Notice of Regular Meeting
Cherry Creek Basin Water Quality Authority
Board of Directors Meeting
Thursday, May 16, 2024 at 9:00 a.m.

The meeting will be conducted in-person and virtually as set forth below.
In-person attendance is encouraged due to audio limitations in the meeting room.

In-Person: SEMSWA
7437 S. Fairplay St.
Centennial, CO 80112

Virtual: Zoom
Join Zoom Meeting Passcode: CCBWQA
Phone (646)931-3860 Mtg ID 874 2577 5963# Passcode: #815374

CCBWQA Board of Directors Meeting Documents

1. Call to Order and Pledge of Allegiance
2. Oath of Office for Special Districts Representative Rebecca Tejada Replacing Luis Tovar
3. Consent Agenda (5 minutes)

(*Items on the consent agenda can be approved with a single motion or, items can be requested to be moved from the consent agenda and moved to the "discussion" or "direction and/or action" section*.)

   a. Approval of the April 18, 2024 Minutes (enclosed)
   b. Acceptance of the Schedule of Cash Position Dated May, 2024 (enclosed)
   c. Acceptance of the Paid Claims for April, 2024 (enclosed)
   d. Approval of Unpaid Claims as of May, 2024 (enclosed)

4. Direction and/or Action (motions enclosed, 15 minutes)
   a. Adoption of Resolution 2024-5-1, Approving CCBWQA's Website Accessibility Policy and Designating an Accessibility Compliance Officer (Flynn, enclosed)
   b. Recommendation Regarding Recognition of Luis Tovar, Board Service (September 2019-December 2024)
   c. Authorization to Execute the Piney Creek Reaches 4-5 Agreement (Loewen, enclosed)
   d. Authorization to Execute the Cherry Creek at Arapahoe Road Agreement (Loewen, enclosed)
   e. Approval of the Site Application for Castle Pines North Lift Station No. 1 (Goncalves, enclosed)
5. Discussion (45 minutes)
   a. Cherry Creek Reach 1 (Loewen, enclosed)
      i. Muller's Alternatives Analysis Report (link)
      ii. Cherry Creek Reach 1 Project Funding Overview (Loewen, enclosed)
      iii. Cherry Creek Reach 1 Design Contracting (Loewen/Clary)
      iv. Update on Grant and Partner Funding (Clary)
   b. Update on Reservoir Model Findings (Clary, enclosed Hydros Memo)
6. Presentations (20 minutes)
   a. SPLASH P-free Fertilizer and Landscape Management Initiative (Byerley)
   b. Overview of New Real-Time Monitoring Instrumentation for Cherry Creek Reservoir (Stewart)
7. Board Member Items (As Needed)
8. Updates (10 minutes)
   a. Technical Manager (Clary)
      i. Runoff Reduction Study
      ii. Watershed Plan Update
   b. Cherry Creek Stewardship Partners (Davenhill)
      i. Upcoming Events
      ii. Conference Planning - Save the Date for November 12, 2024
      iii. Dam Safety Event- Be Dam Aware- May 18, 2024 (enclosed)
   c. TAC (Knerr)
   d. Contract Staff (As Needed)
      i. Pollution Abatement Projects - CIP Status Report (Loewen, enclosed)

ii. In-Park PRF and RDS Maintenance and Operations (Goncalves)
iii. Water Quality Update (Stewart)
a. Flow Monitoring on Cherry Creek Upstream of Cherry Creek Reservoir
iv. Regulatory (DiToro)
v. Land Use Referral Tracking (Endyk)
e. Executive Committee
f. Legal
g. Other
i. Race For the Watershed 2024 Save the Date - July 13, 2024 (enclosed)
9. Adjournment

Board Binder and 2024 Timeline

IN RE THE MATTER OF THE CHERRY CREEK BASIN WATER QUALITY AUTHORITY	
ARAPAHOE AND DOUGLAS COUNTIES, COLORADO	
Attorney: Timothy J. Flynn, Esq. Collins Cole Flynn Winn & Ulmer A Professional Limited Liability Company 165 South Union Blvd, Suite 785 Lakewood, Colorado 80228 Phone Number: (720) 617-0080 E-mail: tflynn@cogovlaw.com	▲ FOR CLERK AND RECORDER'S ▲ USE ONLY
OATH OF OFFICE	

I, Rebecca Tejada, do affirm that I will support the Constitution of the United States, the Constitution of the State of Colorado, and the laws of the State of Colorado, and will faithfully perform the duties of the office of special district representative Director of the Cherry Creek Basin Water Quality Authority, upon which I am about to enter to the best of my ability.

_____
Rebecca Tejada

STATE OF COLORADO)
) ss.
COUNTY OF _____)

Subscribed and sworn to before me this _____ day of _____, 2024, by Rebecca Tejada.

_____
Joshua Rivero, Chair

Cherry Creek Basin Water Quality Authority
Minutes of the Board of Directors Meeting
Thursday, April 18, 2024 at 8:30 a.m.

Board Members Present
Aditi Bhaskar, Governor's Appointee
Bill Ruzzo, Assistant Secretary, Governor's Appointee
Christopher Lewis, Vice Chair, Governor's Appointee
Geoff Blue, City of Castle Pines - Alternate
Jacob James, City of Lone Tree - Alternate
Jessica LaPierre, City of Aurora - Alternate
John McCarty, Secretary/Treasurer, Governor's Appointee
John Woodling, Governor's Appointee
Joshua Rivero, Chair, Town of Parker
Leslie Summey - Arapahoe County (zoom)
Margaret Medellin, Governor's Appointee
Max Brooks, Town of Castle Rock
Mike Anderson, City of Lone Tree
Mike Sutherland, City of Centennial
Ryan Adrian, Douglas County - Alternate
Tom Downing, Governor's Appointee

TAC Members Present
Ashley Byerley, SEMSWA
David Van Dellen, Town of Castle Rock
Cayla Cappello, City of Greenwood Village
Jeremiah Unger, CDOT
Joe Marencik, City of Castle Pines (zoom)
Kat Hoffman, CDOT - Alternate (zoom)
Lisa Knerr, TAC Vice Chair, Arapahoe County
Rick Goncalves, Board Appointee
Wanda DeVargas, Board Appointee, E-470 (zoom)

Others Present
Alan Leak, RESPEC
Carolyn Nobel, LRE Water
Elysa Loewen, Loewen Engineering
Erin Stewart, LRE Water
Jane Clary, Wright Water Engineers, CCBWQA Technical Manager
Jessica DiToro, LRE Water
Tim Flynn, Collins Cole Flynn Winn & Ulmer, PLLC
Val Endyk, CCBWQA

1. **Call to Order and Pledge of Allegiance**
   Director Rivero called the meeting to order at 8:31 am and led the pledge of allegiance.

2. **Consent Agenda**

a. **Approval of the March 21, 2024 Minutes**
b. **Acceptance of the Schedule of Cash Position Dated April, 2024**
c. **Acceptance of the Paid Claims for March, 2024**
d. **Approval of Unpaid Claims as of April, 2024**

Director McCarty moved to approve the consent agenda. Seconded by Director Anderson. The motion carried.

3. **Direction and/or Action**
   a. **Authorization to Execute the Happy Canyon Creek at Jordan IGA Amendment**

Elysa Loewen provided the Board with an Action Item Memo detailing the Happy Canyon Creek at Jordan Road project. The Project is along Happy Canyon Creek near Jordan Road beginning downstream at the Confluence with Cherry Creek to the upstream limits of the project at the Douglas County line. It is a partner project with MHFD and SEMSWA with MHFD as the project lead. It is estimated that this 0.85-mile-long project will immobilize 77 pounds of phosphorus annually. The sediment deposition within the channel, especially from Jordan Road to the Cherry Creek confluence has increased annually and more significantly after Spring 2023 events (see photos in AIM). A site walk was completed by the project stakeholders in January 2024 to observe the conditions and discuss the assessment/study completed by Jacobs (the consultant); the project is moving forward with preparing alternative analysis for conceptual design. Project funding was included in CCBWQA's 2024 Budget. A draft of the IGA Amendment was included in the Board packet.

Director Woodling moved that the Board authorize the execution of the IGA Amendment for Stream Improvements at Happy Canyon Creek with an expenditure not to exceed $50,000 for 2024. Seconded by Director McCarty. The motion carried.

   b. **Acceptance of Appendix H of the March 2024 Cherry Creek Southwest Tributaries Major Drainageway Plan: Cottonwood, Lone Tree, Windmill, and Dove Creeks**

Jane Clary provided the Board with an Action Item Memo with a link to "Appendix H-Cherry Creek State Park" of the March 2024 Cherry Creek Southwest Tributaries Major Drainageway Plan: Cottonwood, Lone Tree, Windmill, and Dove Creeks. MHFD and SEMSWA co-sponsored the Major Drainageway Plan, which originally extended to the Cherry Creek State Park Boundary. The CCBWQA Board authorized CCBWQA funding to extend the master plan from the Park Boundary to the Reservoir, including updated hydrology and alternatives evaluation for projects within Cherry Creek State Park for the subject drainageways.

Director Ruzzo moved to accept "Appendix H-Cherry Creek State Park" of the March 2024 Cherry Creek Southwest Tributaries Major Drainageway Plan: Cottonwood, Lone Tree, Windmill, and Dove Creeks. Seconded by Director Sutherland. The motion carried.

4. **Board Member Items (As Needed)**

5. **Updates (10 minutes)**
   a. **Technical Manager (Clary)**
      i. **Runoff Reduction Report and Supporting Documents (Integration of Review Comments in Progress)**
      Wright Water Engineers is working to incorporate review comments from the TAC and Board on the Runoff Reduction Report. A final version will be included in the May TAC and Board packets.

      ii. **Cherry Creek Reach 1 Alternatives Analysis (progress update)**
      Muller Engineering presented the Cherry Creek Reach 1 Alternatives Analysis at the April 4, 2024 TAC meeting.

      iii. **Congressionally Directed Spending Application Submitted for Cherry Creek Reach 1**
      As directed by the Board at the March 21, 2024 Board meeting, Jane Clary, with input from the Executive Committee, coordinated and submitted the application for congressionally-directed spending for water quality improvements within CC State Park. The submittal summary was included in the Board packet.

   b. **Cherry Creek Stewardship Partners (Davenhill)**
      i. **Upcoming Events**

ii. **Dam Safety Event- Be Dam Aware- May 18, 2024**

c. **TAC (Knerr)**

d. **Contract Staff (As Needed)**

i. **Pollution Abatement Projects - CIP Status Report (Loewen)**

ii. **In-Park PRF and RDS Maintenance and Operations (Goncalves)**
The Reservoir Destratification System was successfully started up on April 16, 2024.

iii. **Water Quality Update (Stewart)**
The new water quality monitoring probe was installed yesterday and the reservoir is looking beautiful with lots of fisherman and even a few brave water skiers.

iv. **Regulatory (DiToro)**

v. **Land Use Referral Tracking (Endyk)**

e. **Executive Committee**

f. **Legal**

g. **Other**

6. **Adjournment**

There being no further business to come before the Board, Director Rivero adjourned the meeting at 8:46 am

Watershed Plan Workshop Agenda (9:00 a.m. to 11:30 a.m. following Board meeting)
Board Binder and 2024 Timeline

Cherry Creek Basin Water Quality Authority
Schedule of Cash Position
March 31, 2024
as of May 9, 2024

	General Fund	Pollution Abatement Fund	Enterprise Fund	Total
1st Bank - Checking Account				
Balance as of 03/31/24	$ 25,534.77	$ 25,652.90	$ 7,740.10	$ 58,927.77
Subsequent activities:				
04/09/24 VISA Charges	(334.49)	-	-	(334.49)
04/17/24 VISA Charges	(432.67)	-	-	(432.67)
04/18/24 Monthly Transfer for AP	33,000.00	140,000.00	8,000.00	181,000.00
04/22/24 Bill.com Payment	(30,515.35)	(137,722.94)	(10,442.71)	(178,681.00)
04/25/24 Verizon ACH	(51.44)	-	-	(51.44)
04/29/24 XCEL ACH	-	(713.28)	-	(713.28)
04/30/24 Interest Income	7.16	-	-	7.16
05/09/24 VISA Charges	(249.00)	-	-	(249.00)
Anticipated Activities				
Transfer from ColoTrust for bills	*85,000.00*	*36,000.00*	-	*121,000.00*
Bill.com open claims	*(83,983.32)*	*(36,545.09)*	-	*(120,528.41)*
Anticipated balance	$ 27,975.66	$ 26,671.59	$ 5,297.39	$ 59,944.64
ColoTrust General - (8001)				
Balance as of 03/31/24	$ 1,351,670.91	$ 2,327,232.25	$ 1,577,779.73	$ 5,256,682.89
Subsequent activities:				
04/01/24 CSD P&L Insurance Deposit	4,693.08	-	-	4,693.08
04/10/24 Ptax Arapahoe Cty (Mar)	136,804.01	-	-	136,804.01
04/10/24 Ptax Douglas Cty (Mar)	98,528.85	-	-	98,528.85
04/18/24 Monthly Transfer for AP	(33,000.00)	(140,000.00)	(8,000.00)	(181,000.00)
04/30/24 Deposits Dev Checks	-	-	33,691.87	33,691.87
04/30/24 Interest Income	23,934.58	-	-	23,934.58
Anticipated Activities				
Ptax Arapahoe Cty (Apr)	*299,129.57*	-	-	299,129.57
Ptax Douglas Cty (Apr)	*348,236.63*	-	-	348,236.63
Monthly Transfer for AP	*(85,000.00)*	*(36,000.00)*	-	*(121,000.00)*
Anticipated balance	$ 2,144,997.63	$ 2,151,232.25	$ 1,603,471.60	$ 6,020,701.48
ColoTrust Pollution Abatement - (8002)				
Balance as of 03/31/24	$ -	$ 58,096.96	$ -	$ 58,096.96
Subsequent activities:				
04/30/24 Interest Income	-	259.03	-	259.03
Anticipated balance	$ -	$ 58,355.99	$ -	$ 58,355.99
CSAFE - Savings Account				
Balance as of 03/31/24	$ 859,161.30	$ 42,246.04	$ 440,259.09	$ 1,341,666.43
Subsequent activities:				
04/30/24 Interest Income	-	-	5,937.70	5,937.70
Anticipated balance	$ 859,161.30	$ 42,246.04	$ 446,196.79	$ 1,347,604.13
Total funds available as of date above	$ 3,032,134.59	$ 2,278,505.87	$ 2,054,965.78	$ 7,486,606.24

Effective monthly yield (as of 4/30/2024)

1st Bank - 0.100%* if Balance >$20,000
ColoTrust Plus - 5.4281%
CSAFE - 5.37%

Cherry Creek Basin Water Quality Authority
Paid Claims April 11, 2024 through May 16, 2024

Process Date	Vendor	Invoice Number	Payment Reference	Amount
4/22/2024	CliftonLarsonAllen LLP	L241190721	P24041901 - 4735619	$ 11,226.10
4/22/2024	Collins Cole Flynn Winn & Ulmer, PLLC	6044	P24041901 - 4735614	7,556.00
4/22/2024	Hydrologik LLC	INV-240271	P24041901 - 4735638	8,022.46
4/22/2024	Hydros Consulting Inc.	547-013	P24041901 - 4735599	18,695.35
4/22/2024	In-Situ, Inc	INV106495	P24041901 - 4735645	13,843.00
4/22/2024	Loewen Engineering, INC	800	P24041901 - 4735592	11,368.94
4/22/2024	Muller Engineering Company	38281	P24041901 - 4735641	33,626.40
4/22/2024	Pinpoint Systems Inc.	10262	P24041901 - 4735604	210.00
4/22/2024	R2R Engineers, Inc.	2024-02	P24041901 - 4735608	945.00
4/22/2024	RESPEC	Multiple	P24041901 - 4735585	4,914.25
4/22/2024	RG and Associates LLC	153859	P24041901 - 4735596	3,120.00
4/22/2024	Southeast Metro Stormwater Authority	45372	P24041901 - 4735635	39,000.00
4/22/2024	Valerie Endyk	202403	P24041901 - 4735631	4,483.25
4/22/2024	Wright Water Engineers, Inc.	Multiple	P24041901 - 4735578	21,670.25
			Subtotal	**$ 178,681.00**
Other Payments				
4/11/2024	Yolandas Tacos		Visa	$ 352.09
4/12/2024	Parking		Visa	12.00
4/17/2024	Costco		Visa	47.72
4/17/2024	King Soopers		Visa	20.86
4/25/2024	Verizon	MAR	ACH	51.44
4/29/2024	XCEL Energy	872052911	ACH	713.28
5/9/2024	Streamline		Visa	249.00
			Subtotal	**$ 1,446.39**
			Total Payments	**$ 180,127.39**

Cherry Creek Basin Water Quality Authority
Unpaid Claims as of 5/16/24

Invoice date	Invoice	Vendor*	Fund	Chart of account	Invoice amount
4/18/2024	2024 001	Cherry Creek Stewardship Partners	10	7030 - CC Stewardship Partners	$ 19,000.00
3/31/2024	L241215500	CliftonLarsonAllen LLP	10	7000 - Accounting	3,768.99
4/30/2024	6264	Collins Cole Flynn Winn & Ulmer, PLLC	10	7460 - Legal	8,604.00
4/17/2024	31131513	Ingersoll-Rand Company	11	7814 - PRF Reservoir Destratification Service Plan	875.00
4/25/2024	820	Loewen Engineering, INC	10	7440 - Management/Administration	5,476.75
4/25/2024	820	Loewen Engineering, INC	11	7440 - Management/Administration	8,707.69
3/25/2024	25905	LRE Water	10	Various Budget Codes for General Fund	37,598.83
3/25/2024	25905	LRE Water	11	7817 - Wetlands Harvesting	110.00
4/30/2024	10271	Pinpoint Systems Inc.	10	7480 - Office/Miscellaneous	210.00
3/30/2024	INV-0324-1021	RESPEC	11	7511 - RSS East Shade Shelter	3,126.50
3/30/2024	INV-0324-1022	RESPEC	11	7440 - Management/Administration	1,520.00
4/30/2024	153908	RG and Associates LLC	10	Various Budget Codes for General Fund	3,368.00
4/30/2024	153908	RG and Associates LLC	11	Various Budget Codes for PA Fund	2,640.00
4/30/2024	202404	Valerie Endyk	10	7201 - Administrative assistant	5,905.25
4/30/2024	69590	Wright Water Engineers, Inc.	11	7440 - Management/Administration	14,000.00
					$ 114,911.01

		Bills paid via autopay ACH			
4/30/2024	APR	Verizon (Estimate)	10	7480 - Miscellaneous	$ 51.50
4/30/2024	876133513	Xcel Energy	11	7818 - Utilities - Reservoir Destratification	5,565.90
					$ 5,617.40

General Fund - 10	$ 83,983.32
Pollution Abatement Fund - 11	36,545.09
Total Claims by Funding Source	**$ 120,528.41**

* by vendor

MEMORANDUM

To: CCBWQA Board of Directors
From: Val Endyk - CCBWQA Administrative Assistant
Jane Clary - CCBWQA Technical Manager
Date: May 10, 2024, 2024
Subject: Motions for Board Consideration: May 16, 2024 Agenda Items 4a-e

Motions:

4a: Adoption of Resolution 2024-5-1 Approving the CCBWQA Website Accessibility Policy and Designating an Accessibility Compliance Officer

I move to adopt Resolution 2024-5-1 approving the CCBWQA Website Accessibility Policy and designating the administrative assistant to serve as CCBWQA's Accessibility Compliance Officer.

