Appendix A: Fixed Cost Parameters

Pipe Trench Earthwork Costs

Description	Unit	Tabula 9/05 cost based Seattle ENR CCI Index	Recommended Costs for input into Tabula	Resource Comparisons									
							Success						
				WSDOT June/2005, $1 per center vertical plane or $0.50 per SF side	WSDOT June/2005, $5 - $10 per center vertical plane or $5.00 per SF side	WSDOT Bridge Design Manual July/2005 (10 to 20ft)	Steel Sheet Piles Per RS Means installed by sub to GC using KC Wage Rates	Slide Rail Shoring Rental System (See cost worksheet)	Port Angeles Peabody Creek Water Main 6/03	Port Angeles Fairmount Pump Station 6/04	SE Lake Sammamish 3/30/05	SE Redmond Transmission Main 5/05[1]	Samm Plateau Reg Water System 3/8/04[1]
Escalation/Location Factors		1.176							1.097	1.049			
Misc Pipeline Costs													
Mobilization	LS	10%	**10%**						10%	5%	10%	8%	10%
Trench Safety (Box)	SF	$0.59	**$0.50**	$0.50					$ 0.11	$ 0.41			
Special Shoring	SF	$9.40	**$12**		$5.00	$15.00	$24.00	$7.74					

Description	Unit	Tabula 9/05 cost based Seattle ENR CCI Index	Recommended Costs for input into Tabula	Resource Comparisons							
						Success	Success	Success	Success		
				Rinker Quote on Type 17 Material (Material Cost Only)	Cadman Quote on Type 17 Material (Material Cost Only)	Trench Excavation using KC Wage Rates	Structural Excavation using KC Wage Rates	Backfill using KC Wage Rate	Spoils Hauling using KC Wage Rates	WSDOT June/2005 Excavation Inc Hauls	SPU 2002 Unit Cost Report (Exc incls Haul)
											1.110
Earthwork											
Excavation	CY	$11.76	**$12**			$6.00	$15.00			$12-$25	$23.87
Imported Backfill	CY	$29.39	**$32**	$22.20	$26.83			$32.51			$22.20
Place Native Backfill	CY	$5.88	**$8**					$8.00			
Spoil Load & Haul (No disposal fee)	CY	$11.76	**$12**						$10-$14		

Pipe Trench Unit Costs

Description	Unit	Tabula 9/05 cost based Seattle ENR CCI Index	Recommended Costs for input into Tabula	Resource Comparisons									
				ICON 8/31/05	Wilder 8/31/05	WSDOT June/2005[2]	Samm Plateau Reg Water System 3/8/04[1]	Emerson Ave Water Pipe 8/04	Port Angeles Fairmount Pump Station 6/04	Port Angeles Peabody Creek Water Main 6/03	SE Lake Sammamish 3/30/05	Sawcutting KC Wage Rates	SPU 2002 Unit Cost Report
Escalation/Location Factors		1.176					1.061	1.048	1.049	1.097			1.110
Paving Costs													
ACP per TN cost	TN			$105.00	$75.00	$100.00		$152.13	$113.32	$76.81			$122.11
Asphalt Paving (Trench) - 6" Patch	SY		$36	$35.70	$25.50	$34.00	$31.82	$51.72	$38.53	$26.12	$39.15		$41.52
Asphalt Paving (Beyond Trench) - 2" Overlay	SY		$12	$12.60	$9.00	$12.00	$8.49	$18.26			$8.00		$14.65
Sawcutting	LF		$3									$3.00	$3.33
Pavement Removal (Under 1000 SY)	SY		$12			$10-$15							$16.65
Pavement Removal (Over 1000 SY)	SY					$7.00							$11.10
Planning of Pavement (Under 1000 SY)	SY		$10			$10.00							$16.65
Planning of Pavement (Over 1000 SY)	SY					$6.00							$5.00

Composite Paving Costs

				ACP Paving	ACP Removal of Exisiting	Sawcutting 2 sides
Asphalt Paving (Trench)	SY	$58.78	**$55**	$36.00	$12.00	$6.00

				ACP Paving	Planning	Pavement Striping
Asphalt Paving (Beyond Trench)	SY	$23.51	**$25**	$12.00	$10.00	$2.00

1 Patching was for 2" depth. Multiply by 3 to attain 3" depth
2 WSDOT Pavement Removal includes Sawcutting

Date:	09/01/2005
Item:	Slide Rail Trench Shoring
Description:	3 bays, 16' long, 24' high
Vendor:	United Rentals
Contact:	Brian Darlinghouse
Phone #:	206-767-3121
1st Month Rental:	$32,900.00
Additional Months:	$27,900.00

Assume 1 mo rental for 24' deep trench, 100' long

Total SF Area 24' deep x 100' long x 2 sides	4800	/sf
$/SF	$6.85	/sf

Per discussion with B. Dalinghouse United Rentals system usually is manned by a separate 4 man crew.
It takes 2 hours to leapfrog each bay from back to front.

Hourly Crew Rate	$339.66	
Two Hours to move bay	2	
Total install cost	$679.32	
SF of single bay	768	SF
Install cost per SF	$0.88	/SF
Total cost for slide rail system	$7.74	/SF