

Technical Memorandum

To:	Mark Witsman, PE Town of McCordsville	Project:	Town of McCordsville, Indiana; Mount Comfort Road CSX Railroad Crossing- Preliminary Planning Services
From:	Kenneth Leo Dombroski, PE Brian McNamara	cc:	
Date:	13 August 2021	Job No.:	6183.0
Subject:	Cost Evaluation of the Dual Underpass		

1.0 Dual Underpass Cost Evaluation

1.1 Summary of Costs

Project costs are defined in the following categories: capital construction, anticipated professional fees, operation and maintenance, and property acquisition.

1.1.1 Opinion of Probable Construction Cost

Capital construction cost are determined through an Opinion of Probable Construction Cost (OPCC). An OPCC has been prepared for the dual underpass alternative. The OPCC is based on the 10% LGT drawings. The total project cost considers direct and indirect costs plus an owner contingency. Direct costs were primarily estimated using bottom-up pricing using detailed quantity take-offs, material unit costs, equipment and labor costs, and production rates for structures. Indirect costs, including Contractor's overhead and profit, were estimated based upon the duration of activities and the estimate of direct costs. The AACE International recommended practices indicate that Class 4 is the appropriate estimate class for designs at only a 10% maturity level. Therefore, a 35% contingency was applied to each estimate. The likely cost of the project is estimated to be \$57,839,000, which is detailed in **Exhibit A**.

Key Assumptions for Preparing the OPCC

- Maintenance of Traffic costs covers the installation of barricades and detour signing when Mt Comfort Rd is closed to construct the new road at the intersections at Broadway and CR800N. The cost includes maintaining these MOT devices during the closure.
- The Utility Relocation includes a cost of \$500k that is meant to cover any secondary impacts that might arise during construction.
- A lump sum direct cost of \$500,000 for each phase of roadway construction was included for Streetscape and Aesthetic Features that includes street lighting, architectural finishes, decorative fencing, and plantings.
- For any demolition of existing structures that is required, a cost of \$25k/Structure was assumed.

- Costs associated with CSX Flagging and Geotechnical Monitoring services of \$2,000/shift and \$1,300/day respectively was assumed.

1.1.2 Calculation of Fees for Professional Services

At this point of project development, it is appropriate to estimate the necessary professional fees based on a percent of construction. When using this approach, it is customary that projects with smaller capital construction costs use higher percentages to determine design engineering fees. In the case of fees for construction administration and construction inspection, INDOT recommends using 12.5% of the construction cost. The anticipated fees for design engineering are \$5,205,510 (9% of OPCC) and the estimated fees for construction administration and inspection are \$7,229,875 (12.5% of OPCC).

1.1.3 Operation and Maintenance Costs

As part of the quantitative analysis, the consultant team estimated the operation and maintenance (O&M) costs associated with each alternative. The key assumptions include the following:

1. Only O&M tasks beyond those currently employed by the Town for the existing condition were evaluated. For example, annual painting of pavement makings was ignored because it is a best management practice the Town is already performing and would not be an additional cost regardless of the alternative.
2. The service life for the dual underpass is 50 years.
3. A significant rehabilitation or improvement will occur in year 25.
4. All costs are presented in present day value so that they can be included in the total project costs associated with each alternative.

The O&M costs associated with the dual underpass are shown below in **Table 1-1-3**. It should be noted that the underpass will be serving as a buried structure and have less exposure to the elements.

Table 1-1-3: Operation and Maintenance Cost Based on 50-year Service Life

Operation and Maintenance Cost Based on 50 Year Service Life			
Description	Quantity	Unit Price	Present- Day Value of O&M Cost
Dual Underpass			
Catch Basin Cleaning	50	\$ 14,600.00	\$ 730,000.00
Pump Replacement at Year 20	3	\$ 6,000.00	\$ 18,000.00
Annual Usage Stormwater Pump Station	50	\$ 3,718.08	\$ 185,904.00
Annual Usage Sanitary Sewer Pump Station	50	\$ 1,859.04	\$ 92,952.00
Annual Underpass Inspection	50	\$ 10,270.00	\$ 513,500.00
Structural Rehab at Year 25	2	\$ 200,000.00	\$ 400,000.00
Total			\$ 1,940,356.00

1.1.4 Property Acquisition Costs

The Hancock County Geographic Information System (GIS) was used to obtain information required for the acquisition of property related to the dual underpass alternative. Property boundary surveys were not performed as part of the preliminary planning services. In addition to land acquisition estimates from the Hancock County GIS, the Town provided the consultant team with records pertaining to right-of-way acquisition for the most recent project on Mt. Comfort Road at W. Broadway Road. The cost to acquire property for this recent project was \$610,000 per acre. Since this is the best information available, the Town and the consultant team agreed to apply this price for any land acquisition required for each alternative.

Property Acquisition for the Underpass Alternative

Figure 1-1-4 shows the dual underpass alternative impacting eleven parcels and requires a total of 9.45 acres. The specific right-of-way acquisition and corresponding costs associated with each impacted parcel are summarized in **Table 1-1-4**.

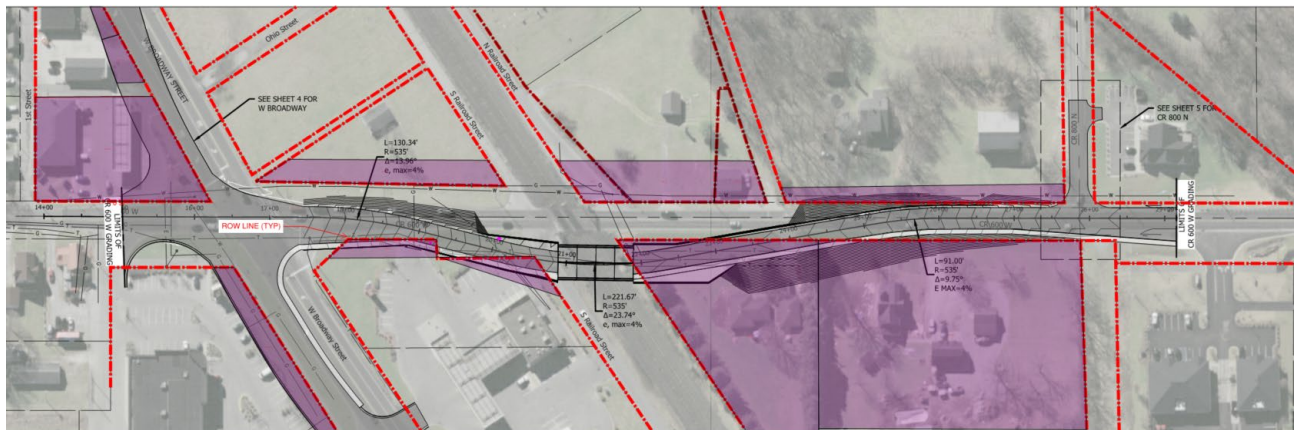


Figure 1-1-4: Property Impacts for the Dual Underpass Alternative

Table 1-1-4: Property Acquisition Required for Dual Underpass Alternative

Underpass Land Acquisition				
Parcel ID	Address	Acres	REQ'D R/W Acquisition	Factored R/W Acquisition Cost **
30-01-25-200-001.000-018	7955 N 600 W	6.01	6.01	\$ 3,666,100.00
30-01-25-200-004.000-018	7919 N 600 W	1.77	1.77	\$ 1,079,700.00
30-01-25-200-007.001-018	5981 W Broadway	1.81	0.26	\$ 158,600.00
30-01-25-202-001.000-018	5964 W Broadway	2.76	0.13	\$ 79,300.00
30-01-26-102-001.000-018	6025 W Broadway	0.61	0.61	\$ 372,100.00
30-01-26-102-002.000-018	6045 W Broadway	0.21	0.04	\$ 24,400.00
30-01-26-102-001.001-018	6061 W Broadway	0.15	0.02	\$ 12,200.00
30-01-26-101-009.000-018	7836 N 600 W	0.65	0.2	\$ 122,000.00
30-01-26-100-002.000-018	7904 N 600 W	1.45	0.16	\$ 97,600.00
30-01-26-100-001.003-018	7916 N 600 W	0.19	0.07	\$ 42,700.00
30-01-26-100-006.002-018	7946 N 600 W	35.99	0.18	\$ 109,800.00
Total			9.45	\$ 5,764,500.00

**Factored Right-of-way acquisition costs are adjusted based on the town of McCordsville's recent market experience and knowledge. Recent right of way was acquired at approximately \$610,000 per acre.

1.1.5 Summary of Project Costs for Dual Underpass Option

Table 1-1-5a shows the total project cost comparison for the dual underpass alternative.

Table 1-1-5a: Comparison of Total Project Costs for Dual Underpass Alternative

	DUAL UNDERPASS
CONSTRUCTION	\$57,839,000
DESIGN ENGINEERING	\$5,205,510
CONSTRUCTION INSPECTION	\$7,229,875
O&M COSTS	\$1,940,356
PROPERTY ACQUISITION	\$5,764,500
PROJECT TOTAL:	\$77,979,241

At first glance, the overall project cost for the dual underpass alternative appears to be unattainable from a financial perspective. This is due primarily to the capital construction cost. However, if the Town succeeds in acquiring federal assistance for the project, federal funds will likely cover all the construction cost. For the initial project implementation, the Town will be responsible for design engineering, construction inspection, and property acquisition. *Table 1-1-5b* illustrates the summary of costs for the dual underpass based on the anticipated participation share on a federal project.

Table 1-1-5b: Summary of Town's Participation Costs on Federal Funded Project

	DUAL UNDERPASS
DESIGN ENGINEERING	\$5,205,510
CONSTRUCTION INSPECTION	\$7,229,875
PROPERTY ACQUISITION	\$5,764,500
TOWN FINANCIAL PARTICIPATION:	\$18,199,885

The key takeaway from this table is that if federal funds can cover the capital construction, the Town's share for an underpass is more attainable.

Exhibit A: Opinion of Probable Construction Cost

McMILLEN JACOBS ASSOCIATES

Project	Client	Job No.	Estimator	Rev	Computed on
Mt Comfort Road	Town of McCordsville, IN	6183.0	RLR/BM	0	7/23/2021
Dual Underpass Construction - 10% Estimate					11:02 AM

OPINION OF PROBABLE UNESCALATED CONSTRUCTION BID INCLUDING OWNER CONTINGENCY

No.	Item or Group Item Description	Group Item Cost	Item Quantity/Unit	Item Unit Cost	Status	Item Cost
001	Geotechnical Instrumentation		LS			\$610,000
	Geotechnical Instrumentation	\$610,000				
002	Maintenance of Traffic		LS			\$148,016
	Maintenance of Traffic	\$148,016				
003	Utility Relocation		LS			\$2,000,000
	Utility Relocation	\$2,000,000				
004	Mt Comfort Road - Mobilization / Site Setup		LS			\$53,940
	Mt Comfort Road - Mobilization / Site Setup	\$53,940				
005	Mt Comfort Road - Install Temp Dividing Wall		LS			\$804,266
	Mt Comfort Road - Temporary Wall	\$804,266				
006	Mt Comfort Road - Exc & Support NB Jacking Pit		LS			\$1,065,933
007	Mt Comfort Road - Pour NB Jacking Slab		370 cy	\$827 /cy		\$306,110
	Mt Comfort Road - NB Jacking / Casting Pit	\$1,372,043				
008	Mt Comfort Road - Jet Grout Headwall		148 cy	\$1,610 /cy		\$238,303
009	Mt Comfort Rd- Exc & Support NB Receiving Pit		LS			\$1,065,933
010	Mt Comfort Road - Pour NB Mud Mat Receiving Pit		185 cy	\$216 /cy		\$39,940
	Mt Comfort Road - NB Receiving Pit	\$1,344,176				
011	Mt Comfort Road - Cast NB Culvert #1		561 cy	\$1,135 /cy		\$636,675
012	Mt Comfort Road - Cast NB Culvert #2		561 cy	\$1,135 /cy		\$636,675
	Mt Comfort Road - Cast NB Culvert Sections	\$1,273,349				
013	Mt Comfort Road - Install Shield		LS			\$205,510
014	Mt Comfort Road - Install Jacking System		LS			\$219,814
015	Mt Comfort Road - Excavate NB Culvert #1		50 ft	\$16,543 /ft		\$827,148
016	Mt Comfort Road - Position NB Culvert #2		LS			\$118,910
017	Mt Comfort Road - Excavate NB Culvert #2		50 ft	\$16,543 /ft		\$827,148
018	Mt Comfort Road - Remove Jacks & Shield		LS			\$329,901
	Mt Comfort Road - NB Culvert Installation	\$2,528,431				
019	Mt Comfort Road - Excavate & Support NB Wall 2		LS			\$1,365,108
020	Mt Comfort Road - Excavate & Support NB Wall 1		LS			\$715,871
	Mt Comfort Road - Excav & Support NB	\$2,080,979				
021	Mt Comfort Road - Final Wall Facing NB Wall 2		LS			\$619,777
022	Mt Comfort Road - Final Wall Facing NB Wall 1		LS			\$504,627
	Mt Comfort Road - Final Wall Facing NB	\$1,124,403				
023	Mt Comfort Road - Exc & Support SB Jacking Pit		LS			\$1,065,933
024	Mt Comfort Road - Pour SB Jacking Slab		370 cy	\$827 /cy		\$306,110
	Mt Comfort Road - SB Jacking / Casting Pit	\$1,372,043				
025	Mt Comfort Road - Jet Grout Headwall		148 cy	\$1,610 /cy		\$238,303
026	Mt Comfort Rd- Exc & Support SB Receiving Pit		LS			\$1,065,933
027	Mt Comfort Road - Pour SB Mud Mat Receiving Pit		185 cy	\$216 /cy		\$39,940
	Mt Comfort Road - SB Receiving Pit	\$1,344,176				
028	Mt Comfort Road - Cast SB Culvert #1		566 cy	\$1,173 /cy		\$663,345
029	Mt Comfort Road - Cast SB Culvert #2		566 cy	\$1,172 /cy		\$663,453
	Mt Comfort Road - Cast SB Culvert Sections	\$1,326,798				
030	Mt Comfort Road - Install Shield		LS			\$203,270
031	Mt Comfort Road - Install Jacking System		LS			\$219,814
032	Mt Comfort Road - Excavate SB Culvert #1		56 ft	\$17,304 /ft		\$969,049
033	Mt Comfort Road - Position SB Culvert #2		LS			\$118,910
034	Mt Comfort Road - Excavate SB Culvert #2		56 ft	\$17,304 /ft		\$969,049
035	Mt Comfort Road - Remove Jacks & Shield		LS			\$329,901
	Mt Comfort Road - SB Culvert Installation	\$2,809,993				
036	Mt Comfort Road - Excavate & Support SB Wall 2		LS			\$1,165,918
037	Mt Comfort Road - Excavate & Support SB Wall 1		LS			\$494,197
	Mt Comfort Road - Excav & Support SB	\$1,660,116				
038	Mt Comfort Road - Final Wall Facing SB Wall 2		LS			\$672,595
039	Mt Comfort Road - Final Wall Facing SB Wall 1		LS			\$499,187
	Mt Comfort Road - Final Wall Facing SB	\$1,171,782				
040	Mt Comfort Rd - NB Roadway Construction		LS			\$2,930,000
041	Mt Comfort Rd - Broadway Int. Roadway		LS			\$1,860,000
042	Mt Comfort Rd - SB Roadway Construction		LS			\$1,715,000
	Mt Comfort Rd - Roadway Construction	\$6,505,000				

043 Mt Comfort Rd - Install Pump Station	LS		\$990,000
Mt Comfort Rd - Pump Station		\$990,000	
			Subtotal Direct Cost
			\$30,519,512
044 Equipment Ownership not in Direct Cost		0.1% directs	\$35,000
045 General Mobilization	1.0 mo	1.0% unesc.bid	\$440,938
046 Demobilization/Punchlist	1.0 mo	0.2% unesc.bid	\$96,838
047 General Plant Operation/Maintenance	39.0 mo	\$3,038 /mo	\$118,490
048 Field Supervision	41.0 mo	\$132,730 /mo	\$5,441,915
049 Overhead Maintenance/Service	41.0 mo	\$9,254 /mo	\$379,424
050 Bonds, Insurance, and Taxes not in General Mobilization		2.1% unesc.bid	\$885,399
051 Contractor Markup		10.9% of cost	\$4,228,029
052 Financing Charges		0.6% unesc.bid	\$240,385
053 Contractor Contingency		1.1% unesc.bid	\$457,793
			Subtotal Indirect Cost
			\$12,324,210
054 Escalation-excluded from estimate	\$4,207,519 (9.8% unescalated bid)		-
Jun 2023 NTP: 41 mo project duration		Unescalated Construction Bid	\$42,843,722
055 Owner Contingency		35.0% unesc.bid	\$14,995,300
Opinion of Probable Unescalated Construction Bid including Owner Contingency			\$57,839,022

Table of Contents:

Estimate Notes p2; Schedule p3; Direct Detail p5; Indirect Detail p29; Escalation Detail p32; Contingency Detail p32; Resource Rate and Usage Detail p33; Estimate Metrics p37

McMILLEN JACOBS ASSOCIATES

Project Mt Comfort Road Dual Underpass Construction - 10% Estimate	Client Town of McCordsville, IN	Job No. 6183.0	Estimator RLR/BM	Rev 0	Computed on 7/23/2021 11:02 AM
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DIRECT COST DETAIL

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
001	Geotechnical Instrumentation	1 LS		240 days	240 work days
	manhours	Labor	Equipment	Material	Subcontract
	0	\$0	\$0	\$0	\$610,000
	Status (Additive)	Work schedule		Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift

	Install & monitor geotechnical instrumentation				
	Days Working Under Tracks				
	60 days	2 shifts/day	120 shifts		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor
S	geos	Geotechnical Instr sub			
		CSX Geotech Monitoring			
				\$120,000 /LS	1.00 LS
					\$120,000
S	csxgm	CSX Geotech Monitoring	120.0 sh	\$2,000 /sh	120.0 sh
S	ains	Automated instrumentation		\$250,000 /ls	1.00 LS
					\$240,000
					\$250,000

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
002	Maintenance of Traffic	1 LS		14 days	14 work days
	manhours	Labor	Equipment	Material	Subcontract
	448	\$23,572	\$0	\$33,444	\$91,000
	Status (Additive)	Work schedule		Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift

	This item it meant to provide budget over the course of the project to set up and take down MOT as needed				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor
M	sts	Small tools and supplies		\$3.00 /mhr	448.0 mhr
					\$1,344
		MOT Crew - Setup MOT			
L	lfm	Labor FM		\$54.65 /mhr	112.0 mhr
L	lab	General Labor (Grp 1)		\$51.94 /mhr	224.0 mhr
L	flag	Flagman (Grp 1)		\$51.94 /mhr	112.0 mhr
					\$5,817
		MOT Signage / Message Boards, Cones			
M	mot	Maintenace of traffic mat'l		\$16,050 /LS	2.00 LS
					\$32,100
		CSX Flagging Services			
S	csxfl	CSX Flagging	70.00 day	\$1,300 /day	70.00 day
					\$91,000

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
003	Utility Relocation	1 LS		50 days	50 work days
	manhours	Labor	Equipment	Material	Subcontract
	0	\$0	\$0	\$0	\$2,000,000
	Status (Additive)	Work schedule		Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift

