfer, and equipment still be operational. The existing SMUD transformers and termination cabinets shall be removed, and pads demolished.

The medium voltage equipment shall be specified with 50,000 ampere available interrupting current rating to provide sufficient protective device ratings. The low voltage equipment shall be specified with 65,000 ampere available interrupting current rating to provide sufficient protective device ratings.

Two new Generators shall be sized so the sum total standby power is sufficient to operate the full plant load. The medium voltage switchgear alignment will allow for either generator to back up the SMUD incoming services. The MV Generators will have a belly tank plus additional fuel storage in an above grade tank (location and size to be determined during design). The MV Generator electrical loads such as battery charger, block heater, fuel system, lighting, etc., shall be fed from existing Control Building 120/240V lighting panelboards.

See Appendix I for Single Line Diagram.

Lighting: Interior and exterior lighting shall be LED type fixtures. The fixtures will be controlled by motion sensors, lighting controllers, and photocells to comply with Title 24 Part 6, of the California Energy Code. IPA interior lighting will be manually switched, not on motion sensors.

Conduits: Exposed conduits shall be galvanized rigid steel. Underground conduits shall be PVC Schedule 40 with concrete encasement.

Cables: Medium voltage cables shall be 5kV rated, MV-105, 133 percent rated, copper shield with compact stranded copper conductors. Low voltage power and control cables shall be 600-VAC, XHHW-2, 90 degree C, stranded copper conductors.

Low Voltage Transformers: low voltage transformers shall be indoor, dry type, with copper windings.

Low Voltage Panelboards: Low voltage panelboards shall be NEMA 1 (or per installed area designation), copper bus, and fully rated breakers. Surge protection devices shall be incorporated on new panelboards.

IPA housing shall be equipped with intrusion switches, motion sensors, and smoke detectors.

Flowmeters: new flowmeters shall be added to the exposed pump discharge piping. Flowmeters shall measure instantaneous flow and also total flow. Flowmeters shall have enough accuracy to be used for pump efficiency tests. Sonic type flowmeters are proposed, with removable through pipe flow transducers to measure the flow profile using transit time technology. Recommended flowmeter model is an Accusonic 8510+ Transit-Time Flowmeter with Feedthrough Transducers #7601. A single Accusonic flowmeter can measure two discharge pipes, each with four measured paths to provide +/- 0.5% accuracy.

Supervisory Control and Data Acquisition (SCADA) System: a new SCADA system will be provided to permit remote monitoring of key plant data, such as discharge rates, water levels, warnings, and alarms. The SCADA system will also permit remote operation of the pumps as well as monitoring of a CCTV security camera system to observe and record conditions at the plant. As the project design evolves to the next step, interface will be required with the District's preferred electrical and systems integrator, Tesco Controls Inc., to evaluate the existing pump calls and signals for integration of the existing equipment into the new SCADA and security camera system software packages.

5.4.1.1. Health and Safety Related Alarms, Monitoring Signals and Interlocks

The new MV Switchgear IPA housing health and safety related alarms, monitoring signals, and interlocks shall include:

- IPA door intrusion alarm
- IPA smoke detection alarm
- IPA motion detection alarm
- IPA emergency egress lighting
- IPA doors shall have panic bar exit hardware
- IPA high temperature alarm
- MV Switchgear shall have mechanical interlocks on doors that prohibit opening while energized
- MV Switchgear shall have infrared windows at cable terminations
- MV Switchgear breakers shall have Local-Remote Switches
- MV Switchgear breakers shall have manual reset Lock Out Relays (ANSI code 86)
- MV Switchgear alarm on breaker trips, breaker and feeder failures, electrical faults, generator alarms, etc.
- Arc flash mitigation elements including Arc Flash Reduction Maintenance (ARM) Switches
    - *Initiation of ARM mode requires manual operation of the ARM switch.*
- MV Motors and Starter alarms shall include motor vibration, motor winding temperature, overcurrent, undervoltage, starter faults, running status, start/stop controls, etc.

5.4.2. Codes, Standards, and Testing - Electrical Equipment

All equipment shall meet applicable industry standards including but not limited to: Underwriters Laboratories, National Electrical Code, National Electrical Manufacturers Association, and local, State and Federal Regulations, and applicable District Standard Details.

All new electrical equipment shall be acceptance tested per the latest NETA Acceptance Testing Specifications by NETA certified testing agency. All existing electrical equipment shall be maintenance tested per the latest NETA Maintenance Testing Specifications by NETA certified testing agency. All vendor supplied equipment shall be field certified by manufacturer or supplier, after initial installation and prior to final operational testing.

The new MV Switchgear shall be completely tested, including protective relay programming, at the factory prior to shipment. Tests shall follow the equipment manufacturer's standard factory testing procedures.

The new MV Generators shall be completely tested, per manufacturer's standard factory testing procedures.

The installing contractor shall provide the electrical protective device studies including short circuit calculations, arc flash calculations, and coordination studies.

Electrical details shall be District Standard Details.

Electrical specifications shall be District Standard Specifications, tailored for project.

5.5 RIGHT OF WAY OR LAND ACQUISITION REQUIREMENTS

To proceed with the above recommended alternative for electrical improvements, Alternative 4, the acquisition of a portion of the existing property south of Plant 8 (APN 237-0011-016) will require a Lot Line Adjustment to enable the existing landowner to separate and sell the desired portion of property to the District. A lot line adjustment is the process of changing the boundaries of an existing lots. For Plant 8, this will be done to create a new lot within the existing larger lot. The process involves working with local authorities, such as city planners and surveyors, to determine the feasibility of the proposed changes and to ensure that they comply with local zoning regulations and building codes. Once the proposal is approved, the lot lines are adjusted through the creation of new deeds and the re-recording of property lines. The new property can then be sold to the District.

Preliminary discussions have commenced with the landowner who has expressed interest in the proposal to split the lot for District acquisition. It is recommended that when this project moves to the next stage of design, the District should consult with real estate attorneys and professional land surveyors to coordinate and conduct the lot line adjustment.

5.6 PRELIMINARY ASSESSMENT OF CEQA REQUIREMENTS

A CEQA (California Environmental Quality Act) analysis will most likely be required for the Plant 8 improvements described herein due to the size and scope of the project and its potential environmental impacts.

CEQA requires that a public agency conduct an environmental review of a project to identify and analyze the potential environmental impacts of the project. The level of environmental review required depends on the size, scope, and potential impacts of the project. If the project is considered to be a "project" under CEQA, then an environmental analysis is typically required.

In general, pump station improvement projects may have the potential to cause environmental impacts such as air and noise pollution, traffic congestion, and impacts on sensitive habitats or endangered species. However, the specific nature and extent of these impacts will depend on the specific details of the project.

Therefore, it is recommended to consult with an environmental planner to determine the level of CEQA analysis required for Plant 8 as the project advances beyond this preliminary design stage. The environmental planner can advise on the specific requirements and procedures for CEQA compliance and guide the agency through the CEQA process.

5.7 PRELIMINARY IDENTIFICATION OF POTENTIAL REGULATORY COMPLIANCE

Located within an unincorporated portion of Sacramento County, the Plant 8 improvement project may require permits from several regulatory agencies. Here are some of the permits that may be required:

1. Building permit: Required for construction work involving installation, modification, or repair of a building or structure. This will likely be required for the proposed IPA addition.
2. Electrical permit: With the installation of new electrical service, wiring, and electrical equipment, an electrical permit will likely be required by the Sacramento Bounty Building Inspection Division.
3. Mechanical permit: Sacramento County will likely also require a Mechanical permit with the project involving mechanical equipment, such as electrical motors and switchgear.
4. Stormwater permit: Depending on the final design of the new equipment layouts, the project may require a stormwater permit which applies for any construction activity that could potentially impact stormwater runoff. This may involve measures to prevent erosion and sedimentation, and to control stormwater runoff during and after construction.
5. Air quality permit: The project is expected to require an air quality permit with the addition of the new diesel generators. The permit will also regulate emissions of air pollutants, such as dust or exhaust from construction equipment.
6. Environmental permit: Depending on the final design of the project and outcome of the CEQA analysis, an environmental permit may be required to ensure compliance with local, state, and federal environmental regulations.

It is important to note that this is not an exhaustive list and the specific permits required will depend on the final details of the project. It is recommended that District consults with the relevant regulatory agencies or a professional permit consultant to ensure that all necessary permits are obtained before beginning the project.

5.8 PRELIMINARY PROJECT IMPLEMENTATION SCHEDULE

Due to current supply chain issues, electrical and mechanical equipment will take up to 12 months to procure, fabricate, assemble, test, and ship, after approved submittals. Allowing 4 months for the submittal process and another 9 months for the contractor to mobilize, construct upgrades, install equipment, perform wiring, and then complete testing and start up, the overall construction timeframe will likely span a full 24 month period from the issuance of the notice to proceed.

Section 6

Opinion of Probable Costs

6.1 OPINION OF PROBABLE CONSTRUCTION COSTS

See Table 3 below for an Opinion of Probable Costs on preferred Site Alternative 4.

Table 3 Opinion of Probable Costs

Description	Qty	Units	Costs	Totals	Comments
Plant Hydraulic Improvements					
Floor Cones, Wall Fillets, Wall Noses, Divider Wall	1	lot		$ 40,000	SS floor cones, conc. fillets, and reinf. conc. wall
Lengthen Pumps 8 and 9	1	Ea.		$ 75,000	pull pump, transport, ext. labor+matl's, reinstall
Discharge Pipe Rehabiliation					
Prep, Line, and Coat Discharge Pipes	1	lot		$ 320,000	per Appendix D pipe lining pre-design report
Trashrack Chain Replacement					
Replace Drive Chains	1	lot		$ 60,000	Replace 3300 ft of Duperon Trashrack drive chains
Utility Substructures and Transformer Platform					
SMUD fee	1	lot		$ 50,000	new project fee
Utility Conduits (Primary and Secondary)	250	LF	$ 150	$ 37,500	sand backfill pull tape. Primary and Secondary
Transformer Platform and Grounding System	1	lot		$ 200,000	per Appendix H Transformer Platform Framing Plan
MV Switchgear IPA Housing and Platform					
Non-walk-in Main Switchboard	1	lot		$ 4,714,000	IPA Housing complete with Switchgear Starters
IPA Housing Platform	1	lot		$ 350,000	per Appendix H Switchgear Housing Plan
MV Generators					
2.5 MW Generator	2	Ea.	$ 2,080,000	$ 4,160,000	2.5 MW Diesel Gen with level 2 enclosure
Fuel Tanks Systems	2	Ea.	$ 65,000	$ 130,000	concrete tanks with monitoring systems
Real Estate Acquistion	1	lot		$ 500,000	acquistion of split APN 237-0011-016 property
Generator Site Improvements	1	lot		$ 150,000	ground and access improvements, fencing
Site Electrical					
Demolish Work	1	lot		$ 60,000	existing starters motors cables conduits
MV Conduit and Cable Runs	1500	LF	$ 300	$ 450,000	CLSM backfill 5kV cables
LV Conduit and Cable Runs	2600	LF	$ 150	$ 390,000	CLSM backfill XHHW-2
Install and wire new MV Motors	9	Ea.	$ 60,000	$ 540,000	new MV motors
Manholes and Handholes	1	lot		$ 40,000	two MV manholes misc. handholes for LV
Grounding System	1	lot		$ 10,000	ground superstructure and new equipment
LV Transformers	2	Ea.	$ 7,000	$ 14,000	locate IPA
Flex conduit Condulets pull boxes	1	lot		$ 30,000	locate at motors
MV and LV Wire Terminations	1	lot		$ 50,000	500 per MV termination
NETA Testing arc flash calculations	1	lot		$ 40,000	third party testing (4 days) SKM
Stanchions and supports anchoring misc. electrical	1	lot		$ 20,000	misc. site work
Misc. labels conduit tags signage nameplates	1	lot		$ 5,000	misc. site work
PLC Panel Modifications and Programming	1	lot		$ 60,000	Tesco PLC modifications and programming
Submittals RFIs O&Ms	1	lot		$ 50,000	Electrical contractor PM
Interconnects Dwgs As-Built Dwgs	1	lot		$ 20,000	10 interconnect drawings update shop drawings
Start Up Testing Training	1	lot		$ 20,000	5 days testing 3 days start up 2 days training
Electrician PM and Foreman	1	lot		$ 20,000	management and oversight
Instrumentation					
Float Switches	2	Ea.	$ 1,500	$ 3,000	Flygt ENM-10 with long cables
Low Suction Level Switch	9	Ea.	$ 5,000	$ 45,000	Warrick probes Module wiring
Level Transmitter	1	Ea.	$ 4,000	$ 4,000	Mercoid Birdcage
Sonic Flowmeter Transducers Training	5	Ea.	$ 90,000	$ 450,000	1 Accusonic meter for 2 pipes 4 paths each.
Install and configure SCADA System and Cameras	1	lot		$ 350,000	System integration and training
Site Lighting					
Site Lights	3	Ea.	$ 8,500	$ 25,500	LED fixture and pole mounted to superstructure
TOTALS					
SUBTOTAL:				$ 13,283,000	
Electrical Sub overhead (10%) bonding (3%) profits (10%) = Total (23%)				*$ 2,987,240*	
Contingency (20%)				*$ 3,254,048*	
TOTAL:				$ 19,524,288	

APPENDICES

Appendix A

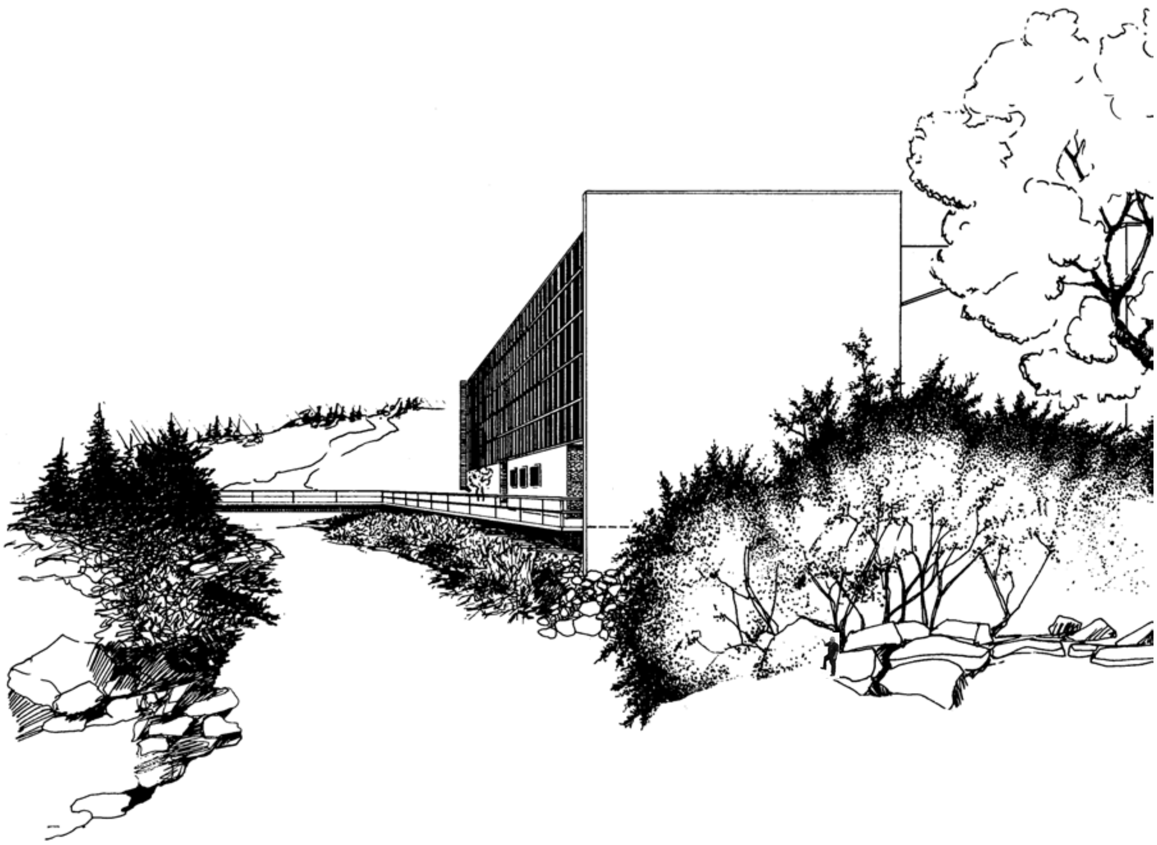
UWRL PHYSICAL MODEL STUDY

PHYSICAL MODEL STUDY OF THE RECLAMATION RD1000 PUMPING PLANT

Prepared for

KSN, Inc

February 2023



UTAH WATER RESEARCH LABORATORY

Utah State University
Logan, Utah

Report No. 4622

PHYSICAL MODEL STUDY OF THE RECLAMATION RD1000 PUMPING PLANT

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February 2023

Hydraulics Report No. 4622

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INTRODUCTION

A physical model study of the Reclamation District 1000 (RD1000) Pumping Plant located in Sacramento, California was performed at the Utah Water Research Laboratory (UWRL) at Utah State University (USU) in Logan, Utah. The existing pump station contains nine mixed flow pumps (Aurora, Cascade and Flowserve) with pumping capacities ranging from 15,600gpm to 52,000gpm. Figure 1 is a photograph of the existing structure and Figure 2 illustrates the station in plan view.

Figure 1. Photograph of the RD1000 pump station

Figure 2. Photograph of the RD1000 pump station (plan view)

The purpose of the physical model was to both locate and potentially remedy known hydraulic performance problems with the current design. Under the direction of KSN, practical and economical modifications were made to the design to improve pumping conditions.

The physical model was constructed at a 1:5.7915 scale so that commercially available pipe could be utilized to exactly match prototype dimensions. This document contains the final report for the study. The study was highly successful in evaluating existing hydraulic problems. However, because the original structure was not constructed per Hydraulic Institute standards, only a portion of the existing hydraulic problems were able to be remedied due to the inability to make major modifications to the structure. Test results both before and after modifications were incorporated are contained within this report.

Figure 3 is a photograph of the physical model. The model included a screened intake, 120ft of the upstream canal, the trash racks, the existing pump bays (the main bay for pumps 1 through 7 and the extended bay for pumps 8 and 9) and all wetted components of the structure, each geometrically scaled. The pump bells and pump throat section geometries of each of the nine pumps were also simulated in the physical model. The construction drawings shown in Appendix B further illustrate the extents and details of the physical model.

Figure 3. The 1:5.7915 scale physical model of the RD1000 pumping plant

EXECUTIVE SUMMARY

The Utah Water Research Laboratory at Utah State University in Logan, Utah was commissioned by KSN to perform a physical model study of the RD1000 Pumping Plant.

The physical model was constructed at a model scale of 1:5.7915. The modeling objectives for the study were divided into three distinct phases. These included, baseline or existing condition runs, runs where possible modifications were tested and corrected and final runs utilizing the final modification. Physical modeling results indicated that without any fixes installed on the pumps, strong vortices were present on the floor under each of the pumps and intermittent vortices were found on the walls adjacent to several of the pumps. Pumps 8 and 9 were found to have strong surface vortices as a result of their minimal submergence.

The final modifications proposed as a result of the model study included:

1. Installing floor cones under each of the nine pumps to eliminate the floor vortices
2. Lowering pumps 8 and 9 from 0.5D to 0.3D from the floor to increase pump submergence in an effort to reduce surface vortices
3. Installing a divider wall between pumps 8 and 9
4. Installing side and rear wall fillets around pumps 8 and 9
5. Installing a rounded nose cone on the main divider wall between the pump bay containing pumps 1 through 7 and the pump bay containing pumps 8 and 9

The fixes listed above significantly improved the flow conditions to the pumps but were not successful in removing all flow problems according to Hydraulic Institute criteria. The model study results indicated that with the final fixes installed on the pumps, that weak wall vortices to pumps 1 through 7, intermittent surface vortices to pumps 8 and 9 and some residual velocity fluctuations are still probable.

Representatives from KSN visited the laboratory on July 18, 2022. The visitors met to discuss physical modeling results and to witness the physical model operating in the hydraulic laboratory.

PHYSICAL MODEL SCALING AND ACCEPTANCE CRITERIA

Scaling Laws

For a model to properly simulate the hydraulic conditions of a prototype, it is necessary to maintain geometric, kinematic, and dynamic similitude. Geometric similitude is achieved by building the model to a selected scale ratio. The scale ratio selected for the RD1000 pumping plant model included in this report was 1:5.7915. This scale was selected so that the model could be constructed sufficiently large, yet small enough that it was able to fit into the laboratory and meet necessary flow rate requirements.

The selection of the model scale has a direct impact on the model's ability to achieve kinematic and dynamic similitude. If the model is built too small, dynamic and kinematic similarity are not achieved, and the results obtained in the model do not directly apply to the prototype.

Kinematic and dynamic similitude is achieved by operating the physical model so that the predominant forces acting in the prototype are properly scaled. For this type of model, inertial and gravitational forces are predominant, and the similarity parameter used to operate the model is the Froude number, which is defined as:

$$F = \frac{V}{\sqrt{gy}} = \frac{\mathit{Inertial\ Force}}{\mathit{Gravity\ Force}}$$

in which y is a representative linear dimension, g is the acceleration of gravity, and V is characteristic velocity.

Similarity is achieved by operating the model so that the Froude number of the model is the same as the Froude number of the prototype for all conditions simulated. This ensures that the inertial and gravity forces are scaled properly. The proper length, discharge, velocity, pressure, and time for the model in relationship to the prototype can be calculated from the following equations:

Length Ratio:	$L_r = L_p/L_m = 5.7915$
Head:	$H_p = L_r\, H_m$
Pressure:	$P_p = L_r\, P_m$
Velocity:	$V_p = L_r^{\,0.5}\, V_m$
Discharge:	$Q_p = L_r^{\,2.5}\, Q_m$
Time:	$T_p = L_r^{\,0.5}\, T_m$

where the subscript m refers to the model and the subscript p refers to the prototype.

Acceptance Criteria

The model testing procedures follow the American National Standards for Rotodynamic Pumps for Pump Intake Design (ANSI/HI 9.8-2018). It should be noted that the vortex-rating scheme for this study has been expanded beyond the HI standard to identify vortex intensity over a wider range. This scheme is shown in Figure 4 and Figure 5. From page 54 of the ANSI/HI 9.8-2018 pump intake design standard, it states the following for acceptance criteria:

The acceptance criteria for the model test of the final design shall be the following:

- *Free surface and sub-surface vortices entering the pump must be less severe than vortices with coherent (dye) cores (free surface vortices of Type 3 and subsurface vortices of Type 2 in Figure 9.8.7.5a). Dye core vortices may be acceptable only if they occur for less than 10% of the time or only for infrequent pump operating conditions.*
- *Swirl angles, both the short-term (30 second model) maximum and the long-term (10-minute model) average indicated by the swirl meter rotation, must be less than 5 degrees. Maximum short–term (30 second model) swirl angles up to 7 degrees may be acceptable, only if they occur less than 10% of the time or for infrequent pump operating conditions. The swirl meter rotation should be reasonably steady, with no abrupt changes in direction when rotating near the maximum allowable rate (angle).*
- *Time-averaged velocities at points in the throat of the bell or at the pump suction in a piping system shall be within 10% of the cross-sectional area average velocity. Time-varying fluctuations at a point shall produce a standard deviation of less than 10% of the time-averaged signal.*

In summary then, the goal for acceptance for this study includes the following:

1. No subsurface vortices that exceed a level #1 vortex, as defined in Figure 4.
2. No surface vortices that exceed a level #1 vortex, as defined in Figure 5.
3. The axial velocities normally measured at (0.7 x throat radius) from the centerline of the throat around the throat of the pump shall not vary by more than ± 10 percent from the average throat velocity. This is the normal location for velocity measurements, however, in this study, because the center hub was modeled on the pump bell, the velocity measurements were taken at the centerline of the flow space between the pump's center hub and the pump wall.
4. The standard deviations from the time-averaged signal within the pump throat shall not exceed ± 10 percent.
5. The steady circulation at the pump throat, as measured by the rotometer, shall not be greater than 5 degrees. The rotation should be reasonably steady. The swirl angle, corresponding to the highest unsteady circulation shall not be greater than 7 degrees. The swirl angle is defined as follows:

   Swirl Angle = ArcTan (V_t/V_A)

   V_t = The tangential velocity of the tip of the impeller.

   V_A = The vertical velocity at the pump throat.
6. The approach flow should be fairly uniform. This means that there should not be persistent, large-scale turbulence entering the pump bell. This type of turbulence is typically caused by problems like flow separation zones, caused by abrupt changes in the direction of the approach flow.

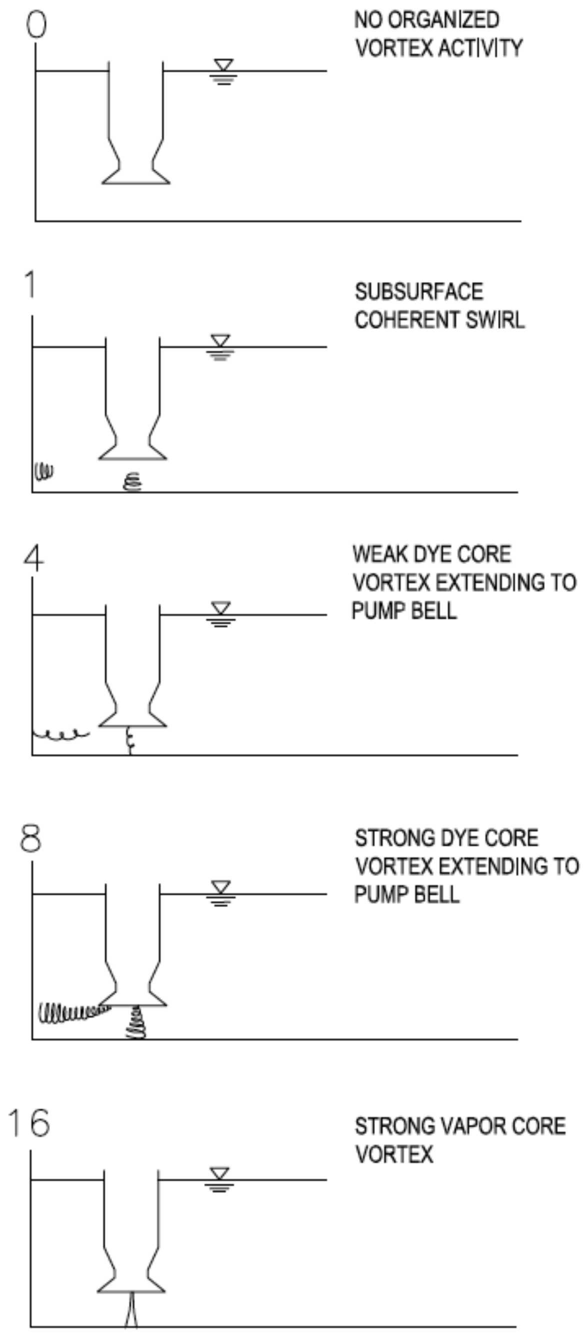


Figure 4. Subsurface vortex rating scheme

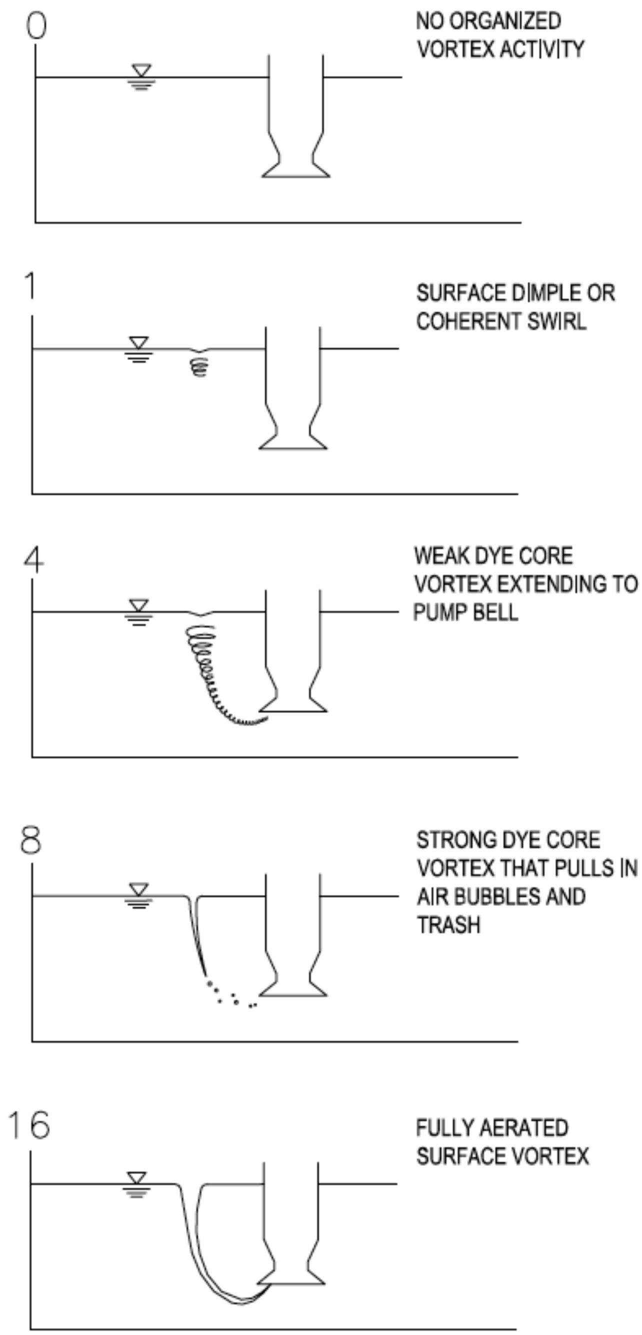


Figure 5. Surface vortex rating scheme

To quantify differences in test results more effectively, the Utah Water Research Laboratory has developed a “problem value index”. The index value for each run is based on the strength of the vortices, steady and unsteady circulation, the mean velocity distribution and the velocity fluctuations. The vortices are rated using a numerical scheme that reflects the possible detrimental effect of the vortex on pump operation. The numerical values selected are 0, 1, 4, 8 and 16 (see Figure 4 and Figure 5 for a more complete description). The geometric increase in the numerical value given reflects the anticipated effect of each vortex type on pump performance. For example, the selected numbering system assumes a fully aerated surface vortex would be about 16 times more damaging to the pump than a surface dimple with a short vortex core (#1 vortex). In addition, a fully aerated vortex is assumed to be twice as bad as a vortex that only draws a little trash or a few air bubbles (#8 vortex).

Even though the acceptance criteria indicate that #1 vortices are acceptable, the attempt of the study is to develop fixes that eliminate all vortex activity to a “0” level. However, due to the nature of the flow conditions at the existing RD1000 pump station as a result of its construction not being fully in accordance with Hydraulic Institute standards, mild flow circulation and weak vortices are still anticipated even with final fixes installed at the plant.

The influence of temporal and spatial velocity variations in the flow entering the suction bell is accounted for in the problem index by the maximum percent deviation from the mean velocity and the time-averaged velocity. Both of these values are expressed in percent. The allowable deviation in the time-averaged velocity distribution is therefore ±10 percent, and the allowable maximum percent deviation from the time-averaged velocity limit (velocity fluctuation) is ±10 percent.

The only problem that is not directly quantified with the problem index is the turbulence of the approach flow. It is, however, included indirectly in the velocity fluctuation measurements. The effect of high approach flow turbulence will always result in higher velocity fluctuations at the throat of the suction bell. A standard procedure during a pump physical model study is normally to make modifications to the pump chamber first, thereby eliminating or significantly reducing the approach turbulence as much as possible so that velocity fluctuations are consequently lowered. However, for this study, it was not recommended by KSN that significant changes be made to the geometry of the existing pump station walls.

The UWRL acceptance criteria, which are based on the summation of the maximum allowable value of each of the potential problems, gives the maximum acceptable value of the Problem Index a value of 33. The Problem Index is used as a screening number to provide a quick evaluation of the severity of the hydraulic problems and determine the worst flow conditions. In addition to finding a modification that produces a total Problem Index less than 33, the goal is also that the index value for each problem be less than its individual limit as defined by the Hydraulic Institute standard.

MODEL CONSTRUCTION AND DESCRIPTION

The physical model was constructed at a 1:5.7915 scale at the Utah Water Research Laboratory in Logan, Utah. This scale was selected so that the model could be constructed as large as possible with minimal scale effects and so that commercially available acrylic pipe could be used to simulate the inside diameter of the prototype pump throats. Figures 6 through 14 depict the physical model during construction and after construction was completed.

Figure 6. Physical model during construction

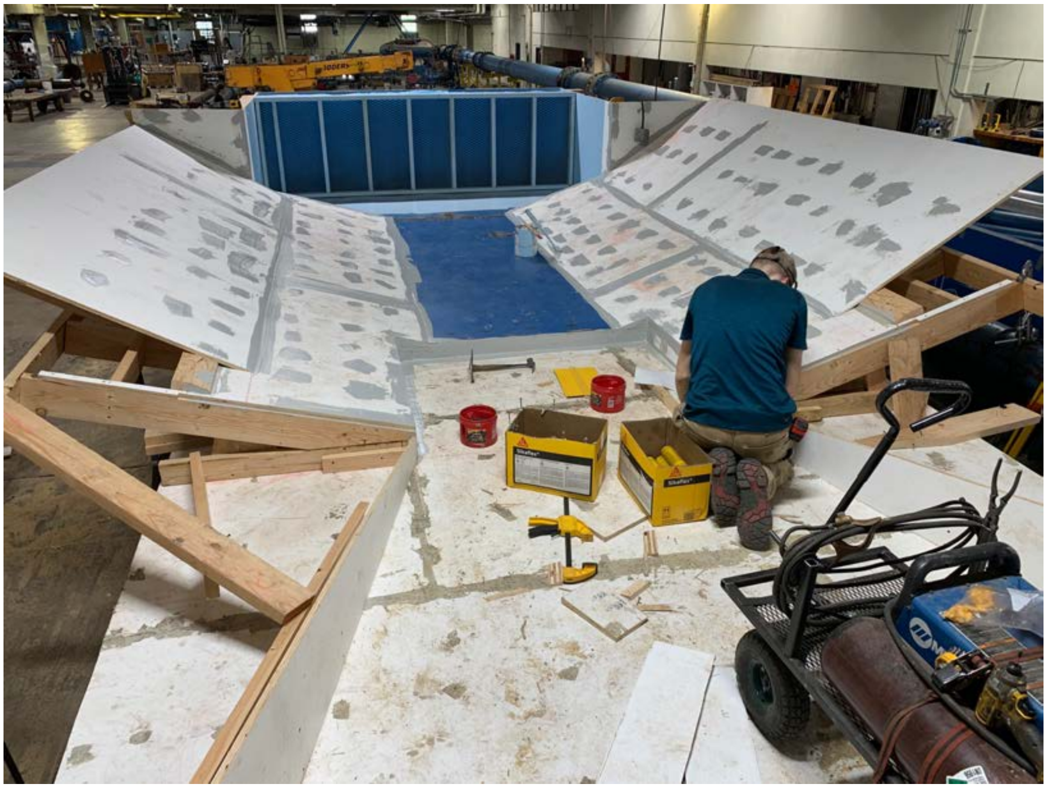


Figure 7. Physical model during construction

Figure 8. Physical model during construction

Figure 9. Simulated canal section upstream of the pump station in the model

Figure 10. Simulated pumps 1 through 7

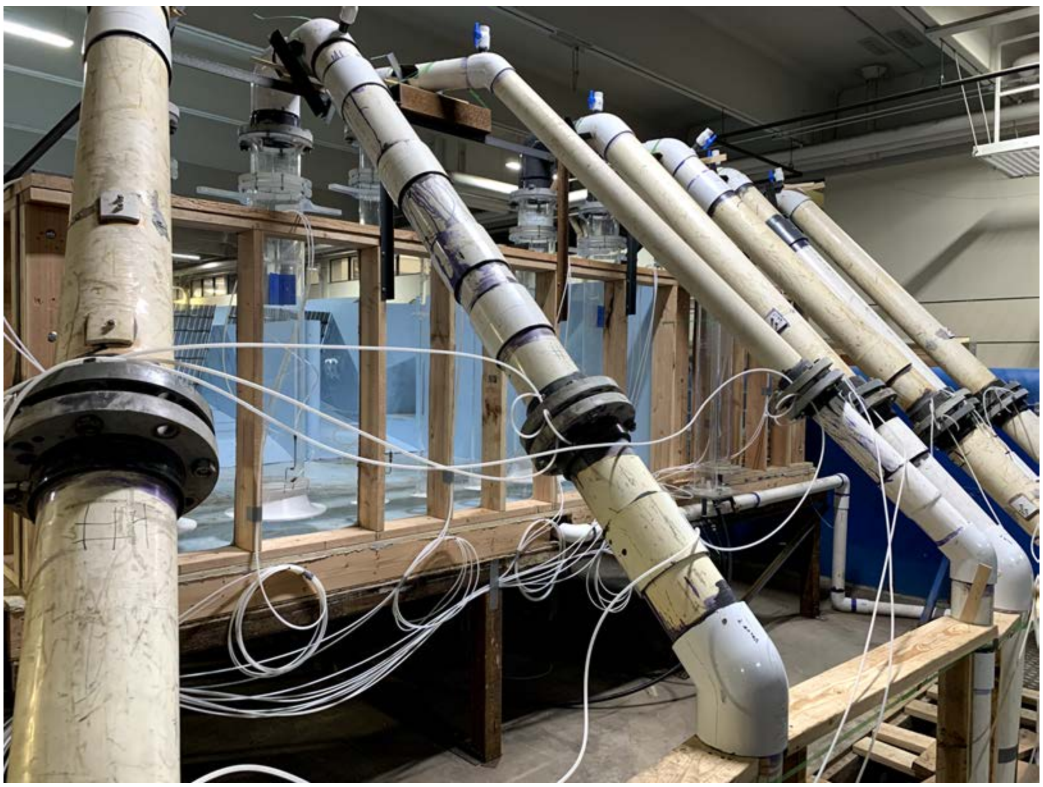


Figure 11. Discharge siphon line from each model pump

Figure 12. Simulated trash racks

Figure 13. Simulated pumps 8 and 9

Figure 14. Simulated pump station in the model

The model was constructed using PVC, steel and acrylic. The approach channel in the model was all constructed using wood placed on a steel frame. All piping used to simulate the pump columns were simulated using clear acrylic pipe. The pump bells were constructed from AutoCad drawings using a 3D printer.

Commercially available acrylic pipe was used so that the ID of each of the three pump throat sizes were all simulated appropriately. The inside diameter of the pump throats for pumps 1, 2, 6 and 7 was 42.22 inches. The associated inside diameter of these pump throats at model scale is 7.98 inches. Accordingly, 8.0-inch ID acrylic pipe was used in the model. The inside diameter of the pump throats for pumps 3, 4 and 5 was 20.67 inches. The associated inside diameter of these pump throats at model scale is 3.57 inches. Accordingly, 3.625-inch ID acrylic pipe was used in the model to match the prototype as closely as possible. The inside diameter of the pump throats for pumps 8 and 9was 31.9 inches. The associated inside diameter of these pump throats at model scale is 5.51 inches. Accordingly, 5.50-inch ID acrylic pipe was used in the model.

A pitot tube and piezometric pressure tap were installed in each simulated pump throat for velocity measurements. A rotometer was also installed in each pump column for circulation measurements. The model pumps were designed so they could be manually rotated while the flow is running so that measurements from the pitot tube could be made at eight circumferential locations in the pump throat (every 45 degrees).

To initiate flows in the physical model, it was necessary to prime each of the model pumps so that flows could be siphoned up and over the rear wall of the model immediately behind each of the pump. The PVC pipe shown in Figure 11 represent the model siphons. Each siphon leg contained a valve at the downstream end, an orifice plate for measuring the precise flow rate and a fitting that was installed in the upper elbow of each model pump leg through which water could be supplied to prime the siphon.

Appendix B contains construction drawings for the physical model.

INSTRUMENTATION AND DATA COLLECTION

The following data were collected during the physical model study:

Measurement or Observation	Instrument or Documentation Technique
Flow rate entering and exiting the model	Calibrated magnetic flow meter and orifice plates respectively
Pump throat velocity Measurements	Pitot tube
Pump pre-rotation	Rotometer
Water surface elevations	Piezometer

Water was supplied to the physical model from a nearby reservoir on the Logan River. A calibrated magnetic flow meter was installed in the supply piping to the model and was used to accurately measure the water entering the model. A manometer was used to set and measure differential pressures across the orifice plates in each pump leg so that accurate flow rates could be set and measured. The magnetic flow meter and each of the orifice flow meters were calibrated prior to the model study, using a NIST traceable weight tank, and had accuracies better than 0.25%.

High frequency differential pressure readings (5000 samples per second) were taken through a data acquisition system at each of eight locations around the circumference of the model pump throat (Figure 15) using an Omega PX409 pressure transducer (Figure 16). A pitot tube used to make these measurements was installed in each model pump and was located at 0.7r from the center of the pump. A corresponding piezometer tap was also installed in the wall of the pump throat immediately adjacent to the pitot tube. The difference between these two readings provided a measured real-time voltage from which average and fluctuating velocity head readings could be monitored. The model pipe and the model pump column were designed so that the pitot tube and corresponding piezometer tap could be rotated to each of eight locations at every 45-degrees. The zero-degree location within each pump was nearest the rear wall of the pump station. Looking down on the pump, the 45, 90, 135, 180, 225, and 270-degree locations were located in a clockwise direction from the zero location within the pump measured at 70% of the radius of the pump throat from the center of the pump.

Dye was used as a means to observe flow conditions and the propensity for vortices in and near the pump intake and in the approach flow. Video was also taken of many of the observed conditions and is provided as part of this report.

Figure 15. Pitot tube configuration in each pump riser

Figure 16. Pressure transducer used to make pitot tube velocity measurements

After importing the differential pressure data sets from each of the eight locations to an excel spreadsheet, the voltage readings from the transducer were used to calculate the velocity head and subsequently the corresponding real time velocity readings. The time-averaged velocity at each of the eight locations was then determined in relation to the cross-sectional average velocity and the time-varying fluctuation was also calculated by determining the standard deviation in the data in relation to the time averaged signal.

One rotometer was installed in each of the pump columns in the physical model. Figure 17 shows a rotometer in one of the model pumps. Each rotometer had four straight parallel vanes attached to a rotating housing suspended on ball bearings from a 1/4-inch diameter support rod. The rotometer is designed with the vanes parallel to the pump riser centerline such that it rotates only when there is flow circulation in the pump shaft. The average rotational speed of the rotometer was measured over a one-minute period to obtain a quantitative measurement of circulation. Peak rotational speed (or bursts) from the rotometer were also measured. The rotometer direction is defined by looking down on the well shaft (plan view).

Figure 17. Photograph of model rotometer

Water surface elevations in the physical model were measured using two piezometers placed both upstream and downstream of the trash rack in the floor of the model. Figures 18 and 19 illustrate the locations where the water depth was measured and the standpipe that was used to set and measure the water surface setting for each run.

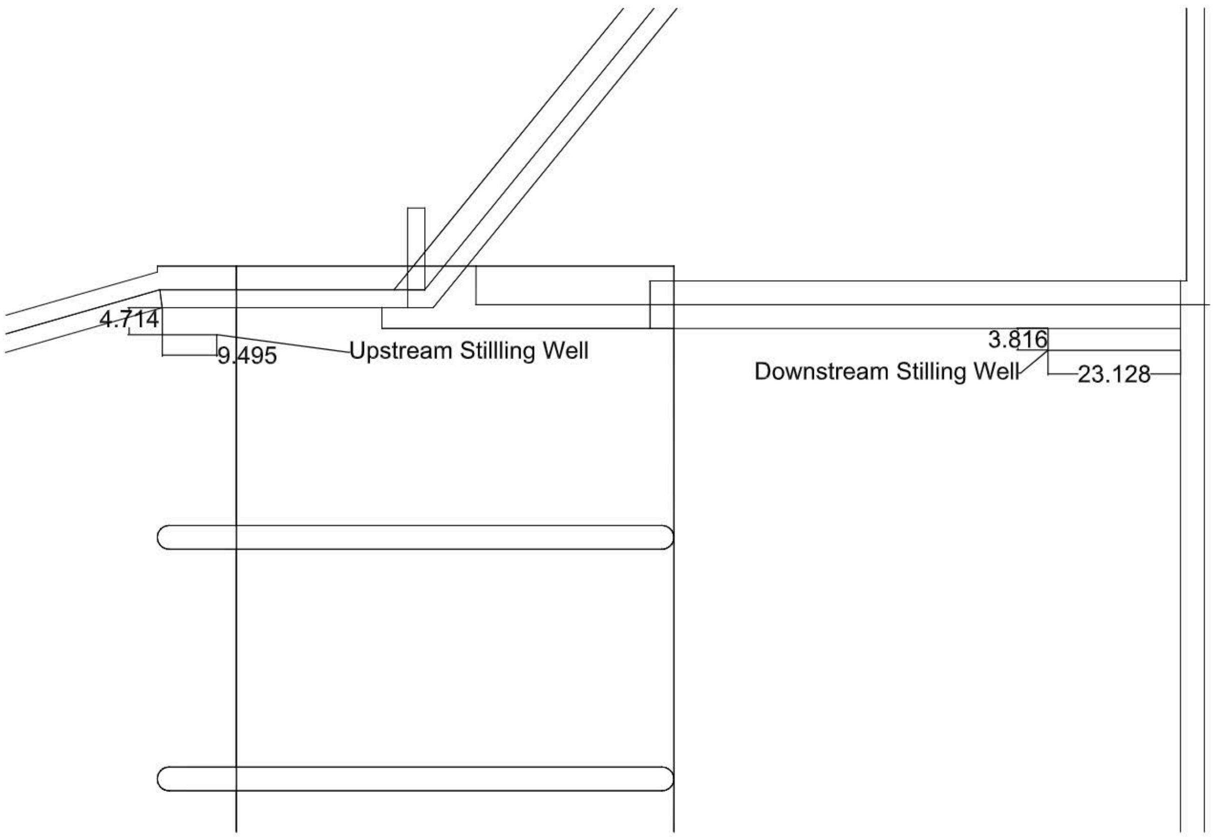


Figure 18. Water surface measurement locations

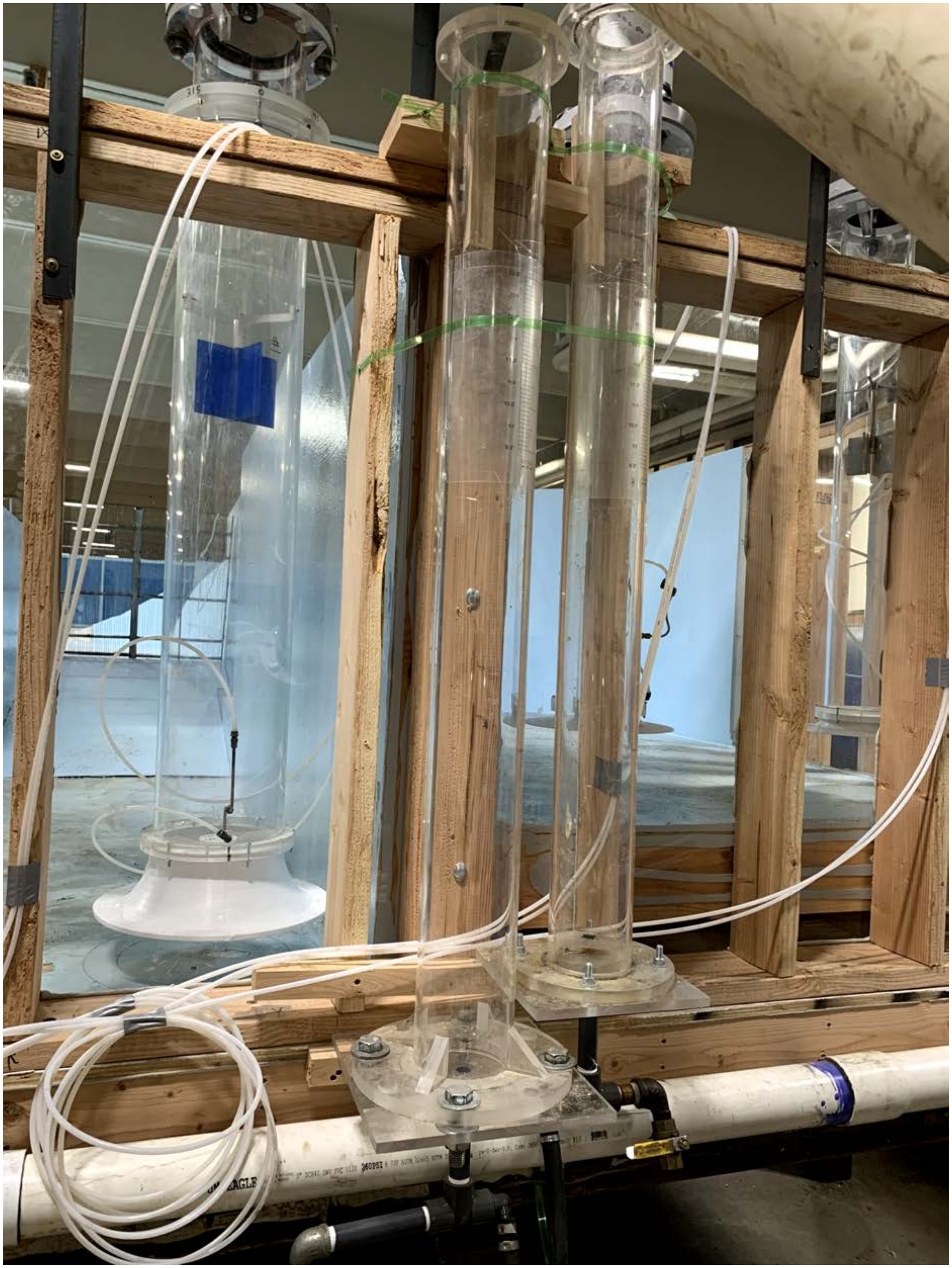


Figure 19. Standpipe used for water surface measurements

MODELING APPROACH

The model study was divided into three specific phases.

Phase 1: The first phase, baseline testing, identified and documented the severity of any adverse flow phenomena, including flow circulation and vortex activity associated with the existing pump intake design. Four baseline tests were performed. These tests included a range of pumping conditions. The specific baseline test conditions were determined with input from KSN. Following completion of the first testing phase, the test results were discussed with KSN before proceeding with the next phase. These tests were performed during Runs 1 through 4.

Phase 2: During the second phase, potential modifications to the proposed design as well as iterative corrections were tested to improve flow conditions to the pumps. The selection of potential modifications was based upon constructability and cost and were approved by KSN personnel. For comparison purposes, specific runs from the four base-line test conditions were tested again to verify the acceptability of each recommended design modification. Several different modification trials were tested either alone or in combination with each other. These included different configurations of floor cones, splitter plates, wall nose cones, divider walls, rear and side wall fillets and lowering the pump bell. These tests were performed during Runs 5 through 10.

Photographs of some of these trial fixes can be viewed in Figures 20 through 24.

Phase 3: During the third phase, all four baseline flow conditions were tested with the final modifications. These tests were performed during Runs 11 through 14.

Additional Tests: After the final modification tests, additional tests were performed to determine if further improvements could be made in the pump station. These tests were performed during Runs 15 through 17.

The flow conditions for each test can be found in Figures A-1 through A-8 in Appendix A.

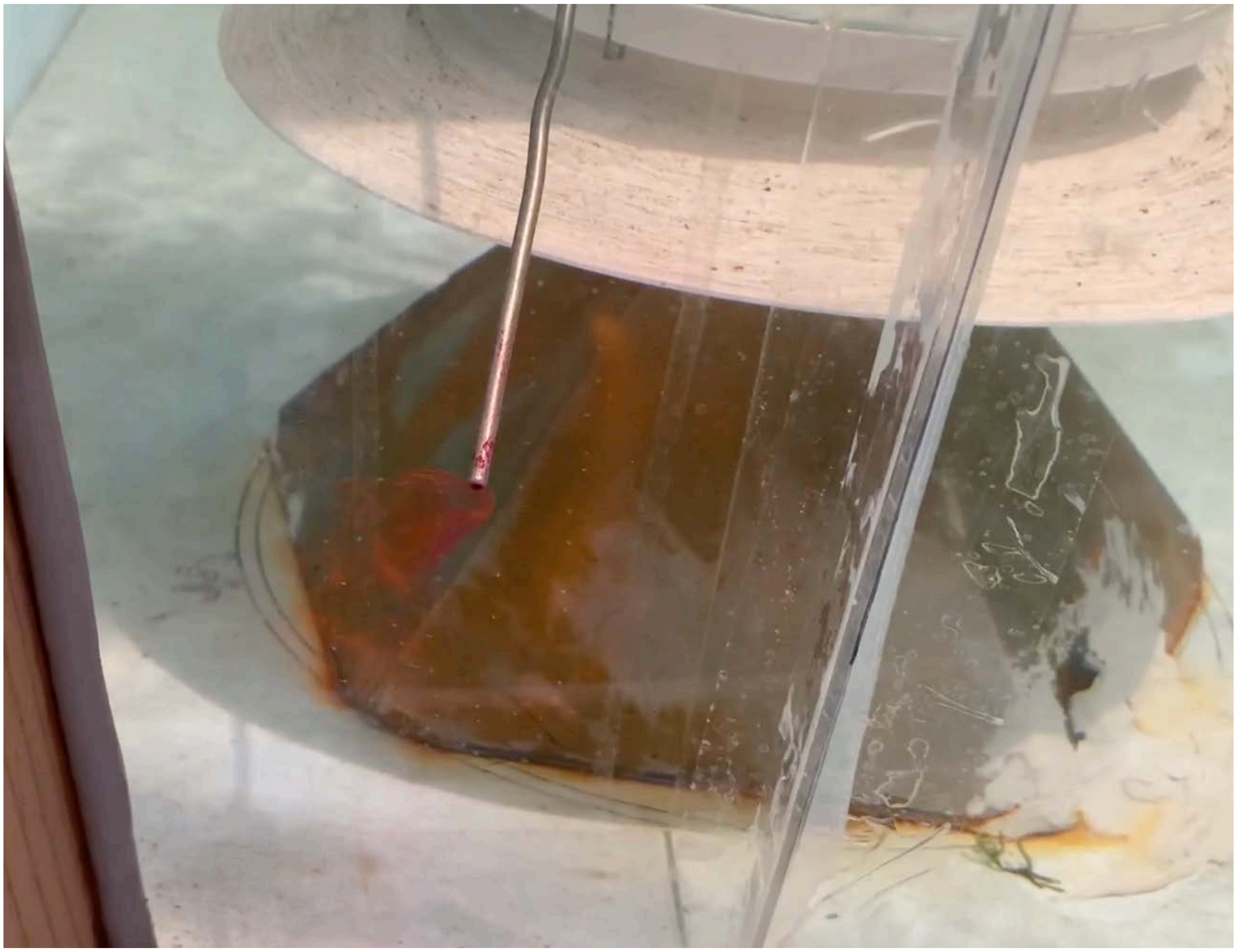


Figure 20. Trial floor cone and rear wall splitter plate

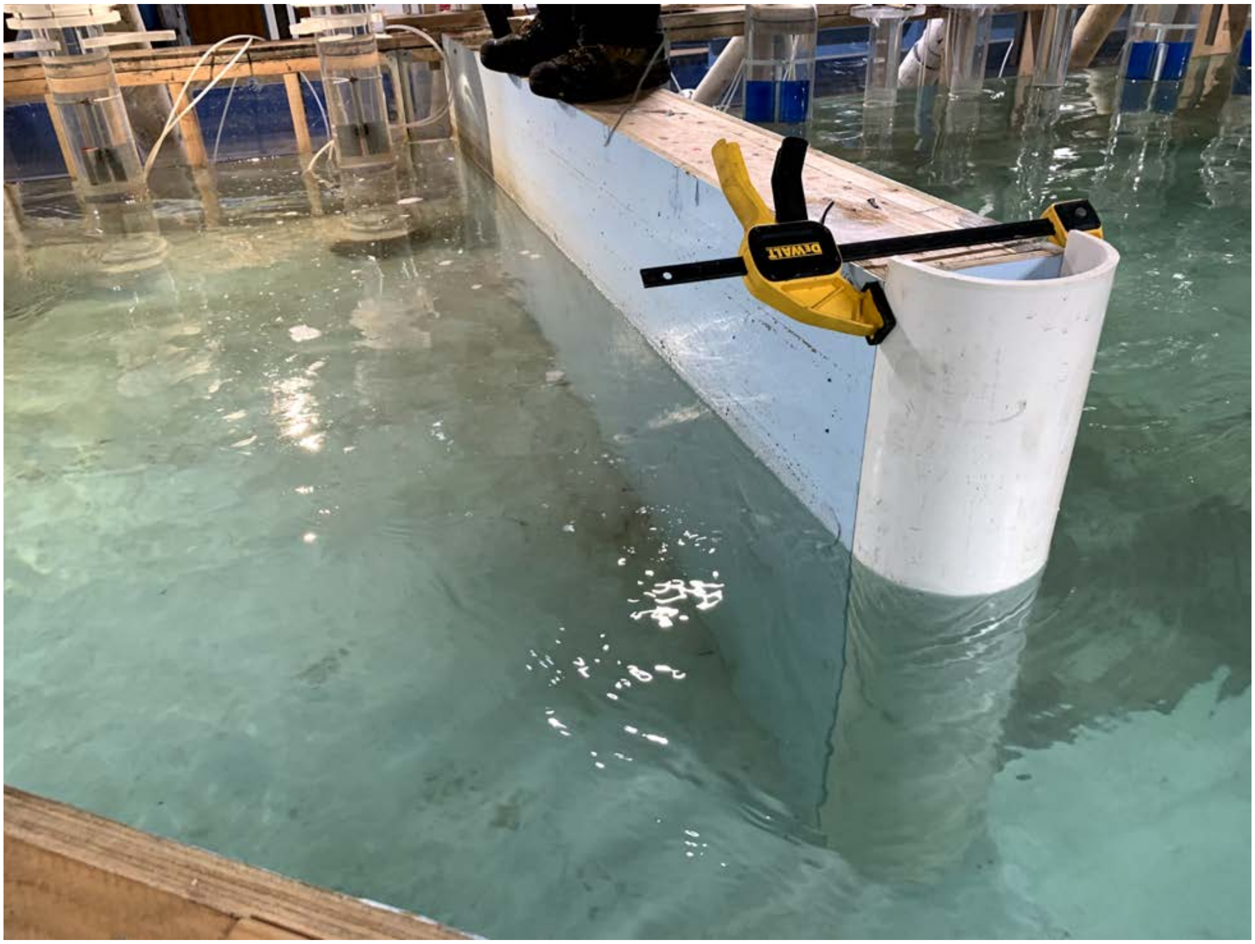


Figure 21. Trial semi-circular nose cone

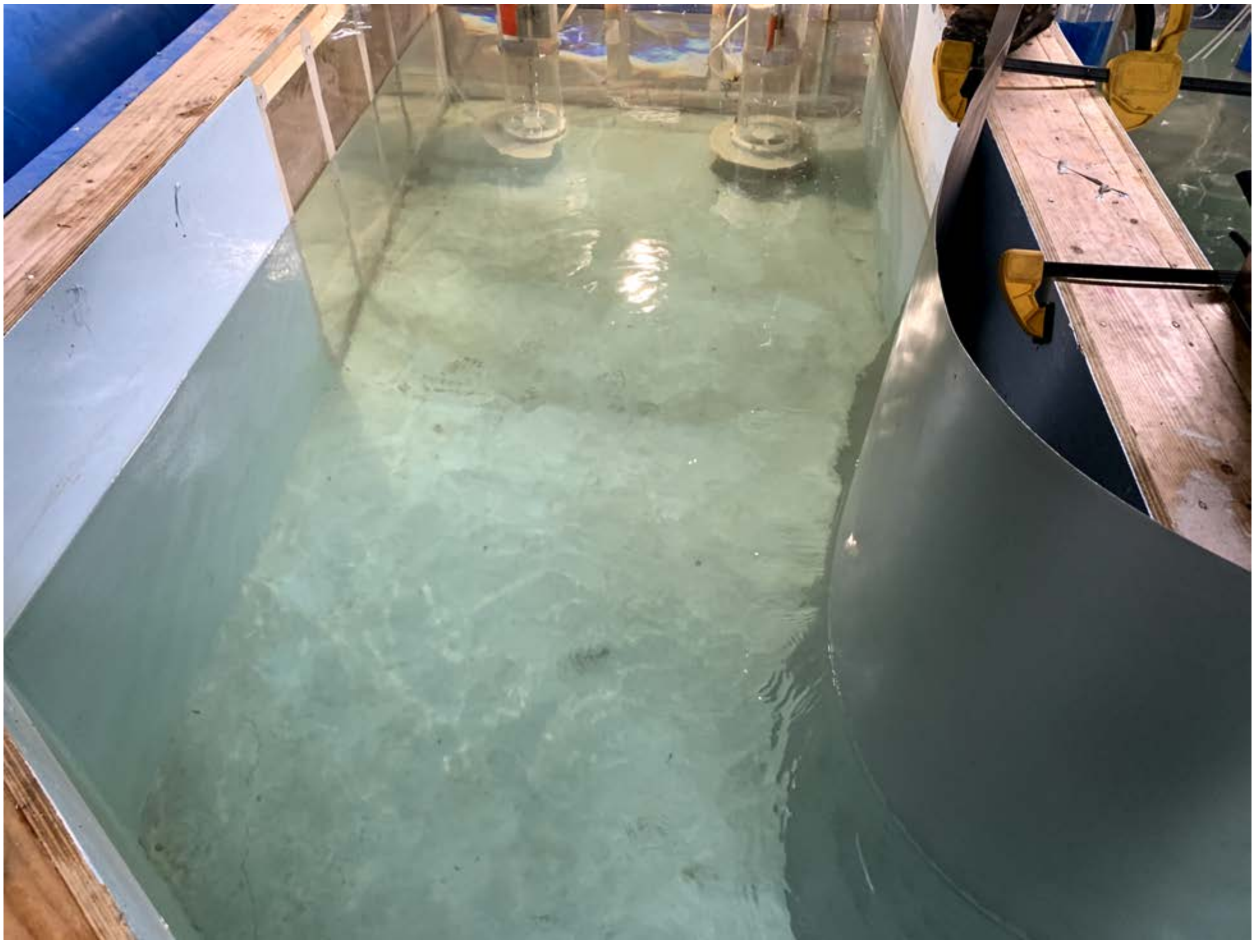


Figure 22. Trial warped nose cone

Figure 23. Trial divider wall

Figure 24. Trial rear and side wall fillets

TEST RESULTS

Phase 1: Baseline test results quickly showed that the existing pump station design created flow conditions that were problematic and adverse to the pumps. Figure 25 illustrates the strong separation zone that occurs in the pump bay containing pumps 8 and 9. Because the flow entering this bay must make two 90-degree corners, the flow is forced to the outside of the bay creating a large circulation pattern in the bay. Figure 26 illustrates a typical surface vortex that was common near pumps 8 and 9 due to the circulation pattern seen in Figure 25 coupled with the fact that pumps 8 and 9 were minimally submerged during typical operational conditions. Figure 27 illustrates the floor vortex that was found under all of the pumps during initial testing. Many of the pumps also produced wall vortices during the baseline tests.

The results associated with Phase 1 can be found in Appendix A, Tables A-1 through A-4.

Phase 2: The purpose of Phase 2 was to find fixes that will appropriately reduce or eliminate the observed problems found during Phase 1. The following list summarizes these attempts.

1. Floor cone: These were tested in an attempt to eliminate all floor vortices.
2. Rear and side wall splitter plates: These were tested in an attempt to eliminate strong circulation patterns in the pump pit.
3. Nose cones: These were tested in an attempt to reduce separation zones.
4. Divider wall: This was tested in an attempt to help train and direct the incoming flow to pumps 8 and 9.
5. Rear and side wall fillets: These were tested in an attempt to eliminate wall vortices entering the pumps.
6. Lowering the pump: This was tested in an effort to increase submergence to pumps 8 and 9 thereby reducing the propensity for surface vortices.

The results associated with Phase 2 can be found in Appendix A, Tables A-5 through A-10 and Tables A-15 through A-17.

Phase 3: The final modifications proposed as a result of the model study included:

1. Installing floor cones under each of the nine pumps.
2. Lowering pumps 8 and 9 from 0.5D to 0.3D from the floor.

3. Installing a divider wall between pumps 8 and 9.
4. Installing side and rear wall fillets around each of pumps 8 and 9.
5. Installing a rounded nose cone on the main divider wall between the two pump bays.

The results associated with Phase 3 can be found in Appendix A, Tables A-11 through A-14.

Observations

The following observations were noted during the study:

1. The fixes listed above significantly improved the flow conditions to the pumps but were not successful in removing all the flow problems according to Hydraulic Institute criteria.
2. Test results indicate that with the final fixes installed on the pumps, weak wall vortices to pumps 1 through 7, intermittent surface vortices to pumps 8 and 9 and some residual velocity fluctuations are still probable.
3. It was observed during **Phase 1** tests that floor vortices occurred under each of the nine pumps. The addition of floor cones under each pump eliminated all floor vortices.
4. The addition of rear and side wall fillets, a center divider wall, a nose cone on the leading edge of the main wall between the pump bays and lowering pumps 8 and 9 all significantly improved the flow conditions to pumps 8 and 9. With the addition of these fixes, pumps 8 and 9 will only be susceptible to intermittent surface vortices. This is due to the fact that even though pumps 8 and 9 have been lowered from 0.5D to 0.3D, they still will be operating at minimal submergence.
5. It was observed during **Phase 1** tests that a strong separation zone was present in the pump bay containing pumps 8 and 9. This was due to the water needing to make two 90-degree turns before entering the pump bay. The fixes listed above removed all of the negative effects associated with the separation zone.
6. It was observed during **Phase 1** tests that the pump bay containing pumps 8 and 9 was susceptible to surface vortices due to the pumps being insufficiently submerged.
7. It was observed during **Phase 2** tests that installing rear and side wall fillets in the main pump bay containing pumps 1 through 7 increased the propensity for wall vortices due to the fact that the pumps in this bay are already too close to the pump pit walls according to Hydraulic Institute standards and installing the fillets only brings the wall closer to the pump. Ultimately, it was determined that the pumps operate more effectively with the rear and side wall fillets not in place.
8. It was observed during the **Phase 2**, that the proposed increase in flow rate to the pump bay containing pumps 1 through 7 increased the magnitude of the velocity fluctuations observed in that bay.
9. During the **Phase 2**, Run 16, 10.2ft WSE test, that dropping the water surface elevation only slightly, greatly increased the magnitude of the problems observed in the pump station.

10. It was observed during the **Phase 3**, Runs 11 through 14 tests, that the primary problem still unresolved is the velocity fluctuations that are occurring in some of the pumps, most likely due to the increased flow rate that is needed when all nine pumps are in operation.

