## The Tunnel Water Company P.O. Box 2017 Fort Collins, CO 80522-2017

February 6, 2020

Rachel Pittinger, P.E. Colorado Water Conservation Board 1375 Sherman Street, Rm. 718 Denver, CO 80203

## Dear Rachel:

As you know, the Tunnel Water Company ("TWC") is proceeding with the West Half Tunnel Rehabilitation Project. In late December, 2019, the contractor, Harrison Western ("HW") completed an assessment of the remaining work needed for completion of the project. On January 6, 2020, we received a letter, attached, from HW with an updated cost, scope and schedule for the project. The updated costs are significantly higher than originally contemplated, and the construction schedule will now span two seasons instead of just one as originally contemplated.

The reasons for the revised costs and schedule are set forth in the January 6, 2020 letter. In short, HW is proposing significantly more robust support systems in the more degraded areas of the tunnel based on experience in the tunnel to date. This is depicted in the updated plans included with HW's letter.

The Board of Directors of the TWC has approved an amendment to the existing contract with HW for the completion of the project with the updated cost, scope and schedule. Attached is the breakdown of the updated costs associated with the project, including costs associated with the additional time for Lithos Engineering's supervisory role in the project for the additional construction season. The Board of Directors has also approved a second request for an amendment to the existing loan with Colorado Water Conservation Board as follows, coinciding the attached estimate of the total cost of the project:

Original Loan Amount:	\$9,090,000.00
First Amendment:	\$2,500,000.00
Second Amendment:	\$5,490,000.00
Total:	\$17,080,000.00

Accordingly, I am requesting on behalf of the Tunnel Water Company, an amendment to our loan approval to reflect an increase in the amount to be borrowed from the Colorado Water Conservation Board of \$5,490,000.