	Relocate existing utilities				
	Relocate 20" watermain				
	3000 ft	30 ft/day	50 days	2 crews	
	Total Duration				
		50 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor
		Utility Relocation Subcontractor			
		For Secondary Impacts			
S	util	Utility relocation		\$500,000 /LS	1.00 LS
					\$500,000
		20" Watermain Relocation Subcontractor			
S	20wm	Relocate 20" Water Main	3000 lf	\$500 /lf	3000 lf
					\$1,500,000

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
004	Mt Comfort Road - Mobilization / Site Setup	1 LS		5 days	5 work days
	manhours	Labor	Equipment	Material	Subcontract
	440	\$31,553	\$10,367	\$12,020	\$0
	Status (Additive)	Work schedule		Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift

	Mobilize & setup laydown areas				
	5 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor
M	sts	Small tools and supplies		\$3.00 /mhr	440.0 mhr
					\$1,320
		Site Crew			
L	lfm	Labor FM		\$54.65 /mhr	40.00 mhr
L	lab	General Labor (Grp 1)		\$51.94 /mhr	120.0 mhr
E	lp6	Light Plant/Genset, 6kW, 4/1000W		\$8.51 /hr	120.0 hr
					\$2,186
					\$6,233
					\$1,021

L	eo3+	Excavator >3.5cy (Grp 8)		\$64.06 /mhr	40.00 mhr	\$2,562
E	he330	SK330LC Exc 77.8/2.1cy		\$151 /hr	40.00 hr	\$6,041
L	flag	Flagman (Grp 1)		\$51.94 /mhr	40.00 mhr	\$2,078
E	cp12	Compressor, trailer 1200cfm		\$77.25 /hr	40.00 hr	\$3,090
E	g10	Generator, trailer 10.0kW		\$5.37 /hr	40.00 hr	\$215
L	comp	Compressorman (Grp 5)		\$64.06 /mhr	40.00 mhr	\$2,562
L	efm	Electrician FM		\$114 /mhr	40.00 mhr	\$4,560
L	ejm	Electrician JM	2	\$111 /mhr	80.00 mhr	\$8,903
L	mw	HD Mech/Welder (Grp 1)		\$61.73 /mhr	40.00 mhr	\$2,469
<i>Silt Fence / Fencing / Aggregate Base</i>						
M	xmisc	Miscellaneous material	10.00 lot	\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit	Production rate		Other fixed time	Total time	
005	Mt Comfort Road - Install Temp Dividing Wall		1 LS			21 days	21 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		712	\$37,921	\$24,209	\$2,136	\$740,000	\$804,266	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)		8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
	Temp wall construction between NB & SB roads (cost includes demolition)							
	Mobilize & set up					2 days		
	Install wall with steel		16000 sf	1000 sf/day	16 days			
	Demo Wall		1000 lf	200 lf/day	5 days			
	Total Duration					21 days		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	712.0 mhr	\$2,136
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	168.0 mhr	\$9,181
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	336.0 mhr	\$17,452
L	flag	Flagman (Grp 1)				\$51.94 /mhr	168.0 mhr	\$8,726
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	168.0 hr	\$12,978
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	504.0 hr	\$4,288
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	168.0 hr	\$902
		Wall Subcontractor						
S	twm	SOE sub mob	1.00 LS			\$100,000 /LS	1.00 LS	\$100,000
S	tws	SOE wall w/ steel	16000 sf			\$40.00 /sf	16000 sf	\$640,000
		Demo Crew						
L	eo3+	Excavator >3.5cy (Grp 8)	5.00 day	8.00 mhr/day		\$64.06 /mhr	40.00 mhr	\$2,562
E	he330	SK330LC Exc 77.8/2.1cy	5.00 day	8.00 hr/day		\$151 /hr	40.00 hr	\$6,041

No.	Item Description		Item Quantity/Unit	Production rate		Other fixed time	Total time	
006	Mt Comfort Road - Exc & Support NB Jacking Pit		1 LS			48 days	48 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		7,120	\$427,634	\$284,907	\$50,047	\$303,345	\$1,065,933	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
	Soil nail & shotcrete installation - Two crews NB & SB				2 crews			
	Excavation per level		1445 bcy	250 cy/day	6			
	Install soil nails per level		18 ea	4 ea/dy	5			
	Shotcrete per level		19 cy	2 cy/hr	1			
	Number of levels		4 ea					
	Total duration				48 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$406,337	\$21,297
M	sts	Small tools and supplies				\$3.00 /mhr	7120 mhr	\$21,360
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	960.0 mhr	\$49,863
L	flag	Flagman (Grp 1)				\$51.94 /mhr	480.0 mhr	\$24,931
L	c45-	Crane oper. <45t (Grp 9)		2		\$64.06 /mhr	960.0 mhr	\$61,494
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	480.0 mhr	\$30,747
E	hc40	Hydraulic Crane 40ton/105'		2		\$86.76 /hr	960.0 hr	\$83,290
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	480.0 hr	\$15,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	480.0 hr	\$37,081
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	480.0 hr	\$2,577
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	480.0 mhr	\$30,747
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	1440 hr	\$12,251
S	muck	Muck disposal	8667 lcy			\$35.00 /lcy	8667 lcy	\$303,345
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231

L	lab	General Labor (Grp 1)	20.00 day	10.00 mhr/day	6	\$51.94 /mhr	1200 mhr	\$62,328
L	drill	Drill operator (Grp 6)	20.00 day	10.00 mhr/day	2	\$64.06 /mhr	400.0 mhr	\$25,622
E	at	Air track 12' feed			2	\$36.95 /hr	960.0 hr	\$35,468
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	960.0 hr	\$16,305
E	gp	Grout Plant, skid	20.00 day	10.00 hr/day	2	\$16.84 /hr	400.0 hr	\$6,734
M	sn	Soil nials	72.00 ea			\$219 /ea	72.00 ea	\$15,768
M	cs	Cement - sack	72.00 ea			\$14.98 /ea	72.00 ea	\$1,079
Excavation Crew								
L	lab	General Labor (Grp 1)	24.00 day	10.00 mhr/day	2	\$51.94 /mhr	480.0 mhr	\$24,931
L	eo3+	Excavator >3.5cy (Grp 8)	24.00 day	10.00 mhr/day	2	\$64.06 /mhr	480.0 mhr	\$30,747
E	he330	SK330LC Exc 77.8/2.1cy	24.00 day	10.00 hr/day	2	\$151 /hr	480.0 hr	\$72,493
Shotcrete Crew								
L	lab	General Labor (Grp 1)	4.00 day	10.00 mhr/day	6	\$51.94 /mhr	240.0 mhr	\$12,466
E	sp2	Shotcrete pot Aliva, 2cy/hr	4.00 day	10.00 hr/day	2	\$38.48 /hr	80.00 hr	\$3,079
M	shcrt	Shotcrete	74.00 cy			\$160 /cy	74.00 cy	\$11,840

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
007	Mt Comfort Road - Pour NB Jacking Slab		370 cy		10 days	10 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		2,100	\$130,972	\$54,158	\$120,979	\$0	\$306,110	
		5.676	\$353.98	\$146.37	\$326.97	\$0.00	\$827.32	
		Status (Additive)	Work schedule		Other ST pay	Other OT pay		
	1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
		Install reinforcement	44400 lb	150 lb/mhr	50 mhr/day	6 days		
		Install jacking support beams				3 days		
		Pour concrete	370 cy			1 days		
		Total duration				10 days		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$124,450	\$6,523
M	sts	Small tools and supplies				\$3.00 /mhr	2100 mhr	\$6,300
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	100.0 mhr	\$5,465
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	200.0 mhr	\$10,388
L	flag	Flagman (Grp 1)				\$51.94 /mhr	100.0 mhr	\$5,194
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	200.0 mhr	\$12,811
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	100.0 mhr	\$6,406
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	200.0 hr	\$17,352
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	100.0 hr	\$3,256
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	100.0 hr	\$7,725
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	100.0 hr	\$537
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	100.0 mhr	\$6,406
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	300.0 hr	\$2,552
		Slab Crew						
L	lfm	Labor FM				\$54.65 /mhr	100.0 mhr	\$5,465
L	lab	General Labor (Grp 1)			6	\$51.94 /mhr	600.0 mhr	\$31,164
L	ifm	Ironworker FM			1	\$72.12 /mhr	100.0 mhr	\$7,212
L	ijm	Ironworker JM			4	\$69.42 /mhr	400.0 mhr	\$27,766
M	c4	Concrete, 4000psi mix				\$129 /cy	370.0 cy	\$47,545
M	xr	Reinforcing steel mat'l	44400 lb			\$0.10 /lb	44400 lb	\$4,440
M	rp	Reinforcing steel, plain	44400 lb			\$0.49 /lb	44400 lb	\$21,756
M	stl12	Steel shapes	57600 lb			\$0.64 /lb	57600 lb	\$36,979
L	conc	Concrete equip.oper. (Grp 2)				\$61.73 /mhr	100.0 mhr	\$6,173
E	cb130	Conc. Pump, truck 130cy/hr				\$189 /hr	100.0 hr	\$18,898
E	vib2	Conc. vibrator, internal, 1.75"			2	\$19.19 /hr	200.0 hr	\$3,838
M	xc	Concrete consumables				\$10.70 /cy	370.0 cy	\$3,959

No.	Item Description			Item Quantity/Unit	Production rate	Other fixed time	Total time		
008	Mt Comfort Road - Jet Grout Headwall			148 cy		6 days	6 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost		
		360	\$21,380	\$18,854	\$1,080	\$196,990	\$238,303		
		2.432	\$144.46	\$127.39	\$7.30	\$1,331.01	\$1,610.16		
	Status (Additive)			Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
	Jet grout headwall at receiving end of jacked box structure								
	Mobilize & setup jet grout operation					3 days			
			148 cy	200 cy/day	1 days				
	Demobilize					2 days			
	Total duration					6 days			
R/T	Code	Resource Description		Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost

L	lp	Labor premium		5.241%	\$20,315	\$1,065
M	sts	Small tools and supplies		\$3.00 /mhr	360.0 mhr	\$1,080
<i>Support Crew</i>						
L	lfm	Labor FM		\$54.65 /mhr	60.00 mhr	\$3,279
L	lab	General Labor (Grp 1)	2	\$51.94 /mhr	120.0 mhr	\$6,233
L	flag	Flagman (Grp 1)		\$51.94 /mhr	60.00 mhr	\$3,116
L	lo4+	Loader oper. >4cy (Grp 10)		\$64.06 /mhr	60.00 mhr	\$3,843
E	hc40	Hydraulic Crane 40ton/105'	2	\$86.76 /hr	120.0 hr	\$10,411
E	l914	Wheel Loader Cat 914/1.7cy		\$32.56 /hr	60.00 hr	\$1,954
E	cp12	Compressor, trailer 1200cfm		\$77.25 /hr	60.00 hr	\$4,635
E	g10	Generator, trailer 10.0kW		\$5.37 /hr	60.00 hr	\$322
L	comp	Compressorman (Grp 5)		\$64.06 /mhr	60.00 mhr	\$3,843
E	lp6	Light Plant/Genset, 6kW, 4/1000W	3	\$8.51 /hr	180.0 hr	\$1,531
S	muck	Muck disposal		\$35.00 /lcy	74.00 lcy	\$2,590
<i>Jet Grout Subcontractor</i>						
S	jgm	Jet Grouting Mob		\$150,000 /LS	1.00 LS	\$150,000
S	jg	Jet Grouting		\$300 /cy	148.0 cy	\$44,400

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
009	Mt Comfort Rd- Exc & Support NB Receiving Pit		1 LS		48 days	48 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	7,120	\$427,634	\$284,907	\$50,047	\$303,345	\$1,065,933		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift		
	Soil nail & shotcrete installation - Two crews NB & SB			2 crews				
	Excavation per level		1445 bcy	250 cy/day	6			
	Install soil nails per level		18 ea	4 ea/dy	5			
	Shotcrete per level		19 cy	2 cy/hr	1			
	Number of levels		4 ea					
	Total duration				48 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$406,337	\$21,297
M	sts	Small tools and supplies				\$3.00 /mhr	7120 mhr	\$21,360
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	960.0 mhr	\$49,863
L	flag	Flagman (Grp 1)				\$51.94 /mhr	480.0 mhr	\$24,931
L	c45-	Crane oper. <45t (Grp 9)		2		\$64.06 /mhr	960.0 mhr	\$61,494
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	480.0 mhr	\$30,747
E	hc40	Hydraulic Crane 40ton/105'		2		\$86.76 /hr	960.0 hr	\$83,290
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	480.0 hr	\$15,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	480.0 hr	\$37,081
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	480.0 hr	\$2,577
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	480.0 mhr	\$30,747
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	1440 hr	\$12,251
S	muck	Muck disposal	8667 lcy			\$35.00 /lcy	8667 lcy	\$303,345
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)	20.00 day	10.00 mhr/day	6	\$51.94 /mhr	1200 mhr	\$62,328
L	drill	Drill operator (Grp 6)	20.00 day	10.00 mhr/day	2	\$64.06 /mhr	400.0 mhr	\$25,622
E	at	Air track 12' feed			2	\$36.95 /hr	960.0 hr	\$35,468
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	960.0 hr	\$16,305
E	gp	Grout Plant, skid	20.00 day	10.00 hr/day	2	\$16.84 /hr	400.0 hr	\$6,734
M	sn	Soil nials	72.00 ea			\$219 /ea	72.00 ea	\$15,768
M	cs	Cement - sack	72.00 ea			\$14.98 /ea	72.00 ea	\$1,079
		Excavation Crew						
L	lab	General Labor (Grp 1)	24.00 day	10.00 mhr/day	2	\$51.94 /mhr	480.0 mhr	\$24,931
L	eo3+	Excavator >3.5cy (Grp 8)	24.00 day	10.00 mhr/day	2	\$64.06 /mhr	480.0 mhr	\$30,747
E	he330	SK330LC Exc 77.8/2.1cy	24.00 day	10.00 hr/day	2	\$151 /hr	480.0 hr	\$72,493
		Shotcrete Crew						
L	lab	General Labor (Grp 1)	4.00 day	10.00 mhr/day	6	\$51.94 /mhr	240.0 mhr	\$12,466
E	sp2	Shotcrete pot Aliva, 2cy/hr	4.00 day	10.00 hr/day	2	\$38.48 /hr	80.00 hr	\$3,079
M	shcrt	Shotcrete	74.00 cy			\$160 /cy	74.00 cy	\$11,840

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
010	Mt Comfort Road - Pour NB Mud Mat Receiving Pit		185 cy		1 day	1 work day		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	160	\$9,416	\$5,032	\$25,492	\$0	\$39,940		
	0.865	\$50.90	\$27.20	\$137.79	\$0.00	\$215.89		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift		
	Pour concrete		185 cy	1 days				
	Total duration			1 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$8,947	\$469
M	sts	Small tools and supplies				\$3.00 /mhr	160.0 mhr	\$480
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	10.00 mhr	\$546
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	20.00 mhr	\$1,039
L	flag	Flagman (Grp 1)				\$51.94 /mhr	10.00 mhr	\$519
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	20.00 mhr	\$1,281
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	10.00 mhr	\$641
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	20.00 hr	\$1,735
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	10.00 hr	\$326
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	10.00 hr	\$773
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	10.00 hr	\$54
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	10.00 mhr	\$641
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	30.00 hr	\$255
		Slab Crew						
L	lfm	Labor FM				\$54.65 /mhr	10.00 mhr	\$546
L	lab	General Labor (Grp 1)			6	\$51.94 /mhr	60.00 mhr	\$3,116
M	c3	Concrete, 3000psi mix				\$125 /cy	185.0 cy	\$23,033
L	conc	Concrete equip.oper. (Grp 2)				\$61.73 /mhr	10.00 mhr	\$617
E	cb130	Conc. Pump, truck 130cy/hr				\$189 /hr	10.00 hr	\$1,890
M	xc	Concrete consumables				\$10.70 /cy	185.0 cy	\$1,980

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time	Total time	
011	Mt Comfort Road - Cast NB Culvert #1		561 cy			21 days	21 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		5,080	\$351,775	\$97,344	\$187,556	\$0	\$636,675	
		9.055	\$627.05	\$173.52	\$334.32	\$0.00	\$1,134.89	
		Status (Additive)		Work schedule		Other ST pay	Other OT pay	
	1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
		Set / strip slab forms	480 sf	16 sf/mhr	70 mhr/day	2 days		
		Set / strip wall forms	4200 sf	16 sf/mhr	70 mhr/day	4 days		
		Set / strip roof forms	2626 sf	8 sf/mhr	70 mhr/day	5 days		
		Install reinforcement	##### lb	150 lb/mhr	80 mhr/day	6 days		
	Concrete pours	4.00 ea	1 ea/day		4.00 days			
	Total duration				21 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$334,256	\$17,519
M	sts	Small tools and supplies				\$3.00 /mhr	5080 mhr	\$15,240
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	210.0 mhr	\$11,476
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	420.0 mhr	\$21,815
L	flag	Flagman (Grp 1)				\$51.94 /mhr	210.0 mhr	\$10,907
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	210.0 mhr	\$13,452
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	210.0 mhr	\$13,452
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	210.0 hr	\$18,220
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	210.0 hr	\$6,837
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	210.0 hr	\$16,223
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	210.0 hr	\$1,127
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	210.0 mhr	\$13,452
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	630.0 hr	\$5,360
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	210.0 hr	\$2,253
E	wtp	Water Treatment Plant				\$99.42 /hr	210.0 hr	\$20,877
		Structure Crew						
L	lfm	Labor FM				\$54.65 /mhr	210.0 mhr	\$11,476
L	lab	General Labor (Grp 1)				\$51.94 /mhr	210.0 mhr	\$10,907
L	cfm	Carpenter FM			1	\$75.56 /mhr	210.0 mhr	\$15,868
L	cjm	Carpenter JM			6	\$72.85 /mhr	1260 mhr	\$91,795
L	ifm	Ironworker FM			1	\$72.12 /mhr	210.0 mhr	\$15,146
L	ijm	Ironworker JM			7	\$69.42 /mhr	1470 mhr	\$102,042

L	conc	Concrete equip.oper. (Grp 2)	4.00 day	10.00 mhr/day		\$61.73 /mhr	40.00 mhr	\$2,469
E	cb130	Conc. Pump, truck 130cy/hr	4.00 day	10.00 hr/day		\$189 /hr	40.00 hr	\$7,559
E	vib	Concrete vibrators			6	\$9.33 /hr	1260 hr	\$11,753
M	lumb	Lumber for lagging/forms	7306 sf	1.50 bf/sf		\$2.35 /bf	10959 bf	\$25,797
M	ply1	Plywood MDO 1"	7306 sf			\$2.46 /sf	7306 sf	\$17,980
M	ff	Form fasteners	7306 sf			\$0.32 /sf	7306 sf	\$2,345
M	foil	Form oil	7306 sf			\$0.16 /sf	7306 sf	\$1,173
M	cure	Curing compound	7306 sf			\$0.02 /sf	7306 sf	\$156
M	xf	Misc form supplies	7306 sf			\$0.43 /sf	7306 sf	\$3,127
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	420.0 hr	\$7,134
M	c5	Concrete, 5000psi mix				\$136 /cy	561.0 cy	\$76,016
M	xc	Concrete consumables				\$10.70 /cy	561.0 cy	\$6,003
M	rp	Reinforcing steel, plain	67320 lb			\$0.49 /lb	67320 lb	\$32,987
M	xr	Reinforcing steel mat'l	67320 lb			\$0.10 /lb	67320 lb	\$6,732