Figure 25. Flow separation entering the pump bay containing pumps 8 and 9

Figure 26. Example of surface vortex in the pump bay containing pumps 8 and 9

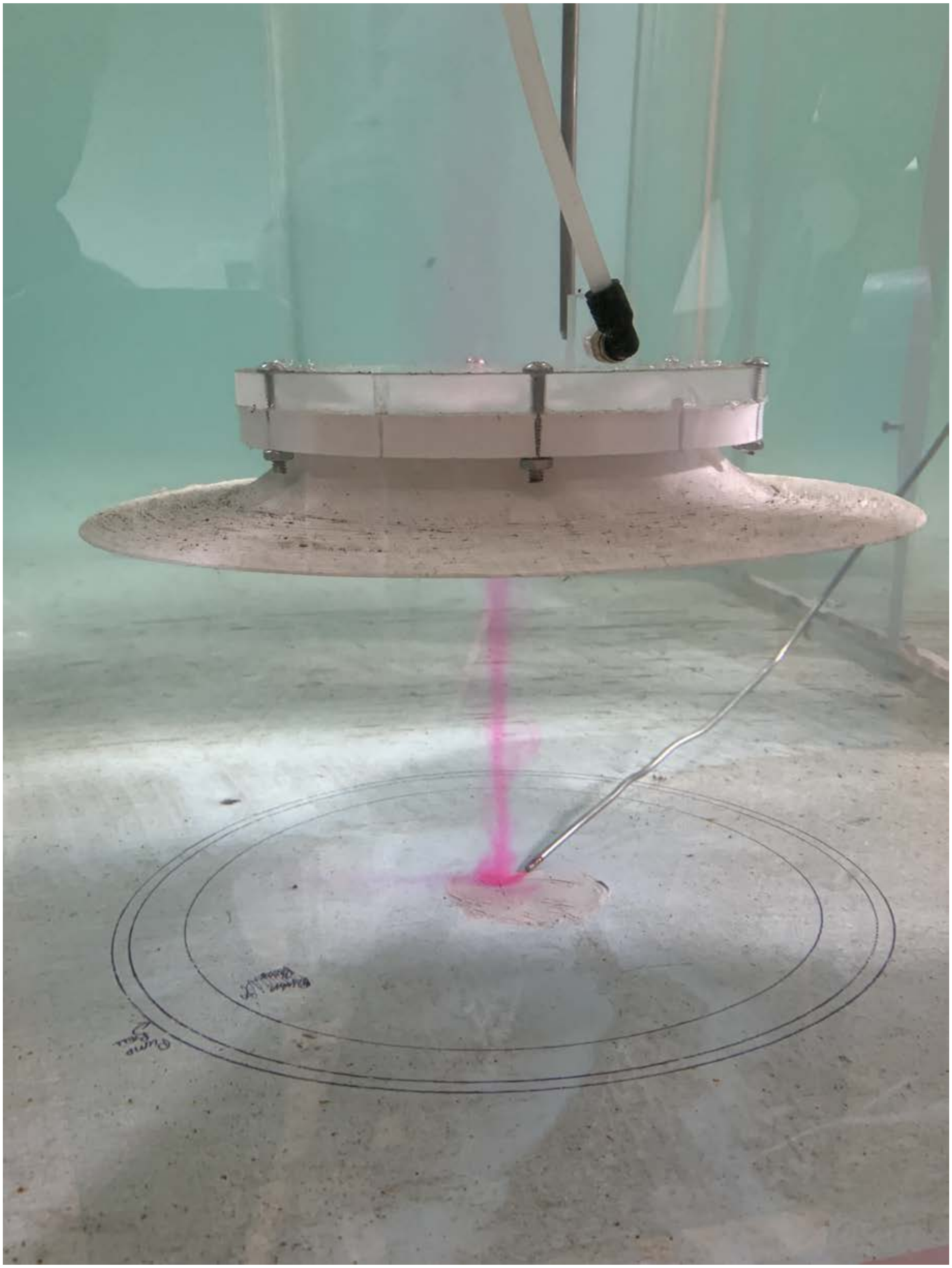


Figure 27. Example of floor vortex under all pumps in existing condition

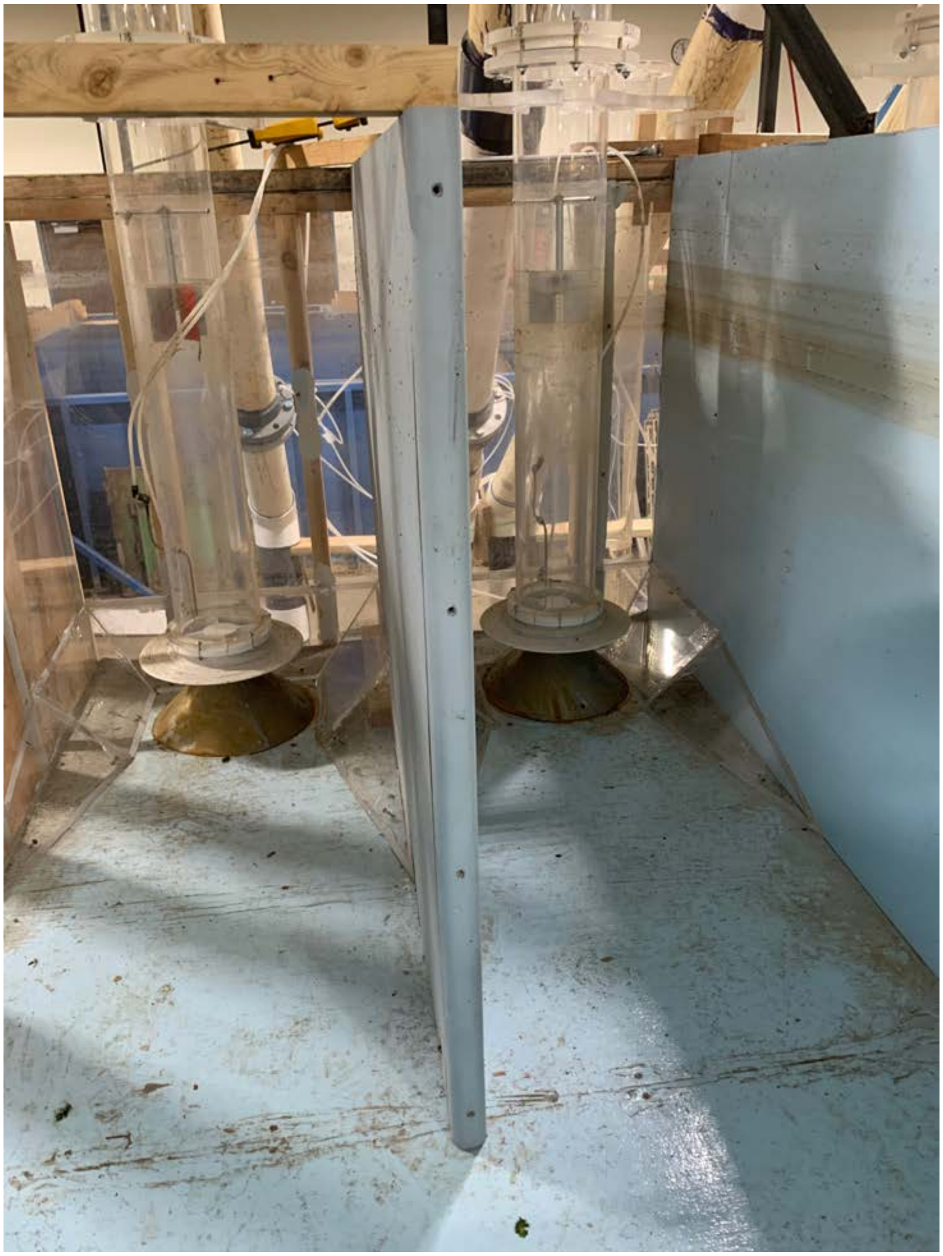


Figure 28. Final fixes in the pump bay containing pumps 8 and 9

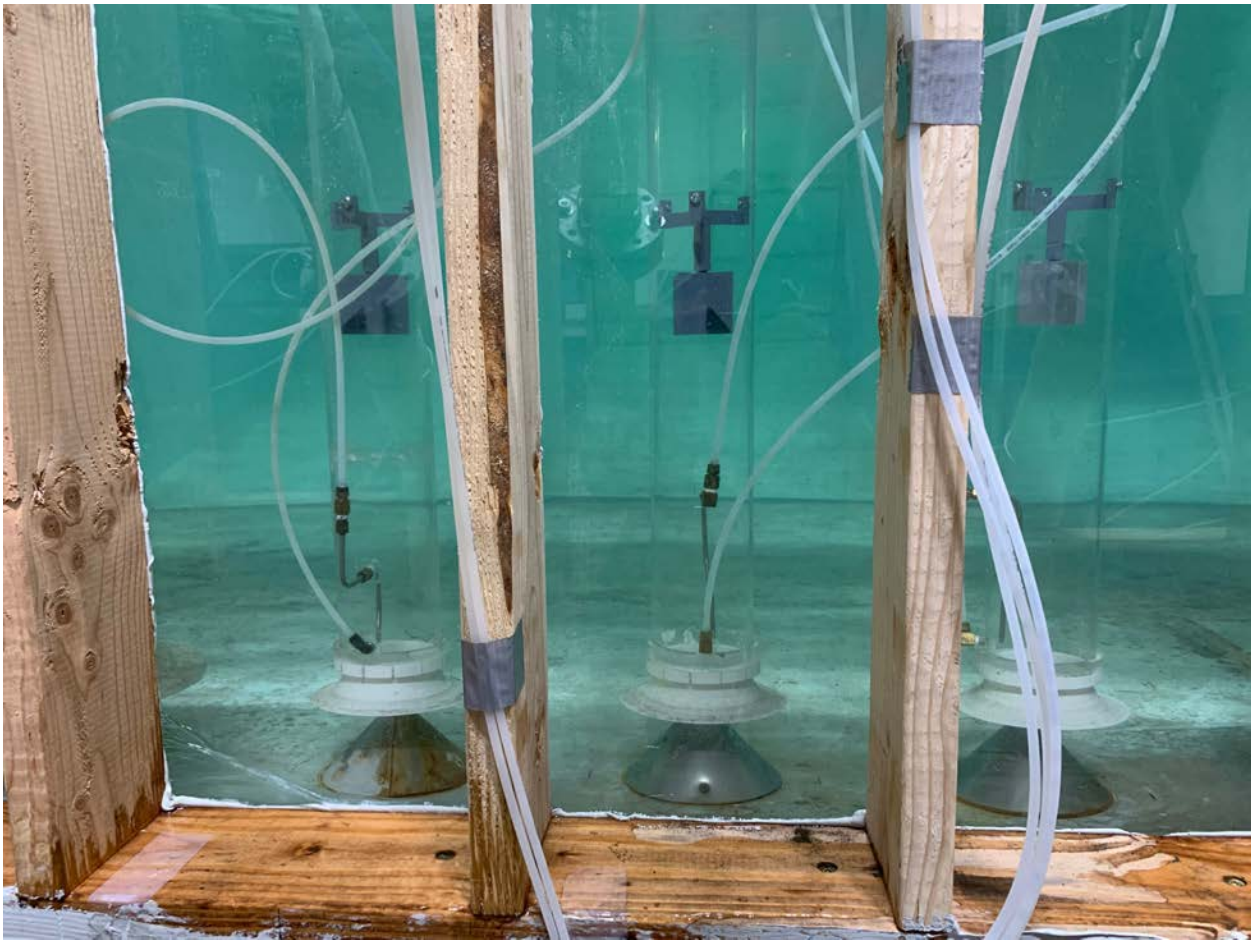


Figure 29. Final fixes in the pump bay containing pumps 1 through 7 (floor cone only)

APPENDIX A:

Physical Model Data

LIST OF TABLES AND FIGURES

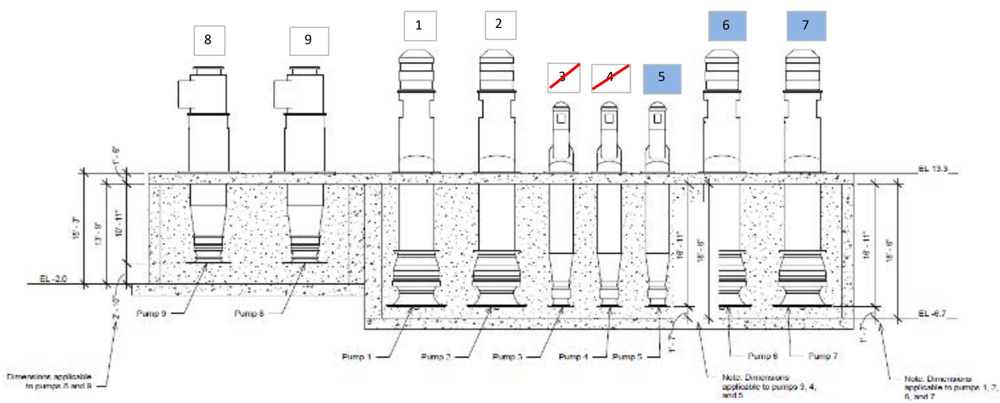
Phase 1 Test Results

Figure A-1. Run number 1, baseline test configuration

MODEL RUN 1
Normal Op maintain WSEL < 11.30'

WSEL	11.05

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	48.0	10.63	9.63	** pump 4 and 5 inoperable
~~PUMP #4~~	~~33.0~~	~~10.47~~	~~9.47~~	** pump 4 and 5 inoperable
~~PUMP #3~~	~~48.0~~	~~10.30~~	~~9.30~~	

Table A-1. Run number 1, baseline test data

Model data for **KSN Pump Station**
Run Number **1**
Test configuration: **Existing**
Date: **7/13/22**

Length Ratio	**5.7915**

System Data		
Target Total Pump Flow	**1435.00**	GPM
Target Water Surface Elev. =	**11.05**	ft
Actual Water Surface Elev.=	**10.95**	ft
Pumps Operating =	**5,6,7**	

Notes:	
1	Existing pump configuration, no fixes installed
2	Floor and wall vortices observed
3	-
4	-
5	-

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	0	0.0	-	-	-	-	-	0.00	0.00	-	5.5	0.165	0.00	0.00	0.00	0.00
Pump 9	0	0.0	-	-	-	-	-	0.00	0.00	-	5.5	0.165	0.00	0.00	0.00	0.00
Pump 1	0	0.0	-	-	-	-	-	0.00	0.00	-	8	0.349	0.00	0.00	0.00	0.00
Pump 2	0	0.0	-	-	-	-	-	0.00	0.00	-	8	0.349	0.00	0.00	0.00	0.00
Pump 5	266.9	247.1	0	8	4	70	0	7.60	0.00	CCW	3.625	0.072	0.59	8.30	0.60	8.36
Pump 6	583.8	544.6	0	4	4	0	0	0.00	0.00	CCW	8	0.349	1.30	3.73	1.38	3.96
Pump 7	583.8	544.2	0	4	4	0	0	0.00	0.00	CCW	8	0.349	1.30	3.73	1.34	3.85

Run Number: 1

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	off	off	off	off	0	0	0	0	UWRL defined
Floor Vortex	off	off	off	off	8	4	4	0	
Wall Vortex	off	off	off	off	4	4	4	1	
RPM, prototype (average)	off	off	off	off	29.1	0.0	0.0	NA	
Angle of velocity at throat, deg =	off	off	off	off	7.6	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	off	off	off	off	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	off	off	off	off	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	off	off	off	off	CCW	CCW	CCW	NA	
Max. % Dev. from mean Vel.	off	off	off	off	1.5	1.0	6.7	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	off	off	off	off	1.5	4.7	6.3	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**off**	**off**	**off**	**off**	**22.6**	**13.7**	**21.0**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	off	off	off	off	off	off	off	off	off	off	off	off
45 degrees	off	off	off	off	off	off	off	off	off	off	off	off
90 degrees	off	off	off	off	off	off	off	off	off	off	off	off
135 degrees	off	off	off	off	off	off	off	off	off	off	off	off
180 degrees (front)	off	off	off	off	off	off	off	off	off	off	off	off
225 degrees	off	off	off	off	off	off	off	off	off	off	off	off
270 degrees	off	off	off	off	off	off	off	off	off	off	off	off
315 degrees	off	off	off	off	off	off	off	off	off	off	off	off
Mean Vel.=	off			off			off			off		
Max=		**off**	**off**		**off**	**off**		**off**	**off**		**off**	**off**

Measured Prototype Velocity Data at pump throat	Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	20.19	0.32	0.77	9.58	0.50	1.42	8.65	6.68	1.58
45 degrees	20.11	0.07	0.87	9.44	0.96	2.98	9.39	1.25	2.06
90 degrees	19.83	1.45	1.20	9.50	0.33	3.21	9.41	1.44	1.22
135 degrees	20.09	0.17	0.74	9.61	0.81	1.70	9.41	1.45	0.66
180 degrees (front)	20.11	0.04	1.22	9.53	0.00	4.69	9.42	1.62	1.03
225 degrees	20.26	0.70	1.52	9.61	0.80	1.57	9.31	0.40	4.10
270 degrees	20.27	0.73	1.30	9.52	0.10	0.97	9.21	0.64	6.32
315 degrees	20.12	0.02	0.93	9.46	0.70	3.84	9.38	1.16	1.57
Mean Vel.=	20.12			9.53			9.27		
Max=		**1.45**	**1.52**		**0.96**	**4.69**		**6.68**	**6.32**

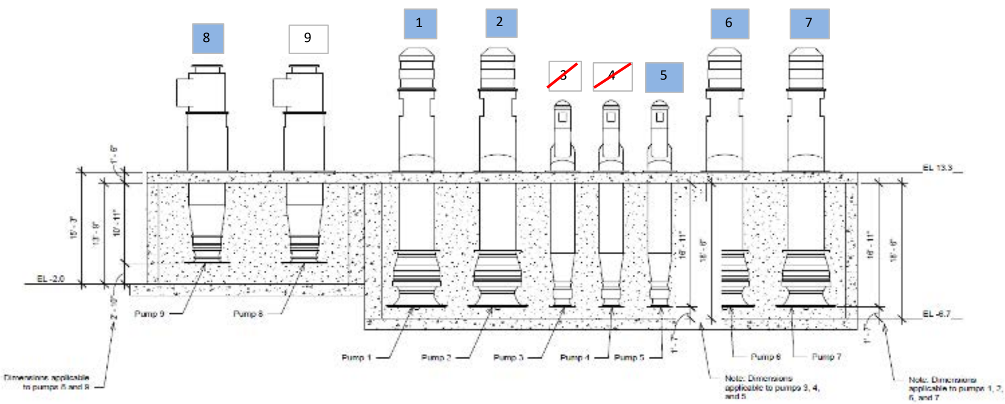
Figure A-2. Run number 2, baseline test configuration

MODEL RUN 2

Pump 8 and 9 begin cavitating at ~WSEL 11.00'

WSEL	10.72

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	48.0	10.63	9.63	** pump 4 and 5 inoperable
~~PUMP #4~~	~~33.0~~	~~10.47~~	~~9.47~~	** pump 4 and 5 inoperable
~~PUMP #3~~	~~48.0~~	~~10.30~~	~~9.30~~	

Table A-2. Run number 2, baseline test data

Model data for	**KSN Pump Station**
Run Number	2
Test configuration:	Existing
Date:	7/14/22

Length Ratio	**5.7915**

Notes:

1	Existing pump configuration, no fixes installed
2	Floor and wall vortices observed
3	High velocity fluctuations observed
4	-
5	-

System Data		
Target Total Pump Flow	1435.00	GPM
Target Water Surface Elev. =	10.72	ft
Actual Water Surface Elev.=	10.70	ft
Pumps Operating =	1,2,5,6,7,8	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	643.5	1	8	4	11	0	1.75	0.00	CW	5.5	0.16	1.42	8.63	1.43	8.69
Pump 9	0	0.0	-	-	-	-	-	-	-	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 1	583.8	584.5	0	8	4	1	0	0.54	0.00	CCW	8	0.35	1.30	3.73	1.30	3.73
Pump 2	583.8	600.0	0	8	4	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.34	3.83
Pump 5	266.9	267.8	0	8	0	14	30	1.53	3.27	CCW,CW	3.625	0.07	0.59	8.30	0.60	8.32
Pump 6	583.8	586.8	0	8	4	3	0	1.61	0.00	CW	8	0.35	1.30	3.73	1.31	3.75
Pump 7	583.8	588.2	0	8	1	1	0	0.54	0.00	CCW	8	0.35	1.30	3.73	1.31	3.75

Run Number: 2

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	1	off	0	0	0	0	0	0	UWRL defined
Floor Vortex	8	off	8	8	8	8	8	0	
Wall Vortex	4	off	4	4	0	4	1	1	
RPM, prototype (average)	4.6	off	0.4	0.0	5.8	1.2	0.4	NA	
Angle of velocity at throat, deg =	1.8	off	0.5	0.0	1.5	1.6	0.5	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	off	0.0	0.0	12.5	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	off	0.0	0.0	3.3	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CW	off	CCW	-	CCW,CW	CW	CCW	NA	
Max. % Dev. from mean Vel.	1.2	off	3.7	1.7	3.7	1.0	0.5	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	3.1	off	8.2	20.9	9.6	5.4	12.6	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**19.0**	**off**	**24.3**	**34.6**	**26.1**	**20.0**	**22.6**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	20.67	1.18	1.00	off	off	off	8.99	0.10	8.11	9.33	1.20	3.71	19.47	2.82	2.08	9.00	0.17	2.68	9.04	0.03	3.30
45 degrees	21.00	0.41	1.20	off	off	off	9.04	0.64	3.63	9.37	1.72	2.65	19.40	3.15	3.37	8.94	0.81	2.55	9.00	0.41	4.55
90 degrees	20.87	0.19	1.26	off	off	off	9.06	0.89	3.55	9.18	0.37	2.67	19.77	1.32	1.91	8.99	0.28	1.68	8.99	0.46	12.57
135 degrees	21.10	0.88	1.31	off	off	off	9.07	1.06	3.34	9.16	0.56	20.93	19.57	2.31	9.63	9.04	0.28	1.58	9.03	0.03	8.62
180 degrees (front)	20.94	0.11	1.28	off	off	off	9.19	2.33	8.16	9.20	0.20	10.29	20.77	3.66	1.45	9.07	0.67	1.72	9.04	0.07	11.00
225 degrees	20.92	0.05	3.11	off	off	off	8.85	1.46	5.91	9.12	1.00	7.06	20.63	2.96	1.49	9.07	0.60	1.49	9.07	0.42	2.80
270 degrees	20.94	0.15	0.92	off	off	off	8.65	3.65	7.91	9.22	0.00	4.10	20.52	2.45	1.78	9.07	0.67	5.44	9.07	0.35	3.44
315 degrees	20.87	0.21	0.97	off	off	off	8.99	0.09	6.16	9.15	0.77	5.36	20.14	0.53	2.37	8.93	0.96	5.26	9.04	0.03	2.29
Mean Vel.=	20.91			off			8.98			9.22			20.03			9.01			9.04		
Max=		**1.18**	**3.11**		**off**	**off**		**3.65**	**8.16**		**1.72**	**20.93**		**3.66**	**9.63**		**0.96**	**5.44**		**0.46**	**12.57**

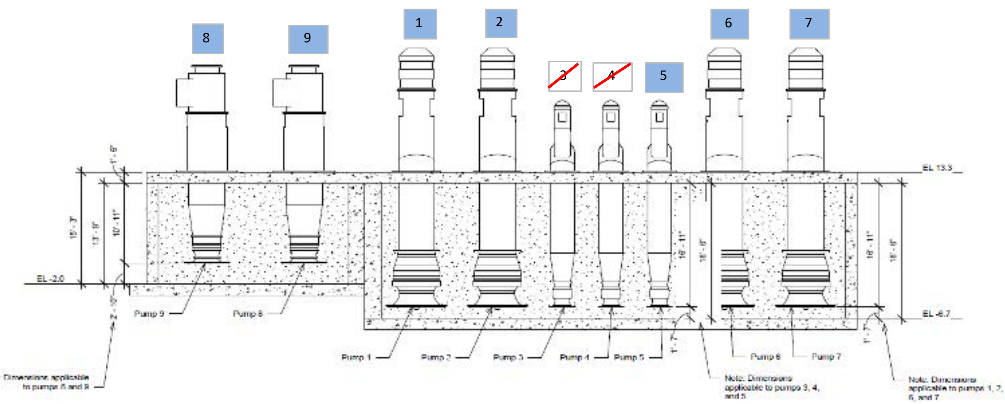
Figure A-3. Run number 3, baseline test configuration

MODEL RUN 3

Pump 8 and 9 begin cavitating at ~WSEL 11.00'

WSEL	10.88

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	48.0	10.63	9.63	** pump 4 and 5 inoperable
~~PUMP #4~~	~~33.0~~	~~10.47~~	~~9.47~~	** pump 4 and 5 inoperable
~~PUMP #3~~	~~48.0~~	~~10.30~~	~~9.30~~	

Table A-3. Run number 3, baseline test data

Model data for **KSN Pump Station**
Run Number 3
Test configuration: Existing
Date: 7/15/22

Length Ratio	**5.7915**

Notes:

1	Existing pump configuration, no fixes installed
2	Surface, floor and wall vortices observed
3	High velocity fluctuations observed
4	-
5	-

System Data

Target Total Pump Flow	3881.00	GPM
Target Water Surface Elev. =	10.88	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,5,6,7,8,9	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	643.2	1	8	0	18	0	2.86	0.00	CW	5.5	0.16	1.42	8.63	1.43	8.69
Pump 9	639.4	657.7	8	8	4	14	0	2.23	0.00	CW	5.5	0.16	1.42	8.63	1.47	8.88
Pump 1	583.8	584.6	0	4	4	2	0	1.07	0.00	CCW	8	0.35	1.30	3.73	1.30	3.73
Pump 2	583.8	591.0	0	4	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.32	3.77
Pump 5	266.9	272.4	0	8	0	19	0	2.07	0.00	CW	3.625	0.07	0.59	8.30	0.61	8.47
Pump 6	583.8	589.2	0	8	1	3	0	1.61	0.00	CW	8	0.35	1.30	3.73	1.31	3.76
Pump 7	583.8	598.7	0	8	1	3	0	1.61	0.00	CW	8	0.35	1.30	3.73	1.33	3.82

Run Number: 3

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	1	8	0	0	0	0	0	0	UWRL defined
Floor Vortex	8	8	4	4	8	8	8	0	
Wall Vortex	0	4	4	1	0	1	1	1	
RPM, prototype (average)	7.5	5.8	0.8	0.0	7.9	1.2	1.2	NA	
Angle of velocity at throat, deg =	2.9	2.2	1.1	0.0	2.1	1.6	1.6	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CW	CW	CCW	-	CW	CW	CW	NA	
Max. % Dev. from mean Vel.	1.5	4.5	7.4	3.0	3.7	0.8	0.6	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	15.8	19.2	18.1	17.0	4.3	14.3	12.2	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**29.2**	**45.9**	**34.6**	**24.9**	**18.0**	**25.7**	**23.4**	**33**	

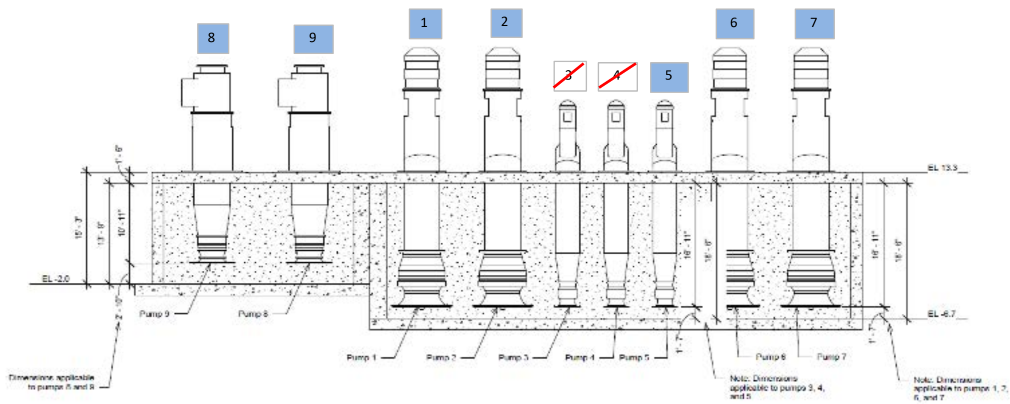
Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	20.93	0.12	1.26	21.53	0.71	2.50	9.05	0.79	9.45	9.22	1.57	7.23	20.29	0.46	1.55	9.02	0.35	9.99	9.16	0.41	7.89
45 degrees	21.01	0.51	1.55	21.57	0.91	1.18	9.04	0.62	7.01	9.24	1.78	14.27	20.11	1.34	1.97	8.98	0.75	4.67	9.14	0.58	10.89
90 degrees	20.91	0.05	1.87	21.59	0.99	1.67	9.19	2.29	10.61	9.07	0.14	9.68	19.70	3.33	2.76	8.98	0.80	14.31	9.22	0.26	12.19
135 degrees	20.62	1.37	12.39	21.56	0.87	1.34	9.10	1.28	10.47	9.03	0.58	12.42	19.72	3.26	4.25	9.06	0.04	6.58	9.22	0.25	5.72
180 degrees (front)	21.08	0.86	2.11	21.56	0.87	2.99	9.10	1.33	15.46	9.11	0.40	11.98	20.24	0.71	4.30	9.11	0.70	2.57	9.24	0.53	4.00
225 degrees	20.59	1.52	15.78	21.30	0.33	6.35	8.98	0.03	9.73	8.81	2.97	16.97	20.89	2.47	1.92	9.10	0.49	3.85	9.22	0.29	3.60
270 degrees	21.09	0.87	3.06	20.41	4.52	19.20	8.32	7.35	18.13	9.10	0.22	5.92	21.13	3.67	1.29	9.05	0.03	5.36	9.19	0.08	3.19
315 degrees	21.00	0.48	8.00	21.48	0.50	2.37	9.07	1.03	6.67	9.05	0.28	7.26	20.98	2.95	1.96	9.11	0.69	2.49	9.17	0.25	2.91
Mean Vel.=	20.90			21.37			8.98			9.08			20.38			9.05			9.20		
Max=		**1.52**	**15.78**		**4.52**	**19.20**		**7.35**	**18.13**		**2.97**	**16.97**		**3.67**	**4.30**		**0.80**	**14.31**		**0.58**	**12.19**

Figure A-4. Run number 4, baseline test configuration

MODEL RUN 4
Extreme storm event

WSEL	~~14.80~~	**11.80**	* Run 4 WSEL Revised 5/26/22

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	48.0	10.63	9.63	** pump 4 and 5 inoperable
~~PUMP #4~~	~~33.0~~	~~10.47~~	~~9.47~~	** pump 4 and 5 inoperable
~~PUMP #3~~	~~48.0~~	~~10.30~~	~~9.30~~	

Table A-4. Run number 4, baseline test data

Model data for **KSN Pump Station**
Run Number 4
Test configuration: Existing
Date: 7/15/22

Length Ratio 5.7915

Notes:
1 Existing pump configuration
2 Floor and wall vortices observed
3 High velocity fluctuations observed
4 -
5 -

System Data		
Target Total Pump Flow	3881.00	GPM
Target Water Surface Elev. =	11.80	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,5,6,7,8,9	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	635.4	0	8	0	14	0	2.23	0.00	CW	5.5	0.16	1.42	8.63	1.42	8.58
Pump 9	639.4	642.9	1	8	0	14	0	2.23	0.00	-	5.5	0.16	1.42	8.63	1.43	8.68
Pump 1	583.8	594.1	0	8	4	2	0	1.07	0.00	CCW	8	0.35	1.30	3.73	1.32	3.79
Pump 2	583.8	586.0	0	8	4	2	0	1.07	0.00	CW	8	0.35	1.30	3.73	1.31	3.74
Pump 5	266.9	268.5	0	8	0	3	0	0.33	0.00	CW,CCW	3.625	0.07	0.59	8.30	0.60	8.35
Pump 6	583.8	587.2	0	8	4	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.31	3.75
Pump 7	583.8	586.1	0	8	1	2	0	1.07	0.00	CW	8	0.35	1.30	3.73	1.31	3.74

Run Number: 4

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	0	1	0	0	0	0	0	0	UWRL defined
Floor Vortex	8	8	8	8	8	8	8	0	
Wall Vortex	0	0	4	4	0	4	1	1	
RPM, prototype (average)	5.8	5.8	0.8	0.8	1.2	0.0	0.8	NA	
Angle of velocity at throat, deg =	2.2	2.2	1.1	1.1	0.3	0.0	1.1	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CW	-	CCW	CW	CW,CCW	-	CW	NA	
Max. % Dev. from mean Vel.	0.5	3.8	7.5	1.4	3.4	1.4	1.2	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	3.9	16.2	21.0	5.2	2.5	10.2	7.2	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**14.7**	**31.2**	**41.5**	**19.7**	**14.3**	**23.6**	**18.4**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	20.68	0.13	1.15	21.19	1.40	1.23	9.24	1.27	4.69	9.04	0.48	5.18
45 degrees	20.55	0.50	3.94	21.09	0.94	1.33	9.30	1.93	4.46	8.95	0.61	3.79
90 degrees	20.63	0.11	1.20	21.16	1.25	1.77	9.27	1.62	2.86	8.87	1.44	2.90
135 degrees	20.71	0.31	1.47	21.12	1.06	2.10	9.33	2.21	2.44	9.04	0.47	2.85
180 degrees (front)	20.70	0.26	1.64	21.15	1.21	1.50	9.32	2.11	4.86	9.04	0.42	4.60
225 degrees	20.66	0.06	1.37	20.79	0.49	7.92	9.09	0.41	13.50	9.02	0.20	2.90
270 degrees	20.64	0.07	3.05	20.10	3.77	16.16	8.45	7.46	20.99	9.03	0.28	3.16
315 degrees	20.63	0.09	1.82	20.56	1.60	13.94	9.01	1.27	10.06	9.02	0.21	2.86
Mean Vel.=	20.65			20.89			9.13			9.00		
Max=		**0.50**	**3.94**		**3.77**	**16.16**		**7.46**	**20.99**		**1.44**	**5.18**

Measured Prototype Velocity Data at pump throat	Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	20.01	0.39	1.00	9.09	0.73	3.46	8.96	0.48	4.70
45 degrees	19.61	2.35	1.40	9.00	0.19	2.17	8.93	0.77	7.17
90 degrees	19.39	3.45	2.07	8.99	0.32	2.98	8.98	0.21	5.09
135 degrees	19.74	1.74	2.51	8.89	1.42	10.19	8.99	0.15	2.40
180 degrees (front)	20.17	0.41	1.92	9.06	0.50	6.64	9.01	0.08	2.57
225 degrees	20.60	2.54	1.09	9.03	0.17	5.83	9.11	1.18	2.59
270 degrees	20.68	2.96	1.17	9.03	0.09	6.02	9.02	0.23	2.05
315 degrees	20.49	2.01	1.30	9.06	0.44	3.39	9.01	0.12	2.02
Mean Vel.=	20.08			9.02			9.00		
Max=		**3.45**	**2.51**		**1.42**	**10.19**		**1.18**	**7.17**

Phase 2 and Phase 3 Design Development and Design Correction Test Results

Table A-5. Run number 5

Model data for **KSN Pump Station**
Run Number **5**
Test configuration: **Cone on P9**
Date: **7/20/22**

Length Ratio	**5.7915**

Notes:

1	Floor cone was added on pump 9
2	Baseline Run #3 repeated
3	Data only taken on pump 9
4	Floor vortex eliminated
5	Surface and wall vortices remain

System Data

Target Total Pump Flow	**3881.00**	GPM
Target Water Surface Elev. =	**10.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,5,6,7,8,9**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	-	-	-	-	-	-	-	-	-	5.5	0.16	1.42	8.63	-	-
Pump 9	639.4	637.5	8	0	8	16	0	2.55	0.00	CW	5.5	0.16	1.42	8.63	1.42	8.61
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number: 5

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	8	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	0	-	-	-	-	-	0	
Wall Vortex	-	8	-	-	-	-	-	1	
RPM, prototype (average)	-	6.6	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	-	2.5	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	-	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	-	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	-	CW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	0.0	0.5	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	0.0	1.6	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	-	**20.7**	-	-	-	-	-	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	20.72	0.00	1.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	20.82	0.51	1.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	20.75	0.16	1.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	20.71	0.06	1.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	20.69	0.11	1.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	20.64	0.37	1.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	20.72	0.03	1.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	20.68	0.16	1.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			20.72			-			-			-			-			-		
Max=		**0.00**	**0.00**		**0.51**	**1.60**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-6. Run number 6

Model data for **KSN Pump Station**
Run Number **6**
Test configuration: **Floor cone and rear wall splitter plate**
Date: **7/28/22**

Length Ratio	**5.7915**

System Data		
Target Total Pump Flow	**3881.00**	GPM
Target Water Surface Elev. =	**10.88**	ft
Actual Water Surface Elev.=	**-**	ft
Pumps Operating =	**1,2,5,6,7,8,9**	

Notes:

1	Floor cone on pump 9
2	Baseline Run #3 repeated
3	Installed rear wall splitter plate (wall to pump)
4	Also added a side wall splitter plate at 90 degrees from original plate
5	Strength of surface vortices increased significantly

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	-	-	-	-	-	-	-	-	-	5.5	0.16	1.42	8.63	-	-
Pump 9	639.4	638.0	16	0	8	2	0	0.32	0.00	CCW	5.5	0.16	1.42	8.63	1.42	8.62
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number: 6

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	16	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	0	-	-	-	-	-	0	
Wall Vortex	-	8	-	-	-	-	-	1	
RPM, prototype (average)	-	0.8	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	-	0.3	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	-	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	-	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	-	CCW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	0.0	1.1	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	0.0	5.3	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**-**	**30.8**	**-**	**-**	**-**	**-**	**-**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	20.79	0.25	2.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	20.87	0.65	1.45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	20.68	0.28	2.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	20.50	1.12	1.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	20.75	0.06	1.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	20.82	0.42	1.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	20.64	0.47	5.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	20.83	0.47	1.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			20.73			-			-			-			-			-		
Max=		**0.00**	**0.00**		**1.12**	**5.32**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-7 Run number 7

Model data for **KSN Pump Station**
Run Number 7
Test configuration: **Floor cone with back and side wall fillets**
Date: **8/3/22**

System Data		
Target Total Pump Flow	**3881.00**	GPM
Target Water Surface Elev. =	**10.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,5,6,7,8,9**	

Length Ratio	5.7915

Notes:

1. Floor cone on pump 9
2. Baseline Run #3 repeated
3. Added back and side wall fillets around pumps 8 & 9. Eliminated wall vorticies
4. Added rounded nose on the end of the main divider wall. Surface vorticies continued to be level 8
5. Also installed a warped wall to wall end. Surface vorticies continued to be level 8

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	-	-	-	-	-	-	-	-	-	5.5	0.16	1.42	8.63	-	-
Pump 9	639.4	640.5	8	0	0	14	0	2.23	0.00	CW	5.5	0.16	1.42	8.63	1.43	8.65
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number: 7

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	8	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	0	-	-	-	-	-	0	
Wall Vortex	-	0	-	-	-	-	-	1	
RPM, prototype (average)	-	5.8	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	-	2.2	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	-	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	-	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	-	CW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	0.0	0.4	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	0.0	2.1	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**-**	**12.7**	**-**	**-**	**-**	**-**	**-**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	20.83	0.05	0.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	20.84	0.12	1.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	20.85	0.18	1.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	20.83	0.09	1.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	20.78	0.18	1.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	20.83	0.07	2.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	20.73	0.42	1.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	20.83	0.09	0.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			20.81			-			-			-			-			-		
Max=		**0.00**	**0.00**		**0.42**	**2.06**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-8 Run number 8

Model data for **KSN Pump Station**
Run Number: 8
Test configuration: Floor cone with back and side wall fillets and center divider wall w/ wall nose cone
Date: 8/4/22

Length Ratio	5.7915

Notes:
1 Floor cone on pump 9, Baseline Run #3 repeated
2 Back and side wall fillets around pumps 8 & 9.
3 Divider wall added between pumps 8 & 9
4 Round nose cone added to concrete wall
5 Also raised water level by 1 prototype foot, causing surface vortex strength to drop to 1

System Data		
Target Total Pump Flow	3881.00	GPM
Target Water Surface Elev. =	10.88	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,5,6,7,8,9	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	-	-	-	-	-	-	-	-	-	5.5	0.16	1.42	8.63	-	-
Pump 9	639.4	637.4	4	0	0	20	0	3.18	0.00	CCW	5.5	0.16	1.42	8.63	1.42	8.61
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number:	8							target	
Vortices, Circulation, Velocities								accept.	
	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	criteria	
Surface Vortex	-	4	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	0	-	-	-	-	-	0	
Wall Vortex	-	0	-	-	-	-	-	1	
RPM, prototype (average)	-	8.3	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	-	3.2	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	-	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	-	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	-	CCW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	0.0	1.0	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	0.0	1.7	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	-	9.8	-	-	-	-	-	33	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	20.68	0.16	1.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	20.51	0.98	1.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	20.72	0.02	1.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	20.71	0.04	1.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	20.73	0.08	1.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	20.76	0.23	1.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	20.81	0.47	1.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	20.79	0.39	1.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			20.71			-			-			-			-			-		
Max=		0.00	0.00		0.98	1.68		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00

Table A-9 Run number 9

Model data for **KSN Pump Station**
Run Number: 9
Test configuration: 0.5D Floor cone w/ back & side wall fillets & center divider wall w/ wall nose cone
Date: 9/27/22

Length Ratio **5.7915**

Notes:

1	Floor cone on both pumps 8 & 9, Baseline Run #3 repeated
2	Back and side wall fillets around pumps 8 & 9.
3	Divider wall with round nose added between pumps 8 & 9
4	Round nose cone added to main divider wall
5	Bottom of pumps 8 & 9 at 0.5D from floor, Data only taken on pumps 8 and 9 - surface vortices remain

System Data		
Target Total Pump Flow	3881.00	GPM
Target Water Surface Elev. =	10.88	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,5,6,7,8,9	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	637.6	8	0	0	13	0	2.07	0.00	CW	5.5	0.16	1.42	8.63	1.42	8.61
Pump 9	639.4	636.6	8	0	0	25	0	3.97	0.00	CCW	5.5	0.16	1.42	8.63	1.42	8.60
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number: 9								target	
Vortices, Circulation, Velocities								accept.	
	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	criteria	
Surface Vortex	8	8	-	-	-	-	-	0	UWRL defined
Floor Vortex	0	0	-	-	-	-	-	0	
Wall Vortex	0	0	-	-	-	-	-	1	
RPM, prototype (average)	5.4	10.4	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	2.1	4.0	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	CW	CCW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	11.0	0.4	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	2.3	2.0	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**23.4**	**14.4**	**-**	**-**	**-**	**-**	**-**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	18.44	11.02	2.27	20.65	0.20	1.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	19.07	7.96	2.35	20.60	0.41	2.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	20.99	1.28	1.94	20.66	0.13	1.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	21.26	2.58	1.93	20.61	0.36	1.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	21.15	2.08	2.18	20.72	0.16	1.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	21.53	3.91	2.09	20.71	0.13	1.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	21.45	3.52	2.15	20.76	0.37	1.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	21.89	5.62	2.07	20.78	0.44	2.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	20.72			20.69			-			-			-			-			-		
Max=		**11.02**	**2.35**		**0.44**	**2.03**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-10 Run number 10

Model data for **KSN Pump Station**
Run Number **10**
Test configuration: **0.3D Floor cone w/ back & side wall fillets & center divider wall w/ wall nose cone**
Date: **9/27/22**

Length Ratio	**5.7915**

Notes:

1	Floor cone on pumps 8 & 9, Baseline Run #3 repeated, Data only taken on pumps 8 and 9
2	Back and side wall fillets around pumps 8 & 9.
3	Divider wall with round nose added between pumps 8 & 9
4	Round nose cone on main divider wall
5	Bottom of pumps 8 & 9 lowered 0.3D from floor, surface vortex strength reduced but still present

System Data		
Target Total Pump Flow	**3881.00**	GPM
Target Water Surface Elev. =	**10.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,5,6,7,8,9**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat		Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	642.4	8	0	0	5	0	0.80	0.00	CW	5.5	0.16	1.42	8.63	1.43	8.67
Pump 9	639.4	640.9	4	0	0	15	0	2.39	0.00	CCW	5.5	0.16	1.42	8.63	1.43	8.65
Pump 1	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 2	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 5	266.9	-	-	-	-	-	-	-	-	-	3.625	0.07	0.59	8.30	-	-
Pump 6	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-
Pump 7	583.8	-	-	-	-	-	-	-	-	-	8	0.35	1.30	3.73	-	-

Run Number: 10

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	8	4	-	-	-	-	-	0	UWRL defined
Floor Vortex	0	0	-	-	-	-	-	0	
Wall Vortex	0	0	-	-	-	-	-	1	
RPM, prototype (average)	2.1	6.2	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	0.8	2.4	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	CW	CCW	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	0.6	0.6	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	1.9	3.1	0.0	0.0	0.0	0.0	0.0	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**11.4**	**10.1**	**-**	**-**	**-**	**-**	**-**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	21.01	0.65	0.83	20.73	0.46	1.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	20.92	0.19	0.80	20.71	0.57	1.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	20.84	0.17	0.96	20.75	0.36	1.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	20.93	0.28	1.66	20.91	0.38	1.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	20.89	0.07	1.93	20.91	0.41	1.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	20.82	0.25	1.07	20.94	0.55	1.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	20.80	0.36	0.76	20.88	0.27	2.43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	20.79	0.42	0.79	20.78	0.22	3.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	20.88			20.83			-			-			-			-			-		
Max=		**0.65**	**1.93**		**0.57**	**3.10**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

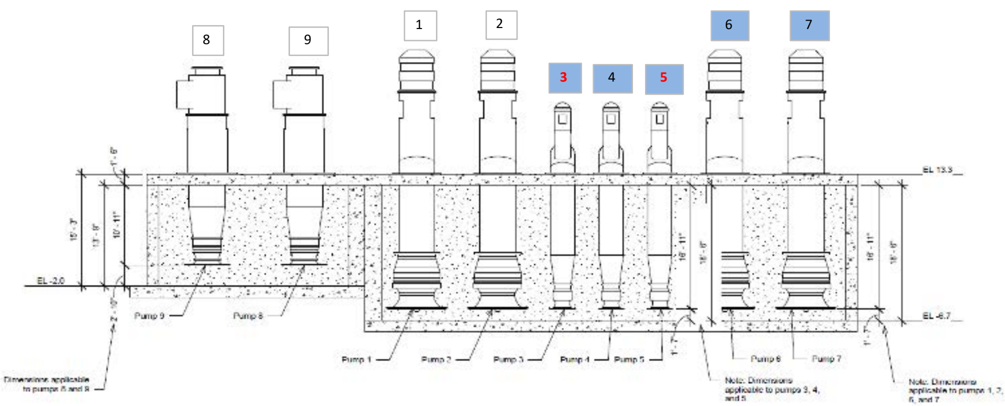
Phase 4 Final Design Testing

Figure A-5. Run number 1 test configuration revised

MODEL RUN 1
Normal Op maintain WSEL < 11.30'

WSEL	11.05

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	58.0	10.63	9.63	** pumps 3 and 5 replaced w/new 58 cfs pumps
PUMP #4	33.0	10.47	9.47	
PUMP #3	58.0	10.30	9.30	** pumps 3 and 5 replaced w/new 58 cfs pumps

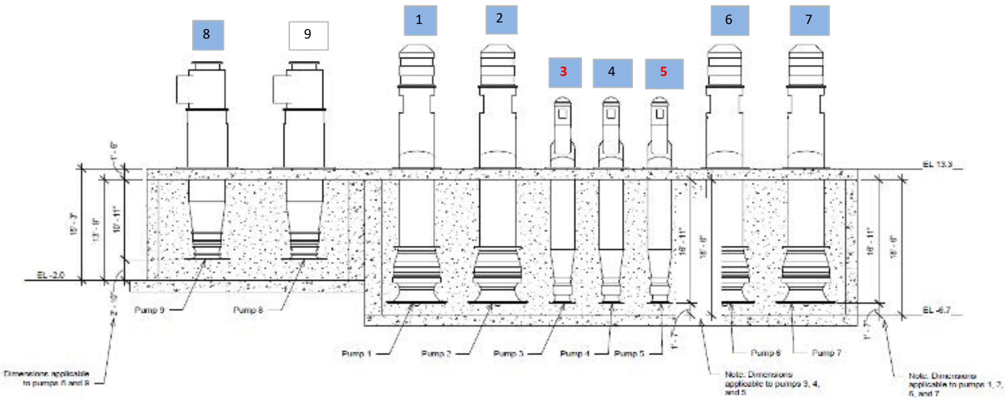
Figure A-6. Run number 2 test configuration revised

MODEL RUN 2

Pump 8 and 9 begin cavitating at ~WSEL 11.00'

WSEL	10.72

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	58.0	10.63	9.63	** pumps 3 and 5 replaced w/new 58 cfs pumps
PUMP #4	33.0	10.47	9.47	
PUMP #3	58.0	10.30	9.30	** pumps 3 and 5 replaced w/new 58 cfs pumps

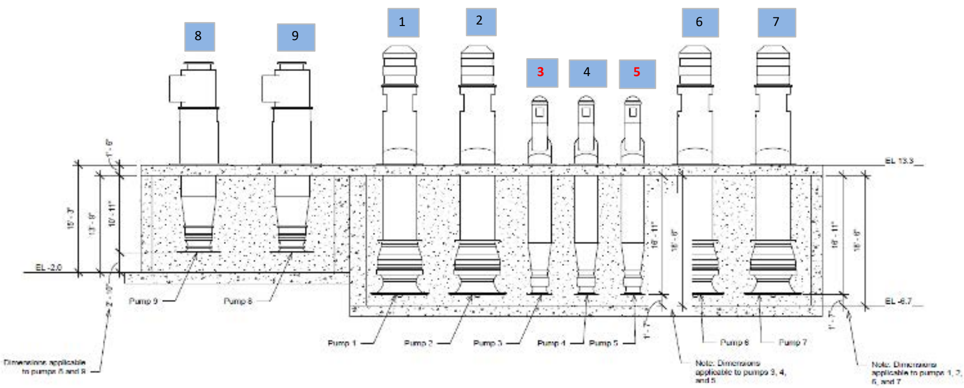
Figure A-7. Run number 3 test configuration revised

MODEL RUN 3

Pump 8 and 9 begin cavitating at ~WSEL 11.00'

WSEL	10.88

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	58.0	10.63	9.63	** pumps 3 and 5 replaced w/new 58 cfs pumps
PUMP #4	33.0	10.47	9.47	
PUMP #3	58.0	10.30	9.30	** pumps 3 and 5 replaced w/new 58 cfs pumps

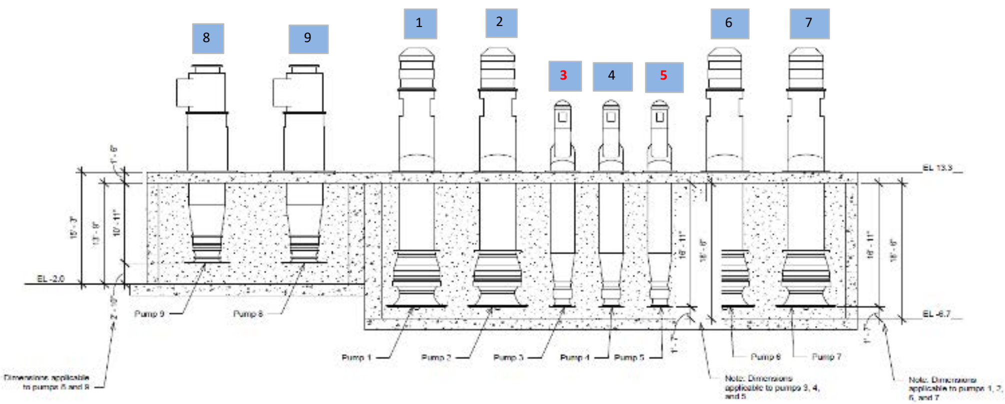
Figure A-8. Run number 4 test configuration revised

MODEL RUN 4

Extreme storm event

WSEL ~~14.80~~ **11.80** * Run 4 WSEL Revised 5/26/22

Elevations based on NAVD88



PUMP	FLOW	ELEV ON	ELEV OFF	
PUMP #9	115.0	11.80	10.80	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #8	115.0	11.63	10.63	* pump 8 and 9 begin cavitating at ~WSEL 11.00'
PUMP #2	105.0	11.47	10.47	
PUMP #1	105.0	11.30	10.30	
PUMP #7	105.0	10.97	9.97	
PUMP #6	105.0	10.80	9.80	
PUMP #5	58.0	10.63	9.63	** pumps 3 and 5 replaced w/new 58 cfs pumps
PUMP #4	33.0	10.47	9.47	
PUMP #3	58.0	10.30	9.30	** pumps 3 and 5 replaced w/new 58 cfs pumps

Table A-11 Run number 11

Model data for **KSN Pump Station**
Run Number **11**
Test configuration: **Run 10 fixes on 8 and 9, floor cones added to all pumps**
Date: **11/3/22**

Length Ratio	**5.7915**

Notes:

1. 0.3D Floor cone on pumps 8 & 9, Back and side wall fillets around pumps 8 & 9.
2. Divider wall with round nose added between pumps 8 & 9
3. Round nose cone added to concrete wall, Bottom of pumps 8 & 9 0.3D from floor
4. Floor cones added to pumps 1 through 7, pumps 3, 4 and 5 are now operational
5. Baseline Run #1 repeated with flow rate for pump 5 increased from before

System Data		
Target Total Pump Flow	**1490.18**	GPM
Target Water Surface Elev. =	**11.05**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**3,4,5,6,7**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	0	0.0	-	-	-	0	0	-	-	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 9	0	0.0	-	-	-	-	-	-	-	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 1	0	0.0	-	-	-	0	0	-	-	-	8	0.35	0.00	0.00	0.00	0.00
Pump 2	0	0.0	-	-	-	0	0	-	-	-	8	0.35	0.00	0.00	0.00	0.00
Pump 3	322.5	319.2	-	-	-	48	0	4.33	0.00	-	3.625	0.07	0.72	10.03	0.71	9.92
Pump 4	183.5	181.5	-	-	-	20	0	3.17	0.00	-	3.625	0.07	0.41	5.70	0.40	5.64
Pump 5	322.5	322.7	-	-	-	30	0	2.71	0.00	-	3.625	0.07	0.72	10.03	0.72	10.03
Pump 6	583.8	595.8	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.33	3.80
Pump 7	583.8	596.4	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.33	3.81

Run Number: 11

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	off	off	off	off	-	-	-	-	-	0	UWRL defined
Floor Vortex	off	off	off	off	-	-	-	-	-	0	
Wall Vortex	off	off	off	off	-	-	-	1	1	1	
RPM, prototype (average)	off	off	off	off	19.9	8.3	12.5	0.0	0.0	NA	
Angle of velocity at throat, deg =	off	off	off	off	4.3	3.2	2.7	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	off	off	off	off	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	off	off	off	off	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	off	off	off	off	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	off	off	off	off	0.8	2.3	2.3	1.7	1.0	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	off	off	off	off	2.1	3.4	1.2	5.0	4.6	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**off**	**off**	**off**	**off**	**7.3**	**8.9**	**6.1**	**7.7**	**6.6**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8 Mean Velocity fps	Pump 8 Dev. from Mean %	Pump 8 Velocity Fluct. % sdev	Pump 9 Mean Velocity fps	Pump 9 Dev. from Mean %	Pump 9 Velocity Fluct. % sdev	Pump 1 Mean Velocity fps	Pump 1 Dev. from Mean %	Pump 1 Velocity Fluct. % sdev	Pump 2 Mean Velocity fps	Pump 2 Dev. from Mean %	Pump 2 Velocity Fluct. % sdev
0 degrees (rear)	off	off	off	off	off	off	off	off	off	off	off	off
45 degrees	off	off	off	off	off	off	off	off	off	off	off	off
90 degrees	off	off	off	off	off	off	off	off	off	off	off	off
135 degrees	off	off	off	off	off	off	off	off	off	off	off	off
180 degrees (front)	off	off	off	off	off	off	off	off	off	off	off	off
225 degrees	off	off	off	off	off	off	off	off	off	off	off	off
270 degrees	off	off	off	off	off	off	off	off	off	off	off	off
315 degrees	off	off	off	off	off	off	off	off	off	off	off	off
Mean Vel.=	off			off			off			off		
Max=		**off**	**off**		**off**	**off**		**off**	**off**		**off**	**off**

Measured Prototype Velocity Data at pump throat	Pump 3 Mean Velocity fps	Pump 3 Dev. from Mean %	Pump 3 Velocity Fluct. % sdev	Pump 4 Mean Velocity fps	Pump 4 Dev. from Mean %	Pump 4 Velocity Fluct. % sdev	Pump 5 Mean Velocity fps	Pump 5 Dev. from Mean %	Pump 5 Velocity Fluct. % sdev
0 degrees (rear)	23.82	0.24	1.65	13.36	1.59	3.36	23.72	1.74	1.06
45 degrees	23.86	0.08	1.68	13.42	1.16	2.68	23.62	2.15	1.13
90 degrees	23.83	0.20	1.53	13.45	0.99	2.49	23.77	1.53	1.08
135 degrees	23.93	0.21	1.58	13.68	0.69	2.30	24.23	0.36	1.09
180 degrees (front)	23.87	0.06	1.70	13.90	2.33	2.53	24.61	1.93	1.04
225 degrees	24.08	0.84	1.80	13.81	1.71	2.77	24.68	2.25	1.09
270 degrees	23.95	0.30	2.11	13.56	0.18	3.19	24.49	1.47	1.14
315 degrees	23.69	0.77	1.85	13.47	0.81	3.10	23.99	0.60	1.18
Mean Vel.=	23.88			13.58			24.14		
Max=		**0.84**	**2.11**		**2.33**	**3.36**		**2.25**	**1.18**

Measured Prototype Velocity Data at pump throat	Pump 6 Mean Velocity fps	Pump 6 Dev. from Mean %	Pump 6 Velocity Fluct. % sdev	Pump 7 Mean Velocity fps	Pump 7 Dev. from Mean %	Pump 7 Velocity Fluct. % sdev
0 degrees (rear)	9.28	1.37	3.33	9.16	0.06	3.83
45 degrees	9.11	0.46	3.54	9.07	0.96	3.09
90 degrees	9.08	0.73	2.94	9.14	0.20	3.03
135 degrees	9.00	1.67	5.00	9.17	0.11	3.42
180 degrees (front)	9.13	0.21	4.53	9.18	0.21	3.34
225 degrees	9.22	0.79	3.33	9.24	0.84	2.94
270 degrees	9.20	0.54	4.13	9.19	0.33	3.07
315 degrees	9.19	0.38	4.31	9.14	0.27	4.61
Mean Vel.=	9.15			9.16		
Max=		**1.67**	**5.00**		**0.96**	**4.61**

Table A-12 Run number 12

Model data for **KSN Pump Station**
Run Number **12**
Test configuration: **Run 10 fixes on 8 and 9, floor cones added to all pumps**
Date: **11/3/22**

Length Ratio	**5.7915**

Notes:

1. Revised Run #2 tested
2. Flow on the back wall near 3,4,5 is moving toward pump 1.
3. 0.3D Floor cone on pumps 8 & 9
4. Back and side wall fillets around pumps 8 & 9.
5. Divider wall with round nose added between pumps 8 & 9
6. Round nose cone added to concrete wall, Bottom of pumps 8 & 9 0.3D from floor
7. Intermittent rear wall vortex on pump 7

System Data		
Target Total Pump Flow	**3803.30**	GPM
Target Water Surface Elev. =	**10.72**	ft
Actual Water Surface Elev.=	**-**	ft
Pumps Operating =	**1,2,3,4,5,6,7,8**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	640.7	-	-	-	8	0	1.27	0.00	CW	5.5	0.16	1.42	8.63	1.43	8.65
Pump 9	0	0.0	-	-	-	0	0	-	-	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 1	583.8	600.6	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.34	3.83
Pump 2	583.8	609.2	-	-	-	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.36	3.89
Pump 3	322.5	317.1	-	-	-	22	0	1.99	0.00	CCW	3.625	0.07	0.72	10.03	0.71	9.86
Pump 4	183.5	176.4	-	-	-	24	0	3.81	0.00	CCW	3.625	0.07	0.41	5.70	0.39	5.48
Pump 5	322.5	324.2	-	-	-	40	0	3.61	0.00	CCW	3.625	0.07	0.72	10.03	0.72	10.08
Pump 6	583.8	598.6	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.33	3.82
Pump 7	583.8	583.7	-	-	4	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.30	3.73

Run Number: 12

Vortices, Circulation, Velocities									target accept. criteria	
	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7		
Surface Vortex	-	off	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	off	-	-	-	-	-	-	-	0	
Wall Vortex	-	off	1	-	-	-	-	1	4	1	
RPM, prototype (average)	3.3	off	0.0	0.0	9.1	10.0	16.6	0.0	0.0	NA	
Angle of velocity at throat, deg =	1.3	off	0.0	0.0	2.0	3.8	3.6	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	off	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	off	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CW	off	-	-	CCW	CCW	CCW	-	-	NA	
Max. % Dev. from mean Vel.	5.6	off	3.6	2.0	3.1	2.8	3.3	1.4	0.8	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	6.7	off	22.3	25.0	2.6	9.4	3.0	7.1	9.2	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**13.6**	**off**	**26.9**	**27.0**	**7.8**	**16.0**	**9.9**	**9.5**	**14.0**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8 Mean Velocity fps	Pump 8 Dev. from Mean %	Pump 8 Velocity Fluct. % sdev	Pump 9 Mean Velocity fps	Pump 9 Dev. from Mean %	Pump 9 Velocity Fluct. % sdev	Pump 1 Mean Velocity fps	Pump 1 Dev. from Mean %	Pump 1 Velocity Fluct. % sdev
0 degrees (rear)	19.65	5.61	1.36	off	off	off	9.37	1.57	5.21
45 degrees	19.87	4.58	6.73	off	off	off	8.99	2.51	9.03
90 degrees	21.07	1.22	1.10	off	off	off	9.36	1.41	3.83
135 degrees	21.15	1.60	1.07	off	off	off	9.56	3.62	22.32
180 degrees (front)	21.18	1.72	1.10	off	off	off	9.21	0.16	3.83
225 degrees	21.20	1.80	1.01	off	off	off	8.90	3.52	8.09
270 degrees	21.22	1.92	1.07	off	off	off	9.20	0.29	5.53
315 degrees	21.22	1.93	0.97	off	off	off	9.21	0.11	5.20
Mean Vel.=	20.82			off			9.22		
Max=		**5.61**	**6.73**		**off**	**off**		**3.62**	**22.32**

Measured Prototype Velocity Data at pump throat	Pump 2 Mean Velocity fps	Pump 2 Dev. from Mean %	Pump 2 Velocity Fluct. % sdev	Pump 3 Mean Velocity fps	Pump 3 Dev. from Mean %	Pump 3 Velocity Fluct. % sdev	Pump 4 Mean Velocity fps	Pump 4 Dev. from Mean %	Pump 4 Velocity Fluct. % sdev
0 degrees (rear)	9.30	0.65	5.52	23.48	1.04	1.77	13.03	1.23	6.14
45 degrees	9.36	0.06	8.49	24.10	1.58	1.30	13.35	1.19	5.72
90 degrees	9.29	0.70	15.78	24.35	2.63	1.25	13.56	2.79	4.22
135 degrees	9.35	0.11	8.76	24.37	2.72	1.18	13.49	2.26	6.64
180 degrees (front)	9.55	2.01	24.96	24.10	1.58	1.35	13.22	0.15	3.45
225 degrees	9.31	0.50	4.62	23.32	1.70	1.79	13.02	1.33	3.85
270 degrees	9.33	0.34	4.03	22.98	3.14	2.53	13.05	1.12	4.17
315 degrees	9.38	0.23	4.51	23.10	2.62	2.64	12.84	2.71	3.72
Mean Vel.=	9.36			23.72			13.20		
Max=		**2.01**	**24.96**		**3.14**	**2.64**		**2.79**	**6.64**

Measured Prototype Velocity Data at pump throat	Pump 5 Mean Velocity fps	Pump 5 Dev. from Mean %	Pump 5 Velocity Fluct. % sdev	Pump 6 Mean Velocity fps	Pump 6 Dev. from Mean %	Pump 6 Velocity Fluct. % sdev	Pump 7 Mean Velocity fps	Pump 7 Dev. from Mean %	Pump 7 Velocity Fluct. % sdev
0 degrees (rear)	23.94	1.29	1.76	9.28	0.98	4.59	8.95	0.18	5.17
45 degrees	24.58	1.34	1.63	9.22	0.28	4.18	8.94	0.25	2.58
90 degrees	24.81	2.27	1.51	9.21	0.12	4.02	8.93	0.41	4.38
135 degrees	24.98	3.01	3.02	9.07	1.39	3.88	8.99	0.32	2.52
180 degrees (front)	24.55	1.22	2.87	9.16	0.35	7.10	9.00	0.36	4.49
225 degrees	24.14	0.47	1.99	9.22	0.30	4.70	9.00	0.42	4.18
270 degrees	23.57	2.82	2.16	9.20	0.10	4.91	9.02	0.55	5.40
315 degrees	23.46	3.27	2.25	9.19	0.03	4.89	8.89	0.81	9.23
Mean Vel.=	24.25			9.19			8.97		
Max=		**3.27**	**3.02**		**1.39**	**7.10**		**0.81**	**9.23**

Table A-13 Run number 13

Model data for **KSN Pump Station**
Run Number **13**
Test configuration: **Run 10 fixes on 8 and 9, floor cones on all pumps**
Date: **11/3/22**

Length Ratio	**5.7915**

Notes:

1. Revised Run #3 tested
2. Flow on the back wall near 3,4,5 is moving toward pump 1.
3. 0.3D Floor cone on pumps 8 & 9
4. Back and side wall fillets around pumps 8 & 9.
5. Divider wall with round nose added between pumps 8 & 9
6. Round nose cone added to concrete wall, Bottom of pumps 8 & 9 0.3D from floor
7. Surface rotation observed over pump 9, velocity fluctuations higher than normal

System Data		
Target Total Pump Flow	**4442.74**	GPM
Target Water Surface Elev. =	**10.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,3,4,5,6,7,8,9**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	634.9	-	-	-	9	0	1.43	0.00	CCW	5.5	0.16	1.42	8.63	1.41	8.57
Pump 9	639.4	638.6	1	-	-	14	0	2.23	0.00	CCW	5.5	0.16	1.42	8.63	1.42	8.62
Pump 1	583.8	591.3	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.32	3.77
Pump 2	583.8	600.1	-	-	-	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.34	3.83
Pump 3	322.5	319.1	-	-	-	24	0	2.17	0.00	CCW	3.625	0.07	0.72	10.03	0.71	9.92
Pump 4	183.5	185.0	-	-	-	27	0	4.28	0.00	CCW	3.625	0.07	0.41	5.70	0.41	5.75
Pump 5	322.5	324.9	-	-	-	44	0	3.97	0.00	CCW	3.625	0.07	0.72	10.03	0.72	10.10
Pump 6	583.8	598.6	-	-	1	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.33	3.82
Pump 7	583.8	593.2	-	-	-	0	0	0.00	0.00	-	8	0.35	1.30	3.73	1.32	3.79

Run Number: 13

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	1	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	-	-	-	-	-	-	-	-	0	
Wall Vortex	-	-	1	-	-	-	-	1	-	1	
RPM, prototype (average)	3.7	5.8	0.0	0.0	10.0	11.2	18.3	0.0	0.0	NA	
Angle of velocity at throat, deg =	1.4	2.2	0.0	0.0	2.2	4.3	4.0	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CCW	CCW	-	-	CCW	CCW	CCW	-	-	NA	
Max. % Dev. from mean Vel.	0.3	10.8	3.1	5.9	6.0	4.2	3.4	0.8	1.9	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	1.3	2.7	6.5	41.0	3.6	19.1	3.8	14.1	12.2	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**3.1**	**16.8**	**10.7**	**46.9**	**11.8**	**27.6**	**11.2**	**15.9**	**14.1**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8 Mean Velocity fps	Pump 8 Dev. from Mean %	Pump 8 Velocity Fluct. % sdev	Pump 9 Mean Velocity fps	Pump 9 Dev. from Mean %	Pump 9 Velocity Fluct. % sdev	Pump 1 Mean Velocity fps	Pump 1 Dev. from Mean %	Pump 1 Velocity Fluct. % sdev
0 degrees (rear)	20.70	0.34	1.12	18.93	8.80	2.65	9.22	1.49	5.92
45 degrees	20.67	0.18	1.29	18.50	10.84	2.75	9.01	0.81	5.84
90 degrees	20.59	0.22	1.16	21.20	2.14	2.45	9.17	0.98	4.69
135 degrees	20.58	0.26	1.12	21.35	2.86	1.14	9.19	1.17	5.15
180 degrees (front)	20.65	0.07	1.09	21.56	3.90	1.59	9.16	0.84	6.55
225 degrees	20.68	0.21	1.08	21.54	3.80	1.34	8.80	3.12	5.82
270 degrees	20.61	0.12	1.16	21.45	3.37	1.39	9.16	0.84	5.50
315 degrees	20.59	0.20	1.21	21.49	3.57	1.43	8.95	1.41	5.20
Mean Vel.=	20.63			20.75			9.08		
Max=		**0.34**	**1.29**		**10.84**	**2.75**		**3.12**	**6.55**

Measured Prototype Velocity Data at pump throat	Pump 2 Mean Velocity fps	Pump 2 Dev. from Mean %	Pump 2 Velocity Fluct. % sdev	Pump 3 Mean Velocity fps	Pump 3 Dev. from Mean %	Pump 3 Velocity Fluct. % sdev	Pump 4 Mean Velocity fps	Pump 4 Dev. from Mean %	Pump 4 Velocity Fluct. % sdev
0 degrees (rear)	9.31	1.03	3.93	23.98	0.46	2.63	13.52	2.33	7.62
45 degrees	9.30	0.84	13.09	24.59	2.99	1.81	14.01	1.23	5.47
90 degrees	8.68	5.89	41.03	24.89	4.24	1.33	14.42	4.22	4.06
135 degrees	9.32	1.12	7.70	24.75	3.66	1.49	14.40	4.04	12.70
180 degrees (front)	9.29	0.80	6.95	24.15	1.15	1.78	14.01	1.21	6.32
225 degrees	9.26	0.47	6.19	23.03	3.54	2.19	13.53	2.22	5.52
270 degrees	9.26	0.50	5.35	22.44	6.02	3.64	13.36	3.43	5.44
315 degrees	9.32	1.13	5.35	23.17	2.94	2.67	13.46	2.72	4.65
Mean Vel.=	9.22			23.87			13.84		
Max=		**5.89**	**41.03**		**6.02**	**3.64**		**4.22**	**12.70**

Measured Prototype Velocity Data at pump throat	Pump 5 Mean Velocity fps	Pump 5 Dev. from Mean %	Pump 5 Velocity Fluct. % sdev	Pump 6 Mean Velocity fps	Pump 6 Dev. from Mean %	Pump 6 Velocity Fluct. % sdev	Pump 7 Mean Velocity fps	Pump 7 Dev. from Mean %	Pump 7 Velocity Fluct. % sdev
0 degrees (rear)	23.97	1.39	2.43	9.15	0.50	4.38	9.04	0.77	4.50
45 degrees	24.43	0.50	2.76	9.14	0.59	4.24	9.08	0.37	3.39
90 degrees	24.83	2.14	2.79	9.16	0.40	3.29	9.04	0.82	5.70
135 degrees	25.13	3.38	3.28	9.21	0.11	4.14	9.02	1.05	12.22
180 degrees (front)	24.91	2.49	3.78	9.25	0.59	7.72	9.08	0.31	10.84
225 degrees	24.23	0.32	2.03	9.27	0.81	7.17	9.15	0.39	3.54
270 degrees	23.47	3.42	2.71	9.26	0.68	3.82	9.28	1.87	3.83
315 degrees	23.48	3.38	3.05	9.13	0.70	14.13	9.21	1.06	3.57
Mean Vel.=	24.30			9.20			9.11		
Max=		**3.42**	**3.78**		**0.81**	**14.13**		**1.87**	**12.22**

Table A-14 Run number 14

Model data for **KSN Pump Station**
Run Number: **14**
Test configuration: **Run 10 fixes on 8 and 9, floor cones on all pumps**
Date: **11/4/22**

Length Ratio 5.7915

System Data		
Target Total Pump Flow	4442.74	GPM
Target Water Surface Elev. =	11.80	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,3,4,5,6,7,8,9	

Notes:

1. Revised Run #4 tested - all nine pumps operating
2. Flow on the back wall near 3,4,5 is moving toward pump 1.
3. 0.3D Floor cone on pumps 8 & 9
4. Back and side wall fillets around pumps 8 & 9.
5. Divider wall with round nose added between pumps 8 & 9
6. Round nose cone added to concrete wall, Bottom of pumps 8 & 9 0.3D from floor
7. Surface rotation observed over pumps 8 and 9, velocity fluctuations higher than normal

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	641.4	1	-	-	4	0	0.64	0.00	CCW	5.5	0.16	1.42	8.63	1.43	8.66
Pump 9	639.4	640.7	1	-	-	5	0	0.80	0.00	CCW	5.5	0.16	1.42	8.63	1.43	8.65
Pump 1	583.8	591.8	-	-	-	1	0	0.54	0.00	CCW	8	0.35	1.30	3.73	1.32	3.78
Pump 2	583.8	591.3	-	-	-	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	1.32	3.77
Pump 3	322.5	318.3	-	-	-	4	0	0.36	0.00	CCW	3.625	0.07	0.72	10.03	0.71	9.90
Pump 4	183.5	185.3	-	-	-	12	0	1.91	0.00	CCW	3.625	0.07	0.41	5.70	0.41	5.76
Pump 5	322.5	319.1	-	-	-	30	50	2.71	4.51	CCW	3.625	0.07	0.72	10.03	0.71	9.92
Pump 6	583.8	593.9	-	-	-	1	0	0.54	0.00	CW	8	0.35	1.30	3.73	1.32	3.79
Pump 7	583.8	581.8	-	-	-	2	0	0.81	0.00	CW	8	0.35	1.30	3.73	1.30	3.71

Run Number: 14 target

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	accept. criteria	
Surface Vortex	1	1	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	-	-	-	-	-	-	-	-	0	
Wall Vortex	-	-	-	-	-	-	-	-	-	1	
RPM, prototype (average)	1.7	2.1	0.4	0.0	1.7	5.0	12.5	0.4	0.6	NA	
Angle of velocity at throat, deg =	0.6	0.8	0.5	0.0	0.4	1.9	2.7	0.5	0.8	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	20.8	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CCW	CCW	CCW	CCW	CCW	CCW	CCW	CW	CW	NA	
Max. % Dev. from mean Vel.	1.1	1.0	2.2	2.0	3.9	2.8	3.9	0.6	1.4	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	1.5	3.7	12.4	26.7	2.9	17.4	3.1	7.2	7.1	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**4.2**	**6.5**	**15.1**	**28.7**	**7.1**	**22.0**	**14.2**	**8.3**	**9.3**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8 Mean Velocity fps	Pump 8 Dev. from Mean %	Pump 8 Velocity Fluct. % sdev	Pump 9 Mean Velocity fps	Pump 9 Dev. from Mean %	Pump 9 Velocity Fluct. % sdev	Pump 1 Mean Velocity fps	Pump 1 Dev. from Mean %	Pump 1 Velocity Fluct. % sdev	Pump 2 Mean Velocity fps	Pump 2 Dev. from Mean %	Pump 2 Velocity Fluct. % sdev
0 degrees (rear)	20.85	0.04	1.04	20.91	0.41	1.13	9.10	0.10	4.03	9.13	0.51	5.66
45 degrees	20.62	1.07	1.48	20.73	0.44	1.51	9.08	0.12	5.24	9.17	0.96	5.43
90 degrees	20.84	0.03	1.08	20.77	0.27	3.68	9.17	0.87	12.35	8.90	2.04	26.66
135 degrees	20.86	0.05	1.37	20.76	0.30	1.56	9.20	1.25	4.87	9.14	0.66	12.49
180 degrees (front)	20.92	0.38	1.23	21.03	1.00	1.64	9.08	0.07	5.16	9.03	0.52	17.01
225 degrees	20.90	0.26	1.17	20.78	0.22	1.60	8.89	2.19	4.72	9.04	0.44	14.36
270 degrees	20.91	0.32	1.11	20.84	0.07	1.18	9.20	1.20	5.42	9.12	0.47	5.61
315 degrees	20.86	0.05	1.07	20.77	0.24	1.33	9.00	1.02	5.49	9.12	0.40	4.10
Mean Vel.=	20.85			20.82			9.09			9.08		
Max=		**1.07**	**1.48**		**1.00**	**3.68**		**2.19**	**12.35**		**2.04**	**26.66**

Measured Prototype Velocity Data at pump throat	Pump 3 Mean Velocity fps	Pump 3 Dev. from Mean %	Pump 3 Velocity Fluct. % sdev	Pump 4 Mean Velocity fps	Pump 4 Dev. from Mean %	Pump 4 Velocity Fluct. % sdev	Pump 5 Mean Velocity fps	Pump 5 Dev. from Mean %	Pump 5 Velocity Fluct. % sdev	Pump 6 Mean Velocity fps	Pump 6 Dev. from Mean %	Pump 6 Velocity Fluct. % sdev	Pump 7 Mean Velocity fps	Pump 7 Dev. from Mean %	Pump 7 Velocity Fluct. % sdev
0 degrees (rear)	23.66	0.67	1.92	13.63	1.67	11.38	23.56	1.31	2.16	9.12	0.07	3.69	8.83	1.17	3.68
45 degrees	24.26	1.85	1.35	13.93	0.50	4.58	23.88	0.04	1.52	9.11	0.16	3.58	8.86	0.90	3.81
90 degrees	24.57	3.19	1.80	14.22	2.58	2.97	24.43	2.35	1.06	9.15	0.34	2.44	8.81	1.39	7.06
135 degrees	24.58	3.19	1.28	14.25	2.76	6.15	24.65	3.25	3.11	9.10	0.28	3.57	8.94	0.07	5.53
180 degrees (front)	24.24	1.77	1.38	14.12	1.81	6.74	24.62	3.14	2.95	9.15	0.26	4.25	9.04	1.18	3.42
225 degrees	23.32	2.07	1.57	13.71	1.08	4.20	23.68	0.80	2.71	9.16	0.42	5.04	8.95	0.12	4.78
270 degrees	22.88	3.92	2.86	13.51	2.57	4.73	23.20	2.81	2.48	9.13	0.09	3.21	9.01	0.85	3.99
315 degrees	23.02	3.34	2.30	13.54	2.33	3.80	22.95	3.87	2.54	9.07	0.60	7.19	9.05	1.23	3.11
Mean Vel.=	23.82			13.86			23.87			9.12			8.94		
Max=		**3.92**	**2.86**		**2.76**	**11.38**		**3.87**	**3.11**		**0.60**	**7.19**		**1.39**	**7.06**

Additional Testing

Table A-15 Run number 15

Model data for **KSN Pump Station**
Run Number **15**
Test configuration: **Run 14 fixes on all pumps, 8-vane cone on pump 2, fillets on pumps 1-7**
Date: **12/9/22**

Length Ratio	**5.7915**

Notes:	
1	All fixes the same as in Run 14
2	8 vein cone on pump 2 added
3	Side & rear fillets added in 1-7 pump bay
4	Revised Run #4 tested - all nine pumps operating
5	Data taken only on pump 2, rear wall vortex introduced due to rear wall fillet proximity

System Data		
Target Total Pump Flow	**4442.74**	GPM
Target Water Surface Elev. =	**11.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,3,4,5,6,7,8,9**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	0.0	0.0	-	-	-			0.00	0.00	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 9	0.0	0.0	-	-	-			0.00	0.00	-	5.5	0.16	0.00	0.00	0.00	0.00
Pump 1	0.0	0.0	-	-	-			0.00	0.00	-	8	0.35	0.00	0.00	0.00	0.00
Pump 2	583.8	579.7	-	-	4			0.00	0.00	-	8	0.35	1.30	3.73	1.29	3.70
Pump 3	0.0	0.0	-	-	-			0.00	0.00	-	3.625	0.07	0.00	0.00	0.00	0.00
Pump 4	0.0	0.0	-	-	-			0.00	0.00	-	3.625	0.07	0.00	0.00	0.00	0.00
Pump 5	0.0	0.0	-	-	-			0.00	0.00	-	3.625	0.07	0.00	0.00	0.00	0.00
Pump 6	0.0	0.0	-	-	-			0.00	0.00	-	8	0.35	0.00	0.00	0.00	0.00
Pump 7	0.0	0.0	-	-	-			0.00	0.00	-	8	0.35	0.00	0.00	0.00	0.00

Run Number: 15

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	-	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	-	-	-	-	-	-	-	-	0	
Wall Vortex	-	-	-	4	-	-	-	-	-	1	
RPM, prototype (average)	-	-	-	0.0	-	-	-	-	-	NA	
Angle of velocity at throat, deg =	-	-	-	0.0	-	-	-	-	-	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	-	-	-	0.0	-	-	-	-	-	NA	
Angle of vel.burst at throat, deg =	-	-	-	0.0	-	-	-	-	-	7	p54 HI Pump Intake Design - 2018
Direction	-	-	-	-	-	-	-	-	-	NA	
Max. % Dev. from mean Vel.	-	-	-	8.4	-	-	-	-	-	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	-	-	-	15.2	-	-	-	-	-	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**-**	**-**	**-**	**27.6**	**-**	**-**	**-**	**-**	**-**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1			Pump 2		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-	8.16	8.36	15.24
45 degrees	-	-	-	-	-	-	-	-	-	9.07	1.91	4.15
90 degrees	-	-	-	-	-	-	-	-	-	9.13	2.54	2.52
135 degrees	-	-	-	-	-	-	-	-	-	9.06	1.73	2.31
180 degrees (front)	-	-	-	-	-	-	-	-	-	9.08	1.92	9.08
225 degrees	-	-	-	-	-	-	-	-	-	9.04	1.47	7.52
270 degrees	-	-	-	-	-	-	-	-	-	8.98	0.80	4.66
315 degrees	-	-	-	-	-	-	-	-	-	8.73	2.01	10.40
Mean Vel.=	-			-			-			8.90		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**8.36**	**15.24**

Measured Prototype Velocity Data at pump throat	Pump 3			Pump 4			Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			-			-			-			-		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-16 Run number 16

Model data for **KSN Pump Station**
Run Number 16
Test configuration: **Run 15 fixes on all pumps, regular cone on pump 2, low water level test**
Date: **12/13/22**

Length Ratio	5.7915

Notes:

1. All fixes the same as in Run 15 except 8-vane cone changed back to regular cone
2. Revised Run #4 tested - all nine pumps operating
3. Test performed at WSE 10.2ft
4. Velocity data taken only on pump 2, other data taken on all pumps
5. Severe vortex conditions occuring on most pumps due to low water level

System Data		
Target Total Pump Flow	4442.74	GPM
Target Water Surface Elev. =	10.20	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	1,2,3,4,5,6,7,8,9	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	#VALUE!	4	-	-	0	0	0.00	0.00	CCW	5.5	0.16	1.42	8.64	-	-
Pump 9	639.4	#VALUE!	16	-	-	0	0	0.00	0.00	CCW	5.5	0.16	1.42	8.64	-	-
Pump 1	583.8	#VALUE!	-	-	16	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-
Pump 2	583.8	593.7	-	-	8	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	1.32	3.79
Pump 3	322.5	#VALUE!	-	-	-	60	0	5.41	0.00	CCW	3.625	0.07	0.72	10.03	-	-
Pump 4	183.5	#VALUE!	-	-	-	5	0	0.79	0.00	CCW	3.625	0.07	0.41	5.70	-	-
Pump 5	322.5	#VALUE!	-	-	-	4	0	0.36	0.00	CCW	3.625	0.07	0.72	10.03	-	-
Pump 6	583.8	#VALUE!	-	-	8	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-
Pump 7	583.8	#VALUE!	-	-	16	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-