4b: Recommendation Regarding Recognition of Luis Tovar, Board Service (September 2019-December 2023)

The Executive Committee recommends the Board recognize former Board member Luis Tovar with the following:

- A letter of appreciation.
- A $250 contribution to Cherry Creek State Park for park improvements.
- A plaque commemorating his years of dedication to the CCBWQA Board.

I move that the Authority recognize Luis Tovar for his significant contributions to CCBWQA as set forth above.

4c: Authorization to Execute the Piney Creek Reaches 4-5 Agreement

I move that the Board authorize the execution of the IGA for Stream Improvements at Piney Creek Reaches 4 & 5 pending final review and approval by legal counsel, with an expenditure not to exceed $75,000 for 2024 including a credit for the transfer of 11,023.13 in excess funds from Piney Creek at Caley Avenue Project.

4d: Authorization to Execute the Cherry Creek at Arapahoe Road Agreement

I move that the Board authorize the execution of the 3rd Amendment to the IGA for Stream Improvements at Cherry Creek at Arapahoe Road pending final review and approval by legal counsel, with an expenditure not to exceed $165,000 for 2024.

4e: Approval of the Site Application for Castle Pines North Lift Station No. 1

I move to approve the Castle Pines North Lift Station 1 Site Location Application and authorize any member of the Executive Committee to sign form Regulation 22 Lift Station Site Location Application Form Section 22.9 as "approved."

RESOLUTION NO. 2024-5-1

CHERRY CREEK BASIN WATER QUALITY AUTHORITY

ARAPAHOE AND DOUGLAS COUNTIES, COLORADO

A RESOLUTION DESIGNATING THE WEBSITE ACCESSIBILITY OFFICER AND ADOPTING A WEBSITE ACCESSIBILITY POLICY FOR THE CHERRY CREEK BASIN WATER QUALITY AUTHORITY

WHEREAS, the Board of Directors ("Board") of the Cherry Creek Basin Water Quality Authority ("Authority") is authorized by the provisions of Section 25-8.5-110(i)(b) C.R.S. to make and pass resolutions necessary for the governance and management of the affairs of the Authority, for the execution of powers vested in the Authority, and for carrying out the provisions of Article 8.5 of Title 25 of the Colorado Revised Statutes; and

WHEREAS, pursuant to HB 21-1110, all public entities are required to have a Website Accessibility Policy ("Policy") adopted and in place by July 1, 2024; and

WHEREAS, the Board has determined that it is appropriate to designate an accessibility officer in order to provide accessible facilities, elements, and channels of communication to all members of the public through the Authority's website; and

WHEREAS, the Board has determined that it is appropriate to adopt a Policy regarding the Authority's website accessibility; and

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Cherry Creek Basin Water Quality Authority that:

1. <u>Website Accessibility Officer</u>.

(a) Val Endyk, the Authority's Administrative Assistant, is hereby designated as the Website Accessibility Officer ("Accessibility Officer") for the Authority and is responsible for the uploading, maintenance, and care of the data on the Authority's website.

(b) The Accessibility Officer shall have the authority to designate such agents as the Officer shall determine appropriate to perform any and all acts necessary to enforce and execute the provisions of this Resolution.

2. **Website Requirements**. The Authority will use its best efforts to always have a website in compliance with Web Content Accessibility Guidelines (WCAG 2.1) and commercial screen reading software.

3. **Policy**. The Policy attached hereto as Exhibit A and incorporated herein by this reference, is hereby adopted as the official Website Accessibility Policy for the Authority. This policy will be posted on the Authority's website.

4. **Severability**. If any part, section, subsection, sentence, clause, or phrase of this Resolution is for any reason held to be invalid, such invalidity shall not affect the validity of the remaining provisions.

5. **Effective Date**. This Resolution shall take effect and be enforced immediately upon its adoption by the Board of Directors of the Authority.

The foregoing Resolution was approved and adopted this ____ day of May, 2024

CHERRY CREEK BASIN WATER QUALITY AUTHORITY

By: _____
Joshua Rivero, President

Attest:

_____
John A. McCarty, Secretary/Treasurer

EXHIBIT A

WEBSITE ACCESSIBILITY POLICY

This accessibility policy ("Accessibility Policy") was approved by the Cherry Creek Basin Water Quality Authority ("Authority") Board of Directors on May ____, 2024.

The Authority is fully committed to providing accessible facilities, elements, and channels of communication to all members of the public. As part of this commitment, the Authority has a policy of providing an accessible website compatible with the Web Content Accessibility Guidelines (WCAG 2.1) and commercial screen reading software. All features of the website are coded to allow individuals with vision and other impairments to understand and use the website to the same degree as someone without disabilities. We welcome feedback and can often resolve issues in a timely manner if they arise.

If you need any special assistance or accommodations, please contact our accessibility officer at val.endyk@ccbwqa.org or 303-968-9098.

Ongoing Compliance Information

Compliance Officer

The Authority has designated Val Endyk, the Authority's Administrative Assistant, as its compliance officer for website disability-related accommodations. The compliance officer has received training in website accessibility and updates the site in accordance with those best practices. Contact our accessibility officer to report an issue.

Compliance Procedures and Reports

In addition to annual testing with users with a wide range of disabilities and coding our website to WCAG standards, the Authority regularly scans its website to ensure ongoing compliance and makes timely changes to any inaccessible items, if any are found. For purposes of enhancing our commitment to transparency, the Authority will make the last three months of its reports available to the public.

Linked Documents and Third Parties

Please note that this site may link out to third-party websites, such as state or federal agencies, that do not have accessible content. This site may also include documents provided by third parties included in our agenda packets, for example. While we cannot control the accessibility of content provided by third parties, we are happy to assist any member of the public with reading and accessing content on our site.

Please contact our accessibility officer at val.endyk@ccbwqa.org or 303-968-9098, if you have an issue or see any areas that need improvement.

Report an Accessibility Issue

We are committed to your ability to access all content. Any issues or requests reported will be responded to by the compliance officer or designee within 2 business days.

A-2

ACTION ITEM MEMORANDUM

To: CCBWQA Board of Directors
From: Elysa Loewen, Pollution Abatement Project Manager
Date: May 16, 2024
Subject: Piney Creek Reaches 4 & 5 IGA

Request: *I move that the Board authorize the execution of the IGA for Stream Improvements at Piney Creek Reaches 4 & 5 pending final review and approval by legal counsel, with an expenditure not to exceed $75,000 for 2024 including a credit for the transfer of 11,023.13 in excess funds from Piney Creek at Caley Avenue Project***.**

Project/Issue:
The Project is located on Piney Creek upstream of Orchard Road and approximately 2,000-ft downstream of the Tower Road crossing in the City of Centennial and Arapahoe County (Project) see figure in the **Enclosure**. This reach of Piney Creek is just over 2.2 miles upstream of the confluence with Cherry Creek within the State Park. It is a partner project with the Mile High Flood District (MHFD) and Southeast Metro Stormwater Authority (SEMSWA); MHFD is the project lead. The proposed stream reclamation benefits the water quality in Piney Creek and the Cherry Creek Reservoir by reducing bed and bank erosion which immobilizes Phosphorus in the adjacent soils. It is estimated that this 0.72 mile long-project will immobilize 65 pounds of phosphorus annually.

Figure 1: Upstream at approximately 500ft downstream of upstream project limits.

Figure 2: Looking Downstream at approximately 500ft downstream of upstream project limits.

Funding:
The IGA for Piney Creek Reaches 4 & 5 would include funding of $300,000.00 ($75,000 CCBWQA which is in the 2024 approved budget, $150,000 MHFD $75,000 SEMSWA) and additional funding from a transfer of leftover funding from Piney Creek at Caley Avenue Project of $81,131.15 ($11,023.13 CCBWQ, $24,672.90 MHFD $45,435.12 SEMSWA). The IGA would include total funding of $381,131.15. The table below provides a breakdown of funding by sponsors and shows CCBWQA's participation is 22.5% which is consistent with the limit historically used on partner projects. IGA Amendments are anticipated to bring in future funding from the sponsors' capital improvement programs which currently include funding through 2033.

Funding Source	Funding Contributions for 2024	Additional Funding (Transfer from Leftover Funds at Piney Creek and Orchard Project)	Planned Contributions + Past Project Fund Transfer	Project Sponsor %
MHFD	$150,000	$24,672.90	$174,672.90	45.8%
SEMSWA	$75,000	$45,435.12	$120,435.12	31.6%
CCBWQA	$75,000	$11,026.13	$86,026.13	22.6%
Total	**$300,000**	**$81,134.15**	**$381,134.15**	**100%**

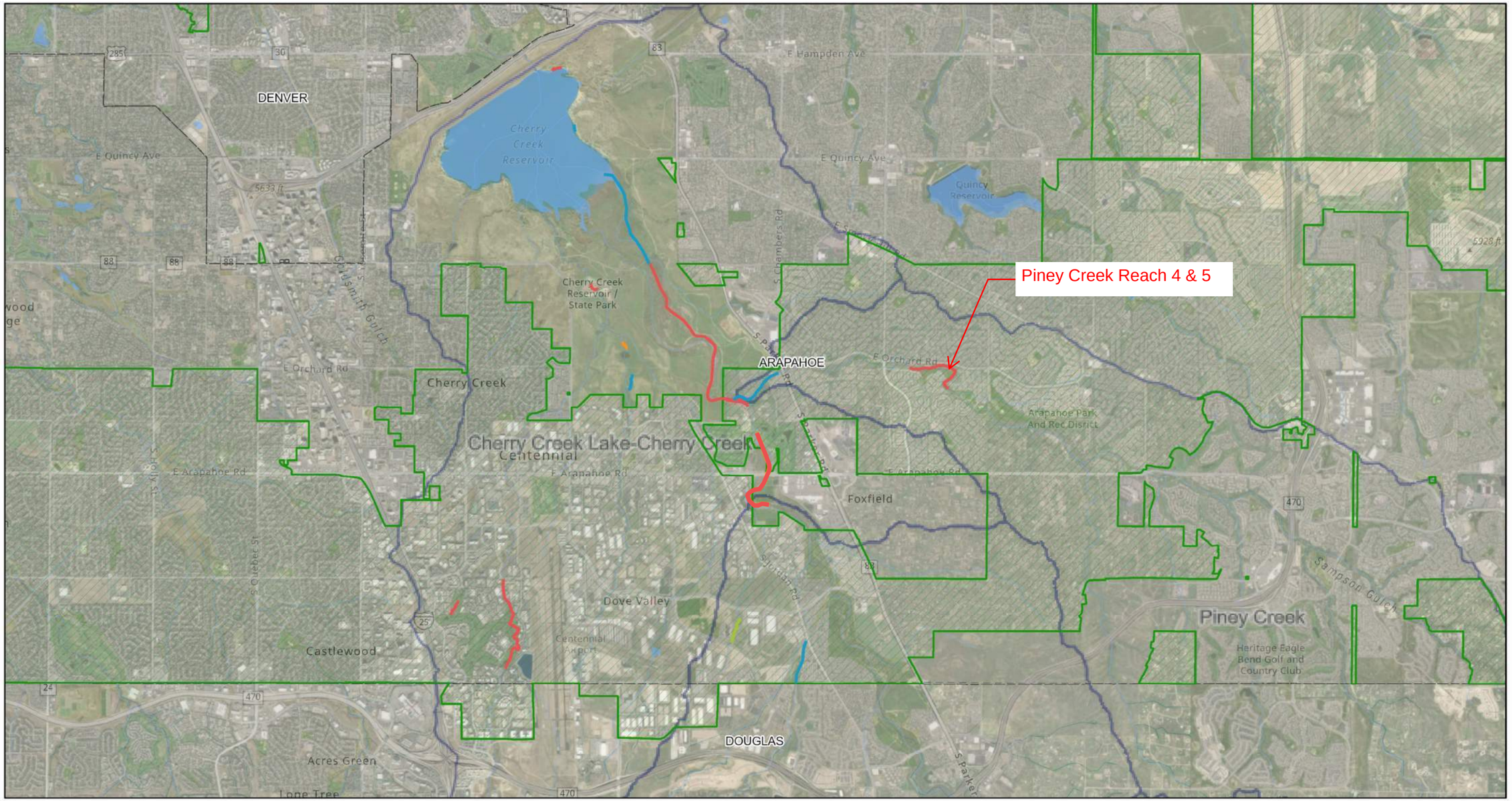
Budget: The Project is within CCBWQA's 2024 Budget of $75,000 Additionally leftover funding in the Total amount of $81,134.15 (CCBWQA share of $11,026.13) from the previous upstream project (Piney Creek at Caley Avenue Project) will be utilized to help fund this project.

TAC Review: This action item was presented at the May 2,2024, TAC meeting. The TAC unanimously recommended that the Board authorize the execution of the IGA Amendment for Stream Improvements at Piney Creek *Reaches 4 & 5 pending satisfactory resolution of CCBWQA's comments,* if any, with an expenditure not to exceed $75,000 for 2024 and project transfer of 11,023.13 from Piney Creek at Caley Avenue Project excess funds

Motions: *I move that the Board authorize the execution of the IGA for Stream Improvements at Piney Creek Reaches 4 & 5 pending final review and approval by legal counsel, with an expenditure not to exceed $75,000 for 2024 including a credit for the transfer of 11,023.13 in excess funds from Piney Creek at Caley Avenue Project.*

Enclosure: Project Location Exhibit

Cherry Creek Basin



4/22/2024, 11:38:38 AM

CCB PAP Projects - MASTER

- Pre-Design
- Design
- Construction
- Planning

1:75,000

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0 1 2 4 km

AGREEMENT REGARDING
DESIGN AND CONSTRUCTION
OF DRAINAGE AND FLOOD CONTROL IMPROVEMENTS FOR
PINEY CREEK AT ORCHARD ROAD

Agreement No. TBD
Project No. 110081

spelling

THIS AGREEMENT, by and between URBAN DRAINAGE AND FLOOD CONTROL DISTRICT D/B/A MILE HIGH FLOOD DISTRICT (hereinafter called "DISTRICT"), SOUTHEAST METRO STORMWATER AUTHORITY (hereinafter called "SEMSWA"), and CHERRY CREEK BASIN WATER QUALITY AUTHORITY (hereinafter called "CCBWQA"). SEMSWA and CCBWQA shall singularly and collectively be known as PROJECT SPONSOR. PROJECT SPONOR and DISTRICT shall collectively be known as "PARTIES";

WITNESSETH:

WHEREAS, DISTRICT, in a policy statement previously adopted, (Resolution No. 14, Series of 1970 and Resolution No. 11, Series of 1973) expressed an intent to assist public bodies which have heretofore enacted floodplain regulation measures; and

WHEREAS, PARTIES participated in a joint planning study titled “Piney Creek Major Drainageway Plan, by WRC Engineering, INC., dated February 2012 (hereinafter called "PLAN"); and

WHEREAS, PARTIES now desire to proceed with the design and construction of drainage and flood control improvements for Piney Creek at Orchard Road (hereinafter called "PROJECT"); and

WHEREAS, DISTRICT has adopted at a public hearing a Five-Year Capital Improvement Program (Resolution No. 90, Series of 2023) for drainage and flood control facilities in which PROJECT was included in the 2024 calendar year; and

WHEREAS, DISTRICT has heretofore adopted a Special Revenue Fund Budget for calendar year 2024 subsequent to public hearing (Resolution No. 87, Series of 2023) which includes funds for PROJECT; and

WHEREAS, PARTIES completed the Piney Creek at Caley Avenue, Project No. 100363, Account No. 5605, Agreement No. 06-08.03 as amended, and desire to transfer the remaining balance to PROJECT; and

WHEREAS, DISTRICT's Board of Directors has authorized DISTRICT financial participation for PROJECT (Resolution No. 39, Series of 2024); and

WHEREAS, the governing board (officials) of PROJECT SPONSOR has budgeted, by appropriation or resolution, all of its share of PROJECT costs; and

NOW, THEREFORE, in consideration of the mutual promises contained herein, PARTIES hereto agree as follows:

Part 1

1.01 SCOPE OF AGREEMENT

This Agreement defines the responsibilities and financial commitments of PARTIES with respect to PROJECT.

CCBWQA does not have floodplain authority, property ownership interest or maintenance responsibility for PROJECT and therefore shall not be subject to the requirements of Section 2.01, 2.02, and 2.03 of this Agreement.

1.02 SCOPE OF PROJECT

A. Final Design. PROJECT shall include the final design of improvements in accordance with the recommendations defined in PLAN. Specifically, the final design of facilities shall extend from approximately E. Lake Avenue (extension) to S. Buckley Road, as shown on Exhibit A, attached hereto and incorporated by this reference.

B. Construction. PROJECT shall include construction by DISTRICT of the drainage and flood control improvements as set forth in the final design including vegetation establishment.

1.03 PUBLIC NECESSITY

PARTIES agree that the work performed pursuant to this Agreement is necessary for the health, safety, comfort, convenience, and welfare of all the people of the State, and is of particular benefit to the inhabitants of PARTIES and to their property therein.

1.04 PROJECT COSTS AND ALLOCATION OF COSTS

A. PARTIES agree that for the purposes of this Agreement PROJECT costs shall consist of and be limited to the following:

1. Final design services;
2. Construction of improvements;
3. Contingencies mutually agreeable to PARTIES.

B. It is understood that PROJECT costs as defined above are not to exceed $381,134.15 without amendment to this Agreement.

PROJECT costs for the various elements of the effort are estimated as follows:

	ITEM		AMOUNT
1.	Final Design	$	381,134.15
2.	Construction*	$	-
3.	Contingency	$	-
	Grand Total	$	381,134.15

* It is anticipated that funds for construction shall be added to this Agreement at a future date.

This breakdown of costs is for estimating purposes only. Costs may vary between the various PROJECT elements without amendment to this Agreement provided the total expenditures do not exceed the maximum contribution by all PARTIES plus accrued interest, if applicable.

C. At the request of PROJECT SPONSOR, the following funds will be transferred to PROJECT from a separate special fund held by DISTRICT:

Transfer from: Piney Creek at Caley Avenue

Project No. 100263 Account No. 5605 Agreement No. 06-08.03

Amount: $81,134.15 (SEMSWA - $45,435.12; CCWQBA - $ 11,026.13; DISTRICT - $24,672.90)

DISTRICT's Board of Directors has authorized Special Funds Transfer of DISTRICT funds for PROJECT (Resolution No. 39, Series of 2024)

D. Based on total PROJECT costs, the maximum percent and dollar contribution by each party shall be:

	Percentage Share	Capital Funds Contribution	Special Funds Transfer	Maximum Contribution
DISTRICT	45.83%	$150,000	$24,672.90	$174,672.90
SEMSWA	31.60%	$75,000	$45,435.12	$120,435.10
CCBWQA	22.57%	$75,000	$11,026.13	$86,026.13
TOTAL	100.00%	$300,000	$81,134.15	$381,134.15

less amount transferred from Piney Creek at Caley Avenue

1.05 MANAGEMENT OF FINANCES

As set forth in DISTRICT policy (Resolution No. 11, Series of 1973, Resolution No. 49, Series of 1977, and Resolution No. 37, Series of 2009), the funding of a PROJECT SPONSOR's share may come from its own revenue sources or from funds received from state, federal or other sources of funding without limitation and without prior DISTRICT approval.