No.	Item Description		Item Quantity/Unit		Production rate		Other fixed time		Total time	
012	Mt Comfort Road - Cast NB Culvert #2		561 cy				21 days		21 work days	
			manhours	Labor	Equipment	Material	Subcontract	Item Cost		
			5,080	\$351,775	\$97,344	\$187,556	\$0	\$636,675		
			9.055	\$627.05	\$173.52	\$334.32	\$0.00	\$1,134.89		
Status (Additive)			Work schedule			Other ST pay		Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift		0 hr/shift		
	Set / strip slab forms		480 sf	16 sf/mhr	70 mhr/day	2 days				
	Set / strip wall forms		4200 sf	16 sf/mhr	70 mhr/day	4 days				
	Set / strip roof forms		2626 sf	8 sf/mhr	70 mhr/day	5 days				
	Install reinforcement		67320 lb	150 lb/mhr	80 mhr/day	6 days				
	Concrete pours		4 ea	1 ea/day		4 days				
	Total duration					21 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost		
L	lp	Labor premium				5.241%	\$334,256	\$17,519		
M	sts	Small tools and supplies				\$3.00 /mhr	5080 mhr	\$15,240		
Support Crew										
L	lfm	Labor FM				\$54.65 /mhr	210.0 mhr	\$11,476		
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	420.0 mhr	\$21,815		
L	flag	Flagman (Grp 1)				\$51.94 /mhr	210.0 mhr	\$10,907		
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	210.0 mhr	\$13,452		
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	210.0 mhr	\$13,452		
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	210.0 hr	\$18,220		
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	210.0 hr	\$6,837		
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	210.0 hr	\$16,223		
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	210.0 hr	\$1,127		
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	210.0 mhr	\$13,452		
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	630.0 hr	\$5,360		
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	210.0 hr	\$2,253		
E	wtp	Water Treatment Plant				\$99.42 /hr	210.0 hr	\$20,877		
Structure Crew										
L	lfm	Labor FM				\$54.65 /mhr	210.0 mhr	\$11,476		
L	lab	General Labor (Grp 1)				\$51.94 /mhr	210.0 mhr	\$10,907		
L	cfm	Carpenter FM			1	\$75.56 /mhr	210.0 mhr	\$15,868		
L	cjm	Carpenter JM			6	\$72.85 /mhr	1260 mhr	\$91,795		
L	ifm	Ironworker FM			1	\$72.12 /mhr	210.0 mhr	\$15,146		
L	ijm	Ironworker JM			7	\$69.42 /mhr	1470 mhr	\$102,042		
L	conc	Concrete equip.oper. (Grp 2)	4.00 day	10.00 mhr/day		\$61.73 /mhr	40.00 mhr	\$2,469		
E	cb130	Conc. Pump, truck 130cy/hr	4.00 day	10.00 hr/day		\$189 /hr	40.00 hr	\$7,559		
E	vib	Concrete vibrators			6	\$9.33 /hr	1260 hr	\$11,753		
M	lumb	Lumber for lagging/forms	7306 sf	1.50 bf/sf		\$2.35 /bf	10959 bf	\$25,797		
M	ply1	Plywood MDO 1"	7306 sf			\$2.46 /sf	7306 sf	\$17,980		
M	ff	Form fasteners	7306 sf			\$0.32 /sf	7306 sf	\$2,345		
M	foil	Form oil	7306 sf			\$0.16 /sf	7306 sf	\$1,173		
M	cure	Curing compound	7306 sf			\$0.02 /sf	7306 sf	\$156		
M	xf	Misc form supplies	7306 sf			\$0.43 /sf	7306 sf	\$3,127		
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	420.0 hr	\$7,134		
M	c5	Concrete, 5000psi mix				\$136 /cy	561.0 cy	\$76,016		
M	xc	Concrete consumables				\$10.70 /cy	561.0 cy	\$6,003		
M	rp	Reinforcing steel, plain	67320 lb			\$0.49 /lb	67320 lb	\$32,987		
M	xr	Reinforcing steel mat'l	67320 lb			\$0.10 /lb	67320 lb	\$6,732		

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
013	Mt Comfort Road - Install Shield		1.00 LS		3 days	3 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	420	\$25,277	\$178,973	\$1,260	\$0	\$205,510		
	Status (Additive)	Work schedule		Other ST pay	Other OT pay			
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
	Install shield & steering jacks		3 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$24,018	\$1,259
M	sts	Small tools and supplies				\$3.00 /mhr	420.0 mhr	\$1,260
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	60.00 mhr	\$3,116
L	flag	Flagman (Grp 1)				\$51.94 /mhr	30.00 mhr	\$1,558
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	30.00 mhr	\$1,922
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	30.00 mhr	\$1,922
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	30.00 hr	\$2,603
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	30.00 hr	\$977
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	30.00 hr	\$2,318
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	30.00 hr	\$161
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	30.00 mhr	\$1,922
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	90.00 hr	\$766
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	30.00 hr	\$322
E	wtp	Water Treatment Plant				\$99.42 /hr	30.00 hr	\$2,982
		Shield / Jacking Crew						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)		3		\$51.94 /mhr	90.00 mhr	\$4,675
L	c100+	Crane oper. >100t (Grp 11)				\$64.06 /mhr	30.00 mhr	\$1,922
L	mw	HD Mech/Welder (Grp 1)		2		\$61.73 /mhr	60.00 mhr	\$3,704
E	ml30	Man-Lift 30' articulated boom		2		\$16.98 /hr	60.00 hr	\$1,019
E	we4	Welder 400A, trailer E		2		\$52.93 /hr	60.00 hr	\$3,176
E	cssj	Cutting shield steering jacks				\$646 /hr	30.00 hr	\$19,390
E	tc150	Truck Crane 150ton/260'				\$4,842 /hr	30.00 hr	\$145,260

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
014	Mt Comfort Road - Install Jacking System		1 LS		3 days	3 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	450	\$28,791	\$178,973	\$12,050	\$0	\$219,814		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0 hr/shift		
	Assemble & setup jacking system		3 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$27,357	\$1,434
M	sts	Small tools and supplies				\$3.00 /mhr	450.0 mhr	\$1,350
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	60.00 mhr	\$3,116
L	flag	Flagman (Grp 1)				\$51.94 /mhr	30.00 mhr	\$1,558
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	30.00 mhr	\$1,922
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	30.00 mhr	\$1,922
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	30.00 hr	\$2,603
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	30.00 hr	\$977
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	30.00 hr	\$2,318
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	30.00 hr	\$161
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	30.00 mhr	\$1,922
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	90.00 hr	\$766
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	30.00 hr	\$322
E	wtp	Water Treatment Plant				\$99.42 /hr	30.00 hr	\$2,982
		Jacking System Crew						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)		3		\$51.94 /mhr	90.00 mhr	\$4,675
L	c100+	Crane oper. >100t (Grp 11)				\$64.06 /mhr	30.00 mhr	\$1,922
L	mw	HD Mech/Welder (Grp 1)		2		\$61.73 /mhr	60.00 mhr	\$3,704
L	ejm	Electrician JM				\$111 /mhr	30.00 mhr	\$3,339
E	ml30	Man-Lift 30' articulated boom		2		\$16.98 /hr	60.00 hr	\$1,019
E	we4	Welder 400A, trailer E		200%		\$52.93 /hr	60.00 hr	\$3,176
E	cssj	Cutting shield steering jacks				\$646 /hr	30.00 hr	\$19,390
E	tc150	Truck Crane 150ton/260'				\$4,842 /hr	30.00 hr	\$145,260
M	xmisc	Miscellaneous material	10.00 lot			\$1.070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time	Total time	
015	Mt Comfort Road - Excavate NB Culvert #1		50 ft			10 days	10 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		4,080	\$295,650	\$394,528	\$22,940	\$114,030	\$827,148	
		81.600	\$5,913.00	\$7,890.57	\$458.80	\$2,280.60	\$16,542.96	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)		8 hr/shift		3 shift/day	7 day/week	0.5 hr/shift	0 hr/shift
	Excavate culvert		2172 cy		171 cy/day	10 days		
	Jack culvert		50 ft		5 ft/day			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				18.183%	\$250,162	\$45,487
M	sts	Small tools and supplies				\$3.00 /mhr	4080 mhr	\$12,240
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	240.0 mhr	\$13,115
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	480.0 mhr	\$24,931
L	flag	Flagman (Grp 1)				\$51.94 /mhr	240.0 mhr	\$12,466
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	240.0 mhr	\$15,373
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	240.0 mhr	\$15,373
L	ejm	Electrician JM				\$111 /mhr	240.0 mhr	\$26,709
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	240.0 hr	\$20,823
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	240.0 hr	\$7,814
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	240.0 hr	\$18,541
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	240.0 hr	\$1,288
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	240.0 mhr	\$15,373
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	720.0 hr	\$6,126
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	240.0 hr	\$2,575
S	muck	Muck disposal	3258 lcy			\$35.00 /lcy	3258 lcy	\$114,030
		Excavation & Jacking Crew						
L	lfm	Labor FM				\$54.65 /mhr	240.0 mhr	\$13,115
L	lab	General Labor (Grp 1)			3	\$51.94 /mhr	720.0 mhr	\$37,397
L	ofm	Operating Engineer				\$64.06 /mhr	240.0 mhr	\$15,373
L	eo3-	Excavator <3.5cy (Grp 5)			2	\$64.06 /mhr	480.0 mhr	\$30,747
L	lo4-	Loader oper. <4cy (Grp 5)				\$64.06 /mhr	240.0 mhr	\$15,373
L	mw	HD Mech/Welder (Grp 1)				\$61.73 /mhr	240.0 mhr	\$14,815
E	he320	320 Excavator 43.8k/1.5cy				\$188 /hr	240.0 hr	\$45,197
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	240.0 hr	\$7,814
E	cssj	Cutting shield steering jacks				\$646 /hr	240.0 hr	\$155,116
E	tjack	Thrust jack & frame				\$439 /hr	240.0 hr	\$105,375
M	xmisc	Miscellaneous material	10.00 lot			\$1,070 /lot	10.00 lot	\$10,700
E	wtp	Water Treatment Plant				\$99.42 /hr	240.0 hr	\$23,860

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
016	Mt Comfort Road - Position NB Culvert #2		1 LS		2 days	2 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	672	\$43,240	\$68,304	\$7,366	\$0	\$118,910		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
	1.000	Schedule factor (Normal)	8 hr/shift	3 shift/day	5 day/week	0.5 hr/shift	0 hr/shift	
	Position & prepare culvert for jacking		2 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				6.250%	\$40,697	\$2,544
M	sts	Small tools and supplies				\$3.00 /mhr	672.0 mhr	\$2,016
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	48.00 mhr	\$2,623
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	96.00 mhr	\$4,986
L	flag	Flagman (Grp 1)				\$51.94 /mhr	48.00 mhr	\$2,493
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	48.00 mhr	\$3,075
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	48.00 mhr	\$3,075
L	ejm	Electrician JM				\$111 /mhr	48.00 mhr	\$5,342
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	48.00 hr	\$4,165
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	48.00 hr	\$1,563
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	48.00 hr	\$3,708
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	48.00 hr	\$258
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	48.00 mhr	\$3,075
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	144.0 hr	\$1,225
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	48.00 hr	\$515
E	wtp	Water Treatment Plant				\$99.42 /hr	48.00 hr	\$4,772
		Culvert Crew						
L	lfm	Labor FM				\$54.65 /mhr	48.00 mhr	\$2,623
L	lab	General Labor (Grp 1)			3	\$51.94 /mhr	144.0 mhr	\$7,479

L	mw	HD Mech/Welder (Grp 1)		2	\$61.73 /mhr	96.00 mhr	\$5,926
E	cssj	Cutting shield steering jacks			\$646 /hr	48.00 hr	\$31,023
E	tjack	Thrust jack & frame			\$439 /hr	48.00 hr	\$21,075
M	xmisc	Miscellaneous material	5.00 lot		\$1,070 /lot	5.00 lot	\$5,350

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
017	Mt Comfort Road - Excavate NB Culvert #2		50 ft		10 days	10 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		4,080	\$295,650	\$394,528	\$22,940	\$114,030	\$827,148	
		81.600	\$5,913.00	\$7,890.57	\$458.80	\$2,280.60	\$16,542.96	
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		8 hr/shift	3 shift/day	7 day/week	0.5 hr/shift	0 hr/shift	
	Excavate culvert		2172 cy	171 cy/day	10 days			
	Jack culvert		50 ft	5 ft/day				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				18.183%	\$250,162	\$45,487
M	sts	Small tools and supplies				\$3.00 /mhr	4080 mhr	\$12,240
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	240.0 mhr	\$13,115
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	480.0 mhr	\$24,931
L	flag	Flagman (Grp 1)				\$51.94 /mhr	240.0 mhr	\$12,466
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	240.0 mhr	\$15,373
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	240.0 mhr	\$15,373
L	ejm	Electrician JM				\$111 /mhr	240.0 mhr	\$26,709
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	240.0 hr	\$20,823
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	240.0 hr	\$7,814
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	240.0 hr	\$18,541
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	240.0 hr	\$1,288
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	240.0 mhr	\$15,373
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	720.0 hr	\$6,126
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	240.0 hr	\$2,575
S	muck	Muck disposal	3258 lcy			\$35.00 /lcy	3258 lcy	\$114,030
		Excavation & Jacking Crew						
L	lfm	Labor FM				\$54.65 /mhr	240.0 mhr	\$13,115
L	lab	General Labor (Grp 1)		3		\$51.94 /mhr	720.0 mhr	\$37,397
L	ofm	Operating Engineer				\$64.06 /mhr	240.0 mhr	\$15,373
L	eo3-	Excavator <3.5cy (Grp 5)		2		\$64.06 /mhr	480.0 mhr	\$30,747
L	lo4-	Loader oper. <4cy (Grp 5)				\$64.06 /mhr	240.0 mhr	\$15,373
L	mw	HD Mech/Welder (Grp 1)				\$61.73 /mhr	240.0 mhr	\$14,815
E	he320	320 Excavator 43.8k/1.5cy				\$188 /hr	240.0 hr	\$45,197
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	240.0 hr	\$7,814
E	cssj	Cutting shield steering jacks				\$646 /hr	240.0 hr	\$155,116
E	tjack	Thrust jack & frame				\$439 /hr	240.0 hr	\$105,375
M	xmisc	Miscellaneous material	10.00 lot			\$1,070 /lot	10.00 lot	\$10,700
E	wtp	Water Treatment Plant				\$99.42 /hr	240.0 hr	\$23,860

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
018	Mt Comfort Road - Remove Jacks & Shield		1.00 LS		5 days	5 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	850	\$57,326	\$270,025	\$2,550	\$0	\$329,901		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		10 hr/shift	1 shift/day	5 day/week	0.5 hr/shift		
	Remove jacks & shields		5 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				10.241%	\$52,001	\$5,326
M	sts	Small tools and supplies				\$3.00 /mhr	850.0 mhr	\$2,550
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	50.00 mhr	\$2,732
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	100.0 mhr	\$5,194
L	flag	Flagman (Grp 1)				\$51.94 /mhr	50.00 mhr	\$2,597
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	50.00 mhr	\$3,203
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	50.00 mhr	\$3,203
L	ejm	Electrician JM				\$111 /mhr	50.00 mhr	\$5,564
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	50.00 hr	\$4,338
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	50.00 hr	\$1,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	50.00 hr	\$3,863
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	50.00 hr	\$268
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	50.00 mhr	\$3,203
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	150.0 hr	\$1,276

E	p205	Pump, trash 205gpm/100ft head		\$10.73 /hr	50.00 hr	\$536
E	wtp	Water Treatment Plant		\$99.42 /hr	50.00 hr	\$4,971
Removal Crew						
L	lfm	Labor FM		\$54.65 /mhr	50.00 mhr	\$2,732
L	lab	General Labor (Grp 1)	3	\$51.94 /mhr	150.0 mhr	\$7,791
L	mw	HD Mech/Welder (Grp 1)	2	\$61.73 /mhr	100.0 mhr	\$6,173
L	c100+	Crane oper. >100t (Grp 11)		\$64.06 /mhr	50.00 mhr	\$3,203
L	eo3-	Excavator <3.5cy (Grp 5)		\$64.06 /mhr	50.00 mhr	\$3,203
L	lo4-	Loader oper. <4cy (Grp 5)		\$64.06 /mhr	50.00 mhr	\$3,203
E	he320	320 Excavator 43.8k/1.5cy		\$188 /hr	50.00 hr	\$9,416
E	l914	Wheel Loader Cat 914/1.7cy		\$32.56 /hr	50.00 hr	\$1,628
E	tc150	Truck Crane 150ton/260'		\$4,842 /hr	50.00 hr	\$242,101

No.	Item Description		Item Quantity/Unit	Production rate		Other fixed time	Total time	
019	Mt Comfort Road - Excavate & Support NB Wall 2		1 LS			60 days	60 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		7,248	\$412,210	\$273,410	\$85,870	\$593,618	\$1,365,108	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift	
	Soil nail & shotcrete installation - Two crews NB & SB				2 crews			
	Excavation per level		3769 bcy	500 cy/day	8 days			
	Install soil nails per level		68 ea	4 ea/dy	9 days	2 crews		
	Shotcrete per level		34 cy	2 cy/hr	3 days			
	Number of levels		3 ea					
	Total duration				60 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	7248 mhr	\$21,744
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	960.0 mhr	\$49,863
L	flag	Flagman (Grp 1)				\$51.94 /mhr	480.0 mhr	\$24,931
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	960.0 mhr	\$61,494
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	480.0 mhr	\$30,747
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	960.0 hr	\$83,290
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	480.0 hr	\$15,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	480.0 hr	\$37,081
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	480.0 hr	\$2,577
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	480.0 mhr	\$30,747
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	1440 hr	\$12,251
S	muck	Muck disposal	16961 lcy			\$35.00 /lcy	16961 lcy	\$593,618
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)	27.00 day	8.00 mhr/day	6	\$51.94 /mhr	1296 mhr	\$67,315
L	drill	Drill operator (Grp 6)	27.00 day	8.00 mhr/day	2	\$64.06 /mhr	432.0 mhr	\$27,672
E	at	Air track 12' feed			2	\$36.95 /hr	960.0 hr	\$35,468
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	960.0 hr	\$16,305
E	gp	Grout Plant, skid	27.00 day	8.00 hr/day	2	\$16.84 /hr	432.0 hr	\$7,273
M	sn	Soil nials	205.0 ea			\$219 /ea	205.0 ea	\$44,895
M	cs	Cement - sack	205.0 ea			\$14.98 /ea	205.0 ea	\$3,071
		Excavation Crew						
L	lab	General Labor (Grp 1)	24.00 day	8.00 mhr/day	200%	\$51.94 /mhr	384.0 mhr	\$19,945
L	eo3+	Excavator >3.5cy (Grp 8)	24.00 day	8.00 mhr/day	2	\$64.06 /mhr	384.0 mhr	\$24,597
E	he330	SK330LC Exc 77.8/2.1cy	24.00 day	8.00 hr/day	2	\$151 /hr	384.0 hr	\$57,994
		Shotcrete Crew						
L	lab	General Labor (Grp 1)	9.00 day	8.00 mhr/day	6	\$51.94 /mhr	432.0 mhr	\$22,438
E	sp2	Shotcrete pot Aliva, 2cy/hr	9.00 day	8.00 hr/day	2	\$38.48 /hr	144.0 hr	\$5,541
M	shcrt	Shotcrete	101.0 cy			\$160 /cy	101.0 cy	\$16,160