Run Number: 16

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	4	16	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	-	-	-	-	-	-	-	-	0	
Wall Vortex	-	-	16	8	-	-	-	8	16	1	
RPM, prototype (average)	0.0	0.0	0.0	0.0	24.9	2.1	1.7	0.0	0.0	NA	
Angle of velocity at throat, deg =	0.0	0.0	0.0	0.0	5.4	0.8	0.4	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CCW	CCW	CCW	CCW	CCW	CCW	CCW	CCW	CCW	NA	
Max. % Dev. from mean Vel.	#VALUE!	#VALUE!	#VALUE!	1.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	#VALUE!	#VALUE!	#VALUE!	17.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**#VALUE!**	**#VALUE!**	**#VALUE!**	**27.6**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			-			-		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Measured Prototype Velocity Data at pump throat	Pump 2			Pump 3			Pump 4		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	9.19	0.81	6.16	-	-	-	-	-	-
45 degrees	9.14	0.22	15.28	-	-	-	-	-	-
90 degrees	9.27	1.68	8.30	-	-	-	-	-	-
135 degrees	9.25	1.43	8.54	-	-	-	-	-	-
180 degrees (front)	9.06	0.66	17.89	-	-	-	-	-	-
225 degrees	9.07	0.51	3.23	-	-	-	-	-	-
270 degrees	9.01	1.26	2.37	-	-	-	-	-	-
315 degrees	8.96	1.72	13.59	-	-	-	-	-	-
Mean Vel.=	9.12			-			-		
Max=		**1.72**	**17.89**		**0.00**	**0.00**		**0.00**	**0.00**

Measured Prototype Velocity Data at pump throat	Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			-			-		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Table A-17 Run number 17

Model data for **KSN Pump Station**
Run Number **17**
Test configuration: **Run 16 fixes on all pumps**
Date: **12/13/22**

Length Ratio	**5.7915**

Notes:

1. All fixes the same as in Run 16
2. Revised Run #4 tested - all nine pumps operating
3. Severe wall vortex conditions occuring due to rear and side wall fillets in pump bay 1-7
4. Velocity data taken only on pump 2, other data taken on all pumps
5. Surface vortex observed over pump 9

System Data		
Target Total Pump Flow	**4442.74**	GPM
Target Water Surface Elev. =	**11.88**	ft
Actual Water Surface Elev.=	-	ft
Pumps Operating =	**1,2,3,4,5,6,7,8,9**	

	Flow (GPM)		Model Vortices					Model Rotometer			X-Sec. Area Vel. at pump throat					
													Target		Measured	
	Model Target	Measured	Surface	Floor	Wall	Ave rpm	Burst rpm	Ave. (deg)	Burst (deg)	Direction	Throat D. (in)	Area (ft^2)	Flow (cfs)	Vel. (fps)	Flow (cfs)	Vel. (fps)
Pump 8	639.4	#VALUE!	-	-	-	10	0	1.59	0.00	CCW	5.5	0.16	1.42	8.64	-	-
Pump 9	639.4	#VALUE!	4	-	-	4	0	0.64	0.00	CCW	5.5	0.16	1.42	8.64	-	-
Pump 1	583.8	#VALUE!	-	-	1	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-
Pump 2	583.8	587.0	-	-	4	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	1.31	3.75
Pump 3	322.5	#VALUE!	-	-	-	5	0	0.45	0.00	CW	3.625	0.07	0.72	10.03	-	-
Pump 4	183.5	#VALUE!	-	-	-	15	0	2.38	0.00	CW	3.625	0.07	0.41	5.70	-	-
Pump 5	322.5	#VALUE!	-	-	-	10	0	0.90	0.00	CW	3.625	0.07	0.72	10.03	-	-
Pump 6	583.8	#VALUE!	-	-	4	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-
Pump 7	583.8	#VALUE!	-	-	8	0	0	0.00	0.00	CCW	8	0.35	1.30	3.73	-	-

Run Number: 17

Vortices, Circulation, Velocities	Pump 8	Pump 9	Pump 1	Pump 2	Pump 3	Pump 4	Pump 5	Pump 6	Pump 7	target accept. criteria	
Surface Vortex	-	4	-	-	-	-	-	-	-	0	UWRL defined
Floor Vortex	-	-	-	-	-	-	-	-	-	0	
Wall Vortex	-	-	1	4	-	-	-	4	8	1	
RPM, prototype (average)	4.2	1.7	0.0	0.0	2.1	6.2	4.2	0.0	0.0	NA	
Angle of velocity at throat, deg =	1.6	0.6	0.0	0.0	0.5	2.4	0.9	0.0	0.0	5	p54 HI Pump Intake Design - 2018
RPM, prototype (bursts)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	
Angle of vel.burst at throat, deg =	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	p54 HI Pump Intake Design - 2018
Direction	CCW	CCW	CCW	CCW	CW	CW	CW	CCW	CCW	NA	
Max. % Dev. from mean Vel.	#VALUE!	#VALUE!	#VALUE!	8.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	10	p54 HI Pump Intake Design - 2018
Max. Std. Dev. % (Vel. Fluctuation)	#VALUE!	#VALUE!	#VALUE!	23.5	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	10	p54 HI Pump Intake Design - 2018
Estimated Prob. Index value=	**#VALUE!**	**#VALUE!**	**#VALUE!**	**35.5**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**33**	

Measured Prototype Velocity Data at pump throat	Pump 8			Pump 9			Pump 1		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			-			-		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

Measured Prototype Velocity Data at pump throat	Pump 2			Pump 3			Pump 4		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	9.09	0.78	6.10	-	-	-	-	-	-
45 degrees	9.34	3.61	6.98	-	-	-	-	-	-
90 degrees	9.14	1.36	18.42	-	-	-	-	-	-
135 degrees	9.25	2.57	16.80	-	-	-	-	-	-
180 degrees (front)	9.06	0.47	18.67	-	-	-	-	-	-
225 degrees	9.08	0.65	7.48	-	-	-	-	-	-
270 degrees	8.88	1.46	1.90	-	-	-	-	-	-
315 degrees	8.30	7.98	23.51	-	-	-	-	-	-
Mean Vel.=	9.02			-			-		
Max=		**7.98**	**23.51**		**0.00**	**0.00**		**0.00**	**0.00**

Measured Prototype Velocity Data at pump throat	Pump 5			Pump 6			Pump 7		
	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev	Mean Velocity fps	Dev. from Mean %	Velocity Fluct. % sdev
0 degrees (rear)	-	-	-	-	-	-	-	-	-
45 degrees	-	-	-	-	-	-	-	-	-
90 degrees	-	-	-	-	-	-	-	-	-
135 degrees	-	-	-	-	-	-	-	-	-
180 degrees (front)	-	-	-	-	-	-	-	-	-
225 degrees	-	-	-	-	-	-	-	-	-
270 degrees	-	-	-	-	-	-	-	-	-
315 degrees	-	-	-	-	-	-	-	-	-
Mean Vel.=	-			-			-		
Max=		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**

APPENDIX B:

Physical Model Drawings and Dimensions

LIST OF FIGURES

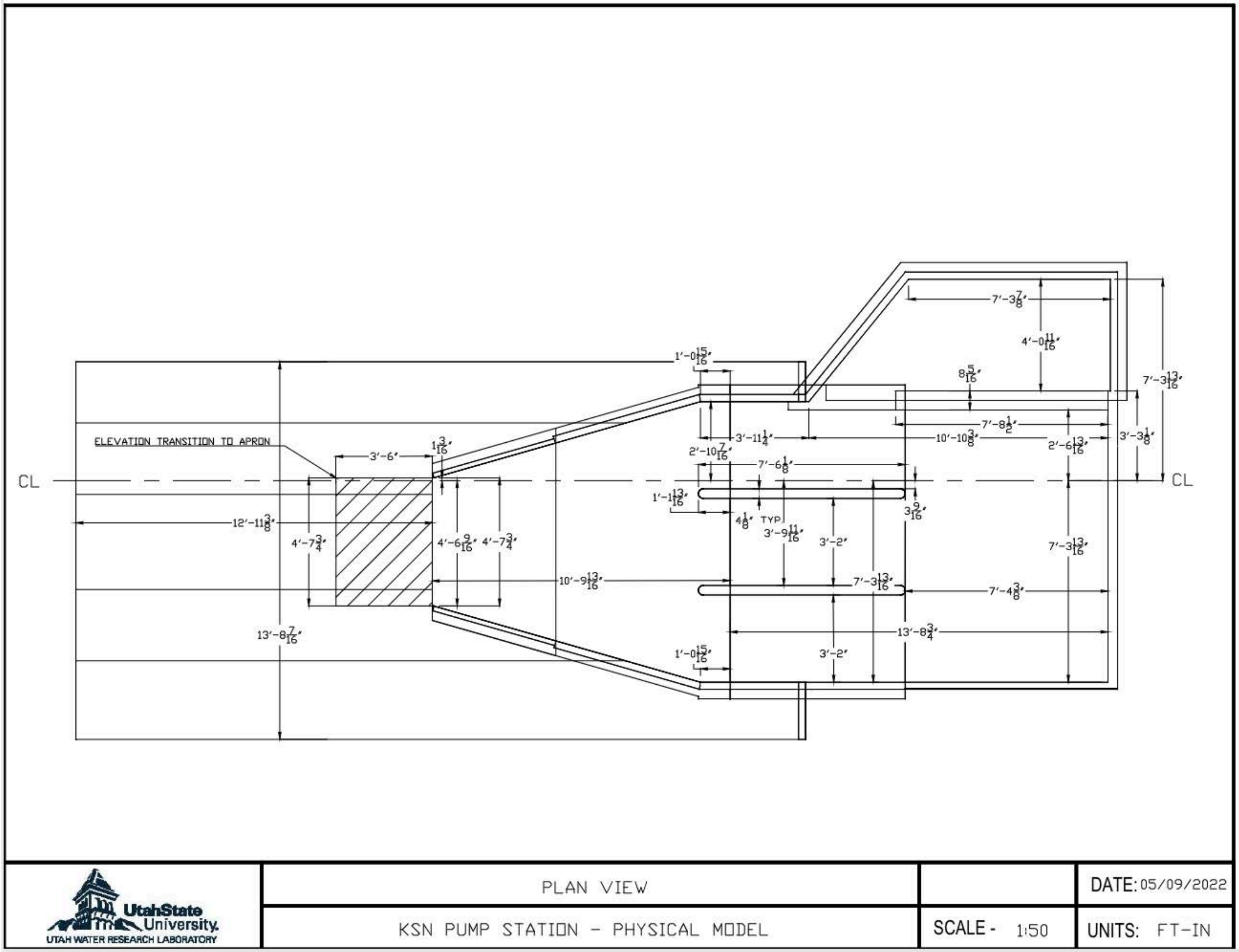
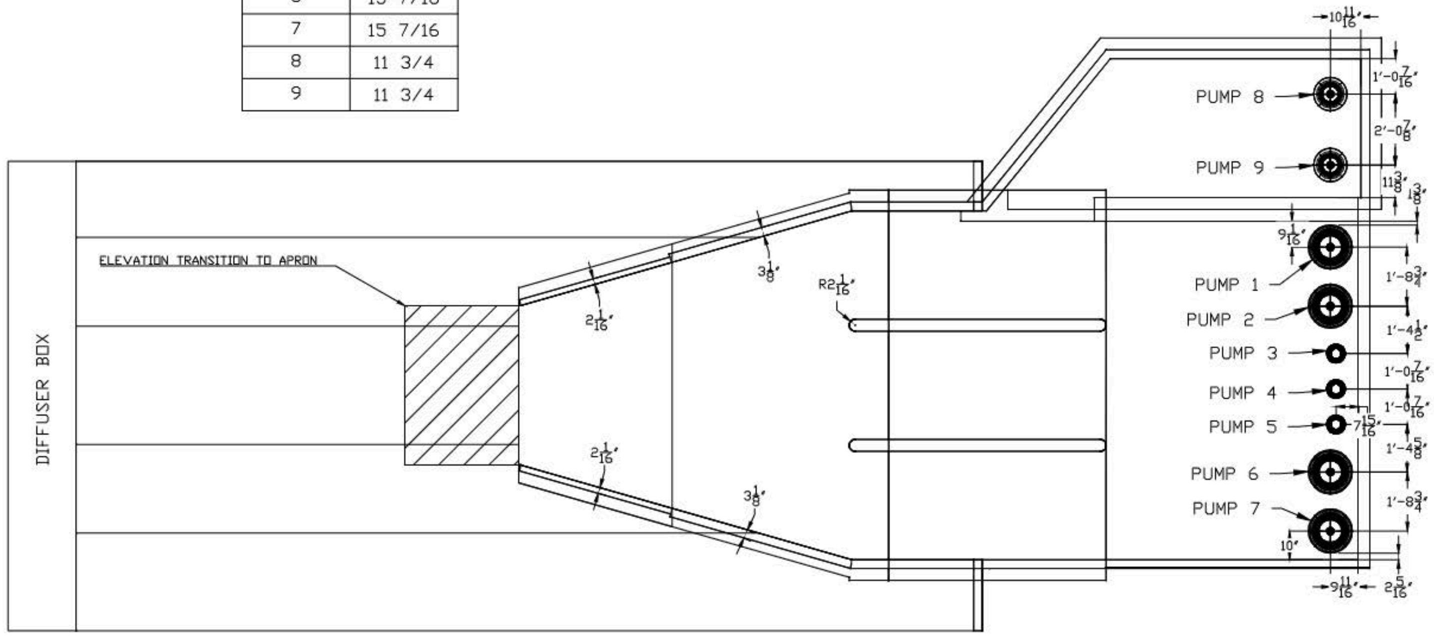


Figure B-1. Pump bay construction drawing (plan view)

PUMP BELL O.D.	
PUMP #	O.D. (IN)
1	15 7/16
2	15 7/16
3	6 1/2
4	6 1/2
5	6 1/2
6	15 7/16
7	15 7/16
8	11 3/4
9	11 3/4



Utah State University
UTAH WATER RESEARCH LABORATORY

PLAN VIEW

KSN PUMP STATION - PHYSICAL MODEL

SCALE - 1:50

DATE: 05/09/2022

UNITS: FT-IN

Figure B-2. Station pump locations (plan view)

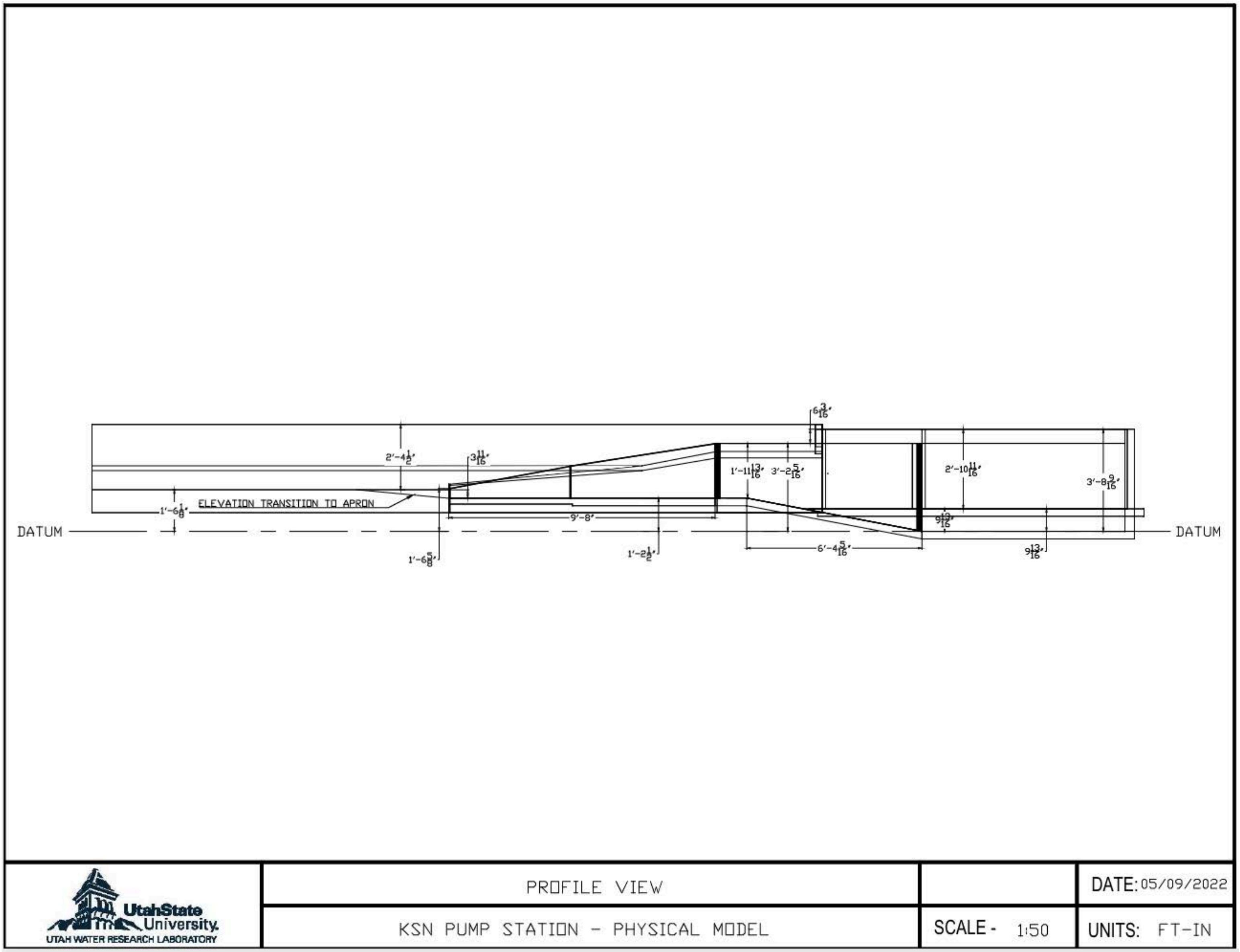


Figure B-3. Pump station construction drawing (profile view)

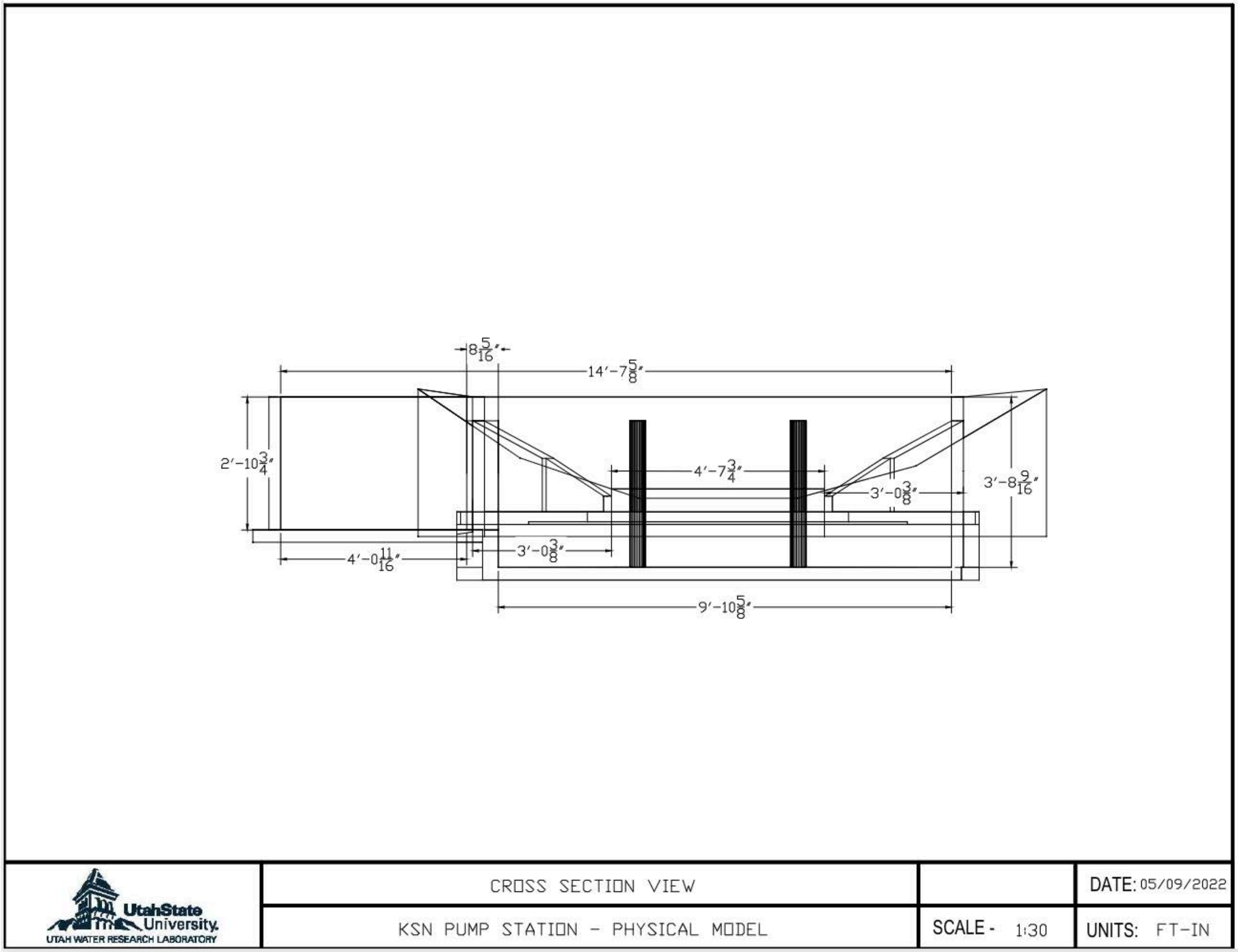


Figure B-4. Pump station construction drawing (end view)

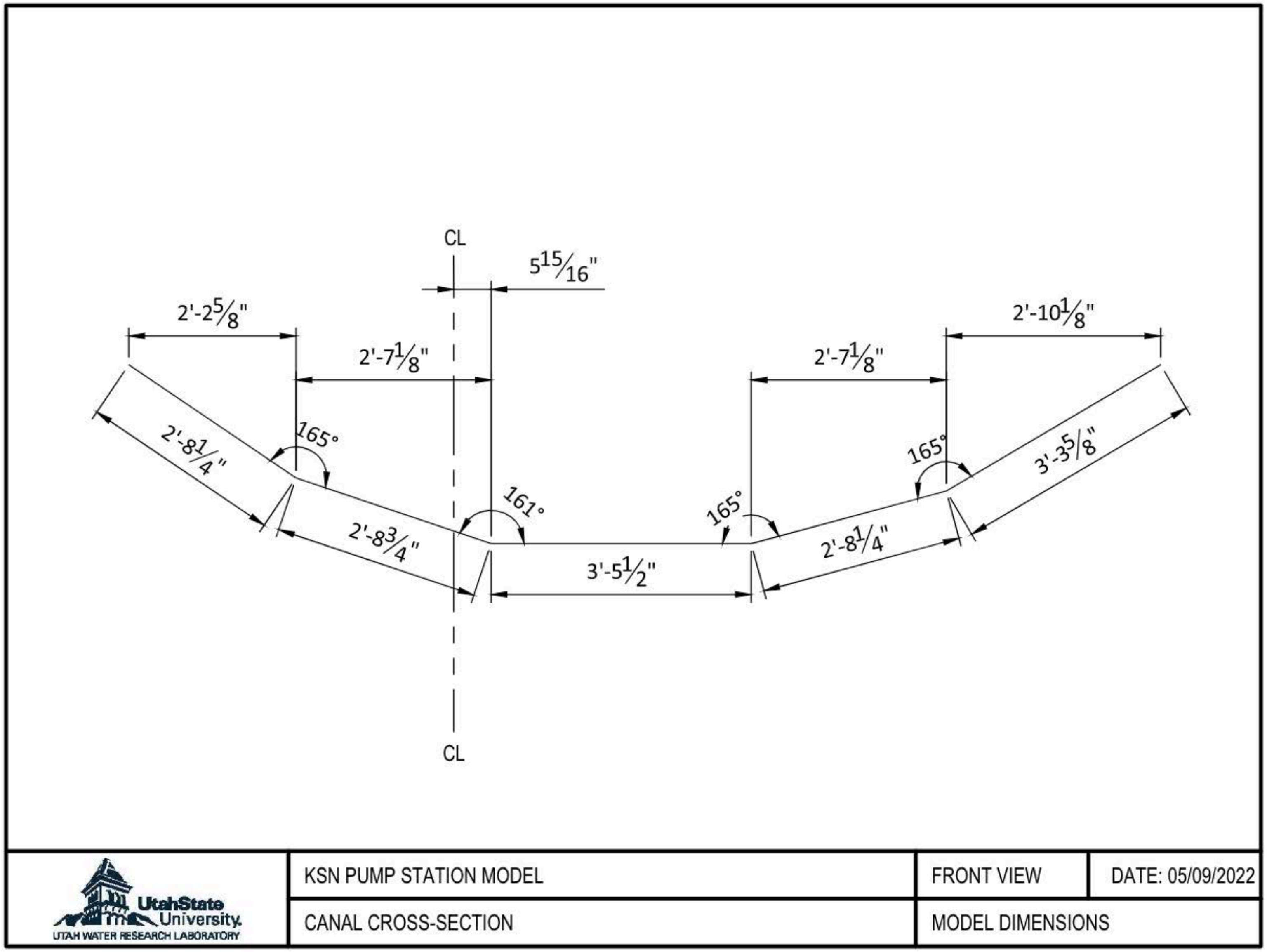


Figure B-5. Approach canal construction drawing (end view)

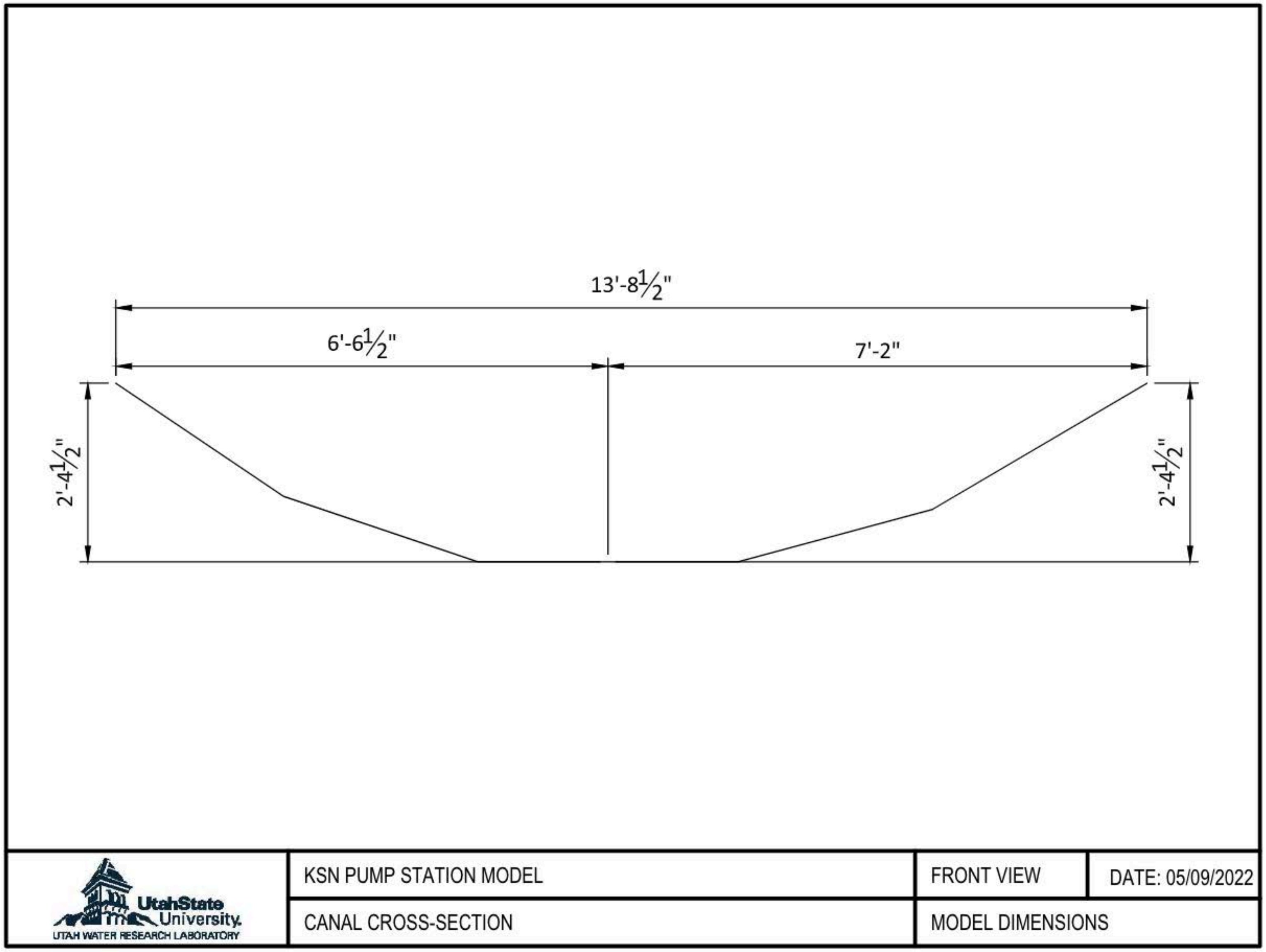


Figure B-6. Approach canal construction drawing (end view)

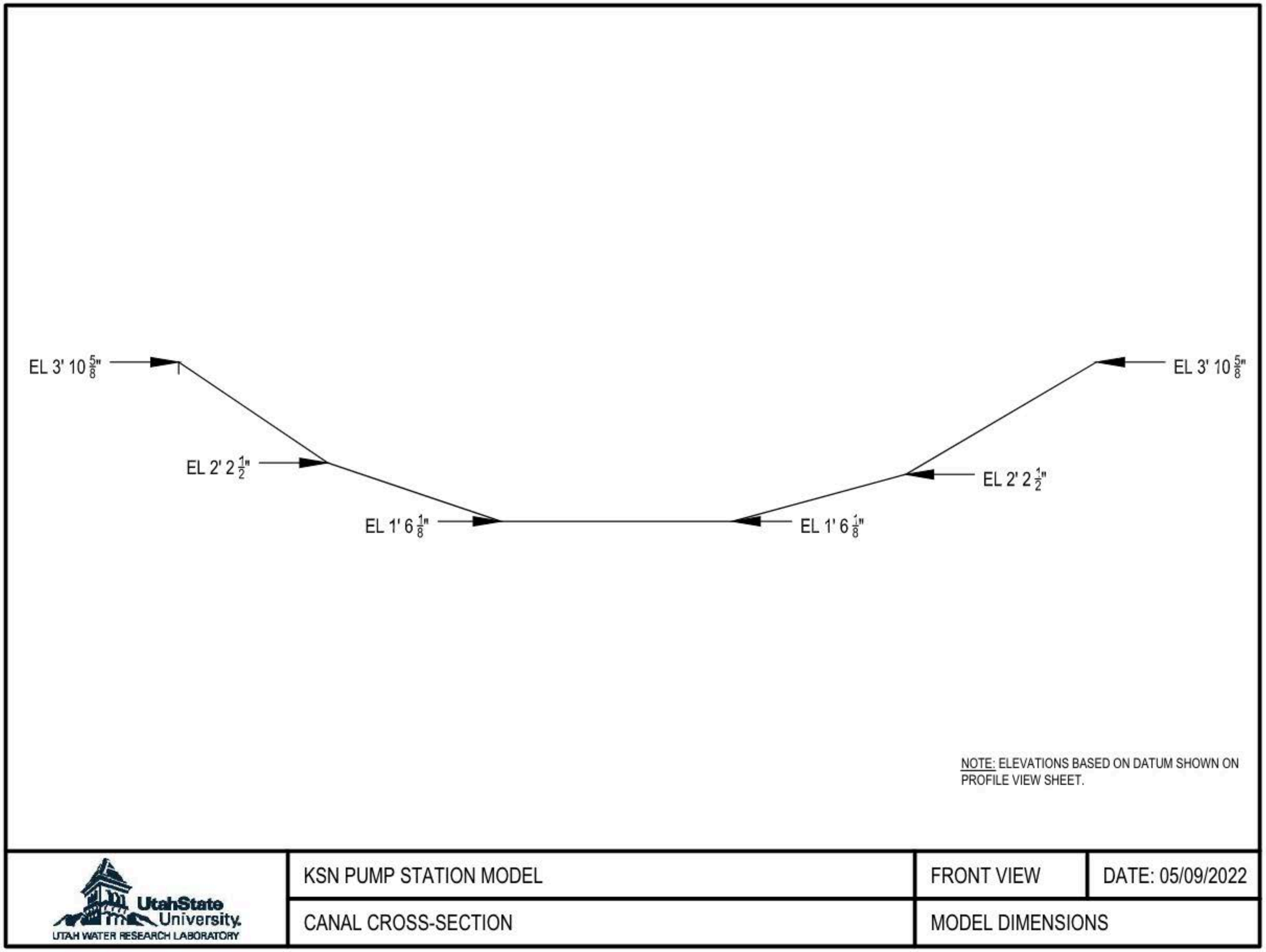


Figure B-7. Approach canal construction drawing (end view)

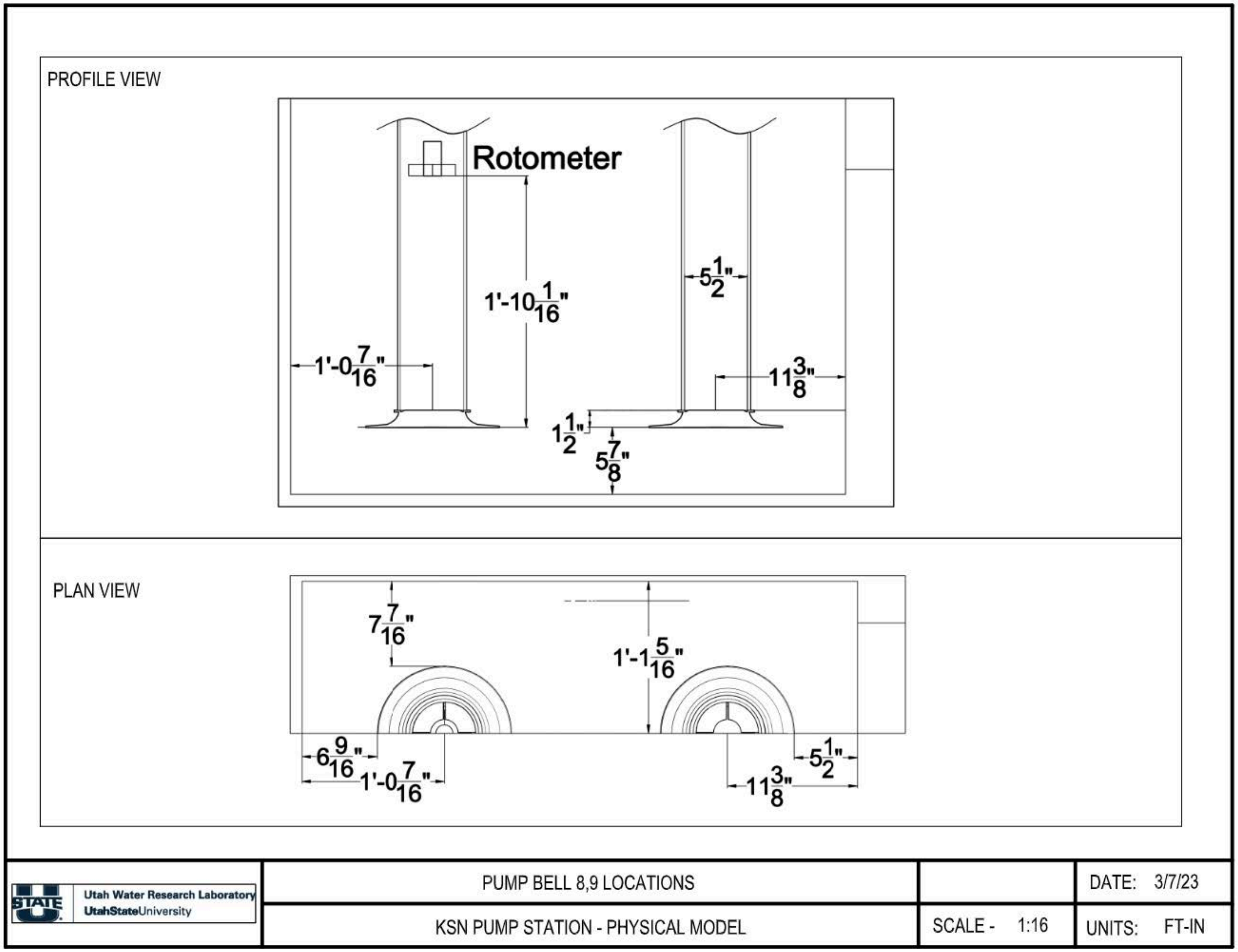


Figure B-8. Model pump details (pumps 8 and 9)

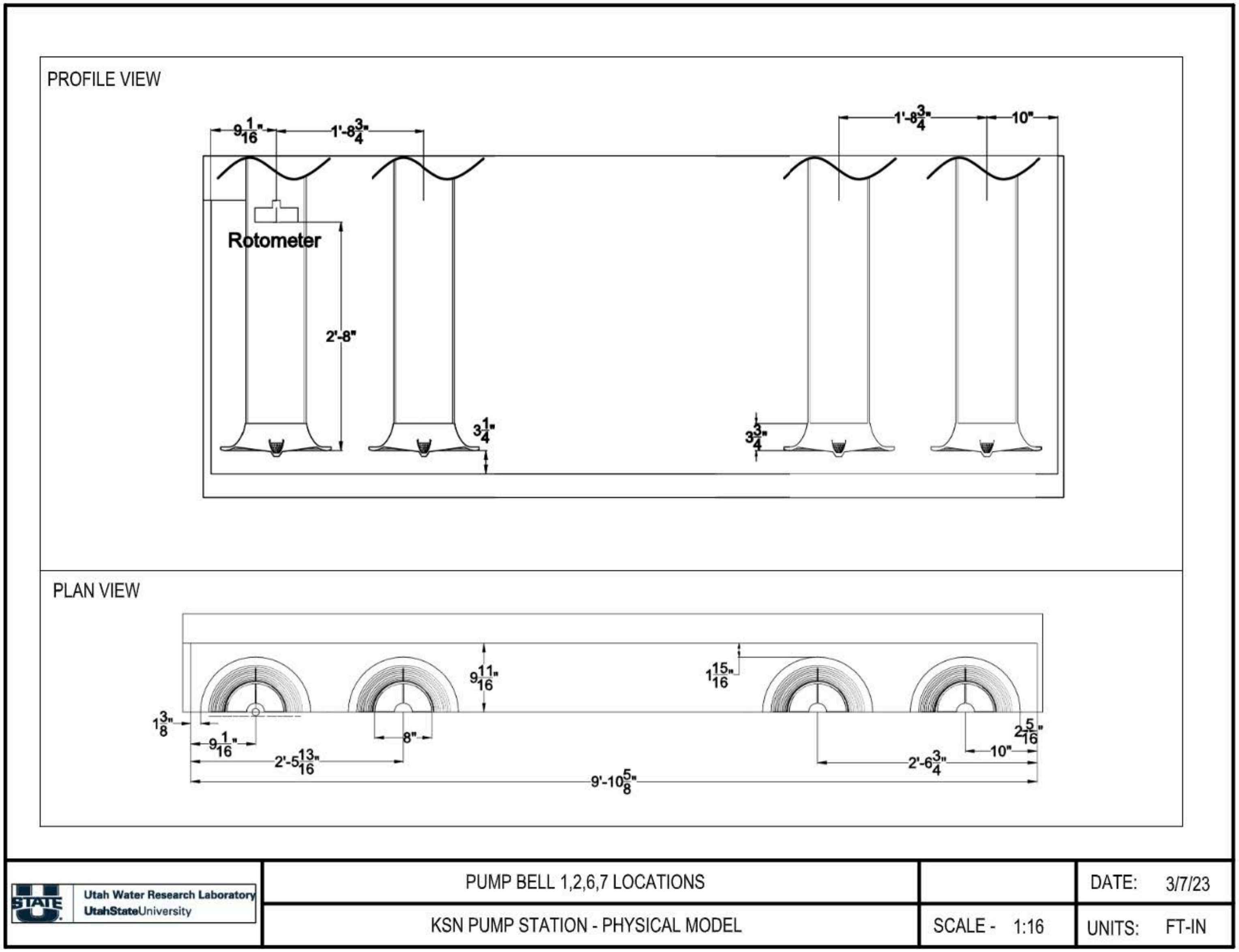


Figure B-9. Model pump details (pumps 1, 2, 6 and 7)

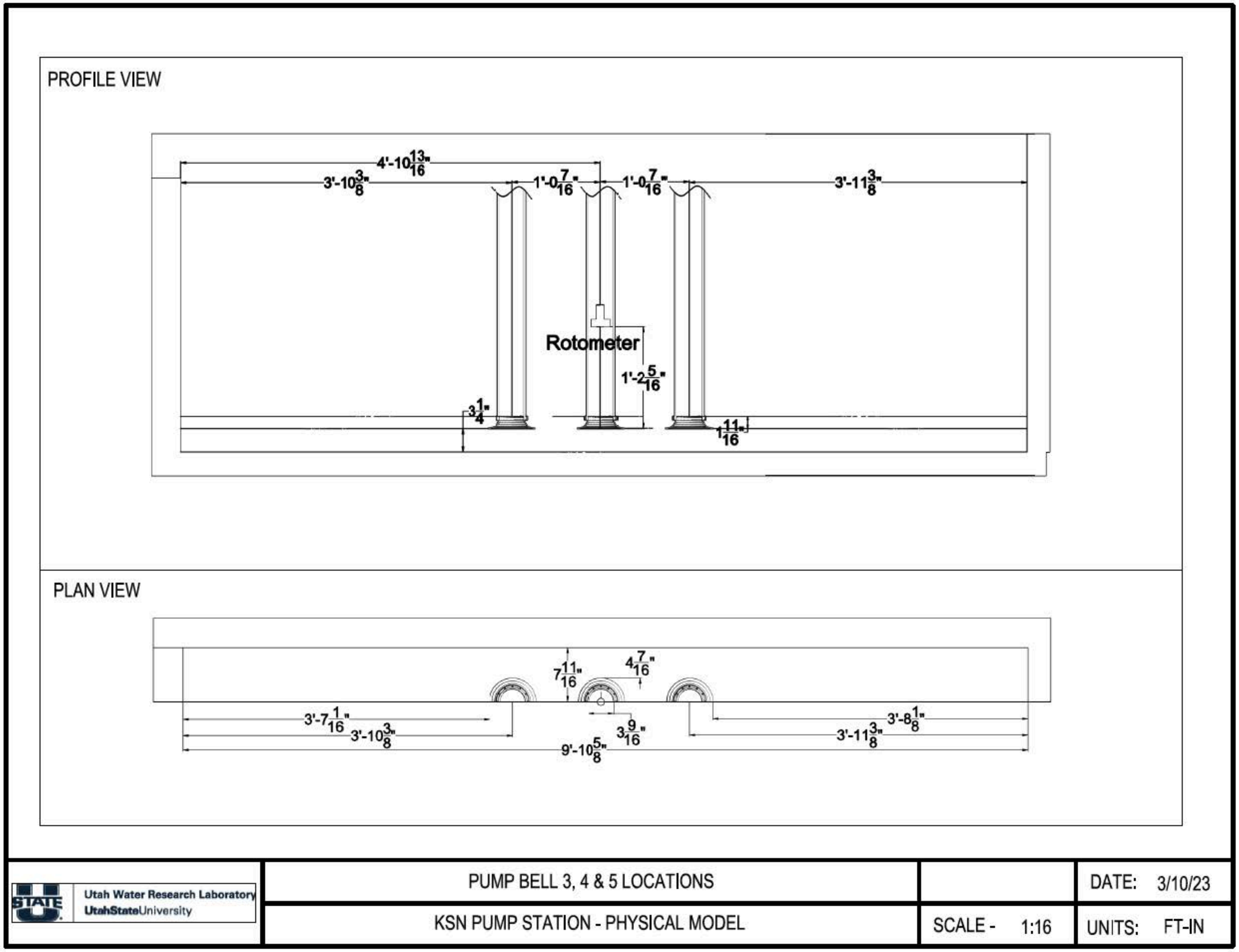


Figure B-10. Model pump details (pumps 3, 4 and 5)

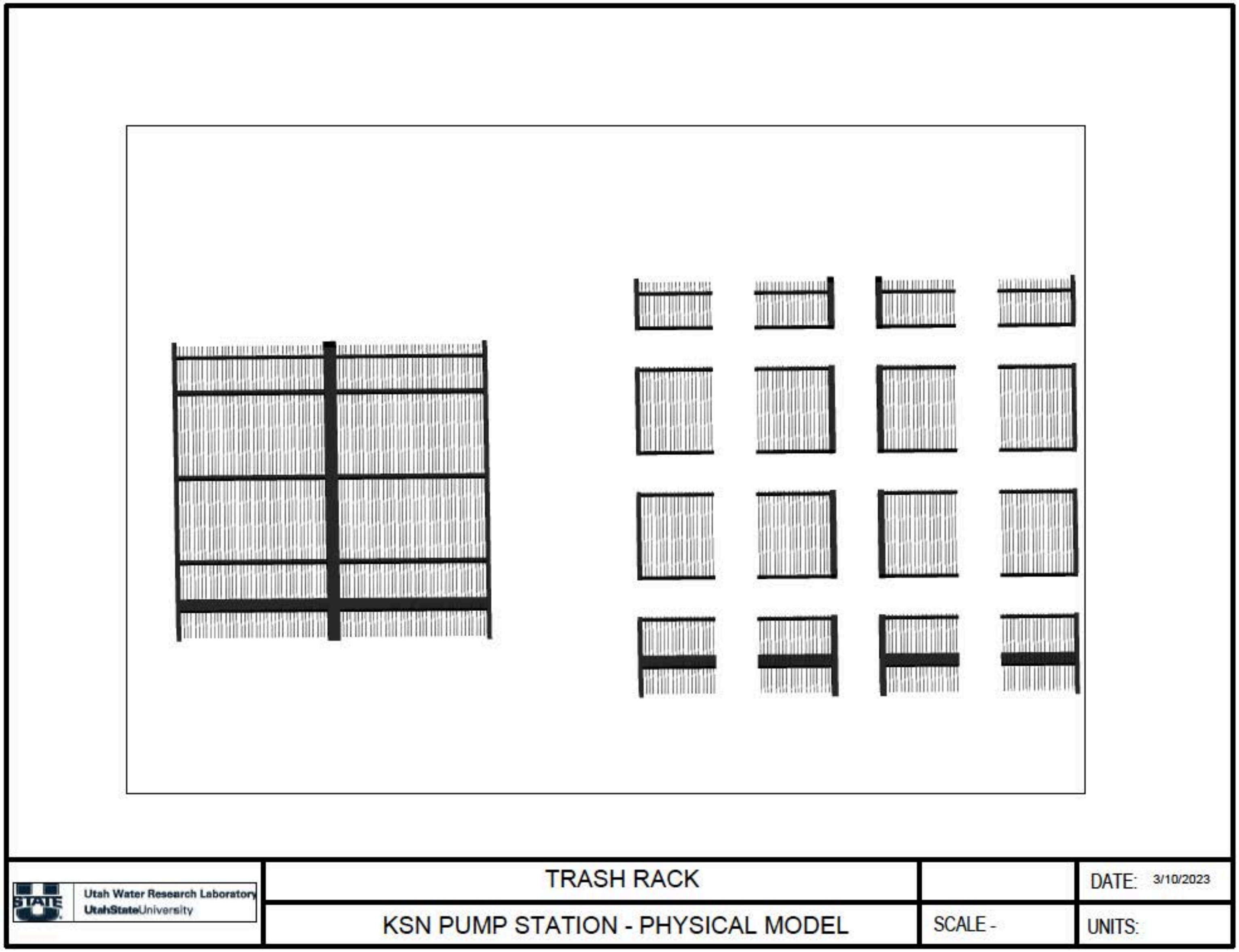


Figure B-11. Trash rack parts

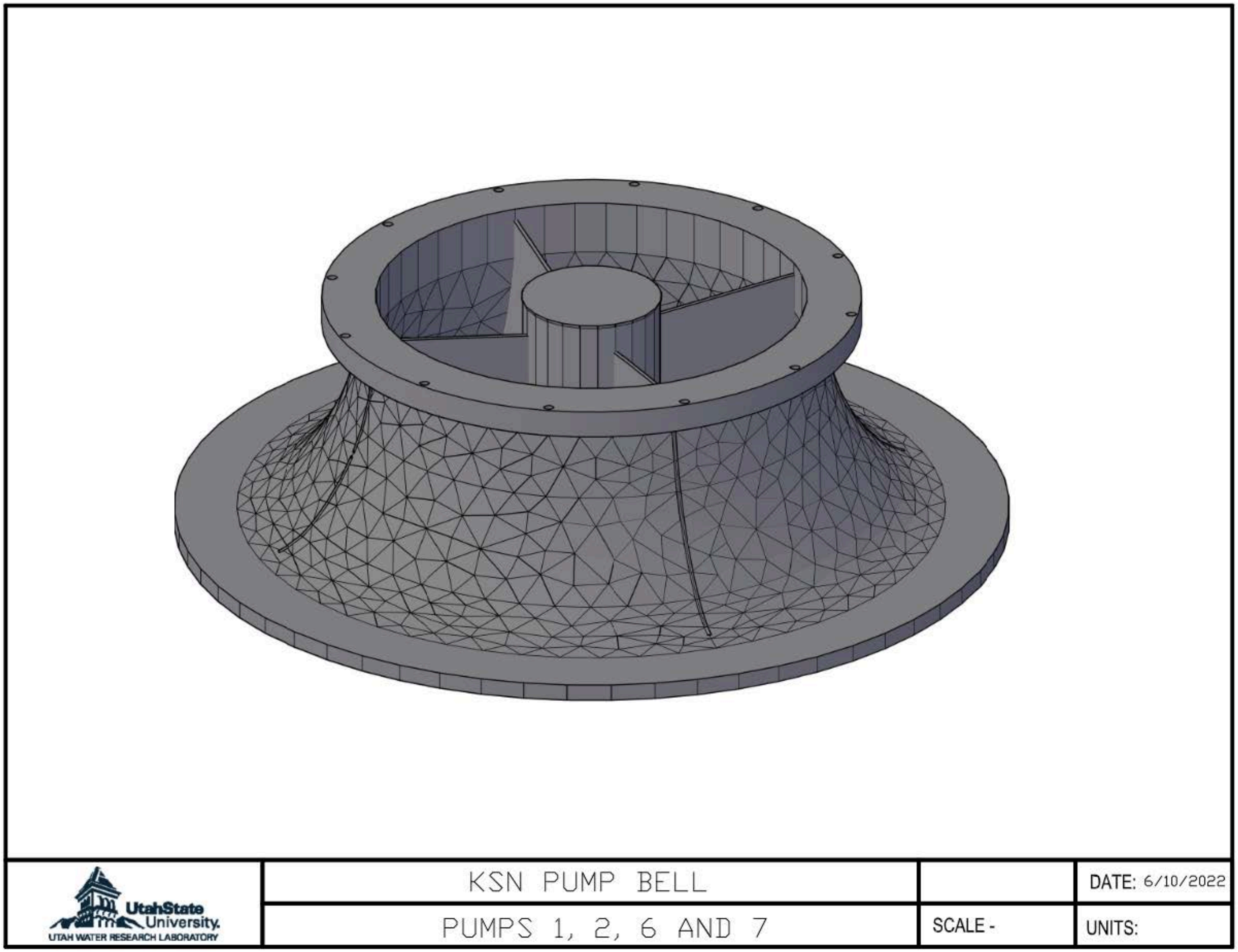


Figure B-12. Pump bell for pumps 1, 2, 6 and 7

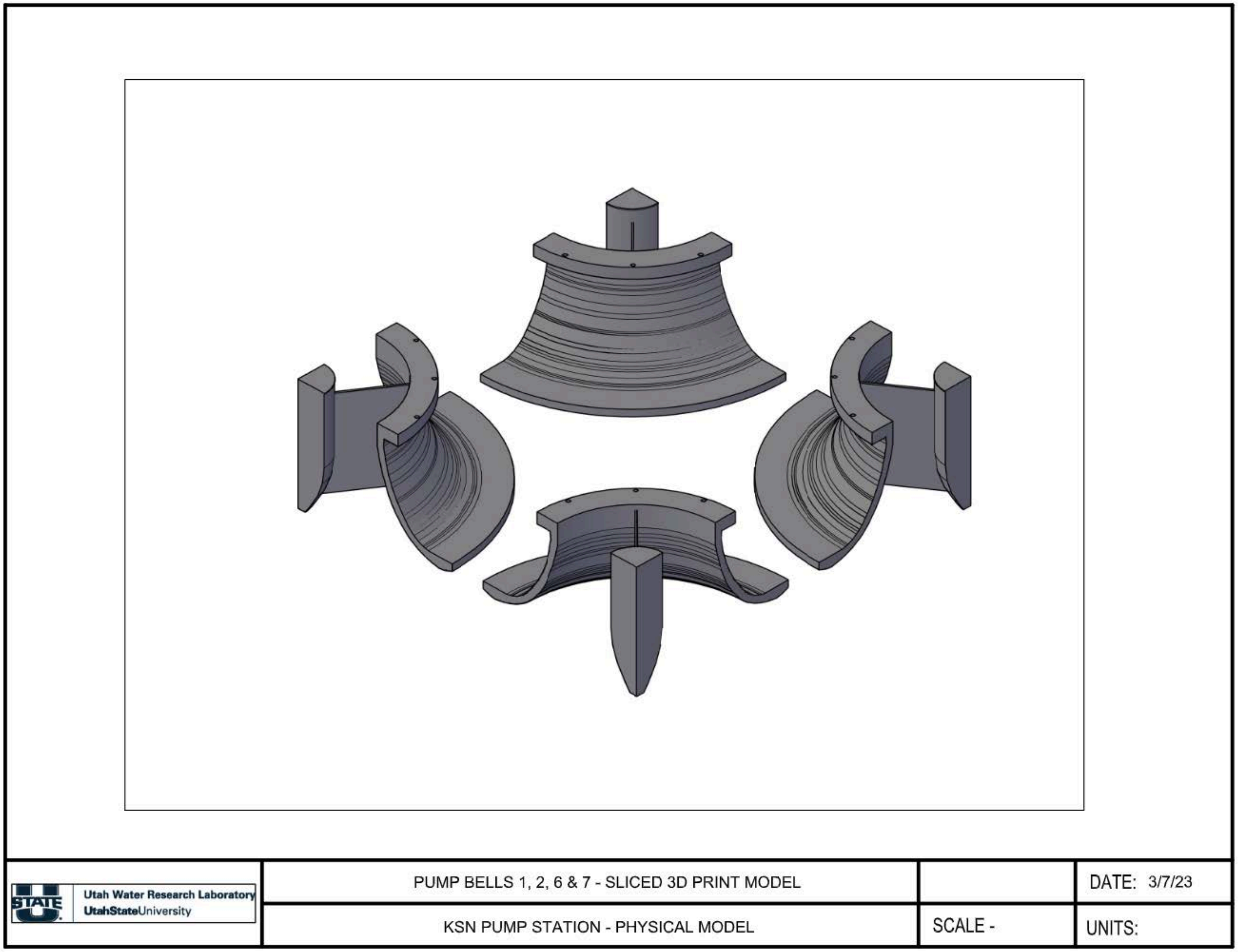


Figure B-13. Pump bell parts for pumps 1, 2, 6 and 7

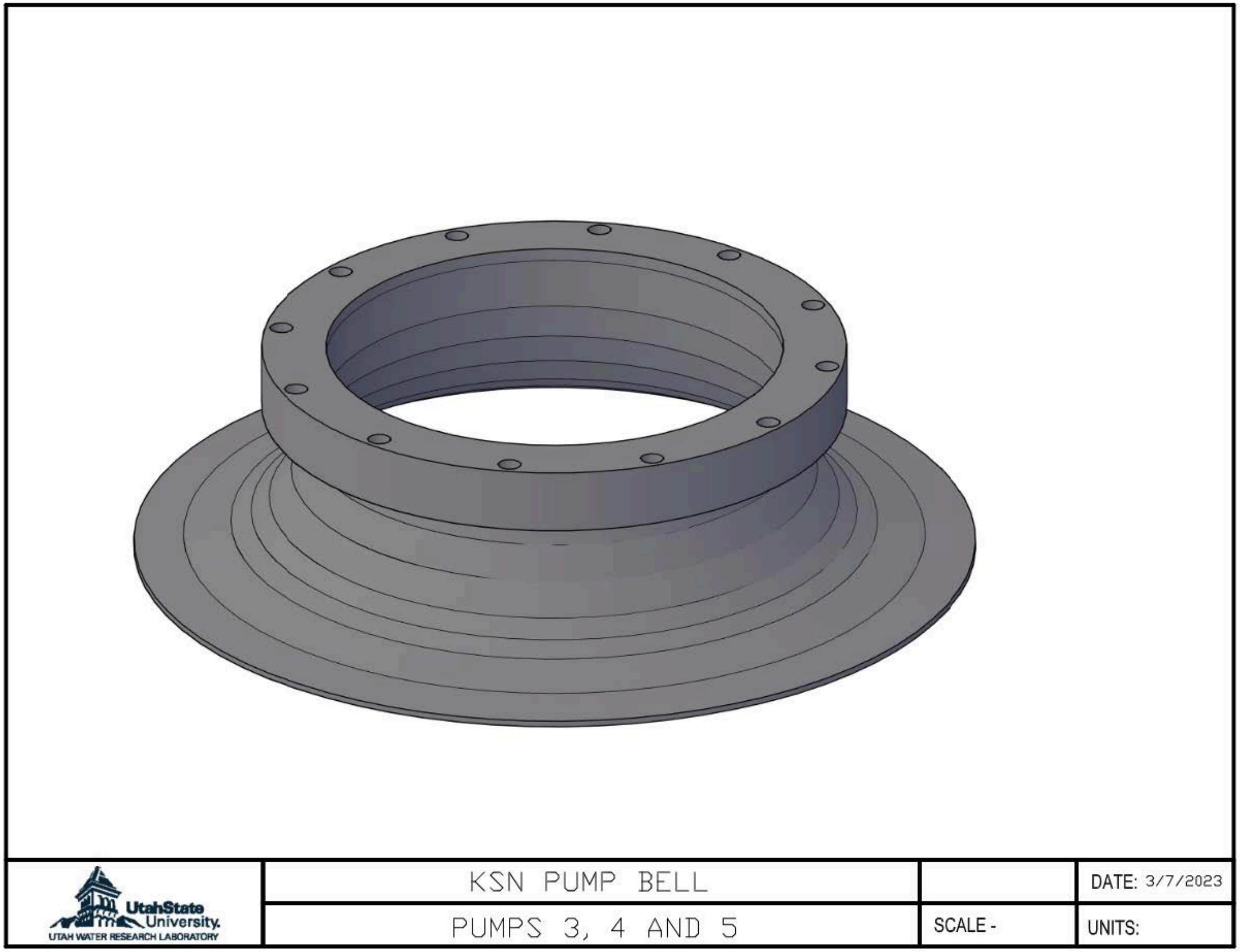
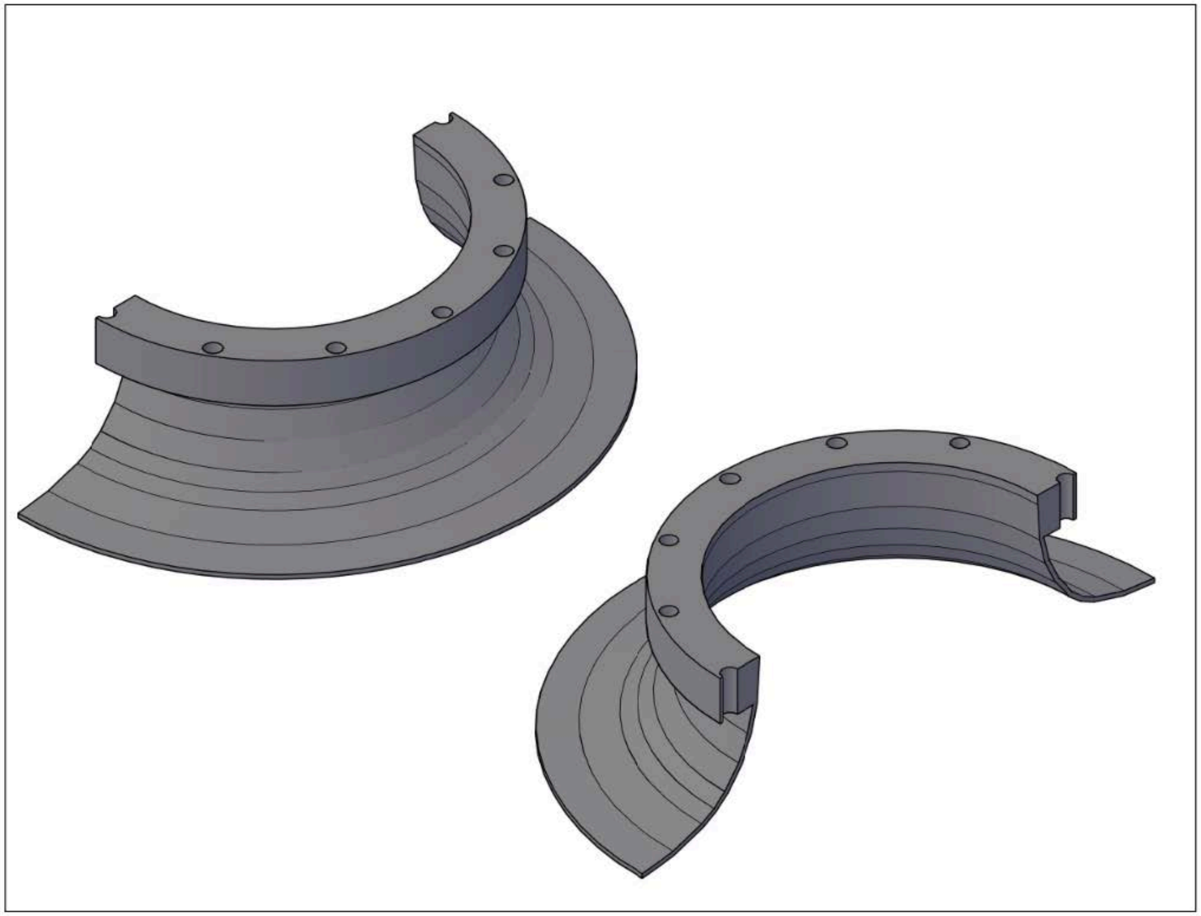


Figure B-14. Pump bell for pumps 3, 4 and 5



Utah Water Research Laboratory UtahStateUniversity	PUMP BELLS 3, 4, & 5 - SLICED 3D PRINT MODEL		DATE: 3/7/23
	KSN PUMP STATION - PHYSICAL MODEL	SCALE -	UNITS:

Figure B-15. Pump bell parts for pumps 3, 4 and 5

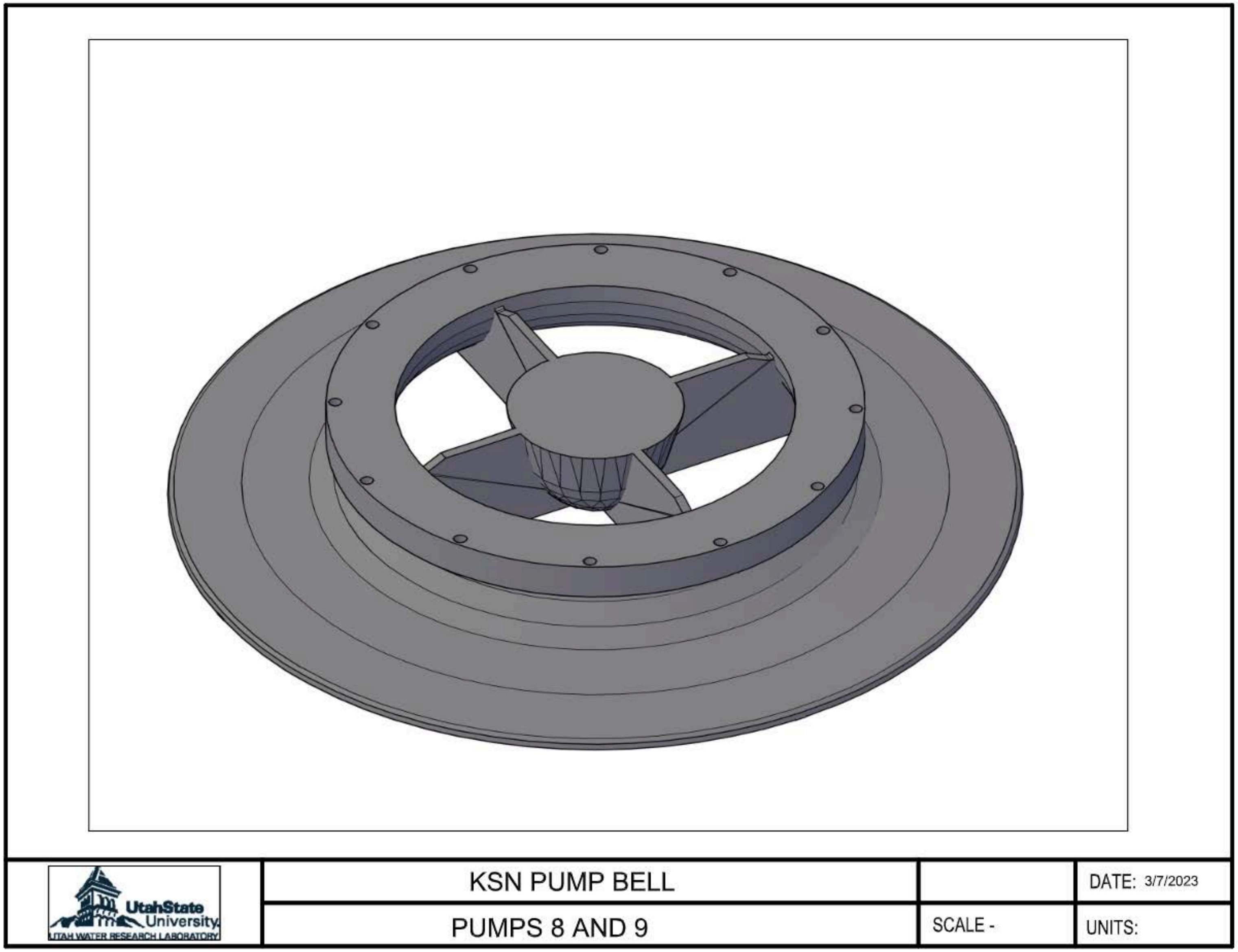
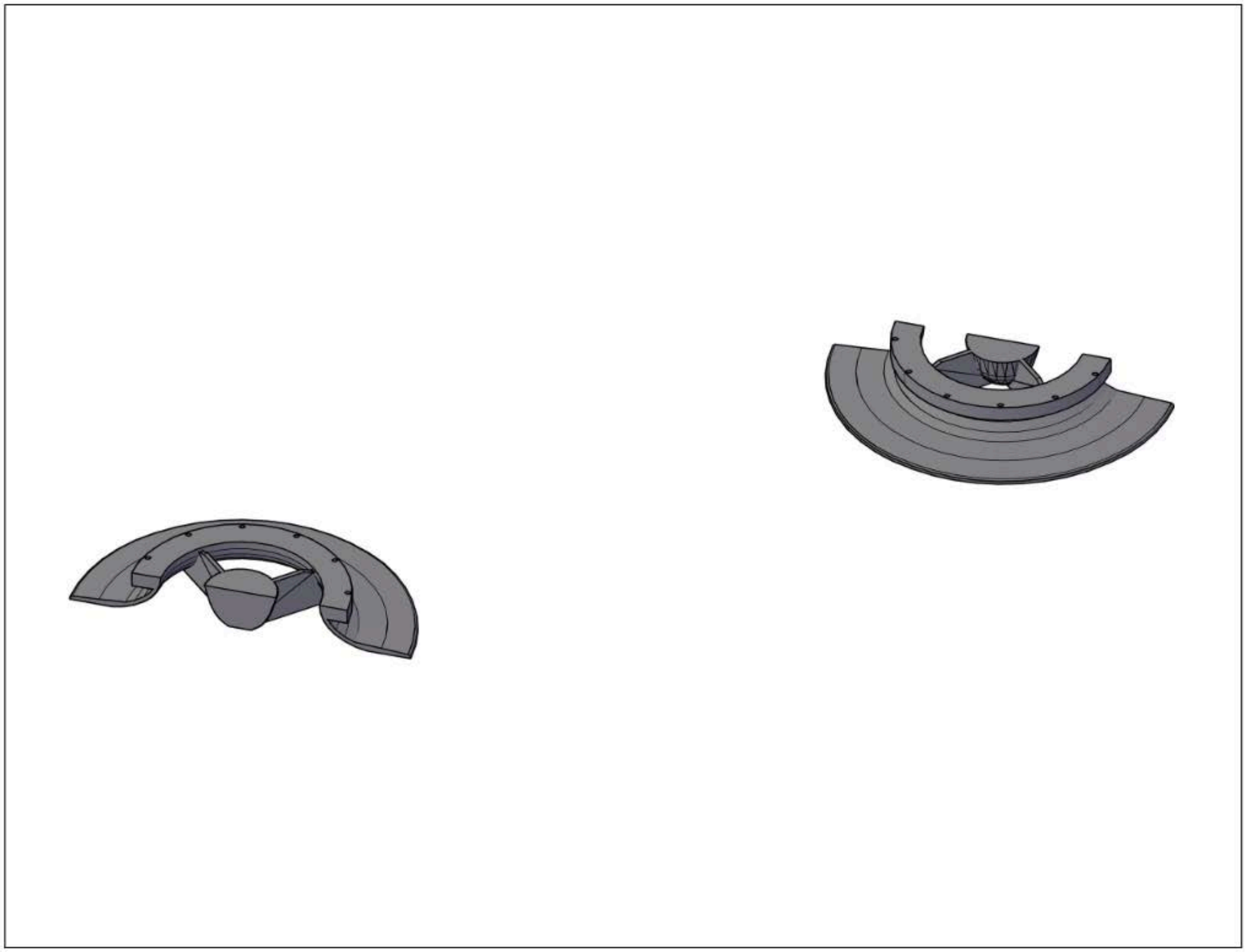


Figure B-16. Pump bell for pumps 8 and 9



UtahState University UTAH WATER RESEARCH LABORATORY	KSN PUMP BELL - SLICED		DATE: 3/7/2023
	PUMPS 8 AND 9	SCALE -	UNITS:

Figure B-17. Pump bell parts for pumps 8 and 9

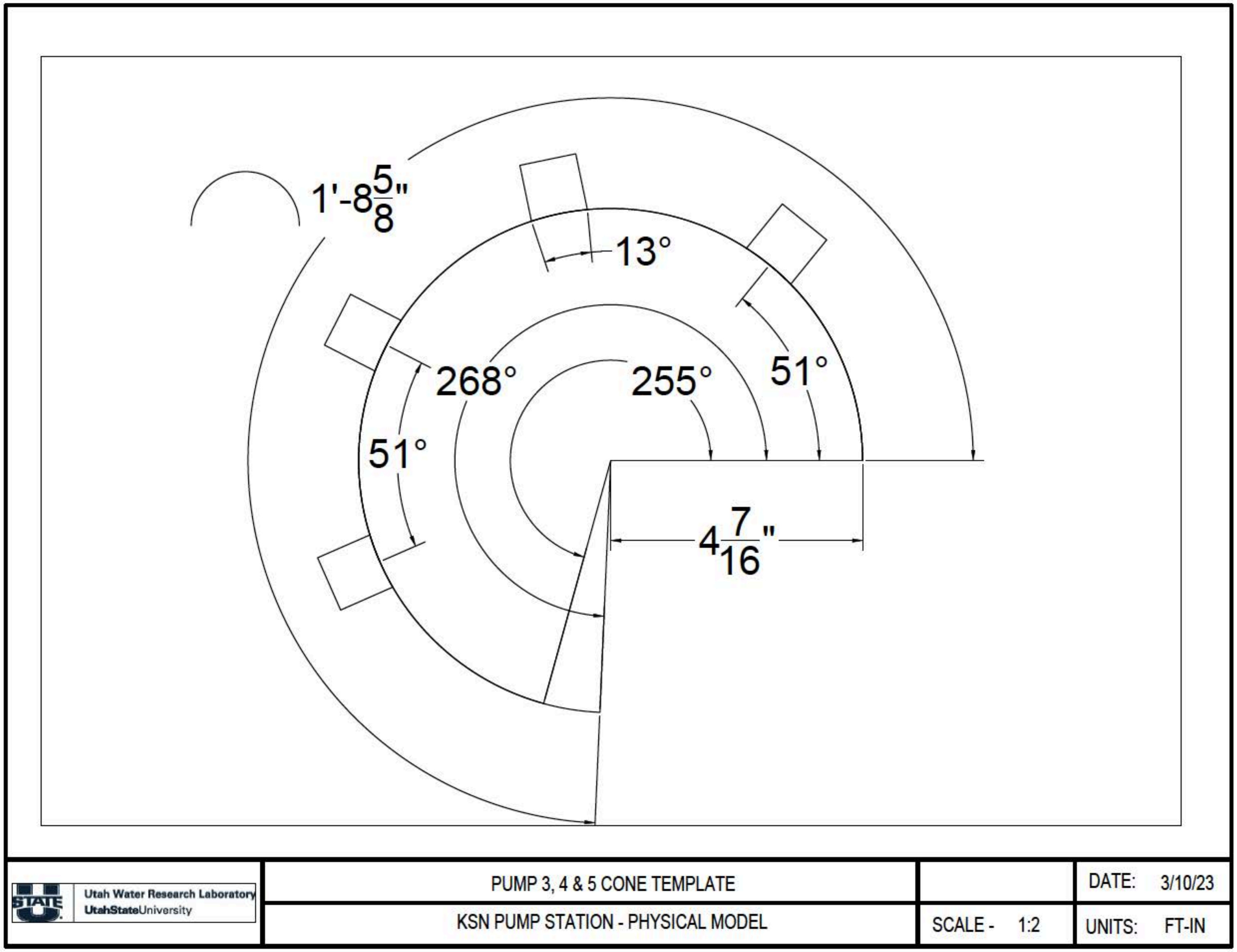
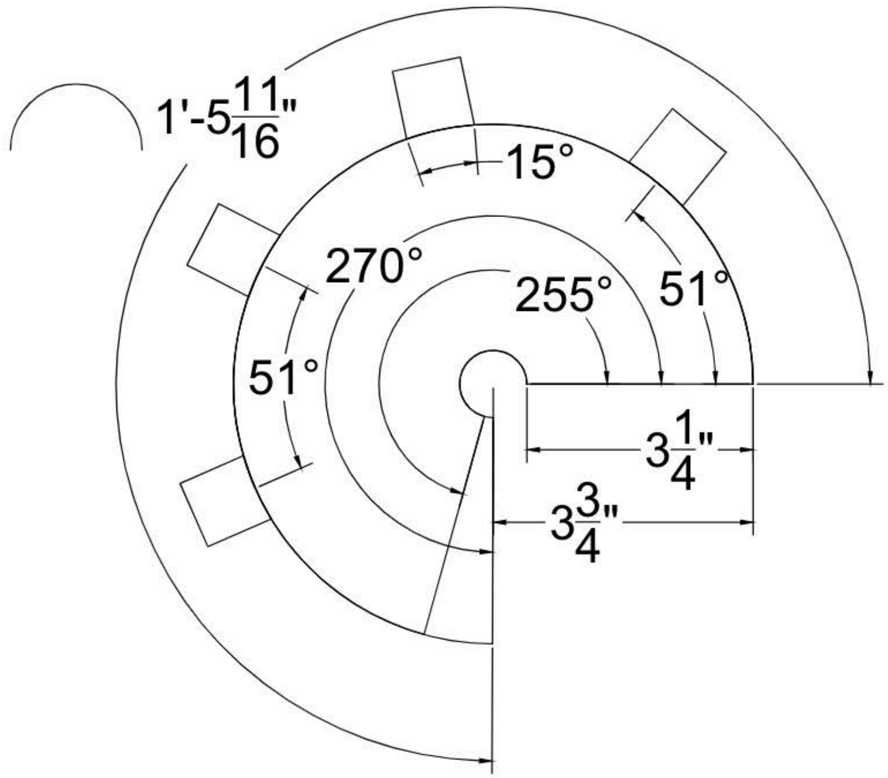


