

Roll Up Report

Project name	Branson Compton WWTP Branson MO TBD USA
Estimator	TAS
Labor rate table	HDR_2020_Union
Equipment rate table	ELEC2019
Project	3 Generators w/demo
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s)' methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN' 'WBS_MAIN' summary Allocate addons
Factor table	Missouri-Springfield

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

Roll Up Report

Description	Quantity		Labor	Material	Subcontract	Equipment	Other	Total	
			Amount	Amount	Amount	Amount	Amount	Unit Cost	Amount
1 ATS-01 With Future Generator Unit 1	1.00	LS	32,472	30,098	457	1,588		64,615.23 /LS	64,615
2 ATS-02 With Future Generator Unit 2	1.00	LS	50,762	382,649	457	1,852		435,719.56 /LS	435,720
3 ATS-03 With Future Generator Unit 3	1.00	LS	76,836	650,367	457	2,497		730,157.07 /LS	730,157
4 Demolition of Existing ATS and Generator	1.00	LS	13,081	2,009	82,825			97,914.22 /LS	97,914

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

Roll Up Report

Estimate Totals

Description	Amount	Totals	Rate
Labor	173,151		
Material	1,065,123		
Equipment	5,936		
Subcontract	84,197		
Other			
Total		1,328,407	

*Roll Up Report*

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Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

Detail Report - With Contractor Markups

Project name	Branson Compton WWTP Branson MO TBD USA
Document	Class 3
Estimator	TAS
Labor rate table	HDR_2020_Union
Equipment rate table	ELEC2019
Project	3 Generators w/demo
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s)' methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF04_DIV/HDR04SPEC/WBS 6' 'Detail' summary Allocate addons
Factor table	Missouri-Springfield

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor		Material		Subcontract		Equipment		Other		Total	
			Amount		Amount		Amount	Name	Amount		Amount		Unit Cost	Amount
1   ATS-01 With Future Generator Unit 1														
DIVISION 03														

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	
				Amount	Amount	Amount		Amount	Amount	Unit Cost	Amount
03 11 13.000 Concrete Site Wall											
* unassigned *											
0020	C.I.P. concrete forms, equipment foundations, 1 use, includes erecting, bracing, stripping and cleaning	60.00	lf	1,785	457	-		-	-	37.364 /lf	2,242
2000	Chamfer strip, polyvinyl chloride, 1/2" wide with leg	60.00	lf	89	92	-		-	-	3.007 /lf	180
6000	Tie hangers	171.00	ea	-	20	-		-	-	0.119 /ea	20
8500	Tie wire	1.00	ea	-	35	-		-	-	34.51 /ea	35
* unassigned *				1,874	604						2,477
18.897 Labor hours											
03 11 13.000 Concrete Site Wall				1,874	604	0		0	0	2,477.14 /ls	2,477
1.00 ls											
18.897 Labor hours											
03 21 00.000 Reinforcement											
* unassigned *											
1200	Chair	40.00	ea	-	51	-		-	-	1.265 /ea	51
2700	Reinforcing steel	342.00	lf	1,695	653	-		-	-	6.866 /lf	2,348
* unassigned *				1,695	703						2,399
17.10 Labor hours											
03 21 00.000 Reinforcement				1,695	703	0		0	0	2,398.75 /ls	2,399
1.00 ls											
17.10 Labor hours											
03 31 30.000 Concrete, Materials and Proportioning											
* unassigned *											
n 0920	Strt concr,place,col (4000 psi),square,2% mfrncg area,24"x24",includs forms(4 us),grade 60 rebar,concret (prtInd cement type i),placing and finishng	7.40	cy	1,467	6,727	-		671	-	1,197.935 /cy	8,865
* unassigned *				1,467	6,727			671			8,865
14.80 Labor hours											
6.685 Equipment hours											
03 31 30.000 Concrete, Materials and Proportioning				1,467	6,727	0		671	0	8,864.720/ls	8,865
1.00 ls											
14.80 Labor hours											
6.685 Equipment hours											