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
020	Mt Comfort Road - Excavate & Support NB Wall 1		1.00 LS		33 days	33 work days		
		manhours	Labor	Equipment	Material	Subcontract		
		4,008	\$227,634	\$148,163	\$45,392	\$294,683		
						\$715,871		
		Status (Additive)	Work schedule		Other ST pay	Other OT pay		
1.000		Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift		
		Soil nail & shotcrete installation - Two crews NB & SB				2 crews		
		Excavation per level	1871 bcy	500 cy/day	4 days			
		Install soil nails per level	35 ea	4 ea/dy	5 days	2 crews		
		Shotcrete per level	18 cy	2 cy/hr	2 days			
		Number of levels	3 ea					
		Total duration			33 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	4008 mhr	\$12,024
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	264.0 mhr	\$14,427
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	528.0 mhr	\$27,424
L	flag	Flagman (Grp 1)				\$51.94 /mhr	264.0 mhr	\$13,712
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	528.0 mhr	\$33,822
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	264.0 mhr	\$16,911
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	528.0 hr	\$45,810
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	264.0 hr	\$8,596
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	264.0 hr	\$20,395
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	264.0 hr	\$1,417
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	264.0 mhr	\$16,911
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	792.0 hr	\$6,738
S	muck	Muck disposal	8420 lcy			\$35.00 /lcy	8420 lcy	\$294,683
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	264.0 mhr	\$14,427
L	lab	General Labor (Grp 1)	15.00 day	8.00 mhr/day	6	\$51.94 /mhr	720.0 mhr	\$37,397
L	drill	Drill operator (Grp 6)	15.00 day	8.00 mhr/day	2	\$64.06 /mhr	240.0 mhr	\$15,373
E	at	Air track 12' feed			2	\$36.95 /hr	528.0 hr	\$19,507
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	528.0 hr	\$8,968
E	gp	Grout Plant, skid	15.00 day	8.00 hr/day	2	\$16.84 /hr	240.0 hr	\$4,041
M	sn	Soil nials	105.0 ea			\$219 /ea	105.0 ea	\$22,995
M	cs	Cement - sack	105.0 ea			\$14.98 /ea	105.0 ea	\$1,573
		Excavation Crew						
L	lab	General Labor (Grp 1)	12.00 day	8.00 mhr/day	200%	\$51.94 /mhr	192.0 mhr	\$9,973
L	eo3+	Excavator >3.5cy (Grp 8)	12.00 day	8.00 mhr/day	2	\$64.06 /mhr	192.0 mhr	\$12,299
E	he330	SK330LC Exc 77.8/2.1cy	12.00 day	8.00 hr/day	2	\$151 /hr	192.0 hr	\$28,997
		Shotcrete Crew						
L	lab	General Labor (Grp 1)	6.00 day	8.00 mhr/day	6	\$51.94 /mhr	288.0 mhr	\$14,959
E	sp2	Shotcrete pot Aliva, 2cy/hr	6.00 day	8.00 hr/day	2	\$38.48 /hr	96.00 hr	\$3,694
M	shcrt	Shotcrete	55.00 cy			\$160 /cy	55.00 cy	\$8,800

No.	Item Description		Item Quantity/Unit		Production rate		Other fixed time		Total time	
021	Mt Comfort Road - Final Wall Facing NB Wall 2		1 LS				24 days		24 work days	
		manhours	Labor	Equipment		Material		Subcontract		Item Cost
		4,992	\$329,848	\$99,285		\$190,644		\$0		\$619,777
		Status (Additive)		Work schedule				Other ST pay		Other OT pay
	1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day		5 day/week		0 hr/shift		0 hr/shift
		Final wall facing								
		Install reinforcement	20880 lb	150 lb/mhr		56 mhr/day		3		
		Set / strip wall forms	11250 sf	16 sf/mhr		72 mhr/day		10		
		Concrete pours	6 ea	1 ea/day				6		
		Place aggregate base	1350 ton					2		
		Slope stability						3		
		Total duration						24		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost		Resource Quantity		Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr		4992 mhr		\$14,976
		Support Crew								
L	lfm	Labor FM				\$54.65 /mhr		192.0 mhr		\$10,492
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr		384.0 mhr		\$19,945
L	flag	Flagman (Grp 1)				\$51.94 /mhr		192.0 mhr		\$9,973
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr		192.0 mhr		\$12,299
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr		192.0 mhr		\$12,299
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr		192.0 hr		\$16,658
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr		192.0 hr		\$6,251
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr		192.0 hr		\$14,833

E	g10	Generator, trailer 10.0kW			\$5.37 /hr	192.0 hr	\$1,031
L	comp	Compressorman (Grp 5)			\$64.06 /mhr	192.0 mhr	\$12,299
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3	\$8.51 /hr	576.0 hr	\$4,901
E	p205	Pump, trash 205gpm/100ft head			\$10.73 /hr	192.0 hr	\$2,060
<i>Structure Crew</i>							
L	lfm	Labor FM			\$54.65 /mhr	192.0 mhr	\$10,492
L	lab	General Labor (Grp 1)			\$51.94 /mhr	192.0 mhr	\$9,973
L	cfm	Carpenter FM		1	\$75.56 /mhr	192.0 mhr	\$14,508
L	cjm	Carpenter JM		8	\$72.85 /mhr	1536 mhr	\$111,903
L	ifm	Ironworker FM		1	\$72.12 /mhr	192.0 mhr	\$13,848
L	ijm	Ironworker JM		6	\$69.42 /mhr	1152 mhr	\$79,967
L	conc	Concrete equip.oper. (Grp 2)			\$61.73 /mhr	192.0 mhr	\$11,852
E	cb130	Conc. Pump, truck 130cy/hr			\$189 /hr	192.0 hr	\$36,284
E	vib	Concrete vibrators		600%	\$9.33 /hr	1152 hr	\$10,746
M	lumb	Lumber for lagging/forms	11250 sf	1.50 bf/sf	\$2.35 /bf	16875 bf	\$39,724
M	ply1	Plywood MDO 1"	11250 sf		\$2.46 /sf	11250 sf	\$27,686
M	ff	Form fasteners	11250 sf		\$0.32 /sf	11250 sf	\$3,611
M	foil	Form oil	11250 sf		\$0.16 /sf	11250 sf	\$1,806
M	cure	Curing compound	11250 sf		\$0.02 /sf	11250 sf	\$241
M	xf	Misc form supplies	11250 sf		\$0.43 /sf	11250 sf	\$4,815
M	rp	Reinforcing steel, plain	20880 lb		\$0.49 /lb	20880 lb	\$10,231
E	ml30	Man-Lift 30' articulated boom		2	\$16.98 /hr	384.0 hr	\$6,522
M	c5	Concrete, 5000psi mix	348.0 cy		\$136 /cy	348.0 cy	\$47,154
M	aggc	Coarse aggregate	1350 ton		\$22.00 /ton	1350 ton	\$29,700
<i>Slope Stability Material</i>							
M	xmisc	Miscellaneous material	10.00 lot		\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
022	Mt Comfort Road - Final Wall Facing NB Wall 1		1 LS		20 days	20 work days		
		manhours	Labor	Equipment	Material	Subcontract		
		4,160	\$274,873	\$82,738	\$147,016	\$0		
		Status (Additive)	Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		8 hr/shift	1 shift/day	5 day/week	0 hr/shift		
	Final wall facing							
	Install reinforcement		15360 lb	150 lb/mhr	56 mhr/day	2		
	Set / strip wall forms		7500 sf	16 sf/mhr	72 mhr/day	7		
	Concrete pours		6 ea	1 ea/day		6		
	Place aggregate base		1350 ton			2		
	Slope stability					3		
	Total duration					20		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	4160 mhr	\$12,480
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	160.0 mhr	\$8,744
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	320.0 mhr	\$16,621
L	flag	Flagman (Grp 1)				\$51.94 /mhr	160.0 mhr	\$8,310
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	160.0 mhr	\$10,249
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	160.0 mhr	\$10,249
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	160.0 hr	\$13,882
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	160.0 hr	\$5,209
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	160.0 hr	\$12,360
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	160.0 hr	\$859
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	160.0 mhr	\$10,249
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	480.0 hr	\$4,084
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	160.0 hr	\$1,717
		Structure Crew						
L	lfm	Labor FM				\$54.65 /mhr	160.0 mhr	\$8,744
L	lab	General Labor (Grp 1)				\$51.94 /mhr	160.0 mhr	\$8,310
L	cfm	Carpenter FM		1		\$75.56 /mhr	160.0 mhr	\$12,090
L	cjm	Carpenter JM		8		\$72.85 /mhr	1280 mhr	\$93,252
L	ifm	Ironworker FM		1		\$72.12 /mhr	160.0 mhr	\$11,540
L	ijm	Ironworker JM		6		\$69.42 /mhr	960.0 mhr	\$66,639
L	conc	Concrete equip.oper. (Grp 2)				\$61.73 /mhr	160.0 mhr	\$9,877
E	cb130	Conc. Pump, truck 130cy/hr				\$189 /hr	160.0 hr	\$30,237
E	vib	Concrete vibrators		600%		\$9.33 /hr	960.0 hr	\$8,955
M	lumb	Lumber for lagging/forms	7500 sf	1.50 bf/sf		\$2.35 /bf	11250 bf	\$26,483
M	ply1	Plywood MDO 1"	7500 sf			\$2.46 /sf	7500 sf	\$18,458
M	ff	Form fasteners	7500 sf			\$0.32 /sf	7500 sf	\$2,408
M	foil	Form oil	7500 sf			\$0.16 /sf	7500 sf	\$1,204

M	cure	Curing compound	7500 sf		\$0.02 /sf	7500 sf	\$161
M	xf	Misc form supplies	7500 sf		\$0.43 /sf	7500 sf	\$3,210
M	rp	Reinforcing steel, plain	15360 lb		\$0.49 /lb	15360 lb	\$7,526
E	ml30	Man-Lift 30' articulated boom		2	\$16.98 /hr	320.0 hr	\$5,435
M	c5	Concrete, 5000psi mix	256.0 cy		\$136 /cy	256.0 cy	\$34,688
M	aggc	Coarse aggregate	1350 ton		\$22.00 /ton	1350 ton	\$29,700
<i>Slope Stability Material</i>							
M	xmisc	Miscellaneous material	10.00 lot		\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
023	Mt Comfort Road - Exc & Support SB Jacking Pit		1 LS		48 days	48 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	7,120	\$427,634	\$284,907	\$50,047	\$303,345	\$1,065,933		
	Status (Additive)	Work schedule			Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
	Soil nail & shotcrete installation - Two crews NB & SB			2 crews				
	Excavation per level		1445 bcy	250 cy/day	6 days			
	Install soil nails per level		18 ea	4 ea/dy	5 days			
	Shotcrete per level		19 cy	2 cy/hr	1 days			
	Number of levels		4 ea					
	Total duration				48 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$406,337	\$21,297
M	sts	Small tools and supplies				\$3.00 /mhr	7120 mhr	\$21,360
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	960.0 mhr	\$49,863
L	flag	Flagman (Grp 1)				\$51.94 /mhr	480.0 mhr	\$24,931
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	960.0 mhr	\$61,494
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	480.0 mhr	\$30,747
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	960.0 hr	\$83,290
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	480.0 hr	\$15,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	480.0 hr	\$37,081
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	480.0 hr	\$2,577
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	480.0 mhr	\$30,747
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	1440 hr	\$12,251
S	muck	Muck disposal	8667 lcy			\$35.00 /lcy	8667 lcy	\$303,345
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)	20.00 day	10.00 mhr/day	6	\$51.94 /mhr	1200 mhr	\$62,328
L	drill	Drill operator (Grp 6)	20.00 day	10.00 mhr/day	2	\$64.06 /mhr	400.0 mhr	\$25,622
E	at	Air track 12' feed			2	\$36.95 /hr	960.0 hr	\$35,468
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	960.0 hr	\$16,305
E	gp	Grout Plant, skid	20.00 day	10.00 hr/day	2	\$16.84 /hr	400.0 hr	\$6,734
M	sn	Soil nials	72.00 ea			\$219 /ea	72.00 ea	\$15,768
M	cs	Cement - sack	72.00 ea			\$14.98 /ea	72.00 ea	\$1,079
		Excavation Crew						
L	lab	General Labor (Grp 1)	24.00 day	10.00 mhr/day	2	\$51.94 /mhr	480.0 mhr	\$24,931
L	eo3+	Excavator >3.5cy (Grp 8)	24.00 day	10.00 mhr/day	2	\$64.06 /mhr	480.0 mhr	\$30,747
E	he330	SK330LC Exc 77.8/2.1cy	24.00 day	10.00 hr/day	2	\$151 /hr	480.0 hr	\$72,493
		Shotcrete Crew						
L	lab	General Labor (Grp 1)	4.00 day	10.00 mhr/day	6	\$51.94 /mhr	240.0 mhr	\$12,466
E	sp2	Shotcrete pot Aliva, 2cy/hr	4.00 day	10.00 hr/day	2	\$38.48 /hr	80.00 hr	\$3,079
M	shcrt	Shotcrete	74.00 cy			\$160 /cy	74.00 cy	\$11,840

No.	Item Description		Item Quantity/Unit		Production rate		Other fixed time	Total time
024	Mt Comfort Road - Pour SB Jacking Slab		370 cy				10 days	10 work days
		manhours	Labor	Equipment		Material	Subcontract	Item Cost
		2,100	\$130,972	\$54,158		\$120,979	\$0	\$306,110
		5.676	\$353.98	\$146.37		\$326.97	\$0.00	\$827.32
		Status (Additive)	Work schedule				Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
	Install reinforcement		44400 lb	150 lb/mhr	50 mhr/day	6 days		
	Install jacking support beams					3 days		
	Pour concrete		370 cy			1 days		
	Total duration					10 days		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$124,450	\$6,523
M	sts	Small tools and supplies				\$3.00 /mhr	2100 mhr	\$6,300

Support Crew

L	lfm	Labor FM		\$54.65 /mhr	100.0 mhr	\$5,465
L	lab	General Labor (Grp 1)	2	\$51.94 /mhr	200.0 mhr	\$10,388
L	flag	Flagman (Grp 1)		\$51.94 /mhr	100.0 mhr	\$5,194
L	c45-	Crane oper. <45t (Grp 9)	2	\$64.06 /mhr	200.0 mhr	\$12,811
L	lo4+	Loader oper. >4cy (Grp 10)		\$64.06 /mhr	100.0 mhr	\$6,406
E	hc40	Hydraulic Crane 40ton/105'	2	\$86.76 /hr	200.0 hr	\$17,352
E	I914	Wheel Loader Cat 914/1.7cy		\$32.56 /hr	100.0 hr	\$3,256
E	cp12	Compressor, trailer 1200cfm		\$77.25 /hr	100.0 hr	\$7,725
E	g10	Generator, trailer 10.0kW		\$5.37 /hr	100.0 hr	\$537
L	comp	Compressorman (Grp 5)		\$64.06 /mhr	100.0 mhr	\$6,406
E	lp6	Light Plant/Genset, 6kW, 4/1000W	3	\$8.51 /hr	300.0 hr	\$2,552

Slab Crew

L	lfm	Labor FM		\$54.65 /mhr	100.0 mhr	\$5,465
L	lab	General Labor (Grp 1)	6	\$51.94 /mhr	600.0 mhr	\$31,164
L	ifm	Ironworker FM	1	\$72.12 /mhr	100.0 mhr	\$7,212
L	ijm	Ironworker JM	4	\$69.42 /mhr	400.0 mhr	\$27,766
M	c4	Concrete, 4000psi mix		\$129 /cy	370.0 cy	\$47,545
M	xr	Reinforcing steel mat'l	44400 lb	\$0.10 /lb	44400 lb	\$4,440
M	rp	Reinforcing steel, plain	44400 lb	\$0.49 /lb	44400 lb	\$21,756
M	stl12	Steel shapes	57600 lb	\$0.64 /lb	57600 lb	\$36,979
L	conc	Concrete equip.oper. (Grp 2)		\$61.73 /mhr	100.0 mhr	\$6,173
E	cb130	Conc. Pump, truck 130cy/hr		\$189 /hr	100.0 hr	\$18,898
E	vib2	Conc. vibrator, internal, 1.75"	2	\$19.19 /hr	200.0 hr	\$3,838
M	xc	Concrete consumables		\$10.70 /cy	370.0 cy	\$3,959

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time	
025	Mt Comfort Road - Jet Grout Headwall	148 cy		6 days	6 work days	
	manhours	Labor	Equipment	Material	Subcontract	Item Cost
	360	\$21,380	\$18,854	\$1,080	\$196,990	\$238,303
	2.432	\$144.46	\$127.39	\$7.30	\$1,331.01	\$1,610.16
	Status (Additive)	Work schedule		Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift

Jet grout headwall at receiving end of jacked box structure

Mobilize & setup jet grout operation

3 days

Jet grout 148 cy

200 cy/day

1 days

Demobilize

2 days

Total duration

6 days

R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$20,315	\$1,065
M	sts	Small tools and supplies				\$3.00 /mhr	360.0 mhr	\$1,080

Support Crew

L	lfm	Labor FM		\$54.65 /mhr	60.00 mhr	\$3,279
L	lab	General Labor (Grp 1)	2	\$51.94 /mhr	120.0 mhr	\$6,233
L	flag	Flagman (Grp 1)		\$51.94 /mhr	60.00 mhr	\$3,116
L	lo4+	Loader oper. >4cy (Grp 10)		\$64.06 /mhr	60.00 mhr	\$3,843
E	hc40	Hydraulic Crane 40ton/105'	2	\$86.76 /hr	120.0 hr	\$10,411
E	I914	Wheel Loader Cat 914/1.7cy		\$32.56 /hr	60.00 hr	\$1,954
E	cp12	Compressor, trailer 1200cfm		\$77.25 /hr	60.00 hr	\$4,635
E	g10	Generator, trailer 10.0kW		\$5.37 /hr	60.00 hr	\$322
L	comp	Compressorman (Grp 5)		\$64.06 /mhr	60.00 mhr	\$3,843
E	lp6	Light Plant/Genset, 6kW, 4/1000W	3	\$8.51 /hr	180.0 hr	\$1,531
S	muck	Muck disposal	74.00 lcy	\$35.00 /lcy	74.00 lcy	\$2,590

Jet Grout Subcontractor

S	jgm	Jet Grouting Mob	1.00 LS	\$150,000 /LS	1.00 LS	\$150,000
S	jg	Jet Grouting		\$300 /cy	148.0 cy	\$44,400

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time	
026	Mt Comfort Rd- Exc & Support SB Receiving Pit	1 LS		48 days	48 work days	
	manhours	Labor	Equipment	Material	Subcontract	Item Cost
	7,120	\$427,634	\$284,907	\$50,047	\$303,345	\$1,065,933
	Status (Additive)	Work schedule		Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift

