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Crosslake WWTF Improvement Project

Date: April 4, 2018
To: City Council
From: Mike Rardin, PE MPR
Cc: Ted Strand - Public Works Director
Subject: Monthly Project Update

Project Description

The Project can generally be described as follows:

1. Pretreatment improvements including replacing the existing mechanical fine screen, addition of a self-priming grit pump, adding a new blower for the aerated grit removal system, and adding a new handrail and grating system.
2. Construct a new 82,000 gallon equalization basin.
3. Construct a new rapid mix manhole with ferric chloride addition.
4. Construct a new control structure to feed the final clarifiers.
5. Construct a new effluent metering manhole.
6. Miscellaneous electric actuator valve replacements.
7. Re-routing the existing WAS line into the biosolids storage tanks.
8. Furnish and install new blowers for the existing aerated biosolids storage tank
9. Furnish and install a new backwash blower
10. Construct a 30,000 gallon backwash supply water storage tank.

Work Progress - Fifth Project Update

On September 15, 2017 the City of Crosslake awarded the 2017 Waste Water Treatment Plant Improvement Project to Eagle Construction Company, Inc. of Little Falls, MN for the amount of $2,227,000.00. The contractor began to mobilize equipment and materials to the site on October 5 in order to prepare for the construction of the treatment plant improvements.

October thru February - the contractor completed the concrete work for the EQ Basin and Water Storage Tanks and installed some process piping and several blowers. Specific progress to date follows:

1. Construct a new 82,000 gallon equalization basin - complete except for final pumps and controls
2. Furnish and install new blowers for the existing aerated biosolids storage tank - in progress
3. Furnish and install a new backwash blower - in progress
4. Construct a 30,000 gallon backwash supply water storage tank - complete except for final pumps and controls

March - during March the contractor sand blasted the interior of the EQ Basin and then coated it with a black epoxy. This is done to protect the reinforced concrete from the harsh environments of the waste water treatment process. During the rest of the month the contractor continued installing valves and process pipe as it was delivered onsite. Multiple blowers were also set in place alongside the EQ Basin and sludge storage tank. These blowers supply oxygen, aid in flocculation, and keep bacteria suspended in the waste water process.

During early March the contractor pushed to get the EQ Basin operational in time for the community's St. Patrick Day celebration. Temporary pumps were installed in the Basin by city forces in order to operate the tank during that time. Permanent pumps will be installed by the contractor when they arrive later this spring. No concerns were noted during EQ Basin operations.

Contract changes are summarized in the "Costs" section below.

Project Schedule
The contractor's proposed schedule (**attached - Project Schedule - 02.02.18**), has not changed the past several months and overall construction still is estimated to take about forty (40) weeks - with a projected substantial completion date of August 31, 2018. Based on the contractor's proposed schedule, the following is a brief summary of future construction activities:

April - Filter Room valve replacements, Pre-Treatment Building piping modifications, Mechanical Fine Screen installation, blower and air piping, 6" water main from Water Storage Tank to loadout, and water main from Water Storage Tank to clarifier, and 4" water main from well to Water Storage Tank.
May - Water Storage Tank pump installation and control structure concrete and piping.
June - Rapid Mix Manhole and piping construction, Meter Manhole and piping construction, and Sludge Storage Tank piping and modifications.
July - blower and air piping, Sludge Storage Tank piping and modifications.
August - Site Grading/ Fencing/ Restoration and punchlist items.

Scheduling of the SCADA and control system and associated electrical work still remains undetermined due to equipment procurement difficulties. Equipment has been designed and ordered, but there is a 10 to 20 week window for delivery due to nationwide demand for this type of equipment. This equipment is expected to be delivered from late April to early June.

The contractor generally appears to be on the schedule they proposed for this project. No schedule concerns are noted at this time.

Completion Dates
The contract calls for substantial completion (defined as operation of all new structures and equipment with the ability to treat wastewater as intended) by August 31, 2018.

Costs
Construction costs to date for the waste water portions of the project have increased approximately $12,413.30 due to the following:

Item	Cost
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab	$ 424.00
2 - Field Order #2:	
A - RAS Piping Relocation to EQ Basin	$ 11,923.13
B - Remove and Replace Three (3) Four Inch Plug Valves	$ 2,464.93
C - Relocate 6" Oxidation Ditch Drain Line	$ (4,221.27)
3 - Field Order #3 - Pipe Insulation (EQ Basin to Oxidation Ditch)	$ 1,822.51
4 - Relocate 6" RW Piping to South Oxidation Ditch	TBD
5 - Pipe Insulation (extra as needed)	TBD

The following information is provided for the items identified above:

1. During construction review of the Water Storage Tank plans, additional rebars were needed for the base slab - cost determined to be $424.00.

