

Meeting: Board of Managers
Meeting date: 9/26/2024

Agenda Item #: 11.1

Action type: Request for Board Action

Title: Ordering the Greenway to Cedar Trail Connection and Streambank Restoration Project

Resolution number: 24-054

Prepared by: Name: Gabriel Sherman, Planner-Project Manager

Phone: 952-641-4510

gsherman@minnehahacreek.org

Reviewed by: Name/Title: Michael Hayman, Director of Project Planning

Recommended action: The Board of Managers formally orders the Greenway to Cedar Trail Connection and

Streambank Restoration Project.

Schedule: October 2024: Authorize design contract

Fall 2024 - Fall 2025: Design

Winter 2024/2025: Project agreements

Construction: Winter 2025/2026 - Summer 2026

Budget considerations: Fund name and code: SWLRT Trail Connection (3152)

Fund budget: \$493,734 Expenditures to date: \$0

Total project costs: Estimated to be \$884,173, including stream restoration. Trail costs are estimated to be \$780,780. The \$200,000 grant award will be used to offset trail costs, which will be split evenly between MCWD and the City of St. Louis Park.

Requested amount of funding: N/A

Past Board action: Res # 12-080 Authorization to Enter into Contract with Wenck to Perform

Urban Corridor Planning

Res # 12-106 Authorization to Submit Prepared Comments on the

Southwest Transitway Draft Environmental Impact Statement

(DEIS) to Hennepin County

Res # 14-009 Adopt Policy Framework "In Pursuit of a Balanced Urban

Ecology in the Minnehaha Creek Watershed" to Guide Future

Planning and District Initiatives

Res # 15-084 Authorization to Enter into a Memorandum of Understanding

with Professional Instruments Company for Cooperative

Planning at 7800 Powell Road, Hopkins, MN

Res # 22-050 Authorization to Proceed with Greenway to Cedar Trail

Connection and Streambank Restoration Feasibility

Res # 24-036 Authorization to Execute Grant Agreement with Hennepin

County for Greenway to Cedar Trail Connection

Summary:

Background

Since 2009, the Minnehaha Creek Watershed District (MCWD) has worked with municipal and private partners on a series of projects in the highly urbanized corridor between West 34th Street and Meadowbrook Lake (Hopkins and St. Louis Park) to address downstream water quality and quantity issues, lack of recreational access to Minnehaha Creek,

and catalyze economic development. A conceptual design for the Minnehaha Creek Greenway encompassing these projects and identifying future projects in the corridor was developed in 2012, and once the 325 Blake Road Restoration and Redevelopment is complete, the Greenway to Cedar Trail Connection and Streambank Restoration project will fill the remaining gap in the network of trails and greenspace.

The trail connection will bring the Greenway trail under the newly constructed SWLRT corridor, creating the final trail connection between the Minnehaha Creek Preserve and the Cedar Lake LRT Regional Trail near 325 Blake Road, providing uninterrupted pedestrian infrastructure along Minnehaha Creek between Methodist Hospital in St. Louis Park and Cottageville Park in Hopkins. This project also provides an opportunity to stabilize the streambanks and enhance the riparian zone of the stretch of Minnehaha Creek between 325 Blake Road and the Minnehaha Creek Preserve.

Feasibility

Initial feasibility work was conducted in 2015/2016 by Wenck (now Stantec). MCWD contracted with Stantec and Inter-Fluve in 2022 to conduct a more detailed feasibility study to reflect current conditions in the creek and rail corridors, model the floodplain, and advance two potential trail alignments to assess constructability and land rights. During feasibility, MCWD staff worked closely with the City of St. Louis Park to understand the city's trail design requirements, maintenance preferences, and potential funding sources.

The updated feasibility study resulted in two modified trail alignment options, each of which requires some degree of floodplain fill (see Attachment A). To ensure the floodplain fill could be mitigated within the project boundaries, staff directed Inter-Fluve to conduct a HEC-RAS modeling exercise to determine the project impacts and identify areas for compensatory storage.

Partnerships

Since 2012, MCWD has worked closely with St. Louis Park, the Metropolitan Council, Hennepin County, and several private property owners to ensure support for the trail project. All project partners were re-engaged in 2022 as the updated feasibility study was scoped and conducted.

- City of St. Louis Park: St. Louis Park has identified the trail connection in its long-term non-motorized transportation planning document "Connect the Park" and has carried the project in an outyear of its CIP. When the City approves its 2025-2029 CIP in December 2024, it intends to move the project into the active CIP. The City Council also passed a resolution of support for the project on September 9, 2024 (see Attachment B), expressing its intention to fund half the trail cost (exclusive of ecological restoration).
- **Hennepin County:** Hennepin County awarded the MCWD a \$200,000 grant through its Southwest Community Works Program to offset a portion of the trail cost.
- Metropolitan Council: During the planning of the Southwest LRT, MCWD and St. Louis Park worked with the
 Green Line Extension Project Office to design the new rail and regional trail bridges over Minnehaha Creek to
 allow for a future trail connection underneath the bridges. As the current overseer of the entire SWLRT corridor
 while it is under construction, Met Council has also coordinated with MCWD on the required permits and access
 agreements necessary to construct and maintain the trail connection through the rail corridor and tie into the
 Cedar Lake LRT Regional Trail.
- Three Rivers Park District (TRPD): Once construction of the SWLRT is complete, TRPD will own and operate the Cedar Lake LRT Regional Trail and has coordinated the connector trail tie-in with MCWD.
- Professional Instruments Company (PIC): Throughout 2015 and 2016, MCWD also coordinated with PIC, a
 commercial property adjacent to Minnehaha Creek which will be impacted by a small portion of the trail
 connection. PIC is supportive of the project and a draft agreement was developed to memorialize coordination
 efforts during design and construction. The agreement will be finalized in 2025 as design progresses, and will
 reflect a sale or transfer of land rights allowing MCWD to construct its trail over a small portion of the property
 owned by PIC.
- **Private residences:** MCWD staff have had productive conversations with several private residential property owners immediately upstream of the rail and regional trail bridges. While the preferred trail alignment does not directly impact these properties, there is the potential to collaborate on additional streambank restoration.

Following ordering of the project, MCWD staff plans to bring forward a scope of work for design services at the October 10, 2024 Board meeting. After the feasibility work was completed by Stantec and Inter-Fluve, MCWD staff worked with these firms to draft a scope of work for full project design and bidding services to share with St. Louis Park. Based on the detailed work already completed by this consultant team, and input from St. Louis Park, MCWD staff intends to recommend contracting directly with Stantec to proceed into design as quickly and seamlessly as possible.

Prior to initiating design, MCWD staff will work with St. Louis Park to create a community engagement plan that satisfies the requirements of both the City and MCWD. As design progresses, MCWD staff will continue to advance agreements with PIC, St. Louis Park, Met Council, and any residential property owners as needed. It is anticipated that community engagement, design, and agreements will all be completed in 2025, with construction occurring in late 2025 or 2026.

September 26, 2024 MCWD Board of Managers Meeting

In accordance with Minnesota Statutes §103B.251, MCWD staff have provided for notice of public hearing on September 26, 2024. The hearing will afford an opportunity for the public to address the Board on the ordering of the Greenway to Cedar Trail Connection and Streambank Restoration Project. Absent comment that warrants further consideration, MCWD staff recommends that the Board formally order the Greenway to Cedar Trail Connection and Streambank Restoration Project.

Supporting documents:

- Attachment A: Cedar to Greenway Trail Connection Feasibility Study Memorandum
- Attachment B: St. Louis Park Resolution of Support

To: Gabe Sherman, MCWD

Michael Hayman, MCWD

From: Nick Wyers, PE

Rena Weis, EIT

Chris Meehan, PE

Project/File: 227703704 Date: February 10, 2023

Revised May 19, 2023

Reference: Cedar to Greenway Trail Connection

Introduction

This memo documents the updated feasibility study that was completed to progress design for the proposed trail between the Cedar Lake Trail and Meadowbrook Road in St. Louis Park. This work described within this document builds off the concept design that was completed in 2015/2016 and accounts for construction progress and changes to the original design at the SWLRT site. Two potential trail configurations were evaluated and are further described below. Streambank stabilization practices and habitat improvement opportunities between the 325 Blake Road North site and Meadowbrook Road were also identified by Inter-Fluve and are described in the attached memo.

Data Collection

Topographic and tree survey were completed on site to inform the feasibility study. Land surface, notable features, utilities, rail bridges, and key features of Minnehaha Creek were surveyed along the corridor of interest. A benchmark was established just north of Powell Road, in the boulevard, and permanent benchmarks were surveyed as well (i.e. fire hydrant top nuts, etc.). The tree survey noted tree species, condition, location, and diameter at breast height (DBH) of all trees greater than 6-inches within the proposed trail corridor and construction access routes. All trees with diameters greater than 6-inches were tagged. Survey data is provided as an attachment to this memo (CAD format). A spreadsheet containing tree survey data is also provided.

Alignment Design Considerations

Two trail alignments were evaluated. Key design criteria include maintainability, user experience, user accessibility, and natural resource impacts. Features of the two proposed alignments are relatively interchangeable with each other.

Option 1 accommodates a maximum speed of 16 mph, and Option 2 accommodates a maximum speed of 12 mph. Each option is split into two exhibits on the provided drawings. Maximum speeds are per MnDOT Bicycle Facility Design Manual guidelines and are directly related to minimum allowable turn radii.

The proposed trail would ultimately be maintained by the City of St Louis Park, and as such, it is important to ensure the trail will be maintainable with the City's standard equipment; particularly for snow clearing in the winter months. The City uses standard F150 pickup trucks with 8 ft wide plows for snow clearing, which require 10 ft wide trails and 10 ft vertical clearance. Both trail alignments considered meet these

dimensional criteria. The radii associated with the 16 mph trail design will most easily accommodate pickup trucks, while the 12 mph trail design may require use of skid-steers.