Soil nail & shotcrete installation - Two crews NB & SB

2 crews

Excavation per level

1445 bcy

250 cy/day

Install soil nails per level

18 ea

4 ea/day

Shotcrete per level

19 cy

2 cy/hr

Number of levels

4 ea

Total duration

48 days

R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$406,337	\$21,297
M	sts	Small tools and supplies				\$3.00 /mhr	7120 mhr	\$21,360
<i>Support Crew</i>								
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	960.0 mhr	\$49,863
L	flag	Flagman (Grp 1)				\$51.94 /mhr	480.0 mhr	\$24,931
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	960.0 mhr	\$61,494
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	480.0 mhr	\$30,747
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	960.0 hr	\$83,290
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	480.0 hr	\$15,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	480.0 hr	\$37,081
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	480.0 hr	\$2,577
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	480.0 mhr	\$30,747
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	1440 hr	\$12,251
S	muck	Muck disposal	8667 lcy			\$35.00 /lcy	8667 lcy	\$303,345
<i>Soil Nail Crew</i>								
L	lfm	Labor FM				\$54.65 /mhr	480.0 mhr	\$26,231
L	lab	General Labor (Grp 1)	20.00 day	10.00 mhr/day	6	\$51.94 /mhr	1200 mhr	\$62,328
L	drill	Drill operator (Grp 6)	20.00 day	10.00 mhr/day	2	\$64.06 /mhr	400.0 mhr	\$25,622
E	at	Air track 12' feed			2	\$36.95 /hr	960.0 hr	\$35,468
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	960.0 hr	\$16,305
E	gp	Grout Plant, skid	20.00 day	10.00 hr/day	2	\$16.84 /hr	400.0 hr	\$6,734
M	sn	Soil nials	72.00 ea			\$219 /ea	72.00 ea	\$15,768
M	cs	Cement - sack	72.00 ea			\$14.98 /ea	72.00 ea	\$1,079
<i>Excavation Crew</i>								
L	lab	General Labor (Grp 1)	24.00 day	10.00 mhr/day	2	\$51.94 /mhr	480.0 mhr	\$24,931
L	eo3+	Excavator >3.5cy (Grp 8)	24.00 day	10.00 mhr/day	2	\$64.06 /mhr	480.0 mhr	\$30,747
E	he330	SK330LC Exc 77.8/2.1cy	24.00 day	10.00 hr/day	2	\$151 /hr	480.0 hr	\$72,493
<i>Shotcrete Crew</i>								
L	lab	General Labor (Grp 1)	4.00 day	10.00 mhr/day	6	\$51.94 /mhr	240.0 mhr	\$12,466
E	sp2	Shotcrete pot Aliva, 2cy/hr	4.00 day	10.00 hr/day	2	\$38.48 /hr	80.00 hr	\$3,079
M	shcrt	Shotcrete	74.00 cy			\$160 /cy	74.00 cy	\$11,840

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
027	Mt Comfort Road - Pour SB Mud Mat Receiving Pit	185 cy		1 day	1 work day
	manhours	Labor	Equipment	Material	Subcontract
	160	\$9,416	\$5,032	\$25,492	\$0
	0.865	\$50.90	\$27.20	\$137.79	\$0.00
					\$215.89
	Status (Additive)	Work schedule		Other ST pay	Other OT pay
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift

	Pour concrete	185 days	1 days		
	Total duration		1 days		

R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$8,947	\$469
M	sts	Small tools and supplies				\$3.00 /mhr	160.0 mhr	\$480
<i>Support Crew</i>								
L	lfm	Labor FM				\$54.65 /mhr	10.00 mhr	\$546
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	20.00 mhr	\$1,039
L	flag	Flagman (Grp 1)				\$51.94 /mhr	10.00 mhr	\$519
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	20.00 mhr	\$1,281
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	10.00 mhr	\$641
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	20.00 hr	\$1,735
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	10.00 hr	\$326
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	10.00 hr	\$773
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	10.00 hr	\$54
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	10.00 mhr	\$641
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	30.00 hr	\$255
<i>Slab Crew</i>								
L	lfm	Labor FM				\$54.65 /mhr	10.00 mhr	\$546
L	lab	General Labor (Grp 1)			6	\$51.94 /mhr	60.00 mhr	\$3,116
M	c3	Concrete, 3000psi mix				\$125 /cy	185.0 cy	\$23,033
L	conc	Concrete equip.oper. (Grp 2)				\$61.73 /mhr	10.00 mhr	\$617
E	cb130	Conc. Pump, truck 130cy/hr				\$189 /hr	10.00 hr	\$1,890
M	xc	Concrete consumables				\$10.70 /cy	185.0 cy	\$1,980

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time	Total time	
028	Mt Comfort Road - Cast SB Culvert #1		566 cy			22 days	22 work days	
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		5,320	\$368,402	\$101,619	\$193,323	\$0	\$663,345	
		9.408	\$651.46	\$179.70	\$341.86	\$0.00	\$1,173.02	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
	1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
		Set / strip slab forms	480 sf	16 sf/mhr	70 mhr/day	2 days		
		Set / strip wall forms	4914 sf	16 sf/mhr	70 mhr/day	5 days		
		Set / strip roof forms	2500 sf	8 sf/mhr	70 mhr/day	5 days		
		Install reinforcement	67860 lb	150 lb/mhr	80 mhr/day	6 days		
		Concrete pours	4 ea	1 ea/day		4 days		
		Total duration				22 days		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$350,055	\$18,347
M	sts	Small tools and supplies				\$3.00 /mhr	5320 mhr	\$15,960
Support Crew								
L	lfm	Labor FM				\$54.65 /mhr	220.0 mhr	\$12,022
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	440.0 mhr	\$22,854
L	flag	Flagman (Grp 1)				\$51.94 /mhr	220.0 mhr	\$11,427
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	220.0 mhr	\$14,092
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	220.0 mhr	\$14,092
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	220.0 hr	\$19,087
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	220.0 hr	\$7,163
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	220.0 hr	\$16,996
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	220.0 hr	\$1,181
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	220.0 mhr	\$14,092
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	660.0 hr	\$5,615
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	220.0 hr	\$2,361
E	wtp	Water Treatment Plant				\$99.42 /hr	220.0 hr	\$21,871
Structure Crew								
L	lfm	Labor FM				\$54.65 /mhr	220.0 mhr	\$12,022
L	lab	General Labor (Grp 1)				\$51.94 /mhr	220.0 mhr	\$11,427
L	cfm	Carpenter FM			1	\$75.56 /mhr	220.0 mhr	\$16,623
L	cjm	Carpenter JM			6	\$72.85 /mhr	1320 mhr	\$96,166
L	ifm	Ironworker FM			1	\$72.12 /mhr	220.0 mhr	\$15,867
L	ijm	Ironworker JM			7	\$69.42 /mhr	1540 mhr	\$106,901
L	conc	Concrete equip.oper. (Grp 2)	4.00 day	10.00 mhr/day		\$61.73 /mhr	40.00 mhr	\$2,469
E	cb130	Conc. Pump, truck 130cy/hr	4.00 day	10.00 hr/day		\$189 /hr	40.00 hr	\$7,559
E	vib	Concrete vibrators			6	\$9.33 /hr	1320 hr	\$12,313
M	lumb	Lumber for lagging/forms	7894 sf	1.50 bf/sf		\$2.35 /bf	11841 bf	\$27,874
M	ply1	Plywood MDO 1"	7894 sf			\$2.46 /sf	7894 sf	\$19,427
M	ff	Form fasteners	7894 sf			\$0.32 /sf	7894 sf	\$2,534
M	foil	Form oil	7894 sf			\$0.16 /sf	7894 sf	\$1,267
M	cure	Curing compound	7894 sf			\$0.02 /sf	7894 sf	\$169
M	xf	Misc form supplies	7894 sf			\$0.43 /sf	7894 sf	\$3,379
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	440.0 hr	\$7,473
M	c5	Concrete, 5000psi mix				\$136 /cy	565.5 cy	\$76,625
M	xc	Concrete consumables				\$10.70 /cy	565.5 cy	\$6,051
M	rp	Reinforcing steel, plain	67860 lb			\$0.49 /lb	67860 lb	\$33,251
M	xr	Reinforcing steel mat'l	67860 lb			\$0.10 /lb	67860 lb	\$6,786

No.	Item Description		Item Quantity/Unit		Production rate		Other fixed time	Total time
029	Mt Comfort Road - Cast SB Culvert #2		566 cy				22 days	22 work days
	manhours	Labor	Equipment	Material		Subcontract	Item Cost	
	5,320	\$368,402	\$101,619	\$193,431		\$0	\$663,453	
	9.399	\$650.89	\$179.54	\$341.75		\$0.00	\$1,172.18	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift	
	Set / strip slab forms	480 sf	16 sf/mhr	70 mhr/day		2 days		
	Set / strip wall forms	4914 sf	16 sf/mhr	70 mhr/day		5 days		
	Set / strip roof forms	2500 sf	8 sf/mhr	70 mhr/day		5 days		
	Install reinforcement	67920 lb	150 lb/mhr	80 mhr/day		6 days		
	Concrete pours	4 ea	1 ea/day			4 days		
	Total duration					22 days		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$350,055	\$18,347
M	sts	Small tools and supplies				\$3.00 /mhr	5320 mhr	\$15,960
Support Crew								

L	lfm	Labor FM			\$54.65 /mhr	220.0 mhr	\$12,022
L	lab	General Labor (Grp 1)		2	\$51.94 /mhr	440.0 mhr	\$22,854
L	flag	Flagman (Grp 1)			\$51.94 /mhr	220.0 mhr	\$11,427
L	c45-	Crane oper. <45t (Grp 9)			\$64.06 /mhr	220.0 mhr	\$14,092
L	lo4+	Loader oper. >4cy (Grp 10)			\$64.06 /mhr	220.0 mhr	\$14,092
E	hc40	Hydraulic Crane 40ton/105'			\$86.76 /hr	220.0 hr	\$19,087
E	l914	Wheel Loader Cat 914/1.7cy			\$32.56 /hr	220.0 hr	\$7,163
E	cp12	Compressor, trailer 1200cfm			\$77.25 /hr	220.0 hr	\$16,996
E	g10	Generator, trailer 10.0kW			\$5.37 /hr	220.0 hr	\$1,181
L	comp	Compressorman (Grp 5)			\$64.06 /mhr	220.0 mhr	\$14,092
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3	\$8.51 /hr	660.0 hr	\$5,615
E	p205	Pump, trash 205gpm/100ft head			\$10.73 /hr	220.0 hr	\$2,361
E	wtp	Water Treatment Plant			\$99.42 /hr	220.0 hr	\$21,871

Structure Crew

L	lfm	Labor FM			\$54.65 /mhr	220.0 mhr	\$12,022
L	lab	General Labor (Grp 1)			\$51.94 /mhr	220.0 mhr	\$11,427
L	cfm	Carpenter FM		1	\$75.56 /mhr	220.0 mhr	\$16,623
L	cjm	Carpenter JM		6	\$72.85 /mhr	1320 mhr	\$96,166
L	ifm	Ironworker FM		1	\$72.12 /mhr	220.0 mhr	\$15,867
L	ijm	Ironworker JM		7	\$69.42 /mhr	1540 mhr	\$106,901
L	conc	Concrete equip.oper. (Grp 2)	4.00 day	10.00 mhr/day	\$61.73 /mhr	40.00 mhr	\$2,469
E	cb130	Conc. Pump, truck 130cy/hr	4.00 day	10.00 hr/day	\$189 /hr	40.00 hr	\$7,559
E	vib	Concrete vibrators		6	\$9.33 /hr	1320 hr	\$12,313
M	lumb	Lumber for lagging/forms	7894 sf	1.50 bf/sf	\$2.35 /bf	11841 bf	\$27,874
M	ply1	Plywood MDO 1"	7894 sf		\$2.46 /sf	7894 sf	\$19,427
M	ff	Form fasteners	7894 sf		\$0.32 /sf	7894 sf	\$2,534
M	foil	Form oil	7894 sf		\$0.16 /sf	7894 sf	\$1,267
M	cure	Curing compound	7894 sf		\$0.02 /sf	7894 sf	\$169
M	xf	Misc form supplies	7894 sf		\$0.43 /sf	7894 sf	\$3,379
E	ml30	Man-Lift 30' articulated boom		2	\$16.98 /hr	440.0 hr	\$7,473
M	c5	Concrete, 5000psi mix			\$136 /cy	566.0 cy	\$76,693
M	xc	Concrete consumables			\$10.70 /cy	566.0 cy	\$6,056
M	rp	Reinforcing steel, plain	67920 lb		\$0.49 /lb	67920 lb	\$33,281
M	xr	Reinforcing steel mat'l	67920 lb		\$0.10 /lb	67920 lb	\$6,792

No.	Item Description	Item Quantity/Unit	Production rate	Other fixed time	Total time
030	Mt Comfort Road - Install Shield	1 LS		3 days	3 work days
	manhours	Labor	Equipment	Material	Subcontract
	390	\$23,637	\$178,462	\$1,170	\$0
	Status (Additive)	Work schedule	Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0 hr/shift

	Install shield & steering jacks	3 days			
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R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$22,460	\$1,177
M	sts	Small tools and supplies				\$3.00 /mhr	390.0 mhr	\$1,170

Support Crew

L	lfm	Labor FM			\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)			\$51.94 /mhr	30.00 mhr	\$1,558
L	flag	Flagman (Grp 1)			\$51.94 /mhr	30.00 mhr	\$1,558
L	c45-	Crane oper. <45t (Grp 9)			\$64.06 /mhr	30.00 mhr	\$1,922
L	lo4+	Loader oper. >4cy (Grp 10)			\$64.06 /mhr	30.00 mhr	\$1,922
E	hc40	Hydraulic Crane 40ton/105'			\$86.76 /hr	30.00 hr	\$2,603
E	l914	Wheel Loader Cat 914/1.7cy			\$32.56 /hr	30.00 hr	\$977
E	cp12	Compressor, trailer 1200cfm			\$77.25 /hr	30.00 hr	\$2,318
E	g10	Generator, trailer 10.0kW			\$5.37 /hr	30.00 hr	\$161
L	comp	Compressorman (Grp 5)			\$64.06 /mhr	30.00 mhr	\$1,922
E	lp6	Light Plant/Genset, 6kW, 4/1000W			\$8.51 /hr	30.00 hr	\$255
E	p205	Pump, trash 205gpm/100ft head			\$10.73 /hr	30.00 hr	\$322
E	wtp	Water Treatment Plant			\$99.42 /hr	30.00 hr	\$2,982

Shield / Jacking Crew

L	lfm	Labor FM			\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)		3	\$51.94 /mhr	90.00 mhr	\$4,675
L	c100+	Crane oper. >100t (Grp 11)			\$64.06 /mhr	30.00 mhr	\$1,922
L	mw	HD Mech/Welder (Grp 1)		2	\$61.73 /mhr	60.00 mhr	\$3,704
E	ml30	Man-Lift 30' articulated boom		2	\$16.98 /hr	60.00 hr	\$1,019
E	we4	Welder 400A, trailer E		2	\$52.93 /hr	60.00 hr	\$3,176
E	cssj	Cutting shield steering jacks			\$646 /hr	30.00 hr	\$19,390
E	tc150	Truck Crane 150ton/260'			\$4,842 /hr	30.00 hr	\$145,260

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time		Total time
031	Mt Comfort Road - Install Jacking System		1 LS			3 days		3 work days
	manhours	Labor	Equipment	Material		Subcontract	Item Cost	
	450	\$28,791	\$178,973	\$12,050		\$0	\$219,814	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift	
	Assemble & setup jacking system		3 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				5.241%	\$27,357	\$1,434
M	sts	Small tools and supplies				\$3.00 /mhr	450.0 mhr	\$1,350
		<i>Support Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	60.00 mhr	\$3,116
L	flag	Flagman (Grp 1)				\$51.94 /mhr	30.00 mhr	\$1,558
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	30.00 mhr	\$1,922
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	30.00 mhr	\$1,922
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	30.00 hr	\$2,603
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	30.00 hr	\$977
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	30.00 hr	\$2,318
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	30.00 hr	\$161
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	30.00 mhr	\$1,922
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	90.00 hr	\$766
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	30.00 hr	\$322
E	wtp	Water Treatment Plant				\$99.42 /hr	30.00 hr	\$2,982
		<i>Jacking System Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	30.00 mhr	\$1,639
L	lab	General Labor (Grp 1)			3	\$51.94 /mhr	90.00 mhr	\$4,675
L	c100+	Crane oper. >100t (Grp 11)				\$64.06 /mhr	30.00 mhr	\$1,922
L	mw	HD Mech/Welder (Grp 1)			2	\$61.73 /mhr	60.00 mhr	\$3,704
L	ejm	Electrician JM				\$111 /mhr	30.00 mhr	\$3,339
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	60.00 hr	\$1,019
E	we4	Welder 400A, trailer E			200%	\$52.93 /hr	60.00 hr	\$3,176
E	cssj	Cutting shield steering jacks				\$646 /hr	30.00 hr	\$19,390
E	tc150	Truck Crane 150ton/260'				\$4,842 /hr	30.00 hr	\$145,260
M	xmisc	Miscellaneous material	10.00 lot			\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time		Total time
032	Mt Comfort Road - Excavate SB Culvert #1		56 ft			12 days		12 work days
	manhours	Labor	Equipment	Material		Subcontract	Item Cost	
	4,896	\$354,780	\$473,434	\$25,388		\$115,448	\$969,049	
	87.429	\$6,335.35	\$8,454.18	\$453.36		\$2,061.56	\$17,304.45	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	8 hr/shift	3 shift/day	7 day/week		0.5 hr/shift	0 hr/shift	
	Excavate culvert		2199 cy	171 cy/day				
	Jack culvert		56 ft	5 ft/day	12 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				18.183%	\$300,195	\$54,585
M	sts	Small tools and supplies				\$3.00 /mhr	4896 mhr	\$14,688
		<i>Support Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	288.0 mhr	\$15,738
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	576.0 mhr	\$29,918
L	flag	Flagman (Grp 1)				\$51.94 /mhr	288.0 mhr	\$14,959
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	288.0 mhr	\$18,448
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	288.0 mhr	\$18,448
L	ejm	Electrician JM				\$111 /mhr	288.0 mhr	\$32,051
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	288.0 hr	\$24,987
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	288.0 hr	\$9,377
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	288.0 hr	\$22,249
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	288.0 hr	\$1,546
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	288.0 mhr	\$18,448
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	864.0 hr	\$7,351
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	288.0 hr	\$3,090
S	muck	Muck disposal	3299 lcy			\$35.00 /lcy	3299 lcy	\$115,448
		<i>Excavation & Jacking Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	288.0 mhr	\$15,738
L	lab	General Labor (Grp 1)			3	\$51.94 /mhr	864.0 mhr	\$44,876
L	ofm	Operating Engineer				\$64.06 /mhr	288.0 mhr	\$18,448
L	eo3-	Excavator <3.5cy (Grp 5)			2	\$64.06 /mhr	576.0 mhr	\$36,896
L	lo4-	Loader oper. <4cy (Grp 5)				\$64.06 /mhr	288.0 mhr	\$18,448

L	mw	HD Mech/Welder (Grp 1)		\$61.73 /mhr	288.0 mhr	\$17,778
E	he320	320 Excavator 43.8k/1.5cy		\$188 /hr	288.0 hr	\$54,236
E	I914	Wheel Loader Cat 914/1.7cy		\$32.56 /hr	288.0 hr	\$9,377
E	cssj	Cutting shield steering jacks		\$646 /hr	288.0 hr	\$186,139
E	tjack	Thrust jack & frame		\$439 /hr	288.0 hr	\$126,450
M	xmisc	Miscellaneous material	10.00 lot	\$1,070 /lot	10.00 lot	\$10,700
E	wtp	Water Treatment Plant		\$99.42 /hr	288.0 hr	\$28,632

