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November 7, 2007

Mr. David Wagner
Mr. Mike Lawless
City of Lawrence
720 West 3rd Street
Lawrence, KS 66044

RE : Design/Build West Baldwin Creek Interceptor

Our Cost Memo dated September 20, 2007 attempted to describe the process, the construction costs, local involvement as well as an analysis of the final cost. The previous analysis attempted to review past projects bid evaluations and adjust for specific site conditions related to the West Baldwin Creek project. Another approach is represented here utilizing existing data on specific Lawrence data.

The questions at the commission meeting last night were surrounding public knowledge and available information as well as some additional explanation of comparative cost. One project that was referenced was the Alvamar project. This project was bid in Lawrence back in December of 2006. The project was to complete 3,865 lf of 8" and 12" sanitary sewer pipe at a depth of 8'-10 feet, 3,480 lf of sewer pipe cleaning and repair of 10 manholes.

By comparison, the West Baldwin Creek Interceptor project has 15,176 lf of pipe that is from 10" to 30" pipe that ranges from 8' in depth to over 21' in depth, has 46 manholes that are epoxy coated, and has 9000 cys of rock to remove. Details of the two projects are summarized below-

Item	Alvamar	West Baldwin Creek
Pipe Size	8"-12" PVC - 3,865lf	10"-30" PVC - 15,176 lf
Depth	8'-12'	8'-22'
Rock	No	Approx 9000cys
Manholes	4ea new - remove 6ea	46ea - new
Special Manhole Coatings	None	All Manholes Epoxy Coated
Stream Crossings	1ea - \$10,800 total	18ea - \$105,197 total
Clearing of work area	None	Approx 10-12 Acres
Total Cost/ LF new pipe	\$239*	\$ 275**

* Includes all Engineering efforts including the preliminary study phase costs for a total amount of \$137,074

** Includes preliminary Engineering services associated with GMP development in the amount of \$260,000 and final Phase II Engineering costs in the amount of \$292,000.

By way of comparison the two projects are not similar in nature to adequately compare unit costs.

For a better comparison, I returned to the 2003 Master Plan as developed by Black & Veatch. On pages 70 and 71 of the appendices (copies attached), there is cost data for Sewer Construction Costs utilized for estimating the costs for new projects. These unit rates were utilized throughout the 2003 Master Plan to estimate costs for all projects. The unit rates are based upon individual pipe sizes and can be adjusted for an average depth of line, so that deeper lines have increased unit costs. Page 70 further states some base assumptions of what is to be included in these rates. Items not in the rates are for contingencies, legal, administrative, engineering and are for average restoration and for average complexity.

The unit rates presented were based upon an Engineering News Record (ENR) cost indices and statements were made on page 70 that for future costs that the cost indices would need to be adjusted for current dollars. The initial cost indices for the units presented was 6224.0 in September 2000 for the Kansas City area. The November 2007 Construction Cost Index for the Kansas City area was 8972.17. (Copy attached for reference) Adjustments then to be made are merely a ratio of the current index compared to the index when the unit costs were developed. This ratio of $8972.17/6224.0$ indicates that the unit rates need to be adjusted by 1.4415 or approximately a 44.1% projected increase since the unit costs were presented.

For further reference, the standard unit rate for 12" pipe with an average depth of 10', time adjusted for December 2006 cost came out to be \$93.72. In the Alvamar bid tab, one of the three bidders bid at \$95.00 per lf, the Engineer's estimate was at \$95.00 per lf, while low bid was \$72.00 and the high was \$145.00. Several additional work items in the bid tab for the low bidder were substantially higher than the other bidders that is not analyzed here. With 2 of 4 bidders at or near this adjusted rate, it bears that the unit costs presented are valid numbers.

For analyzing comparative costs, the table below details the specifics associated with the Baldwin Creek project. I have taken the unit rates presented in the 2003 Master Plan, adjusted based upon the cost indices, adjusted for depth and then have added items from the estimate that are currently planned allowances or estimated costs for items that are not in the unit rates.

