

Appendix H

To: Gary Brandt, Gary Thalken, Dave Beyersdorf, and Brian Kramer	
From: Kent Prior, Scott Aurit	Project: Oak Creek Basin Study
CC:	
Date: January 24, 2006	Job No: 20843

RE: Oak Creek Additional Analysis

This memorandum provides a summary of the additional analysis conducted for the Oak Creek Basin Study. The additional analysis is for a Tier I Design Flow condition only and does not consider the inclusion of 1,500 acres of area beyond a Tier I condition. Given the existing metered flows in the existing collection four separate flow scenarios were created as follows:

1. Tier I Design Flow Created with the City of Lincoln Design Flow Equation (0.0062343 cfs/acre) for all Existing and Tier I areas.
2. Tier I Design Flow Created with 0.00126 cfs/acre, including a peaking factor of 3.0 (0.00378 cfs/acre) for all Existing and Tier I areas.
3. Tier I Design Flow Created with 0.00126 cfs/acre, including a peaking factor of 3.0 (0.00378 cfs/acre) for all Developed Existing Areas and the City of Lincoln Design Flow Equation (0.0062343 cfs/acre) for all Undeveloped Existing Areas and Tier I areas. (0.00573 cfs/acre)
4. Tier I Design Flow created with 0.00125 cfs/acre, including a peaking factor of 3.0 (0.00378 cfs/acre) for all Existing (Developed and Undeveloped) Areas and City of Lincoln Equation (0.0062343 cfs/acre) for all Tier I Areas. (0.00493 cfs/acre)

Design flow scenario 1 and 4 were selected for evaluation using Manning 'n' factors of 0.013, 0.011, and 0.009 for each scenario. In addition, consideration for pumping into the top of the basin was included for evaluation to utilize the existing lift station on the west side of Oak Creek.

The results of the analysis for the two design conditions are indicated in the attached table. Note, since segment O-2 was designated for the future 1,500 acres only during the original study, it has been removed for cost consideration for the Tier I analysis.

At the bottom of the attached table, a cost differential is provided for conveying the future 1,500 acres from the east side or west side of Oak Creek compared to conveying Tier I flows only. If the 1,500 acres is split between the east side and the west side, then the additional cost/acre will increase beyond the cost/acre stated below.

Cost Differential for Conveying 1,500 additional (future) acres			
	Tier I acres	Tier I + 1,500 (future) acres	Additional Cost/Acre
West Side of Oak Creek	\$3,133,000	\$4,210,000	\$718/acre
East Side of Oak Creek	\$2,490,000	\$4,429,000	\$1,293/acre