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
033	Mt Comfort Road - Position SB Culvert #2		1 LS		2 days	2 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		672	\$43,240	\$68,304	\$7,366	\$0	\$118,910	
		Status (Additive)	Work schedule		Other ST pay	Other OT pay		
	1.000	Schedule factor (Normal)	8 hr/shift	3 shift/day	5 day/week	0.5 hr/shift	0 hr/shift	
		Position & prepare culvert for jacking		2 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				6.250%	\$40,697	\$2,544
M	sts	Small tools and supplies				\$3.00 /mhr	672.0 mhr	\$2,016
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	48.00 mhr	\$2,623
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	96.00 mhr	\$4,986
L	flag	Flagman (Grp 1)				\$51.94 /mhr	48.00 mhr	\$2,493
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	48.00 mhr	\$3,075
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	48.00 mhr	\$3,075
L	ejm	Electrician JM				\$111 /mhr	48.00 mhr	\$5,342
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	48.00 hr	\$4,165
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	48.00 hr	\$1,563
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	48.00 hr	\$3,708
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	48.00 hr	\$258
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	48.00 mhr	\$3,075
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	144.0 hr	\$1,225
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	48.00 hr	\$515
E	wtp	Water Treatment Plant				\$99.42 /hr	48.00 hr	\$4,772
		Culvert Crew						
L	lfm	Labor FM				\$54.65 /mhr	48.00 mhr	\$2,623
L	lab	General Labor (Grp 1)			3	\$51.94 /mhr	144.0 mhr	\$7,479
L	mw	HD Mech/Welder (Grp 1)			2	\$61.73 /mhr	96.00 mhr	\$5,926
E	cssj	Cutting shield steering jacks				\$646 /hr	48.00 hr	\$31,023
E	tjack	Thrust jack & frame				\$439 /hr	48.00 hr	\$21,075
M	xmisc	Miscellaneous material	5.00 lot			\$1,070 /lot	5.00 lot	\$5,350

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
034	Mt Comfort Road - Excavate SB Culvert #2		56 ft		12 days	12 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		4,896	\$354,780	\$473,434	\$25,388	\$115,448	\$969,049	
		87.429	\$6,335.35	\$8,454.18	\$453.36	\$2,061.56	\$17,304.45	
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
	1.000	Schedule factor (Normal)	8 hr/shift	3 shift/day	7 day/week	0.5 hr/shift	0 hr/shift	
		Excavate culvert	2199 cy	171 cy/day				
		Jack culvert	56 ft	5 ft/day	12 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				18.183%	\$300,195	\$54,585
M	sts	Small tools and supplies				\$3.00 /mhr	4896 mhr	\$14,688
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	288.0 mhr	\$15,738
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	576.0 mhr	\$29,918
L	flag	Flagman (Grp 1)				\$51.94 /mhr	288.0 mhr	\$14,959
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	288.0 mhr	\$18,448
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	288.0 mhr	\$18,448
L	ejm	Electrician JM				\$111 /mhr	288.0 mhr	\$32,051
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	288.0 hr	\$24,987
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	288.0 hr	\$9,377
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	288.0 hr	\$22,249
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	288.0 hr	\$1,546
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	288.0 mhr	\$18,448
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	864.0 hr	\$7,351
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	288.0 hr	\$3,090
S	muck	Muck disposal	3299 lcy			\$35.00 /lcy	3299 lcy	\$115,448
		Excavation & Jacking Crew						

L	lfm	Labor FM			\$54.65 /mhr	288.0 mhr	\$15,738
L	lab	General Labor (Grp 1)		3	\$51.94 /mhr	864.0 mhr	\$44,876
L	ofm	Operating Engineer			\$64.06 /mhr	288.0 mhr	\$18,448
L	eo3-	Excavator <3.5cy (Grp 5)		2	\$64.06 /mhr	576.0 mhr	\$36,896
L	lo4-	Loader oper. <4cy (Grp 5)			\$64.06 /mhr	288.0 mhr	\$18,448
L	mw	HD Mech/Welder (Grp 1)			\$61.73 /mhr	288.0 mhr	\$17,778
E	he320	320 Excavator 43.8k/1.5cy			\$188 /hr	288.0 hr	\$54,236
E	I914	Wheel Loader Cat 914/1.7cy			\$32.56 /hr	288.0 hr	\$9,377
E	cssj	Cutting shield steering jacks			\$646 /hr	288.0 hr	\$186,139
E	tjack	Thrust jack & frame			\$439 /hr	288.0 hr	\$126,450
M	xmisc	Miscellaneous material	10.00 lot		\$1,070 /lot	10.00 lot	\$10,700
E	wtp	Water Treatment Plant			\$99.42 /hr	288.0 hr	\$28,632

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
035	Mt Comfort Road - Remove Jacks & Shield		1 LS		5 days	5 work days		
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		850	\$57,326	\$270,025	\$2,550	\$0	\$329,901	
	Status (Additive)		Work schedule		Other ST pay		Other OT pay	
	1.000	Schedule factor (Normal)	10 hr/shift	1 shift/day	5 day/week	0.5 hr/shift	0 hr/shift	
	Remove jacks & shields		5 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	lp	Labor premium				10.241%	\$52,001	\$5,326
M	sts	Small tools and supplies				\$3.00 /mhr	850.0 mhr	\$2,550
	Support Crew							
L	lfm	Labor FM				\$54.65 /mhr	50.00 mhr	\$2,732
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	100.0 mhr	\$5,194
L	flag	Flagman (Grp 1)				\$51.94 /mhr	50.00 mhr	\$2,597
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	50.00 mhr	\$3,203
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	50.00 mhr	\$3,203
L	ejm	Electrician JM				\$111 /mhr	50.00 mhr	\$5,564
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	50.00 hr	\$4,338
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	50.00 hr	\$1,628
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	50.00 hr	\$3,863
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	50.00 hr	\$268
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	50.00 mhr	\$3,203
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3		\$8.51 /hr	150.0 hr	\$1,276
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	50.00 hr	\$536
E	wtp	Water Treatment Plant				\$99.42 /hr	50.00 hr	\$4,971
	Removal Crew							
L	lfm	Labor FM				\$54.65 /mhr	50.00 mhr	\$2,732
L	lab	General Labor (Grp 1)		3		\$51.94 /mhr	150.0 mhr	\$7,791
L	mw	HD Mech/Welder (Grp 1)		2		\$61.73 /mhr	100.0 mhr	\$6,173
L	c100+	Crane oper. >100t (Grp 11)				\$64.06 /mhr	50.00 mhr	\$3,203
L	eo3-	Excavator <3.5cy (Grp 5)				\$64.06 /mhr	50.00 mhr	\$3,203
L	lo4-	Loader oper. <4cy (Grp 5)				\$64.06 /mhr	50.00 mhr	\$3,203
E	he320	320 Excavator 43.8k/1.5cy				\$188 /hr	50.00 hr	\$9,416
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	50.00 hr	\$1,628
E	tc150	Truck Crane 150ton/260'				\$4,842 /hr	50.00 hr	\$242,101

No.	Item Description		Item Quantity/Unit	Production rate		Other fixed time		Total time
036	Mt Comfort Road - Excavate & Support SB Wall 2		1 LS			57 days		57 work days
		manhours	Labor	Equipment	Material	Subcontract	Item Cost	
		7,032	\$399,116	\$249,590	\$94,419	\$422,793	\$1,165,918	
	Status (Additive)		Work schedule		Other ST pay		Other OT pay	
1.000	Schedule factor (Normal)		8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
	Soil nail & shotcrete installation - Two crews NB & SB							
	Excavation per level		2684 bcy	500 cy/day	6 days			
	Install soil nails per level		77 ea	4 ea/day	10 days	2 crews		
	Shotcrete per level		40 cy	2 cy/hr	3 days			
	Number of levels		3 ea					
	Total duration		57 days					
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	7032 mhr	\$21,096
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	456.0 mhr	\$24,919
L	lab	General Labor (Grp 1)		2		\$51.94 /mhr	912.0 mhr	\$47,370
L	flag	Flagman (Grp 1)				\$51.94 /mhr	456.0 mhr	\$23,685
L	c45-	Crane oper. <45t (Grp 9)		2		\$64.06 /mhr	912.0 mhr	\$58,419
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	456.0 mhr	\$29,209

E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	912.0 hr	\$79,126
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	456.0 hr	\$14,847
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	456.0 hr	\$35,227
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	456.0 hr	\$2,448
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	456.0 mhr	\$29,209
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	1368 hr	\$11,639
S	muck	Muck disposal	12080 lcy			\$35.00 /lcy	12080 lcy	\$422,793
<i>Soil Nail Crew</i>								
L	lfm	Labor FM				\$54.65 /mhr	456.0 mhr	\$24,919
L	lab	General Labor (Grp 1)	30.00 day	8.00 mhr/day	6	\$51.94 /mhr	1440 mhr	\$74,794
L	drill	Drill operator (Grp 6)	30.00 day	8.00 mhr/day	2	\$64.06 /mhr	480.0 mhr	\$30,747
E	at	Air track 12' feed			2	\$36.95 /hr	912.0 hr	\$33,694
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	912.0 hr	\$15,490
E	gp	Grout Plant, skid	30.00 day	8.00 hr/day	2	\$16.84 /hr	480.0 hr	\$8,081
M	sn	Soil nials	232.0 ea			\$219 /ea	232.0 ea	\$50,808
M	cs	Cement - sack	232.0 ea			\$14.98 /ea	232.0 ea	\$3,475
<i>Excavation Crew</i>								
L	lab	General Labor (Grp 1)	18.00 day	8.00 mhr/day	200%	\$51.94 /mhr	288.0 mhr	\$14,959
L	eo3+	Excavator >3.5cy (Grp 8)	18.00 day	8.00 mhr/day	2	\$64.06 /mhr	288.0 mhr	\$18,448
E	he330	SK330LC Exc 77.8/2.1cy	18.00 day	8.00 hr/day	2	\$151 /hr	288.0 hr	\$43,496
<i>Shotcrete Crew</i>								
L	lab	General Labor (Grp 1)	9.00 day	8.00 mhr/day	6	\$51.94 /mhr	432.0 mhr	\$22,438
E	sp2	Shotcrete pot Aliva, 2cy/hr	9.00 day	8.00 hr/day	2	\$38.48 /hr	144.0 hr	\$5,541
M	shrt	Shotcrete	119.0 cy			\$160 /cy	119.0 cy	\$19,040

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
037	Mt Comfort Road - Excavate & Support SB Wall 1		1 LS		24 days	24 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	2,928	\$166,496	\$107,868	\$39,086	\$180,747	\$494,197		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)		8 hr/shift	1 shift/day	5 day/week	0 hr/shift		
	Soil nail & shotcrete installation - Two crews NB & SB			2 crews				
	Excavation per level		1148 bcy	500 cy/day	3 days			
	Install soil nails per level		32 ea	4 ea/day	4 days	2 crews		
	Shotcrete per level		16 cy	2 cy/hr	1 days			
	Number of levels		3 ea					
	Total duration				24 days			
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	2928 mhr	\$8,784
		Support Crew						
L	lfm	Labor FM				\$54.65 /mhr	192.0 mhr	\$10,492
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	384.0 mhr	\$19,945
L	flag	Flagman (Grp 1)				\$51.94 /mhr	192.0 mhr	\$9,973
L	c45-	Crane oper. <45t (Grp 9)			2	\$64.06 /mhr	384.0 mhr	\$24,597
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	192.0 mhr	\$12,299
E	hc40	Hydraulic Crane 40ton/105'			2	\$86.76 /hr	384.0 hr	\$33,316
E	I914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	192.0 hr	\$6,251
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	192.0 hr	\$14,833
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	192.0 hr	\$1,031
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	192.0 mhr	\$12,299
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	576.0 hr	\$4,901
S	muck	Muck disposal	5164 lcy			\$35.00 /lcy	5164 lcy	\$180,747
		Soil Nail Crew						
L	lfm	Labor FM				\$54.65 /mhr	192.0 mhr	\$10,492
L	lab	General Labor (Grp 1)	12.00 day	8.00 mhr/day	6	\$51.94 /mhr	576.0 mhr	\$29,918
L	drill	Drill operator (Grp 6)	12.00 day	8.00 mhr/day	2	\$64.06 /mhr	192.0 mhr	\$12,299
E	at	Air track 12' feed			2	\$36.95 /hr	384.0 hr	\$14,187
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	384.0 hr	\$6,522
E	gp	Grout Plant, skid	12.00 day	8.00 hr/day	2	\$16.84 /hr	192.0 hr	\$3,233
M	sn	Soil nials	96.00 ea			\$219 /ea	96.00 ea	\$21,024
M	cs	Cement - sack	96.00 ea			\$14.98 /ea	96.00 ea	\$1,438
		Excavation Crew						
L	lab	General Labor (Grp 1)	9.00 day	8.00 mhr/day	200%	\$51.94 /mhr	144.0 mhr	\$7,479
L	eo3+	Excavator >3.5cy (Grp 8)	9.00 day	8.00 mhr/day	2	\$64.06 /mhr	144.0 mhr	\$9,224
E	he330	SK330LC Exc 77.8/2.1cy	9.00 day	8.00 hr/day	2	\$151 /hr	144.0 hr	\$21,748
		Shotcrete Crew						
L	lab	General Labor (Grp 1)	3.00 day	8.00 mhr/day	6	\$51.94 /mhr	144.0 mhr	\$7,479
E	sp2	Shotcrete pot Aliva, 2cy/hr	3.00 day	8.00 hr/day	2	\$38.48 /hr	48.00 hr	\$1,847
M	shcrt	Shotcrete	49.00 cy			\$160 /cy	49.00 cy	\$7,840

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time	Total time	
038	Mt Comfort Road - Final Wall Facing SB Wall 2		1 LS			26 days	26 work days	
	manhours	Labor	Equipment	Material		Subcontract	Item Cost	
	5,408	\$357,335	\$107,559	\$207,702		\$0	\$672,595	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift	
	Final wall facing							
	Install reinforcement	22980 lb	150 lb/mhr	56 mhr/day		3		
	Set / strip wall forms	12700 sf	16 sf/mhr	72 mhr/day		12		
	Concrete pours	6 ea	1 ea/day			6		
	Place aggregate base	1350 ton				2		
	Slope stability					3		
	Total duration					26		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	5408 mhr	\$16,224
		<i>Support Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	208.0 mhr	\$11,367
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	416.0 mhr	\$21,607
L	flag	Flagman (Grp 1)				\$51.94 /mhr	208.0 mhr	\$10,804
L	c45-	Crane oper. <45t (Grp 9)				\$64.06 /mhr	208.0 mhr	\$13,324
L	lo4+	Loader oper. >4cy (Grp 10)				\$64.06 /mhr	208.0 mhr	\$13,324
E	hc40	Hydraulic Crane 40ton/105'				\$86.76 /hr	208.0 hr	\$18,046
E	l914	Wheel Loader Cat 914/1.7cy				\$32.56 /hr	208.0 hr	\$6,772
E	cp12	Compressor, trailer 1200cfm				\$77.25 /hr	208.0 hr	\$16,069
E	g10	Generator, trailer 10.0kW				\$5.37 /hr	208.0 hr	\$1,117
L	comp	Compressorman (Grp 5)				\$64.06 /mhr	208.0 mhr	\$13,324
E	lp6	Light Plant/Genset, 6kW, 4/1000W			3	\$8.51 /hr	624.0 hr	\$5,309
E	p205	Pump, trash 205gpm/100ft head				\$10.73 /hr	208.0 hr	\$2,232
		<i>Structure Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	208.0 mhr	\$11,367
L	lab	General Labor (Grp 1)				\$51.94 /mhr	208.0 mhr	\$10,804
L	cfm	Carpenter FM			1	\$75.56 /mhr	208.0 mhr	\$15,716
L	cjm	Carpenter JM			8	\$72.85 /mhr	1664 mhr	\$121,228
L	ifm	Ironworker FM			1	\$72.12 /mhr	208.0 mhr	\$15,002
L	ijm	Ironworker JM			6	\$69.42 /mhr	1248 mhr	\$86,631
L	conc	Concrete equip.oper. (Grp 2)				\$61.73 /mhr	208.0 mhr	\$12,839
E	cb130	Conc. Pump, truck 130cy/hr				\$189 /hr	208.0 hr	\$39,308
E	vib	Concrete vibrators			600%	\$9.33 /hr	1248 hr	\$11,641
M	lumb	Lumber for lagging/forms	12700 sf	1.50 bf/sf		\$2.35 /bf	19050 bf	\$44,844
M	ply1	Plywood MDO 1"	12700 sf			\$2.46 /sf	12700 sf	\$31,255
M	ff	Form fasteners	12700 sf			\$0.32 /sf	12700 sf	\$4,077
M	foil	Form oil	12700 sf			\$0.16 /sf	12700 sf	\$2,038
M	cure	Curing compound	12700 sf			\$0.02 /sf	12700 sf	\$272
M	xf	Misc form supplies	12700 sf			\$0.43 /sf	12700 sf	\$5,436
M	rp	Reinforcing steel, plain	22980 lb			\$0.49 /lb	22980 lb	\$11,260
E	ml30	Man-Lift 30' articulated boom			2	\$16.98 /hr	416.0 hr	\$7,066
M	c5	Concrete, 5000psi mix	383.0 cy			\$136 /cy	383.0 cy	\$51,897
M	aggc	Coarse aggregate	1350 ton			\$22.00 /ton	1350 ton	\$29,700
		<i>Slope Stability Material</i>						
M	xmisc	Miscellaneous material	10.00 lot			\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit		Production rate	Other fixed time	Total time	
039	Mt Comfort Road - Final Wall Facing SB Wall 1		1 LS			20 days	20 work days	
	manhours	Labor	Equipment	Material		Subcontract	Item Cost	
	4,160	\$274,873	\$82,738	\$141,576		\$0	\$499,187	
	Status (Additive)		Work schedule			Other ST pay	Other OT pay	
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift	
	Final wall facing							
	Install reinforcement	14640 lb	150 lb/mhr	56 mhr/day		2		
	Set / strip wall forms	7000 sf	16 sf/mhr	72 mhr/day		7		
	Concrete pours	6 ea	1 ea/day			6		
	Place aggregate base	1350 ton				2		
	Slope stability					3		
	Total duration					20		
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts	Small tools and supplies				\$3.00 /mhr	4160 mhr	\$12,480
		<i>Support Crew</i>						
L	lfm	Labor FM				\$54.65 /mhr	160.0 mhr	\$8,744
L	lab	General Labor (Grp 1)			2	\$51.94 /mhr	320.0 mhr	\$16,621