Payment of each party's full share (SEMSWA - $120,435.10; CCBWQA - $86,026.13; DISTRICT - $174,672.90) shall be made to DISTRICT subsequent to execution of this Agreement and within 30 days of request for payment by DISTRICT. The payments by PARTIES shall be held by DISTRICT in a special fund to pay for increments of PROJECT as authorized by PARTIES, and as defined herein. DISTRICT shall provide accounting of PROJECT funds as well as a notification to PROJECT SPONSOR of any unpaid obligations upon request. Any interest earned by the monies contributed by

PARTIES shall be accrued to the special fund established by DISTRICT for PROJECT and such interest shall be used only for PROJECT upon approval by the contracting officers (Paragraph 2.05).

Within one year of completion of PROJECT if there are monies including interest earned remaining which are not committed, obligated, or disbursed, each party shall receive a share of such monies, which shares shall be computed as were the original shares; or, at PROJECT SPONSOR request, PROJECT SPONSOR share of remaining monies shall be transferred to another special fund held by DISTRICT.

1.06 FINAL DESIGN

The contracting officers for PARTIES, as defined under Paragraph 2.05 of this Agreement, shall select an engineer mutually agreeable to PARTIES. DISTRICT shall contract with selected engineer and shall supervise and coordinate the final design including right-of-way delineation subject to approval of PROJECT SPONSOR. Payment for final design shall be made by DISTRICT as the work progresses from the PROJECT fund established as set forth above.

Final design services shall consist of, but not be limited to, the following:

A. Preparation of a work plan schedule identifying the timing of major elements in the design;
B. Preparation of detailed construction plans and specifications;
C. Preparation of an estimate of probable construction costs of the work covered by the plans and specifications; and
D. Preparation of an appropriate construction schedule.

DISTRICT shall provide any written work product by the engineer to PROJECT SPONSOR.

1.07 MANAGEMENT OF CONSTRUCTION

A. Costs. Construction costs shall consist of those costs as incurred by the contractor(s) including detour costs, licenses and permits, utility relocations, and construction related engineering services as defined in Paragraph 1.04 of this Agreement.
B. Construction Management and Payment
    1. DISTRICT, with the concurrence of PROJECT SPONSOR, shall administer and coordinate the construction-related work as provided herein.
    2. DISTRICT, with concurrence of PROJECT SPONSOR, shall select and award construction contract(s).
    3. DISTRICT shall require the contractor to provide adequate liability insurance that includes PROJECT SPONSOR. The contractor shall be required to indemnify, defend, and hold harmless PROJECT SPONSOR. Copies of the insurance coverage shall be provided to PROJECT SPONSOR upon request.
    4. DISTRICT, with assistance of PROJECT SPONSOR, shall coordinate field surveying; staking; inspection; testing; acquisition of right-of-way; and engineering as required

to construct PROJECT. DISTRICT, with assistance of PROJECT SPONSOR, shall assure that construction is performed in accordance with the construction contract documents including approved plans and specifications and shall accurately record the quantities and costs relative thereto. Copies of all inspection reports shall be furnished to PROJECT SPONSOR on a weekly basis upon request. DISTRICT shall retain an engineer to perform all or a part of these duties.

5. DISTRICT, with concurrence of PROJECT SPONSOR, shall contract with and provide the services of the design engineer for basic engineering construction services to include addendum preparation; survey control points; explanatory sketches; revisions of contract plans; shop drawing review; as-built plans; weekly inspection of work; and final inspection.
6. PARTIES shall have access to the site during construction at all reasonable times to observe the progress of work and conformance to construction contract documents including plans and specifications.
7. DISTRICT shall review and approve contractor billings. DISTRICT shall remit payment to contractor based on billings.
8. DISTRICT, with concurrence of PROJECT SPONSOR, shall prepare and issue all written change or work orders to the contract documents.
9. PARTIES shall jointly conduct a final inspection and accept or reject the completed PROJECT in accordance with the contract documents
10. DISTRICT shall provide PROJECT SPONSOR a set of reproducible "as-built" plans.

C. Construction Change Orders. In the event that it becomes necessary and advisable to change the scope or detail of the work to be performed under the contract(s), such changes shall be rejected or approved in writing by the contracting officers. No change orders shall be approved that increase the costs beyond the funds available in the PROJECT fund, including interest earned on those funds, unless and until the additional funds needed to pay for the added costs are committed by all PARTIES.

1.09 RESPONSIBILITIES OF PARTIES

DISTRICT shall be responsible for coordinating with PROJECT SPONSOR the information developed by the various consultants hired by DISTRICT and for obtaining all concurrences from PROJECT SPONSOR needed to complete PROJECT in a timely manner. PROJECT SPONSOR agrees to review all concept plans, preliminary design plans, and final plans and specifications; and to provide comments within 21 calendar days after the drafts have been provided by DISTRICT to PROJECT SPONSOR.

1.10 PUBLIC RELATIONS

It shall be at PROJECT SPONSOR's sole discretion to initiate and to carry out any public relations program to inform the residents in PROJECT area as to the purpose of PROJECT and what impact it may have on them. Technical information shall be presented to the public by the selected engineer, if requested by PROJECT SPONSOR. In any event DISTRICT shall have no responsibility for a public relations program but shall assist PROJECT SPONSOR as needed and appropriate.

1.11 EXECUTION IN COUNTERPARTS – ELECTRONIC SIGNATURES

Electronic signatures shall be permitted to bind the PARTIES to this Agreement, and all subsequent documents requiring the signatures of the PARTIES to this Agreement. Documents requiring notarization may also be notarized by electronic signatures. All use of electronic signatures shall be governed by the Uniform Electronic Transactions Act, CRS §§ 24-71.3-101 to 121. However, the PARTIES agree that only electronic signatures created by electronic signature software including but not limited to DocuSign shall be permitted.

Part 2

2.01 OWNERSHIP OF PROPERTY AND LIMITATION OF USE

PARTIES acknowledge that, if PROJECT SPONSOR owns the property on which PROJECT is constructed either in fee or non-revocable easement, PROJECT SPONSOR shall be responsible for same including but not limited to fully complying with the remaining provisions of this Paragraph 2.01. It is specifically understood that the right-of-way is being used for drainage and flood control purposes. The properties upon which PROJECT is constructed shall not be used for any purpose that shall diminish or preclude its use for drainage and flood control purposes. PROJECT SPONSOR may not dispose of or change the use of the properties to diminish or preclude its use for drainage and flood control purposes without approval of DISTRICT, which shall not be unreasonably withheld. If, in the future, PROJECT SPONSOR disposes of any portion of or all of the properties acquired upon which PROJECT is constructed pursuant to this Agreement; changes the use to diminish or preclude its use for drainage and flood control purposes of any portion or all of the properties upon which PROJECT is constructed pursuant to this Agreement; or modifies any of the improvements located on any portion of the properties upon which PROJECT is constructed to diminish or preclude its use for drainage and flood control purposes pursuant to this Agreement; and PROJECT SPONSOR has not obtained the written approval of DISTRICT prior to such action, PROJECT SPONSOR shall take any and all action necessary within their legal authority to reverse said unauthorized activity and return the properties and improvements thereon, acquired and constructed pursuant to this Agreement, to the ownership and condition they were in immediately prior to the unauthorized activity at no expense to DISTRICT. However, PROJECT SPONSOR shall not be responsible for the actions of third parties that would violate the provisions of this Paragraph who may have legal rights in the property as long as PROJECT SPONSOR has

taken reasonable action to stop those actions. In the event PROJECT SPONSOR breaches the terms and provisions of this Paragraph 2.01 and does not voluntarily cure as set forth above, DISTRICT shall have the right to pursue a claim against PROJECT SPONSOR for specific performance of this portion of the Agreement.

2.02 MAINTENANCE

PARTIES agree that PROJECT SPONSOR shall own and be responsible for maintenance of the completed and accepted PROJECT. PARTIES further agree that DISTRICT, at PROJECT SPONSOR's request, shall assist PROJECT SPONSOR with the maintenance of all facilities constructed or modified by virtue of this Agreement to the extent possible depending on availability of DISTRICT funds. Such maintenance assistance shall be limited to drainage and flood control features of PROJECT. Maintenance assistance may include activities such as keeping flow areas free and clear of debris and silt, keeping culverts free of debris and sediment, repairing drainage and flood control structures such as drop structures and energy dissipaters, and clean-up measures after periods of heavy runoff. The specific nature of the maintenance assistance shall be set forth in a memorandum of understanding from DISTRICT to PROJECT SPONSOR, upon acceptance of DISTRICT's annual Maintenance Work Program.

DISTRICT shall have right-of-access to right-of-way and storm drainage improvements at all times for observation of flood control facility conditions and for maintenance when funds are available.

2.03 FLOODPLAIN REGULATION

PROJECT SPONSOR agrees to regulate and control the floodplain of Piney Creek within their jurisdiction in the manner prescribed by the National Flood Insurance Program and prescribed regulations thereto as a minimum.

PARTIES understand and agree, however, that PROJECT SPONSOR cannot obligate itself by contract to exercise its police powers. If PROJECT SPONSOR fails to regulate the floodplain of Piney Creek within their jurisdiction in the manner prescribed by the National Flood Insurance Program and prescribed regulations thereto as a minimum, DISTRICT may exercise its power to do so and PROJECT SPONSOR shall cooperate fully.

2.04 TERM OF AGREEMENT

The term of this Agreement shall commence upon execution and shall terminate three (3) years after the final payment is made to the construction contractor and the final accounting of funds on deposit at DISTRICT is provided to all PARTIES pursuant to Paragraph 1.05 herein, except for Paragraph 2.02. FLOODPLAIN REGULATION, Paragraph 2.01. OWNERSHIP OF PROPERTY AND LIMITATION OF USE, and Paragraph 2.02. MAINTENANCE.

2.03

2.05 LIABILITY

Each party hereto shall be responsible for any suits, demands, costs or actions at law resulting from its own negligent or wrongful acts or omissions and may insure against such liabilities as appropriate.

2.06 CONTRACTING OFFICERS

A. The contracting officer for SEMSWA shall be Executive Director, 7437 South Fairplay Street, Centennial, Colorado, 80112-4486

B. The contracting officer for CCBWQA shall be the Manager, or any Acting Manager, P.O. Box 3166, Centennial, Colorado 80161.

C. The contracting officer for DISTRICT shall be the Executive Director, 12575 W. Bayaud Avenue, Lakewood, Colorado 80228.

D. The contracting officers for PARTIES each agree to designate and assi representative to act on the behalf of said PARTIES in all matters rela undertaken pursuant to this Agreement. Each representative shall c PROJECT-related issues between PARTIES, shall attend all progress meetings, and shall be responsible for providing all available PROJECT-related file information to the engineer upon request by DISTRICT or PROJECT SPONSOR. Said representatives shall have the authority for all approvals, authorizations, notices or concurrences required under this Agreement. However, in regard to any amendments or addenda to this Agreement, said representative shall be responsible to promptly obtain the approval of the proper authority.

Chairman or Vice Chairman

2.07 AMENDMENTS

This Agreement contains all of the terms agreed upon by and among PARTIES. Any amendments to this Agreement shall be in writing and executed by PARTIES hereto to be valid and binding.

2.08 SEVERABILITY

If any clause or provision herein contained shall be adjudged to be invalid or unenforceable by a court of competent jurisdiction or by operation of any applicable law, such invalid or unenforceable clause or provision shall not affect the validity of the Agreement as a whole and all other clauses or provisions shall be given full force and effect.

2.09 APPLICABLE LAWS

This Agreement shall be governed by and construed in accordance with the laws of the State of Colorado. Jurisdiction for any and all legal actions regarding this Agreement shall be in the State of Colorado and venue for the same shall lie in the county where PROJECT is located.

2.10 ASSIGNABILITY

No party to this Agreement shall assign or transfer any of its rights or obligations hereunder without the prior written consent of the other party or parties to this Agreement.

2.11 BINDING EFFECT

The provisions of this Agreement shall bind and shall inure to the benefit of PARTIES hereto and to their respective successors and permitted assigns.

2.12 ENFORCEABILITY

PARTIES hereto agree and acknowledge that this Agreement may be enforced in law or in equity, by decree of specific performance or damages, or such other legal or equitable relief as may be available subject to the provisions of the laws of the State of Colorado.

2.13 TERMINATION OF AGREEMENT

This Agreement may be terminated upon thirty (30) days' written notice by any party to this Agreement, but only if there are no contingent, outstanding contracts. If there are contingent, outstanding contracts, this Agreement may only be terminated upon the cancellation of all contingent, outstanding contracts. All costs associated with the cancellation of the contingent contracts shall be shared between PARTIES in the same ratio(s) as were their contributions.

2.14 NO DISCRIMINATION IN EMPLOYMENT

In connection with the performance of work under this Agreement, PARTIES agree not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation against any person otherwise qualified because of race, color, ancestry, creed, religion, national origin, gender, age, military status, sexual orientation, gender identity, marital status, or physical or mental disability and further agree to insert the foregoing provision in all subcontracts hereunder.

2.15 APPROPRIATIONS

Notwithstanding any other term, condition, or provision herein, each and every obligation of the PARTIES stated in this Agreement is subject to the requirement of a prior appropriation of funds therefore by the appropriate governing body of the respective PARTIES.

2.16 NO THIRD PARTY BENEFICIARIES

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to PARTIES, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other or third person on such Agreement. It is the express intention of PARTIES that any person or party other than PARTIES receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

2.17 GOVERNMENTAL IMMUNITIES

PARTIES hereto intend that nothing herein shall be deemed or construed as a waiver by any party of any rights, limitations, or protections afforded to them under the Colorado Governmental Immunity Act (§ 24-10-101, *et seq*., C.R.S.) as now or hereafter amended or otherwise available at law or equity.

2.18 INTENT OF AGREEMENT

Except as otherwise stated herein, this Agreement is intended to describe the rights and responsibilities of and between PARTIES and is not intended to and shall not be deemed to confer rights upon any person or entities not named as PARTIES, nor to limit in any way the powers and responsibilities of PROJECT SPONSOR, DISTRICT or any other entity not a party hereto.

WHEREFORE, PARTIES hereto have caused this instrument to be executed by properly authorized signatories as of the date and year first above written.

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
D/B/A
MILE HIGH FLOOD DISTRICT

By_____

Name Laura A. Kroeger

Title Executive Director

Date_____

_____
Checked By

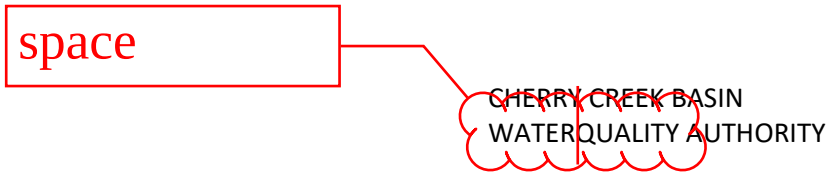
SOUTHEAST METRO
STORMWATER AUTHORITY

By_____

Name_____

Title_____

Date_____



CCBWQA checked by: _____

By_____

Name_____

Title_____

Date_____

_____

Attest:

APPROVED AS TO FORM:

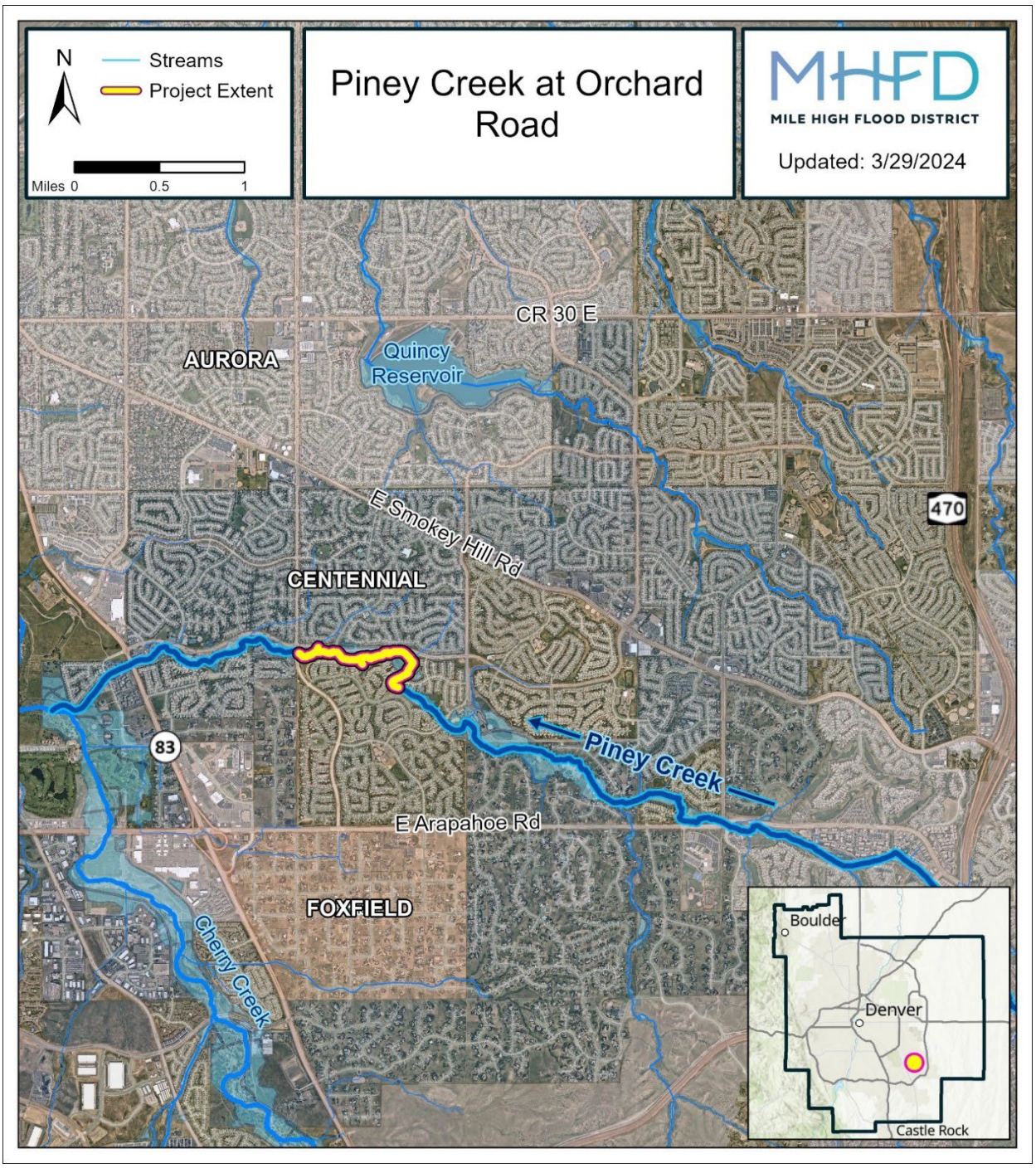
_____

Timothy J. Flynn, General Counsel for CCBWQA

AGREEMENT REGARDING
DESIGN AND CONSTRUCTION
OF DRAINAGE AND FLOOD CONTROL IMPROVEMENTS FOR
PINEY CREEK AT ORCHARD ROAD

Project No. 110081

Exhibit A



ACTION ITEM MEMORANDUM

To: CCBWQA Board of Directors
From: Elysa Loewen, Pollution Abatement Project Manager
Date: May 16, 2024
Subject: Cherry Creek at Arapahoe Road

Request: *I move that the Board authorize the execution of the 3rd Amendment to the IGA for Stream Improvements at Cherry Creek at Arapahoe Road pending final review and approval by legal counsel, with an expenditure not to exceed $165,000 for 2024.*

Project/Issue:
The Project is located on Cherry Creek approximately 2,000 feet downstream of Arapahoe Road to approximately 3,000 feet upstream of Arapahoe Road in the City of Aurora and Arapahoe County (Project) see figure in the **Enclosure**. The downstream limits of the project are just over three (3) miles upstream of the Reservoir. This project is a partner project with the Mile High Flood District (MHFD), Southeast Metro Stormwater Authority (SEMSWA), and City of Aurora; MHFD is the project lead. The proposed stream reclamation benefits the water quality in Cherry Creek and the Reservoir by reducing bed and bank erosion which immobilizes phosphorus in the adjacent soils. It is estimated that this 0.98 mile long-project can immobilize 88 pounds of phosphorus annually.