2.A Staff found the existing 6" RW piping to be improperly installed and full of solids. As a result, it was decided the existing RAS piping should be relocated / extended to the EQ Basin to avoid future use of this piping - cost estimated at $11,923.13.

2.B RAS pump inlet isolation valves (3) have been identified by staff as failing. These can be replaced as a part of the project - cost determined to be $2,464.93.

2.C The oxidation ditch drains are being relocated to a location which avoids a building conflict - contractor has offered a credit (deduct) of $4,221.27 for this change.

3. EQ Basin and Oxidation Ditch pipe connections will result in less than 7-ft of bury depth. To prevent freezing, 4-inch thick insulation 4-ft wide is to be placed over these pipes where there is less than 7-ft of cover.

4. The new 12" EQ basin pipe appears to conflict with the existing 6" RW pipe to the south oxidation ditch. No records from the original construction plan were found during design or by City staff that show the RW pipe elevation. The 6" RW pipe will be raised / reinstalled when it is encountered - cost to be determined at that time.

5. Some existing tank and pipe connections will result in less than 7-ft of bury depth. To prevent freezing, 4-inch thick insulation 4-ft wide is to be placed over pipe locations with less than 7-ft of cover - costs to be determined where situation encountered.

Field Orders #1 thru #3 changes have been reviewed by staff and City Council and found to be acceptable. These changes have been authorized by BMI and have been incorporated into pay requests as appropriate. Piping changes and additional insulation costs, listed in the table above, remain to be determined.

A construction allowance of $75,000 to pay for possible contract changes was incorporated into the construction contract for this project. So far, $12,413.30 has been charged towards that allowance.

Well construction has been completed and final costs are $67,940, which is $455 less than contracted for.

Engineering services for the project have been continuing as agreed to according to the existing "Not to Exceed" contract. No cost changes are anticipated at this time.

Total project costs to date and estimated final costs can be summarized as follows:

Total Estimated Project Cost	**Original Cost**	**Changes**	**Costs to Date**	**Estimated Final Costs**
WWTF Construction	$ 2,152,000	$ 12,413	$831,839	$ 2,164,413
Well Construction	$ 68,395	$ (455.00)	$ 67,940	$ 67,940
Engineering	$ 198,400	$ (514.00)	$ 185,553	$ 197,886
Totals	**$ 2,418,795**	**$ 11,444**	**$1,085,332**	**$ 2,430,239**
Other City Costs (pre 2018)			**$188,016**	$**2,618,255**

Please see project cost summary (**attached - Project Cost Summary - 04.04.18**) for project cost details.

Attachments

1. Project Schedule - 02.02.18
2. Project Cost Summary - 04.04.18

EAGLE CONSTRUCTION COMPANY INC.

Schedule

Project Name: **Crosslake WWTF Improvements**	Project No:	Page 1 of 1
Proposed Start:	Prepared by: **Eagle Construction**	
Completion: **August 30, 2018**	Date: November 21, 2017	Revised: 2/2/18

		2017																					
		SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				208					
		JANUARY				FEBRUARY				MARCH				APRIL				MAY				JUNE	
No.	Work Item	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	Concrete EQ Basin																						
	EQ Tank Coatings																						
	Coarse Bubbling System (EQ Basin)																						
	Blower EQ Basin																						
	EQ Basin Pump Installation/ Piping																						
	EQ Basin Pump Start-up																						
	Water Storage Tank Concrete																						
	Existing Filter/ Pump Room Valve Replacement																						
	Pre-Treatment Blg Piping Modicfications																						
	Mech. Fine Screen Installation																						
	Pre-Treatment Bldg Stairs, Railings, Grating																						
	Blower & Air Piping																						
	6" WM Water Storage to Loadout																						
	WM; Water Storage to Clarifier																						
	4" WM; Well to water Storage																						
	Water Storage Pump Installation																						
	Control Structure Concrete / Piping																						
	Rapid Mix Manhole & Piping																						
	Meter Manhole & Piping																						
	Sludge StorageTank Piping & Modifications																						
	Site Grading/ Fencing/ Restoration																						
	Punchlist																						
	Owner Training/ Start-up																						
	Substantial Completion																						

*** Disclaimer: Construction schedule is for informational purposes only subject to alterations by contract amendment. Contractural dates are as specified in the Contract Agreement. Interim activities and their durations are an approximation and not contractural.