Flow Condition Gravity or Pumped for North Service Area	Flow Condition = 0.0062 cfs/acre						Flow Condition = 0.0049 cfs/acre						
	Gravity			Pumped			Gravity			Pumped			
	Mannings 'n' Factor	0.009	0.011	0.013	0.009	0.011	0.013	0.009	0.011	0.013	0.009	0.011	0.013
Phase 1 (Red-1 and Red-2)													
Construction Cost Total (w/15% Contingency)	\$2,248,000	\$2,248,000	\$2,248,000	\$2,248,000	\$2,248,000	\$2,248,000	\$2,048,000	\$2,248,000	\$2,217,000	\$2,048,000	\$2,248,000	\$2,248,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 2 (Add Siphon Barrel)													
Construction Cost Total (w/15% Contingency)	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	\$255,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 3 (Existing-3)													
Construction Cost Total (w/15% Contingency)	\$830,000	\$830,000	\$830,000	\$830,000	\$830,000	\$830,000	\$946,000	\$773,000	\$919,000	\$705,000	\$830,000	\$776,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 4 (Siphon and Pink-1)													
Construction Cost Total (w/15% Contingency)	\$981,000	\$981,000	\$981,000	\$888,000	\$888,000	\$915,000	\$981,000	\$981,000	\$981,000	\$923,000	\$907,000	\$925,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 5 (E-6D)													
Construction Cost Total (w/15% Contingency)	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	\$428,000	
Right-of-Way Costs	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	\$86,000	
Phase 6 (Pink-2 and Pink-3)													
Construction Cost Total (w/15% Contingency)	\$1,405,000	\$1,439,000	\$1,439,000	\$1,101,000	\$1,101,000	\$1,159,000	\$1,386,000	\$1,439,000	\$1,439,000	\$1,101,000	\$1,103,000	\$1,159,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 7 (Orange-2)													
Construction Cost Total (w/15% Contingency)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Phase 8 (Yellow-2 and Orange-1)													
Construction Cost Total (w/15% Contingency)	\$1,232,000	\$1,232,000	\$1,232,000	\$1,229,000	\$1,229,000	\$1,229,000	\$1,111,000	\$1,183,000	\$1,226,000	\$1,117,000	\$1,072,000	\$1,304,000	
Right-of-Way Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Construction Cost (w/15% Contingency)	\$7,465,000	\$7,499,000	\$7,499,000	\$7,065,000	\$7,065,000	\$7,150,000	\$7,241,000	\$7,393,000	\$7,551,000	\$6,663,000	\$6,929,000	\$7,181,000	
Engineering, Legal, and Administrative Costs (20%)	\$1,493,000	\$1,500,000	\$1,500,000	\$1,413,000	\$1,413,000	\$1,430,000	\$1,448,000	\$1,479,000	\$1,510,000	\$1,333,000	\$1,386,000	\$1,436,000	
Total Project Cost	\$8,958,000	\$8,999,000	\$8,999,000	\$8,478,000	\$8,478,000	\$8,580,000	\$8,689,000	\$8,872,000	\$9,061,000	\$7,996,000	\$8,315,000	\$8,617,000	

Oak Creek Trunk Sewer (n=0.009, F=0.006 cfs/acre, Gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,405,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,232,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,379,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,465,000
Total Construction Cost		
		\$7,465,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,493,000
TOTAL PROJECT COST		\$8,958,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.011, F=0.006 cfs/acre, gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,439,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,232,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,413,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,499,000
Total Construction Cost		
		\$7,499,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,500,000
TOTAL PROJECT COST		\$8,999,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.013, F=0.006 cfs/acre, gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,439,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,232,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,413,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,499,000
Total Construction Cost		
		\$7,499,000
Engineering, Legal, and Administrative Costs	20%	\$1,500,000
TOTAL PROJECT COST		
		\$8,999,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.009, F=0.006 cfs/acre, pumped)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$888,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,101,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,229,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$6,979,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,065,000
Total Construction Cost		
		\$7,065,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,413,000
TOTAL PROJECT COST		
		\$8,478,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.011, F=0.006 cfs/acre, pumped)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$888,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,101,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,229,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$6,979,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,065,000
Total Construction Cost		
		\$7,065,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,413,000
TOTAL PROJECT COST		
		\$8,478,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.013, F=0.006 cfs/acre, pumped)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$915,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,159,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,229,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,064,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,150,000
Total Construction Cost		
		\$7,150,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,430,000
TOTAL PROJECT COST		\$8,580,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.009, F=0.004 cfs/acre, gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,048,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$946,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,386,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,111,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,155,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,241,000
Total Construction Cost		
		\$7,241,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,448,000
TOTAL PROJECT COST		\$8,689,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.011, F=0.004 cfs/acre, gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$773,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,439,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,183,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,307,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,393,000
Total Construction Cost		
		\$7,393,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,479,000
TOTAL PROJECT COST		
		\$8,872,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.013, F=0.004 cfs/acre, gravity)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,217,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$919,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$981,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,439,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,226,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,465,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,551,000
Total Construction Cost		
		\$7,551,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,510,000
TOTAL PROJECT COST		\$9,061,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.009, F=0.004 cfs/acre, pumped)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,048,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$705,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$923,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,101,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,117,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$6,577,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$6,663,000
Total Construction Cost		
		\$6,663,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,333,000
TOTAL PROJECT COST		\$7,996,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.011, F=0.004 cfs/acre, pumped)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$830,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$907,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,103,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,072,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$6,843,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$6,929,000
Total Construction Cost		
		\$6,929,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,386,000
TOTAL PROJECT COST		
		\$8,315,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer (n=0.013, F=0.004 cfs/acre, pump)