The current MnDOT ADA standards are utilized in the preliminary grading layout. Some of these standards include a maximum 2% cross slope, a maximum 5% running slope, and current curb ramp standards for widths and slopes. The maximum running slope shown on the feasibility drawings is 4.30% and 4.89% for Option 1 and Option 2, respectively, which satisfies ADA requirements. The cross slope of the trail in both Option 1 and Option 2 is no greater than 2%, satisfying ADA requirements.

During the site visit, we observed large boulders / riprap beneath the rail bridges, which was placed as part of the SWLRT project. This rock will need to be moved prior to construction of a trail. The rock has little salvage value, since it is limestone based and is not suitable for use on water resources projects due to high erodibility. We estimate the quantity of rock to be 150 cubic yards.

Both trail alignments are expected to result in floodplain impacts, due to the work's proximity to Minnehaha Creek. Estimated floodplain impacts are 700 CY and 220 CY for Option 1 (16 mph) and Option 2 (12 mph), respectively.

As the trail design is further refined, utility conflicts will need to be evaluated. Most notably, there is a City watermain crossing over the creek, which intersects the proposed trail alignment, as well as a 48-inch CMP storm sewer outfall into the creek in the location of the proposed trail. Other smaller storm sewer outfalls are also present into the creek along the trail alignment. The Option 2 (12 mph) alignment cuts into the pipe cover of the watermain alignment. These impacts may require insulation of the watermain if route is selected. The 48-inch CMP outfall could possibly be downsized, as regional diversions in the area have likely reduced the required capacity the pipe, but an assessment of the contributing drainage area would be required to further inform the recommended solution. Smaller existing outfalls to the creek may be able to be consolidated into fewer pipes, reducing the number of instances when pipes cross beneath the trail. Other private utilities may be in the way adjacent to the road or the bike trail, these should be deep enough to avoid impact, but will be coordinated on final design.

Alignment Tradeoff Considerations

Both alignments were reviewed with MCWD staff, and the following tradeoffs were identified.

Option 1 (16 mph)

- Faster speed limit
- Shorter length, fewer curves, nicer overall user experience through trees south of rail bridges (see Exhibit 2)
- More tree removals (see Exhibit 2)
- More floodplain fill & bank stabilization south of rail bridges (see Exhibit 2)
- Larger trail radii north of rail bridges, resulting in easier winter maintenance & snow clearing (see Exhibit 6)

- More floodplain fill north of rail bridges (see Exhibit 3)
- Requires encroachment on private property (see Exhibit 3)
- Approximately \$780,000 project cost

Option 2 (12 mph)

- Avoids impacts to trees south of rail bridge, resulting in more winding trail closer to the street, which
 may not be desirable to users (see Exhibit 4)
- Avoids creek impacts and minimizes floodplain fill south of rail bridges (see Exhibit 4)
- Tight trail radii north of rail bridges will result in reduced navigability during winter snow clearing (see Exhibit 7)
- Minimizes floodplain fill north of rail bridges (see Exhibit 5)
- Contained to public property (see Exhibit 5)
- Approximately \$640,000 project cost

Opinion of Probable Cost

An opinion of probable cost (OPC) was prepared for each alignment option. The OPCs include items required for both civil (Stantec) and ecological / streambank (Inter-Fluve) portions of construction. Costs associated with a base bid of critical work to construct the trail connection and a bid alternate of supplemental streambank stabilization work were estimated for each alignment option. The OPCs assume 30 percent contingency of estimated construction subtotal costs. The OPCs assume legal, engineering, admin, and finance costs as 30 percent of construction cost including contingency.

The base bid for Option 1 is estimated to cost approximately \$780,000, while the base bid for Option 2 is estimated to cost approximately \$640,000. Major differences in cost between the two alignments are primarily driven by tree removals and earthwork. Additional costs could be incurred if retaining walls or other structural measures are deemed necessary as design progresses. Note that if the bid alternate items are completed separately from the trail construction at a later time, the cost of that alternate work will be higher due to reduced efficiencies. See attached Opinion of Probable Costs for further detail.

Permitting Discussion

Both alignment options involve natural resource impacts that will require permits from MCWD and other regulatory agencies. We anticipate that the other regulatory agencies with jurisdiction are the MnDNR; USACE; and City of St Louis Park, serving in the capacity of Local Floodplain Administrator. Key activities triggering regulatory authority are work in public waterbodies associated with floodplain fill and streambank stabilization. We anticipate that a Work in Public Waters Permit and USACE 404 permit will need to be obtained, as well as a no-rise certificate approved by the City. Required MCWD permits will include Floodplain Alteration; Streambank & Shoreline Stabilization; Erosion Control; and possibly Waterbody Crossings & Structures, depending on the scope of work associated with altering outfalls to the creek.

Note that the provided alignments depict the following three different estimated 100-year floodplain extents along the trail corridor:

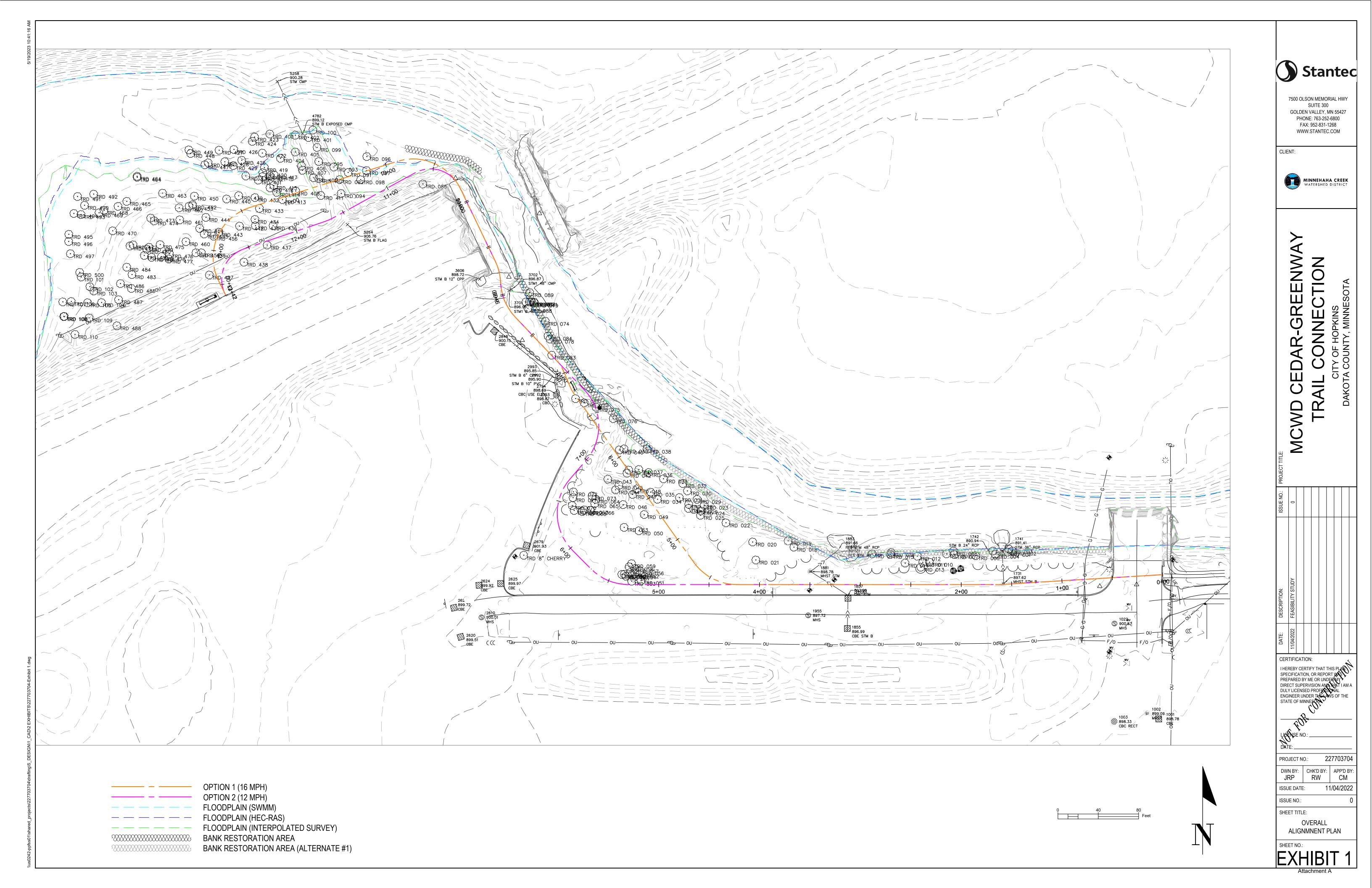
- 1. XP-SWMM floodplain taken from MCWD XP-SWMM model, drawn based on LiDAR
- 2. HEC-RAS floodplain taken from Inter-Fluve's reach-specific HEC-RAS model, drawn based on LiDAR
- 3. Interpolated survey floodplain XP-SWMM floodplain elevation, drawn based on surveyed topography, rather than LiDAR