Figure B-18. Pump bell floor cone template for pumps 3, 4 and 5



Utah Water Research Laboratory UtahStateUniversity	PUMP 1, 2, 6, & 7 CONE TEMPLATE		DATE: 3/8/23
	KSN PUMP STATION - PHYSICAL MODEL	SCALE - 1:2	UNITS: FT-IN

Figure B-19. Pump bell floor cone template for pumps 1, 2, 6 and 7

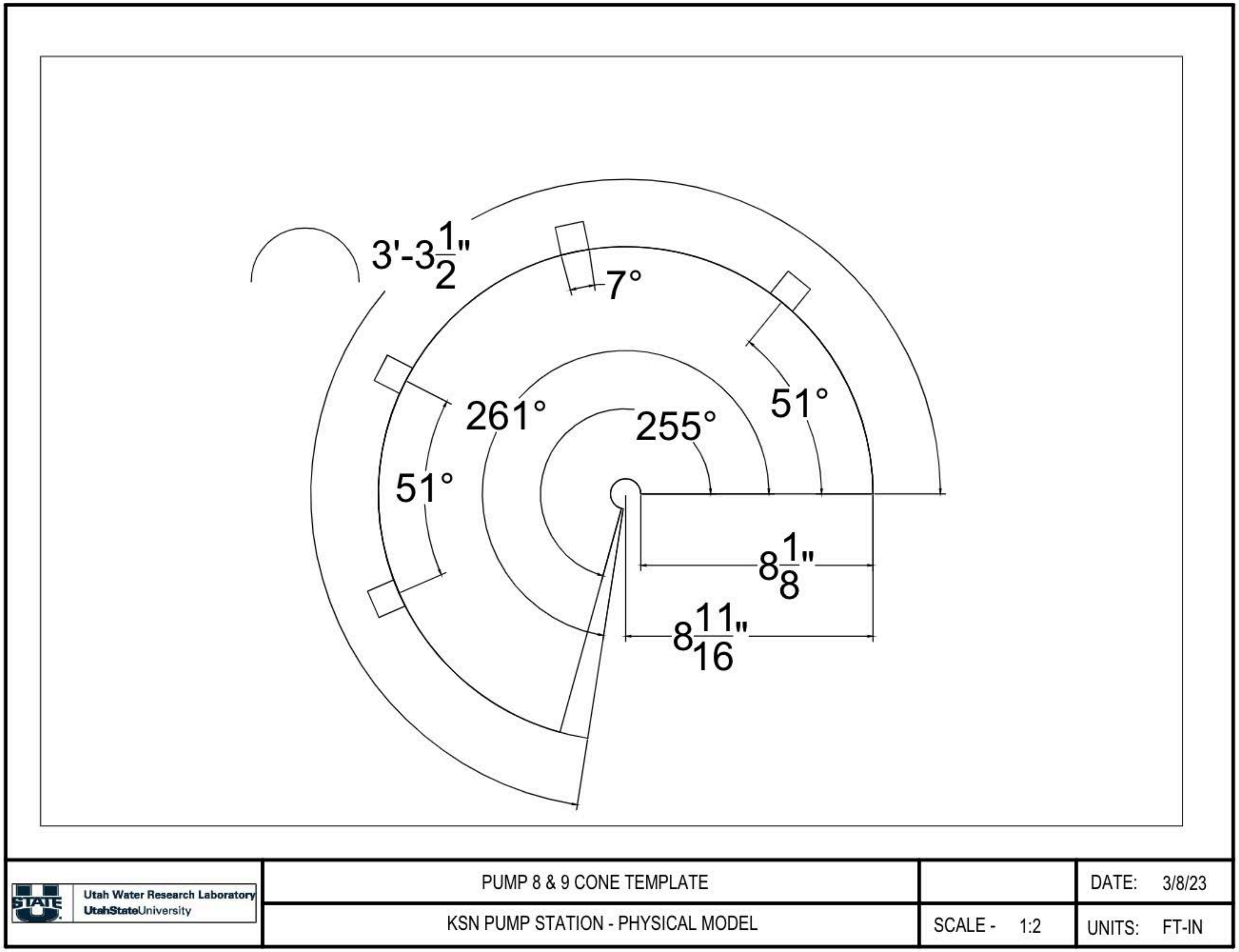


Figure B-20. Pump bell floor cone template for pumps 8 and 9

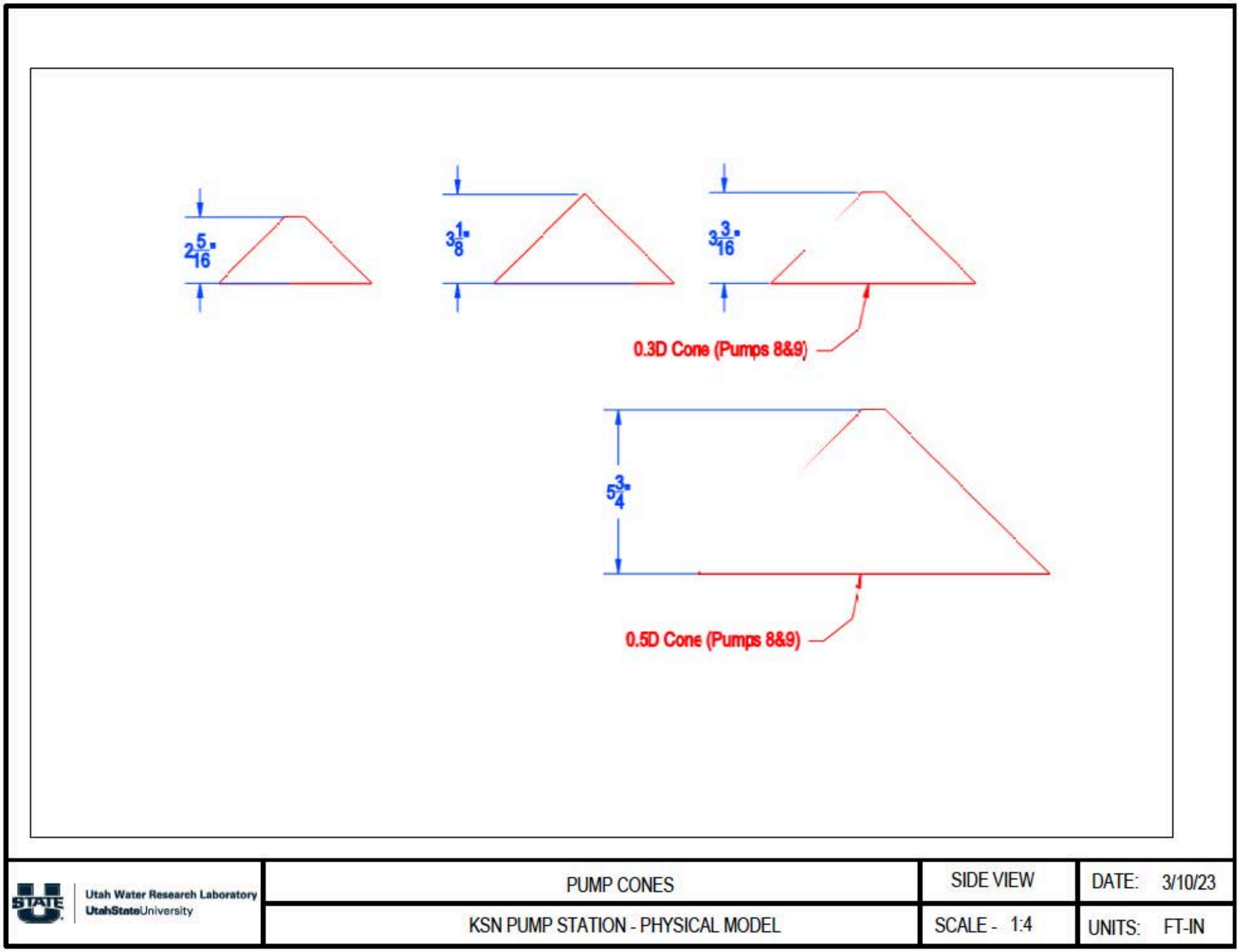


Figure B-21. Details of three pump floor cones (profile view)

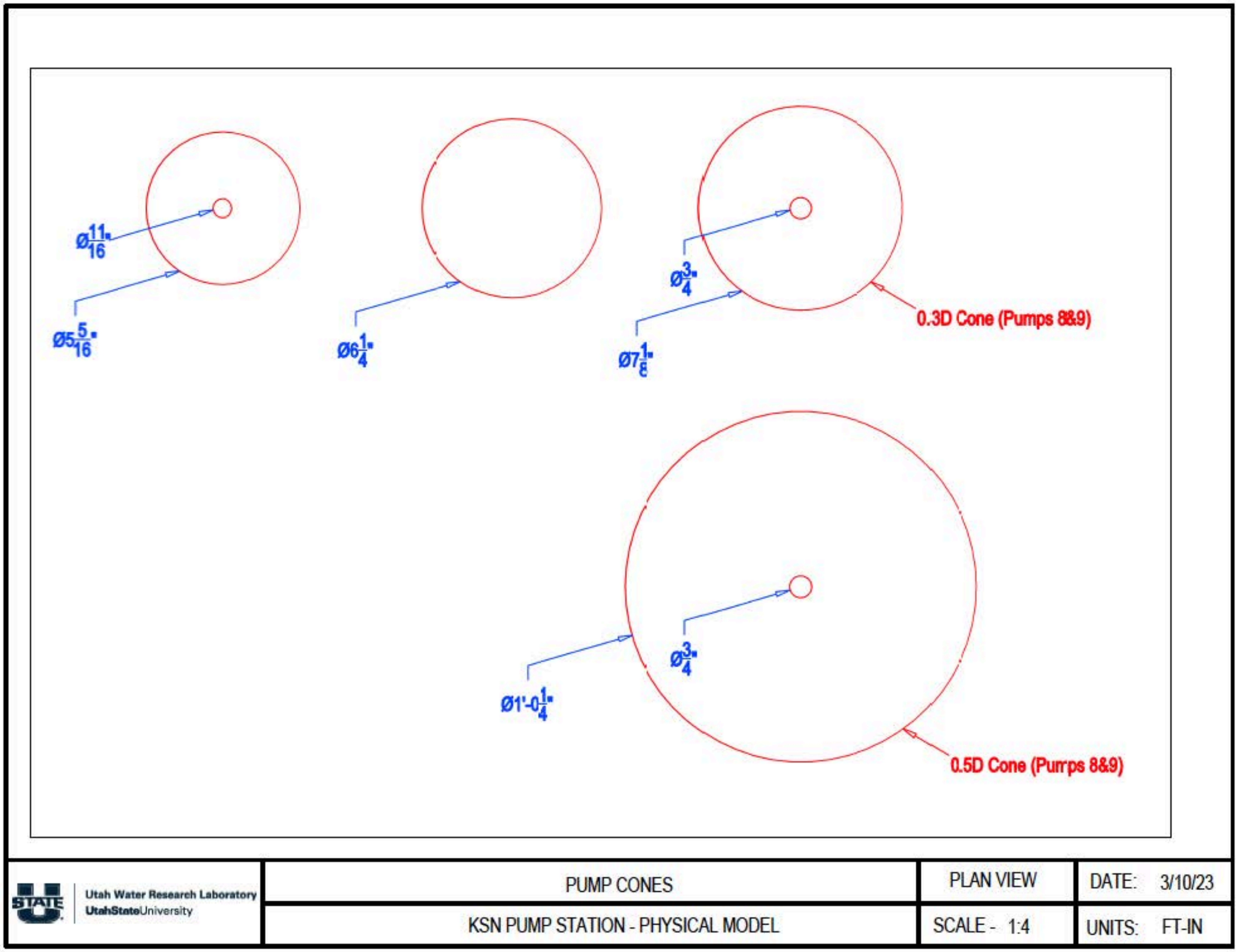
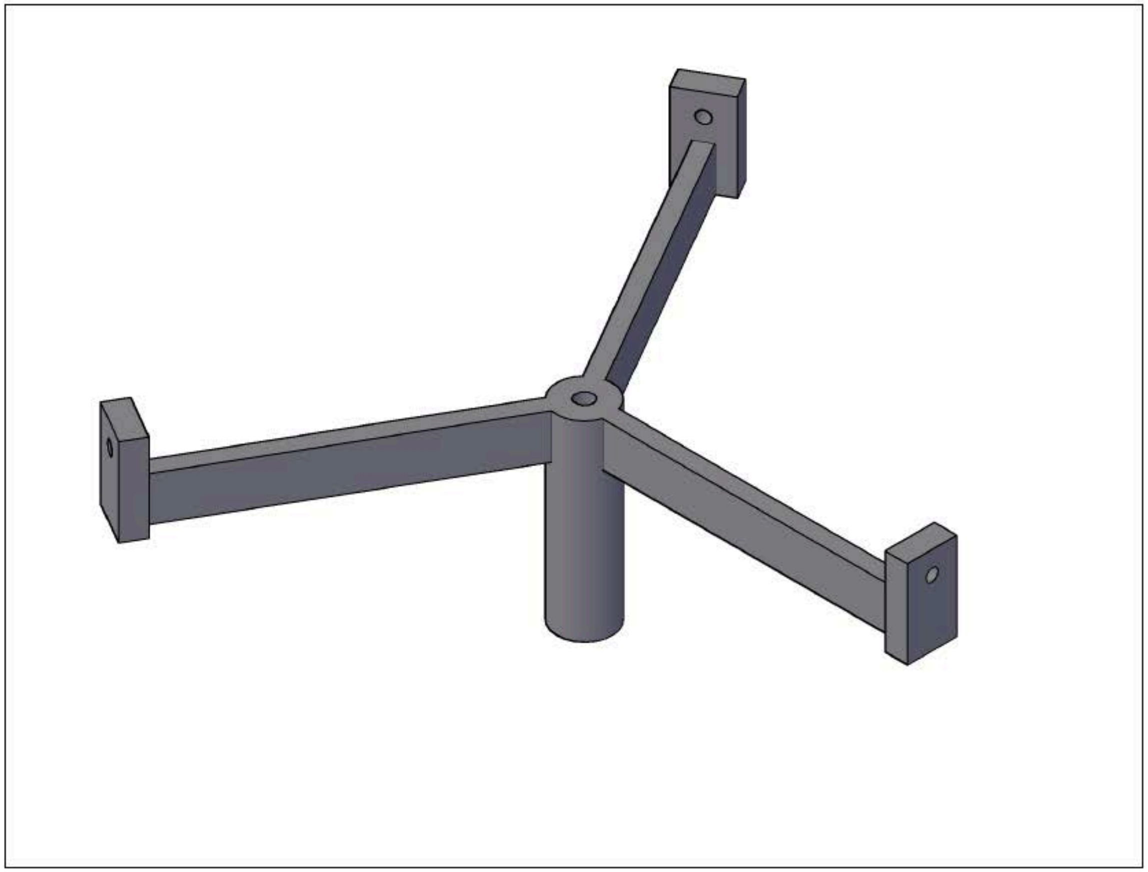


Figure B-22. Details of three pump floor cones (plan view)



Utah Water Research Laboratory UtahStateUniversity	8" ROTOMETER TOP SECTION		DATE: 3/8/23
	KSN PUMP STATION - PHYSICAL MODEL	SCALE -	UNITS:

Figure B-23. Details for rotometer mount

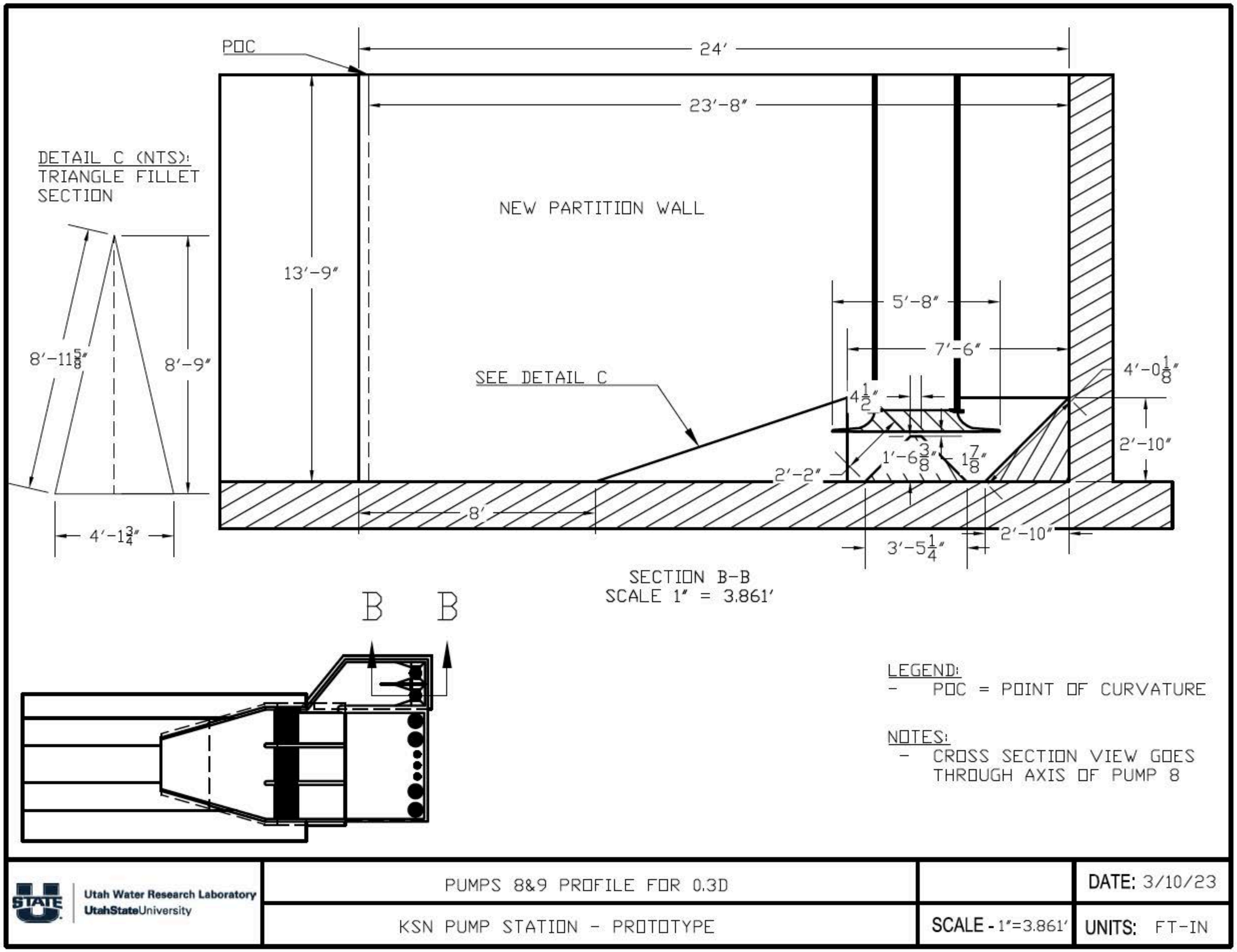


Figure B-24. Final fix for pumps 8 and 9 (profile view prototype dimensions)

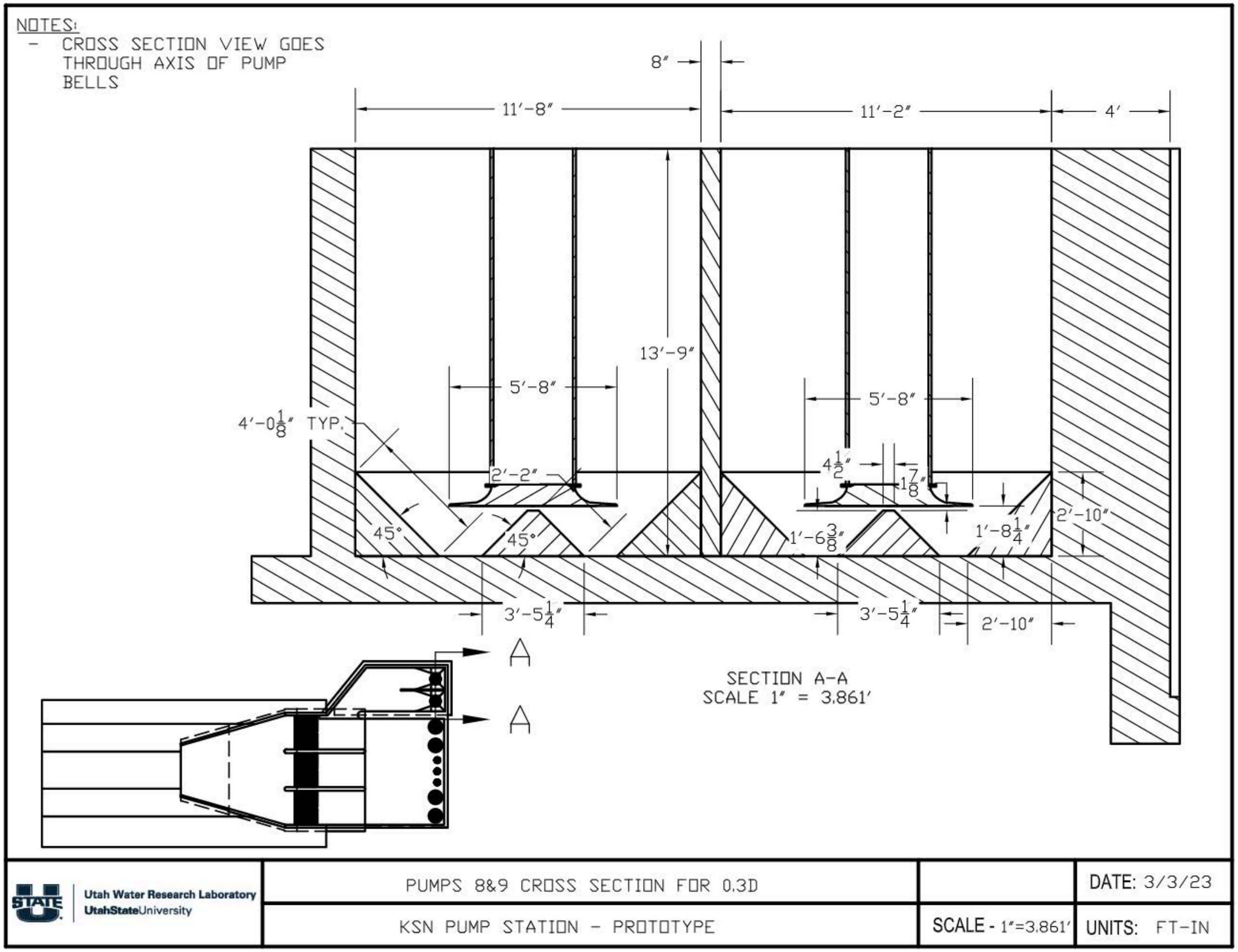


Figure B-25. Final fix for pumps 8 and 9 (end view prototype dimensions)

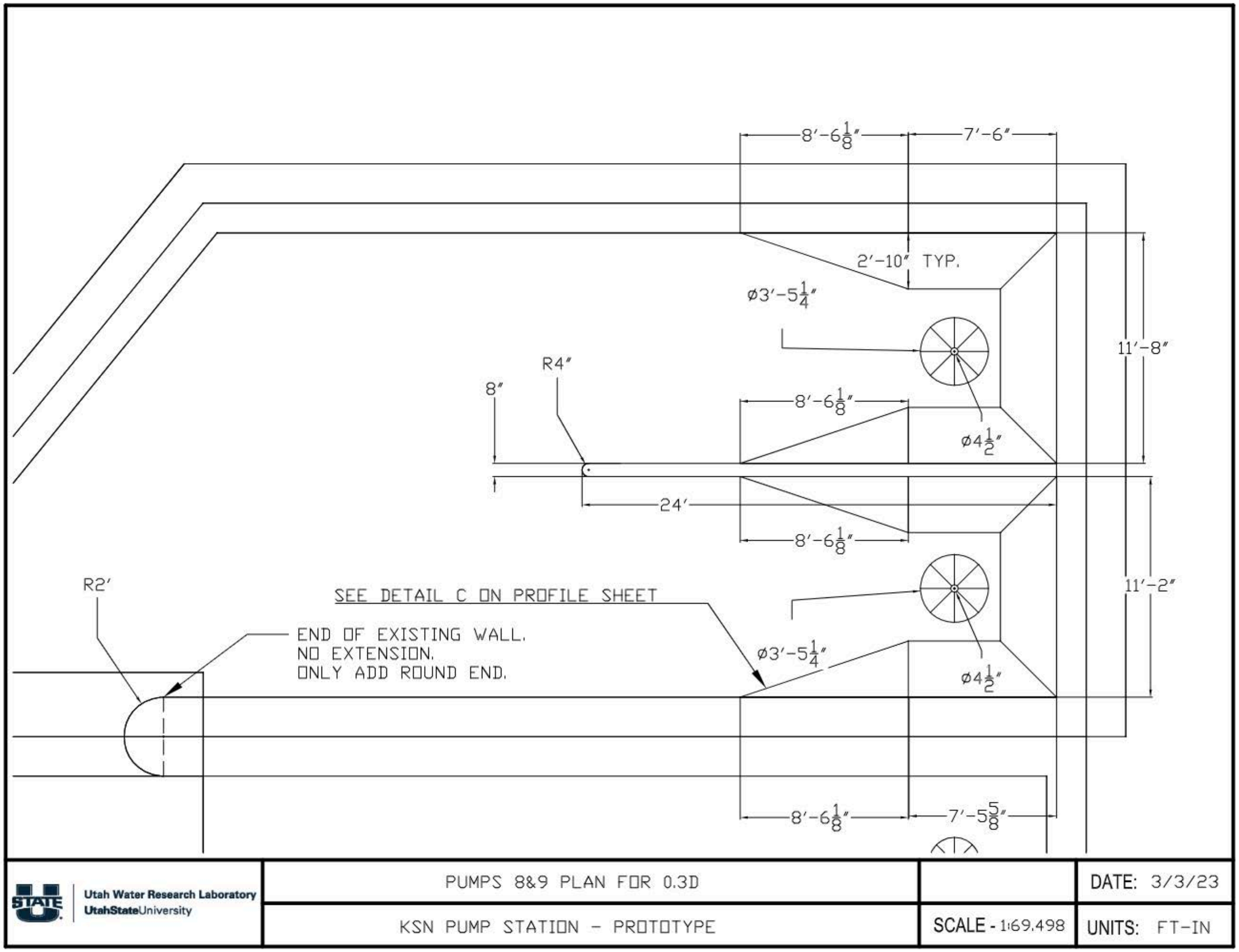


Figure B-26. Final fix for pumps 8 and 9 (plan view prototype dimensions)

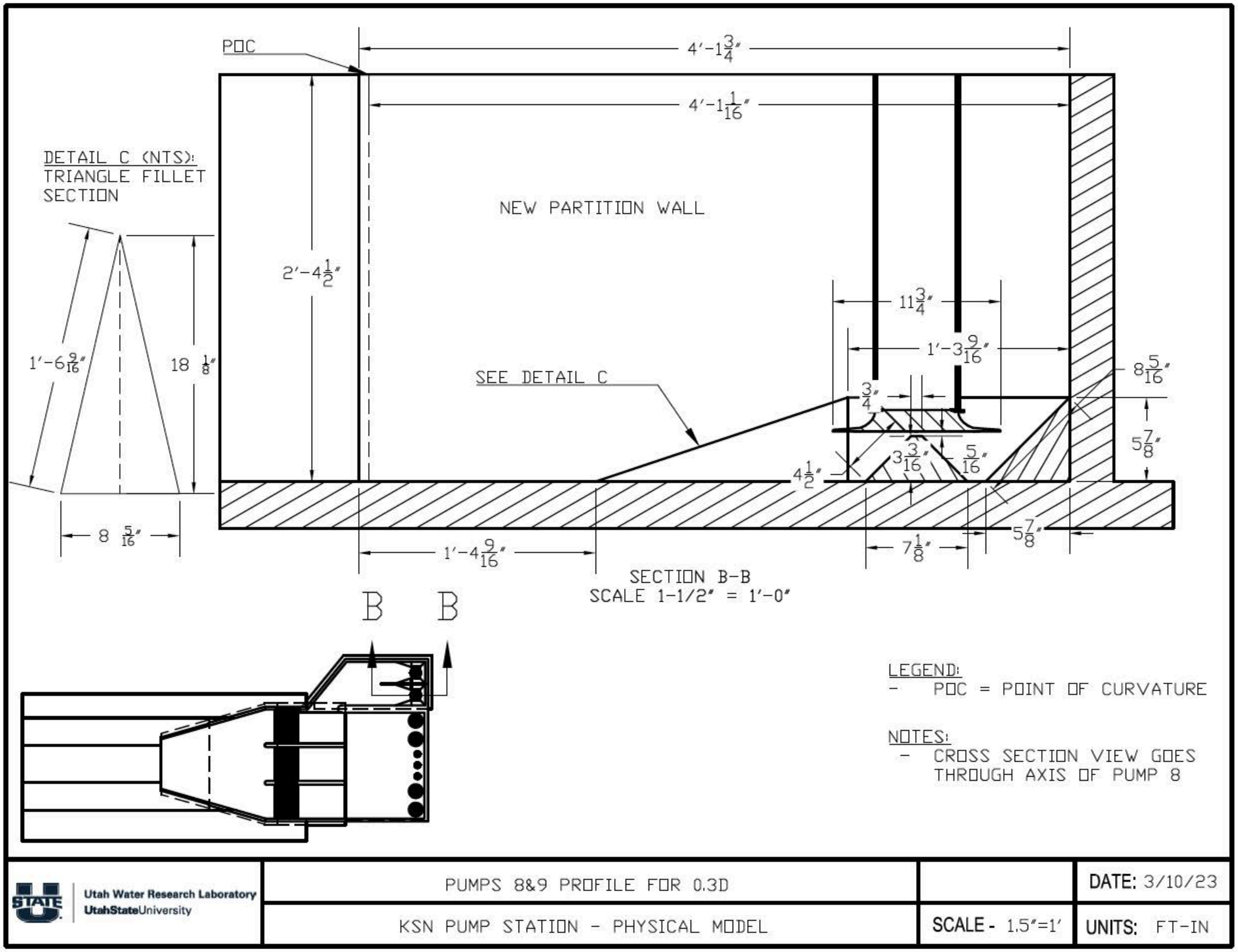


Figure B-27. Final fix for pumps 8 and 9 (profile view model dimensions)

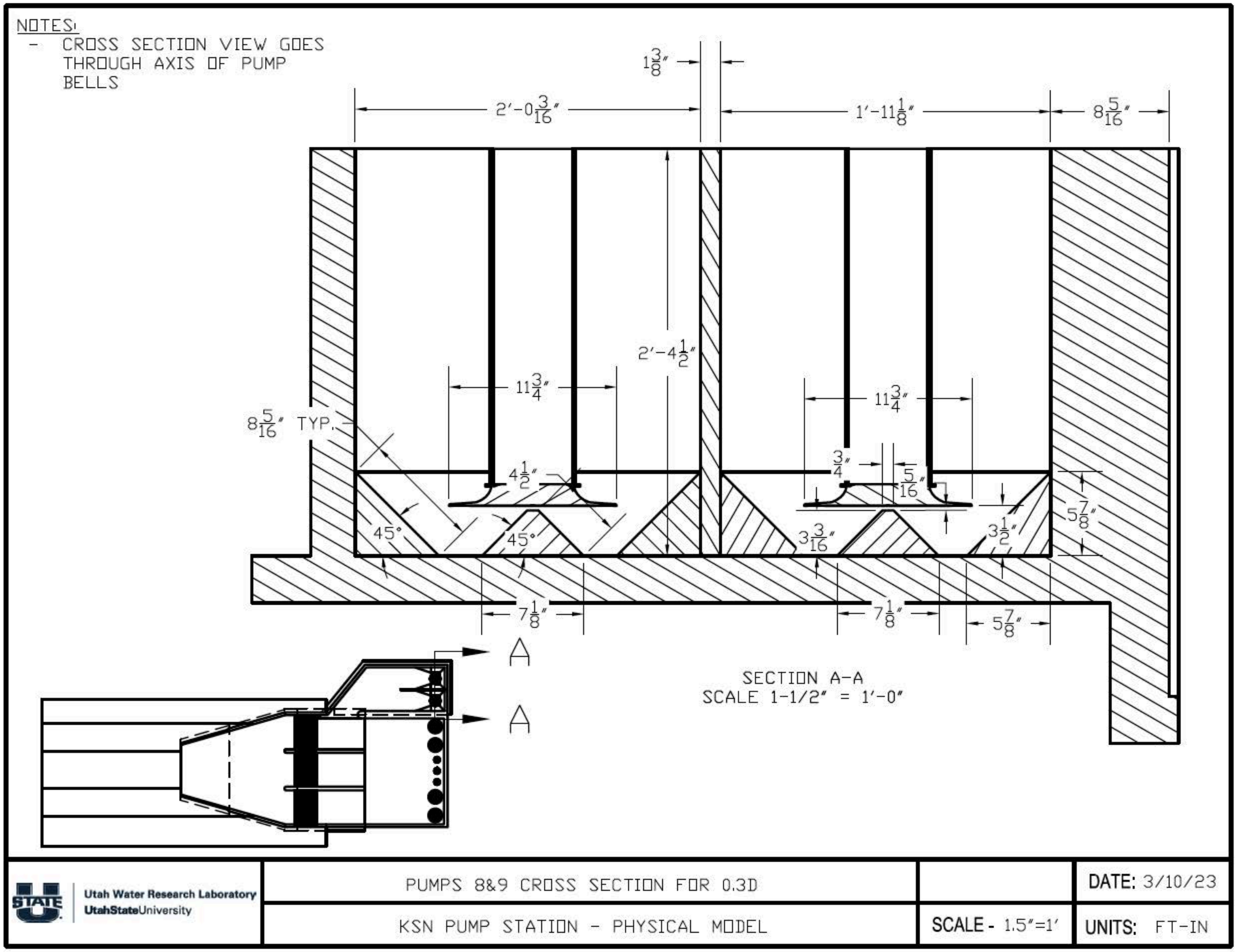


Figure B-28. Final fix for pumps 8 and 9 (end view model dimensions)

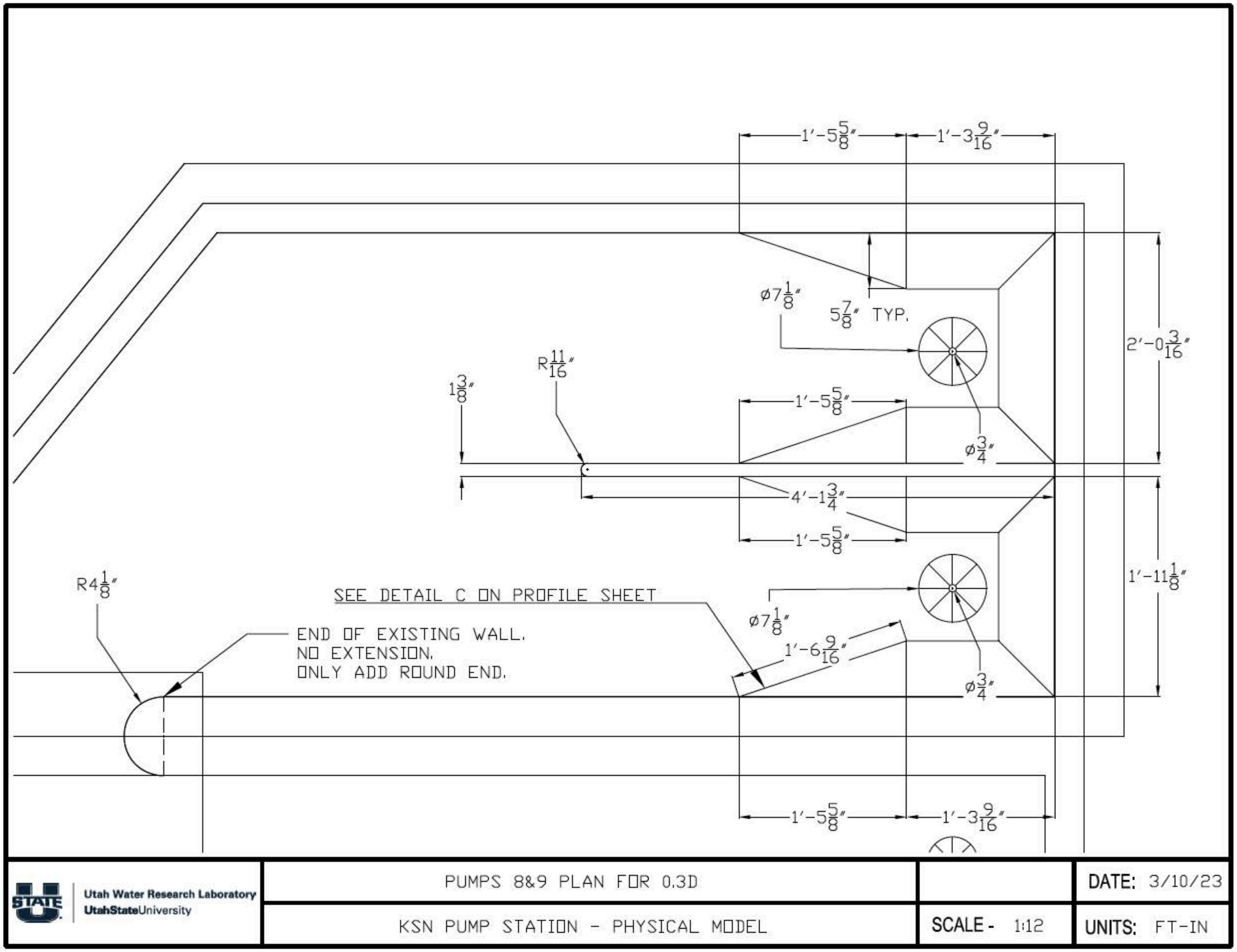


Figure B-29. Final fix for pumps 8 and 9 (plan view model dimensions)

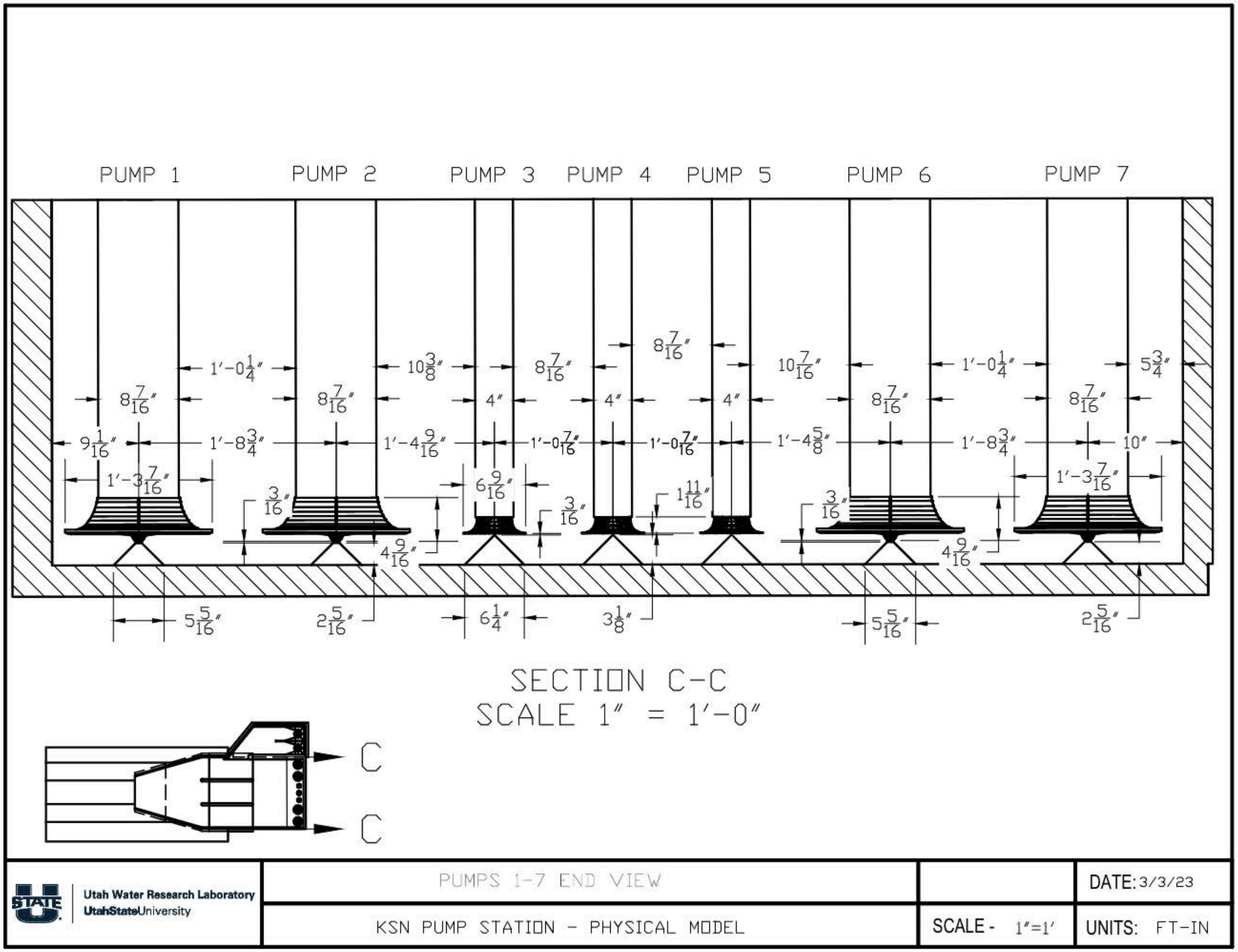


Figure B-30. Final fix configuration for pumps 1 through 7 (end view model dimensions)

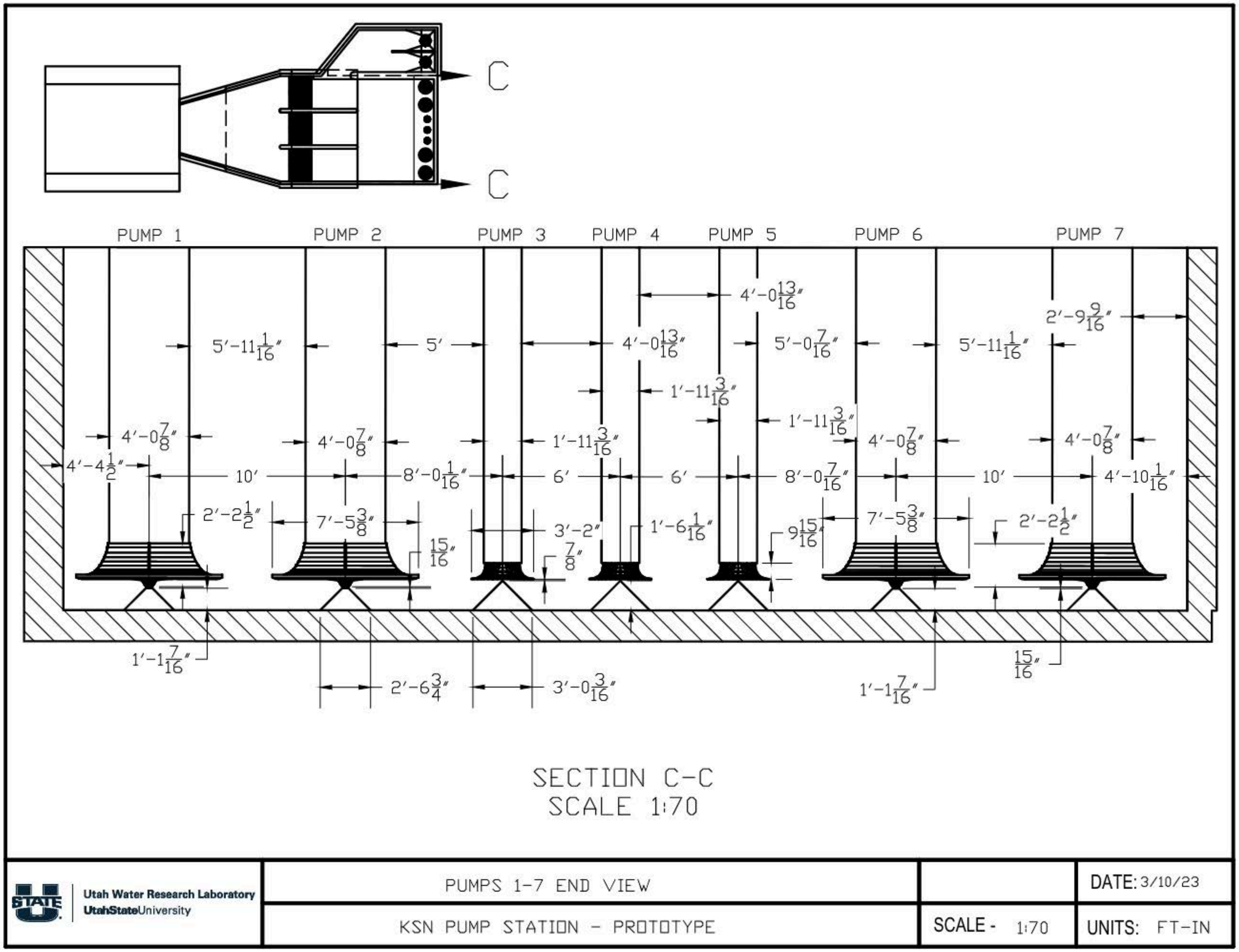
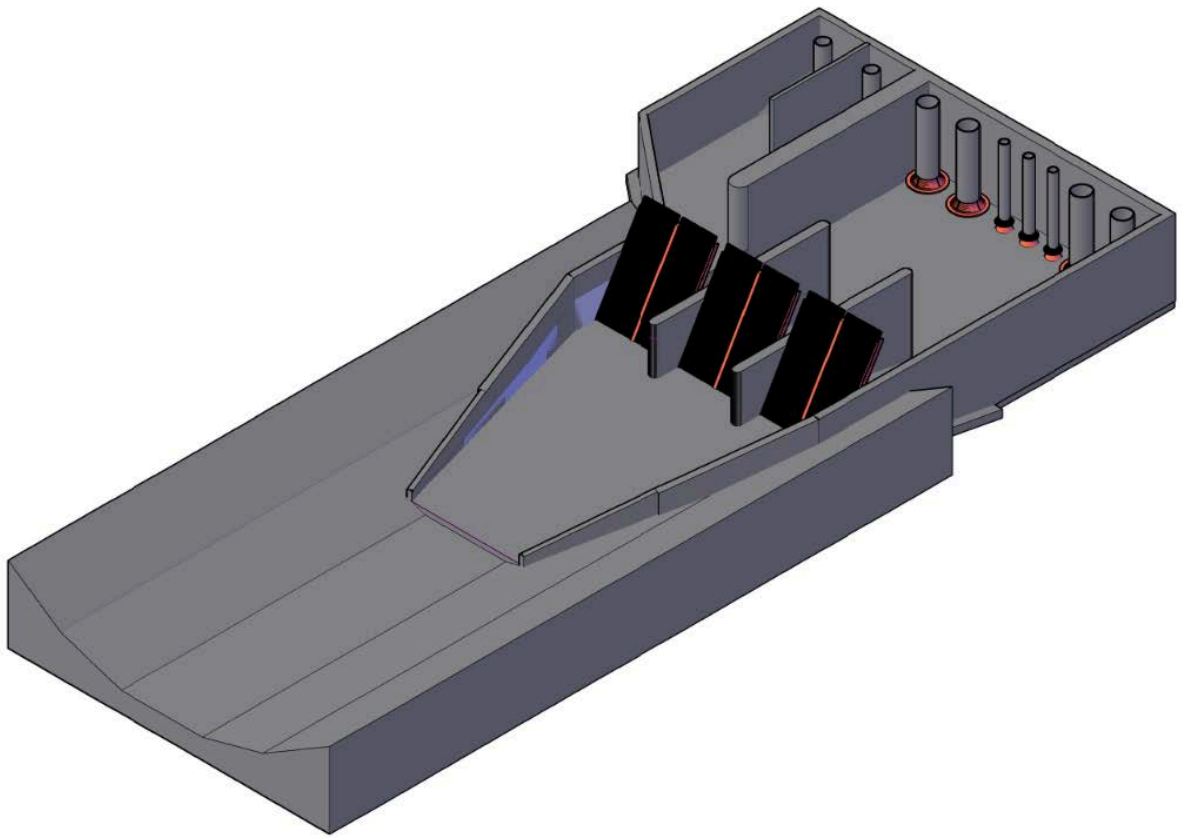
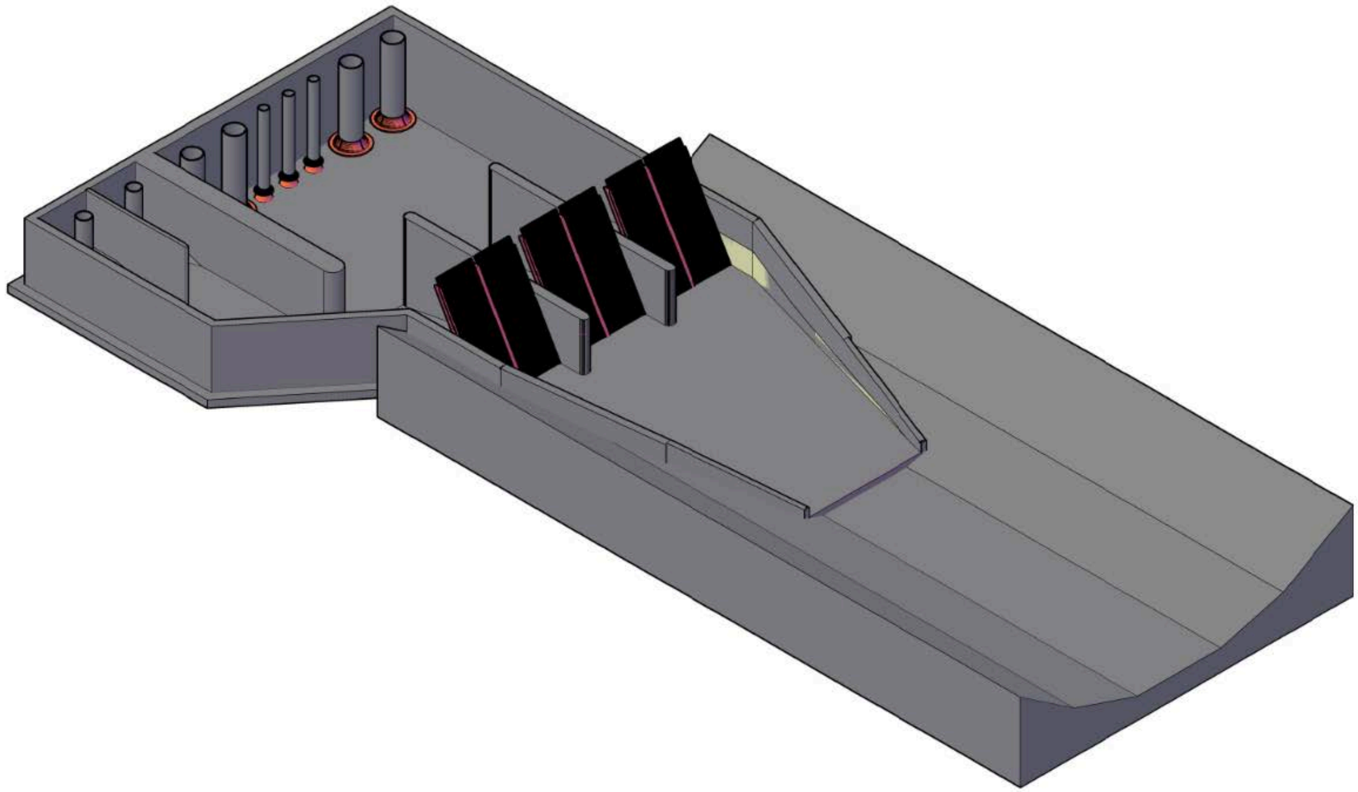


Figure B-31. Final fix configuration for pumps 1 through 7 (end view prototype dimensions)



Utah Water Research Laboratory UtahStateUniversity	ISOMETRIC VIEW 1		DATE: 3/3/23
	KSN PUMP STATION - PHYSICAL MODEL	SCALE - NTS	UNITS:

Figure B-32. View 1 3D rendering of physical model (isometric view)



Utah Water Research Laboratory UtahStateUniversity	ISOMETRIC VIEW 2		DATE: 3/3/23
	KSN PUMP STATION - PHYSICAL MODEL	SCALE - NTS	UNITS:

Figure B-33. View 2 3D rendering of physical model (isometric view)

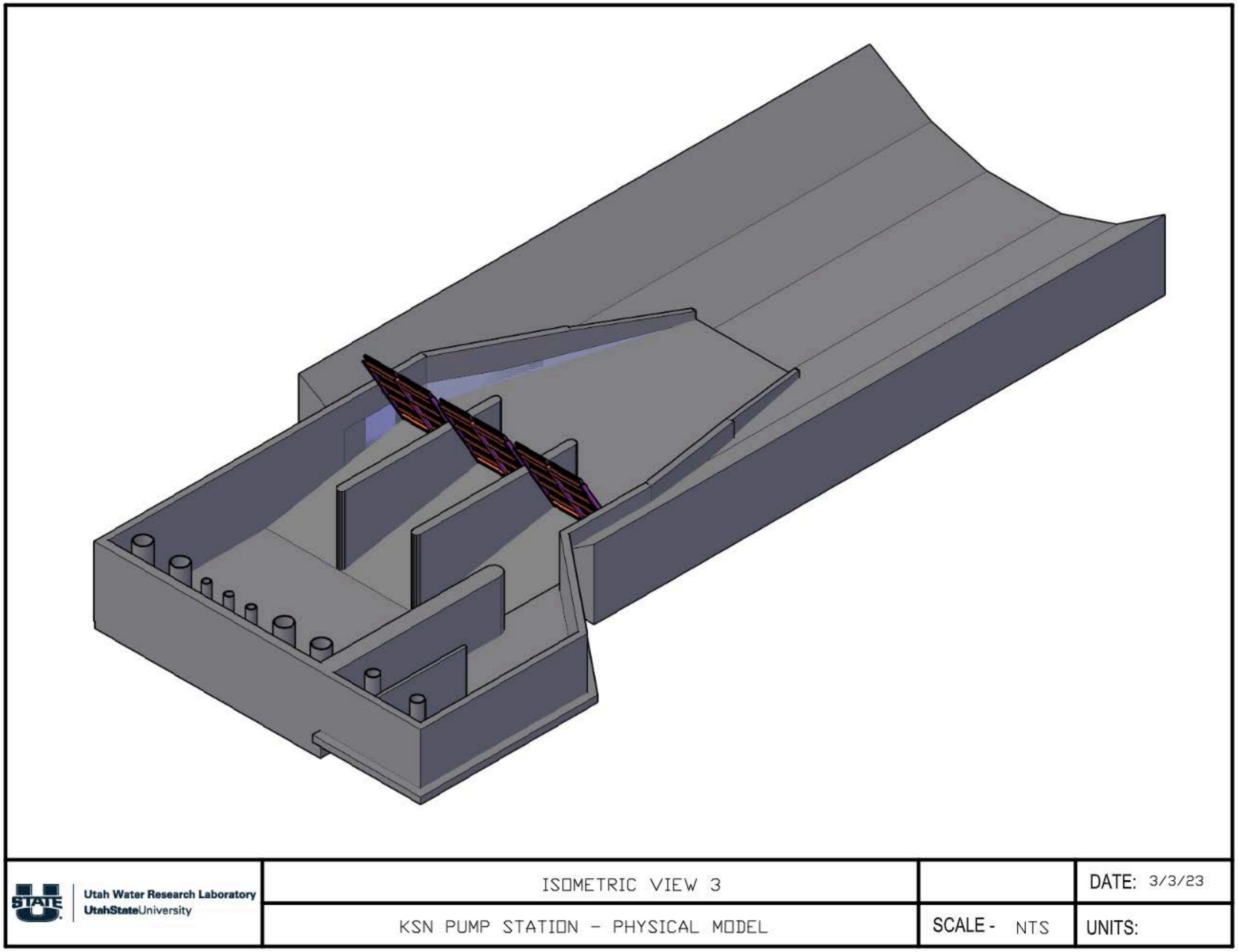


Figure B-34. View 3 3D rendering of physical model (isometric view)

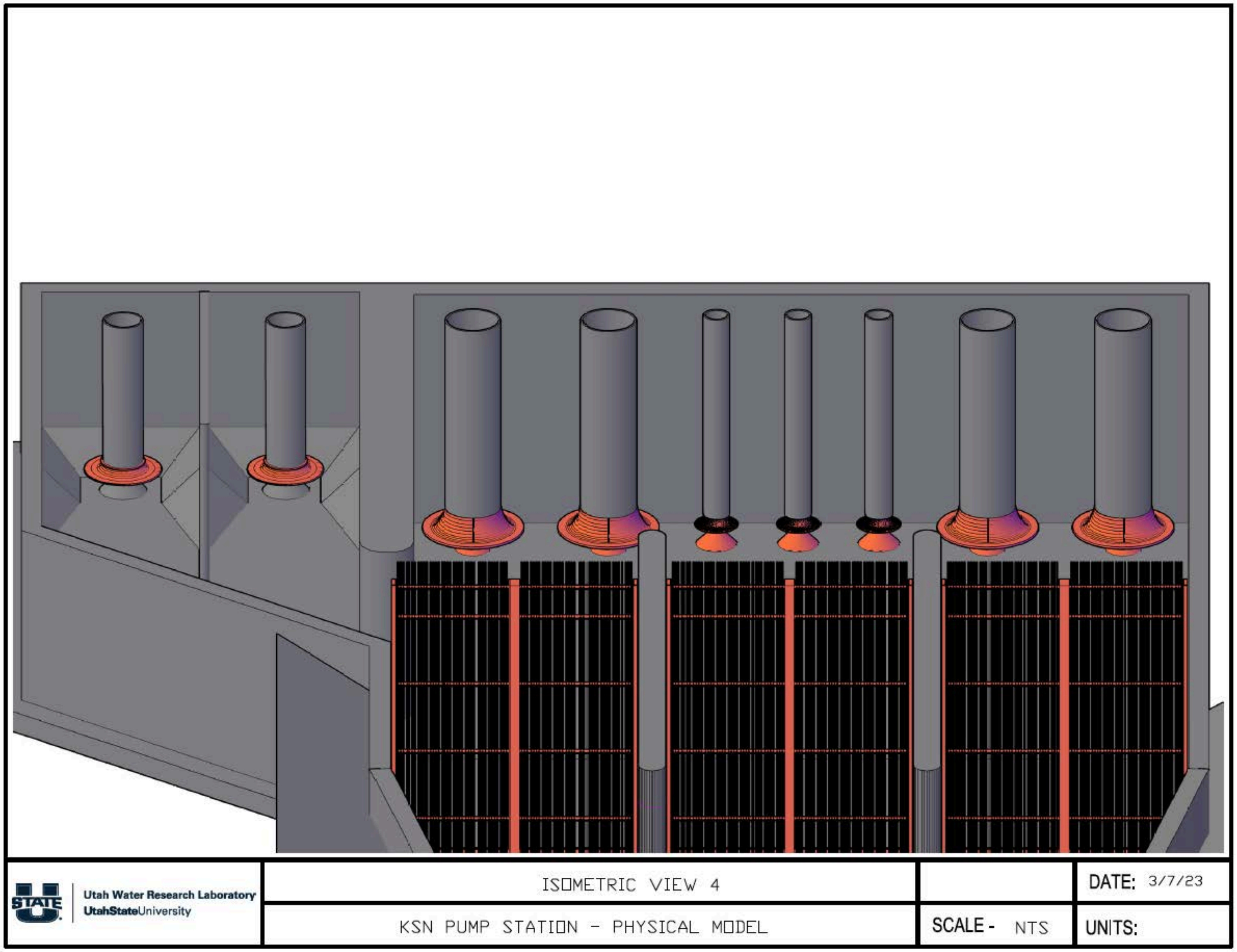


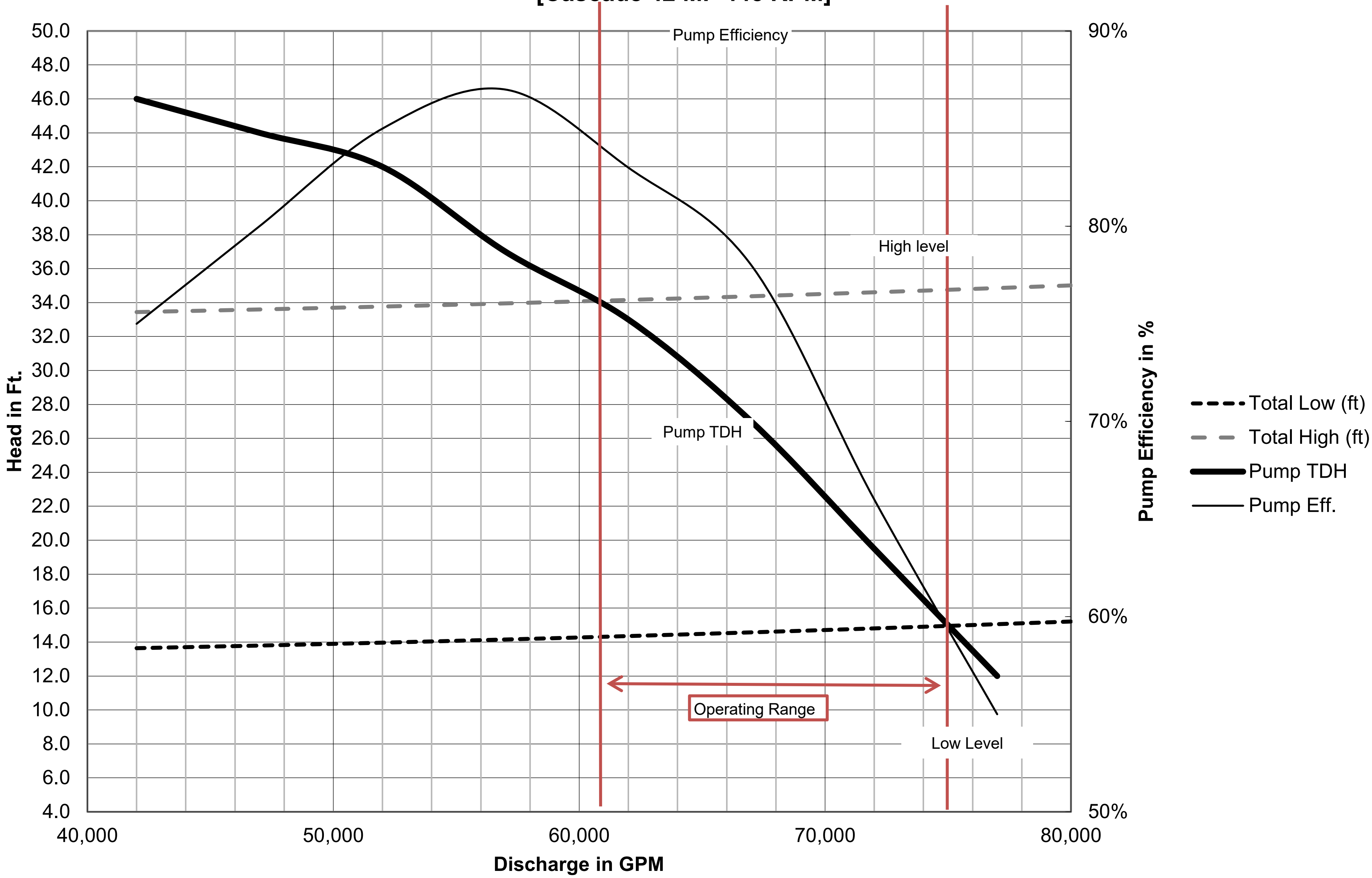
Figure B-35. View 4 3D rendering of final fixes in physical model (front view)

Appendix B

PUMP CURVE ANALYSIS

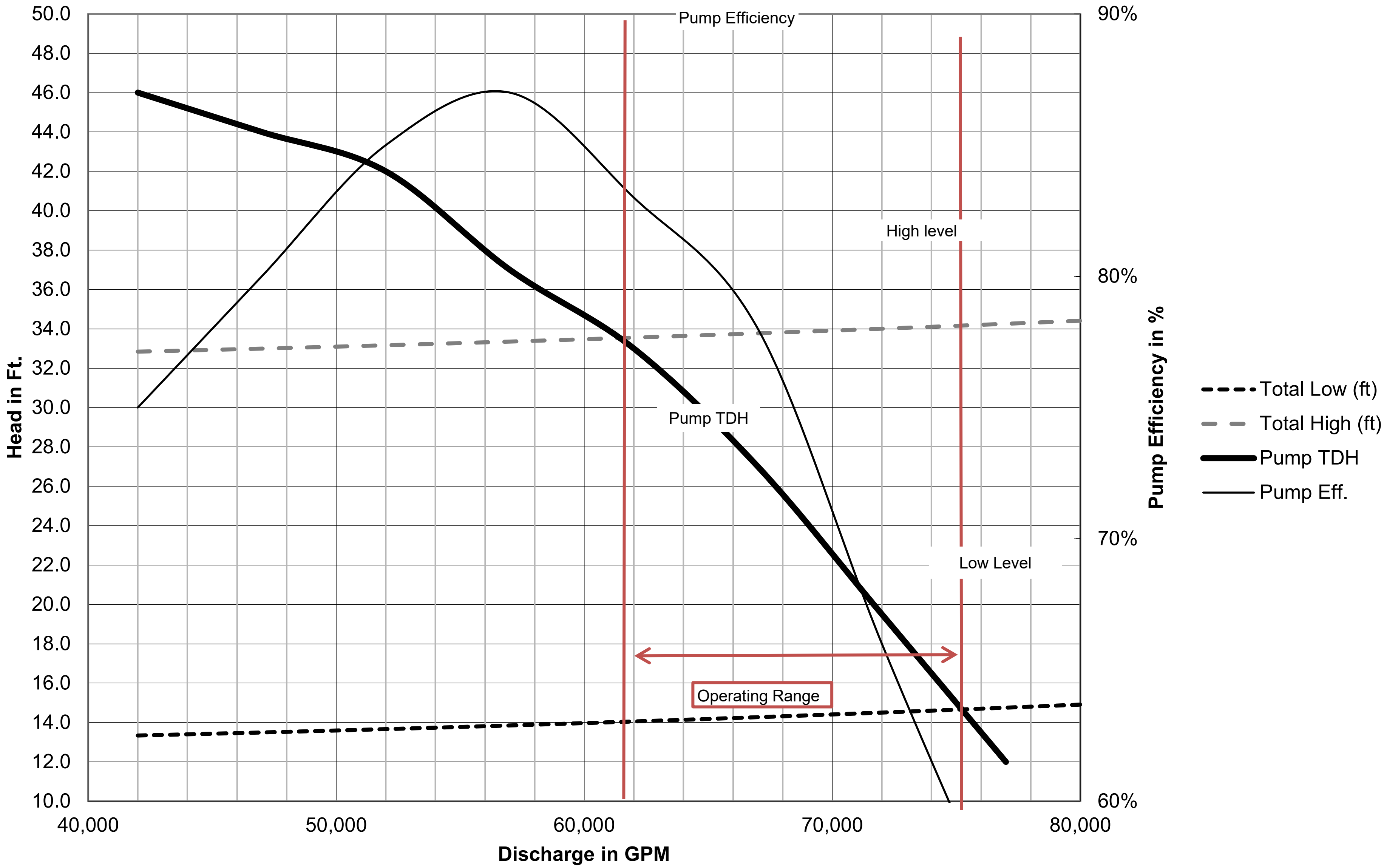
KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

RD 1000 Plant 8
Pump Unit No. 1
[Cascade 42 MF 445 RPM]



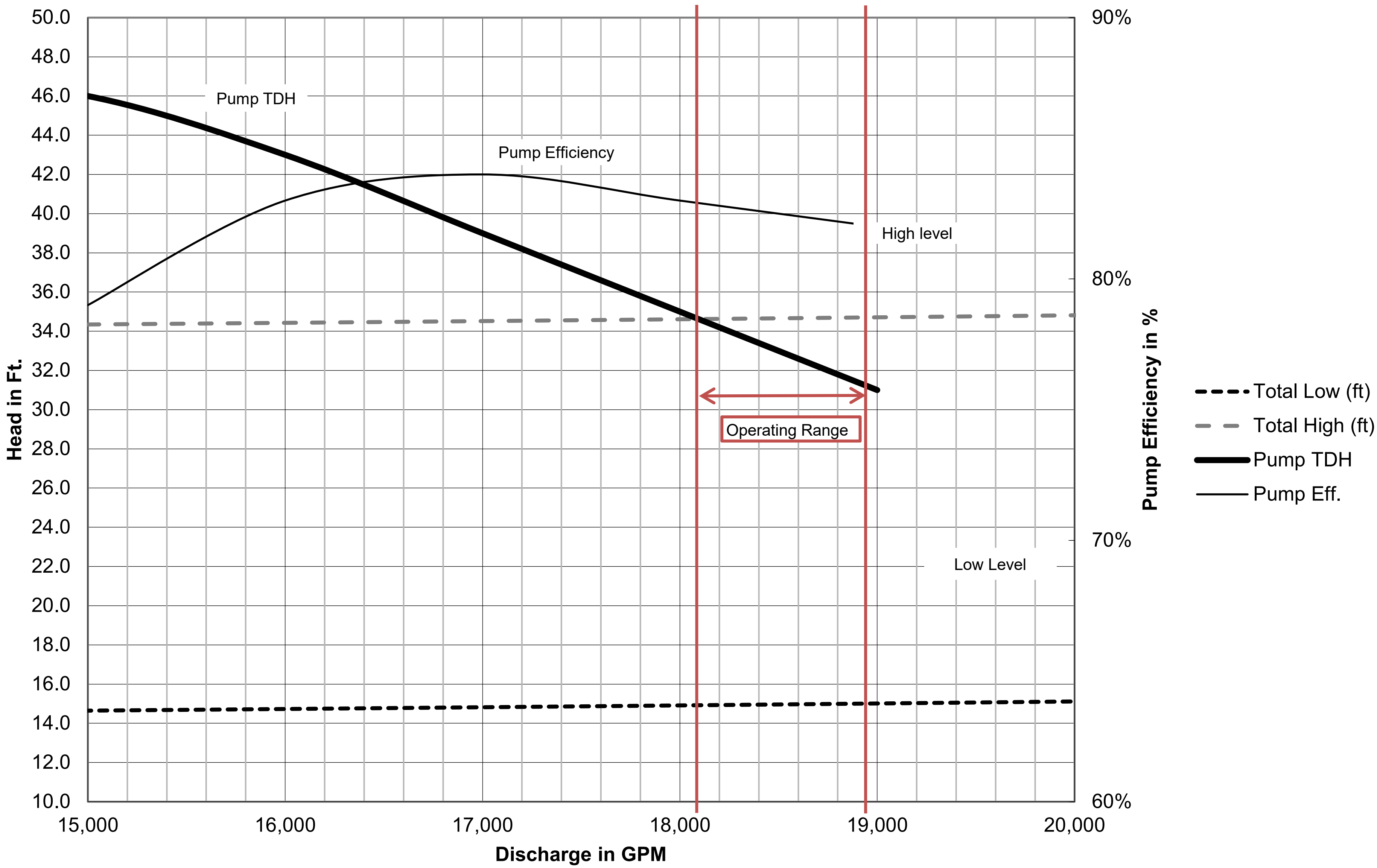
KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

RD 1000 Plant 8
Pump Unit No. 2
[Cascade 42MF 445RPM]

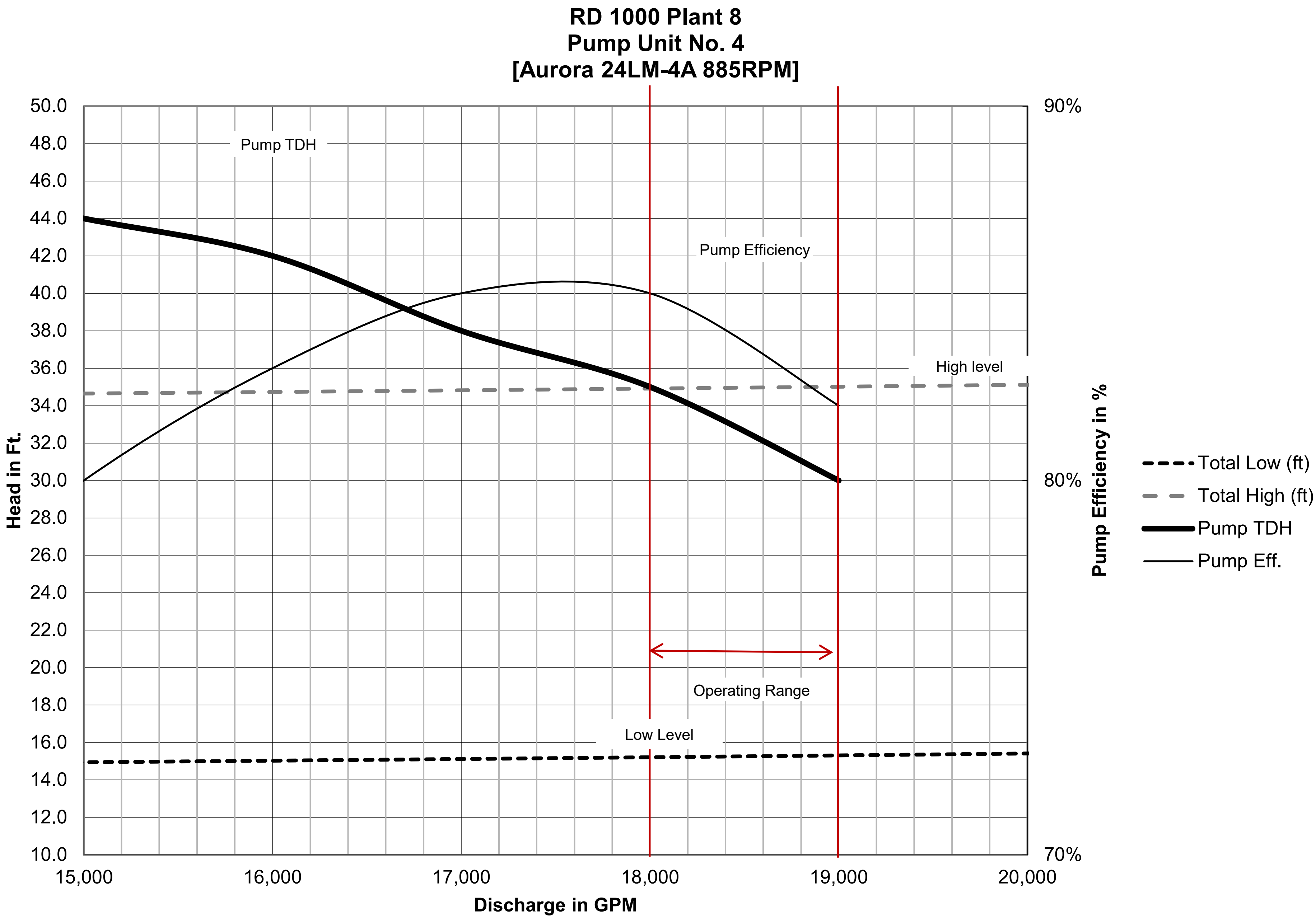


KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

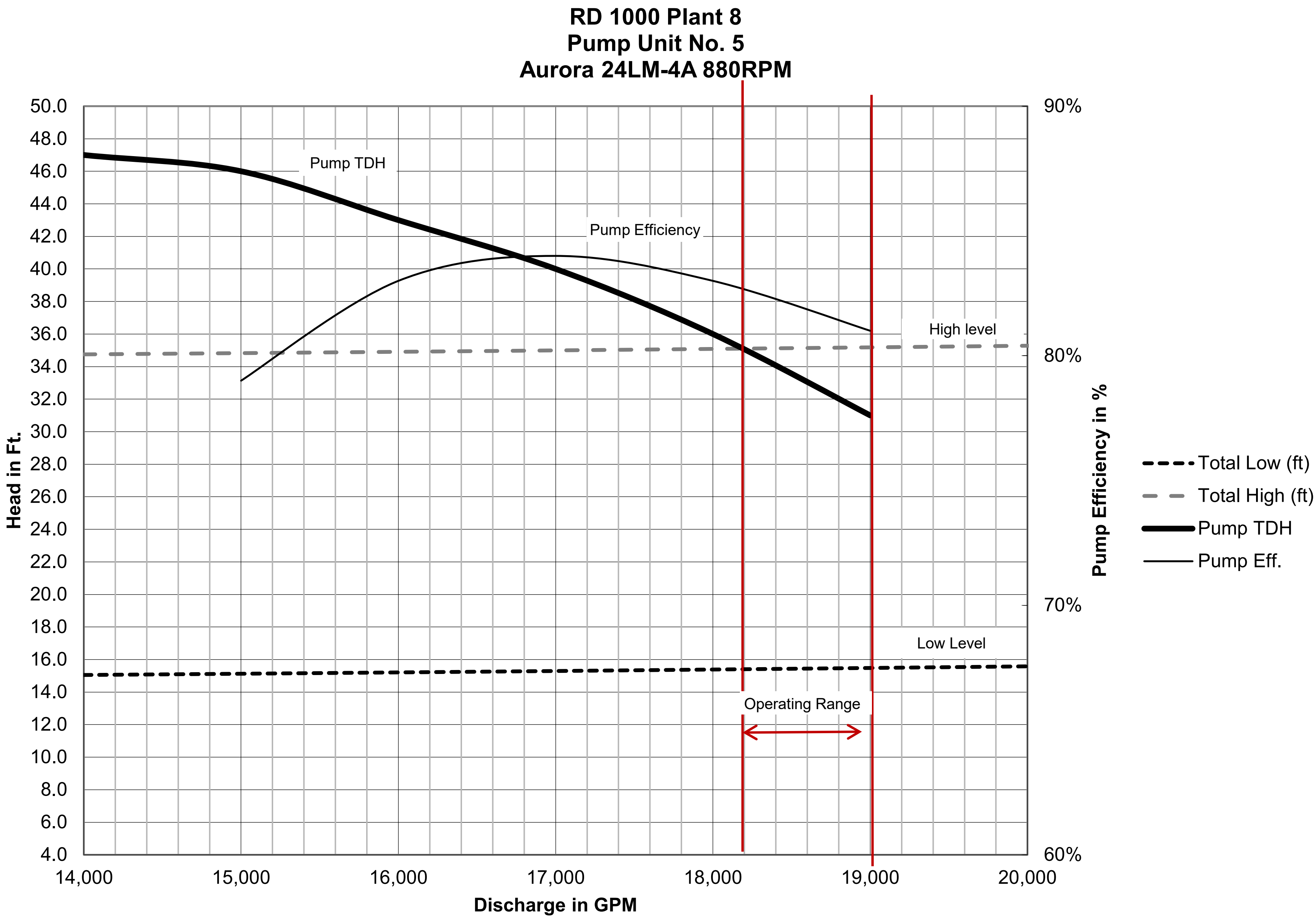
RD 1000 Plant 8
Pump Unit No. 3
[Aurora 24LM-4A 880RPM]