SUMMARY OF PROJECT COSTS

Phase 1 (Red-1 and Red-2)		
Construction Cost Total		\$2,248,000
Right-of-Way Costs		\$0
Phase 2 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 3 (Existing-3)		
Construction Cost Total		\$776,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$925,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,159,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$0
Right-of-Way Costs		\$0
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,304,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		
		\$7,095,000
Construction Cost Subtotal (w/Right-of-Way Costs)		
		\$7,181,000
Total Construction Cost		
		\$7,181,000
Engineering, Legal, and Administrative Costs		
	20%	\$1,436,000
TOTAL PROJECT COST		\$8,617,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab low and average line item costs.

Pipe Costs (\$4.75/Dia-In/LF)
 Tee-Based Manhole Costs (\$700/VF)
 Type 'G' Manhole Costs (\$750/VF)
 Type 'P' Manhole Costs (\$685/VF)
 Seeding (\$0.60/SY)
 Tunnels Beneath Roads (\$15/Dia-In/LF)
 Tunnel Beneath Airport Runway (\$750/LF) Quote from Horizontal Boring
 Gravel Surfacing In-Place (\$30/Ton)
 No Overexcavation costs since borings showed no groundwater conditions

Oak Creek Trunk Sewer - Tier I + 1,500 acres to East and West

SUMMARY OF PROJECT COSTS

Phase 1 (Existing-3)		
Construction Cost Total	\$	1,088,000
Right-of-Way Costs		\$0
Phase 2 (Red-1 and Red-2)		
Construction Cost Total		\$2,301,000
Right-of-Way Costs		\$0
Phase 3 (Add Siphon Barrel)		
Construction Cost Total		\$255,000
Right-of-Way Costs		\$0
Phase 4 (Siphon and Pink-1)		
Construction Cost Total		\$1,067,000
Right-of-Way Costs		\$0
Phase 5 (E-6D)		
Construction Cost Total		\$428,000
Right-of-Way Costs		\$86,000
Phase 6 (Pink-2, Pink-3, and Pink-4)		
Construction Cost Total		\$1,699,000
Right-of-Way Costs		\$0
Phase 7 (Orange-2)		
Construction Cost Total		\$1,189,000
Right-of-Way Costs		\$99,000
Phase 8 (Yellow-2 and Orange-1)		
Construction Cost Total		\$1,724,000
Right-of-Way Costs		\$0
Construction Cost Subtotal (w/out Right-of-Way)		\$9,751,000
Construction Cost Subtotal (w/Right-of-Way Costs)		\$9,936,000
Total Construction Cost		\$9,936,000
Engineering, Legal, and Administrative Costs	20%	\$1,987,000
TOTAL PROJECT COST		\$11,923,000

*OPPC is based on preliminary design drawings using West 'O' Street Trunk Sewer Extension - Phases 1 and 2 and Upper Southeast Salt Creek Subbasin Sewer - Segment 1 Bid Tab average line item costs.

West Side Cost		
Construction Cost Total		\$3,021,000
Right-of-Way Costs		\$0
East Side Cost		
Construction Cost Total		\$4,429,000
Right-of-Way Costs		\$185,000
Red-1 and Red-2		
Construction Cost Total		\$2,301,000
Right-of-Way Costs		\$0
Total Construction Cost		\$9,936,000
Engineering, Legal, and Administrative Costs	20%	\$1,987,000
TOTAL PROJECT COST		\$11,923,000

