

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: July 6, 2021

Re: East Chaska Creek Restoration—Final Walk-Through

At the May 19, 2021, board meeting, Young Environmental and the LMRWD administrator provided an update on the final construction of the East Chaska Creek Restoration project (see attached May 13, 2021, memorandum). Since that time Young Environmental has worked with Barr Engineering Co. (Barr) staff to address the outstanding issues found during the May 6, 2021, site walk with the City of Chaska and to confirm that the modifications in the design at Crosstown Boulevard still meet the project's original permit requirements and will provide the same level of channel stability as originally designed. On May 28, 2021, Young Environmental staff returned to the site to confirm that the issues noted on the May 6 site walk have been addressed.

Site Walk Issues

On May 6, 2021, Young Environmental and the LMRWD administrator met with Barr, Blackstone Construction, and the City of Chaska on site to identify locations for plantings and additional restoration and to review the work to be completed at Crosstown Boulevard. Six areas of concern were documented (Figure 1) and are summarized below with updates and findings indicated in *italics* below from the May 28, 2021, final walk-through. Please note the naming of these areas has been kept consistent with the May 13, 2021, memorandum for reference.

- Areas 1 and 3: Dormant seed placed in March to stabilize the disturbed areas had a poor germination rate, and the frozen material placed on the banks produced a bumpy and rather messy appearance (Attachment 1, Areas 1 and 3 photos).

- *Blackstone has since regraded these areas, provided additional erosion control blankets, and reseeded.*
- Area 2: The right bank was noted to be too steep, especially near the city stormwater outfall and rootwad stream feature.
 - *The right bank at the stormwater outfall has been corrected by Blackstone (Attachment 1, Area 2 photo).*
- Areas 2 and 3: The footer long underneath the rootwads appeared to be placed too high.
 - *Barr's design engineer confirmed that the channel is in the process of adjusting to the new channel features, and although the footer longs were placed higher than intended, this will not affect the stream hydraulics or permitting requirements.*
- Areas 4 and 5: The two constructed cross-vane structures appeared to have caused bank erosion as a result of improper elevations of the header rocks.
 - *These locations have since been adjusted by Blackstone (Attachment 1, Areas 4 and 5 photos).*
- Area 6: The plunge pool and cross-vane at Crosstown Boulevard conflict with the existing high-pressure gas main and fiber-optic line.
 - *This area has been constructed by Blackstone following design modifications discussed in the following section of this memo.*
- General: The city provided stakes indicating where plants (red twig dogwood and swamp white oak) were to be placed.
 - *Blackstone planted red twig dogwoods and saplings on the downstream left and right banks per the city's staking.*

Additionally, during the May 28, 2021, site walk, it was noted that two additional areas had been corrected (Figure 1, Areas 7 and 8). Both areas are outside the original East Chaska Creek Restoration project and were discussed as being outside the project scope of work during the May 6, 2021, site walk.

- Area 7: Two storm outfalls were found to be hanging during the May 6 site walk. The locations were discussed, and it was noted the area was outside the project limits.
 - *Riprap has been placed under the stormwater outfalls, and additional seeding appears to have been placed.*
- Area 8: Left bank erosion had previously been stabilized by the city with concrete to protect the trail. This was discussed in the field, but it was observed that this area was not part of the East Chaska Creek project; Blackstone noted if additional material was left over, it could be placed in this area.
 - *Riprap has been placed along the left bank, filling in the undercut areas.*

Area 6: Crosstown Boulevard Work

At Crosstown Boulevard, the utility location surveys showed the location of a high-pressure gas main and fiber-optic line downstream from the bridge. Because of the utilities, Barr adjusted the proposed design to extend the riprap protection at the bridge apron downstream past the fiber-optic line, then to construct the plunge pool so no excavation would occur immediately on top of the gas main or fiber-optic line. The final cross-vane weir was eliminated from the proposed design after Barr reviewed the channel hydraulics with the modifications and determined this additional grade control structure was not necessary. Barr has also confirmed that although the design has been modified from the originally permitted conditions, the changes are minor and do not affect the original permit terms.

The design modification required a change order with Blackstone as a result of the additional materials and expanded construction extents in the amount of \$2,566.95.

Conclusions

Blackstone submitted a payment request on June 1, 2021, in the amount of \$17,094.44, bringing the project total to \$70,526.45. We recommend payment of the payment request and that the one-year warranty period commence, effective May 19, 2021. A retainage of \$4,526.32 will be held until final acceptance at the end of the one-year warranty period.