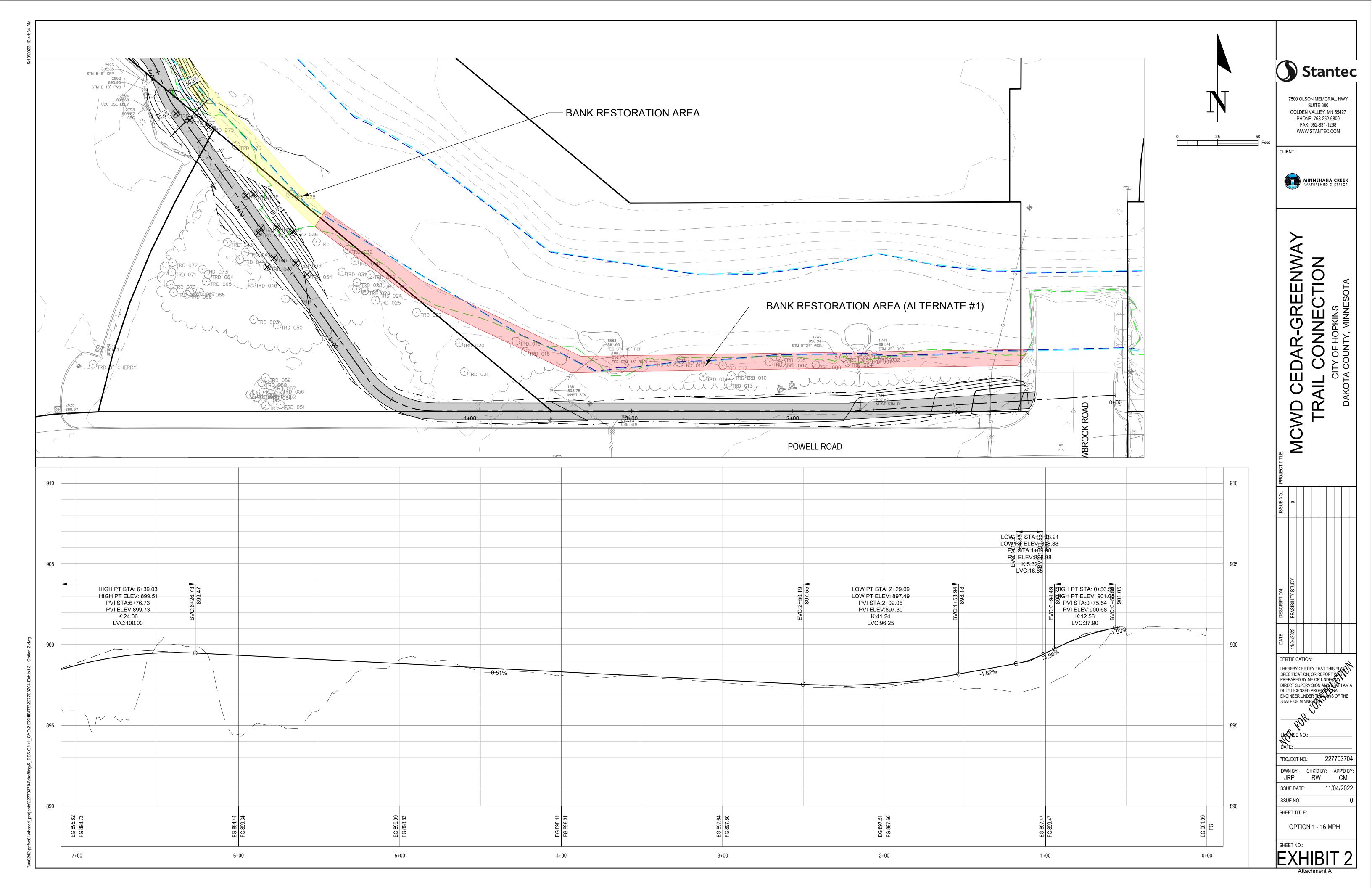
The interpolated survey floodplain extent is the most conservative, though floodplain modeling can and should be refined as design progresses.

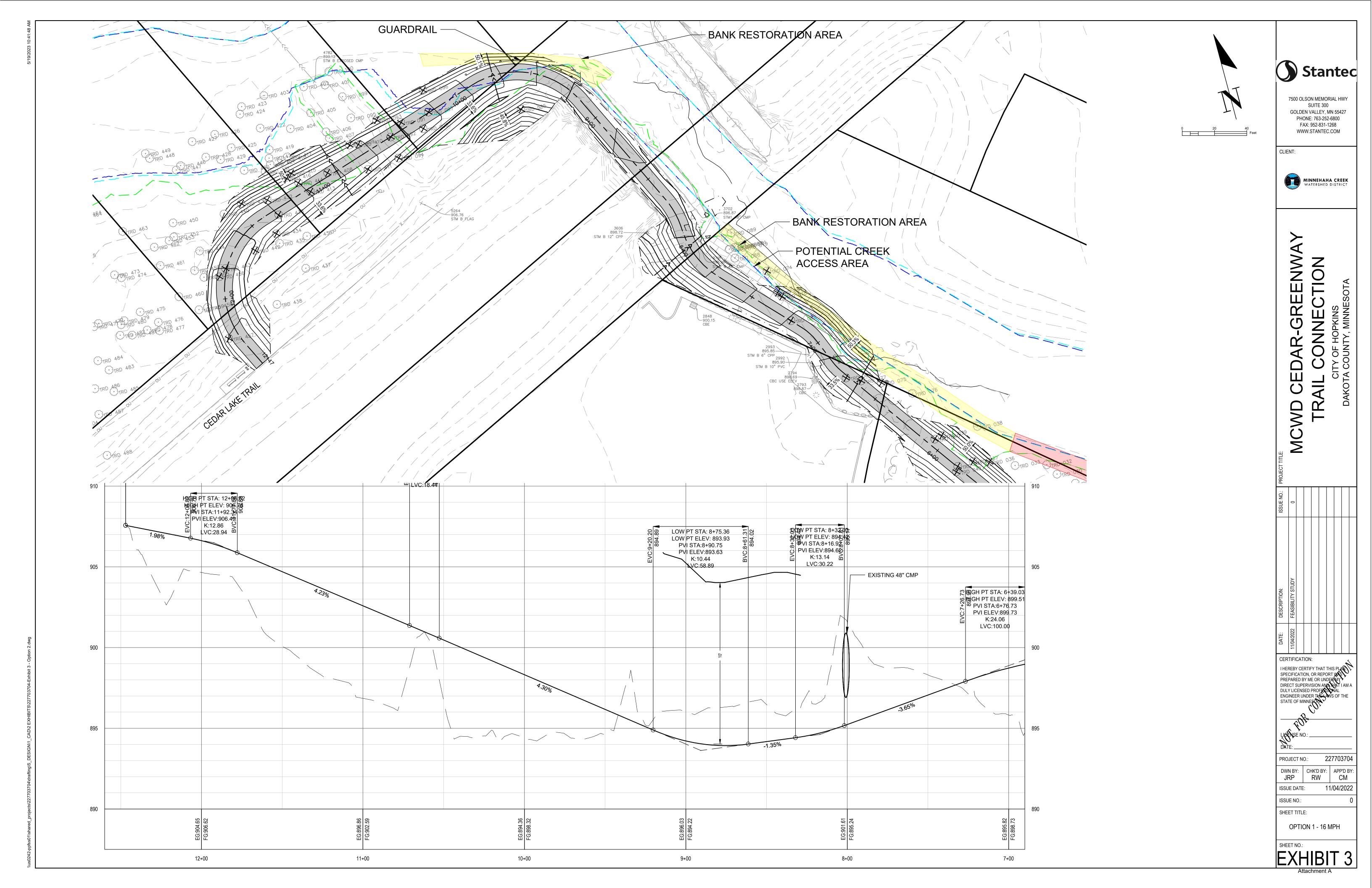
Recommendations & Next Steps

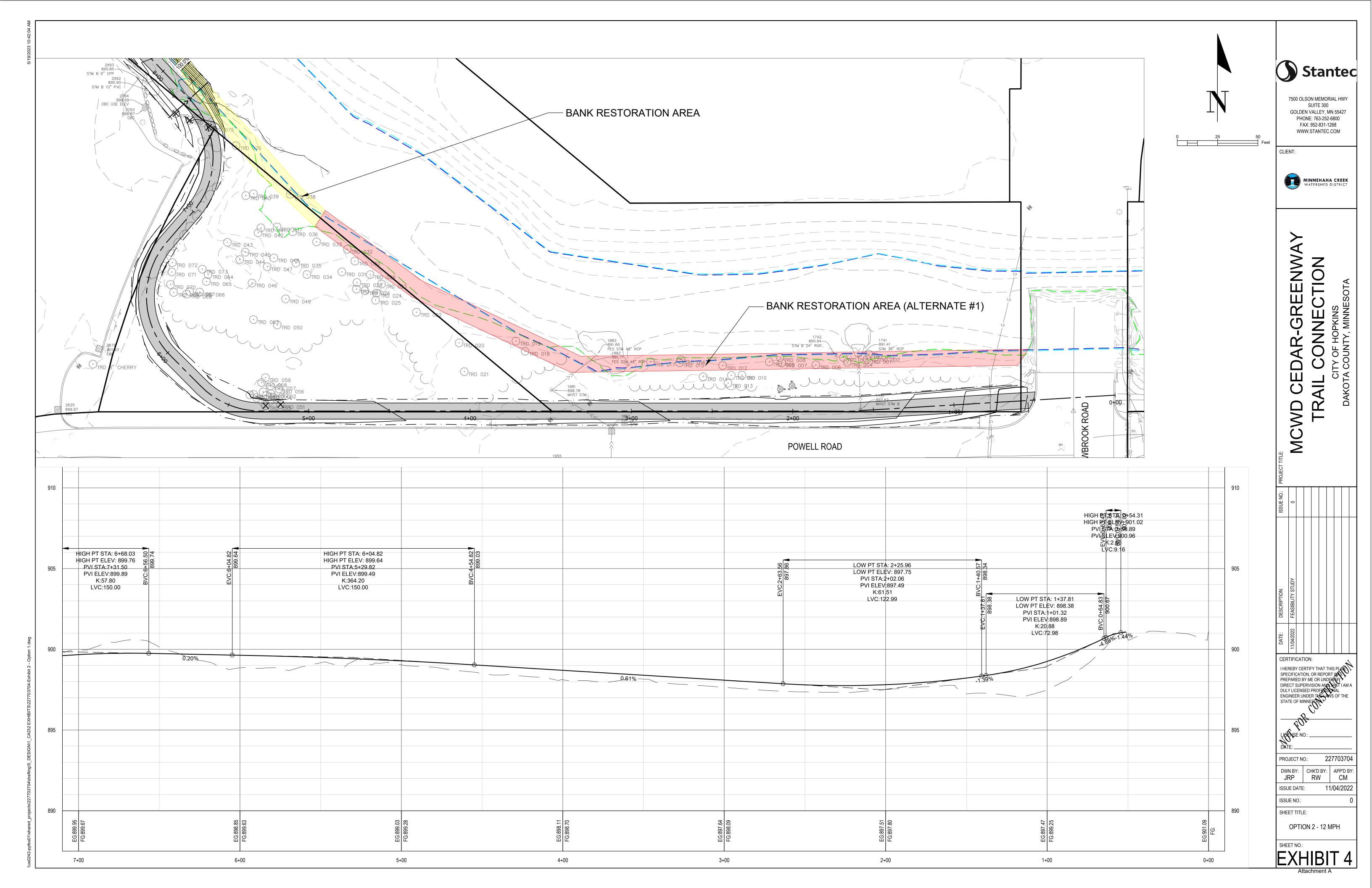
Based on discussions with MCWD staff, it is recommended that the alignment shown by Option 1 be carried forward into design, based on Option 1's higher speed limit, better anticipated user experience, and larger radii to accommodate winter maintenance. However, Option 1 results in more significant natural resource impacts than Option 2, requiring more tree removal and more floodplain fill. Therefore, before design is advanced, it is recommended that floodplain modeling be completed to better evaluate the potential impacts and mitigation options for the anticipated floodplain fill. Furthermore, conversations should be facilitated with impacted property owners, as Option 1 does require the use of private property.