Oak Creek Trunk Sewer (E-3)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$15,000	\$15,000
Supervision	1	LS	\$30,000	\$30,000
Equipment Rental & Misc.	1	LS	\$4,000	\$4,000
Total - General Requirements				\$49,000
DESCRIPTION				
Sewer Pipe in Place Excluding Manholes				
42" Sewer Pipe	2,843	LF	\$200	\$567,000
30" Sewer Pipe	150	LF	\$143	\$21,000
Subtotal				\$588,000
Tunnel				
West Mathis Street	80	LF	\$810	\$65,000
Air Park Road	80	LF	\$810	\$65,000
Subtotal				\$130,000
Manholes				
Standard Manhole, Type "G"	95	VF	\$750	\$71,000
Subtotal				\$71,000
Miscellaneous				
BOL Connection	1	LS	\$5,000	\$5,000
EOL Connection	1	LS	\$5,000	\$5,000
Seeding	17,000	SY	\$0.60	\$10,000
Misc. Tree Removal & Replacement	1	LS	\$2,000	\$2,000
Abandon Existing Sewer In-Place (Flow Fill Existing Sewer)	419	CY	\$50	\$21,000
Abandon Existing Manholes In-Place	8	EA	\$2,500	\$20,000
Traffic Control	1	LS	\$5,000	\$5,000
LES Power Pole Relocation	1	LS	\$30,000	\$30,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$108,000
Construction Cost Subtotal				\$946,000
Contingencies			15%	\$142,000
TOTAL CONSTRUCTION COST				\$1,088,000
ADDITIONAL PROJECT COSTS				
Right-of-Way Costs				
Permanent Easement	113,720	SF	\$0.00	\$0
Temporary Construction Easement	170,580	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$218,000
TOTAL PROJECT COST				\$1,306,000

Oak Creek Trunk Sewer (Red-1 and Red-2)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$32,000	\$32,000
Supervision	1	LS	\$63,000	\$63,000
Equipment Rental & Misc.	1	LS	\$8,000	\$8,000
Total - General Requirements				\$103,000

<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Sewer Pipe in Place Excluding Manholes				
48" Sewer Pipe	5,802	LF	\$228	\$1,323,000
Subtotal				\$1,323,000
Tunnel				
Taxiway	400	LF	\$750	\$300,000
Subtotal				\$300,000
Connections to Existing Facilities				
Connection at BOL	1	LS	\$5,000	\$5,000
Connection at EOL	1	LS	\$5,000	\$5,000
Subtotal				\$10,000
Manholes				
Tee-Based Manhole	195	VF	\$700	\$136,000
Subtotal				\$136,000
Miscellaneous				
84" Storm Sewer Modifications	1	LS	\$75,000	\$75,000
36" Storm Sewer Modifications	1	LS	\$10,000	\$10,000
Gravel Surfacing (In-Place)	25	Tons	\$30	\$1,000
Seeding	30,011	SY	\$0.60	\$18,000
Misc. Tree Removal & Replacement	1	LS	\$15,000	\$15,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$129,000
Construction Cost Subtotal				\$2,001,000
Contingencies			15%	\$300,000
TOTAL CONSTRUCTION COST				\$2,301,000

ADDITIONAL PROJECT COSTS

Right-of-Way Costs				
Permanent Easement	57,000	SF	\$0.00	\$0
Temporary Construction Easement	133,000	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$460,000
TOTAL PROJECT COST				\$2,761,000

Oak Creek Trunk Sewer (Add Siphon Barrel)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$4,000	\$4,000
Supervision	1	LS	\$7,000	\$7,000
Equipment Rental & Misc.	1	LS	\$1,000	\$1,000
Total - General Requirements				\$12,000
<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Siphon				
Structures	1	LS	\$50,000	\$50,000
Piping	1	LS	\$150,000	\$150,000
Subtotal				\$200,000
Connections to Existing Facilities				
Connection at BOL	1	LS	\$5,000	\$5,000
Connection at EOL	1	LS	\$5,000	\$5,000
Subtotal				\$10,000
Construction Cost Subtotal				\$222,000
Contingencies			15%	\$33,000
TOTAL CONSTRUCTION COST				\$255,000
ADDITIONAL PROJECT COSTS				
Right-of-Way Costs				
Permanent Easement	57,000	SF	\$0.00	\$0
Temporary Construction Easement	133,000	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$51,000
TOTAL PROJECT COST				\$306,000