L	flag	Flagman (Grp 1)			\$51.94 /mhr	160.0 mhr	\$8,310
L	c45-	Crane oper. <45t (Grp 9)			\$64.06 /mhr	160.0 mhr	\$10,249
L	lo4+	Loader oper. >4cy (Grp 10)			\$64.06 /mhr	160.0 mhr	\$10,249
E	hc40	Hydraulic Crane 40ton/105'			\$86.76 /hr	160.0 hr	\$13,882
E	l914	Wheel Loader Cat 914/1.7cy			\$32.56 /hr	160.0 hr	\$5,209
E	cp12	Compressor, trailer 1200cfm			\$77.25 /hr	160.0 hr	\$12,360
E	g10	Generator, trailer 10.0kW			\$5.37 /hr	160.0 hr	\$859
L	comp	Compressorman (Grp 5)			\$64.06 /mhr	160.0 mhr	\$10,249
E	lp6	Light Plant/Genset, 6kW, 4/1000W		3	\$8.51 /hr	480.0 hr	\$4,084
E	p205	Pump, trash 205gpm/100ft head			\$10.73 /hr	160.0 hr	\$1,717
<i>Structure Crew</i>							
L	lfm	Labor FM			\$54.65 /mhr	160.0 mhr	\$8,744
L	lab	General Labor (Grp 1)			\$51.94 /mhr	160.0 mhr	\$8,310
L	cfm	Carpenter FM		1	\$75.56 /mhr	160.0 mhr	\$12,090
L	cjm	Carpenter JM		8	\$72.85 /mhr	1280 mhr	\$93,252
L	ifm	Ironworker FM		1	\$72.12 /mhr	160.0 mhr	\$11,540
L	ijm	Ironworker JM		6	\$69.42 /mhr	960.0 mhr	\$66,639
L	conc	Concrete equip.oper. (Grp 2)			\$61.73 /mhr	160.0 mhr	\$9,877
E	cb130	Conc. Pump, truck 130cy/hr			\$189 /hr	160.0 hr	\$30,237
E	vib	Concrete vibrators		600%	\$9.33 /hr	960.0 hr	\$8,955
M	lumb	Lumber for lagging/forms	7000 sf	1.50 bf/sf	\$2.35 /bf	10500 bf	\$24,717
M	ply1	Plywood MDO 1"	7000 sf		\$2.46 /sf	7000 sf	\$17,227
M	ff	Form fasteners	7000 sf		\$0.32 /sf	7000 sf	\$2,247
M	foil	Form oil	7000 sf		\$0.16 /sf	7000 sf	\$1,124
M	cure	Curing compound	7000 sf		\$0.02 /sf	7000 sf	\$150
M	xf	Misc form supplies	7000 sf		\$0.43 /sf	7000 sf	\$2,996
M	rp	Reinforcing steel, plain	14640 lb		\$0.49 /lb	14640 lb	\$7,174
E	ml30	Man-Lift 30' articulated boom		2	\$16.98 /hr	320.0 hr	\$5,435
M	c5	Concrete, 5000psi mix	244.0 cy		\$136 /cy	244.0 cy	\$33,062
M	aggc	Coarse aggregate	1350 ton		\$22.00 /ton	1350 ton	\$29,700
<i>Slope Stability Material</i>							
M	xmisc	Miscellaneous material	10.00 lot		\$1,070 /lot	10.00 lot	\$10,700

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
040	Mt Comfort Rd - NB Roadway Construction		1 LS		80 days	80 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	0	\$0	\$0	\$0	\$2,930,000	\$2,930,000		
	Status (Additive)	Work schedule		Other ST pay	Other OT pay			
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
Construct roadway North & South of North Bound Underpass				80 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
Roadway Construction								
S	roadN	NB Roadway Construction				\$2,430,000 /LS	1.00 LS	\$2,430,000
Streetscape & Aesthetic Features								
S	land	Streetscaping	1.00 LS			\$500,000 /LS	1.00 LS	\$500,000

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
041	Mt Comfort Rd - Broadway Int. Roadway		1 LS		40 days	40 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	0	\$0	\$0	\$0	\$1,860,000	\$1,860,000		
	Status (Additive)		Work schedule		Other ST pay	Other OT pay		
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
Construct roadway at Broadway Intersection				40 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
Roadway Construction								
S	roadB	Broadway Roadway Construction				\$1,360,000 /LS	1.00 LS	\$1,360,000
Streetscape & Aesthetic Features								
S	land	Streetscaping	1.00 LS			\$500,000 /LS	1.00 LS	\$500,000

No.	Item Description		Item Quantity/Unit	Production rate	Other fixed time	Total time		
042	Mt Comfort Rd - SB Roadway Construction		1 LS		70 days	70 work days		
	manhours	Labor	Equipment	Material	Subcontract	Item Cost		
	0	\$0	\$0	\$0	\$1,715,000	\$1,715,000		
	Status (Additive)	Work schedule		Other ST pay	Other OT pay			
1.000	Schedule factor (Normal)	8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift		
Construct roadway North & South of South Bound Underpass				70 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
Roadway Construction								
S	roadS	SB Roadway Construction				\$1,215,000 /LS	1.00 LS	\$1,215,000

S	land	Streetscaping	<i>Streetscape & Aesthetic Features</i>		1.00 LS	\$500,000 /LS	1.00 LS	\$500,000
No.	Item Description		Item Quantity/Unit		Production rate		Other fixed time	Total time
043	Mt Comfort Rd - Install Pump Station		1 LS				50 days	50 work days
		manhours	Labor	Equipment	Material		Subcontract	Item Cost
		0	\$0	\$0	\$0		\$990,000	\$990,000
	Status (Additive)		Work schedule				Other ST pay	Other OT pay
1.000	Schedule factor (Normal)		8 hr/shift	1 shift/day	5 day/week		0 hr/shift	0 hr/shift
	Install pump station		3 ea	50 days				
R/T	Code	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
			<i>Pump Station Subcontractor</i>					
S	psta	Pump Station	3.00 LS			\$330,000 /LS	3.00 LS	\$990,000

McMILLEN JACOBS ASSOCIATES

Project Mt Comfort Road Dual Underpass Construction - 10% Estimate	Client Town of McCordsville, IN	Job No. 6183.0	Estimator RLR/BM	Rev 0	Computed on 7/23/2021 11:02 AM
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INDIRECT COST DETAIL

No.	Item Description	Item Quantity/Unit								
044 Equipment Ownership not in Direct Cost		LS								
Equipment spread to Directs		Labor	Equipment	Material	Subcontract	Item Cost				
\$2,686,111		\$0	\$22,500	\$12,500	\$0	\$35,000				
Notes:		Payment via Equipment Mobilization Bid Item								
- Source Code: Fleet, Purchase, Mob Purchase, or Rental/lease.		Fleet Equipment		Purchased Equipment		Fleet + Purchase		Rental		
- Ownership cost/hr is based on actual equipment months on-site at a single-shift utilization rate of 173 hours/month.		Value	W/O	Value	W/O	Value	W/O	Amount		
		\$6,879K	40%	\$0K		\$6,879K	40%	\$0K		
R/T	Resource Description	Source Code	Number of Units or Rental Period	Unit Purchase cost, Unit Book value, or Rental Rate per period	Project Write off	Unit Freight & Erection (carried in Mob/Demob) Freight in/out	E/D mhr	Ownership Cost/hr	Equip. mos	Project Cost excluding freight/erection
M	Sales Tax			\$0	7.0%	on purchases/rentals				
Hourly Equipment used in Direct Cost Items: \$2,686,111										
E	320 Excavator 43.8k/1.5cy	F	2 ea	\$223,150	40%	\$2,000	16	\$154	1.9	in directs
E	SK330LC Exc 77.8/2.1cy	F	2 ea	\$351,945	40%	\$2,000	16	\$93.60	15.2	in directs
E	Wheel Loader Cat 914/1.7cy	F	2 ea	\$120,000	40%	\$2,000	16	\$12.37	31.2	in directs
E	Hydraulic Crane 40ton/105'	F	2 ea	\$439,507	40%	\$4,000		\$34.28	47.7	in directs
E	Truck Crane 150ton/260'	F	2 ea	\$1,303,969	40%	\$2,000		\$4,742	1.0	in directs
E	Conc. vibrator, internal, 1.75"	F	6 ea	\$1,191	90%	\$200		\$16.08	1.8	in directs
E	Shotcrete pot Aliva, 2cy/hr	F	2 ea	\$25,000	40%			\$26.60	4.0	in directs
E	Conc. Pump, truck 130cy/hr	F	1 ea	\$324,346	40%			\$118	5.9	in directs
E	Compressor, trailer 1200cfm	F	2 ea	\$133,173	40%	\$2,000		\$15.64	30.5	in directs
E	Generator, trailer 10.0kW	F	2 ea	\$9,884	60%	\$400		\$1.74	30.5	in directs
E	Light Plant/Genset, 6kW, 4/1000V	F	6 ea	\$12,491	60%	\$200		\$2.21	91.1	in directs
E	Welder 400A, trailer E	F	3 ea	\$3,128	60%	\$400		\$23.46	1.1	in directs
E	Water Treatment Plant	F	1 ea	\$350,000	45%	\$2,000	24	\$70.56	6.6	in directs
E	Pump, trash 205gpm/100ft head	F	2 ea	\$1,486	85%	\$400		\$0.86	10.8	in directs
E	Man-Lift 30' articulated boom	F	1 ea	\$43,590	40%	\$400		\$1.74	51.2	in directs
E	Concrete vibrators	F	3 ea	\$2,000	100%			\$0.63	48.8	in directs
E	Grout Plant, skid	F	1 ea	\$57,500	35%	\$400		\$6.84	15.2	in directs
E	Air track 12' feed	F	1 ea	\$220,000	45%			\$14.95	33.8	in directs
E	Cutting shield steering jacks	F	1 ea	\$250,000	25%	\$2,000		\$49.14	2.2	in directs
E	Thrust jack & frame	F	1 ea	\$180,000	25%	\$2,000		\$39.06	1.6	in directs
General Plant: \$22,500										
E	Mechanic's Truck	F	2 ea	\$25,000	25%			\$0.93	78.0	\$12,500
E	Pickup Truck	F	1 ea	\$40,000	25%			\$1.48	39.0	\$10,000
Other Plant: \$12,500										
M	Survey Equipment	F	1 LS	\$50,000	25%	\$200	8			\$12,500

No.	Item Description	manhours	Labor	Equipment	Material	Subcontract	Item Cost
	045 General Mobilization			1.0 mo			
		728	\$36,350	\$14,804	\$389,784	\$0	\$440,938
Mob/demob paid as scheduled. Bond paid at NTP.							
				Work schedule	Other ST pay	Other OT pay	
				8 hr/shift	1 shift/day	5 day/week	0 hr/shift
R/T	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts Small tools and supplies				\$3.00 /mhr	728 mhr	\$2,184
M	Freight-see equipment ownership	50% of total (balance in Demobilization)			\$40,200 (1.5% of equip. cost)		\$20,100
L	Erection-see equipment ownership	128 mhr			\$35.55 /mhr	128 mhr	\$4,550
M	Transfer from cost item 050 Bonds, Insurance, and Taxes not in General Mob				LS		\$342,750
M	Field office trailer	1 bldg	400 sf/bldg		\$20.00 /sf	400 sf	\$8,000
M	Field office furniture	1 bldg			\$1,750 /bldg	1 bldg	\$1,750
M	Field office computer / printers	1 bldg			\$5,000 /bldg	1 bldg	\$5,000
L	Labor all office setups	1 bldg	150 mhr/bldg	4	\$53.00 /mhr	600 mhr	\$31,800
E	Equipment all office setups	2 bldg	50 hr/bldg	2	\$74.02 /hr	200 hr	\$14,804
M	Project signs	1 ea			\$10,000 /ea	1 ea	\$10,000

No.	Item Description	Item Quantity/Unit		Mob/demob paid as scheduled. Bond paid at NTP.			
046	Demobilization/Punchlist	1.0 mo					
	manhours	Labor	Equipment	Material	Subcontract	Item Cost	
	692	\$36,676	\$25,611	\$34,551	\$0	\$96,838	
		Work schedule		Other ST pay	Other OT pay		
		8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
R/T	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	sts Small tools and supplies				\$3.00 /mhr	692 mhr	\$2,076
M	Freight-see equipment ownership	50% of total (balance in Mobilization)			\$40,200 total		\$20,100
L	Demobilization labor			4	\$53.00 /mhr	692 mhr	\$36,676
E	Demobilization equipment			2	\$74.02 /hr	346 hr	\$25,611
M	Demobilization material	1 LS		0.5	\$24,750 /LS	0.5 LS	\$12,375

No.	Item Description	Item Quantity/Unit		The duration is from the end of mob to the start of demob.			
047	General Plant Operation/Maintenance	39.0 mo					
	manhours	Labor	Equipment	Material	Subcontract	Item Cost	
	0	\$0	\$0	\$110,690	\$7,800	\$118,490	
	0.000	\$0.00	\$0.00	\$2,838.21	\$200.00	\$3,038.21	
		Work schedule		Other ST pay	Other OT pay		
		8 hr/shift	1 shift/day	5 day/week	0 hr/shift	0 hr/shift	
R/T	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	Power costs not in equipment rates				\$1,000 /mo	39 mo	\$39,000
M	Cell phones / radio fees		4 umo/mo		\$90.00 /umo	156 umo	\$14,040
M	Drinking water supplies				\$150 /mo	39 mo	\$5,850
M	Fire protection Supplies				\$100 /mo	39 mo	\$3,900
M	First aid supplies				\$150 /mo	39 mo	\$5,850
S	Job sanitary system maintenance				\$100 /mo	39 mo	\$3,900
S	Office cleaning				\$100 /mo	39 mo	\$3,900
M	Office supplies				\$100 /mo	39 mo	\$3,900
M	Health & Safety program				\$100 /mo	39 mo	\$3,900
M	Personal protective equipment	1 LS			\$5,000 /LS	1 LS	\$5,000
M	Job light / power supplies				\$500 /mo	39 mo	\$19,500
M	Fuel / lube facility				\$250 /mo	39 mo	\$9,750

No.	Item Description	Item Quantity/Unit		The duration is from NTP to project completion.		
048	Field Supervision	41.0 mo				
	man-months	Labor	Equipment	Material	Subcontract	Item Cost
	454	\$5,441,915	\$0	\$0	\$0	\$5,441,915
	11.067	\$132,729.64	\$0.00	\$0.00	\$0.00	\$132,729.64
		Vehicles	5 ea	197 vmo	Relocations	2 ea

See the 'Resources' sheet for an explanation of field supervisory class codes, and associated labor burdens.
'R?' and 'V?' codes denote if relocation expenses (both ways) are paid or a vehicle assigned, respectively - see cost item 049.

36.75 Major work

R/T	Class	Resource Description	R? V?	Personnel	Duration	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
L	-	Labor burden for personnel below - see the 'Resources' sheet					33.0% weighted average		\$1,351,728
L	KP	Project Manager	Y Y	1 ea			\$13,000 /mmo	41 mmo	\$533,000
L	KP	Project Engineer	Y	1 ea			\$10,000 /mmo	41 mmo	\$410,000
L	EP	Safety Manager	Y	1 ea	36.8 mmo/ea		\$10,000 /mmo	36.75 mmo	\$367,500
L	EP	Field Engineer		3 ea	36.8 mmo/ea		\$6,000 /mmo	110.25 mmo	\$661,500
L	KP	Gen Superintendent	Y Y	1 ea			\$12,000 /mmo	41 mmo	\$492,000
L	EP	Party Chief		1 ea	36.8 mmo/ea		\$10,000 /mmo	36.75 mmo	\$367,500
L	NL	Instrument Man		1 ea	36.8 mmo/ea		\$9,250 /mmo	36.75 mmo	\$339,938
L	EP	Scheduling Engineer		1 ea	36.8 mmo/ea		\$6,000 /mmo	36.75 mmo	\$220,500
L	EP	Busniess Manager		1 ea	36.8 mmo/ea		\$8,000 /mmo	36.75 mmo	\$294,000
L	KP	Field Superindendent	Y	1 ea	36.8 mmo/ea		\$11,000 /mmo	36.75 mmo	\$404,250

No.	Item Description	Item Quantity/Unit		The duration is from NTP to project completion.			
049	Overhead Maintenance/Service	41.0 mo					
		Labor	Equipment	Material	Subcontract	Item Cost	
		\$0	\$177,300	\$202,124	\$0	\$379,424	
		\$0.00	\$0.00	\$4,929.84	\$0.00	\$9,254.23	
R/T	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	Payroll processing, wage labor	695 mmo	4.33 chk/mmo		\$5.50 /chk	3009 chk	\$16,550
M	Payroll processing, salary labor	454 mmo	2 chk/mmo		\$5.50 /chk	908 chk	\$4,994
M	Drug tests	28 test			\$500 /test	28 test	\$14,000
M	Relocation expenses	2 move	2 ea/move		\$5,000 /ea	4 ea	\$20,000
M	Temporary living, salary labor	2 move	2 mo/move		\$12,520 /mo	4 mo	\$50,080
E	Supervisory vehicle O&M	197 vmo			\$900 /vmo	197 vmo	\$177,300
M	Submittal preparation support	2 mo			\$5,000 /mo	2 mo	\$10,000

M	Audit fees	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Legal fees	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Personnel recruiting	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Design department charge	3.4 yr		\$1,000 /yr	3.4 yr	\$3,400
M	IT/EDP department charge	3.4 yr	Home Office Overhead items: 0.1% of bid.	\$2,000 /yr	3.4 yr	\$6,800
M	Equipment department charge	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Accounting department charge	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	HR department charge	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Corporate department charge	3.4 yr		\$2,000 /yr	3.4 yr	\$6,800
M	Job photographs/video			\$200 /mo	41 mo	\$8,200
M	Pre-construction survey	1 LS		\$12,500 /LS	1 LS	\$12,500
M	Post-construction survey	1 LS		\$8,000 /LS	1 LS	\$8,000

No.	Item Description	Item Quantity/Unit				
	050 Bonds, Insurance, and Taxes not in General Mob	LS				
		Labor	Equipment	Unclassified Material	Subcontract	Item Cost
		\$0	\$0	\$885,399	\$0	\$885,399

Items which are specified to be paid under General Mobilization are calculated here and flagged 'Y' in the 'Xfer to Mob?' field.
Basis of contractor's equipment insurance is \$6,879K fleet book value + \$0K new purchases.

R/T	Resource Description	Xfer to Mob?	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	Credit for items specified to be transferred to cost item 045, General Mobilization					LS		-\$342,750
M	Performance bond	Y	\$42.8 M unescalated bid			\$8.00 /K Bid	\$42,844 K bid	\$342,750
M	Builder's risk		\$42.8 M cost	3.5 yr		\$3.00 /K-yr	\$149,953 K-yr	\$449,859
M	Automobile/pickup insurance		197.0 vmo			\$70.00 /vmo	197 vmo	\$13,790
M	Excess liability umbrella		1 LS			\$250,000 /LS	1 LS	\$250,000
M	Incident deductibles		1 LS			\$150,000 /LS	1 LS	\$150,000
M	State/Local business tax		1 LS			\$5,000 /LS	1 LS	\$5,000
M	Permits and licenses		1 LS			\$10,000 /LS	1 LS	\$10,000
M	Personal property tax		1 yr	1000 k/yr	0.45	\$15.00 /k	450 k	\$6,750

No.	Item Description	Item Quantity/Unit				
	051 Contractor Markup	LS				
		Labor	Equipment	Unclassified Material	Subcontract	Item Cost
		\$0	\$0	\$4,228,029	\$0	\$4,228,029

R/T	Resource Description	Resource Quantity	Markup			Resource Cost
M	Direct Labor	\$7,691,373	25%		10.9% of cost	\$1,922,843
M	Field Supervision	\$5,441,915	25%		3.5%	\$1,360,479
M	Equipment	\$6,247,749	2%		0.3%	\$124,955
M	Material	\$4,732,702	2%		0.2%	\$94,654
M	Subcontract	\$14,501,955	5%		1.9%	\$725,098

No.	Item Description	Item Quantity/Unit				
	052 Financing Charges	LS				
		Labor	Equipment	Unclassified Material	Subcontract	Item Cost
		\$0	\$0	\$240,385	\$0	\$240,385
	Status (Additive)					
	Invoices	Securities ROR	Cost of capital	Progress payments	Retained earnings	
	Net 30 days	1.0%	4.25%	30 days	10% reduced to 5% at 75% of earned value	

Calculate finance charges on the time elapsed from expenditures to perform the work to revenue received from progress payments.