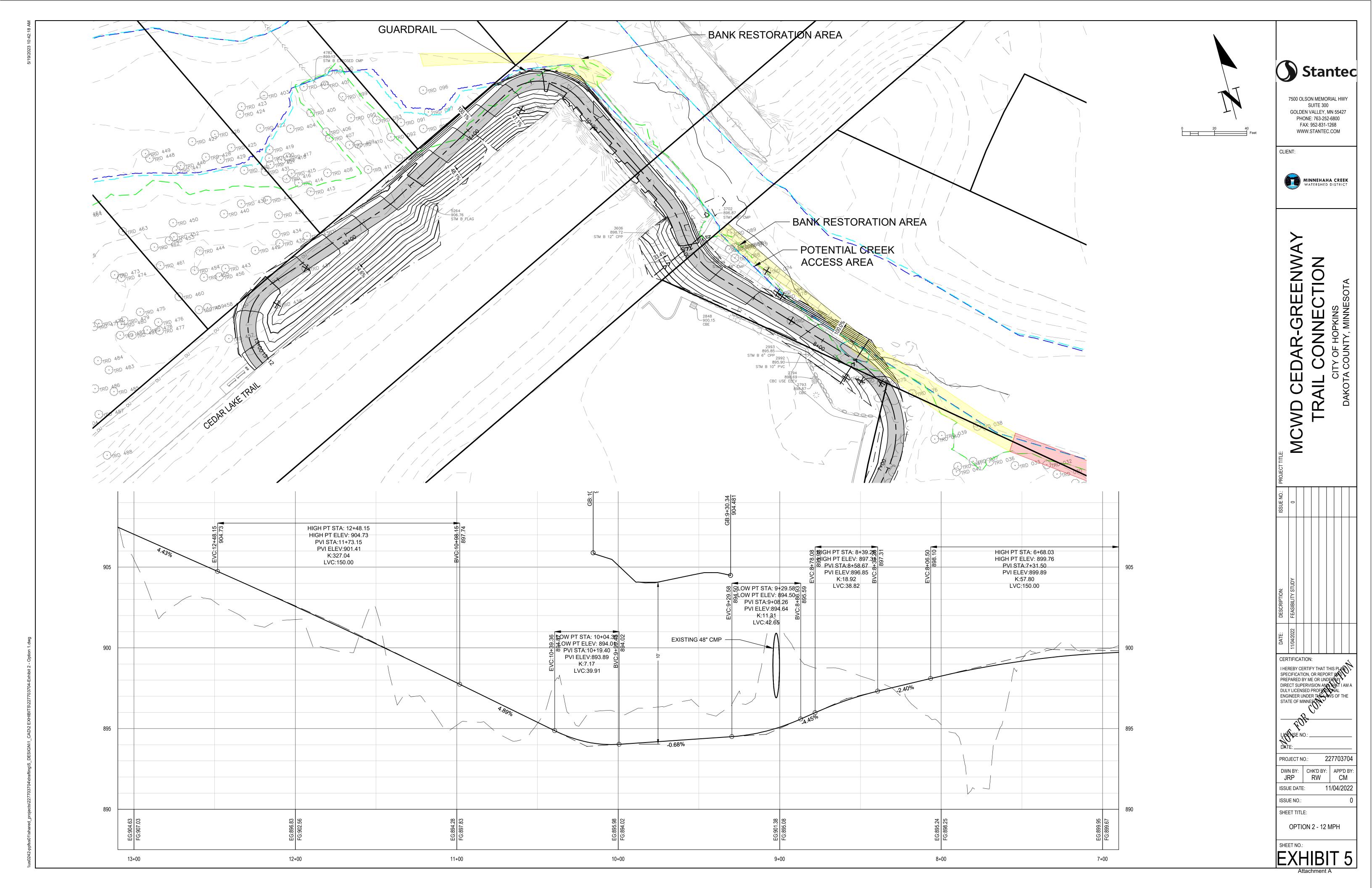
PROPOSED TRAIL ALIGNMENTS

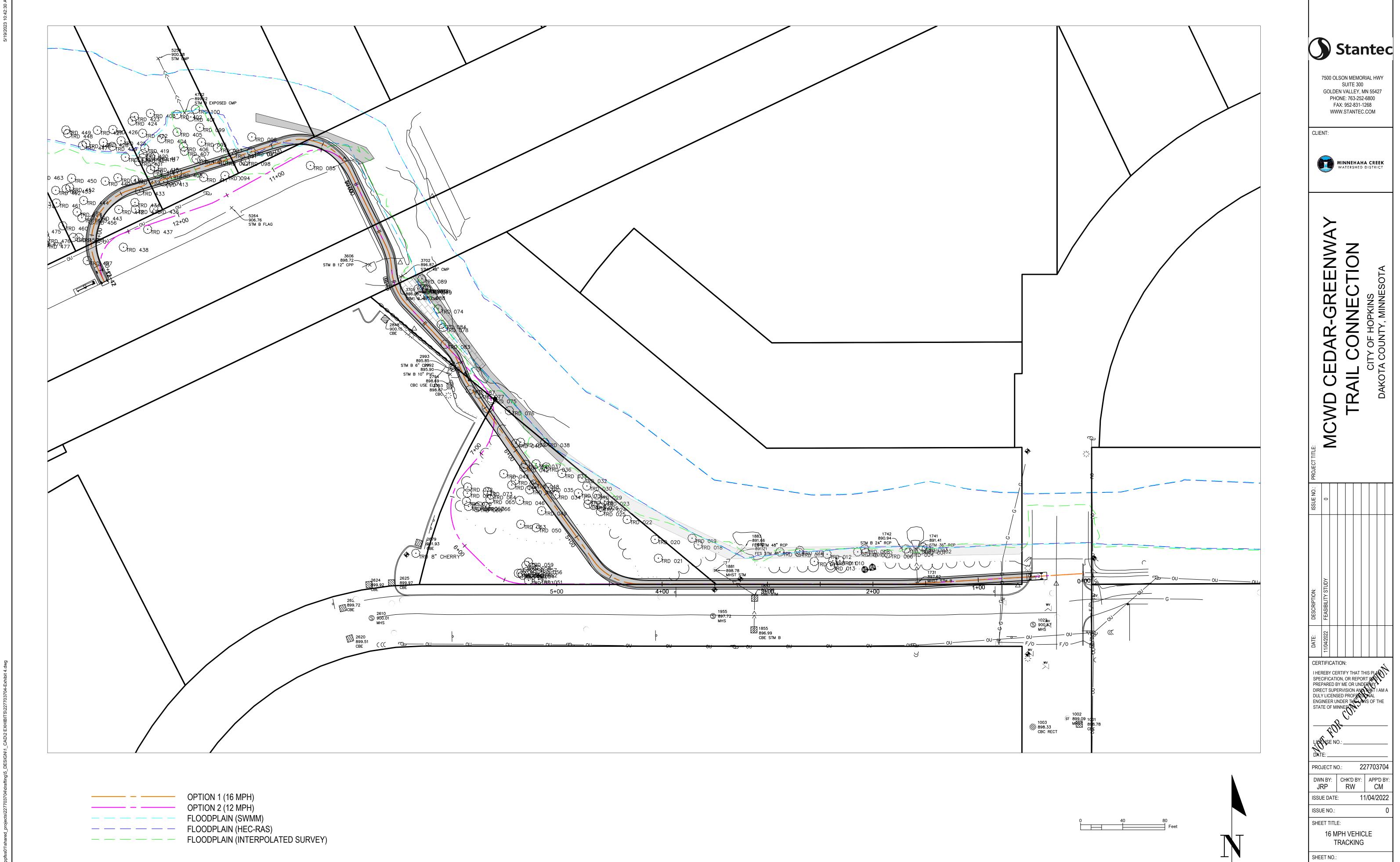


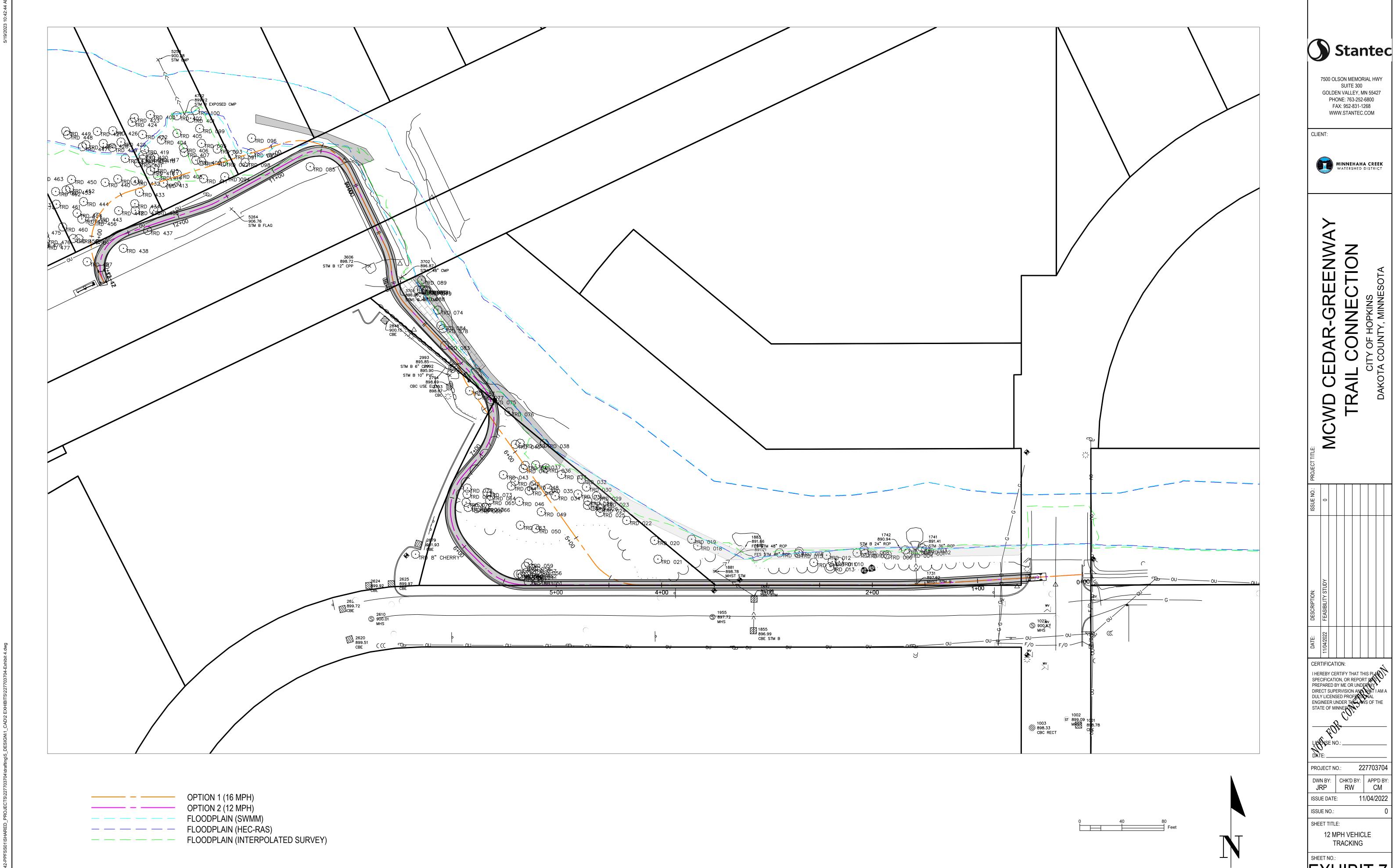












XHIBII
Attachment A

OPINION OF PROBABLE COST

OPINION OF PROBABLE COST MINNEHAHA CREEK WATERSHED DISTRICT CEDAR TRAIL GREENWAY 227703704 FEASIBILITY STUDY 3/3/2023



NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
16 MP	H DESIGN				
1	MOBILIZATION	LS	1	\$ 56,000.00	\$ 56,000.00
2	DEWATERINGS & EROSION/SEDIMENT CONTROL	LS	1	\$ 37,000.00	\$ 37,000.00
3	CLEAR & GRUB TREE	EA	41	\$ 1,000.00	\$ 41,000.00
4	COMMON EXCAVATION - ONSITE	CU YD	1000	\$ 20.00	\$ 20,000.00
5	COMMON EXCAVATION (FLOODPLAIN) - ONSITE	CU YD	1500	\$ 20.00	\$ 30,000.00
6	COMMON EXCAVATION - OFFSITE	CU YD	500	\$ 25.00	\$ 12,500.00
7	COMMON BORROW	CU YD	820	\$ 30.00	\$ 24,600.00
8	REMOVE RIPRAP	LS	1	\$ 15,000.00	\$ 15,000.00
9	AGGREGATE BASE CLASS 5	TON	800	\$ 22.00	\$ 17,600.00
10	3" BITUMINOUS WALK	SQ FT	12000	\$ 3.50	\$ 42,000.00
11	PEDESTRIAN CURP RAMP	EA	1	\$ 2,000.00	\$ 2,000.00
12	GUARD RAIL	LIN FT	85	\$ 100.00	\$ 8,500.00
13	CM PIPE SEWER	LIN FT	140	\$ 100.00	\$ 14,000.00
14	TRAFFIC CONTROL	LS	1	\$ 2,000.00	\$ 2,000.00
15	STONE TOE	CU YD	308.00	\$ 180.00	\$ 55,440.00
16	FES LIFTS	LIN FT	1050.00	\$ 50.00	\$ 52,500.00
17	IMPORTED FES LIFT BACKFILL (TOPSOIL)	CU YD	147.00	\$ 30.00	\$ 4,410.00
18	SITE ACCESS AND RESTORATION	LS	1	\$ 18,000.00	\$ 18,000.00
19	WETLAND IMPACTS	SQ YD	630	\$ 15.00	\$ 9,450.00
				SUBTOTAL	\$ 462,000.00
	[30%] CONTINGENCY				\$ 138,600.00
		TOTA	L CONSTRU	JCTION COST	\$ 600,600.00
	30% LEGAL, E	NGINEE	RING, ADM	IN, FINANCE	\$ 180,180.00
			TOTAL PRO	OJECT COSTS	\$ 780,780.00

NO.	ITEM DESCRIPTION	UNIT QUANTITY UNIT PRICE				TOTAL PRICE	
ALTER	NATE #1: ADDITIONAL BANK RESTORATION						
A.1	MOBILIZATION	LS	1	\$	8,000.00	\$	8,000.00
A.2	STONE TOE	CU YD	132.00	\$	180.00	\$	23,760.00
A.3	FES LIFTS	LIN FT	450.00	\$	50.00	\$	22,500.00