Oak Creek Trunk Sewer (Pink-1 and New Siphon Crossing)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$15,000	\$15,000
Supervision	1	LS	\$29,000	\$29,000
Equipment Rental & Misc.	1	LS	\$4,000	\$4,000
Total - General Requirements				\$48,000

<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Sewer Pipe in Place Excluding Manholes				
36" Sewer Pipe	1,294	LF	\$171	\$221,000
Subtotal				\$221,000
Siphon				
Structures	1	LS	\$200,000	\$200,000
Piping	1	LS	\$300,000	\$300,000
Subtotal				\$500,000
Tunnel				
W. Mathis Street	80	LF	\$720	\$58,000
Subtotal				\$58,000
Connections to Existing Facilities				
Connection at BOL	1	LS	\$5,000	\$5,000
Connection at EOL	1	LS	\$5,000	\$5,000
Subtotal				\$10,000
Manholes				
Standard Manhole, Type "G"	83	VF	\$750	\$62,000
Subtotal				\$62,000
Miscellaneous				
Seeding	6,744	SY	\$0.60	\$4,000
Misc. Tree Removal & Replacement	1	LS	\$15,000	\$15,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$29,000
Construction Cost Subtotal				\$928,000
Contingencies			15%	\$139,000
TOTAL CONSTRUCTION COST				\$1,067,000

ADDITIONAL PROJECT COSTS

Right-of-Way Costs				
Permanent Easement	57,000	SF	\$0.00	\$0
Temporary Construction Easement	133,000	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$213,000
TOTAL PROJECT COST				\$1,280,000

Oak Creek Trunk Sewer (E-6d)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
			\$	\$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$6,000	\$6,000
Supervision	1	LS	\$12,000	\$12,000
Equipment Rental & Misc.	1	LS	\$1,000	\$1,000
Total - General Requirements				\$19,000
DESCRIPTION				
Sewer Pipe in Place Excluding Manholes	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
18" Sewer Pipe	2,250	LF	\$86	\$192,000
Subtotal				\$192,000
Tunnel				
Highway 34	200	LF	\$450	\$90,000
Subtotal				\$90,000
Manholes				
Standard Manhole, Type "P"	60	VF	\$685	\$41,000
Subtotal				\$41,000
Miscellaneous				
BOL Connection	1	LS	\$5,000	\$5,000
Seeding	13,000	SY	\$0.60	\$8,000
Misc. Tree Removal & Replacement	1	LS	\$2,000	\$2,000
Traffic Control	1	LS	\$5,000	\$5,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$30,000
Construction Cost Subtotal				\$372,000
Contingencies			15%	\$56,000
TOTAL CONSTRUCTION COST				\$428,000
ADDITIONAL PROJECT COSTS				
Right-of-Way Costs				
Permanent Easement	90,000	SF	\$0.80	\$72,000
Temporary Construction Easement	135,000	SF	\$0.10	\$14,000
Subtotal				\$86,000
Engineering, Legal, and Administrative Costs			20%	\$103,000
TOTAL PROJECT COST				\$617,000

Oak Creek Trunk Sewer (Pink-2, Pink-3, and Pink-4)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$24,000	\$24,000
Supervision	1	LS	\$46,000	\$46,000
Equipment Rental & Misc.	1	LS	\$6,000	\$6,000
Total - General Requirements				\$76,000
<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Sewer Pipe in Place Excluding Manholes				
36" Sewer Pipe	2,843	LF	\$171	\$486,000
30" Sewer Pipe	3,809	LF	\$143	\$543,000
Subtotal				\$1,029,000
Tunnel				
Air Park Road	50	LF	\$720	\$36,000
Subtotal				\$36,000
Manholes				
Standard Manhole, Type "G"	210	VF	\$750	\$158,000
Subtotal				\$158,000
Miscellaneous				
BOL Connection	1	LS	\$5,000	\$5,000
EOL Connection	1	LS	\$5,000	\$5,000
Seeding	21,000	SY	\$0.60	\$13,000
Misc. Tree Removal & Replacement	1	LS	\$10,000	\$10,000
Traffic Control	1	LS	\$5,000	\$5,000
Removal and Replace Asphalt Pavement	3,000	SY	\$30	\$90,000
Storm Sewer Relocations	4	EA	\$10,000	\$40,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$178,000
Construction Cost Subtotal				\$1,477,000
Contingencies			15%	\$222,000
TOTAL CONSTRUCTION COST				\$1,699,000
ADDITIONAL PROJECT COSTS				
Right-of-Way Costs				
Permanent Easement	152,360	SF	\$0.00	\$0
Temporary Construction Easement	228,540	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$340,000
TOTAL PROJECT COST				\$2,039,000