This project will also tie into two previously completed channel stabilization projects at the downstream limits (Cherry Creek at Valley Country Club) and at the upstream limits (Cherry Creek Improvements at the Soccer Complex) resulting in a continuous stretch of improved channel between the three projects.

Figure 1: Bank Erosion Upstream of Arapahoe Road

Figure 2: Bank Erosion Downstream of Arapahoe Road

Funding:
The IGA Amendment for Cherry Creek at Arapahoe Road would include funding of $665,000.00 ($165,000 CCBWQA included in the 2024 approved budget, $300,000 MHFD and $200,000 SEMSWA). The 2024 Budget did include a fund contribution of $300,000 which has been adjusted/reduced to $165,000 to coincide with reduced funding from Partners and to keep consistent with the limit historically used on partner projects of 25%. IGA Amendments are anticipated to bring in future funding from the sponsors' capital improvement programs which currently include funding through 2027.

Funding Source	Funding Contributions for 2024	Previously Contributed Funds	Planned Contributions + Past Project Fund Transfer	Project Sponsor %
MHFD	$300,000	$740,531.32	$1,040,531.32	36.3%
SEMSWA	$200,000	$171,790.74	$371,790.74	13.0%
CCBWQA	$165,000	$551,247.40	$716,247.40	24.9%
City of Aurora	-------	$740,258.84	$740,258.84	25.8%
Total	**$665,000**	**$2,203,828.30**	**$2,868,828.30**	**100%**

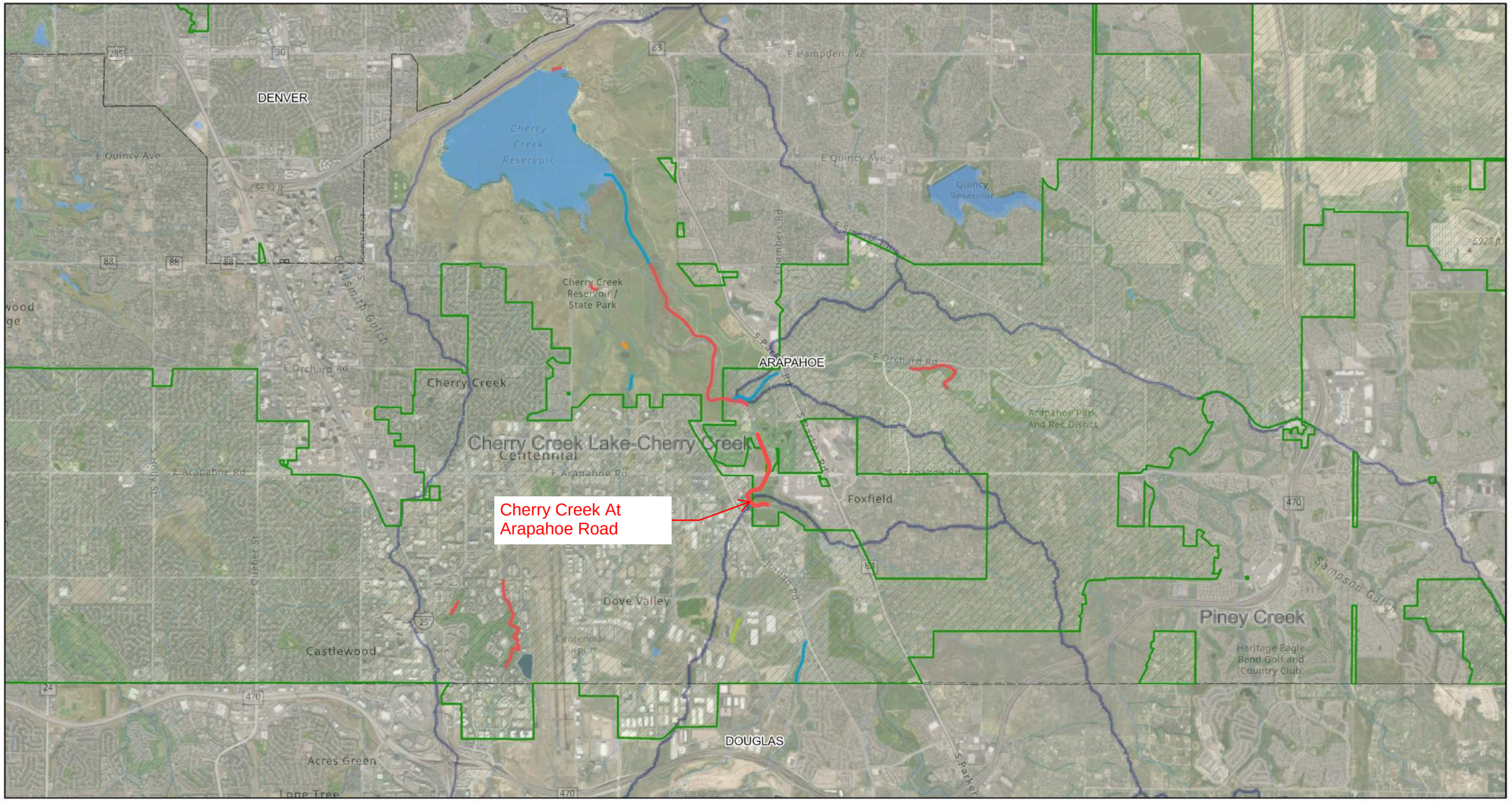
Budget: The Project is within CCBWQA's 2024 Budget; which included funding of $300,000; the contribution has been adjusted/reduced to $165,000 to coincide with reduced funding from other partners for this year.

TAC Review: This action item was presented at the May 2,2024, TAC meeting. The TAC unanimously recommended that the Board authorize the execution of the IGA Amendment for Stream Improvements at Cherry Creek at Arapahoe Road pending satisfactory resolution of CCBWQA's comments, if any, with an expenditure not to exceed $165,000 for 2024.

Motions: *I move that the Board authorize the execution of the 3rd Amendment to the IGA for Stream Improvements at Cherry Creek at Arapahoe Road pending final review and approval by legal counsel, with an expenditure not to exceed $165,000 for 2024.*

Enclosure: Project Location Exhibit

Cherry Creek Basin



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CCB PAP Projects - MASTER

- Pre-Design
- Design
- Construction
- Planning

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THIRD AMENDMENT TO
AGREEMENT REGARDING
FINAL DESIGN, RIGHT-OF-WAY ACQUISITION, AND CONSTRUCTION
OF DRAINAGE AND FLOOD CONTROL IMPROVEMENTS FOR CHERRY CREEK
RESTORATION AT ARAPAHOE ROAD

Agreement No. 21-06.17C
Project No. 108670

THIS THIRD AMENDMENT TO AGREEMENT (hereinafter called "THIRD AMENDMENT"), by and between URBAN DRAINAGE AND FLOOD CONTROL DISTRICT D/B/A MILE HIGH FLOOD DISTRICT (hereinafter called "DISTRICT") and CITY OF AURORA, Colorado, a Colorado home rule municipal corporation of the counties of Adams, Arapahoe, and Douglas acting by and through its Utility Enterprise (hereinafter called "CITY"); SOUTHEAST METRO STORMWATER AUTHORITY (hereinafter called "SEMSWA"); CHERRY CREEK BASIN WATER QUALITY AUTHORITY (hereinafter called "CCBWQA") and collectively known as "PARTIES"; and ARAPAHOE COUNTY, Colorado (hereinafter called "Arapahoe County") ONLY as to Paragraphs 10 and 11 of the original AGREEMENT;

WITNESSETH:

WHEREAS, PARTIES have entered into " Agreement Regarding Final Design, Right-of-Way Acquisition and Construction of Drainage and Flood Control Improvements for Cherry Creek Restoration at Arapahoe Road " (Agreement No. 21-06.17) dated December 21, 2021, as amended (hereinafter called "AGREEMENT"); and

WHEREAS, PARTIES now desire to proceed with the design, right-of-way acquisition and construction of drainage and flood control improvements for Cherry Creek Restoration at Arapahoe Road (hereinafter called "PROJECT"); and

WHEREAS, PARTIES desire to increase the level of funding by $665,000; and

WHEREAS, DISTRICT's Board of Directors has authorized additional DISTRICT financial participation for PROJECT (Resolution No. 45, Series of 2024); and

WHEREAS, the City Council of City; Board of Directors of SEMSWA; Board of Directors of CCBWQA; and the Board of Directors of DISTRICT have authorized, by appropriation or resolution, all of PROJECT costs of the respective PARTIES.

NOW, THEREFORE, in consideration of the mutual promises contained herein, PARTIES hereto agree as follows:

1. Paragraph 4. PROJECT COSTS AND ALLOCATION OF COSTS is deleted and replaced as follows:

4. PROJECT COSTS AND ALLOCATION OF COSTS

A. PARTIES agree that for the purposes of this AGREEMENT, PROJECT costs shall consist of and be limited to the following:

1. Final design services;
2. Delineation, description and acquisition of required rights-of-way/ easements;
3. Construction of improvements;
4. Contingencies mutually agreeable to PARTIES.

B. It is understood that PROJECT costs as defined above are not to exceed $2,868,828.30 without amendment to this AGREEMENT.

PROJECT costs for the various elements of the effort are estimated as follows:

	ITEM	AS AMENDED	PREVIOUSLY AMENDED
1.	Final Design	$ 1,000,000	$ 845,500
2.	Right-of-way	$ -0-	$ -0-
3.	Construction	$ 1,668,828.30	$ 1,158,828.30
4.	Contingency	$ 200,000	$ 200,000
	Grand Total	$ 2,868,828.30	$ 2,203,828.30

* It is anticipated that additional funding for construction will be added through future amendments.

This breakdown of costs is for estimating purposes only. Costs may vary between the various elements of the effort without amendment to this Agreement provided the total expenditures do not exceed the maximum contribution by all PARTIES plus accrued interest, if applicable.

C. At the request of the CITY, SEMSWA, and CCBWQA, the following CITY, SEMSWA, CCBWQA, and DISTRICT funds pursuant to a prior amendment have been transferred to PROJECT from a separate special fund held by DISTRICT: Transfer from: Cherry Creek at Arapahoe Road; Project No. 100407; Account No. 5603; Agreement No. 12-08.04 Amendment E; Amount: $288,828.30.

D. Based on total PROJECT costs, the maximum percent and dollar contribution by each party shall be:

	Percentage Share	Previously Contributed	Special Funds Transfer from Account No. 5603	Additional Contribution	Maximum Contribution
DISTRICT	36.3%	$625,000		$300,000	$1,040,531.32
Special Funds Transfer			$115,531.32		
CITY	25.8%	$650,000		$0	$740,258.84
Special Funds Transfer			$90,258.84		
SEMSWA	13.0%	$170,000		$200,000	$371,790.74
Special Funds Transfer			$1,790.74		
CCBWQA	24.9%	$470,000		$165,000	$716,247.40
Special Funds Transfer			$81,247.40		
TOTAL	100.00%	$1,915,000	$288,828.30	$665,000	$2,868,828.30

E. DISTRICT Acknowledges that (i) CCBWQA does not by this Agreement irrevocably pledge present cash reserves for payments in future fiscal years, and (ii) It is understood and agreed that notwithstanding any other provision contained herein to the contrary, any additional contribution obligation of CCBWQA hereunder, whether direct or contingent, shall extend only to funds duly and lawfully appropriated and encumbered by the Board of Directors of CCBWQA for the purposes of the Agreement, and paid into the Treasury of CCBWQA, and shall under no circumstances exceed $716,247.40 without CCBWQA's prior express written consent.

2. Paragraph 5. MANAGEMENT OF FINANCES is deleted and replaced as follows:

5. MANAGEMENT OF FINANCES

As set forth in DISTRICT policy (Resolution No. 11, Series of 1973, Resolution No. 49, Series of 1977, and Resolution No. 37, Series of 2009), the funding of a local body's share may come from its own revenue sources or from funds received from state, federal or other sources of funding without limitation and without prior DISTRICT approval.

Payment of each PARTY's full share (CITY - $740,258.84; SEMSWA - $371,790.74; CCBWQA - $716,247.40; DISTRICT - $1,040,531.32), to the extent not previously paid, shall be made to DISTRICT subsequent to execution of this AGREEMENT and within 30 days of request for payment by DISTRICT. The payments by PARTIES shall be held by

DISTRICT in a special fund to pay for increments of PROJECT as authorized by PARTIES, and as defined herein. DISTRICT shall provide a periodic accounting of PROJECT funds as well as a periodic notification to PARTIES of any unpaid obligations. Any interest earned by the monies contributed by PARTIES shall be accrued to the special fund established by DISTRICT for PROJECT and such interest shall be used only for PROJECT upon approval by the contracting officers (Paragraph 13).

Within one year of completion of PROJECT if there are monies including interest earned remaining which are not committed, obligated, or disbursed, each party shall receive a share of such monies, which shares shall be computed as were the original shares; or at CITY, SEMSWA, and CCBWQA request, CITY, SEMSWA, or CCBWQA share of remaining monies shall be transferred to another special fund held by DISTRICT.

3. All other terms and conditions of this AGREEMENT shall remain in full force and effect.

WHEREFORE, PARTIES hereto have caused this THIRD AMENDMENT to be executed by properly authorized signatories as of the date and year written below.

URBAN DRAINAGE AND
FLOOD CONTROL DISTRICT D/B/A
MILE HIGH FLOOD DISTRICT

By_____

Name Laura A. Kroeger

Title Executive Director

Date_____

_____
Checked By

CITY OF AURORA, COLORADO,
ACTING BY AND THROUGH ITS
UTILITY ENTERPRISE

_____ _____
Mike Coffman, Mayor Date

ATTEST:

_____ _____
Kadee Rodriguez, City Clerk Date

APPROVED AS TO FORM FOR AURORA:

_____ _____ _____
Ian Best, Assistant City Attorney Date ACS#

STATE OF COLORADO)
) ss
COUNTY OF ARAPAHOE)

The foregoing instrument was acknowledged before me this _____ day of _____, 2024 by Mike Coffman, Mayor, acting on behalf of the Utility Enterprise of the City of Aurora, Colorado.

Witness my hand and official seal. _____
Notary Public

My commission expires: _____

(SEAL)

CHERRY CREEK BASIN
WATER QUALITY AUTHORITY

By_____

Name_____

Title_____

Date_____

_____
CCBWQA Checked By

ATTEST:

_____

APPROVED AS TO FORM FOR CCBWQA:

_____
Timothy J. Flynn, General Counsel

Date: _____

SOUTHEAST METRO STORMWATER AUTHORITY

By_____

Name_____

Title_____

Date_____

ACTION ITEM MEMORANDUM

To: CCBWQA- Board
From: RG and Associates, LLC(RGA); Rick Gonçalves, Water/Wastewater Manager
Date: May 8, 2024
Subject: Site Location Application Review of Castle Pines North Lift Station 1

Request: Consideration for Approval of Castle Pines North Lift Station 1 Site Location Application.

Informational Data:

- Submittal Review: Performed by Rick Gonçalves, CCBWQA Water/Wastewater Manager
- Location of Project: In City of Castle Pines, 2 miles NW of I-25/Hess Road Interchange, 9 miles SW of Cherry Creek
- Applicant: Castle Pines North Metropolitan District
- Service Area:
    - Services 1,219 SFEs
    - Service area is totally built out
- Application:
    - To replace existing CPN LS 1 with new 872 gpm increased capacity pumps
        - Increase necessary because LS 2 will be decommissioned, its flows being added to LS 1
    - Replace a portion of existing, aged 10-inch force main.
    - Add overflow storage.
    - Add emergency power generation.
    - Add differential flow meters.

- CDPHE **Regulation 22 Lift Station Site Location Application Form Section 22.9**
    - Correctly filled out
    - Requires approval or disapproval and signature of CCBWQA as the 208 Management Agency
- CDPHE **Wastewater Receiving Entity Certification Section 22.9 – Lift Station** form
    - Correctly filled out
    - Approved and signed by Plum Creek Water Reclamation Authority

Basin Specific Criteria:

- Project adequately meets the specific criteria as outlined in CCBWQA Guidance Document
    - Differential flowmeters
    - Redundant pumps, control floats, and alarms
    - Emergency generator
    - Overflow storage
    - Clear maintenance plan
    - Well defined Emergency Response Plan
    - All of which are protective of the water quality in the watershed and the reservoir.

T**AC Review and Action:**

- Review report was presented at TAC meeting held on May 2, 2024
- TAC made motion and passed to accept the Castle Pines North Lift Station 1 Site Location Application and recommend to the board that it approve and sign said Site Location Application.
- Form for signature is attached.

Suggested Motion:

- **Board motion to approve the Castle Pines North Lift Station 1 Site Location Application and authorize any member of the Executive Committee to sign form Regulation 22 Lift Station Site Location Application Form Section 22.9 as "approved."**

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO 80033
Del Norte • Gypsum • Wheat Ridge
303-293-8107 • www.rgengineers.com

30 Celebrating 30 Years of Excellence

Memorandum

Date: April 23, 2024

To: Lisa Knerr, PE- CCBWQA Technical Advisory Chairman (TAC)

CC: Bill Ruzzo, John McCarty; Executive Committee Managers; Jane Clary-Technical Manager

From: Ricardo (Rick) Gonçalves, PE

Subject: Castle Pines North Lift Station 1

Introduction:
An Application for Site Location Approval for an upgrade to the existing Castle Pines North Lift Station 1 was submitted on March 19, 2024 for review as a referral to Colorado Department of Health and Environment (CDPHE). The Cherry Creek Basin Water Quality Authority (CCBWQA) is the 208 Management Agency for the Cherry Creek Basin. Regulation 22 requires that 208 Management Agencies review, either approve or disprove all Site Location Applications for Lift Stations and indicate that approval or disproval on the site application form along with the authority manager's signature.

Location:
Lift Station 1 is located on Serena Drive between Hidden Point Boulevard and Arco Iris Lane in the City of Castle Pines, two miles northwest of the I-25/ Hess Road Interchange, near Oak Hills Tributary, which is a tributary to Happy Canyon Creek, itself tributary to Cherry Creek, nine miles to the north-northeast. The Lift Station is not located in or near a floodplain. Figure 1 demonstrates the location of Lift Station 1 along with the rest of the lift stations.