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Lower Range -15%

### Detail Report - With Contractor Markups

[illegible]

## DIVISION 26

## ELECTRICAL

01 30 00.050		Administrative Requirements										
* unassigned *												
n	0140	Foreman at 15% of 240	36.00	hour	1,226	-	-	-	-	34.058 /hour	1,226	
n	0160	Journeyman 10% of 240	24.00	hour	409	-	-	-	-	17.029 /hour	409	
n	0180	Cleanup and delivery 5% of 240	12.00	hour	705	-	-	-	-	58.718 /hour	705	
					* unassigned *	2,339						2,339
72.00		Labor hours										
01 30 00.050 Administrative Requirements					2,339	0	0	0	0	2,339.42 /ls	2,339	
1.00		ls										
72.00		Labor hours										

26 05 00.000		Electrical: Basic Requirements									
* unassigned *											
0150	3/8" expansion anchors	8.00	ea	103	15	-	-	-	-	14.778 /ea	118
0200	3/8" bolts	8.00	ea	24	7	-	-	-	-	3.90 /ea	31
0300	3/8" nuts	8.00	ea	16	1	-	-	-	-	2.084 /ea	17
0350	3/8" washers	16.00	ea	32	1	-	-	-	-	2.045 /ea	33
0900	Nameplates	2.00	ea	50	21	-	-	-	-	35.05 /ea	70
0950	Tyraps	25.00	ea	74	8	-	-	-	-	3.283 /ea	82

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**Lower Range -15%**



Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Subcontract Amount	Name	Equipment Amount	Other Amount	Unit Cost	Total Amount
* unassigned *			298	53						351
3.01	Labor hours									
26 05 00.000	Electrical: Basic Requirements		298	53	0		0	0	350.98 /ls	351
1.00	Is									
3.01	Labor hours									
26 05 19.000	Wire and Cable: 600 volt and below									
* unassigned *										
0200	Wiremarkers	100.00 ea	596	10	-		-	-	6.066 /ea	607
0300	Scotchlocks	34.00 ea	237	10	-		-	-	7.246 /ea	246
2400	Crimp 1 hole lugs, copper, #2	1.00 ea	40	10	-		-	-	49.35 /ea	49
3000	Crimp 1 hole lugs, copper, 4/0	4.00 ea	288	53	-		-	-	85.263 /ea	341
1000	Wire, copper, #14	720.00 lf	428	117	-		-	-	0.757 /lf	545
1200	Wire, copper, #12	450.00 lf	312	101	-		-	-	0.918 /lf	413
1500	Wire, copper, #2	45.00 lf	80	145	-		-	-	5.007 /lf	225
2000	Wire, copper, 4/0	180.00 lf	642	1,714	-		-	-	13.092 /lf	2,357
0700	Friction tape	2.00 ea	20	2	-		-	-	10.93 /ea	22
0800	Phase tape	4.00 ea	40	62	-		-	-	25.308 /ea	101
1000	Wire lube	2.00 ea	198	103	-		-	-	150.450 /ea	301
* unassigned *			2,882	2,325						5,207
29.070	Labor hours									
26 05 19.000	Wire and Cable: 600 volt and below		2,882	2,325	0		0	0	5,207.29 /ls	5,207
1.00	Is									
29.070	Labor hours									
26 05 26.000	Grounding									
* unassigned *										
4250	Underground marking tape	70.00 lf	56	42	-		-	-	1.388 /lf	97
3000	Crimp 1 hole lugs, copper, 4/0	2.00 ea	144	28	-		-	-	85.935 /ea	172
0100	Grounding rod, copper clad, 10' long, 3/4" diameter	4.00 ea	721	320	-		-	-	260.305 /ea	1,041
0220	Grounding drive studs, 3/4" diameter	4.00 ea		151	-		-	-	37.733 /ea	151
0250	Ground clamp	4.00 ea	99	49	-		-	-	37.055 /ea	148
1000	Ground wire, copper wire, bare 4/0	80.00 lf	222	530	-		-	-	9.405 /lf	752
2730	Exothermic weld, 4/0 wire to ground rod	4.00 ea	453	86	-		-	-	134.828 /ea	539
2760	Exothermic weld, 4/0 wire to 4/0 wire	2.00 ea	227	43	-		-	-	134.830 /ea	270
4400	Trench No 1	70.00 lf	208	122	-		-	-	4.719 /lf	330
4450	Compaction	70.00 lf	427	359	-		-	-	11.232 /lf	786
* unassigned *			2,557	1,730						4,287
25.792	Labor hours									

