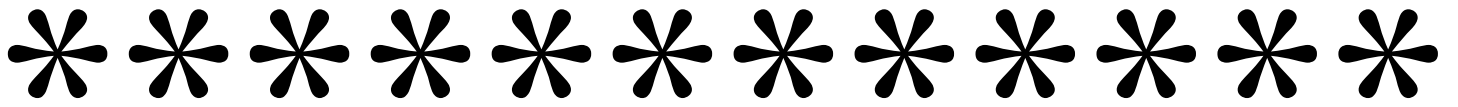


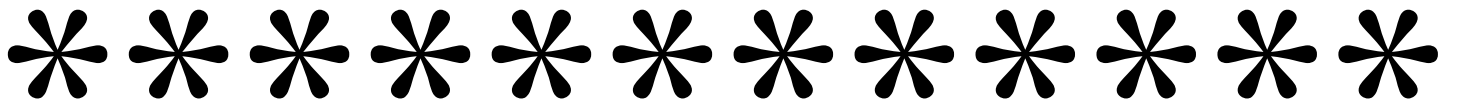


**RAMSEY-WASHINGTON**  
METRO WATERSHED DISTRICT

# **July 2020 Board Packet**



# Agenda





## Regular Board Meeting Agenda

Wednesday, July 1, 2020

6:30 P.M.

*Due to the COVID19 pandemic, this month's board meeting will be held via the video conferencing platform Zoom. Board members, staff, consultants, and general public will be able to join in via video and/or phone. The public that wish to will be able to listen to meeting but not participate with the exception of the visitor comments portion of the agenda. If you have comments you may speak on the Zoom meeting during the visitor comments agenda item. Instructions for joining in on the Zoom meeting can be found after the agenda.*

1. Call to Order – 6:30 PM
2. **Approval of Agenda (pg. 3)**
3. **Consent Agenda: To all be approved with one motion unless removed from consent agenda for discussion.**
  - A. Approval of Regular Meeting Minutes June 3, 2020. (pg. 7)
  - B. Treasurer's Report and Bill List (pg. 13)
  - C. Stewardship Grant Program
    - i. 20-29 CS Donahue, shoreline restoration (pg. 28)
    - ii. 20-30 CS Jones, native habitat restoration (pg. 30)
  - D. CIP Maintenance and Repair Project – Change Order No. 2 (pg. 31)
4. Visitor Comments (limited to 4 minutes each)
5. Permit Program
  - A. Applications – None
  - B. **Single Lot Residential Permit Adjustments (pg. 45)**
  - C. Enforcement Action Report (pg. 47)
6. Stewardship Grant Program
  - A. Applications – see consent agenda
  - B. Budget Status Update (pg. 50)
7. Presentations and Action Items
  - A. **East St. Paul Target Store BMP Retrofits Project Bid Award (pg. 52)**
  - B. West Vadnais Lake South of I-694 Conveyance Feasibility Study (pg. 53)
    - i. West Vadnais Lake Opportunistic Pumping Scenarios (pg. 81)

8. Administrator's Report (*pg. 141*)
  - A. Meetings Attended
  - B. Upcoming Meetings and Dates
  - C. Upcoming Board Workshops
  - D. 2021 Budget Planning Memo
9. Project and Program Status Reports (*pg. 149*)
  - A. Ongoing Project and Program Updates
    - i. Owasso Basin Bypass Pipeline Feasibility Study
    - ii. West Vadnais to South I-694 Conveyance Feasibility Study
    - iii. Willow Creek Flood Damage Reduction Feasibility Study
    - iv. Ames Lake Flood Damage Reduction Feasibility Study
    - v. FEMA Flood Mapping Updates
    - vi. Water Management Plan Updates
    - vii. Automated Lake Monitoring Systems
    - viii. Wakefield Park/Frost Avenue Stormwater Project
    - ix. Targeted Retrofit Projects
    - x. Target Store Stormwater Retrofits
    - xi. Kohlman Permeable Weir Test System
    - xii. Aldrich Arena Stormwater Project
    - xiii. Keller Channel Weir and Phalen Outlet Resiliency Modifications
    - xiv. West Vadnais Lakes Outlet Lowering
    - xv. Twin Lake Outlet
    - xvi. CIP Maintenance and Repair 2020 Project
    - xvii. 2019 Tanners Lake Alum Facility Monitoring
    - xviii. Internal Load Management Discussion
    - xix. Wakefield Lake Internal Loading Study
    - xx. Natural Resources Program
    - xxi. Education Program
10. Report of Managers
- 11. Adjourn**

*\*Items in **bold** signify that an action needs to be taken by the Board.*



# RAMSEY-WASHINGTON

## METRO WATERSHED DISTRICT

### NOTICE OF BOARD MEETING

### Wednesday, July 1, 2020

### 6:30 PM

### Via Web Conference and In Lieu of an In-Person Meeting

Per Minnesota Statute 13D.021, President Marj Ebensteiner has determined that an in-person meeting of the RWMWD Board of Managers is not practical or prudent given the COVID-19 pandemic. In compliance with Center for Disease Control and Minnesota Department of Health guidance on minimizing potential for spread of the virus, RWMWD will conduct its regular Wednesday, June 3, 2020, meeting at 6:30 p.m. CDT, by web conference and conference call. Members of the public wishing to participate in the meeting may do so by accessing the web-based conference, or by phone.

To access the meeting via webcast, please use this link:

[JOIN MEETING](#)

<https://us02web.zoom.us/j/89243029563?pwd=T1kxcWNPbm9sS1FwcDhacVBTHZMQT09>

The meeting room will open at 6:20 pm with the meeting starting at 6:30 pm. To connect to audio you may choose to use your computer audio options or you may use your mobile device to call. The phone access number is **(312) 626-6799**. The Meeting ID is **892 4302 9563**. The meeting password is **809548**.

If you have any questions, please contact Tina Carstens at [tina.carstens@rwmwd.org](mailto:tina.carstens@rwmwd.org).



# Consent Agenda





**Ramsey-Washington Metro Watershed District  
Minutes of Regular Board Meeting  
June 3, 2020**

The Regular Meeting of June 3, 2020, was held at the District Office Board Room, 2665 Noel Drive, Little Canada, Minnesota, at 6:30 p.m.

**PRESENT:**

Marj Ebensteiner, President  
Cliff Aichinger, Vice President  
Lawrence Swope, Treasurer  
Dianne Ward, Secretary  
Dr. Pam Skinner, Manager

**ABSENT:**

**ALSO PRESENT:**

Tina Carstens, District Administrator  
Laurann Kirschner, Attorney for District  
Nicole Soderholm, Permit Inspector  
Dave Vlasin, Water Quality Technician  
Kyle Wahlstrom, Twin Lake  
Bruce Copley, Crestview Resident

Paige Ahlborg, Project Manager  
Brad Lindaman, Barr Engineering  
Bill Bartodziej, Natural Resource Specialist  
Burt Johnson, Twin Lake Association  
Nicole Frethem, Ramsey County Commissioner

**1. CALL TO ORDER**

The meeting was called to order by President Ebensteiner at 6:30 p.m.

**2. APPROVAL OF AGENDA**

A Manager requested to remove Items 3A and 3C from the Consent Agenda. A staff member noted that the minutes would be considered following the Consent Agenda and Permit #20-25 would appear under the Permit Program.

Motion: Manager Aichinger moved, Manager Swope seconded, to approve the agenda as amended.

Further discussion: A Manager requested to add an Item to the Agenda titled Proposal for Non-Winter Water Movement. A staff member replied that Item would be considered as 7D.

A roll call vote was performed:

President Ebensteiner	aye
Manager Aichinger	aye
Manager Swope	aye
Manager Ward	aye
Manager Skinner	aye

Motion carried unanimously.

**3. CONSENT AGENDA**

- A. ~~Approval of Minutes from May 6, 2020~~
- B. Treasurer’s Report and Bill List
- C. Permit Applications
  - i. 20-23: White Bear Lake High School South Gym - White Bear Lake
  - ii. 20-24: Maple Ridge Gas Station – Maplewood
  - iii. ~~20-25 Suzanne Gramsie Stormwater Improvements Shoreview~~
- D. Stewardship Grant Program
  - i. 20-21 CS: White Bear Lake Curb Cut Rain Gardens
  - ii. 20-22 CS: Bauer – Native Habitat Restoration
  - iii. 20-23 CS: City of St. Paul Parks and Recreation – Plant Harvesting
- E. East St. Paul Target Retrofit Approval of Plans and Authorization to Bid

Motion: Manager Ward moved, Manager Aichinger seconded, to approve the consent agenda as presented.

A roll call vote was performed:

President Ebensteiner	aye
Manager Swope	aye
Manager Ward	aye
Manager Aichinger	aye
Manager Skinner	aye

Motion carried unanimously.

A. Approval of Minutes from May 6, 2020

A Manager noted that there should be additional clarity on Rule D and the impact downstream. Another Manager noted on page five, under the Beltline Study, in the further discussion where it states a Manager, or Managers, provided input, that input should be listed in detail. Another Manager stated that he would support that only if the comments are not lengthy, otherwise they should be summarized as done. A staff member noted that they could put the comments in.

Motion: Manager Aichinger moved, Manager Ward seconded, to approve the minutes from May 6, 2020, with the changes noted.

A roll call vote was performed:

Manager Aichinger	aye
Manager Skinner	aye
Manager Swope	aye
President Ebensteiner	aye
Manager Ward	aye

Motion carried unanimously.

**4. VISITOR COMMENTS**

Burt Johnson, President of Twin Lake Association, stated that the association was formed with the objectives of ensuring that West Vadnais does not discharge into Twin Lake, that the Twin Lake outlet is restored, and to preserve the water quality within Twin Lake. He stated that he is pleased to see that the Board will select a contractor on the outlet project tonight. He referenced the operations plan, which has been the subject of previous discussion by the Board, noting that the association wants to ensure that the surface elevation of Twin Lake will be predictable and sustainable at 872.2. He thanked staff for keeping communication open with the



association. He stated that while they understand the concern with not wanting to flood others downstream, they also do not want Twin Lake to hold excess water.

**5. PERMIT PROGRAM**

**A. Applications**

**Permit #20-25 Suzanne Gramsie Stormwater Improvements - Shoreview**

A Manager asked for details as to how the system is setup from Northwest Gramsie Pond to Suzanne Pond. A staff member stated that the groundwater study identified that when the Northwest Gramsie Pond holds water, that impacts Suzanne Pond and a residential home. It was noted that the pipeline will allow the water to flow through Northwest Gramsie Pond to Suzanne Pond and the pumps will then move the water to the Grass Lake system. There will also be a shutoff valve that could be utilized in the case the pumps failed and the city wanted to stop the Northwest Gramsie pond from coming to Suzanne Pond. Another staff member provided details on the process the District went through with the Board of Water and Soil Resources to determine the impact of installing a pipe on water levels. It was confirmed that the Northwest Gramsie Pond is currently flooded and will not be lowered beyond an approximate normal water level. A Manager asked why raising Gramsie Road is necessary. A staff member replied that raising the road will keep the water off the road due to the limitations on the small pond to the south of the road as well as keeping water away from the homes on Suzanne Pond.

Motion: Manager Aichinger moved, Manager Swope seconded, to approve Permit #20-25.

A roll call vote was performed:

President Ebensteiner	aye
Manager Swope	aye
Manager Ward	aye
Manager Aichinger	aye
Manager Skinner	aye

Motion carried unanimously.

**B. Single Lot Residential Permit Adjustment Discussion**

A staff member provided background on feedback received regarding permit requests for single residential lots. Staff provided recommendations that could be implemented to streamline the process. Another staff member noted that staff held a meeting with Snail Lake Improvement District Board members and opinions were expressed about the duplication of efforts between the City of Shoreview and the District, noting that the District wants to ensure that the process is not cumbersome or a deterrent for homeowners to improve their shoreline. Managers expressed their support for the recommendations from staff. A staff member noted that they would develop the plan to present to the Managers at the next meeting.

Motion: Manager Swope moved, Manager Aichinger seconded, to continue the process developed by staff, directing staff to develop a document with the recommended changes to the single lot residential permit process.

Further discussion: A staff member noted that they have received multiple requests and asked if the Board was comfortable piloting the implementation within the next month. The consensus of the Board was confirmed.

A roll call vote was performed:

Manager Swope	aye
President Ebensteiner	aye
Manager Aichinger	aye
Manager Ward	aye
Manager Skinner	aye

Motion carried unanimously.

C. Monthly Enforcement Report

During May, 14 notices were sent to address: install/maintain inlet protection (1), install/maintain perimeter control (2), install/maintain construction entrance (2), sweep streets (1), stabilize exposed soils (2), contain liquid/solid wastes (2), repair erosion (1), remove discharged sediment (2), and maintain permanent BMPs (1).

**6. STEWARDSHIP GRANT PROGRAM**

A. Applications – See Consent Agenda

B. Budget Status Update

No comments.

**7. PRESENTATIONS AND ACTION ITEMS**

A. Stormwater Pollution Prevention Plan Annual Report

A staff member provided background information on the MS4 Permit and reporting process. The minimum control measures were reviewed. It was noted that as part of the MS4 Permit, there should also be an opportunity for the public to provide comments. A Manager stated that perhaps an insert could be put in utility bills as another method of communication. A staff member noted that had been done in the past, but many residents choose to not receive the paper utility bill and therefore that communication method was changed.

There were no comments from the public.

Motion: Manager Aichinger moved, Manager Swope seconded, to accept the 2019 MS4 Annual Report and authorize District Administrator to submit the report to the MPCA.

A roll call vote was performed:

President Ebensteiner	aye
Manager Aichinger	aye
Manager Swope	aye
Manager Skinner	aye
Manager Ward	aye

Motion carried unanimously.

B. Twin Lake Outlet Action

A staff member reported that five bids were received, with the lowest bidder being Rachel Contracting with a base bid of \$129,586.

Motion: Manager Swope moved, Manager Aichinger seconded, to accept the bids and award the Twin Lake Outlet project to Rachel Contracting and direct staff to prepare and mail the notice of award, prepare the agreements, and review the required submittals.

A roll call vote was performed:

Manager Swope	aye
President Ebensteiner	aye
Manager Aichinger	aye
Manager Ward	aye
Manager Skinner	aye

Motion carried unanimously.

C. Beltline Resiliency Study Accept Response to Comment/Finalize Report

A staff member noted that the suggested changes were made and stated that once the response to comments is approved, the responses would be provided to the commenters. It was noted that the report could also be finalized at this time. A Manager provided input on items that they would like to see follow up on.

Motion: Manager Aichinger moved, Manager Swope seconded, to accept the Beltline Resiliency Study response to comments and direct staff to append the response to comments to finalize the study report with the appended comments as discussed.

A roll call vote was performed:

Manager Swope	aye
President Ebensteiner	aye
Manager Aichinger	aye
Manager Ward	aye
Manager Skinner	aye

Motion carried unanimously.

D. Proposal for Non-Winter Water Movement

A Manager stated that following the discussion from the previous month, they developed a draft protocol that could be useful when the District is looking to move water in non-winter times as well as during the off season winter months. A staff member stated that this is good timing as staff intended to bring the pumping information back for review at the next meeting and confirmed that staff could review this draft and bring back thoughts and recommendations. A Manager commented that it would be helpful to have a visual element that identifies the homes that would have a potential of flooding.

**8. ADMINISTRATOR'S REPORT**

A. Meetings Attended

A staff member provided an update on recent meetings.

B. Upcoming Meetings and Dates

A staff member highlighted upcoming meetings.

C. COVID-19 District Update

A staff member reported that District operations have not changed a lot, noting that staff continues to work from home as much as possible. The back to the office plan is being developed, which includes cleaning strategies and the protocols that would be enacted if a staff member contracts COVID-19. A Manager commented that there could potentially be an uptick in the number of cases with recent activity and therefore cautioned the District on attempting to reopen too quickly. A Manager asked what would happen if a resident called into the District office. A staff member replied that currently calls go to voicemail and are returned by a staff member. A Manager commented that the guidance for public meetings is that people should continue virtual meetings for three months and asked if alternate sites have been reviewed that would have larger rooms when the Board returns to in person meetings. A staff member reviewed some options, noting that one option would be for only the Board and Administrator attend in person with the remainder of staff and visitors attending via Zoom. It was confirmed that the July meeting would be held via Zoom.

D. Future Board Workshop Planning

The Board and staff discussed upcoming Board workshops.

E. Ramsey County Public Meeting Update

Ramsey County Commissioner Frethem stated that the meeting will be held in a virtual format and provided some details on the meeting format and agenda.

**9. PROJECT AND PROGRAM STATUS REPORTS**

A. Ongoing Project and Program Updates

- i. Beltline Resiliency and Phalen Chain Water Level Studies
- ii. West Vadnais to South I-694 Conveyance Feasibility Study
- iii. Automated Lake Monitoring Systems  
A Manager referenced the automated lake monitoring systems and asked when the public/Board would have access to the information. A staff member noted that staff is currently working to make that information available on the District website for viewing.
- iv. Wakefield Park/Frost Avenue Stormwater Project
- v. Targeted Retrofit Projects
- vi. Kohlman Permeable Weir Test System
- vii. Aldrich Arena Stormwater Project  
A Manager commented that they drove by the Wakefield area and Aldrich Arena and noted that the plantings look great.
- viii. Keller Channel Weir and Phalen Outlet Resiliency Modifications
- ix. West Vadnais Lakes Outlet Lowering  
A staff member commented that the West Vadnais Lake Outlet project will have contractors onsite beginning work the following day.
- x. Twin Lake Outlet
- xi. CIP Maintenance and Repair 2020 Project
- xii. Beltline/Battle Creek Tunnel Inspection
- xiii. Internal Load Management Discussion
- xiv. Wakefield Lake Internal Loading Study
- xv. Natural Resources Program
- xvi. Education Program

**10. REPORTS OF MANAGERS**

No additional comments.

**11. ADJOURN**

Motion: Manager Swope moved, Manager Skinner seconded, to adjourn the meeting at 8:13 p.m.

A roll call vote was performed:

President Ebensteiner	aye
Manager Skinner	aye
Manager Ward	aye
Manager Aichinger	aye
Manager Swope	aye

Motion carried unanimously.

RWMWD BUDGET STATUS REPORT  
 Administrative & Program Budget  
 Fiscal Year 2020  
 6/30/2020

Budget Category	Budget Item	Account Number	Original Budget	Budget Transfers	Current Month Expenses	Year-to-Date Expenses	Current Budget Balance	Percent of Budget
Manager	Per diems	4355	\$8,500.00	-	-	1,800.00	\$6,700.00	21.18%
	Manager expenses	4360	3,500.00	-	-	-	3,500.00	0.00%
	Committee/Bd Mtg. Exp.	4365	3,500.00	-	219.00	1,491.50	2,008.50	42.61%
<b>Sub-Total: Managers/Committees:</b>			<b>\$15,500.00</b>	<b>\$0.00</b>	<b>\$219.00</b>	<b>\$3,291.50</b>	<b>\$12,208.50</b>	<b>21.24%</b>
Employees	Staff salary/taxes/benefits	4010	1,450,000.00	-	125,757.51	720,906.58	729,093.42	49.72%
	Employee expenses	4020	10,000.00	-	3,051.83	7,474.94	2,525.06	74.75%
	District training & education	4350	25,000.00	-	(35.10)	819.94	24,180.06	3.28%
	<b>Sub-Total: Employees:</b>		<b>\$1,485,000.00</b>	<b>\$0.00</b>	<b>\$128,774.24</b>	<b>\$729,201.46</b>	<b>\$755,798.54</b>	<b>49.10%</b>
Administration/ Office	GIS system maint. & equip.	4170	15,000.00	-	-	1,694.02	13,305.98	11.29%
	Data Base/GIS Maintenance	4171	5,000.00	-	-	-	5,000.00	0.00%
	Equipment maintenance	4305	3,000.00	-	-	-	3,000.00	0.00%
	Telephone	4310	8,000.00	-	57.48	344.88	7,655.12	4.31%
	Office supplies	4320	5,000.00	-	270.23	2,890.01	2,109.99	57.80%
	IT/Internet/Web Site/Software Lic.	4325	55,000.00	-	4,293.15	27,282.70	27,717.30	49.60%
	Postage	4330	5,000.00	-	143.55	287.10	4,712.90	5.74%
	Printing/copying	4335	8,000.00	-	992.80	2,851.55	5,148.45	35.64%
	Dues & publications	4338	11,000.00	-	-	7,595.00	3,405.00	69.05%
	Janitorial/Trash Service	4341	15,000.00	-	-	-	15,000.00	0.00%
	Utilities/Bldg.Contracts	4342	20,000.00	-	1,372.50	16,363.35	3,636.65	81.82%
	Bldg/Site Maintenance	4343	200,000.00	-	228.50	4,904.33	195,095.67	2.45%
	Miscellaneous	4390	5,000.00	-	-	377.00	4,623.00	7.54%
	Insurance	4480	40,000.00	-	8,641.00	42,916.02	(2,916.02)	107.29%
	Office equipment	4703	150,000.00	-	1,290.54	7,576.96	142,423.04	5.05%
	Vehicle lease, maintenance	4810-40	43,000.00	-	-	30,687.98	12,312.02	71.37%
	<b>Sub-Total: Administration/Office:</b>			<b>\$588,000.00</b>	<b>\$0.00</b>	<b>\$17,289.75</b>	<b>\$145,770.90</b>	<b>\$442,229.10</b>
Consultants/ Outside Services	Auditor/Accounting	4110	60,000.00	-	2,241.25	40,303.88	19,696.12	67.17%
	Engineering-administration	4121	93,000.00	-	4,206.50	34,298.90	58,701.10	36.88%
	Engineering-permit I&E	4122	10,000.00	-	-	-	10,000.00	0.00%
	Engineering-eng. review	4123	55,000.00	-	6,613.50	20,992.00	34,008.00	38.17%
	Engineering-permit review	4124	55,000.00	-	2,091.00	26,430.50	28,569.50	48.06%
	Project Feasibility Studies	4129	570,000.00	-	32,901.00	85,691.06	484,308.94	15.03%
	Attorney-permits	4130	10,000.00	-	-	-	10,000.00	0.00%
	Attorney-general	4131	40,000.00	-	-	14,179.00	25,821.00	35.45%
	Outside Consulting Services	4160	40,000.00	-	-	-	40,000.00	0.00%
	<b>Sub-Total: Consultants/Outside Services:</b>			<b>\$933,000.00</b>	<b>\$0.00</b>	<b>\$48,053.25</b>	<b>\$221,895.34</b>	<b>\$711,104.66</b>
Programs	Educational programming	4370	60,000.00	-	200.00	5,793.59	54,206.41	9.66%
	Communications & Marketing	4371	25,000.00	-	2,008.63	3,478.24	21,521.76	13.91%
	Events	4372	50,000.00	-	-	23,592.03	26,407.97	47.18%
	Water QM-Engineering	4520-30	185,000.00	-	11,202.08	63,746.74	121,253.26	34.46%
	Project operations	4650	160,000.00	-	8,076.61	39,461.92	120,538.08	24.66%
	SLMP/TMDL Studies	4661	173,000.00	-	9,289.00	21,531.85	151,468.15	12.45%
	Natural Resources/Keller Creek	4670-72	140,000.00	-	839.47	17,104.51	122,895.49	12.22%
	Outside Prog.Support/Weed Mgmt.	4683-84	67,000.00	-	508.65	31,319.80	35,680.20	46.75%
	Research Projects	4695	95,000.00	-	850.00	41,034.50	53,965.50	43.19%
	Health and Safety Program	4697	3,000.00	-	850.00	989.39	2,010.61	32.98%
	NPDES Phase II	4698	10,000.00	-	-	-	10,000.00	0.00%
<b>Sub-Total: Programs:</b>			<b>\$968,000.00</b>	<b>\$0.00</b>	<b>\$33,824.44</b>	<b>\$248,052.57</b>	<b>\$719,947.43</b>	<b>25.63%</b>
<b>GENERAL FUND TOTAL</b>			<b>\$3,989,500.00</b>	<b>\$0.00</b>	<b>\$228,160.68</b>	<b>\$1,348,211.77</b>	<b>\$2,641,288.23</b>	<b>33.79%</b>
CIP's	CIP Project Repair & Maintenance	516	1,115,000.00	-	190,668.21	931,308.72	183,691.28	83.53%
	Targeted Retrofit Projects	518	1,012,000.00	-	45,692.50	197,443.42	814,556.58	19.51%
	Flood Risk Reduction Fund	520	4,000,000.00	-	23,750.13	202,678.65	3,797,321.35	5.07%
	Debt Services-96-97 Beltline/MM/Battle Creek	526	400,074.00	-	121,031.63	397,918.26	2,155.74	99.46%
	Stewardship Grant Program Fund	528-529	1,000,000.00	-	33,191.33	84,828.34	915,171.66	8.48%
	Impervious Surface Volume Reduction Opportunity	531	1,600,000.00	-	-	-	1,600,000.00	0.00%
	Wakefield Park Project	553	100,000.00	-	2,253.63	15,297.27	84,702.73	15.30%
District Office Bond Payment	585	194,885.00	-	-	120,358.21	74,526.79	61.76%	
<b>CIP BUDGET TOTAL</b>			<b>\$9,421,959.00</b>	<b>\$0.00</b>	<b>\$416,587.43</b>	<b>\$1,949,832.87</b>	<b>\$7,472,126.13</b>	<b>20.69%</b>
<b>TOTAL BUDGET</b>			<b>\$13,411,459.00</b>	<b>\$0.00</b>	<b>\$644,748.11</b>	<b>\$3,298,044.64</b>	<b>\$10,113,414.36</b>	<b>24.59%</b>

Current Fund Balances:

Fund:	Beginning Fund Balance @ 12/31/19	Fund Transfers	Year to date Revenue	Current Month Expenses	Year to Date Expense	Fund Balance @ 06/30/20
101 - General Fund	\$4,633,167.33	-	79,007.77	228,160.68	1,348,211.77	3,363,963.33
516 - CIP Project Repair & Maintenance	1,160,359.00	-	-	190,668.21	931,308.72	229,050.28
518 - Targeted Retrofit Projects	(52,309.00)	-	-	45,692.50	197,443.42	(249,752.42)
520 - Flood Damage Reduction Fund	2,565,820.00	-	18,032.67	23,750.13	202,678.65	2,381,174.02
526 - Debt Services-96-97 Beltline/MM/Beltline-Battle Creek Tunnel Repair	1,252,348.00	-	-	121,031.63	397,918.26	854,429.74
528/529 - Stewardship Grant Program Fund	711,696.00	-	-	33,191.33	84,828.34	626,867.66
531 - Impervious Surface Volume Reduction Opportunity	1,484,215.00	-	-	-	-	1,484,215.00
553 - Wakefield Park Project	268,349.00	-	-	2,253.63	15,297.27	253,051.73
580 - Contingency Fund	891,682.00	-	-	-	-	891,682.00
585 - Certificates of Participation	130,460.00	-	335.47	-	120,358.21	10,437.26
<b>Total District Fund Balance</b>	<b>\$13,045,787.33</b>	<b>\$0.00</b>	<b>\$ 97,375.91</b>	<b>\$ 644,748.11</b>	<b>\$3,298,044.64</b>	<b>\$9,845,118.60</b>

**Ramsey Washington Metro Watershed Dist.**  
**Check Register**  
**For the Period From Jun 1, 2020 to Jun 30, 2020**

Check #	Date	Payee ID	Payee	Description	Amount	
EFT	06/10/20	hea002	July 2020	HealthPartners	Employee Benefits	\$11,909.86
71558	06/16/20	del001	10394850404	Dell Marketing, L.P.	Office Equipment	1,290.54
71559	06/16/20	gi1001	192958/193259	Gilbert Mechanical Contractors, Inc.	Bldg/Site Maintenance	228.50
71560	06/16/20	hej001	322574	Hejny Rental	Natural Resources Project	112.26
71561	06/16/20	nsp002	687711852	Xcel Energy	Project Operations	28.64
71562	06/16/20	pit001	3103977641	Pitney Bowes Global Financial Serv LLC	Postage Expense	143.55
71563	06/16/20	pre001	669395/669486	Press Publications	Construction-Flood Damage	216.75
71564	06/16/20	pre003	317554902	Premium Waters, Inc.	Utilities/Bldg. Contracts	24.00
71565	06/16/20	usb005	415704113	US Bank Equipment Finance	Printing Expense	646.80
71566	06/23/20	ahl001	June 2020	Paige Ahlborg	Employee Reimbursement	158.93
71567	06/23/20	ame005	19-03 CS	American Bronze Casting, Inc.	Stewardship Grant Fund	2,465.00
71568	06/23/20	bar001	5/16-6/12/20	Barr Engineering	May/June Eengineering	149,615.49
71569	06/23/20	bar004	06/16/20	Deborah Barnes	Employee Reimbursement	45.75
71570	06/23/20	bat002	P27184415	Batteries Plus Bulbs	Water QM Staff	99.90
71571	06/23/20	bre003	3rd Qtr-2020	Bremer Bank	Employee Benefits	7,543.75
71572	06/23/20	bro001	14023379-00	Brock White Company LLC	Natural Resources Project	246.02
71573	06/23/20	but001	20-06 CS	Anna Butler	Stewardship Grant Fund	5,500.00
71574	06/23/20	cad001	16902284	Allstream	Water QM Staff	65.01
71575	06/23/20	cit011	228998	City of Roseville	IT/Website/Software	4,163.00
71576	06/23/20	com004	06/16/20	Comcast	Utilities/Bldg. Contracts	65.38
71577	06/23/20	cra001	20-20 CS	Kyle Crawford	Stewardship Grant Fund	317.89
71578	06/23/20	cut001	Progress Pay #2	Cutting Edge Property Maintenance	Project Operations	26,209.20
71579	06/23/20	don001	June 2020	Matthew Doneux	Employee Reimbursement	426.44
71580	06/23/20	fit001	Progress Pay #3	Fitzgerald Excavating & Trucking, Inc.	Progress Payment #3	149,373.25
71581	06/23/20	fit002	June 2020	Mary Fitzgerald	Employee Reimbursement	274.03
71582	06/23/20	gar002	20-15 CS	Paul Gardner	Stewardship Grant Fund	2,500.00
71583	06/23/20	gru001	30007	Gruber's Power Equipment	Natural Resources Project	279.95
71584	06/23/20	han009	20-06 CS	Annie Hanford	Stewardship Grant Fund	4,336.11
71585	06/23/20	haz001	06/12/20	Lauren Hazenson	Employee Reimbursement	155.00
71586	06/23/20	hor001	19-28 CS	Gerald Horgan	Stewardship Grant Fund	1,750.00
71587	06/23/20	inn003	6649	Innovational Water Solutions	Utilities/Bldg. Contracts	221.40
71588	06/23/20	int001	W20050509	Office of MN, IT Services	Telephone Expense	57.48
71589	06/23/20	jac001	20-12 CS	Michele Jacobson	Stewardship Grant Fund	1,658.33
71590	06/23/20	kel005	20-28 CS	Keller Golf Course	Stewardship Grant Fund	2,315.00
71591	06/23/20	kub001	June 2020	Kyle W. Kubitza	Employee Reimbursement	511.18
71592	06/23/20	mau001	06/01/20	Ashly Maus	Employee Reimbursement	508.30
71593	06/23/20	mecg004	20-09 CS	Kara McGuire	Stewardship Grant Fund	1,700.00
71594	06/23/20	mel001	June 2020	Michelle L. Melser	Employee Reimbursement	215.34
71595	06/23/20	met004	INV1612367	Metro Sales, Inc.	Printing Expense	346.00
71596	06/23/20	min008	23146	Minnesota Native Landscapes, Inc.	Construction-Maint. & Rep.	173.00
71597	06/23/20	min010	June 2020	MN Public Facilities Authority	Debt Service-Beltline/Tanner	86,805.38
71598	06/23/20	nor013	38359	Northern Dewatering, Inc.	Project Operations	8,968.20
71599	06/23/20	nor016	06/09/20	Northland Trust Services, Inc.	Debt Services-Beltline Tunnel	34,226.25
71600	06/23/20	nsp001	689333166	Xcel Energy	Utilities/Project Operations	866.97
71601	06/23/20	pac001	20102017212	Pace Analytical Services, Inc.	Water QM Staff	1,644.00
71602	06/23/20	per001	06/01/20	Public Employees Retirement Assoc.	Employee Benefits	853.20
71603	06/23/20	ram013	20-11 CS	Katherine Ramundt	Stewardship Grant Fund	9,050.00
71604	06/23/20	red002	481753975	Redpath & Company, Ltd	Monthly Accounting & Payroll	2,241.25
71605	06/23/20	san003	May 2020	Sandstrom Land Management	Construction-Maint. & Rep.	3,101.25
71606	06/23/20	sim001	May/June 2020	Emily Simmons	Employee Reimbursement	588.80
71607	06/23/20	sod001	June 2020	Nicole Soderholm	Employee Reimbursement	244.30
71608	06/23/20	tes002	1587	Testing Services, Inc.	Project Operations	150.00
71609	06/23/20	tim002	M25702	Timesaver Off-Site Secretarial, Inc.	Committee/Board Meeting Exp.	219.00
71610	06/23/20	tro002	20-06	Cathy Troendle	Educational Program	200.00
71611	06/23/20	usb002	June 2020	U.S. Bank	June Credit Card Expense	2,436.68
71612	06/23/20	van001	July 2020	Vanguard Cleaning Systems of Minnesota	Utilities/Bldg. Contracts	550.00
71613	06/23/20	van003	May/June 2020	Erika Van Krevelen	Employee Reimbursement	494.50
71614	06/23/20	att002	June 2020	AT&T Mobility	IT/Website/Software/Water QM	80.45
71615	06/23/20	lea001	June 2020	League of MN Cities Trust W/C	Insurance Expense	8,641.00
71616	06/23/20	nep001	June 2020	NCPERS Group Life Ins.	Employee Benefits	16.00
<b>Total</b>						<b>\$539,274.26</b>

**Ramsey Washington Metro Watershed Dist.**  
**Check Register**  
**For the Period From Jun 1, 2020 to Jun 30, 2020**

Check #	Date	Payee ID	Payee	Description	Amount
EFT	05/01/20	myp001	05/01/20	May 1st Payroll Fees	4110-101-000 72.95
EFT	05/15/20	myp001	05/15/20	May 15th Payroll Fees	4110-101-000 72.95
EFT	05/29/20	myp001	05/29/20	May 29th Payroll Fees	4110-101-000 76.85
Dir.Dep.	06/12/20	---	Payroll Expense-Net	June 12th Payroll	4010-101-000 29,923.53
EFT	06/12/20	int002	Internal Rev.Serv.	June 12th Federal Withholding	2001-101-000 10,197.28
EFT	06/12/20	mnd001	MN Revenue	June 12th State Withholding	2003-101-000 1,852.98
EFT	06/12/20	per001	PERA	June 12th PERA	2011-101-000 5,919.30
EFT	06/12/20	emp002	Empower Retirement	Employee Def.Comp. Contributions	2016-101-000 3,029.00
EFT	06/12/20	emp002	Empower Retirement	Employee IRA Contributions	2018-101-000 425.00
Dir.Dep.	06/26/20	---	Payroll Expense-Net	June 26th Payroll	4010-101-000 30,135.67
EFT	06/26/20	int002	Internal Rev.Serv.	June 26th Federal Withholding	2001-101-000 10,285.79
EFT	06/26/20	mnd001	MN Revenue	June 26th State Withholding	2003-101-000 1,864.91
EFT	06/26/20	per001	PERA	June 26th PERA	2011-101-000 6,005.61
EFT	06/26/20	emp002	Empower Retirement	Employee Def.Comp. Contributions	2016-101-000 3,404.00
EFT	06/26/20	emp002	Empower Retirement	Employee IRA Contributions	2018-101-000 425.00
<b>Payroll/Benefits</b>					<b><u>\$103,690.82</u></b>
<b>Total</b>					<b>Accounts Payable/Payroll/Benefits: <u>\$642,965.08</u></b>

**Ramsey Washington Metro Watershed Dist.**  
**Cash Disbursements Journal**  
**For the Period From June 1, 2020 - June 30, 2020**

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
06/10/20	EFT	hea002	HealthPartners	4040-101-000	Employee Benefits-General	\$11,909.86	
06/16/20	71558	del001	Dell Marketing, L.P.	4703-101-000	Office Equipment	1,290.54	
06/16/20	71559	gil001	Gilbert Mechanical Contractors, Inc.	4343-101-000	Bldg./Site Maintenance	228.50	
06/16/20	71560	hej001	Hejny Rental	4670-101-000	Natural Resources Project-General	112.26	
06/16/20	71561	nsp001	Xcel Energy	4650-101-000	Project Operations-General	28.64	
06/16/20	71562	pit001	Pitney Bowes Global Financial Services, LLC	4330-101-000	Postage-General	143.55	
06/16/20	71563	pre001	Press Publications	4630-520-000	Construction-Flood Damage	216.75	
06/16/20	71564	pre003	Premium Waters, Inc.	4342-101-000	Utilities/Bldg. Contracts	24.00	
06/16/20	71565	usb005	US Bank Equipment Finance	4335-101-000	Printing-General	646.80	
06/23/20	71566	ahl001	Paige Ahlberg			158.93	
				4020-101-000	Employee Expenses-General		102.93
				4040-101-000	Employee Benefits-General		56.00
06/23/20	71567	ame005	American Bronze Casting, Inc.	4682-529-000	Stewardship Grant Fund	2,465.00	
06/23/20	71568	bar001	Barr Engineering			149,615.49	
				4121-101-000	Engineering Admin-General Fund		4,206.50
				4697-101-000	Health & Safety Program		850.00
				4123-101-000	Engineering-Review		6,613.50
				4129-101-000	Project Feasibility-General		300.00
				4129-101-000	Project Feasibility-General		16,577.00
				4129-101-000	Project Feasibility-General		604.00
				4129-101-000	Project Feasibility-General		367.50
				4129-101-000	Project Feasibility-General		12,393.00
				4129-101-000	Project Feasibility-General		2,659.50
				4520-101-000	Water QM-Engineering		2,739.00
				4520-101-000	Water QM-Engineering		272.50
				4520-101-000	Water QM-Engineering		5,056.95
				4520-101-000	Water QM-Engineering		689.00
				4520-101-000	Water QM-Engineering		522.50
				4520-101-000	Water QM-Engineering		70.00
				4124-101-000	Engineering-Permit Review		2,091.00
				4661-101-000	SLMP/TMDL Studies		9.50
				4661-101-000	SLMP/TMDL Studies		8,472.50
				4661-101-000	SLMP/TMDL Studies		240.00
				4661-101-000	SLMP/TMDL Studies		567.00
				4695-101-000	Research Projects-General		850.00
				4650-101-000	Project Operations-General		7,648.74
				4128-518-000	Engineering-School/Commer Retrofit		42,782.50
				4128-518-000	Engineering-School/Commer Retrofit		524.00
				4128-518-000	Engineering-School/Commer Retrofit		1,374.00
				4128-553-000	Engineering-Wakefield		2,253.63
				4128-518-000	Engineering-School/Commer Retrofit		110.00
				4128-518-000	Engineering-School/Commer Retrofit		902.00
				4682-529-000	Stewardship Grant Fund		1,599.00



**Ramsey Washington Metro Watershed Dist.**  
**Cash Disbursements Journal**  
**For the Period From June 1, 2020 - June 30, 2020**

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
				4128-520-000	Engineering-Flood Damage		2,661.00
				4128-520-000	Engineering-Flood Damage		9,637.50
				4128-520-000	Engineering-Flood Damage		2,189.30
				4128-516-000	Engineering-Maint. & Repair		5,560.37
				4128-516-000	Engineering-Maint. & Repair		1,169.00
				4128-516-000	Engineering-Maint. & Repair		5,053.50
06/23/20	71569	bar004	Deborah Barnes			45.75	
				4020-101-000	Employee Expenses-General		5.75
				4040-101-000	Employee Benefits-General		40.00
06/23/20	71570	bat002	Batteries Plus Bulbs	4530-101-000	Water QM Staff-General	99.90	
06/23/20	71571	bre003	Bremer Bank	4040-101-000	Employee Benefits-General	7,543.75	
06/23/20	71572	bro001	Brock White Company, LLC	4670-101-000	Natural Resources Project-General	246.02	
06/23/20	71573	but001	Anna Butler	4682-529-000	Stewardship Grant Fund	5,500.00	
06/23/20	71574	cad001	Allstream	4530-101-000	Water QM Staff-General	65.01	
06/23/20	71575	cit011	City of Roseville	4325-101-000	IT/Website/Software	4,163.00	
06/23/20	71576	com004	Comcast	4342-101-000	Utilities/Bldg. Contracts	65.38	
06/23/20	71577	cra001	Kyle Crawford	4682-529-000	Stewardship Grant Fund	317.89	
06/23/20	71578	cut001	Cutting Edge Property Maintenance	4650-516-000	Project Operations-Maint. & Repair	26,209.20	
06/23/20	71579	don001	Matthew Doneux			426.44	
				4040-101-000	Employee Benefits-General		40.00
				4670-101-000	Natural Resources Project-General		101.24
				4020-101-000	Employee Expenses-General		285.20
				4670-101-000	Natural Resources Project-General		
06/23/20	71580	fit001	Fitzgerald Excavating & Trucking, Inc.	4630-516-000	Construction Imp.-Maint. & Repair	149,373.25	
06/23/20	71581	fit002	Mary Fitzgerald			274.03	
				4040-101-000	Employee Benefits-General		40.00
				4020-101-000	Employee Expenses-General		234.03
06/23/20	71582	gar002	Paul Gardner	4682-529-000	Stewardship Grant Fund	2,500.00	
06/23/20	71583	gru001	Gruber's Power Equipment	4670-101-000	Natural Resources Project-General	279.95	
06/23/20	71584	han009	Annie Hanford	4682-529-000	Stewardship Grant Fund	4,336.11	
06/23/20	71585	haz001	Lauren Hazenson	4040-101-000	Employee Benefits-General	155.00	
06/23/20	71586	hor001	Gerald Horgan	4682-529-000	Stewardship Grant Fund	1,750.00	
06/23/20	71587	inn003	Innovational Water Solutions	4342-101-000	Utilities/Bldg. Contracts	221.40	
06/23/20	71588	int001	Office of MN, IT Services	4310-101-000	Telephone-General	57.48	
06/23/20	71589	jac001	Michele Jacobson	4682-529-000	Stewardship Grant Fund	1,658.33	
06/23/20	71590	kel005	Keller Golf Course	4682-529-000	Stewardship Grant Fund	2,315.00	
06/23/20	71591	kub001	Kyle W. Kubitza	4020-101-000	Employee Expenses-General	511.18	
06/23/20	71592	mau001	Ashly Maus	4020-101-000	Employee Expenses-General	508.30	
06/23/20	71593	meg004	Kara McGuire	4682-529-000	Stewardship Grant Fund	1,700.00	
06/23/20	71594	mel001	Michelle L. Melser	4020-101-000	Employee Expenses-General	215.34	
06/23/20	71595	met004	Metro Sales, Inc.	4335-101-000	Printing-General	346.00	
06/23/20	71596	min008	Minnesota Native Landscapes, Inc.	4630-516-000	Construction Imp.-Maint. & Repair	173.00	
06/23/20	71597	min010	MN Public Facilities Authority	4700-526-000	Debt Services-Beltline & Tanners	86,805.38	
06/23/20	71598	nor013	Northern Dewatering, Inc.	4650-520-000	Project Operations-Flood Damage	8,968.20	
06/23/20	71599	nor016	Northland Trust Services, Inc.	4708-526-000	Debt Services-Beltline Tunnel	34,226.25	

**Ramsey Washington Metro Watershed Dist.**  
**Cash Disbursements Journal**  
**For the Period From June 1, 2020 - June 30, 2020**

Date	Check #	Vendor ID	Name	Account ID	Account Description	Amount	Check Detail
06/23/20	71600	nsp001	Xcel Energy			866.97	
				4650-520-000	Project Operations-Flood		77.38
				4650-101-000	Project Operations-General		277.87
				4342-101-000	Utilities/Bldg. Contracts		511.72
06/23/20	71601	pac001	Pace Analytical Services, Inc.			1,644.00	
				4530-101-000	Water QM Staff-General		120.00
				4530-101-000	Water QM Staff-General		98.00
				4530-101-000	Water QM Staff-General		98.00
				4530-101-000	Water QM Staff-General		990.00
				4530-101-000	Water QM Staff-General		98.00
				4530-101-000	Water QM Staff-General		120.00
				4530-101-000	Water QM Staff-General		120.00
06/23/20	71602	per001	Public Employees Retirement Association	4040-101-000	Employee Benefits-General	853.20	
06/23/20	71603	ram013	Katherine Ramundt	4682-529-000	Stewardship Grant Fund	9,050.00	
06/23/20	71604	red002	Redpath & Company, Ltd.	4110-101-000	Auditor/Accounting	2,241.25	
06/23/20	71605	san003	Sandstrom Land Management	4630-516-000	Construction Imp.-Maint. & Repair	3,101.25	
06/23/20	71606	sim001	Emily Simmons	4020-101-000	Employee Expenses-General	588.80	
06/23/20	71607	sod001	Nicole Soderholm			244.30	
				4040-101-000	Employee Benefits-General		138.50
				4020-101-000	Employee Expenses-General		105.80
06/23/20	71608	tes002	Testing Services, Inc.	4650-101-000	Project Operations-General	150.00	
06/23/20	71609	tim002	Timesaver Off-Site Secretarial, Inc.	4365-101-000	Committee/Board Meeting Expense	219.00	
06/23/20	71610	tro002	Cathy Troendle	4370-101-000	Educational Program-General	200.00	
06/23/20	71611	usb002	U.S. Bancorp			2,436.68	
				4320-101-000	Office Supplies-General		34.50
				4320-101-000	Office Supplies-General		33.47
				4325-101-000	IT/Website/Software		92.92
				4320-101-000	Office Supplies-General		60.00
				4670-101-000	Natural Resources Project-General		100.00
				4350-101-000	Training & Education-General		(17.55)
				4350-101-000	Training & Education-General		(17.55)
				4320-101-000	Office Supplies-General		102.84
				4320-101-000	Office Supplies-General		519.00
				4371-101-000	Communications & Marketing		899.64
				4371-101-000	Communications & Marketing		144.00
				4371-101-000	Communications & Marketing		109.99
				4371-101-000	Communications & Marketing		45.00
				4320-101-000	Office Supplies-General		336.00
				4371-101-000	Communications & Marketing		(5.58)
06/23/20	71612	van001	Vanguard Cleaning Systems of Minnesota	4343-101-000	Bldg./Site Maintenance	550.00	
06/23/20	71613	van003	Erika Van Krevelen	4020-101-000	Employee Expenses-General	494.50	
06/23/20	71614	att002	AT&T Mobility			80.45	
				4325-101-000	IT/Website/Software		37.23
				4530-101-000	Water QM Staff-General		43.22
06/23/20	71615	lea001	League of MN Cities Trust W/C	4480-101-000	Insurance-General	8,641.00	
06/23/20	71616	ncp001	NCPERS Group Life Ins.	4040-101-000	Employee Benefits-General	16.00	
<b>Accounts Payable Total:</b>						<b>5539,274.26</b>	

**Ramsey Washington Metro Watershed Dist.**  
**Cash Disbursements Journal**  
**For the Period From June 1, 2020 - June 30, 2020**

<b>Date</b>	<b>Check #</b>	<b>Vendor ID</b>	<b>Name</b>	<b>Account ID</b>	<b>Account Description</b>	<b>Amount</b>	<b>Check Detail</b>
EFT	05/01/20	myp001	Payroll Fees	4110-101-000	May 1st Payroll Fees	72.95	
EFT	05/15/20	myp001	Payroll Fees	4110-101-000	May 15th Payroll Fees	72.95	
EFT	05/29/20	myp001	Payroll Fees	4110-101-000	May 29th Payroll Fees	76.85	
Dir.Dep.	06/12/20	---	Payroll Expense-Net	4010-101-000	June 12th Payroll	29,923.53	
EFT	06/12/20	int002	Internal Revenue Service	2001-101-000	June 12th Federal Withholding	10,197.28	
EFT	06/12/20	mnd001	MN Revenue	2003-101-000	June 12th State Withholding	1,852.98	
EFT	06/12/20	per001	PERA	2011-101-000	June 12th PERA	5,919.30	
EFT	06/12/20	emp002	Empower Retirement	2016-101-000	Employee Def.Comp. Contributions	3,029.00	
EFT	06/12/20	emp002	Empower Retirement	2018-101-000	Employee IRA Contributions	425.00	
Dir.Dep.	06/26/20	---	Payroll Expense-Net	4010-101-000	June 26th Payroll	30,135.67	
EFT	06/26/20	int002	Internal Revenue Service	2001-101-000	June 26th Federal Withholding	10,285.79	
EFT	06/26/20	mnd001	MN Revenue	2003-101-000	June 26th State Withholding	1,864.91	
EFT	06/26/20	per001	PERA	2011-101-000	June 26th PERA	6,005.61	
EFT	06/26/20	emp002	Empower Retirement	2016-101-000	Employee Def.Comp. Contributions	3,404.00	
EFT	06/26/20	emp002	Empower Retirement	2018-101-000	Employee IRA Contributions	425.00	
						<b><u>\$103,690.82</u></b>	
<b>Payroll/Benefits</b>						<b><u>\$642,965.08</u></b>	
<b>TOTAL:</b>							



**Summary of Professional Engineering Services During the Period  
May 16, 2020 through June 12, 2020**

	Total Engineering Budget (2020)	Total Fees to Date (2020)	Budget Balance (2020)	Fees During Period	District Accounting Code	Plan Implementation Task Number
<b>Engineering Administration</b>						
General Engineering Administration	\$76,000.00	\$34,298.90	\$41,701.10	\$4,206.50	4121-101	DW-13
RWMWD Health and Safety/ERTK Program	\$2,000.00	\$850.00	\$1,150.00	\$850.00	4697-101	DW-13
Educational Program/Educational Forum Assistance	\$20,000.00	\$1,109.50	\$18,890.50		4129-101	DW-11
<b>Engineering Review</b>						
Engineering Review	\$55,000.00	\$20,992.00	\$34,008.00	\$6,613.50	4123-101	DW-13
<b>Project Feasibility Studies</b>						
Interim emergency response plan funds for top priority District flooding areas	\$45,000.00	\$154.00	\$44,846.00		4129-101	DW-19
Beltline Resiliency and Phalen Chain Water Level Management Study	\$217,000.00	\$169,654.00	\$47,346.00		4129-101	BELT-3
FEMA Flood Mapping Update	\$109,720.00	\$50,923.50	\$58,796.50	\$300.00	4129-101	DW-9
Modeling of 500-year event Atlas 14 District-wide (Climate Change Scenario) and Generation of Flood Maps for Future Outreach Efforts	\$70,000.00	\$47,182.00	\$22,818.00		4129-101	DW-9
Hillcrest Golf Course (multi-use)	\$25,000.00	\$6,398.00	\$18,602.00		4129-101	DW-6
Gold BRT planning	\$20,000.00	\$0.00	\$20,000.00		4129-101	DW-6
Owasso Basin by-pass pipeline feasibility study/prelim design (Atlas 14 #1 priority area)	\$125,000.00	\$22,414.83	\$102,585.17	\$16,577.00	4129-101	GC-3, BELT-3
Window Creek flood damage reduction feasibility study (Atlas 14 - #2 priority flooding area)	\$50,000.00	\$1,808.50	\$48,191.50	\$604.00	4129-101	DW-9, BELT-3
Ames Lake area flood damage reduction feasibility study (Atlas 14 #3 priority area)	\$50,000.00	\$1,572.00	\$48,428.00	\$367.50	4129-101	DW-9, BELT-3
West Vadnais Lake to South of I-694 Conveyance Feasibility Study	\$35,000.00	\$32,312.23	\$2,687.77	\$12,393.00	4129-101	DW-9, BELT-3
Battle Creek PFAS (monitoring, source ID, meetings, communications)	\$25,000.00	\$1,150.00	\$23,850.00		4129-101	DW-10
694/494/94 WQ treatment feasibility study	\$30,000.00	\$0.00	\$30,000.00		4129-101	BCL-3
Subwatershed feasibility studies for At-Risk creeks (Fish Creek and Gervais Creek)	\$40,000.00	\$4,459.50	\$35,540.50	\$2,659.50	4129-101	DW-1, DW-2
Battle Creek Lower Ravine Restoration Feasibility Study	\$25,000.00	\$0.00	\$25,000.00		4129-101	BC-3
Wetland Restoration Site Search	\$25,000.00	\$29,059.60	-\$4,059.60		4129-101	DW-8
Contingency*	\$25,000.00	\$0.00	\$25,000.00		4129-101	
<b>GIS Maintenance</b>						
GIS Maintenance	\$5,000.00	\$0.00	\$5,000.00		4170-101	DW-13
<b>Monitoring Water Quality/Project Monitoring</b>						
Lake Water Quality Monitoring (Misc QA/QC)	\$10,000.00	\$0.00	\$10,000.00		4520-101	DW-2
Special Project BMP Monitoring and annual report development	\$25,000.00	\$7,666.50	\$17,333.50	\$2,739.00	4520-101	DW-12
Auto lake monitoring system for Grass Lake	\$20,000.00	\$20,620.11	-\$620.11	\$272.50	4520-101	DW-18
Auto lake monitoring system for Owasso Lake	\$20,000.00	\$21,659.93	-\$1,659.93	\$5,056.95	4520-101	DW-18
Auto lake monitoring system for Phalen Lake	\$20,000.00	\$18,891.28	\$1,108.72	\$689.00	4520-101	DW-18
Auto lake monitoring system for Snail Lake	\$20,000.00	\$19,889.49	\$110.51	\$522.50	4520-101	DW-18
Auto lake monitoring system for Wabasso Lake	\$20,000.00	\$17,728.40	\$2,271.60	\$70.00	4520-101	DW-18
<b>Permit Processing, Inspection and Enforcement</b>						
Permit Application Inspection and Enforcement	\$10,000.00	\$0.00	\$10,000.00		4122-101	DW-7
Permit Application Review	\$55,000.00	\$26,430.50	\$28,569.50	\$2,091.00	4124-101	DW-7
<b>Lake Studies/WRPPs/TMDL Reports</b>						
2020 Grant Applications	\$20,000.00	\$133.00	\$19,867.00		4661-101	DW-13
Tanners Flood Response Tool Model Update	\$3,000.00	\$1,512.00	\$1,488.00	\$9.50	4661-101	TaL-1
Internal load management - Sediment cores and macrophyte surveys for Wakefield, Bennett, Kohlman Lake, Round Lake (LC), Beaver Lake, Battle Creek Lake, Lake Owasso, Lake Emily, Twin Lake	\$50,000.00	\$12,527.50	\$37,472.50	\$8,472.50	4661-101	KL-2, GC-2, WL-3, BL-3, BCL-2, LE-4, Bel-3, LO-5, LE-4
Wakefield Lake internal load modeling (sediment and curlyleaf)	\$30,000.00	\$2,377.00	\$27,623.00	\$240.00	4661-101	WL-3, WL-4
WMP Updates - Including Implementation Plan Updates	\$10,000.00	\$1,247.50	\$8,752.50		4661-101	DW-13
Prioritization of water quality projects from subwatershed feasibility studies	\$15,000.00	\$3,734.85	\$11,265.15	\$567.00	4661-101	DW-13
Contingency for Lake Studies	\$25,000.00	\$0.00	\$25,000.00		4661-101	
<b>Research Projects</b>						
New Technology Mini Case Studies (average 6 per year)	\$12,000.00	\$262.50	\$11,737.50		4695-101	DW-12
Kohlman Permeable Weir Test System - Implement Monitoring Plan	\$15,000.00	\$2,264.00	\$12,736.00	\$850.00	4695-101	DW-12
Phalen Chain of Lakes Changes in Water Quality	\$5,000.00	\$4,080.00	\$920.00		4695-101	DW-12
<b>Project Operations</b>						
2020 Tanners Alum Facility Monitoring	\$15,000.00	\$11,464.15	\$3,535.85	\$7,648.74	4650-101	TaL-3
Beltline Outlet and Keller Channel Operations Plans	\$30,000.00	\$0.00	\$30,000.00		4650-101	DW-9, BELT-3
<b>Capital Improvements</b>						
Target and Motel 6	\$289,400.00	\$259,748.99	\$29,651.01	\$42,782.50	4128-518	DW-6
Owasso County Park Stormwater Master Plan and Detailed Design: Phase 1 and Phase 2	\$20,000.00	\$734.00	\$19,266.00	\$524.00	4128-518	DW-6
Aldrich Arena (soils and plantings)	\$25,000.00	\$9,581.03	\$15,418.97	\$1,374.00	4128-518	DW-6, WL-1
Wakefield Park/Frost Avenue Stormwater Project	\$17,500.00	\$15,297.27	\$2,202.73	\$2,253.63	4128-553	DW-6, WL-1
Commercial Sites Retrofit Projects 2020 (Targeted Retrofits) - Target/Motel 6/Boys club	\$45,000.00	\$7,359.50	\$37,640.50	\$110.00	4128-518	DW-6
School Sites Retrofit Projects 2020 (Targeted Retrofits)	\$45,000.00	\$4,182.50	\$40,817.50		4128-518	DW-6
Church Sites Retrofit Projects 2020 (Targeted Retrofit)	\$45,000.00	\$5,958.00	\$39,042.00	\$902.00	4128-518	DW-6
BMP Incentive Fund: Gen'l BMP Design Assistance and Review (cases where Dist is approached by landowner, or landowner is not commercial, school, church).	\$75,000.00	\$18,601.61	\$56,398.39	\$1,599.00	4682-529	DW-6
Lowering West Vadnais Lake Outlet	\$50,000.00	\$46,294.45	\$3,705.55	\$2,661.00	4128-520	DW-9
Wetland Restoration (Cottage Place or other)	\$100,000.00	\$0.00	\$100,000.00		4128-529	DW-1, DW-8
Keller Channel Weir & Phalen Outlet Resiliency Modifications	\$250,000.00	\$22,805.00	\$227,195.00	\$9,637.50	4128-520	DW-9, BELT-3
Twin Lake Outlet Easement Acquisition, Permitting, Construction Plans	\$65,000.00	\$61,986.23	\$3,013.77	\$2,189.30	4128-520	DW-9
West Vadnais Lake Emergency Overflow - Twin Lake By-Pass (permanent structures)	\$30,000.00	\$0.00	\$30,000.00		4128-520	DW-9
<b>CIP Project Repair &amp; Maintenance</b>						
Routine CIP Inspection and Unplanned Maintenance Identification	\$75,000.00	\$11,063.37	\$63,936.63	\$5,560.37	4128-516	DW-5
Beltline 5-year Inspection	\$100,000.00	\$44,998.70	\$55,001.30	\$1,169.00	4128-516	BELT-2
2020 CIP Maintenance and Repairs	\$150,000.00	\$65,194.23	\$84,805.77	\$5,053.50	4128-516	DW-5
2021 CIP Maintenance and Repairs (planning, bidding, and project setup)	\$30,000.00	\$0.00	\$30,000.00		4128-516	DW-5

TOTAL PAYABLE FOR PERIOD 5/16/20 - 6/12/20

\$149,615.49

Barr declares under the penalties of Law that this Account, Claim, or Demand is just and that no part has been paid.