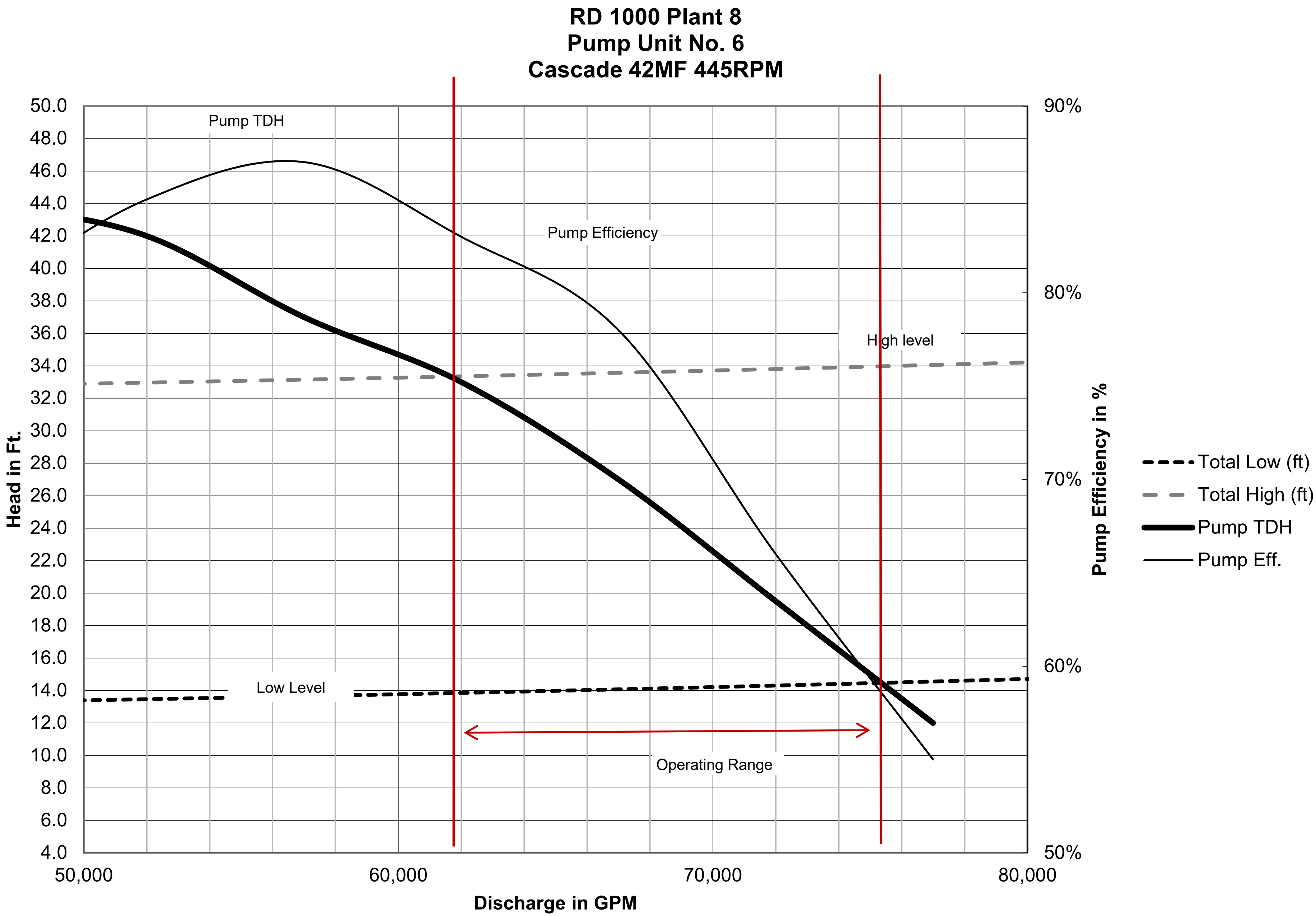
KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS



KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

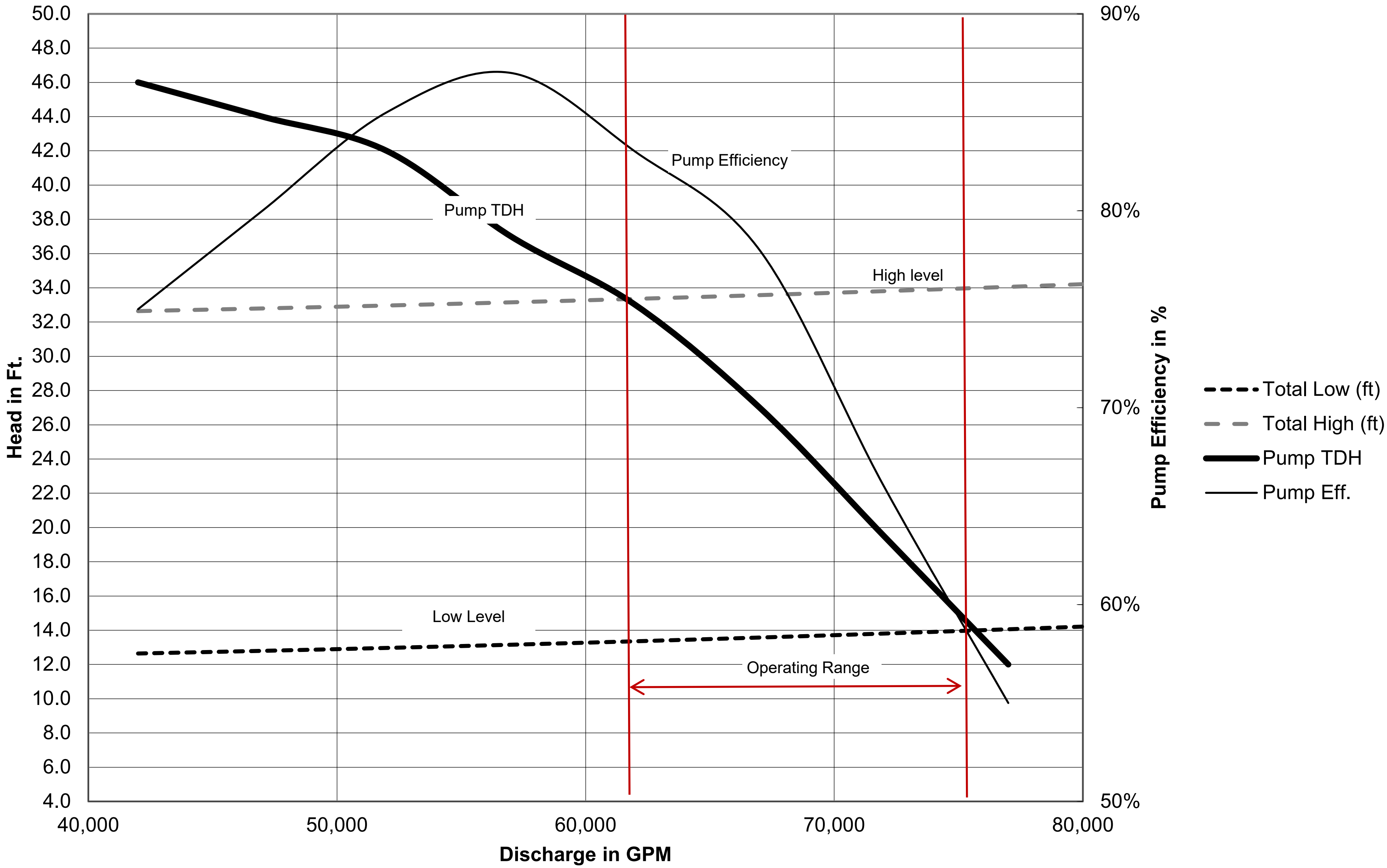


KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

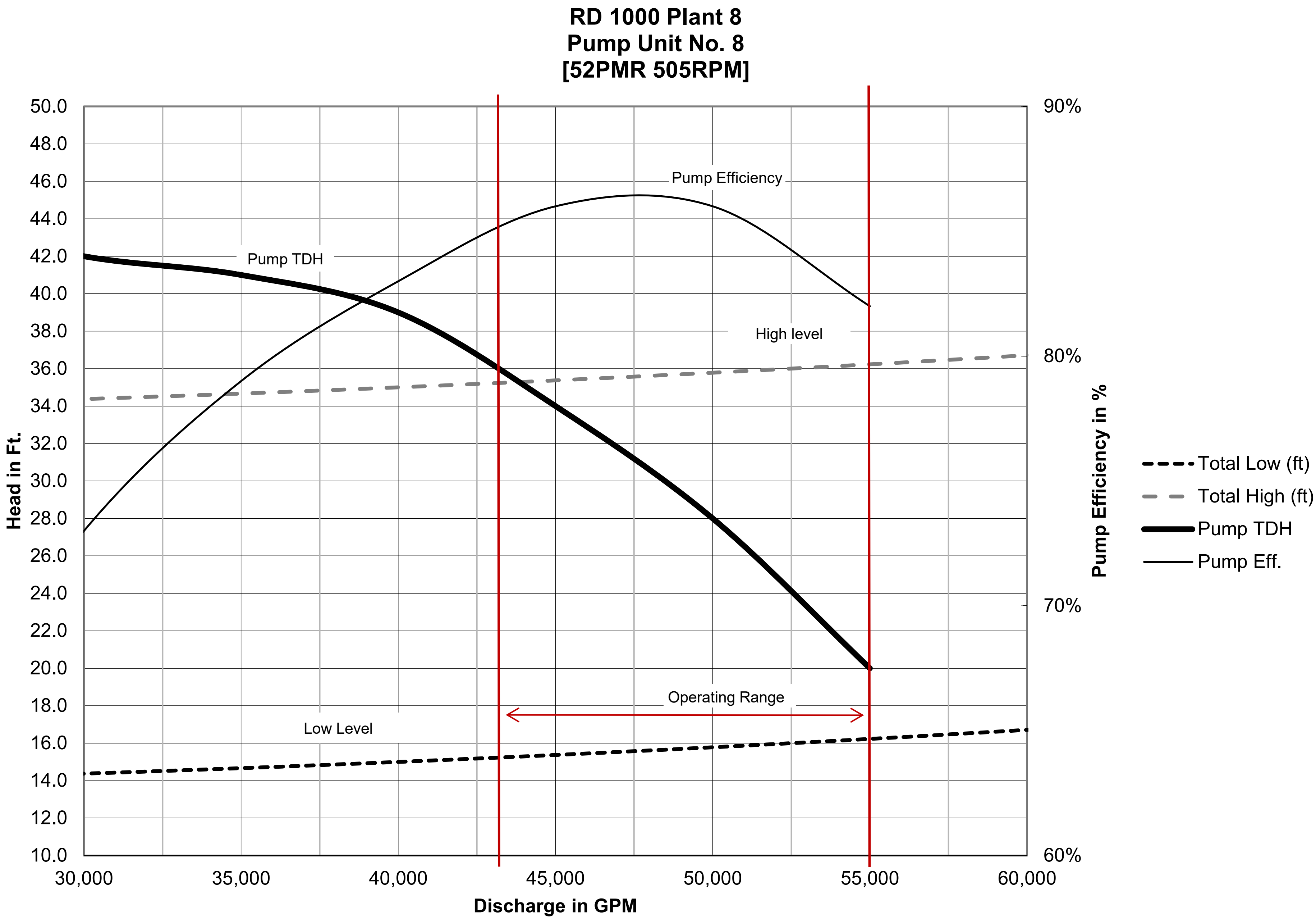


KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

RD 1000 Plant 8
Pump Unit No. 7
[Cascade 42MF 445RPM]

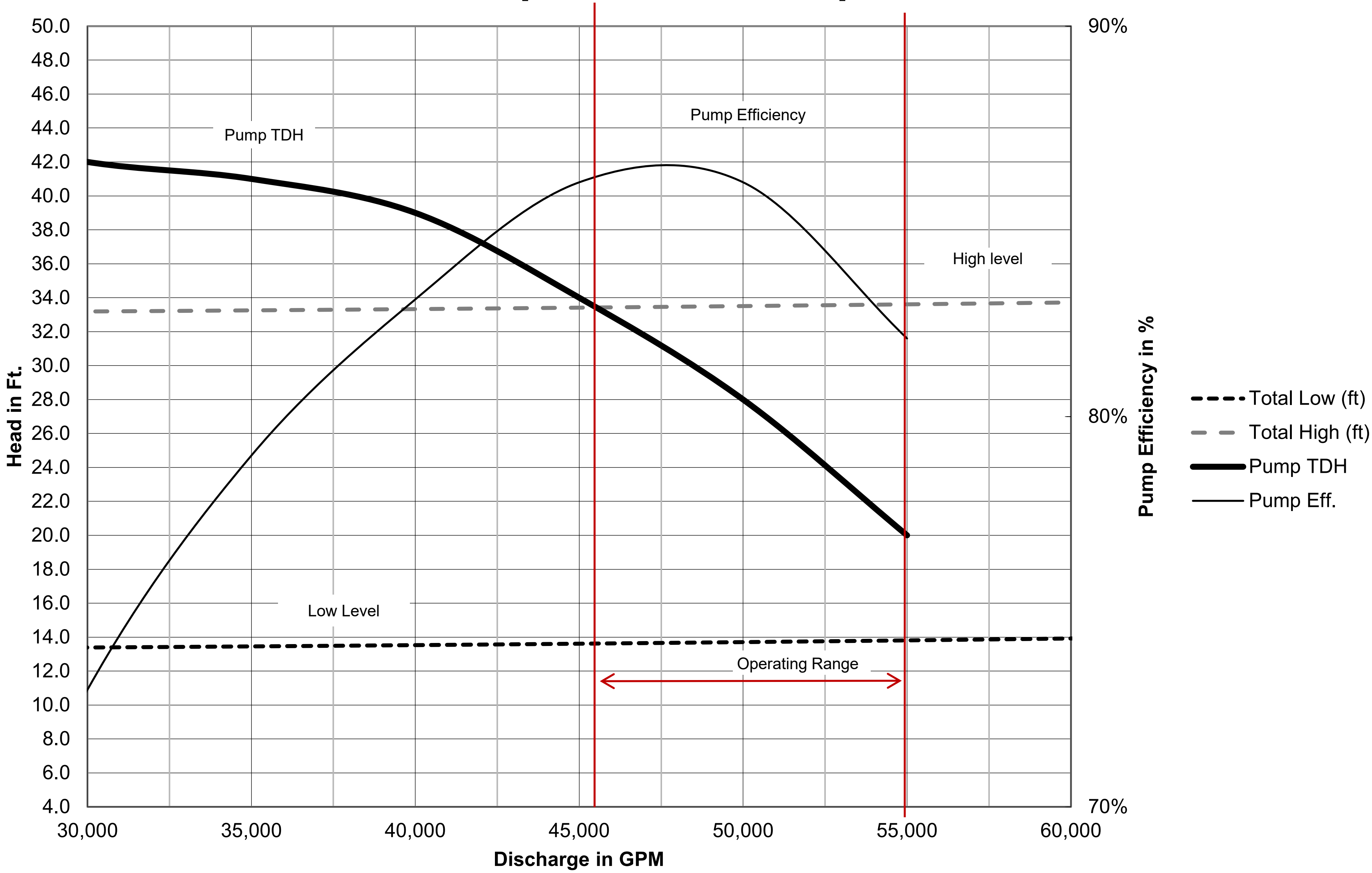


KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS



KJELDESN, SINNOCK & NEUDECK, INC.
CONSULTING CIVIL ENGINEERS AND LAND SURVEYORS

RD 1000 Plant 8
Pump Unit No. 9
[Flowserve 52PMR 505 RPM]



Appendix C

DISCHARGE PIPE CONDITION ASSESSMENT

KJELDSEN SINNOCK NEUDECK inc.
CIVIL ENGINEERS & LAND SURVEYORS

Stephen K. Sinnock, P.E.
Christopher H. Neudeck, P.E.
Neal T. Colwell, P.E.
Barry O'Regan, P.E.

2433-0030
08-300

DISCHARGE PIPE CONDITION ASSESSMENT

Decemeber 1, 2021

To: Gabe Holleman, Operations Manager, Reclamation District 1000

Subject: Condition Assessment of Discharge Piping at Pumping Plant 8

Project: Reclamation District 1000 Preliminary Site Design

From: Neal T. Colwell, RCE 59437
Patrick Maloney, EIT 173484

1. Introduction

Reclamation District No. 1000 (RD1000) has planned for a major rehabilitation of Pumping Plant No. 8. This rehabilitation is to include several upgrades and address identified system operational and condition concerns. Through prior facilities inspection and as a result of replacement of a portion of the existing discharge piping by a recently completed project, the condition of the existing discharge pipes that were not recently replaced has become a concern. Reported conditions of concern include deterioration of the pipe interior protective coating and potential deformation (out-of-round) of the pipes. This memo is intended to report on the current interior condition of the pipes based on a closed-circuit television (CCTV) inspection of the remaining discharge pipe segments not replaced in the recent project. Ultimately, this memo serves to inform a preliminary design assessment and recommendation of approach to rehabilitate the pipeline segments as necessary.

2. System Layout

RD1000 Pumping Plant No. 8 consists of 9 pumping units each connected to individual discharge pipes consisting of three different nominal diameters. Table 1 lists the pumping unit numbers and their corresponding discharge pipe diameters. Each pipe is accessible for inspection through a 24-inch diameter blind flange located on the top of each pipe approximately 20 feet from the pump.

Table 1
Pump Unit Numbers and Respective Diameters

Discharge Pipe Nominal Diameter (inch)	Pump Unit No.
36”	3, 4, 5
54”	1, 6, 7, 8
60”	9

The existing pumps and discharge pipes convey a major portion of RD1000's East Drain system drainage to Steelhead Creek. The total length of each induvial discharge pipe is approximately 320 feet from pump to discharge point at the headwall in Steelhead Creek. At approximately 170 feet from the pump, each existing pipe was replaced as part of a United States Army Corps of Engineers (USACE) levee improvement project completed in 2020. The portion of discharge pipe replaced included that portion going over the adjacent levee up to the discharge headwall. See Exhibit A for the site plan and profile views that identifies the portion of the discharge pipes inspected, noting the start and terminus of the CCTV inspection. Figure 1 shows

RD 1000 Pumping Plant 8 Looking West Towards the Drainage Canal and Figure 2 shows the blind flange entry point used for the inspection.

Figure 1
RD 1000 Pumping Plant 8 Looking West Towards the Drainage Canal

Figure 2
RD 1000 Pumping Plant 8 Showing the Blind Flange Entry Point

3. Initial Interior Assessment

As requested by RD1000, a robotic CCTV pipe inspection of the segment of pipe before the elevation rise was completed by 360 Pipeline Inspections on Tuesday, October 19, 2021. The section of pipe inspected was from the 24-inch diameter blind flange entry point to the transition of the replacement pipe installed under the USACE project, a length of approximately 140 feet for each pipe. A total of approximately 1,200 lineal-feet of pipe on 9 pumping unit sections was inspected. Below is a summary of the photo and video records for each individual pipe, focusing on the defects noted. In general, CCTV inspection revealed that the interior epoxy coating on these welded steel pipes is failing and significant oxidation has occurred within the pipe. A pressing concern regarding pipe integrity at the plant is the presence of a suspected hole in the pipe structure for Pumping Unit No. 6. This hole is located at approximately 127 feet downstream from the flange entry and more detail is referenced in Section 3.2 below. Significant delamination of the epoxy coating was more common at the blind flange point of entry in most segments. Plots of the pipe defects from the 360 Pipeline Inspections report are presented in Exhibit B, and Exhibit C presents the day of site assessment notes. The major observed defects for the identified pipe corresponding to the pump unit number are listed below. Another common element present in the inspected pipe segments was corrosion and spalling at the joint before the section rise as seen in Figure 3 below. This defect occurs at the welded joint where the newer USACE project pipe connects with the older pipe, and initial observations note a lack of epoxy coating resulting in significant corrosion.

Figure 3
Representative Photo of Damaged Coating Common to all Pipe Segments Except That of Pumping Unit No. 9.

3.1. Unit No. 7

The inspected section consists of a 54-inch diameter steel pipe of approximately 137 feet in length. At the access point, surface damage corrosion and spalling were present from the 7 o'clock position down to the 6 o'clock position. The picture below shows this damage at the point of entry (0 feet).

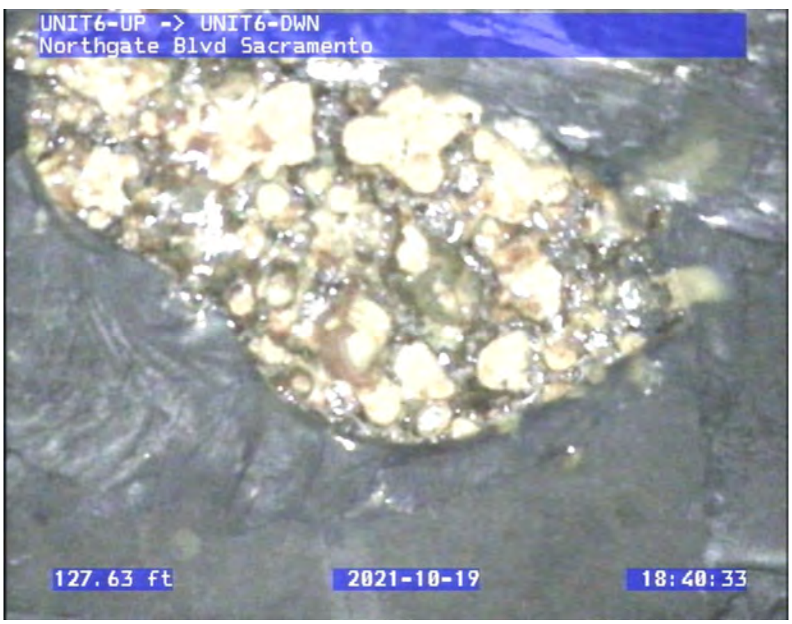
The Pumping Unit No. 7 inspection also revealed surface spalling and material damage to the pipe segment shown in the pictures below.

The table below outlines the defects encountered during the pipe inspection, the defect location in feet from the access point and the defect's initial assessed severity. Corrosion and spalling were present at the joint located before the elevation rise at the connection of the older discharge pipe and the USACE installed pipe as seen in Figure 3.

Unit No. 7 Defect	Location (ft from access point)	Severity
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	0.0	Heavy
Surface Damage Corrosion from 7 o'clock to 6 o'clock	0.0	Heavy
Surface Spalling of Damage Coating at 4 o'clock	59.4	Light
Infiltration Stain at 4 o'clock	59.4	Light
Surface Damage Corrosion from 7 o'clock to 6 o'clock	133.5	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	133.5	Light

3.2. Unit No. 6

Entry point delamination and corrosion damage was encountered. At 56.7 feet from the access point, there was a defective lining feature as shown in the left-hand side inspection photos below. At 126.6 feet from the access point, there was a suspected hole in the pipe as shown in the right-hand side inspection photo and close up inspection photo below. A hole in the pipe would be cause for immediate concern and possible suspension of Pumping Unit No. 6 use. Also of note are the markings surrounding the site of the suspected hole which may indicate repairs made after the most recent coating of the pipe. A physical inspection of the pipe interior is recommended to assess if the damage is indeed a hole. Corrosion and spalling were present at the joint located before the section joint at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.



Unit No. 6 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 7 o'clock to 6 o'clock	0.0	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	0.0	Heavy
Surface Spalling of Damage Coating at 12 o'clock	54.5	Average
Surface Spalling of Damage Coating at 2 o'clock	56.7	Average
Infiltration Stain Barrel at 2 o'clock	56.7	Average
Material Hole in the Pipe at 1 o'clock	126.7	Heavy
Surface Damage Corrosion from 7 o'clock to 6 o'clock	134.8	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	134.8	Light

3.3. Unit No. 5

Pipe segments for Pumping Units No. 5, 4, and 3 had consistent spalling throughout the inspected pipe segments and looked to be much older pipes with more spalling and corrosion present than the other pumping units. The photo below is a typical representation of the advancing state of corrosion in these three pipe segments.

Pipe segments for Pumping Unit No. 5 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

Unit No. 5 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 10 o'clock to 2 o'clock	0.0	Heavy
Surface Spalling of Damage Coating from 8 o'clock to 2 o'clock	0.0	Average
Surface Spalling of Damage Coating from 5 o'clock to 7 o'clock	14.6	Average
Surface Spalling of Damage Coating from 11 o'clock to 1 o'clock	55.6	Average
Surface Damage Corrosion from 7 o'clock to 6 o'clock	133.6	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	133.6	Light

3.4. Unit No. 4

Similar corrosion characteristics to Pumping Unit 5 were noted in the discharge pipe for Unit No. 4. However, more sediment was present as seen in the photo below. The pipe segment was dry and looked recently unused, and a grinding disk was present.

Pipe segments for Pumping Unit No. 4 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

Unit No. 4 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 8 o'clock to 4 o'clock	0.0	Heavy
Surface Spalling of Damage Coating from 8 o'clock to 4 o'clock	0.0	Average
Surface Damage Corrosion from 7 o'clock to 6 o'clock	15.4	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	15.5	Average
Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Start	20.0	Light
Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Finish	129.0	Heavy
Surface Damage Corrosion from 7 o'clock to 6 o'clock	133.5	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	133.6	Light

3.5. Unit No. 3

Spalling was present at a location 15.6 feet from the entry point and is shown in the photo below.

Pipe segments for Pumping Unit No. 3 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

Unit No. 3 Defect	Location (ft from access point)	Severity
Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Start	0.0	Light
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	15.6	Heavy
Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Finish	129.0	Average
Surface Damage Corrosion from 7 o'clock to 6 o'clock	132.5	Light

3.6. Unit No. 2

Segments of the pipe contained heavy surface corrosion as shown in the photo below.

Heavy spalling of the coating was present approximately 3 feet from the point of access and is shown in the photo below.

Pipe segments for Pumping Unit No. 2 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

Unit No. 2 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 4 o'clock to 8 o'clock	2.0	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	3.3	Heavy
Surface Damage Corrosion from 7 o'clock to 6 o'clock	129.0	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	129.0	Light

3.7. Unit No. 1

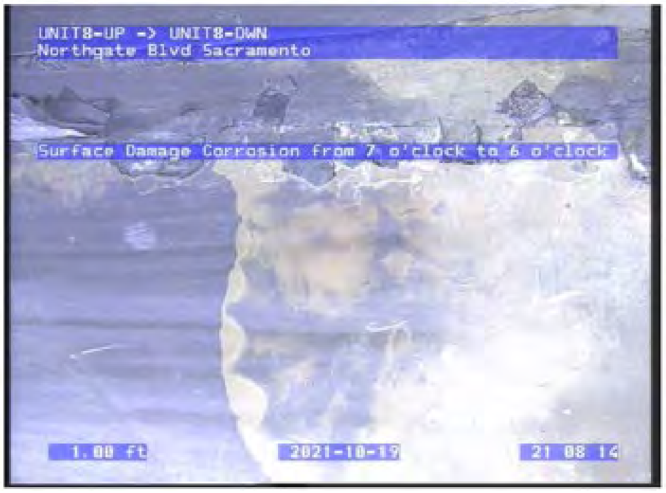
The photos below show the presence of heavy corrosion and spalling present in this pipe segment.

Pipe segments for Pumping Unit No. 1 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

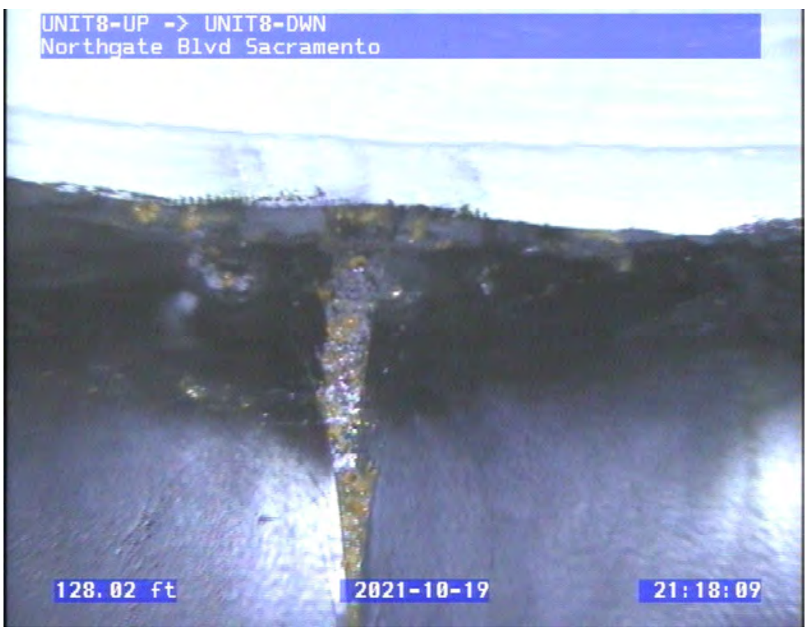
Unit No. 1 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 5 o'clock to 7 o'clock	0.0	Heavy
Surface Spalling of Damage Coating at 6 o'clock	20.5	Average
Surface Spalling of Damage Coating from 2 o'clock to 5 o'clock	69.7	Average
Surface Damage Corrosion from 7 o'clock to 6 o'clock	128.7	Heavy

3.8. Unit No. 8

Surface damage corrosion and spalling were present at multiple locations in the pipe, and the pipe had a corroded joint band.



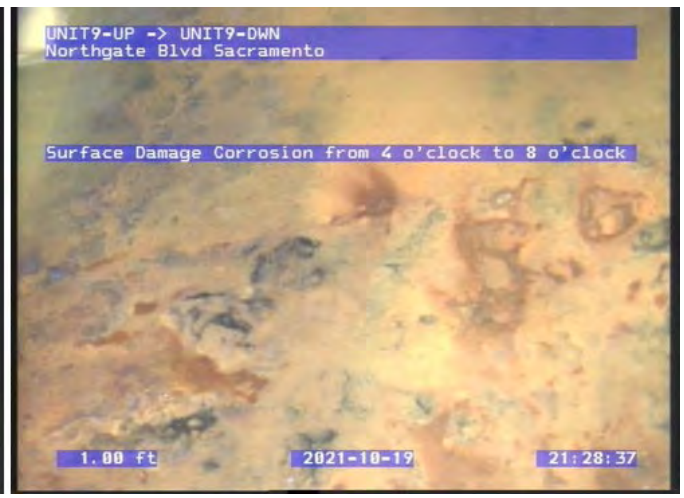
Pipe segments for Pumping Unit No. 8 had corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.



Unit No. 8 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 7 o'clock to 6 o'clock	1.0	Heavy
Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	1.0	Average
Surface Damage Corrosion from 5 o'clock to 7 o'clock	11.6	Average
Surface Damage Corrosion from 5 o'clock to 7 o'clock	30.5	Average
Surface Damage Corrosion from 5 o'clock to 7 o'clock	49.7	Average
Surface Damage Corrosion from 5 o'clock to 7 o'clock	69.5	Average
Surface Damage Corrosion from 4 o'clock to 8 o'clock	109.1	Light

3.9. Unit No. 9

Surface corrosion is present in the pipe invert (the 6 o'clock position) in the initial pipe segment as shown in the photo below.



. Pipe segments for Pumping Unit No. 9 had minor corrosion and spalling present at the welded joint located before the section rise at the connection of the older discharge pipe to the USACE project pipe as seen in Figure 3.

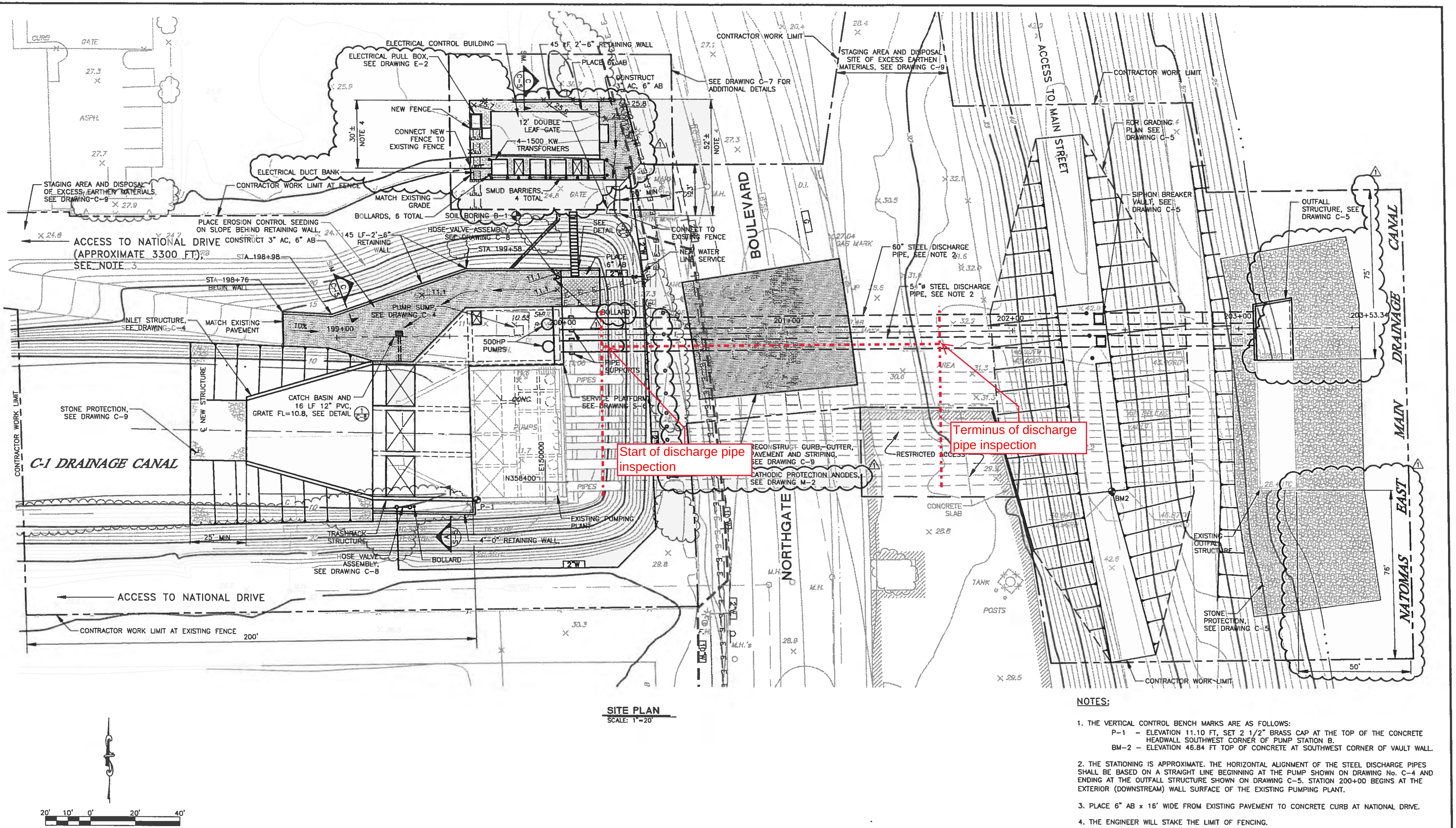
Unit No. 9 Defect	Location (ft from access point)	Severity
Surface Damage Corrosion from 4 o'clock to 8 o'clock	1.0	Average
Surface Damage Corrosion from 7 o'clock to 6 o'clock	129.0	Light

4. Project Recommendations

This CCTV inspection of the RD1000 Pumping Plant No. 8 interior pipe segments showed significant spalling of the epoxy coating and surface corrosion of the pipe material present in each of the 130-foot to 140-foot segments between the access flange and the point of connection with the pipe replaced as part of the USACE project. After the CCTV inspection of Pumping Unit No. 6, a physical follow up inspection regarding the suspected hole is recommended to make a determination of the damage severity and operational risks it may pose. If a hole in the pipe structure is present, options for operational risk mitigation include suspending all use of Pumping Unit No. 6 or using Pumping Unit No. 6 only during extreme conditions at the plant until it is repaired. It is also recommended that rehabilitation of the pipe interior coating be reviewed and options identified with the purpose of extending the useful life of the existing material.

Exhibit A

Plant No. 8 Plan and Profile View



SITE PLAN
SCALE: 1"=20'

NOTES:

1. THE VERTICAL CONTROL BENCH MARKS ARE AS FOLLOWS:
   - P-1 – ELEVATION 11.10 FT, SET 2 1/2" BRASS CAP AT THE TOP OF THE CONCRETE HEADWALL SOUTHWEST CORNER OF PUMP STATION B.
   - BM-2 – ELEVATION 46.84 FT TOP OF CONCRETE AT SOUTHWEST CORNER OF VAULT WALL.
2. THE STATIONING IS APPROXIMATE. THE HORIZONTAL ALIGNMENT OF THE STEEL DISCHARGE PIPES SHALL BE BASED ON A STRAIGHT LINE BEGINNING AT THE PUMP SHOWN ON DRAWING No. C-4 AND ENDING AT THE OUTFALL STRUCTURE SHOWN ON DRAWING C-5. STATION 200+00 BEGINS AT THE EXTERIOR (DOWNSTREAM) WALL SURFACE OF THE EXISTING PUMPING PLANT.
3. PLACE 6" AB x 16' WIDE FROM EXISTING PAVEMENT TO CONCRETE CURB AT NATIONAL DRIVE.
4. THE ENGINEER WILL STAKE THE LIMIT OF FENCING.
5. PLACE EROSION CONTROL SEEDING ON ALL NEW EMBANCMENT SLOPES OR OTHER DISTURBED AREAS THAT DO NOT RECEIVE STONE PROTECTION OR AGGREGATE BASEROCK.

H:\439\ADDENDUM1\439A1C1.dwg 05/03/2001 10:19:56 AM PDT

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION
1	3-23-01	MSM	MSM	MSM	ADDENDUM NO. 1
	3-9-01	MSM	MSM	MSM	ISSUED FOR BIDDING

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION

DESIGNED BY:	MSM
DRAWN BY:	SG
CHECKED BY:	SB
IN CHARGE:	MSM
DATE:	12-13-98

REGISTERED PROFESSIONAL ENGINEER MARK S. MARTIN 35079 CIVIL STATE OF CALIFORNIA

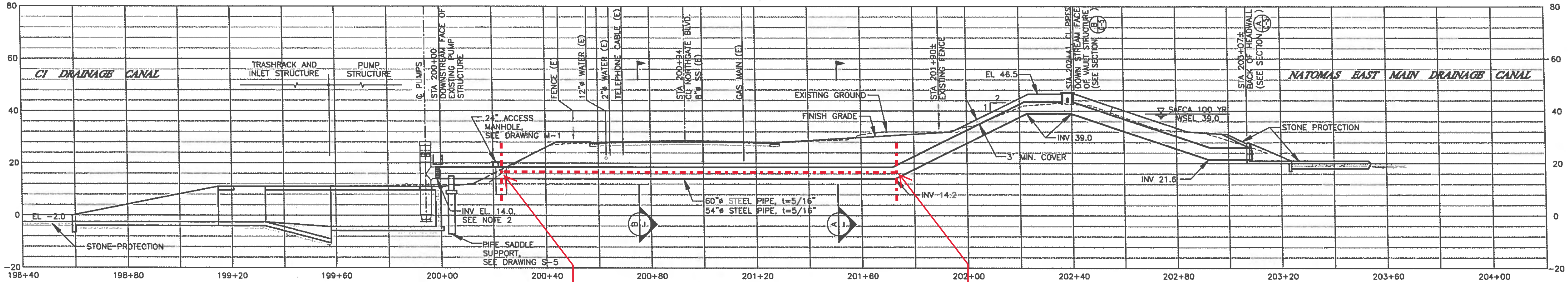
ENSIGN & BUCKLEY
CONSULTING ENGINEERS
• SACRAMENTO •

SUBMITTED / APPROVED

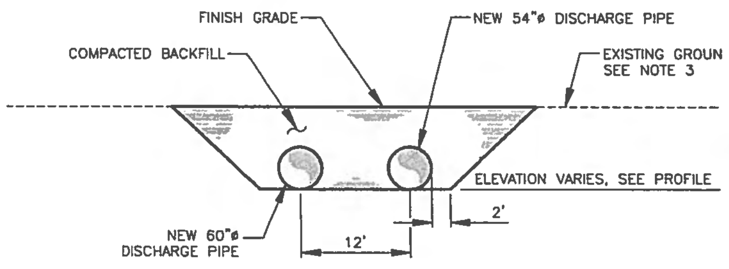
RECLAMATION DISTRICT 1000

PLANT 8 IMPROVEMENTS
SITE PLAN – PUMP STATION AND OUTFALL STRUCTURE

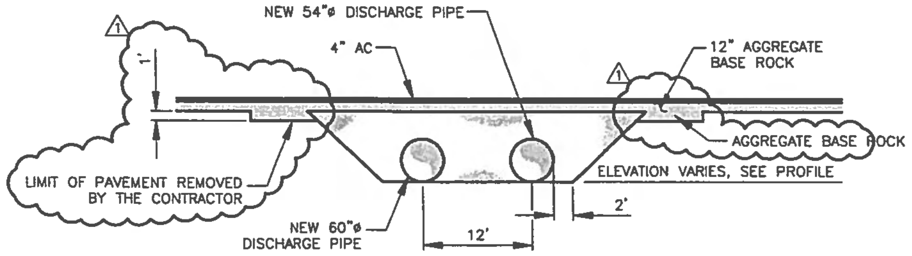
SCALE OF ORIGINAL: 1" = 20'
DRAWING NO. C-1
SHEET 3



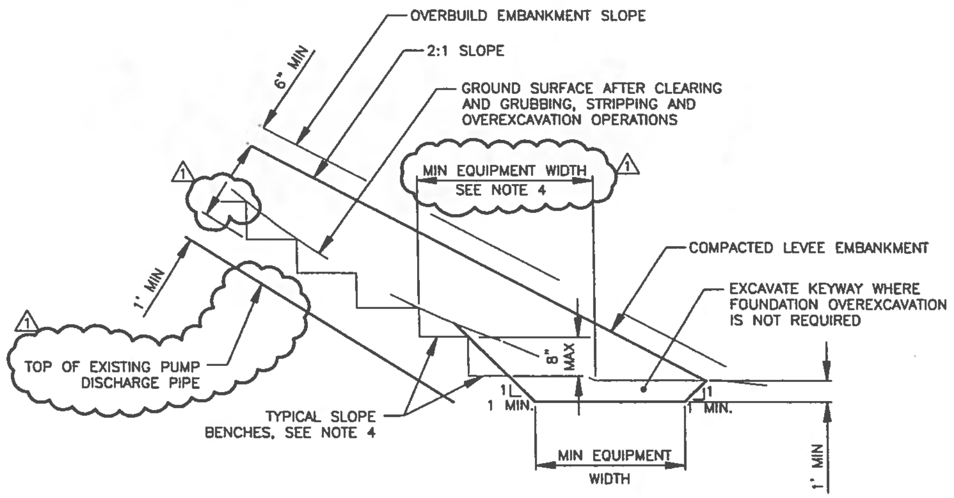
PLANT 8 - PROFILE
SCALE: 1"=20' HORIZ.
1"=20' VERT.



SECTION AT DISCHARGE PIPES (A/-)
SCALE: 1"=10'
SEE NOTE 5



PIPE BACKFILL AT NORTHGATE BLVD (B/-)
SCALE: 1"=10'



LEVEE SLOPE DETAIL (1/C-5)
TYPICAL FOR ALL FILLS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
SCALE: 1"=10'

NOTES:

1. THE STATIONING SHOWN ON THIS DRAWING IS APPROXIMATE, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL COORDINATE THE LOCATION WITH THE RESPECTIVE DRAWINGS.

2. THE ELEVATION OF THE DISCHARGE PIPE SHALL BE COORDINATED WITH THE PUMP MANUFACTURER PRIOR TO FABRICATING THE DISCHARGE PIPE OR CONSTRUCTING THE PIPE SUPPORT. THE LOCATION OF THE PIPE SUPPORT AND DISCHARGE PIPE SHALL BE MODIFIED AS APPROVED BY THE ENGINEER. PIPE SHALL DRAIN TOWARDS THE SUMP AT A MINIMUM OF 0.001%.

3. EXISTING GRADE MAY BE HIGHER OR LOWER THAN THE FINISH GRADE. THE TRANSITION SHALL BE GRADED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.

4. AFTER CLEARING, GRUBBING AND STRIPPING OPERATIONS ARE COMPLETE, ALL FILLS PLACED ON SLOPES STEEPER THAN 5:1 (HORIZONTAL TO VERTICAL) SHALL BE KEYED AND BENCHED INTO FIRM NATIVE SOIL WITH THE PLACEMENT OF EACH LIFT OR FILL. EACH LIFT SHALL NOT EXCEED 8" OF UNCOMPACTED THICKNESS. HORIZONTAL LAYERS SHALL NOT BE LESS THAN EQUIPMENT WIDTH EXCEPT AS APPROVED BY THE ENGINEER. SLOPE SHALL BE OVER BUILT AND TRIMMED TO FIRM EMBANKMENT. SEE DETAIL 1/-

5. THE TRENCH EXCAVATION FOR CONSTRUCTING PIPES THROUGH THE LEVEE AND WITHIN 10 FEET OF THE LEVEE TOE SHALL CONFORM TO SECTION A. THE TRENCH SIDE SLOPES SHALL BE NO STEEPER THAN 1 VERTICAL TO 1 HORIZONTAL.

REV.	DATE	BY	CHK.	APPR.	DESCRIPTION
2	4-4-01	MSM	MSM	MSM	ADDENDUM NO. 2
1	3-23-01	MSM	MSM	MSM	ADDENDUM NO. 1
	3-9-01	SB	MSM	MSM	ISSUED FOR BIDDING

DESIGNED BY: SB
DRAWN BY: SG
CHECKED BY: SB
IN CHARGE: MSM
DATE: 12-08-98

REGISTERED PROFESSIONAL ENGINEER MARK S. MARTIN No. 35079 Exp. Sept. 30, 2003 CIVIL STATE OF CALIFORNIA

ENSIGN & BUCKLEY
CONSULTING ENGINEERS
• SACRAMENTO •

SUBMITTED
APPROVED

RECLAMATION DISTRICT NO. 1000
PLANT NO. 8 IMPROVEMENTS
PROFILE VIEW

SCALE OF ORIGINAL: AS SHOWN
DRAWING NO.: C-2
SHEET: 4

H:\439\add2nconform\C-2.dwg 05/03/2001 03:00:19 PM PDT

Exhibit B

Plots of Pipe Defects

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Table of Contents

Project		
RD1000 Pump 8 CCTV Inspections		**10/19/2021**

360 Pipeline Inspections, LLC
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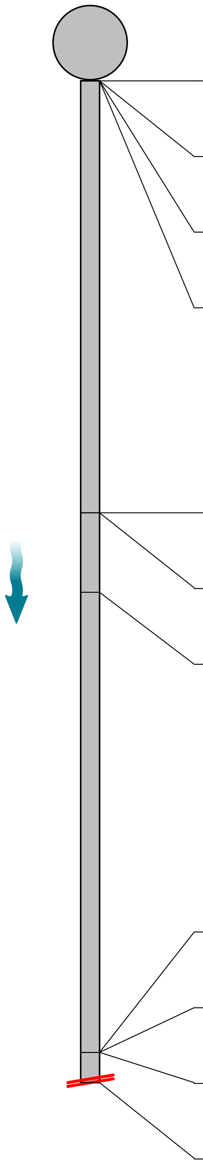
mark@360pipes.com

Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 7**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT7-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT7-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**54**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		

Additional Info:



1:1039	Distance	Code	Observation	Counter	Photo	Grade
UNIT7-UP						
	0.0	AZ	Access Point Other / UNIT7-UP	00:00:01	1	
	0.0	MWL	Water Level, 5% of the vertical dimension	00:02:46	2	
	0.0	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:03:35	3	S1
	0.0	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:03:38	4	S4
	59.4	SSC	Surface Spalling of Damage Coating at 4 o'clock	00:10:52	5	S1
	59.4	IS	Infiltration Stain at 4 o'clock	00:10:43	6	M1
	70.3	MWL	Water Level, 10% of the vertical dimension	00:12:30	7	
	133.5	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:17:24	8	S4
	133.5	LU	Line Up, change to: 50%	00:17:36	9	M1
	133.5	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:17:30	10	S1
	137.6	MSA	Miscellaneous Survey Abandoned / complete per client	00:19:53	11	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4213	4112	4315	11.0	6.0	17.0	2.2	2.0	2.1

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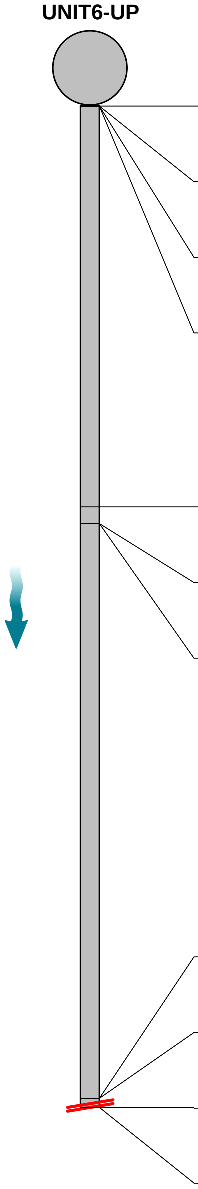
Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 6**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT6-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT6-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**54**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		
Additional Info:					



1:1027	Distance	Code	Observation	Counter	Photo	Grade
	0.0	AZ	Access Point Other / UNIT6-UP	00:00:01	1	
	0.0	MWL	Water Level, 5% of the vertical dimension	00:02:39	2	
	0.0	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:03:23	3	S4
	0.0	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:03:26	4, 5	S1
	54.5	SSC	Surface Spalling of Damage Coating at 12 o'clock	00:10:33	6	S1
	56.7	SSC	Surface Spalling of Damage Coating at 2 o'clock	00:11:31	7	S1
	56.7	ISB	Infiltration Stain Barrel at 2 o'clock	00:11:36	8	M1
	134.8	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:21:40	9	S4
	134.8	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:21:43	10	S1
	136.0	LU	Line Up, change to: 50%	00:21:59	11	M1
	136.0	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:22:07	12	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4214	4112	4316	12.0	6.0	18.0	2.0	2.0	2.0

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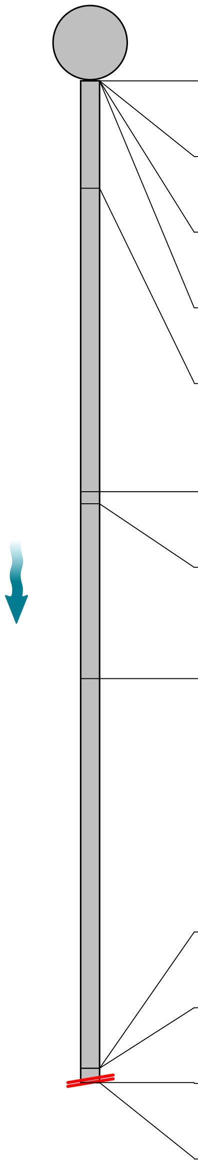
Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 5**
Year laid:	Pre-cleaning: **No Pre-Cleaning**	Direction: **Downstream**	Pipe Joint Length:	Total Length:	Length Surveyed:

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT5-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT5-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**36**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		
Additional Info:					

UNIT5-UP



1:1023 Distance	Code	Observation	Counter	Photo	Grade
0.0	AZ	Access Point Other / UNIT5-UP	00:00:01	1	
0.0	MWL	Water Level, 5% of the vertical dimension	00:02:16	2	
0.0	SCP	Surface Damage Corrosion from 10 o'clock to 2 o'clock	00:03:07	3	S4
0.0	SSC	Surface Spalling of Damage Coating from 8 o'clock to 2 o'clock	00:03:11	4	S1
14.6	SSC	Surface Spalling of Damage Coating from 5 o'clock to 7 o'clock	00:05:19	5	S1
55.6	SSC	Surface Spalling of Damage Coating from 11 o'clock to 1 o'clock	00:08:19	6	S1
57.2	MWL	Water Level, 15% of the vertical dimension	00:08:41	7	
80.9	MWL	Water Level, 25% of the vertical dimension	00:10:31	8	
133.6	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:13:52	9	S4
133.6	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:13:58	10	S1
135.5	LU	Line Up, change to: 50%	00:14:14	11	M1
135.5	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:14:18	12	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4214	4111	4315	12.0	5.0	17.0	2.0	2.5	2.1

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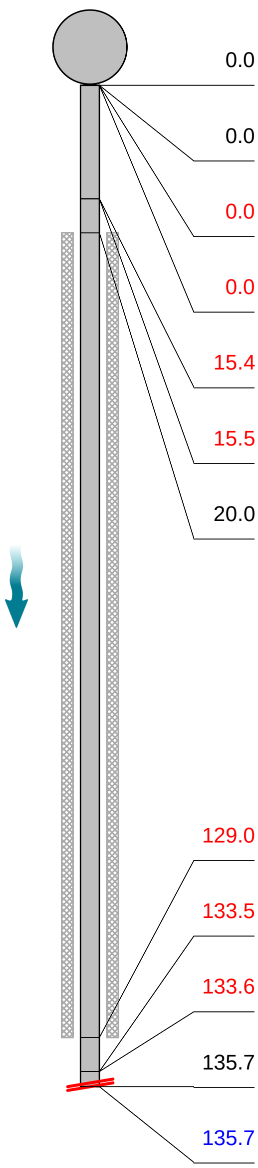
Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 4**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT4-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT4-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**36**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		

Additional Info:



1:1024	Distance		Code	Observation	Counter	Photo	Grade
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	0.0		MWL	Water Level, 0% of the vertical dimension	00:02:42	2	
	0.0		SCP	Surface Damage Corrosion from 8 o'clock to 4 o'clock	00:03:27	3	S4
	0.0		SSC	Surface Spalling of Damage Coating from 8 o'clock to 4 o'clock	00:03:30	4	S1
	15.4		SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:05:21	5	S4
	15.5		SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:05:18	6	S1
	20.0	S01	SSC	Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Start	00:06:44	7	
	129.0	F01	SSC	Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Finish	00:13:54	8	S1
	133.5		SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:14:37	9	S4
	133.6		SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:14:46	10	S1
	135.7		LU	Line Up, change to: 50%	00:15:01	11	M1
	135.7		MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:15:09	12	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
431D	4111	441D	37.0	5.0	42.0	1.3	2.5	1.4

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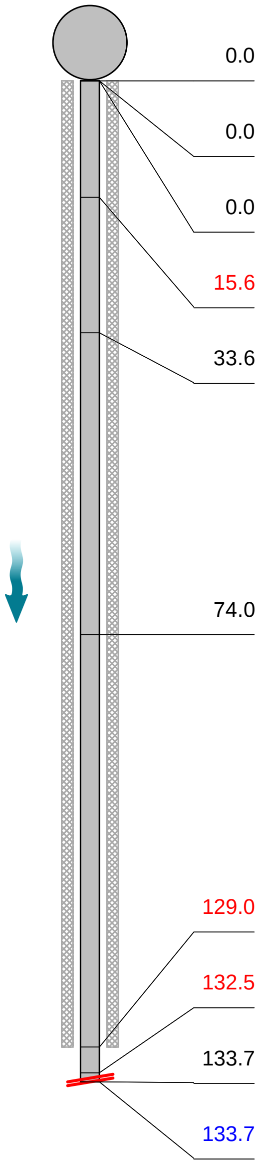
Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 3**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT3-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT3-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**36**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		
Additional Info:					

UNIT3-UP



1:1010	Distance		Code	Observation	Counter	Photo	Grade
	0.0		AZ	Access Point Other / UNIT4-UP	00:00:07	1	
	0.0		MWL	Water Level, 10% of the vertical dimension	00:02:14	2	
	0.0	S01	SSC	Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Start	00:02:59	3	
	15.6		SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:04:26	4	S1
	33.6		MWL	Water Level, 25% of the vertical dimension	00:05:33	5	
	74.0		MWL	Water Level, 30% of the vertical dimension	00:08:19	6	
	129.0	F01	SSC	Surface Spalling of Damage Coating from 4 o'clock to 8 o'clock, Finish	00:11:38	7	S1
	132.5		SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:12:30	8	S4
	133.7		LU	Line Up, change to: 50%	00:12:37	9	M1
	133.7		MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:12:44	10	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
411D	4111	421D	31.0	5.0	36.0	1.1	2.5	1.2

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mark@360pipes.com

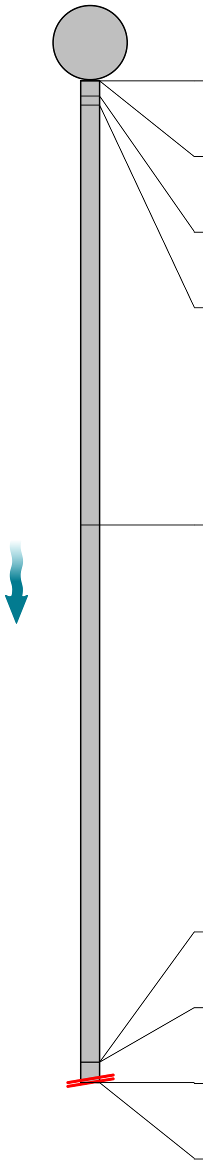
Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 2**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT2-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT2-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**54**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		

Additional Info:

UNIT2-UP



1:994 Distance	Code	Observation	Counter	Photo	Grade
0.0	AZ	Access Point Other / UNIT2-UP	00:00:01	1	
0.0	MWL	Water Level, 5% of the vertical dimension	00:00:25	2	
2.0	SCP	Surface Damage Corrosion from 4 o'clock to 8 o'clock	00:00:54	3, 4	S4
3.3	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:01:54	5	S1
58.4	MWL	Water Level, 15% of the vertical dimension	00:05:51	6	
129.0	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:10:52	7	S4
129.0	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:10:52	8	S1
131.7	LU	Line Up, change to: 50%	00:11:18	9	M1
131.7	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENMTY	00:11:23	10	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4212	4111	4313	10.0	5.0	15.0	2.5	2.5	2.5

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Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 1**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT1-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT1-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**54**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		

Additional Info:

1:984	Distance	Code	Observation	Counter	Photo	Grade
UNIT1-UP						
	0.0	AZ	Access Point Other / UNIT1-UP	00:00:01	1	
	0.0	MWL	Water Level, 5% of the vertical dimension	00:00:20	2	
	0.0	SCP	Surface Damage Corrosion from 5 o'clock to 7 o'clock	00:00:35	3, 4	S4
	20.5	SSC	Surface Spalling of Damage Coating at 6 o'clock	00:02:55	5	S1
	50.6	MWL	Water Level, 20% of the vertical dimension	00:04:43	6	
	69.7	SSC	Surface Spalling of Damage Coating from 2 o'clock to 5 o'clock	00:05:57	7	S1
	128.7	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:11:28	8	S4
	130.3	LU	Line Up, change to: 50%	00:11:49	9	M1
	130.3	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:11:56	10	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4212	4111	4313	10.0	5.0	15.0	2.5	2.5	2.5

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Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 8**
Year laid:	Pre-cleaning:	Direction:	Pipe Joint Length:	Total Length:	Length Surveyed:
	No Pre-Cleaning	**Downstream**			

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT8-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT8-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**54**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		
Additional Info:					

1:973	Distance	Code	Observation	Counter	Photo	Grade
UNIT8-UP						
	0.0	AZ	Access Point Other / UNIT8-UP	00:00:01	1	
	0.0	MWL	Water Level, 0% of the vertical dimension	00:00:38	2	
	1.0	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:01:05	3	S4
	1.0	SSC	Surface Spalling of Damage Coating from 7 o'clock to 6 o'clock	00:01:07	4	S1
	11.6	SCP	Surface Damage Corrosion from 5 o'clock to 7 o'clock	00:03:03	5	S4
	30.5	SCP	Surface Damage Corrosion from 5 o'clock to 7 o'clock	00:04:51	6	S4
	49.7	SCP	Surface Damage Corrosion from 5 o'clock to 7 o'clock	00:06:02	7	S4
	69.5	SCP	Surface Damage Corrosion from 5 o'clock to 7 o'clock	00:06:47	8	S4
	109.1	SCP	Surface Damage Corrosion from 4 o'clock to 8 o'clock	00:09:15	9	S4
	128.9	LU	Line Up, change to: 50%	00:10:53	10	M1
	128.9	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:10:59	11	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4611	4111	4712	25.0	5.0	30.0	3.6	2.5	3.3

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Inspection report

Date:	Work Order:	Weather:	Surveyed By:	Certificate Number:	Pipe Segment Ref.:
10/19/2021		**Dry**	**360 Pipes- Mark Villarin**	**U-1107-2728**	**UNIT NO 9**
Year laid:	Pre-cleaning: **No Pre-Cleaning**	Direction: **Downstream**	Pipe Joint Length:	Total Length:	Length Surveyed:

City:	**Sacramento**	Drainage Area:		Upstream MH:	**UNIT9-UP**
Street:	**Northgate Blvd**	Media Label:	**DVS**	Up Rim to Invert:	**0.0**
Location Code:	**Easement/Right of way**	Flow Control:	**Not Controlled**	Downstream MH:	**UNIT9-DWN**
Location Details:		Sheet Number:		Down Rim to Invert:	**0.0**
Pipe shape:	**Circular**	Sewer Use:	**Levee Pressure Pipe**	Total gallons used:	**0.0**
Pipe size:	**60**	Sewer Category:	**SEC**	Joints passed:	**0**
Pipe material:	**Steel Pipe**	Purpose:	**Routine Assessment**	Joints failed:	**0**
Lining Method:		Owner:	**RD 1000**		

Additional Info:

1:988	Distance	Code	Observation	Counter	Photo	Grade
UNIT9-UP						
	0.0	AZ	Access Point Other / UN IT9-UP	00:00:01	1	
	0.0	MWL	Water Level, 5% of the vertical dimension	00:00:06	2	
	1.0	SCP	Surface Damage Corrosion from 4 o'clock to 8 o'clock	00:00:43	3	S4
	129.0	SCP	Surface Damage Corrosion from 7 o'clock to 6 o'clock	00:07:30	4	S4
	130.8	LU	Line Up, change to: 50%	00:07:43	5	M1
	130.8	MSA	Miscellaneous Survey Abandoned / COMPLETE PER CLIENT	00:07:45	6	M4

QSR	QMR	QOR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4200	4111	4311	8.0	5.0	13.0	4.0	2.5	3.2

Exhibit C

Day of Field Notes and Assessments

10/19/21 Site visit and CCTV pipeline inspection notes	Unit No.								
	7	6	5	4	3	2	1	8	9
Nominal Diameter (Inches)	54"	54"	36"	36"	36"	54"	54"	54"	60"
Coating at Flange[1]	3	1	3	2	2	2	3	3	4
Coating b/t Flange and USACE Connection[1]	4	3	3	2	2	2	3	3	4
Rust at Flange[1]	2	2	3	2	2	2	3	2	4
Rust b/t Flange and US ACE Connection[1]	3	3	3	2	2	2	3	2	3
Rust at USACE Connection[1]	2	2	2	2	2	2	2	2	4
Joint Conditions b/t Flange and USACE Connection[1]	4	4	3	3	3	4	3	3	4
Joint Conditions at USACE Connection[1]	2	2	3	3	3	3	2	3	4
Water Level (Inches)	6"	6"	4"	<1"	12"	4"	2"	<1"	4"
Overall Condition Assessment[1]	3.5	3	3	2.5	2.5	3	3	3	4
Notes	• Circular hole patch • Joints were sealed well	• Blistered and cracked coating at flange • Water surface level corrosion • Exposed gravel/rock downstream	• Blistered and cracked coating at flange • Occasional cracking in seals •Rust at seal	• Blistered and cracked coating at flange • A lot of sediment present • Grinder disk debris • Blistered and older coating	• Blistered and cracked coating at flange • A lot of water • Water surface level corrosion	• Water surface level corrosion and Blistered coating • Possible different coating type • Blistered coating at bottom of pipe	• Possible different coating type • Blistered coating at bottom of pipe • Severe corrosion at new-old joint	• Dry Pipe • Blistered and flaking coating • Pipe does not look like it is in use • Corroded joint band at bottom water level	• Corrosion on bottom • Good Condition

1. Grading scale is on a 1-5 basis. 1 - Unacceptable, 2 - Poor, 3 - Fair, 4 - Good, 5 - Excellent

General Note: For all pipes, the flange entry point coating was much more cracked and blistered than the coating downstream between the flange and the USACE project pipe connection.

General Note: Coating at connection of the new-old joint did not cover the joint except for Unit No. 9 new-old joint.

General Note: No visible deformation

Appendix D

PROTECTIVE LINING PRE-DESIGN REPORT

Pumping Plant No. 8 Protective Lining Pre-Design

Reclamation District 1000

Prepared for:

Jeff Mueller, P.E.
Civil Engineer
Kjeldsen, Sinnock, Neudeck, Inc.
1550 Harbor Blvd. Suite 212
West Sacramento, CA 95691

Date:

July 15, 2022

Prepared by:

V&A consulting engineers

V&A Project No. 21-0375

Table of Contents

Tables

Photo Log

Abbreviations and Acronyms

Abbreviations/Acronyms	Definition
ASTM	American Society for Testing and Materials
AVG.	Average
CCTV	Closed-circuit television
DIA.	Diameter
DIRECT.	Direction
FT.	Feet
IN.	Inch
KSN	Kjeldsen, Sinnock, Neudeck, Inc.
MAX.	Maximum
MIN.	Minimum
N/A	Not applicable
PP8	Pumping Plant No. 8
RD1000	Reclamation District 1000
SSPC	Steel Structures Painting Council
STA	Station
USACE	United States Army Corps of Engineers
V&A	V&A Consulting Engineers, Inc.
VANDA®	V&A Condition Index
WS	Welded Steel

1 Introduction

V&A Consulting Engineers (V&A) was retained by Kjeldsen, Sinnock, Neudeck, Inc. (KSN) to provide coating system recommendations for the Reclamation District 1000 (RD1000) Pumping Plant No. 8 (PP8) located in Sacramento, California. PP8 is constructed with nine (9) discharge pipes that vary in diameter and are approximately 320 feet in length from the pump to the headwall of Steelhead Creek. The downstream 150-foot section of each discharge pipe was replaced and lined as a part of a United States Army Corps of Engineers (USACE) levee improvement project in 2020. The upstream section of each pipe has not yet been rehabilitated.

The objectives of this technical memorandum are to provide surface preparation and coating application guidelines for the upstream unrehabilitated section of the discharge pipes. The selection of the lining system depends on several factors, including the presence of existing linings, process shut down time, and type of substrate. Budgetary costs for the coating application and a description of the differences in coating application methods between the various coating systems are also included. Table 1-1 lists the pumping unit numbers and their corresponding discharge pipe diameters. The discharge pipelines are constructed of welded steel and lined with epoxy.

Table 1-1. Pump Unit Numbers and Discharge Pipe Diameters

Pump Unit No.	Discharge Pipe Nominal Diameter
1	54”
2	54”
3	36”
4	36”
5	36”
6	54”
7	54”
8	54”
9	60”

1.1 CCTV Findings

KSN completed a condition assessment of the unrehabilitated portions of the discharge pipelines using closed-circuit television (CCTV) on Tuesday, October 19, 2021. The section of pipe inspected was from the 24-inch diameter blind flange entry point located approximately 20 feet from the pump to the transition of the replacement pipe installed under the USACE project. This length is approximately 140 feet for each pipe.

The CCTV inspection revealed that the interior epoxy coating on the welded steel discharge pipes is failing and significant oxidation has occurred within the pipe. Significant delamination of the epoxy coating was common at the blind flange entry point in most segments. Corrosion and spalling at the joint before the section rise, which is the transition from the older to the newer pipe, was also a common observation. On the Pump Unit No. 6 discharge pipe, a suspected hole was found at the 1 o’clock position approximately 127 feet from the entry point.

Representative photos of the discharge pipe lining condition are presented in Photo 1.1 through Photo 1.6. Based on the CCTV inspection findings, KSN has recommended the rehabilitation of the pipe interior coating in order to extend the useful life of the existing discharge pipes.

Photo 1-1. Heavy corrosion on unit #2 pipe.

Photo 1-2. Spall on unit #3 pipe.

Photo 1-3. Corrosion on unit #5 pipe.

Photo 1-4. Suspected hole on unit #6 pipe.

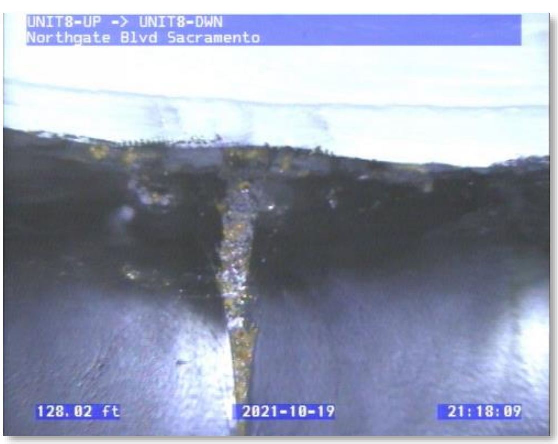

Photo 1-5. Corrosion/spall at unit #6 pipe joint.

Photo 1-6. Corrosion on unit #9 pipe.

2 Lining Considerations

In order to have a successful coating project, the coating products must be selected to fit the conditions in the field.

2.1 Pipe Repairs

The candidate coating systems will require the discharge pipelines to be isolated and dewatered to allow surfaces to be prepared and coated without the chance of ground or surface water entering the pipe. Flow should be diverted to other pipes using bypass piping, if necessary, as shown in Photo 2-1.

Once the flow is diverted and abrasive blasting has commenced, the Contractor should notify the Engineer if areas of heavy pitting and perforations in the pipe are encountered. The steel surfaces will be evaluated with non-destructive metal thickness measurements to determine the type of repairs that are required. Possible repairs may include filling pits with a metal epoxy filler for pits less than. If very deep pits with greater than 50% wall loss are encountered, a ½-inch thick repair plate should be welded over the corroded area, as shown in Photo 2-2.

Photo 2-1.Example of HDPE bypass piping system installed.

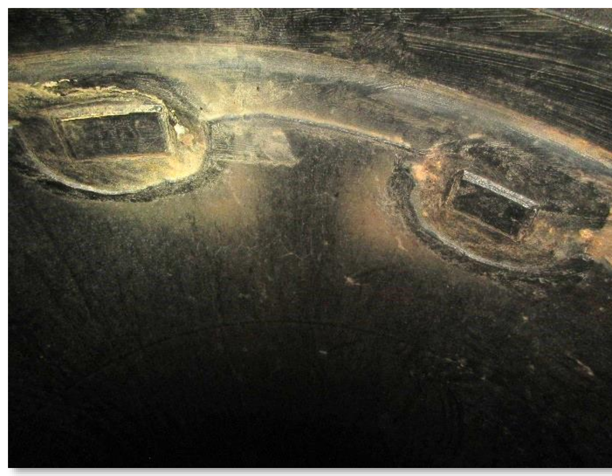

Photo 2-2. Example of weld plate repairs on outfall pipe.

2.2 Lining Selection

2.2.1 Cure Times

When the lining application begins, the cure times of the lining product are critical to the production rate of the contractor. Most 100% solids coatings have a limited amount of time before a second coat can be applied (i.e., recoat time). If that recoat time is exceeded, the surface of the cured coating will have to be abraded by hand sanding the surface or abrasive blasting. Note that abrasive blasting would require more time for cleanup. Coatings that have a flexible recoat time are preferred in order to reduce the impact on the construction schedule. A short recoat time is helpful in areas that need to be returned to service quickly. The disadvantage of a short recoat time may be the inability of some coatings to penetrate into the substrate. A long recoat time is helpful to avoid abrading the surface when newly coated areas are overlapped with previously coated surfaces.

2.2.2 Polyurethanes

100% solids polyurethane coatings are commonly used as protective coating systems for pipelines exposed to stormwater. All 100% solids polyurethane coating tend to be more flexible and allow more moisture through the film than epoxies. The fast setting (drying) nature of the 100% solids polyurethane coatings also means they are very suitable for high production rates. Similar to 100% solids epoxies, polyurethane coatings are also very sensitive to cold temperatures, humidity, and mixing conditions during the coating application. Table 2-1 lists the recommended candidates for approved lining products.