Upper Range +30%

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Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	
			Amount	Amount	Amount		Amount	Amount	Unit Cost	Amount
26 05 26.000 Grounding			2,557	1,730	0		0	0	4,287.400/lb	4,287
1.00 Is										
25.792 Labor hours										
26 05 33.000 Raceways and Boxes										
* unassigned *										
1800	Rigid galvanized steel conduit, 1" diameter, to 15' H, incl 2 terminations, 2 elbows, 11 beam clamps, and 11 couplings per 100 LF	85.00 lf	1,037	1,210	-		-	-	26.440 /lf	2,247
1870	Rigid galvanized steel conduit, 2" diameter	5.00 lf	88	80	-		-	-	33.536 /lf	168
2180	Conduit fittings for rigid galvanized steel, boxes connector with set screw, plain, 1" diameter	26.00 ea	412	274	-		-	-	26.389 /ea	686
2210	Conduit fittings for rigid galvanized steel, boxes connector, 2" diameter	2.00 ea	79	171	-		-	-	124.945 /ea	250
2330	Conduit fittings for rigid galvanized steel, LB, LR or LL fittings & covers, 1" diameter	4.00 ea	397	194	-		-	-	147.635 /ea	591
1100	Flexible metallic conduit, sealtite, 1" diameter	15.00 lf	170	73	-		-	-	16.182 /lf	243
1400	Flexible metallic conduit, sealtite, 2" diameter	3.00 lf	79	28	-		-	-	35.753 /lf	107
1900	Flexible metallic conduit, sealtite, connectors, plain, 1" diameter	5.00 ea	99	81	-		-	-	36.07 /ea	180
2200	Flexible metallic conduit, sealtite, connectors, straight, 2" diameter	1.00 ea	40	81	-		-	-	120.73 /ea	121
2600	Flexible metallic conduit, sealtite, connectors, plain, 90 Deg., 1" diameter	5.00 ea	99	137	-		-	-	47.202 /ea	236
3100	Flexible metallic conduit, sealtite, connectors, 90 Deg., 2" diameter	1.00 ea	40	110	-		-	-	149.13 /ea	149
4800	Flexible metallic conduit, coupling sealtite to rigid, 1" diameter	5.00 ea	283	58	-		-	-	68.288 /ea	341
5100	Flexible metallic conduit, coupling sealtite to rigid, 2" diameter	1.00 ea	79	64	-		-	-	143.53 /ea	144
0110	Hole drilling, fire caulk	4.00 ea	264	82	-		49	-	98.775 /ea	395
0140	Hole drilling, concrete wall, 8" thick, 1" pipe size, to 10' high	4.00 ea	334	205	-		28	-	141.725 /ea	567
0020	Motor connections	5.00 ea	496	58	-		-	-	110.678 /ea	553
* unassigned *			3,997	2,905			76			6,978
40.317 Labor hours										
6.035 Equipment hours										
26 05 33.000 Raceways and Boxes			3,997	2,905	0		76	0	6,978.16 /lb	6,978
1.00 Is										
40.317 Labor hours										
6.035 Equipment hours										