Attachments

Attachment 1—May 13, 2021, LMRWD Board Update Memorandum

Attachment 2—May 28, 2021, Site Photos and Locations

ATTACHMENT I
May 13, 2021 Construction Update Memo

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: May 13, 2021

Re: East Chaska Creek Restoration—Construction Update

At the December 13, 2019, board meeting, the Lower Minnesota River Watershed District (LMRWD) approved awarding the East Chaska Creek Restoration Project contract to Blackstone as the validated low bidder. Since contract award, Young Environmental and Barr Engineering Co. (Barr) staff have been working with the City of Chaska and Blackstone through final project permitting in 2020 and construction beginning in January 2021.

Blackstone was issued a Notice to Proceed on January 18, 2021, and construction began on January 26, 2021. Because of the extreme cold weather in February, the project was delayed for two weeks but was substantially completed by March 5, 2021. The cold weather conditions during construction meant that Blackstone was unable to properly compact the excavated material on the slopes. In addition, the stream restoration work at Crosstown Boulevard was put on hold until the ground thawed in the spring because a gas main in the construction area was determined to be in the frost layer.

Site Visit

On May 6, 2021, Young Environmental and the LMRWD administrator met with the City of Chaska, Barr, and Blackstone on site to identify locations for plantings and additional restoration and to review the work to be completed at Crosstown Boulevard.

During the site walk, it was apparent that the dormant seed placed in March to stabilize the disturbed areas had a poor germination rate and that the frozen material placed on the banks gave a bumpy and rather messy appearance (Attachment 1, Photos 1 and 3).

After discussion with the City and Blackstone, Barr directed Blackstone to return to the site to compact the lumpy areas and reseed if necessary. The City has provided stakes indicating where plants (red twig dogwood and swamp white oak) will be placed. Several banks were noted to be too steep, especially near the City stormwater outfall, and Blackstone said its crew would return and flatten the slope to prevent further erosion.

Several of the in-channel rock structures appeared to have caused bank erosion as a result of improper elevations of the header rocks and/or footer logs. These locations were noted by Barr and will be reviewed by the design engineer to determine what actions need to be taken (Attachment 1, Photos 2, 4, and 5).

At Crosstown Boulevard, the previous utility locate flag showing the location of the high-pressure gas main downstream from the bridge was still present (Attachment 1, Photo 6). Given the location of the main directly underneath the proposed plunge pool, it was agreed that the plunge pool would be shifted downstream, past the gas main, so that no excavation would occur immediately on top of the main. Sand, filter fabric, and salvaged riprap would be placed on top of the gas main location to extend the bridge apron elevation beyond the gas main, at which point the plunge pool and final boulder weir could be constructed.

Fiber-Optic Line

Following the site walk, Blackstone called in a new utility location survey and returned to the site on Friday May 7, 2021, to complete the majority of the finish grading, confirmed by the City of Chaska. The utility locate showed the presence of a fiber-optic line approximately five to ten feet downstream from the gas main. The City discussed adjusting the design further by shifting the plunge pool another ten feet, beyond the fiber-optic line. This alternative would increase the amount of riprap needed, but the additional amount needed will have to be determined based on the proposed solution.

Young Environmental met with Barr on May 12, 2021 to discuss the proposed field fit and whether altering the design would present any issues with the permits. Barr has developed a solution that continues to meet the permit obligations while also protecting the existing utilities (Attachment 2). Further coordination is expected to continue this week, and staff will be prepared to provide an update to the managers as needed.

Attachments

Attachment 1—May 6, 2021, Site Photos and Locations

Attachment 2—Crosstown Boulevard Design Adjustments



Figure 1: East Creek Restoration May 6, 2021 Photo Locations



LEGEND

- | | |
|---------------------------|---------------------|
| Construction Limits | City Trails |
| In-Stream Features | MnDNR 2-ft Contours |
| Rip Rap | City Parcels |
| Rock Vane | Public Waters |
| Rock Weir | LMRWD Boundary |
| Rootwad | |

LMRWD Watershed Map



Photo Location #1: Right bank spoils pile and poor vegetation establishment before final grading.



Photo Location #2: Right bank rootwad and vertical bank before final grading.



Photo Location #3: Left bank spoil pile and poor vegetation establishment before final grading.



Photo Location #4: Example of right bank erosion at cross vane.



Photo Location #5: Bank erosion at cross vane.