Table 2-1. Recommended Lining Candidates

Manufacturer	Product Name/Type	Minimum Cure Time for Immersion (hours)	Maximum Recoat Time at 70 F (hours)	Elongation and Flexibility	Coating Thickness (mils)
Carboline	Reactamine 760 HB	2	12	ASTM D412 = 90 to 100% ASTM D522 = Passed Method A with a 3/16" mandrel	20 to 200
Global Eco Technologies	Enduraflex 1988	24	24	ASTM D638 = 41% to 65% at 60 mils No Data	30 to 125
Life Last	DuraShield 210-61	6	2	ASTM D412 = 10% ASTM D522 = No cracks on 1" mandrel	20 to 500+
Prime Coatings	Utilithane 1600	24	0.5	ASTM D638 =45 to 50% at 125 mils ASTM D1737 =zero bend on ½-inch mandrel	30 to 125

2.2.3 Production Rates

Generally, abrasive blasting with one nozzle will prepare an average of 200 square feet per day. If more than one blast nozzle is used, a higher production rate can be achieved, and less flow bypassing will be required. A detailed estimate of the surface area to be coated is provided in Section 2.5.

2.3 Contractor Qualifications

Due to the types of coatings that are going to be applied, contractors with experience using sophisticated paint pumping equipment will be required. Contractors with Qualification Procedure 1 (QP1) certification administered by the Society of Protective Coatings (SSPC) is recommended. Generally, it is expected that a QP1-certified contractor would submit the same chemical resistant coating that we have in the specifications and will not submit exclusive products that non-QP1-certified contractors typically submit.

2.4 QA/QC During Construction

The involvement of a third-party coating inspector is paramount for a successful coating application. The coating specification should require the use of a National Association of Corrosion Engineers (NACE) certified coating inspector during all surface preparation and coating application. The primary role of the coating inspector is to observe and ensure the coating is applied in accordance with the specifications. The coating inspector should also be responsible for determining the integrity of the final applied coating through holiday testing, film thickness testing, and adhesion testing as dictated by the project. V&A recommends that RD1000 retain the services of a NACE certified coatings inspector instead of allowing the contractor to hire the inspector under their contract. A conflict of interest would not exist if RD1000 hires the NACE coatings inspector.

2.5 Budgetary Costs

It is assumed that the steel surfaces will be prepared per SSPC SP10 Near-White Metal Blast Cleaning. Coat with 60 mils of a 100% solids content polyurethane coating. The 100% solids content polyurethane coating is estimated to have a 20-year to 25-year service life before it will have to be removed and recoated. A unit price of $25 per square foot is assumed; however, this cost does not include bypass costs, modifications to existing structures, or other associated work. Table 2-2 summarizes the estimated cost of the coating rehabilitation.

Table 2-2. Estimated Cost for Coating Rehabilitation of Discharge Pipelines

Pump Unit No.	Discharge Pipe Diameter	Length	Total Surface Area (SF)
1	54”	170’	765
2	54”	170’	765
3	36”	170’	510
4	36”	170’	510
5	36”	170’	510
6	54”	170’	765
7	54”	170’	765
8	54”	170’	765
9	60”	170’	850
		Total	6,205
		Unit Price	$25/SF
		Estimate of Probable Construction Cost	$155,125

3 Recommendations

3.1 Discharge Pipe Liner Rehabilitation

1. Perform a complete lining rehabilitation on the discharge pipelines utilizing the following steps:
   a. Abrasive blast the steel surfaces per SSPC SP10 Near-White Metal Blast Cleaning with a minimum 3.5 mil deep surface profile.
   b. Require the use of dehumidification equipment in the project specifications in order to prevent rusting of the steel after it has been abrasive blasted.
   c. Fill pits with metal epoxy filler such as Belzona 1111, Sherwin Williams Steel Seam FT910, or similar product. Areas with very deep pits (>50% wall loss) should be repaired by welding a ½-inch thick repair plate to overlap the corroded area.
   d. Recoat the steel surfaces with a flexible lining that can be applied at a minimum of 60 mils in one coat such as Carboline Reactamine 760, Global Eco Technologies Enduraflex 1988, Life Last DuraShield 210, Prime Coatings Utilithane 1600, or similar 100% solids content polyurethane coating.

3.2 Construction Period

1. Require SSPC QP1 certification in the contractor qualifications and specifications.
2. RP1000 should retain the services of a NACE certified coatings inspector instead of allowing the contractor to hire the inspector under their contract.
3. Determine the flow bypassing scheme, if necessary, and incorporate it into the contract drawings. With nine pumps available, bypassing the flow will likely not be required.
4. Construction documents should include requirements for field verification of substrate integrity and include requirements for repair based on actual field conditions.
5. The bid form should include a line item for the estimated quantities and unit pricing for epoxy filler and a weld plate so that the scope can be adjusted during the construction period based on actual quantities verified in the field.

V&A Project No. 21-0375

V&A consulting engineers

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Appendix E

DIESEL VERSUS NATURAL GAS GENERATORS

Appendix E

Diesel vs Natural Gas Fueled Generators Technical Memorandum

By: J Calton Engineering

Date: April 5, 2022

Introduction

This technical memorandum evaluates diesel vs natural gas fueled generators for the standby power system proposed for RD1000 Pumping Plant No. 8.

Traditionally, diesel fueled generators meant reliable and inexpensive, but also noisy and messy exhaust. Natural gas fueled generators meant expensive and temperamental, but also quieter and cleaner. With sound attenuating enclosures, stringent exhaust treatments, and advancements in natural gas generator designs, the aforementioned comparisons are not as clear.

Therefore, this evaluation considers the project application and installed location as the critical criteria driving the fuel type decision. What fuel sourced generator is best fit for providing standby power to a medium voltage pump station that will have multiple starts and stops of pump motors ranging from 200 to 700 horsepower, is located in an area where power outages are typically short and where diesel fuel is available, and provide a long useful life?

Engine Response to Changing Loads

Traditionally, the viewpoint has been that diesel engines provide quick load response, power and longevity, while natural gas engines are more environmentally friendly. Natural gas generators are making improvements, but diesel generators still have the advantage when it comes to response to changing loads.

diesel has greater peak energy density than natural gas by a factor of more than of three (generally 129btu versus 37btu).

This is because diesel engines, with their high power density, have the capability to assume loads quickly. Diesel has greater peak energy density than natural gas by a factor of more than of three (generally 129 btu versus 37 btu). Also, for natural gas fueled generators there is an extra step to fuel to cylinder when load changes, and this causes a transient impacts the Hertz output. Hence for natural gas generators, the output Hertz with over shoot on load dumps, and under shoot on load additions.

In discussions with Caterpillar Inc., they recommend a diesel fueled generator for Pumping plant No. 8 application based on the need for the standby power system to adapt to starting new pumps without causing nuisance trips to running loads based on frequency dips.

Power Outages and Fuel Availability

Based on suburban national averages, the duration of a power outage is typically 120 minutes. In 2018, SMUD’s average outage duration was 45 minutes, and the average outage frequency was 0.93 per year. Obviously for longer outage durations, natural gas fueled generators with intact gas pipeline would be advantageous.

Based on Pumping Plant No. 8 being located in Sacramento, and there being multiple, local sources of diesel fuel in the area, and the infrequency of generator operation due to infrequent and relatively short power outages, there is no clear benefit to natural gas generators.

Regarding fuel safety, with a volatile and highly flammable nature, natural gas needs to be properly contained and protected to ensure that the risks relating to pipeline leaks are mitigated. Due to the fact that diesel burns at much higher temperature, diesel is considered to be a comparably safer fuel in terms of volatility and flammability.

Generator Longevity

Regarding longevity, diesel engines still tend to have longer lives, on average, than natural gas engines. Natural gas generators require more maintenance than diesel generators, resulting in higher maintenance costs and possibly more downtime.

Since the Pumping Plant No. 8 generators are only for backup power, a natural gas engine may provide nearly the same life as diesel generator given how infrequently it may be used.

Availability of Large Medium Voltage Natural Gas Generators

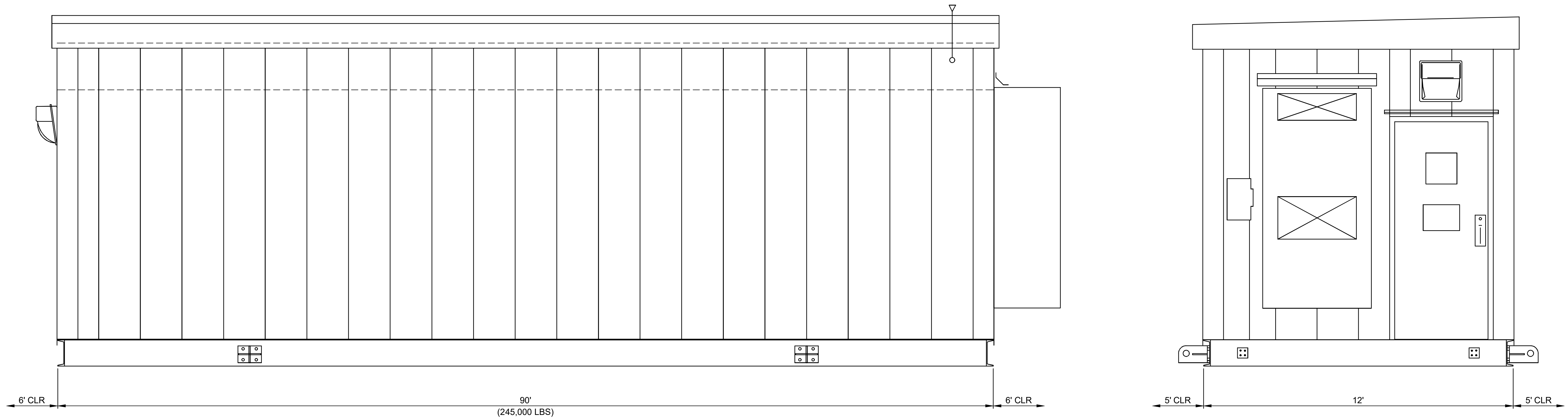
RD1000 would require a sum total of 5000 kW of standby power to operate the entire facility. The preliminary design is based on two 2500 kW standby generators. Some natural gas generator manufacturers only make medium voltage (2400 VAC) natural gas generators up to 1000 kW; while they do offer low voltage (480 VAC) natural generators up to 2500 kW. Hence for natural gas, this would mean either five medium voltage natural gas generators at 1000 kW each, or two low voltage natural gas generators at 2500 kW with additional step up transformers to raise the voltage from 480 VAC to desired 2400 VAC.

Conclusion

In conclusion, it is recommended that the standby power source at RD1000 Pumping Plant No. 8 be diesel fueled generators.

Appendix F

ELECTRICAL EQUIPMENT ELEVATIONS



MV SWITCHGEAR HOUSING

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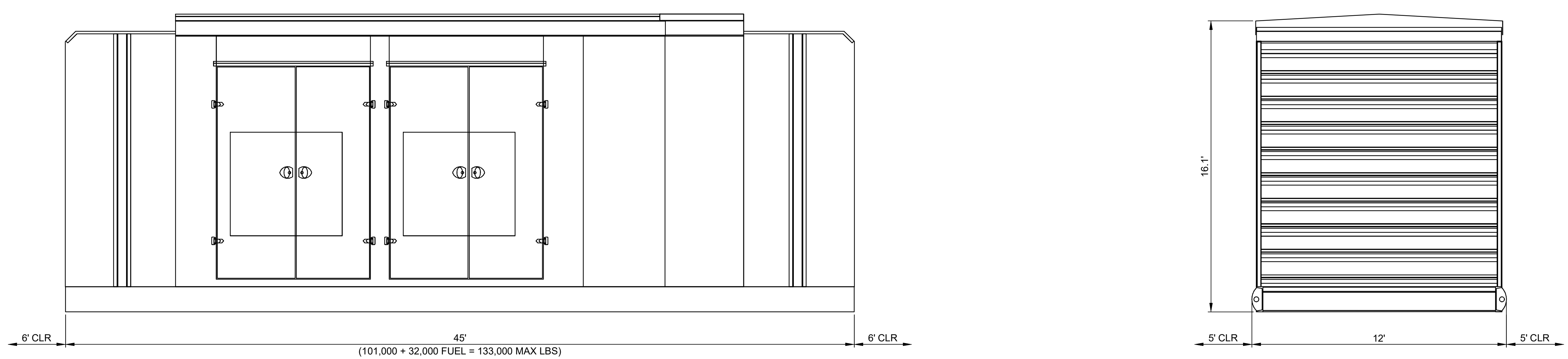

MV GENERATORS

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SACRAMENTO, CA

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ELECTRICAL
EQUIPMENT ELEVATIONS

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SHEET X OF XX
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Appendix G

SITE ALTERNATIVE DRAWINGS

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SITE ALTERNATIVE 1 - EQUIPMENT LOCATIONS

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Appendix H

STRUCTURAL PRE-DESIGN DRAWINGS

Reinforcing Steel:

1. Reinforcing steel shall conform to the requirements of ASTM 615. Reinforcing steel shall be Grade 60 (Fy = 60 ksi) deformed bars for all bars #4 and larger including bars used for concrete walls, beams or columns. Reinforcing may be grade 40 (Fy = 40 ksi) deformed bars for all bars #3 and smaller unless otherwise noted on plans. Reinforcing shall be bent cold. Bars are allowed only one bend per detail, no straightening and re-bending is allowed.

2. Lap splices of reinforcing steel in concrete shall be according to ACI 318 Chapter 25 or lap schedule where present, unless otherwise noted. Stagger splices a minimum of one lap length. No tack welding of reinforcing bars is allowed. The latest ACI code and detailing manual apply. Provide bent corner bars to match and lap with horizontal bars at all corners and intersections per typical details. Vertical bars shall be spliced at or near floor lines. Splice top bars at center line of span and bottom bars at the support in spandrels, beams, grade beams, etc., unless otherwise noted.

3. Mechanical splice couplers shall have current ICBO approval and shall be capable of developing 125% of the bar strength.
4. Welding of reinforcing bars, metal inserts, and connections shall conform to AWS D.4, and shall be made only at locations shown on the plans or details. All reinforcing to be welded shall be ASTM A706, Grade 60 weldable steel.

5. Reinforcing bar spacing shown on plans are maximum on centers. All bars shall be detailed and placed per CRSI specifications handbook. Securely tie all bars in location prior to concrete placement.

Structural Steel:

1. Structural steel members shall conform to the following minimum standards and material properties

Shape	Standard/Grade	Fy
W,WT	ASTM A992 Grade 50	50 ksi
Channels & Angles	ASTM A36	36 ksi
Bars and Plates	ASTM A36	36 ksi
HSS (round)	ASTM A500 (Grade B)	42 ksi
HSS (rectangular)	ASTM A500 (Grade B)	46 ksi
Cold Formed Shapes	ASTM A570	33 ksi
Bolts	ASTM F3125 Gr. A325	--
Nuts	ASTM A563	--
Hardened Steel Washers	ASTM F436	--
Load Indicator Washers	ASTM F959	--
Anchor Bolts	ASTM F1554	36 ksi
Shear Studs	ASTM A108 (type B)	--
Threaded Rod	ASTM A36	36 ksi
	ASTM F959	
	ASTM F1554	
	ASTM A108 (type B)	

2. All bolts shall be installed as bearing type connections with the threads included in shear planes (type "N" connection unless otherwise noted). All high strength bolts shall be fully pretensioned using load indicator washers or appropriate torque wrench. Foundation anchor bolts do not need to be pretensioned.
3. All galvanized bolts and nuts shall be of the same process as specified in the plans. Mixing of hot dipped galvanized bolts with mechanically galvanized nuts is prohibited.
4. All structural and miscellaneous steel shall be fabricated and erected in accordance with the latest edition of AISC specifications for design, fabrication and erection.
5. Welding shall be performed by welders holding valid certificates and having current experience in the type of welding shown on the plans. All welding shall use E70XX low hydrogen electrodes or 70ksi weldable wire unless otherwise noted on the plans. Shop welding may use 70ksi weldable wire. All welds involving reinforcing bars shall use E7018 electrodes. All welding shall conform to the latest edition of American Welding Society Standards. No tack welding of ASTM A325 or ASTM A490 bolts.
6. Grout beneath column bases or bearing plates shall be 5,000 psi (min) non-shrink flowable grout or drypack. Install grout under bearing plates before framing members are installed have been plumbed but prior to floor or roof installation. Grout depth shall be sufficient to allow grout or drypack to be placed beneath plate without voids (1-1/2" typical).

Concrete:

1. Min. 28 day compressive strength
   Slabs on Grade . . . . 3000 psi
   Max. Water to Cement Ratio 0.50
   Concrete Slump . . . . 4"-6"
2. Concrete mix designs shall be done by a certified laboratory and approved by the Engineer.
3. All concrete shall be regular weight of 145-150 pounds per cubic foot using aggregates conforming to ASTM C33. Water shall be clean and potable.
4. Portland Cement shall be Type II/V and conform to ASTM C150.
5. No more than 90 minutes shall elapse between concrete batching and placement, unless approved by Engineer or Authorized Testing Agency.
6. Concrete mixing, transport, & placement shall be per ACI 304. Mechanically vibrate all concrete as necessary when placed to achieve a uniform placement minimizing voids. Remove all debris from forms before placing concrete. Concrete shall not be allowed to be dropped through reinforcing steel or greater than 5 feet or any situation that may adversely affect the air entrainment or structural properties of the concrete. Care must be taken when placing slabs on grade as to not disturb the subgrade material.
7. All items to be cast in concrete such as reinforcing steel, ducts, anchor bolts, dowels, pipes, sleeves, conduits, etc., shall be securely fastened to prevent movement during the concrete placement.
8. Concrete slab on grade control joints shall be placed such that the enclosed area is less than 150 square feet(~12' x 12'), unless otherwise stated on plans or an approved mix design allowing greater enclosed area is approved.
9. Pipes shall not be embedded in structural concrete unless stated on the plans or approved by the Engineer. Maximum pipe size shall be 1/3 of the slab thickness, located at mid-depth. Minimum spacing shall 3 times the pipe diameter. Pipes/sleeves shall not impair the strength of the member.
10. Protect concrete from hot or cold weather conditions, which can reduce strength or damage concrete, in accordance with ACI 305 and 306.
11. Anchor bolts for general use and at hold down locations shall be ASTM F1554 Gr. 36 bolts, with A563 Grade A heavy hex nuts & F436 Type I washers.

Foundation:

1. Excavations and soil work, including all required inspections during construction, shall comply with the requirements of Ch. 18 of the 2019 CBC.
2. Geotechnical parameters used for foundation design:
   - Allowable Net Soil Beaing..............................1500 psf
   - Coeficient of Friction..0.25
   - Passive Soil Resistance....................................100 pcf
3. All footings shall extend below grade the minimum embedment depth as noted on plans. Grade shall be defined as the lowest of the following:
   - building pad subgrade
   - lowest surrounding soil grade within 5'-0" of the building
4. Conventional concrete slabs on grade shall be supported per the Geotechnical Report if provided. Fill material or subgrade material shall be moistened, but not saturated, prior to concrete placement. Care shall be taken as to not damage the integrity of the fill or subgrade material/preparation.
5. Backfilling against foundation walls or exterior walls shall not commence until after the top of the walls are restrained by the completed floor or roof systems.
6. Adequate drainage away from structural wall or foundation shall be provided by Contractor as required.
7. Backfill and re-compaction of all trenches prior to any construction above or adjacent to trench is to be done per soils report (min. 90% compaction).
8. Foundation excavations should be properly prepared in accordance with the recommendations of the geotechnical engineer. All footing and pier excavations should be observed by a representative of of the geotechnical engineer prior to placement of reinforcing steel, in order to examine competency of soils.

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Structural Notes

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SHEET 1 OF 4
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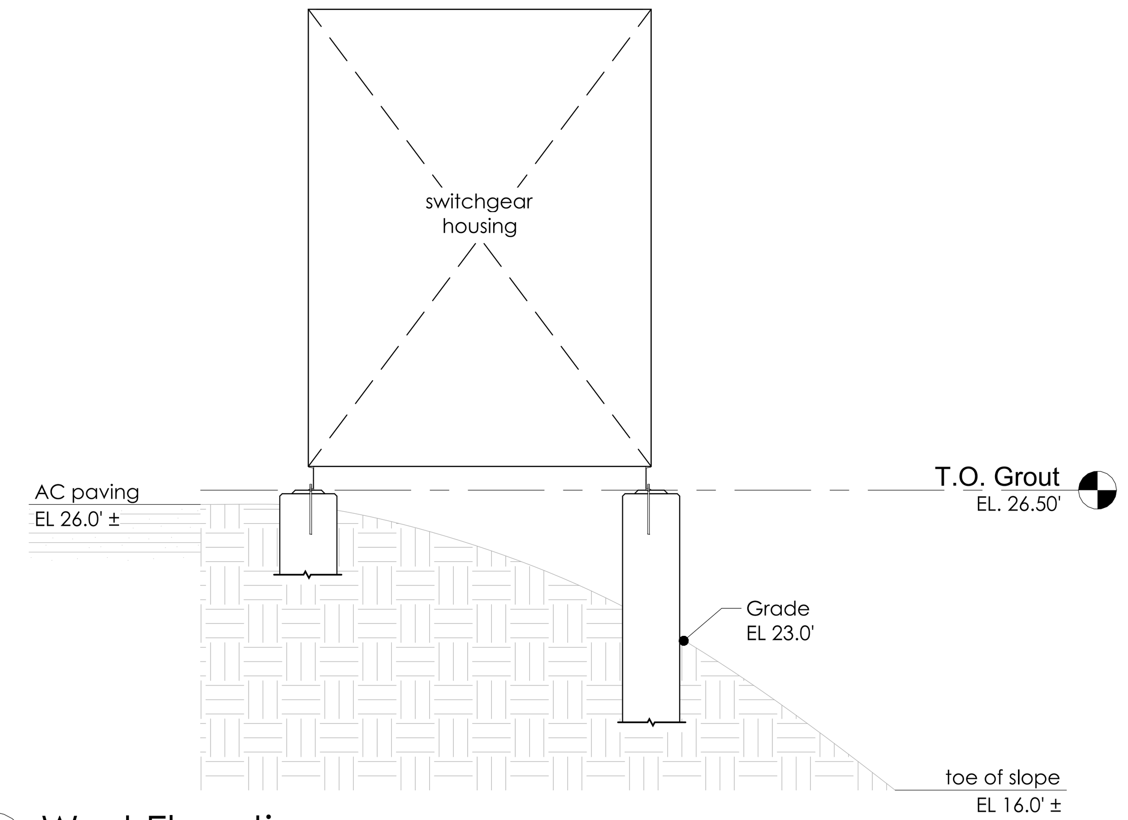
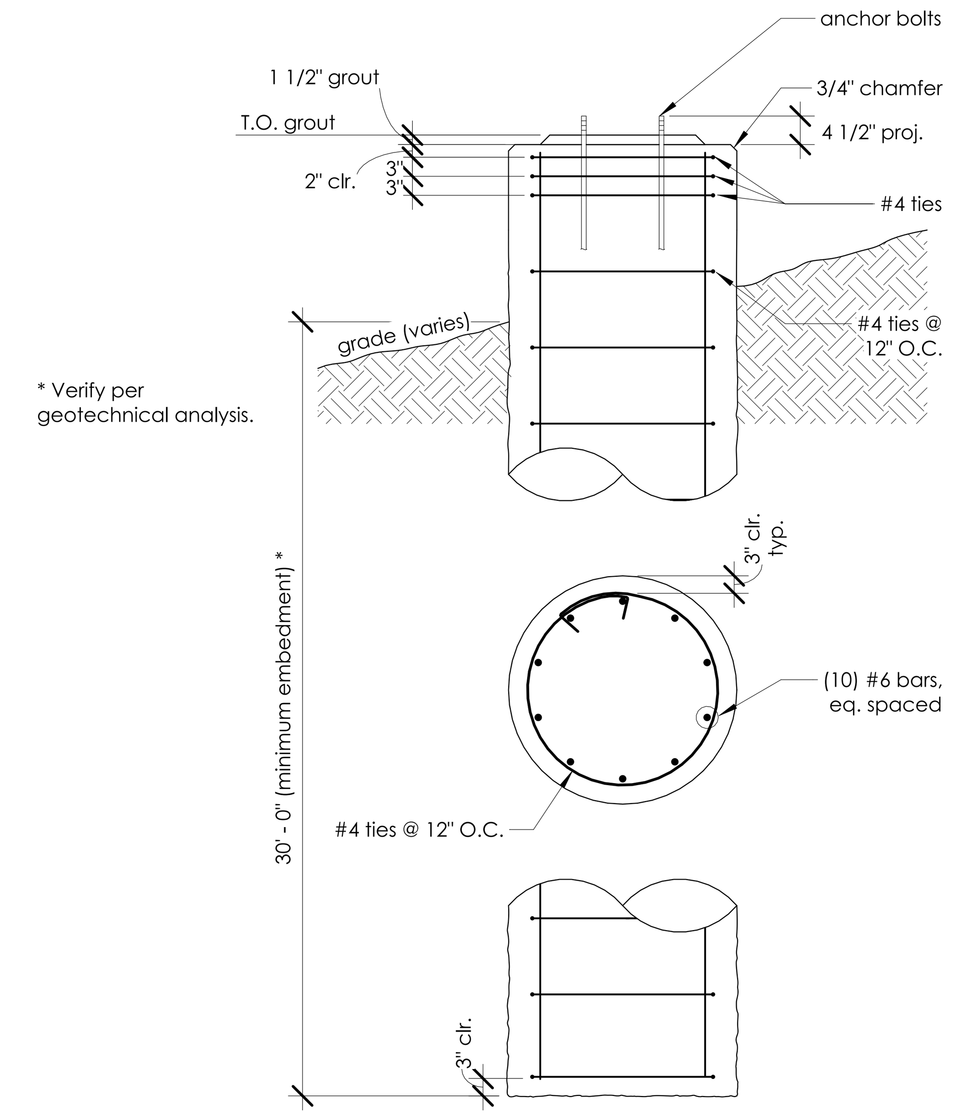
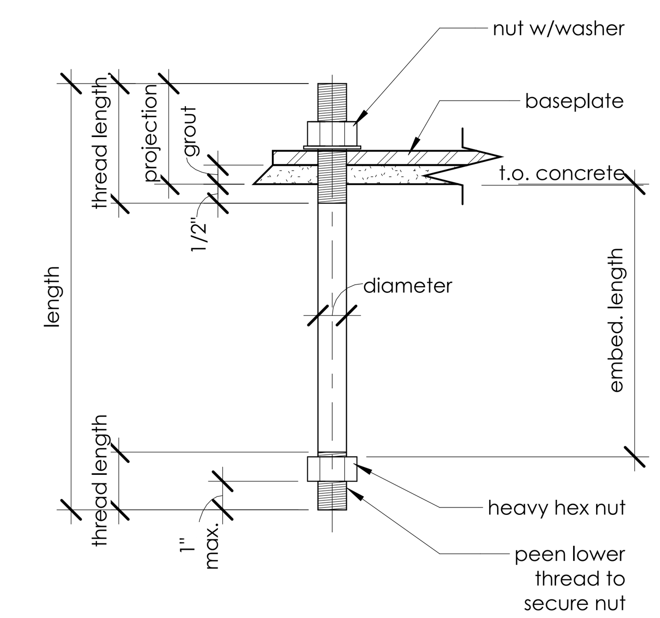


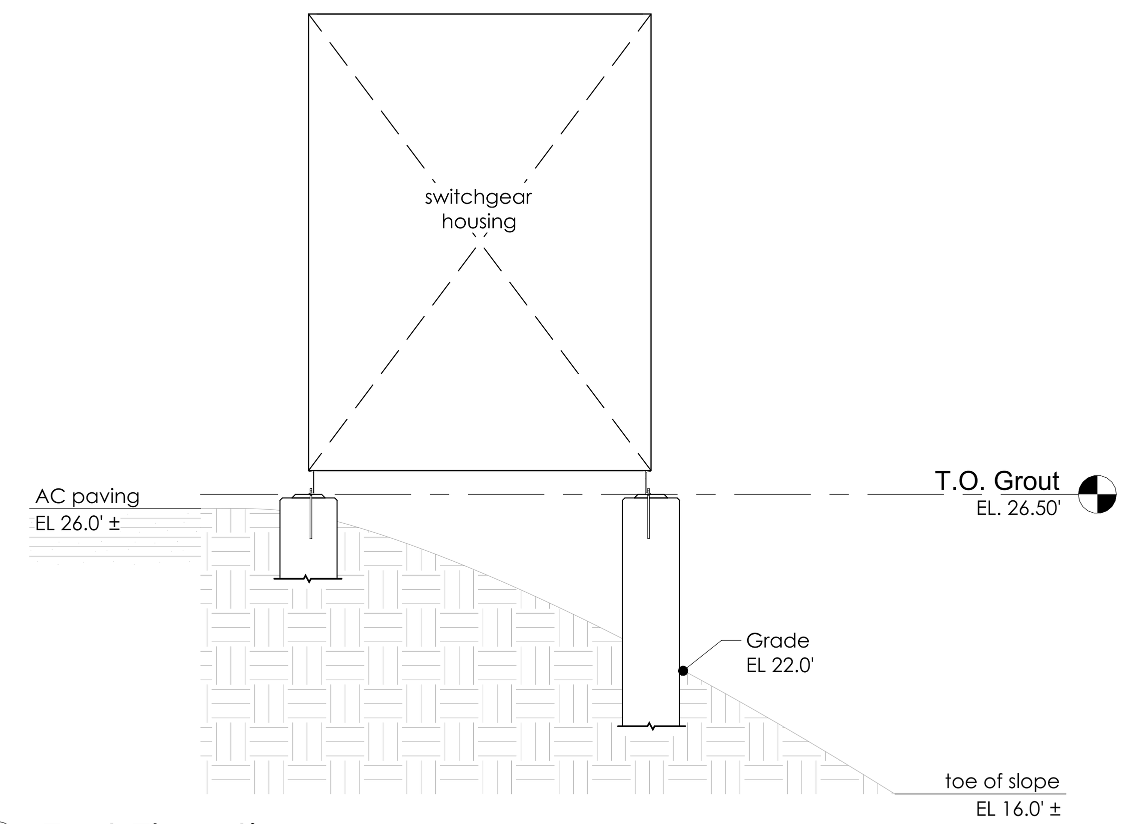
6 S1.0 West Elevation
3/16" = 1'-0"



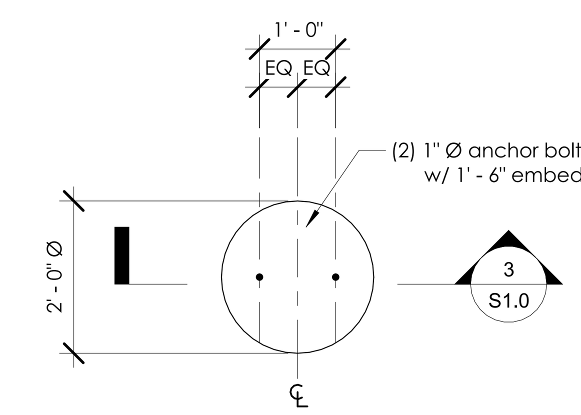
3 S1.0 Drilled Pier Section
1/2" = 1'-0"



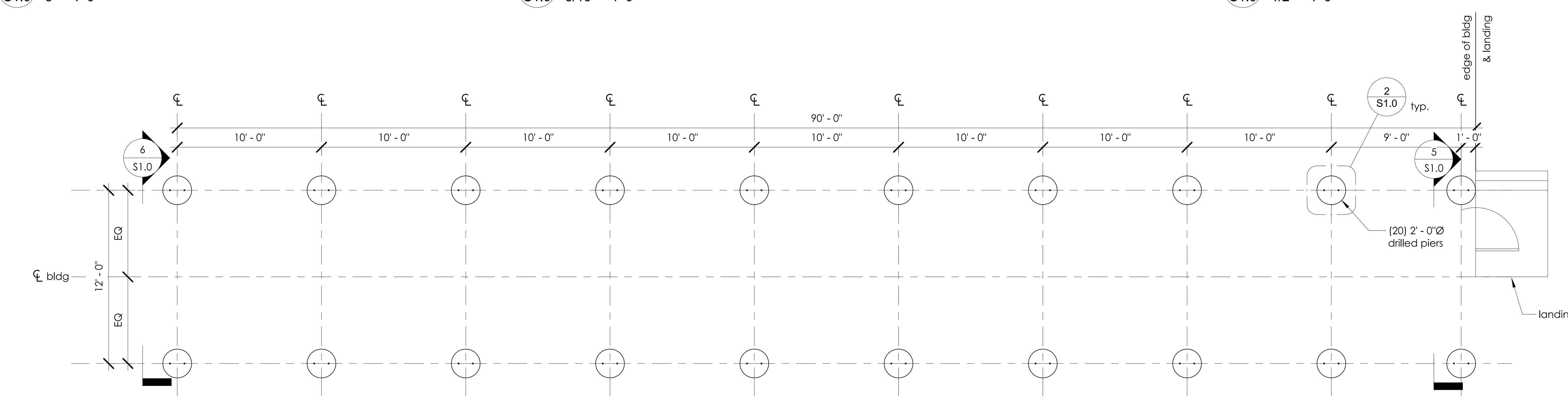
4 S1.0 Typical Anchor Bolt
3" = 1'-0"



5 S1.0 East Elevation
3/16" = 1'-0"



2 S1.0 Drilled Pier Plan
1/2" = 1'-0"



1 S1.0 Switchgear Housing Foundation Plan
3/16" = 1'-0"

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Switchgear Housing Foundation Plan

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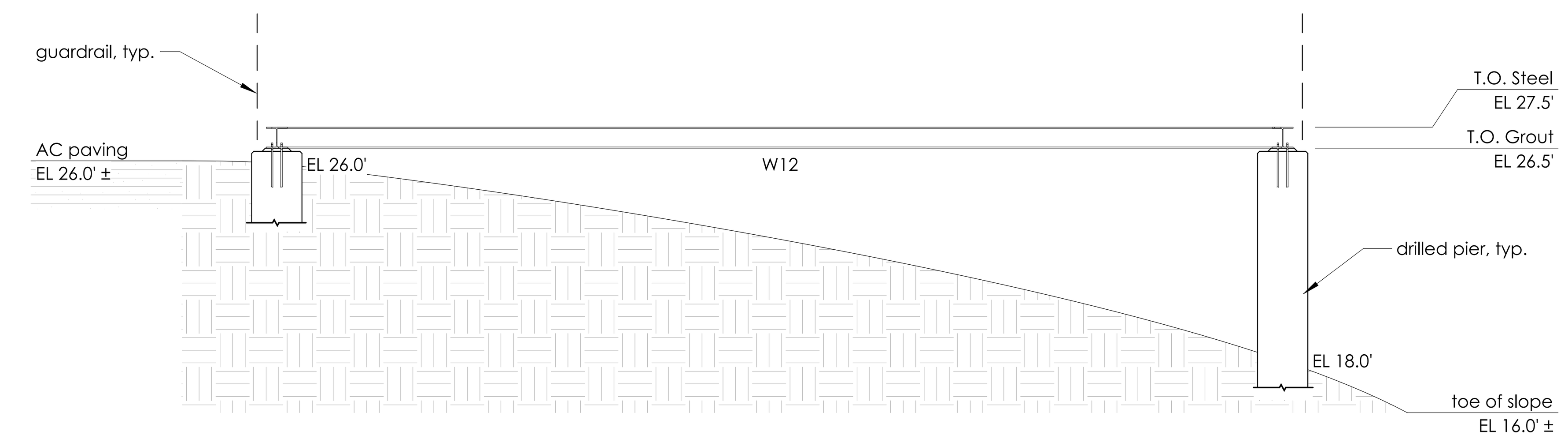
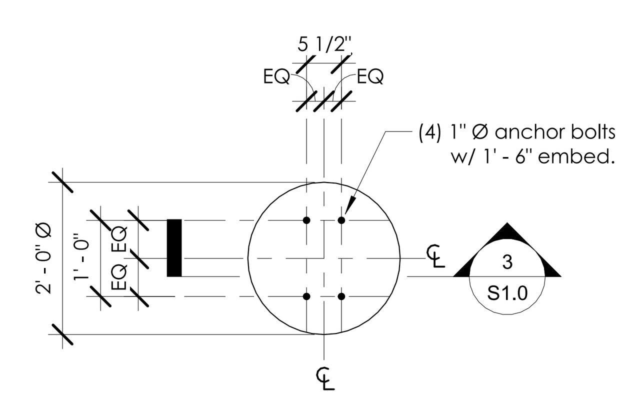
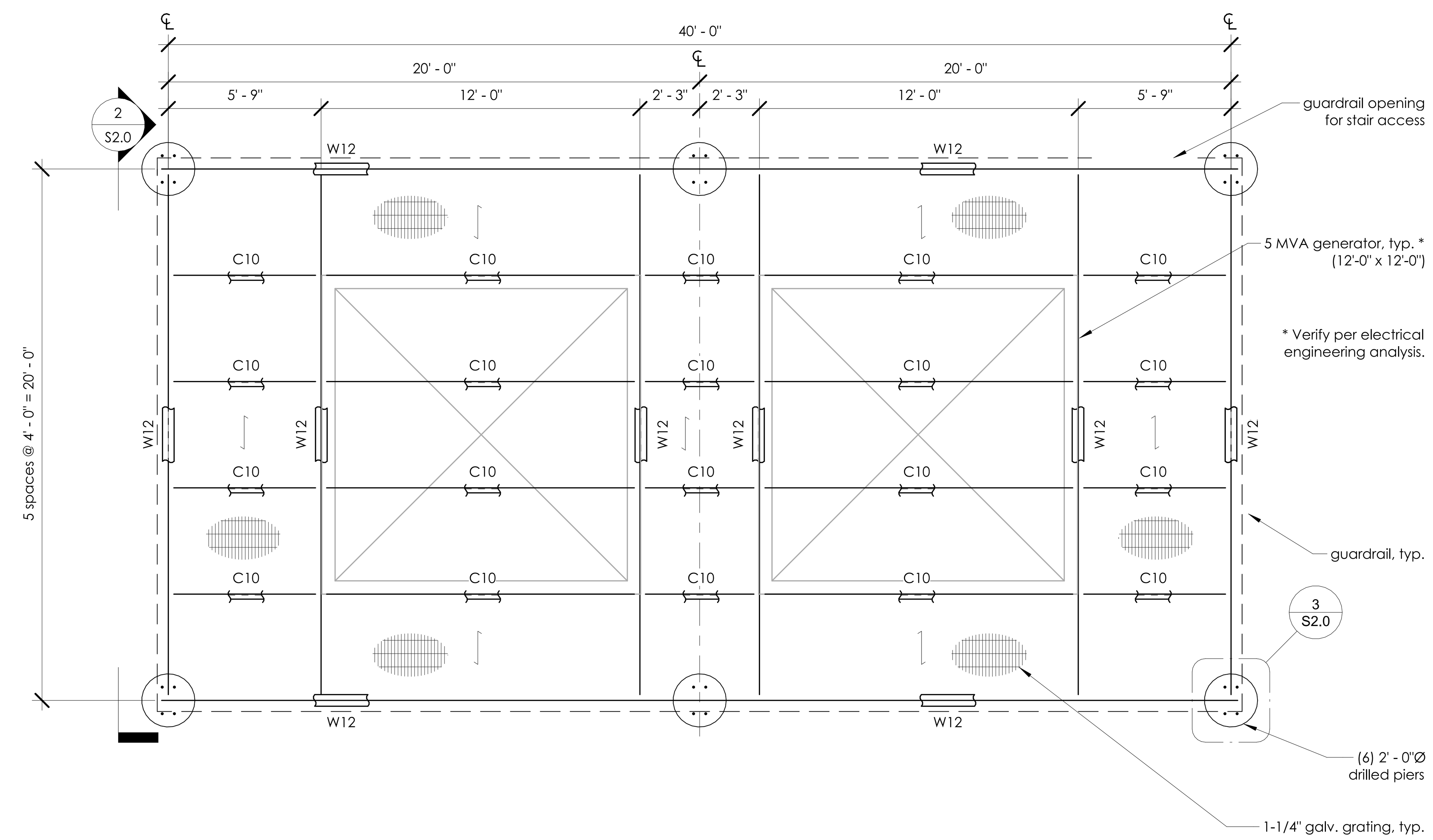


2 S2.0 West Elevation - Tranformer Platform
3/16" = 1'-0"



3 S2.0 Drilled Pier Plan - Transformer Platform
1/2" = 1'-0"



1 S2.0 Transformer Platform Framing Plan
1/4" = 1'-0"

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Transformer Platform Framing Plan

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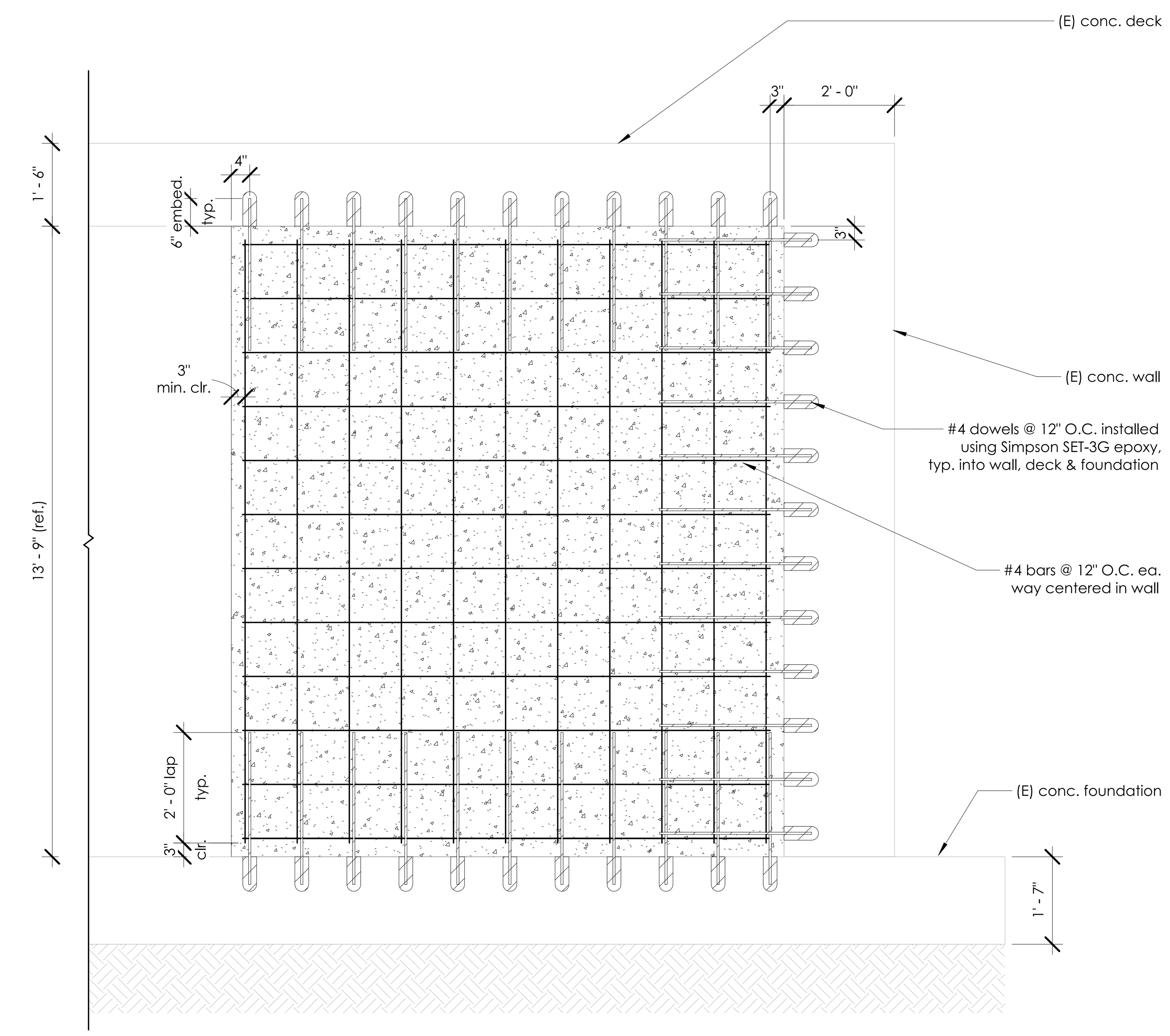
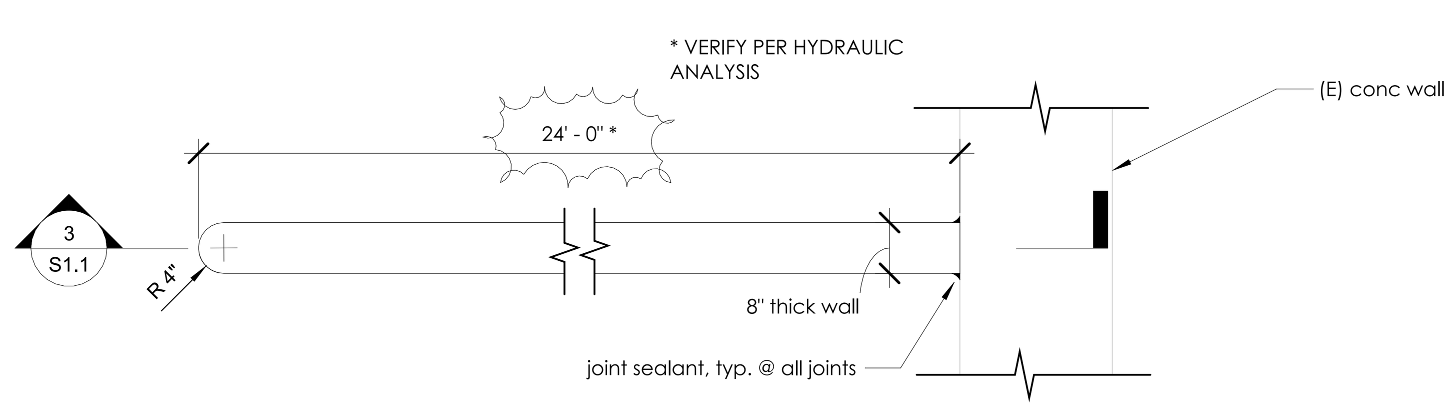
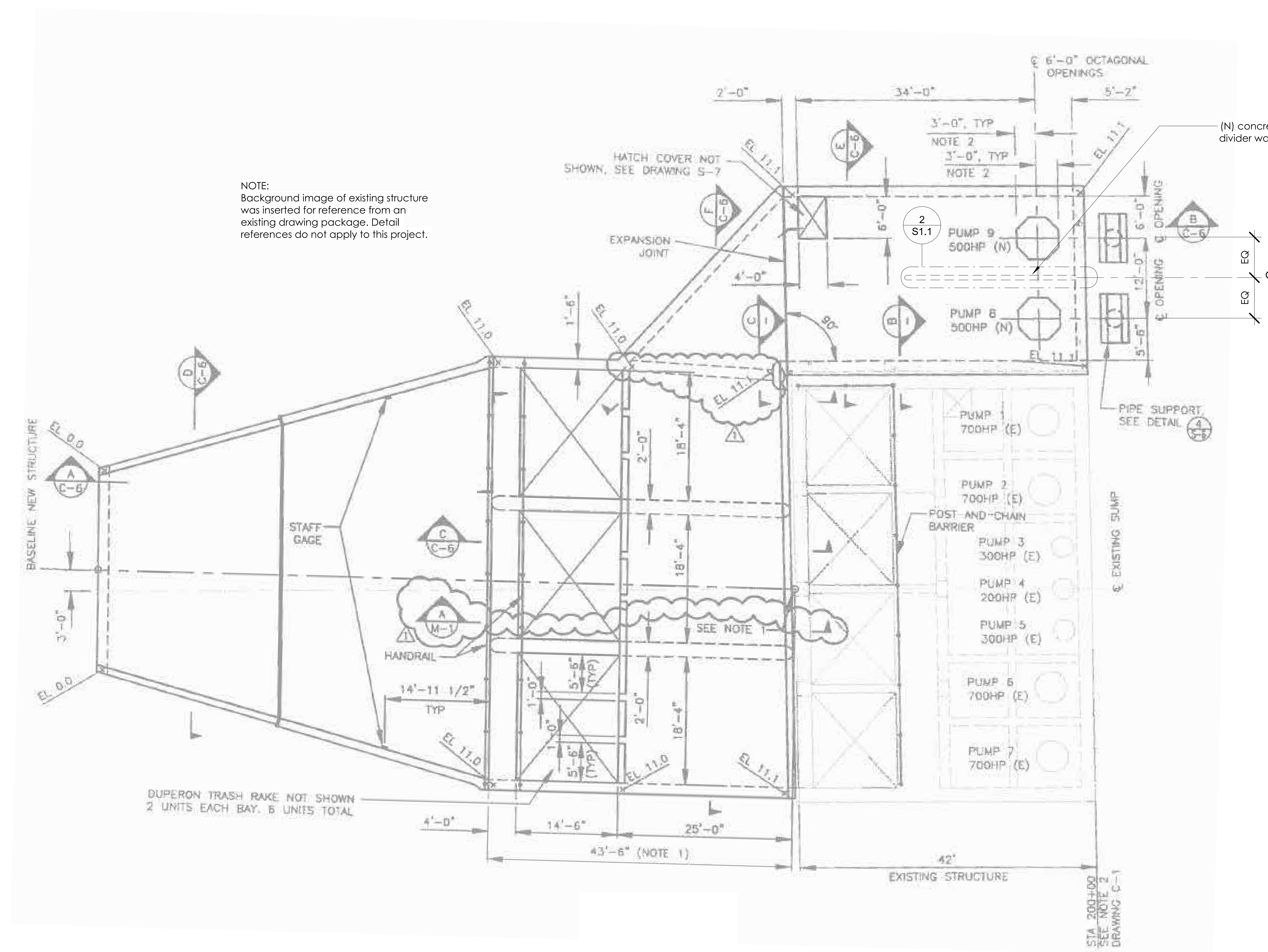


3 S1.1 Divider Wall Section
1/2" = 1'-0"



2 S1.1 Divider Wall Plan
1/2" = 1'-0"



1 S1.1 Structure Modification Plan
3/32" = 1'-0"

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Divider Wall Plan & Details

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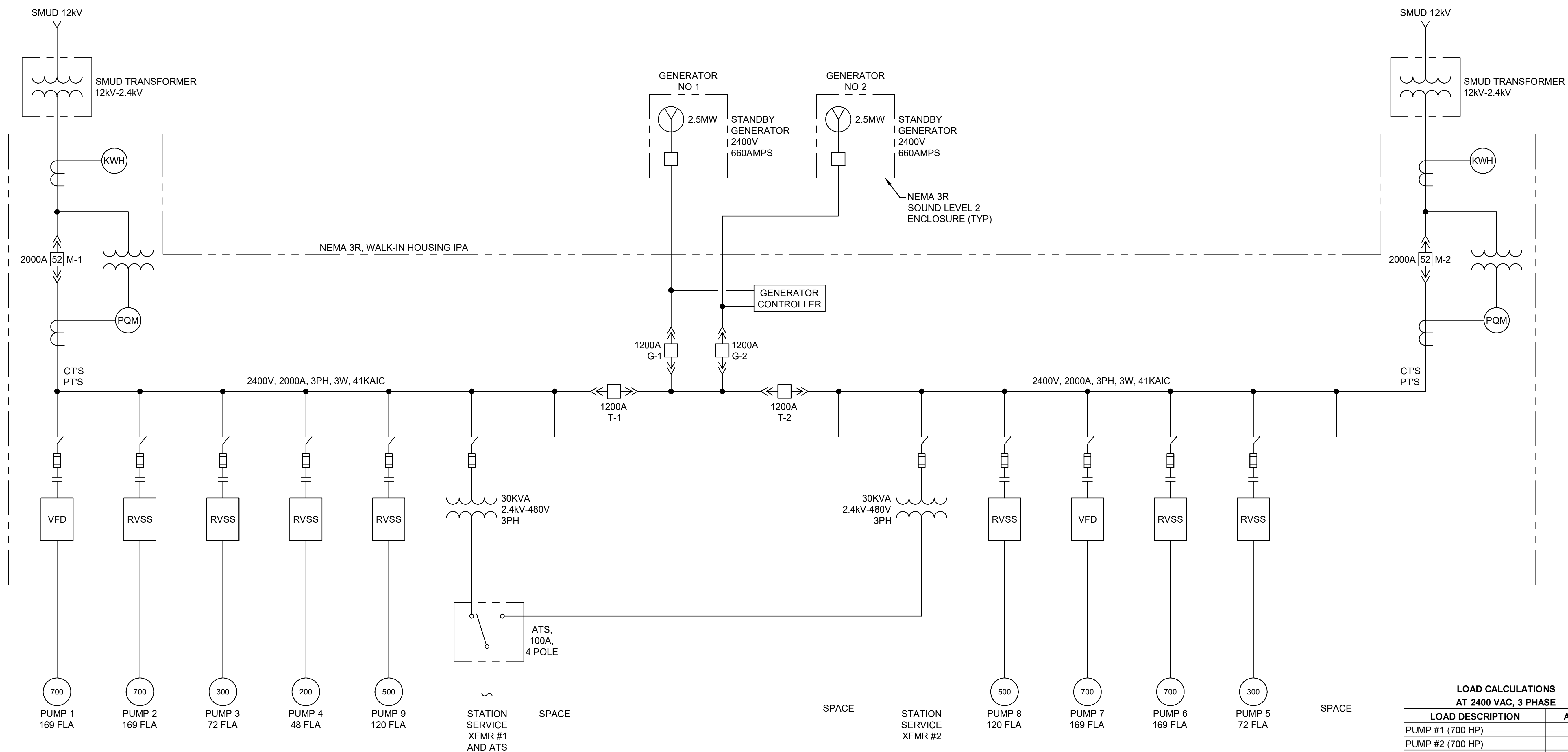
Appendix I

SINGLE LINE DRAWINGS



LOAD CALCULATIONS AT 2400 VAC, 3 PHASE	
LOAD DESCRIPTION	AMPS
PUMP #1 (700 HP)	169
PUMP #2 (700 HP)	169
PUMP #3 (300 HP)	72
PUMP #4 (200 HP)	48
PUMP #5 (300 HP)	72
PUMP #6 (700 HP)	169
PUMP #7 (700 HP)	169
PUMP #8 (500 HP)	120
PUMP #9 (500 HP)	120
30 KVA TRANSFORMER #1	7
30 KVA TRANSFORMER #2	7
FUTURE (SPARE CAPACITY)	30
SUBTOTAL:	1152
25% CONNECTED LOAD:	288
TOTAL AMPS:	**1440**

SINGLE LINE DIAGRAM

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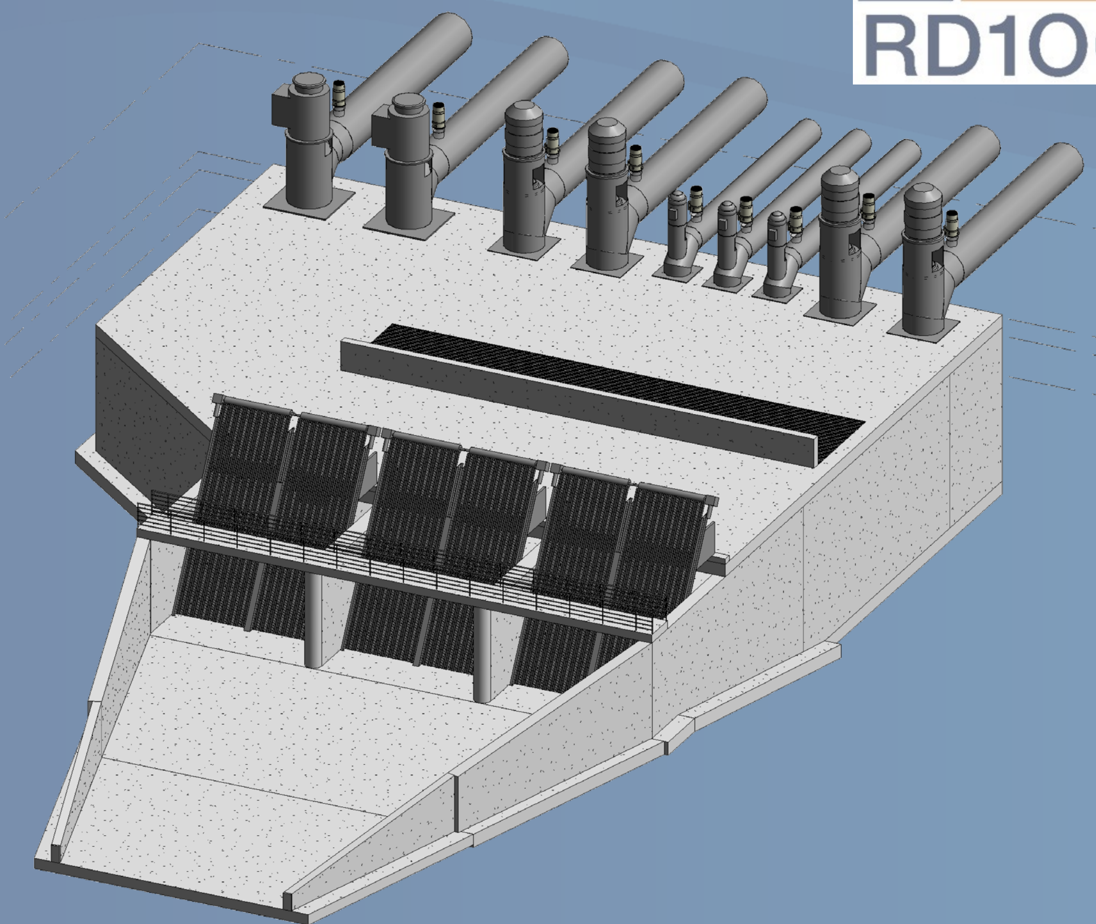
1550 Harbor Blvd., Suite 212
West Sacramento, CA 95691
916-403-5900

RECLAMATION DISTRICT 1000 - NATOMAS
PUMPING PLANT NO. 8
SACRAMENTO, CA

PRELIMINARY DESIGN IMPROVEMENTS
ELECTRICAL
SINGLE LINE DIAGRAM

DATE
DATE
SHEET IDENTIFICATION
E-1
SHEET X OF XX
KSN PROJECT FILE NO.
2433-0030

FILE SPEC: D:\Working Projects\Calton Projects\KSN-RD1000\E-01_05.dwg
PLOT DATE: Apr 05, 2022 - 8:50am



PLANT 8 PRELIMINARY DESIGN REPORT
RECLAMATION DISTRICT 1000
SACRAMENTO, CALIFORNIA

PREPARED FOR:

KEVIN L. KING
GENERAL MANAGER

PREPARED BY:

Kjeldsen, Sinnock & Neudeck, Inc.
Civil Engineers & Land Surveyors
1550 Harbor Boulevard, Suite 212
West Sacramento, California 95691
Telephone Number: (916) 403-5900
March 2023
KSN No. 2433-0030

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 6.1**

TITLE: **Authorization to Oppose Initiative 21-0042a1**

SUBJECT: **Review and Consider Adoption of Resolution No. 2023-10-01 Authorizing General Manager to Join the "NO "on Initiative 21-0042A1 coalition, on behalf of Reclamation District No. 1000**

EXECUTIVE SUMMARY:

Ballot Initiative 21-0042A1 would result in the loss of billions of dollars annually in critical state and local funding, restricting the ability of local agencies and the State of California to fund services and infrastructure by:

- Adopting new and stricter rules for raising taxes, fees, assessments, and property-related fees.
- Amending the State Constitution, including portions of Propositions 13, 218, and 26among other provisions, to the advantage of the initiative's proponents and plaintiffs; creating new grounds to challenge these funding sources and disrupting fiscal certainty.
- Restricting the ability of local governments to issue fines and penalties to corporations and property owners that violate local environmental, water quality, public health, public safety, fair housing, nuisance and other laws and ordinances.

The initiative includes provisions that would retroactively void all state and local taxes or fees adopted after January 1, 2022 if they did not align with the provisions of this initiative. This may also affect indexed fees that adjust over time for inflation or other factors. Effectively, it would allow voters throughout California to invalidate the prior actions of local voters, undermining local control and voter-approved decisions about investments needed in their communities.

RECOMMENDATION:

Staff recommends the Board review and consider adoption of Resolution No. 2023-10-01: Authorizing the General Manager to Join the "NO "on Initiative 21-0042A1 coalition, on behalf of Reclamation District No. 1000.

ATTACHMENTS:

1. Resolution No. 2023-10-01: Authorizing the General Manager to Join the "NO "on Initiative 21-0042A1 coalition, on behalf of Reclamation District No. 1000.

STAFF RESPONSIBLE FOR REPORT:

____ Date: 10/02/2023

Kevin L. King, General Manager

RECLAMATION DISTRICT NO. 1000

RESOLUTION NO. 2023-10-01

A RESOLUTION OF THE BOARD OF TRUSTEES OF RECLAMATION DISTRICT NO. 1000 AUTHORIZING GENERAL MANAGER TO JOIN THE "NO "ON INITIATIVE 21-0042A1 COALITION, ON BEHALF OF RECLAMATION DISTRICT NO. 1000

At a regular meeting of the Board of Trustees of Reclamation District No. 1000 held at the District Office on the 20th day of October 2023, the following resolution was approved and adopted:

WHEREAS, an association representing California's wealthiest corporations and developers is spending millions to push a deceptive proposition aimed for the November 2024 statewide ballot; and

WHEREAS, the proposed proposition, Initiative 21-0042A1, has received the official title: "LIMITS ABILITY OF VOTERS AND STATE AND LOCAL GOVERNMENTS TO RAISE REVENUES FOR GOVERNMENT SERVICES. INITIATIVE CONSTITUTIONAL AMENDMENT"; and

WHEREAS, the measure includes provisions that would make it more difficult for local voters to pass measures needed to fund local services and infrastructure, and would limit voter input by prohibiting local advisory measures where voters provide direction on how they want their local tax dollars spent; and

WHEREAS, the measure exposes taxpayers to new costly litigation, limits the discretion and flexibility of locally elected boards to respond to the needs of their communities, and injects uncertainty into the financing and sustainability of critical infrastructure; and

WHEREAS, the measure severely restricts state and local officials' ability to protect our environment, public health and safety, and our neighborhoods against those who violate the law; and

WHEREAS, the measure creates new constitutional loopholes that would allow corporations to pay less than their fair share for the impacts they impose on our communities, including local infrastructure, our environment, water quality, air quality, and natural resources; and

WHEREAS, the measure threatens billions of dollars currently dedicated to state and local services, and could force cuts to Reclamation District No. 1000 as well as public schools, fire and emergency response, law enforcement, public health, parks, libraries, affordable housing, services to address homelessness, mental health services, and more; and

WHEREAS, the measure would also reduce funding for critical infrastructure like streets and roads, public transportation, ports, drinking water, sanitation, utilities, and more.

THEREFORE, BE IT RESOLVED that the Reclamation District No. 1000 opposes Initiative 21-0042A1;

BE IT FURTHER RESOLVED, that the Reclamation District No. 1000 will join the No on Initiative 21-0042A1 coalition, a growing coalition of public safety, labor, local government, infrastructure advocates, and other organizations throughout the state.

We direct staff to email a copy of this adopted resolution to the California Special Districts Association at advocacy@csda.net.

ON A MOTION BY Trustee______________, seconded by Trustee______________, the foregoing resolution was passed and adopted by the Board of Trustees of Reclamation District No. 1000, this 20th day of October 2023, by the following vote, to wit:

AYES: Trustees:

NOES: Trustees:

ABSTAIN: Trustees:

RECUSE: Trustees:

ABSENT: Trustees:

____

Elena Lee Reeder

President, Board of Trustees

Reclamation District No. 1000

CERTIFICATION:

I, Joleen Gutierrez, Secretary of Reclamation District No. 1000, hereby certify that the foregoing Resolution 2023-10-01 was duly adopted by the Board of Trustees of Reclamation District No. 1000 at the regular meeting held on the 20th of October 2023 and made a part of the minutes thereof.

____

Joleen Gutierrez, District Secretary

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 6.2**

TITLE: **CalMutuals (JPRIMA) Annual Meeting /Election of Board Directors**

SUBJECT: **Review and Consider Selection of CalMutuals Board of Directors**

EXECUTIVE SUMMARY:

Reclamation District 1000 (RD 1000; District) can attend the Annual CalMutuals Joint Powers Risk and Insurance Management Authority (JPRIMA) Meeting and vote in the Election of Board Directors. The meeting will be held on November 6-7, 2023, at the Padre Hotel in Bakersfield, CA. The meeting agenda is still being finalized, but it will include the following sessions:

- Drinking water partnerships and consolidation,
- Treatment technologies for small water systems,
- Cybersecurity readiness and risk assessments, and
- CalMutuals' small system conservation program with the Department of Water Resources

An important part of the annual meeting is the election of the Board of Directors. There are (9) Directors positions up for election this year. Elected Directors will serve a two-year term.

RECOMMENDATION:

Staff recommends the Board review candidate biographies, decide where votes will be cast (select at least one candidate or as many as all candidates), and determine if the vote will be counted under "Quorum Only" to ensure that the quorum is met. Finally, authorize the General Manager or Board Secretary to cast vote(s) electronically.

ATTACHMENTS:

1. Invitation Letter/Notice of Annual Meeting/Ballot/2023 CalMutuals JPRIMA Board Elections - Candidate Bios

STAFF RESPONSIBLE FOR REPORT:

_______________________________________ Date: 10/02/2023

Kevin L. King, General Manager

CalMutuals JPRIMA
Joint Powers Risk and Insurance Management Authority

Kevin King
General Manager
Reclamation District #1000
1633 Garden Highway
Sacramento, CA95833

We cordially invite you to join us for the 2023 Annual Meeting of the California Association of Mutual Water Companies (CalMutuals) and CalMutuals' Joint Powers Risk and Insurance Management Authority (CalMutuals JPRIMA). Our annual meeting will be held November 6-7, 2023, at the Padre Hotel in Bakersfield. The agenda for the meeting is still in the process of being finalized, but it will include the following sessions:

- Drinking water partnerships and consolidation,
- Treatment technologies for small water systems,
- Cybersecurity readiness and risk assessments, and
- CalMutuals' small system conservation program with the Department of Water Resources (DWR)

How to Register:
Registration is **FREE** for members of CalMutuals, CalMutuals JPRIMA, and the Community Water Systems Alliance; as well as for our insurance broker partners. Please RSVP by visiting https://caomwc.wildapricot.org/event-5392243 or by email to ceili@calmutuals.org.

Travel and Accommodations:
Members are responsible for transportation and overnight accommodations. A group rate of $145 has been arranged with the Padre Hotel. Call the hotel at (661) 427-4900 to make a reservation and be sure to note that you are a CalMutuals JPRIMA member.

Travel grants for airfare or mileage, lodging, and meals will be provided upon request to interested mutual water companies providing water service to 500 connections or less or that serve disadvantaged communities. To request a travel grant please contact Ceili Tuttle by email at ceili@calmutuals.org.

How to Vote:
An important part of the annual meeting is election of the Boards of Directors. Enclosed you will find a formal meeting notice, a proxy form and candidate biographies.

Securing a returned proxy form for the election is critical. The proxy form allows CalMutuals JPRIMA to vote as instructed on a member's behalf or for quorum purposes in advance of the Annual Meeting. If you wish to cast a proxy vote instructing us with your choice(s), you may choose one or all of the candidates. You can also select the "Quorum Only" option to help ensure that we meet quorum.

We invite you to vote by mail by completing and returning the enclosed paper proxy form. You can also scan and send your paper proxy form to ceili@calmutuals.org. Additionally, this year we are offering the opportunity to vote online through Association Voting. To vote electronically, please visit: https://vote.associationvoting.com/calmutuals/.

You should have received an email from Association Voting with the instructions, link, and credentials to vote in the CalMutuals JPRIMA Board of Directors elections online. If you cannot locate the email, your online voting credentials are as follows:

(1) Member Number: 67435757

(2) Primary Email:

Thank you for your continued trust with CalMutuals JPRIMA for your insurance needs. We hope to see you in Bakersfield in November!

Please do not hesitate to call us with questions about the Annual Meeting or the voting process.

Sincerely,

Ceili Tuttle
Member Services Associate

CalMutuals JPRIMA
Joint Powers Risk and Insurance Management Authority

NOTICE OF ANNUAL MEETING
To be held Monday and Tuesday – November 6-7, 2023

To the Members of California Association of Mutual Water Companies Joint Powers Risk and Insurance Management Authority (CalMutuals JPRIMA):

NOTICE IS HEREBY GIVEN that the Annual Meeting of the California Association of Mutual Water Companies Joint Powers Risk and Insurance Management Authority will be held in person at the Padre Hotel, 1702 18th St, Bakersfield, CA 93301 on Tuesday, November 7, 2023 at 8:30 AM.

The purpose of the Annual Meeting is to consider and act upon the election of Directors and other items as may properly come before the Authority's membership. There will be nine (9) Director positions up for election as of the date of this Notice. The following nine incumbent Directors have been nominated:

David Armstrong, South Mesa Water Company
Kenneth Bradbury, Former General Manager, Montebello Land & Water Company
Dave Michalko, General Manager, Valencia Heights Water Company
Lynda Noriega, President, California Domestic Water Company
Doug Nunneley, General Manager, Oildale Mutual Water Company
David Pedersen, General Manager, Las Virgenes Municipal Water District
Kennth Tcheng, General Manager, Sunny Slope Water Company
Marina West, General Manager, Bighorn-Desert View Water Agency
Lisa Yamashita-Lopez, General Manager, Rubio Cañon Land & Water Association

Such other items may properly come before the Authority's membership.

The Authority's ballot for the annual meeting is submitted herewith.

The meeting will be part of a larger two-day conference that will coincide with the California Association of Mutual Water Companies Annual meeting and presentations, panels, and workshops focused on the needs and concerns of small water systems. The conference is scheduled to begin on Monday, November 6, 2023 at 11 AM and to continue through Tuesday, November 7, 2023 at 2:00PM.

By order of the Board of Directors

Susan E. Allen
Chief Executive Officer

BALLOT FOR THE 2023 ANNUAL MEETING OF THE CALIFORNIA ASSOCIATION OF MUTUAL WATER COMPANIES JOINT POWERS RISK AND INSURANCE MANAGEMENT AUTHORITY

NOVEMBER 6-7, 2023

____ [insert name of member company or district] hereby submits its written ballot for the 2023 Annual Meeting of the California Association of Mutual Water Companies, Joint Power Risk and Insurance Management Authority marked as follows:

For Director, for a two-year term:

☐	**Quorum Only**
☐	**David Armstrong**, South Mesa Water Company
☐	**Kenneth Bradbury**, Montebello Land & Water Company
☐	**Dave Michalko**, Valencia Heights Water Company
☐	**Lynda Noriega**, California Domestic Water Company
☐	**Doug Nunneley**, Oildale Mutual Water Company
☐	**Dave Pedersen**, Las Virgenes Municipal Water District
☐	**Kenneth Tcheng**, Sunnyslope Water Company
☐	**Marina West**, Bighorn-Desert View Water Agency
☐	**Lisa Yamashita-Lopez**, Rubio Cañon Land & Water Association

Dated: ____________________________, 2023

Name of Member Company or District: ____

By: ____________________________
[Signature]

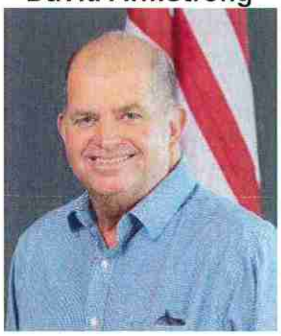
____
[Printed Name]

Its: ______________________________________
[Authorized Office – Position Title]

CalMutuals JPRIMA
Joint Powers Risk and Insurance Management Authority

2023 CalMutuals JPRIMA Board Elections - Candidate Bios

David Armstrong

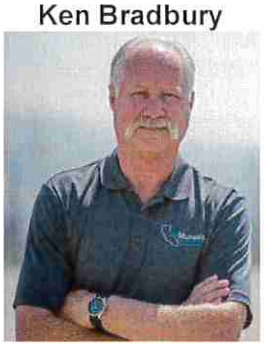


David Armstrong has over 25 years of experience in the water sector. He is the General Manager for South Mesa Water Company, a mutual water company supporting a severely disadvantaged community located within the Cities of Calimesa and Yucaipa.

David has served on the CalMutuals JPRIMA Board of Directors since the Authority's formation in 2015. He also has served on the CalMutuals Board of Directors since 2014, and was elected as the Association's Vice President in 2016.

David serves on the boards of the Beaumont Basin Watermaster, San Gorgonio Pass Regional Water Alliance, Yucaipa Sustainable Groundwater Management Agency and is a member of the Upper Santa Ana River Watershed Management Plan.

Ken Bradbury

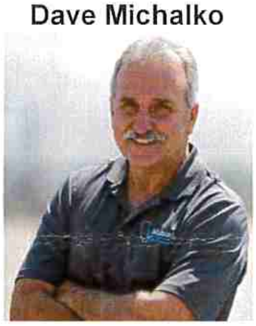


Kenneth "Ken" Bradbury served as the General Manager of Montebello Land & Water Company, located in the City of Montebello, for over 40 years.

Ken is a founding member of CalMutuals JPRIMA and serves as the Authority's Secretary. Ken additionally served as an active member of the CalMutuals Board of Directors and supported the Association's success through its first ten years.

Beyond his volunteer leadership with CalMutuals JPRIMA, Ken enjoys working in his home workshop, spoiling his three grandchildren, and regular hunting excursions.

Dave Michalko



Dave Michalko has over 30 years of experience in the water industry. He is the General Manager for Valencia Heights Water Company located in the City of West Covina.

Dave has served on the CalMutuals JPRIMA Board of Directors since the Authority's formation in 2015, and was elected President of the Authority in 2022. He has been an active member of the CalMutuals Board of Directors since its founding.

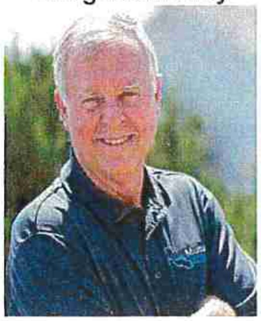
In addition, Dave serves on the San Gabriel Valley Water Association Board of Directors, and is the Vice Chair of the Main San Gabriel Basin Watermaster.

Lynda Noriega

Lynda Noriega serves as President of California Domestic Water Company ("Cal Domestic"), a mutual water company organized as a wholesale water supplier based in Whittier. She began her career in water in 2001 with Valley County Water District, where she held progressively responsible positions including Operations Assistant, Water Quality Specialist, Finance & Administration Manager, Interim General Manager, and General Manager.

Lynda has served on the CalMutuals JPRIMA Board of Directors since 2022. Lynda is Chair of the Board of Directors of the Main San Gabriel Basin Watermaster, President of the Board of Directors of the San Gabriel Valley Water Association, and member of the Board of Directors of Covina Irrigating Company. She also serves as Vice Chair of the Board of Directors for the San Gabriel Basin Water Quality Authority, and as a member of the Board of Directors for Mujeres de la Tierra, an environmental advocacy non-profit based in Los Angeles.

Doug Nunneley



Doug Nunneley recently retired as General Manager of Oildale Mutual Water Company, one of the largest mutual water companies in the state, located in the City of Bakersfield after nearly 45 years of service with the Company.

Doug shared his time and talents as General Manager for North of the River Municipal Water District, Chair of the Urban Bakersfield Advisory Committee of Kern County Water Agency Improvement District #4, Co-Chair of the Kern Integrated Regional Water Management Plan, and Board of Directors member with the Water Association of Kern County.