Bradley J. Lindaman, Vice President

**Maplewood Mall Raingarden Improvements  
Progress Payment Number 2 - FINAL**

1.0	Total Completed Through This Period:	<u>\$77,467.30</u>	
2.0	Total Completed Previously Completed:		<u>\$51,258.10</u>
3.0	Total Completed This Period:		<u>\$26,209.20</u>
4.0	Amount Previously Retained:	<u>\$0.00</u>	
5.0	Amount Retained This Period (See Note 1):		<u>\$0.00</u>
6.0	Total Amount Retained	<u>\$0.00</u>	
7.0	Retainage Released Through This Period:		<u>\$0.00</u>
8.0	Total Retainage Remaining:	<u>\$0.00</u>	
9.0	Amounts Previously Paid:	<u>\$0.00</u>	
10.0	Amount Due This Estimate:		<u><u>\$26,209.20</u></u>

SUBMITTED BY:

Name: Mike Collins Date: 6-2-2020  
 Title: Sr. Sales Executive  
 Contractor: Cutting Edge Property Maintenance  
 Signature: 

RECOMMENDED BY:

Name: Brad Lindaman Date: 6/16/2020  
 Title: District Engineer  
 Engineer: Barr Engineering Company  
 Signature: 

APPROVED BY:

Name: Marj Ebensteiner Date: \_\_\_\_\_  
 Title: President  
 Owner: Ramsey-Washington Metro Watershed District  
 Signature: \_\_\_\_\_

**Maplewood Mall Raingarden Improvements  
Ramsey-Washington Metro Watershed District  
Summary of Work Completed Through June 16, 2020 for Progress Payment Number 2**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
1.04.A	Site Clearing, Preparation and Demolition	LS	1	12,750.00	12,750.00	1	\$12,750.00	1	\$12,750.00	0	\$0.00
1.04.B	Filtration Soil, 12" Depth (P)	CY	220	61.90	13,618.00	220	\$13,618.00	220	\$13,618.00	0	\$0.00
1.04.C	Mechanically Loosen Subgrade Soil	LS	1	5,150.00	5,150.00	1	\$5,150.00	1	\$5,150.00	0	\$0.00
1.04.D	Sand Trench Material (P)	CY	73	37.00	2,701.00	73	\$2,701.00	73	\$2,701.00	0	\$0.00
1.04.E	Topsoil, 12" Depth (P)	CY	51	58.00	2,958.00	51	\$2,958.00	51	\$2,958.00	0	\$0.00
1.04.F	Erosion and Sedimentation Control	LS	1	5,150.00	5,150.00	1	\$5,150.00	1	\$5,150.00	0	\$0.00
1.04.G	Herbaceous Plants	LS	1	23,806.00	23,806.00	1	\$23,806.00	0	\$0.00	1	\$23,806.00
1.04.H	Shredded Hardwood Mulch, 3" Depth (P)	CY	57	75.10	4,280.70	57	\$4,280.70	25	\$1,877.50	32	\$2,403.20
1.04.I	4" CPEP Slotted Drain Tile	LF	181	3.87	700.47	180	\$696.60	180	\$696.60	0	\$0.00
<b>Total of Extensions =</b>						<b>\$ 71,114.17</b>	<b>\$71,110.30</b>	<b>\$44,901.10</b>	<b>\$26,209.20</b>		
<b>Change Orders</b>											
C.O.1A	Extra Work: Repl. PVC pipe and fittings, jet clean underdrain systems	LS	1	6,357.00	6,357.00	1	\$6,357.00	1	\$6,357.00	0	\$0.00
<b>GRAND TOTALS</b>						<b>\$77,467.30</b>	<b>\$51,258.10</b>	<b>\$26,209.20</b>			

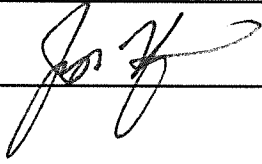
**Capital Improvement Project Maintenance/Repairs 2020  
Progress Payment Number 3**

1.0	Total Completed Through This Period:	<u>\$834,355.10</u>	
2.0	Total Completed Previously Completed:		<u>\$677,120.10</u>
3.0	Total Completed This Period:		<u>\$157,235.00</u>
4.0	Amount Previously Retained:	<u>\$33,856.01</u>	
5.0	Amount Retained This Period (See Note 1):		<u>\$7,861.75</u>
6.0	Total Amount Retained (See Note 2):	<u>\$41,717.76</u>	
7.0	Retainage Released Through This Period:		<u>\$0.00</u>
8.0	Total Retainage Remaining:	<u>\$41,717.76</u>	
9.0	Amounts Previously Paid:	<u>\$643,264.09</u>	
10.0	Amount Due This Estimate:		<u><u>\$149,373.25</u></u>

Note 1: Retainage shall be 5 percent of the value of the Work completed.

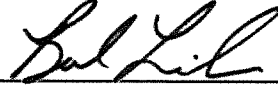
SUBMITTED BY:

Name: Jason Fitzgerald Date: 6-23-2020  
 Title: President  
 Contractor: Fitzgerald Excavating & Trucking, Inc.

Signature: 

RECOMMENDED BY:

Name: Brad Lindaman Date: June 23, 2020  
 Title: District Engineer  
 Engineer: Barr Engineering Company

Signature: 

APPROVED BY:

Name: Marj Ebensteiner Date: \_\_\_\_\_  
 Title: President  
 Owner: Ramsey-Washington Metro Watershed District

Signature: \_\_\_\_\_

**Capital Improvement Project Maintenance/Repairs 2020**  
**Ramsey-Washington Metro Watershed District**  
**Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>General</b>											
1.04.A	Mobilization/Demobilization	L.S.	1	65,000.00	65,000.00	0.90	\$58,500.00	0.87	\$56,550.00	0.03	\$1,950.00
1.04.B	Control of Water	L.S.	1	10,000.00	10,000.00	0.90	\$9,000.00	0.87	\$8,700.00	0.03	\$300.00
1.04.C	Traffic Control	L.S.	1	15,000.00	15,000.00	1.00	\$15,000.00	0.87	\$13,050.00	0.13	\$1,950.00
<b>Site 1 – Tamarack Swamp, Woodbury (PFS Basins Cleaning/Sweeping &amp; Barrier Wall Repair)</b>											
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	60	2.00	120.00	60	\$120.00	60	\$120.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	100	28.00	2,800.00	100	\$2,800.00	100	\$2,800.00	0	\$0.00
1.04.H	Paver Sweeping (1,400 S.Y.)	S.Y.	1,400	3.00	4,200.00	1,400	\$4,200.00	1,400	\$4,200.00	0	\$0.00
1.04.I	Remove Existing 1 ½" to 2" Filter Rock from Existing Rock Filter	L.S.	1	3,000.00	3,000.00	1	\$3,000.00	1	\$3,000.00	0	\$0.00
1.04.J	Clear Washed Filter Rock	TON	10	60.00	600.00	10	\$600.00	10	\$600.00	0	\$0.00
1.04.K	Replace Timber (12' X 6" X 2")	EACH	30	90.00	2,700.00	30	\$2,700.00	30	\$2,700.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	100	4.00	400.00	100	\$400.00	100	\$400.00	0	\$0.00
<b>Site 2 – 5th Street Wetland, Oakdale (Wetland Weir Maintenance)</b>											
1.04.L	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	65	30.00	1,950.00	130	\$3,900.00	65	\$1,950.00	65	\$1,950.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
<b>Site 3 – Tanners Wetland, Oakdale (Wetland Weir Maintenance &amp; Timber Replacement)</b>											
1.04.L	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	580	30.00	17,400.00	580	\$17,400.00	580	\$17,400.00	0	\$0.00
1.04.K	Replace Timbers (1 – 4" X 4" and 1 – 12" X 12")	EACH	2	90.00	180.00	2	\$180.00	2	\$180.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
<b>Site 4 – Gervais Mill Park, Little Canada (Mill Pond Filter Maintenance)</b>											
1.04.N	Install Flotation Silt Curtain	L.F.	45	25.00	1,125.00	45	\$1,125.00	45	\$1,125.00	0	\$0.00
1.04.I	Remove Existing 1 ½" to 2" Filter Rock from Existing Rock Filter	L.S.	1	8,000.00	8,000.00	1	\$8,000.00	1	\$8,000.00	0	\$0.00
1.04.J	Clear Washed Filter Rock	TON	50	60.00	3,000.00	50	\$3,000.00	50	\$3,000.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	400	4.00	1,600.00	390	\$1,560.00	390	\$1,560.00	0	\$0.00
<b>Site 5 – Lower Afton Road, Maplewood (Drainageway Sediment Removal)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.P	Temporary Rock Filter Dike	TON	10	60.00	600.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	140	38.00	5,320.00	69	\$2,622.00	69	\$2,622.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	300	\$1,200.00	300	\$1,200.00	0	\$0.00



**Capital Improvement Project Maintenance/Repairs 2020**  
**Ramsey-Washington Metro Watershed District**  
**Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>Site 6 – West Vadnais Lake, Vadnais Heights (Erosion Repair)</b>											
1.04.O	Construction Entrance	EACH	2	2,000.00	4,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.Q	Composite Mud Mats Protection (Double Layer)	SY	1,120	18.00	20,160.00	1,120	\$20,160.00	1,120	\$20,160.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	900	4.00	3,600.00	800	\$3,200.00	800	\$3,200.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	40,000.00	40,000.00	1	\$40,000.00	1	\$40,000.00	0	\$0.00
1.04.S	Erosion Repair	L.F.	300	20.00	6,000.00	300	\$6,000.00	300	\$6,000.00	0	\$0.00
1.04.T	MN/DOT Common Borrow	C.Y.	100	12.00	1,200.00	100	\$1,200.00	100	\$1,200.00	0	\$0.00
1.04.U	Topsoil Borrow	C.Y.	60	12.00	720.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.F	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	4,000	2.95	11,800.00	3,898	\$11,499.10	3,898	\$11,499.10	0	\$0.00
<b>Site 7 – Casey Lake, North St. Paul (Sediment Removal)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.M	Silt Fence	L.F.	75	2.00	150.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.N	Flotation Silt Curtain	L.F.	300	25.00	7,500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	250	2.00	500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	2	100.00	200.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	4,000.00	4,000.00	1	\$4,000.00	1	\$4,000.00	0	\$0.00
1.04.W	Boat Ramp	L.S.	1	12,000.00	12,000.00	1	\$12,000.00	1	\$12,000.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	600	38.00	22,800.00	643	\$24,434.00	643	\$24,434.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.F	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	200	4.00	800.00	270	\$1,080.00	0	\$0.00	270	\$1,080.00
<b>Site 8 – McKnight Ponds, Maplewood (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	150	2.00	300.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	4	100.00	400.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.D	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (Unregulated MPCA SRV Level 1 Material) (P)	C.Y.	640	28.00	17,920.00	640	\$17,920.00	640	\$17,920.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	5,600	29.00	162,400.00	5,820	\$168,780.00	5,820	\$168,780.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	28	60.00	1,680.00	28	\$1,680.00	28	\$1,680.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	200	4.00	800.00	200	\$800.00	200	\$800.00	0	\$0.00
<b>Site 9 – Maryland Pond, Maplewood (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	250	2.00	500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	2	100.00	200.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	3,500.00	3,500.00	1	\$3,500.00	1	\$3,500.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	3,500	32.00	112,000.00	3,550	\$113,600.00	3,550	\$113,600.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	14	\$840.00	14	\$840.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00	564	\$2,256.00	564	\$2,256.00	0	\$0.00

**Capital Improvement Project Maintenance/Repairs 2020**  
**Ramsey-Washington Metro Watershed District**  
**Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>Site 10 – Tudor Pond, Shoreview (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	200	2.00	400.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	3	100.00	300.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	4,000.00	4,000.00	1	\$4,000.00	1	\$4,000.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	680	38.00	25,840.00	722	\$27,436.00	722	\$27,436.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	14	\$840.00	14	\$840.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00	325	\$1,300.00	325	\$1,300.00	0	\$0.00
<b>Site 11 – Reiland Pond, Shoreview (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	150	2.00	300.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	4	100.00	400.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	1,240	38.00	47,120.00	1,544	\$58,672.00	1,544	\$58,672.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	14	\$840.00	14	\$840.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00	851	\$3,404.00	851	\$3,404.00	0	\$0.00
<b>Site 12 – Sextant Pond, Little Canada (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	150	2.00	300.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	4	100.00	400.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	2,000.00	2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	80	38.00	3,040.00	119	\$4,522.00	119	\$4,522.00	0	\$0.00
1.04.X	MN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	14	\$840.00	14	\$840.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00	60	\$240.00	60	\$240.00	0	\$0.00
					<b>Total of Extensions =</b>	<b>\$689,745.00</b>	<b>\$684,350.10</b>	<b>\$677,120.10</b>	<b>\$7,230.00</b>		

**CHANGE ORDERS**

<b>Change Order 2.A.</b>	<b>Twin Lake By-Pass Items</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
C.0.2A1	Lake Emergency Overflow Structure	LS	1	\$ 19,500.00	19,500.00	1	\$19,500.00	0	\$0.00	1	\$19,500.00
C.0.2A2	Crossing Twin Lake Boulevard	LS	1	\$ 5,500.00	5,500.00	1	\$5,500.00	0	\$0.00	1	\$5,500.00
					<b>Total of Extensions 2A =</b>	<b>\$ 25,000.00</b>					
<b>Change Order 2.B.</b>	<b>West Vadnais Overflow Swale</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
	Lake Emergency Overflow Riprap and Vegetated Swale	LS	1	\$ 21,610.00	21,610.00	1	\$21,610.00	0	\$0.00	1	\$21,610.00
					<b>Total of Extensions 2B =</b>	<b>\$ 21,610.00</b>					

**Capital Improvement Project Maintenance/Repairs 2020  
Ramsey-Washington Metro Watershed District  
Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>Change Order 2.C.</b>	<b>West Vadnais Outlet Lowering</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Extension</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>	<b>Quantity</b>	<b>Amount</b>
C.O.2C1	Site Clearing, Preparation, and Demolition	LS	1	\$ 8,500.00	8,500.00	1	\$8,500.00	0	\$0.00	1	\$8,500.00
C.O.2C2	Control of Water	LS	1	\$ 2,000.00	2,000.00	1	\$2,000.00	0	\$0.00	1	\$2,000.00
C.O.2C3	Traffic Control	LS	1	\$ 3,500.00	3,500.00	1	\$3,500.00	0	\$0.00	1	\$3,500.00
C.O.2C4	<del>Composite Mud Mats Protection (Double Layer)</del>	<del>SY</del>	<del>300</del>	<del>\$ 18.00</del>	<del>5,400.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>
C.O.2C5	<del>Construction Entrance</del>	<del>EACH</del>	<del>4</del>	<del>\$ 2,000.00</del>	<del>2,000.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>
C.O.2C6	<del>Silt Fence</del>	<del>LF</del>	<del>318</del>	<del>\$ 2.00</del>	<del>636.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>
C.O.2C7	<del>Sediment Logs (9" inch Diameter)</del>	<del>LF</del>	<del>124</del>	<del>\$ 4.00</del>	<del>496.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>
C.O.2C8	Inlet Protection	EACH	1	\$ 100.00	100.00	1	\$100.00	0	\$0.00	1	\$100.00
C.O.2C9	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	1,000	\$ 50.00	50,000.00	700	\$35,000.00	0	\$0.00	700	\$35,000.00
C.O.2C10	Remove and Salvage 24" RCP Flared End Section and Trash Guard	EACH	1	\$ 800.00	800.00	1	\$800.00	0	\$0.00	1	\$800.00
C.O.2C11	Saw Cut Bituminous Pavement	LF	30	\$ 4.00	120.00	66	\$264.00	0	\$0.00	66	\$264.00
C.O.2C12	Remove Bituminous Pavement	SY	285	\$ 6.00	1,710.00	378	\$2,268.00	0	\$0.00	378	\$2,268.00
C.O.2C13	Remove and Dispose of 15" RCP Storm Sewer Pipe	LF	189	\$ 15.00	2,835.00	189	\$2,835.00	0	\$0.00	189	\$2,835.00
C.O.2C14	Connect to Existing Storm Sewer Manhole	EACH	1	\$ 2,500.00	2,500.00	1	\$2,500.00	0	\$0.00	1	\$2,500.00
C.O.2C15	24" RCP CL 3	LF	189	\$ 90.00	17,010.00	189	\$17,010.00	0	\$0.00	189	\$17,010.00
C.O.2C16	Replace Salvaged 24" RCP Flared End Section and Trash Guard	EACH	1	\$ 1,500.00	1,500.00	1	\$1,500.00	0	\$0.00	1	\$1,500.00
C.O.2C17	60" Dia. R.C. Weir Gate Manhole Including Concrete Weir, Weir Gate and Mounting Frame, Installation of Weir Gate, and Casting Assemblies	LS	1	\$ 20,000.00	20,000.00	0.5	\$10,000.00	0.0	\$0.00	0.5	\$10,000.00
C.O.2C18	<del>Steel Sheet Piling</del>	<del>SF</del>	<del>0</del>	<del>\$ 29.00</del>	<del>63,800.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>	<del>0</del>	<del>\$0.00</del>
C.O.2C19	Replace Class 5 Aggregate Road Base	CY	65	\$ 38.00	2,470.00	78	\$2,964.00	0	\$0.00	78	\$2,964.00
C.O.2C20	Replace Bituminous Pavement Includes; Base Course, Tack Coat, and Wearing Course	TON	93	\$ 110.00	10,230.00	90	\$9,900.00	0	\$0.00	90	\$9,900.00
C.O.2C21	Import Top Soil	CY	32	\$ 10.00	320.00	19	\$190.00	0	\$0.00	19	\$190.00
C.O.2C22	Site Restoration (Seeding and Erosion Control Blanket)	SY	340	\$ 4.00	1,360.00	1,016	\$4,064.00	0	\$0.00	1016	\$4,064.00
<b>Total of Extensions 2C =</b>					<b>\$ 197,287.00</b>						

**GRAND TOTALS      \$933,642.00      \$834,355.10      \$677,120.10      \$157,235.00**

**COMPLETE**   
**PARTIAL**   
**NOT USED**

## Stewardship Grant Application Summary

**Project Name:** Donahue

**Application Number:** 20-29 CS

**Board Meeting Date:** 7/1/2020

**Applicant Name:** Jake Donahue

**Residential**

**Commercial/Government**

### Project Overview:

This project is located on the east side of Lake Owasso in the City of Shoreview. The applicant has over 70 feet of shoreline at the bottom of a large hill that they plan to restore with native plants to help prevent erosion on their shoreline. The applicant is hoping to encourage neighboring property owners to move forward with native restoration projects in the future.

This project is eligible for 100% funding up to \$15,000.

### BMP type(s):

Shoreline Restoration(1)

### Grant Request:

\$13,000.00

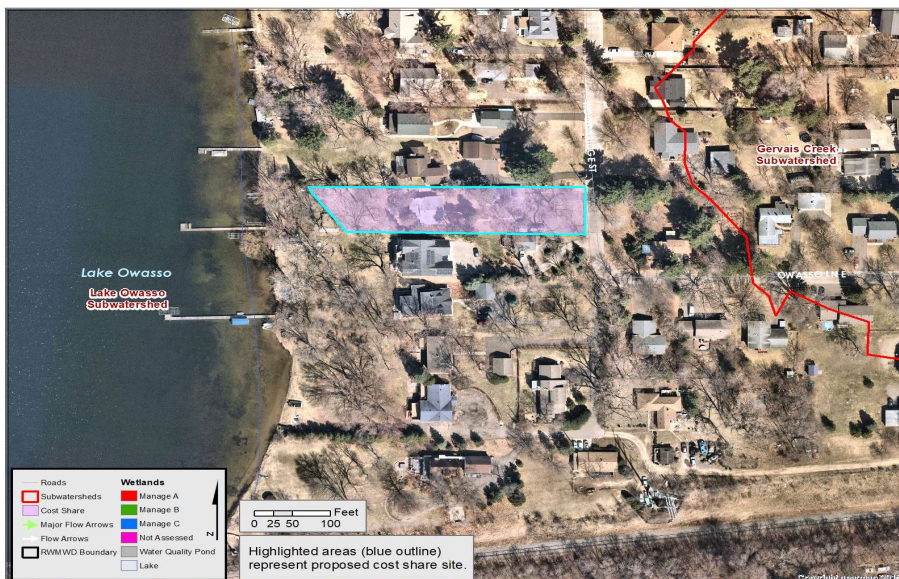
### Recommendation:

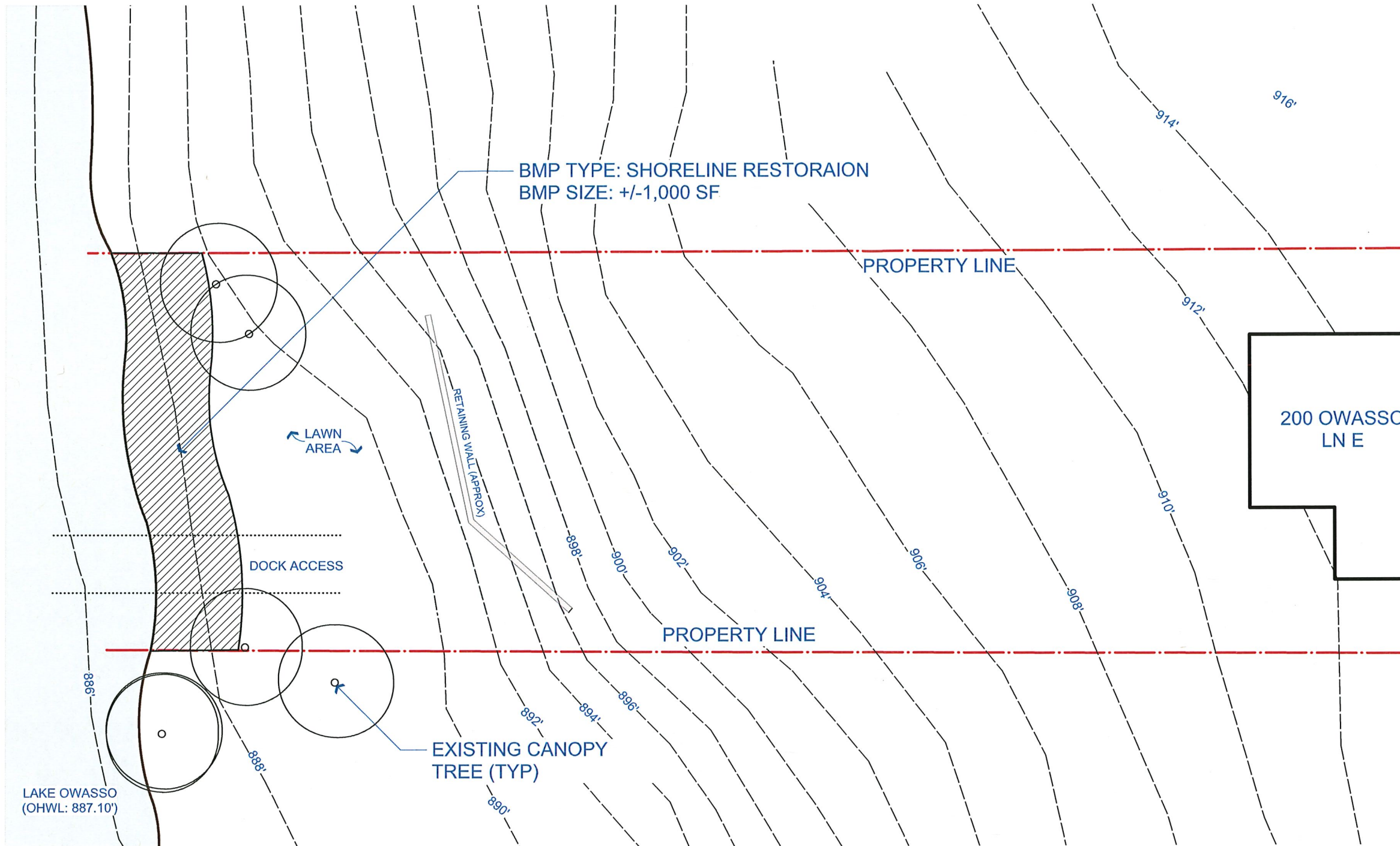
Staff recommends approval of this application.

### Subwatershed:

Lake Owasso

### Location Maps:





# Stewardship Grant Application Summary

**Project Name:** Jones

**Application Number:** 20-30 CS

**Board Meeting Date:** 7/1/2020

**Applicant Name:** Bob Jones

**Residential**

**Commercial/Government**

## Project Overview:

This project is located on the east side of Oehrline Pond in the City of Maplewood. The applicant is looking to improve their buffer by removing stray vines, trees, and weeds and replacing with native vegetation. Their goals are to remove invasive species, increase pollinator habitat, and improve water quality on their pond.

This project is eligible for 50% coverage up to \$15,000.

## BMP type(s):

Native Habitat Restoration(1)

## Grant Request:

\$0.00

## Recommendation:

Staff recommends approval of this application.

## Subwatershed:

Keller Lake

## Location Maps:



# Consent Agenda Action Item

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**Board Meeting Date:** July 1, 2020

**Agenda Item No:** 3D

**Preparer:** Tina Carstens, Administrator

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**Item Description:** Change Order No. 2 for the 2020 CIP Maintenance & Repair Project

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**Background:**

Attached is change order number 2 for the 2020 CIP Maintenance and Repair Project. This change order is for additional work we asked Fitzgerald to complete for the District including the West Vadnais Lake (WVL) Twin Lake bypass and overflow swale, WVL outlet lowering. See the attached change order request for more information.

The total change order is for \$243,897.

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**Applicable District Goal and Action Item:**

**Goal: Manage risk of flooding:** The District will reduce the public's risk to life and property from flooding through programs and projects that protect public safety and economic well-being.

**Action Items:** Maintain District flood storage facilities and storm sewer systems.

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**Staff Recommendation:**

Approve Change Order No. 2.

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**Financial Implications:**

This request increases the contract price by \$243,897. There are sufficient funds in the flood damage reduction fund for this increase.

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**Board Action Requested:**

Approve Change Order No. 2.

CONTRACTOR'S AFFIDAVIT AND AGREEMENT TO HOLD HARMLESS

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

STATE OF MINNESOTA )
) ss.
COUNTY OF Ramsey )

Jason Fitzgerald of Fitzgerald Excavating & Trucking, being first duly sworn deposes and says as follows:

- (1) That he/she is the Contractor for the project known as Capital Improvement Project Maintenance/Repairs 2020; and
(2) That all previous progress payments received for of the work performed pursuant to the contract have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment; and
(3) That all charges and costs for labor performed, material furnished and fixtures installed on said project have been fully paid; and
(4) That said project is free and clear of all lienable claims whatsoever arising under and by virtue of said construction, and affiant agrees to hold Ramsey-Washington Metro Watershed District free from any and all loss, costs, damage and expense of every kind, including attorney's fees, which it shall or may suffer pursuant to the Contract, arising, directly or indirectly, out of or on account of any such mechanic's or materialmen's liens; and
(5) That no chattel mortgages, conditional sale contracts, security agreements, financing statements, retention of title agreements, or personal property leases have been given or are now outstanding as to any materials, fixtures, or equipment placed upon or installed in or upon the aforesaid project.
(6) That construction for payment application Number 3 was completed on June 16, 2020.

This Affidavit is given to induce Ramsey-Washington Metro Watershed District to make and satisfy said payment application.

NOTE: When the general contractor is a corporation, the name and signature of the affiant should be that of an officer of the corporation, preferably the President.

Fitzgerald Excavating & Trucking Inc
By [Signature]
Its president

Said person hereby swears under oath that he/she has the authority to bind said corporation.



**Change Order No. 2**  
**Ramsey-Washington Metro Watershed District**  
**Capital Improvement Project Maintenance/Repair 2020**

**DATE OF ISSUANCE:** June 23, 2020

**Owner:** Ramsey-Washington Metro Watershed District  
2665 Noel Drive  
Little Canada, MN 55117  
Attn: Marj Ebensteiner

**Contractor:** Fitzgerald Excavating & Trucking, Inc.  
21432 350<sup>th</sup> St.  
Goodhue, MN 55027  
Attn: Jason Fitzgerald

**Engineer:** Barr Engineering Company  
4300 MarketPointe Drive, Suite 200  
Minneapolis, MN 55435  
Attn: Brad Lindaman

**C.O.2.A      Twin Lake By-Pass**

Description of Change:

In an effort to more effectively divert the occasional overflows from West Vadnais Lake around Twin Lake, an overflow collection catch basin structure was installed adjacent to an existing culvert leading to Twin Lake. The overflow structure has a sump where a pump intake pipeline can be installed when by-pass pumping is needed. The by-pass work also included the installation of a conduit in Twin Lake Boulevard to allow the by-pass discharge pipeline to be installed under the roadway to the discharge manhole. The work is located on St. Paul Regional Water Services property, adjacent to the 5 Star Mobile Estates in Vadnais Heights, MN.

The contractor completed the work, in good faith, last winter under the direction of the engineer and owner's representative. The work was complete the work as specified in accordance with the provided drawings and specifications.

Measurement and Payment:

The contractor will be paid a unit lump sum (L.S.) price to complete all work as specified. This unit price shall be payment in full for the costs of all supervision, materials, equipment, labor, supplies profit and overhead, and perform all operations as are necessary to complete the work.

Change in Contract Time:

None

Total Impact on Contract Price:

\$25,000.00

(Attachment C.O.2.A)

**C.O.2.B West Vadnais Overflow Swale**

Description of Change:

To control the occasional overflows from West Vadnais Lake to the Twin Lake By-Pass Manhole (C.O.2A.), an armored emergency overflow swale was constructed to guide the overflows to the by-pass manhole. This work was located along the south east shore of the West Vadnais Lake, across St. Paul Regional Water Services property immediately west of 5 Star Mobile Estates.

The contractor completed the work, in good faith, last winter under the direction of the engineer and owner's representative. The work was complete the work as specified in accordance with the provided drawings and specifications.

Measurement and Payment:

The contractor shall be paid on a time and materials basis used to determine a unit lump sum (L.S.) price to complete all work as specified. This unit price shall be payment in full for the costs of all supervision, materials, equipment, labor, supplies profit and overhead, and perform all operations as are necessary to complete the work. The work is detailed in attachment labeled "C.O.2.B – Worksheet for time and materials for West Vadnais Overflow Swale"

Change in Contract Time:

None

Total Impact on Contract Price:

\$21,610.00

(Attachment C.O.2.B)

**C.O.2.C West Vadnais Outlet Lowering**

Description of Change:

This work involved replacement of the existing outlet pipe from the south end of West Vadnais Lake to the MnDot manhole south of Twin Lake Boulevard. The new pipe was installed at a lower elevation to provide more flood storage in West Vadnais Lake. The new lower pipe includes a water level control structure that includes an adjustable weir gate to better manage surface water levels given upstream and downstream conditions.

In addition to removal of the old pipe and furnishing and installing the new pipe and structure, muck excavation upstream of the outlet was conducted. The muck excavation was necessary to facilitate free flow of water in the lake down to the new outlet elevation over time. This work was located along the south shore of the West Vadnais Lake on St. Paul Regional Water Services property and on MnDot property, within the cities of Vadnais Heights and Little Canada, MN.

The contractor completed the work, in good faith, under the direction of the engineer and owner's representative. The work was complete the work as specified in accordance with the provided drawings and specifications.

Measurement and Payment:

The contractor will be paid on a unit price basis per the bid form details shown in attachment C.O.2.C. Each unit price shall be payment in full for the costs of all supervision, materials, equipment, labor, supplies profit and overhead, and perform all operations as are necessary to complete the work.

Change in Contract Time:

This work results in an extension of the contract time. The extension is to accommodate the fabrication, shipment and installation of the adjustable weir gate. All other work is complete.

The substantial completion date of June 26, 2020 shall be revised to July 24, 2020.


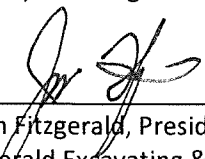
In accordance with Article 8, Section 8.04, work shall be complete and ready for final payment in accordance with paragraph 14.06 of the General Conditions not later than one (1) calendar week after the date for the Substantial Completion of the Work in accordance with the paragraph 8.03.

Total Impact on Contract Price:

\$197,287.00

(Attachment C.O.2.C)

This Change Order No. 2 is:

Submitted By: (ENGINEER)	 _____ Bradley J. Lindaman, Project Engineer Barr Engineering Company	Date: <u>June 23, 2020</u>
Authorized By: (OWNER)	_____ Marj Ebensteiner, President Ramsey-Washington Metro Watershed District	Date: _____
Approved By: (CONTRACTOR)	 _____ Jason Fitzgerald, President Fitzgerald Excavating & Trucking, Inc.	Date: <u>6-23-2020</u>

C.O.2.A

Greg Nelson

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**From:** Brad Lindaman  
**Sent:** Tuesday, April 21, 2020 7:48 AM  
**To:** Deborah A. Burt  
**Subject:** to go along with previous email just sent...

Actually Deb There are just two items for the Twin Lake by-pass

Item C.0.2A1 – Lake Emergency Overflow Structure	L.S.	1	\$19,500
Item C.0.2A2 – Crossing Twin Lake Boulevard	L.S.	1	\$5,500

Greg Nelson will be getting the details of C.0.2B soon...

\$25,000.00

Thank you

Brad

Brad Lindaman, PE

Vice President  
Senior Water Resources Engineer  
Barr Engineering Co.  
4300 MarketPointe Drive, Suite 200  
Minneapolis, MN 55435

office: 952.832.2808  
toll-free: 800.632.2277  
cell: 612.385.5693

blindaman@barr.com  
www.barr.com

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If you no longer wish to receive marketing e-mails from Barr, respond to communications@barr.com and we will be happy to honor your request.

C.O. 2.B

Worksheet for Time and Materials for West Vadnais Overflow Swale

Labor	\$150/HR	\$90/HR	
	Foreman	Laborer	Man
Date	Hours	Hours	Hours
4/16/2020	9	9	18
4/17/2020	11	22	33
4/20/2020	12	24	36
	\$4,800.00	\$4,950.00	
			<b>Total Labor \$9,750.00</b>

Materials	Unit	Quantity	Unit Price	Extension
Ground Protective Mat Rental	SY	190	\$18.00	\$3,420.00
Riprap Class II w/ Geotextile Filter	TON	87	\$60.00	\$5,220.00
2" Clear Washed Rock	TON	35	\$60.00	\$2,100.00
C125BN Erosion Control Blanket	SY	300	\$2.00	\$600.00
S75BN Erosion Control Blanket	SY	400	\$1.30	\$520.00
			<b>Total Materials</b>	<b>\$11,860.00</b>
			<b>Total Labor and Materials</b>	<b><u>\$21,610.00</u></b>

Labor hours includes:

- Mobilization, Profit, Overhead and Equipment
- Excavation and Grading of 145-CY of in place soil
- Placement and Pick up of Ground Protection Mats
- Installation of imported Materials

C.O. 2.C

J. This Bid has not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any Bond furnished with the Bid, and will not be communicated to any such person prior to the opening of the Bid.

ARTICLE 4

4.01 Bidder will complete the Work for the following price(s).

A. BID ITEMS

Item	Description	Unit	Estimated Quantity	Unit Price	Extension
1.04.A	Site Clearing, Preparation and Demolition	LS	1	8,500 <sup>00</sup>	8,500 <sup>00</sup>
1.04 B	Control of Water	LS	1	2,000 <sup>00</sup>	2,000 <sup>00</sup>
1.04 C	Traffic Control	LS	1	3,500 <sup>00</sup>	3,500 <sup>00</sup>
1.04 D	Composite Mud Mats Protection (Double Layer)	SY	300	18.00	5,400 <sup>00</sup>
1.04 E	Construction Entrance	EACH	1	2,000.00	2,000 <sup>00</sup>
1.04 F	Silt Fence	LF	318	2.00	636 <sup>00</sup>
1.04 G	Sediment Logs (9"-inch Diameter)	LF	124	4 <sup>00</sup>	496 <sup>00</sup>
1.04 H	Inlet Protection	EACH	1	100.00	100 <sup>00</sup>
1.04 I	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	1,000	50 <sup>00</sup>	50,000 <sup>00</sup>
1.04.J	Remove and Salvage 24" RCP Flared End Section and Trash Guard	EACH	1	800 <sup>00</sup>	800 <sup>00</sup>
1.04.K	Saw Cut Bituminous Pavement	LF	30	4 <sup>00</sup>	120 <sup>00</sup>
1.04.L	Remove Bituminous Pavement	SY	285	6 <sup>00</sup>	1,710 <sup>00</sup>
1.04.M	Remove and Dispose of 15" RCP Storm Sewer Pipe	LF	189	15 <sup>00</sup>	2,835 <sup>00</sup>
1.04.N	Connect to Existing Storm Sewer Manhole	EACH	1	2,500 <sup>00</sup>	2,500 <sup>00</sup>
1.04 O	24" RCP CL 3	LF	189	90 <sup>00</sup>	17,010 <sup>00</sup>
1.04 P	Replace Salvaged 24" RCP Flared End Section and Trash Guard	EACH	1	1,500 <sup>00</sup>	1,500 <sup>00</sup>
1.04 Q	60" Dia. R.C. Weir Gate Manhole Including Concrete Weir, Weir Gate and Mounting Frame, Installation of Weir Gate, and Casting Assemblies	LS	1	20,000 <sup>00</sup>	20,000 <sup>00</sup>
1.04 R	Steel Sheet Piling	SF	2200	29 <sup>00</sup>	63,800 <sup>00</sup>
1.04 S	Replace Class 5 Aggregate Road Base	CY	65	38 <sup>00</sup>	2,470 <sup>00</sup>
1.04 T	Replace Bituminous Pavement Includes; Base Course, Tack Coat, and Wearing Course	TON	93	110 <sup>00</sup>	10,230 <sup>00</sup>
1.04 U	Import Top Soil	CY	32	10 <sup>00</sup>	320 <sup>00</sup>
1.04.V	Site Restoration (Seeding and Erosion Control Blanket)	SY	340	4.00	1,360 <sup>00</sup>
<b>TOTAL BASE BID =</b>					<b>197,287<sup>00</sup></b>

(in words) ONE HUNDRED NINETY SEVEN THOUSAND Dollars (\$ 197,287<sup>00</sup>)  
TWO HUNDRED EIGHTY SEVEN DOLLARS + NO/100

FITZGERALD EXCAVATING + TRUCKING INC.



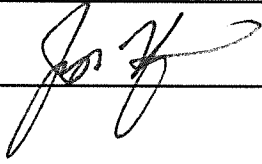
**Capital Improvement Project Maintenance/Repairs 2020  
Progress Payment Number 3**

1.0	Total Completed Through This Period:	<u>\$834,355.10</u>	
2.0	Total Completed Previously Completed:		<u>\$677,120.10</u>
3.0	Total Completed This Period:		<u>\$157,235.00</u>
4.0	Amount Previously Retained:	<u>\$33,856.01</u>	
5.0	Amount Retained This Period (See Note 1):		<u>\$7,861.75</u>
6.0	Total Amount Retained (See Note 2):	<u>\$41,717.76</u>	
7.0	Retainage Released Through This Period:		<u>\$0.00</u>
8.0	Total Retainage Remaining:	<u>\$41,717.76</u>	
9.0	Amounts Previously Paid:	<u>\$643,264.09</u>	
10.0	Amount Due This Estimate:		<u><u>\$149,373.25</u></u>

Note 1: Retainage shall be 5 percent of the value of the Work completed.

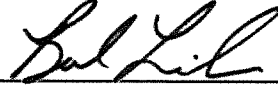
SUBMITTED BY:

Name: Jason Fitzgerald Date: 6-23-2020  
 Title: President  
 Contractor: Fitzgerald Excavating & Trucking, Inc.

Signature: 

RECOMMENDED BY:

Name: Brad Lindaman Date: June 23, 2020  
 Title: District Engineer  
 Engineer: Barr Engineering Company

Signature: 

APPROVED BY:

Name: Marj Ebensteiner Date: \_\_\_\_\_  
 Title: President  
 Owner: Ramsey-Washington Metro Watershed District

Signature: \_\_\_\_\_

**Capital Improvement Project Maintenance/Repairs 2020**  
**Ramsey-Washington Metro Watershed District**  
**Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>General</b>											
1.04.A	Mobilization/Demobilization	L.S.	1	65,000.00	65,000.00	0.90	\$58,500.00	0.87	\$56,550.00	0.03	\$1,950.00
1.04.B	Control of Water	L.S.	1	10,000.00	10,000.00	0.90	\$9,000.00	0.87	\$8,700.00	0.03	\$300.00
1.04.C	Traffic Control	L.S.	1	15,000.00	15,000.00	1.00	\$15,000.00	0.87	\$13,050.00	0.13	\$1,950.00
<b>Site 1 – Tamarack Swamp, Woodbury (PFS Basins Cleaning/Sweeping &amp; Barrier Wall Repair)</b>											
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	60	2.00	120.00	60	\$120.00	60	\$120.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	100	28.00	2,800.00	100	\$2,800.00	100	\$2,800.00	0	\$0.00
1.04.H	Paver Sweeping (1,400 S.Y.)	S.Y.	1,400	3.00	4,200.00	1,400	\$4,200.00	1,400	\$4,200.00	0	\$0.00
1.04.I	Remove Existing 1 1/2" to 2" Filter Rock from Existing Rock Filter	L.S.	1	3,000.00	3,000.00	1	\$3,000.00	1	\$3,000.00	0	\$0.00
1.04.J	Clear Washed Filter Rock	TON	10	60.00	600.00	10	\$600.00	10	\$600.00	0	\$0.00
1.04.K	Replace Timber (12' X 6" X 2")	EACH	30	90.00	2,700.00	30	\$2,700.00	30	\$2,700.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	100	4.00	400.00	100	\$400.00	100	\$400.00	0	\$0.00
<b>Site 2 – 5th Street Wetland, Oakdale (Wetland Weir Maintenance)</b>											
1.04.L	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	65	30.00	1,950.00	65	\$1,950.00	65	\$1,950.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
<b>Site 3 – Tanners Wetland, Oakdale (Wetland Weir Maintenance &amp; Timber Replacement)</b>											
1.04.L	Permeable Weir Maintenance (Reopening Drainage Slots and Remove all Brush and Debris)	L.F.	580	30.00	17,400.00	580	\$17,400.00	580	\$17,400.00	0	\$0.00
1.04.K	Replace Timbers (1 – 4" X 4" and 1 – 12" X 12")	EACH	2	90.00	180.00	2	\$180.00	2	\$180.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
<b>Site 4 – Gervais Mill Park, Little Canada (Mill Pond Filter Maintenance)</b>											
1.04.N	Install Flotation Silt Curtain	L.F.	45	25.00	1,125.00	45	\$1,125.00	45	\$1,125.00	0	\$0.00
1.04.I	Remove Existing 1 1/2" to 2" Filter Rock from Existing Rock Filter	L.S.	1	8,000.00	8,000.00	1	\$8,000.00	1	\$8,000.00	0	\$0.00
1.04.J	Clear Washed Filter Rock	TON	50	60.00	3,000.00	50	\$3,000.00	50	\$3,000.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	400	4.00	1,600.00	390	\$1,560.00	390	\$1,560.00	0	\$0.00
<b>Site 5 – Lower Alton Road, Maplewood (Drainage Sediment Removal)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.P	Temporary Rock Filter Dike	TON	10	60.00	600.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	140	38.00	5,320.00	69	\$2,622.00	69	\$2,622.00	0	\$0.00
1.04.F	Site Restoration (Seeding and Erosion Control Blanket)	S.Y.	210	4.00	840.00	300	\$1,200.00	300	\$1,200.00	0	\$0.00



**Capital Improvement Project Maintenance/Repairs 2020  
Ramsey-Washington Metro Watershed District  
Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price	Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
						Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>Site 6 – West Vadnais Lake, Vadnais Heights (Erosion Repair)</b>											
1.04.O	Construction Entrance	EACH	2	2,000.00	4,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.Q	Composite Mud Mats Protection (Double Layer)	SY	1,120	18.00	20,160.00	1,120	\$20,160.00	1,120	\$20,160.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	900	4.00	3,600.00	800	\$3,200.00	800	\$3,200.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	40,000.00	40,000.00	1	\$40,000.00	1	\$40,000.00	0	\$0.00
1.04.S	Erosion Repair	L.F.	300	20.00	6,000.00	300	\$6,000.00	300	\$6,000.00	0	\$0.00
1.04.T	MIN/DOT Common Borrow	C.Y.	100	12.00	1,200.00	100	\$1,200.00	100	\$1,200.00	0	\$0.00
1.04.U	Topsoil Borrow	C.Y.	60	12.00	720.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.F	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	4,000	2.95	11,800.00	3,898	\$11,499.10	3,898	\$11,499.10	0	\$0.00
<b>Site 7 – Casey Lake, North St. Paul (Sediment Removal)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.M	Silt Fence	L.F.	75	2.00	150.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.N	Flotation Silt Curtain	L.F.	300	25.00	7,500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	250	2.00	500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	2	100.00	200.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	4,000.00	4,000.00	1	\$4,000.00	1	\$4,000.00	0	\$0.00
1.04.W	Boat Ramp	L.S.	1	12,000.00	12,000.00	1	\$12,000.00	1	\$12,000.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	600	38.00	22,800.00	643	\$24,434.00	643	\$24,434.00	0	\$0.00
1.04.X	MIN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.F	Site and Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	200	4.00	800.00	270	\$1,080.00	0	\$0.00	270	\$1,080.00
<b>Site 8 – McKnight Ponds, Maplewood (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	150	2.00	300.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	4	100.00	400.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.D	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (Unregulated MPCA SRV Level 1 Material) (P)	C.Y.	640	28.00	17,920.00	640	\$17,920.00	640	\$17,920.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	5,600	29.00	162,400.00	5,820	\$168,780.00	5,820	\$168,780.00	0	\$0.00
1.04.X	MIN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	28	60.00	1,680.00	28	\$1,680.00	28	\$1,680.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	200	4.00	800.00	200	\$800.00	200	\$800.00	0	\$0.00
<b>Site 9 – Maryland Pond, Maplewood (Pond Cleanout)</b>											
1.04.O	Construction Entrance	EACH	1	2,000.00	2,000.00	1	\$2,000.00	1	\$2,000.00	0	\$0.00
1.04.G	Sediment Log (6-Inch Diameter)	L.F.	250	2.00	500.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.V	Inlet Protection	EACH	2	100.00	200.00	0	\$0.00	0	\$0.00	0	\$0.00
1.04.R	Removal of Trees, Brush, and Debris (Disposal Off Site)	L.S.	1	3,500.00	3,500.00	1	\$3,500.00	1	\$3,500.00	0	\$0.00
1.04.E	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	3,500	32.00	112,000.00	3,550	\$113,600.00	3,550	\$113,600.00	0	\$0.00
1.04.X	MIN/DOT Class III Riprap with Type IV Geotextile Filter Fabric	TON	14	60.00	840.00	14	\$840.00	14	\$840.00	0	\$0.00
1.04.F	Site Access Restoration (Seeding and Erosion Control Blanket)	S.Y.	300	4.00	1,200.00	564	\$2,256.00	564	\$2,256.00	0	\$0.00



**Capital Improvement Project Maintenance/Repairs 2020  
Ramsey-Washington Metro Watershed District  
Summary of Work Completed Through June 16, 2020 for Progress Payment Number 3**

Item	Description	Unit	Estimated Quantity	Unit Price		Extension	(1) Total Completed Through This Period		(2) Total Completed Previous Period		(3) Total Completed This Period	
				Quantity	Price		Quantity	Amount	Quantity	Amount	Quantity	Amount
<b>Change Order 2.C.</b>	<b>West Vadnais Outlet Lowering</b>											
C.O.2C1	Site Clearing, Preparation, and Demolition	LS	1	\$ 8,500.00	8,500.00	1	\$8,500.00	0	\$0.00	1	\$8,500.00	
C.O.2C2	Control of Water	LS	1	\$ 2,000.00	2,000.00	1	\$2,000.00	0	\$0.00	1	\$2,000.00	
C.O.2C3	Traffic Control	LS	1	\$ 3,500.00	3,500.00	1	\$3,500.00	0	\$0.00	1	\$3,500.00	
C.O.2C4	Composite Mud Mats Protection (Double Layer)	SY	300	\$ 18.00	5,400.00	0	\$0.00	0	\$0.00	0	\$0.00	
C.O.2C5	Construction Entrance	EACH	4	\$ 2,000.00	8,000.00	0	\$0.00	0	\$0.00	0	\$0.00	
C.O.2C6	Silt Fence	LF	318	\$ 2.00	636.00	0	\$0.00	0	\$0.00	0	\$0.00	
C.O.2C7	Sediment Legs (9" Inlet Diameter)	LF	124	\$ 4.00	496.00	0	\$0.00	0	\$0.00	0	\$0.00	
C.O.2C8	Inlet Protection	EACH	1	\$ 100.00	100.00	1	\$100.00	0	\$0.00	1	\$100.00	
C.O.2C9	Sediment/Muck Cleanout Excavation, Loading, Hauling and Disposal of (MPCA SRV Levels 2 & 3 Material)	TON	1,000	\$ 50.00	50,000.00	700	\$35,000.00	0	\$0.00	700	\$35,000.00	
C.O.2C10	Remove and Salvage 24" RCP Flared End Section and Trash Guard	EACH	1	\$ 800.00	800.00	1	\$800.00	0	\$0.00	1	\$800.00	
C.O.2C11	Saw Cut Bituminous Pavement	LF	30	\$ 4.00	120.00	66	\$264.00	0	\$0.00	66	\$264.00	
C.O.2C12	Remove Bituminous Pavement	SY	285	\$ 6.00	1,710.00	378	\$2,268.00	0	\$0.00	378	\$2,268.00	
C.O.2C13	Remove and Dispose of 15" RCP Storm Sewer Pipe	LF	189	\$ 15.00	2,835.00	189	\$2,835.00	0	\$0.00	189	\$2,835.00	
C.O.2C14	Connect to Existing Storm Sewer Manhole	EACH	1	\$ 2,500.00	2,500.00	1	\$2,500.00	0	\$0.00	1	\$2,500.00	
C.O.2C15	24" RCP CL 3	LF	189	\$ 90.00	17,010.00	189	\$17,010.00	0	\$0.00	189	\$17,010.00	
C.O.2C16	Replace Salvaged 24" RCP Flared End Section and Trash Guard	EACH	1	\$ 1,500.00	1,500.00	1	\$1,500.00	0	\$0.00	1	\$1,500.00	
C.O.2C17	60" Dia. R.C. Weir Gate Manhole Including Concrete Weir, Weir Gate and Mounting Frame, Installation of Weir Gate, and Casting Assemblies	LS	1	\$ 20,000.00	20,000.00	0.5	\$10,000.00	0.0	\$0.00	0.5	\$10,000.00	
C.O.2C18	Steel Sheet Piling	SF	0	\$ 29.00	63,800.00	0	\$0.00	0	\$0.00	0	\$0.00	
C.O.2C19	Replace Class 5 Aggregate Road Base	CY	65	\$ 38.00	2,470.00	78	\$2,964.00	0	\$0.00	78	\$2,964.00	
C.O.2C20	Replace Bituminous Pavement Includes; Base Course, Tack Coat, and Wearing Course	TON	93	\$ 110.00	10,230.00	90	\$9,900.00	0	\$0.00	90	\$9,900.00	
C.O.2C21	Import Top Soil	CY	32	\$ 10.00	320.00	19	\$190.00	0	\$0.00	19	\$190.00	
C.O.2C22	Site Restoration (Seeding and Erosion Control Blanket)	SY	340	\$ 4.00	1,360.00	1,016	\$4,064.00	0	\$0.00	1,016	\$4,064.00	
<b>Total of Extensions 2C =</b>				<b>\$</b>	<b>197,287.00</b>							
<b>GRAND TOTALS</b>					<b>\$933,642.00</b>		<b>\$834,355.10</b>		<b>\$677,120.10</b>		<b>\$157,235.00</b>	

COMPLETE	
PARTIAL	
NOT USED	0

\* \* \* \* \*

# Permit Program

\* \* \* \* \*



## MEMORANDUM

**Date:** July 1, 2020  
**To:** RWMWD Board of Managers  
**From:** Nicole Soderholm, Permit Coordinator  
**Subject:** Single Lot Residential Permit Adjustments

Staff have seen an increase in projects triggering District Rule D for floodplain alteration. Many proposed projects have come from lakeshore owners responding to changes to their shoreline as a result of high water levels.

Permitting staff have been asked to look at possible permit processing adjustments that could be made to better accommodate these single-lot residential project requests.

The existing rules prohibit floodplain fill without compensatory storage. While a change in the regulation is not proposed, staff would like the Board to consider the following implementation adjustments and associated conditions in order to streamline permit processing where appropriate.

Implementation Proposed:

- Reduce the non-refundable permit processing fee of \$500 to \$175 per estimated consultant and staff review time.
- For projects greater than 1,000 square feet below the floodplain, staff suggestion is to keep the escrow fee as-is. (Example: 1,000 square feet equates to 0.02 acre, resulting in a \$40 escrow fee). This has not been cost-prohibitive to homeowners who have gone through the District's permitting process in the past.
- Allow for staff to approve permit applications that meet District requirements, eliminating the need for homeowners to wait for the next monthly board meeting date or submittal deadline.
- Work with cities to eliminate permitting redundancy. If a project stays above the floodplain elevation and would not otherwise trigger a District permit, RWMWD would defer permitting for erosion and sediment control to cities.
- Provide assistance to homeowners in estimating the 100-year flood level on their properties using LIDAR and modeling information. This would eliminate the need for a professional survey for some (but not all) projects.
- Work with communications staff to Implement changes to the permit section of the District's website to: facilitate a separate permit application form better suited to residential projects, provide guidance specifically for single-lot residential projects including Frequently Asked Questions, improve user access and encourage a self-guided application process to reduce staff time in explaining permit requirements.

Conditions:

- This is to be considered a trial. If the process does not achieve the anticipated outcomes, the District may resume regular permit process procedures for all projects triggering District rules, regardless of size or project type.
- Deferment of erosion and sediment control permitting to cities for projects greater than 1,000 square feet and above the floodplain requires agreement and participation by the city in question.
- Project must result in less than 1 acre of soil disturbance.
- Project must be located on a single residential parcel.
- For staff approval, project must meet District rules and not require a variance.
- For staff approval, project must not result in wetland impacts.

**Requested Board Action:**

Approve the adjusted implementation plan and conditions as outlined for single-lot residential projects triggering a District permit.



# RAMSEY-WASHINGTON

## METRO WATERSHED DISTRICT

### MEMORANDUM

**Date:** July 1, 2020  
**To:** Board of Managers and Staff  
**From:** Nicole Soderholm, Permit Coordinator  
Mary Fitzgerald, District Inspector  
**Subject:** June Enforcement Action Report

During June 2020:

<b>Number of Violations:</b>	<b>8</b>
Install/Maintain Inlet Protection	1
Contain Liquid/Solid Wastes	2
Remove Discharged Sediment	1
Implement Proper Dewatering	2
Install/Maintain Energy Dissipation	2

#### Activities:

Permitting assistance to private developers and public entities, miscellaneous inquiries, ongoing ESC site inspections and reporting, WCA administration and procedures, final inspections, IDDE training, enforcement, single lot residential permitting adjustments, equity initiatives meeting, pre-construction meetings, completing the 2019 MS4 Annual Report, Hillcrest project planning meeting

#### Project Updates:

#19-32 St. Paul Urban Tennis Courts

Staff attended a preconstruction meeting on June 17<sup>th</sup> with representatives from Barr Engineering, T.A. Schifsky, and St. Paul Urban Tennis. Staff will be revisiting the site the week of June 22<sup>nd</sup> to ensure all temporary erosion and sediment control BMPs are installed properly before work starts. Staff will continue to inspect the site biweekly. A reminder of the background of this project: "The District has agreed to award a grant to cover the design, installation, and two years of maintenance for a filtration basin which will treat 2.3" of runoff off the proposed impervious area. If soil conditions allow for infiltration, the drain tile will be

capped. The District considers this a pilot grant to fund a stormwater BMP that helps meet goals for equity and water quality in the neighborhood.”

#### #20-14 Central Park Pathway Maintenance (Roseville)

Staff met onsite with a contractor to conduct an initial erosion control walk-through on June 19<sup>th</sup>. The contractor explained that they will be excavating soil offsite to meet compensatory storage requirements. After this work is complete and stabilized, pathway reconstruction will begin. Staff will continue to visit the site regularly, and keep in contact with city staff members who are managing this site.

#### #19-23 Granada Access Road Maintenance (Oakdale)

An initial erosion control walk-through was conducted on June 11<sup>th</sup> by two staff members and representatives from the City of Oakdale and the hired contractor for the project. Staff walked the length of the access road and found all erosion and sediment control BMPs to be installed properly and in good condition. The contractor detailed the timeline for work to be completed onsite, which will likely span 2 weeks. Staff will revisit the site the week of June 22<sup>nd</sup> for a site walk-through.

#### #20-16 Mondello Shores (Vadnais Heights/Little Canada)

Staff attended an onsite preconstruction meeting and temporary erosion and sediment control walk-through on June 11<sup>th</sup> with several contractors and project managers. Staff observed proper silt fence installation throughout the low end of the site. Project contractors and managers detailed the work they would begin with, which includes grading for compensatory storage. Staff will continue to visit the site weekly for observations and erosion and sediment control inspections.