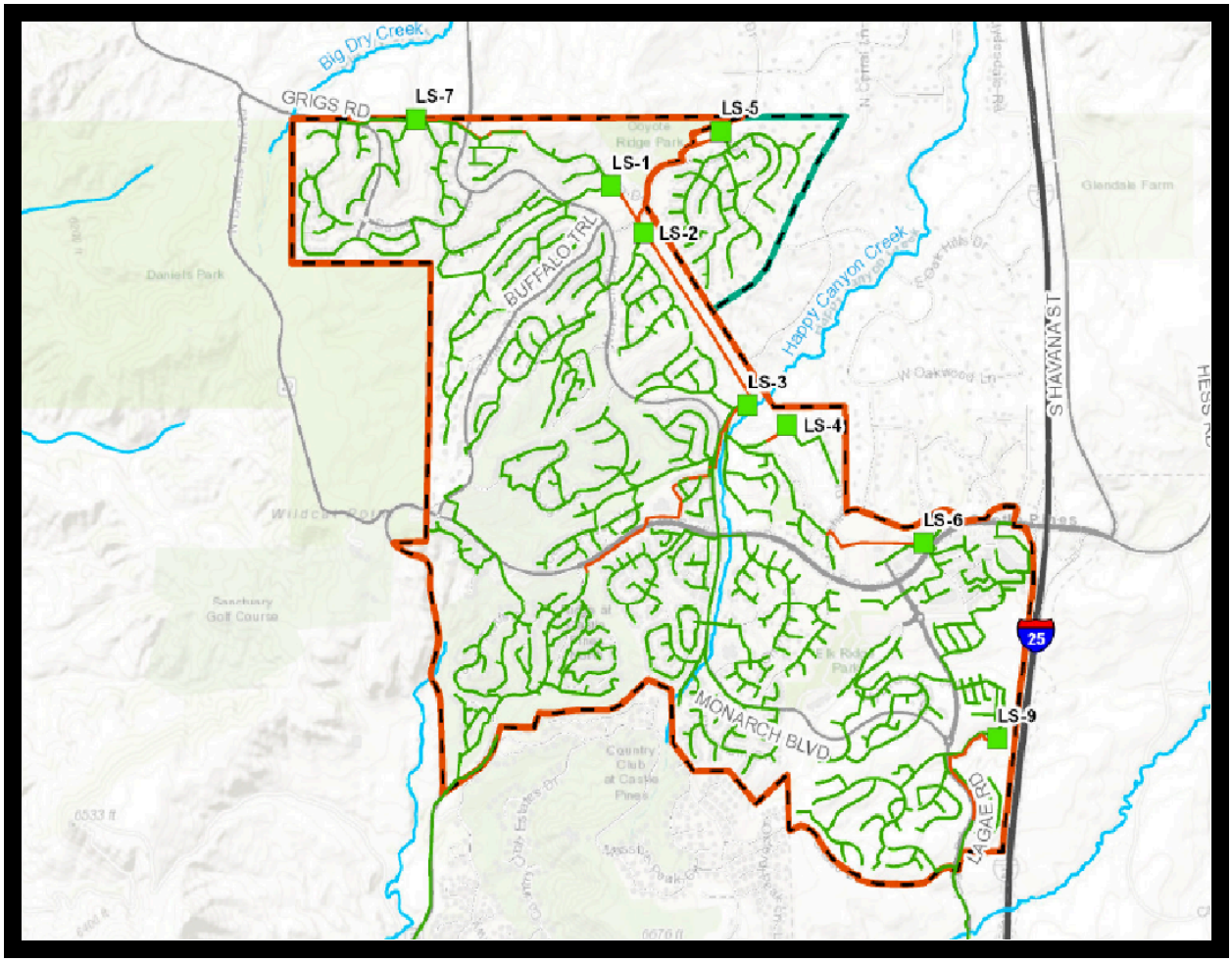


Figure 1

The Project:

Castle Pines North Metropolitan District (CPNMD) owns and operates eight (8) wastewater lift stations within the district boundary. The lift stations are named 1-7 and 9. Refer to Figure 1 for an overall map showing the location of each lift station. CPNMD has contracted with Kennedy Jenks Consultants (KJ) to design improvements at Lift Stations 1-7 to bring them into compliance with current CDPHE regulations. Lift Station No. 1 is one of those that is to be upgraded to bring it into compliance.

As a part of its upgrade, the capacity of Lift Station 1 will be increased to accept gravity flows from existing Lift Station 2's drainage area, then Lift Station No. 2 will be decommissioned. As the drainage basin of Lift Station No. 1 is fully built out, there will be no additional flows from that drainage basin. The total number of SFEs served by Lift Station 1 will be 1,219, with the addition of the 467 SFEs currently served by Lift Station 2.

The existing pumps at Lift Station 1 will be replaced with a new Gorman-Rupp pump package that will include two suction-lift pumps designed to operate in a lead/lag configuration at 872 gpm peak flow each. The new pumps will be designed to pump to Lift Station 3 in a

shared force main with flows from Lift Station 5. New differential flow meters will be installed on the force main, and the station will receive a new control panel.

A backup generator will be located outside the existing building. Two emergency overflow vaults will be added to the site to increase the amount of emergency overflow storage. The vaults will be 8-inch diameter at 18 ft deep. Approximately 700 ft of the incoming gravity sewer line from Lift Station 2 will be upsized to 24-inch diameter to allow for additional emergency overflow storage.

The first 1,970 linear feet of shared force main between Lift Station 2 and Lift Station 3 is plastic pipe with a history of breaks. It will be replaced with 10-inch C900 PVC as part of this project. The last 1,770 linear feet of shared force main to Lift Station 3 is 10-inch C900 PVC that will remain in service.

Receiving Wastewater Facility:
The Plum Creek Water Reclamation Authority (PCWRA) is the wastewater treatment plant for the area which will ultimately treat the wastewater from Lift Station 1. The increase in capacity at Lift Station 1 will not have an impact on the PCWRA treatment plant's capacity, since Lift Station 2 will be decommissioned and the aggregate of flows from all the lift stations to the treatment plant will not be increased.

Basin Specific Criteria:
The project meets the CCBWQA specific criteria for lift stations as outlined in the basin authority's Guidance Document, including differential flowmeters, redundant pumps, overflow storage, a clear maintenance plan and well-defined Emergency Response Plan, all of which will be protective of the water quality in the watershed and the reservoir.

Findings:
We find after thorough review of the Site Location Application for the upgrades to the Castle Pines North Lift Station 1 and its force main, that the application is complete, with the required Engineering Report, and CDPHE forms **Regulation 22 Site Location Application Form Section 22.9-Lift Station**, and CDPHE **Wastewater Receiving Entity Certification Section 22.9 – Lift Station** correctly completed and signed, and all ready for Authority approval.

Recommendation:
On the basis of the information that we have reviewed in the Site Location Application and its attendant Engineering Report for the Castle Pines North Lift Station 1, we recommend that the TAC approve said Site Location and recommend to the board that it approve the Site Location Application, sign it, and forward it to CDPHE.

MEMORANDUM

To: CCBWQA Board of Directors
From: Elysa Loewen, Pollution Abatement Project Manager
Date: May 10, 2024

Subject: **Cherry Creek Reach 1 – Project Funding Overview**

Muller Engineering Company (Muller) has prepared a summary of the alternative analysis for improvements to Cherry Creek Reach 1 within Cherry Creek State Park. This has been included in the May 2024 board packet and summarizes the recommended improvements, estimated construction costs and potential project phasing. As outlined in Muller's summary, there are risks and additional costs associated with phased construction of a project. However, delaying this project also means risking the further degradation of the channel (increasing construction costs down the road), ongoing direct phosphorous loading to the reservoir, and putting infrastructure (Aurora Pipeline) at risk of failure. In addition, if this project is successful with obtaining grant funds, phasing may be an opportunity to put these additional funds to use in a timely manner.

SUMMARY OF PROJECT PHASING/ESTIMATED CONSTRUCTION COSTS

Muller identified the following approach to project phasing that is further outlined in their memo and summarized below:

Two-Stage Project Phasing for Reach 1 is Generally as Follows:

- Phase 1 –Primary Channel Stabilization & flow control upstream of Lakeview Drive $9,570,000
- Phase 2 – Secondary/Tertiary Channel Stabilization & Improvements to Lakeview Drive $7,340,000
- **Total Project Amount (Phase 1 &2)** **$16,910,000[1]**

Upon review of the current CCBWQA funding, potential/unknown grants, and contributions from project partners, construction may need to be further phased as broken down in the alternative phasing below (and discussed in more detail in Muller's summary):

Four-Stage Alternative Project Phasing for Reach 1 is Generally as follows:

- Phase 1a –Primary Channel Stabilization (D/S of Pipeline) & Protection of Pipeline $7,030,000
- Phase 1b –Primary Channel Stabilization (U/S of Pipeline) $3,890,000
- Phase 2a – Lakeview Drive Improvements $3,270,000
- Phase 2b – Secondary and Tertiary Channel Improvements $4,090,000
- **Total Project Amount (Phase 1a-b &2a-b)** **$18,280,000[1,2]**

BUDGET

Based on CCBWQA's current 2024 10-year CIP Budget, below is the available funding CCBWQA can contribute to the Cherry Creek at Reach 1 (not including grants or project partner contributions). The breakdown is included for funding years 2024 & 2025.

CCBWQA Budgeted 2024 Funding to be utilized for furthering Mullers Design

-Additional Funding from reduced 2024 contribution to Cherry Creek @ Arapahoe Rd Project	*+ $135,000*
-Additional funding reallocated from 2024 contributions to Lone Tree Creek in CCSP downstream of Pond Project until (Postponed until 2028)	*+ $120,000.*
-Additional Funding from eliminating our contribution for PRF Preservation, Acquisition, Lease of Land or Water in 2024	*+ $100,000*
CCBWQA Available funding for 2024 for CC Reach 1	**= $355,000**

CCBWQA Budgeted 2025 Funding to be allocated to Cherry Creek Reach 1 Final Design & Construction

-2025 Base Funds for Cherry Creek Reach 1[3]	*$1,280,000*
-Additional Funding from eliminating our contribution for PRF Preservation, Acquisition, Lease of Land or Water in 2025	*+ $100,000*
CCBWQA Available funding for 2025 for CC Reach 1	**= $1,380,000**

TOTAL CCBWQA AVAILABLE FUNDING FOR 2024 & 2025 CC REACH 1 DESIGN & CONSTRUCTION	**= $1,735,000**
TOTAL CCBWQA FUNDING PREVIOUSLY EXPENDED FOR CC REACH 1 ALTERNATIVE ANALYSIS	**= $438,000**
TOTAL	**= $2,173,000**

Percent Estimated Contribution Phase 1 Construction Cost - 22.7%
Percent Estimated Contribution Phase 1A Construction Cost - 30.9%

SUMMARY

Based on available funding and outlook from project partner shares, as well as potential grant funding, it appears the multi-phase four-stage construction alternative (beginning with a Phase 1A construction) may need to be pursued to proceed with construction in 2026. As discussed, there are potential risks and identified benefits to moving forward with a phased approach to this project. Given the potential risk and proximity to the reservoir, a peer review of this alternative analysis may also be merited to ensure that we are fully considering potential risks.

REQUESTED DIRECTION FROM THE BOARD

- Direct Staff to further develop Cherry Creek Reach 1 – Phase 1A construction and permitting approach – An Action Item will follow next month's (June 2024) TAC and Board meetings with Muller Engineering's Scope and Fee and contract through preliminary design (60%) and permitting on this project.

- (Alternatively) Direct Staff to seek a peer review of Muller's Alternative Analysis prior to moving forward with final design.

- Direct Staff to continue pursuing grant funding on this project. Including Congressionally Directed Spending (already submitted) and Colorado Water Conservation Board (CWCB) funding application due in July.

- Direct Counsel to pursue contractual options to allow for potential grant acceptance and project partner contributions to the CCBWQA.

[1] *All costs are relative to 2025 construction costs, does not include escalation costs for construction in future construction years.*

[2] Total project cost will increase with a multi-phased approach due to interim construction efforts that will need to be implemented between construction phases and redundant costs such as mobilization, permitting, etc.

[3] This value includes an adjustment to the anticipated 2025 funding for Line item 18 in the 2024 10-year CIP budget (Project No.CCB-5.16A, B, C – Cherry Creek All Reaches); this value is estimated but will be re-evaluated and confirmed during preparation of the 2025 10-year CIP.

DRAFT TECHNICAL MEMORANDUM

TO: Jane Clary, Cherry Creek Basin Water Quality Authority (CCBWQA) Technical Manager

FROM: Christine Hawley and Kevin Bierlein, Hydros Consulting Inc.

SUBJECT: DRAFT Results for Phase I Linked Model Runs - Reservoir Model Runs Based on Watershed Model Results

DATE: May 3, 2024

In accordance with the Scope of Work for linked model runs in 2024 (Hydros, 2024), Hydros has conducted reservoir model runs corresponding to baseline conditions and two watershed modeling scenarios conducted by RESPEC (RESPEC, 2024):

- **Baseline Run** - Simulates observed conditions from 2003-2016;
- **Watershed Model Run 6** - Simulates 2030 development and wastewater treatment facility (WWTF) flows; and
- **Watershed Model Run 13 -** Simulates 2030 development and WWTF flows, pollution reduction facilities, low impact development, 40% volume reduction, diversion of Parker wastewater flows from future development to Rueter-Hess Reservoir, and WWTF total nitrogen discharges limited to 8 mg/L in winter and 6 mg/L in summer.

These watershed model runs were selected because they broadly represent extremes in terms of anticipated future watershed management and corresponding effects on reservoir inflows. There are two objectives for this analysis:

- To evaluate the pre-established modeling linkage approach with realistic modeling scenarios; and
- To examine the anticipated range of influence of watershed management activities on water quality in Cherry Creek Reservoir.

This technical memorandum summarizes the findings of this effort and is organized in four sections:

1. Findings on Linkage Approach;
2. Run 6 and Run 13 Results Compared to Baseline;
3. Summary; and

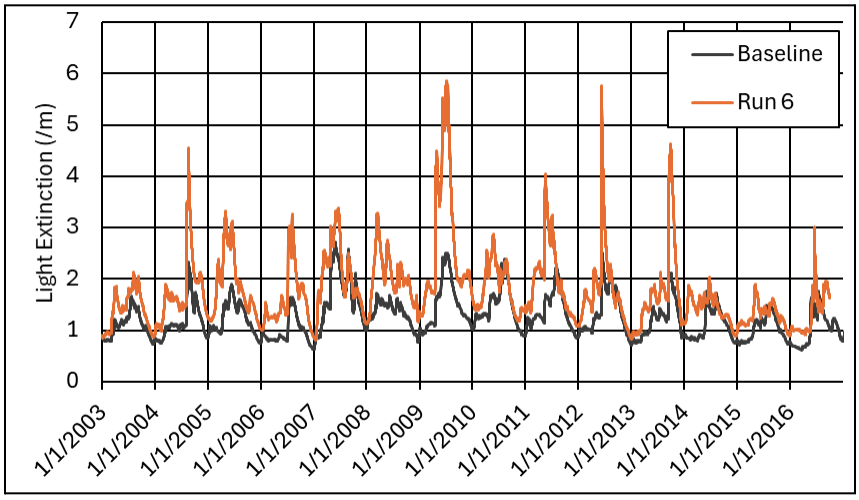
4. References.

1 Findings on Linkage Approach

This modeling effort comprises the first full test of the model linkage approach developed in 2020 (Hydros, RESPEC, and Kilgore, 2020) to support combined use of the watershed and reservoir models for the Cherry Creek basin. As part of this effort, a tool was developed to efficiently translate HSPF watershed model outputs (flow and water quality) into CE-QUAL-W2 reservoir model inputs. In accordance with the linkage approach, translated inputs reflect adjustments to the observation-based, daily Cherry Creek Reservoir inflow water quality (i.e., reservoir baseline water quality). In general, the adjustments reflect the relative percent change[1] in monthly inflow loading simulated by the HSPF model.

Watershed model results were provided to Hydros by RESPEC (Lupo, 2024) for development of reservoir model inputs. Flow and water quality inputs for the reservoir model were then developed from the watershed model results, following the linkage approach. To evaluate the linkage approach, reservoir inputs were reviewed graphically compared to baseline and graphically compared to direct watershed model outputs. Reservoir model simulation results were also reviewed for reasonableness.

In general, the linkage approach appears to perform well with one exception, which required a modification to the linkage steps. For Run 6, the watershed model simulated large increases in total suspended solids (TSS) relative to the watershed baseline simulation, and the reservoir model predictions based on this input were unrealistic. The watershed model, for Run 6, predicted an average monthly percent increase in TSS load of 246 % for the combined inflows, which corresponds to a 77 % increase in average TSS concentration. This change, when translated into reservoir model inputs, resulted in a dramatic loss of light penetration in the reservoir (Figure 1). As a result, algal growth was significantly limited in Run 6 (Figure 2), in spite of increased nutrient availability and minimal change in water temperature. These results for Run 6 were considered to be nonsensical and therefore invalid.



[1] This refers to the monthly percent change relative to the HSPF modeling baseline.

Figure 1. Light Extinction Results at CCR-2 from Initial Model Runs (Note: Higher light extinction values correspond to lower light levels in the water column.)

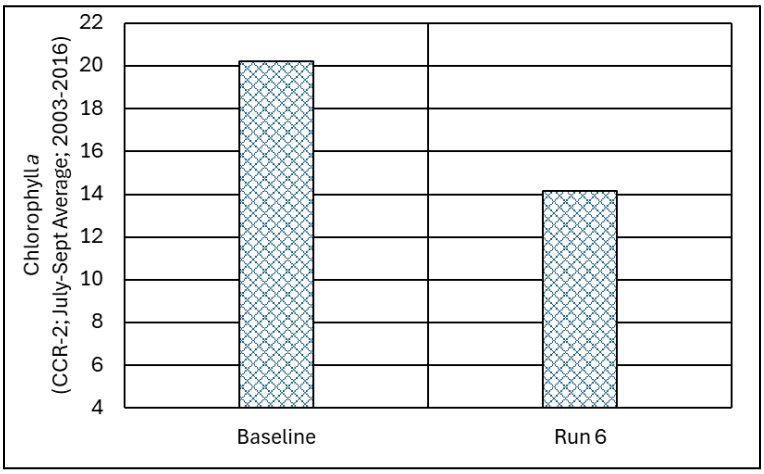


Figure 2. Summer Average Chlorophyll a at CCR-2 from Initial Model Runs

The increase in monthly TSS load and concentration simulated by the watershed model is not specifically in question here. Instead, it is thought that the behavior of the increased TSS concentrations is not well reflected in the reservoir model as translated by the linkage approach. The calibrated reservoir model has two input groups for inorganic suspended solids (ISS). Through calibration to observed data, the settling rates for those two groups differ but are both relatively low, corresponding to the behavior of relatively small particles. It is likely that major increases in suspended solids loading to the reservoir, such as those predicted by the watershed model for Run 6, would include significant fractions (in terms of mass) of larger particles. Such particles would be expected to settle out quickly. Instead, with the current linkage approach, the increased TSS loading enters the reservoir as small particles (in the only two ISS groups available) which settle slowly. In the reservoir, the large increase in slow-settling ISS results in sharply limited light transmission and inhibited algal growth, which is not expected to occur in reality.

This finding is considered a limitation of the current model linkage approach, particularly for runs with major increases in TSS concentrations relative to baseline. To allow for further evaluation of the watershed model run results, a modification to the linkage approach was developed. The modification consists of conducting the original linkage approach steps for all input parameters except TSS (i.e., no load-based adjustments are made to the baseline TSS concentrations for reservoir inflows). This approach effectively assumes that any increases in TSS load to the reservoir for a given scenario are comprised primarily (by mass) of larger particulates that would settle out rapidly (i.e., in less than a day). Model run results presented in the following section (Section 2) reflect this modified linkage approach. Addressing the issue more directly for future runs would require adding at least one more ISS group (with a higher settling rate) to the reservoir model and developing and testing new linkage steps for TSS. Collection of additional information on observed (and anticipated) TSS particle size distributions in the inflows would also be helpful to support the model update and guide redevelopment of TSS linkage steps.