Work items that are not a part of the standard project rates that need to be added into the unit rates for an analysis of the project costs include -

- ▲ Dewatering
- ▲ Repair / Maintain Roads
- ▲ Remediation Landscaping
- ▲ Rock Breakup / Replacement
- ▲ Pump Station #45 Tie-in
- ▲ Erosion Control
- ▲ Staging Area Prep / Removal
- ▲ Clearing
- ▲ Stream Crossings
- ▲ Special Manhole Coatings
- ▲ Engineering
- ▲ Profit
- ▲ Contingency

West Baldwin Creek Interceptor Analysis

Pipe Size	Length	Ave Depth	2003 B&V Base *	Depth Adjust	Nov-07 Cost Adjust	Final Est Cost /LF	Extended Unit Costs
10"	1498	8	\$60.90	\$0.00	1.4415	\$87.79	\$131,505.45
12"	2338	8	\$67.01	\$0.00	1.4415	\$96.59	\$225,838.91
18"	4172	9	\$83.37	\$0.00	1.4415	\$120.18	\$501,382.01
21"	2548	15	\$91.16	\$33.80	1.4415	\$180.13	\$458,970.83
30"	4620	21	\$136.58	\$77.11	1.4415	\$308.03	\$1,423,117.70

Total LF 15176

\$2,740,814.91

Specific job conditions not in the B&V unit prices

Dewatering	\$75,000.00
Repair / Maintain Roads	\$20,000.00
Remediation Landscaping	\$10,000.00
Rock Breakup / Replacement	\$350,000.00
Pump Station #45 Tie-in	\$10,000.00
Erosion Control	\$30,000.00
Staging Area Prep / Removal	\$35,000.00
Clearing	\$40,000.00
Stream Crossings	\$105,197.00
Special Manhole Coatings	\$86,500.00
Engineering (Phase II Services)	\$292,000.00
Profit	\$200,000.00
Contingency	\$50,000.00
	\$1,303,697.00

Total Antic Project Cost	\$4,044,511.91
Proposed Contract Value	\$3,908,000.00

* The Base number from the 2003 Master Plan is the ENR Cost Indices = 6224.0

** The Current ENR Cost Indices for KC Nov 2007 = 8972.17

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With these additional items added into the extended unit rates, the project anticipated costs are above the proposed contract amount .

I hope that this analysis is easier and in more detail to evaluate the value of this proposal.

Very truly yours,

Michael Hafling, P.E.
Executive Vice President / COO

Improvement Cost Basis

The improvement cost basis includes planning level construction costs for relief sewers. The cost figures are planning level construction costs only and do not include allowances for construction contingencies, legal, administrative, and engineering costs. The costs are considered to be averages for the Kansas City area based on average restoration costs and average construction complexity. In the future, these costs could be updated based on the September 2000 Engineering News Record (ENR) Construction Cost Index of 6,224.

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LAWRENCE, KS 2002: FUTURE 2025

RELIEF SEWER CONSTRUCTION COST BASIS
(No Cost Factors Applied)

Table Description: B&V STD COST CURVES

Current ENR: 6224.0
ENR Cost Basis: 5400.0
Additional Cost Factor: 1.00000
Overall Cost Multiplier: 1.15259
Additional Fixed Cost/foot: 0.00 \$/lineal foot