City of Crosslake
Waste Water Treatment Facility Project
BMI Project # - M25.113425

Project Cost Summary
April 4, 2018

Item	Contract Amounts	Changes	Estimated Final Amounts
Eagle - Construction Costs			
Construction	$ 2,152,000.00		$ 2,152,000.00
Allowance	$ 75,000.00		
Contract Changes			
1 - Field Order #1 - Add Rebar: Water Storage Tank Base Slab		$ 424.00	$ 424.00
2 - Field Order #2:			
BMI Proposal Request #1 - RAS Piping Relocation to EQ Basin		$ 11,923.13	$ 11,923.13
BMI Proposal Request #2 - Remove and Replace Three (3) Four Inch Plug Valves		$ 2,464.93	$ 2,464.93
Eagle Proposal Request #1 - Relocate 6" Oxidation Ditch Drain Line		$ (4,221.27)	$ (4,221.27)
3 - Field Order #3 - Pipe Insulation (Eq Basin to Oxidation Ditch)		$ 1,822.51	$ 1,822.51
4 - Relocate 6" RW Piping to South Oxidation Ditch		TBD	TBD
5 - Pipe Insulation (additional - as needed)		TBD	TBD
Totals	**$ 2,227,000.00**	**$ 12,413.30**	**$ 2,164,413.30**
Pay Request # / Date	**#7 - 03/29/18**		
Eagle - Work Completed to Date	$ 831,838.80		
Eagle - Paid to Date	$ 714,058.48		
Eagle - Retainage	$ 41,591.94		
Eagle - Pay Request	**$ 76,188.38**		

Item	Contract Amounts	Changes	Final Amounts
Blue Water Wells - Construction Costs			
Construction	$ 68,395.00	$ -	$ 68,395.00
Contract Changes			
1 - Test Pump		$ (2,000.00)	$ (2,000.00)
2 - Water Analysis		$ (1,750.00)	$ (1,750.00)
3 - Casing		$ (1,080.00)	$ (1,080.00)
4 - Open Hole		$ (1,125.00)	$ (1,125.00)
5 - Increase Pump and Casing Sizes (to 500 gpm capacity)		$ 5,500.00	$ 5,500.00
Totals	**$ 68,395.00**	**$ (455.00)**	**$ 67,940.00**
Pay Request # / Date	**#1 (Final) - 9/18/17**		**$ 67,940.00**

Item	Contract Amount	Changes	Cost to Date	Estimated Final Amounts
BMI - Design and Construction Services Costs				
Task 1 - Site Work Design	$ 8,400.00	$ (9.00)	$ 8,391.00	$ 8,391.00
Task 2 - Waste Water Facility Design	$ 82,000.00	$ -	$ 82,000.00	$ 82,000.00
Task 3 - Bidding Services	$ 8,000.00	$ (505.00)	$ 7,495.00	$ 7,495.00
Task 4 - Water Supply Well and Storage Tank Design (Alternate)	$ 30,000.00	$ -	$ 30,000.00	$ 30,000.00
Task 5 - Construction Services	$ 70,000.00	$ -	$ 57,666.73	$ 70,000.00
Totals	**$ 198,400.00**	**$ (514.00)**	**$ 185,552.73**	**$ 197,886.00**

Total Estimated Project Cost	Original Cost	Changes	Costs to Date	Estimated Final Amounts
WWTF Construction	$ 2,152,000.00	$ 12,413.30	$ 831,838.80	$ 2,164,413.30
Well Construction	$ 68,395.00	$ (455.00)	$ 67,940.00	$ 67,940.00
Engineering	$ 198,400.00	$ (514.00)	$ 185,552.73	$ 197,886.00
Totals	$ 2,418,795.00	$ 11,444.30	**$ 1,085,331.53**	**$ 2,430,239.30**

Other Related City Costs:			Costs to Date	Estimated Final Amounts
City costs prior to 2016 - WIP at 12/31/2016			**$ 142,416.61**	**$ 142,416.61**
Other 2017 City Costs - USA Bluebook, Fiber Upgrades, Elite Fence and Deck, Etc			**$ 45,599.90**	**$ 45,599.90**
Totals			**$ 188,016.51**	**$ 188,016.51**
		TOTAL CITY COSTS	**$ 1,273,348.04**	**$ 2,618,255.81**