A.4	IMPORTED FES LIFT BACKFILL (TOPSOIL)	CU YD	63.00	\$	30.00	\$	1,890.00
A.5	SITE ACCESS AND RESTORATION	LS	1	\$	5,000.00	\$	5,000.00
				S	UBTOTAL	\$	61,150.00
			[30%] C	ואכ	TINGENCY	\$	18,345.00
		TOTA	L CONSTRU	JCT	ION COST	\$	79,495.00
	30% LEGAL, EI	NGINEE	RING, ADM	ΙŃ,	FINANCE	\$	23,848.50
		T	OTAL ALTER	RNA	TE COSTS	\$	103,343.50

TOTAL BASE + ALTERNATE BID \$ 884,123.50
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OPINION OF PROBABLE COST MINNEHAHA CREEK WATERSHED DISTRICT CEDAR TRAIL GREENWAY 227703704 FEASIBILITY STUDY 3/3/2023



NO.	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOT	AL PRICE
12 MP	H DESIGN		C				
1	MOBILIZATION	LS	1	\$	46,000.00	\$	46,000.00
2	DEWATERINGS & EROSION/SEDIMENT CONTROL	LS	1	\$	31,000.00	\$	31,000.00
3	CLEAR & GRUB TREE	EA	10	\$	1,000.00	\$	10,000.00
4	COMMON EXCAVATION - ONSITE	CU YD	800	\$	20.00	\$	16,000.00
5	COMMON EXCAVATION (FLOODPLAIN) - ONSITE	CU YD	1500	\$	20.00	\$	30,000.00
6	COMMON EXCAVATION - OFFSITE	CU YD	500	\$	25.00	\$	12,500.00
7	COMMON BORROW	CU YD	50	\$	30.00	\$	1,500.00
8	REMOVE RIPRAP	LS	1	\$	15,000.00	\$	15,000.00
9	AGGREGATE BASE CLASS 5	TON	850	\$	22.00	\$	18,700.00
10	3" BITUMINOUS WALK	SQ FT	12700	\$	3.50	\$	44,450.00
11	PEDESTRIAN CURP RAMP	EA	1	\$	2,000.00	\$	2,000.00
12	GUARD RAIL	LIN FT	65	\$	100.00	\$	6,500.00
13	CM PIPE SEWER	LIN FT	110	\$	100.00	\$	11,000.00
14	TRAFFIC CONTROL	LS	1	\$	2,000.00	\$	2,000.00
15	STONE TOE	CU YD	308.00	\$	180.00	\$	55,440.00
16	FES LIFTS	LIN FT	1050.00	\$	50.00	\$	52,500.00
17	IMPORTED FES LIFT BACKFILL (TOPSOIL)	CU YD	147.00	\$	30.00	\$	4,410.00
18	SITE ACCESS AND RESTORATION	LS	1	\$	18,000.00	\$	18,000.00
19	WETLAND IMPACTS	SQ YD	180	\$	15.00	\$	2,700.00
					SUBTOTAL	\$	379,700.00
	[30%] CONTINGENCY					\$	113,910.00
			TOTAL COI	NST	RUCTION COST	\$	493,610.00
	30% LEG	AL, ENG	SINEERING	, AI	DMIN, FINANCE	\$	148,083.00
			TOTA	AL F	PROJECT COSTS	\$	641,693.00