#### #17-22 Willow Ridge Apartments II (Vadnais Heights)

Staff conducted a routine erosion and sediment control inspection on June 4<sup>th</sup> and noted several maintenance items that needed attention, including installation of inlet protection to newly installed catch basins. Staff communicated with onsite contractors about the needed maintenance, and gave clear timelines for repair work. Staff returned to the site on June 17<sup>th</sup> and found that inlet protection was not installed as needed, leading the site to be non-compliant. Staff communicated this non-compliance to onsite contractors as well as city staff. City staff are currently in the process of inspecting the stormwater infrastructure to determine the amount of sediment that may have entered the pipes, and will require a clean-out if warranted.

### **Permits Closed in June 2020:**

19-17 Woodbury 2019 SIP (Woodbury)



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# Stewardship Grant Program

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## Stewardship Grant Program Budget Status Update

**July 1, 2020**

Homeowner	Coverage	Number of Projects	Funds Allocated
Habitat Restoration and rain garden w/o hard surface drainage	50% Cost Share \$15,000 Max	10	\$33,575
Rain garden w/hard surface drainage, pervious pavement, green roof	75% Cost Share \$15,000 Max	5	\$27,250
Master Water Steward Project	100% Cost Share \$15,000 Max	3	\$34,915
Shoreland Restoration	100% Cost Share \$15,000 Max	1	\$22,000

Commercial, School, Government, Church, Associations, etc.	Coverage	Number of Projects	Funds Allocated
Habitat Restoration	50% Cost Share \$15,000 Max	1	\$1,200
Shoreland Restoration (below 100-year flood elevation w/actively eroding banks)	100% Cost Share \$100,000 Max	1	\$200,000
Priority Area Projects	100% Cost Share \$100,000 Max	5	\$368,000
Non-Priority Area Projects	75% Cost Share \$50,000 Max	1	\$50,000
Public Art	50% Cost Share	0	\$0
Aquatic Veg Harvest/LVMP Development	50% Cost Share \$15,000 Max	1	\$7,900
Maintenance	50% Cost Share \$5,000 Max for 5 Years	33	\$27,900
Consultant Fees			\$38,200
<b>Total Allocated</b>			<b>\$810,940</b>

<b>2020 Stewardship Grant Program Budget</b>	
Budget	\$1,000,000
Total Funds Allocated	\$810,940
<b>Total Available Funds</b>	<b>\$189,060</b>

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# Action Items

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# Request for Board Action

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**Board Meeting Date:** July 1, 2020

**Agenda Item No:** 7A

**Preparer:** Tina Carstens, Administrator

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**Item Description:** East St. Paul Target Store Project Bid Award

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**Background:**

At the June 2020 meeting, the board was presented the plans and cost estimate for the East St. Paul Target Store project. The board directed staff to finalize the design and bidding documents and solicit bid proposals. The engineer's opinion of probable cost for the construction of the project was \$747,000.

The virtual public bid opening is scheduled for June 26th, and bid results will be compiled and presented to the managers at the July meeting.

If deemed appropriate, the managers should consider a motion that "awards the project to the lowest responsive and responsible bidder and direct staff to issue the notice of award and prepare the form of agreement." Assuming that the required bonds, insurance documentation, and other submittals meet contract requirements, and provided that permits and approvals are in place, the outlet will likely be constructed this summer and fall ahead of the holiday shopping season.

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**Applicable District Goal and Action Item:**

**Goal: Achieve quality surface water** – The District will maintain or improve surface water quality to support healthy ecosystems and provide the public with a wide range of water-based benefits.

**Action Item:** Implement retrofit water quality improvement projects.

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**Staff Recommendation:**

Staff recommends that the Board award the project to the lowest responsive and responsible bidder and direct staff to issue the notice of award and prepare the form of agreement.

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**Financial Implications:**

This project will be funded with Targeted Retrofit Fund dollars as well as money collected through the Stormwater Impact Fund.

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**Board Action Requested:**

Accept the bids and award the East St. Paul Target Store BMP Retrofit project to \_\_\_\_\_.  
Direct staff to prepare and mail the notice of award and prepare the agreements, and review the required submittals.

## Technical memorandum

**To:** Ramsey-Washington Metro Watershed District (RWMWD) board of managers  
**From:** Sam Redinger, Civil Engineer; Erin Anderson-Wenz, PE, Senior Water Resources Engineer; and Brad Lindaman, PE, RWMWD Engineer  
**Subject:** West Vadnais Lake south of I-694 conveyance feasibility study  
**Date:** June 24, 2020  
**Project:** 23/62-1200.20 010  
**c:** Tina Carstens, RWMWD Administrator

This technical memorandum summarizes the West Vadnais Lake conveyance south of Interstate 694 (I-694) feasibility study that Barr Engineering Co. conducted for the RWMWD. A preliminary engineering summary, project overview, and estimated costs are included. The memorandum is divided into the following sections:

- 1.0 Background
- 2.0 Study limitations
- 3.0 Desktop study
- 4.0 Design basis
- 5.0 Pipe alignment alternatives
- 6.0 Hydrologic and hydraulic analysis
- 7.0 Design
- 8.0 Opinion of probable cost
- 9.0 Summary and closing

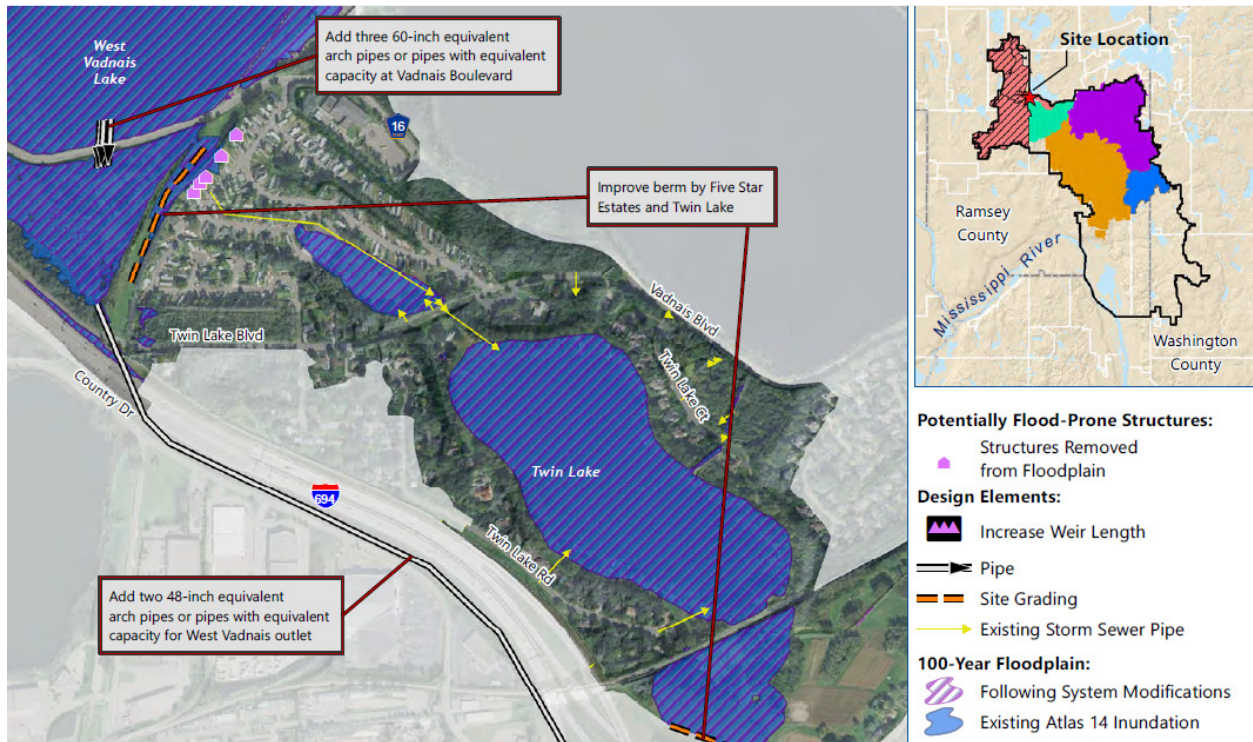
### 1.0 Background

Since 2016, the wet precipitation cycle has created sustained high water levels in Grass Lake and West Vadnais Lake. The high water levels have occasionally flooded Gramsie Road and Rice Street and have led to overflows into landlocked low areas, particularly onto the Vadnais- Snail Lake Regional Park property in Shoreview. This issue is exacerbated by the small existing 15-inch outlet at the south end of West Vadnais Lake, which limits discharge from the area through I-694 to the south.

As described in the Beltline resiliency study (Barr, 2019), RWMWD has a long history of planning and managing water resources to mitigate flood risk. The district was formed in 1975 in response to concerns about severe erosion and flooding on Battle Creek. Since then, the RWMWD has continued to work closely with the 12 cities and two counties in the watershed to identify and mitigate flood risk.

As part of previous updates to the RWMWD's stormwater model, five habitable structures were identified within the 100-year floodplain of West Vadnais Lake (Figure 1 below)(Barr, 2019). Due to recently completed and ongoing projects (e.g., berm improvement along the southeast corner of West Vadnais

Lake, lowering of the West Vadnais Lake outlet and emergency bypass pumping to divert West Vadnais Lake overflows around Twin lake), these structures have been removed from the 100-year floodplain. Increasing the discharge through I-694 without downstream improvements or particular timing constraints raises flood levels in downstream water bodies that also have adjacent homes in the flood zone, particularly Owasso basin and Gervais Lake.



**Figure 1: Feasibility study location (excerpt from the Beltline Resiliency Study)**

The goal of this feasibility study is to establish the normal water level of the West Vadnais Lake system closer to elevation 881.0 and the 100-year flood level at elevation 884.0 without increasing flood levels downstream. To understand the commitment required by the RWMWD to achieve this goal, Barr evaluated alternatives for increasing the conveyance capacity out of West Vadnais Lake, including completing a desktop study to establish existing site conditions and develop a design basis. The design basis informed the evaluation of alternative conveyance options and guided the selection of an alternative for further analysis and design to develop an opinion of probable cost (OPC) to construct.

## 2.0 Study limitations

The system modifications considered and evaluated represent an approach for effectively managing the West Vadnais Lake normal water level and 100-year flood level. However, as with any study and model of natural systems, there are limitations, including practical limits on the level of detail used to achieve the study objectives. Acknowledging study limitations is important so that the findings and recommendations

can be used with professional judgment in developing recommendations that are consistent with the intent of the study. Understanding the limitations also makes it easier for future project stages to build on the results of this study, as this project requires further site investigations, survey, and engineering design to develop construction documents.

Major assumptions for this study are listed below.

- The system modifications described herein will require permits and approvals from cities or agencies. It is possible that final permit requirements may change the configuration or function of system modifications.
- The RWMWD XP-SWMM stormwater model used in this feasibility study was developed and calibrated to district-managed lakes, creeks, and facilities. It is important to note that the models developed do not simulate all of the local storm sewer systems within the watershed. As a result, each city may identify separate, localized flooding areas that are not discussed in this report. The RWMWD should continue to work cooperatively with the cities to address localized flooding concerns and manage inflows to district water bodies.
- Datasets used for model development or information received from third parties are not always complete or free of errors. In general, the RWMWD stormwater model and existing-conditions base map of this project was developed using a combination of survey information, as-built plans, light detection and ranging (LiDAR) information, and GIS information publicly accessible and/or provided by municipalities and other public agencies within the district. As the cities and public agencies collect or provide additional information, the system modifications described herein may change.
- Barr observations, opinions, recommendations, and analysis are based on the limited information available to or obtained by us at the time of this report. We recognize that additional data and other considerations may exist but have not yet been incorporated into our considerations. As the project advances and additional information is uncovered by or made available to us, it may alter the recommendations provided herein.

### **3.0 Desktop study**

Barr conducted a desktop study of the project area to establish existing site conditions and understand existing constraints to possible pipe configurations in order to develop a design basis for a feasible pipe alignment to accomplish the study objective. This desktop study included:

1. Evaluating publicly available 2011 LiDAR information from the Minnesota Department of Natural Resources (DNR) to determine the existing topography of the project area.
2. Submitting a non-excavation Gopher State One Call (GSOC) utility locate request to identify utility conflicts in the project area that constrain possible pipe configurations or alignments.  
(Attachment B)

3. Obtaining and evaluating historical soil borings from the Minnesota Department of Transportation's (MnDOT) online database of historical soil borings to understand the geology and stratigraphy in proximity to potential pipe alignments. (Attachment F)
4. Developing an outline of project stakeholders to determine the permitting considerations of implementing a proposed larger discharge pipe, including Saint Paul Regional Water Services, BP and MnDOT.

## 4.0 Design basis

Developing a design basis to define design parameters is important for every project involving engineering design. In addition to this feasibility study objective and our understanding of the RWMWD's stormwater management preferences, the desktop study findings provided much of the information Barr used to develop the design basis for this feasibility study.

- Establish that the normal water level of West Vadnais Lake is 881.0, with a 100-year flood elevation of 884.0.
- Confirm that low-maintenance stormwater infrastructure (e.g., gravity-drain pipe) is preferred.
- Maintain the existing West Vadnais Lake 15-inch reinforced-concrete pipe (RCP) outlet to provide the district with increased flexibility in managing the lake level.
- LiDAR topographic information
  - Provided the basis for Barr to analyze the existing site conditions in order to understand possible pipe slopes, upstream/downstream pipe invert elevations, pipe cover depths, and feasible conveyance capacity of a larger discharge pipe.
  - Barr utilized the LiDAR data to confirm that existing ground elevations were adequate to provide appropriate conveyance capacity to effectively manage the West Vadnais Lake water level.
- GSOC utility locate
  - Provided the basis for Barr to identify utility conflicts in the project area. Specifically, this data was used to identify "major" conflicts that may have appreciably altered or rendered unfeasible potential pipe alignments.
  - Barr utilized the GSOC utility locate to identify two "major" utility conflicts that constrained potential pipe configurations, including two 90-inch raw water supply conduits near the West Vadnais Lake outlet and a 10-inch high-pressure gas main near the proposed discharge location. The location of these utilities limits the profile configuration (i.e., upstream and downstream pipe inverts and subsequent pipe slope) of a proposed pipe due to separation buffers.
- Historical soil boring and CPT logs
  - Provided the basis for Barr to evaluate the underlying geology and soil stratigraphy of a proposed pipe alignment, informing pipe constructability and limiting the construction methods available:

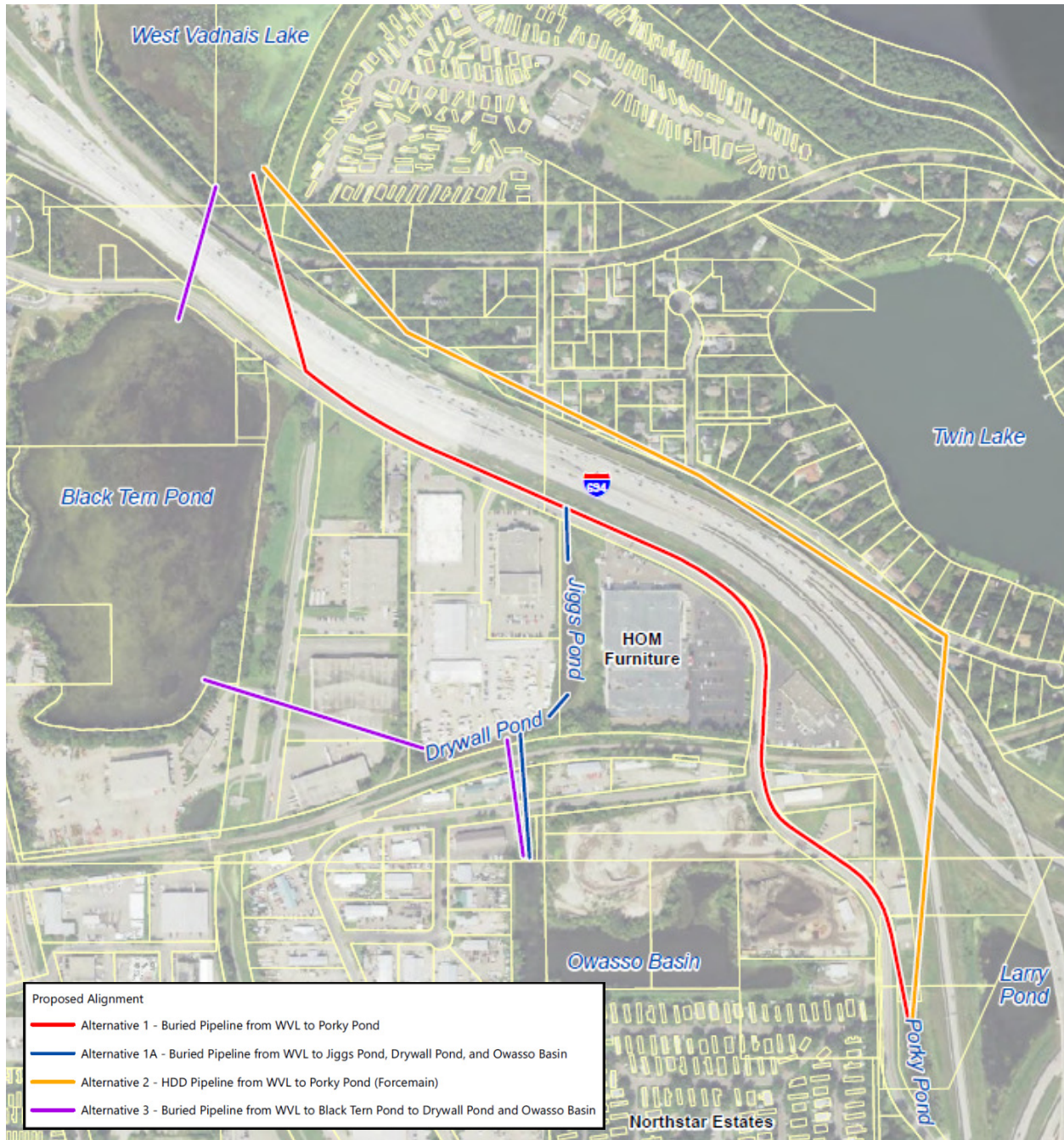


- Predominately loose/weak sandy soils, with some gravel
  - Peat and organic soil existing intermittently throughout the project area, at-depth in specific locations
  - No bedrock or clay till present
  - Possibly high groundwater table
- Project stakeholders and permitting considerations
  - MnDOT
    - Approval and/or permit is required to penetrate a proposed pipe beneath I-694
    - Approval and/or permit may be required to construct a permanent connection point to the MnDOT drainage system
  - BNSF Railway
    - Approval and/or permit is required to penetrate a proposed pipe beneath the railway
  - Minnesota DNR
    - Approval and/or permit may be required to manage the West Vadnais Lake water level
  - Vadnais Lake Area Watershed Management Organization
    - Permit may be required to manage the West Vadnais Lake water level
  - RWMWD
    - District permit is required to construct a proposed pipe
  - City of Little Canada
    - Permit is required for construction
  - City of Vadnais Heights
    - Permit is required for construction
  - Utility owners
    - Permit and/or approval may be required from utility owners impacted in a proposed pipe corridor (e.g., Xcel Energy, BP, Saint Paul Regional Water Services, MnDOT, etc.).

## 5.0 Pipe alignment alternatives

A new pipe is required to increase the conveyance capacity of West Vadnais Lake south of I-694 for many of the proposed hydraulic alternatives. The Beltline resiliency study suggested a preliminary pipe alignment from West Vadnais Lake to MnDOT's Porky Pond. This preliminary alignment crossed I-694 directly south of West Vadnais Lake, and generally follows Country Drive before discharging into Porky Pond.

A few alternatives to this preliminary pipe alignment were considered; see Figure 2. In addition, this alternatives evaluation considered possible construction methods for installing a new pipe.



**Figure 2 Pipe alignment alternatives**

Alternative alignments 1 and 2 follow a similar concept of directly routing flows from West Vadnais Lake into the proposed discharge location. Alternative alignment 3 considers routing flows to leverage existing water management infrastructure (e.g., ponds) to convey West Vadnais Lake flows south of I-694.

Owasso Basin is downstream of West Vadnais Lake, and as reported in the Beltline resiliency study, has the highest volume of habitable structures likely impacted by the 100-year flood level. Therefore, discharging directly into Owasso Basin would exacerbate pre-existing challenges, and permanently increasing flows would detrimentally impact flood storage capacity. It is important to note that Barr is currently completing another feasibility study to evaluate options for reducing inflows to the Owasso Basin area.

### **5.1 Alternative alignment 1**

Alternative alignment 1 generally follows the preliminary alignment from the Beltline resiliency study. Alternative alignment 1-A represents a temporary discharge point into MnDOT's Jiggs Pond (and subsequently Owasso Basin) and considers a phased approach to constructing alignment 1, with the pipe completed in a later phase to permanently discharge into Porky Pond. This alignment is recommended if budgeting limitations require a phased, multi-year approach to constructing a pipeline, but would include strict operating limitations, the conditions of which would need to be determined during further design stages.

### **5.2 Alternative alignment 2**

Alternative alignment 2 follows the alignment of I-694 on the north side, before moving south to cross the I-694/I-35E interchange and ultimately discharge into Porky Pond. Existing conditions along this alignment provide the straightest alignment (i.e., the least amount of pipe bends) and would be the most feasible for trenchless excavation. Construction methodology is discussed in more detail later in this section.

### **5.3 Alternative alignment 3**

Alternative alignment 3 routes flows from West Vadnais Lake into Black Tern Pond, with a new pipe constructed to route increased flows from Black Tern Pond into MnDOT's Drywall Pond and, subsequently, Owasso Basin. This alignment leverages existing stormwater management infrastructure to minimize the length of constructing a new pipeline.

### **5.4 Construction methodology**

Given the existing site and soil conditions, construction methodology options feasibly available for installing a new pipe are limited. Typical open-cut excavation and trenchless excavation (i.e., boring the pipe alignment) were considered. The pipe alignment is not constructible nor economically viable with a boring machine (TBM or micro-tunnel) due to relatively shallow cover (e.g., less than 30 feet) along the pipe alignment and predominately loose, weak sandy soils.

Horizontal directional drilling (HDD) may be a viable option for constructing a new pipeline; however, this construction methodology would require the pipe to be a force main. Loose sand and/or sandy gravel soils limit the ability to control the HDD cutter-head elevation; maintaining a consistent pipe slope is not feasible. Further, HDD methodology limits the range of potential pipe sizes, with pipe sizes greater than

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**Date:** June 24, 2020  
**Page:** 8

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36 or 48 inches uncommon and pushing the limit of the industry's capability to construct and making a proposed pipe economically unviable.

Trenchless excavation methods for pipes of larger size require straight pipe alignments due to limited to no ability to construct horizontal curves with a low radius. Construction of multiple boring pits would be necessary along a proposed pipe alignment to install a pipe from West Vadnais Lake to the proposed discharge location.

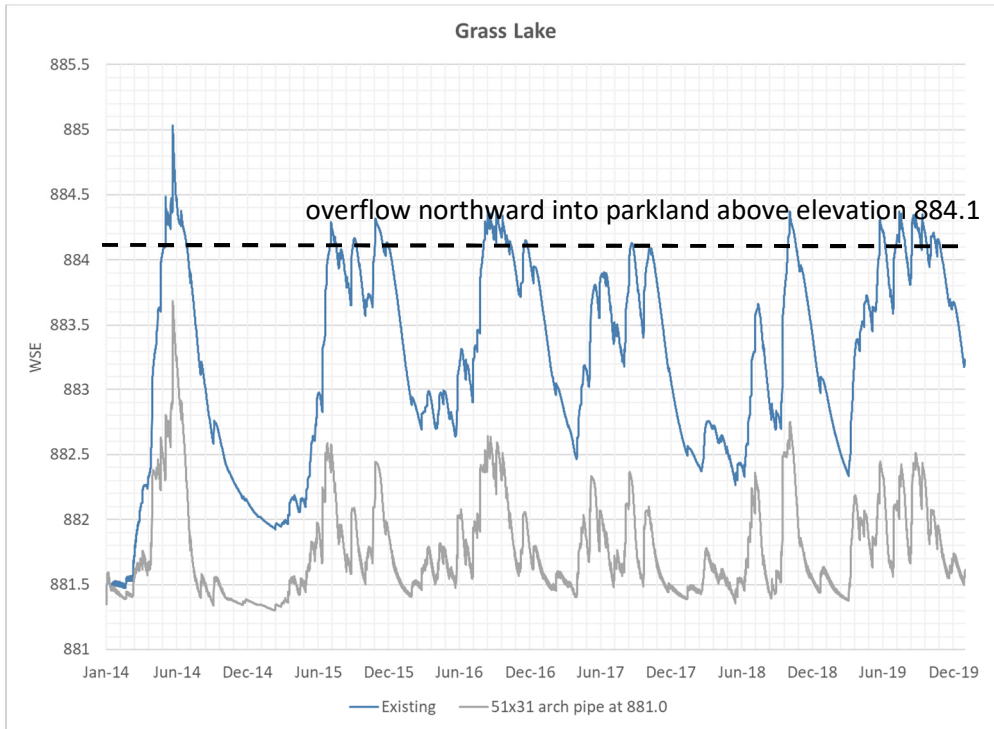
## **5.5 Selected pipe alignment**

Considering existing site conditions, the larger diameter size of a new pipe, and a preference to construct low-maintenance infrastructure (i.e., not a lift station), open-cut excavation was determined to be the most feasible methodology for installing a new pipe. Taking into account the detrimental impact of permanently increasing flows into Owasso Basin and selecting a pipe alignment within the public right of way to minimize easement and land acquisitions, alternative alignment 1 was selected for further analysis and design to develop a cost estimate.

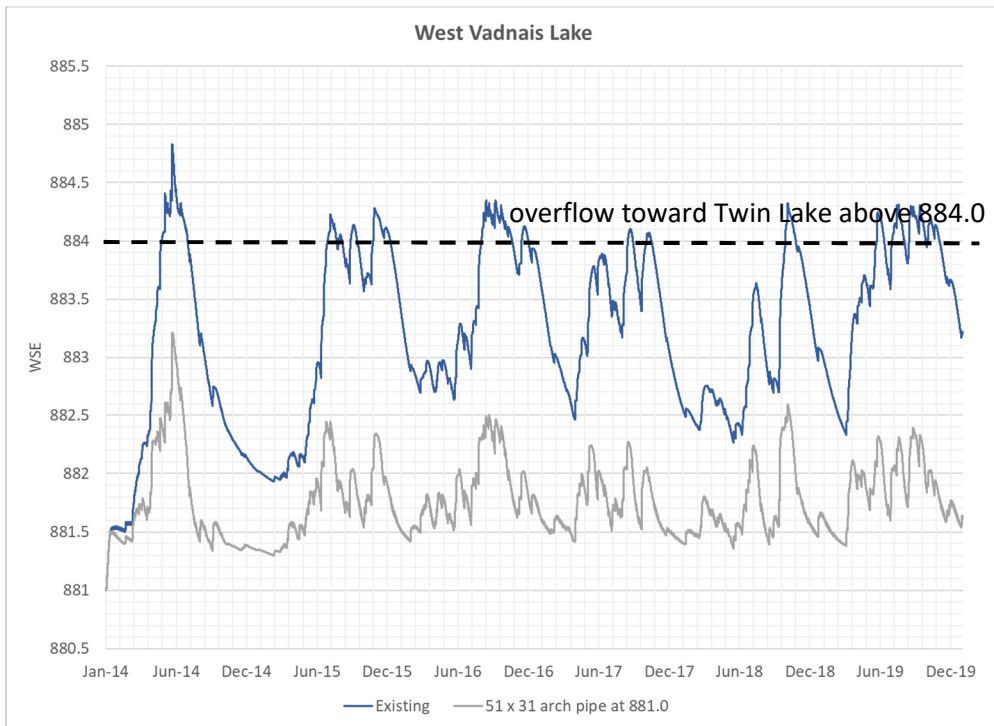
## **6.0 Hydrologic and hydraulic analysis**

The RWMWD XP-SWMM model was used to evaluate the effectiveness of a series of new West Vadnais lake outlet sizes. The model runs were done to evaluate the effect of allowing significantly more flow out of West Vadnais Lake year-round on upstream flood levels and durations if downstream levels can be controlled. It is important to note, however, that implementing this new West Vadnais Lake outlet would increase flood elevations in Gervais Lake if implemented before the Phalen Chain of Lakes' control structures are modified to pass more flow on demand.

Figures 3 and 4 show the effect of implementing an additional, larger outlet to West Vadnais Lake on the flood levels of Grass Lake and West Vadnais Lake. (Various sizes of arch pipes were evaluated, but only the most effective option's results, the 51" x 31" arch pipe, are shown below.) All scenarios shown below assume that the existing 15-inch pipe (now lowered to 881.0) remains in place.



**Figure 3: Grass Lake water surface elevations during 2014 to 2019 precipitation conditions: existing conditions vs addition of an arch pipe outlet.**



**Figure 4: West Vadnais Lake water surface elevations during 2014 to 2019 precipitation conditions: existing conditions vs addition of an arch pipe outlet.**

**Conclusion based on modeling:** Under precipitation conditions experienced from 2014 to 2019, adding a 51" x 31" arch pipe outlet to West Vadnais Lake could prevent overflows from Grass Lake northward. This additional outlet would also prevent overflows from West Vadnais Lake into Twin Lake and maintain West Vadnais Lake's water surface elevation consistently closer to 881.0.

## 7.0 Design

Alternative alignment 1 was selected for further design and preliminary drawing development. This section discusses, in more detail, the different features included in this alignment. Preliminary drawings, which provide a layout of the new pipe features, quantities, and preliminary details, were developed and are included in attachment D.

### 7.1 West Vadnais Lake outlet structure

A new West Vadnais Lake outlet structure is required to manage the lake level and route flows from the lake into the proposed pipe. The preliminary concept of this lake outlet structure includes a structure with a control system to manage (e.g., increase or decrease) the lake discharge. Further analysis is required to finalize the configuration of the outlet structure, including but not limited to considering a weir structure concept to further increase the discharge flow rate from the lake.

### 7.2 Pipe size

Existing conditions and utility conflicts were evaluated to understand the underground space available to construct a new pipe; available space will govern the feasible size of a new pipe. Considering hydraulic capacity requirements, existing ground conditions, and utility conflicts, Barr determined that enough underground space exists to accommodate a pipe size of up to 60 inches (5 feet) in diameter. We acknowledge that a pipe up to this size may not be required given current hydrologic conditions upstream. However, installing a larger pipe now will give the RWMWD flexibility in managing future stormwater runoff, and possibly save future funds. The preliminary drawings and associated cost estimate assume a 60-inch pipe size, which represents the upper end of the spectrum. The RWMWD is able to decrease the pipe size and, subsequently, the capital cost, if necessary.

The initial segment of the proposed pipe, from the West Vadnais Lake outlet structure to the beginning of the I-694 crossing, was selected to be an arched pipe. Arch pipe, relative to circular pipe, provides increased hydraulic conveyance capacity under low-flow or low-head conditions. Providing an arch outlet pipe from West Vadnais Lake reduces the drawdown time of managing the lake level. A 60-inch circular pipe was selected for the remainder of the pipe alignment.

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**Date:** June 24, 2020  
**Page:** 11

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### **7.3 Pipe construction**

As described in section 5.0 above, open-cut excavation was determined to be the most efficient method of installing a new pipe. However, the pipe alignment crosses an active interstate highway (I-694) and an active railway (owned by BSNF and operated by Minnesota Commercial), making open-cut excavation infeasible. The section of the pipe alignment penetrating these features will be installed by pipe jacking (a trenchless excavation method).

Pipe jacking involves construction of an entry/boring pit and an exit/receiving pit for the necessary equipment to jack the pipe horizontally. A casing piping is installed (jacked) first, with the carrier pipe then installed through the casing pipe. Steel was selected as the casing pipe material, with a diameter of 84 inches to provide a 1-foot clear space around the carrier pipe.

The surface extents of an open-cut excavation increase as the depth of the pipe increases. After the proposed pipe alignment crosses I-694 and turns east to generally follow Country Drive, it parallels I-694 for approximately 2,000 feet. During this section, the excavation limits of the proposed pipe are in close proximity to I-694. A temporary bearing wall is likely required between the pipe alignment and the roadway to provide temporary ground support and to protect the integrity of I-694 as the excavation is completed and the pipe installed. Sheet piling was selected as the support material for this temporary bearing wall, with an assumed depth of two times the depth of the pipe invert.

### **7.4 Utility conflicts**

Roughly 5,800 lineal feet of utility conflicts were identified along the proposed pipe alignment as needing removal and replacement or relocation, including both perpendicular and parallel conflicts. All of the identified utilities are provided in the preliminary design drawings (attachment D). In general, utility conflicts were determined to be primarily near-surface storm and sanitary sewers, local water supply mains, communication lines, and consumer utility lines (e.g., building gas/power service). These conflicts, while many, did not appreciably affect the proposed pipe alignment or profile.

Utility owners varied from local municipalities (e.g., City of Little Canada) to private entities (e.g., Century Link). Extensive coordination with these utility owners will be required in a future phase of the project to further understand the limitations the respective conflicts may have on the project scope, as well as temporary management of these impacted utilities during construction.

Two major utility conflicts identified along the proposed pipe alignment, as briefly described in section 4.0, include two 90-inch raw water supply conduits owned and operated by Saint Paul Regional Water Services, and a 10-inch high-pressure gas main owned and operated by BP. Both of these utilities are buried at-depth, and the proposed pipe would cross above.

Correspondence with Saint Paul Regional Water Services indicated that a minimum vertical separation of 3 feet is required for all proposed utilities. However, with additional engineering controls in place, a

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**Page:** 12

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minimum of 16 inches of vertical separation would be considered. The currently proposed pipe alignment and profile provide a vertical separation of approximately 4.6 feet and 4.3 feet, respectively, between the 90-inch conduits and the proposed pipe.

Barr held a virtual meeting with BP right-of-way representatives to discuss the preliminary alignment and profile of the proposed pipe relative to BP's existing gas main, and to discuss any exceptions or limitations BP may have regarding a new stormwater pipe crossing over its gas line. BP confirmed that the proposed crossing would require a variance from BP before a permit would be issued, but indicated that the variance would likely be approved. Minimum vertical separation requirements were specified as 2 feet. At the current location of the crossing, BP indicated that it holds a private blanket easement, providing BP with additional rights to the areas around its existing gas main. BP confirmed that prior to a construction permit being issued, a formal agreement between the RWMWD and BP would be required. The currently proposed pipe alignment and profile provide a vertical separation of approximately 3.1 feet between the 10-inch high-pressure gas main and the proposed pipe.

## **8.0 Opinion of probable cost**

The OPC is reported as a range, reflecting the level of uncertainty, unknowns, and risk associated with the level of design completed. It includes costs for construction, planning engineering and design, permitting and regulatory approvals, construction management, and contingency. The OPC does not include any allowance for encountering impacted soils or groundwater along the pipe alignment (excluded from OPC due to limited site investigations) and long-term operation and maintenance costs, or account for the identification and mitigation of wetlands within the project area. Appendix E provides a detailed outline of the OPC for this project as currently designed, with an estimated total cost of \$13,272,000 and an accuracy range of \$10,618,000 to \$17,254,000. The estimated accuracy range is -20 percent to +30 percent.

The OPC cost was developed on the basis of Barr's experience and qualifications and represents our best judgment as professionals familiar with the project. These opinions are based on project-related information available to Barr at this time and include a feasibility-level design. We acknowledge that additional investigations and site-specific information that becomes available in the next stage of evaluation may result in changes to the proposed configuration, cost, and functioning of project features. In addition, because we have no control over the eventual cost of labor, materials, equipment, or services furnished by others; over the contractor's methods of determining prices and/or constructing system modifications; or over competitive bidding or market conditions, Barr cannot and does not guarantee that proposals, bids, or actual costs will not vary from the opinions of cost presented.

### **8.1 High-cost OPC construction item discussion**

Roughly 13 (38 percent) of the 34 OPC construction items evaluated make up approximately 81 percent of the base construction cost as a result of the OPC construction item quantity or unit price. This section provides additional information on these items. The unit prices provided are primarily founded on



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**Page:** 13

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stochastic estimating methods based on recent bid prices for similar projects within the RWMWD and the Twin Cities metropolitan area, published construction cost index resources, and similar stormwater projects. Quantities were estimated based on the preliminary design drawings. Although not provided in the table, the estimated construction costs provided in the following sections are expected to fall within an expected accuracy range of -20 percent to +30 percent, as stated previously.

### 8.1.1 Utilities

As noted earlier, there are approximately 5,800 lineal feet of utility conflicts impacted by the proposed pipe alignment and profile. The type and size of the utilities and respective owner vary. During construction, impacted utilities will need to be temporarily bypassed or relocated until fully replaced. Three of the 34 OPC construction items pertain to site utilities, and make up approximately 12 percent of the OPC construction cost. These items and associated costs are summarized in Table 1 below.

**Table 1 Summary of Utility-Related OPC Construction Items**

Item no.	Item description	Unit	Estimated quantity	Unit cost	Item cost
01 56 00.01	Temporary utility management	LS	1.00	\$238,458.00	\$ 238,458.00
02 41 13.06	Utility removal—pipes (all sizes and types) (allowance)	LF	5,800.00	\$ 25.00	\$ 145,000.00
33 42 00.04	Utility replacement—pipes (all sizes and types) (allowance)	LF	5,800.00	\$ 125.00	\$ 725,000.00
Subtotal utility related costs					\$ 1,108,458.00
Construction contingency (25%)					\$ 277,114.50
Estimated construction cost					\$ 1,385,572.50
Percent of entire OPC estimated construction cost					12%

### 8.1.2 Earthwork

Given the nature of an open-cut excavation pipe construction method, earthwork quantities are expected. The topography along the proposed pipe alignment varies, with excavation depths ranging from approximately 4 feet (at the upstream pipe inlet) to a depth of approximately 26 feet (near alignment A station 25+50). Excavation side slopes vary depending on in-situ soil conditions and safety considerations. As an excavation goes deeper, generated earthwork volumes substantially increase. Five of the 34 estimated OPC construction items pertain to earthwork and make up approximately 14 percent of the OPC construction cost. These items and associated costs are summarized in Table 2 below.

**To:** Ramsey-Washington Metro Watershed District (RWMWD) board of managers  
**From:** Sam Redinger, Civil Engineer; Erin Anderson-Wenz, PE, Senior Water Resources Engineer; and Brad Lindaman, PE, RWMWD Engineer  
**Subject:** West Vadnais Lake south of I-694 conveyance feasibility study  
**Date:** June 24, 2020  
**Page:** 14

**Table 2 Summary of Earthwork-Related OPC Construction Items**

Item no.	Item description	Unit	Estimated quantity	Unit cost	Item cost
31 00 00.01	Common excavation—embankment	CY	61,000.00	\$ 8.00	\$ 488,000.00
31 00 00.02	Backfill	CY	50,500.00	\$ 5.00	\$ 252,500.00
31 00 00.03	Compaction	CY	50,500.00	\$ 6.00	\$ 303,000.00
31 00 00.04	Pipe bedding (granular aggregate)	T	4,000.00	\$ 25.00	\$ 100,000.00
31 00 00.05	Excavation disposal (offsite)	CY	10,500.00	\$ 10.00	\$ 105,000.00
Subtotal earthwork related costs					\$ 1,248,500.00
Construction contingency (25%)					\$ 312,125.00
Estimated construction cost					\$ 1,560,625.00
Percent of entire OPC estimated construction cost					14%

### 8.1.3 Stormwater pipe

The entire length of the proposed pipe alignment is approximately 4,875 feet. Approximately 575 feet penetrates existing features where open-cut excavation is not feasible (e.g., I-694 and BNSF railway). These segments need to be installed through trenchless excavation methods. Pipe jacking was selected as the feasible trenchless excavation method for these penetrations. Pipe jacking is a slow process, requiring specialized equipment. A steel casing pipe is needed for the outer shell of the penetration to provide structural support to infrastructure above the penetration. Four of the 34 estimated OPC construction items pertain to stormwater pipe, and make up approximately 29 percent of the OPC construction cost. These items and associated costs are summarized in Table 3 below.

**Table 3 Summary of Stormwater Pipe-Related OPC Construction Items**

Item no.	Item description	Unit	Estimated quantity	Unit cost	Item cost
33 05 00.01	Casing pipe (84-inch, steel) (jacking)	LF	575.00	\$ 2,500.00	\$1,437,500.00
33 42 00.01	51-inch span by 31-inch rise arch RCP—Class III	LF	275.00	\$ 160.00	\$ 44,000.00
33 42 00.02	60-inch circular RCP—Class III	LF	4,025.00	\$ 250.00	\$1,006,250.00
33 42 00.03	60-inch circular RCP—Class III (inside casing pipe)	LF	575.00	\$ 360.00	\$ 207,000.00
Subtotal stormwater pipe related costs					\$2,694,750.00
Construction contingency (25%)					\$ 673,687.50
Estimated construction cost					\$3,368,437.50
Percent of entire OPC estimated construction cost					29%

### 8.1.4 Sheet piling

As noted in section 7.3, the proposed pipe alignment and subsequent excavation limits are in close proximity to I-694. Considering the pipe excavation depth and extents of the proposed pipe adjacent to I-694, some form of temporary shoring is required along the toe of the I-694 roadway. Shoring reduces the excavation volume on one side of the pipe, provides a safe excavation, and protects the integrity of the I-694 roadway. Sheet piling at a depth of two times the pipe invert was selected at this stage of design, and

is the feasible shoring method when groundwater conditions are unknown or the groundwater table is considered high. This OPC assumes that sheet piling is temporary, and that it will be reused throughout construction. One of the 34 estimated OPC construction items pertain to sheet piling, and makes up approximately 26 percent of the OPC construction cost. This item and associated cost are summarized in Table 4 below.

**Table 4: Summary of Sheet Piling-Related OPC Construction Items**

Item no.	Item description	Unit	Estimated quantity	Unit cost	Item cost
31 41 16.01	Sheet-pile bearing wall (temporary)	SF	80,000.00	\$ 30.00	\$ 2,400,000.00
Subtotal sheet-piling-related costs					\$ 2,400,000.00
Construction contingency (25%)					\$ 600,000.00
Estimated construction cost					\$ 3,000,000.00
Percent of entire OPC estimated construction cost					26%

Considering that this single OPC construction item (sheet-pile bearing wall (temporary)), equates to approximately 26 percent of the total OPC construction cost, Barr recommends that the RWMWD evaluate alternative shoring methods for open-cut excavation of the proposed pipe along I-694 during a future design phase of the project. This recommendation assumes that detailed site investigations (e.g., geotechnical soil borings) will occur to inform ground stability and structural analyses of the excavation.

## 8.2 Cost saving alternatives

Recognizing that 81 percent of the OPC construction cost is weighted against 38 percent of the estimated OPC construction items, and specifically acknowledging that the OPC construction items related to the stormwater pipe and sheet piling account for 55 percent of the total OPC construction, cost saving alternatives were evaluated for RWMWD consideration. These alternatives are summarized in the following sections, and require further analysis to confirm their accuracy.

### 8.2.1 Reduction of stormwater pipe size

As noted previously, adequate underground space exists to fit a 60-inch pipe diameter along the proposed alignment. Recognizing the long-term benefit of providing the RWMWD with increased flexibility to manage stormwater runoff through this pipe and mitigating future costs in the event that upstream drainage systems are altered and necessitate a large pipe size, a 60-inch pipe was assumed for preliminary design and the OPC construction cost.

However, as noted in the section 6.0, a 60-inch pipe exceeds the conveyance capacity requirement to effectively manage West Vadnais Lake water levels. The potential OPC construction cost savings by constructing a 48-inch diameter stormwater pipe (a 12-inch reduction in pipe size) are summarized in Table 5 below. (Cost impacts to indirect construction items such as mobilization, etc. are not included in this cost saving alternative.)

**Table 5: Summary of Reduced Stormwater Pipe Size OPC Construction Cost Savings**

Item no.	Item description	Unit	Estimated quantity	Reduction in unit cost	Item cost
33 05 00.01	Casing pipe (74-inch, steel) (jacking)	LF	575.00	\$ (500.00)	\$ (287,500.00)
33 42 00.02	48-inch Circular RCP - Class III	LF	4,025.00	\$ (38.00)	\$ (152,950.00)
33 42 00.03	48-inch circular RCP—Class III (inside casing pipe)	LF	575.00	\$ (53.75)	\$ (30,906.25)
Subtotal reduction of stormwater pipe size related costs					\$ (471,356.25)
Construction contingency (25%)					\$ (117,839.06)
Estimated construction cost savings					\$ (589,195.31)
Percent of entire OPC estimated construction cost					-5%

### 8.2.2 Alternative pipe alignment A-1

Between pipe alignment A-1 station 22+00 and station 30+50 (attachment D), the proposed pipe follows the roadway up a hill and around a curve; the existing topography increases in elevation by approximately 5 feet before sloping back down. The increased ground elevation through this station range creates a substantial increase in earthwork volumes and sheet pile quantities through this area. Barr evaluated an alternative alignment, alignment A-2 (attachment D), to bypass this area, cutting across the parking lot of HOM furniture (parcel owner: FAE CRW Little Canada LLC). The direct construction cost savings are summarized in Table 6 below. (Cost impacts to indirect construction items such as mobilization, etc. are not included in this cost saving alternative.) It is important to note that these potential cost savings do not account for any costs pertaining to receiving permission to cross private property (easement costs, property acquisition costs, etc.).

**Table 6: Summary of Alternative Pipe Alignment A-1 OPC Construction Cost Savings**

Item no.	Item description	Unit	Estimated quantity	Unit cost	Item cost
02 41 13.03	Bituminous pavement sawcut	LF	550.00	\$ 5.00	\$ 2,750.00
02 41 13.04	Bituminous pavement removal	SY	900.00	\$ 4.00	\$ 3,600.00
02 41 13.05	Concrete curb and gutter removal	LF	-825.00	\$ 5.00	\$ (4,125.00)
31 00 00.01	Common excavation—embankment	CY	5,625.00	\$ 8.00	\$ 45,000.00
31 00 00.02	Backfill	CY	4,625.00	\$ 5.00	\$ 23,125.00
31 00 00.03	Compaction	CY	4,625.00	\$ 6.00	\$ 27,750.00
31 00 00.04	Pipe bedding (granular aggregate)	T	-65.00	\$ 25.00	\$ (1,625.00)
31 00 00.05	Excavation disposal (offsite)	CY	1,000.00	\$ 10.00	\$ 10,000.00
31 41 16.01	Sheet-pile bearing wall (temporary)	SF	-31,300.00	\$ 30.00	\$ (939,000.00)
32 12 00.01	Bituminous pavement	T	300.00	\$ 200.00	\$ 60,000.00
32 16 00.01	Concrete curb and gutter	LF	-825.00	\$ 40.00	\$ (33,000.00)
33 42 00.02	60-inch circular RCP—Class III	LF	-75.00	\$ 250.00	\$ (18,750.00)
Subtotal alternate pipe alignment A-2 related costs					\$ (824,275.00)
Construction contingency (25%)					\$ (206,068.75)
Estimated construction cost savings					\$ (1,030,343.75)
Percent of entire OPC estimated construction cost					-9%

### 8.2.3 Cost-saving alternatives summary

In short, there are viable cost-saving alternatives available for RWMWD consideration. Table 7 below provides a summary of the impact to the baseline total OPC cost if both cost saving alternatives described above are utilized. Note that the same assumptions and limitations pertaining to the OPC as described in attachment E apply to the values provided in Table 7. Presented totals include costs for planning engineering and design, permitting and regulatory approvals, and construction management.

**Table 7: Summary of Potential Cost Saving Alternatives**

Item no.	Cost
Baseline OPC cost	\$ 13,272,000.00
Adjusted OPC cost based on cost saving alternatives	\$ 11,409,000
Estimated OPC savings	\$ (1,863,000.00)
Percent savings relative to baseline OPC	-12%

## 9.0 Summary and closing

This technical memorandum summarized the West Vadnais Lake south of I-694 conveyance feasibility study. Constructing a new stormwater pipe up to 60-inches in diameter from West Vadnais Lake to MnDOT's Porky Pond is feasible given the current understanding of existing conditions along the proposed alignment. This new stormwater pipe would achieve the goal of establishing the normal water elevation of West Vadnais Lake at 881.0 and the 100-year flood level at elevation 884.0.

The opinion of probable cost for the design, permitting, and construction of the proposed stormwater pipe is \$13,272,000, with a potential range of \$10,618,000 to \$17,254,000, based on the current level of design. If the RWMWD elects to pursue the project, it is recommended that the potential cost-saving alternatives described in section 8.2 be considered. If both cost-saving alternatives described are selected, the opinion of probable cost for the design, permitting, and construction of the proposed stormwater pipe is \$11,409,000, with a potential range of \$9,128,000 to \$14,832,000, a savings of approximately \$1,863,000.

This project requires further design, survey, site investigations to develop construction documents and should consider the following:

- With the five habitable structures already removed from the 100-year floodplain of West Vadnais Lake via other projects, constructing this project **would not** remove additional flood-prone structures.
- Stormwater conveyance through this proposed stormwater pipe ultimately discharges into Owasso Basin. Owasso basin and its surrounding areas were identified to have the highest concentration of flood-prone habitable structures in the RWMWD (77 homes and businesses located within the 100-year flood zone, with an additional 54 homes and businesses very near this flood zone). Barr is currently performing a feasibility study to evaluate Owasso Basin and develop

**To:** Ramsey-Washington Metro Watershed District (RWMWD) board of managers  
**From:** Sam Redinger, Civil Engineer; Erin Anderson-Wenz, PE, Senior Water Resources Engineer; and Brad Lindaman, PE, RWMWD Engineer  
**Subject:** West Vadnais Lake south of I-694 conveyance feasibility study  
**Date:** June 24, 2020  
**Page:** 18

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options for removing these structures from the flood zone. Synergies between this project and the Owasso Basin feasibility should be considered. This project should not proceed without first understanding the limitations of the Owasso Basin feasibility study, and whether or not the two projects can be integrated to bypass flows from West Vadnais Lake around Owasso Basin.

- This work is also contingent upon the completion of improvements to the Keller/Phalen structures planned for 2020 should be considered in the context of overall flood management throughout the RWMWD.

## References

Barr Engineering Co., 2019. System-Wide Evaluation of Flood-Risk Mitigation Options. *Beltline Resiliency Study*. Draft Report. (Barr, 2019)

AACE International Recommended Practice No. 17R-97, 2011 (AACE, 2011)

## Attachments

- Attachment A Figure 1—alternative pipe alignments
- Attachment B Gopher State One Call utility locate ticket
- Attachment C Opportunistic pumping and other scenario hydrology and hydraulic scenario modeling.
- Attachment D Preliminary design drawings
- Attachment E Opinion of probable cost
- Attachment F MnDOT historical soil borings

## **Attachment A**


Barr Footer: ArcGIS 10.7.1, 2020-06-23 10:59 File: I:\Client\Ramsey\Washington Metro\Work Orders\2020 Feasibility Studies\010\_WVL\_to\_694\Maps\Reports\West Vadna Lake to South of I-694 Conveyance Feasibility Study\Figure 1 - Pipe Alignment Alternatives.mxd User: sa12



- Proposed Alignment**
- Alternative 1 - Buried Pipeline from WVL to Porky Pond
  - Alternative 1A - Buried Pipeline from WVL to Jiggs Pond, Drywall Pond, and Owasso Basin
  - Alternative 2 - HDD Pipeline from WVL to Porky Pond (Forcemain)
  - Alternative 3 - Buried Pipeline from WVL to Black Tern Pond to Drywall Pond and Owasso Basin


**FIGURE 1**

**WEST VADNAIS LAKE TO SOUTH OF I-694 CONVEYANCE FEASIBILITY STUDY PIPE ALIGNMENT ALTERNATIVES**




Feet

0 500



1 inch = 500 feet





**Attachment B**

## Samuel O. Redinger

---

**From:** mn@gopherstateonecall.org  
**Sent:** Monday, May 11, 2020 8:01 AM  
**To:** Samuel O. Redinger  
**Subject:** Ticket Check Status for MN Ticket 201082321

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

### Ticket Check Status

Ticket Number: 201082321

As of 5/11/20 8:00 CDT, participating facility owners have responded to Ticket Check as follows:

Company Name	Facility Types	Status	Time	Comments
AT&T TRANSMISSION - ATT01		Clear/No conflict	04/17/20 3:13 PM	AK
BP PIPELINE - BPAMCO01	G	Clear/No conflict	04/20/20 9:17 AM	
CITY OF LITTLE CANADA - CCANAD01	O,S,W	Clear/No conflict	04/20/20 8:59 AM	
COMCAST - COMCST01	TV	Not yet responded	04/17/20 2:49 PM	
CENTURYLINK - CTLQL - CTLMN01	TEL	Maps Provided	04/18/20 3:11 PM	
CITY OF VADNAIS HEIGHTS - CVDHTS01	E,S,W	Clear/No conflict	04/29/20 8:48 AM	
MCI - MCICOL01	FO	Not yet responded	04/17/20 2:49 PM	
METROPOLITAN COUNCIL (MCES) - METWAS01	S	Non-Excavation	04/30/20 9:16 AM	sent maps cad and shp
MN COMMERCIAL RAILWAY - MNCMRR01		Clear/No conflict	04/23/20 5:17 PM	

MNDOT - MNSDOT01	E	Maps Provided	04/17/20 3:00 PM	MnDOT Storm Sewer in vicinity, refer to construction plan or map provided with permit. Contact prime contractor or permit office with questions.
ST PAUL REGIONAL WATER SUPPLY - STPLWT02	W	Not yet responded	04/17/20 2:49 PM	
ST PAUL REGIONAL WATER ELECTRI - STPLWT08	E	Clear/No conflict	04/21/20 10:27 AM	
XCEL ENERGY - XCEL06		Not yet responded	04/17/20 2:49 PM	

The following is the guide to the facility codes:

- |                      |                  |
|----------------------|------------------|
| E - Electric         | FO - Fiber Optic |
| G - Gas              | O - Other        |
| S - Sewer            | SD - Storm Drain |
| SL - Street Lighting | SS - Storm Sewer |
| STM - Steam          | Tel - Telephone  |
| TS - Traffic Signal  | TV - Television  |
| W - Water            |                  |

To review this ticket, see the full status history and future status updates visit [Search and Status on www.managetickets.com](http://www.managetickets.com).

#### Ticket Information

**NEW**

Ticket No:	201082321	Old Ticket:	
By:	webusr9	Source:	WEB
Type:	<b>NON-EXCAVATION</b>	Date:	04/17/2020 12:20 PM

#### Company Information

Company:	BARR ENGINEERING CO.	Type:	CONTRACTOR
Address:	4300 ONEMARKET POINTE MINNEAPOLIS, MN 55435		
Caller:	SAM REDINGER	Phone:	(952) 842-3588
Contact:	SAM REDINGER	Phone:	(952) 406-1606
Company Phone:	(952) 842-3588	Comany Fax:	
Email Address:	sredinger@barr.com		

#### Work Information

State:	MN	Work Date:	05/11/2020 8:00 AM
County:	RAMSEY	Work Being Done For:	BARR ENGINEERING CO. / RWMWD
Place:	VADNAIS HEIGHTS		
Street:	COUNTRY DR		
Intersection:	SPRUCE ST & RYAN DR		

Type of Work: ENGINEERING/DESIGN FOR STORM WATER  
PIPE  
Explosives: N Tunnel/Bore: Y  
R.O.W.: Y Duration: 1 DAY  
Area Marked: No

**Remarks Information**

**Location of Work:**

LOCATION OF WORK:

NON-EXCAVATION TICKET. NO MARKING IN THE FIELD NEEDED. REQUEST FOR DATA/INFORMATION ONLY (PLANS, DRAWINGS, GIS DATA, DOCUMENTATION). NEED UTILITY INFORMATION FOR EVERYTHING WITHIN THE AREA WITH A 200FT SWATH STARTING FROM 100FT N OF THE SE TWIN LAKE BLVD APX 1100FT W OF BANKERS DR AT VADNAIS LAKE THEN CROSS 694 TO COUNTRY DRIVE, ALONG COUNTRY DRIVE PASSING SPRUCE AND RYANS DR TO APX 325FT S OF BIG CIRCLE DR THEN GO W-SW 211 FT TO BIG CIRCLE DR .

GO TO [LINK](#) TO OBTAIN ADDITIONAL INFORMATION THAT WAS PROVIDED BY THE EXCAVATOR REGARDING THIS LOCATION.

EMAIL -- SREDINGER@BARR.COM

[Link To Map\\_LINK for CESTATUS](#)

**Location**

**Number of Excavation Locations: 1**

Loc 1: NW Lat:	45.0438374	Lon:	-93.1020742	SE Lat:	45.0329052	Lon:	-93.0907652
T 29N R 22W S 6 Q NW		T 29N R 22W S 6 Q NE		T 30N R 22W S 31 Q SW			
T 30N R 22W S 31 Q NW		T 30N R 22W S 31 Q SE					

## Samuel O. Redinger

---

**From:** mn@gopherstateonecall.org  
**Sent:** Monday, May 11, 2020 8:01 AM  
**To:** Samuel O. Redinger  
**Subject:** Ticket Check Status for MN Ticket 201082322

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Company Name	Facility Types	Status	Time	Comments
AT&T TRANSMISSION - ATT01		Clear/No conflict	04/17/20 3:13 PM	AK
BP PIPELINE - BPAMCO01	G	Clear/No conflict	04/20/20 9:17 AM	
CITY OF LITTLE CANADA - CCANAD01	O,S,W	Non-Excavation	05/04/20 11:03 AM	Sent utility information as requested.
COMCAST - COMCST01	TV	Not yet responded	04/17/20 2:49 PM	
CENTURYLINK - CTLQL - CTLMN01	TEL	Maps Provided	04/18/20 3:09 PM	
CITY OF VADNAIS HEIGHTS - CVDHTS01	E,S,W	Clear/No conflict	04/20/20 6:30 AM	
MCI - MCICOL01	FO	Not yet responded	04/17/20 2:49 PM	
METROPOLITAN COUNCIL (MCES) - METWAS01	S	Non-Excavation	04/30/20 9:16 AM	sent maps cad and shp
MN COMMERCIAL RAILWAY - MNCMRR01		Clear/No conflict	04/23/20 5:18 PM	Will need a permit from BNSF and a flagging request with MNNR. found on <a href="http://mnr.net">mnr.net</a>

MNDOT - MNSDOT01	E	Maps Provided	04/17/20 3:01 PM	MnDOT Storm Sewer in vicinity, refer to construction plan or map provided with permit. Contact prime contractor or permit office with questions.
ST PAUL REGIONAL WATER SUPPLY - STPLWT02	W	Not yet responded	04/17/20 2:49 PM	
ST PAUL REGIONAL WATER ELECTRI - STPLWT08	E	Clear/No conflict	04/21/20 10:27 AM	
XCEL ENERGY - XCEL06		Not yet responded	04/17/20 2:49 PM	

The following is the guide to the facility codes:

- |                      |                  |
|----------------------|------------------|
| E - Electric         | FO - Fiber Optic |
| G - Gas              | O - Other        |
| S - Sewer            | SD - Storm Drain |
| SL - Street Lighting | SS - Storm Sewer |
| STM - Steam          | Tel - Telephone  |
| TS - Traffic Signal  | TV - Television  |
| W - Water            |                  |

To review this ticket, see the full status history and future status updates visit [Search and Status on www.managetickets.com](http://www.managetickets.com).

