



# APPENDIX A

OPINION OF PROBABLE PROJECT  
COSTS FOR ALIGNMENT

**BLACK & VEATCH**

Lincoln, Nebraska  
 Lincoln Wastewater System  
 Beal Slough Relief Trunk Sewer Phases I & II  
 Opinion of Probable Project Cost  
 October 30, 2003

**Alignment No. 1 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$63,500	\$63,500
Supervision		Lump Sum	\$198,500	\$198,500
Temporary facilities		Lump Sum	\$47,600	\$47,600
Temporary utilities		Lump Sum	\$31,800	\$31,800
Equipment rental & misc.		Lump Sum	\$15,900	\$15,900
<b>Total - General Requirements</b>				<b>\$357,000</b>
<b>DESCRIPTION</b>				
	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
<b>Sewer Pipe in Place Excluding Manholes and Dewatering</b>				
36" High Strength Gravity Sewer Pipe	9,987	LF	\$198	\$1,977,000
30" Interconnection Piping at 14th Street	240	LF	\$165	\$40,000
30" Interconnection Piping at 27th Street	600	LF	\$165	\$99,000
<b>Subtotal</b>				<b>\$2,116,000</b>
<b>Tunnel Installation</b>				
<b>BNSF Railroad Line</b>				
56" Tunnel	110	LF	\$896	\$99,000
<b>BNSF Railroad Line</b>				
56" Tunnel	110	LF	\$896	\$99,000
<b>14th Street/Highway 2</b>				
56" Tunnel	380	LF	\$840	\$319,000
<b>18th Street</b>				
56" Tunnel	135	LF	\$840	\$113,000
<b>Highway 2 Interconnection Sewer at 14th Street</b>				
49" Tunnel	310	LF	\$735	\$228,000
<b>27th Street Interconnection Sewer</b>				
49" Tunnel	310	LF	\$735	\$228,000
<b>Subtotal</b>				<b>\$1,086,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	22	EA	\$2,000	\$44,000
Standard and Drop Manhole Additional Depth	352	LF	\$250	\$88,000
<b>Subtotal</b>				<b>\$132,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	10,827	LF	\$25	\$271,000
<b>Subtotal</b>				<b>\$271,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	900	SY	\$45	\$41,000
Saw Cut, Remove, and Replace 8" Concrete	4,300	SY	\$65	\$280,000
<b>Subtotal</b>				<b>\$321,000</b>

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**Alignment No. 1 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	10	Days	\$500	\$5,000
Seeding	48,120	SY	\$0.40	\$19,000
<b>Subtotal</b>				<b>\$24,000</b>
<b>Construction Cost Subtotal</b>				<b>\$4,327,000</b>
<b>Contingencies</b>			25%	<b>\$1,082,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$5,409,000</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	130,800	SF	\$1.00	\$131,000
Temporary Construction Easement	305,200	SF	\$0.10	\$31,000
<b>Subtotal</b>				<b>\$162,000</b>
<b>Engineering, Legal, and Administrative Costs</b>			20%	<b>\$1,114,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$6,685,000</b>

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**Alignment No. 1 - Phase II**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$55,600	\$55,600
Supervision		Lump Sum	\$173,700	\$173,700
Temporary facilities		Lump Sum	\$41,700	\$41,700
Temporary utilities		Lump Sum	\$27,800	\$27,800
Equipment rental & misc.		Lump Sum	\$13,900	\$13,900
<b>Total - General Requirements</b>				<b>\$312,700</b>
<b>DESCRIPTION</b>				
<b>Sewer Pipe in Place Excluding Manholes and Dewatering</b>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
30" High Strength Gravity Sewer Pipe	11,286	LF	\$165	\$1,862,000
<b>Subtotal</b>				<b>\$1,862,000</b>
<b>Tunnel Installation</b>				
<b>27th Street/Pedestrian Hill</b>				
49" Tunnel	660	LF	\$735	\$485,000
<b>Highway 2/Pioneers Blvd Access Roads</b>				
49" Tunnel	135	LF	\$735	\$99,000
<b>33rd Street</b>				
49" Tunnel	80	LF	\$735	\$59,000
<b>40th Street</b>				
49" Tunnel	210	LF	\$735	\$154,000
<b>48th Street</b>				
49" Tunnel	85	LF	\$735	\$62,000
<b>Subtotal</b>				<b>\$859,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	23	EA	\$2,000	\$46,000
Standard and Drop Manhole Additional Depth	368	LF	\$250	\$92,000
<b>Subtotal</b>				<b>\$138,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	11,286	LF	\$25	\$282,000
<b>Subtotal</b>				<b>\$282,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	0	SY	\$45	\$0
Saw Cut, Remove, and Replace 8" Concrete	4,500	SY	\$65	\$293,000
<b>Subtotal</b>				<b>\$293,000</b>