R/T	Description	Resource Quantity	Average Financing Period	Project Allocation	Notes	Resource Cost
M	Direct labor payroll/add-ons	\$6,590,185	43 days	100%	based on 4 payroll periods/mo	\$33,537
M	Field supervision payroll/add-ons	\$5,441,915	38 days	100%	based on 2 payroll periods/mo	\$24,466
M	Material purchases/tax	\$3,149,125	30 days	100%	of cost items 001-049	\$11,172
M	First retention release	\$1,606,639	28 mo	0%	cash; 100% securities; net 3.3% rate	\$104,787
M	Last retention release	\$535,546	41 mo	0%	cash; 100% securities; net 3.3% rate	\$66,423

No.	Item Description	Item Quantity/Unit				
	053 Contractor Contingency	LS				
		Labor	Equipment	Unclassified Material	Subcontract	Item Cost
		\$0	\$0	\$457,793	\$0	\$457,793

R/T	Resource Description	Resource Qty/Unit	Production rate	Factor	Resource Unit Cost	Resource Quantity	Resource Cost
M	General Conditions / Labor Market	1 LS		0.015	\$30,519,512 /LS	0.015 LS	\$457,793

No.	Item Description	Item Quantity/Unit				
054	Escalation-excluded from estimate	LS				
N	Status (Non-Additive)	Labor	Equipment	Material	Subcontract	Item Cost
	Escalation up to June 1, 2023 NTP	\$867,536	\$412,703	\$210,610	\$957,945	\$2,448,793
	Escalation after NTP	\$542,716	\$274,626	\$155,919	\$785,466	\$1,758,726
	Total Escalation	\$1,410,252	\$687,329	\$366,528	\$1,743,410	\$4,207,519

Escalation is applied from the base dates given below to NTP, and from there is calculated to the midpoint of each schedule activity for direct costs and on a yearly basis over the project duration for indirect costs. The average composite annual escalation rate is 3.3%.

R/T	Resource Description	Unescalated Cost	Escalation Rate/Year	Compounding Periods	Base Date	Escalated Cost
L	Direct Labor	\$7,691,373	3.3%	1 (annually)	3/25/2021	\$812,188
L	Field Supervision	\$5,441,915	3.3%	1 (annually)	3/25/2021	\$598,064
E	Equipment	\$6,247,749	3.3%	1 (annually)	3/25/2021	\$687,329
M	Material (including unclassified)	\$8,960,731	3.3%	4 (quarterly)	3/25/2021	\$366,528
S	Subcontracts	\$14,501,955	3.3%	1 (annually)	3/25/2021	\$1,743,410

No.	Item Description	Item Quantity/Unit				
055	Owner Contingency	LS				
	Status (Additive)	Labor	Equipment	Unclassified Material	Subcontract	Item Cost
		\$0	\$0	\$14,995,300	\$0	\$14,995,300
C/T	Type of Contingency	Amount		Contingency Level		Resource Cost
T	Owner contingency	\$42,843,722		35.0% of total		\$14,995,300

McMILLEN JACOBS ASSOCIATES

Project	Client	Job No.	Estimator	Rev	Computed on
Mt Comfort Road	Town of McCordsville, IN	6183.0	RLR/BM	0	7/23/2021
Dual Underpass Construction - 10% Estimate					11:02 AM

RESOURCE RATE AND USAGE DETAIL

DIRECT LABOR

Basis: Prevailing Wage Rates - Hancock County 3/2/2021

Employer Insurance Add-ons	Ind. Rate	Exp. Mod	Eff Rate	<i>Memo: Estimate Total</i>	Employer Payroll Tax Add-ons	Tax Rate	Annual Inc. Cap
Worker Compensation	15.0%		15.0%	\$635,301	Fed. Social Security Tax	6.200%	\$137,700
Commercial General Liability	10.0%		10.0%	\$423,534	Fed. Medicaid Tax	1.450%	
CIGA/Terrorism/Other Add-ons	1.0%		1.0%	\$42,353	Fed. Unemployment Tax	0.600%	\$7,000
					Unemployment Tax	2.900%	\$7,000
					SDI	0.010%	\$122,909

Overtime	Rate	
General/Saturday overtime	1.5x	
Sunday/Holiday overtime	2.0x	
Misc. General overtime	2.0% built in rates	
		\$105,627
	Weighted average:	\$30.89 /mhr Base+Vac
		\$28.94 /mhr Fringes/Ins/Taxes

Code	Resource/Group Description	Hourly Base+Vac	Hourly Fringes	Daily Subsistence/Travel	Ins & Taxes	Misc. Gen'l OT	Adjusted Rate/mhr	Total mhrs	Total Cost
Laborers									
lfm	Labor FM	\$28.10	\$16.17		\$9.58	\$0.80	\$54.65	13,408	\$732,707
lab	General Labor (Grp 1)	\$26.10	\$16.17		\$8.91	\$0.76	\$51.94	34,890	\$1,812,198
flag	Flagman (Grp 1)	\$26.10	\$16.17		\$8.91	\$0.76	\$51.94	6,924	\$359,635
Operating Engineers									
ofm	Operating Engineer	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	1,056	\$67,643
c100+	Crane oper. >100t (Grp 11)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	220	\$14,092
c45-	Crane oper. <45t (Grp 9)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	10,016	\$641,584
eo3+	Excavator >3.5cy (Grp 8)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	3,008	\$192,680
eo3-	Excavator <3.5cy (Grp 5)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	2,212	\$141,692
lo4+	Loader oper. >4cy (Grp 10)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	6,604	\$423,025
lo4-	Loader oper. <4cy (Grp 5)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	1,156	\$74,049
mw	HD Mech/Welder (Grp 1)	\$32.33	\$17.50		\$11.00	\$0.89	\$61.73	1,728	\$106,666
conc	Concrete equip.oper. (Grp 2)	\$32.33	\$17.50		\$11.00	\$0.89	\$61.73	1,100	\$67,901
drill	Drill operator (Grp 6)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	2,944	\$188,581
Tunnel Labors/Operators									
comp	Compressorman (Grp 5)	\$34.05	\$17.50		\$11.58	\$0.92	\$64.06	6,644	\$425,587
Electricians									
efm	Electrician FM	\$55.50	\$38.00		\$18.80	\$1.69	\$113.99	40	\$4,560
ejm	Electrician JM	\$53.50	\$38.00		\$18.13	\$1.66	\$111.29	1,392	\$154,913
Carpenters									
cfm	Carpenter FM	\$37.35	\$24.40		\$12.69	\$1.12	\$75.56	1,580	\$119,385
cjm	Carpenter JM	\$35.35	\$24.40		\$12.02	\$1.08	\$72.85	10,920	\$795,557
Ironworkers									
ifm	Ironworker FM	\$35.79	\$23.10		\$12.17	\$1.06	\$72.12	1,780	\$128,378
ijm	Ironworker JM	\$33.79	\$23.10		\$11.50	\$1.03	\$69.42	11,140	\$773,295
lp	Labor premium					Overall average	5.2% of labor		\$394,219
	Mobilization Labor	\$26.17	\$14.14	\$0.00	\$8.90	\$0.72	\$49.93	728	\$36,350
	Demobilization Labor	\$27.78	\$15.01	\$0.00	\$9.45	\$0.77	\$53.00	692	\$36,676
	Craft Labor Escalation								\$812,188 (excluded from estimate)
Total Craft Labor								120,182 mhrs	\$7,691,373

FIELD SUPERVISORY LABOR (see cost item 048)

Employer Insurance Add-ons	Ind. Rate	Exp. Mod	Eff. Rate	<i>Memo: Estimate Total</i>	Permanent Employee Benefits	Rate	Applied to classifications
Workers' Compensation	1.8%		1.8%	\$73,623	Key empl. bonus plan	8.0%	KP
Commercial Gen'l Liability	5.0%		5.0%	\$204,509	Employee medical plan	10.0%	KP, EP, EL, NP, NL
					Retirement/Pension plan	5.0%	KP, EP, NP
					Non-exempt salaried OT	2.0%	NP, NL

Employer Payroll Tax Add-ons

7.9% payroll tax rate based on \$9,014/mmo weighted base salary.

Field Supervisory Labor Classification	Class	Total Burden
Key permanent employee	KP	37.7%
Exempt permanent employee	EP	29.7%
Exempt local hire employee	EL	24.7%
Non-exempt permanent employee	NP	31.7%
Non-exempt local hire employee	NL	26.7%

Supervisory Salaries

	Total mmos	Total Cost
Supervisory Labor Escalation	454	\$5,441,915
Total Supervisory Labor	454 mmos	\$5,441,915

\$598,064 (excluded from estimate)

\$4,090,188 unescalated payroll

EQUIPMENT (see Cost Item 044 for development of hourly ownership costs)

Basis: COE Rates, Year 2018

Region 2

Fuel/Power Factor Normal

Unit Cost

Electricity \$1.35 /kWh

Diesel \$3.30 /gal

Gas \$2.90 /gal

Memo: Total including General Plant Mob/O&M

141,484 kWh \$191,004

252,518 gal \$833,311

42,530 gal \$123,338

Code	Resource/Group Description	Air Elec	Diesel Gas	HP/CFM	HPF	Equipment Value	Parts Cost/hr	Elec/Fuel Cost/hr	Ownership Cost/hr	Total Cost/hr	Total hrs	Total Cost
Excavators/Muckers/TBMs												
he320	320 Excavator 43.8k/1.5cy	D		128	65	\$223,150	\$19.77	\$14.12	\$154.43	\$188.32	1,156	\$217,697
he330	SK330LC Exc 77.8/2.1cy	D		238	65	\$351,945	\$31.17	\$26.25	\$93.60	\$151.03	3,008	\$454,290
Loaders												
L914	Wheel Loader Cat 914/1.7cy	D		89	65	\$120,000	\$10.37	\$9.82	\$12.37	\$32.56	7,760	\$252,659
Lift Units												
hc40	Hydraulic Crane 40ton/105'	D		152	65	\$439,507	\$35.71	\$16.77	\$34.28	\$86.76	10,256	\$889,818
tc150	Truck Crane 150ton/260'	D		207	50	\$1,303,969	\$82.74	\$17.57	\$4,742	\$4,842.01	220	\$1,065,242
Concrete Equipment												
vib2	Conc. vibrator, internal, 1.75"	E		3	65	\$1,191	\$1.11	\$2.00	\$16.08	\$19.19	400	\$7,676
sp2	Shotcrete pot Aliva, 2cy/hr	E		7	75	\$25,000	\$6.50	\$5.39	\$26.60	\$38.48	752	\$28,939
cb130	Conc. Pump, truck 130cy/hr	D		310	50	\$324,346	\$44.73	\$26.31	\$117.94	\$188.98	1,100	\$207,878
Plant Equipment												
cp12	Compressor, trailer 1200cfm	D		360	75	\$133,173	\$15.79	\$45.82	\$15.64	\$77.25	6,812	\$526,245
g10	Generator, trailer 10.0kW	D		23	65	\$9,884	\$1.09	\$2.54	\$1.74	\$5.37	6,812	\$36,569
lp6	Light Plant/Genset, 6kW, 4/10	D		12	85	\$12,491	\$4.57	\$1.73	\$2.21	\$8.51	20,376	\$173,359
we4	Welder 400A, trailer E	E		35	80	\$3,128	\$0.74	\$28.73	\$23.46	\$52.93	240	\$12,703
wtp	Water Treatment Plant	E		15	90	\$350,000	\$15.00	\$13.85	\$70.56	\$99.42	2,232	\$221,895
p205	Pump, trash 205gpm/100ft he:	E		10	90	\$1,486	\$0.64	\$9.23	\$0.86	\$10.73	2,952	\$31,674
Utility Equipment												
ml30	Man-Lift 30' articulated boom	D		80	65	\$43,590	\$6.42	\$8.83	\$1.74	\$16.98	10,024	\$170,253
vib	Concrete vibrators	E		10	75	\$2,000	\$1.00	\$7.70	\$0.63	\$9.33	9,480	\$88,429
gp	Grout Plant, skid	A		60	50	\$57,500	\$10.00		\$6.84	\$16.84	2,944	\$49,565
at	Air track 12' feed	A		900	80	\$220,000	\$22.00		\$14.95	\$36.95	6,624	\$244,728
cssj	Cutting shield steering jacks	E		10	70	\$250,000	\$590.00	\$7.18	\$49.14	\$646.32	1,272	\$822,116
tjack	Thrust jack & frame					\$180,000	\$400.00		\$39.06	\$439.06	1,152	\$505,800
Equipment Ownership (excludes \$2,686,111 component spread to Direct Costs)												\$22,500
Mobilization Equipment											200	\$14,804
Demobilization Equipment											346	\$25,611
Overhead Maintenance/Service Equipment											6,619	\$177,300
Equipment Escalation												\$687,329 (excluded from estimate)
Total Equipment									102,737 hrs			\$6,247,749

MATERIALS

Code	Resource/Group Description	Unit Cost/Measure	Notes	Add Tax (-/N)?	Unit Cost F.O.B Job	Total Quantity	Total Cost
Add-ons							
tax	Sales Tax	7.000%	<i>Memo: Tax on Material ...and Equipment Purchases/Rentals</i>	\$49,782			
				\$0			
sts	Small tools and supplies	\$3.00 mhr	(5.5% of raw direct labor rate)		\$3.00	120,182	\$360,546
aggc	Coarse aggregate	\$22.00 ton		n	\$22.00	5,400	\$118,800
c3	Concrete, 3000psi mix	\$124.50 cy		n	\$124.50	370	\$46,065
c4	Concrete, 4000psi mix	\$128.50 cy		n	\$128.50	740	\$95,090
c5	Concrete, 5000psi mix	\$135.50 cy		n	\$135.50	3,485	\$472,150
xc	Concrete consumables	\$10.00 cy			\$10.70	3,364	\$35,989
lumb	Lumber for lagging/forms	\$2.20 bf			\$2.35	103,275	\$243,109
ply1	Plywood MDO 1"	\$2.30 sf			\$2.46	68,850	\$169,440
ff	Form fasteners	\$0.30 sf			\$0.32	68,850	\$22,101
foil	Form oil	\$0.15 sf			\$0.16	68,850	\$11,050
cure	Curing compound	\$0.02 sf			\$0.02	68,850	\$1,473
xf	Misc form supplies	\$0.40 sf			\$0.43	68,850	\$29,468
rp	Reinforcing steel, plain	\$0.49 lb		n	\$0.49	433,080	\$212,209
xr	Reinforcing steel mat'l	\$0.10 lb		n	\$0.10	359,220	\$35,922
stl12	Steel shapes	\$0.60 lb	Skyline Steel		\$0.64	115,200	\$73,958
Miscellaneous							
cs	Cement - sack	\$14.00 ea			\$14.98	926	\$13,871
mot	Maintenance of traffic mat'l	\$15,000 LS			\$16,050	2	\$32,100
shrt	Shotcrete	\$160.00 cy		n	\$160.00	620	\$99,200
sn	Soil nials	\$219.00 ea		n	\$219.00	926	\$202,794
xmisc	Miscellaneous material	\$1,000 lot			\$1,070	120	\$128,400
Equipment Ownership not in Direct Cost Materials and Taxes							\$12,500
Mobilization Freight and Materials							\$387,600
Demobilization Freight and Materials							\$32,475
General Plant Operation/Maintenance Materials							\$110,690
Overhead Maintenance/Service Materials							\$202,124
Bonds, Insurance, and Taxes not in General N (unclassified)							\$885,399
Contractor Markup (unclassified)							\$4,228,029
Financing Charges (unclassified)							\$240,385
Contractor Contingency (unclassified)							\$457,793
Material Escalation							\$366,528 (excluded from estimate)
Total Material							\$8,960,731

SUBCONTRACTS

Code	Resource/Group Description	Unit Cost/Measure	Notes		Total Quantity	Total Cost
muck	Muck disposal	\$35.00 lcy		\$35.00	90,553	\$3,169,355
geos	Geotechnical Instr sub	\$120,000.00 LS	EMC2	\$120,000	1	\$120,000
util	Utility relocation	\$500,000.00 LS		\$500,000	1	\$500,000
jgm	Jet Grouting Mob	\$150,000.00 LS	Hayward Baker	\$150,000	2	\$300,000
jg	Jet Grouting	\$300.00 cy	Hayward Baker	\$300.00	296	\$88,800
land	Streetscaping	\$500,000.00 LS		\$500,000	3	\$1,500,000
roadN	NB Roadway Construction	\$2,430,000.00 LS		\$2,430,000	1	\$2,430,000
psta	Pump Station	\$330,000.00 LS		\$330,000	3	\$990,000
twm	SOE sub mob	\$100,000.00 LS		\$100,000	1	\$100,000
tws	SOE wall w/ steel	\$40.00 sf		\$40.00	16,000	\$640,000
roadB	Broadway Roadway Construc	\$1,360,000.00 LS		\$1,360,000	1	\$1,360,000
roadS	SB Roadway Construction	\$1,215,000.00 LS		\$1,215,000	1	\$1,215,000
20wm	Relocate 20" Water Main	\$500.00 lf		\$500.00	3,000	\$1,500,000
csxgm	CSX Geotech Monitoring	\$2,000.00 sh		\$2,000	120	\$240,000
ains	Automated instrumentation	\$250,000.00 ls		\$250,000	1	\$250,000
csxfl	CSX Flagging	\$1,300.00 day		\$1,300	70	\$91,000
General Plant Operation/Maintenance Subcontracts						\$7,800
Subcontract Escalation				\$1,743,410 (excluded from estimate)		
Total Subcontract						\$14,501,955
Unescalated Construction Bid						\$42,843,722

SUMMARY BY RESOURCE TYPE

Cost Type	Labor	Equipment	Material	Subcontract	Total
Direct* Cost	\$7,618,346	\$6,007,534	\$2,399,477	\$14,494,155	\$30,519,512
Indirect* Cost	\$5,514,941	\$240,215	\$749,648	\$7,800	\$12,324,210
Indirect Cost (unclassified)	-	-	\$5,811,606	-	-
Owner Allowances	-	-	-	-	-
Escalation-excluded from estimate	-	-	-	-	-
Unescalated Construction Bid	\$13,133,288	\$6,247,749	\$8,960,731	\$14,501,955	\$42,843,722
Relative Direct* + Indirect* Costs	35%	17%	9%	39%	100% on \$37,032,116

SUMMARY BY COST TYPE

Cost Type	Total	% Total Estimate	% Direct, Equipment and Plant Cost	Applicable Cost Items
Mobilization/Demobilization	\$537,776	1.3%	1.8%	045 - 046
Directs, Equipment, and Plant	\$30,673,002	71.6%	100.0%	001 - 044, 047 -
Overhead/Profit	\$11,632,944	27.2%	37.9%	048 - 053
Owner Allowances	-	-	-	-
Unescalated Construction Bid	\$42,843,722		139.7%	

UNESCALATED TIME-RELATED INDIRECT COST BREAKDOWN

Cost Type	Average Cost/month	Exclude?
Lineal/Other Plant Equipment CFC	\$45 /mo	
GP operation/maintenance	\$3,118 /mo	
Weekend maintenance		
Field supervision	\$136,217 /mo	
OH maintenance/service	\$9,497 /mo	
Total	\$148,878 /mo (excluding markup)	

Monthly costs include adjustments totalling 2.6% for:
- bonds, insurance, and taxes
- financing charges
but exclude contractor contingency

\$183,181 /mo (including markup)

DISTRIBUTION OF PROJECT NON-WORKDAYS

Type of non-workday	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Calendar Year	Total Project
Holiday		1	1	0	0	1	0	1	0	1	0	2	2	9
Inclement Weather Day		5	5	2	2	1	0	0	0	0	0	5	20	60
Total		6	6	2	2	2	0	1	0	1	0	2	7	29