**Ticket Information**

<b>NEW</b>			
Ticket No:	201082322	Old Ticket:	
By:	webusr9	Source:	WEB
Type:	<b>NON-EXCAVATION</b>	Date:	04/17/2020 12:20 PM

**Company Information**

Company:	BARR ENGINEERING CO.	Type:	CONTRACTOR
Address:	4300 ONEMARKET POINTE MINNEAPOLIS, MN 55435		
Caller:	SAM REDINGER	Phone:	(952) 842-3588
Contact:	SAM REDINGER	Phone:	(952) 406-1606
Company Phone:	(952) 842-3588	Comany Fax:	
Email Address:	sredinger@barr.com		

**Work Information**

State:	MN	Work Date:	05/11/2020 8:00 AM
County:	RAMSEY	Work Being Done For:	BARR ENGINEERING CO. / RWMWD
Place:	LITTLE CANADA		
Street:	COUNTRY DR		
Intersection:	SPRUCE ST & RYAN DR		
Type of Work:	ENGINEERING/DESIGN		
Explosives:	N	Tunnel/Bore:	Y

R.O.W.: Y  
Area Marked: No

Duration: 1 DAY

Remarks Information

Location of Work:

LOCATION OF WORK:

NON-EXCAVATION TICKET. NO MARKING IN THE FIELD NEEDED. REQUEST FOR DATA/INFORMATION ONLY (PLANS, DRAWINGS, GIS DATA, DOCUMENTATION). NEED UTILITY INFORMATION FOR EVERYTHING WITHIN THE AREA WITH A 200FT SWATH STARTING FROM 100FT N OF THE SE TWIN LAKE BLVD APX 1100FT W OF BANKERS DR AT VADNAIS LAKE THEN CROSS 694 TO COUNTRY DRIVE, ALONG COUNTRY DRIVE PASSING SPRUCE AND RYANS DR TO APX 325FT S OF BIG CIRCLE DR THEN GO W-SW 211 FT TO BIG CIRCLE DR .

EMAIL -- SREDINGER@BARR.COM

[Link To Map\\_LINK for CESTATUS](#)

Location

Number of Excavation Locations: 1

Loc 1: NW Lat: 45.0438374 Lon: -93.1020742 SE Lat: 45.0329052 Lon: -93.0907652

T 29N R 22W S 6 Q NW

T 29N R 22W S 6 Q NE

T 30N R 22W S 31 Q SW

T 30N R 22W S 31 Q NW

T 30N R 22W S 31 Q SE

**Attachment C**



## Opportunistic Pumping Scenarios

### Background

In advance of changes to control structures for the Phalen Chain of Lakes and other potential piped changes evaluated, as described in the original West Vadnais Lake conveyance south of Highway 694 feasibility study scope, the RWMWD board members asked staff to consider opportunistic pumping to help lower West Vadnais Lake and Grass Lake levels to better prepare for large runoff events. In response to this request, and as a part of the feasibility study, we have characterized what opportunistic pumping might look like. For the purposes of this analysis, the term “opportunistic” is intended to mean pumping at times when downstream flood levels will not be increased by pumping from West Vadnais Lake.

We ran a 6-year simulation (2014 through 2019 rainfall), comparing flooding both with and without opportunistic pumping, to demonstrate what pumping might achieve in terms of upstream benefits.

Opportunistic pumping goals:

1. To prevent or reduce Grass Lake overflow (frequency and volume) to Vadnais-Snail Lake Regional Park areas north of Grass Lake (overflow to the north begins at a Grass Lake elevation of 884.1)
2. To prevent or reduce overflow (frequency and volume) from West Vadnais Lake to Twin Lake (overflow to the Twin Lake bypass system begins at a West Vadnais Lake elevation of 884.0)
3. To keep the level of West Vadnais Lake as close to 881.0 as often as possible.
4. To maintain existing downstream flood levels on Gervais Lake during the 100-year, 96-hour flood event as a result of opportunistic pumping activities.

For any pumping scenario, the Board has stated that it believes the following key assumptions are appropriate:

1. Pumping below a West Vadnais Lake elevation of 881.0 is unlikely to gain support from regulators and the Vadnais Lake Area Watershed Management Organization (VLAWMO); another environmental assessment worksheet would likely be needed to target a lower elevation. Based on past experience, VLAWMO and the DNR both seem unlikely to offer support or approval.
2. Pumping should stop before an anticipated 2-inch storm event (same as in the Twin Lake operations plan) to protect Northstar Estates, regardless of the level in West Vadnais Lake. If the 2-inch rainfall does not occur, or if the 2-inch rainfall runoff has completely passed Owasso Basin, pumping could resume.
3. MnDOT, MnDNR, and VLAWMO permits may be necessary, depending on the scenario.

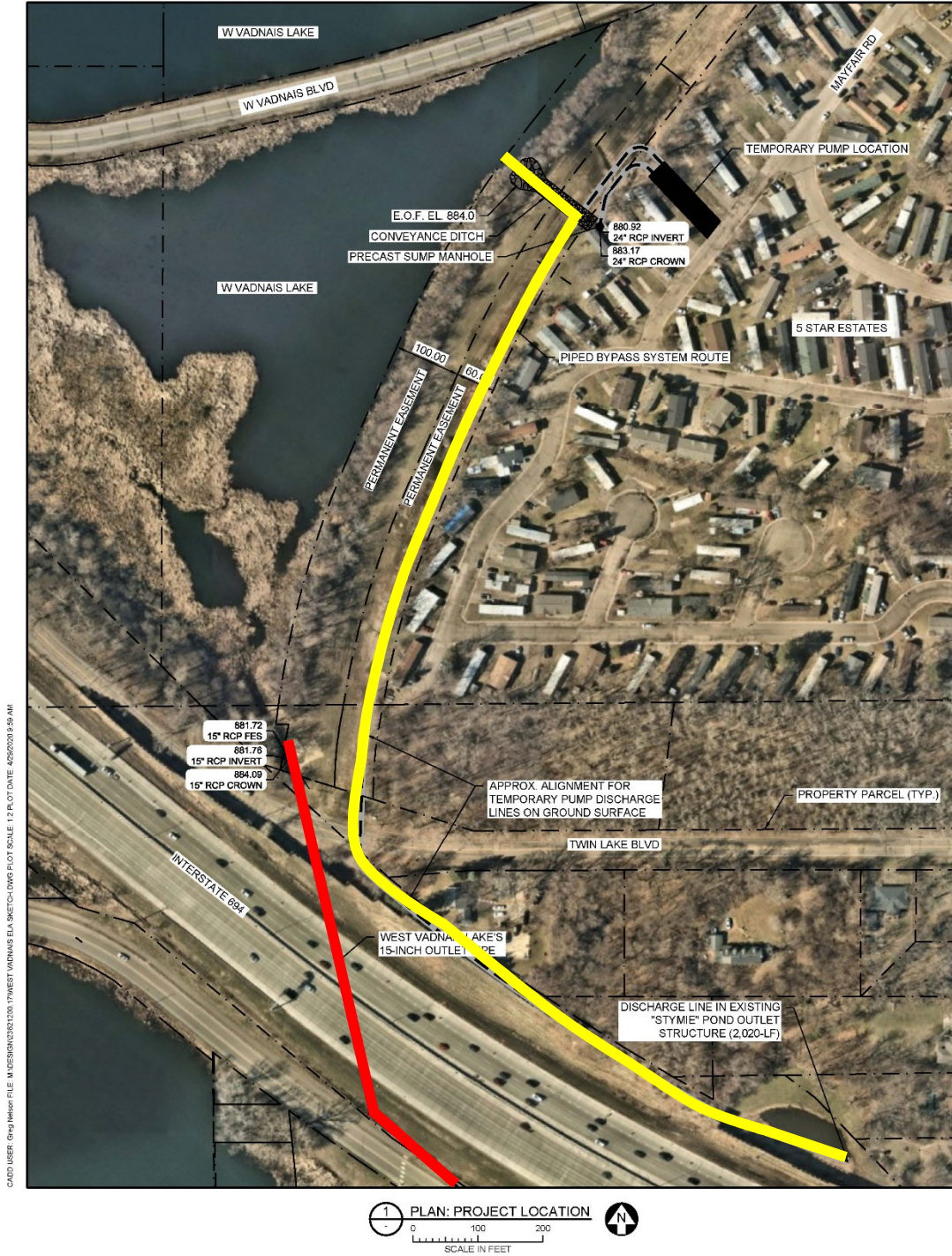
Estimated cost of pumping:

We estimate that the cost of pumping is approximately \$50,000 per month, based on past pumping activities in RWMWD.

*Characterization of opportunistic pumping options evaluated:*

**Bypass system route (shown in yellow on the map below):** Pump into the bypass system (12-inch HPDE pipe to Stymie Pond) when West Vadnais Lake levels are below the overflow to Twin Lake (884.0) and above 881.0. This path sends water through MnDOT's Stymie Pond. The pumped flow rate would be dictated by the outlet size from Stymie Pond and would be subject to approval from MnDOT and the DNR. We estimate that this option could allow water to be pumped from West Vadnais Lake at a maximum rate of 6 cubic feet per second (cfs) (the maximum flow rate that can be safely passed through the 12-inch HDPE pipe) when conditions allow. Flow would also leave West Vadnais Lake's existing (now lowered) 15-inch outlet.

**Leverage West Vadnais Lake's lowered outlet (shown in red on the map below):** Through construction of an inline check valve or other manipulation of the 15-inch and downstream manholes, the RWMWD could pump to enable the 15-inch pipe to flow full until the lake reaches 881.0. This option sends water along the existing path, but allows for the 15-inch pipe to flow full under lower lake levels. It may or may not require MnDOT and DNR approvals. This option could allow water to leave West Vadnais Lake's 15-inch outlet (pipe-full flow) at a consistent 4 cfs, year round. The benefit of this option is the optimization of flow at lower lake levels. *Note: This scenario was not found to provide a significant benefit over existing conditions and is, therefore, not shown in the results below.*

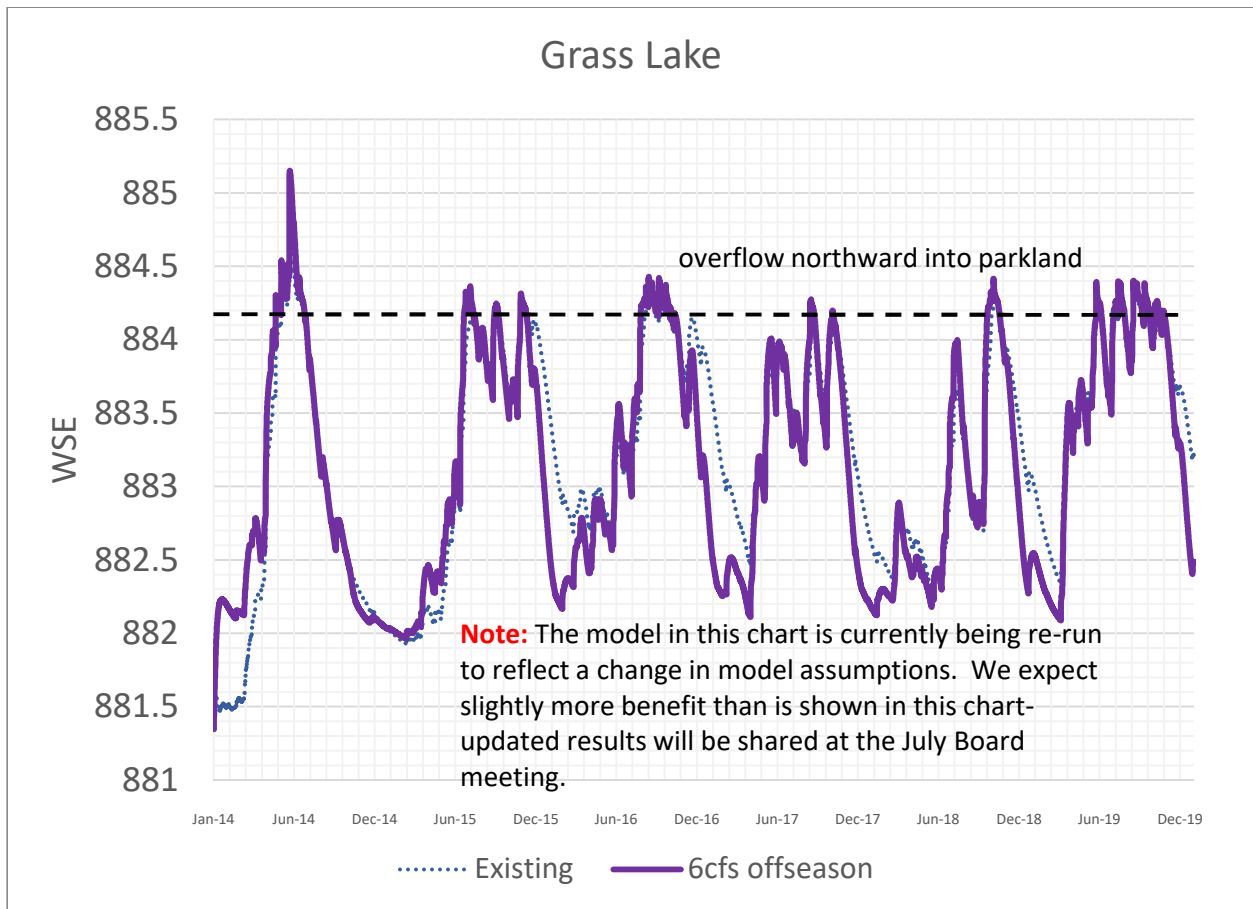


*This map shows two different potential paths for water pumped from West Vadnais Lake—the bypass pumping system route (yellow) and the lake’s existing 15-inch outlet (red).*

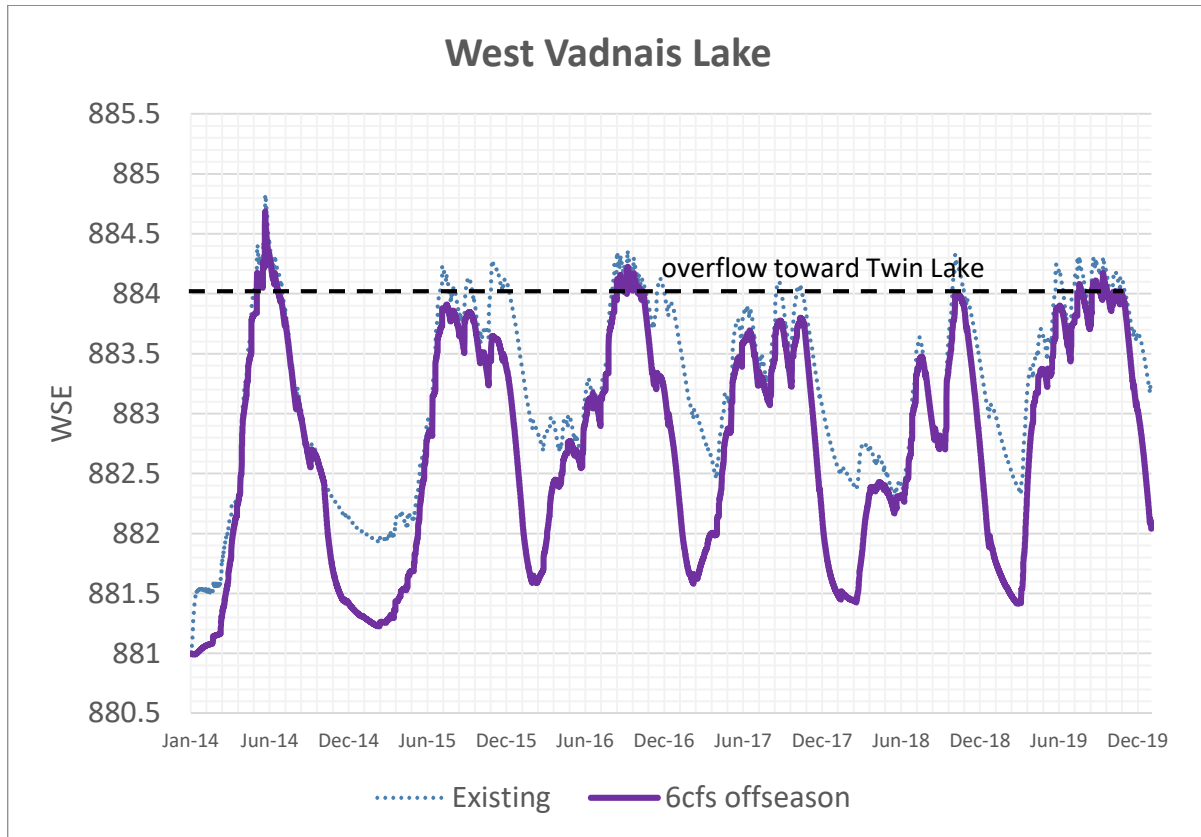
**Effect of Offseason Pumping of West Vadnais Lake at a Rate of 6 cfs**

As discussed during past Board meetings, the likelihood of experiencing a 100-year storm between November 1 and March 1 each year is very, very low. For this reason, we consider this “offseason” to be

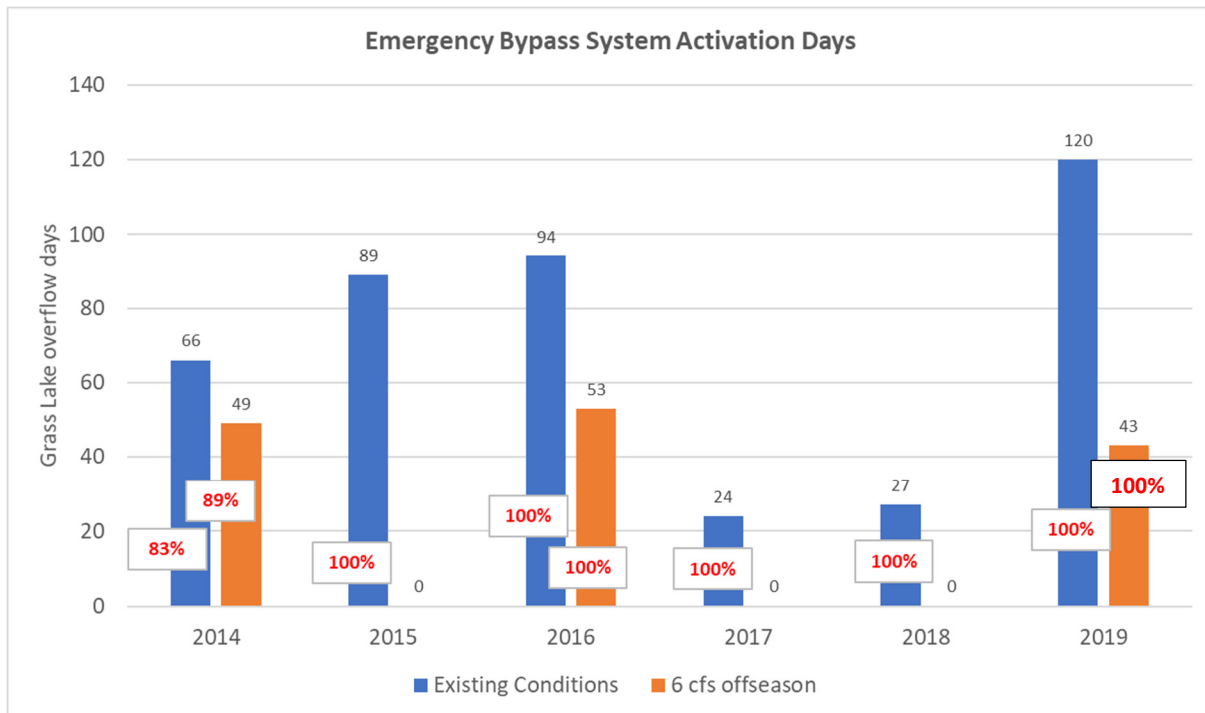
a relatively safe time to pump without significant concern about exacerbating downstream flooding on Gervais Lake. The charts below show the effect of pumping at a rate of 6 cfs from West Vadnais Lake during the offseason on the water levels in Grass Lake and West Vadnais Lake, assuming 2014 to 2019 precipitation conditions. It is important to note that the modeled conditions (precipitation, infrastructure) in 2014 result in higher existing conditions flood levels than were actually witnessed in 2014. For example, the lake levels predicted by the model for West Vadnais Lake would have resulted in significant flow to Twin Lake, which likely did not happen- this volume increase would have been noticed by residents. It is likely that the precipitation data for this year does not perfectly reflect the conditions actually experienced in this part of the watershed in 2014 (including groundwater seepage rates, which were likely quite different in 2014 than it is today). It is included here as another way to look at how these system changes would affect the system under a range of precipitation amounts with limited groundwater seepage, and not necessarily a study in “what would have happened”.



*Note: Grass Lake overflow days northward are essentially unchanged by pumping at a rate of 6 cfs in the offseason.*



When the water surface elevation of West Vadnais Lake exceeds 884.0 in the “triangle wetland” south of West Vadnais Blvd, water starts to flow over the newly reinforced berm to the emergency bypass system that diverts water around Twin Lake. It is helpful to compare how often the emergency bypass pumping system would have to be “activated” (pumping initiated) under existing vs. 6cfs offseason pumping conditions to address the second goal listed above. Activation of the emergency bypass system involves pumping at a maximum rate of 6 cfs from the low lying land west of Five Star Estates (an area belonging to the Saint Paul Regional Water Service). The chart below shows how often the bypass system would be activated under existing and offseason pumping scenarios, as well as the percent of the time the emergency bypass system would be able to keep up with the flows coming from West Vadnais Lake toward Twin Lake (shown in **red** on each bar). When the percentage is less than 100%, some residual flow would make its way into Twin Lake, where it would flow out of the lake’s new outlet to be constructed in 2020.



**Conclusions based on modeling are included below and reference the goals for the opportunistic pumping scenarios listed on the first page of this narrative:**

**Goal 1: Met.** Under precipitation conditions experienced from 2014 to 2019, offseason pumping through the bypass system at a rate of 6cfs will decrease (but not eliminate) the volume and frequency of overflows from Grass Lake into the Vadnais-Snail Lake Regional Park.

**Goal 2: Met.** The offseason pumping does reduce the frequency and volume of water flowing from West Vadnais Lake toward Twin Lake. In most cases, the overflows under existing conditions and offseason pumping conditions could be completely bypassed around Twin Lake (overflows are less than 6 cfs), but model conditions in 2014 would result in some flow potentially reaching Twin Lake, the volume of which would be lessened with the 6cfs offseason pumping. It is important to note that after the Twin Lake outlet is constructed in 2020, the concern about any residual overflows from West Vadnais Lake to Twin Lake are water quality concerns and not about protection of homes (Five Star Estates or Twin Lake homes) from flooding.

**Goal 3: Met.** Under the 6cfs offseason pumping scenario, West Vadnais Lake elevations would be held closer to 881.0 than under existing conditions.

**Goal 4: Met.** Offseason pumping is not expected to change the downstream flood level on Gervais Lake.

### **Opportunistic Pumping Scenario Board Proposal from June 2020 Meeting**

At the June Board meeting, Manager Swope proposed and the board asked staff to comment on additional guidelines to release water from upstream areas to lower parts of the watershed in the

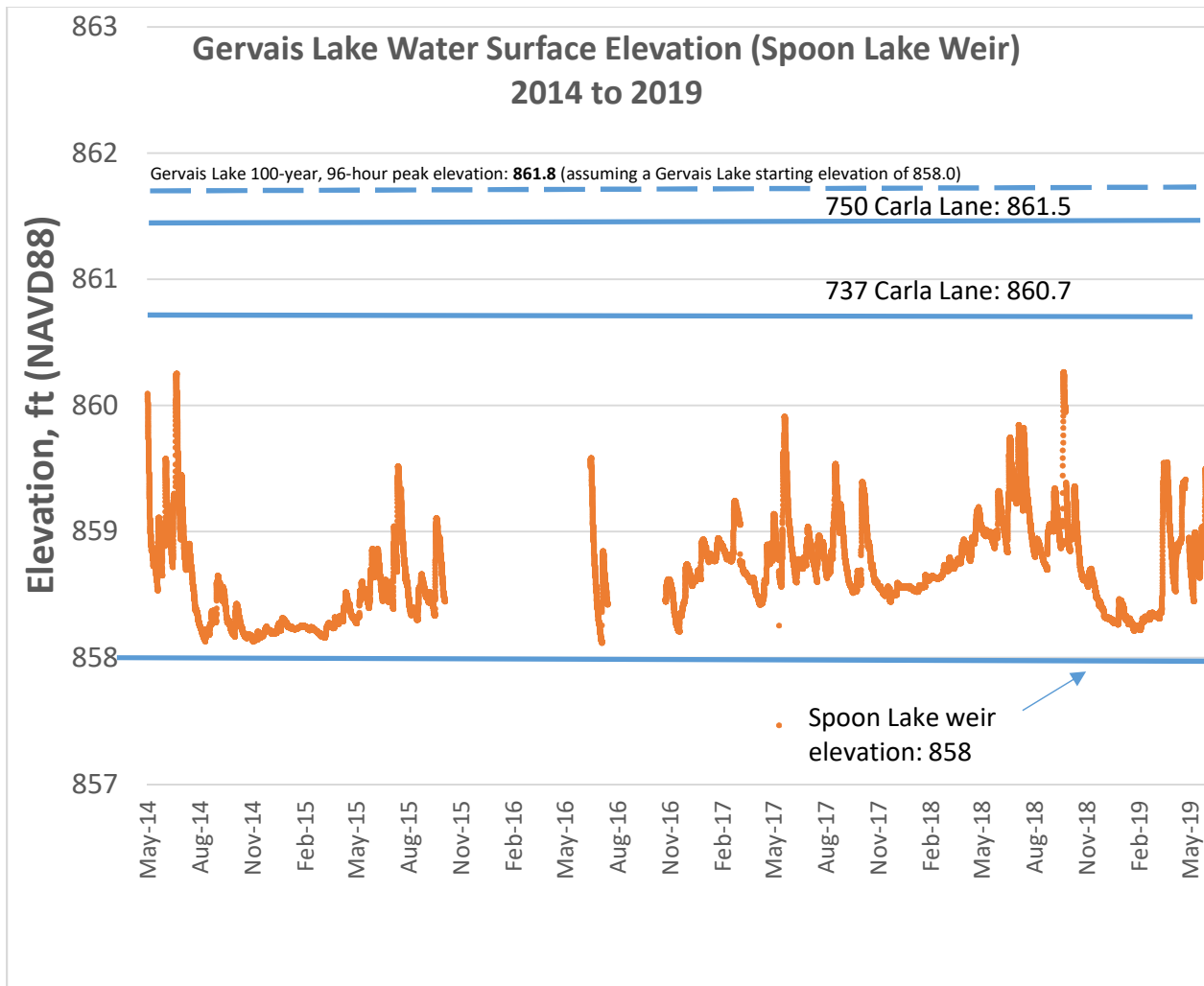
months between March and October under the following conditions (to meet the intention of RWMWD Rule D).

1. *The area serviced by a water release conveyance system (such as West Vadnais Lake or Grass Lake) is above its designated normal water level.*

For the purposes of this analysis, the "designated normal water level" was assumed to be 881.0 for West Vadnais Lake and 881.3 for Grass Lake (their current outlet elevations).

2. *Water level downstream (in Owasso Basin or Gervais Lake) is stable or falling*

The frequency of this condition was evaluated by reviewing monitoring data between May 2014 and May 2019 at the Spoon Lake weir, which also represents the water level in Gervais Lake.



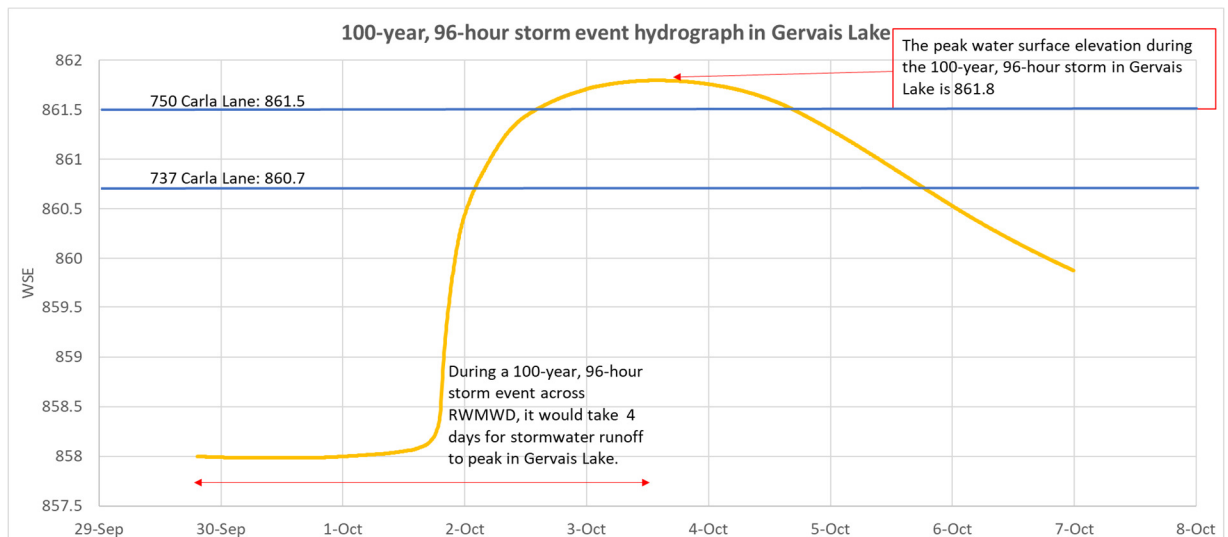
3. *Downstream water is below the level where the combination of the additional released water and the occurrence of a 100-year rain event will not cause habitable structures to flood.*

As far as we can tell from the monitoring data, this condition has not occurred between May 2014 and May 2019, as demonstrated by the chart above. From May 2014 to May 2020 the measured

level at the Spoon Lake weir has been above the elevation of the weir (858). (There is a data gap between October 2015 and June 2016 and two likely false readings in May of 2017.)

For planning purposes, when we model the 100-year, 96-hour event and its effect on water bodies in RWMWD, we assume that the lake is starting at its outlet elevation (in this case, 858). Given that Gervais Lake (as far as we have seen in the recorded monitoring data) has been above this elevation in recent years we assume, based on modeling, that if the 100-year, 96-hour storm occurred any time between 2014 and May 2019, the lake would have had a peak flood elevation *higher than* 861.8. Given this, any additional released water, combined with the 100-year, 96-hour storm, would add to the flooding of habitable structures; two habitable structures on Gervais Lake (750 Carla Lane and 737 Carla Lane) would flood even with no additional flows from upstream. These two homes currently have emergency response plans in place for execution by the City of Little Canada in the event of high water levels.

The chart below shows what the 100-year, 96-hour storm event hydrograph looks like in Gervais Lake if the lake level starts at 858.0. If the levels that were observed in Gervais Lake from 2014 to 2019 can be considered a sort of “chronic” flooded condition, we can think of the 100-year, 96-hour storm as an “acute” condition for which engineers typically try to provide flood protections for habitable structures.



*Note that the dates shown on this chart represent only the time period used in the model—they are not meaningful as actual dates, but are included to reflect the length of time during the modeled storm event.*

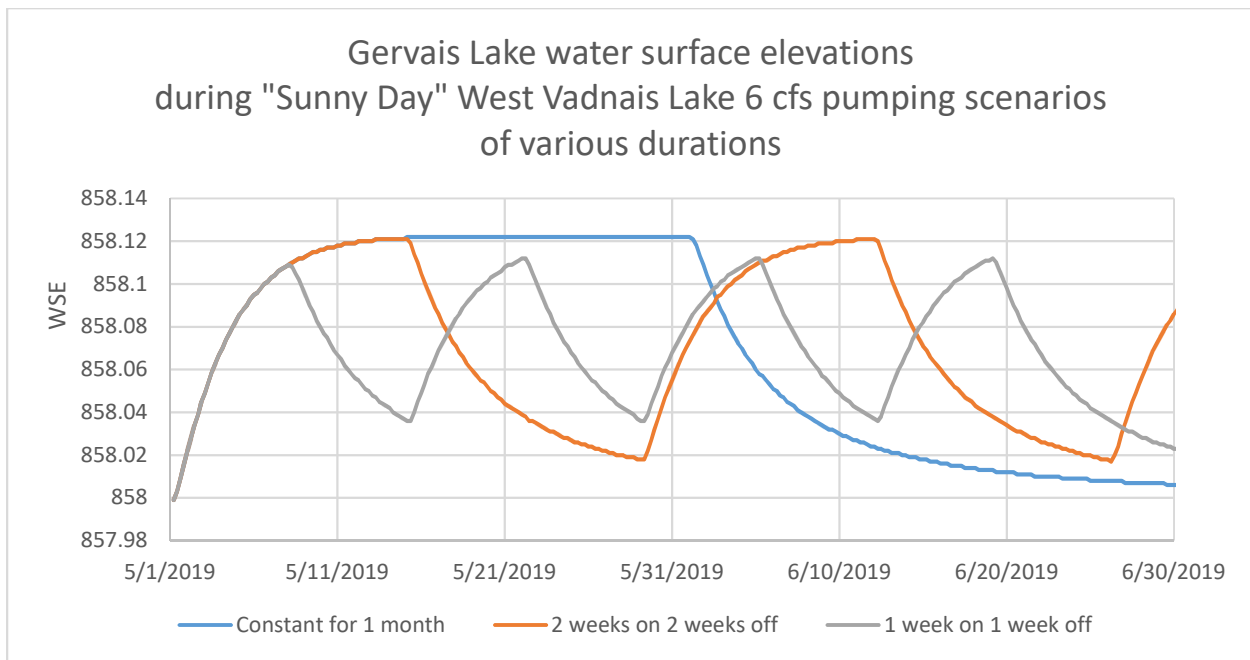
The time to peak water surface elevation during this design storm is approximately 4 days. The drawdown time is on the order of weeks if no other precipitation occurs.

According to available monitoring data, the third condition listed above has not been possible; nevertheless, staff evaluated how intermittent pumping from West Vadnais Lake might affect (or not



affect) the water level in Gervais Lake by modeling the effect of a 6 cfs pumping rate initiated at times when Gervais Lake might be receding.

One question that has arisen in conversations around the opportunistic pumping of water from West Vadnais Lake to downstream areas is the amount of time it takes water to travel from West Vadnais Lake to Gervais Lake. To demonstrate this, staff used the RWMWD XP-SWMM model to run a “Sunny Day” scenario that demonstrates what happens in Gervais Lake if 6 cfs of water is continuously pumped (in the absence of any precipitation) from West Vadnais Lake for one week, two weeks, or one month, then stopped until water levels recede to allow pumping for another cycle. The model results shown in the chart below demonstrate that it take approximately 2 weeks for continuously pumped flow from West Vadnais Lake to fully reach Gervais Lake and approximately 2 weeks for that water to recede once pumping stops (most easily seen by looking at the orange line in the chart). Also, according to the model, when the pumped water completely reaches Gervais Lake, it raises the level on the lake by 0.12 feet.



*Note that the dates shown on this chart represent only the time period used in the model—they are not meaningful as actual dates, but are included to reflect the length of time during the pumping activities.*

Given that the time to peak in Gervais Lake during a 100-year, 96-hour storm is 4 days, and that it would take 2 weeks for West Vadnais Lake pumped flows to reach Gervais Lake and 2 weeks for it to leave after pumping stops, any pumping operations plan between March and October would require adequate forecasting of large storm events approximately 3½ weeks into the future to completely avoid affecting downstream flood levels. “Pulsing” pumping, such as shown in the chart above, decreases the likelihood of increasing flood levels downstream, but cannot guarantee that water pumped from West Vadnais Lake would not arrive in Gervais Lake at the same time (or near the same time) as the peak of an “acute” 100-year, 96-hour flooding event. For this reason, if the goal is to not increase flood levels in

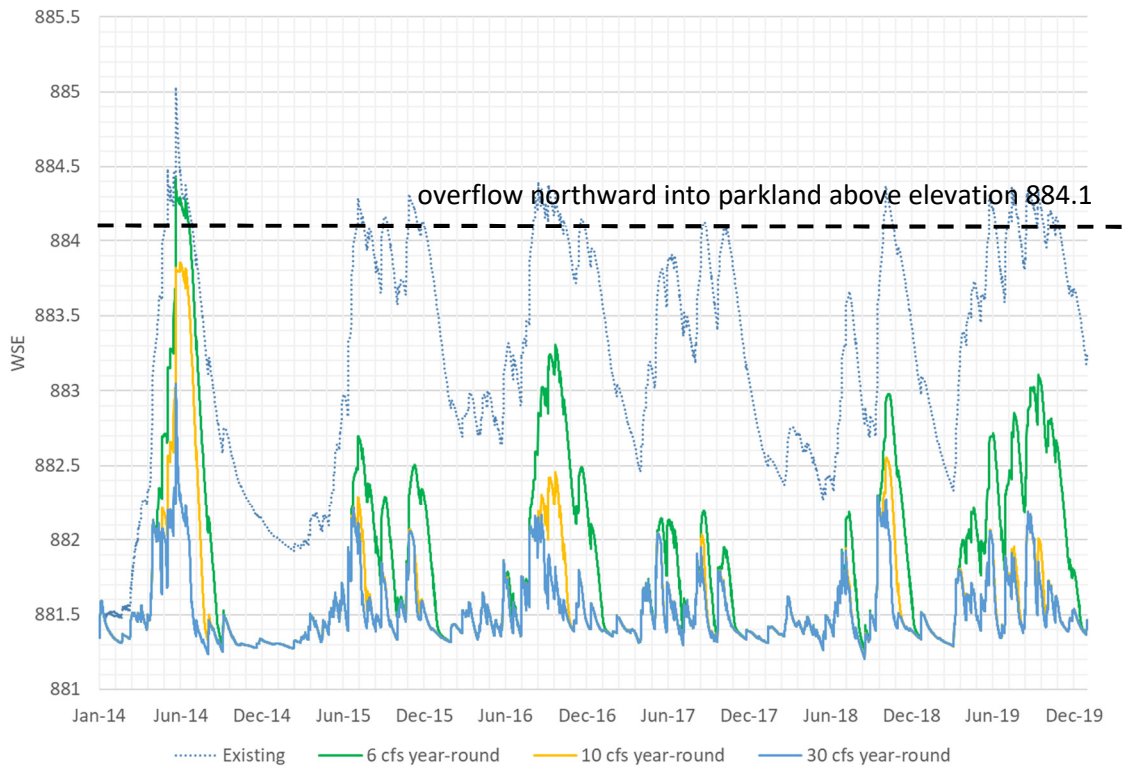
Gervais Lake pumping West Vadnais Lake between March and October is not recommended by staff until downstream capacity increases on the Phalen Chain are implemented.

## **Year-Round Pumping Scenarios**

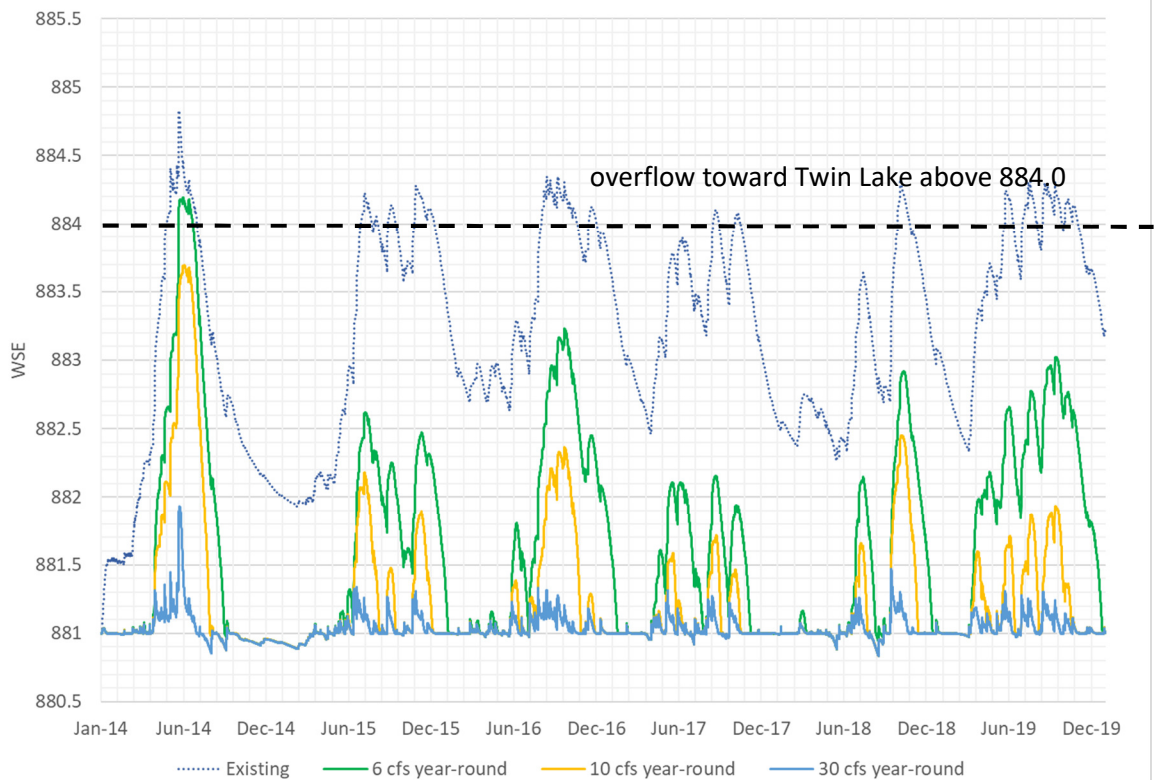
The pumping scenarios below would increase flood elevations in Gervais Lake if implemented before the Phalen Chain of Lakes' control structures are modified to pass more flow on demand. The model runs were done to evaluate the effect of allowing significantly more flow out of West Vadnais Lake year-round on upstream flood levels and durations if downstream levels can be controlled.

The two charts below show the effect of continuously pumping at a range of flow rates: 6 (via the bypass system pipe), 10 cfs (via a larger pipe) and 30 cfs (via a larger pipe) from West Vadnais Lake on the flood levels of Grass Lake and West Vadnais Lake. At 6 cfs, the downstream change in water surface level on Gervais Lake is estimated to be 0.12'. No such calculation has yet been made for the higher pumping rates. All scenarios shown below assume that the existing 15-inch pipe (now lowered to 881.0) remains in place.

### Grass Lake



### West Vadnais Lake



**Conclusion based on modeling:** Under precipitation conditions experienced from 2014 to 2019, year-round pumping at a rate of 6 cfs, 10 cfs, or 30 cfs from West Vadnais Lake (whenever West Vadnais lake is above 881) could prevent overflows from Grass Lake northward (although pumping at a rate of 6 cfs would not prevent overflow under 2014 conditions). Year-round pumping at a rate of 6 cfs, 10 cfs, or 30 cfs from West Vadnais Lake could also prevent overflows from West Vadnais Lake into Twin Lake (although pumping at a rate of 6 cfs would not prevent overflow under 2014 conditions). Year-round pumping of 6 cfs could be conducted through the bypass system (if allowed by MnDOT). Year-round pumping of 10 cfs or 30 cfs would require a larger pipe to carry flows under Hwy 694 (and perhaps around Owasso Basin), such as a 48-inch or 60-inch pipe (like the one evaluated in this feasibility study). All year-round pumping options would require increased downstream capacity on the Phalen Chain if downstream flood levels on Gervais Lake are to remain unchanged as a result of pumping West Vadnais Lake.

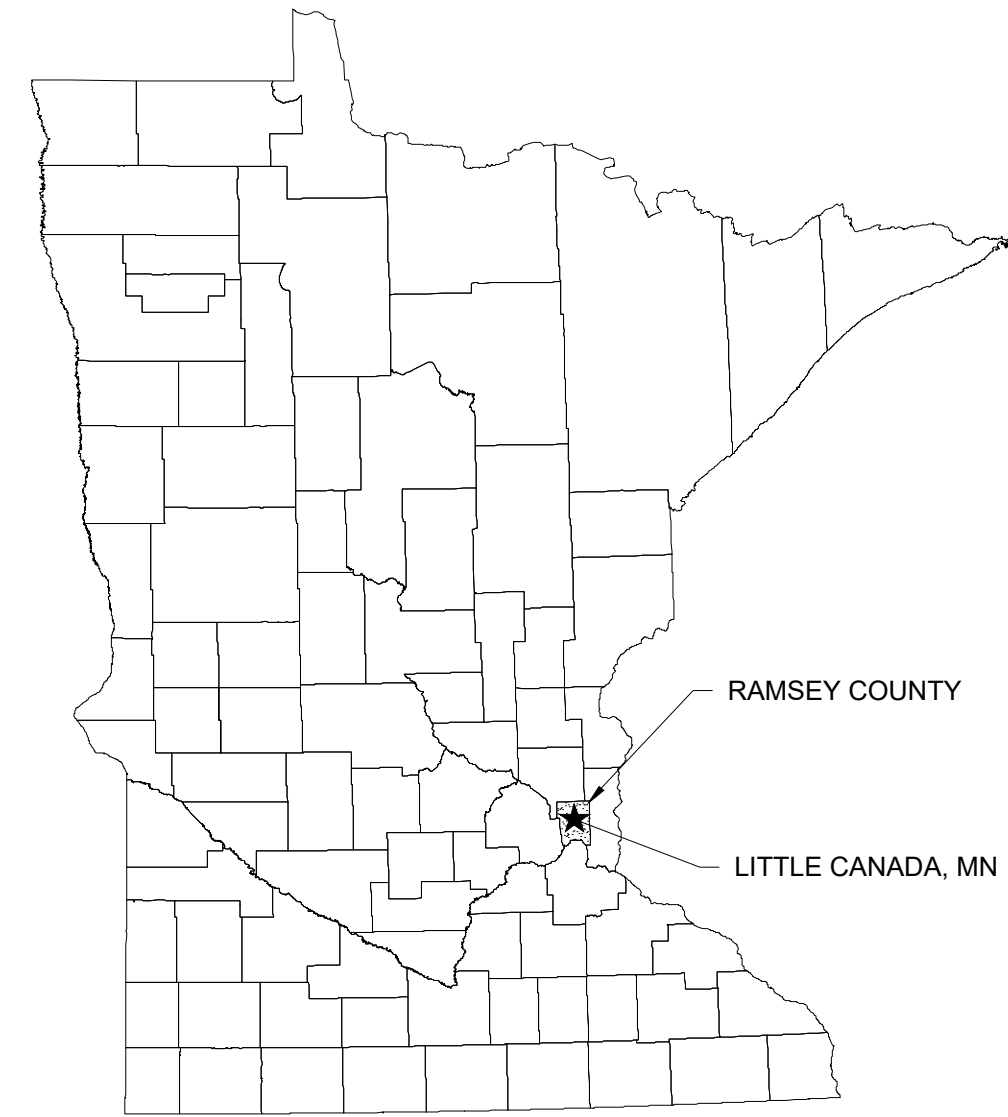
As shown in the main body of this technical memorandum, implementation of a gravity-flow 51"x 31" arch pipe as a secondary outlet from West Vadnais Lake would achieve essentially the same goals as the higher year-round pumping rates shown here.

**Attachment D**

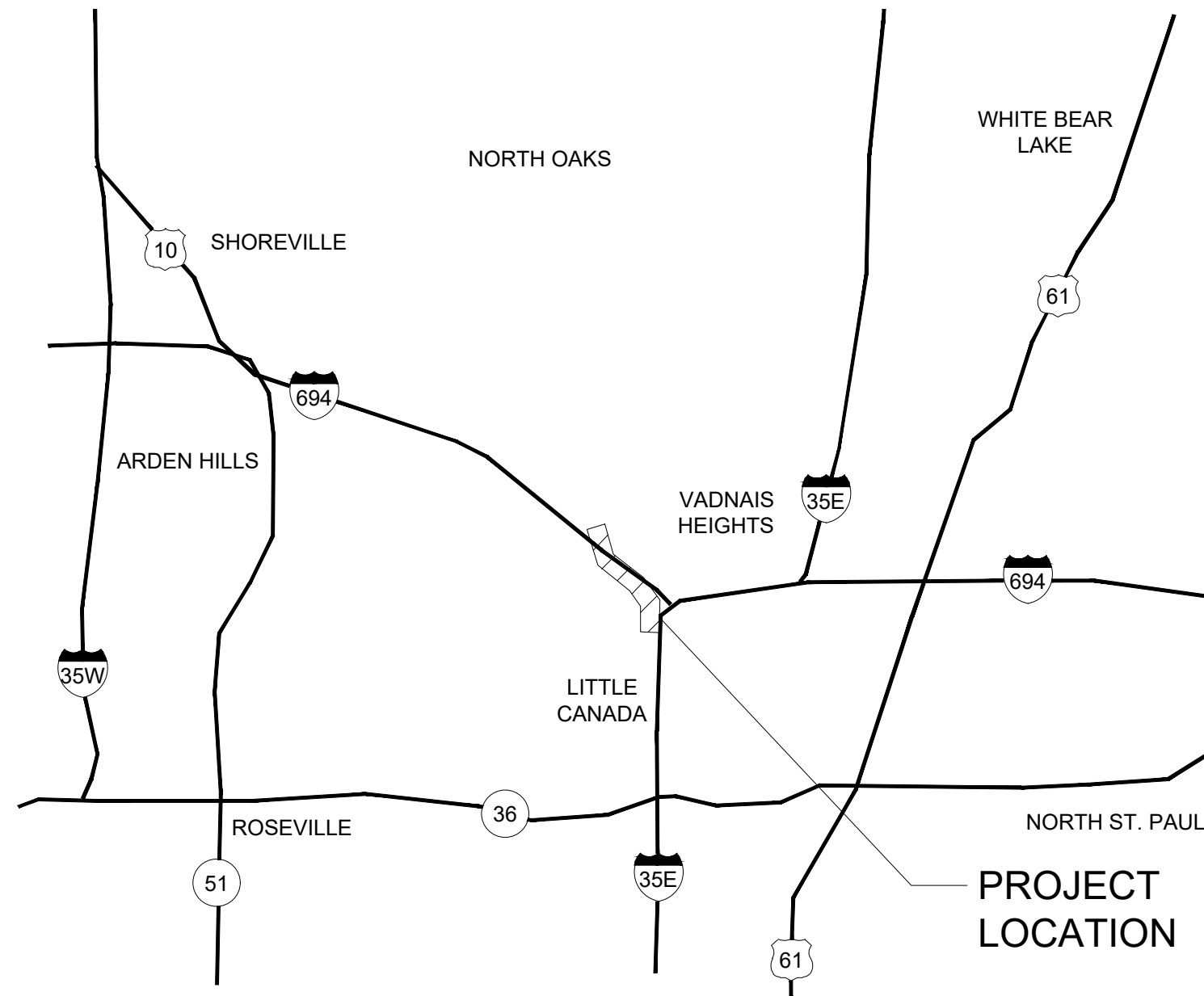
# RWMWD 2020 FEASIBILITY STUDY

## WEST VADNAIS LAKE TO SOUTH 694

### RAMSEY COUNTY, MINNESOTA



LOCATION MAP  
NOT TO SCALE



VICINITY MAP  
VADNAIS HEIGHTS TO LITTLE CANADA  
RAMSEY COUNTY  
MINNESOTA



PROJECT TOPOGRAPHY IS FROM LIDAR FROM MNDNR COMPLETED JUNE 2011

PROJECT COORDINATE SYSTEM IS MN RAMSEY COUNTY TRANSVERSE MERCATOR, AND PROJECT VERTICAL DATUM IS NAVD 88, US SURVEY FOOT

#### PROJECT TEAM

**OWNER**  
RWMWD  
XXX

**A/E**  
XXX  
BARR ENGINEERING  
4300 MARKETPOINTE DRIVE, STE 200  
MINNEAPOLIS, MN 55435  
P: XXX



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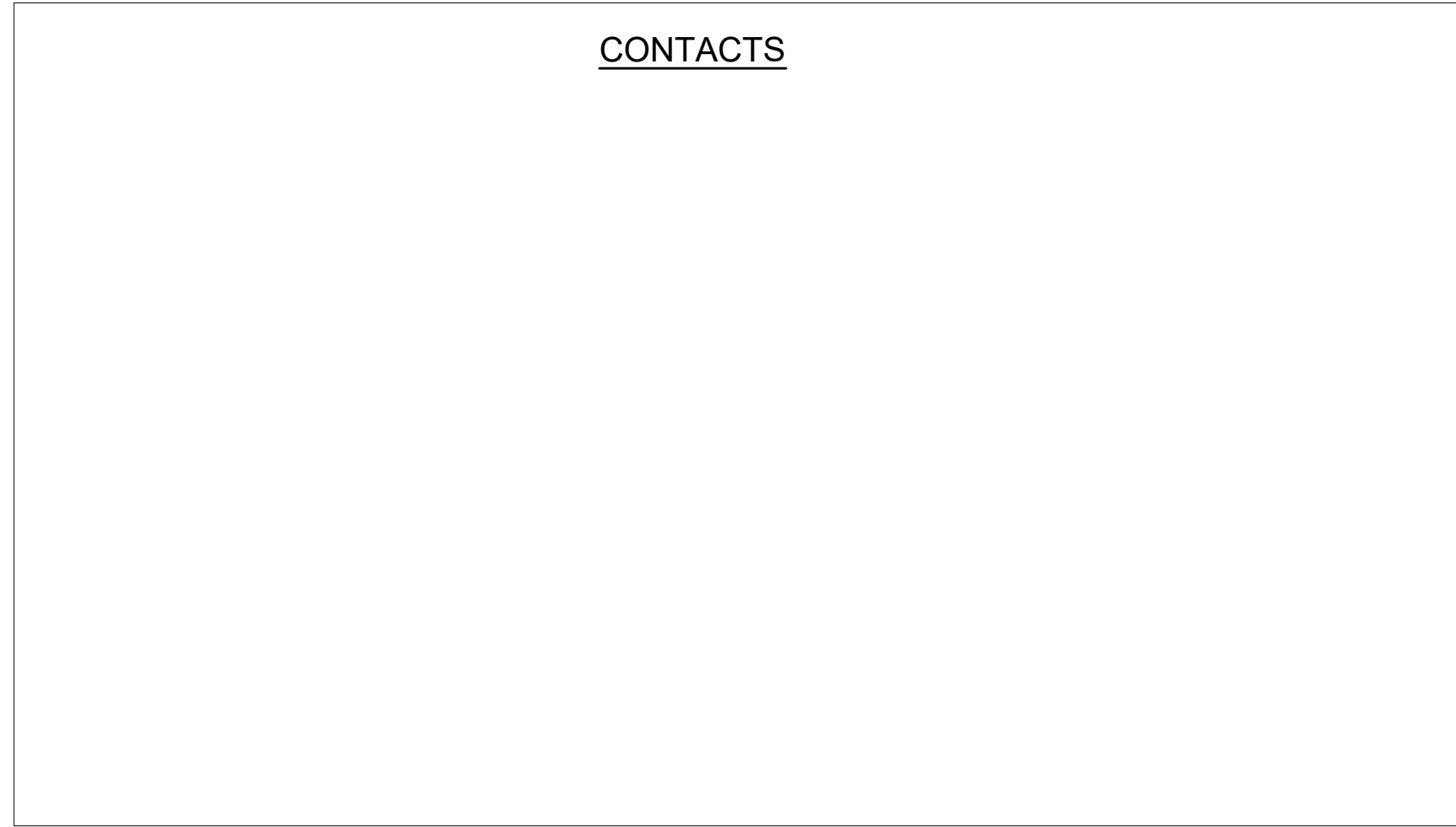
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RWMWD 2020 FEASIBILITY STUDY WVL TO SOUTH 694	
TITLE SHEET	

BARR PROJECT No. 23/62-1200.20	
CLIENT PROJECT No.	
DWG. No. G-01	REV. No. A

CONTACTS



LEGEND

PROPOSED		EXISTING	
	1220 MAJOR CONTOUR		1220 MAJOR CONTOUR
	1218 MINOR CONTOUR		1218 MINOR CONTOUR
	DRAIN ALIGNMENT		ROAD
	PIPE JACKING/CARRIER PIPE		RAIL
	SHEET PILE BEARING WALL		BUILDING
			TREE/TREELINE
			PROPERTY BOUNDARY
			STORM SEWER
			COMMUNICATION LINE
			GAS/FUEL PIPELINE
			WATER MAIN
			OVERHEAD ELECTRICAL
			UNDERGROUND ELECTRICAL

DRAWING INDEX

SHEET NUMBER	TITLE
G-01	TITLE SHEET
G-02	INDEX, CONTACTS, AND LEGEND SHEET
C-01	SITE LAYOUT
C-02	EXISTING PLAN
C-03	EXISTING PLAN
C-04	PIPE ALIGNMENT, A-1 STATION 0+00 TO 5+00 PLAN AND PROFILE
C-05	PIPE ALIGNMENT, A-1 STATION 5+00 TO 10+00 PLAN AND PROFILE
C-06	PIPE ALIGNMENT, A-1 STATION 10+00 TO 15+00 PLAN AND PROFILE
C-07	PIPE ALIGNMENT, A-1 STATION 15+00 TO 20+00 PLAN AND PROFILE
C-08	PIPE ALIGNMENT, A-1 STATION 20+00 TO 25+00 PLAN AND PROFILE
C-09	PIPE ALIGNMENT, A-1 STATION 25+00 TO 30+00 PLAN AND PROFILE
C-10	PIPE ALIGNMENT, A-1 STATION 30+00 TO 35+00 PLAN AND PROFILE
C-11	PIPE ALIGNMENT, A-1 STATION 35+00 TO 40+00 PLAN AND PROFILE
C-12	PIPE ALIGNMENT, A-1 STATION 40+00 TO 45+00 PLAN AND PROFILE
C-13	PIPE ALIGNMENT, A-1 STATION 45+00 TO 48+00 PLAN AND PROFILE
C-14	PIPE ALIGNMENT, A-2 STATION 22+00 TO 27+00 PLAN AND PROFILE
C-15	PIPE ALIGNMENT, A-2 STATION 27+00 TO 30+00 PLAN AND PROFILE
C-16	TYPICAL SECTIONS
C-17	DETAILS
C-18	EROSION CONTROL DETAILS
C-19	DETAILS