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**Alignment No. 1 - Phase II**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
			\$	\$
<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	0	Days	\$500	\$0
Seeding	50,160	SY	\$0.40	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Construction Cost Subtotal</b>				<b>\$3,786,700</b>
<b>Contingencies</b>			<b>25%</b>	<b>\$947,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$4,733,700</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	0	SF	\$1.00	\$0
Temporary Construction Easement	0	SF	\$0.10	\$0
<b>Subtotal</b>				<b>\$0</b>
<b>Engineering, Legal, and Administrative Costs</b>			<b>20%</b>	<b>\$947,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$5,680,700</b>

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**Alignment No. 2 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$52,200	\$52,200
Supervision		Lump Sum	\$163,100	\$163,100
Temporary facilities		Lump Sum	\$39,100	\$39,100
Temporary utilities		Lump Sum	\$26,100	\$26,100
Equipment rental & misc.		Lump Sum	\$13,000	\$13,000
<b>Total - General Requirements</b>				<b>\$294,000</b>
<b>DESCRIPTION</b>				
<b>Sewer Pipe in Place Excluding Manholes and Dewatering</b>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
36" High Strength Gravity Sewer Pipe	9,411	LF	\$198	\$1,863,000
<b>Subtotal</b>				<b>\$1,863,000</b>
<b>Grade Check</b>				
Structure	1	LS	\$100,000	\$100,000
Rock Grade Check	2	EA	\$50,000	\$100,000
<b>Subtotal</b>				<b>\$200,000</b>
<b>Tunnel Installation</b>				
<b>BNSF Railroad Line</b>				
56" Tunnel	110	LF	\$896	\$99,000
<b>BNSF Railroad Line</b>				
56" Tunnel	105	LF	\$896	\$94,000
<b>14th Street</b>				
56" Tunnel	110	LF	\$840	\$92,000
<b>115 KVA LES Transmission Main</b>				
56" Tunnel	50	LF	\$840	\$42,000
<b>Southwood Street</b>				
49" Tunnel	60	LF	\$735	\$44,000
<b>Beal Slough/BNSFRR/27th Street</b>				
49" Tunnel	380	LF	\$784	\$298,000
<b>Subtotal</b>				<b>\$669,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	19	EA	\$2,000	\$38,000
Standard and Drop Manhole Additional Depth	209	LF	\$250	\$52,000
<b>Subtotal</b>				<b>\$90,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	9,411	LF	\$25	\$235,000
<b>Subtotal</b>				<b>\$235,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	2,467	SY	\$45	\$111,000
Saw Cut, Remove, and Replace 8" Concrete	640	SY	\$65	\$42,000
<b>Subtotal</b>				<b>\$153,000</b>

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**Alignment No. 2 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	30	Days	\$500	\$15,000
Seeding	41,827	SY	\$0.40	\$17,000
<b>Subtotal</b>				<b>\$32,000</b>
<b>Construction Cost Subtotal</b>				<b>\$3,556,000</b>
<b>Contingencies</b>			<b>25%</b>	<b>\$889,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$4,445,000</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	156,000	SF	\$1.00	\$156,000
Temporary Construction Easement	364,000	SF	\$0.10	\$36,000
<b>Subtotal</b>				<b>\$192,000</b>
<b>Engineering, Legal, and Administrative Costs</b>			<b>20%</b>	<b>\$927,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$5,564,000</b>