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor		Material		Subcontract		Equipment		Other		Total	
			Amount	Amount	Amount	Name	Amount	Amount	Unit Cost	Amount				
26 05 43.000 Electrical: Exterior Underground														
* unassigned *														
0850	PVC cement	0.25 ea	25	6	-		-	-	124.88 /ea		31			
3270	PVC conduit, schedule 40, 1" diameter, in concrete slab, incl terminations, fittings and supports	130.00 lf	516	291	-		-	-	6.203 /lf		806			
3350	PVC conduit, schedule 40, 2" diameter, in concrete slab, incl terminations, fittings and supports	35.00 lf	231	161	-		-	-	11.207 /lf		392			
3530	PVC conduit, schedule 40, 90 elbow, 1" diameter, in concrete slab	14.00 ea	347	1,151	-		-	-	107.00 /ea		1,498			
3600	PVC conduit, schedule 40, sweep, 30" radius, 2" diameter, in concrete slab	2.00 ea	88	47	-		-	-	67.46 /ea		135			
3770	PVC conduit, schedule 40, adapter, 1" diameter, in concrete slab	14.00 ea	0	7	-		-	-	0.479 /ea		7			
3850	PVC conduit, schedule 40, couplings, 2" diameter, in concrete slab	2.00 ea	0	2	-		-	-	1.22 /ea		2			
4150	PVC conduit, schedule 40, end bells, 2" diameter, in concrete slab	1.00 ea	23	9	-		-	-	32.40 /ea		32			
4350	Underground marking tape	60.00 lf	48	36	-		-	-	1.388 /lf		83			
0200	Trench No 1	35.00 lf	104	61	-		-	-	4.719 /lf		165			
0400	Trench No 2	25.00 lf	99	146	-		-	-	9.815 /lf		245			
0800	Dirt removal	1.111 cys	25	570	-		-	-	535.419 /cys		595			
1000	Backfill	1.111 cys	55	24	-		-	-	71.13 /cys		79			
1200	Sand backfill	0.093 cys	9	7	-		-	-	171.075 /cys		16			
1400	Compaction	60.00 lf	161	308	-		-	-	7.808 /lf		468			
* unassigned *			1,731	2,826							4,556			
17.456 Labor hours														
26 05 43.000 Electrical: Exterior Underground			1,731	2,826	0		0	0	4,556.400 /ls		4,556			
1.00 ls														
17.456 Labor hours														
26 09 00.000 Instrumentation & Control for Electrical Systems														
* unassigned *														
0050	Existing control panel	1.00 ea	397	895	-		-	-	1,291.52 /ea		1,292			
0130	Terminate cables furnished and installed by electrical	1.00 ea	198	53					250.93 /ea		251			
* unassigned *			595	948							1,542			
6.00 Labor hours														
26 09 00.000 Instrumentation & Control for Electrical Systems			595	948	0		0	0	1,542.45 /ls		1,542			
1.00 ls														

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
				Amount	Amount	Amount		Amount	Amount	Unit Cost	
26 09 00.000 Instrumentation & Control for Electrical Systems				595	948	0		0	0	1,542.45 /ls	1,542
	1.00	ls									
	6.00	Labor hours									
26 24 16.000 Panelboards											
* unassigned *											
0100	Panelboard directory	1.00	ea	397	103	-		-	-	499.21 /ea	499
0700	Circuit breakers, bolt-on, 10 k A I.C., 3 pole, 20 amp	3.00	ea	384	830	-		-	-	404.447 /ea	1,213
* unassigned *				780	932						1,713
	7.871	Labor hours									
26 24 16.000 Panelboards				780	932	0		0	0	1,712.55 /ls	1,713
	1.00	ls									
	7.871	Labor hours									
26 28 16.000 Safety Switches											
* unassigned *											
0700	Circuit breaker, 3 pole, 600 volt, 400 amp, enclosed (NEMA 1)	1.00	ea	991	0	-		-	-	991.44 /ea	991
* unassigned *				991							991
	10.00	Labor hours									
26 28 16.000 Safety Switches				991	0	0		0	0	991.44 /ls	991
	1.00	ls									
	10.00	Labor hours									
26 32 14.000 Engine Generator: Diesel											
* unassigned *											
n	2005 Diesel fuel	1,000.00	ea	496	10,262	-		0	-	10.758 /ea	10,758
	2850 Generator set, diesel, 3 phase 4 wire, 277/480 V, 275 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	ea	9,013	0	-		833	-	9,845.67 /ea	9,846
* unassigned *				9,509	10,262			833			20,603
	95.909	Labor hours									
	18.182	Equipment hours									