NO.	ITEM DESCRIPTION	UNIT	QUANTITY		UNIT PRICE	TOTAL PRICE	
ALTER	RNATE #1: ADDITIONAL BANK RESTORATION						
A.1	MOBILIZATION	LS	1	\$	8,000.00	\$	8,000.00
A.2	STONE TOE	CU YD	132.00	\$	180.00	\$	23,760.00
A.3	FES LIFTS	LIN FT	450.00	\$	50.00	\$	22,500.00
A.4	IMPORTED FES LIFT BACKFILL (TOPSOIL)	CU YD	63.00	\$	30.00	\$	1,890.00
A.5	SITE ACCESS AND RESTORATION	LS	1	\$	5,000.00	\$	5,000.00
					SUBTOTAL	\$	61,150.00
			[30	%]	CONTINGENCY	\$	18,345.00
			TOTAL CO	NST	RUCTION COST	\$	79,495.00
	30% LE	GAL, EN	GINEERING	, Al	DMIN, FINANCE	\$	23,848.50
			TOTAL	ALT	TERNATE COSTS	\$	103,343.50

TOTAL BASE + ALTERNATE BID	4	\$ 74	5,036.50

TREE REMOVAL TABULATION

Tree Removal Tabulation

					16 MPH	12 MPH
tag id	condition	dbh	comment	common name	Removal	Removal
34	condition	22, 24	2 stems	Cottonwood	1	0
35		7		Boxelder	1	0
36		8, 5	two stems	Boxelder	1	0
37	Dead	7			1	0
39	Dying	14 (dead), 14		Boxelder	1	0
40	Dying	18		Boxelder	1	0
41		9		Boxelder	1	0
42		11		Boxelder	1	0
47		9		Boxelder	1	0
48	Dead	6		Boxelder	1	0
51		14		Boxelder	0	1
53		24, 28, 25, 24	quad stem	Cottonwood	0	1
74		6		American Elm	1	1
75		20		Boxelder	1	1
77		10		Boxelder	1	1
78		11, 10, 13		Boxelder	1	1
83		13, 12, 8		White Mulberry	1	1
84		6		White Mulberry	1	1
85		9		Black Cherry	1	1
87		7		White Mulberry	1	1
91		6		Boxelder	1	0
92		9		White Mulberry	1	0
93	Dead	14, 12 (both dead)	very dead		1	0
94		6		White Mulberry	1	0
96		9		Green Ash	1	0
97		7		White Mulberry	1	0
98		7		Boxelder	1	0
408		8		Boxelder	1	0
409		20		Boxelder	1	0
410		7		Boxelder	1	0
411		7, 6		Common Buckthorn	1	0
413		36		Cottonwood	1	0
414		7		Bur Oak	1	0
415		15		Green Ash	1	0
416		8		Green Ash	1	0
432		10		Boxelder	1	0
433		6		Boxelder	1	0
434		27		Bur Oak	1	0
437		12		Bur Oak	0	1
438		11		Bur Oak	0	1
439		20, 11	·	Green Ash	1	0
442		6	·	Common Buckthorn	1	0
443		28, 28		Cottonwood	1	0
456		7		Cottonwood	1	0
457		11		Bur Oak	1	0

^{*}In each design alternate column, "1" indicates anticipated tree removal

INTER-FLUVE MEMO: STREAMBANK EVALUATION

MEMORANDUM



To: Rena Weis and Chris Meehan, PE; Stantec

From: Sean Morrison, Maren Hancock, PE, and Jonathon Kusa, PE; Inter-Fluve, Inc.

Date: March 1, 2022 Project: Greenway to Cedar Trail Connection Project

Re: Preliminary Reach Assessment Findings

Inter-Fluve staff completed a preliminary reach assessment of Minnehaha Creek between the downstream reach of the 325 Blake Road site and Meadowbrook Road, adjacent to the location of the planned Cedar Lake Trail connection project. The reach appeared vertically stable with some lateral erosion along the outside of meander bends, and infrastructure induced erosion as a result of hardened streambanks and stream crossings.

Due to the proximity of the proposed alternative trail alignments to the Creek, a structural and hydraulic analysis of bank treatment and stabilization alternatives will be necessary as a next step for the project to limit the risk of future erosion impacts to the proposed trail. Hydraulic modeling of this reach will be needed to identify the appropriate bank treatment type and any additional modifications necessary to avoid impacts to the floodplain and 100-year water surface elevation, if feasible.

Though we understand that due to funding limitations additional habitat and creek improvement projects will likely not be included in this phase, Inter-Fluve identified a "Future Opportunities Area" in which there are a number of projects that could be implemented to improve habitat availability, complexity, and stream function, as funding becomes available.

EXISTING CONDITIONS ASSESSMENT

A preliminary reach assessment was completed of the subject reach of the Minnehaha Creek in order to identify feasibility constraints associated with the proposed Cedar Trail connection and to identify stream restoration opportunities within the project area. The proposed trail project will connect the Cedar Lake Regional Trail from its crossing of the Minnehaha Creek parallel to the Southwest Light Rail Transit (SWLRT) bridge to Meadowbrook Road via a new trail segment on the south side of the creek extending underneath the series of bridges at the SWLRT crossing and along the creek bank and shoulder of Powell Road.

Inter-Fluve staff walked the reach starting from the downstream limit of the Blake Road development project to Meadowbrook Road on September 26, 2022. At the time of the assessment, discharge from the Grey's Bay Dam was 0 cubic feet per second (cfs.) There was some flow in the assessment reach, which was likely a result of stormwater discharge from recent rains.

Overall, the reach was found to be vertically stable with a pool-riffle morphology. In general, streambank erosion was limited to areas where infrastructure impacts were noted (as shown in Figure 1 below), and floodplain connectivity was minimal. A representative cross-section

measured for this reach had a 51-foot bankfull width, and 1-foot bankfull depth (Figure 1). The cross-section also showed an inset floodplain bench approximately 2 feet below an elevated terraced located between the Cedar Lake Regional Trail and the creek. The terrace was dominated by a buckthorn (*Rhamnus cathartica*) understory. This two-stage cross-section characteristic has previously been noted by Inter-Fluve throughout the Minnehaha Creek corridor and is understood to be a function of the regulated hydraulic regime of the Creek.

Riffle material throughout the reach was dominated by rounded gravels and cobbles. There was a deep pool at Station 20+00, which was un-wadable at the time of the survey. This pool provided a refuge for aquatic species in the otherwise mostly dewatered creek. A canoe/kayak dock in disrepair was located on the river left margin of the pool (Figure 2).

At Station 17+00, a water main pipe extended over the creek. Based on topography, the pipe was buried, but not below the floodplain/floodplain terrace, resulting in a lateral mound bisecting the floodplain (Figure 1). The utility crossing appeared undersized (at approximately 35-feet-wide) and constricts the channel based on bank erosion noted downstream of the crossing. Downstream of the utility crossing, a privately owned cinder block wall replaced the natural bank on river left (Figure 3).

Bank erosion was present on either side of the creek upstream of the Cedar Trail/SWLRT/BNSF crossing, and downstream of the crossing on river right (Figure 4). Downstream of the crossing, several floodplain bars were present and colonized with reed canary grass. Granite slabs and wood piles were located on the right bank and in the channel at the location of an assumed previous crossing. Immediately upstream of the Meadowbrook Road crossing, concrete slabs were found on the right bank

Large and small debris (e.g., bikes, pieces of construction debris, road signs, trash, etc.) was noted throughout the corridor.

IMPROVEMENT OPURTUNITIES

Inter-Fluve identified several creek improvement opportunities along this reach. These include improvements along the connection corridor that will be required for the Cedar Trail connection project to be implemented, as well as several improvements identified in a Future Opportunities Area that could be implemented to improve habitat availability and complexity, and stream function, if additional funding becomes available.

Creek Improvements Necessary for Cedar Trail Connection Project

Inter-Fluve noted bank erosion in the creek along the proposed trail connection corridor, specifically in the segment where the proposed trail alignments are nearest the creek immediately upstream and downstream of the Cedar Trail/SWLRT/BNSF bridge crossings. Due to the close proximity of the proposed connection-trail to the creek, bank stabilization will be necessary to prevent hydraulically-induced bank erosion impacting the trail. Two trail alignments were provided by Stantec (Figure 6). The bank stabilization treatment type will be a function of the proposed trail design and grades, and results of hydraulic modeling. Due to the close proximity of the trail and creek, there is the potential that the bank stabilization work may encroach on the

creek's channel, potentially necessitating bank shaping work on the opposite side of the creek (if feasible) to match existing regulatory flood elevations. It is anticipated that bank stabilization will be needed to support trail implementation both upstream and downstream of the Cedar Trail/SWLRT/BNSF crossing. Additional areas may be in need of bank stabilization and restoration depending on the proximity of the proposed trail to the creek and the desire to mediate existing stormwater outfalls.

Next steps for the design of this project include hydraulic modeling to assess the impact on the creek, the type of stabilization treatment needed, and potential impacts requiring treatment on adjacent areas.

A budgetary Engineers Opinion of Probable Construction Costs (EOPCC) is included in Table 1. The EOPCC includes an estimate for a bioengineering bank stabilization treatment that is assumed to be sufficient to support the project needs. However, additional design analysis and hydraulic modeling will be needed to determine if the assumed treatment will be appropriate for this creek segment. Additionally, hydraulic modeling will be necessary to review flood flow impacts resulting from the work and assess if any potential impacts can be mitigated through adjustment on the opposite bank. The EOPCC assumes a volume of earthwork needed for this purpose, but that volume is only a high-level estimate at this time. Additional design and modeling for the trail construction may determine that geotechnical or structural solutions are needed for the bank to support the trail which are not included in the EOPCC. Additional potential improvement opportunities including aquatic and riparian habitat improvements, resetting of the stormwater outlet riprap with a focus on the outlet shown in Figure 5, and invasive species removal are not included in the EOPCC. Proposed items mentioned in the Future Opportunities Area section (below) are also not included in the EOPCC.