2 Run 6 and Run 13 Results Compared to Baseline

Applying the modified linkage approach described in Section 1, HSPF watershed model results from RESPEC were translated into daily reservoir model input for Cherry Creek, Cottonwood Creek, and the direct reservoir watershed. The resulting inputs reflect the watershed model simulated effects of development in the watershed by 2030 in the absence of various water-quality mitigation efforts (Run 6) and with extensive mitigation efforts (Run 13). As such, the runs broadly represent estimates of the current best-case and worst-case predictions of future watershed conditions.

Run 6 and Run 13 also include increased flows into the reservoir relative to baseline. Inflows were an average of 116 % higher for Run 6 and 25 % higher for Run 13. Most of the increases in inflow occur in Cherry Creek, as opposed to Cottonwood Creek or the direct watershed. Due to the increased inflows, the annual residence time in the reservoir was 44 % lower for Run 6 and 16 % lower for Run 13 (Figure 3). These differences are notable because they affect flushing through the reservoir, which, in turn, affects the water-quality response.

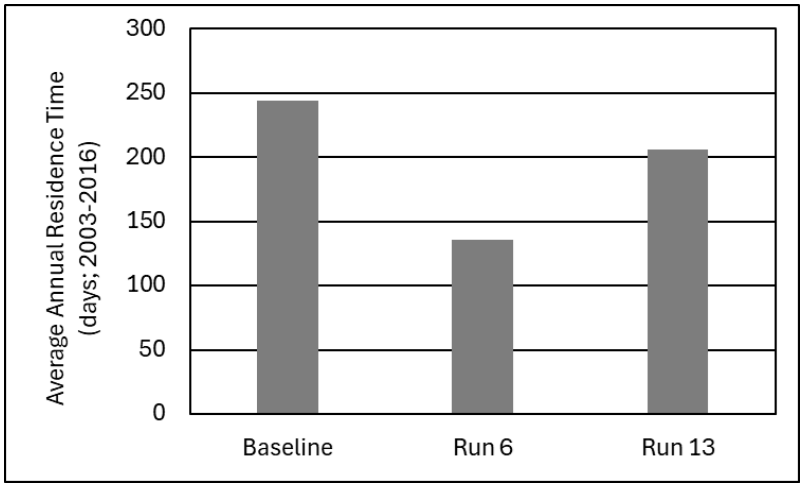


Figure 3. Average Residence Time in Cherry Creek Reservoir for Phase I Linked Model Runs

Average monthly percent changes in load (relative to baseline) for the combined inflows to the reservoir roughly doubled for Run 6 and increased by ~5 to 25 % for Run 13, though percentages varied by constituent (Table 1). Much of the increases in load are directly associated with the increases in flow rate. Additionally, increased inflows in the linkage approach lead to increased outflows, which increase loading out of the reservoir. Therefore, it is helpful to also review the resulting inflows in terms of volume-weighted average concentrations (VWACs). While inflow loads increase notably for the scenario runs, the concentrations of inflows exhibit much smaller differences relative to baseline. For Run 6, inflow VWACs vary by less than 10% relative to baseline, with the exception of a 22% increase in nitrate-plus-nitrite (Table 2). For Run 13, inflow VWACs actually decrease slightly for most constituents (Table 2).

Table 1. Average Percent Changes in Load in the Combined Inflows to Cherry Creek Reservoir

Constituent	% Change in Load from Baseline	
	Run 6	Run 13
Total Organic Carbon (TOC)	+85 %	-2 %
Nitrate plus Nitrite (NO2+NO3)	+138 %	+15 %
Ammonia	+98 %	+26 %
Total Nitrogen (TN)	+109 %	+15 %
Orthophosphate (OrthoP)	+101 %	+11 %
Total Phosphorus (TP)	+99 %	+4 %

Table 2. Average Percent Changes in Volume-Weighted Average Concentration in the Combined Inflows to Cherry Creek Reservoir

Constituent	% Change in Volume Weighted Average Concentration	
	Run 6	Run 13
TOC	-5 %	-19 %
NO2+NO3	+22 %	-6 %
Ammonia	-1 %	+4 %
TN	+7 %	-6 %
OrthoP	+3 %	-9 %
TP	+2 %	-14 %

Cherry Creek Reservoir model results for Run 6 and Run 13 are compared to baseline and summarized in the following subsections for nutrients (TN, TP, orthoP, and TIN) and chlorophyll *a*. Results focus on summer months, corresponding to the averaging periods for the relevant standards/future standards.

2.1 Nutrients

Simulated summertime (July–September) TN and TP concentrations in the reservoir show higher concentrations for Run 6 and lower concentrations for Run 13, as compared to baseline (Figure 4 and Figure 5). Similar patterns are seen for the fractions of TN and TP that are readily available for algal uptake (Figure 6 and Figure 7). The relative direction of difference in nutrient concentrations matches expectations for the scenarios. The magnitude of the differences is relatively small, generally reflecting the relative differences in VWACs.

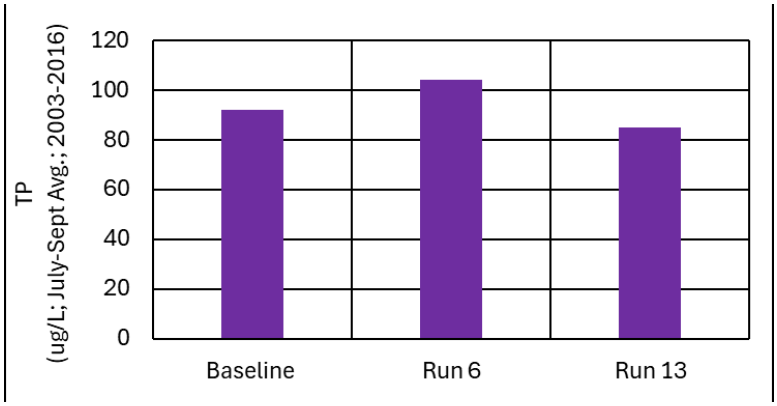


Figure 4. Simulated July–September Average Total Phosphorus Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

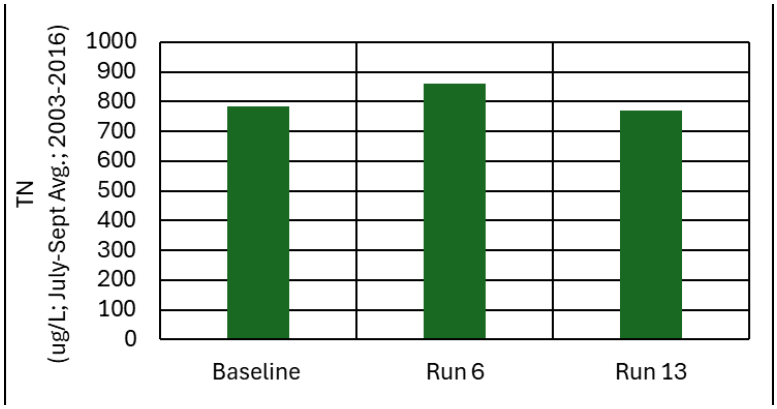


Figure 5. Simulated July–September Average Total Nitrogen Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

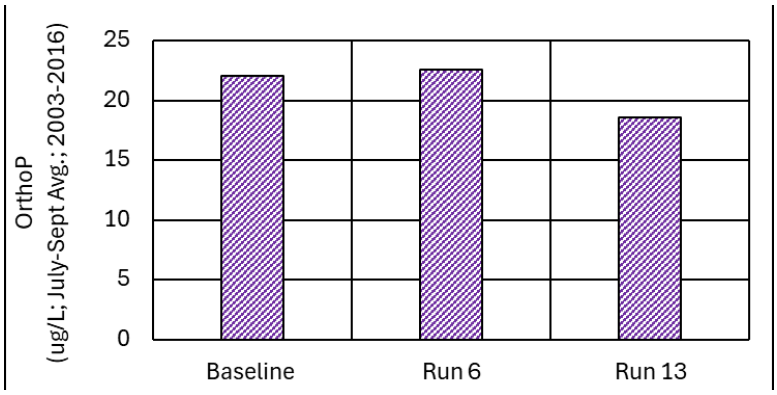


Figure 6. Simulated July–September Average Orthophosphate Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

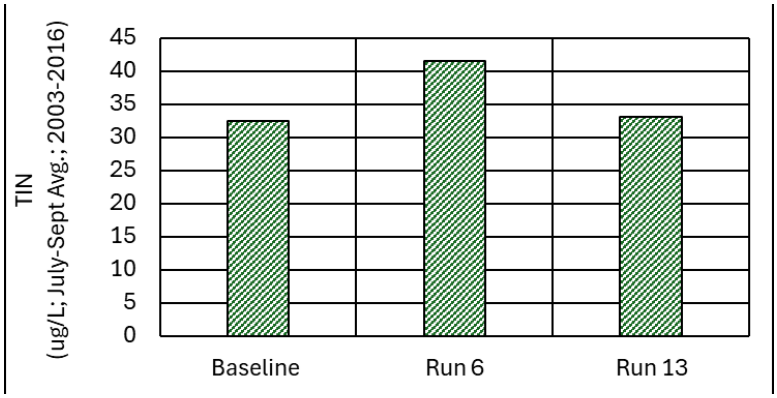


Figure 7. Simulated July–September Average Total Inorganic Nitrogen (Ammonia plus Nitrate and Nitrite) Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

Simulated nutrient concentrations were also compared to draft site-specific nutrient standards (Hydros, 2023) for TP (66 ug/L TP) and TN (860 ug/L TN), both of which would be assessed as the July through September average, with a one- in five-year allowable exceedance frequency. For TP, none of the scenarios would be in compliance with the draft site-specific TP standard, though concentrations are slightly lower for Run 13, resulting in two years that would be below the 66 ug/L TP value (Figure 8). This result makes sense recognizing that the TP site-specific standard is based on the chlorophyll *a* standard of 18 ug/L, which is also not routinely met in any of the scenario simulations (as discussed in the following Section [Section 2.2]).

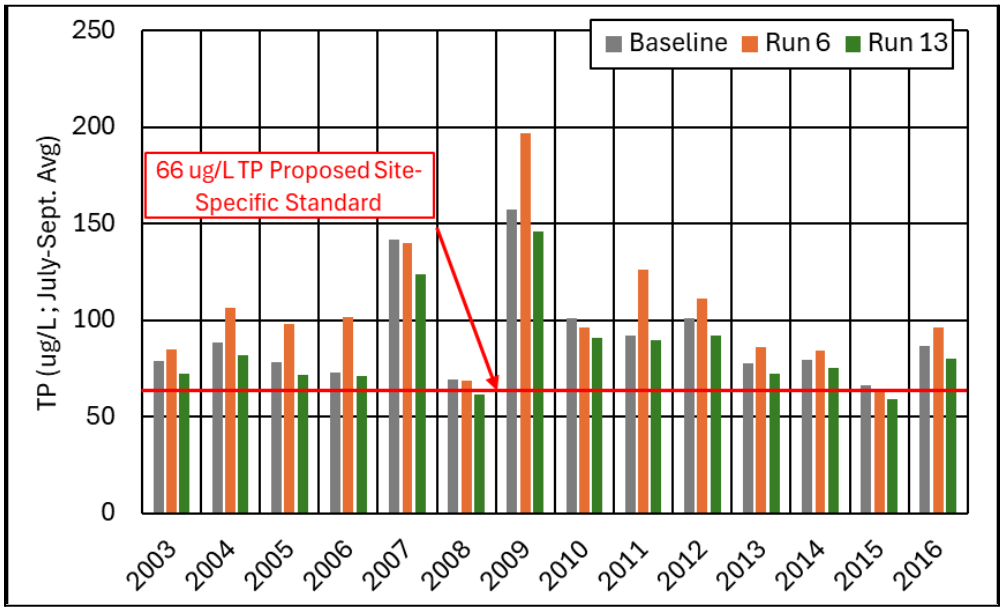


Figure 8. Simulated Summertime TP Concentrations in Cherry Creek Reservoir for Each Simulated Year in Run 6 and Run 13 Compared to Baseline, 2003-2016

Simulated compliance with the draft site-specific TN standard for Run 13 is similar to that simulated for the Baseline Run, with 2 of 14 years showing summer averages greater than 860 ug/L TN, but no cases of failure to meet the draft site-specific standard value when a one- in five-year allowable exceedance frequency is considered (Figure 9). Run 6, however, exhibits 7 of 14 years with simulated summer average concentrations above the draft site-specific standard value, and only 2 years that would be in compliance given the one- in five-year allowable exceedance frequency (Figure 9). This result agrees with the overall conceptual understanding that Cherry Creek Reservoir is generally considered to be further from the optimal TP concentration than the optimal TN concentration (Hydros, 2023).

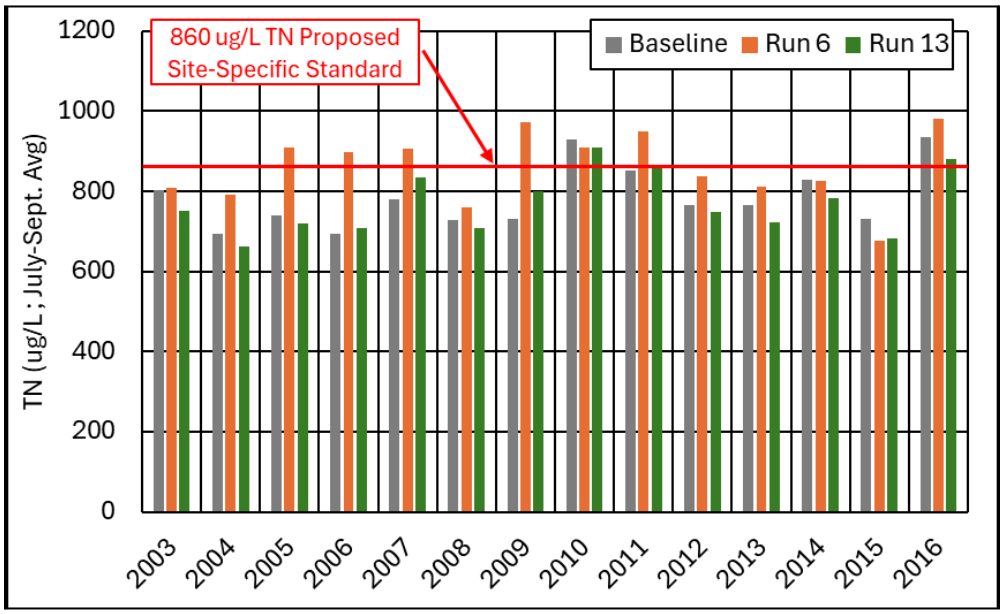


Figure 9. Simulated Summertime TN Concentrations in Cherry Creek Reservoir for Each Simulated Year in Run 6 and Run 13 Compared to Baseline, 2003-2016

2.2 Chlorophyll *a*

The model simulated a relatively small effect (< ±1 ug/L) on long-term average summertime (July–September) chlorophyll *a* concentrations in the reservoir across the scenarios (Figure 10). As expected, the highest average chlorophyll *a* is simulated for Run 6, and the lowest is simulated for Run 13. The relatively small difference in long-term average chlorophyll *a* across runs reflects the relatively small differences in VWACs for inflowing nutrients and the corresponding small differences in simulated in-reservoir nutrient concentrations (see Section 2.1).

The relatively small variation in nutrient (and chlorophyll *a*) concentrations across scenarios can also be attributed in part to internal loading of nutrients from sediments in the reservoir. Both internal and external loading of nutrients are important drivers of algal response in Cherry Creek Reservoir (Hydros 2015). Internal loading of nutrients from sediments varies in the model as a function of DO and temperature at the bottom of the reservoir. Neither DO nor temperature vary notably at the bottom of the reservoir across these simulations; therefore, internal loading of nutrients was similar across the scenarios.

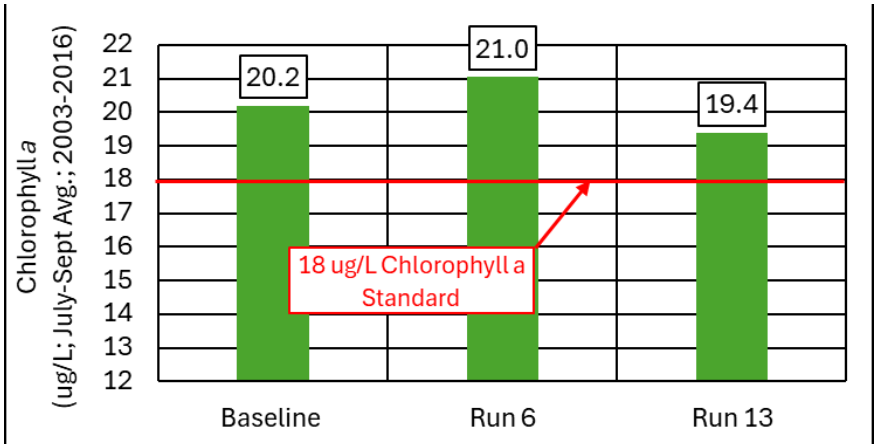


Figure 10. Simulated Long-Term Average Summertime Chlorophyll *a* Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

While the long-term average summertime chlorophyll *a* response for 2003-2016 shows only a small variation, there is more simulated variability across individual years (Figure 11). The year-to-year variability occurs in response to time-varying input concentration differences and, to some extent, the time-varying effects on residence time. None of the scenarios routinely meet the site-specific chlorophyll *a* standard (18 ug/L summer average, with a one- in five-year allowable exceedance frequency). On a yearly basis, the baseline run exceeds the chlorophyll *a* standard in 64% of the years, Run 6 exceeds the standard in 71% of the years, and Run 13 exceeds the standard in 57% of the years (Figure 11). This pattern is consistent with the differences in nutrient loads and concentrations among the three model runs.

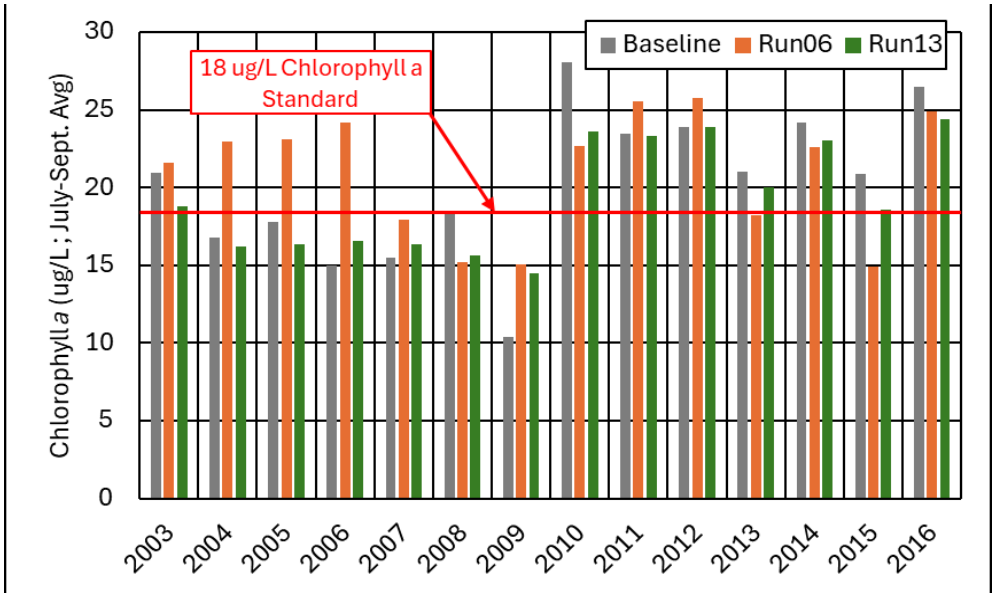


Figure 11. Simulated Annual Summertime Chlorophyll *a* Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

The reservoir model also indicates that increases relative to baseline summer cyanobacteria (blue-green algae) biomass concentrations would occur under Run 6 and Run 13 (Figure 12). Increases in cyanobacteria are minimal for Run 13 and more notable for Run 6, with effects varying from year to year.