ull ful Sincerely,

Donald E. Frick General Manager

	Con	tract Fee w	vith Request	ed Exter	sio	n			
	Laram	ie Poudre Tu	innel Rehabilit	ation (Wes	st Ha	alf)			
Item No.	Description	Quantity	Adjustment	Unit	l	Jnit Cost	Original Item Tota	I	1/6/2020 Estimate
	General Conditions								
1.1	Mobilization/Demobilization	1		LS	\$	364,000.00	\$ 364,000.0	0	\$ 123,760.00
1.2	Re-mobilization (Annual, As-Required)	1		LS			\$-	3	\$ 350,000.00
1.3	Prepare Portal Access and Staging	1		LS	\$	214,000.00	\$ 214,000.0	0	
1 4	Engineering Field Office Improvements, Lodging,	1		LS	\$	12,100.00	\$ 12,100.0	0 5	\$ 1,815.00
1.4		1		IS	\$	11 100 00	\$ 11 100 (	0 5	\$ 11 100 00
1.5		1		LS	\$	39.800.00	PAID	_	,,
1.0	Construction Water Supply	1		LS	÷ \$	161.000.00	\$ 161.000.0	0 5	\$ 80.500.00
1.7	County Road Right of Way Access and Proparation	1		LS	\$	79.500.00	\$ 79.500.0	0	
1.0	Show Removal/Handling	5		MONTHLY	\$	82,400.00	\$ 412,000.0	0	\$ 824,000.00
1.0	GENERAL					,	\$ 1 253 700 0	0	\$ 1 391 175 00
							¢ 1,200,700.0		¢ 1,001,110.00
2.4		1							
<b>2.1</b> 21 A	Invert Preparation	230		CY	\$	870.00	\$ 200,100 (	0	566 370 00
2.1.A		1			\$	334 000 00	\$ 334,000 (	0 9	\$ 127 400 00
2.1.D 2.1.C	Kall	700		CY	\$	460.00	\$ 322,000 (	0 5	\$ 316 480 00
2.1.0	De Mining and Bubble Gleanup				Ŧ		•,•••	- I	,
2.2	Re-Mining and Rubble Removal	602		LF	\$	550.00	\$ 330.825.0	0	\$ 117.150.00
2.2.A	Existing Support and Overbreak Removal - Timber (11 Zones)				Ť		• • • • • • • • • • • • • • • • • • • •		,
2.2.B	Existing Support and Overbreak Removal - Concrete (11 Zones)	309		LF	\$	1,500.00	\$ 463,350.0	0 9	\$ 99,000.00
2.2.C	Existing Support and Overbreak Removal - Steel (7 Zones)	650		LF	\$	1,650.00	\$ 1,072,005.0	0 5	\$ 998,250.00
2.2.D	Scaling	1		LS	\$	24,000.00	\$ 24,000.0	0 5	\$ 12,000.00
2.2.E	Probe Holes	180		EACH	\$	1,200.00	\$ 216,000.0	0	\$ 616,800.00
2.2.F	Probe Hole Grouting (EXCLUDED FROM TOTAL)	0		CF	\$	63.00	\$-		\$ 1,382,661.00
2.3	Install Support - Class A (1,335 Linear Feet)								
2.3.A	Class A Spot Bolts Installed (Resin)	280		EACH	\$	281.59	\$ 78,845.2	0	\$ 1,703,520.00
2.3.B	Class A Spot Bolts Materials	280		EACH	\$	54.41	\$ 15,234.8	0	
2.4	Install Support - Class B (2,870 Linear Feet)		•						
2.4.A	Class B Pattern Bolts Installed (Resin)	2,009		EACH	\$	281.59	\$ 565,714.3	1	
2.4.B	Class B Pattern Bolts Materials	2,009		EACH	\$	54.41	\$ 109,309.6	9	
2.5	Install Support - Class C (780 Linear Feet)								
2.5.A	Class C Pattern Bolts Installed (Resin)	702		EACH	\$	281.59	\$ 197,676.1	8	
2.5.B	Class C Pattern Bolts Materials	702		EACH	\$	54.41	\$ 38,195.8	2	
2.5.C	Shotcrete Placed (2 IN Thick)	1,732		SQ. YD.	\$	150.00	\$ 259,800.0	0	\$ 292,200.00
2.6	Install Support - Class D (560 Linear Feet)								
2.6.A	Class D Pattern Bolts Installed (Hollow Bar)	1,400		EACH	\$	669.00	\$ 936,600.0	0	
2.6.B	Hollow Bar Grouting	1,400		CF	\$	63.00	\$ 88,200.0	0	
2.6.C	Shotcrete Placed (6 IN Thick)	1,243		SQ. YD.	\$	291.00	\$ 361,713.0	0	\$ 167,907.00
2.7	Install Support - Class E (400 Linear Feet)								
2.7.A	Class E Pattern Bolts Installed (grouted)	550		EACH	\$	669.00	\$ 367,950.0	0	
2.7.B	Hollow Bar Grouting	550		CF	\$	63.00	\$ 34,650.0	0	
2.7.C	Shotcrete Placed (6 IN Thick)	888		SQ. YD.	\$	291.00	\$ 258,408.0	0	
2.8	Stabilization of Upper Adit	1		LS	\$	42,600.00	\$ 42,600.0	0	
	TUNNEL RE	HABILITATION	TOTAL				\$ 6,317,177.0	0	\$ 6,399,738.00
	Harrison Weste	rn Contract	Work Total				\$ 7.570.877.0	0	\$ 7,790,913,00
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CO	CHANGE ORDERS					
CO-1A	Probe Holes	162	EACH	\$ 1,200.00	\$ 194,400.00	
CO-1B	Probe Hole Reset	180	EACH	\$ 1,200.00	\$ 216,000.00	
CO-2A	Probe Hole Grouting	3,480	CF	\$ 63.00	\$ 219,240.00	
CO-2B	Probe Hole Grouting Reset	540	CF	\$ 63.00	\$ 34,020.00	
CO-3	Concrete Transition T&E (Steel sets)	1	LS	\$ 579,257.14	\$ 579,257.14	
REQUESTS	SETS				\$ -	\$ 3,066,000.00
	EXCAVATE CONCRETE INVERT				\$ -	\$ 366,160.00