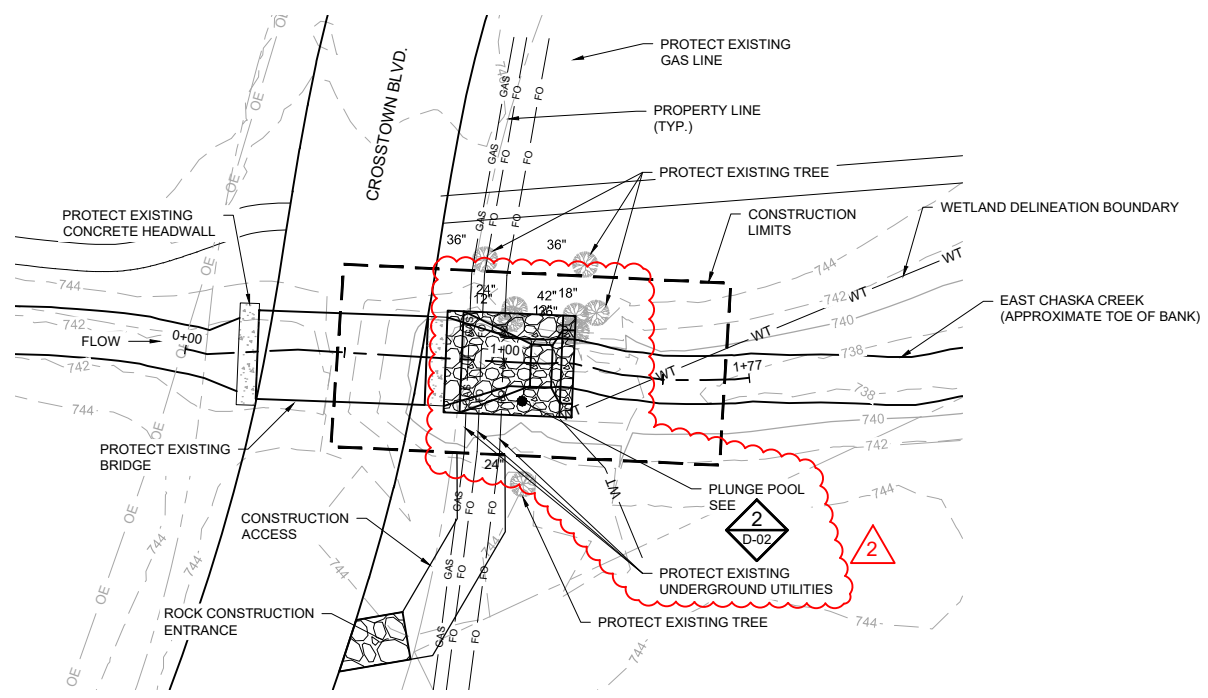


Photo Location #6: View downstream from Crosstown Boulevard bridge and approximate locations of the gas and fiber-optic utilities.

Approximate location of fiber-optic line

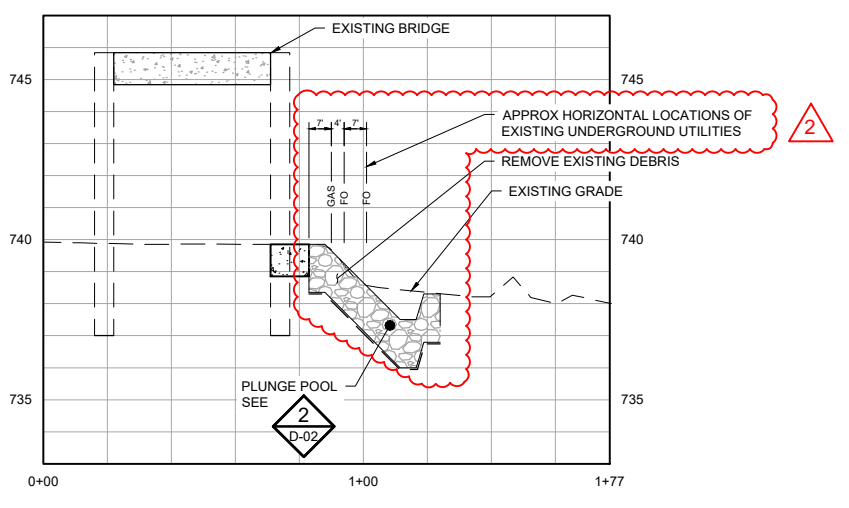
Approximate location of gas line





SYMBOL AND PATTERN LEGEND	
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	CONSTRUCTION LIMITS
	EXISTING PROPERTY LINE
	EXISTING OVERHEAD ELECTRIC
	EXISTING STORM SEWER
	EXISTING GAS LINE
	WETLAND DELINEATION BOUNDARY
	RIPRAP

