

Remove All Items

+	-	Item No.	Group/Item Name	Item Description
			<b>General</b>	
		1	Mobilization, bonds, and insurance	
			<b>Earth Work</b>	
		2	Clear and grub ROW	
		3	Crushed rock for trench stabilization	
			<b>Lines, Pipes, and Other Linear Features</b>	
		4	Remove and dispose of existing water line	
		5	18" DIP water line with polywrap	
		6	30" Steel casing with 18" carrier pipe by dry bore	
		7	30" Steel casing with 18" carrier pipe by open cut	
		8	Trench protection	
			<b>Appurtenances</b>	
		9	Remove air release valve, manhole, and appurtena	
		10	Install air release manhole	
		11	18" gate valves	
		12	Ductile iron fittings	
		13	Ties into existing 18" water line	
		14	Water line marker	
			<b>Other</b>	
		15	Silt fence	
		16	Seeding areas disturbed by construction	
		101	Engineering - principal	
		102	Engineering - project manager	
		103	Engineering - design technician	
		104	Engineering - survey field party	
		105	Engineering - project assistant	
		106	Engineering - secretary	
		107	Engineering - project representative	
		108	Travel	

**Figure 1. Example 1 (Water Main Adjustment) – Items Worksheet.**

Get Items      Update Items

Validate Unit Costs

Item No.	Item Name	Unit	Quantity	Unit Cost (\$/unit)	Amount (\$)	Imported Amount (\$)	Validated Unit Cost (\$)
1	Mobilization, bonds, and insurance	LS	1	\$ 20,085.00	\$ 20,085.00		\$ -
2	Clear and grub ROW	STA	17	\$ 600.00	\$ 10,200.00		\$ -
3	Crushed rock for trench stabilization	CY	200	\$ 40.00	\$ 8,000.00		\$ -
4	Remove and dispose of existing water line	LF	730	\$ 15.00	\$ 10,950.00		\$ -
5	18" DIP water line with polywrap	LF	1120	\$ 75.00	\$ 84,000.00		\$ -
6	30" Steel casing with 18" carrier pipe by dry bore	LF	110	\$ 400.00	\$ 44,000.00		\$ -
7	30" Steel casing with 18" carrier pipe by open cut	LF	790	\$ 275.00	\$ 217,250.00		\$ -
8	Trench protection	LF	1910	\$ 1.50	\$ 2,865.00		\$ -
9	Remove air release valve, manhole, and appurtenances	EA	1	\$ 1,000.00	\$ 1,000.00		\$ -
10	Install air release manhole	EA	1	\$ 4,000.00	\$ 4,000.00		\$ -
11	18" gate valves	EA	2	\$ 10,000.00	\$ 20,000.00		\$ -
12	Ductile iron fittings	LB	4000	\$ 5.00	\$ 20,000.00		\$ -
13	Ties into existing 18" water line	EA	2	\$ 5,000.00	\$ 10,000.00		\$ -
14	Water line marker	EA	7	\$ 250.00	\$ 1,750.00		\$ -
15	Silt fence	LF	700	\$ 3.50	\$ 2,450.00		\$ -
16	Seeding areas disturbed by construction	AC	0.75	\$ 600.00	\$ 450.00		\$ -
101	Engineering - principal	HR	4	\$ 145.00	\$ 580.00		\$ -
102	Engineering - project manager	HR	104	\$ 110.00	\$ 11,440.00		\$ -
103	Engineering - design technician	HR	98	\$ 60.00	\$ 5,880.00		\$ -
104	Engineering - survey field party	HR	28	\$ 90.00	\$ 2,520.00		\$ -
105	Engineering - project assistant	HR	16	\$ 55.00	\$ 880.00		\$ -
106	Engineering - secretary	HR	55	\$ 40.00	\$ 2,200.00		\$ -
107	Engineering - project representative	HR	181	\$ 55.00	\$ 9,955.00		\$ -
108	Travel	MI	180	\$ 0.58	\$ 104.40		\$ -
<b>Total</b>					<b>\$ 490,559.40</b>	<b>\$ -</b>	<b>\$ -</b>

Figure 2. Example 1 (Water Main Adjustment) – Unit Cost Analysis Worksheet.

Remove All Items

+	-	Item No.	Group/Item Name	Item Description
			<b>General</b>	
		1	138 kV pole assembly (90 ft.)	
		2	138 kV pole assembly (95 ft.)	
			<b>Earth Work</b>	
			<b>Lines, Pipes, and Other Linear Features</b>	
			<b>Appurtenances</b>	
			<b>Other</b>	
		3	Contract labor, engineering	
		4	Environmental study and surveying	
		5	Inspection services	