CHANGE ORDER REQUESTS TOTAL	\$	1,242,917.14	\$ 3,432,160.00
	,		

HWCC Invoiced to Date		\$ 4,624,615.44
Lithos Construction Management Fee	\$ 729,847.00	\$ 1,230,822.00

	Total Project Budget	\$ 9,543,641.14	\$ 17,078,510.44



January 6, 2020

Robin Dornfest PE & Ryan Marsters, PE, PG Lithos Engineering 1360 S. Wadsworth Blvd., Suite 114 Lakewood, Colorado 80232 O 720.616.3277 C 303.263.7419

Subject: Laramie Poudre Tunnel Rehab Project - Memo-003 - Projected Cost to Complete

Dear Mr. Dornfest & Mr. Marsters,

Harrison Western is currently engaged in updating the cost to complete the Laramie Poudre Tunnel Rehab Project. With the assistance of your field personnel, the tunnel ground support classifications have been updated to reflect the more fully understood physical and ground conditions of the tunnel including several key elements. Those include:

- 1. Updating the ground support classifications and support types in areas of the tunnel based on observable jointing patterns coupled with experience in the approximately 1670 linear feet of tunnel completed to date,
- 2. Updating ground classifications of areas of the tunnel which are not observable due to existing support features but based on experience to date and limited investigation performed over the past two weeks through additional probe holes and use of a bore-scope camera, and
- 3. Updating the estimate to include additional support methods based on experience to date.

These updated classifications take into account safety, design life criteria, and additional methodologies thus estimated item quantities, costs and durations have been updated herein.

The attached spreadsheets contain the updated classifications as jointly discussed in the field on a station by station basis. Those updated support classifications have then been applied to the current unit pricing associated with the existing contract and invoicing to date. Further, an estimated confidence range has been provided for the areas which are not readily visible but have been applied based on the limited additional information provided through the borescope as well as the particulars of the tunnel learned thus far. Following that, an estimated schedule, as based on this modified anticipated scope, has been included. The additional costs associated with these conditions, the updated support classifications, and assumptions have be summarized as well.

Additionally, please find the graphic representation of the tunnel classifications as compared to previously assumed, in the attached tunnel profiles from Station 16+00 to 60+46.

We recognize that the conditions, particularly in the areas of the tunnel not previously observable, and still of limited access have create a departure in the scope of work and therefore the associated costs and duration of the project. We have provided the background data as a basis for discussion, and so that the overall numbers can be analyzed at a greater level of detail. We anticipate a thorough and varied discussion on all the data and analysis prepared thus far in an effort to determine the best next steps. We will also be prepared to discuss the potential risks and savings from this updated estimate. Additional items of discussion should



also include the value in continuing a more comprehensive investigation to further refine areas which cannot be fully scoped due to access.

We really appreciate your help in getting the data collected in the field over the past two weeks, including your team's commitment over the holiday season. If you have additional questions, please do not hesitate to call. We look forward to our meeting tomorrow.

Sincerely, HARRISON WESTERN CONSTRUCTION CORPORATION

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Mark Kroncke Project Manager

Eric Gavin Project Sponsor















	0 25 50 Scale is in feet				2625 REDWING ROAD, SUITE 160 FORT COLLINS. COLORADO 80526	970.373.3195
62+80						DATE
						REVISION
8470		OWNER	TUNNEL WATER COMPANY	CLIENT	TUNNEL WATER COMPANY	
ELEVATION (FT ABOVE MSL)		PROJECT	LARAMIE-POUDRE TUNNEL REHABILITATION		PROJECT NO.: 17044	LOCATION: Larimer County, Colorado
8440 8430 62+80		SHEET TITLE	TUNNEL PLAN AND PROFILE	STA 58+00 TO 62+80		
		Ц	RM	RD		05/22/19
GTH OF TUNNEL BY SUPPORT CLASS	APPROXIMATE	DRAWN BY	ESIGNED BY	CHECKED BY		DATE
SHOWN ON SHEET (FEET)   40   195   10   0   0   0	LENGTH (FEET) 1335 2870 780 560 400	SHEET				SHEET 13 OF 19