1 PLAN: STREAM RESTORATION (AREA 1)
 SCALE IN FEET: 0, 30, 60



2 PROFILE: STREAM RESTORATION (AREA 1)
 HORIZONTAL SCALE IN FEET: 0, 30, 60
 VERTICAL SCALE IN FEET: 0, 3, 6

- NOTES:**
- CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
 - ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH THE CITY AND/OR OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
 - CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPs PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
 - ALL GROUND DISTURBANCE GENERATED FROM GRADING ACTIVITIES SHALL BE STABILIZED AND RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL, SEED W/COVER CROP AND EROSION CONTROL BLANKET OR STRAW MULCH. THE TOPSOIL USED FOR RESTORATION MAY BE STOCKPILED FROM GRADING AREAS.
 - CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE. CONSTRUCTION LIMITS SHALL BE WITHIN THE CHANNEL BANKS. CONTRACTOR TO COORDINATE WITH ENGINEER AND CITY OF CHASKA TO STAKE CONSTRUCTION LIMITS.
 - CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
 - COMPACTED SOIL MUST BE DECOMPACTED TO A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF SOIL.
 - STREAM STABILIZATION FEATURES WILL BE PLACED SUCH THAT THE CONVEYANCE CAPACITY OF THE CHANNEL IS MAINTAINED, AS DIRECTED BY THE ENGINEER.

ISSUED FOR CONSTRUCTION

CADD USER: Patrick E. Brockkamp FILE: M:\DESIGN\2310\028\028_C-02.DWG PLOT SCALE: 1:2 PLOT DATE: 5/11/2021 6:02 PM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		CLIENT BID: 07/08/19 CONSTRUCTION: 10/23/19, 03/02/20, 05/11/21		BARR Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com		Scale: AS SHOWN Date: 05/11/2021 Drawn: PEB Checked: JJW2 Designed: BARR Approved: JOH		EAST CHASKA CREEK RESTORATION CHASKA, MINNESOTA PLAN AND PROFILE, REMOVALS AREA 1		BARR PROJECT No. 23/10-1028.02 CLIENT PROJECT No. - DWG. No. C-02 REV. No. 2					
NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION	RELEASED TO/FOR	A	B	C	0	1	2	3	LOWER MINNESOTA RIVER WATERSHED DISTRICT CHASKA, MINNESOTA	
2	PEB	JW2	JOH	05/11/2021	PLUNGE POOL REVISIONS										
1	EPF	JW2	JOH	03/02/2020	ISSUED FOR CONSTRUCTION										
0	EPF	AKH	JDW	10/23/2019	ISSUED FOR BID										
PRINTED NAME: JOHN P. HANSON		SIGNATURE:		DATE: 05/11/2021 LICENSE # 24678		RELEASED TO/FOR		DATE RELEASED							

ATTACHMENT 2
May 28, 2021 Site Photos and Locations



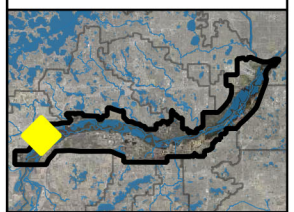
Figure I: East Creek Restoration May 28, 2021 Photo Locations



LEGEND

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|---------------------------|---------------------|
| Construction Limits | City Trails |
| In-Stream Features | MnDNR 2-ft Contours |
| Rip Rap | City Parcels |
| Rock Vane | LMRWD Streams |
| Rock Weir | LMRWD Boundary |
| Rootwad | |

LMRWD Watershed Map



Final Walk Through—Area I



May 6, 2021—Looking upstream at right bank and spoil pile.



May 28, 2021—Looking upstream at additional grading and erosion control measures placed on right bank.

Final Walk Through—Area I



May 6, 2021—Right bank spoils pile and poor vegetation establishment before final grading.



May 28, 2021—Spoils pile removed and erosion control blanket and seeding provided on right bank

Final Walk Through—Area I



May 6, 2021—Looking downstream at right bank spoils pile and poor vegetation establishment before final grading.



May 28, 2021—Spoils pile removed and erosion control blanket and seeding provided on right bank

Final Walk Through—Area 2



May 6, 2021—Right bank rootwad and vertical bank.



May 28, 2021—Right bank re-graded and additional stabilization/erosion control measures installed. Trees planted on upper right bank.

Final Walk Through—Area 3



May 6, 2021—Left bank spoil pile and poor vegetation establishment before final grading.



May 28, 2021—Left and right banks re-graded and additional stabilization/erosion control measures installed. Trees planted on upper right bank.

Final Walk Through—Area 4



May 6, 2021—Example of right bank erosion at cross vane and incorrect placement of upstream cross vane boulders creating a stagnant pool upstream.