Future Opportunities Area

Inter-Fluve identified the portion of the reach including the utility crossing and buckthorn dominated terrace as a "Future Opportunities Area" (Figure 6) with a number of projects that could be implemented as funding allows. Potential projects in this area include:

- Address undersized utility crossing to restore creek function and minimize creek impacts. This could include replacing the crossing with wider crossing (potentially with a bridge and trail connection to Edgebrook Dr.), or burring the utility line below the floodplain and creek. Also address impacts to bisected floodplain.
- ► Create backwater wetland in floodplain terrace to improve floodplain connection and backwater habitat availability adjacent to refuge pool. This could include buckthorn removal and revegetation with native species.
- ► Remove man-made debris (including canoe/kayak dock)
- ► Invasive species removal
- Meet with the landowner to discuss acceptability/feasibility of coordinating on a project to replace the cinderblock wall and restore creek bank and floodplain connection

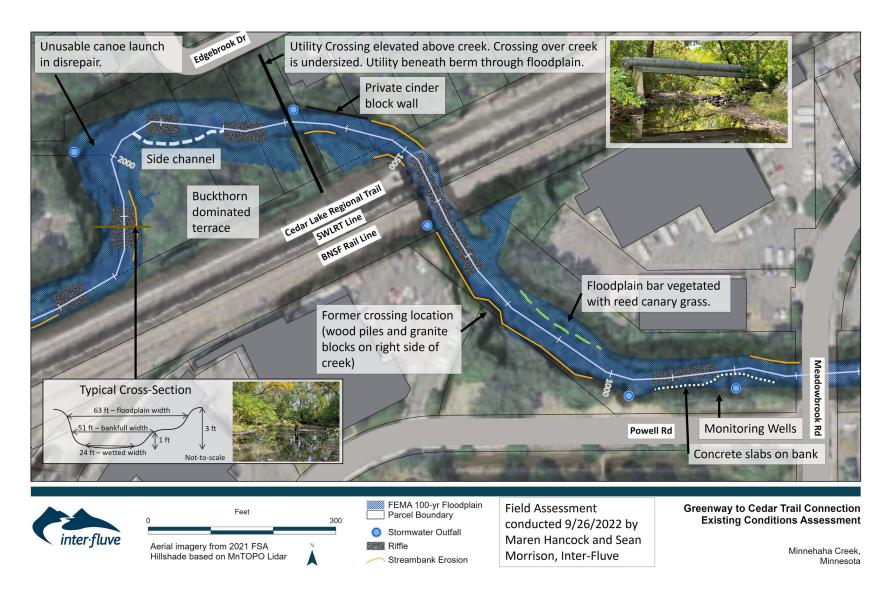


Figure 1: Existing conditions of the assessed reach.



Figure 2: Pool and unusable canoe/kayak dock.



Figure 3: Cinderblock wall downstream of utility crossing.



Figure 4: Bank erosion downstream of Cedar Lake Trail crossing.



Figure 5: Outfall along connection corridor.

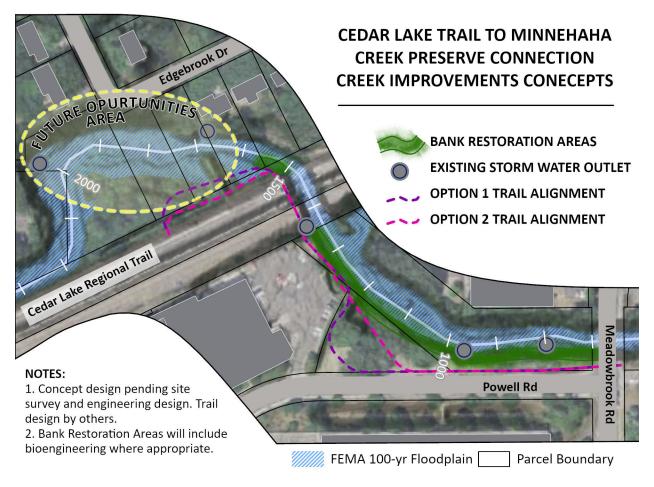


Figure 6: Concept design for bank stabilization along Connection corridor.

Table 1: EOPCC for Cedar Trail to Minnehaha Preserve bank stabilization.

Cedar Trail to Minnehaha Preserve Trail Connection - Bank Toe Stabilization Budgetary Engineer's Opinion of Probable Construction Cost December 2022

Ite m#	ltem	Unit	Quantity	Unit Cost	Sub Total	Notes
1	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	1	\$31,000	\$31,000	Assumes 15% of overall cost
2	DEWATERING & EROSION/SEDIMENT CONTROL	LUMP SUM	1	\$21,000	\$21,000	Assumes 10% of overall cost
3	STONE TOE	CY	440	\$180	\$79,200	Assumes subgrade excavation and filter gravel are incidental
4	FES LIFTS	FACE FT	1,500	\$50	\$75,000	Assumes three FES lift layers over stone toe
5	IMPORTED FES LIFT BACKFILL (Topsoil)	CY	210	\$30	\$6,300	
6	FLOODPLAIN BENCH CUT/EARTHWORK	СҮ	1,500	\$10	\$15,000	Assumes estimated volume for cut on opposite bank; 67% cut material reused onsite for fill
7	EXPORT CLEAN FILL	CY	500	\$20	\$10,000	Assumes 33% cut material exported, assumes clean fill
8	REVEGETATION AND RESTORATION	LUMP SUM	1	\$20,000	\$20,000	Assumes seeding and shrub planting in restored areas.

Rounded Subtotal		\$258,000
Contingency	Contingency 40%	
ESTIMATED TOTAL		\$361,000
AACE Class 4 Low Range (-30%)		\$253,000
AACE Class 4 High Range (+50%)		\$542,000
Engineering, Design, and Permitting		\$110,000

Additional Assumptions - (1) Stone toe and FES lift bank design will be used (no structural bank solutions, walls, reinforcement, etc.) (2) A permittable design is achievable through floodplain bench cutting on opposite bank to achieve no-rise conditions. (3) No resetting of stormwater outlet riprap is included. (4) Structural and civil work for bank stabilization and trail are separate items not included in this EOPCC.

MEMORANDUM



To: Gabe Sherman (Minnehaha Creek Watershed District)

From: Sean Morrison; Bri Patton, PE; Maren Hansell, PE (Inter-Fluve)

Date: July 10, 2023 Project: Minnehaha Preserve - Cedar Trail Connection

Re: REVISED Floodplain Fill Modeling Review

As scoped, the previous version of this memorandum dated June 20, 2023 documented HEC-RAS hydraulic modeling analysis completed without the recently obtained topographic survey points integrated into the existing conditions model cross-sections. Inter-Fluve updated the existing conditions model with the new survey points, and generally, similar findings and recommendations were concluded as documented in this revised memorandum.

Inter-Fluve completed a feasibility phase modeling effort to evaluate two trail alignment alternatives for the Cedar Trail connection, provided by Stantec, to connect the Minnehaha Preserve to the Cedar Lake Trail.

An existing conditions model was developed by updating the previously developed (2022) 1D HEC-RAS model that connects the reaches of the Minnehaha Creek from the 325 Blake Road project through The Preserve with additional topographic survey data collected by Stantec (collected May 18, 2023). The 2022 version of the model used a combination of bathymetric cross-section survey data collected by Inter-Fluve and LiDAR data for topography. The updated existing conditions model replaced LiDAR elevations in the overbank areas where topographic survey was collected by Stantec and updated the channel bed elevation beneath the LRT/Cedar Trail bridges, per the Stantec survey.

Proposed conditions models for each alignment (the 12 mile per hour (mph) trail and 16 mph trail) were created by modifying channel geometry per the proposed condition surfaces provided by Stantec on May 18, 2023. Both surfaces showed filling below the regulatory 100-year water surface elevation and would trigger the District's Floodplain Alteration Rule. Inter-Fluve completed a preliminary analysis to identify potential impacts resulting from the proposed alternatives and to identify potential solutions to mitigate such impacts. This analysis looked at compensatory storage needs and 100-year flood elevation impacts for both alternatives. This analysis was completed for preliminary feasibility purposes only and would need to be further evaluated through design and permitting efforts to determine detailed implications and design solutions.

Compensatory Storage Considerations

MCWD's Floodplain Alteration Rule requires projects to "preserve existing water storage capacity below the 100-year high water elevation of all waterbodies in the watershed" and more specifically to "not cause a net decrease in storage capacity below the projected 100-year high water elevation of a waterbody." Stantec has completed a floodplain fill volume analysis, which is documented in their memorandum for this project. It is recommended that compensatory storage be provided by increasing the capacity of an existing depression on river left floodplain downstream of the LRT/Cedar Lake Trail bridges and/or lowering the floodplain upstream of the existing utility crossing (Figure 1). It is recommended that grading work be designed such that backwater wetland or floodplain bench habitat be created.

Flood Elevation Considerations

Inter-Fluve ran the regulatory 100-year flood through the proposed conditions models for each alternative to review impacts to the 100-year flood elevation. For the 16-mph trail alignment, model results showed a 0.33-foot rise in the 100-year flood elevation between the LRT/Cedar Lake Trail bridge and the upstream utility crossing, and a 1.01-foot rise downstream of the LRT/Cedar Lake Trail bridge. For the 12-mph trail alignment, model results showed a 0.04-foot rise between the LRT/Cedar Lake Trail bridge and the upstream utility crossing, and a 0.33-foot rise downstream of the LRT/Cedar Lake Trail bridge.

A few iterations of channel geometry modifications were evaluated in the models to identify potential solutions for mitigating the rises. Due to the extent of the proposed fill upstream of the LRT/Cedar Lake Trail bridge associated with 16-mph alignment, eliminating the rise would require removal of the retaining wall and a permanent encroachment onto the private property to regrade the left bank, or the construction of a pier supported bike path. For the 12-mph alignment, preliminary modeling indicated that no increase to the 100-year flood elevation could be attained by cutting the left bank back opposite the proposed encroachment/fill area downstream of the LRT/Cedar Lake Trail bridge. This would shift the channel by to the northeast by approximately 8 feet for a length of approximately 90 feet (Figure 1). This alternative would include the removal of the existing floodplain and bank vegetation and the reconstruction of the bank. It would take several years for the vegetation to fully reestablish after construction completion. Access to this bank would also involve a wet crossing of the creek with heavy equipment working in the channel.