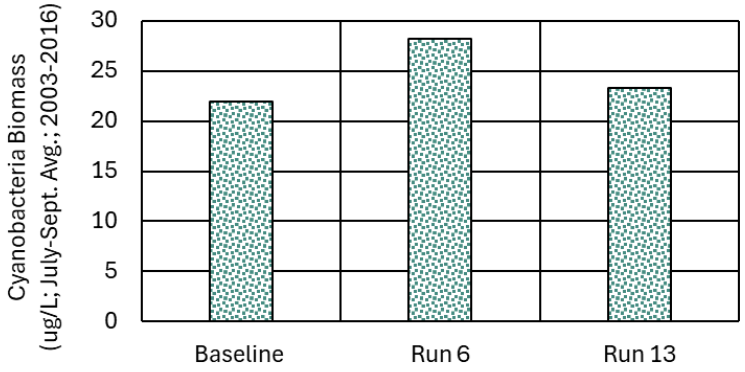


Figure 12. Simulated Average Summertime Cyanobacteria Biomass Concentrations in Cherry Creek Reservoir for Run 6 and Run 13 Compared to Baseline, 2003-2016

3 Summary

The Cherry Creek Reservoir model was used to simulate the effects of two watershed management scenarios on reservoir water quality. The selected watershed model runs broadly represent the worst-case (Run 6) and best-case (Run 13) predictions of future watershed conditions in terms of watershed management. Flow and water-quality results from the HSPF watershed model (RESPEC, 2024) were translated into inputs to the reservoir model using the linkage approach developed in 2020 (Hydros, RESPEC, and Kilgore, 2020). These simulations were conducted to evaluate the linkage approach and to gain insights into the potential range of reservoir water-quality response to future watershed conditions.

The analysis indicated that the linkage approach needs refinement for one constituent, TSS. The issue occurs primarily in cases where the watershed model predicts large increases in TSS inflow concentrations. For the purposes of this analysis, a modified linkage approach was developed in which TSS load adjustments were not made for reservoir model simulations of Run 6 and Run 13, effectively assuming that increased TSS loading reflected larger particle sizes that settle rapidly. This is considered a reasonable approximation and is not expected to adversely affect interpretation of the results. The modification applied should be further considered for future linkage runs[2].

The reservoir modeling results indicate the following:

[2] Revision of the linkage approach is recommended to address the TSS issue. The effort will likely require adding at least one additional ISS group (with a higher settling rate) to the reservoir model and developing and testing new linkage steps for TSS. Collection of additional information on observed (and anticipated) TSS particle size distributions in the inflows would also be helpful to support the model update and guide redevelopment of TSS linkage steps.

- The watershed scenarios decrease reservoir residence times and increase nutrient loading; however, inflow concentrations show only relatively small variations compared to baseline.
    - Worst-case watershed scenario (Run 6) inflows to the reservoir would cut residences time by 44% and generally double the loading rates for most key constituents. Inflow concentrations, however, would be similar to baseline for TP and only ~7 % higher for TN.
    - Best-case watershed scenario (Run 13) inflows to the reservoir would cause a small decrease in residence times (~16% decrease) and increases in inflow nutrient loading ranging from ~5 to 25 %. Inflow concentrations, however, would slightly decrease for most key constituents.
- Reservoir model results indicate that TN and TP concentrations would decrease slightly relative to baseline for the best-case watershed management scenario (Run 13) and increase for the worst-case watershed management scenario (Run 6).
    - The reservoir would not be in compliance with the draft site-specific TP standard in any of the scenarios.
    - The reservoir would be in compliance with the draft site-specific TN standard under the Baseline scenario and the best-case watershed scenario (Run 13); however, it would be out of compliance under the worst-case watershed scenario (Run 6).
- Reservoir model results indicate that summertime chlorophyll *a* and cyanobacteria concentrations would increase relative to baseline for the worst-case watershed management (Run 6). Correspondingly, chlorophyll *a* is simulated to decrease relative to baseline for the best-case watershed management scenario (Run 13). The effects vary from year to year; however, the long-term average effects are relatively small (on the order of +1 ug/L chlorophyll *a* for Run 6 and –1 ug/L chlorophyll *a* for Run 13).
    - The relatively small simulated effects on the long-term average chlorophyll *a* concentrations agree with the relatively small changes in inflow concentrations. This finding underscores the importance of considering inflow concentration changes in addition to inflow loading. As such, this concept should be considered in any discussions of Total Maximum Daily Loads (TMDLs).
    - The relatively small simulated effects on the long-term average chlorophyll *a* concentrations also makes sense given the minimal change in internal loading of nutrients across scenarios. Internal loading did not vary significantly across scenarios because simulated DO and temperature at the bottom of the reservoir did not vary significantly across scenarios.

The best-case watershed management scenario (Run 13) indicates an overall reduction in summertime chlorophyll *a* in Cherry Creek Reservoir, indicating that watershed management can suppress additional degradation of water quality in spite of anticipated development in the watershed. The improvement, however, is small relative to baseline and would not lead to compliance with the site-specific chlorophyll *a* standard or the draft site-specific TP standard. In contrast, Run 6 indicates that reservoir conditions would be worse in terms of chlorophyll *a* and cyanobacteria in the absence of the watershed management activities included in Run 13.

In summary, the simulation results indicate that watershed management is an important focus to protect reservoir water quality; however, in-reservoir management approaches may also need to be considered to meet the current chlorophyll *a* standard (and associated future nutrient standards). This finding agrees with previous modeling results indicating that management approaches focused exclusively on either internal or external nutrient sources are unlikely to results in compliance with the current chlorophyll *a* standard (Hydros 2015, 2019, and 2023).

4 References

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CHERRY CREEK BASIN WATER QUALITY AUTHORITY
2024 Capital Project Status Report
Updated May 10, 2024

RESERVOIR PROJECTS

1. **East Shade Shelters Phase III and Tower Loop Phase II Shoreline Stabilization (CCB-17.5.1 and CCB-17.7)**
   a. Description: These projects were identified in 2014 through the annual inspection. The Tower Loop Phase II connects to the Phase I project and extends shoreline protection 570 feet to the southeast towards Dixon Grove. The East Shade Shelters Phase III starts on the north end of the Shade Structure and goes 400-feet to the south.
      b. Status: Consultant selection is scheduled for the 1st quarter. A consultant selection committee will be set in February (1/29/21). At the February TAC meeting Jason Trujillo, Jon Erickson, Lanae Raymond, Bill Ruzzo were interested in serving on the consultant selection committee (2/11/21). This selection committee was discussed at the 3/18/21 Board Meeting, and no further members were added. The Request for Proposals (RFP) has been posted on BidNet and Proposals are due 04/21/21 (3/25/21). The pre-proposal meeting was held on 4/7/21. 5 proposals were received on 4/28/21; the selection committee is reviewing them. Interviews were held and a selection is being brought to the May Board meeting (5/14/21). Board authorized negotiations with RESPEC (5/27/21). Agreement has been executed with RESPEC (10/15/21). Field Survey of project areas and topographic mapping is underway (12/30/21). A design kickoff meeting was held on 4/22/22. A design sprint workshop was held on 7/12/22 which included a site visit and evaluation of alternatives. RESPEC is developing a recommended alternative (9/8/22). RESPEC provided updated project costs for budgeting (10/13/22). The 30% submittal was received on 11/16/22 and is under review. CCBWQA provided comments on 30% review on 1/17/23; a value engineering effort is recommended as the project costs exceed the budget. The value engineering meeting was held on 2/24/23. RESPEC's request for additional services was approved by TAC and Board in May (5/25/23). The reservoir water level has come down since the May and June storms and additional erosion was observed on 7/14/23; a site visit was made with RESPEC on 8/1/23 and the erosion areas at East Shade Shelters were measured. It has been estimated that roughly 14 cubic yards of soil was eroded from the 2023 storms (9/15/23). A progress meeting was held on 9/15/23, RESPEC will refine the breakout of components between recreational (CPW responsibility), water quality (CCBWQA responsibility), and shared (both CPW and CCBWQA responsibilities) costs and work on 408 review submittal to US Army Corps of Engineers. RESPEC was provided by the US Army Corps of Engineers' guidance on cut and fill and asked to prioritize the 408 application and review; they are coordinating with Gene Seagle in preparation for this submittal. RESPEC has provided a draft plan of action for the 408 permit submittal to be discussed with Gene (1/15). A meeting was held with Gene on (01/25/2024) to discuss the 408 requirements, subsequently RESPEC followed up with a submittal package PDF of the summary of impact for the project via email to Gene and Joe with USACE on (02/02/2024). Per email from Joe at USACE the proposed bank stabilization proposal is approved under routine operations and maintenance for 408 permitting. The project team is moving forward with preparation of 90% Design completion by end of April. Per discussion with CPW (Michelle), there will be shared funding available in July 2024 for the project. *RESPEC submitted 90% Design on (05/03/2024).*

Tower Loop Phase II –

2. Final design and construction are currently scheduled for 2032 and 2033.

STREAM RECLAMATION PROJECTS

1. Cherry Creek Stream Reclamation at Arapahoe Rd. - Valley Country Club to Soccer Fields, Reaches 3 to 4 (CCB-5.14C)

a. Description: This project continues the work on Cherry Creek by CCBWQA, MHFD, and local partners. It ties into the previous stream reclamation projects of Cherry Creek Eco Park to Soccer Fields (CCB-5.14A) and Cherry Creek at Valley Country Club (CCB-5.14B). The 5,167 Linear Feet of stream reclamation reduces bed and bank erosion immobilizing approximately 88 pounds of phosphorus annually. The project is anticipated to be funded over several years and likely be broken into phases.

b. Status: In 2021, and IGA was executed between CCBWQA, MHFD, City of Aurora, and SEMSWA to begin this work. IGA Amendment that brings in 2022 funding is under review (5/13/22). Board authorized IGA Amendment for 2022 funding on 7/21/22 (8/12/22). IGA Amendment has been revised to show Aurora's lower participation; CCBWQA's participation was lowered accordingly to meet 25% partner project level; revised IGA Amendment received TAC recommendation and is being taken to Board for their consideration in October (10/13/22). Board authorized the IGA Amendment for 2022 funding at their 10/22/22 meeting. It appears that CCBWQA's 2023 participation will be reduced as a result of less partner funding available for this project (2/24/23). The IGA Amendment that brings in 2023 funding was recommended by the TAC and authorized by the Board at their June meetings (6/29/23). MHFD is starting consultant selection process (10/13/23). Jacobs, Olsson, and Muller were shortlisted for interviews which are scheduled for mid-December (11/10/23). Muller was selected as the consultant (12/28/23). A scoping meeting for the project was held on (01/30/2024), a design scope is anticipated in the next month. Muller provided a scope and fee, a meeting with the project stakeholders is scheduled for April 3rd to discuss. Muller provided a scope and fee for the work and the project stakeholders collaborated to refine the scope (04/03/2024). *CCBWQA's participation was lowered accordingly to meet 25% partner project level; IGA draft Amendment received TAC recommendation and is being taken to Board for their consideration in May (05/10/2024)*

2. Cherry Creek - Reservoir to Lake View Drive Alternatives Analysis and Development of Preferred Alternative (CCB-5.16A)

a. Description: This project is in follow up to CCBWQA's study of Cherry and Piney Creeks in Cherry Creek State Park (CCSP). Muller completed two reports on Cherry Creek from Reservoir to State Park Boundary, Stream and Water Quality Assessment and Baseline Channel Monitoring Report, in 2022. These reports highlight the need for this project.

b. Status: A workshop is scheduled for the 3/16/23, to seek CCBWQA Board and TAC input on this project and Cherry and Piney Creeks in CCSP (3/10/23). *The follow up from workshop is underway – project overview and funding flyer has been created,* Muller is scoping the next step of design for Reach 1 and providing a fee, and multi-pronged approach is in development for workshop priority reaches that prioritizes Reach 1 and reduces risk from upstream reaches; these items will be brought to TAC and Board for discussion, direction, and/or action at upcoming meetings (3/30/23). A site visit for partner outreach and funding was held on 5/25/23 at 1-4 pm (6/8/23). A coordination meeting was held with Aurora on 6/23/23 and they showed interest in partnering on the

project to protect their water lines. The Mile High Flood District has provided their budget/CIP schedule and Arapahoe County Open Space has been contacted to investigate potential partnering opportunities (7/13/23). The TAC created a subcommittee for this project on 8/3/23; which will attend progress meetings, provide timely feedback to Muller, and to coordinate with TAC as needed. The alternatives analysis kickoff meeting was held on 8/29/23. A site visit was held on 9/22/23 to look at multiple flow paths and potential risks for consideration in alternatives analysis. It was verbally reported at the 11/16/23 Board meeting that Colorado Parks and Wildlife's repair of Lake View Drive is underway which includes the alternatives of concrete pipe and trash racks, cleaning out of culverts 1-9 and the beaver debris, and it is scheduled for completion by mid-December. Muller was provided US Army Corps of Engineers' guidance on cut and fill for consideration in their alternatives analysis (12/1/23). Muller is working through the Alternative Analysis and is coordinating a meeting (02/02/2024) to discuss alternatives in late February with the team. Muller presented a design alternatives overview in a meeting held on (02/28/2024) and is working to compile the alternatives analysis with costs to present at the April TAC meeting. Muller presented their alternatives analysis at the April TAC meeting (04/04/2024). *Muller provided the Alternatives Analysis Report for Cherry Creek Reach 1 and is included in the May Board Packet (05/10/2024).*

3. Cherry Creek Stream Reclamation – Upstream of Scott Road (CCB-5.17)

a. Description: Design and construction of stream reclamation is in partnership with Douglas County and MHFD. It improves 4,100 feet of Cherry Creek and is located upstream of Scott Road.

b. Status: IGA was approved by the Board at their April 2020 meeting. Muller had been selected as consultant, and design scope of work is being prepared. Kickoff meeting was held on 12/11/20; a follow-up field visit will be scheduled for early 2021. Site visit was held on 1/29/21. Conceptual design is complete, negotiations are underway to contract for 60% design (4/8/21). Muller is working on alternatives (4/30/21). Muller is working on preliminary design and an IGA Amendment to bring in additional 2021 funding from Douglas County is being brought to the Board in October (10/15/21); IGA Amendment has been executed (11/11/21). Muller is preparing 60% Design Submittal (1/28/22). Muller submitted 60% Design on 2/2/22; comments have been provided on 60% Design Submittal (3/10/22). IGA Amendment bringing in 2022 funding is scheduled for TAC and Board consideration in June (5/27/22). IGA Amendment was authorized at the June 16th Board Meeting (6/30/22). Muller is working on Final Design and held a progress meeting on 4/14/23, a site visit is being scheduled to support the 90% design submittal. The 90% site visit was held on 5/22/23. Muller submitted their 90% design submission on 9/14/23; the engineer's estimate confirms that additional funding is needed for construction. IGA Amendment for additional funding is scheduled for TAC and Board consideration at October meetings and 90% review meeting was held on 10/13/23. Comments were provided for 90% submittal and discussed at the review meeting (11/10/23). *The project Schedule has been updated to have Naranjo start construction in September 2024.*

4. Cherry Creek Stream Reclamation at Dransfeldt (CCB-5.17.1B)

a. Description: Design and construction of stream reclamation is in partnership with Town of Parker and MHFD. It improves 2,400 feet of Cherry Creek near the future location of Dransfeldt bridge which is just downstream of the Cherry Creek at KOA project.

b. Status: Initial scoping has begun, and a partners meeting was held on 1/30/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA was approved by all parties and has been executed (6/25/21). Muller Engineering has submitted their Draft Scope of Work for Design Services, and the project sponsors have reviewed it

(7/8/21). Design kickoff meeting was held on 10/14/21. Alternatives are being evaluated (12/9/21). Pre-submittal meeting for the 404 permit is being scheduled (12/30/21). CLOMR is being prepared for project (3/10/22) and was submitted to FEMA on 3/31/22. CEI was selected as project partner to provide contractor input during the design (5/27/22). CLOMR is under review by FEMA (8/12/22). Muller has received comments on CLOMR and is preparing responses; 90% Submittal is scheduled for early February (1/27/23). Comments on 90% Submittal were provided on 2/22/23; project is experiencing substantive cost increases due to current market conditions (2/24/23). TAC at their 3/2/23 meeting recommended that the Board authorized the IGA Amendment to bring in 2023 funding along with an increase in CCBWQA's 2023 funding from $170,000 to $570,000. The Board authorized the IGA Amendment with the increased 2023 funding of $570,000 at their 3/16/23 meeting. The Conditional Letter of Map Revision (CLOMR) was issued by the Federal Emergency Management Agency (FEMA) on April 28, 2023 (5/12/23). The sanitary sewer relocation will be contracted to start with, in order to avoid a pipe material cost increase, and to get it out of the way for the forthcoming stream reclamation (7/13/23). The sanitary sewer relocation has been contracted for with Concrete Express Inc. or CEI (8/11/23). Construction of stream reclamation will start once Individual Permit Authorization has been received (11/10/23). CEI has sent final contract pricing to MHFD via email (01/26/2024) updated from pricing in October 2023. The Individual Permit authorization under section 404 of the Clean Water Act for the project was received on (02/29/2024). The construction kickoff meeting was held on 03/18/2024. CEI mobilized onsite the week of 04/08/2024; the first onsite progress meeting was held on 04/11/2024.

5. Piney Creek - Cherry Creek to Parker Road, Reaches 1 to 2 (SEMSWA) (CCB-6.5)

a. Description: This project includes 2900 liner feet of stream reclamation on Piney Creek. The project partners are SEMSWA and CCBWQA.
b. Status: Project coordination meeting was held with SEMSWA on 6/29/22. IGA drafted and is being reviewed by SEMSWA (8/12/22). IGA was approved by CCBWQA at the 9/15/22 Board meeting. IGA Amendment to bring in 2023 funding was recommended by the TAC and authorized by the Board in May (5/25/23). CCBWQA sent the Draft IGA Amendment to SEMSWA for review on 6/29/23. SEMSWA has no comments on the IGA Amendment and plans to take it to their Board in October (8/11/23). The project site was walked with SEMSWA and Olsson and Associates on 8/30/23, Olsson is preparing their scope of work and fee for design. Comments on Olsson's scope of work and fee were provided to and coordinated with SEMSWA (11/10/23). Olsson's scope of work and fee have been finalized and SEMSWA is planning on contracting for the initial design phase in early 2024 (12/1/23). The design contract with Olsson was completed on (01/19/2024). A site visit is set with Nicole with SEMSWA for 02/12/2024 to observe and discuss the project. The project design kickoff meeting was held on (02/29/2024). IGA 2nd Amendment was authorized by the Board on (03/21/2024) for funding of $39,000 for 2024. A coordination meeting was held on (04/04/2024) with the Muller team working on Cherry Creek (Reaches 1-3 in the park) to ensure the coordination for the Piney Creek /Cherry Creek confluence was occurring and teams were working together.