Oak Creek Trunk Sewer (Orange-2)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u> \$	<u>Total Cost</u> \$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$17,000	\$17,000
Supervision	1	LS	\$32,000	\$32,000
Equipment Rental & Misc.	1	LS	\$4,000	\$4,000
Total - General Requirements				\$53,000

<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Sewer Pipe in Place Excluding Manholes				
27" Sewer Pipe	3,778	LF	\$210	\$793,000
Subtotal				\$793,000
Tunnel				
Highway 34	120	LF	\$630	\$76,000
Subtotal				\$76,000
Manholes				
Standard Manhole, Type "P"	116	VF	\$685	\$79,000
Subtotal				\$79,000
Miscellaneous				
BOL Connection	1	LS	\$5,000	\$5,000
Seeding	21,000	SY	\$0.60	\$13,000
Traffic Control	1	LS	\$5,000	\$5,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$33,000
Construction Cost Subtotal				\$1,034,000
Contingencies			15%	\$155,000
TOTAL CONSTRUCTION COST				\$1,189,000

ADDITIONAL PROJECT COSTS

Right-of-Way Costs				
Permanent Easement	151,120	SF	\$0.50	\$76,000
Temporary Construction Easement	226,680	SF	\$0.10	\$23,000
Subtotal				\$99,000
Engineering, Legal, and Administrative Costs			20%	\$258,000
TOTAL PROJECT COST				\$1,546,000

Oak Creek Trunk Sewer (Yellow-2 and Orange-1)

<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
			\$	\$
GENERAL REQUIREMENTS				
Mobilization	1	LS	\$24,000	\$24,000
Supervision	1	LS	\$47,000	\$47,000
Equipment Rental & Misc.	1	LS	\$6,000	\$6,000
Total - General Requirements				\$77,000
<u>DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Sewer Pipe in Place Excluding Manholes				
36" Sewer Pipe	6,316	LF	\$180	\$1,137,000
Subtotal				\$1,137,000
Manholes				
Standard Manhole, Type "G"	212	VF	\$750	\$159,000
Subtotal				\$159,000
Miscellaneous				
BOL Connection	1	LS	\$5,000	\$5,000
EOL Connection	1	LS	\$5,000	\$5,000
Seeding	35,000	SY	\$0.60	\$21,000
Misc. Tree Removal & Replacement	1	LS	\$30,000	\$30,000
Traffic Control	1	LS	\$10,000	\$10,000
Removal and Replace Asphalt Pavement	1,500	SY	\$30	\$45,000
Over Excavation and Trench Stabilization/Foundation Material	0	Tons	\$30	\$0
Electric or Telephone Utilities Not Shown	200	LF	\$20	\$4,000
Water Utilities Less Than or Equal to 4" Dia. Not Shown	100	LF	\$25	\$3,000
Storm or Sanitary Sewer Utilities Less Than 8" Dia. Not Shown	100	LF	\$25	\$3,000
Subtotal				\$126,000
Construction Cost Subtotal				\$1,499,000
Contingencies			15%	\$225,000
TOTAL CONSTRUCTION COST				\$1,724,000
ADDITIONAL PROJECT COSTS				
Right-of-Way Costs				
Permanent Easement	252,640	SF	\$0.00	\$0
Temporary Construction Easement	378,960	SF	\$0.00	\$0
Subtotal				\$0
Engineering, Legal, and Administrative Costs			20%	\$345,000
TOTAL PROJECT COST				\$2,069,000