Several other alternatives, which would either remove or minimize the need for floodplain fill, include:

- Continue to refine trail alignment to minimize floodplain fill required for the project.
- Construction of a retaining wall downstream of the LRT/Cedar Lake Trail bridge for the 12-mph alternative; however, adding retaining walls in the creek corridor is not in-line with district's policy of a Balanced Urban Ecology.
- Construction of a pier-supported bike path for either alternative alignment (not modeled in this analysis.)
- Working with the adjacent landowner to modify the parking lot adjacent to the proposed trail
 alignment to reduce or eliminate encroachment on the floodplain and creek (not evaluated as in
 this analysis.)

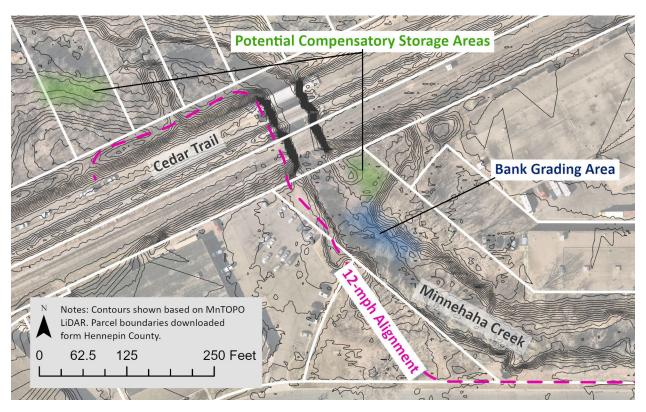


Figure 1: Schematic diagram showing potential compensatory storage and channel adjustment areas for 12-mph Cedar Trail alignment.

Resolution No. 24-102

Supporting Minnehaha Creek Watershed District's Greenway to Cedar Trail connection and streambank restoration project

Whereas, the Minnehaha Creek Watershed District (MCWD) and the City of St. Louis Park have enjoyed a sustained and strategic partnership to protect, restore and enhance Minnehaha Creek; and

Whereas, the MCWD and City of St. Louis Park's partnership has managed regional stormwater runoff, expanded and enhanced riparian greenspace, provided vital community connections, and facilitated economic development around the Minnehaha Creek Greenway; and

Whereas, the MCWD and the City of St. Louis Park are committed to continuing the Minnehaha Creek Greenway partnership through the integration of municipal and water resource planning; and

Whereas, the MCWD, in its 2017 Watershed Management Plan, has identified the Greenway to Cedar Trail Connection and Streambank Restoration (the Project) as a key bicycle and pedestrian connection from the Minnehaha Creek Preserve to the Cedar Lake LRT Regional Trail and future Greenline Extension light rail stations, and an opportunity to stabilize the stream channel and enhance the ecology of Minnehaha Creek in a historically manipulated stretch; and

Whereas, the City of St. Louis Park finds the Project to be consistent with its Comprehensive Plan goals and has identified this connection between the Minnehaha Creek Preserve and the Cedar Lake LRT Regional Trail as a priority trail connection in its Connect the Park implementation plan; and

Whereas, the proposed location of the Project includes certain real property owned by the City of St. Louis Park; and

Whereas, the MCWD and the City of St. Louis Park agree to cooperate on the construction of the project and share design and construction costs; and

Whereas, Hennepin County has awarded the MCWD a \$200,000 grant through the County's Southwest Community Works Program to fund a portion of the Project's trail construction; and

Whereas, the MCWD has included the Project in its 2025-2029 Capital Improvement Plan; and

Whereas, the MCWD contracted with Stantec Inc. to conduct a feasibility study, completed in May 2023, that demonstrated a viable trail alignment and streambank stabilization opportunities; and

Whereas, the MCWD needs the consent of the City of St. Louis Park to formally order the project, initiate project design, conduit public engagement and construct the project,

Now therefore be it resolved by the City Council of the City of St. Louis Park, Minnesota, that the city shares the vision for and supports the Greenway to Cedar Trail Connection and Streambank Restoration project as proposed in the 2023 feasibility study and authorizes the MCWD to access city-owned land within the project area to perform surveys and investigations for the purpose of project design;

Be it further resolved that, as city budget and funding allow, the city intends to contribute half the cost of the trail construction; to allocate funds through the 2025-2029 Capital Improvement Plan (CIP) for this purpose, following final approval of the 2025-2029 CIP; and to allow construction of the Project on the City-owned parcels identified in the feasibility study;

Be it finally resolved that the city intends to enter into the necessary project agreements with the MCWD upon final adoption of the 2025-2029 CIP; and that city staff are authorized to work with MCWD staff to develop such project agreements, easements, and other documents to memorialize final funding and maintenance obligations; and allow the MCWD to construct the project on the relevant city-owned parcels.

Reviewed for administration:	Adopted by the city council September 9, 2024:
Signed by: Eim Keller	Signed by: Nadia Moliamed
K im ्रस्ट्रमेख्यः,च्छंग्रेष्ट्र-manager	N ad ia ให้เข คาed, mayor
Attest:	
DocuSigned by: Mylin R Kunu	
Melissaদেশনedy, city clerk	



RESOLUTION

Resolution number: 24-054

Title: Ordering the Greenway to Cedar Trail Connection and Streambank Restoration Project

WHEREAS on March 27, 2014, the Board of Managers adopted a policy "In Pursuit of a Balanced Urban Ecology in

the Minnehaha Creek Watershed District" to guide the MCWD's planning and watershed management

activities, integrating its water resource implementation efforts with urban planning, through

innovation, partnership and a sustained geographic focus;

WHEREAS the MCWD has identified the area between West 36th Street and Meadowbrook Lake as a priority area

for capital improvements focused on stormwater management, greenspace expansion and increased

recreational access;

WHEREAS working with the Cities of St. Louis Park and Hopkins, and with other public and private partners, the

MCWD has implemented a series of initiatives to restore, enhance and connect Minnehaha Creek and its

associated riparian areas;

WHEREAS the MCWD 2018-27 Watershed Management Plan (WMP), at Table 3.12, identifies for capital project

implementation a connection between the Minnehaha Creek Greenway and the Cedar Regional trail and restoration of a degraded section of Minnehaha Creek through streambank stabilization and vegetative

enhancement;

WHEREAS the MCWD has been coordinating with the Southwest Light Rail Transit (SWLRT) Project Office with

respect to the integration of public transit, development and water resource management interests, including for the purpose of informing design as to a critical pedestrian crossing at Minnehaha Creek and

SWLRT that is part of the Minnehaha Creek Greenway conceptual plan;

WHEREAS on October 8, 2015, the Board of Managers authorized the MCWD to enter a Memorandum of

Understanding with Professional Instruments Company which documented mutual goals and established a cooperative framework within which the potential for a beneficial collaboration may be

explored;

WHEREAS in 2015/2016, Stantec Consulting Service Inc. (Stantec), previously Wenck Associates, Inc., completed

initial feasibility work to determine potential alignments for a trail connection between the Minnehaha Creek Preserve and the Cedar Lake LRT Regional Trail under the SWLRT, freight rail, and regional trail

bridges in St. Louis Park;

WHEREAS on August 11, 2022, the Board of Managers authorized a contract with Stantec and Inter-Fluve to

complete an updated feasibility study to reflect current conditions in the creek and rail corridors, model

the floodplain, and advance two potential trail alignments to assess constructability and land rights;

WHEREAS on June 22, 2023, the Board of Managers reviewed the results of the feasibility study, which

demonstrated a viable trail alignment that minimized impacts to private property and proposed a range

of options for streambank stabilization and ecological enhancements;

WHEREAS	St. Louis Park has identified this trail connection as a priority through its "Connect the Park" transportation planning initiative;
WHEREAS	in March 2023, the MCWD applied for Hennepin County TOD Program Grant funds for eligible elements of the 325 Blake Road Restoration and Redevelopment and the Greenway to Cedar Trail Connection and Streambank Restoration projects;
WHEREAS	on August 22, 2023, the Board of Hennepin County Commissioners passed Resolution 23-0310 authorizing the County Administrator to negotiate a grant agreement with the MCWD in the amount of \$200,000 for eligible elements of the trail connection project;
WHEREAS	on June 27, 2024, the Board of Managers authorized the District Administrator to execute the Southwest Community Works Program Grant Agreement for the Blake Road Station Area Cedar Trail Connection by the Minnehaha Creek Watershed District;
WHEREAS	on September 9, 2024, the St. Louis Park City Council adopted a resolution of support for the Greenway to Cedar Trail Connection and Streambank Restoration Project that grants the MCWD access to Cityowned parcels for the purposes of project design and signals its intention to allocate funds for half the trail costs through its 2025-2029 CIP;
WHEREAS	in accordance with Minnesota Statutes §103B.251, the MCWD held a duly noticed public hearing on ordering of the Greenway to Cedar Trail Connection and Streambank Restoration Project on September 26, 2024, at which time all interested parties had an opportunity to address the Board on the Greenway to Cedar Trail Connection and Streambank Restoration Project;
WHEREAS	the Board of Managers finds that the Greenway to Cedar Trail Connection and Streambank Restoration Project will be conducive to public health and promote the general welfare, and is in compliance with Minnesota Statutes §103B.205 to 103B.255 and the WMP adopted pursuant to §103B.231;
	FORE, BE IT RESOLVED that pursuant to Minnesota Statutes §103B.251 and the WMP, the Minnehaha hed District Board of Managers orders the Greenway to Cedar Trail Connection and Streambank roject.
	Imber 24-054 was moved by Manager, seconded by Manager Motion to plution ayes, nays,abstentions. Date: 9/26/24
	Date:
Secretary	