ABBREVIATIONS

T.O.P. EL. TOP OF PIPE ELEVATION

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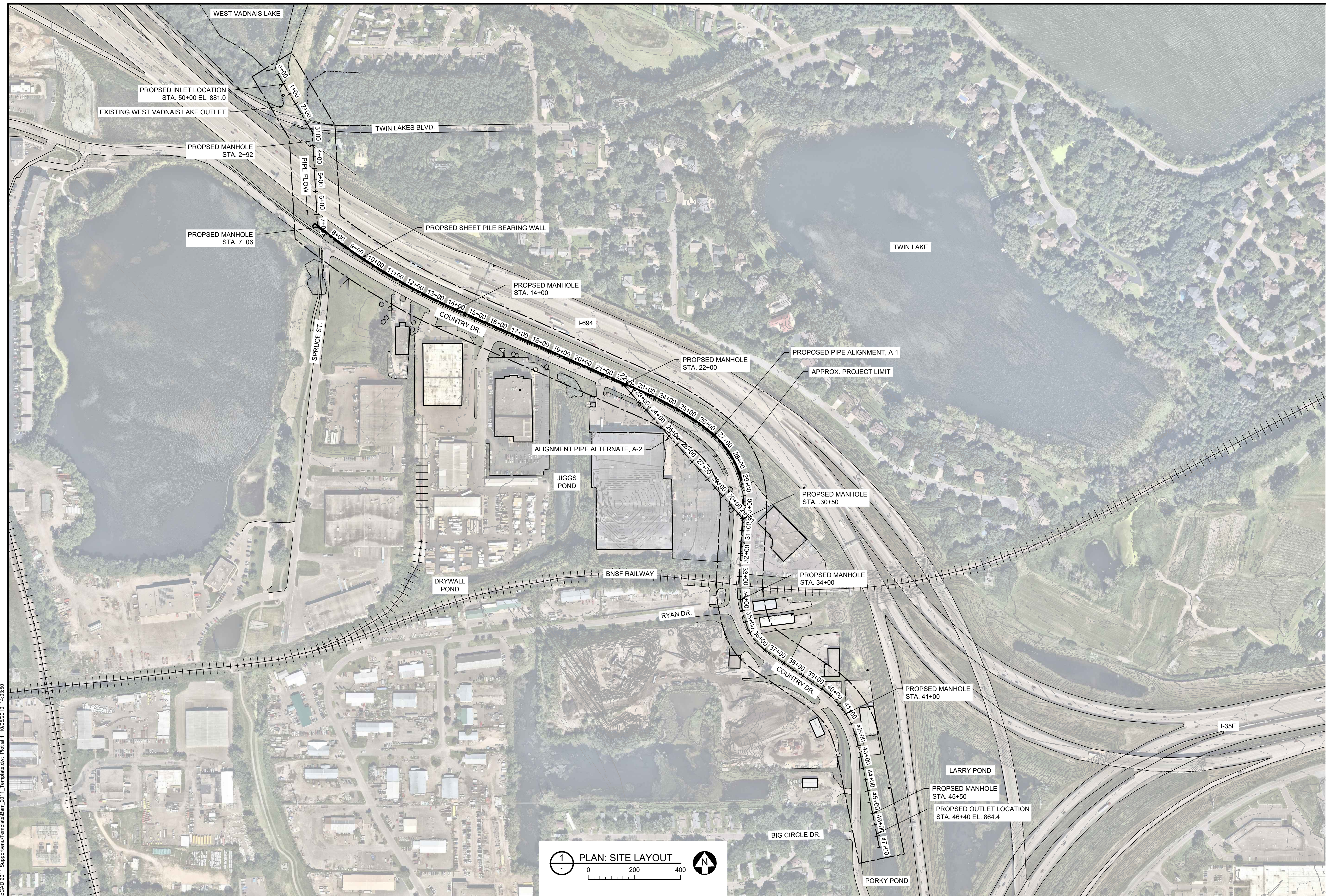
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PRINTED NAME: _____ SIGNATURE: _____ DATE: _____ LICENSE # _____				RELEASED TO/FOR: A B C 0 1 2 3 DATE RELEASED:				Project Office: <b>BARR</b> ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com		<b>RAMSEY-WASHINGTON</b> METRO WATERSHED DISTRICT		RWMWD 2020 FEASIBILITY STUDY WVW TO SOUTH 694 INDEX, CONTACTS, AND LEGEND SHEET		DWG. No. G-02 REV. No. A	
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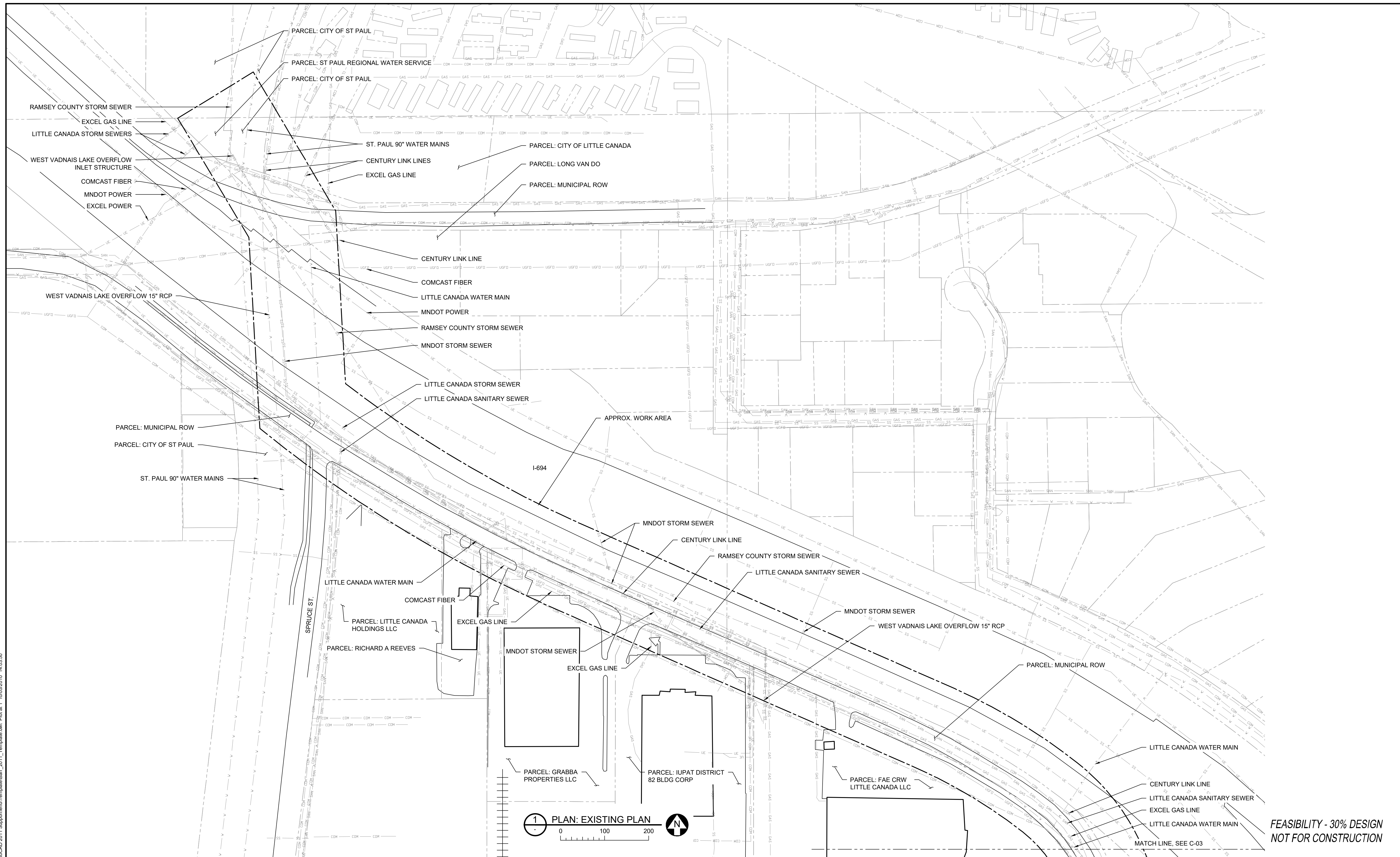
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RWMWD 2020 FEASIBILITY STUDY  
WVL TO SOUTH 694  
SITE LAYOUT

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DWG. No.	C-01
REV. No.	A

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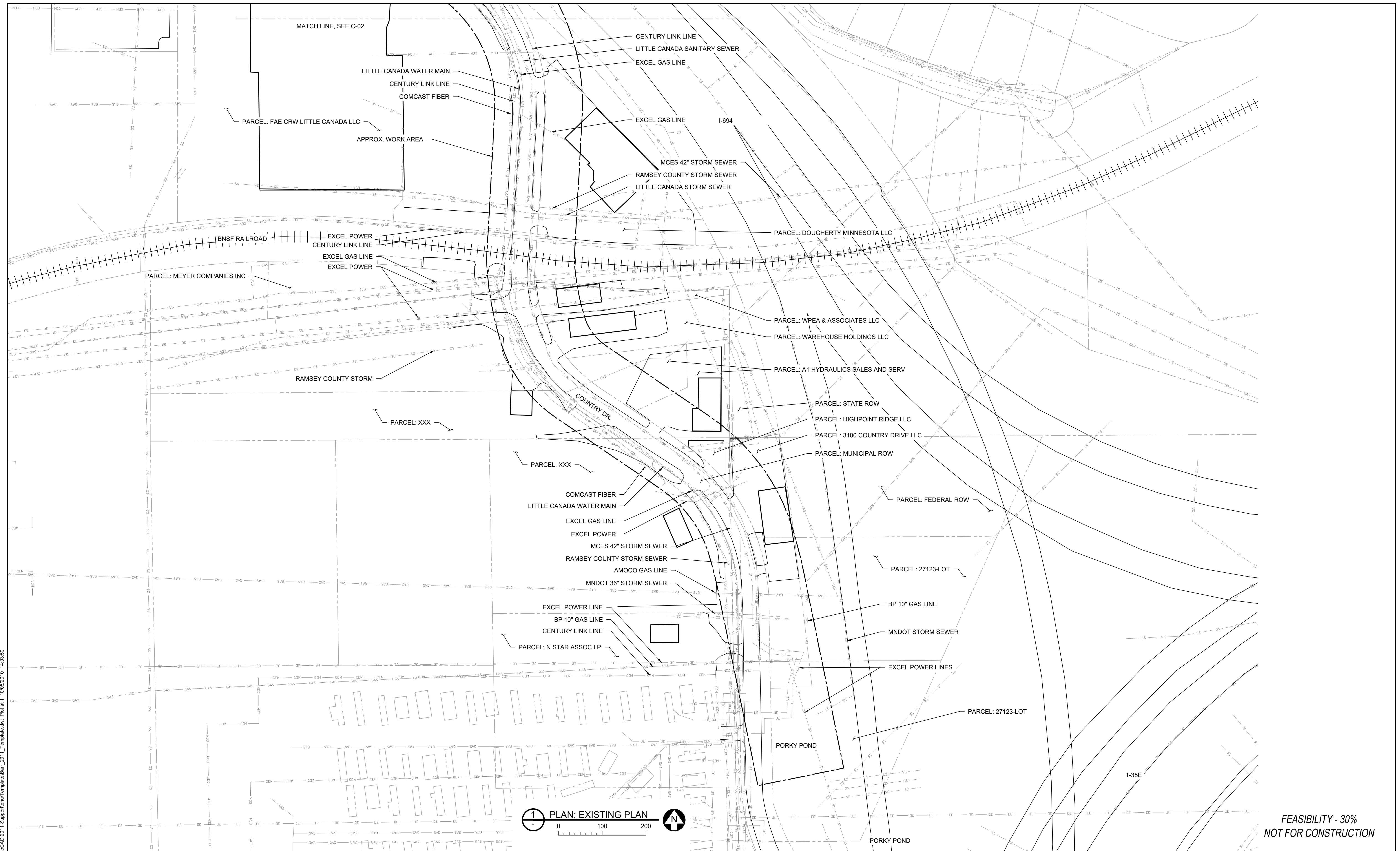
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METRO WATERSHED DISTRICT

RWMWD 2020 FEASIBILITY STUDY  
WVL TO SOUTH 694  
EXISTING PLAN

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CLIENT PROJECT No.	
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REV. No.	A

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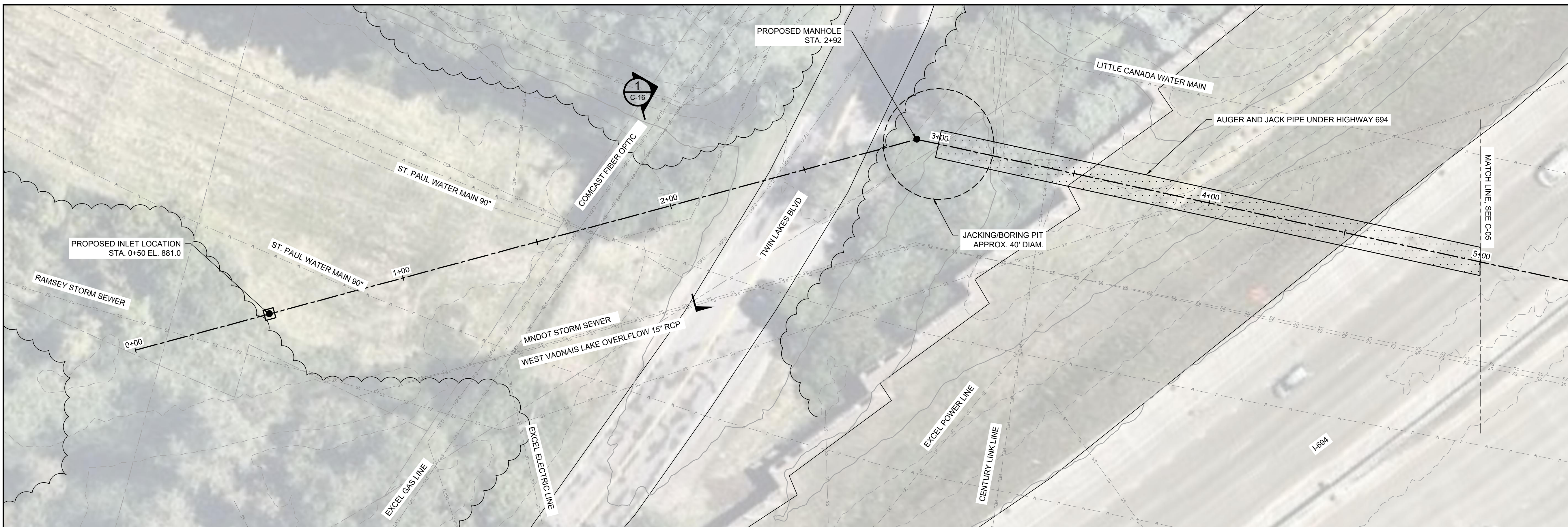
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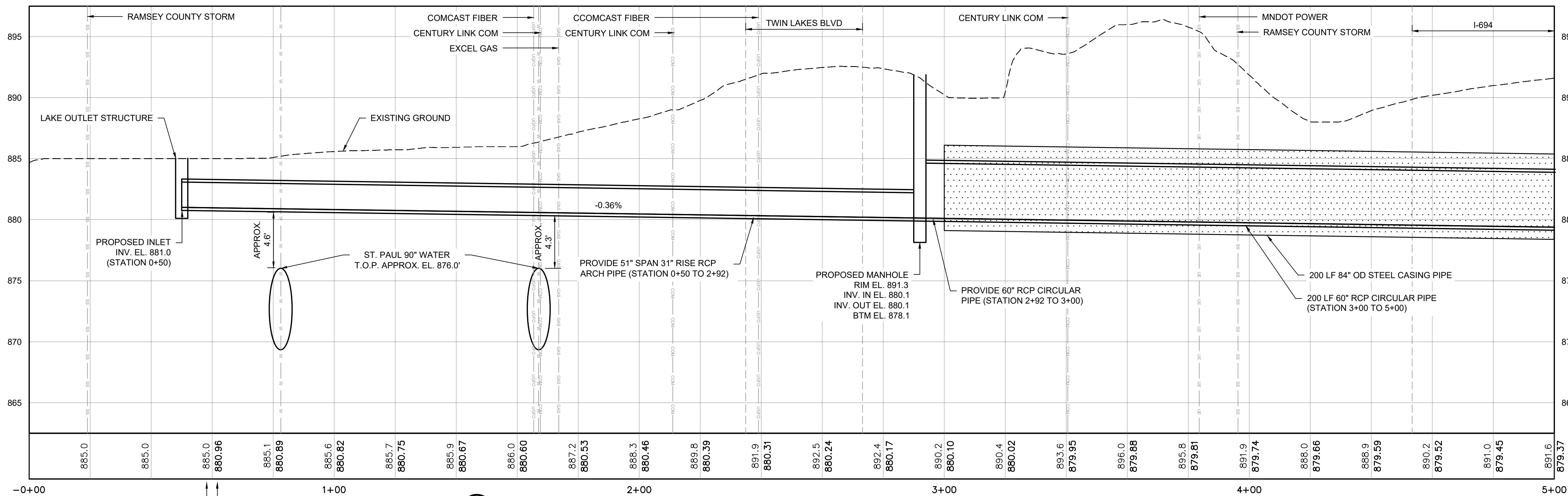
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WVL TO SOUTH 694  
EXISTING PLAN

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DWG. No. C-03	REV. No. A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 0+00 TO 5+00



1 PROFILE: PIPE PROFILE, A-1 STATION 0+00 TO 5+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C04\_PP\_STA\_0\_TO\_5+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 8:58 AM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

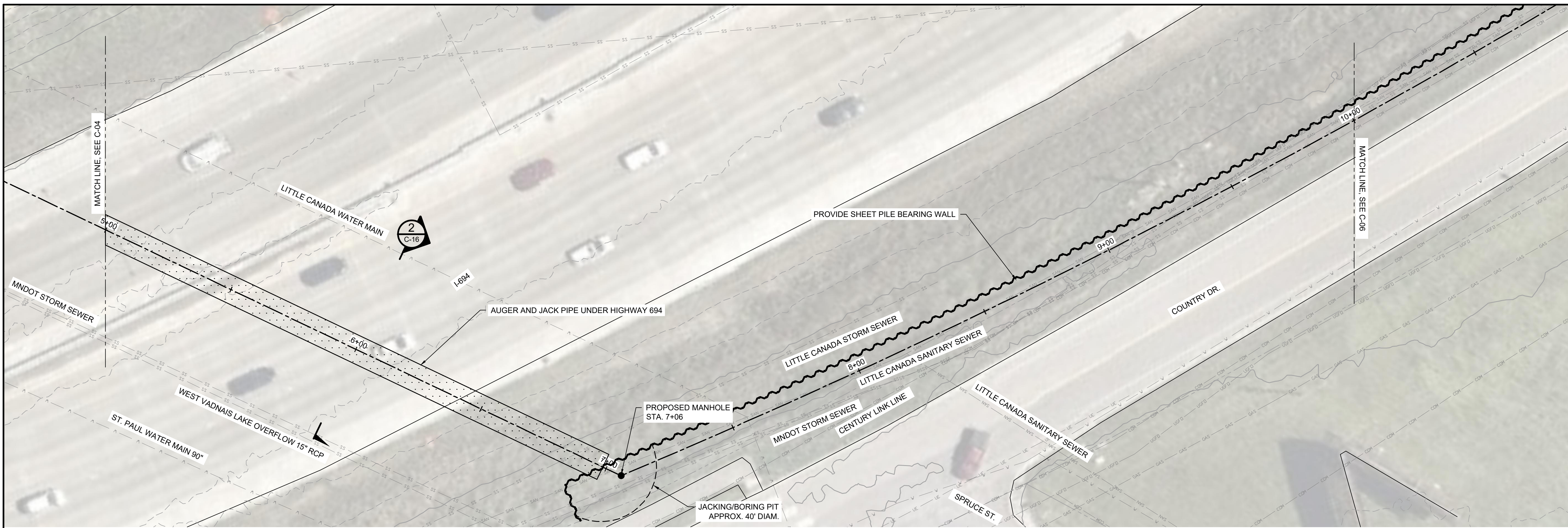
RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

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 MINNEAPOLIS, MN 55435  
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 Fax: (952) 832-2801  
 www.barr.com

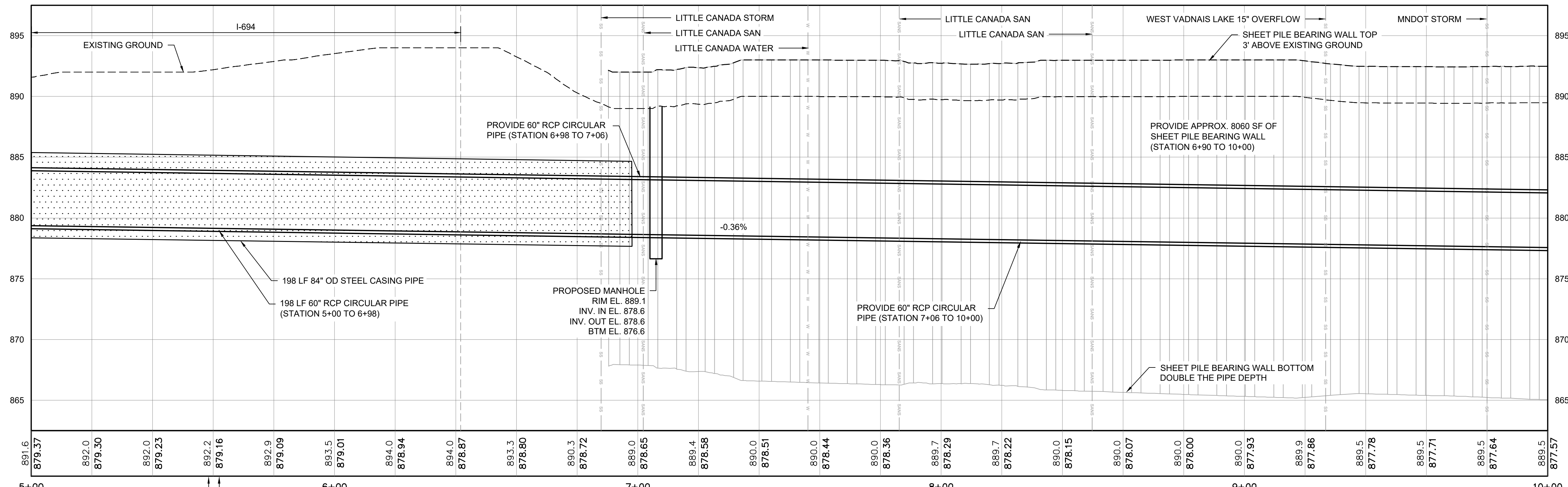
Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

**RWMWD 2020 FEASIBILITY STUDY**  
 WWL TO SOUTH 694  
 PIPE ALIGNMENT, A-1 STATION 0+00 TO 5+00  
 PLAN AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-04
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 5+00 TO 10+00



1 PROFILE: PIPE PROFILE, A-1 STATION 5+00 TO 10+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C06\_PP\_STA\_5+00\_TO\_10+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:00 AM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

CLIENT	06/24/20
BID	
CONSTRUCTION	
RELEASED TO/FOR	A B C 0 1 2 3
DATE RELEASED	

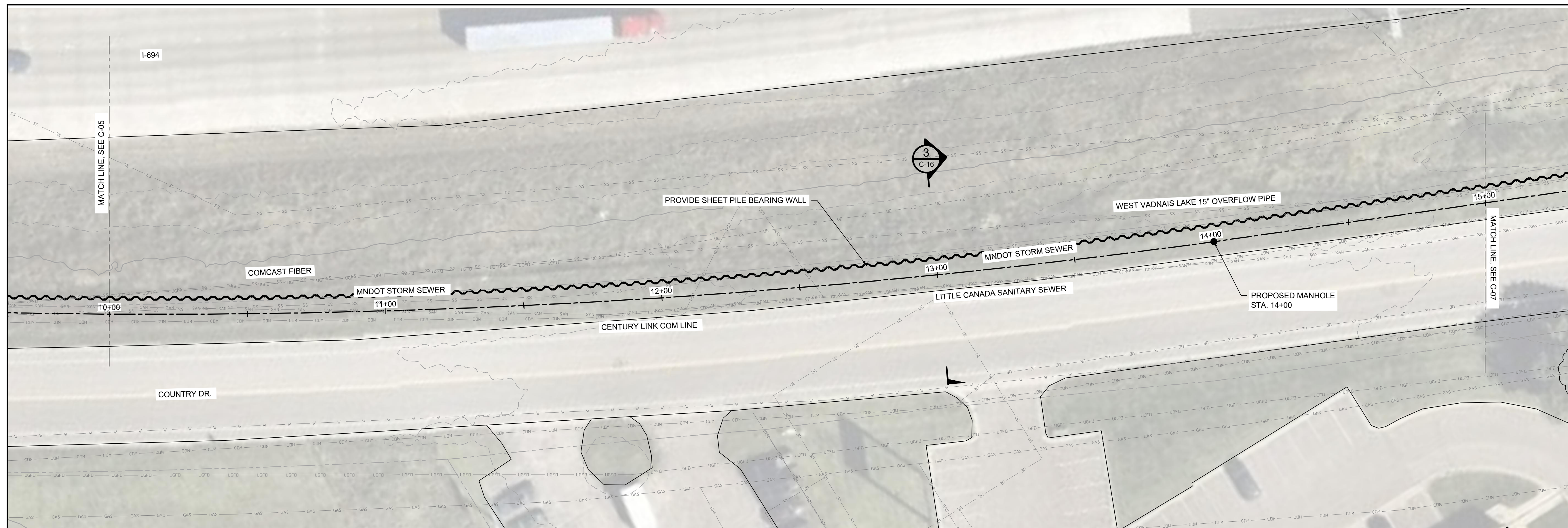
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Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	
Designed	SOR
Approved	

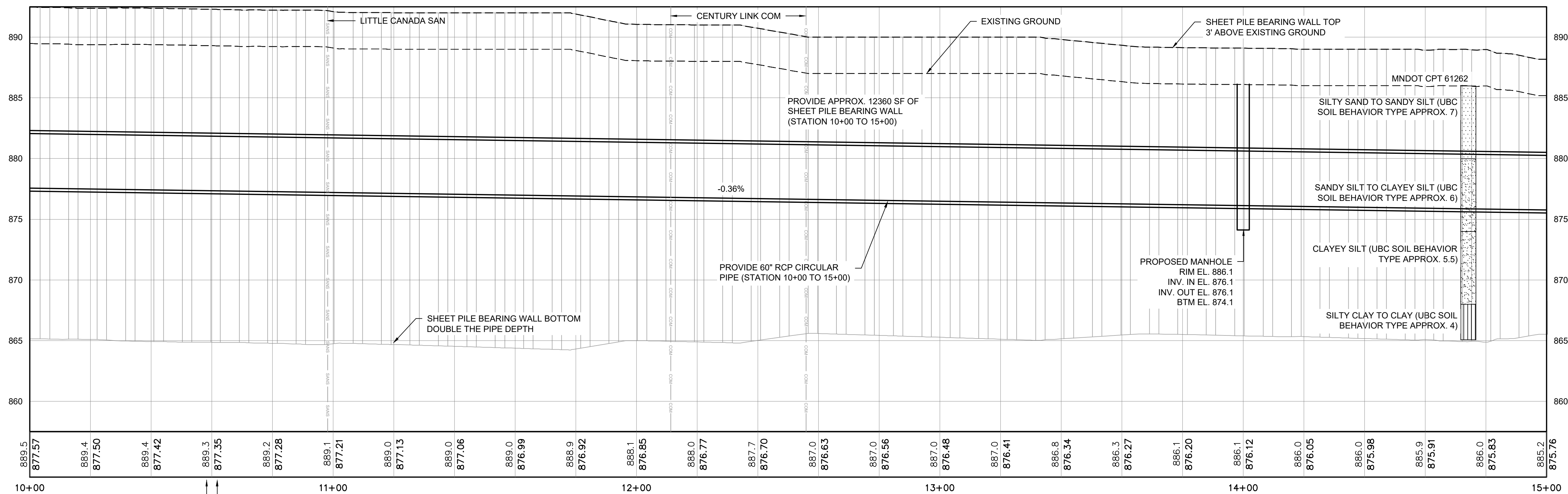
**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

**RWMWD 2020 FEASIBILITY STUDY**  
 WWL TO SOUTH 694  
 PIPE ALIGNMENT, A-1 STATION 5+00 TO 10+00  
 PLAN AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-04
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 10+00 TO 15+00



1 PROFILE: PIPE PROFILE, A-1 STATION 10+00 TO 15+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C06\_PP\_STA\_10+00\_TO\_15+00.DWG PLOT SCALE: 1:1 PLOT DATE: 06/22/2020 9:01 AM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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CLIENT	BID	CONSTRUCTION	RELEASED TO/FOR	DATE RELEASED
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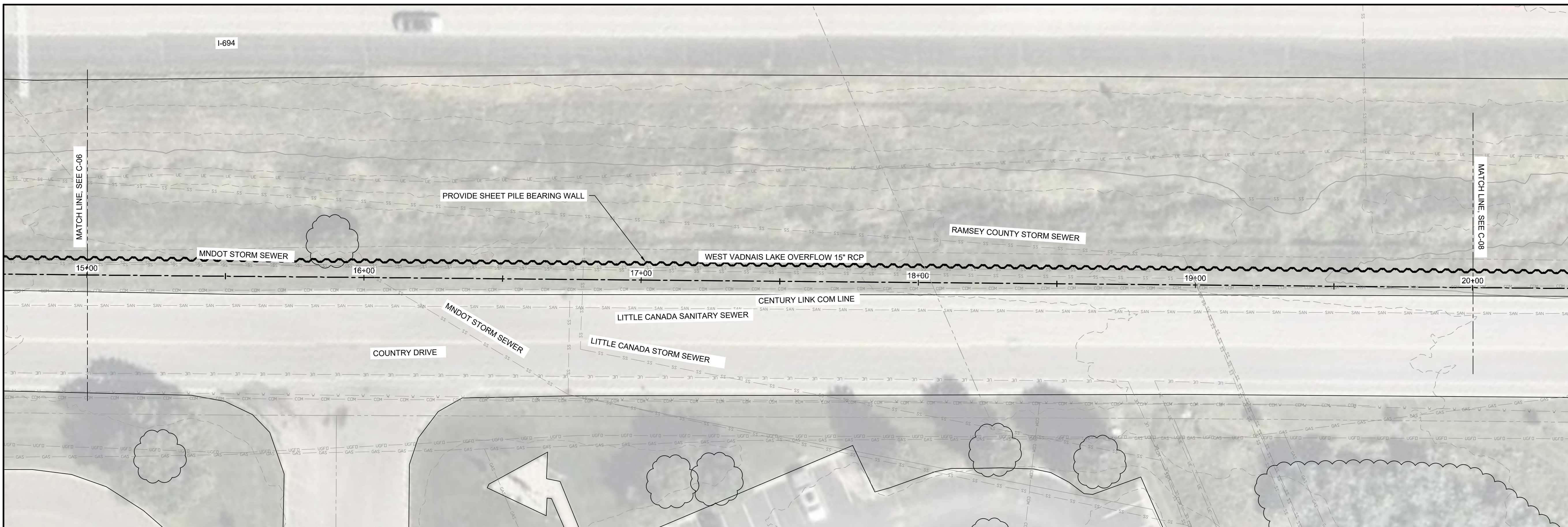
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Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

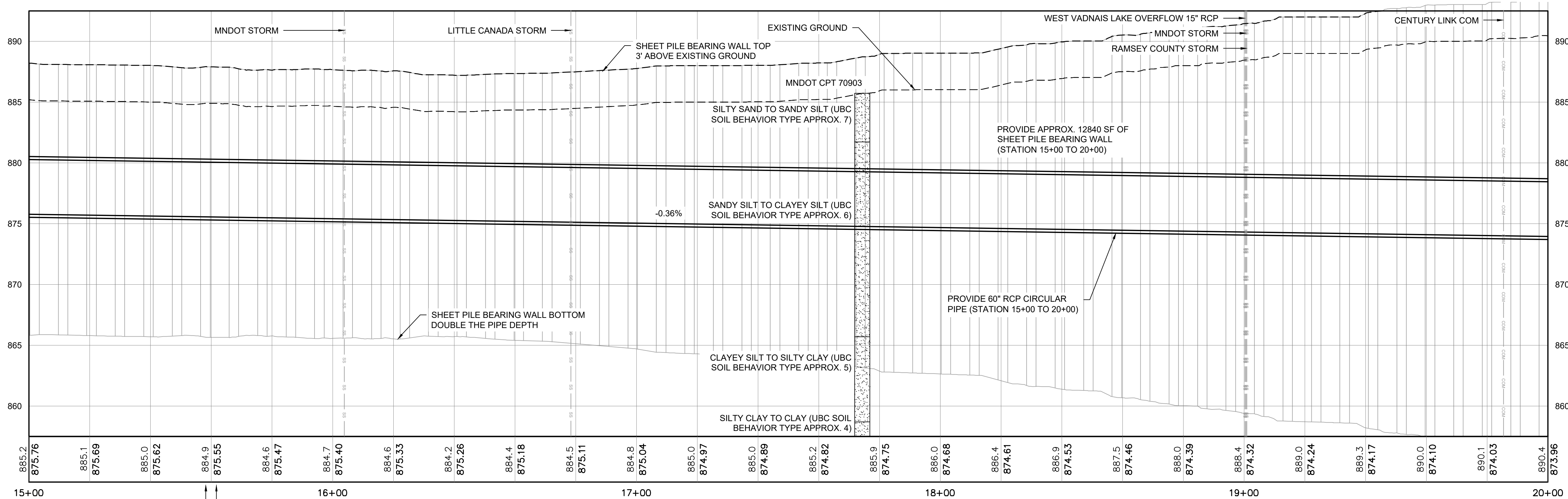
**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

**RWMWD 2020 FEASIBILITY STUDY**  
 WVW TO SOUTH 694  
**PIPE ALIGNMENT, A-1 STATION 10+00 TO 15+00**  
**PLAN AND PROFILE**

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-06
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 15+00 TO 20+00



1 PROFILE: PIPE PROFILE, A-1 STATION 15+00 TO 20+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C07\_PP\_STA\_15+00\_TO\_20+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 3:18 PM  
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NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

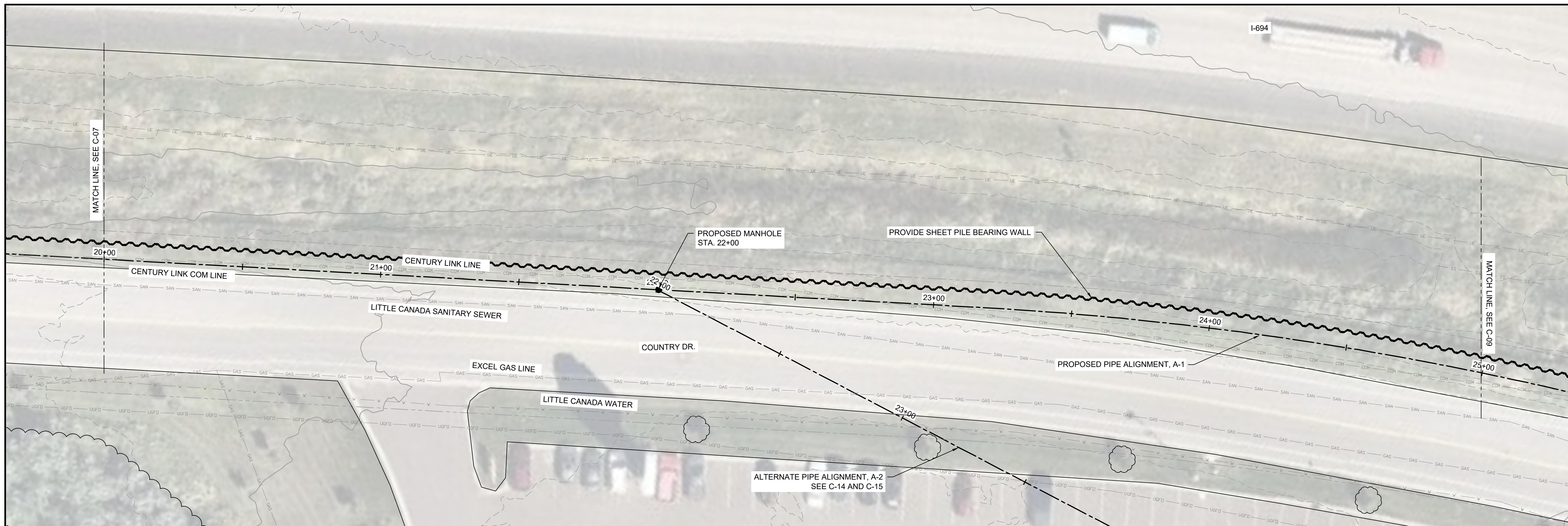
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BARR	06/24/20
BID	
CONSTRUCTION	
RELEASED TO/FOR	
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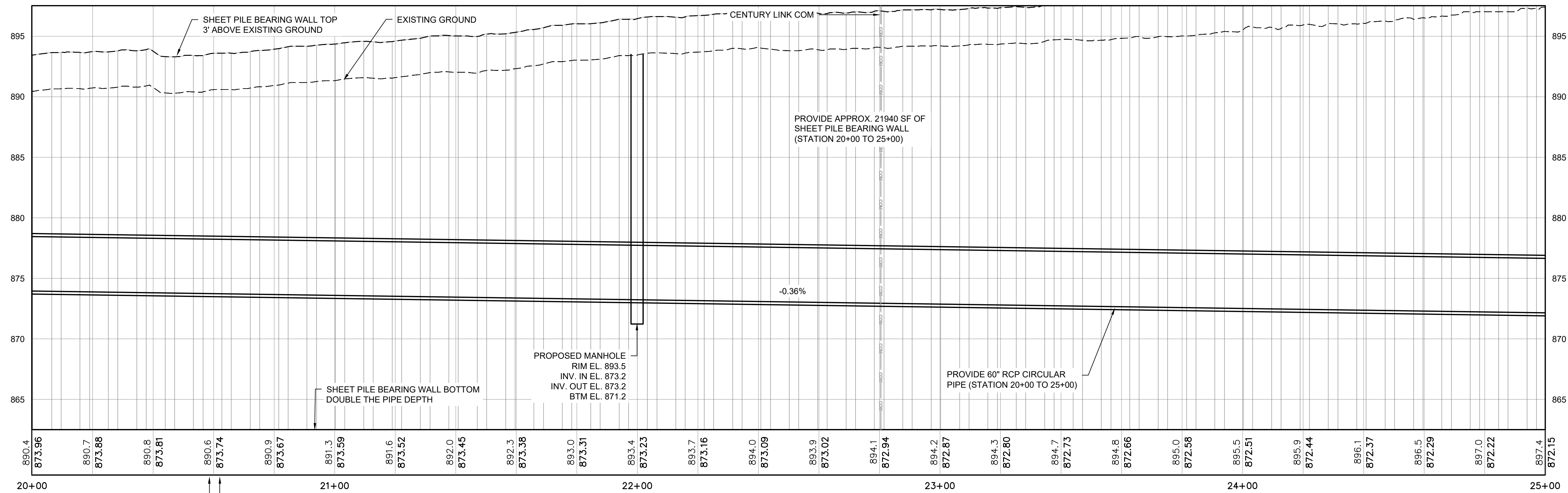
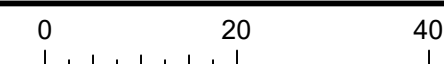
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Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

**RWMWD 2020 FEASIBILITY STUDY**  
 WVW TO SOUTH 694  
**PIPE ALIGNMENT, A-1 STATION 15+00 TO 20+00**  
**PLAN AND PROFILE**

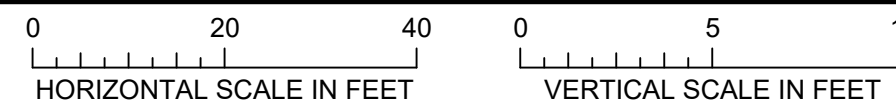
BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-07
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 20+00 TO 25+00



1 PROFILE: PIPE ALIGNMENT, A-1 STATION 20+00 TO 25+00



FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C08\_PP\_STA\_20+00\_TO\_25+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 3:17 PM

BARR: W:\AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Bar\_2011\_Template.dwt Plot at 1: 10/05/2010 14:09:50

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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PRINTED NAME: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	06/24/20				
BID					
CONSTRUCTION					
RELEASED TO/FOR	A	B	C	0	1
DATE RELEASED				2	3

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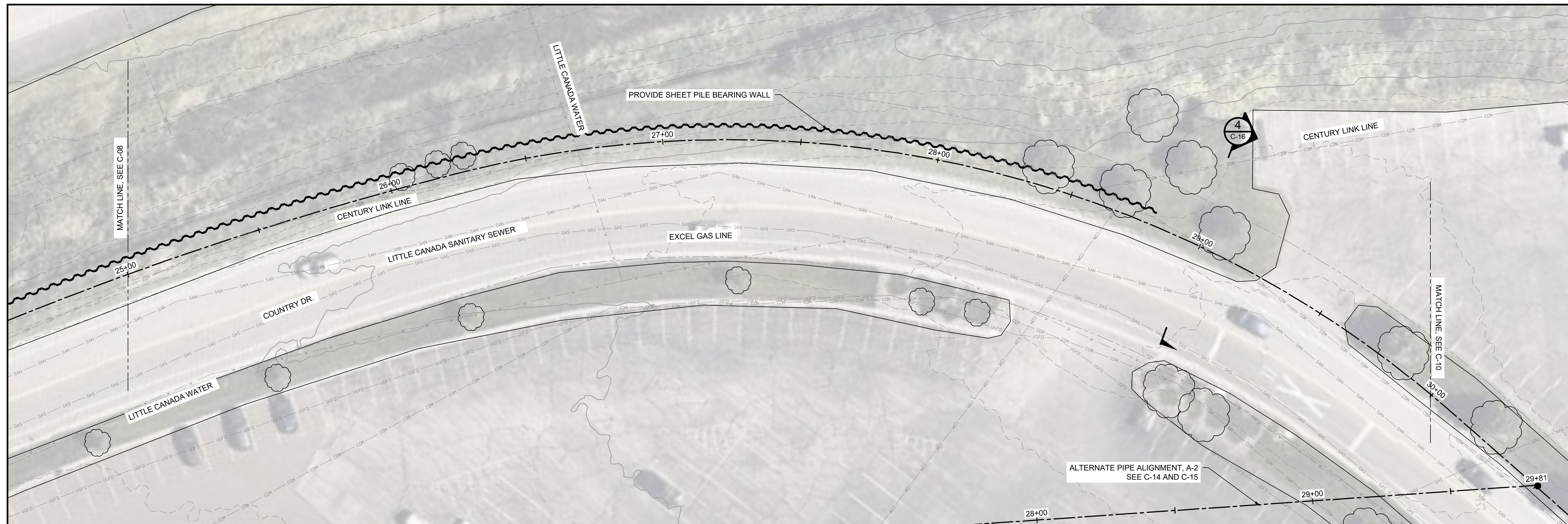
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Drawn	JMD3
Checked	-
Designed	SOR
Approved	-



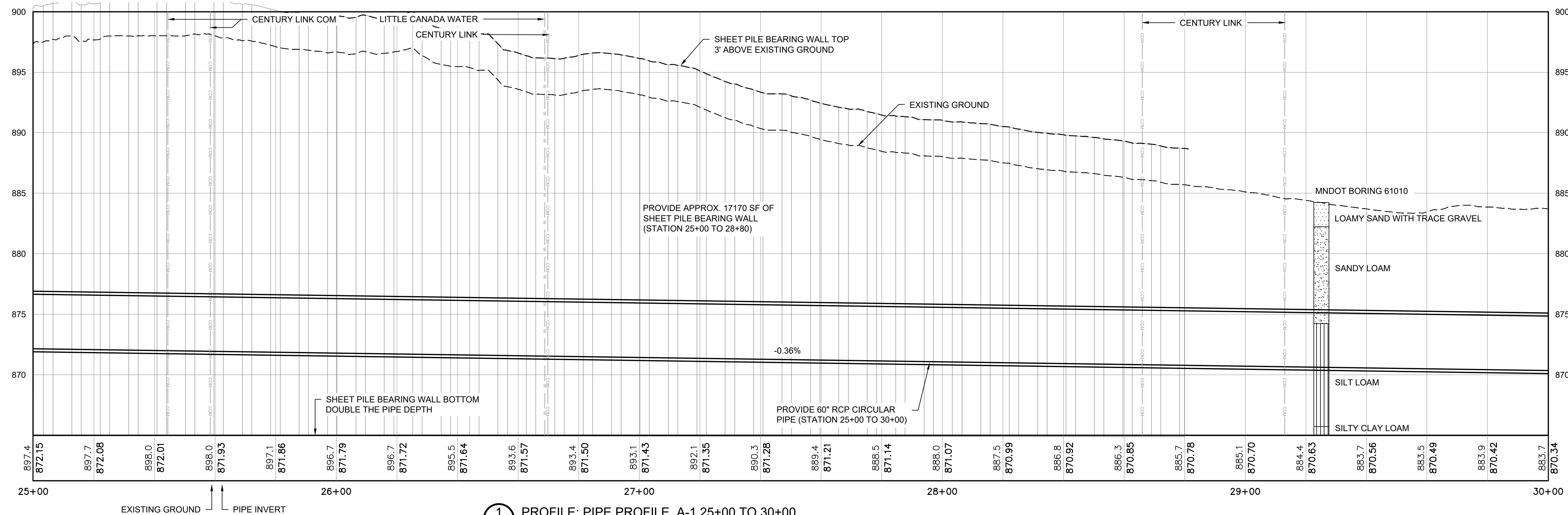
RWMWD 2020 FEASIBILITY STUDY  
WVL TO SOUTH 694  
PIPE ALIGNMENT, A-1 STATION 20+00 TO 25+00  
PLAN AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-08
REV. No.	A





1 PLAN: PIPE ALIGNMENT, A-1 STATION 25+00 TO 30+00



1 PROFILE: PIPE PROFILE, A-1 25+00 TO 30+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C09\_PP\_STA\_25+00\_TO\_30+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 3:12 PM

BARR:\AutoCAD 2011\AutoCAD 2011 Support\Temp\Barr\_2011\_Template.dwt Plot at 1:10052010 14:09:50

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PRINTED NAME: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	06/24/20					
BID						
CONSTRUCTION						
RELEASED TO/FOR	A	B	C	0	1	2
DATE RELEASED						

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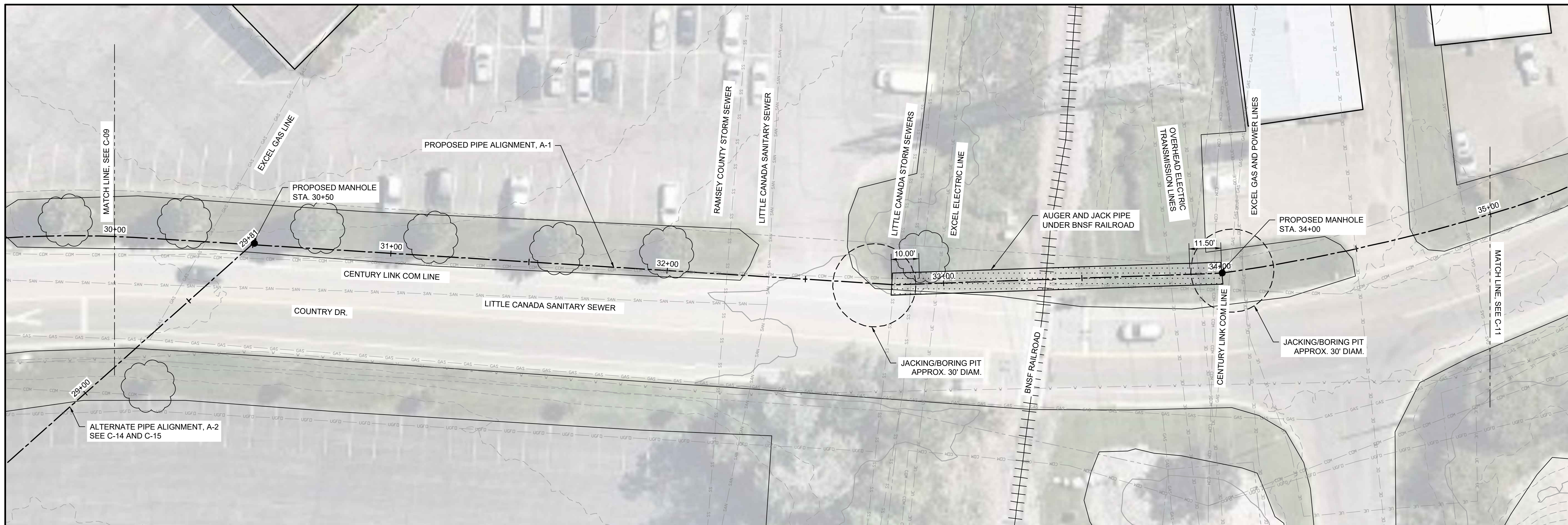
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Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

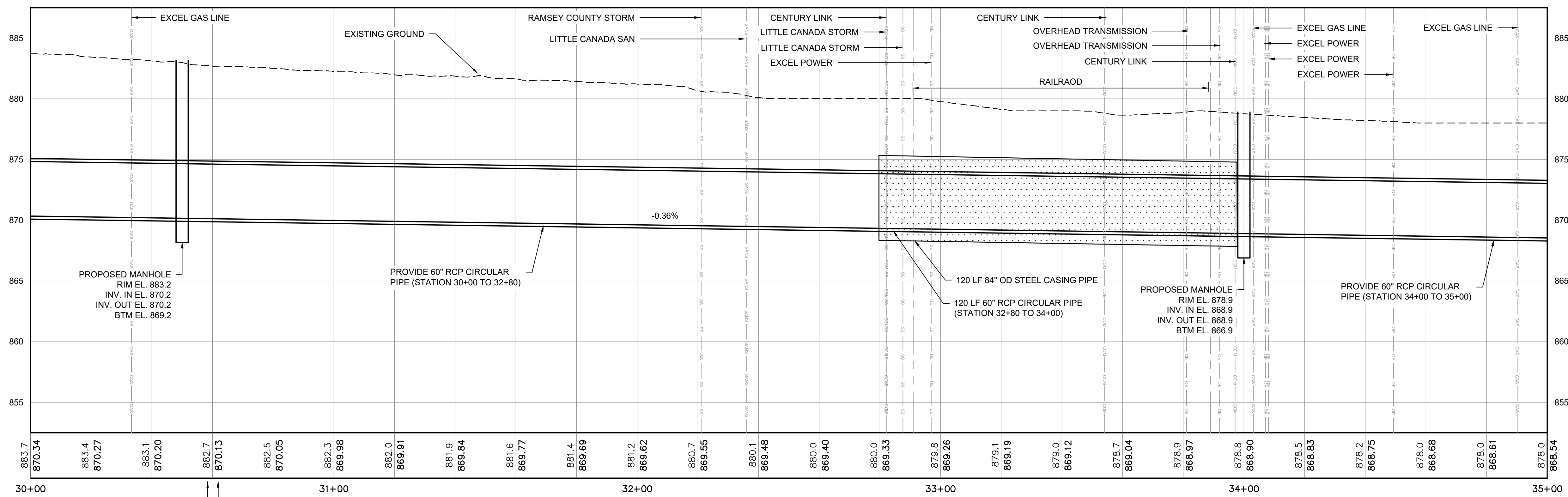


RWMWD 2020 FEASIBILITY STUDY  
WVL TO SOUTH 694  
PIPE ALIGNMENT, A-1 STATION 25+00 TO 30+00  
PLAN AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-09
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 30+00 TO 35+00



1 PROFILE: PIPE PROFILE, A-1 STATION 30+00 TO 35+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C-10\_PP\_STA\_30+00\_TO\_35+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:05 AM

BARR W:\AutoCAD 2011\AutoCAD 2011 Support\Temp\PlotBar\_2011\_Template.dwt Plot at 1:10/05/2010 14:09:50

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SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	06/24/20						
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

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Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD/3
Checked	-
Designed	SOR
Approved	-

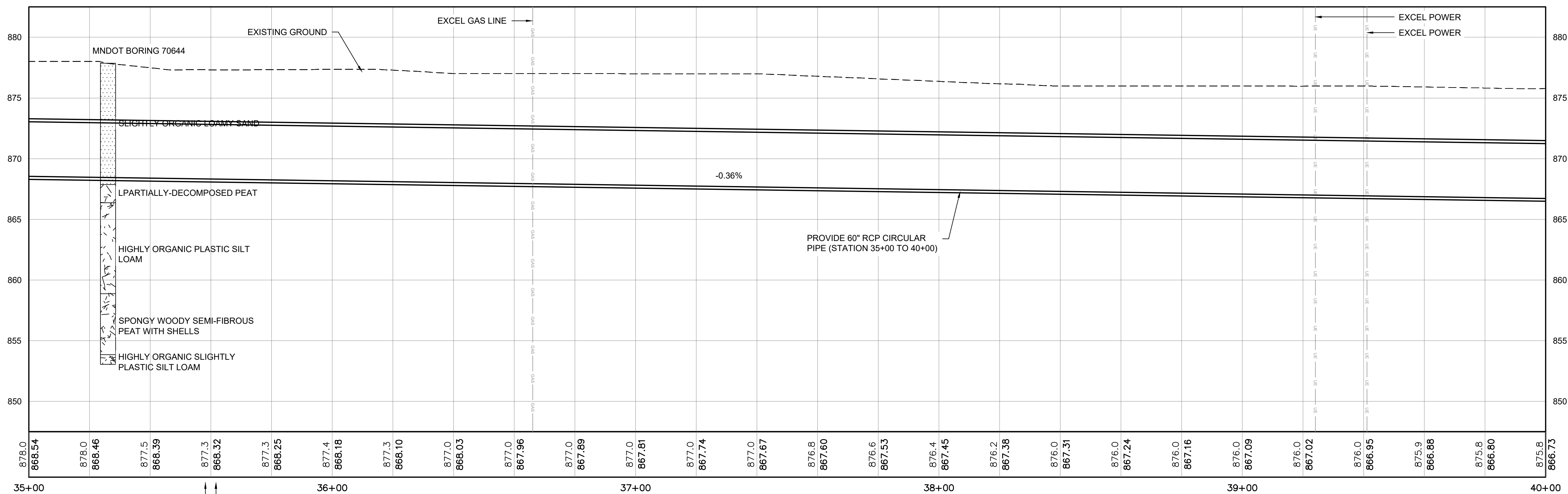
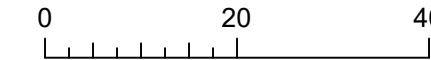


RWMWD 2020 FEASIBILITY STUDY  
WVW TO SOUTH 694  
PIPE ALIGNMENT, A-1 STATION 30+00 TO 35+00  
PLAN AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-10
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 35+00 TO 40+00



1 PROFILE: PIPE PROFILE, A-1 STATION 35+00 TO 40+00



FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C-11\_PP\_STA\_35+00\_TO\_40+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 3:10 PM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	BID	CONSTRUCTION	RELEASED TO/FOR	DATE RELEASED
06/24/20			A B C 0 1 2 3	

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Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

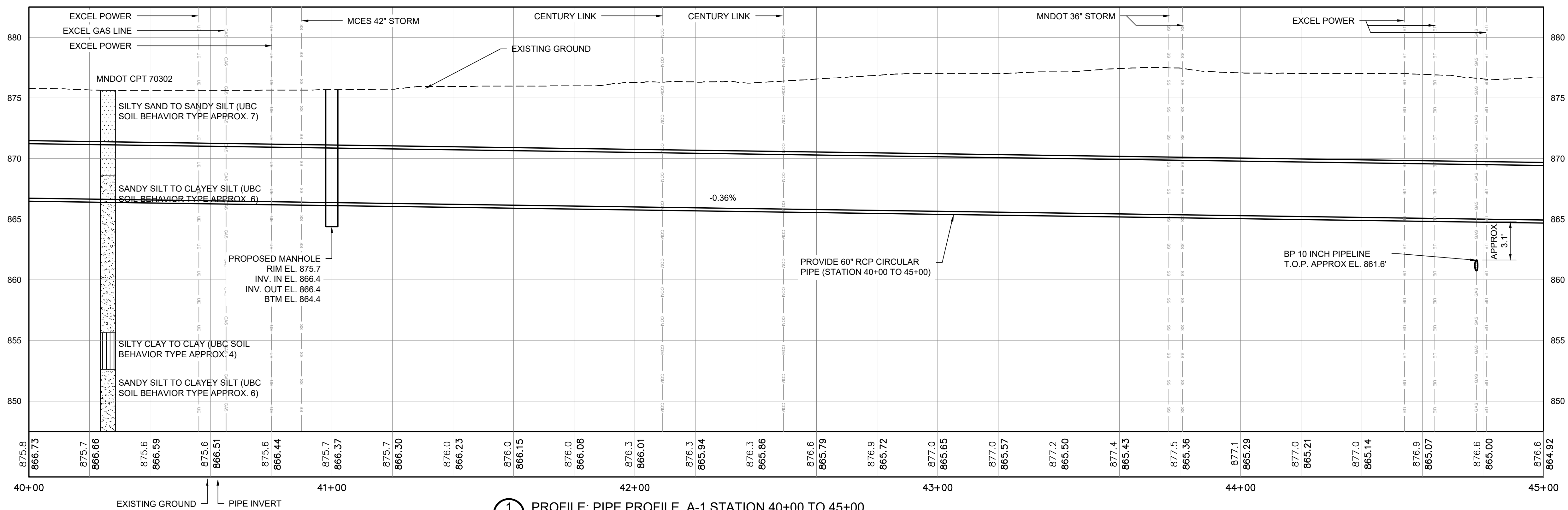
**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