**Figure 3. Example 2 (Transmission Line Adjustment) – Items Worksheet.**

Get Items		Update Items				Calculate Total		Import Amounts	
Item	+ -	Component	Item/Component Name	Cost Category	Unit	Quantity	Rate or Unit Price (\$/unit)	Amount (\$)	Imported Amount (\$)
1			<b>138 kV pole assembly (90 ft.)</b>					\$ 79,360.41	
		1	Pole, concrete, 90 ft., H-frame str.	Materials and Supplies	EA	4	\$ 5,000.00	\$ 20,000.00	
		2	Materials (per list)	Materials and Supplies	EA	1	\$ 3,434.91	\$ 3,434.91	
		3	Purchasing and stores	Materials and Supplies	EA	1	\$ 679.50	\$ 679.50	
		4	Non-contract labor regular time	Labor	HR	41.5	\$ 28.00	\$ 1,162.00	
		5	Non-contract labor overtime time	Labor	HR	6	\$ 42.00	\$ 252.00	
		6	Non-productive time clearing	Labor	EA	1	\$ 187.50	\$ 187.50	
		7	Employment benefit loading	Overhead	EA	1	\$ 70.50	\$ 70.50	
		8	Retirement plan loading	Overhead	EA	1	\$ 50.00	\$ 50.00	
		9	Payroll taxes	Overhead	EA	1	\$ 624.50	\$ 624.50	
		10	Other employee benefit loading	Overhead	EA	1	\$ 25.00	\$ 25.00	
		11	Construction contract labor	Labor	HR	586.5	\$ 80.00	\$ 46,920.00	
		12	Construction overhead	Overhead	EA	1	\$ 5,728.50	\$ 5,728.50	
		13	Transportation	Transportation and Equipm	EA	1	\$ 226.00	\$ 226.00	
2			<b>138 kV pole assembly (95 ft.)</b>					\$ 79,360.41	
		1	Pole, concrete, 95 ft., H-frame str.	Materials and Supplies	EA	4	\$ 5,000.00	\$ 20,000.00	
		2	Materials (per list)	Materials and Supplies	EA	1	\$ 3,434.91	\$ 3,434.91	
		3	Purchasing and stores	Materials and Supplies	EA	1	\$ 679.50	\$ 679.50	
		4	Non-contract labor regular time	Labor	HR	41.5	\$ 28.00	\$ 1,162.00	
		5	Non-contract labor overtime time	Labor	HR	6	\$ 42.00	\$ 252.00	
		6	Non-productive time clearing	Labor	EA	1	\$ 187.50	\$ 187.50	
		7	Employment benefit loading	Overhead	EA	1	\$ 70.50	\$ 70.50	
		8	Retirement plan loading	Overhead	EA	1	\$ 50.00	\$ 50.00	
		9	Payroll taxes	Overhead	EA	1	\$ 624.50	\$ 624.50	
		10	Other employee benefit loading	Overhead	EA	1	\$ 25.00	\$ 25.00	
		11	Construction contract labor	Labor	HR	586.5	\$ 80.00	\$ 46,920.00	
		12	Construction overhead	Overhead	EA	1	\$ 5,728.50	\$ 5,728.50	
		13	Transportation	Transportation and Equipm	EA	1	\$ 226.00	\$ 226.00	
3			<b>Contract labor, engineering</b>					\$ 30,024.00	
		1	Contract labor, engineering	Labor	HR	417	\$ 72.00	\$ 30,024.00	
4			<b>Environmental study and surveying</b>					\$ 7,418.00	
		1	Environmental study	Labor	HR	38	\$ 65.00	\$ 2,470.00	
		2	Surveying - registered surveyor	Labor	HR	3	\$ 73.00	\$ 219.00	
		3	Surveying - AutoCAD services	Labor	HR	13	\$ 63.00	\$ 819.00	
		4	Surveying - three man field crew	Labor	HR	46	\$ 85.00	\$ 3,910.00	
5			<b>Inspection services</b>					\$ 6,656.00	
		1	Inspection services	Labor	HR	128	\$ 52.00	\$ 6,656.00	
<b>Total</b>								<b>\$ 202,818.82</b>	

Figure 4. Example 2 (Transmission Line Adjustment) – Item Disaggregation Analysis Worksheet.

Get Items and Category Costs

Item No.	Item Name	Cost Category				Total
		Materials and Supplies	Labor	Overhead	Transportation and Equipment	
1	138 kV pole assembly (90 ft.)	\$ 24,114.41	\$ 48,521.50	\$ 6,498.50	\$ 226.00	\$ 79,360.41
2	138 kV pole assembly (95 ft.)	\$ 24,114.41	\$ 48,521.50	\$ 6,498.50	\$ 226.00	\$ 79,360.41
3	Contract labor, engineering	\$ -	\$ 30,024.00	\$ -	\$ -	\$ 30,024.00
4	Environmental study and surveying	\$ -	\$ 7,418.00	\$ -	\$ -	\$ 7,418.00
5	Inspection services	\$ -	\$ 6,656.00	\$ -	\$ -	\$ 6,656.00
<b>Total</b>		<b>\$ 48,228.82</b>	<b>\$ 141,141.00</b>	<b>\$ 12,997.00</b>	<b>\$ 452.00</b>	<b>\$ 202,818.82</b>

**Figure 5. Example 2 (Transmission Line Adjustment) – Cost Category Summary Worksheet.**