Doug is a founding member of CalMutuals, CalMutuals JPRIMA, and the Community Water Systems Alliance (CWSA) and has served on each of the Boards from their beginnings through the present day.

David Pedersen

David Pedersen is the General Manager of Las Virgenes Municipal Water District in the City of Calabasas. He brings almost three decades of public service experience focusing on water management, flood control and other public infrastructure.

He began his career with Los Angeles County Public Works, subsequently moving to the Irvine Ranch Water District where he was Director of Water Operations and later Executive Director of Operations. He stays active in the water community, serving as the President Elect of WateReuse California and on the boards of the Association of California Water Agencies, Southern California Water Coalition and Urban Water Institute.

Dave has represented special districts on the CalMutuals JPRIMA Board of Directors since 2019.

Kenneth Tcheng

Kenneth "Ken" Tcheng is the General Manager of Sunny Slope Water Company in the City of Pasadena, a mutual water company recognized for implementation of innovative, scaled, nitrate treatment technologies.

Ken has worked for Sunny Slope Water Company since 2008 and served as a member of the CalMutuals JPRIMA Board of Directors since its founding. Ken is also a founding member of CalMutuals and supports the Association as its Treasurer and Finance and Investment Committee member.

Prior to joining the company, Ken worked in the aerospace industry, managing Information Systems/Information Technology Infrastructure Services.

Marina West

Marina West is the General Manager of Bighorn-Desert View Water Agency. Marina's public sector career spans more than three decades, with many of those years spent working in water system operations and management. She is a professional geologist and certified in water distribution (D5) and water treatment (T2).

Marina serves as the chair of the Mojave Water Agency Technical Advisory Committee and vice-chair of their Small Water Systems Committee. Marina's leadership in the greater Mojave region affirmed the value of expanding alliances with water systems serving disadvantaged communities around the state. Marina also serves as vice chair of the California Water Systems Alliance (CWSA), an initiative to provide a voice in Sacramento for water systems serving disadvantaged communities that are reliably and affordably providing water to low-income and limited-income residents such as seniors.

Lisa Yamashita-Lopez

Lisa Yamashita-Lopez has served as General Manager of Rubio Cañon Land & Water Association located in the City of Altadena since 2008.

For over the past 30 years, Lisa has provided technical and management consulting services to the municipal and water utility sector.

Lisa has served on the CalMutuals JPRIMA Board of Directors since its founding in 2015. She has also served on the CalMutuals Board of Directors since 2014, and was elected President of the Association in 2016.

In addition, Lisa serves as President of the Raymond Basin Watermaster, and is an active member of the Watermaster Executive Committee.

RECLAMATION DISTRICT NO. 1000

DATE: OCTOBER 20, 2023 **AGENDA ITEM NO. 7.1**

TITLE: **Committee Meeting Minutes**

SUBJECT: **Committee Meeting Minutes since the September Board Meeting**

EXECUTIVE SUMMARY:

Urbanization Committee Meeting – September 21, 2023

A meeting of the Reclamation District No. 1000 Urbanization Committee was held on Thursday, September 21, 2023, at 9:00 a.m. at the District's office. In attendance were Trustees Lee Reeder and Smith. Staff in attendance were General Manager King, Administrative Service Manager Gutierrez, Operations Manager Holleman and Administrative Assistant Forehand. There were no members of the public present, therefore no public comments were received.

General Manager King presented the outreach activities from Quarter 2 and 3 (Attachment 1). The Committee reviewed and provided feedback for Quarter 4.

With no further business on the Urbanization Committee Agenda, meeting adjourned at 10:30 a.m.

Executive Committee Meeting – October 4, 2023

A meeting of the Reclamation District No. 1000 Executive Committee was held on Wednesday, October 4, 2023, at 8:00 a.m. at the District's office. In attendance was Trustee Lee Reeder. Staff in attendance were General Manager King, Operations Manager Holleman and General Counsel Smith. There were no members of the public present, therefore no public comments were received.

General Manager King presented the proposed agenda for the October 20, 2023, Board of Trustees meeting. The Committee reviewed the agenda and approved.

With no further business on the Executive Committee Agenda, meeting adjourned at 8:15 a.m.

ATTACHMENTS:

1. Urbanization Committee Agenda & Packet - September 21, 2023

AGENDA ITEM 7.1
ATTACHMENT NO. 1

ESTABLISHED 1911 NATOMAS RD1000 FLOOD PROTECTION

Protecting Natomas Since 1911

Learn more at RD1000.ORG

RECLAMATION DISTRICT NO. 1000

URBANIZATION COMMITTEE MEETING

1633 GARDEN HIGHWAY
SACRAMENTO, CA 95833

THURSDAY, SEPTEMBER 21, 2023
9:00 A.M.

Members of the public may participate in this meeting in person at the District's office located at 1633 Garden Highway, Sacramento, CA 95833.

Members of the public will have an opportunity to address the Committee during Public Comment. Comments may also be emailed to kking@rd1000.org prior to the Committee Meeting.

1. **URBANIZATION COMMITTEE MEETING**

   1.1. Review Outreach Benchmarks from 2023 Quarter 3 and set Benchmarks for 2023 Quarter 4

   1.2. Overview of District Outreach/Education

2. **PUBLIC COMMENT**

   2.1. Members of the public may address the committee on subject matter related to the purpose of this committee meeting.

3. **ADJOURN**

** If more than three (3) Trustees attend a committee meeting, it will be considered a Special Board Meeting.*

Outreach Update (Q1 through Q3 to date)

Urbanization Committee Meeting 9/21/23

Community Events

Pops in In Park: This event has been discontinued in Natomas due to redistricting.

The City of Sacramento Highwater Jamboree (October 21), Natomas Regional Park. staff onsite at 6 a.m. The public event runs from 10 a.m. and ends at 1 p.m.

Administrative Services Manager Joleen Gutierrez will staff the Booth with Trustee Perez, Operations Supervisor Tony Del Castillo, and three crew members will showcase heavy equipment.

Website Analytics

(Streamline)

Summary Q1

The district's website saw 14,209 page views in Q1. For every visit, each user averaged around 1.65 pages per session. The average time spent was less than two minutes. Most users arrived at the website through social media referrals. The most visited pages were the home page, NLIP, and What is a sand boil.

Summary Q2

The district's website saw 9,704 page views in Q2. For every visit, each user averaged around 1.37 pages per session. The average time spent per session was less than a minute. Most users arrived at the website via direct traffic (4,962). Some visitors accessed the website via organic traffic (1,252); the remaining users arrived through external links and referrals. The three most visited pages were the home page, the Contact Us page, and the "What is Levee Seepage?" page.

Summary Q3 (to date 7/1/23 - 9/19/23)

A total of 1,756 users visited the District website. 1076 of the users arrived via organic search. 520 arrived through direct traffic, 139 from organic social search, and 21 from referrals. A total of 677 sessions were engaged in. 4.8K website views were generated, with an average of 2.72 views per user. The home page had the most visits with 1135 views, followed by 219 for the "Contact Us" page and 213 for the "What is Levee Seepage" page.

(See ATTACHMENT #1 Website Analytics)

Social Media Analytics

(Facebook/Twitter/Instagram)

Hootsuite Social Media Analytics Report Summary Q1

In the first quarter of 2023, the district's social media accounts saw an increase in following but a general decrease in interaction and activity from the previous quarter. Across the social media accounts, 79 net followers were gained, bringing the total to 875. 51K impressions were received, 7.6K higher than the previous quarter. The district's Facebook page experienced an increase in activity, while Instagram and X (formerly Twitter) pages saw a decrease. Total post engagements decreased from 1024 to 747.

Hootsuite Social Media Analytics Report Summary Q2

In the second quarter, followers continued to increase from the previous quarter. Across the social media accounts, 21 net followers were gained, bringing the total to 896. 17K impressions were received, 33K lower than the previous quarter. The district's social accounts across the board saw a decrease in activity compared to the previous quarter. Total post engagements decreased from 747 to 413.

Hootsuite Social Media Analytics Report Summary Q3

In the third quarter of 2023, 34 net followers were gained across all social media accounts, bringing the total to 931. There were 376 total post engagements. 10.9K total impressions were received. A substantial number of views and community engagement were received as well.

Facebook

Summary Q1

In the first quarter of 2023, engagement on Facebook showed an increase. 38 fans were added, bringing followers to 399. Facebook reactions increased to 286, comments to 90, and shares to 67. The post about the future of flood protection in Natomas (an Opinion piece) received the most reactions (33), followed by the post about our history and plans for the future (11 reactions).

Summary Q2

In the second quarter, engagement on Facebook saw an overall increase. 10 fans were gained to bring the total to 409. Facebook reactions increased to 218, comments decreased to 8, and shares decreased to 8. Two posts are tied for the most reactions. The post about the district visitors (a baby goose parade) and a post about the crew cleaning up NEMDC received the most reactions (10 each).

Summary Q3

On the District's Facebook page, 8 fans were gained in Q3, now 417. 27 posts were created, and the page received 193 engagements. Specifically, there were 157 reactions, 20 comments, and 17 shares. The posts that received the most community engagement were the August 30 CSDA Award post, with 37 engagements, and the August 4 post new District logo post, with 22 engagements.

X (Formerly Twitter)

Summary Q1

The District's X account gained 16 followers and ended Q1 with 242 followers. A total of 39 posts were created in this period. Key interactions decreased from 79 to 34, with total likes at 28, retweets at 4, and replies at 2. A 72% decrease in post impressions from 8K to 2.2K was also noted. The posts with the most engagement were the March 6 invitation to vote on the Stormwater Fee and the invitation to join a Clean California community event, posted on March 24. Overall, our X platform experienced the least public interaction of our three social media pages.

Summary Q2

The District's X account did not gain followers and ended Q2 with 242 followers. Key interactions increased from 34 to 61, with total likes at 45, retweets at 11, and replies at 3. An 85% increase in post impressions from 2.2K to 4.1K was also noted. The posts with the most engagement were the April 28 NEMDC crew cleanup post (nine interactions) and the April 3 NLIP update post (eight interactions).

Summary Q3

The District's X page gained 10 new followers, now 252. 24 tweets were posted, and 47 post engagements were induced. Of the 47 engagements, 27 were likes, 14 were replies, 3 were quote tweets, and 3 were retweets. The most popular posts were the August 10 post about Congressman Bera's visit and the Plant 4 update on August 15.

Instagram

Summary Q1

Engagement decreased on Instagram. Followers increased from 203 to 234, but post impressions decreased from 2.7K to about 2.4K. The January 11 post about the ABC 10 and CBS 13 interviews performed the best, with 13 likes, followed by the March 21 post about Prop 218/Stormwater Fee election results, with 12 likes.

Summary Q2

Post engagement also decreased on our Instagram page. Followers increased from 234 to 245, but post impressions decreased from 2.4K to about 2K. The June 15 post about the American River Parkway Foundation cleanup performed the best, with nine likes.

Summary Q3

17 followers were gained in Q3 on RD1000's Instagram page, bringing the total to 262. A total of 21 posts were posted. 136 post engagements were recorded. 129 were from photo posts, 4 were video posts, and 3 were from reels. The most popular post was the August 24 city gate post, which received 21 engagements. The second most popular was the new logo post on August 4, which received 15 engagements.

(SEE ATTACHMENT #2 Social Media Analytics)

(See ATTACHMENT #3 Social Media Calendar)

Social Media Ad Spend

- CSDA Award – spent $25.
- RD1000 New Logo – spent $20.

(See ATTACHMENT #4 Ad Spend)

Media

https://www.rd1000.org/media-coverage

https://www.rd1000.org/press-releases

August 30, 2023

- **Small Sacramento District Wins CSDA Exceptional Public Outreach Award**

July 2023 Press Release

- **Reclamation District 1000 Receives Prestigious National Award for Excellence in Communications**

April 8, 2023 ABC 10 Sacramento

- **Reclamation District 1000 gets Capital Improvement Plan approved by voters.**

Awards

- NAFSMA: "RD1000 Receives Prestigious National Award for Excellence in Communications
- CSDA: Award "Exceptional Public Outreach Award"

Benchmarks

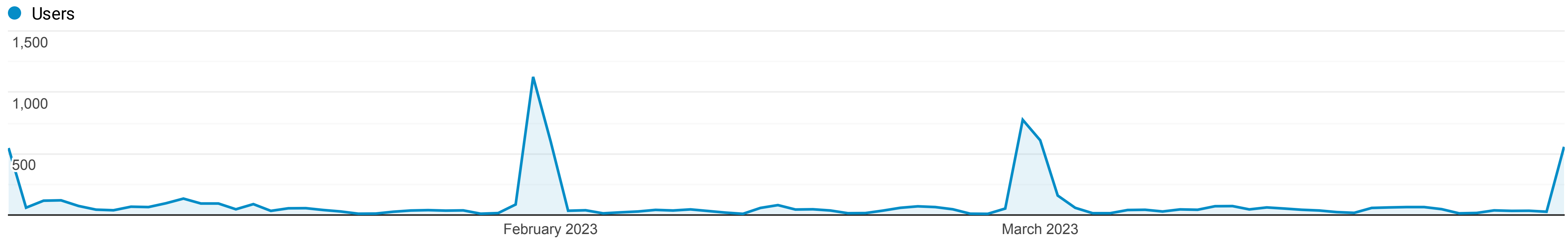
No benchmarks were set as staff continued to wrap up the 4Natomas campaign and work toward completing the Stormwater Fee ballot election.

Audience Overview

All Users
100.00% Users

Jan 1, 2023 - Mar 31, 2023

Overview



Users	New Users	Sessions	Number of Sessions per User
7,567	7,515	8,621	1.14

Pageviews	Pages / Session	Avg. Session Duration	Bounce Rate
14,209	1.65	00:00:58	82.71%

	Language	Users	% Users
1.	en-us	7,393	97.82%
2.	en-gb	49	0.65%
3.	en	12	0.16%
4.	zh-cn	12	0.16%
5.	en-in	9	0.12%
6.	c	8	0.11%
7.	en-au	6	0.08%
8.	es-419	6	0.08%
9.	es-us	6	0.08%
10.	en-ph	4	0.05%

Network Referrals

Jan 1, 2023 - Mar 31, 2023

Discover where your social traffic originates

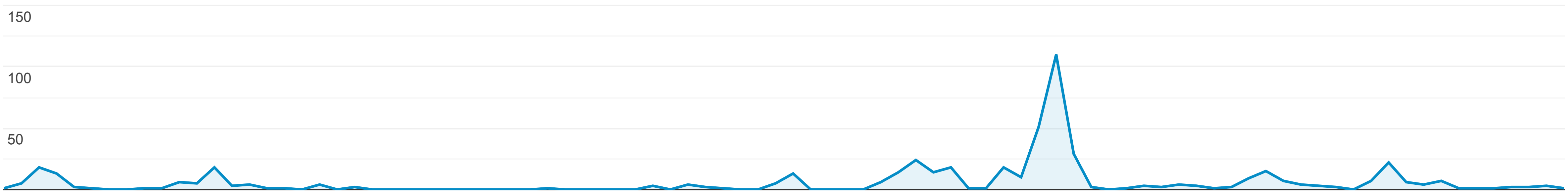
Identify the networks and communities where people engage with your content. Learn about each community, and identify your best performing content on each network.

Don't show education messages.

All Users
100.00% Sessions

Social Referral

Sessions via Social Referral



All Sessions

	Social Network	Sessions	Pageviews	Avg. Session Duration	Pages / Session
1.	Facebook	487 (92.59%)	612 (89.87%)	00:00:25	1.26
2.	Twitter	19 (3.61%)	39 (5.73%)	00:00:19	2.05
3.	reddit	13 (2.47%)	16 (2.35%)	00:00:01	1.23
4.	Instagram	7 (1.33%)	14 (2.06%)	00:00:37	2.00

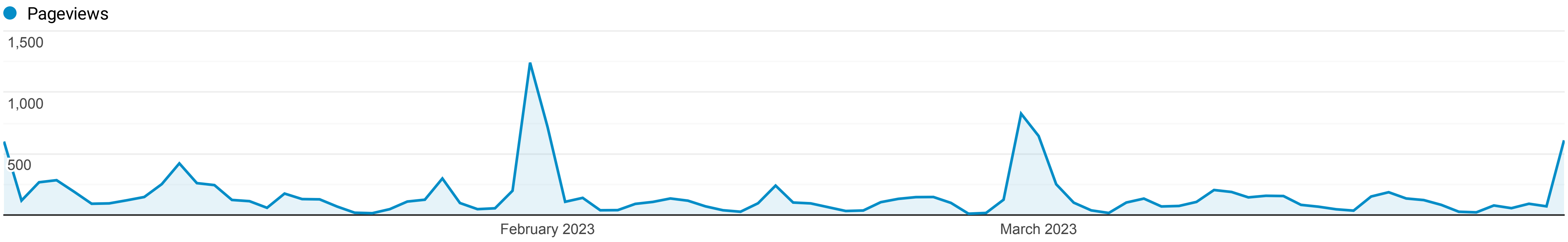
Rows 1 - 4 of 4

Overview

All Users
100.00% Pageviews

Jan 1, 2023 - Mar 31, 2023

Overview



Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
14,209	12,249	00:01:29	82.71%	60.67%





	Page	Pageviews	% Pageviews
1.	/	2,012	14.16%
2.	/natomas-levee-project	570	4.01%
3.	/contact-us	409	2.88%
4.	/what-is-a-sand-boil	325	2.29%
5.	/meet-our-staff	307	2.16%
6.	/reclamation-district-1000-district-map	277	1.95%
7.	/what-is-levee-seepage	228	1.60%
8.	/about-us-reclamation-district-1000	224	1.58%
9.	/members-of-the-board	209	1.47%
10.	/current-river-levels	173	1.22%

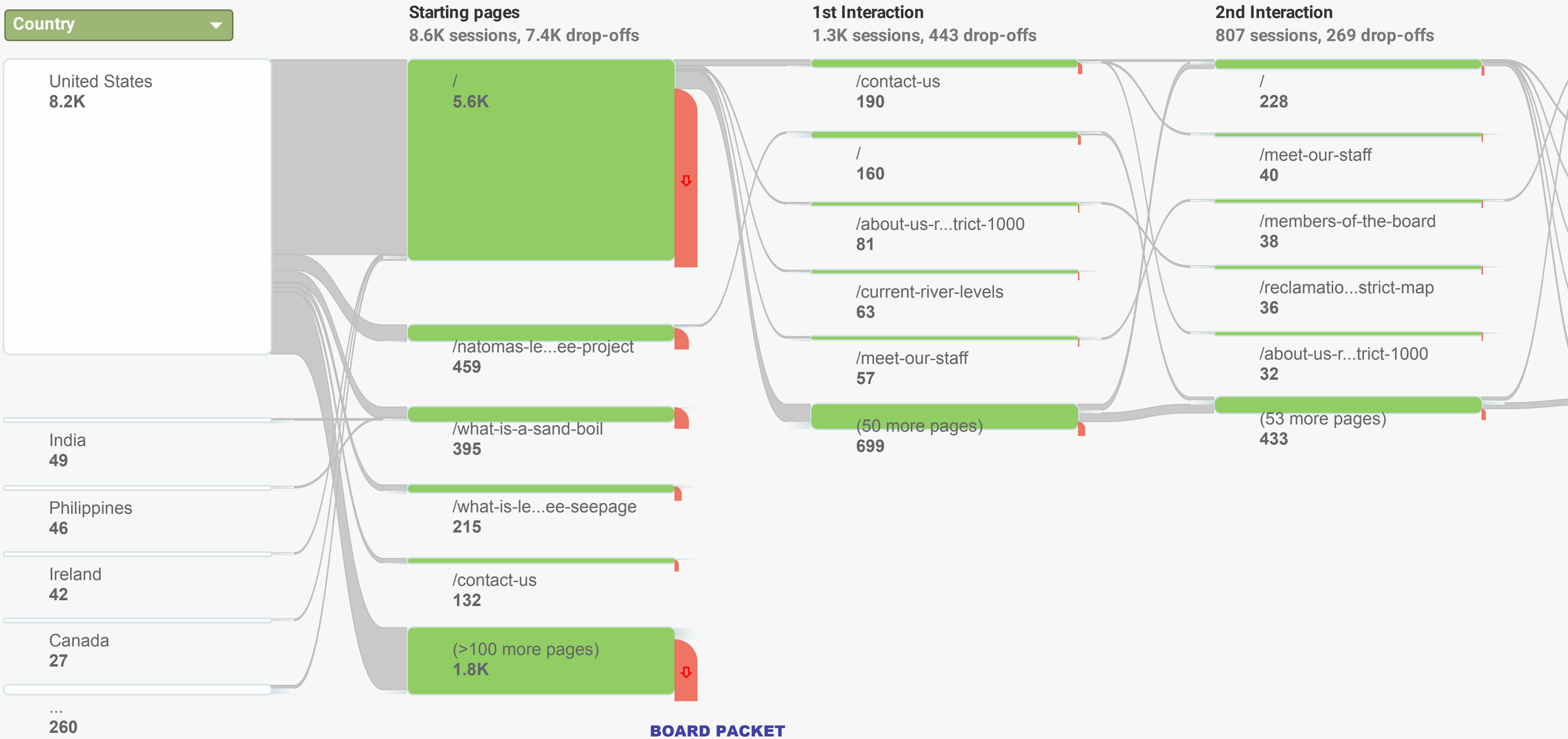
Analytics | RD 10000
All Web Site Data

Go to report

Users Flow

Jan 1, 2023 - Mar 31, 2023

All Users
100.00% Sessions



Analytics | RD 10000 All Web Site Data

Go to report

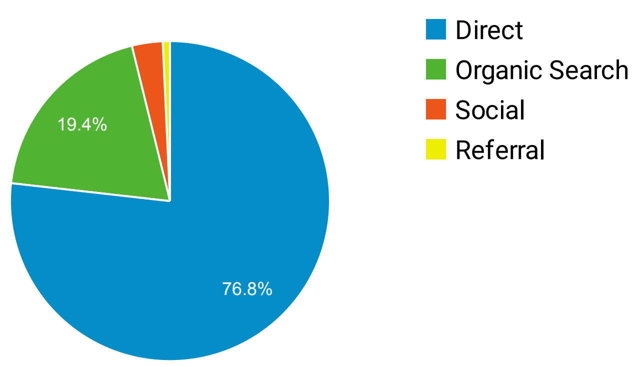
Acquisition Overview

All Users
100.00% Users

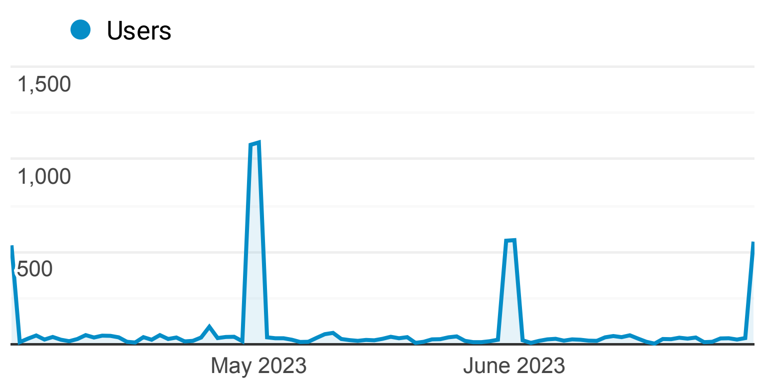
Apr 1, 2023 - Jun 30, 2023

Primary Dimension: Top Channels
Conversion: All Goals
Edit Channel Grouping

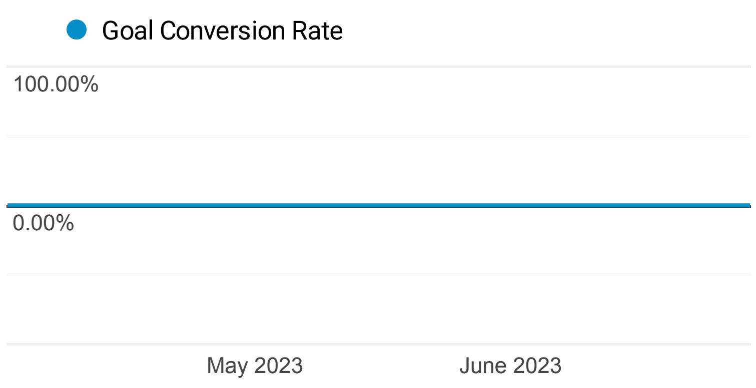
Top Channels



Users



Conversions



	Acquisition			Behavior		
	Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration
	6,450	6,400	7,104	88.78%	1.37	00:00:33
1 Direct	4,962			96.20%		
2 Organic Search	1,252			65.36%		
3 Social	201			94.20%		
4 Referral	47			66.10%		

Conversions

Set up a goal.

To see outcome metrics, define one or more goals.

GET STARTED

To see all 4 Channels click here.

Network Referrals

Apr 1, 2023 - Jun 30, 2023

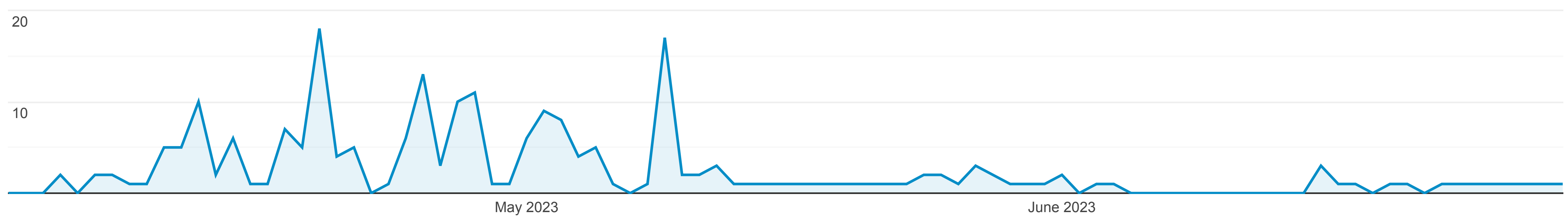
Discover where your social traffic originates

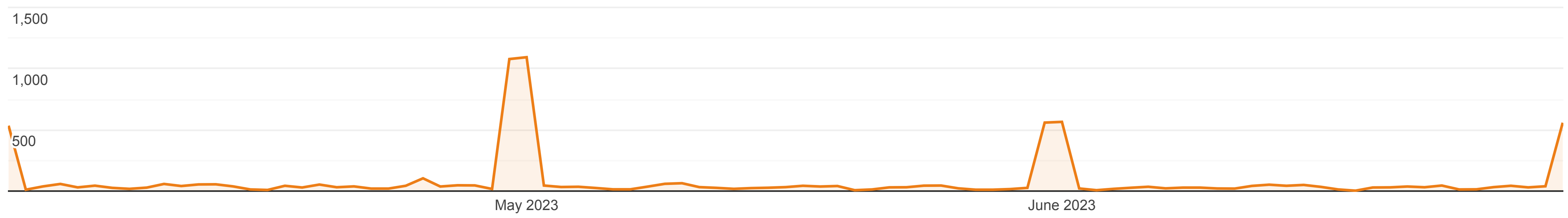
Identify the networks and communities where people engage with your content. Learn about each community, and identify your best performing content on each network.

Don't show education messages.

All Users
100.00% Sessions

Social Referral





	Social Network	Sessions	Pageviews	Avg. Session Duration	Pages / Session
1.	Facebook	223 (99.55%)	243 (99.59%)	00:00:15	1.09
2.	Twitter	1 (0.45%)	1 (0.41%)	00:00:00	1.00

Rows 1 - 2 of 2

Analytics | RD 10000
All Web Site Data

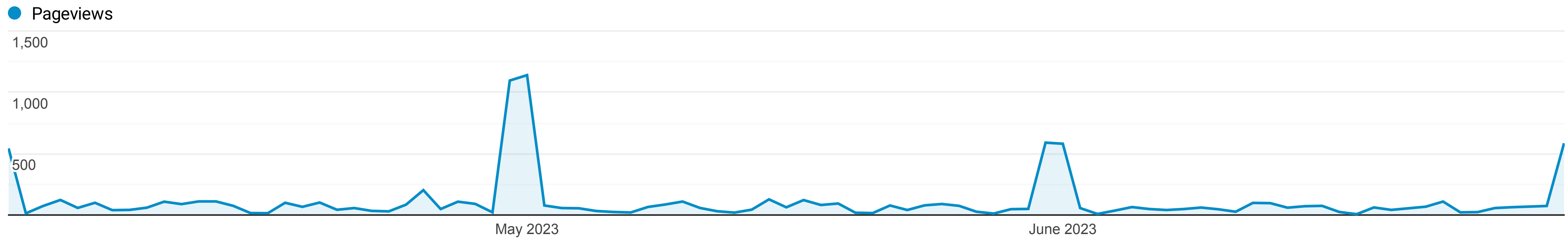
Go to report

Overview

All Users
100.00% Pageviews

Apr 1, 2023 - Jun 30, 2023

Overview



Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
9,704	8,830	00:01:30	88.78%	73.21%

	Page	Pageviews	% Pageviews
1.	/	1,148	11.83%
2.	/contact-us	346	3.57%
3.	/what-is-levee-seepage	282	2.91%
4.	/what-is-a-sand-boil	190	1.96%
5.	/natomas-levee-project	181	1.87%
6.	/meet-our-staff	170	1.75%
7.	/about-us-reclamation-district-1000	138	1.42%
8.	/request-for-proposals-rfp	126	1.30%
9.	/request-for-qualifications-rfq	106	1.09%
10.	/members-of-the-board	105	1.08%

Analytics

RD 10000

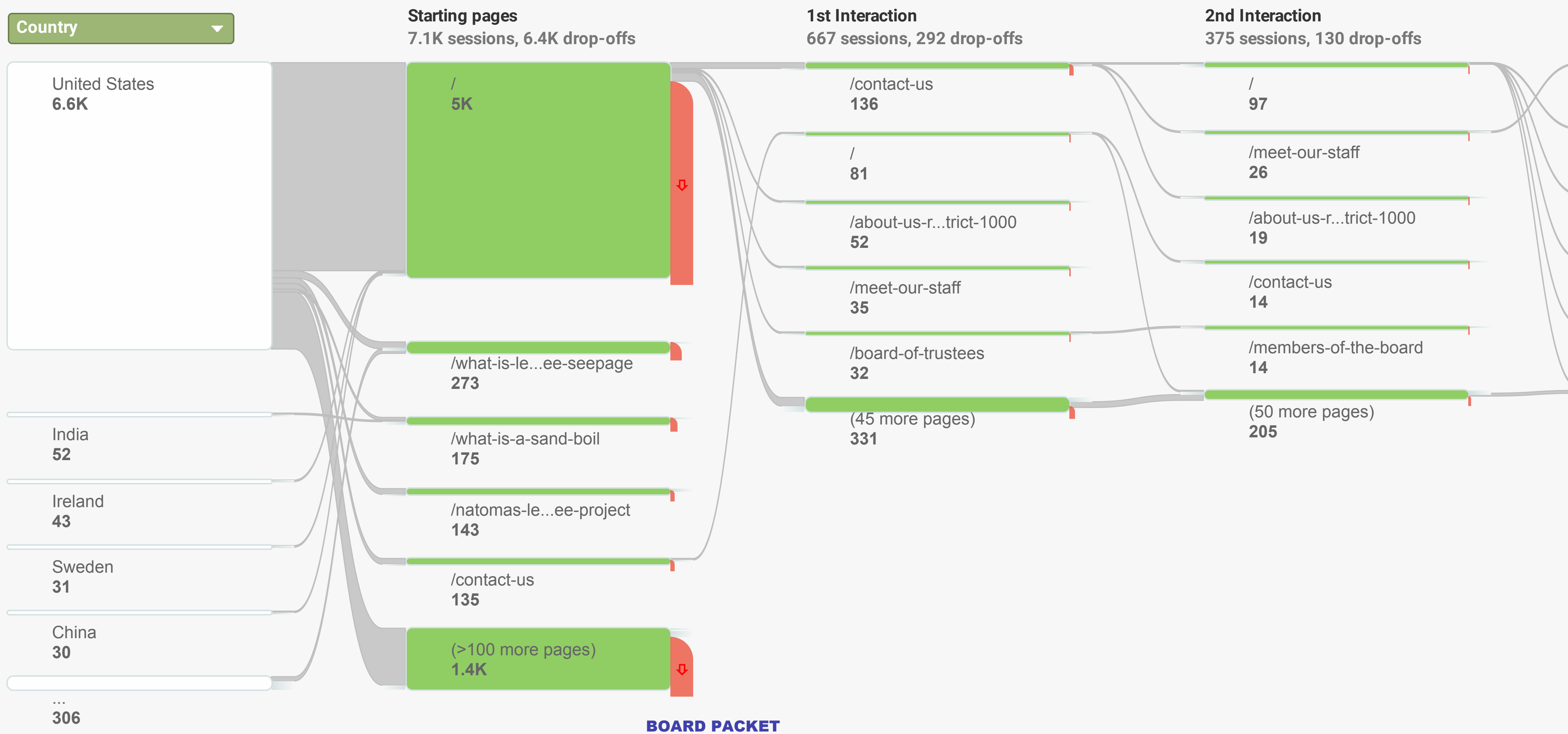
All Web Site Data

Go to report

Users Flow

Apr 1, 2023 - Jun 30, 2023

All Users
100.00% Sessions



Analytics

RD 10000

All Web Site Data

Go to report

Acquisition Overview

All Users
100.00% Users

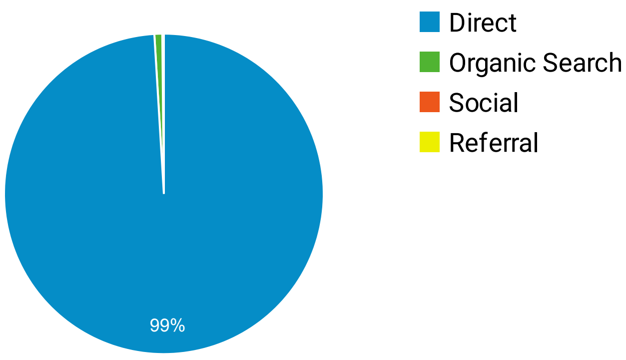
Jul 1, 2023 - Sep 19, 2023

Primary Dimension: Top Channels

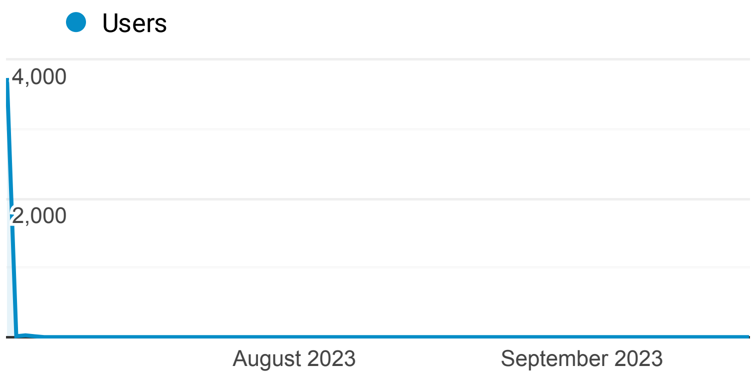
Conversion: All Goals

Edit Channel Grouping

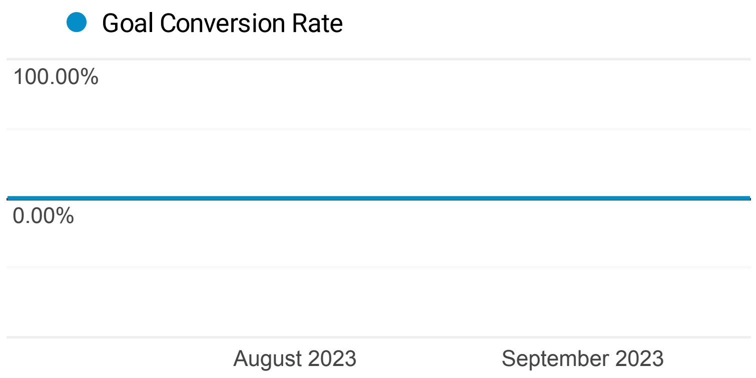
Top Channels



Users



Conversions



	Acquisition			Behavior		
	Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration
	3,779	3,771	3,792	99.74%	1.01	00:00:01
1 Direct	3,743			99.97%		
2 Organic Search	30			75.00%		
3 Social	5			100.00%		
4 Referral	1			100.00%		

Conversions

Set up a goal.

To see outcome metrics, define one or more goals.

GET STARTED

To see all 4 Channels click here.

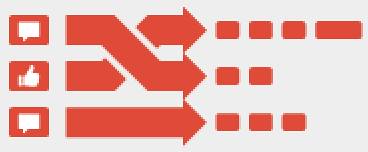
Network Referrals

Jul 1, 2023 - Sep 19, 2023

Discover where your social traffic originates

Identify the networks and communities where people engage with your content. Learn about each community, and identify your best performing content on each network.

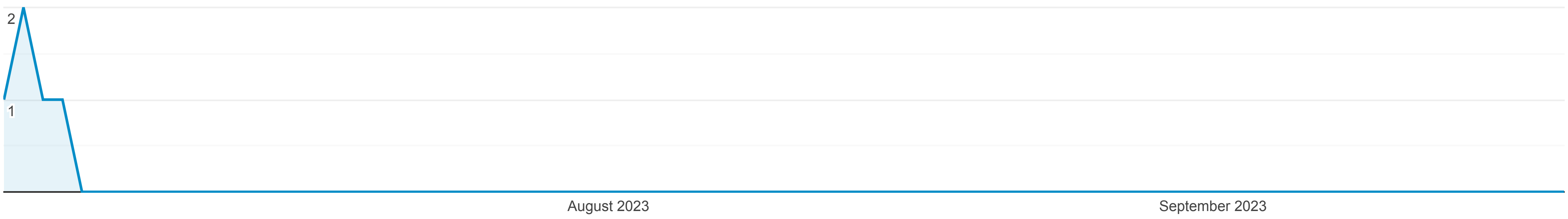
Don't show education messages.



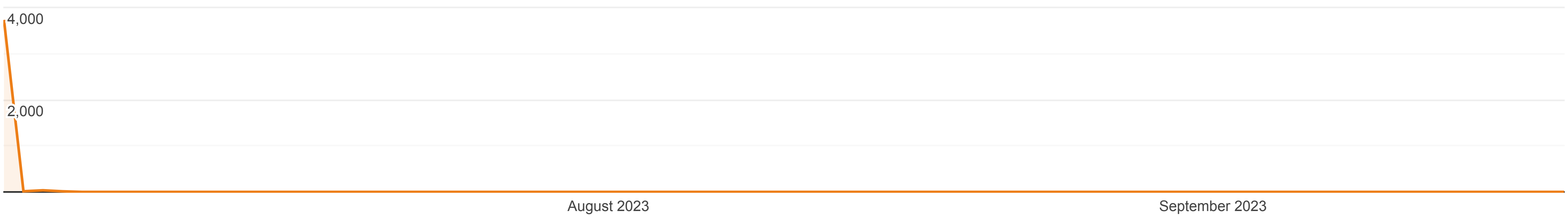
All Users
100.00% Sessions

Social Referral

Sessions via Social Referral



All Sessions



	Social Network	Sessions	Pageviews	Avg. Session Duration	Pages / Session
1.	Facebook	5 (100.00%)	5 (100.00%)	00:00:00	1.00

Rows 1 - 1 of 1

Analytics | RD 10000

All Web Site Data

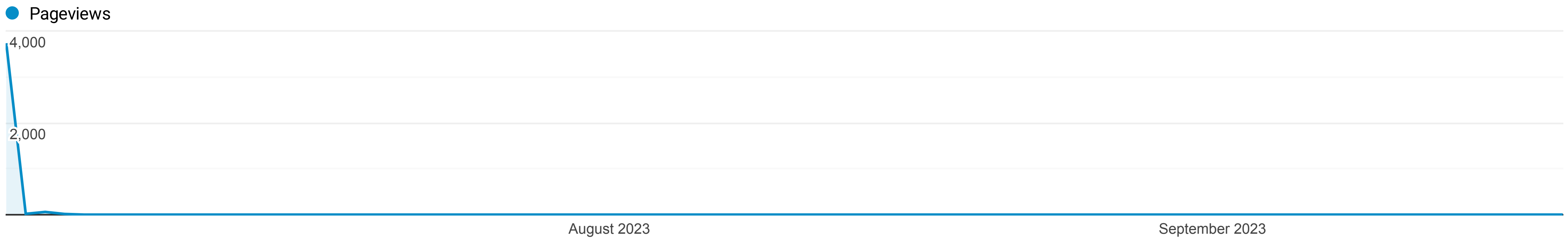
[Go to report](#)

Overview

All Users
100.00% Pageviews

Jul 1, 2023 - Sep 19, 2023

Overview



Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
3,820	3,810	00:01:59	99.74%	99.27%

	Page	Pageviews	% Pageviews
1.	/	26	0.68%
2.	/media-coverage?lighthouse_scan=true	21	0.55%
3.	/what-is-a-sand-boil	9	0.24%
4.	/2019-07-31-executive-committee-meeting?lighthouse_scan=true	8	0.21%
5.	/2023-07-05-executive-committee-meeting?lighthouse_scan=true	8	0.21%
6.	/social-media-feeds?lighthouse_scan=true	8	0.21%
7.	/?lighthouse_scan=true	7	0.18%
8.	/1234-gilbert?lighthouse_scan=true	7	0.18%
9.	/2016-07-08-board-of-trustees-meeting?lighthouse_scan=true	7	0.18%
10.	/2016-08-12-board-of-trustees-meeting?lighthouse_scan=true	7	0.18%

Analytics RD 10000
All Web Site Data

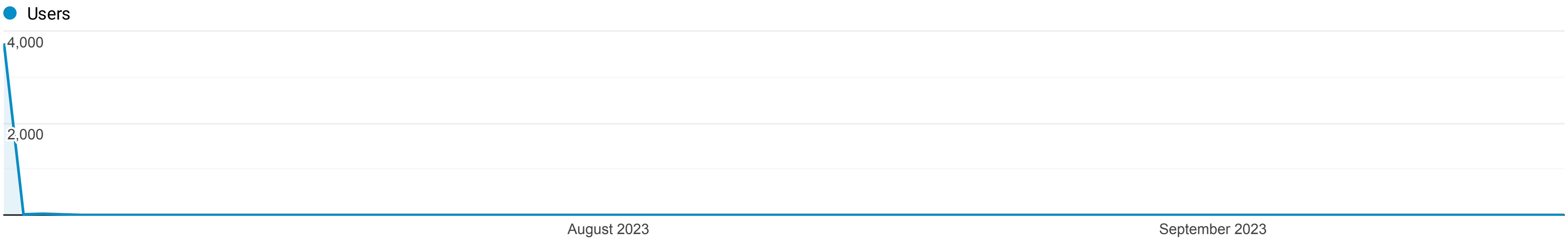
Go to report

Audience Overview

All Users
100.00% Users

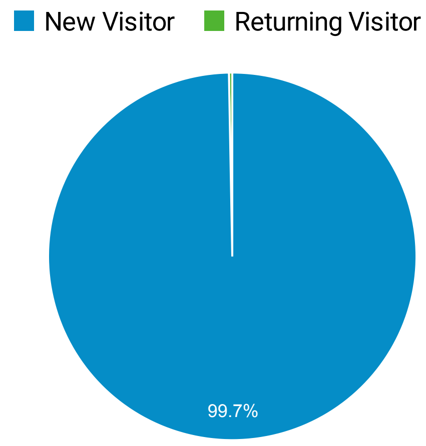
Jul 1, 2023 - Sep 19, 2023

Overview



Users	New Users	Sessions	Number of Sessions per User
3,779	3,771	3,792	1.00

Pageviews	Pages / Session	Avg. Session Duration	Bounce Rate
3,820	1.01	00:00:01	99.74%



	Language	Users	% Users
1.	en-us	3,768	99.71%
2.	en-gb	5	0.13%
3.	en-ca	2	0.05%
4.	en-in	1	0.03%
5.	es-419	1	0.03%
6.	es-mx	1	0.03%
7.	id-id	1	0.03%

Analytics

RD 10000

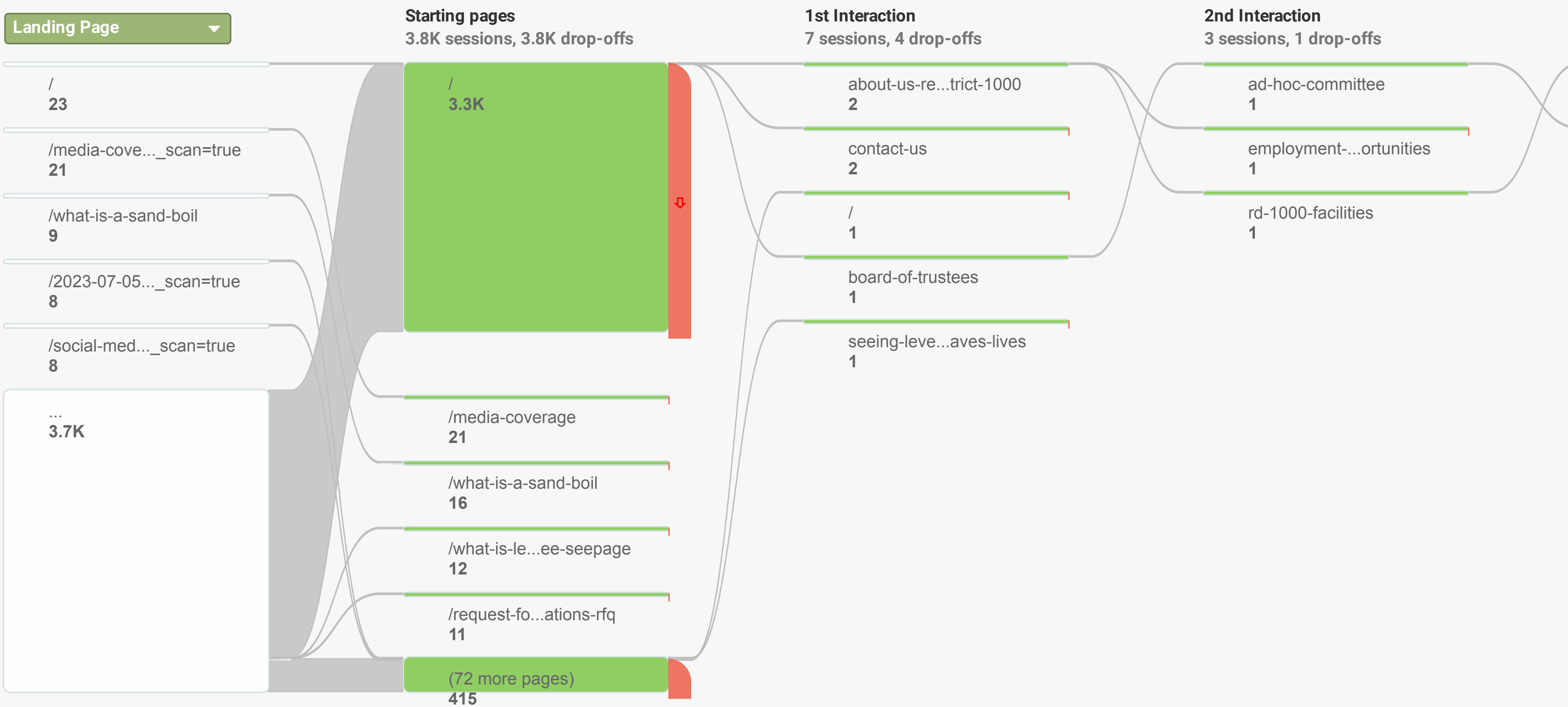
All Web Site Data

Go to report

Behavior Flow

Jul 1, 2023 - Sep 19, 2023

All Users
100.00% Sessions



Analytics RD 1000
RD 10000 - GA4

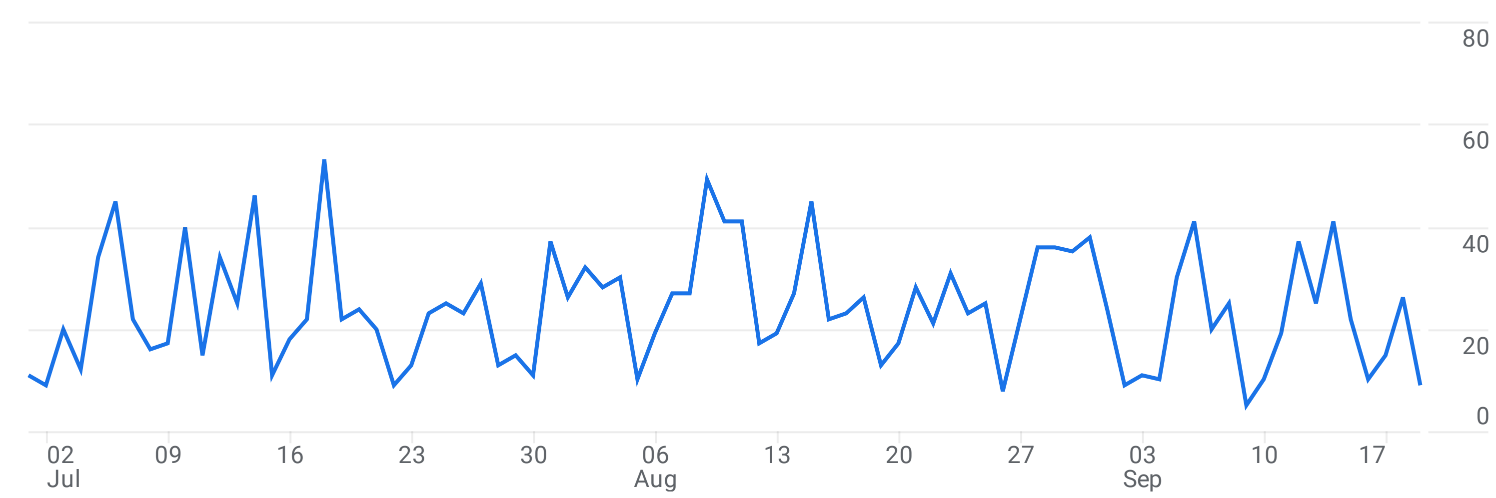
Go to report

All Users | Add comparison +

Custom Jul 1 - Sep 19, 2023

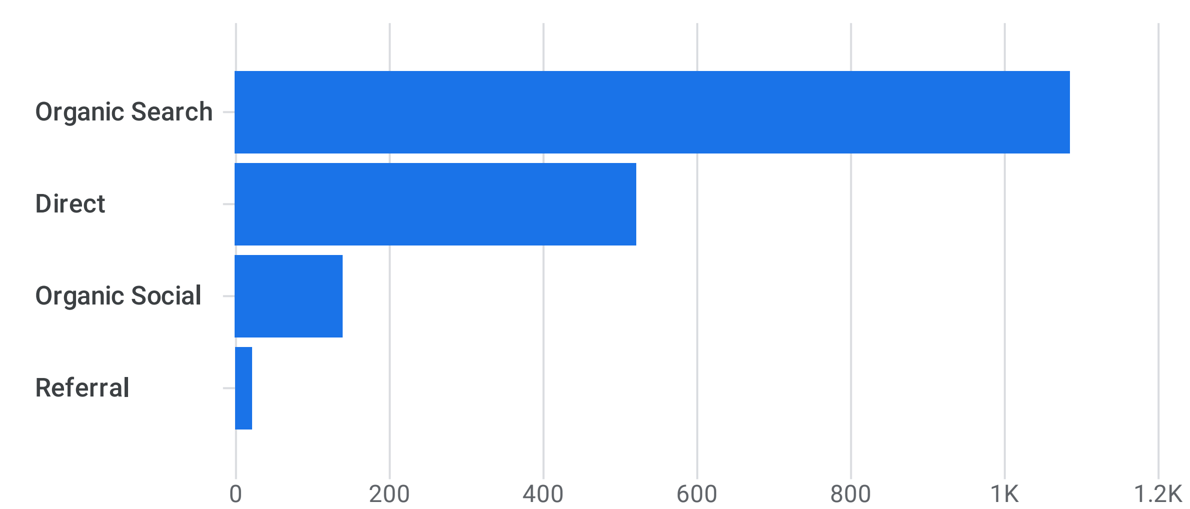
Reports snapshot

Users	New users	Average engagement time	Total revenue
1.8K	1.8K	0m 00s	$0.00



WHERE DO YOUR NEW USERS COME FROM?

New users by First user default channel group



View user acquisition →

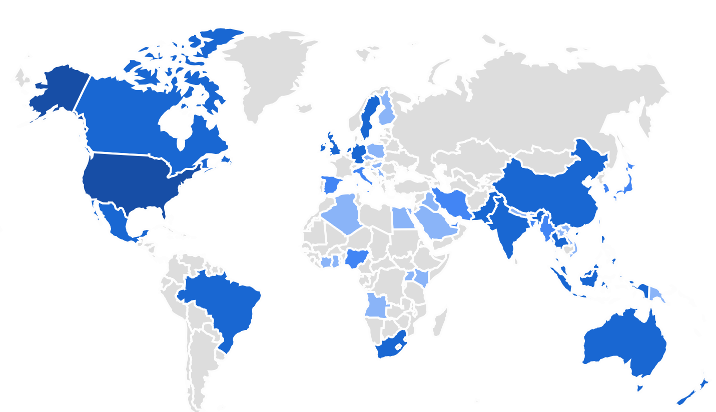
WHAT ARE YOUR TOP CAMPAIGNS?

Sessions by Session default channel group

SESSION DEFAULT CHANN...	SESSIONS
Organic Search	1.5K
Direct	704
Organic Social	186
Referral	29
Unassigned	2

View traffic acquisition →

Users by Country

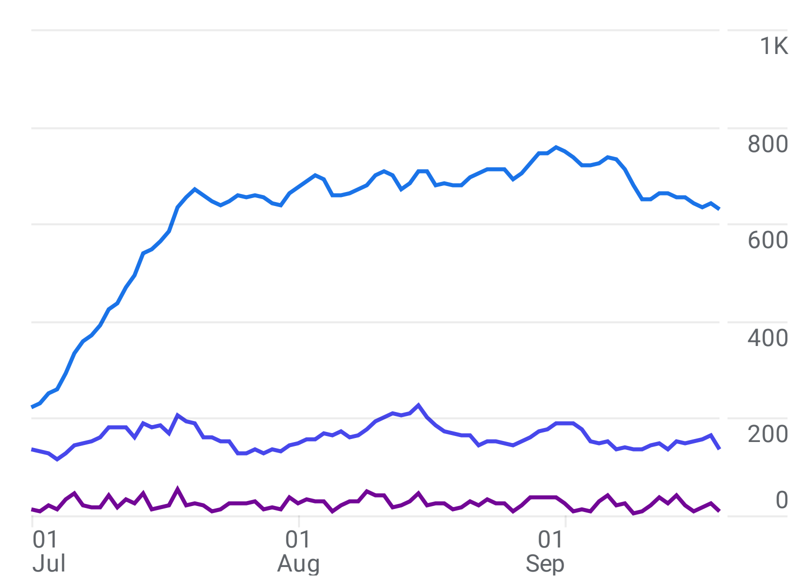


COUNTRY	USERS
United States	1.5K
India	58
Ireland	31
Philippines	30
Canada	26
Sweden	10
Australia	8

View countries →

HOW ARE ACTIVE USERS TRENDING?

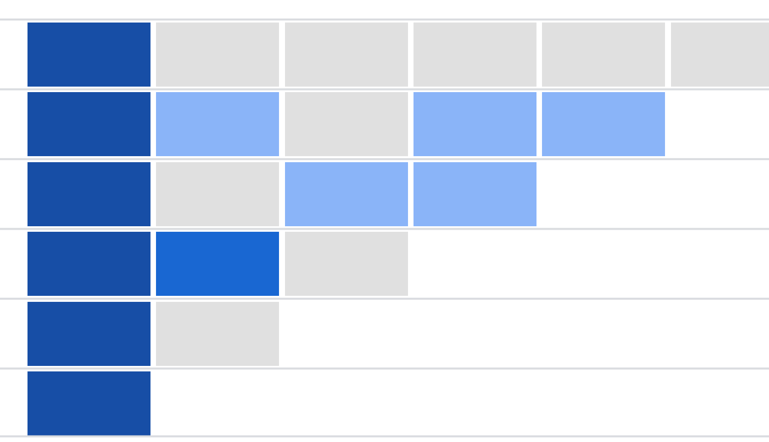
User activity over time



30 DAYS 631
7 DAYS 137
1 DAY 9

HOW WELL DO YOU RETAIN YOUR USERS?

User activity by cohort
Based on device data only



	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5
All Users	100.0%	0.5%	0.1%	0.4%	0.3%	0.0%
Aug 6 - Aug 12						
Aug 13 - Aug 19						
Aug 20 - Aug 26						
Aug 27 - Sep 2						
Sep 3 - Sep 9						
Sep 10 - Sep 16						

6 weeks ending Sep 16

View retention →

WHICH PAGES AND SCREENS GET THE MOST VIEWS?

Views by Page title and screen class

PAGE TITLE AND SCREEN CLASS	VIEWS
Reclamation District 1000	1.2K
Contact Us - Reclamation District 1000	221
What is Levee Seepage? - Reclamati...	216
Natomas Levee Project - Reclamatio...	181
Meet Our Staff - Reclamation District...	134
What is a Sand Boil? - Reclamation Di...	131
About Us: Reclamation District 1000 ...	122

View pages and screens →

WHAT ARE YOUR TOP EVENTS?

Event count by Event name

EVENT NAME	EVENT COUNT
page_view	4.8K
session_start	2.4K
first_visit	1.8K
timing_complete	25

View events →

WHAT ARE YOUR TOP CONVERSIONS?

Conversions by Event name

EVENT NAME	CONVERSIONS

No data available

View conversions →

WHAT ARE YOUR TOP SELLING PRODUCTS?

Items purchased by Item name

ITEM NAME	ITEMS PURCHA...

No data available

View items →

HOW DOES ACTIVITY ON YOUR PLATFORMS COMPARE?

Conversions by Platform

No data available

View tech details →

Analytics | RD 1000
RD 10000 - GA4

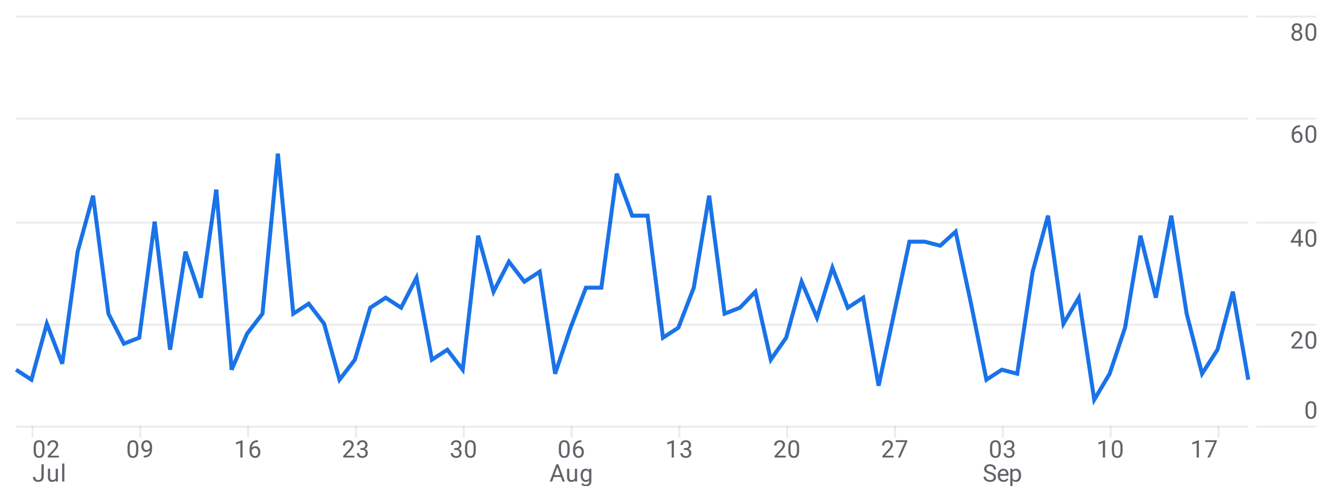
Go to report

All Users | Add comparison +

Custom Jul 1 - Sep 19, 2023

Acquisition overview

Users 1.8K | New users 1.8K



New users by
First user default channel gro...

FIRST USER DEFAULT CHA...	NEW USERS
Organic Search	1.1K
Direct	522
Organic Social	140
Referral	22

View user acquisition →

Sessions by
Session default channel group

SESSION DEFAULT CHANN...	SESSIONS
Organic Search	1.5K
Direct	704
Organic Social	186
Referral	29
Unassigned	2

View traffic acquisition →

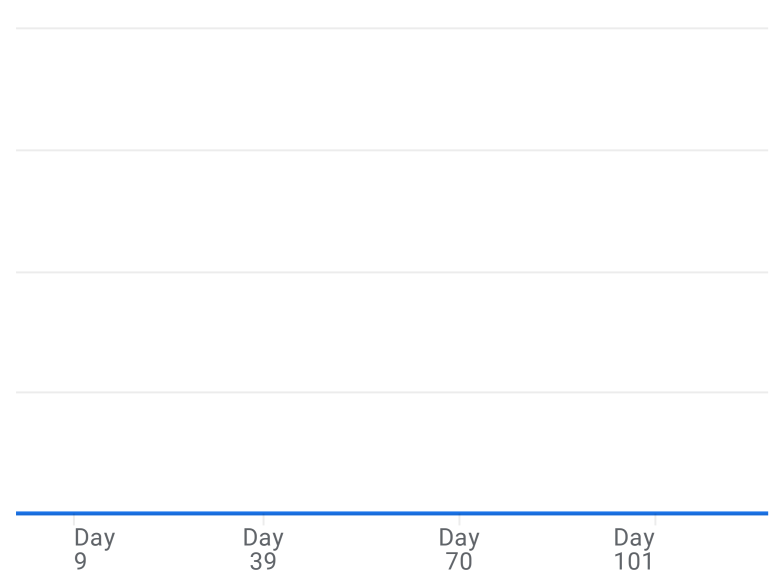
Sessions by
Session Google A...

SESSION GOOGLE A...	SESSIONS

No data available

View Google Ads campaigns →

Lifetime value



Last 120 days ending Sep 19

Analytics | RD 1000

RD 10000 - GA4

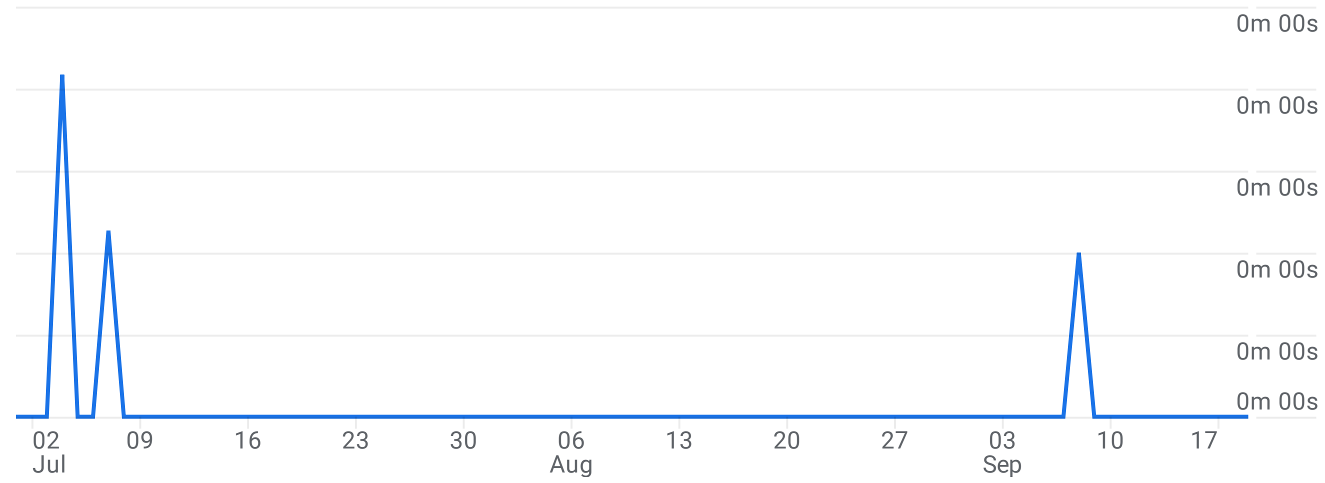
Go to report

A All Users | Add comparison +

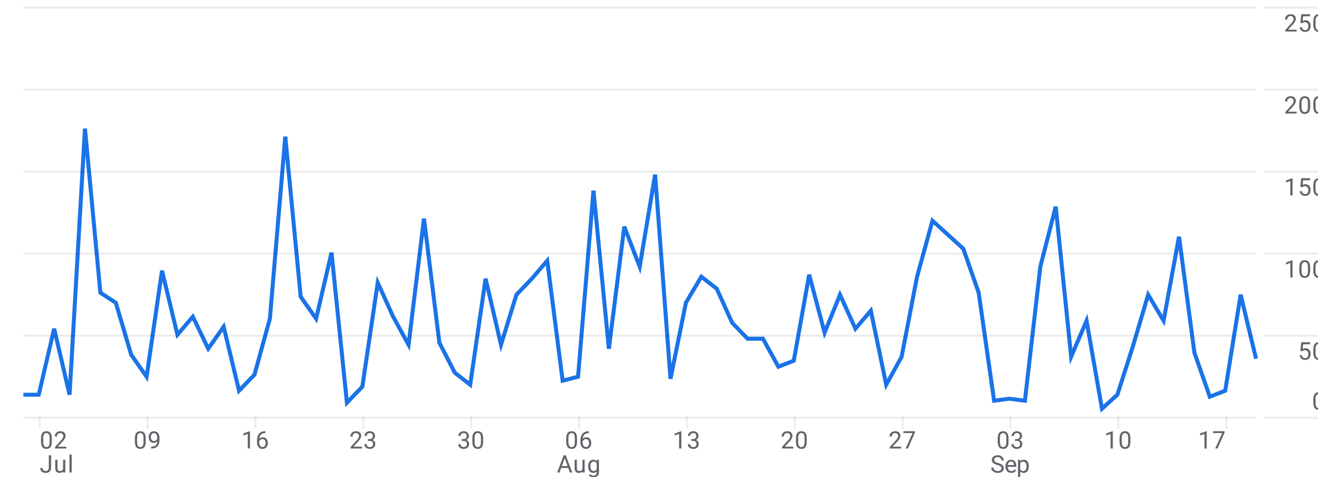
Custom Jul 1 - Sep 19, 2023

Engagement overview

Average engagement time **0m 00s** | Engaged sessions per user **0.4** | Average 0m (



Views **4.8K** | Event count **9K**



Event count by Event name

EVENT NAME	EVENT COUNT
page_view	4.8K
session_start	2.4K
first_visit	1.8K
timing_complete	25

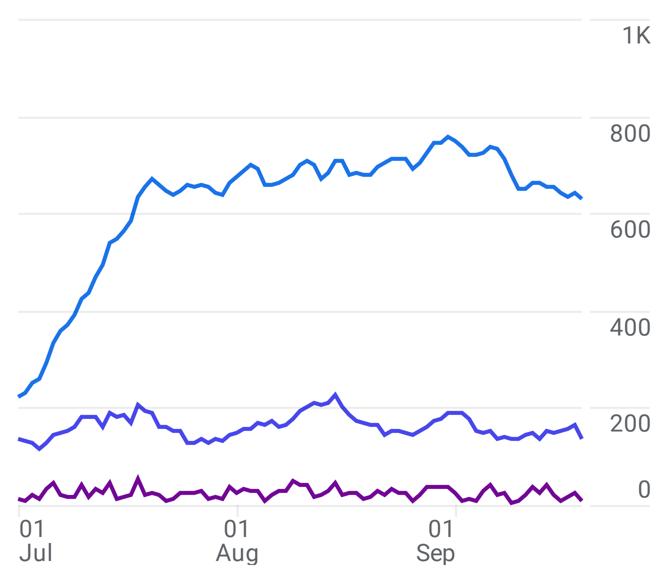
View events →

Views by Page title and scree...

PAGE TITLE AND S...	VIEWS
Reclamation District ...	1.2K
Contact Us - Reclama...	221
What is Levee Seepa...	216
Natomas Levee Proje...	181
Meet Our Staff - Recl...	134
What is a Sand Boil? -...	131
About Us: Reclamatio...	122

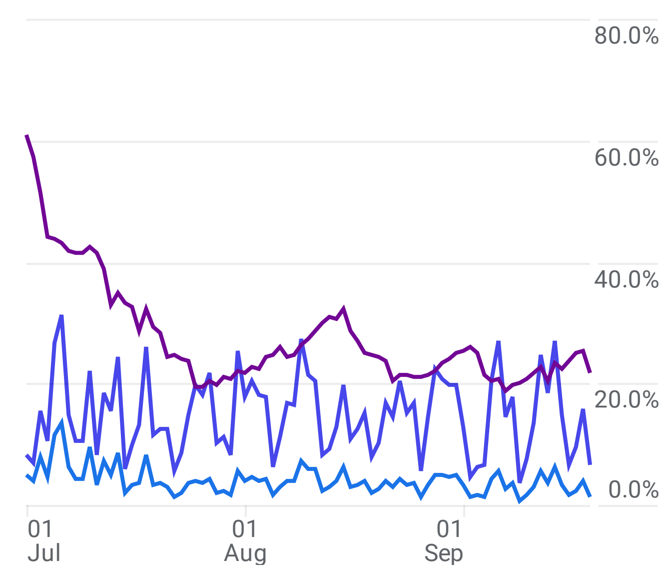
View pages and screens →

User activity over time



30 DAYS **631**
7 DAYS **137**
1 DAY **9**

User stickiness



DAU / ... **1.4%**
DAU / ... **6.6%**
WAU / ... **21.7%**

Analytics | RD 1000
RD 10000 - GA4

Go to report

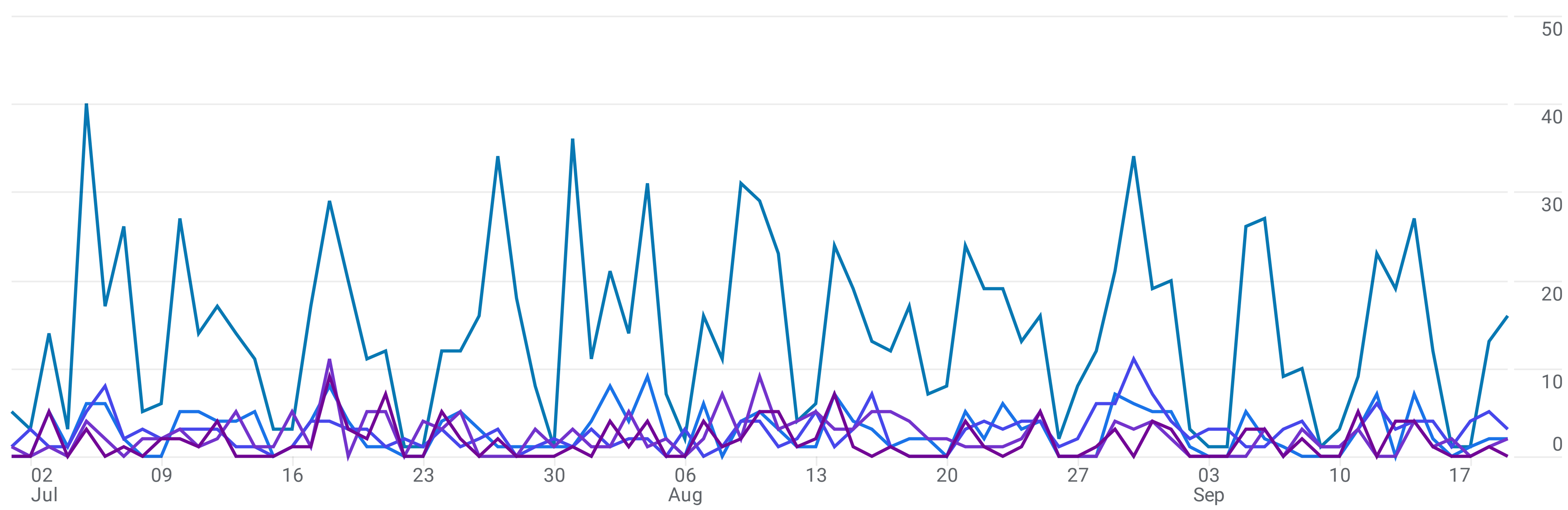
All Users | Add comparison +

Custom Jul 1 - Sep 19, 2023

Pages and screens: Page path and screen class

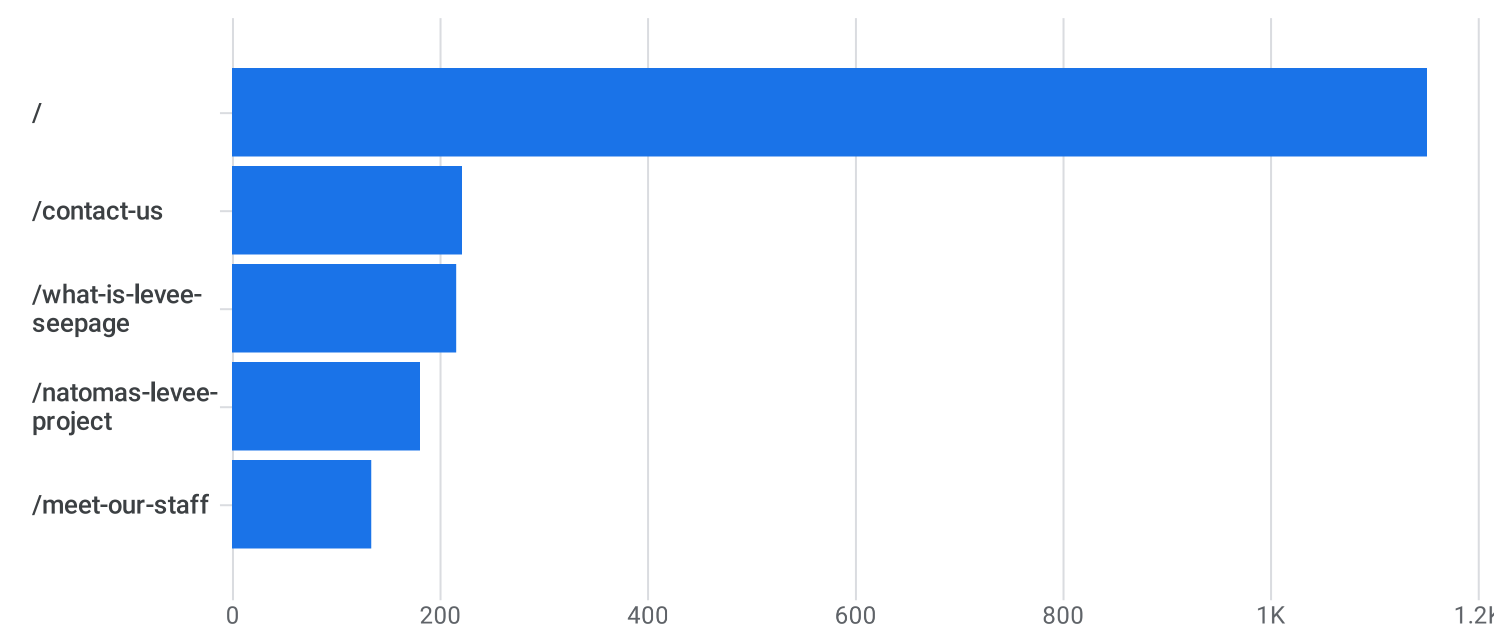
Add filter +

Views by Page path and screen class over time



● / ● /contact-us ● /what-is-levee-seepage ● /natomas-levee-project ● /meet-our-staff

Views by Page path and screen class



Search...