May 28, 2021—Additional riprap placed on right bank; upstream cross vane boulders lowered allowing water to flow more freely.

Final Walk Through—Area 5



May 6, 2021—Bank erosion at cross vane and incorrect placement of upstream cross vane boulders, creating a stagnant pool upstream.



May 28, 2021—Additional riprap placed on both banks, as well as erosion control blanket; upstream cross vane boulders lowered allowing water to flow more freely.

Final Walk Through—Area 6



May 7, 2021—View downstream from Crosstown Boulevard bridge with utility locations (yellow = gas, orange = fiber optic), prior to construction.



May 28, 2021—Final constructed riprap flume and plunge pool; fallen trees removed from channel.

Final Walk Through—Photo Location 7



May 6, 2021—Hanging pipe outfalls outside the project limits.

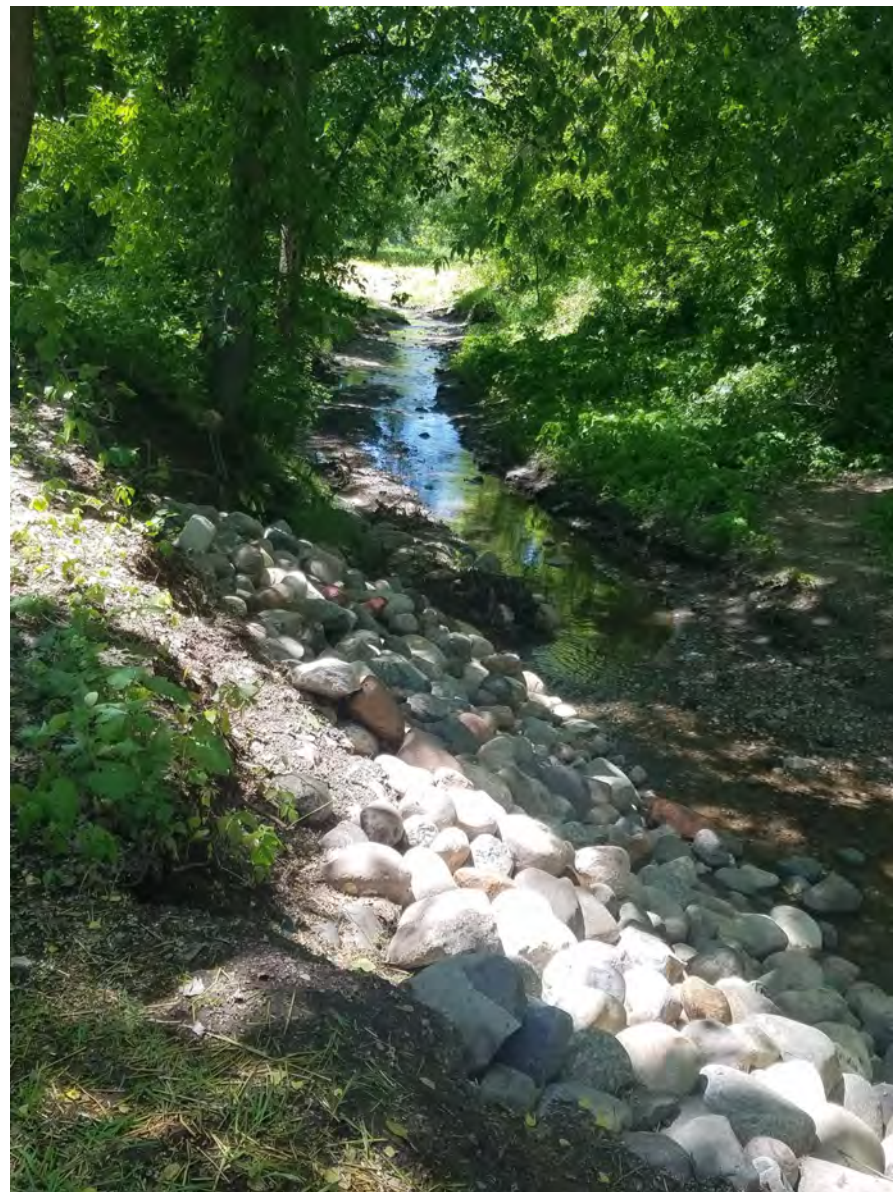


May 28, 2021—Additional riprap placed.

Final Walk Through—Area 8



May 6, 2021—Existing left bank erosion; while located within the project limits, this area was not part of the East Chaska Creek Stabilization Project.



May 28, 2021—Additional riprap placed.