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**Alignment No. 2 - Phase II**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$43,500	\$43,500
Supervision		Lump Sum	\$135,800	\$135,800
Temporary facilities		Lump Sum	\$32,600	\$32,600
Temporary utilities		Lump Sum	\$21,700	\$21,700
Equipment rental & misc.		Lump Sum	\$10,900	\$10,900
<b>Total - General Requirements</b>				<b>\$245,000</b>

<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
<b>Sewer Pipe in Place Excluding Manholes and Dewatering</b>				
30" High Strength Gravity Sewer Pipe	11,694	LF	\$165	\$1,930,000
<b>Subtotal</b>				<b>\$1,930,000</b>
<b>Tunnel Installation</b>				
<b>Highway 2/40th Street</b>				
49" Tunnel	205	LF	\$735	\$151,000
<b>48th Street</b>				
49" Tunnel	85	LF	\$735	\$62,000
<b>Subtotal</b>				<b>\$213,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	23	EA	\$2,000	\$46,000
Standard and Drop Manhole Additional Depth	253	LF	\$250	\$63,000
<b>Subtotal</b>				<b>\$109,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	11,694	LF	\$25	\$292,000
<b>Subtotal</b>				<b>\$292,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	0	SY	\$45	\$0
Saw Cut, Remove, and Replace 8" Concrete	1,700	SY	\$65	\$111,000
<b>Subtotal</b>				<b>\$111,000</b>

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**Alignment No. 2 - Phase II**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	40	Days	\$500	\$20,000
Seeding	51,973	SY	\$0.40	\$21,000
<b>Subtotal</b>				<b>\$41,000</b>
<b>Construction Cost Subtotal</b>				<b>\$2,961,000</b>
<b>Contingencies</b>			<b>25%</b>	<b>\$740,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$3,701,000</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	0	SF	\$1.00	\$0
Temporary Construction Easement	0	SF	\$0.10	\$0
<b>Subtotal</b>				<b>\$0</b>
<b>Engineering, Legal, and Administrative Costs</b>			<b>20%</b>	<b>\$740,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$4,441,000</b>

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**Alignment No. 3 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$65,200	\$65,200
Supervision		Lump Sum	\$203,900	\$203,900
Temporary facilities		Lump Sum	\$48,900	\$48,900
Temporary utilities		Lump Sum	\$32,600	\$32,600
Equipment rental & misc.		Lump Sum	\$16,300	\$16,300
<b>Total - General Requirements</b>				<b>\$367,000</b>
<b>DESCRIPTION</b>				
<b>Sewer Pipe in Place Excluding Backfill and Dewatering</b>				
36" High Strength Gravity Sewer Pipe	8,853	LF	\$198	\$1,753,000
<b>Subtotal</b>				<b>\$1,753,000</b>
<b>Tunnel Installation</b>				
<b>BNSF Railroad Line</b>				
56" Tunnel	110	LF	\$1,008	\$111,000
<b>BNSF Railroad Line</b>				
56" Tunnel	105	LF	\$1,008	\$106,000
<b>Hill on Correctional Services Land</b>				
56" Tunnel	980	LF	\$840	\$823,000
<b>14th Street</b>				
56" Tunnel	125	LF	\$840	\$105,000
<b>Southwood Street</b>				
49" Tunnel	60	LF	\$735	\$44,000
<b>Pedestrian Walkway on Old Railroad Grade/LES Easement and 27th Street</b>				
49" Tunnel	725	LF	\$735	\$533,000
<b>Subtotal</b>				<b>\$1,722,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	18	EA	\$2,000	\$36,000
Standard and Drop Manhole Additional Depth	234	LF	\$250	\$59,000
<b>Subtotal</b>				<b>\$95,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	8,853	LF	\$25	\$221,000
<b>Subtotal</b>				<b>\$221,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	0	SY	\$45	\$0
Saw Cut, Remove, and Replace 8" Concrete	3,700	SY	\$65	\$241,000
<b>Subtotal</b>				<b>\$241,000</b>