**RWMWD 2020 FEASIBILITY STUDY**  
 WVW TO SOUTH 694  
**PIPE ALIGNMENT, A-1 STATION 35+00 TO 40+00**  
 PLAND AND PROFILE

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-11
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 40+00 TO 45+00



1 PROFILE: PIPE PROFILE, A-1 STATION 40+00 TO 45+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C-12\_PP\_STA\_40+00\_TO\_45+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:06 AM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	BID	CONSTRUCTION	RELEASED TO/FOR	DATE RELEASED
06/24/20			A B C 0 1 2 3	

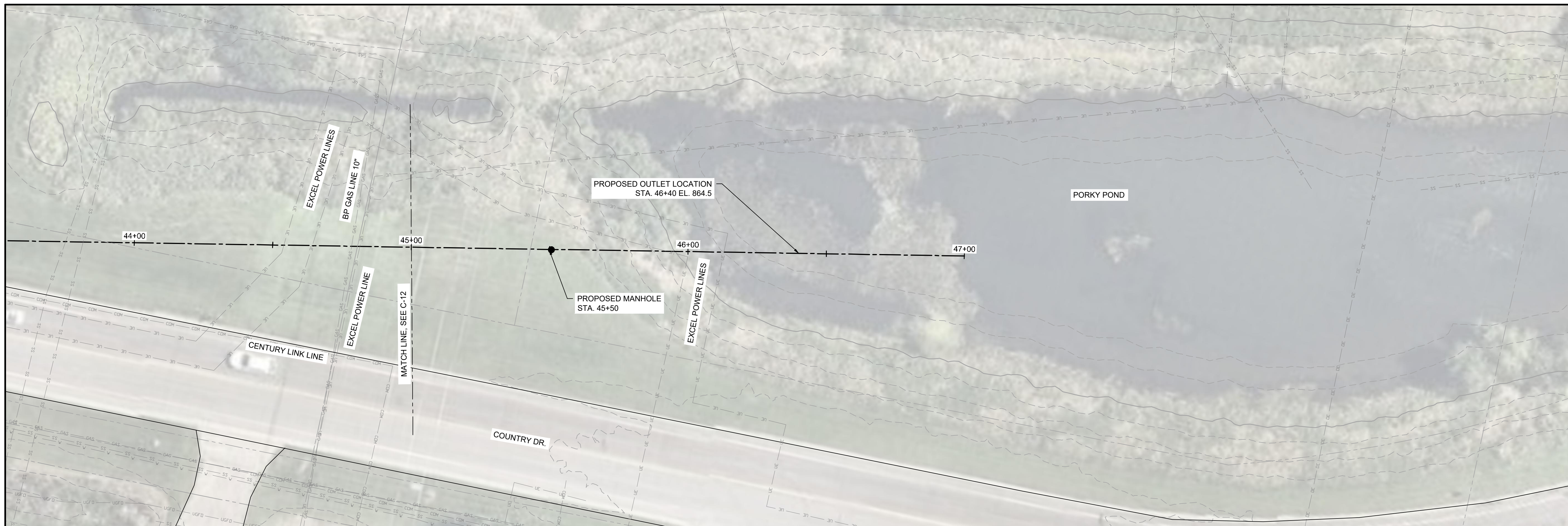
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Scale	AS SHOWN
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Drawn	JMD3
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Approved	-

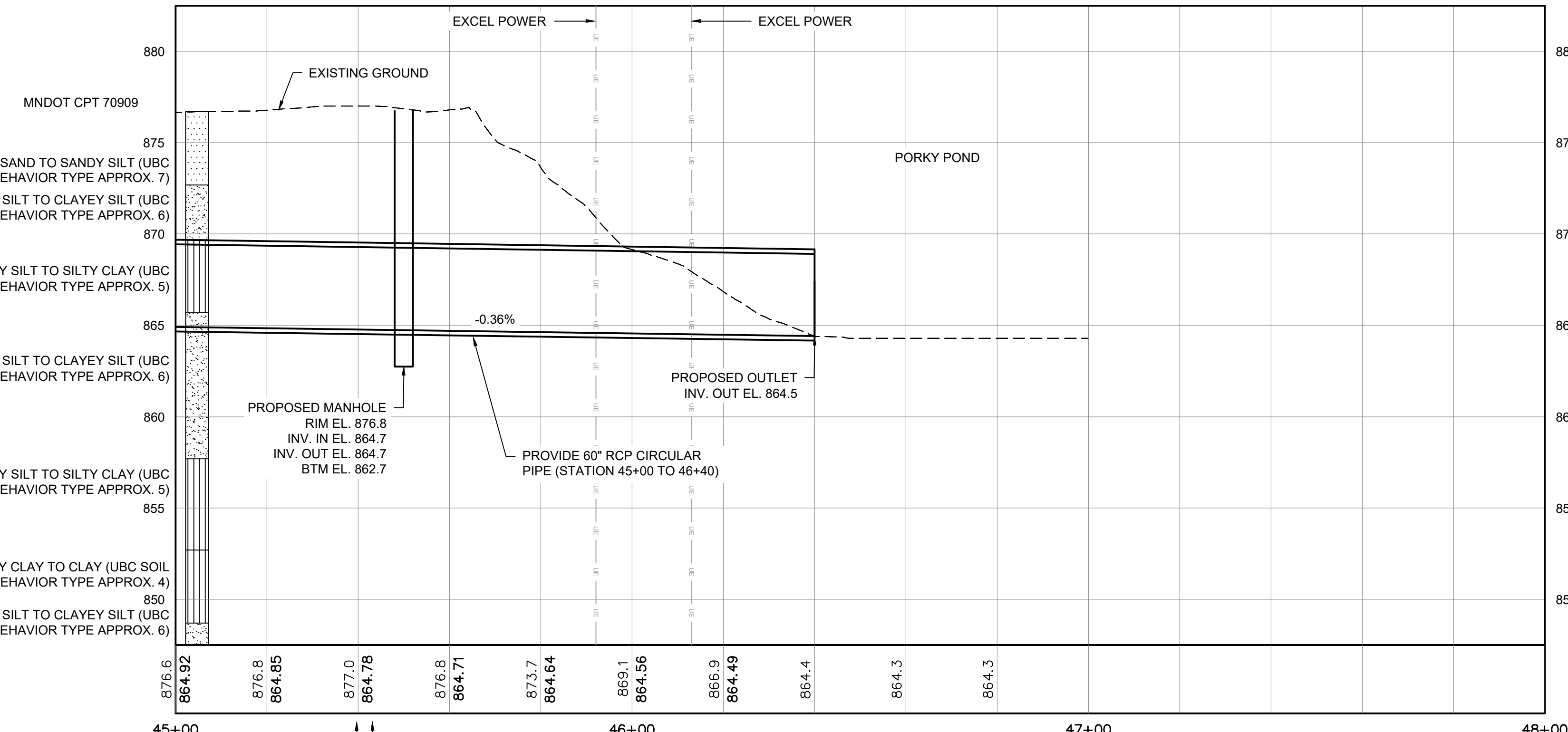
**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

**RWMWD 2020 FEASIBILITY STUDY**  
 WVW TO SOUTH 694  
**PIPE ALIGNMENT, A-1 STATION 40+00 TO 45+00**  
**PLAN AND PROFILE**

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-12
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-1 STATION 45+00 TO 48+00



1 PROFILE: PIPE PROFILE, A-1 STATION 45+00 TO 48+00

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C-13\_PP\_STA\_45+00\_TO\_48+00.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 3:46 PM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	DATE
BARR	06/24/20
BID	
CONSTRUCTION	
RELEASED TO/FOR	
DATE RELEASED	

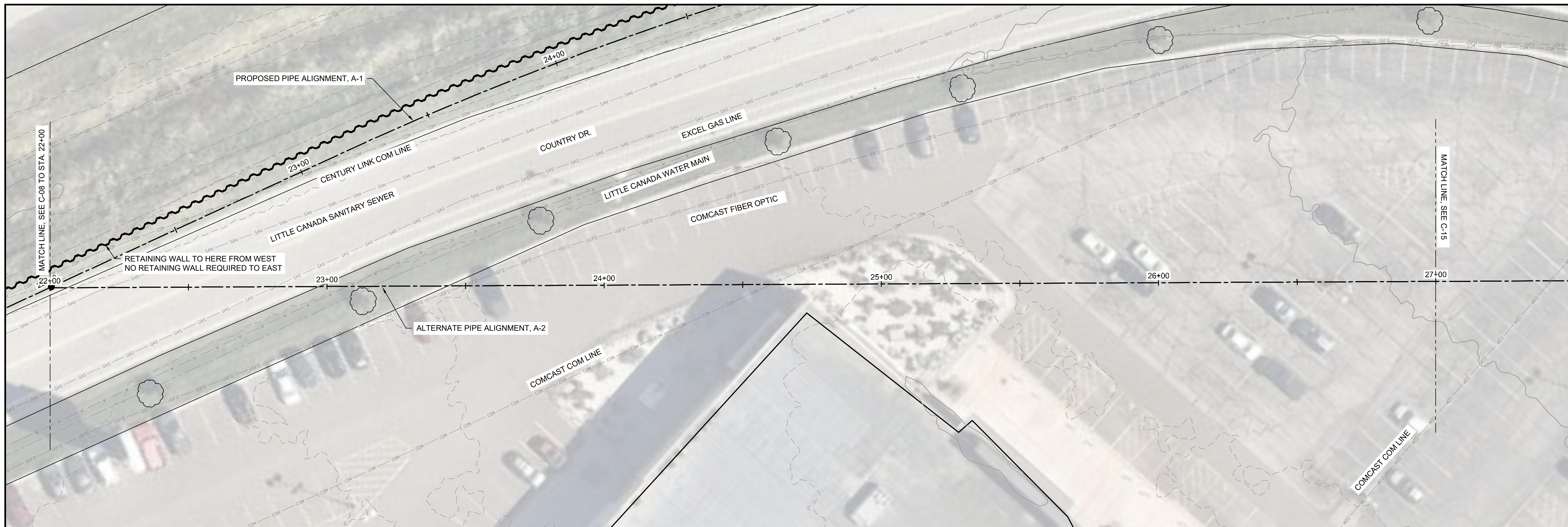
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 Ph: 1-800-632-2277  
 www.barr.com

Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
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Designed	SOR
Approved	-

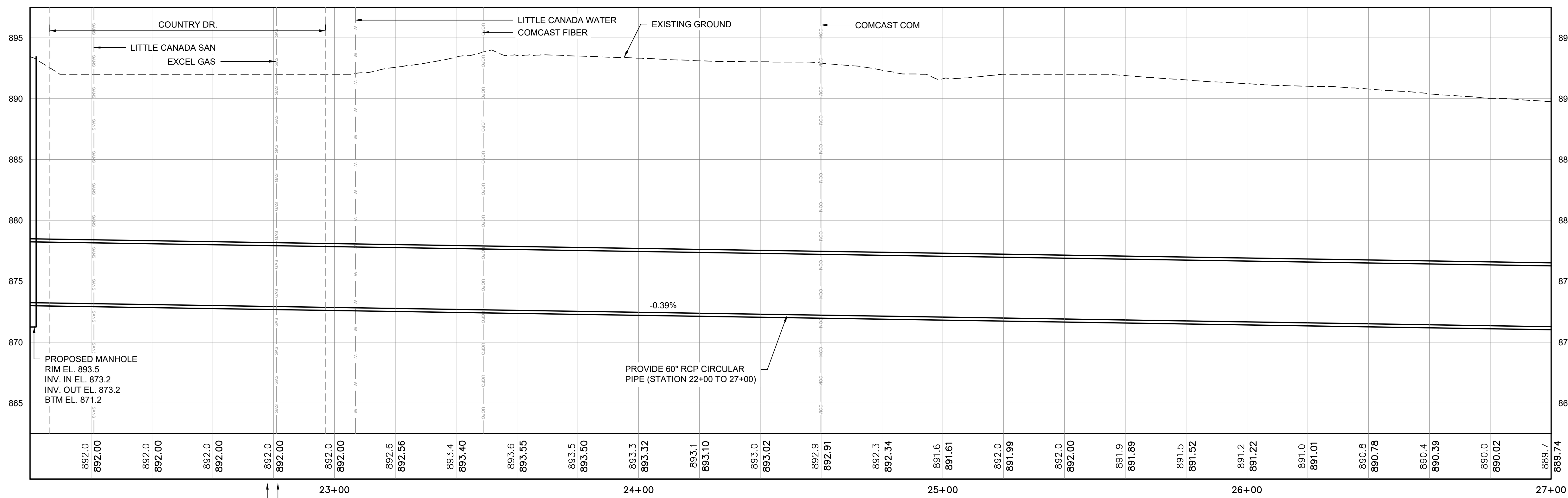
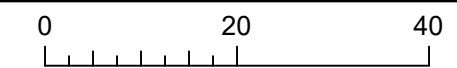
**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

**RWMWD 2020 FEASIBILITY STUDY**  
 WWL TO SOUTH 694  
**PIPE ALIGNMENT, A-1 STATION 45+00 TO 48+00**  
**PLAN AND PROFILE**

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-13
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-2 STATION 22+00 TO 27+00



1 PROFILE: PIPE PROFILE, A-2 STATION 22+00 TO 27+00



FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\20-C-14\_PP\_ALT1\_1.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 4:02 PM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	DATE
BARR	06/24/20
BID	
CONSTRUCTION	
RELEASED TO/FOR	
DATE RELEASED	

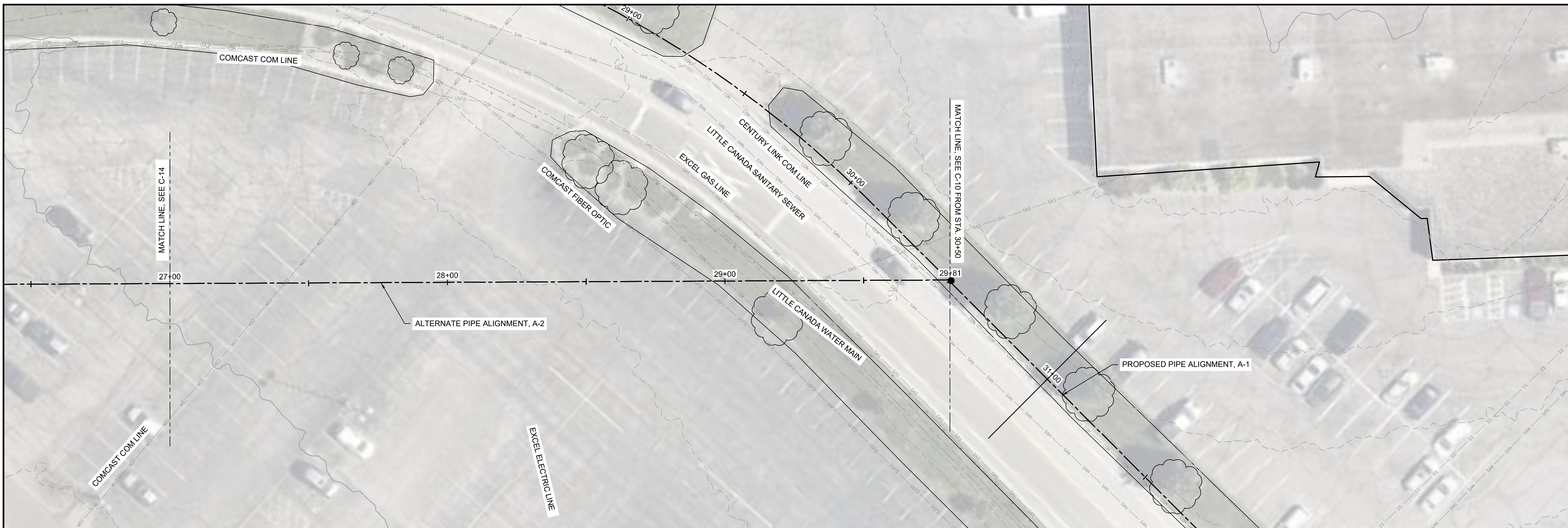
**BARR**  
 Project Office:  
 BARR ENGINEERING CO.  
 4300 MARKETPOINTE DRIVE  
 Suite 200  
 MINNEAPOLIS, MN 55435  
 Corporate Headquarters:  
 Minneapolis, Minnesota  
 Ph: 1-800-632-2277

Scale	AS SHOWN
Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

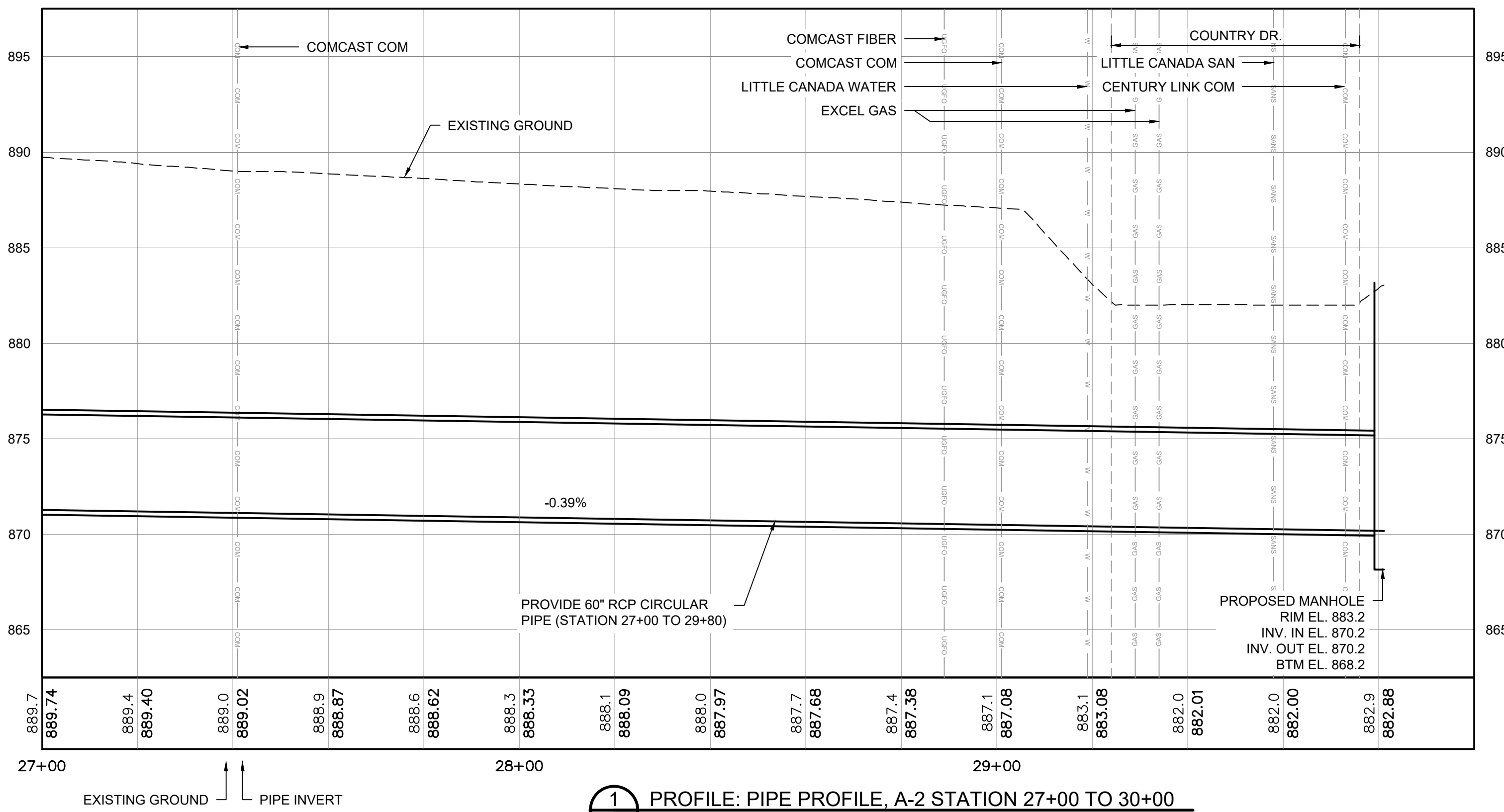
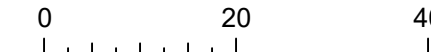


RWMWD 2020 FEASIBILITY STUDY  
 WWL TO SOUTH 694  
 PIPE ALIGNMENT, A-2 STATION 22+00 TO 27+00  
 PLAN AND PROFILE

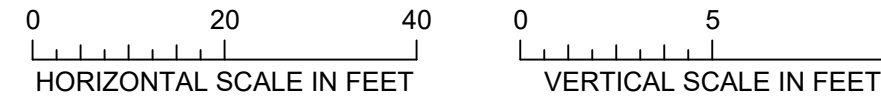
BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-14
REV. No.	A



1 PLAN: PIPE ALIGNMENT, A-2 STATION 27+00 TO 30+00



1 PROFILE: PIPE PROFILE, A-2 STATION 27+00 TO 30+00



FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\28621200\_20\_C-15\_PP\_ALT1\_2.DWG PLOT SCALE: 1:1 PLOT DATE: 6/19/2020 4:02 PM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN

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 PRINTED NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

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 BARR ENGINEERING CO.  
 4300 MARKETPOINTE DRIVE  
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 MINNEAPOLIS, MN 55435  
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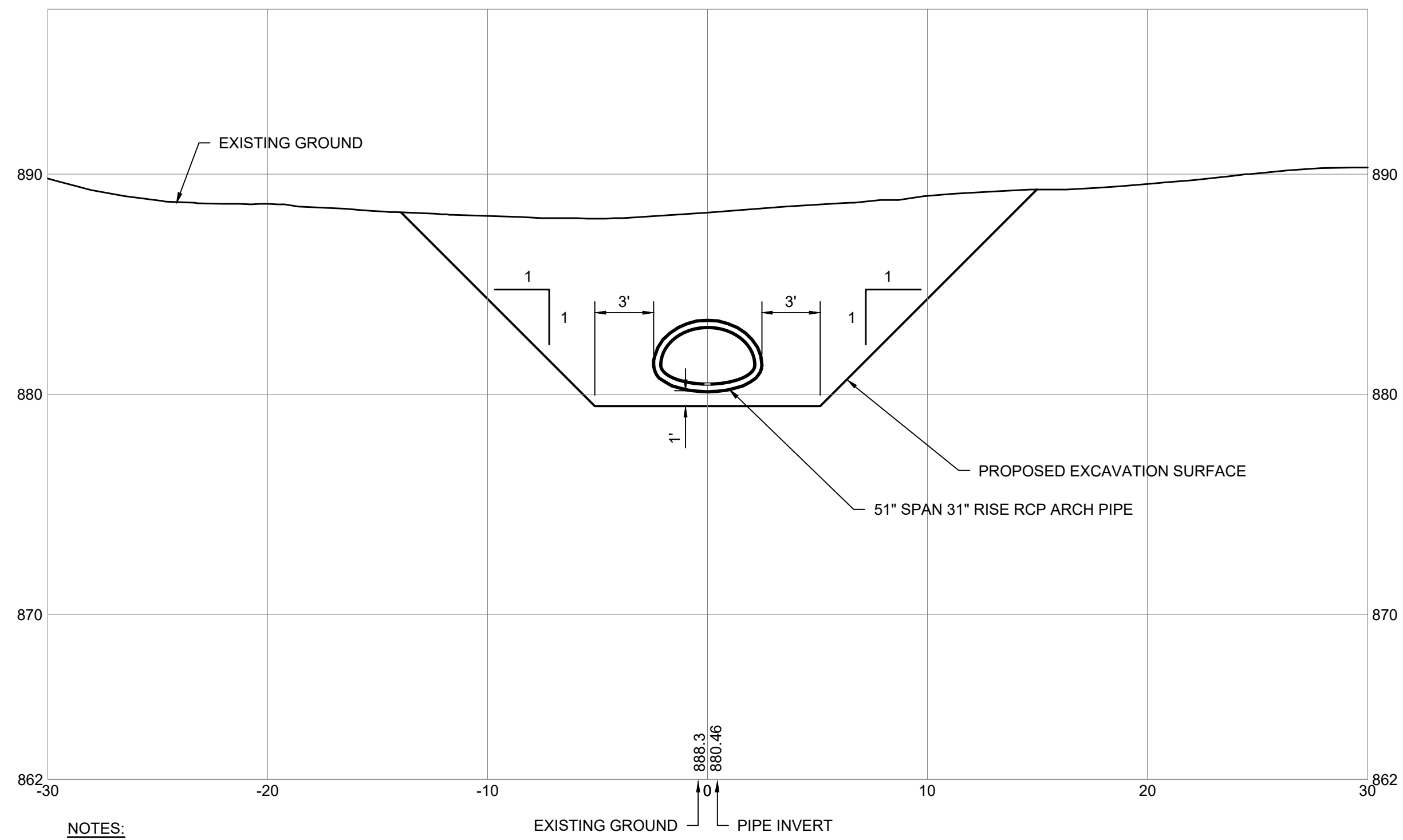
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Date	04/06/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-



RWMWD 2020 FEASIBILITY STUDY  
 WVW TO SOUTH 694  
 PIPE ALIGNMENT, A-2 STATION 27+00 TO 30+00  
 PLAN AND PROFILE

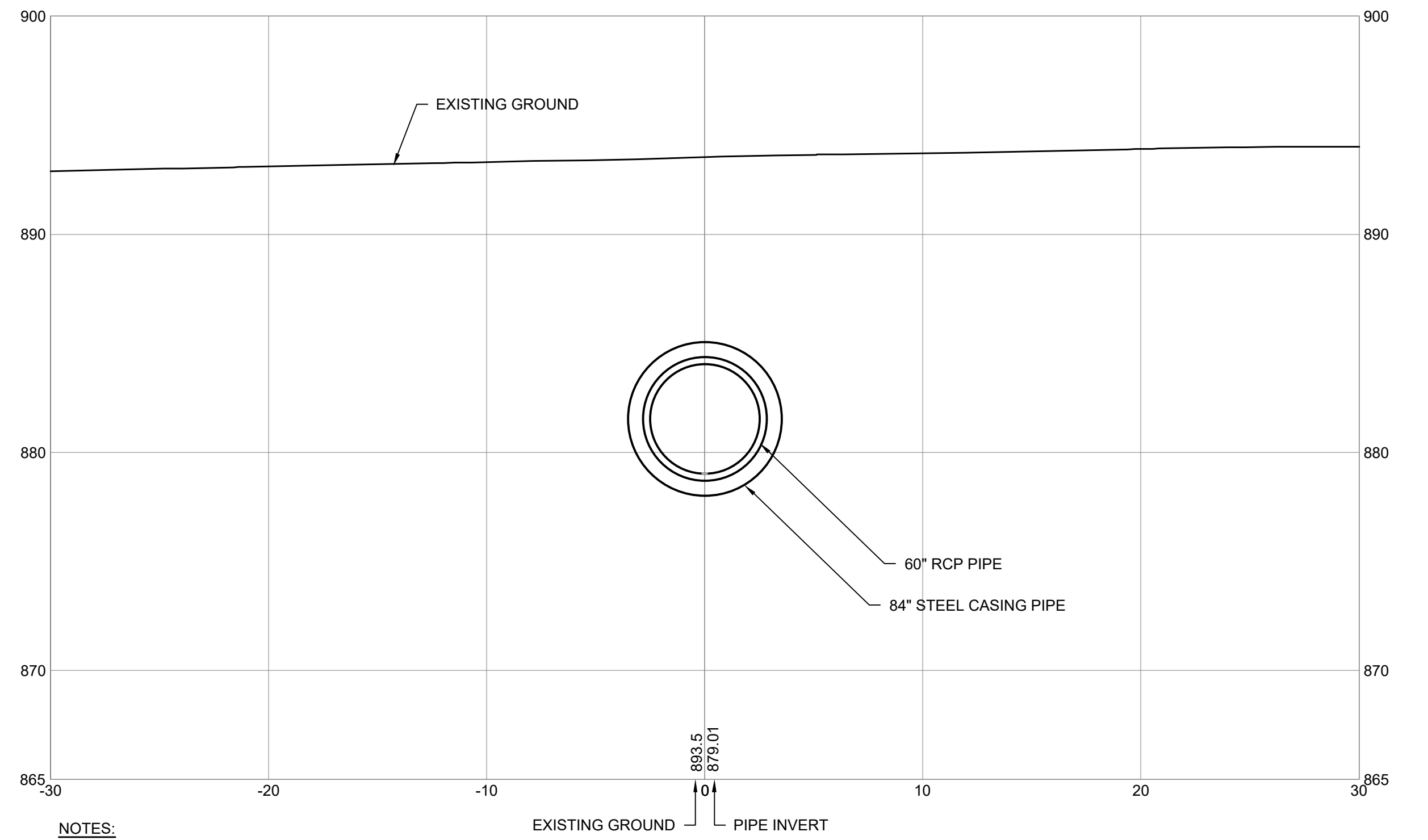
BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-15
REV. No.	A

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23621200\_20\_C-16\_SECTIONS\_1.DWG PLOT SCALE: 1:1 PLOT DATE: 06/22/2020 10:04 AM  
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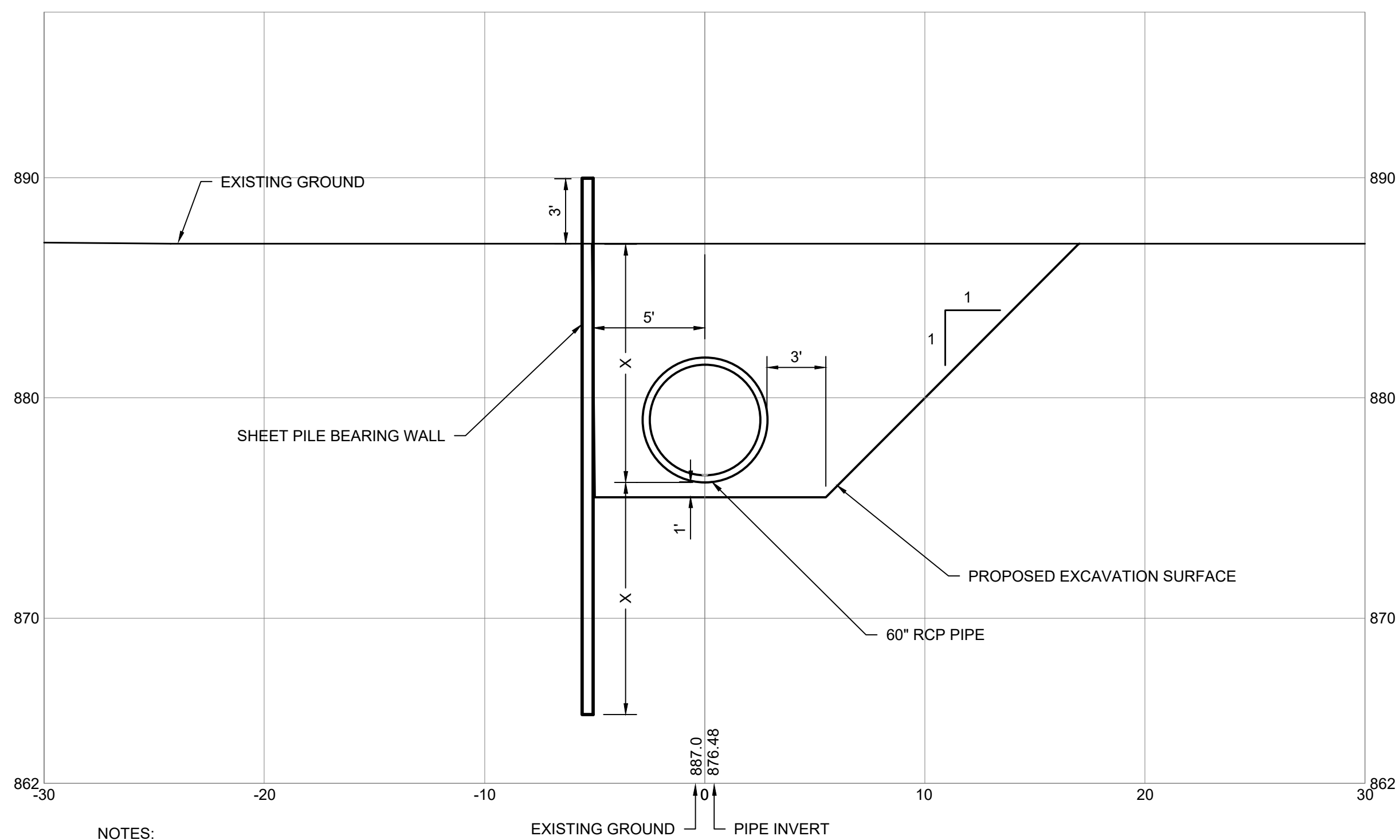
**NOTES:**  
 1. TYPICAL SECTION FOR STATION RANGE:  
 1.1. 0+50 TO 2+92 (A-1 AND A-2)

**1 SECTION: TYPICAL ARCH PIPE EXCAVATION TRENCH (STA. 2+00)**  
 0 5 10  
 VERT. AND HORIZ. SCALE



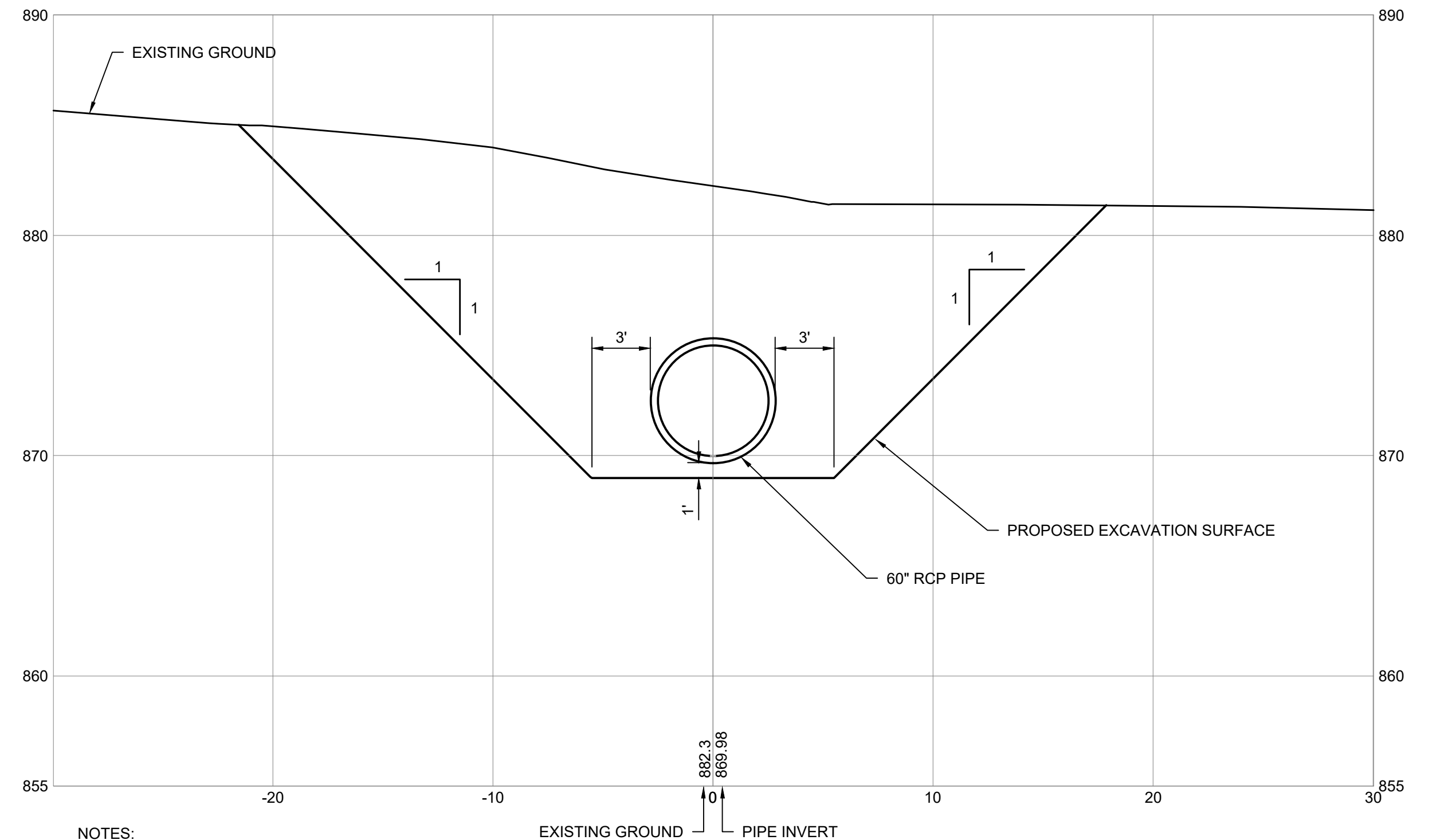
**NOTES:**  
 1. TYPICAL SECTION FOR STATION RANGES:  
 1.1. 3+00 TO 6+98 (UNDER INTERSTATE 694, A-1 AND A-2)  
 1.2. 33+80 TO 34+00 (UNDER BNSF RAILROAD, A-1 AND A-2)

**2 SECTION: TYPICAL CIRCULAR PIPE JACKING (STA. 6+00)**  
 0 5 10  
 VERT. AND HORIZ. SCALE



**NOTES:**  
 1. TYPICAL SECTION FOR STATION RANGE:  
 1.1. 6+98 TO 28+80 (A-1)  
 1.2. 6+98 TO 22+00 (A-2)

**3 SECTION: TYPICAL CIRCULAR PIPE SHEET PILE EXCAVATION TRENCH (STA. 13+00)**  
 0 5 10  
 VERT. AND HORIZ. SCALE



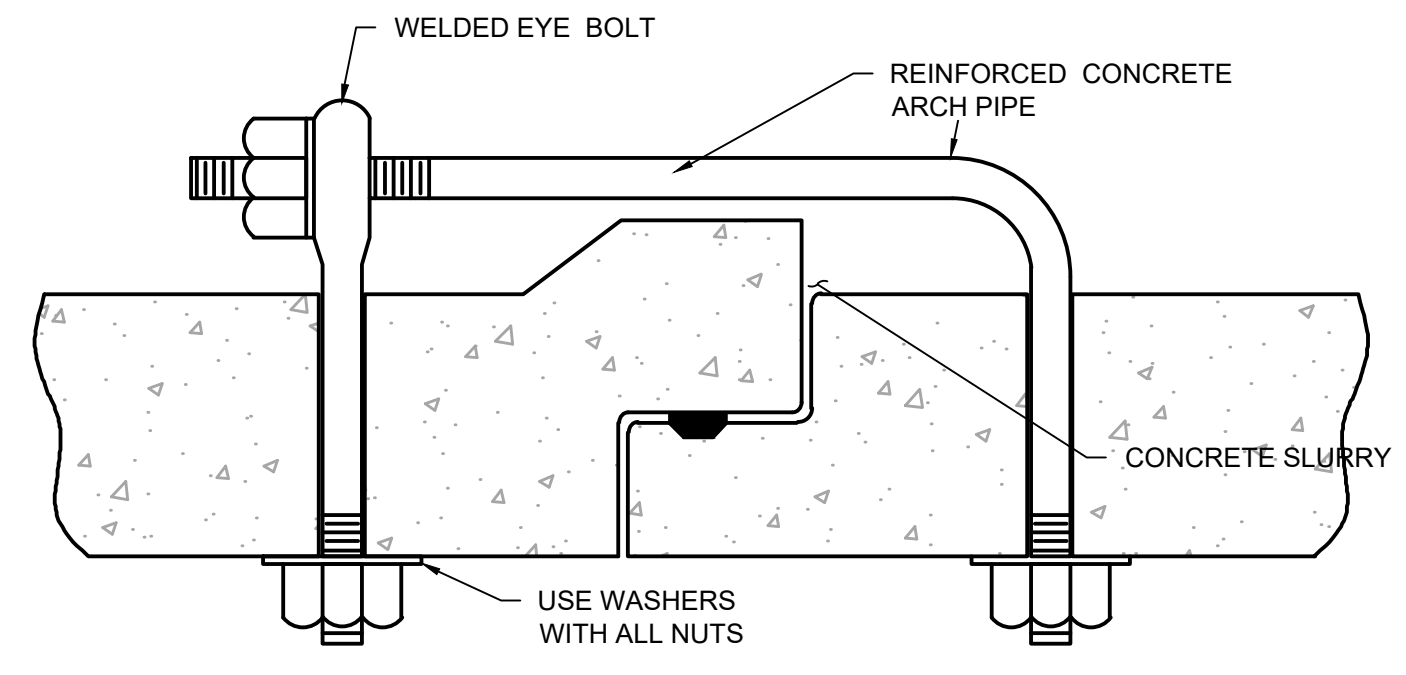
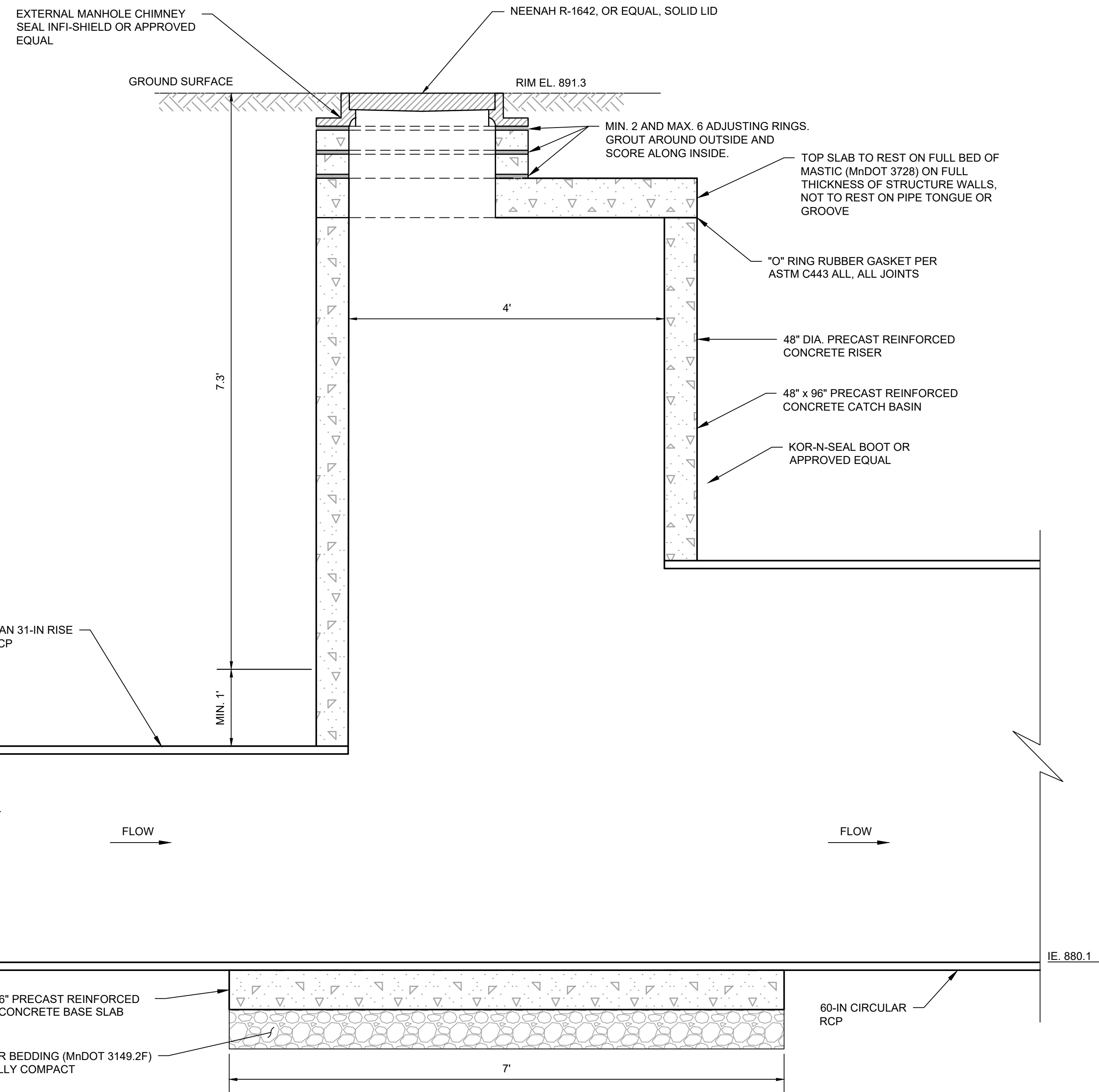
**NOTES:**  
 1. TYPICAL SECTION FOR STATION RANGES:  
 1.1. 28+80 TO 32+80 (A-1)  
 1.2. 22+00 TO 29+80 (A-2)  
 1.3. 34+00 TO 46+40 (A-1 AND A-2)

**4 SECTION: TYPICAL CIRCULAR PIPE EXCAVATION TRENCH (STA. 29+00)**  
 0 5 10  
 VERT. AND HORIZ. SCALE

FEASIBILITY - 30% DESIGN  
 NOT FOR CONSTRUCTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.				CLIENT: 06/24/20 BID: CONSTRUCTION RELEASED TO/FOR: A B C 0 1 2 3 DATE RELEASED:				<b>BARR</b> Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Ph: 1-800-632-2277		Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com		Scale: AS SHOWN Date: 04/06/2020 Drawn: JMD3 Checked: - Designed: SOR Approved: -		RWMWD 2020 FEASIBILITY STUDY VWL TO SOUTH 694 TYPICAL SECTIONS		BARR PROJECT No. 23/62-1200.20 CLIENT PROJECT No.		DWG. No. C-16 REV. No. A	
NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION														
A	JMD3	SOR	ELA	06/24/2020	FEASIBILITY - 30% DESIGN														





1 DETAIL: PIPE TIE

1 SECTION: MANHOLE (STA. 2+92)  
NOT TO SCALE

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23821200\_20\23821200\_C-17\_DETAILS\_1\DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:43 AM  
 BARR:\AutoCAD 2011\AutoCAD 2011\Support\enu\Template\Barr\_2011\_Template.dwt Plot at 1: 10/05/2010 14:08:50

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 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_ LICENSE #: \_\_\_\_\_

CLIENT	06/24/20								
BID									
CONSTRUCTION									
RELEASED TO/FOR	A	B	C	0	1	2	3		
DATE RELEASED									

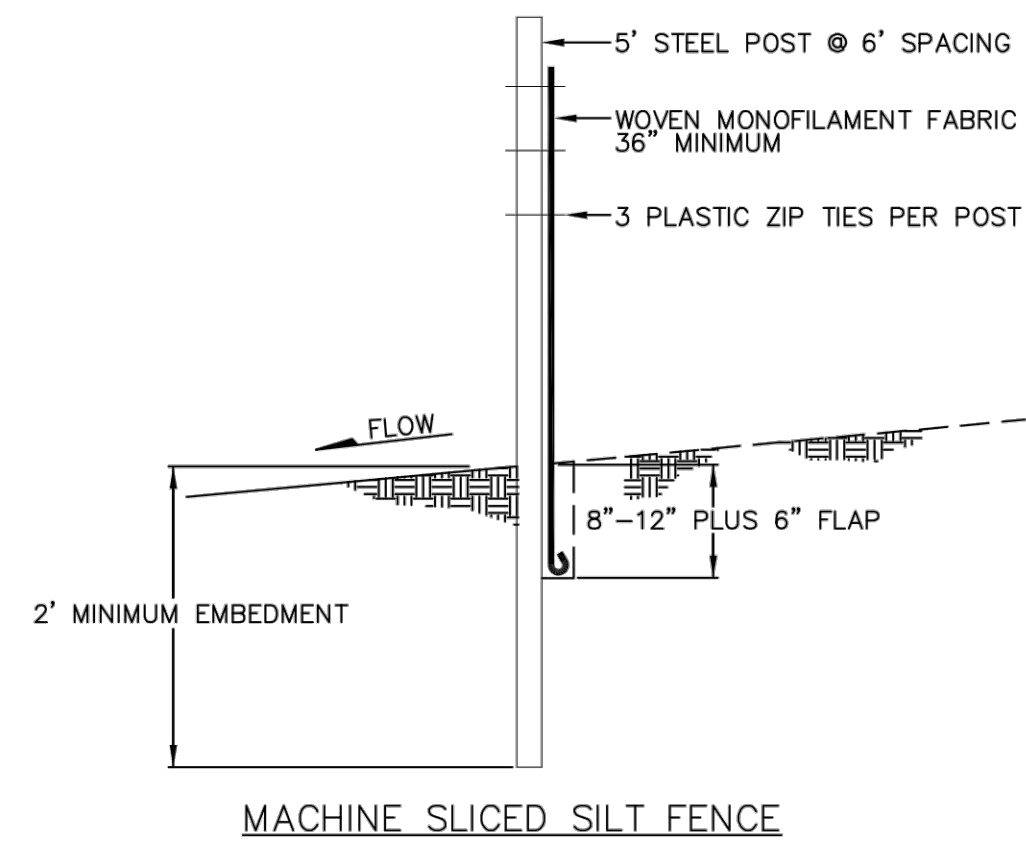
**BARR**  
 Project Office:  
 BARR ENGINEERING CO.  
 4300 MARKETPOINTE DRIVE  
 Suite 200  
 MINNEAPOLIS, MN 55435  
 Corporate Headquarters:  
 Minneapolis, Minnesota  
 Ph: 1-800-632-2277  
 Ph: 1-800-632-2277  
 www.barr.com

Scale	AS SHOWN
Date	6/17/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

**RAMSEY-WASHINGTON**  
 METRO WATERSHED DISTRICT

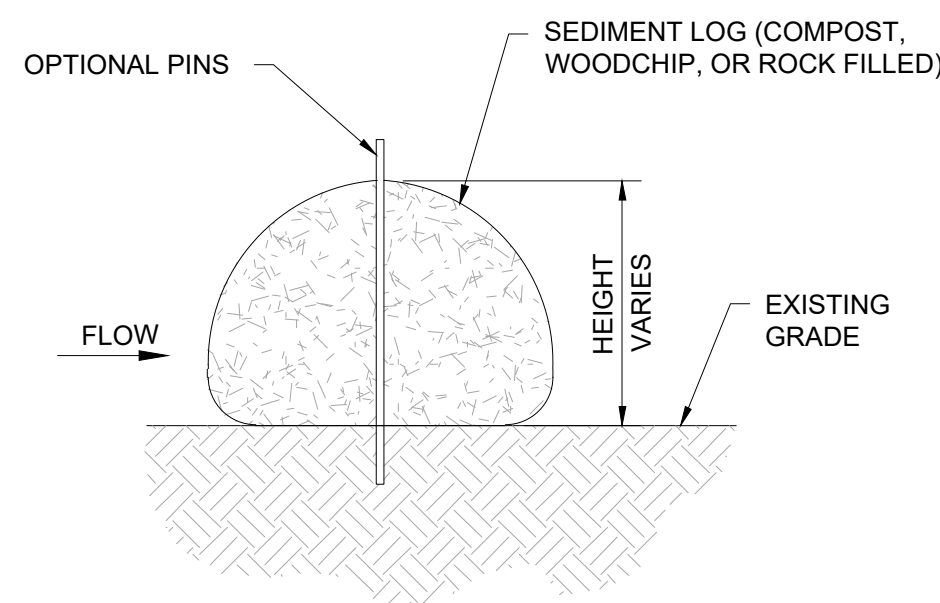
RWMWD 2020 FEASIBILITY STUDY	
WVL TO SOUTH 694	
DETAILS	

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-17
REV. No.	A



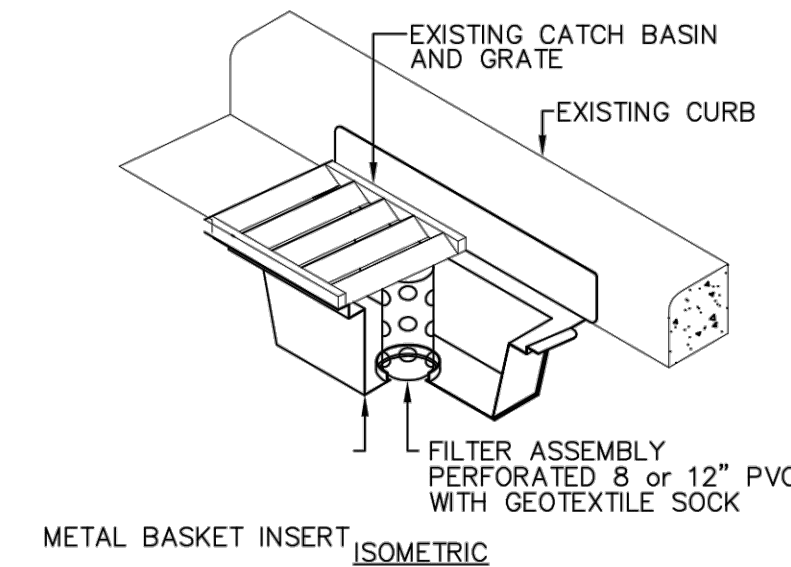
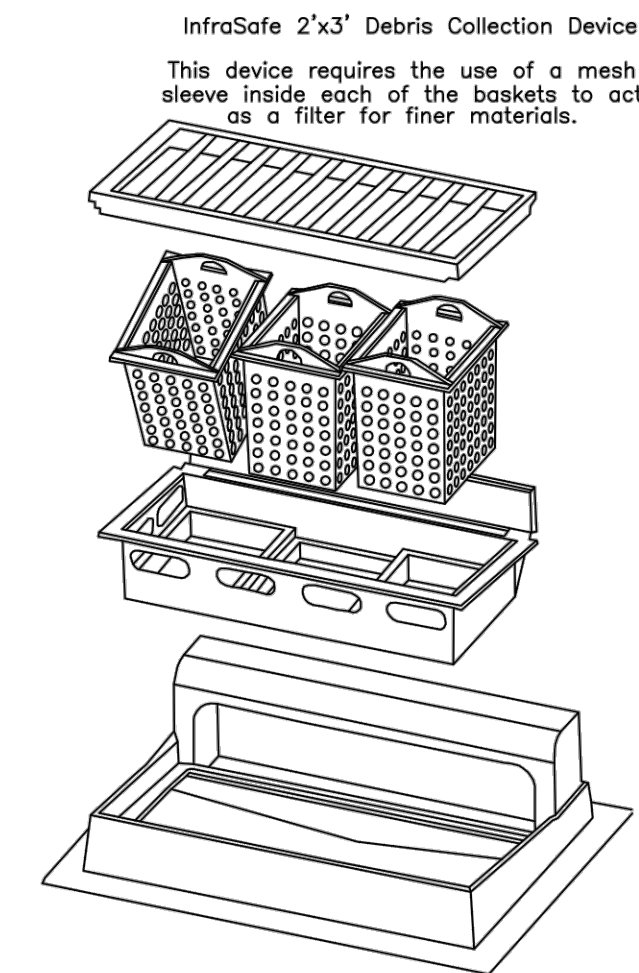
- NOTES:**
- WOOD POSTS MAY BE USED IN NON-CRITICAL AREAS. WOOD POST SPACING AT 4' MAXIMUM. STEEL POSTS ARE REQUIRED WHEN HEAVY DUTY SILT FENCE IS SPECIFIED.
  - SILT FENCE MUST BE CLEANED OR REPLACED WHEN SILT DEPTH IS 1/3 HEIGHT OF FABRIC.

**1** DETAIL: SILT FENCE



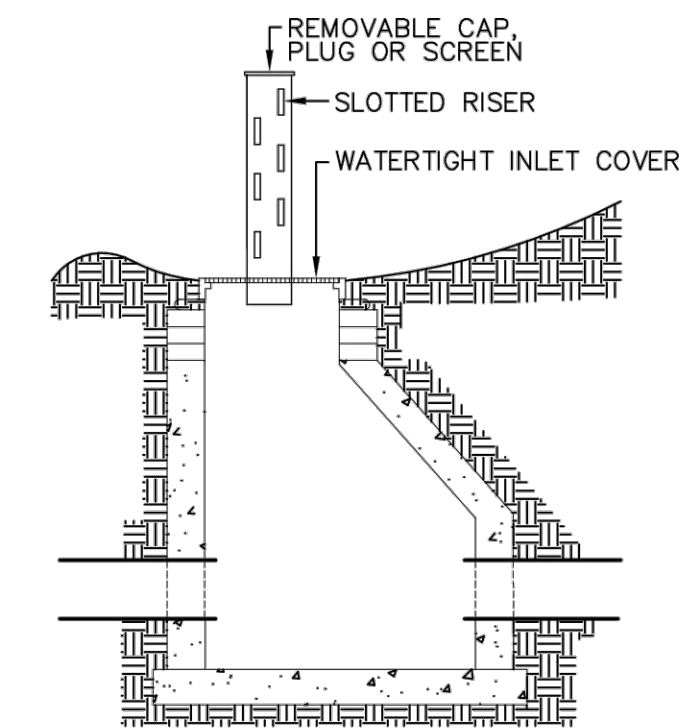
- NOTES:**
- STAKE FREE SEDIMENT LOG TO BE USED IN AREAS THAT ARE RELATIVELY FLAT AND SHOULD BE INSTALLED ALONG CONTOURS (CONSTANT ELEVATION).
  - NO GAPS SHALL BE PRESENT UNDER SEDIMENT LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
  - ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN REACHING 1/2 OF LOG HEIGHT.
  - SEDIMENT LOG SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED.