Rows per page: 10 Go to: 1 1-10 of 206

	Page path and screen class	↓ Views	Users	Views per user	Average engagement time	Event count All events	Conversions All events	Total revenue
		4,848 100% of total	1,774 100% of total	2.73 Avg 0%	0m 00s Avg 0%	9,046 100% of total	0.00	$0.00
1	/	1,151	500	2.30	0m 00s	2,380	0.00	$0.00
2	/contact-us	221	88	2.51	0m 00s	341	0.00	$0.00
3	/what-is-levee-seepage	216	192	1.13	0m 00s	615	0.00	$0.00
4	/natomas-levee-project	181	134	1.35	0m 00s	430	0.00	$0.00
5	/meet-our-staff	134	84	1.60	0m 00s	173	0.00	$0.00
6	/what-is-a-sand-boil	133	114	1.17	0m 00s	363	0.00	$0.00
7	/about-us-reclamation-district-1000	122	77	1.58	0m 00s	156	0.00	$0.00
8	/jagteshwar-jag-bains-trustee	118	114	1.04	0m 00s	336	0.00	$0.00
9	/request-for-proposals-rfp	103	99	1.04	0m 00s	287	0.00	$0.00
10	/request-for-qualifications-rfq	100	98	1.02	0m 00s	285	0.00	$0.00

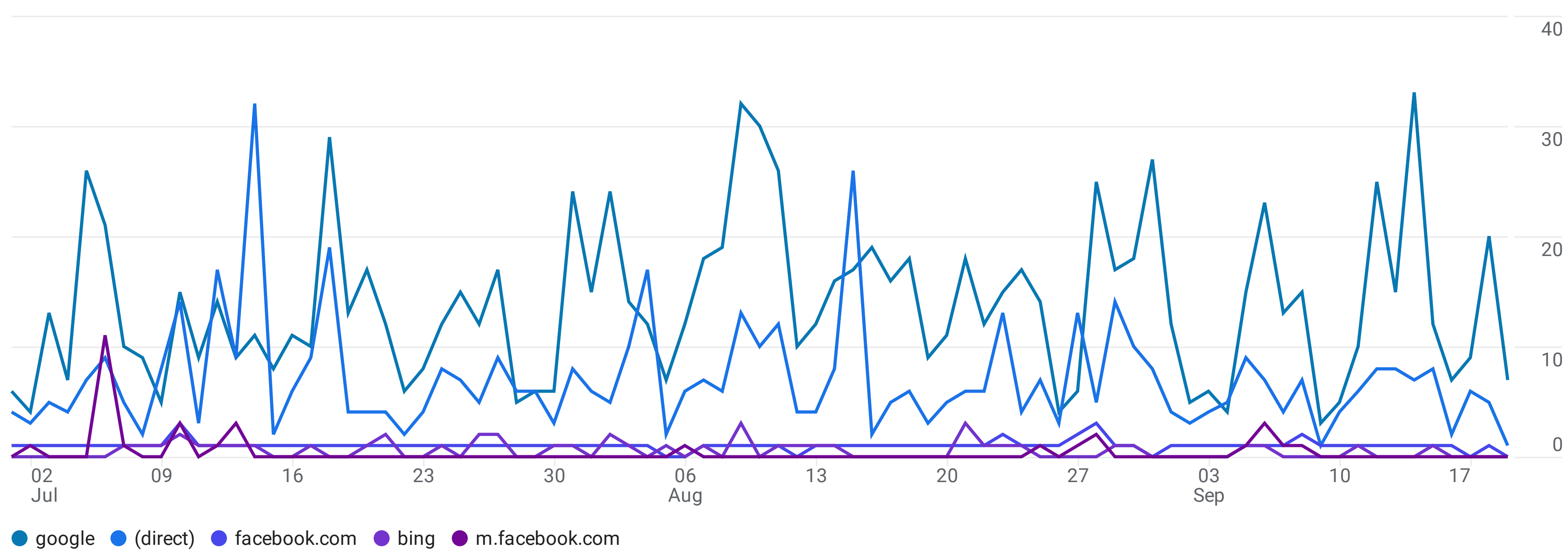
All Users | Add comparison +

Custom Jul 1 - Sep 19, 2023

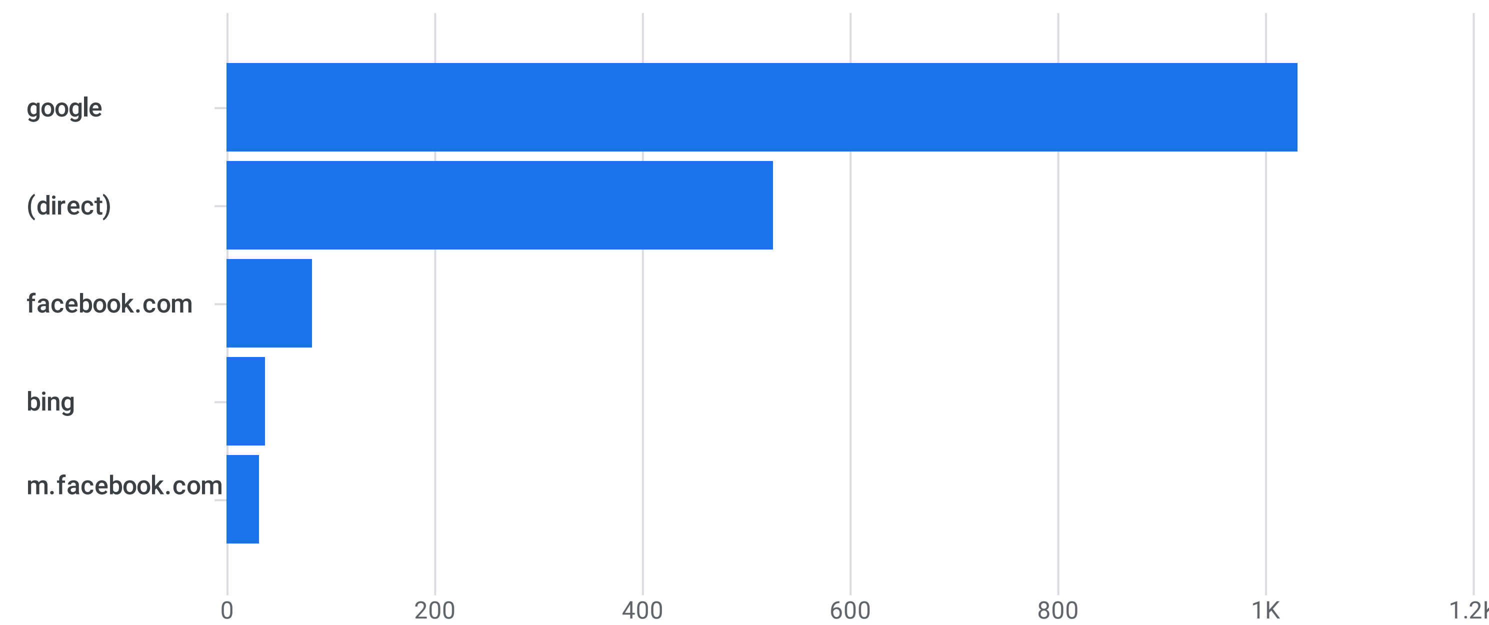
Traffic acquisition: Session default channel group

Add filter +

Users by Session source over time



Users by Session source



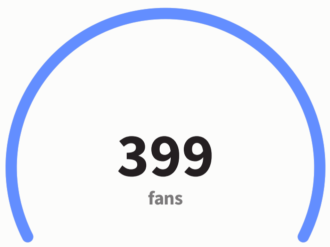
Search... Rows per page: 10 Go to: 1 1-10 of 28

	Session source	Users	Sessions	Engagement rate	Session conversion rate All events	Average engagement time per session	Event count All events	Conversions All events
		1,774 100% of total	2,397 100% of total	28.49% Avg 0%	0%	0m 00s Avg 0%	9,046 100% of total	0.00
1	google	1,031	1,356	30.83%	0%	0m 00s	5,234	0.00
2	(direct)	526	704	21.88%	0%	0m 00s	2,493	0.00
3	facebook.com	82	83	0%	0%	0m 00s	249	0.00
4	bing	37	59	55.93%	0%	0m 00s	294	0.00
5	m.facebook.com	31	32	18.75%	0%	0m 00s	105	0.00
6	l.facebook.com	16	52	53.85%	0%	0m 00s	223	0.00
7	yahoo	12	13	46.15%	0%	0m 00s	64	0.00
8	t.co	7	11	18.18%	0%	0m 00s	38	0.00
9	duckduckgo	6	6	33.33%	0%	0m 00s	22	0.00
10	lens.google.com	6	41	46.34%	0%	0m 00s	151	0.00

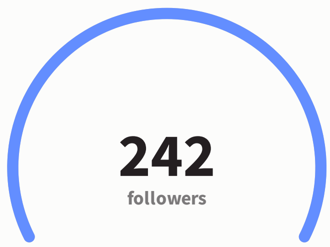
Mixed overview 2023 Quarter 1

Jan 01 - Mar 31, 2023

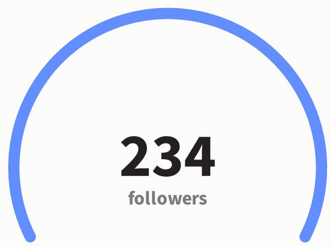
Fans



Followers



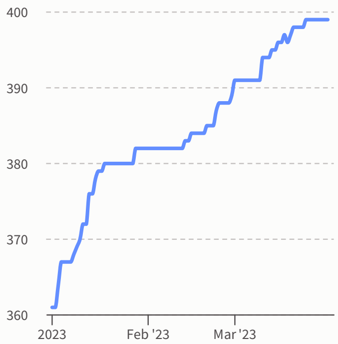
Followers



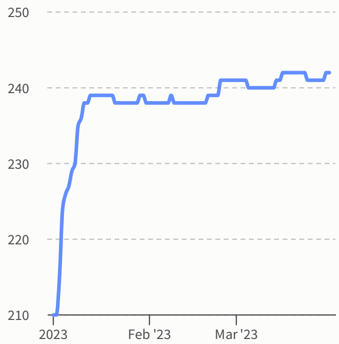
Followers

You have no data sources selected

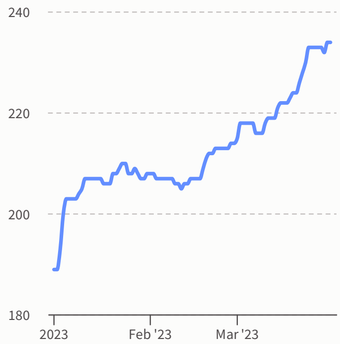
Fans



Followers



Followers



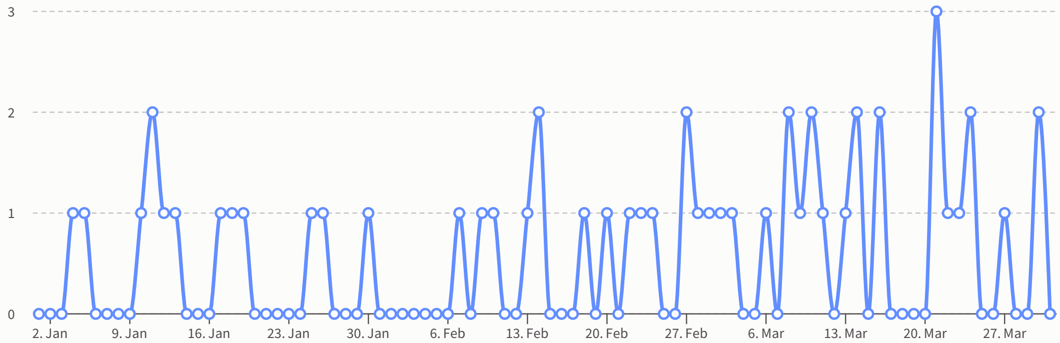
Followers

You have no data sources selected

Posts

52
posts

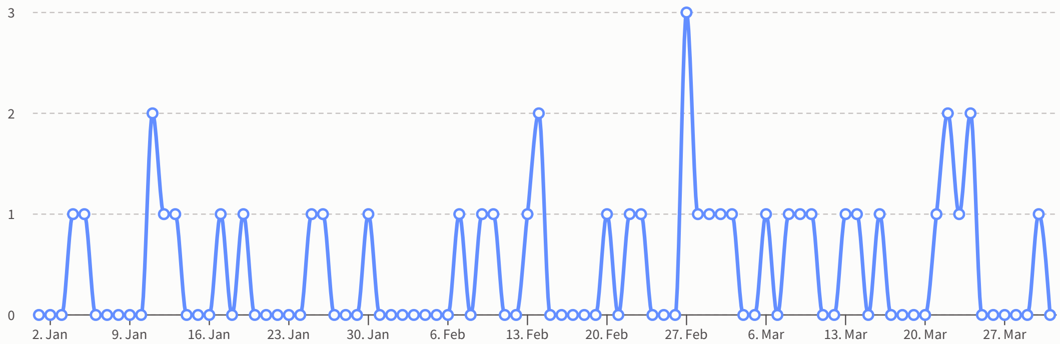
Posts



Tweets

41
tweets

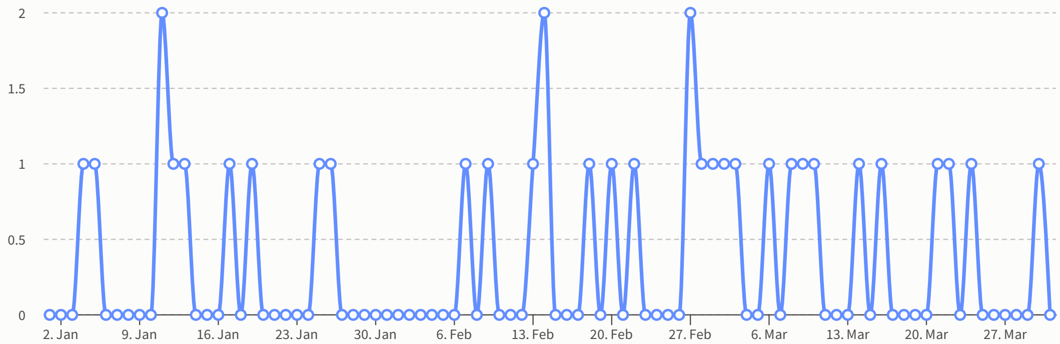
Tweets



Posts

34
posts

Posts



Posts

You have no data sources selected

Posts

You have no data sources selected

Page engagement (all)

443
engagements

Post key interactions

64
engagements

Post engagement

172
engagements

Page engagement

You have no data sources selected

Page engagement (all) > …

Reactions	286
Comments	90
Shares	67

Post key interactions > T…

Likes	54
Retweets	7
Replies	3
Quote tweets	0

Post engagement > Type

Photo post	133
Video post	19
Carousel album	16
Reel	4

Page engagement > Type

You have no data sources selected

Post Ow.ly traffic

243
clicks

Post Ow.ly traffic

113
clicks

Post Ow.ly traffic > Page

Reclamation District 1…	243

Post Ow.ly traffic > Acco…

@Sac_RD1000	113

Page content clicks

1.8K
clicks

Post clicks

919
clicks

Page clicks

You have no data sources selected

Post clicks

You have no data sources selected

Referral traffic > Type

There is no data for this date range.

Total Ow.ly link clicks > ...

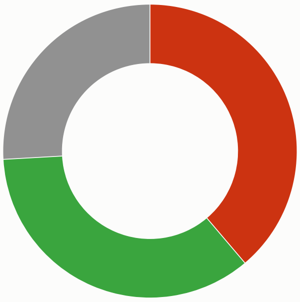
There is no data for this date range.

Total Ow.ly link clicks > Country

There is no data for this date range.

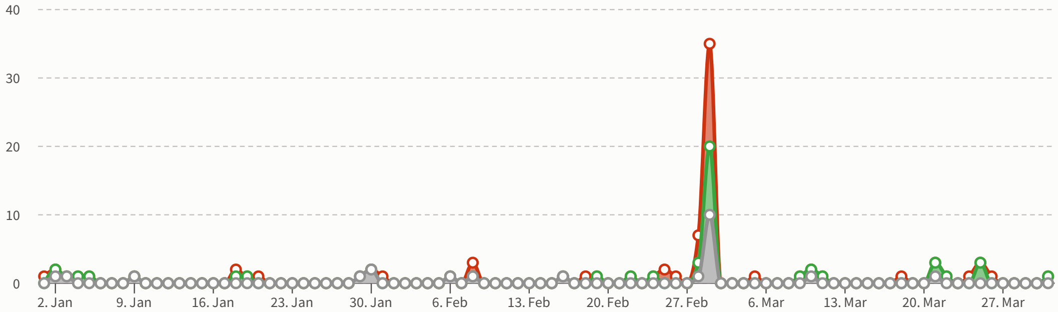
Inbound messages > Sen...

Negative Positive Neutral

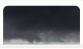


Inbound messages > Sentiment

Negative Positive Neutral

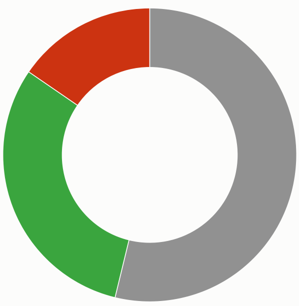


Posts table

DATE		MESSAGE	REACTIONS	COMMENTS	SHARES
Reclamation District 1000 ... Feb 27, 20:03		January storms brought devastation to many parts of California and were a reminder of the importance of proper flood protection. Read RD1000's latest opinion piece on the future of flood prevention in the Natomas region.	33	44	6
Reclamation District 1000 ... Feb 22, 18:10		It's 1914, the earliest days of the district; Plant 1A has just been constructed. Fast forward 109 years, and many of its original parts are still being used and are now obsolete! Running to failure is only a matter of time. Learn more about us by collecting our history book and discover our plans for the…	11	0	1
Reclamation District 1000 ... Jan 05, 22:01		With all the rain and wind hitting our area, sometimes we need something to brighten our day. Check out the wildlife taking advantage of a break in the stormy weather to feast! #WildNatomas #RD1000	10	1	1
Reclamation District 1000 ... Mar 30, 18:13		It's "Take a Walk in the Park Day!" Natomas has beautiful pedestrian parks and trails, with several running along our drainage canals, such as Peregrine Park, Fisherman's Lake, and Tanzanite Park. Put on your walking shoes and get fresh air while visiting a local park. #TakeAWalkInTheParkDay	9	2	2
Reclamation District 1000 ... Mar 30, 18:13		It's "Take a Walk in the Park Day!" Natomas has beautiful pedestrian parks and trails, with several running along our drainage canals, such as Peregrine Park, Fisherman's Lake, and Tanzanite Park. Put on your walking shoes and get fresh air while visiting a local park. #TakeAWalkInTheParkDay	9	2	2
Reclamation District 1000 ... Mar 21, 16:36		Hey Natomas Chamber of Commerce, looking forward to seeing you and other Natomas area representatives at this year's State of Natomas.	9	2	0
Reclamation District 1000 ... Mar 24, 17:42		Thanks, Natomas Chamber of Commerce, for another fantastic State of Natomas event. Inviting RD1000 to participate in this annual event is always an honor. #StateofNatomas #Natomas	8	0	0
Reclamation District 1000 ... Feb 24, 00:12		(Post with no description)	8	1	0
Reclamation District 1000		We lost power during January's storms and experienced District-wide pumping plant failures. Thankfully, SMUD got our pumps running again. These partnerships are essential for the safety of	8	0	1

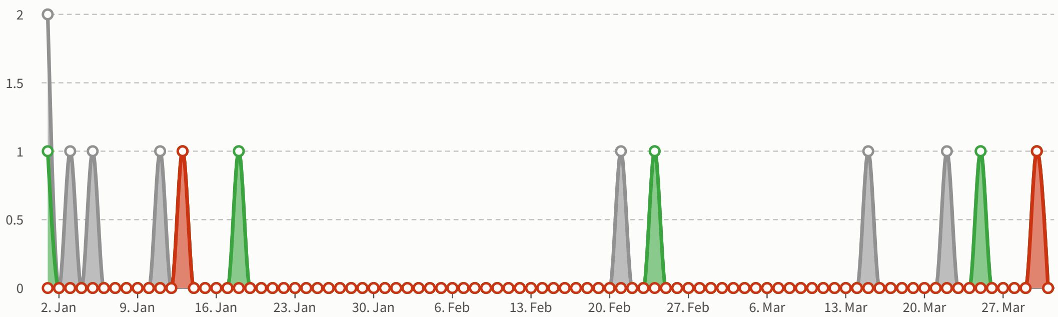
Inbound messages > Sen...

Neutral Positive Negative



Inbound messages > Sentiment

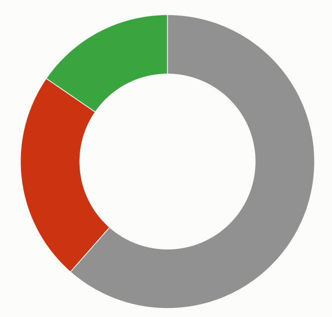
Neutral Positive Negative



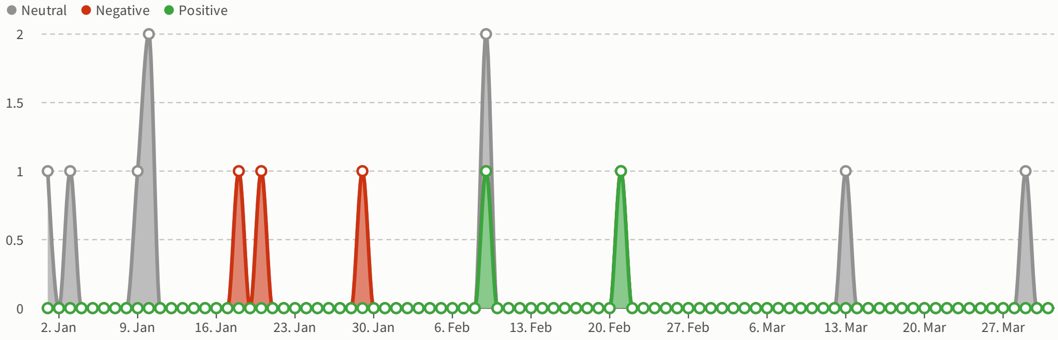
Tweets table

DATE	MESSAGE	RET...	QUO...	LIKES	REPL...	IMPR...	ENG...	% ENG...
@Sac_RD1000 Jan 05, 22:01	With all the rain and wind hitting our area, some people could probably use a day brightener. Check out the Sacramento River wildlife taking advantage of a…	3	0	26	1	2,652	247	9.31%
@Sac_RD1000 Mar 24, 21:55	This a great opportunity to give back to the community and help keep Natomas clean! https://twitter.com/CM_LisaKaplan/status/1639382622915936262	0	0	3	0	138	8	5.8%
@Sac_RD1000 Mar 06, 16:01	Make your voice heard! Ballots for the Prop 218 Stormwater Fee Initiative are due by MARCH 10, 2023, at 8 am. Learn more at http://4Natomas.org…	2	0	3	0	179	9	5.03%
@Sac_RD1000 Mar 30, 18:13	Natomas has beautiful pedestrian parks and trails, with several running along our drainage canals, such as North Natomas Regional Park, Fisherman's Lake, and…	0	0	2	1	104	8	7.69%
@Sac_RD1000 Mar 24, 17:41	Thanks, @NatomasChamber, for another fantastic State of Natomas event. Inviting RD1000 to participate in this annual event is always an honor.…	0	0	2	0	59	4	6.78%
@Sac_RD1000 Mar 08, 19:45	As Sacramento braces for another atmospheric river storm, our crews will be inspecting the levees around the clock and ensuring our pumps are working. If you…	1	0	2	0	113	11	9.73%
@Sac_RD1000 Feb 28, 17:01	Critical Levees - Part one of our four-part http://4Natomas.org series. Natomas' levees and their role in keeping the community safe. https://www.rd1000.org…	0	0	2	0	32	8	0%
@Sac_RD1000 Jan 11, 17:01	@CSDAdistricts is having its annual Districts Make A Difference Video Contest! Students can earn a scholarship by creating and submitting a video…	1	0	2	0	116	3	2.59%
@Sac_RD1000 Mar 23, 22:17	Thanks, @CA_DWR for highlighting the importance of Flood Fighting Specialists and exactly what they do. https://twitter.com/CA_DWR/st	0	0	1	0	78	4	5.13%

Inbound messages > Sen...



Inbound messages > Sentiment



Posts table

DATE	MESSAGE	LIKES	COMMENTS	REACH
reclamationdistrict_1000 Jan 05, 22:01	With all the rain and wind hitting our area, sometimes we need something to brighten our day. Check out the wildlife taking advantage of a break in the stormy weather to feast! #WildNatomas #RD1000	17	1	135
reclamationdistrict_1000 Jan 11, 21:53	RD1000 met with ABC10 to tour the Natomas Levees and CBS13 to discuss infrastructure concerns due to storms inundating California. Links to interviews below. Check out both interviews on our website (link in bio)	13	0	108
reclamationdistrict_1000 Mar 21, 21:11	The results are in! Thank you, Natomas community, for supporting our initiative, which enables the District to make much-needed repairs and improvements to our flood prevention infrastructure. This will ensure the safety of Natomas in the future. 4Natomas.org #CAWater	12	0	104
reclamationdistrict_1000 Jan 19, 23:24	General Manager, Kevin King, met with ABC10 this week to discuss the District's need to increase funding via its stormwater fee initiative, which will go towards repairing its aging infrastructure and help prevent potential flood disasters in Natomas. Link to media coverage page in bio.	11	1	114
reclamationdistrict_1000 Jan 17, 22:22	Did you receive an RD1000 mailer about our upcoming Stormwater Fee? If you have questions about what it all means and how much your rate might be, check out our 4natomas page to learn more about our proposal and your potential fee. http://ow.ly/7rX950Mt81G	9	1	85
reclamationdistrict_1000 Feb 18, 13:02	The current levee work will not only keep Natomas safe but also save their wallet. Learn more https://www.cbsnews.com/sacramento/video/levee-work-under-that-will-lower-insurance-premiums-in-natomas/#x	8	0	104
reclamationdistrict_1000 Jan 04, 19:17	On behalf of RD1000, Hector Barajas reaches out to our Spanish-speaking community in two interviews with Univision. He explains the District's role in flood protection and urges viewers to practice safety by staying away from flood waters and seeking higher ground. Watch the interviews here. http://ow.ly/j…	8	0	132
reclamationdistrict_1000 Mar 03, 14:00	Flood protection for future generations. Part four of our four-part 4Natomas.org series and the importance of long-term community flood prevention. https://www.rd1000.org/a-flood-protection-plan-for-the-long-haul #4Natomas #CAWater #FloodPrevention	6	0	51
reclamationdistrict_1000	Check out this opinion piece on how recent California storms remind us of the importance of flood control as climate change increases the probabili… the future. Link in bio.	6	0	94

Posts table

You have no data sources selected

Post engagements

420
engagements

Post impressions

5K
impressions

Post engagement

172
engagements

Post impressions

2.7K
impressions

Page engagement

443
engagements

Page impressions

44K
impressions

Report sources

R Reclamation District 1000 - Government

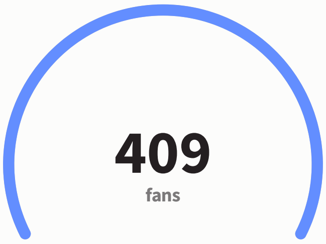
S @Sac_RD1000

R reclamationdistrict_1000

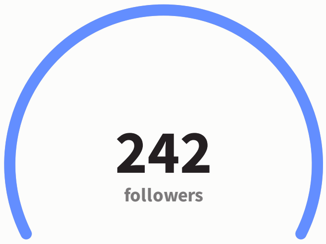
Mixed overview 2023 Quarter 2

Apr 01 - Jun 30, 2023

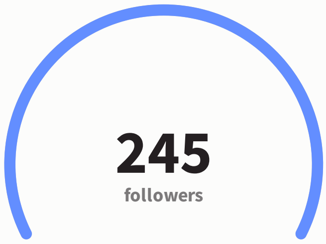
Fans



Followers



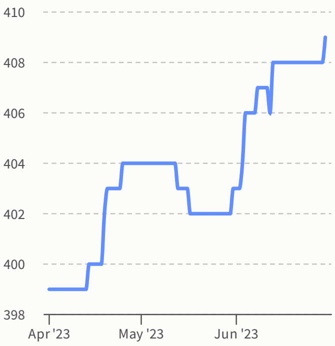
Followers



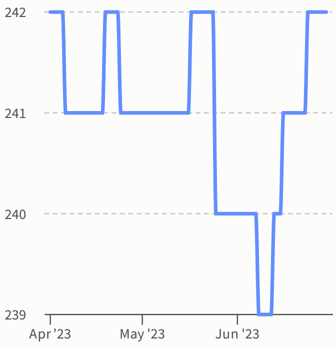
Followers

You have no data sources selected

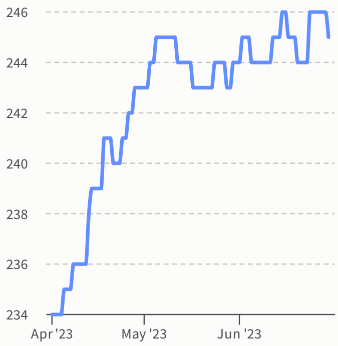
Fans



Followers



Followers



Followers

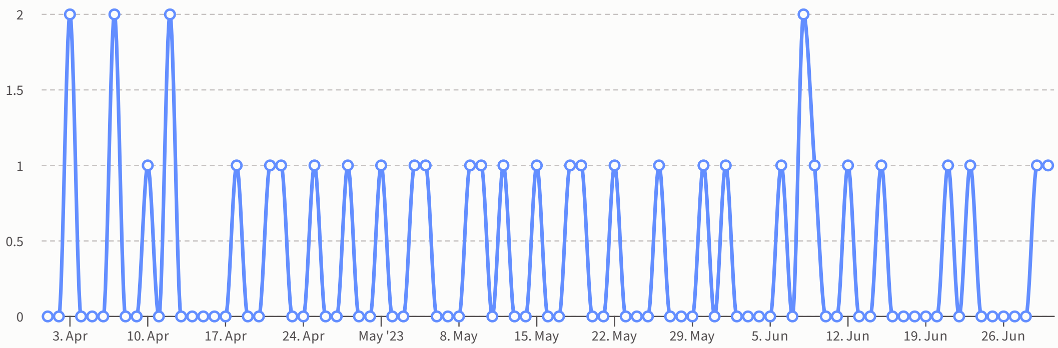
You have no data sources selected

Posts

35

posts

Posts

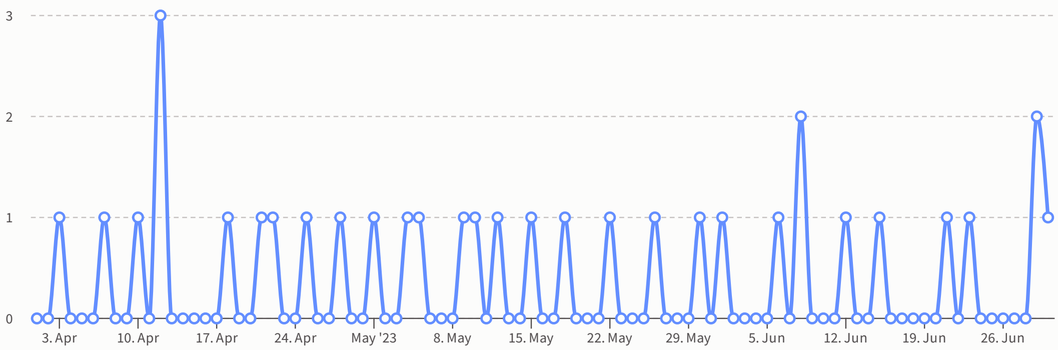


Tweets

33

tweets

Tweets

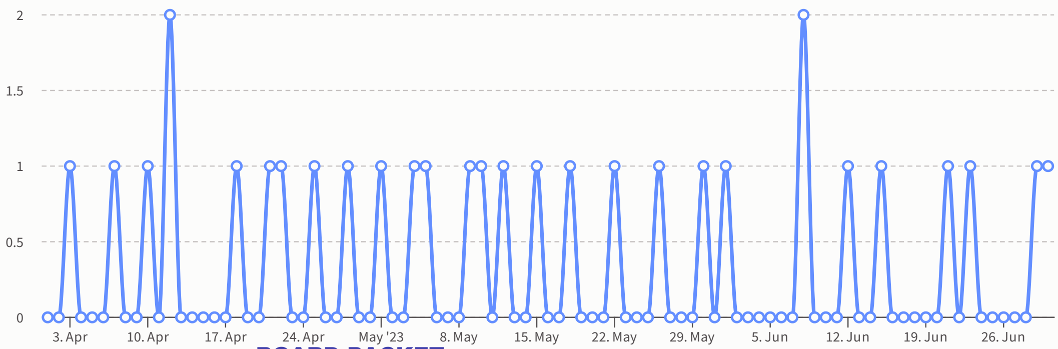


Posts

30

posts

Posts



Posts

You have no data sources selected

Posts

You have no data sources selected

Page engagement (all)

241
engagements

Post key interactions

61
engagements

Post engagement

111
engagements

Page engagement

You have no data sources selected

Page engagement (all) > …

Reactions	218
Shares	15
Comments	8

Post key interactions > T…

Likes	45
Retweets	11
Replies	3
Quote tweets	2

Post engagement > Type

Photo post	103
Video post	8

Page engagement > Type

You have no data sources selected

Post Ow.ly traffic

146
clicks

Post Ow.ly traffic

182
clicks

Post Ow.ly traffic > Page

Reclamation District 1…	146

Post Ow.ly traffic > Acco…

@Sac_RD1000	182

Page content clicks

345
clicks

Post clicks

133
clicks

Page clicks

You have no data sources selected

Post clicks

You have no data sources selected

Referral traffic > Type

There is no data for this date range.

Total Ow.ly link clicks > ...

There is no data for this date range.

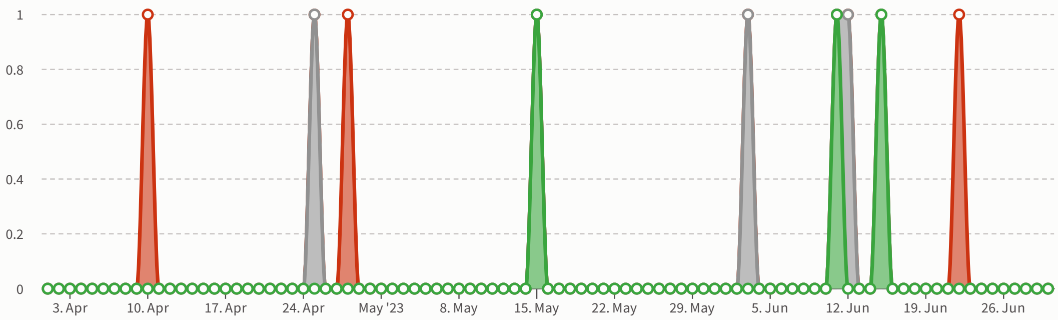
Total Ow.ly link clicks > Country

There is no data for this date range.

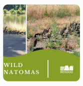
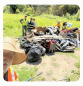
Inbound messages > Sen...

Negative Neutral Positive

Inbound messages > Sentiment

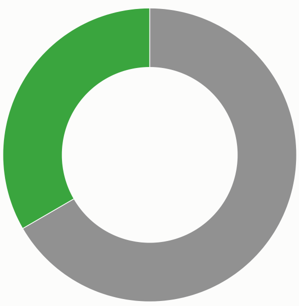


Posts table

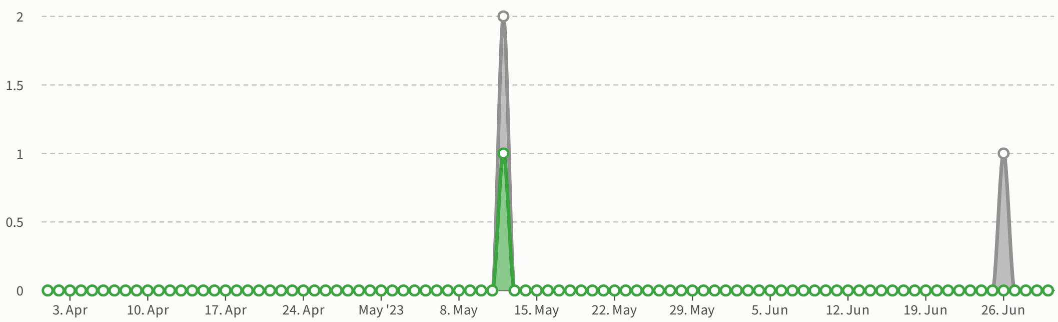
DATE		MESSAGE	REACTIONS	COMMENTS	SHARES
Reclamation District 1000 ... May 30, 18:06		District Visitors! We had a baby goose parade this morning. These Canadian Geese are just one of many animals that call Natomas home. #WildNatomas	10	0	2
Reclamation District 1000 ... Apr 28, 16:02		This week our crew is cleaning up the Natomas East Main Drainage Canal (NEMDC) near the City's Sump station at Arden/Garden with help from Forensiclean. We have removed over 23,000 lbs and counting. The cleanup will likely continue through today.	10	2	1
Reclamation District 1000 ... May 05, 17:25		Put on your gloves and sunhats, and join Sac Picks It Up's Cleano-De-Mayo! The cleanup event will be held on May 6 at 2351 Northgate Blvd, from 9 AM to 12 PM. Tools, water, and burritos will be provided. For more information, visit their Facebook page: http://ow.ly/6LCw50NYNfM	8	0	2
Reclamation District 1000 ... Apr 21, 18:26		Fun Fact Friday! All those miles and miles of mowing in the District account for approximately 3,300 hours of crew time annually. #FunFactFriday #VegetationManagement #FloodPrevention	7	0	0
Reclamation District 1000 ... Jun 08, 22:29		It's great seeing people unite to help keep our Natomas community clean. Thank you, Mark Baker, for sending us this photo of your clean-up efforts with River City Waterway Alliance at Discovery Park.	6	1	1
Reclamation District 1000 ... May 19, 15:33		Looking for a family-friendly fun activity this weekend? Join Councilmember Karina Talamantes at Ninos Park this weekend and jump into spring!	6	0	1
Reclamation District 1000 ... May 15, 15:43		RD1000 celebrates Special Districts Week and more than 3,000 agencies in California that provide services to the community. Learn more about what we do here: http://ow.ly/ACe850Oo7HG #SpecialDistrictsWeek #CSDA	6	1	0
Reclamation District 1000 ... Jun 21, 16:02		Summer is finally here! ☀️ Let's make the most of it by spending time with loved ones, trying new things, and enjoying the beautiful weather. What are your plans for this summer? Share them with us in the comments below! 🌴🌊🍉 #summerfun #summertime	5	0	0
Reclamation District 1000		River City Waterway Alliance is a great organization that helps protect Natomas waterways. Find out how you can get involved in their next Bannon Island clean-up on June 11. https://www.facebook.co...	5	1	0

Inbound messages > Sen...

Neutral Positive



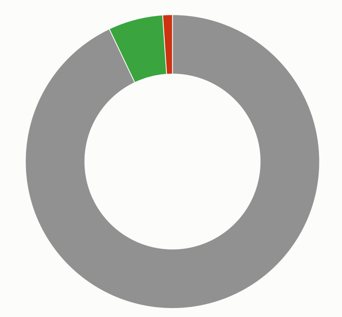
Inbound messages > Sentiment



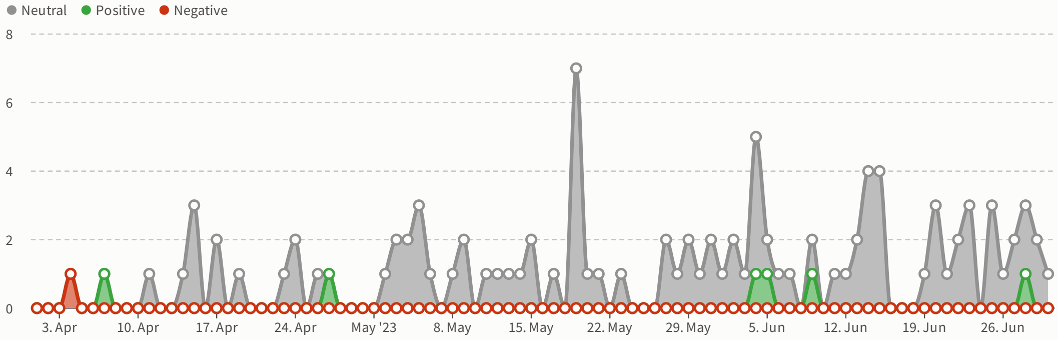
Tweets table

DATE	MESSAGE	RET...	QUO...	LIKES	REPL...	IMPR...	ENG...	% ENG...
@Sac_RD1000 Apr 28, 16:02	This week our crew is cleaning up the Natomas East Main Drainage Canal (NEMDC) near the City's Sump station at Arden/Garden with help from Forensiclean…	1	2	5	1	788	28	3.55%
@Sac_RD1000 Apr 03, 20:03	NATOMAS LEVEE IMPROVEMENT PROJECT UPDATE: Reach A Join the @USACESacramento virtually on April 19 from 6 pm to 7:30 pm for a status update on levee…	3	0	5	0	335	22	6.57%
@Sac_RD1000 Jun 23, 16:29	Looking for family-friendly fun tonight? Join @CM_LisaKaplan at the North Natomas Aquatic Center for a swim and movie night. https://twitter.com/natomasbuzz/status/1672246029482340354	0	0	3	0	203	9	4.43%
@Sac_RD1000 Jun 08, 17:45	Mowing season is here! Our crews are out on heavy equipment using public roadways to access levees and canals. Remember, driving near heavy equipment ca…	2	0	3	0	614	11	1.79%
@Sac_RD1000 May 30, 18:06	District Visitors! We had a baby goose parade this morning. These Canadian Geese are just one of many animals that call Natomas home. #WildNatomas http…	1	0	3	0	764	12	1.57%
@Sac_RD1000 May 15, 15:43	RD1000 celebrates Special Districts Week and more than 3,000 agencies in California that provide services to the community. Learn more about what we do her…	0	0	3	0	70	4	5.71%
@Sac_RD1000 Apr 18, 18:47	Natomas Levee Improvement Project Update: The @USACESacramento is meeting virtually to discuss upcoming work along Garden Hwy from Gateway Oa…	1	0	3	0	277	16	5.78%
@Sac_RD1000 Jun 01, 15:26	June is National Pet Preparedness Month! Build an emergency pet kit to help ensure your pets are safe in a disaster. Learn more pet preparedness tips here: http…	0	0	2	0	43	2	4.65%
@Sac_RD1000	Warmer weather makes canals seem inviting, but even seemingly shallow canals can be dangerous. Murky	0	0	2	0	51	4	7.84%

Inbound messages > Sen...



Inbound messages > Sentiment



Posts table

DATE	MESSAGE	LIKES	COMMENTS	REACH
reclamationdistrict_1000 Jun 15, 16:02	Looking for an opportunity to give back to the community and help the environment? Join the American River Parkway Foundation Saturday, June 17, from 9 am to 12 pm for a clean-up along the Parkway. http://ow.ly/6ANV50OrhMK	9	0	72
reclamationdistrict_1000 May 30, 18:06	District Visitors! We had a baby goose parade this morning. These Canadian Geese are just one of many animal species that call Natomas home. #WildNatomas	8	0	73
reclamationdistrict_1000 Jun 08, 22:29	It's great seeing people unite to help keep our Natomas community clean. Thank you, Mark Baker, for sending us this photo of your clean-up efforts with the River City Waterway Alliance at Discovery Park.	7	1	74
reclamationdistrict_1000 Apr 18, 18:47	Natomas Levee Improvement Project Update: The @Army Corps is meeting virtually to discuss upcoming work along Garden Hwy from Gateway Oaks Dr to Farm Rd. Review their presentation beforehand and join them on April 19th from 6 pm to 7:30 pm. Presentation: http://ow.ly/3OMx50NM…	7	1	105
reclamationdistrict_1000 Apr 28, 16:02	This week our crew is cleaning up the Natomas East Main Drainage Canal (NEMDC) near the City's Sump station at Arden/Garden with help from Forensiclean. We have removed over 23,000 lbs and counting. The cleanup will likely continue through today.	6	0	72
reclamationdistrict_1000 Apr 10, 15:52	Natomas will be safer thanks to passing the 4Natomas Prop 218 stormwater fee. $96 million over the next 30 years will allow the District to upgrade its infrastructure as part of its Capital Improvement Plan. Check out ABC10 Sacramento's recent report. Link in bio #4Natomas #CAWater	6	0	87
reclamationdistrict_1000 Apr 07, 15:42	On April 8, 1911, Reclamation District 1000 was created to protect Natomas from flooding. As we celebrate our anniversary 112 years later, RD1000 continues working toward a flood-safe future for our community. Visit our webpage for more information on who we are: http://ow.ly/1L5b50NEclJ	6	0	63
reclamationdistrict_1000 Apr 25, 17:10	We are requesting bids for the Natomas Basin Vegetation Maintenance Project Phase 5. Contracts and Specifications, and bid details are available on our website. All bid submissions are due by 1 pm on May 8th. #SeeingLeveesSavesLives	6	0	91
reclamationdistrict	NATOMAS LEVEE IMPROVEMENT PROJECT UPDATE: Reach A Join the US Army Corps of Engineers	5	[illegible]	[illegible]

Posts table

You have no data sources selected

Post engagements

161
engagements

Post impressions

4.1K
impressions

Post engagement

111
engagements

Post impressions

2K
impressions

Page engagement

241
engagements

Page impressions

11K
impressions

Report sources

Reclamation District 1000 - Government

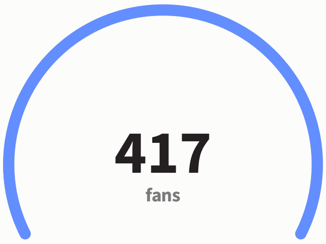
@Sac_RD1000

reclamationdistrict_1000

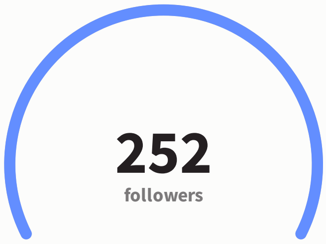
Mixed overview 2023 Quarter 3

Jul 01 - Sep 19, 2023

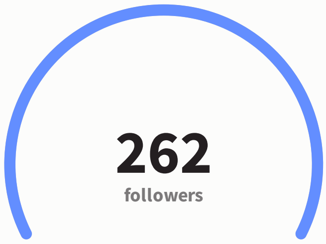
Fans



Followers



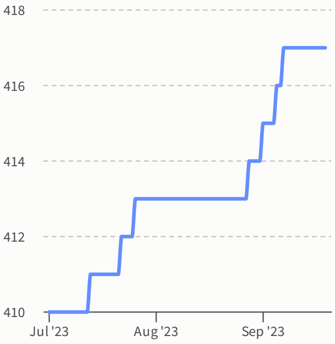
Followers



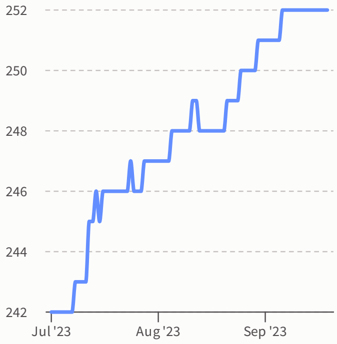
Followers

You have no data sources selected

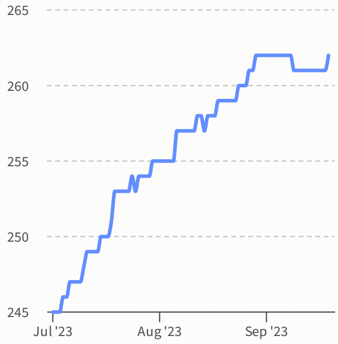
Fans



Followers



Followers



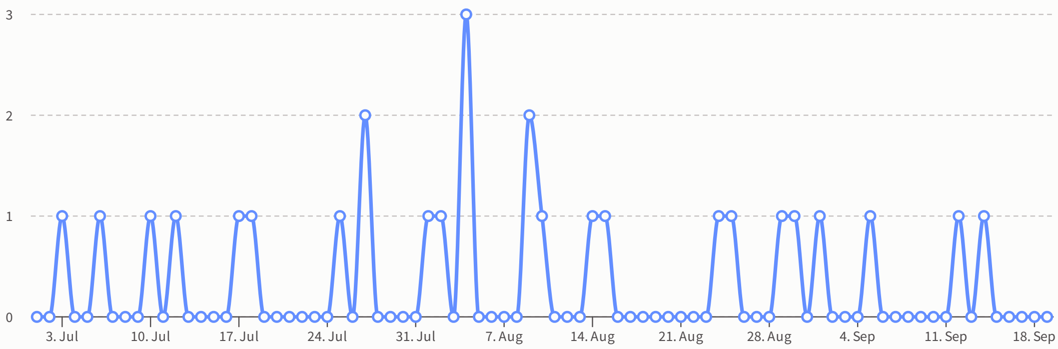
Followers

You have no data sources selected

Posts

27
posts

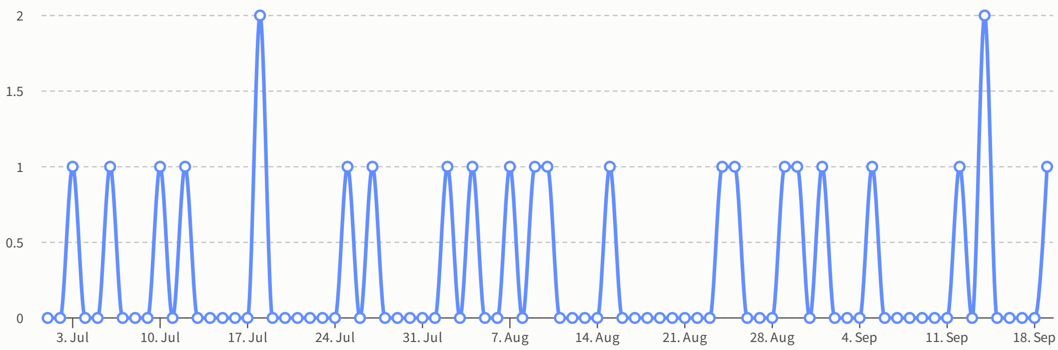
Posts



Tweets

24
tweets

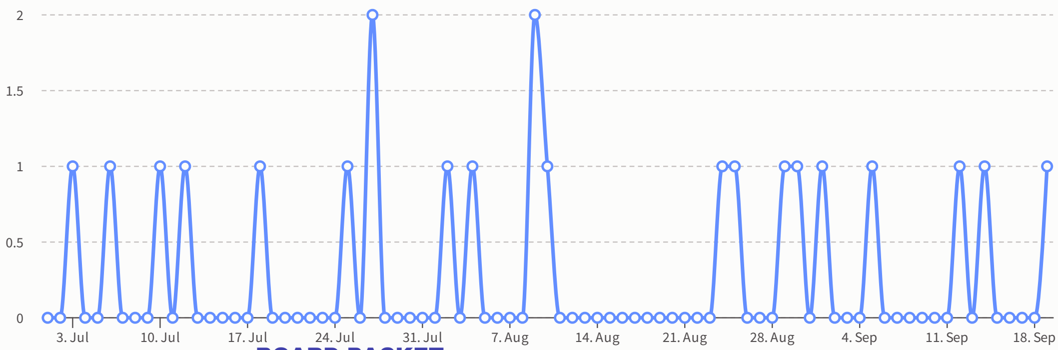
Tweets



Posts

22
posts

Posts



Posts

You have no data sources selected

Posts

You have no data sources selected

Page engagement (all)

193
engagements

Post key interactions

47
engagements

Post engagement

136
engagements

Page engagement

You have no data sources selected

Page engagement (all) > ...

Reactions	157
Comments	20
Shares	16

Post key interactions > T...

Likes	27
Replies	14
Quote tweets	3
Retweets	3

Post engagement > Type

Photo post	129
Video post	4
Reel	3

Page engagement > Type

You have no data sources selected

Post Ow.ly traffic

109
clicks

Post Ow.ly traffic

22
clicks

Post Ow.ly traffic > Page

Reclamation District 1...	109

Post Ow.ly traffic > Acco...

@Sac_RD1000	22

Page content clicks

197
clicks

Post clicks

124
clicks

Page clicks

You have no data sources selected

Post clicks

You have no data sources selected

Referral traffic > Type

There is no data for this date range.

Total Ow.ly link clicks > ...

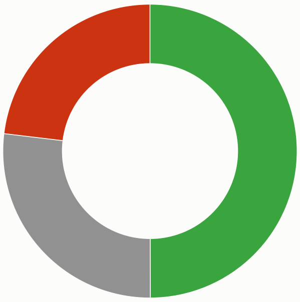
There is no data for this date range.

Total Ow.ly link clicks > Country

There is no data for this date range.

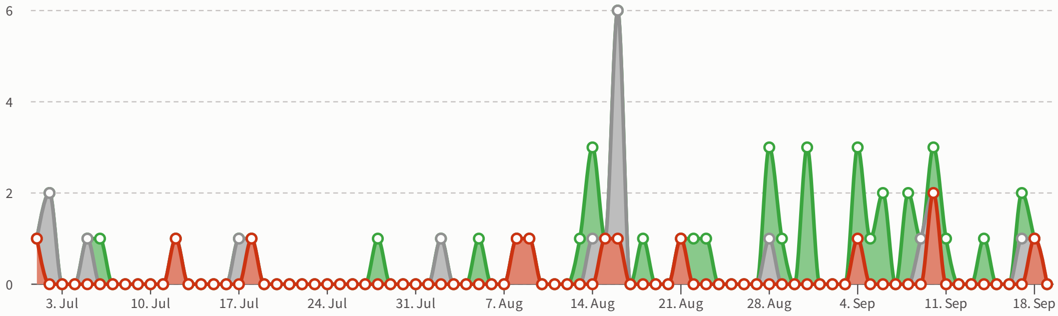
Inbound messages > Sen...

Positive · Neutral · Negative

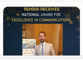


Inbound messages > Sentiment

Positive · Neutral · Negative



Posts table

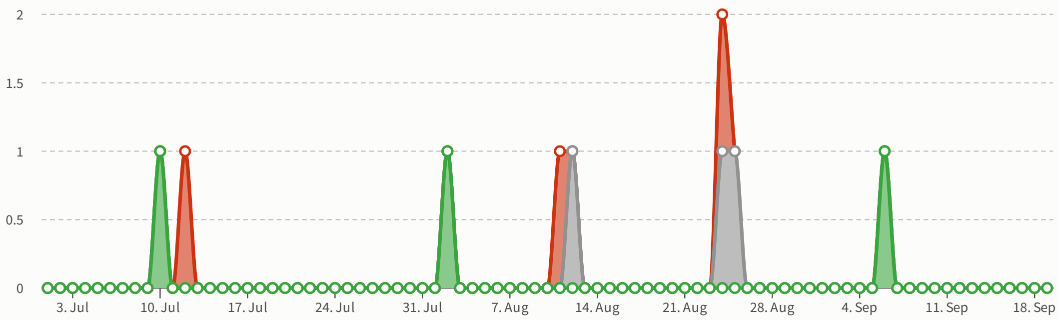
DATE		MESSAGE	REACTIONS ▼	COMMENTS	SHARES
Reclamation District 1000 … Aug 30, 22:14		Thank you, California Special Districts Association! We are honored to receive your reward for Exceptional Public Outreach & Advocacy for our 4Natomas Stormwater Fee campaign that will ensure a flood-safe future. #4Natomas #Natomas #CAWater #PublicOutreach #CSDA #FloodSafeFuture…	36	0	1
Reclamation District 1000 … Aug 04, 17:32		RD1000 has a new look! Recently, our board approved a new district logo highlighting what we do for the community. We have been the local flood protection agency for Natomas Since 1911. Learn more about our mission and vision for the future here: 4Natomas.org #DistrictLogo #NewLook…	18	1	3
Reclamation District 1000 … Aug 14, 17:49		We appreciate all the work River City Waterway Alliance does to help keep Natomas waterways clean.	8	3	1
Reclamation District 1000 … Aug 29, 16:24		**Steelhead Creek Cleanup, 8/27/2034** Thank you River City Waterway Alliance for your hard work in helping keep the community clean! We appreciate your partnership in making a better Natomas for all.	6	1	0
Reclamation District 1000 … Aug 15, 22:28		Plant 4 is RD1000's most northern pumping plant servicing the Sutter County portion of the Natomas Basin. Thanks for the update U.S. Army Corps of Engineers, Sacramento District!	6	0	0
Reclamation District 1000 … Aug 10, 21:33		We had a great meeting with Congressman Ami Bera to discuss the importance of flood protection infrastructure for our district. He also toured our facilities and learned more about our projects. Thank you for your support and leadership, Congressman Bera! #RD1000 #FloodReady	4	0	1
Reclamation District 1000 … Aug 04, 16:49		(Post with no description)	4	0	0
Reclamation District 1000 … Aug 02, 18:41		We had a wonderful time visiting Stanford Settlement Neighborhood Center today and offering goodie bags to program participants. Stanford Settlement is a neighborhood center that provides programs for the entire family: young children, teens and senior citizens. They help build healthy communities…	4	0	0
Reclamation District 1000 …		#NAFSMA #Natomas #StormwaterManagementThe National Association of Flood & Stormwater Management Agencies (NAFSMA) has named Reclamation District No. 1000 the first-place winner of its	4	1	0

Inbound messages > Sen...

Negative · Neutral · Positive

Inbound messages > Sentiment

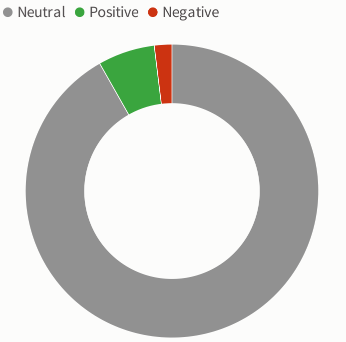
Negative · Neutral · Positive



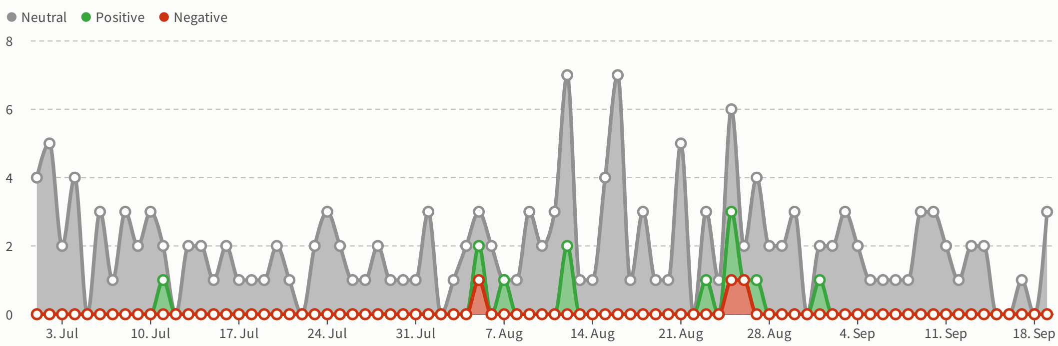
Tweets table

DATE	MESSAGE	RET...	QUO...	LIKES	REPL...	IMPR...	ENG...	% ENG...
@Sac_RD1000 Aug 10, 21:33	We had a great meeting with Congressman Ami Bera to discuss the importance of flood protection infrastructure for our district. He also toured our…	1	0	6	8	734	37	5.04%
@Sac_RD1000 Aug 15, 22:29	Plant 4 is RD1000's most northern pumping plant servicing the Sutter County portion of the Natomas Basin. Thanks for the update @USACESacramento ! https://twitter.com/USACESacramento/stat…	0	0	4	0	141	10	7.09%
@Sac_RD1000 Jul 10, 15:01	Thanks to @CA_DWR grant funding, the remaining Garden Highway properties with high-hazard encroachments will have the opportunity again this…	0	0	4	1	136	13	9.56%
@Sac_RD1000 Aug 30, 22:14	Thank you, @CSDAdistricts! We are honored to receive your reward for Exceptional Public Outreach & Advocacy for our 4Natomas Stormwater Fee campaig…	0	1	2	0	304	16	5.26%
@Sac_RD1000 Aug 04, 17:32	RD1000 has a new look! Recently, our board approved a new district logo highlighting what we do for the community. We have been the local flood protection…	0	0	2	1	96	9	9.38%
@Sac_RD1000 Aug 02, 18:41	We had a wonderful time at @stanfordcenter today, offering program participants goodie bags. Stanford Settlement is a neighborhood center that provides…	1	0	2	0	59	6	10.17%
@Sac_RD1000 Jul 06, 16:02	Last summer, our Seeing Levees Saves Lives project helped mitigate almost 50% of the high-hazard encroachments along Garden Highway; we return th…	0	0	2	0	41	4	9.76%
@Sac_RD1000 Sep 14, 16:44	RD1000 annually spends 2,720 hours mowing along levees and canals. Peak mowing typically occurs in May, with crews spending over 500 hours alone.…	0	0	1	0	39	1	2.56%
@Sac_RD1000	It's National Preparedness Month! Take Control and be disaster-ready in 1, 2, 3. Empower yourself and those	0	0	1	0	19	1	5.26%

Inbound messages > Sen...



Inbound messages > Sentiment



Posts table

DATE	MESSAGE	LIKES	COMMENTS	REACH
reclamationdistrict_1000 Aug 24, 21:30	Our operations team takes public safety seriously. We are currently repairing the city-owned access gate along the NEMDC at Elkhorn & E Levee Road, which has been a repeat vandalism target. This gate will remain closed to vehicle traffic to reduce vehicle hazards to pedestrians.	13	8	150
reclamationdistrict_1000 Aug 04, 17:32	RD1000 has a new look! Recently, our board approved a new district logo highlighting what we do for the community. We have been the local flood protection agency for Natomas Since 1911. Learn more about our mission and vision for the future here: 4Natomas.org #DistrictLogo #NewLook…	13	2	93
reclamationdistrict_1000 Aug 30, 22:14	Thank you, CSDA! We are honored to receive your reward for Exceptional Public Outreach & Advocacy for our 4Natomas Stormwater Fee campaign that will ensure a flood-safe future. #4Natomas #Natomas #CAWater #PublicOutreach #CSDA #FloodSafeFuture #StormwaterFee	11	2	93
reclamationdistrict_1000 Jul 06, 16:02	Last summer, our Seeing Levees Saves Lives project helped mitigate almost 50% of the high-hazard encroachments along Garden Highway; we return the week of July 24th to address additional properties. Learn more about our Seeing Levees Saves Lives here: https://ow.ly/2Ufm50P1Sxj	9	0	87
reclamationdistrict_1000 Jul 27, 23:23	The National Association of Flood & Stormwater Management Agencies (NAFSMA) has named Reclamation District No. 1000 the first-place winner of its annual Excellence in Communication award, honoring the District for its 4 Natomas public awareness and community outreach program. https://…	8	2	93
reclamationdistrict_1000 Aug 25, 21:26	RD1000 received $400K in state grant funding this year to continue our Seeing Levees Saves Lives campaign. With this funding, seven additional properties have been cleared of vegetation encroachments. This work improves the safety of all Natomas by providing a clear visual path for…	8	0	99
reclamationdistrict_1000 Sep 14, 16:44	RD1000 annually spends 2,720 hours mowing along levees and canals. Peak mowing typically occurs in May, with crews spending over 500 hours alone. Keeping the vegetation down allows our staff to better monitor the levee for potential issues and reduce local fire hazards.	7	1	73
reclamationdistrict_1000 Jul 25, 16:02	Why is our #SeeingLeveesSavesLives program so important? It helps prevent devastating floods like those in other parts of California by removing visual obstructions that could hide potential threats to the 42 miles of levees surrounding Natomas. https://www.rd1000.org/seeing-levees-saves-lives	7	0	103
reclamationdistrict_1000	We had a great meeting with Congressman Ami Bera to discuss the importance of flood protection infrastructure for our district. He also toured our … about our projects. Thank…	6	0	74

Posts table

You have no data sources selected

Post engagements

150
engagements

Post impressions

3.1K
impressions

Post engagement

136
engagements

Post impressions

1.8K
impressions

Page engagement

193
engagements

Page impressions

6K
impressions

Report sources

R Reclamation District 1000 - Government

S @Sac_RD1000

R reclamationdistrict_1000

Social Media Calendar

2023 Qtr 2

Publish Date	Theme	Channel	Channel2	Channel3	Status	Author	Key Elements	Keywords
1/30/2023	Grants	Facebook	Twitter	Instagram	Published	City of Sacramento	Grant Opportunity for Community Clean Ups	Community, Grants, Clean Ups, Environment
2/7/2023	Storms	Facebook	Twitter	Instagram	Published	RD1000	Storm Events, Power Loss	Thank SMUD, storm events
2/9/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
2/10/2023	Event	Facebook	Twitter	Instagram	Published	Lisa Kaplan	Pet Adoption Event	Community, Pets, Outreach
2/13/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Stormwater Fee, 4Natomas	Prop 218, Stormwater Fee, 4Natomas
2/14/2023	Holiday	Facebook	Twitter	Instagram	Published	RD1000	Valentines Day	Safety, Outreach, Community
2/14/2023	NLIP	Facebook	Twitter	Instagram	Published	RD1000	NLIP Updates	Plant 4 site testing, NLIP, flood prevention
2/28/2023	NLIP	Facebook	Twitter	Instagram	Published	CBS News	NLIP Updates	Outreach, NLIP, flood insurance, flood protection
2/20/2023	4Natomas	Facebook	Twitter	Instagram	Published	Sac Observer	Stormwater Fee Info, Storm recap	Prop 218, Stormwater Fee, 4Natomas
2/22/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	History and infrastructure needs	Outreach, 4Natomas, infrastructure, history
2/23/2023	4Natomas	Facebook	Twitter	Instagram	Published	CSDA	Article on the 4Natomas program	Outreach, 4Natomas

2/27/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	4Natomas Campaign	Prop 218, Stormwater Fee, 4Natomas
2/27/2023	4Natomas	Facebook	Twitter	Instagram	Published	Sac Observer	Stormwater Fee Info, Storm recap	Prop 218, Stormwater Fee, 4Natomas
2/28/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Levees Article	Prop 218, Stormwater Fee, 4Natomas
3/1/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Lift Pumps Article	Prop 218, Stormwater Fee, 4Natomas
3/2/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Lives Article	Prop 218, Stormwater Fee, 4Natomas
3/3/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Longevity Article	Prop 218, Stormwater Fee, 4Natomas
3/6/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	4Natomas Vote Reminder	Prop 218, Stormwater Fee, 4Natomas
3/8/2023	Storms	Facebook	Twitter	Instagram	Published	RD1000	Storm Timeline	Storm watch, flood control, safety
3/9/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
3/10/2023	Storms	Facebook	Twitter	Instagram	Published	Sacramento County OES	Turn Around Don't Drown	Storm watch, flood control, safety
3/13/2023	Storms	Facebook	Twitter	Instagram	Published	National Weather Service	Power Outage Resources	Storm watch, flood control, safety
3/14/2023	Storms	Facebook	Twitter	Instagram	Published	RD1000	Winter Storm Resources	Storm watch, flood control, safety
3/16/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Notice of Tally	Prop 218, Stormwater Fee, 4Natomas

3/21/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	State of Natomas Reminder	Community, Event, Business
3/22/2023	4Natomas	Facebook	Twitter	Instagram	Published	RD1000	Stormwater Fee is Approved	Prop 218, Stormwater Fee, 4Natomas
3/23/2023	Employee Recognition	Facebook	Twitter	Instagram	Published	Army Corps	Flood Fight Specialist Recognition	Employee Recognition, flood
3/24/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	State of Natomas	Highlights from the State of Natomas luncheon
3/24/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	Clean Up along Jack Rabbit trail	Share from Natomas buzz for community clean up
3/27/2023	Storms	Facebook	Twitter	Instagram	Published	RD1000	Incoming Storm	Share from NWS
3/30/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	Take a Walk in the Park Day	Community, Parks & Rec
4/3/2023	NLIP	Facebook	Twitter	Instagram	Published	RD1000	NLIP Updates	NLIP meeting planned by the Army Corps
4/7/2023	Anniversary	Facebook	Twitter	Instagram	Published	RD1000	District Anniversary	District turns 112 years old.
4/10/2023	4Natomas	Facebook	Twitter	Instagram	Published	ABC10	Media coverage of the passing of stormwater fee	4natomas, stormwater fee, media, prop 218
4/12/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
4/18/2023	NLIP	Facebook	Twitter	Instagram	Published	RD1000	NLIP Updates	Army Corps online public meeting to discuss NLIP updates
4/21/2023	Fun Fact	Facebook	Twitter	Instagram	Published	RD1000	Fun Fact Friday	Crew hours spent mowing

4/22/2023	Holiday	Facebook	Twitter	Instagram	Published	RD1000	Earth Day	Environment, Earth Day
4/25/2023	RFP	Facebook	Twitter	Instagram	Published	RD1000	Request for Bids	Vegetation maintenance RFP
4/28/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	NEMDC Clean Up	District clean up along the NEMDC
5/1/2023	Encroachments	Facebook	Twitter	Instagram	Published	RD1000	Enroachment permit information	Do I need a permit?
5/4/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	Big Day of Giving	Local charity promotion
5/5/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	Community Clean up by Sacramento Picks it Up	Promotion of Sacramento Picks it up clean up event
5/9/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	Public Service Recognition Week	Public Service, thank a public worker.
5/10/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
5/12/2023	Financial	Facebook	Twitter	Instagram	Published	ABC10	Flood infrastructure budget	State budget, flood funding
5/15/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	Special District Week	promotion of special districts
5/18/2023	Educational	Facebook	Twitter	Instagram	Published	RD1000	California Natural Resources event	Weather Whiplash
5/19/2023	Event	Facebook	Twitter	Instagram	Published	Karina Talamantes	Spring event	Share from Karina for spring South Natomas family event.
5/22/2023	Safety	Facebook	Twitter	Instagram	Published	RD1000	Canal Safety Facts	Canal safety PSA

5/26/2023	Holiday	Facebook	Twitter	Instagram	Published	RD1000	Office Closure	Memorial Day
5/30/2023	Wildlife	Facebook	Twitter	Instagram	Published	RD1000	Wild Natomas	geese sighting on District property
6/1/2023	Safety	Facebook	Twitter	Instagram	Published	RD1000	National Pet Prepardness Month	Pet preparedness month, safety for pets during a disaster
6/6/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	River City Waterway Alliance Clean up event	Promote the RCWA and local clean ups
6/8/2023	Safety	Facebook	Twitter	Instagram	Published	RD1000	Heavy Equipment and Driving PSA	Safety PSA for driving around heavy equipment
6/8/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	River City Waterway Alliance Clean up results	Promote the RCWA and local clean ups
6/9/2023	NLIP	Facebook	Twitter	Instagram	Published	Army Corps	NLIP Updates	Share from the Army Corps NLIP updates
6/12/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
6/15/2023	Clean Ups	Facebook	Twitter	Instagram	Published	RD1000	American River Parkway Clean Up	Promotion of ARP clean up event at Discovery Park
6/21/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	Summer Soltice	Hello summer, community summer plans
6/23/2023	Event	Facebook	Twitter	Instagram	Published	Natomas Buzz	Movie Night	Share from Natomas Buzz, movies in the park.
6/29/2023	History	Facebook	Twitter	Instagram	Published	RD1000	Throwback Thursday	Great flood of 1850, catalyst for flood control in the region.
6/30/2023	Social Media Day	Facebook	Twitter	Instagram	Published	RD1000	Social Media Day	Promotion of District's social media accounts

7/3/2023	Holiday	Facebook	Twitter	Instagram	Published	RD1000	Holiday closure for the District	4th of July
7/6/2023	Seeing Levees Saves Lives	Facebook	Twitter	Instagram	Published	RD1000	Seeing Levees Saves Lives	Program and high hazard mitigation work begins again
7/10/2023	Seeing Levees Saves Lives	Facebook	Twitter	Instagram	Published	RD1000	Seeing Levees Saves Lives	FMAP swif progran continuing to remove high hazard encroachments.
7/12/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
7/17/2023	Clean Ups	Facebook	Twitter	Instagram	Published	River City Waterway Alliance	Clean Up along the river by RCWA	share from RCWA clean up of Natomas waterways
7/18/2023	Seeing Levees Saves Lives	Facebook	Twitter	Instagram	Published	RD1000	Seeing Levees Saves Lives	What is a high hazard encroachment?
7/25/2023	Seeing Levees Saves Lives	Facebook	Twitter	Instagram	Published	RD1000	Seeing Levees Saves Lives	Why the SWIF program matters for flood prevention
7/27/2023	History	Facebook	Twitter	Instagram	Published	RD1000	Did you know?	Swamp Land Act of 1850, creation of reclamation in the US
7/27/2023	Award	Facebook	Twitter	Instagram	Published	RD1000	NASFMA Award	K King receives outreach award from NASFMA
8/1/2023	National Night Out	Facebook	Twitter	Instagram	Published	RD1000	National Night Out	Share from Natomas Buzz national night out.
8/2/2023	Outreach	Facebook	Twitter	Instagram	Published	RD1000	Swag donation	Stanford Settlement outreach, swag donation
8/4/2023	Logo	Facebook	Twitter	Instagram	Published	RD1000	New Logo	Rebranding, Logo, Outreach, 4Natomas
8/4/2023	NLIP	Facebook	Twitter	Instagram	Published	Army Corps	NLIP Updates	share from Army corps on Reach A improvements

8/9/2023	Video Contest	Facebook	Twitter	Instagram	Published	RD1000	Video Contest	Results of the Districts Make a Difference video contest
8/9/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
8/1023	Elected Official	Facebook	Twitter	Instagram	Published	RD1000	RD1000 Tour	Tour of the District with Ami Bera
8/14/2023	Clean Ups	Facebook	Twitter	Instagram	Published	River City Waterway Alliance	Steelhead Creek	share from RCWA clean up of steelhead creek
8/15/2023	Plant 4	Facebook	Twitter	Instagram	Published	Army Corps	Plant 4 reconstruction	Share from Army Corps , plant 4 pump installation
8/24/2023	Safety	Facebook	Twitter	Instagram	Published	RD1000	NEMDC Gate Repair	Gate repair, closure, maintenance, safety
8/25/2023	Seeing Levees Saves Lives	Facebook	Twitter	Instagram	Published	RD1000	Seeing Levees Saves Lives	Vegetation maintenance continues
8/29/2023	Clean Ups	Facebook	Twitter	Instagram	Published	River City Waterway Alliance	Steelhead Creek	share from RCWA clean up of steelhead creek
8/30/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	CSDA awards RD1000 for 4Natomas Outreach	Award, outreach, community
9/1/2023	Holiday	Facebook	Twitter	Instagram	Published	RD1000	Labor Day Closure	Labor Day Closure
9/5/2023	Board Meeting	Facebook	Twitter	Instagram	Published	RD1000	Board Meeting	Community, Meetings, Natomas
9/12/2023	Event	Facebook	Twitter	Instagram	Published	RD1000	National Preparedness Month	Safety, Outreach, Community
9/14/2023	Fun Fact	Facebook	Twitter	Instagram	Published	RD1000	Mowing Facts	Facts, Maintenance, Crew

9/19/2023	Plant 5	Facebook	Twitter	Instagram	Published	RD1000	Plant 5 Updates	NLIP, CIP, Construction

July 1, 2023 to September 20, 2023

Ad creative	Campaign name	Reach ↓	Amount spent
 Thank you, @[122745241966:... Used in 1 ad	All	1,254	$25.00
	Post: Thank you, Californi...	1,254	$25.00
RD1000 has a new look! Recen... Used in 1 ad	All	646	$20.00
	Post: "RD1000 has a new l...	646	$20.00
Total results 4 / 4 rows displayed		1,774 Accounts Center accounts	$45.00 Total Spent