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**Alignment No. 3 - Phase I**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	20	Days	\$500	\$10,000
Seeding	39,347	SY	\$0.40	\$16,000
<b>Subtotal</b>				<b>\$26,000</b>
<b>Construction Cost Subtotal</b>				<b>\$4,445,000</b>
<b>Contingencies</b>			<b>25%</b>	<b>\$1,111,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$5,556,000</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	168,000	SF	\$1.00	\$168,000
Temporary Construction Easement	392,000	SF	\$0.10	\$39,000
<b>Subtotal</b>				<b>\$207,000</b>
<b>Engineering, Legal, and Administrative Costs</b>			<b>20%</b>	<b>\$1,153,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$6,916,000</b>

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**Alignment No. 3 - Phase II**

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
<b>GENERAL REQUIREMENTS</b>				
Mobilization		Lump Sum	\$41,000	\$41,000
Supervision		Lump Sum	\$128,300	\$128,300
Temporary facilities		Lump Sum	\$30,800	\$30,800
Temporary utilities		Lump Sum	\$20,500	\$20,500
Equipment rental & misc.		Lump Sum	\$10,300	\$10,300
<b>Total - General Requirements</b>				<b>\$231,000</b>
<b>DESCRIPTION</b>				
<b>Sewer Pipe in Place Excluding Backfill and Dewatering</b>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
30" High Strength Gravity Sewer Pipe	11,315	LF	\$165	\$1,867,000
<b>Subtotal</b>				<b>\$1,867,000</b>
<b>Tunnel Installation</b>				
<b>40th Street</b>				
49" Tunnel	175	LF	\$735	\$129,000
<b>48th Street</b>				
49" Tunnel	85	LF	\$735	\$62,000
<b>Subtotal</b>				<b>\$191,000</b>
<b>Manholes</b>				
Standard Manhole 4' Dia., 8' Deep or Less	23	EA	\$2,000	\$46,000
Standard and Drop Manhole Additional Depth	299	LF	\$250	\$75,000
<b>Subtotal</b>				<b>\$121,000</b>
<b>Dewatering</b>				
6 Foot Average Dewatering Depth	11,315	LF	\$25	\$283,000
<b>Subtotal</b>				<b>\$283,000</b>
<b>Street Repairs</b>				
Replace Asphalt Pavement	0	SY	\$45	\$0
Saw Cut, Remove, and Replace 8" Concrete	200	SY	\$65	\$13,000
<b>Subtotal</b>				<b>\$13,000</b>

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<b>Utility Relocation</b>				
Miscellaneous Repairs and Relocations	1	LS	\$20,000	\$20,000
<b>Subtotal</b>				<b>\$20,000</b>
<b>Miscellaneous</b>				
Railroad Insurance and Flagging	100	Days	\$500	\$50,000
Seeding	50,289	SY	\$0.40	\$20,000
<b>Subtotal</b>				<b>\$70,000</b>
<b>Construction Cost Subtotal</b>				<b>\$2,796,000</b>
<b>Contingencies</b>			<b>25%</b>	<b>\$699,000</b>
<b>TOTAL CONSTRUCTION COST</b>				<b>\$3,495,000</b>
<b>ADDITIONAL PROJECT COSTS</b>				
<b>Right-of-Way Costs</b>				
Permanent Easement	151,200	SF	\$1.00	\$151,000
Temporary Construction Easement	352,800	SF	\$0.10	\$35,000
<b>Subtotal</b>				<b>\$186,000</b>
<b>Engineering, Legal, and Administrative Costs</b>			<b>20%</b>	<b>\$736,000</b>
<b>TOTAL PROJECT COST</b>				<b>\$4,417,000</b>