**2** DETAIL: SEDIMENT LOG



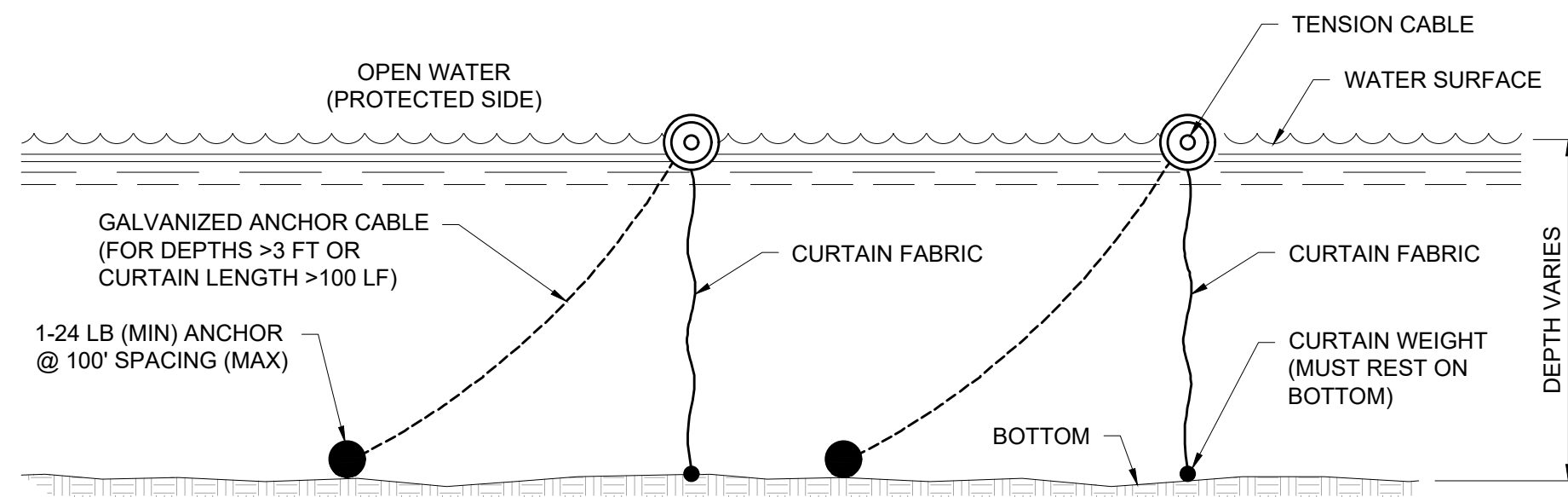
METAL BASKET TYPE

- NOTES:**
- EACH STORM WATER INLET REQUIRES AN APPROVED INLET PROTECTION DEVICE FROM THE TIME THE CASTING AND RINGS ARE PLACED UNTIL THE SURROUNDING AREAS ARE ESTABLISHED, OR UNTIL DIRECTED BY THE CITY ENGINEER.
  - THESE DEVICES SHALL BE REMOVED WHEN THERE IS FROST IN THE GROUND AND REINSTALLED WHEN THE GROUND THAWS.
  - THE CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT, MAINTENANCE, AND REMOVAL OF ALL INLET PROTECTION DEVICES.
  - SEALING THE SORM SEWER INLET WITH FABRIC IS NOT AN APPROVED METHOD OF INLET PROTECTION.



SLOTTED RISER INLET FILTER

**3** DETAIL: STORM SEWER INLET PROTECTION



- NOTES:**
- INSTALL SILT CURTAIN PRIOR TO ANY CONSTRUCTION ACTIVITIES IN AREAS DRAINING TO OPEN WATER OR WORK IN WATER.
  - ANCHOR TENSION CABLE AT SHORE AT BOTH END WITH STEEL POSTS OF DIAMETER AND LENGTH SUFFICIENT TO PREVENT BENDING AND PULL-OUT.
  - ELIMINATE ANCHOR AND CABLE FOR WATER DEPTHS LESS THAN 3'-0" OR DISTANCE BETWEEN SHORE ANCHORS FOR TENSION CABLE OF LESS THAN 100'
  - CURTAIN WEIGHT SHALL BE HEAVY ENOUGH TO HOLD CURTAIN VERTICAL IN CURRENT AND WAVES TYPICAL FOR THE SITE.
  - SILT CURTAIN MATERIALS SHALL CONFORM TO MN/DOT SPECIFICATION 3887.
  - MAINTAIN SILT CURTAIN AND REPAIR OR REPLACE AS REQUIRED TO PREVENT DISCHARGE OF SEDIMENT TO PROTECTED WATER BODY.
  - REMOVE ANY ACCUMULATED SEDIMENT PRIOR TO REMOVAL OF SILT CURTAIN.
  - REMOVE SILT CURTAIN FOLLOWING SITE STABILIZATION OR AS DIRECTED BY ENGINEER.

**4** DETAIL: FLOTATION SILT CURTAIN (DOUBLE ROW)  
NOT TO SCALE

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23821200\_20\_20\_C-18\_DETAILS\_2.DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:52 AM  
BARR \AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Barr\_2011\_Template.dwt Plot at 1: 10/05/2010 14:08:50

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	JMD3	SOR	ELA	6/24/2020	FEASIBILITY - 30% DESIGN

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PRINTED NAME: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_  
DATE: \_\_\_\_\_ LICENSE # \_\_\_\_\_

CLIENT	6/24/2020								
BID									
CONSTRUCTION									
RELEASED TO/FOR	A	B	C	0	1	2	3		
DATE RELEASED									

Project Office:  
**BARR ENGINEERING CO.**  
4300 MARKETPOINTE DRIVE  
Suite 200  
MINNEAPOLIS, MN 55435

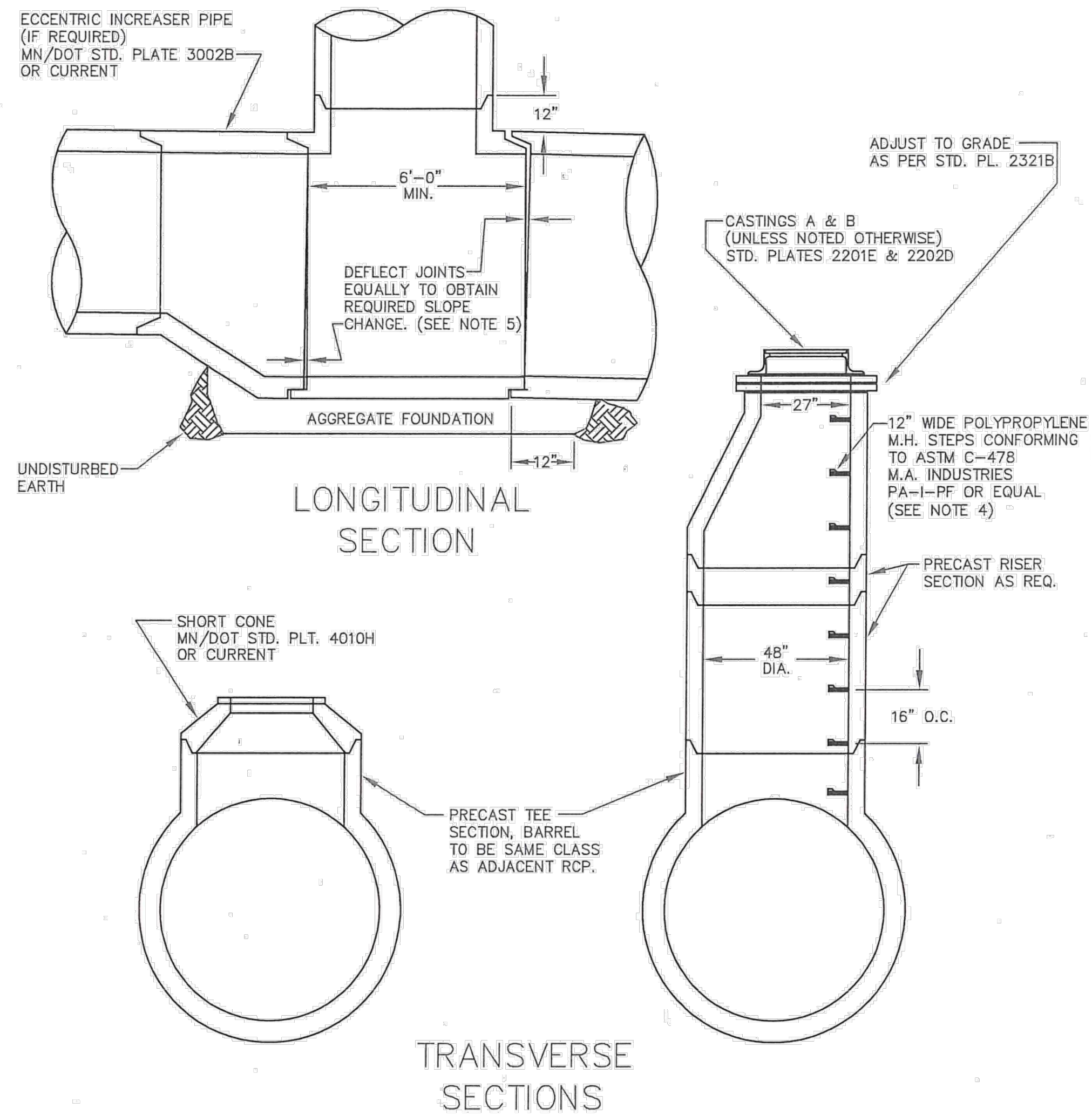
Corporate Headquarters:  
Minneapolis, Minnesota  
Ph: 1-800-632-2277  
Fax: (952) 832-2601  
www.barr.com

Scale	AS SHOWN
Date	06/17/2020
Drawn	JMD3
Checked	-
Designed	SOR
Approved	-

**RAMSEY-WASHINGTON**  
METRO WATERSHED DISTRICT

RWMWD 2020 FEASIBILITY STUDY WVL TO SOUTH 694	
EROSION CONTROL DETAILS	

BARR PROJECT No. 23/62-1200.20
CLIENT PROJECT No.
DWG. No. C-18
REV. No. A



- NOTES:**
1. THIS MANHOLE FOR USE ON STRAIGHT RUNS OF MAINLINE SEWER. 42" AND LARGER SLOPE CHANGE CAN BE ACCOMPLISHED BY DEFLECTING JOINTS AS NOTED HEREIN. DIAMETER CHANGE CAN BE ACCOMPLISHED WITH ASSOCIATED ECCENTRIC INCREASER.
  2. PRECAST RISER SECTIONS TO MEET ASTM C-478
  3. JOINTS SHALL USE O-RING RUBBER GASKET TO CONFORMING TO ASTM C-443
  4. MANHOLE STEPS NOT REQUIRED WHERE DEPTH OF COVER IS LESS THAN 6'.
  5. MAXIMUM JOINT DEFLECTION FROM "HOME" IS 3/4" FOR 42" I.D. AND 1" FOR 48" I.D. OR GREATER CORRESPONDING MAXIMUM SLOPE CHANGE PER JOINT IS:

PIPE I.D.	42"	48"	54"	60"	66"	72"	84"	90"	96"
MAX. SLOPE CHANGE / JOINT	1.78	2.08	1.85	1.66	1.51	1.38	1.19	1.11	1.04

**1** DETAIL: MANHOLE, TYPE IV  
C-01 N.T.S. CITY OF ST. PAUL STD. PLATE 2106F

FEASIBILITY - 30% DESIGN  
NOT FOR CONSTRUCTION

CADD USER: Jacob M. Daire FILE: O:\DESIGN\23821200\_2020\C21\_DETAILS\_3\DWG PLOT SCALE: 1:1 PLOT DATE: 6/22/2020 9:59 AM  
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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
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SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_ LICENSE # \_\_\_\_\_

CLIENT	06/24/20								
BID									
CONSTRUCTION									
RELEASED TO/FOR	A	B	C	0	1	2	3		
DATE RELEASED									

**BARR** Project Office:  
BARR ENGINEERING CO.  
4300 MARKETPOINTE DRIVE  
Suite 200  
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Scale	AS SHOWN
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Checked	SOR
Designed	-
Approved	-

**RAMSEY-WASHINGTON**  
METRO WATERSHED DISTRICT

RWMWD 2020 FEASIBILITY STUDY WVL TO SOUTH 694	
DETAILS	

BARR PROJECT No.	23/62-1200.20
CLIENT PROJECT No.	
DWG. No.	C-19
REV. No.	A

**Attachment E**



REV 0	SHEET:	1	OF	1

**WEST VADNAIS LAKE TO SOUTH OF I-694 Conveyance**  
**ENGINEER'S OPINION OF PROBABLE PROJECT COST**  
PROJECT: WEST VADNAIS LAKE TO SOUTH OF I-694  
LOCATION: City of Vadnais Heights & Little Canada, MN  
PROJECT #: 23/62-1200.00

**Engineer's Opinion of Probable Project Cost**  
**West Vadnais Lake to South of I-694 Conveyance Feasibility Study**

Item No.	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	ITEM COST	NOTES
01 11 00.01	General Requirements	LS	1.00	\$ 313,324.00	\$ 313,324.00	1,2,3,4,5
01 50 00.01	Construction Facilities	LS	1.00	\$ 117,497.00	\$ 117,497.00	1,2,3,4,5
01 50 00.02	Temporary Erosion and Sediment Control	LS	1.00	\$ 78,331.00	\$ 78,331.00	1,2,3,4,5
01 56 00.01	Temporary Utility Management	LS	1.00	\$ 234,993.00	\$ 234,993.00	1,2,3,4,5
01 71 13.01	Mobilization/Demobilization	LS	1.00	\$ 313,324.00	\$ 313,324.00	1,2,3,4,5
01 74 23.01	Site Restoration	LS	1.00	\$ 39,166.00	\$ 39,166.00	1,2,3,4,5
01 76 13.01	BP high pressure pipeline protection (Allowance)	SY	50.00	\$ 50.00	\$ 2,500.00	1,2,3,4,5
01 76 13.02	St. Paul Regional Water Supply 90-in Conduit Protection (Allowance)	SY	110.00	\$ 50.00	\$ 5,500.00	1,2,3,4,5
02 41 13.01	Concrete Pavement Sawcut	LF	10.00	\$ 5.00	\$ 50.00	1,2,3,4,5
02 41 13.02	Concrete Pavement Removal	SY	70.00	\$ 12.00	\$ 840.00	1,2,3,4,5
02 41 13.03	Bituminous Pavement Sawcut	LF	3,850.00	\$ 5.00	\$ 19,250.00	1,2,3,4,5
02 41 13.04	Bituminous Pavement Removal	SY	5,700.00	\$ 4.00	\$ 22,800.00	1,2,3,4,5
02 41 13.05	Concrete Curb and Gutter Removal	LF	4,250.00	\$ 5.00	\$ 21,250.00	1,2,3,4,5
02 41 13.06	Utility Removal - Pipes (All sizes and types)(Allowance)	LF	5,800.00	\$ 25.00	\$ 145,000.00	1,2,3,4,5
03 30 00.01	Lake Control Structure	LS	1.00	\$ 52,500.00	\$ 52,500.00	1,2,3,4,5
31 00 00.01	Common Excavation - Embankment	CY	61,000.00	\$ 8.00	\$ 488,000.00	1,2,3,4,5
31 00 00.02	Backfill	CY	50,500.00	\$ 5.00	\$ 252,500.00	1,2,3,4,5
31 00 00.03	Compaction	CY	50,500.00	\$ 6.00	\$ 303,000.00	1,2,3,4,5
31 00 00.04	Pipe Bedding (Granular Aggregate)	T	4,000.00	\$ 25.00	\$ 100,000.00	1,2,3,4,5
31 00 00.05	Excavation Disposal (Offsite)	CY	10,500.00	\$ 10.00	\$ 105,000.00	1,2,3,4,5
31 23 19.01	Dewatering/Water Control	LS	1.00	\$ 156,662.00	\$ 156,662.00	1,2,3,4,5
31 32 00.01	RipRap (Mn/DOT CL IV)	T	200.00	\$ 120.00	\$ 24,000.00	1,2,3,4,5
31 41 16.01	Sheet Pile Bearing Wall (Temporary)	SF	80,000.00	\$ 30.00	\$ 2,400,000.00	1,2,3,4,5
32 12 00.01	Bituminous Pavement	T	1,800.00	\$ 200.00	\$ 360,000.00	1,2,3,4,5
32 13 00.01	Concrete Pavement	SY	70.00	\$ 45.00	\$ 3,150.00	1,2,3,4,5
32 16 00.01	Concrete Curb and Gutter	LF	4,250.00	\$ 40.00	\$ 170,000.00	1,2,3,4,5
33 05 00.01	Casing Pipe (84-in, Steel)(Jacking)	LF	575.00	\$ 2,500.00	\$ 1,437,500.00	1,2,3,4,5
33 42 00.01	51-in Span x 31-in Rise Arch RCP - Class III	LF	275.00	\$ 160.00	\$ 44,000.00	1,2,3,4,5
33 42 00.02	60-inch Circular RCP - Class III	LF	4,025.00	\$ 250.00	\$ 1,006,250.00	1,2,3,4,5
33 42 00.03	60-inch Circular RCP - Class III (Inside Casing Pipe)	LF	575.00	\$ 360.00	\$ 207,000.00	1,2,3,4,5
33 42 00.04	Utility Replacement - Pipes (All Sizes and Types)(Allowance)	LF	5,800.00	\$ 125.00	\$ 725,000.00	1,2,3,4,5
33 49 00.01	Drainage Structure (4-ft x 8-ft Manhole)	LS	1.00	\$ 15,000.00	\$ 15,000.00	1,2,3,4,5
33 49 00.02	Drainage Structure (48-in Manhole)	EA	7.00	\$ 4,000.00	\$ 28,000.00	1,2,3,4,6
34 71 00.01	Traffic Control	LS	1.00	\$ 39,166.00	\$ 39,166.00	1,2,3,4,7
CONSTRUCTION SUBTOTAL						\$9,163,000.00 1,2,3,4,5,8
CONSTRUCTION CONTINGENCY (25%)						\$2,291,000.00 1,5,8
ESTIMATED CONSTRUCTION COST						\$11,454,000.00 1,2,3,4,5,8
PLANNING, ENGINEERING & DESIGN						\$623,000.00 1,2,3,4,5,8
PERMITTING & REGULATORY APPROVALS						\$50,000.00 1,5,6,8
CONSTRUCTION MANAGEMENT						\$1,145,000.00 1,5,8
ESTIMATED TOTAL PROJECT COST						\$13,272,000.00 1,2,3,4,5,7,8
<b>ESTIMATED ACCURACY RANGE</b>			<b>-20%</b>		<b>\$10,618,000.00</b>	5,7,8
			<b>30%</b>		<b>\$17,254,000.00</b>	5,7,8

Notes
<sup>1</sup> Limited design work completed (15-30%).
<sup>2</sup> Quantities based on design work completed.
<sup>3</sup> Unit prices based on information available at this time.
<sup>4</sup> No soil borings collected.
<sup>5</sup> This feasibility-level (Class 3, 10-40% design completion per AACE International Recommended Practice No. 17R-97, 2011) cost estimate is based on feasibility-level designs, alignments, quantities and unit prices. Costs will change with further design. Time value-of-money escalation costs are not included. A construction schedule is not available at this time. Contingency is an allowance for the net sum of costs that will be in the Final Total Project Cost at the time of the completion of design, but are not included at this level of project definition. The estimated accuracy range for the Total Project Cost as the project is defined is -20% to +30%. The accuracy range is based on professional judgement considering the level of design completed, the complexity of the project and the uncertainties in the project as scoped. The contingency and the accuracy range are not intended to include costs for future scope changes that are not part of the project as currently scoped or costs for risk contingency. Operation and Maintenance costs are not included.
<sup>6</sup> Estimate assumes that wetland mitigation/replacement is not required. Included are the cost for agency communication and application preparation for a permit. If replacement/mitigation is required, the total cost may increase an approximately \$10,000 plus an additional \$100,000/acre of wetland disturbed.
<sup>7</sup> Estimate costs are to design, construct, and permit the project as currently designed (approximately 15-30%). The estimated costs do not include maintenance, monitoring or additional tasks following construction.
<sup>8</sup> Estimate costs are reported to nearest thousand dollars.

**Attachment F**



72124

72123

72122

72121

58979

58977

58982

61262

70903

61010

70644

70302

70909

70911

70912

The McMillan  
ents and...

Taco Bell

5 Star Mobile Estates

Caribou Coffee

Burger King

Cardigan Ridge  
Senior Living

Lapham-Hickey Steel

Frattalone

Fra-Dor, Inc

North Star Estates

Aquarius Water  
Conditioning - Little...

Bwana Arc

ke Owasso  
ounty Park

Vadnais Snail Lakes  
Regional Park Trail

ke Owasso  
ounty Park

abasso

adnais Lake

Vadnais Blvd

Twin Lake Blvd

Twin Lake

Blvd

Woodbridge St

Ryan Ln

Spruce St

Little Cir Dr

Spruce St

Rice St

Rustic Pl

Janice Ave

Janice St

Jerrold Ave

Soo St

Bankers Dr

Star Cir

Bankers Dr

Twin Lake Blvd

Vadnais Blvd

Vadnais Blvd

Sucker Lake Rd

Mayfair Rd

Skyline Dr

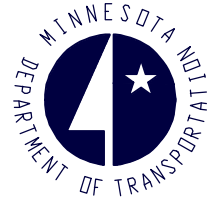
Vadnais Blvd

Twin Lake Ct

Puntry Dr

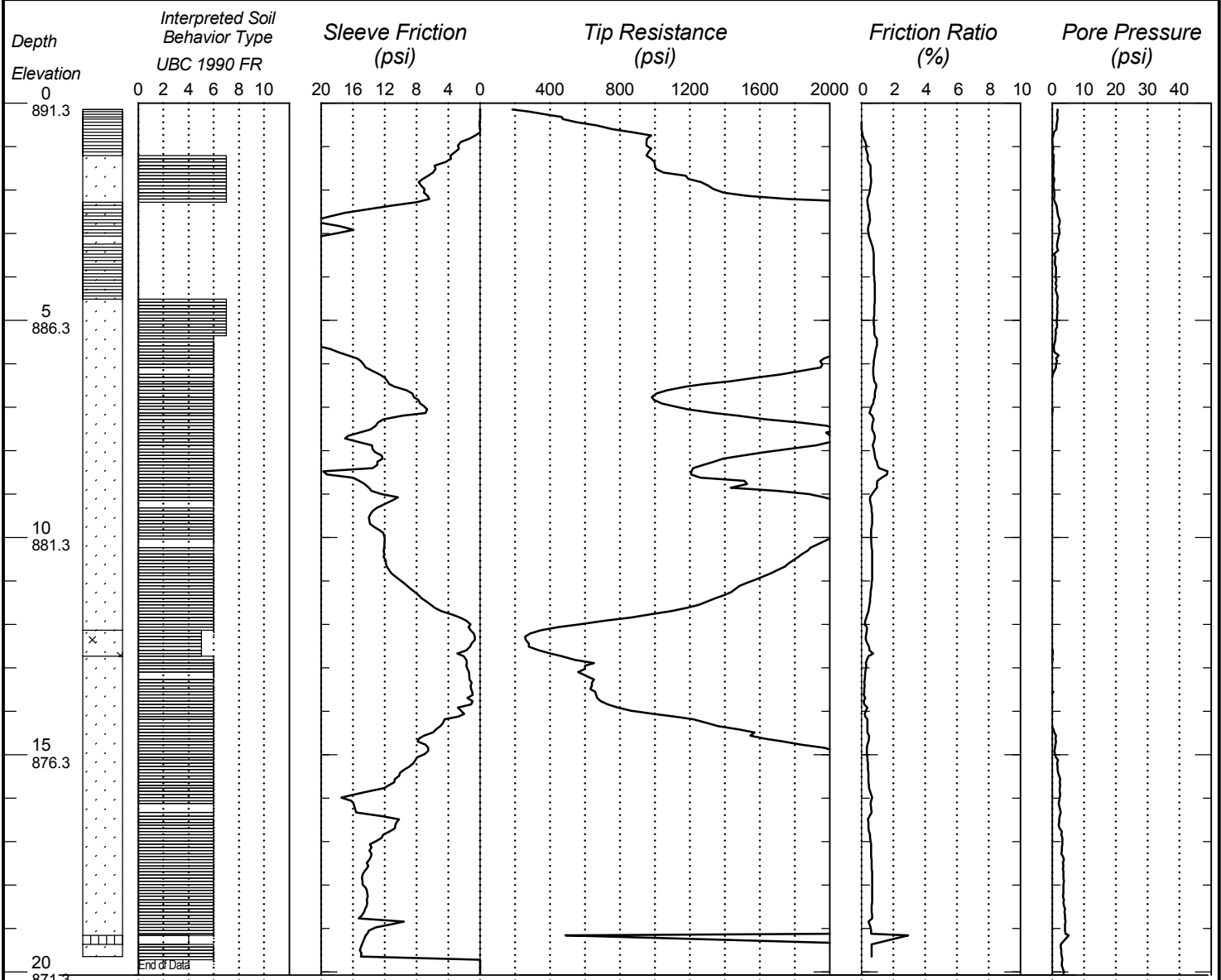
694

Blvd



**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 72124**  
 U.S. Customary Units

State Project <b>6285-140</b>	Bridge No. or Job Desc. <b>guardrail</b>	Trunk Highway/Location <b>I694</b>	Sounding No. <b>c04</b>	Ground Elevation <b>891.3 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=569507 Y=194457 (ft.)</b>		CPT Machine		<b>SHEET 1 of 1</b>
Latitude (North)=45°02'59.47" Longitude (West)=93°06'51.90"		CPT Operator <b>lueck</b>		Date Completed
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>		<b>4/2/09</b>



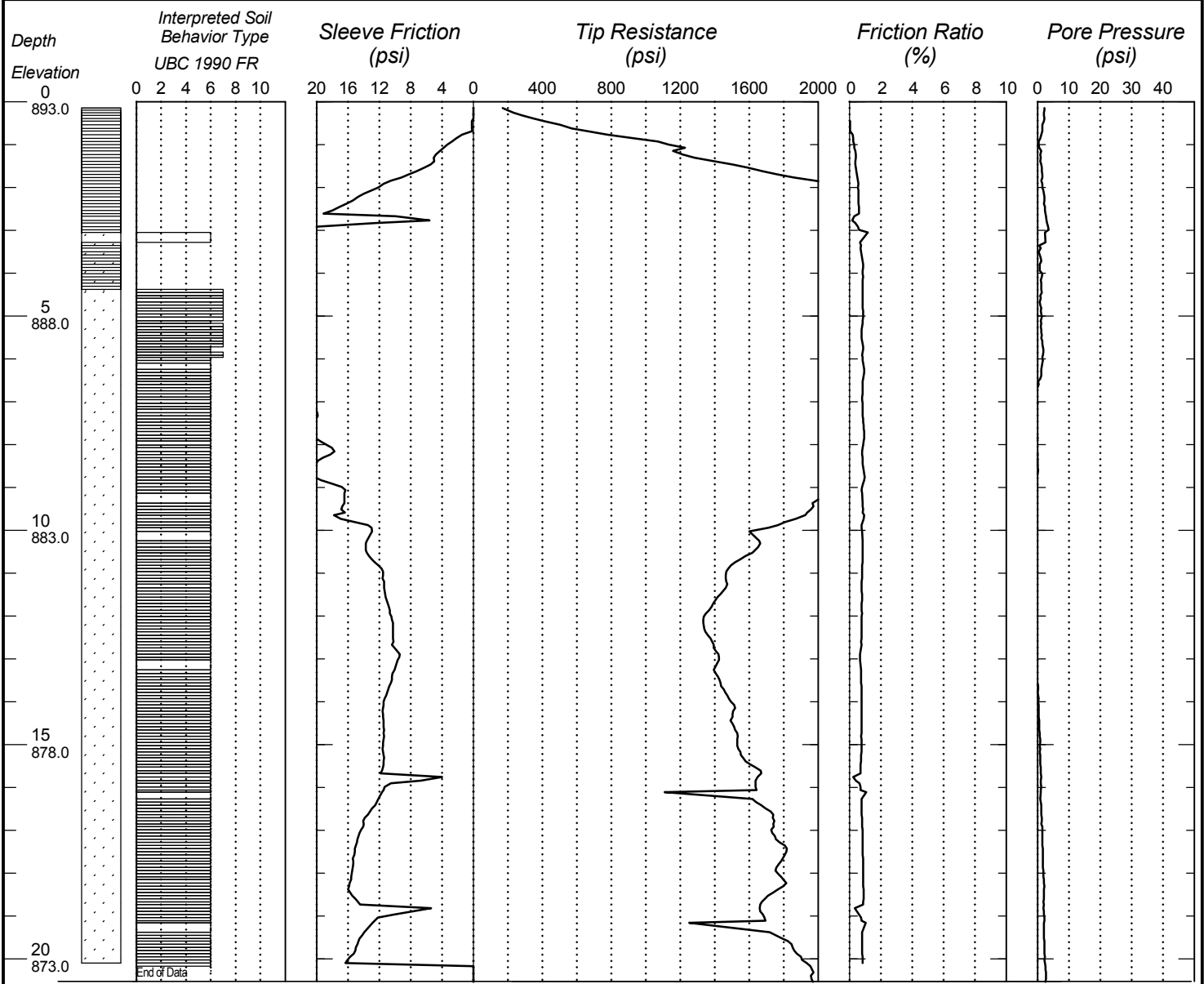
Bottom of Hole 20.07



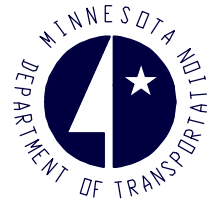


**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 72123**  
 U.S. Customary Units

State Project <b>6285-140</b>	Bridge No. or Job Desc. <b>guardrail</b>	Trunk Highway/Location <b>I694</b>	Sounding No. <b>c03</b>	Ground Elevation <b>893.0 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=570279 Y=193766 (ft.)</b>		CPT Machine		<b>SHEET 1 of 1</b>
Latitude (North)=45°02'52.63" Longitude (West)=93°06'41.17"		CPT Operator <b>lueck</b>		Date Completed
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>		<b>4/2/09</b>

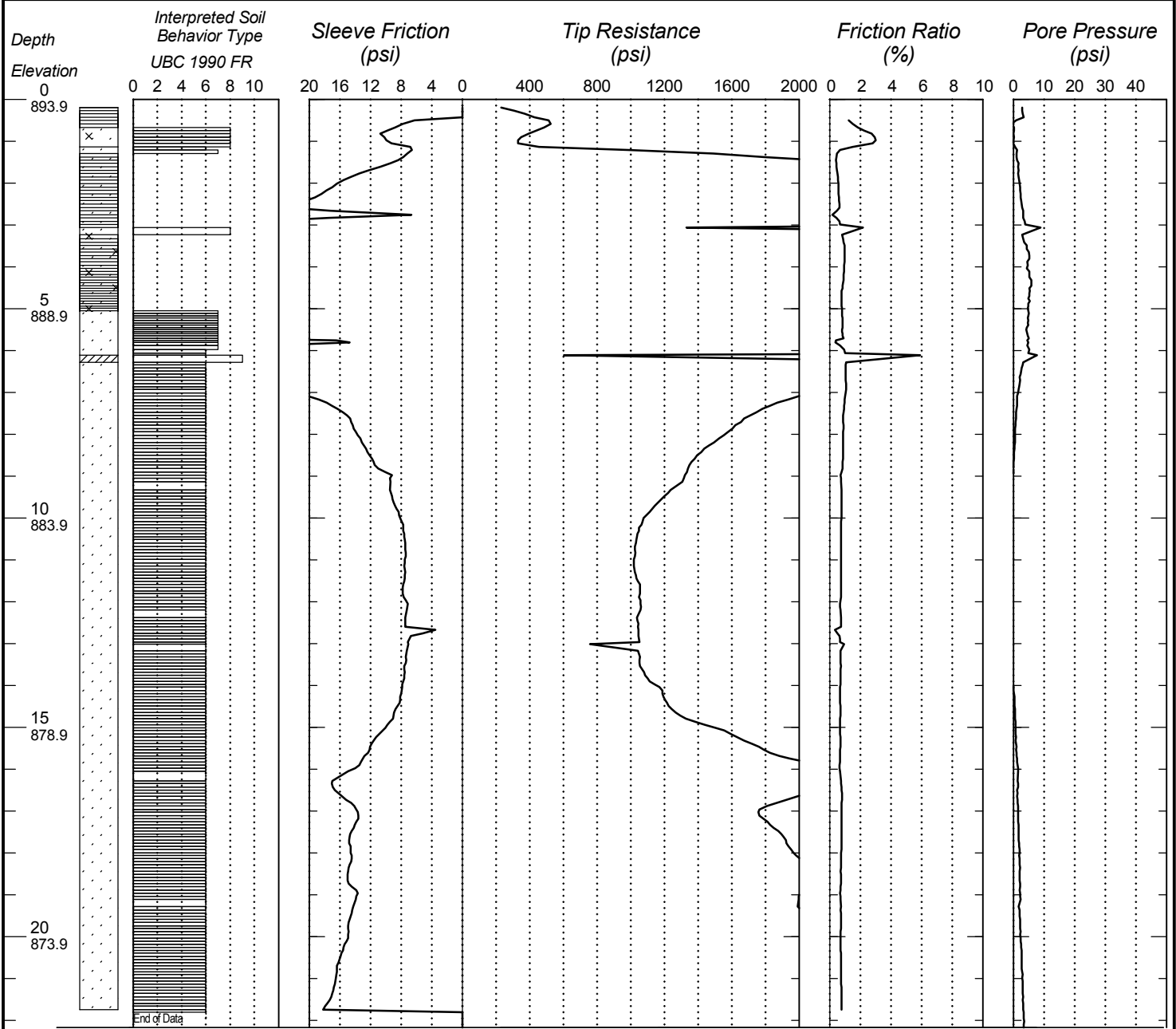


Bottom of Hole 20.53

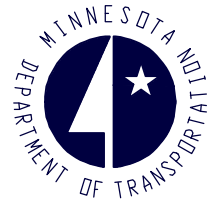


**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 72122**  
 U.S. Customary Units

State Project <b>6285-140</b>	Bridge No. or Job Desc. <b>guardrail</b>	Trunk Highway/Location <b>I694</b>	Sounding No. <b>c02</b>	Ground Elevation <b>893.9 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=570441 Y=193635 (ft.)</b>		CPT Machine		<b>SHEET 1 of 1</b>
Latitude (North)=45°02'51.33" Longitude (West)=93°06'38.93"		CPT Operator <b>lueck</b>		Date Completed
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>		<b>4/2/09</b>



Bottom of Hole 22.17

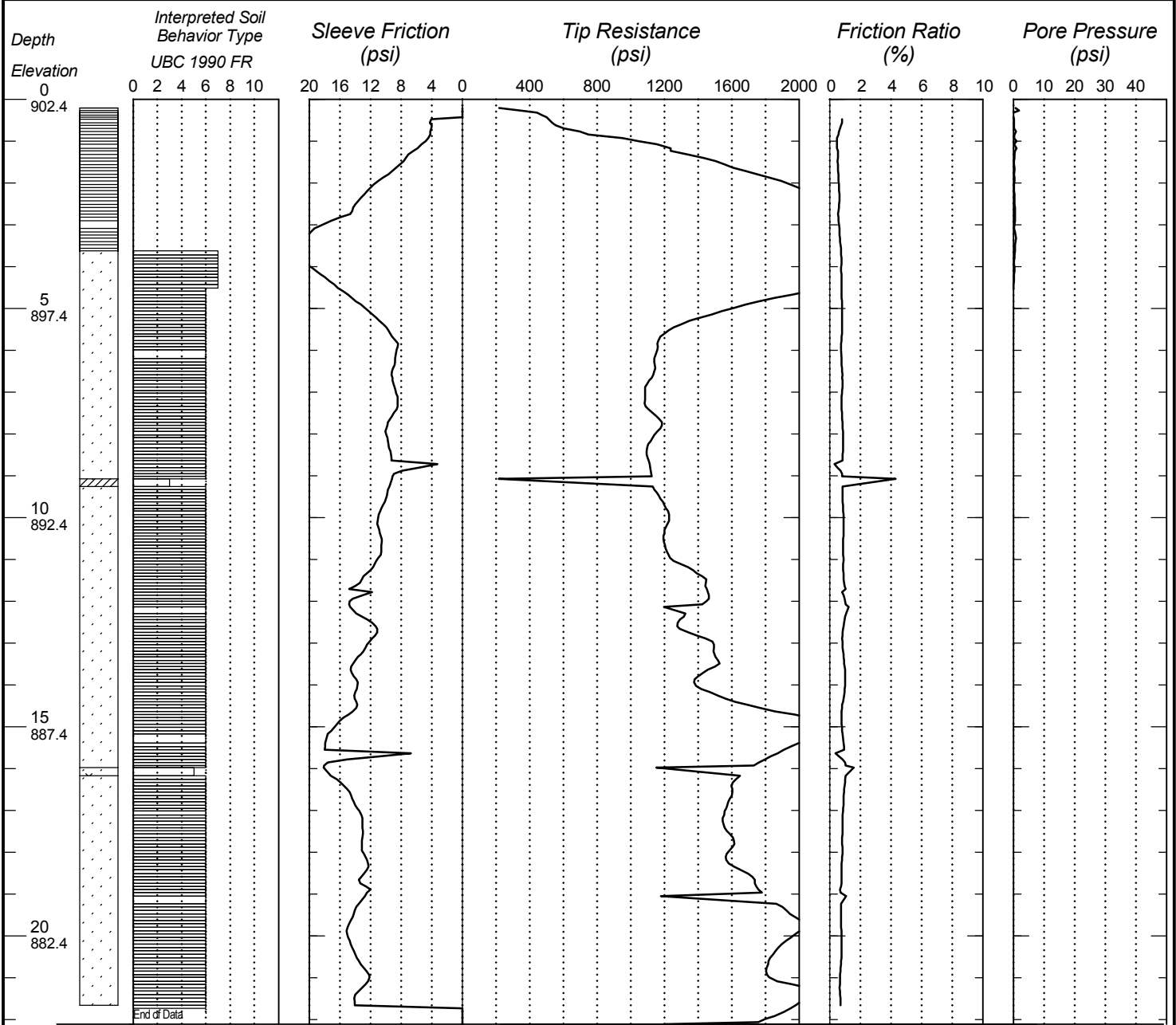


**CONE PENETRATION TEST RESULTS**

**UNIQUE NUMBER 72121**

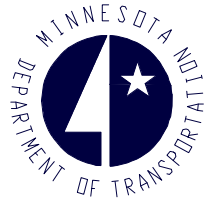
U.S. Customary Units

State Project <b>6285-140</b>	Bridge No. or Job Desc. <b>guardrail</b>	Trunk Highway/Location <b>I694</b>	Sounding No. <b>c01</b>	Ground Elevation <b>902.4 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=570899 Y=193257 (ft.)</b>		CPT Machine		<b>SHEET 1 of 1</b>
Latitude (North)=45°02'47.58" Longitude (West)=93°06'32.57"		CPT Operator <b>lueck</b>		Date Completed
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>		<b>4/2/09</b>



Bottom of Hole 22.1'

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION

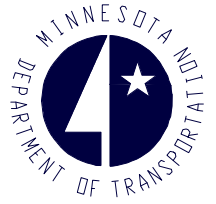


**UNIQUE NUMBER 58979**  
 U.S. Customary Units

State Project <b>6285-125</b>		Bridge No. or Job Desc. <b>Piezo</b>		Trunk Highway/Location <b>Interstate Highway 694</b>		Boring No. <b>T1P</b>		Ground Elevation <b>908.0 (Surveyed)</b>		
Location <b>SW quad. of Rice St. and 694</b>						Drill Machine <b>92730 Failing 1500 4x4</b>		SHEET 1 of 1		
Ramsey Co. Coordinate: X=571277 Y=192827 (ft.)						Hammer <b>Mobile Auto Calibrated</b>		Drilling Completed <b>9/18/01</b>		
Latitude (North)=45°02'43.32" Longitude (West)=93°06'27.32"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N <sub>60</sub>	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
	2.0 906.0	LS, dk bm & damp				4				
5		FS & S, lt gray-brn & damp			12	3				
					10	3				
10					13	4				
					13	4				
15	15.5 892.5	S, brn & moist			16	4				
		S w/ trace slpl FSL, trace slorg slpl SL; brn w/ blk; sat			24	6				
19.0	889.0				22	19				
20					20	20				
25	25.0 883.0				9	21				
Bottom of Hole - 25.0' Water measured at 19.0' with auger										



MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



**UNIQUE NUMBER 58977**  
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 4

State Project <b>6285-125</b>		Bridge No. or Job Desc. <b>6580</b>		Trunk Highway/Location <b>Interstate Highway 694</b>		Boring No. <b>T1</b>		Ground Elevation <b>905.1 (Surveyed)</b>		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N <sub>60</sub>	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
				X	22	21				
				PD						
				X	16	19				
				PD						
30				X	28	20				
				PD						
				X	20	21				
				PD						
35				X	27	20				
			S & FS w/ seams slpl VFSL, few thin seams LVFS, some CrS @ 22.5'; lt brn w/ brn; sat (continued)	PD						
				X	32	20				
40				PD						
				X	35	19				
45				PD						
				X	30	20				
50										

(Continued Next Page)

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



**UNIQUE NUMBER 58977**  
 U.S. Customary Units

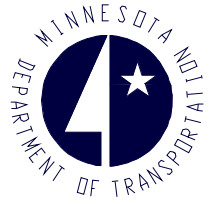
Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 4

State Project <b>6285-125</b>		Bridge No. or Job Desc. <b>6580</b>		Trunk Highway/Location <b>Interstate Highway 694</b>		Boring No. <b>T1</b>		Ground Elevation <b>905.1 (Surveyed)</b>		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N <sub>60</sub>	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
				X						
				PD						
			S & FS w/ seams spl VFSL, few thin seams LVFS, some CrS @ 22.5'; lt brn w/ brn; sat (continued)	X	46	19				
	57.0 848.1			PD						
				X	43	19				
				PD						
				X	43	20				
			FS w/ seams & thin seams spl VFSL, traces & thin seams SiCL & CL, seam blocky C @ 74.0'; lt gray w/ gray & dk gray; sat	PD						
				X	43	20				
				PD						
				X	45	21				

(Continued Next Page)

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



**UNIQUE NUMBER 58977**  
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

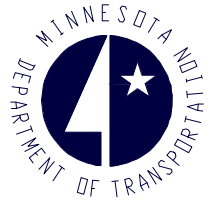
SHEET 4 of 4

State Project <b>6285-125</b>		Bridge No. or Job Desc. <b>6580</b>		Trunk Highway/Location <b>Interstate Highway 694</b>		Boring No. <b>T1</b>		Ground Elevation <b>905.1 (Surveyed)</b>		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N <sub>60</sub>	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
	80.5 824.6		FS w/ seams & thin seams spl VFSL, traces & thin seams SiCL & CL, seam blocky C @ 74.0'; lt gray w/ gray & dk gray; sat (continued)	PD	43	20				

Bottom of Hole - 80.5'  
 Water measured at 18.4' with drilling fluids



MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



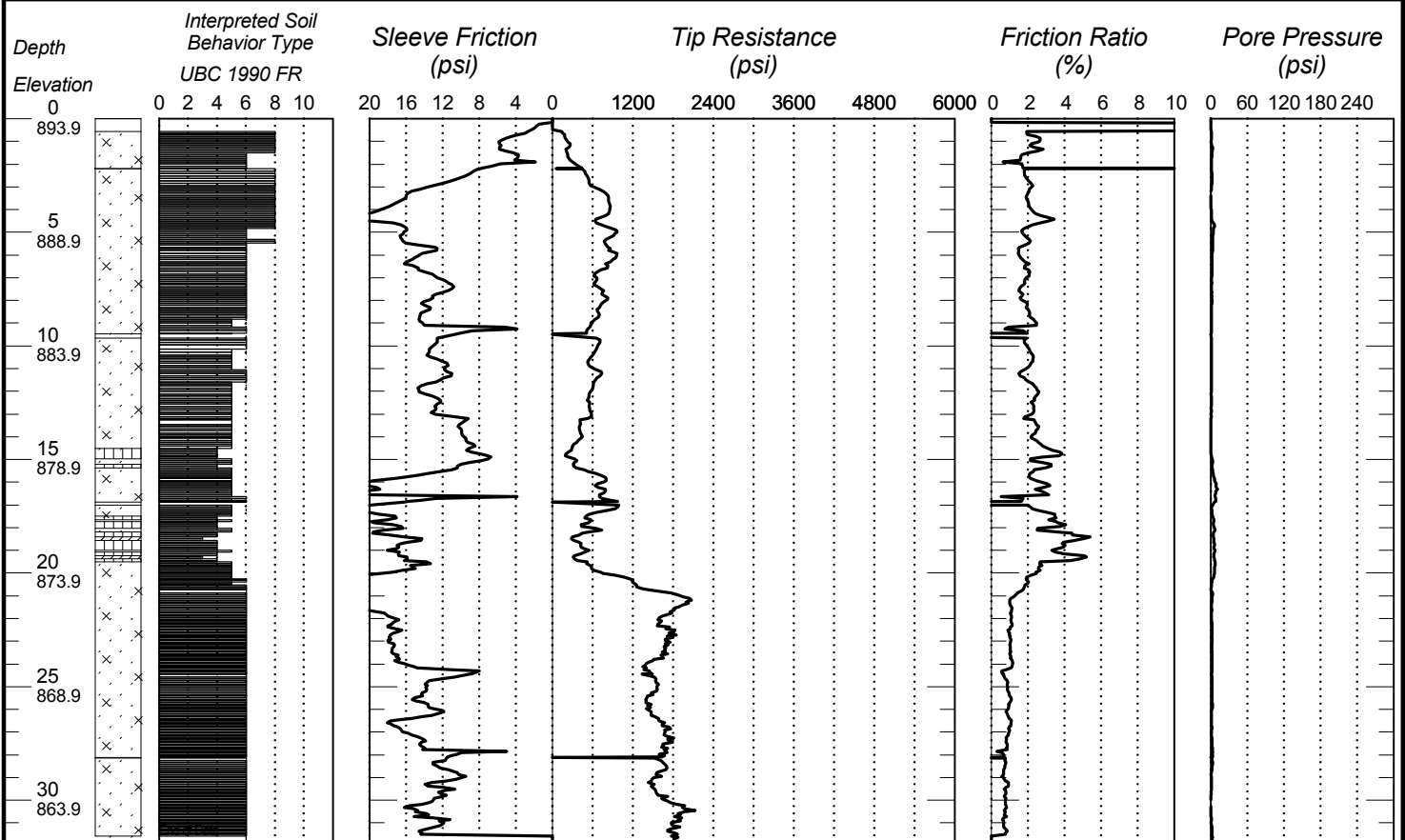
**UNIQUE NUMBER 58982**  
 U.S. Customary Units

State Project <b>6285-125</b>		Bridge No. or Job Desc. <b>Piezo</b>		Trunk Highway/Location <b>Interstate Highway 694</b>			Boring No. <b>T4P</b>		Ground Elevation <b>902.0</b> (Surveyed)	
Location <b>SE quad of TH 49 + 694</b>						Drill Machine <b>92730 Failing 1500 4x4</b>			SHEET 1 of 1	
Ramsey Co. Coordinate: X=571755 Y=192418 (ft.)						Hammer <b>Mobile Auto Calibrated</b>			Drilling Completed <b>9/21/01</b>	
Latitude (North)=45°02'39.27" Longitude (West)=93°06'20.68"										Other Tests Or Remarks
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT N <sub>60</sub>	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
	Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	7.0 895.0		LFS w/ a few roots to FS, brn w/ lt brn, damp			3				
5					7	5				
	12.8 889.2		slpl VFSL w/ layer FS; brn w/ lt gray-brn, some IOS; moist		6	7				
10										
	20.0 882.0		S w/ seams slpl FSL & VFS, gray-brn & sat		13	22				
15										
20					8	NSR				
Bottom of Hole - 20.0' Water measured at 12.8' with auger										
Index Sheet Code 3.0						Soil Class: TP Rock Class: Edit: Date: 9/27/06				
G:\GINT\PROJECTS-GINTW-UIID-PRINT\6285-125_BR6580_PIEZO-OLD6285H.GPJ										



**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 61262**  
 U.S. Customary Units

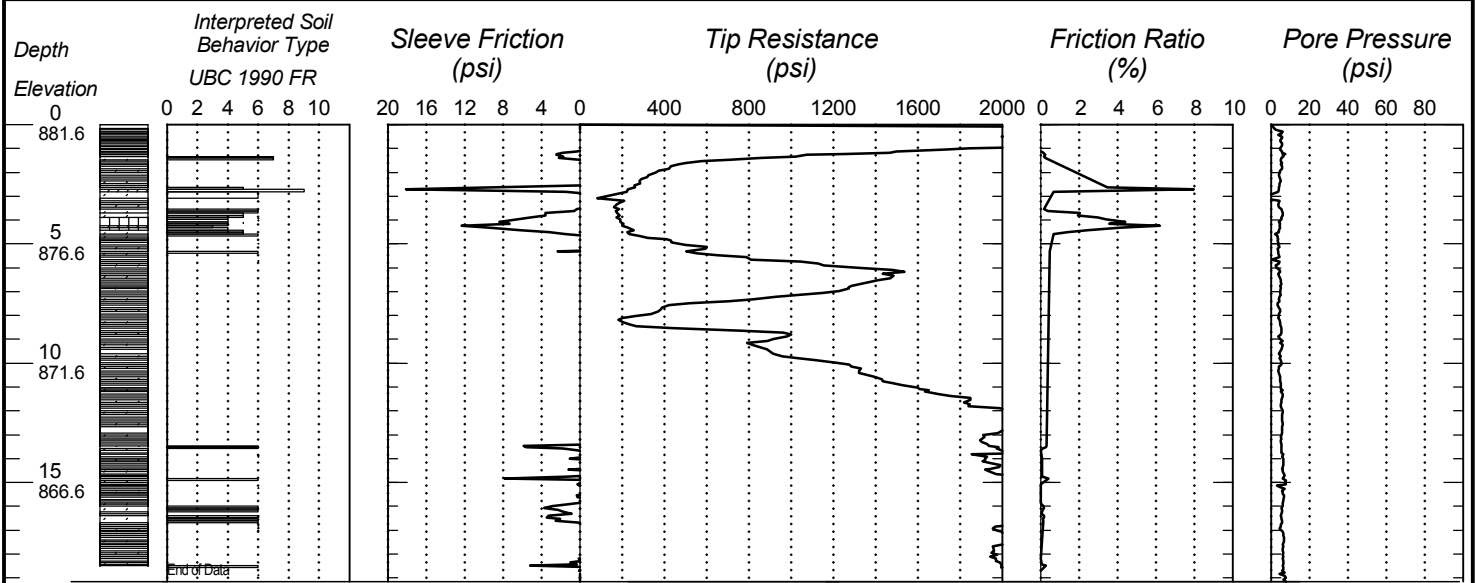
State Project <b>6280-308</b>	Bridge No. or Job Desc. <b>I694</b>	Trunk Highway/Location <b>Interstate Highway 35E</b>	Sounding No. <b>c06</b>	Ground Elevation <b>893.9 (CPT-GPS)</b>
Location <b>, , ft. LT</b>		CPT Machine <b>99649 CPT Track</b>	SHEET 1 of 1	
Ramsey Co. Coordinate: X=573940 Y=191183 (ft.)		CPT Operator <b>D. Brady</b>	Date Completed	
Latitude (North)=45°02'27.00" Longitude (West)=93°05'50.31"		Cone # <b>2505.06304</b>	<b>7/8/03</b>	





**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 70903**  
 U.S. Customary Units

State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c51</b>	Ground Elevation <b>881.6</b> (Surveyed)
Location <b>Ramsey Co. Coordinate: X=574050 Y=190720</b> (ft.)		CPT Machine <b>205146 CPT Truck (H)</b>	SHEET 1 of 1	
Latitude (North)=45°02'22.42" Longitude (West)=93°05'48.81"		CPT Operator <b>J.Hasselquist D Brady</b>	Date Completed	
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>	<b>9/9/08</b>	



Bottom of Hole: 19.15

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



**UNIQUE NUMBER 61010**  
 U.S. Customary Units

State Project <b>6280-304</b>		Bridge No. or Job Desc. <b>NW1 Retaing Wall</b>		Trunk Highway/Location <b>Interstate Highway 35E &amp; 694</b>		Boring No. <b>BH32</b>		Ground Elevation <b>911.6 (Survey)</b>		
Location <b>TH 694 NB, 419+67 35'Rt</b>						Drill Machine <b>CME 75 Track</b>			SHEET 1 of 2	
Ramsey Co. Coordinate: X=575391 Y=190209 (ft.)						Hammer <b>CME Automatic</b>			Drilling Completed <b>3/24/03</b>	
Latitude (North)=45°02'17.33" Longitude (West)=93°05'30.15"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core		Formation
					(%)	(%)	(ft)	Breaks		or Member
	2.0 909.6	[Lithology: Dotted pattern]	LOAMY SAND with trace of GRAVEL & Brick Chip- Fine to Medium Grained - Brown - Loose - Moist	[Drilling: Sawtooth]	10	16			Soil	HAMMAR CALIBRATED ON 3/26/03 TO 60% EFFICIENCY
	5		SANDY LOAM - Brown - Soft - Moist	[Drilling: Sawtooth]	11	13				
	10.0 901.6	[Lithology: Vertical lines]	SILT LOAM - Brown - Medium Firm - Moist to Wet	[Drilling: Sawtooth]	9	17			Rock	NO RECOVERY
	15			[Drilling: Sawtooth]	11	17				
	18.5 893.1			[Drilling: Sawtooth]	7	19				
	20			[Drilling: Sawtooth]	5	33				
	25	[Lithology: Vertical lines]	SILTY CLAY LOAM - Gray - Medium Firm - Moist	[Drilling: Sawtooth]	11	23			Rock	NO RECOVERY
	30			[Drilling: Sawtooth]	18	10				
				[Drilling: Sawtooth]	23	20				
				[Drilling: Sawtooth]	15	11				
				[Drilling: Sawtooth]	17	16				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



**UNIQUE NUMBER 61010**  
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

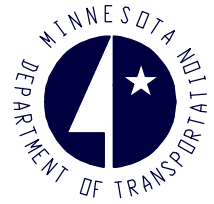
State Project <b>6280-304</b>		Bridge No. or Job Desc. <b>NW1 Retaining Wall</b>		Trunk Highway/Location <b>Interstate Highway 35E &amp; 694</b>		Boring No. <b>BH32</b>		Ground Elevation <b>911.6 (Survey)</b>		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N <sub>60</sub>	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
	35.0 876.6	[Lithology symbols: vertical lines for loam, dots for sand]	SILTY CLAY LOAM - Gray - Medium Firm - Moist <i>(continued)</i>	[Drilling symbols: cross-hatch, jagged, cross-hatch]	13	14				NO RECOVERY
	40.0 871.6		SAND - Brown - Medium to Coarse Grained - Medium Dense - Dry	[Drilling symbols: cross-hatch, jagged, cross-hatch]	17	2				
			END OF BORING @ 40'		17	2				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION  
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



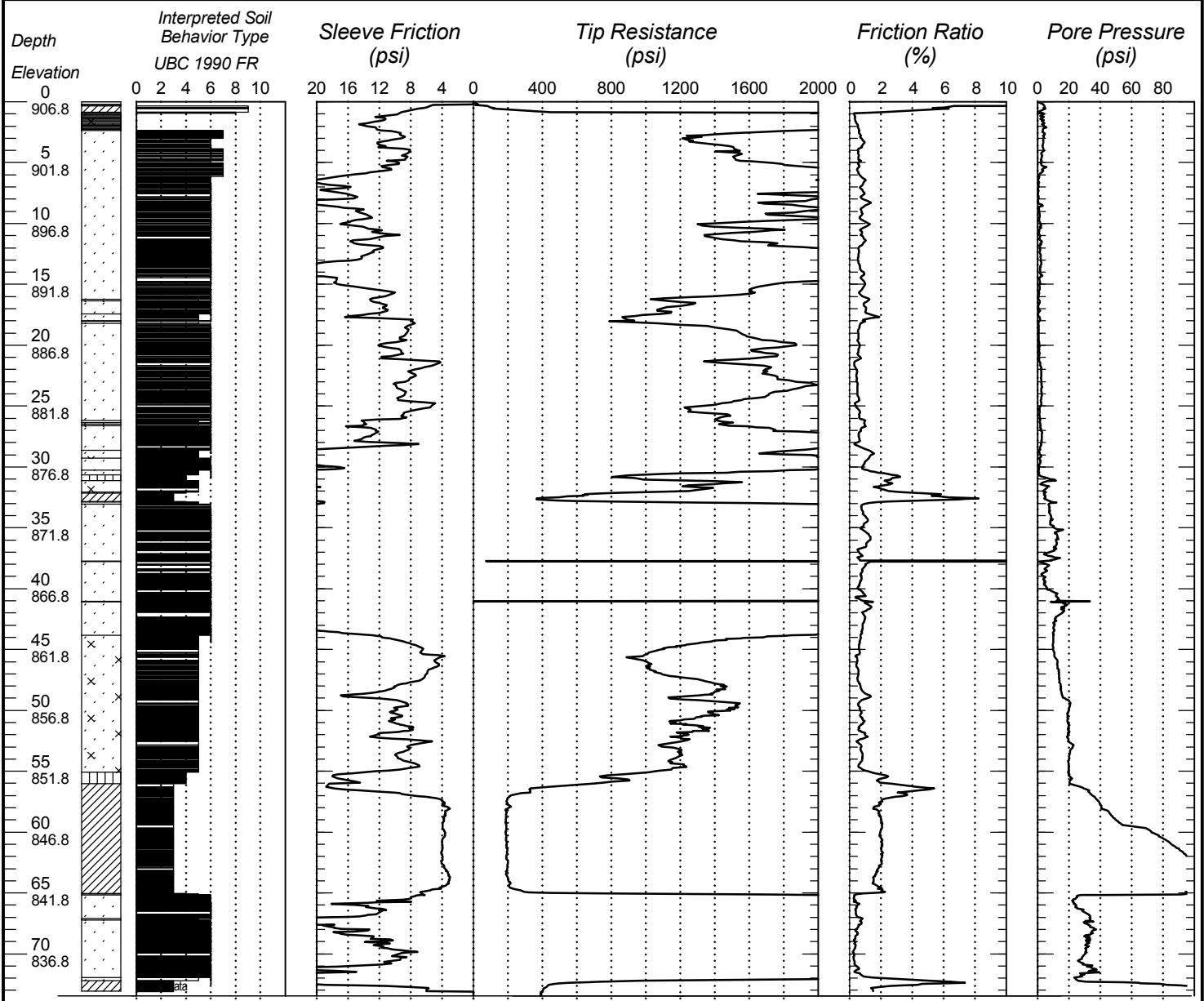
**UNIQUE NUMBER 70644**  
 U.S. Customary Units