Unit Costs per Lineal Foot - by Trench Depth

Sewer Diameter	Up to 10 ft.	10-15 ft.	15-20 ft.	20-30 ft.	> 30 ft.
(in)	(\$)	(\$/ft)	(\$/ft)	(\$/ft)	(\$/ft)
8	55.94	6.46	6.46	6.46	6.46
10	60.90	6.50	6.50	6.50	6.50
12	67.01	6.58	6.58	6.58	6.58
15	77.13	6.60	6.60	6.60	6.60
18	83.37	6.69	6.69	6.69	6.69
21	91.16	6.76	6.76	6.76	6.76
24	100.90	6.82	6.82	6.82	6.82
27	123.59	6.92	6.92	6.92	6.92
30	136.58	7.01	7.01	7.01	7.01
33	146.58	7.07	7.07	7.07	7.07
36	156.58	7.13	7.13	7.13	7.13
42	196.38	7.41	7.41	7.41	7.41
48	236.93	7.49	7.49	7.49	7.49
54	289.03	7.69	7.69	7.69	7.69
60	319.68	7.92	7.92	7.92	7.92
66	378.84	8.81	8.81	8.81	8.81
72	400.00	9.00	9.00	9.00	9.00
84	436.41	10.00	10.00	10.00	10.00
96	465.00	11.00	11.00	11.00	11.00
108	530.00	12.00	12.00	12.00	12.00
120	610.00	14.00	14.00	14.00	14.00

* NOTE: Cost determined by SSMS program interpolates cost for each foot of depth greater than 10 feet.

Cost Index - Kansas City

The building and construction cost indexes for ENR's individual cities use the same components and weighting as those for the 20-city national indexes. The city indexes use local prices for portland cement and 2 X 4 lumber and the national average price for structural steel. The city's BCI uses local union wages, plus fringes, for carpenters, bricklayers and iron workers. The city's CCI uses the same union wages for laborers.

1913=100		CCI	% Chg.
1978	Dec.	3039.64	+5.1
1979	Dec.	3256.47	+7.1
1980	Dec.	3551.83	+9.1
1981	Dec.	3838.22	+8.1
1982	Dec.	4069.74	+6.0
1983	Dec.	4199.38	+3.2
1984	Dec.	4200.58	0.0
1985	Dec.	4337.40	+3.3
1986	Dec.	4485.48	+3.4
1987	Dec.	4599.98	+2.6
1988	Dec.	4667.26	+1.5
1989	Dec.	4719.90	+1.1
1990	Dec.	4763.94	+0.9
1991	Dec.	4762.18	0.0
1992	Dec.	4955.79	+4.1
1993	Dec.	5224.43	+5.4
1994	Dec.	5304.63	+1.5
1995	Dec.	5369.96	+1.2
1996	Dec.	5652.65	+5.3
1997	Dec.	5909.18	+4.5
1998	Dec.	5981.26	+1.2
1999	Dec.	5999.65	+0.3
2000	Dec.	6221.07	+3.7
2001	Dec.	6477.21	+4.1
2002	Dec.	6782.21	+4.7
2003	Dec.	6971.96	+2.8
2004	Dec.	8019.84	+15.0
2005	Jan.	7900.16	+13.4
	Feb.	7899.66	+13.0
	March	7897.66	+12.2
	April	8048.91	+13.2

	May	8048.91	+12.0
	June	8059.16	+10.1
	July	8047.66	+9.9
	August	8035.66	+1.3
	Sept.	8041.91	+0.4
	Oct.	8065.16	+0.7
	Nov.	8097.66	+1.0
	Dec.	8124.91	+1.3
2006	Jan.	8130.91	+2.9
	Feb.	8478.91	+7.3
	March	8472.91	+7.3
	April	8475.91	+5.3
	May	8487.69	+5.5
	June	8495.44	+5.4
	July	8511.94	+5.8
	Aug.	8518.94	+6.0
	Sept.	8521.19	+6.0
	Oct.	8495.17	+5.3
	Nov.	8763.44	+8.2
	Dec.	8704.67	+7.1
2007	Jan.	8698.17	+7.0
	Feb.	8697.67	+2.6
	Mar.	8700.17	+2.7
	Apr.	8702.92	+2.7
	May	8760.44	+3.2
	June	8717.92	+2.6
	July	8724.42	+2.5
	Aug.	8679.92	+2.0
	Sept.	8680.17	+1.9
	Oct.	8681.17	+2.2
	Nov.	8972.17	+2.4