6. Piney Creek south of Orchard Rd., Reaches 4 to 5 (SEMSWA) (CCB-6.6)

a. Description: This project includes approximately 3,800 liner feet of stream reclamation on Piney Creek. The project partners are MHFD, SEMSWA and CCBWQA.
b. Status: A site visit is set with Nicole with SEMSWA for 02/12/2024 to observe and discuss the project. A meeting was held with SEMSWA and MHFD to discuss IGA and potential

consultants for design (03/07/2024). *The IGA draft received TAC recommendation and is being taken to Board for their consideration in May (05/10/2024)*

7. McMurdo Gulch Priority 3 Stream Reclamation (CCB-7.4)

a. Description: The design and construction of stream reclamation is in partnership with Castle Rock. Castle Rock is the lead agency. This phase continues the work from the previous phase. Muller Engineering is the design consultant.
b. Status: Board authorized IGA for Priority 3 at their May 19,2022 meeting. Muller submitted their 30% deliverable on 10/31/22, review comments were returned on 11/8/22. Easements needed for projects have been identified (1/23/22). The 60% Submittal was received on 1/30/23 and comments have been provided on 2/7/23. Muller is working on updating their construction cost estimate (2/8/23). On 2/23/23, Castle Rock requested that CCBWQA's 2023 funding be deferred to 2024 to match their schedule. A meeting was held on 01/24/2024 to help determine the approach for obtaining 404 permitting (including Muller, ERO, Castle Rock and CCBWQA). Wetland mitigation under a nationwide permit was recommended by ERO and potential cost impacts for this approach were discussed. Muller's is working on updating estimated construction costs but anticipates being able to move forward with one complete project instead of phasing into two (separating the work on the upstream reach). Muller provided a breakdown of the estimated construction cost versus budget in a meeting with Castle Rock on (02/08/2024) showing the potential to construct both projects in one phase.

8. Lone Tree Creek in CCSP downstream of Pond (CCBWQA Only) (CCB-21.1)

a. Description: *New Project 2024 – Description TBD*
b. Status:

9. Lone Tree Creek in Cherry Creek State Park (CCB-21.3)

a. Description: This project includes a trail connection to Cherry Creek State Park and includes 570 linear feet of stream reclamation on Lone Tree Creek from the State Park Boundary to the Windmill Creek Loop Trail. The City of Centennial is the project lead. CCBWQA participation is for stream reclamation only.
b. Status: 95% submittal is under review (5/13/22); review comments have been returned (5/27/22). Project funding was brought to TAC at their 7/7/22 meeting, during drafting of IGA it was discovered that future maintenance of stream reclamation should be considered, project will be brought back to TAC at an upcoming meeting for maintenance discussion and recommendation (8/12/22). A stakeholder meeting was held on 9/29/22 to discuss maintenance. A stakeholder meeting was held on 11/2/22 to discuss findings from CCBWQA's site visit and findings included in Wright Water Engineers report. The Board supports CCBWQA's partnering with Centennial at their 11/17/22 meeting. A Memo of Understanding is under review by Colorado Parks and Wildlife (CPW) affirming maintenance responsibilities for the stream reclamation fit under the current agreement between CCBWQA and CPW (3/30/23). CCBWQA sent the Draft IGA to Centennial for review on 5/23/23. The project is included in CCBWQA's 2024 Budget and 10-year CIP (11/10/23). UASCE is currently reviewing this project as of a letter requesting comments dated (12/15/2023). 100% Construction Documents were submitted (02/20/2024).

10. Happy Canyon Creek at Jordan Road (SEMSWA) (CCB-22.1)

a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be $325,000. The total project cost is estimated at $1,300,000.

b. Status: IGA is scheduled for June TAC and Board meetings (5/27/21). IGA has been approved and executed by all parties (7/29/21). Jacobs has been selected as design consultant and project scoping is underway; limits have been extended upstream to the County Line and sediment capture area and transport will be included with the project (10/15/21). Jacobs has submitted their scope of work and fee for design which is under review by project sponsors (11/11/21). Project sponsors have completed a review of Jacobs' fee and scope of work and the agreement is being routed for signatures (1/28/22). IGA Amendment to bring in 2022 funding is in process (3/10/22). A project kickoff meeting was held on 3/28/2022. A site visit was performed on 4/12/22 to document existing conditions and identify sediment source/transport/deposition areas. Project Team is preparing a sampling plan for bank and bed materials to determine phosphorus content (5/13/22). The project team met on 5/24/22 to discuss project goals and Jacobs is progressing through the study. Jacobs and ERC are working on sediment transport analysis and model (6/30/22). The results from the sediment transport model were presented at the 8/23/22 progress meeting and an upstream sediment capture area just south of the JWPP was included in the alternatives analysis (8/26/22). The alternative analysis report is expected to be completed before the end of 2022 (10/13/22). Lab results from stream soil samples were sent to Jacobs so that they include phosphorus reduction in the alternatives analysis report; a groundwater investigation is needed to inform sediment capture facility and stream reclamation alternatives, scoping and negotiations are in progress (11/11/22). Groundwater scope of work has been reviewed and approved by project sponsors (1/13/23). The IGA Amendment bringing in the 2023 funding was recommended by TAC and authorized by the Board in April (5/12/23). A progress meeting was held on 10/30/23 where the groundwater information was reviewed and the impacts from the 2023 storms were discussed; MHFD is planning additional sediment removals accordingly. A project site walk with the project team is scheduled for 1/31/2024. A site walk was held on 01/31/2024 with SEMSWA, MHFD and the design team to discuss the study and observe the changes in the project since the 2023 storms. MHFD has performed sediment removals, and that quantity information was shared with the project team. (01/31/2024). A design progress meeting was held on (02/26/2024) to discuss the direction moving forward in the alternatives analysis from the assessment phase of the project. The IGA 3rd Amendment for additional $50,000 funding is scheduled for the April 2024 TAC/Board. The IGA 3rd Amendment was approved for an additional $50,000 funding at the April Board Meeting (04/18/2024). *An agreement has been made with Jacobs to begin drone survey of the project area (04/22/2024).*

11. Happy Canyon Creek - Upstream of I-25 (CCB-22.2)

a. Description: The design and construction are in partnership with Douglas County, City of Lone Tree, and MHFD and includes 2,500 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be $500,000. The total project cost is estimated at $2,000,000.

b. Status: Douglas County, City of Lone Tree, and MHFD initially funded and selected Muller Engineering as the design engineer. Design has started and a progress meeting was held on 1/27/21. Design is progressing (2/11/21). Muller has submitted 60% Design Deliverables (5/27/21). IGA for 2021 Funding is being brought to the Board in September (9/9/21). 2021 IGA Amendment has been executed (11/11/21). Coordination with CDOT and Amendment at their June 16th meeting (6/30/22). The project received environmental clearance from CDOT (8/12/22). The 90% design submittal is scheduled for delivery by end of September (8/26/22). The 90% design submittal is being reviewed (10/13/22). Comments were provided on 90% submittal (11/11/22). Muller completed the 100% design submittal on 11/22/22. CDOT permit was issued, and pre-construction meeting

was held on 1/10/23; construction start is scheduled for 1/30/23 pending execution of easement documents from Surrey Ridge which has agreed to terms and easement language. Notice to Proceed on construction is pending execution of easement documents (1/27/23). Easements have been signed by property owners and Notice to Proceed has been issued to Naranjo Civil Constructors (2/8/23). Construction is underway with initial construction BMPs/stormwater controls in place; water diversion and control is being set up for the downstream section of the project (3/10/23). Water control is in place and construction of stream reclamation is underway for downstream sections of the project (3/30/23). Riffle and Boulder Cascade drop structures on downstream third of project are nearing completion (4/13/23). Construction is underway in the middle third of the project; efforts consist of stream grading and installation of Riffle and Boulder Cascade drop structures (5/12/23). The storm damage from May 11 to 13, 2023 event is being identified and repaired (5/25/23/). Construction on the middle third is substantially complete and work has begun on the upstream third (7/27/23). The construction is nearly complete with the punch list walk on 9/13/23; contractor is working on completing plantings and resolving punch list items. Asphalt repairs on the frontage road are being scheduled and some of the plantings will need to be done during the 2024 spring planting window to improve their chance for success (11/10/23). Asphalt repairs have been made and the project summary has been prepared (12/1/23). Post construction LOMR services agreement amendment for Muller draft has been prepared by MHFD and sent to CCBWQA for review (03/06/2024). Post construction services for wetland monitoring, permitting closeout and revegetation has been submitted by ERO resources, an agreement has been sent to project partners by MHFD and reviewed.

12. Dove Creek - Otero to Chambers Rd. (CCB-23.1)

a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority (SEMSWA) and with Mile High Flood District (MHFD) being a key stakeholder; it includes 1,300 feet of stream reclamation. The Authority's water quality component share for design and construction is estimated to be $175,000. The total project cost is estimated at $700,000.

b. Status: SEMSWA is drafting the Intergovernmental Agreement to bring in the 2021 funding for the project (3/12/21). RESPEC is the design consultant; two conceptual design alternatives have been prepared and reviewed during the meeting on 3/15/21. IGA is scheduled for CCBWQA's May TAC and Board meetings (4/30/21). IGA has been approved and executed by all parties (7/29/21). 30% Design Review Meeting was held on 8/23/21. A Progress meeting is scheduled for 2/26/22 with 60% Plan submittal expected to follow (1/28/22). The 60% Design was submitted on 2/16/2022, comments were provided, and a design review meeting was held on 2/23/2022. IGA Amendment to bring in 2022 funding is in process (3/10/22). Construction costs were prepared by CEI based on 60% submittal (5/13/22). A design progress meeting was held 6/14/22 and 90% design submittal is being prepared (6/30/22). 90% design submittal is expected by the end of July (7/15/22). The 90% design submittal was reviewed, and comments were submitted on 8/22/22. Construction is anticipated in 2023 (10/13/22). A progress meeting was held on 11/8/22, project will likely be done in 2 phases, IGA Amendment will be needed early in 2023 so that construction can start ahead of storm season. Dove Creek IGA for construction of Phase 1 is scheduled for TAC and Board in January 2023, construction is expected to start shortly afterwards (12/30/22). Construction is scheduled to start mid-February; construction agreement and engineering construction services amendment are currently being reviewed (1/27/23). Construction and engineering construction services have been finalized and a preconstruction meeting was held on 2/2/23. Notice to Proceed has been issued to Concrete Express; construction is

underway with initial construction BMPs/stormwater controls in place (3/10/23). Water control is in place and construction of stream reclamation is on-going (3/30/23). Step pool drop structures have been constructed and work on soil wraps is underway (4/13/23). Low-flow or bank full channel work (soil wraps and erosion control blanket) and step-pool structures are complete, water diversion has been removed, and is active to storm flows; work continues in upland areas and higher elevations of stream reclamation (5/12/23). Storm damage from May 11 to 13, 2023 event is being repaired (5/25/23). Construction punch list is being completed (6/29/23). Construction of Phase 1 is complete (7/27/23). Project summary has been prepared (12/1/23). A warranty walk for Phase 1 improvements was held on (04/09/2024) with CEI, SEMSWA, RESPEC and Corvus.

13. Dove Creek - Chambers Rd. to Pond D-1 (CCB-23.1)

a. Description: The design and construction are in partnership with Southeast Metro Stormwater Authority (SEMSWA) and with Mile High Flood District (MHFD) being a key stakeholder; it includes 1,300 feet of stream reclamation. Construction was broken into 2 phases with Phase 2 scheduled for 2024.
b. Status: CCBWQA acted at their October meeting to advance their funding for Phase 2 Construction to 2023 with SEMSWA's funding scheduled for 2024, IGA has been prepared and scheduled for signatures after SEMSWA's November Board meeting, phosphorus estimates for sediment capture areas for the project were provided to Technical Manager (11/10/23). A progress meeting was held on 01/23/204 and construction is expected to start on 02/05/2024 completing 07/2024. GESC and State Stormwater Permitting was obtained week of the 02/05/2024 allowing the work to commence. Potholing for the project has been completed and results of waterline depths in the project area, appear to reduce encasements required throughout the project reach as reported in the progress meeting (02/06/2024). Water diversion is in place as of (02/20/2024). Forebay Slabs at Digicomm and Fairplay forebays have been poured as of (03/12/2024). Channel riffle – pool features have been completed in the channel as off week ending 03/22/2024. Western States mobilized to the site the week of 04/08/2024 to begin revegetation of the channel starting upstream*. The Punchlist walk for the project is scheduled for (05/14/2024)*

14. Mountain and Lake Loop Shoreline Stabilization Phase II (OM-)

a. Description: This project was identified through the 2020 annual inspection and design and permitting started in 2021. It adds about 40 feet of shoreline protection where it has eroded leaving a 1-2-foot-tall vertical bank.
b. Status: Construction Plans have been prepared and the GESC was submitted to Arapahoe County for review (1/13/22). Plans are being reviewed by US Army Corps of Engineers for 408 clearance (5/13/22). *Comments were received from the US Army Corps of Engineers on 8/29/23.* A meeting has been scheduled for 11/16/23 with USACOE's local staff and CPW staff to discuss the cut and fill balance requirements on this project and other planned projects in Cherry Creek State Park (11/10/23). A site meeting with CPW is being scheduled to determine the feasibility of the project after the 2023 storm damage (12/1/23). The 12/20/23 site meeting with Michelle Seubert identified 2 possible alternatives to address 2023 storm damage and meet USACOE cut and fill requirements while maintaining access to the swim beach. An updated project cost is about $90,000 which is over the $65,000 budgeted in 2024 (12/28/23). After discussion with Gene at USACE, further analysis to determine project feasibility is necessary and will be provided. *Soil samples have been collected at the project site (03/7/2024) for further analysis of the project benefits.*

BE DAM AWARE

COMMUNITY EVENT
REDUCING FLOOD RISK - OUR ROLES, OUR GOALS

DATE
Saturday,
May 18, 2024

LOCATION
Tower Loop
Cherry Creek State Park

TIME
10:00 AM - 1:00 PM

A FAMILY-FRIENDLY EVENT
WITH HANDS-ON ACTIVITIES

- Understand how the dam and reservoir reduce flood risk
- Learn how engineers inspect and maintain the dam
- Interact with a flood simulation table
- Follow pollution on its journey from your house to a stream
- Learn about your role before, during and after a flood

- Pick up emergency preparedness handouts
- Be a water quality scientist for the day
- Become an Agent of Discovery
- Take home summer boating and water safety information
- Test your knowledge and spin the prize wheel!
- Aim to take home a fishing pole
- Grab lunch at the food truck

Free Park Entry - Just mention you are here for the Be Dam Aware Community Event at the entry kiosk

Colorado Parks • Wildlife

US Army Corps of Engineers® Omaha District

Splash Splashco.org

Arapahoe County Open Spaces

Colorado Department of Transportation

Keep It Clean from drain to stream — Denver Transportation & Infrastructure

Southeast Metro Stormwater Authority

FEMA

Cherry Creek Stewardship Partners

Cherry Creek Basin Water Quality Authority

Cherry Creek Stewardship Partners

Southeast Metro Stormwater Authority

Splash
Splashco.org

CHERRY CREEK STEWARDSHIP PARTNERS, SPLASH AND SEMSWA PRESENT

CHERRY CREEK RACE FOR THE WATERSHED

5K WALK AND FUN RUN

FUN RUN
5K
Registration Fee : $30

PRIZES FOR TOP 1-3 MALE AND FEMALE FINISHERS
Food and Drinks Provided

08:00AM - 11:00PM
Saturday July 13th, 2024

7711 S Parker Rd,
Centennial, CO 80016

SAVE THE DATE AND SIGN UP TO RECEIVE REGISTRATION INFORMATION!

send email to: jlinden@semswa.org 336-404-2716

CHERRY CREEK STEWARDSHIP PARTNERS, SPLASH AND SEMSWA PRESENT

CHERRY CREEK RACE FOR THE WATERSHED

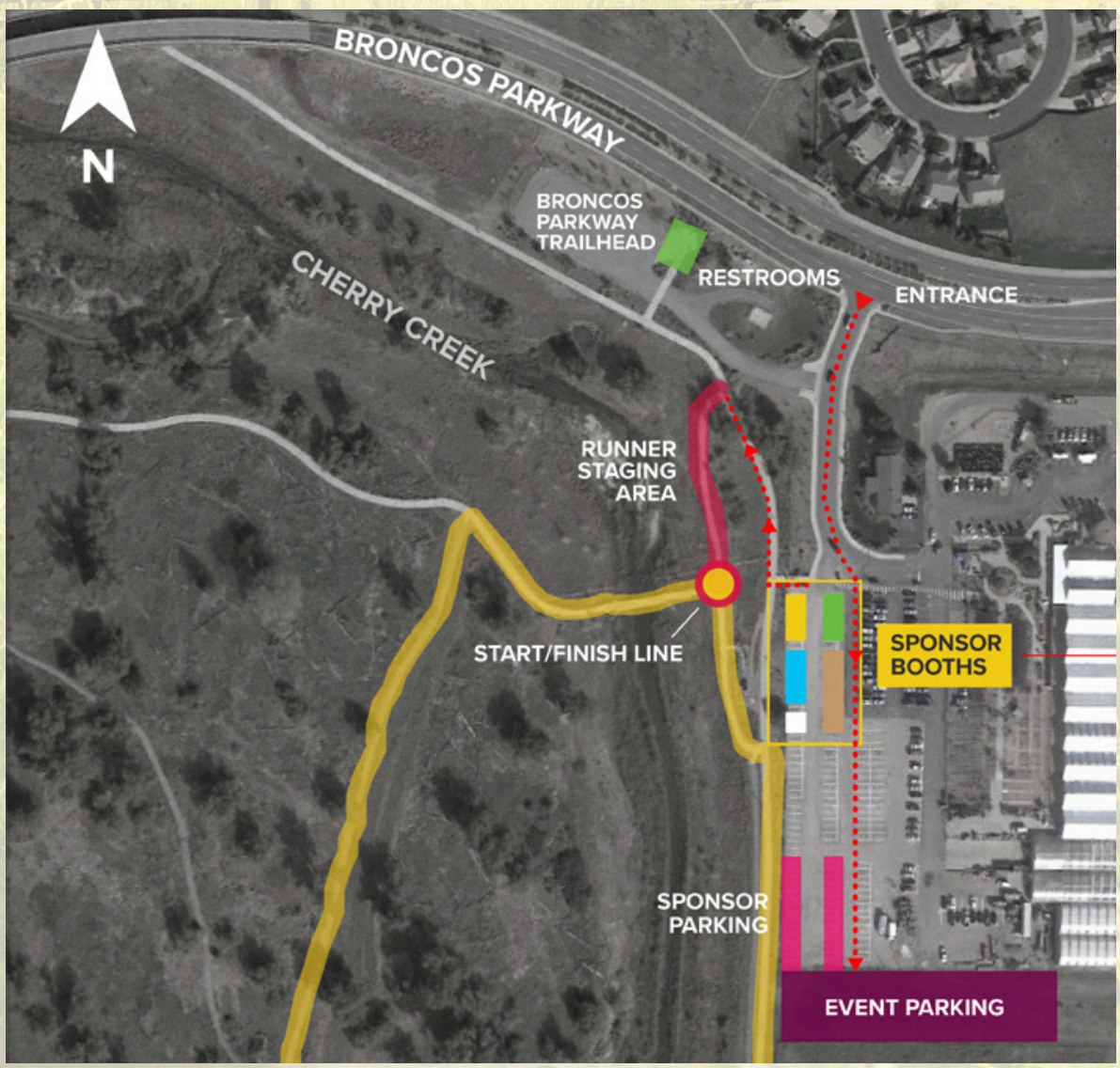
5K WALK AND FUN RUN

RACE COURSE AND OVERALL EVENT MAP

CHERRY CREEK STEWARDSHIP PARTNERS, SPLASH AND SEMSWA PRESENT

CHERRY CREEK RACE FOR THE WATERSHED

5K WALK AND FUN RUN



DETAILED EVENT MAP