State Project <b>6280-304</b>		Bridge No. or Job Desc.		Trunk Highway/Location <b>Interstate Highway I-35E</b>		Boring No. <b>T02SI</b>		Ground Elevation <b>876.1 (DTM)</b>		
Location Ramsey Co. Coordinate: X=575260 Y=189781 (ft.)				Drill Machine <b>205120 CME(LC55) Track</b>				SHEET 1 of 1		
Latitude (North)=45°02'13.11" Longitude (West)=93°05'32.00"				Hammer <b>CME Automatic Calibrated</b>				Drilling Completed <b>5/21/08</b>		
No Station-Offset Information Available										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core		Formation
					(%)	(%)	(ft)	Breaks		or Member
5			slightly organic Loamy Sand with some organic matter @ 5.0', brown and wet			NSR				
	10.0				5	44				
	866.1				11	17				
	11.5		partially-decomposed Peat, black and very moist		3	17				%org-42.3
	864.6				3	99				%org-15.2
15			highly organic plastic Silt Loam with some organic matter and a few shells, gray and wet			74	570	91		%org-12.0
	19.0				3	94				%org-15.7
20			spongy woody semi-fibrous Peat with shells, dark browns and wet			193	1360	75		%org-34.6
	857.1				7	240				%org-38.9
25			highly organic slightly plastic Silt Loam with some organic matter, dark browns and wet			94				%org-13.5
	852.1									
	27.0				W/H	47				
	849.1									
30						52	310	100		
					W/H	32				
35						53	380	107		
			soft Silty Clay with a few Sand traces, evidence of slicken-side @ 40.0'; light gray with light brown streaks; wet		W/H	60				
40						58	400	102		
					8	44				
45						28				
	48.0									
	828.1									
50			Loamy Sand with seams of plastic Silt Loam, brown and saturated		1	27				
	53.0									
	823.1				22	16				
55										
			Loamy Sand and Gravel, gray and saturated							
60										
					PD					
65					57	NSR				
	65.0									
	811.1		Bottom of Hole - 65.0'							
			Water measured at 6.9' with auger							
			Water measured at 9.0', hole depth 9.6', 5/19/08							

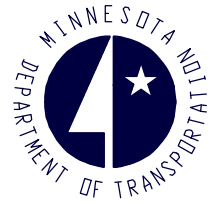


**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 70302**  
 U.S. Customary Units

State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c03</b>	Ground Elevation <b>906.8 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=575515 Y=189504 (ft.)</b>		CPT Machine		<b>SHEET 1 of 1</b>
Latitude (North)=45°02'10.37" Longitude (West)=93°05'28.46"		CPT Operator <b>D Brady</b>		Date Completed
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>		<b>4/23/08</b>

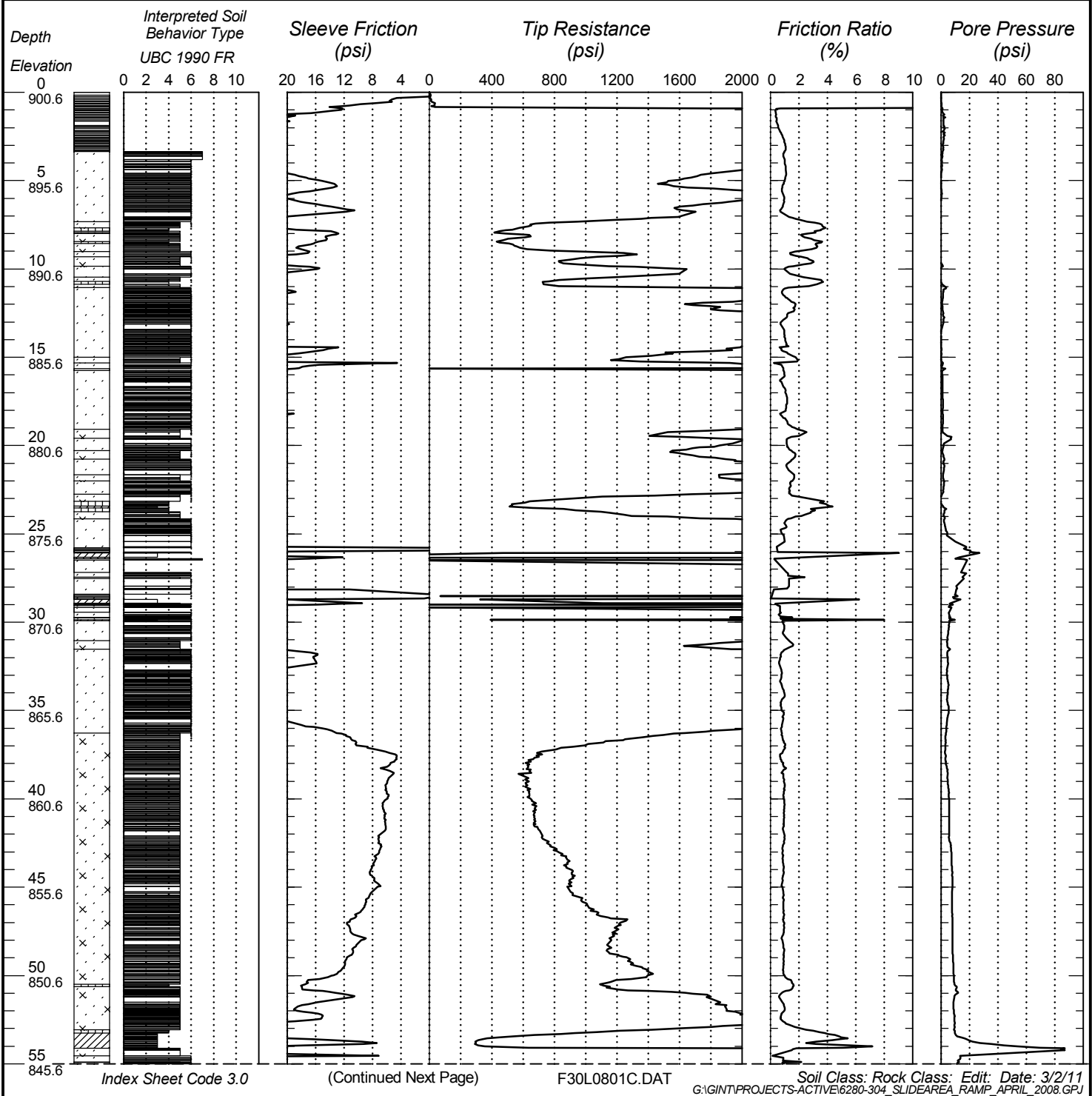


Bottom of Hole 73.45



**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 70909**  
 U.S. Customary Units

State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c10</b>	Ground Elevation <b>900.6 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=575596 Y=188977 (ft.)</b>		CPT Machine <b>205146 CPT Truck (H)</b>	SHEET 1 of 2	
Latitude (North)=45°02'05.16" Longitude (West)=93°05'27.36"		CPT Operator <b>D Brady J Hasselquist</b>	Date Completed	
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>	<b>7/30/08</b>	



Index Sheet Code 3.0

(Continued Next Page)

F30L0801C.DAT

Soil Class: Rock Class: Edit: Date: 3/2/11  
 G:\GINT\PROJECTS-ACTIVE\6280-304\_SLIDEAREA\_RAMP\_APRIL\_2008.GPJ



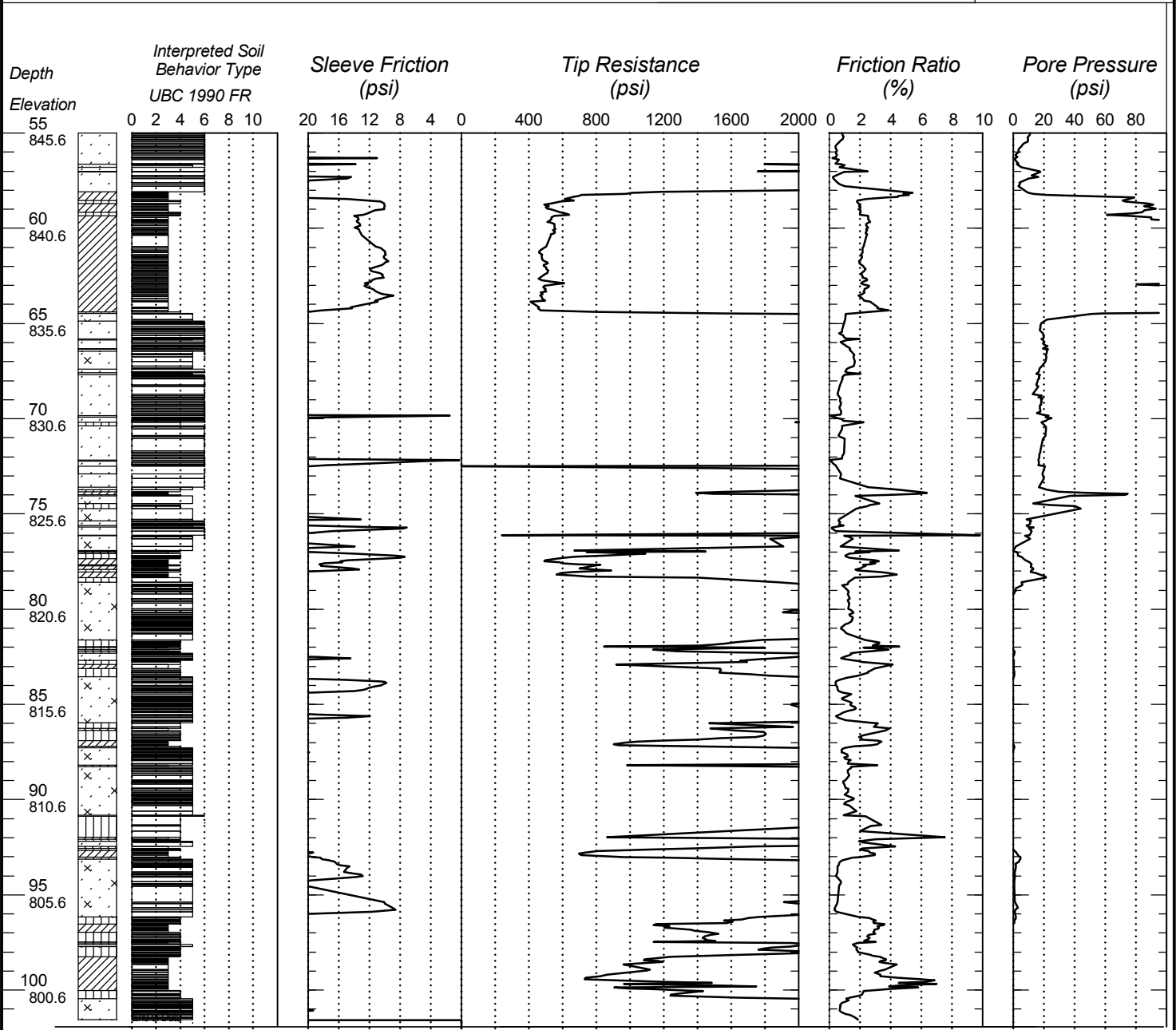


**CONE PENETRATION TEST RESULTS**  
**UNIQUE NUMBER 70909**  
 U.S. Customary Units

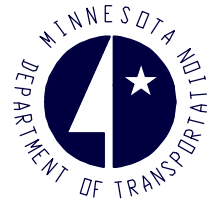
State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c10</b>	Ground Elevation <b>900.6 (DTM)</b>
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Mn/DOT GEOTECHNICAL SECTION - CONE PENETRATION TEST RESULTS

SHEET 2 of 2



Bottom of Hole 101.93

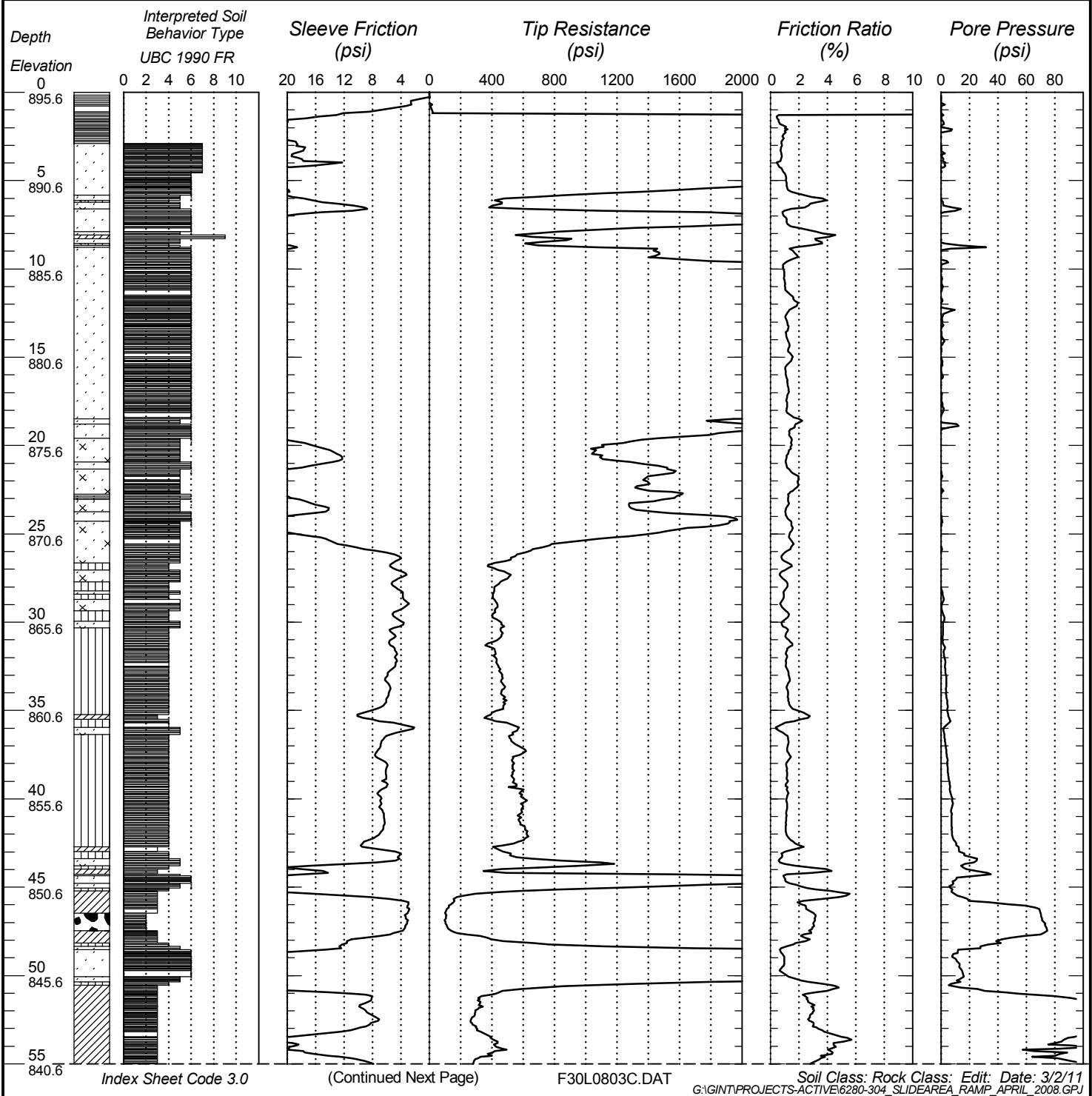


**CONE PENETRATION TEST RESULTS**

**UNIQUE NUMBER 70911**

U.S. Customary Units

State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c12</b>	Ground Elevation <b>895.6 (DTM)</b>
Location <b>Ramsey Co. Coordinate: X=575630 Y=188707 (ft.)</b>		CPT Machine <b>205146 CPT Truck (H)</b>	SHEET 1 of 2	
Latitude (North)=45°02'02.49" Longitude (West)=93°05'26.90"		CPT Operator <b>D Brady J Hasselquist</b>	Date Completed	
No Station-Offset Information Available		Hole Type <b>CPT-STD</b>	<b>7/30/08</b>	



Index Sheet Code 3.0

(Continued Next Page)

F30L0803C.DAT

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**CONE PENETRATION TEST RESULTS**

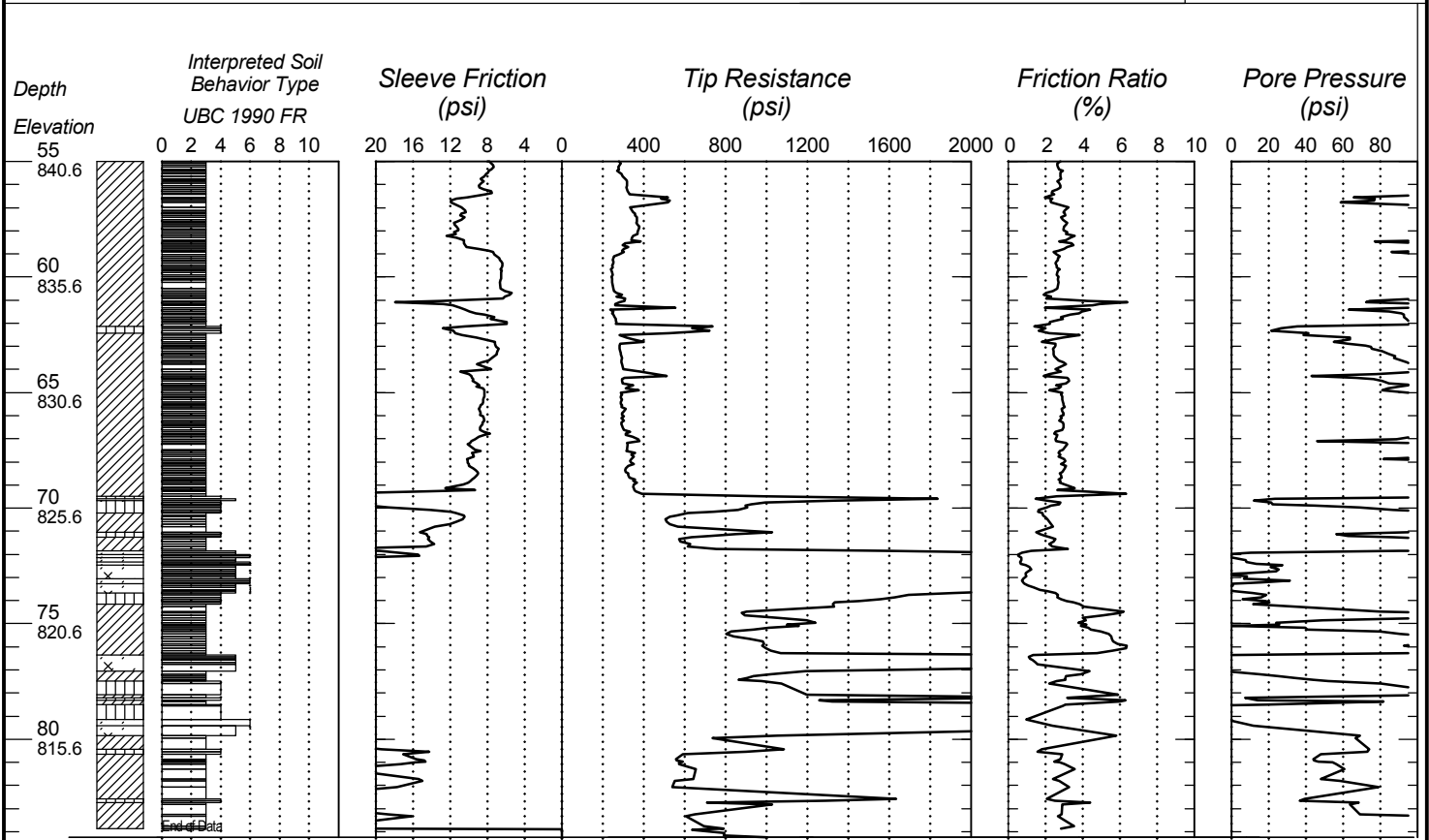
**UNIQUE NUMBER 70911**

U.S. Customary Units

State Project <b>6280-304</b>	Bridge No. or Job Desc.	Trunk Highway/Location <b>I-35E</b>	Sounding No. <b>c12</b>	Ground Elevation <b>895.6</b> (DTM)
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Mn/DOT GEOTECHNICAL SECTION - CONE PENETRATION TEST RESULTS

SHEET 2 of 2



Bottom of Hole 84.25

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# Administrator's Report

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## MEMO

**TO:** Board of Managers and Staff  
**FROM:** Tina Carstens, Administrator  
**SUBJECT:** July Administrator's Report  
**DATE:** June 26, 2020

### A. Meetings Attended

Monday, June 1	2:00 PM	Ramsey County Flood Meeting Planning
Tuesday, June 2	12:00 PM	Water Resources Conference Planning
Wednesday, June 3	6:30 PM	June Board Meeting
Thursday, June 4	8:00 AM	Water Resources Conference Planning
	10:00 AM	Ramsey County Flood Meeting Planning
	11:00 AM	Gold Line BRT Meeting
Monday, June 8	10:00 AM	Employee Right to Know Training
Tuesday, June 9	1:30 PM	Equity Initiative Planning
	5:00 PM	Ramsey County Flood Meeting
Tuesday, June 16	1:00 PM	Project Update Meeting
Thursday, June 18	8:00 AM	Water Resources Conference Planning
Friday, June 26	9:00 AM	Woodbury Projects Discussion

### B. Upcoming Meetings and Dates

July Board Workshop	Week of July 27 <sup>th</sup> , 2020
August Board Meeting	August 5, 2020
September Board Meeting	September 2, 2020

### C. Upcoming Board Workshops

As we discussed last month, there are some topics that will require more discussion than can be had at a board meeting. The board's request is that they be special workshop meetings. After discussing with staff and Barr staff, we are looking at the last week of July for the first workshop. The topic for this workshop will be the feasibility studies that are ongoing and relate to the Beltline Resiliency Study. The work will be substantially complete by the last week of July in time for a workshop and then for budget discussions at the August meeting. We can then take the information at that workshop and use it to help guide a portion of the discussion around the watershed management plan update. That workshop will be held in August or early September.

**D. 2021 Budget Planning Memo**

To begin the board budget process for 2021, I have prepared a preliminary budget memo for your review and input. See attached. The memo outlines budget issues and considerations for next year. The memo highlights any major additions or deletions to the budget as compared to this year. I have received input from staff and we will continue through the month of July to discuss our work plan for 2021 and the various budget considerations. I will also take the input from the board at the July meeting to continue on the process.

In August, staff will provide the board with a draft budget table with projected budget and levy estimates. This information will be reviewed at the August meeting and if authorized by the board, the budget and work program will be sent to the cities and counties for review and comment. In September, the board will hold a public hearing to take comments on the budget and approve the preliminary budget and levy for certification to the counties. The final budget and levy will be approved by the board in December.

## MEMORANDUM

**TO:** Board of Managers and Staff  
**FROM:** Tina Carstens, Administrator  
**SUBJECT:** 2021 Budget Discussions  
**DATE:** June 25, 2020

It is that time of year again where we start to discuss the budget for the following year. I have reviewed the current year budget and spending, as well as asked staff and Barr Engineering to give me input on anticipated work plan and budget issues for 2021. I have held discussions with staff regarding our work plan and budget. I will take the input from the board at our July meeting along with the staff input to develop the preliminary budget table and narrative that will come back to you at the August 5th board meeting.

The information in this memo is to highlight the larger budget items and those that may be different than we have done in the past. Items not covered here are anticipated to remain at or near current budget levels.

At the July board meeting, I will review this memo and respond to any questions from the board. At the August meeting, I will present and review a draft budget table with a line by line description of the items. In September, I will present a revised budget based on our August discussions and we will hold a public hearing on the preliminary budget. The preliminary budget and proposed level with the reflected changes from our September meeting discussion will be send to the county auditor by September 30, as required. This budget and levy can be modified anytime until our December meeting, when we will need to approve our final budget and levy for 2021.

### 1. 2020 Work Program Analysis

The budget and work program analysis from this year shows that everything is proceeding as planned and the significant projects and studies for 2020 should be completed by the end of the year. Many of those studies completed this year will inform budgeting decisions moving forward in 2021, particularly in the Beltline Resiliency Study feasibility studies and flood risk reduction projects.

## 2. Overall Budget Reserve Level

As was indicated in our 2019 audit summary, the District has kept the reserve at an acceptable level. The District currently has over 100% of its planned year general fund expenditure budget in reserve. As usual, I take that into account as I am preparing the budget and levy for the following year. The board may wish to use some of the budget reserves for 2021 activities or continue to keep that amount available in reserves. I am aware of the budgeting and levy concerns this coming year with COVID-19 and other concerns. I believe we will be able to keep the levy as close to a 0% increase as you would like.

## 3. Staffing and Program Support

**Salaries and Benefits** - The draft budget will include salaries for existing staff and interns. Existing salaries will be used in the budget with a calculated 3-5% overall increase as well as an estimated increase due to health insurance premium increases. I hope to have some projection information on insurance increases by the September meeting. As I have mentioned that I am working on a new organizational structure and staffing plan for the District. Under this plan that I will share with the Board at a later date we would want to add two staff in the near future. One more immediate need would be to add a water quality monitoring staff person. If the board was amenable, I would like plan for that staff person in my 2021 budget.

**Outside Program Support** - There are a number of outside programs that we have supported in the past to help supplement the work we are doing without having to add to our staff or overreach our existing staff. In the past we have provided financial support to Watershed Partners, Blue Thumb, East Metro Education Collaboration, Cooperative Weed Management Program, and Ramsey County GIS Users Group. The entities that I have listed are all valuable programs that we get tangible benefits from. I will propose in the draft budget that we continue to support those programs as we have in the past.

## 4. Building Maintenance

Every year as the building gets older we evaluate the potential needs and related budget that would be required. For 2020, we budgeted a larger amount to take care of some larger maintenance needs at the office. Many of those items have not been completed yet but we do anticipate being able to do that by the end of the year. If not, we can carry over the funds to complete at the beginning of 2021. Other than those items, our typical yearly maintenance budget should suffice.



## **5. Natural Resources Program**

The main focus of the natural resources program in 2021 will be continuing the work with Ramsey County parks on the Vadnais-Snail Lake Regional Park in the area between Snail and Grass Lakes. This will be the third phase of that project. We will continue to work in the Phalen Chain of Lakes on carp management as we maintain a healthy fish population in those lakes. The Owasso Chain of Lakes carp work will also continue in 2021 and may require another more intensive control year depending on the success of removal this summer.

## **6. BMP Stewardship Grant**

We continue to be successful in our BMP grant program both in residential and larger applications. In fact, this has been a busy year for applications and may need to cut off project intakes soon. We have an increased interest in shoreline restoration work on Twin Lake for 2021. We may want to increase our BMP Stewardship Grant fund in order to account for that project as well as the other projects that come in throughout the year. This is especially true if we need to push off some applicants to 2021 because of running out of funds for 2020.

## **7. Education, Communications, and GIS Programs**

The education program will continue in 2021 to work in our schools (hopefully) and alongside our natural resources staff with restoration projects. There is also coordination happening with our schools and churches as they relate to our retrofit projects. The Adopt-a-Drain program continues to be of interest to our cities and we are working to support that interest. I am continuing to work with Lauren to evaluate communications needs for 2021 and will have more information on that in coming months. No big changes to our needs in GIS other than some smaller, new equipment purchases.

## **8. Water Monitoring Program**

We have usual monitoring equipment purchasing and maintenance needs in 2021. There is some older equipment that needs replacing as part of a rotation. Our monitoring staff could use support in an additional full time staff person. We continue to add to our monitoring needs with various BMP monitoring as well as the usual lakes and stream sampling. Also, with the increased weather events, the samplers are triggered more often and require more visits. We have kept an intern through the winter and thankfully have the same intern for the last year which helps. That is critical to keeping the program going without extensive training needed with each new season. We have also seen over the past two winters that there is enough winter work to consider a full time staff person. Adding an additional water

monitoring staff would also allow Eric more time to efficiently evaluate and report on the monitoring results.

## **9. Permit and Inspection Program**

No new budget needs have been identified for the permitting and inspection program.

## **10. Research**

The District will continue to fund research and seek opportunities to do more research to advance the work that we do. We are currently working with the St. Anthony Falls Research Lab to look at the use of iron to treat phosphorus in stormwater ponds. Another research project is looking at phosphorus in ponds and spent lime applications. We will likely receive another request to support the Minnesota Stormwater Research Council (MSRC) which the board has supported for the last several years.

## **11. Capital Improvements Planning and Projects**

***Feasibility Studies*** – 2020 will be a big year for feasibility studies that were proposed from the Beltline Resiliency Study. We will continue with studies that come from that report and are needed to consider the rest of the District for flood damage reduction. From this year’s feasibility studies, there may come more studies or taking a different look at the areas based on what we find this year.

***Flood Damage Reduction Fund*** – Over the last several years, the board has added money to the fund to prepare for future projects as feasibility studies were being completed. We have been using this fund to address needs in the Grass Lake, Snail Lake and Twin Lake areas. We can continue to draw from this fund as we implement the West Vadnais Lake Outlet project as well as the Twin Lake outlet. At an upcoming board workshop and then at the August meeting, the board will be hearing results of a number of feasibility studies to look at what it would take to take homes out of the 100 year flood risk. These projects will come with large implementation costs and likely won’t be able to be funded through a project levy directly. But I do think we should continue to keep this fund at a high amount to more easily address emergency situations or to implement smaller priced projects that could be done more quickly ahead of larger capital improvement projects.

Keeping this fund at a healthy level has shown valuable as we have seen over the past several years of flood management. While we have implemented and completed much work, it is wise to continue to have the funds available to act swiftly as needs arise. This is also valuable to our city and county partners as they ask for assistance on these matters.

**Planning Projects** – This year in 2020, will include looking at updating our watershed management plan to include the items we have learned over the past several years as well as include projects in our implementation plan. There may be some carry over from that work into 2021.

**Lake Internal Load Management** – The board will be hearing more about our recommendations regarding lake internal load management yet this year in 2020. This discussion will also require the board to make decisions on implementing internal load management projects in the near future. As a reminder, the district has typically implemented external load control projects first and then looks to address internal load. This is to make sure we are handling the load coming into the lake so it isn't as readily available for the internal load component. For instance, in Wakefield Lake, we have implemented with our partners projects like Frost/Kennard Spent Lime, Wakefield Park and the upcoming Aldrich Arena which greatly reduces the external load to the lake. That alone though will not help us reach our water quality goals for Wakefield Lake. We must next look at the internal load needs. More to come on this front.

**Targeted Retrofit Projects** – There are a number of projects that have been in the planning stages this year and will be ready for construction in 2021. Those projects include the North St. Paul Target store, Motel 6, and St. Rosa Lima. Some of these projects are eligible stormwater impact funds as well. Motel 6 also has a flood reduction benefit. More details on anticipated costs for these projects will be shown at the August meeting.

**Maintenance and Repair Project**— We continue to find our CIP Maintenance and Repair budget to be adequate even with the additional items that we address each year. We expect a similar level of need for our annual contract and will continue to offer to our cities the ability to add their pond clean out projects on our contract. We will need to complete the Beltline/Battle Creek pipe inspections and hear the final results on any maintenance needs for that as well. For our BMP maintenance contract, we will likely need to increase that budget because we are adding some larger projects in the maintenance rotation like Target, Wakefield Park, Aldrich, Snail Lake and Boys and Girls Club.

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# Project and Program Status Reports

\* \* \* \* \*

## Memorandum

**To:** Board of Managers and Staff  
**From:** Tina Carstens and Brad Lindaman  
**Subject:** Project and Program Status Report – July 2020  
**Date:** June 25, 2020

### Project feasibility studies

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#### **Owasso basin bypass pipeline feasibility study (Barr project manager: Sam Redinger; RWMWD project manager: Tina Carstens)**

*The purpose of this study is to evaluate the benefit-cost relationships of redirecting runoff from the Owasso basin upstream drainage area by reviewing potential pipe alignments, land acquisition costs, utility conflicts, permitting issues, and related design as well as construction and long-term maintenance costs associated with each alternative that achieves the project objective of removing habitable structures from the floodplain in this area.*

This period, Barr created an existing-conditions base map along the project corridor(s), consolidating available survey data, LiDAR information, aerial imagery, and utilities. A Gopher State One Call request was submitted to identify utility conflicts around the project area. The majority of the utility data has been received and is being imported into the base map, which will inform the development of a feasible pipe alignment, potential berm modifications, upgraded drainage structures, etc.

Barr mailed notification letters to homes and businesses in the project corridor(s), with the exception of NorthStar Estates. Providing a one-week notification window, the field survey to collect missing data around the project area and survey home elevations began this week.

Historical soil borings around the proposed pipe alignment, obtained from the Minnesota Department of Transportation (MnDOT), were utilized to evaluate existing soil conditions and guide a high-level evaluation of constructability constraints.

During the next period, Barr intends to evaluate major utility conflicts, update the existing-condition base maps with newly collected field survey data, begin coordinating with stakeholders regarding respective permitting requirements, and evaluate configuration concepts to develop preliminary design drawings and outline a construction cost estimate. Delays to this study schedule occurred during the past period due to the COVID-19 pandemic; however, the feasibility study is now progressing smoothly on an accelerated schedule. A draft cost estimate and presentation of findings are expected at the August board meeting.

**West Vadnais to South I-694 conveyance feasibility study (Barr project manager: Sam Redinger; RWMWD project manager: Tina Carstens)**

*The purpose of this study is to evaluate the feasibility of constructing a larger discharge pipeline that could be used to draw down West Vadnais Lake when conditions allow and/or when downstream improvements are implemented. The goal is to establish the normal water level of the system at elevation 881.0 and the 100-year flood level at elevation 884.0 without increasing flood levels downstream.*

This period, Barr completed preliminary design of the proposed pipe alignment from West Vadnais Lake. Thirty-percent design drawings and a Class III cost estimate have been developed. The draft technical memo is included in this month's board packet for manager review. The results of the feasibility study will be presented at the July board meeting.

*Pumping considerations*

In advance of changes to the Phalen Chain of Lakes' control structures and other potential piped changes evaluated as described in the original West Vadnais Lake conveyance south of Highway 694 feasibility study scope, board members asked Barr and the RWMWD to consider opportunistic pumping as a way to help lower West Vadnais Lake and Grass Lake levels in order to better prepare for large runoff events. In response to this request, and as a part of the feasibility study, we have characterized what opportunistic pumping might look like.

As discussed during previous board meetings, we ran a six-year simulation (2014 through 2019 rainfall) comparing flooding both with and without pumping to demonstrate what pumping might achieve in terms of benefits and downstream impacts. The results of this evaluation are presented as an attachment to the West Vadnais to South I-694 conveyance feasibility study technical memo, included in this month's board packet for manager review.

**Willow Creek flood-damage-reduction feasibility study (Barr project managers: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)**

*The purpose of this study is to evaluate the benefit-cost relationships of infrastructure changes in the Willow Lake area by reviewing potential pipe alignments, land acquisition costs, utility conflicts, permitting issues, and related design as well as construction and long-term maintenance costs associated with each alternative that achieves the project objective of removing habitable structures from the floodplain in this area.*

This period, surveyors began confirming the low home elevations in the flood-prone area that was identified during the Atlas 14 modeling update and the Beltline resiliency study. The City of White Bear Lake also sent utility information, which we are currently reviewing for use in this study. This information will be used to verify the effectiveness of the conceptual design alternatives in lowering flood levels to reduce risk to nearby homes.

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**Ames Lake flood-damage-reduction feasibility study (Barr project managers: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)**

*The purpose of this study is to evaluate the benefit-cost relationships of infrastructure changes that would remove habitable structures from the floodplain in this area. This study will be phased. The first phase will involve communications with City of Saint Paul staff about how to approach flood management in this area, which involves both regional and localized flooding issues. The second phase (if pursued) will involve reviewing potential pipe alignments, land acquisition costs, utility conflicts, permitting issues, and related design as well as construction and long-term maintenance costs associated with each alternative that achieves the project objective, as defined in partnership with the city.*

This month, an internal team kickoff was organized. In addition, a meeting with the City of Saint Paul was scheduled for later this summer to discuss the project; establish roles among the RWMWD, Barr, and the city; and confirm project objectives. Initial meeting preparation has begun.

**Federal Emergency Management Agency (FEMA) flood mapping updates (Barr project manager: Brandon Barnes; RWMWD project manager: Tina Carstens)**

*The purpose of this project is to apply Minnesota Department of Natural Resources (DNR) grant funding to use the RWMWD's updated stormwater model to develop information required to update the FEMA floodplain maps.*

Barr received DNR comments on the preliminary hydraulic models. We are reviewing the comments and making minor updates to the model as needed. We will continue to address DNR comments this summer, and anticipate resubmitting the final hydraulic models in August. This month, we requested additional as-built plans for municipal storm sewer systems within the watershed. Barr is updating a few locations in the model where the DNR had comments, and will complete final simulation runs within the next month.

Due to the extended DNR review period, the project schedule was extended and will now continue into 2021.

**Water management plan updates (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)**

*The purpose of this project is to update the 2017 RWMWD watershed management plan to reflect findings and studies from recent years and to update the implementation plan with several new implementation items that have arisen since the plan was adopted.*

This period, Barr discussed initial edits to be incorporated into the plan updates. A workshop with board managers to discuss potential changes is being planned for later this summer.

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## Water quality monitoring and other district project monitoring

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### **Automated lake-monitoring systems (Barr project manager: Chris Bonick; RWMWD project manager: Eric Korte)**

*The purpose of this project is to install an automated system to monitor lake levels throughout the RWMWD and allow real-time transfer of data to the RWMWD's website for public consumption.*

Xcel Energy and Killmer Electric Co. have completed installation of power and an electric meter at Owasso Lake. Barr and the RWMWD are currently installing the monitoring equipment. This station should be in operation in July.

Barr and the RWMWD are currently developing a lake-level data webpage that will be accessible to the public via the RWMWD's website. The public version is expected to be available in July.

We have completed initial reconnaissance to site and design upgraded or new monitoring stations at the Spoon, Tanners, Battle Creek, and Twin lakes (new). The RWMWD has met with Peterson Co. at the sites so that cost estimates for station construction can be provided. The RWMWD has also begun discussions with property owners (i.e., cities, county) to obtain approval for the projects.

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## Capital improvements

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### **Wakefield Park/Frost Avenue stormwater project (Barr project manager: Michelle Kimble; RWMWD project manager: Paige Ahlborg)**

*The purpose of this project is to work with the City of Maplewood and its consultants to implement a site plan that integrates stormwater management features with associated educational elements for the northern portion of Wakefield Park.*

Final restoration of the basins is finished. The weir modification was finalized after the City of Maplewood cleaned out the grit chamber. The basin plantings required some maintenance, and communications are ongoing with the RWMWD and the contractor.

### **Targeted retrofit projects (Barr project manager: Matt Kumka; RWMWD project manager: Paige Ahlborg)**

*The purpose of this project is to design, provide bid assistance for, and oversee construction of BMP retrofits on previously identified commercial, school, and faith-based properties throughout the RWMWD.*

The RWMWD, Barr, and Outdoor Labs attended a preconstruction meeting for the Boys and Girls Club on June 17. Additional review of the drain tile connection to the City of Saint Paul storm sewer is needed. A connection to a closer manhole is possible, but the contractor is investigating further to avoid issues with permitting associated with connecting to the city catch basin. Construction is set to begin the week of July 6 with curb removal, parking-lot catch basin installation, and drain tile connection. Construction of the permeable paving parking lot and native garden preparation are expected to take two weeks. Planting of the gardens will likely be delayed until fall.

Work inspection at Cornerstone Montessori School also occurred on June 17. Outdoor Labs has installed Biologs to extend the ponding area to mitigate flooding into the play area. Additional logs still need to be installed. Tree removal in the pond is planned, and the planting along the pond banks is still needed.



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**Target Store stormwater retrofit projects (Barr project manager: Leslie DellAngelo; RWMWD project manager: Paige Ahlborg)**

*The purpose of this project is to design, provide bid assistance for, and oversee construction of BMP retrofits at two Target retail stores and a Motel 6.*

Bids will be received for the East Saint Paul Target site on June 26 and will be reviewed in time for presentation at the July board meeting. This schedule will likely allow construction to begin this summer, in time for fall completion. We will resume design development and complete construction documents for the North Saint Paul site in late June.

**Kohlman permeable weir test system (Barr project manager: Keith Pilgrim; RWMWD project manager: Bill Bartodziej)**

*The objective of this current investigation is to develop one or more conceptual designs that will fit within the footprint of the existing Kohlman basin permeable weir. The revised design should provide filtration capacity and remove solids and phosphorus.*

Conceptual designs are being developed. The current design includes use of an upflow treatment cell approach. Next steps include sizing, expected load reductions, and floodplain and maintenance considerations. We are also considering whether to test this approach on a limited scale before constructing the system across the entire permeable weir.

**Aldrich Arena soils and plantings (Barr project manager: Matt Metzger; RWMWD project manager: Paige Ahlborg)**

*The purpose of this project is to incorporate green-infrastructure stormwater management into the Aldrich Arena campus renovations. The parking lot will be full-depth reclaimed by Ramsey County, which itself would not trigger the need for a RWMWD permit. The partnership between the RWMWD and Ramsey County will achieve treatment of runoff from the parking lots where none currently exists. A formalized joint-powers agreement outlining the partnership cost sharing, roles, and responsibilities was crafted between the RWMWD and Ramsey County.*

The majority of rain-garden grading, repair, and reconstruction was completed in 2019. Plantings were installed this year. Final record documentation, punch-list development, and vegetation establishment are ongoing. The RWMWD's portion of the project is expected to be complete this summer. The RWMWD has committed to providing two years of rain garden and tree vegetation establishment maintenance after the project is accepted.

**Keller channel weir and Phalen outlet resiliency modifications (Barr project manager: Greg Nelson; RWMWD project manager: Tina Carstens)**

*This project includes design, bid document development, bidding, permitting, and project procurement of modifications to the Keller channel structure and the Phalen outlet structure. The purpose is to implement a design that would allow the RWMWD to remotely adjust the weir heights on the Keller channel structure and the Phalen outlet structure in accordance with an approved operating plan. Operation of the structures under certain conditions will help reduce upstream flood levels where homes exist in the floodplain.*

**To:** Board of Managers and Staff  
**From:** Tina Carstens and Brad Lindaman  
**Subject:** Project and Program Status Report July 2020  
**Date:** June 25, 2020

Page 6

This period, Barr's structural staff, with input from our civil design staff, reviewed required modifications to the existing outlet structures to verify that the proposed modifications will be structurally acceptable. We updated our electrical staff on schedule and scope associated with the design of necessary infrastructure. Preliminary design and development of construction drawings and specifications are ongoing. In addition, an environmental review process has begun to better understand the permitting issues associated with operating the gates, once constructed, as well the permits required to complete modifications. We expect these efforts to continue throughout the summer.

**Lowering of West Vadnais Lake outlet (Barr project manager: Erin Anderson Wenz; RWMWD project manager: Tina Carstens)**

*The purpose of this project is to provide final plans and specifications and permitting required to lower the 15-inch outlet of West Vadnais Lake to an inlet elevation of 881.0.*

Pipe installation and outlet lowering are complete. Surveyors verified the elevation of the 15-inch outlet; it is now 880.95 (NAVD88). The adjustable weir is currently being fabricated and will be installed upon delivery in July. This work is included in the CIP 2020 maintenance/repairs project change order (status report below) and considered in the consent agenda.

**Twin Lake outlet construction (Barr project manager: Brandon Barnes; RWMWD project manager: Tina Carstens)**

*The purpose of this project is to design and construct an outlet system and develop an outlet operating plan in accordance with feasibility study recommendations. The outlet and associated operating plan help reduce flood risk to habitable structures in the Twin Lake watershed in Little Canada and Vadnais Heights.*

At the June meeting, managers awarded the project to Rachel Contracting LLC. During June, Barr and Rachel Contracting are finalizing certificates of insurance and the project agreement, and Rachel Contracting is obtaining the permits and approvals required prior to construction. These approvals include an appropriation permit from the DNR, MnDOT approval for lowering water levels in Waldo Pond, and other construction approvals from the cities.

Barr scheduled a preconstruction meeting with Rachel Contracting for June 29. Construction is anticipated to begin in early July, pending receipt of the remaining approvals (including those obtained by the contractor), and is anticipated to take three to four weeks.

As previously mentioned, the City of Little Canada will handle operation of the outlet following construction, as well as maintenance of the manhole and culvert, in accordance with the operating plan. The RWMWD is responsible for maintenance of the conveyance ditch from the railroad to the outlet. Details regarding operation and maintenance responsibilities will continue to be developed over the next few months.

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## CIP project repair and maintenance

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### **CIP maintenance/repairs 2020 project (Barr project manager: Greg Nelson; RWMWD project manager: Dave Vlasin)**

*The purpose of this project is to maintain existing systems and infrastructure owned and operated by the RWMWD and to assist and facilitate stormwater pond cleanouts to allow other public entities to meet their municipal separate storm-sewer system (MS4) requirements.*

Fitzgerald Excavating & Trucking, Inc. has finished work on all sites associated with the original project. In addition, under a change order to this contract, Fitzgerald has completed the West Vadnais Lake outlet lowering, the Twin Lake bypass manhole installation, and the West Vadnais Lake overflow swale. All work in the change order, which is included in the consent agenda, is substantially complete, except for installation of the weir gate assembly mentioned in an earlier report. The West Vadnais Lake outlet is operational at its new elevation, as are the overflow swale and bypass manhole.

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## Project operations

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### **2019 Tanners Lake alum facility monitoring (Barr project manager: Meg Rattei; RWMWD project manager: Eric Korte)**

*The purpose of this project is to complete monitoring and reporting required by the general National Pollutant Discharge Elimination/State Disposal System permit for MS4s.*

Barr completed the required 2019 MS4 report for the alum treatment facility per its permit. The RWMWD submitted the MS4 report to the Minnesota Pollution Control Agency. Report highlights include: 1) the alum treatment facility was shut down for maintenance from mid-July 2018 through mid-July 2019; 2) in 2019, the alum treatment facility removed 88 percent of total phosphorus and 90 percent of dissolved phosphorus entering the facility; and 3) water quality degradation documented in Tanners Lake during 2019 when the alum treatment facility was shut down for maintenance shows the sensitivity of Tanners Lake to changes in phosphorus loading.

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## Lake studies

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### **Internal load management discussions (Barr project manager: Keith Pilgrim; RWMWD project manager: Bill Bartodziej)**

*The primary objective of this study is to develop an overall assessment of a number of at-risk or total maximum daily load (TMDL) lakes with respect to the magnitude of internal phosphorus loads, benefits of controlling internal loads, and potential internal-load mitigation approaches.*

Sediment coring of several lakes was completed in late May, and core testing produced data to help advance the study. Barr and the RWMWD are organizing and analyzing the data to develop an approach for improving the water quality of shallow and deep lakes by better controlling their internal nutrient loads.

## Wakefield Lake internal loading study (Barr project manager: Keith Pilgrim; RWMWD project manager: Bill Bartodziej)

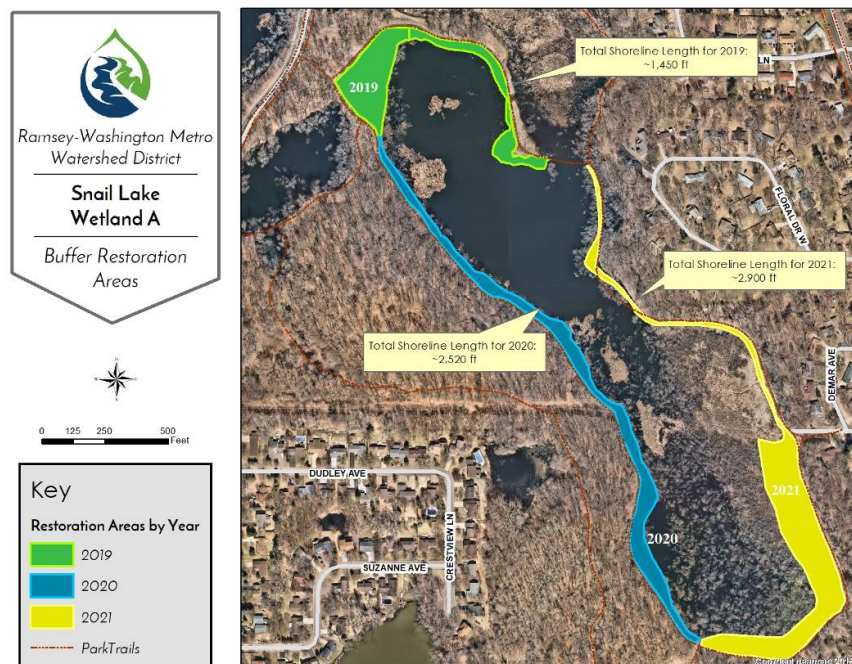
*The primary objective of this study is to determine the effect of curly-leaf pondweed on overall lake water quality and determine the potential water quality benefit of managing curly-leaf pondweed and internal loading.*

A shallow lake model developed for Kohlman Lake will be used to better understand the dynamics between aquatic plants and internal loading and will guide plant management efforts in Wakefield Lake. Barr has begun organizing and analyzing available lake-monitoring data and is helping the RWMWD plan aquatic-plant surveys and analysis. This period, we received aquatic plant data from the lake's first field survey and determined the dry weight content for use in the model.

## Natural Resources Update – Bill Bartodziej and Simba Blood

### Wetland-A Ecological Restoration

Two weeks ago, we had the opportunity to conduct a wetland shore planting with our Citizen Advisory Committee. We focused our efforts on the northern section (around 600 feet) of the blue highlighted shoreland area (see map below). Although it was humid and in the 90s, we still had around 12 eager volunteers take part in the planting. The group was extremely motivated and managed to install over 500 aquatic and wetland plants that were grown at the Ramsey County Corrections greenhouse facility. This was not easy work. Most of the helpers donned waders and navigated pretty soft and undulating bottom substrate. We also had a couple of young helpers on the crew that put many plants in the ground, but also had a great time exploring and surveying the robust frog population.



Heading into summer, the ecological restoration is on schedule and doing quite well. The Phase I area (2019) is establishing nicely with very minimal plant loss. NR is actively maintaining this area. We expect to see a majority of the upland prairie plant species to bloom and attract a variety of pollinator species. The comments from walkers on the pathway have been very positive. Overall, we see that there is a better understanding of the project from the public and most realize that the wetland areas are becoming more diverse and visually interesting.

In oak woodland buffer areas where buckthorn was removed, we observed an excellent response with native ground cover species expanding. Native woodland species, such as wild geranium, violet, sarsaparilla, wood anemone, and large-flowered bellwort are becoming more prominent. This type of plant community, especially near a wetland, is locally rare in our watershed. The addition of wetland shore and emergent aquatic plant species will definitely complement the existing plant community. Our overall goal is to establish these plant communities along the entire blue highlighted shore area this summer.



**The Watershed's CAC is busy planting a variety of aquatic and wetland species.**



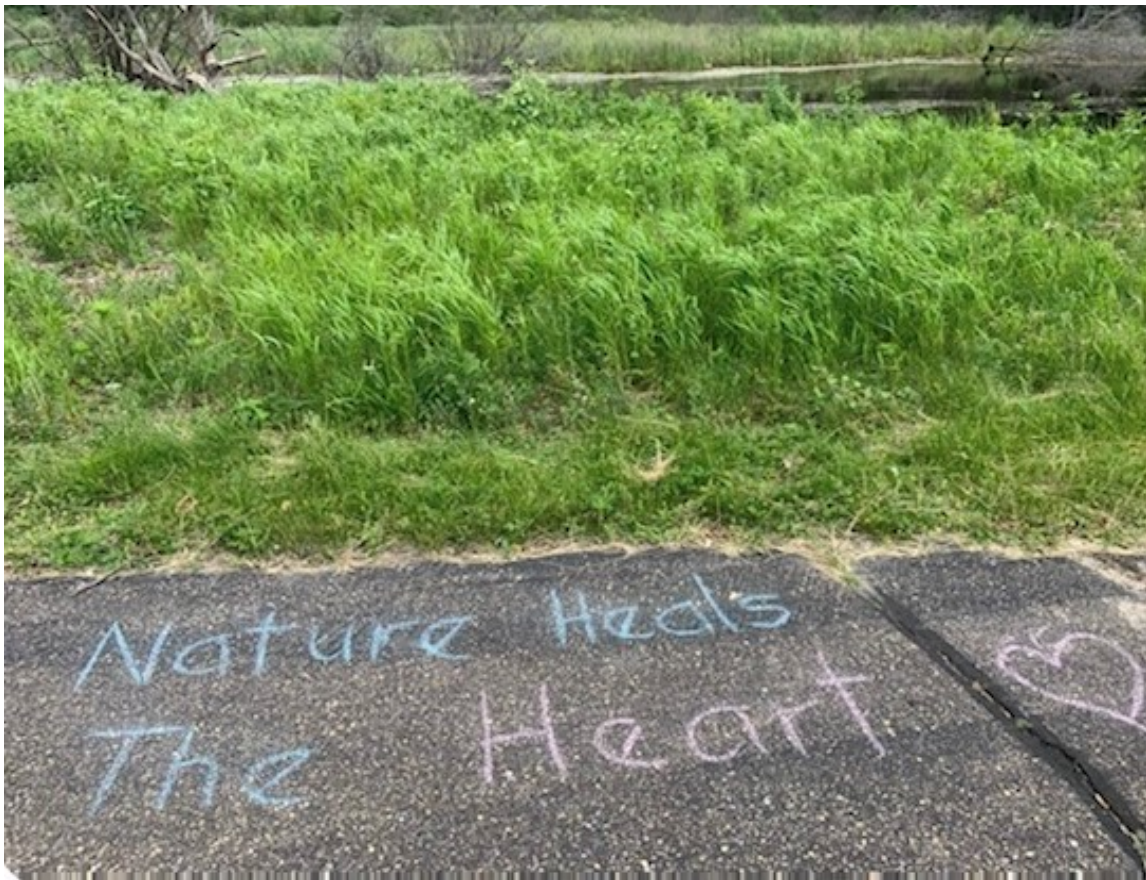
**Soren (Carrie's son) is grabbing a big tower of 1-gallon pots.**



**A native woodland species, large-flowered bellwort blooming in the spring.**



**Wood anemone is expanding after the invasive buckthorn removal.**



**Really solid message found at Wetland A along the created buffer.**

## Public Involvement and Education Program – Sage Passi

### Willow Pond Master Water Steward Team



Above: Lee Bauer, Roseville Master Water Steward helped organize a neighborhood tour in late June for League of Women Voters around Willow Pond in Roseville where she resides. She shared her own perspective on activism in her neighborhood and advocated reading one of her favorite books, *Nature's Best Hope: A New Approach to Conservation That Starts in Your Own Backyard* by Douglas W. Tallamy.

The Willow Pond Master Water Steward team in Roseville, hands down, have been my heroes this year. They have been a deep well for moral support, inspiration and action. They see behind the lines and listen beneath the scene. They excel in the knowledge and the patience for the small and bigger steps it takes to make a village strong. They help make their community vibrant and responsive. They have a recognition of how to draw ripples across a pond and the energy and stamina to make a local movement come alive. They believe in living by example. This team is composed of Lee Bauer, a former principal, long-time community leader, Phil Gelbach who has served on many boards, Samantha Rademacher a budding environmental activist, gardener and graphic designer and Adam Wilkes, a professional coming into his own at the Water Resources Center at the U of M. Together they possess a kind of vision, the ability to synthesize their own brand of creativity, resourcefulness, openness and positive energy. These are the ingredients for at least one recipe it takes to make change in a crazy world. Especially noteworthy is the intergenerational quality of this teamwork! Gotta love it!





Roseville League of Women Voters get tips about organizing their own neighborhoods in Lee's backyard.

In late June, Lee Bauer and Phil Gelbach orchestrated a tour in their community for a small group of Roseville League of Women Voters with the help of a nearby neighbor, Ann Haugan whose home is the site of capstone curb-cut rain gardens instigated by Master Water Stewards Linda Neilson and Hallie Finucane five years ago. The tour was a collective effort with touchpoints at nearby project sites including Central Park Elementary rain garden, Grace Church's large scale native buffers along its expansive stormwater ponds that drain into Willow Pond and then around the neighborhood adjacent to this amenity. Stops were made along Willow Pond, including the Mason's parking lot adjacent to the pond and a low and often slippery spot on the trail below where water coming from the parking lot may inspire a future rain garden project to address this run-off issue. Then a stop at the spent lime filter and CMAC system and then onto the yards of Lee Bauer and her neighbors, Jan Daire and Alberta Adams to meet these homespun activists who put their own brand on the work of neighborhood activism. Alberta recently had an informative site visit by Simba Blood who offered some tips on getting rid of reed canary grass and other invasives in her shoreline restoration project she showed off on the tour.

Lee Bauer has been the instigator of many neighborhood education activities since she retired as a principal and Equity resource person for the Roseville School system. Phil Gelbach has been a Park Board member in multiple cities and been actively encouraging many initiatives. There is a growing circle of neighbors around Willow Pond who are joining in some of these stewardship activities including the Adopt A Drain program, planting native plants, installing bee lawns, doing shoreline restoration,

building floating bogs and doing invasive plant removal. The common denominator is their love of Willow Pond.

“Just try one thing this year,” Lee gently suggests to her neighbors. But now that she is retired, Lee and her husband Paul are doing a large capstone restoration project on their Willow Pond shoreline and installing additional native plants and a bee lawn in their yard. They have been distributing the native plants we have been growing, passing on watershed and plant information to their neighbors, clueing them into websites, encouraging participation in webinars, sending out emails and providing printed resources. Many families have stopped by to pick up some of the plants we grew this year to use in their yards and Lee has used this opportunity to get acquainted with other families as word has spread.

Below: Jan Daire, a Willow Pond resident shares her knowledge about identifying and eradicating invasive species on the June tour. Jan has supported many of the city’s invasive control projects around the pond. She continues to do this work in solo. She dug up 5 different specimens to show the tour.



**What’s the destination for these native plants and the trays we have been growing this year?**

Many trays were delivered in installments to the Willow Pond neighborhood in May and June. We intend to broaden our distribution and level of equity in sharing this bounty of native plants within our communities by distributing them in East St. Paul and points beyond in the next several weeks. We are in the midst of looking for partners to turn this into another community-based educational opportunity. Above is Michelle Natarajan, a Master Water Steward who has been tending some of the trays and sharing them with her Lawns to Legumes grant recipients. She has some good ideas and is going to help!

**To:** Board of Managers and Staff  
**From:** Tina Carstens and Brad Lindaman  
**Subject:** Project and Program Status Report July 2020  
**Date:** June 25, 2020