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Unit Cost	Total
			Amount	Amount	Amount		Amount	Amount		Amount
<hr/>										
	26 32 14.000 Engine Generator: Diesel		9,509	10,262	0		833	0	20,603.47 /ls	20,603
	1.00 ls									
	95.909 Labor hours									
	18.182 Equipment hours									
<hr/>										
26 36 00.000 Transfer Switches										
<hr/>										
* unassigned *	0700 Automatic transfer switches, enclosed, 3 pole, 480 volt, 400 amp	1.00 ea	991	0	-		-	-	991.44 /ea	991
	* unassigned *		991							991
	10.00 Labor hours									
<hr/>										
	26 36 00.000 Transfer Switches		991	0	0		0	0	991.44 /ls	991
	1.00 ls									
	10.00 Labor hours									
<hr/>										
DIVISION 26 ELECTRICAL			26,672	21,980	0		909	0	49,561.00 /LS	49,561
<hr/>										
	1.00 LS									
	317.425 Labor hours									
	24.217 Equipment hours									
<hr/>										
1 ATS-01 With Future Generator Unit 1			32,472	30,098	457		1,588	0	64,615.23 /LS	64,615
<hr/>										
	1.00 LS									
	386.619 Labor hours									
	31.702 Equipment hours									
<hr/>										
2 ATS-02 With Future Generator Unit 2										
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DIVISION 03 CONCRETE										
<hr/>										
01 30 00.050 Administrative Requirements										
<hr/>										
* unassigned *	0140 Foreman at 15% of 65	9.75 hour	332	-	-		-	-	34.056 /hour	332
n	0160 Journeyman at 10% of 65	6.50 hour	111	-	-		-	-	17.032 /hour	111
n	0180 Cleanup and delivery at 5% of 65	3.25 hour	191	-	-		-	-	58.72 /hour	191

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## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Subcontract Amount	Name	Equipment Amount	Other Amount	Total Unit Cost	Amount
* unassigned *			634							634
	19.50 Labor hours									
01 30 00.050 Administrative Requirements			634	0	0		0	0	633.60 /ls	634
	1.00 ls									
	19.50 Labor hours									
01 41 00.000 Testing										
* unassigned *										
1950	Concrete testing, compressive strength test, incl. picked up by lab, average	1.00 ea	-	-	32		-		32.48 /ea	32
2400	Concrete testing, drying shrinkage at 28 days	1.00 ea	-	-	425		-		424.85 /ea	425
* unassigned *					457					457
01 41 00.000 Testing			0	0	457		0	0	457.33 /ls	457
	1.00 ls									
02 22 00.000 Existing Conditions										
* unassigned *										
0600	Boundary & survey markers, monuments	1.00 ea	238	84	-		8	-	330.14 /ea	330
* unassigned *			238	84			8			330
	2.40 Labor hours									
	0.80 Equipment hours									
02 22 00.000 Existing Conditions			238	84	0		8	0	330.14 /ls	330
	1.00 ls									
	2.40 Labor hours									
	0.80 Equipment hours									
03 11 13.000 Concrete Site Wall										
* unassigned *										
0020	C.I.P. concrete forms, equipment foundations, 1 use, includes erecting, bracing, stripping and cleaning	70.00 lf	2,082	533	-		-	-	37.364 /lf	2,615
2000	Chamfer strip, polyvinyl chloride, 1/2" wide with leg	70.00 lf	104	107	-		-	-	3.007 /lf	211
6000	Tie hangers	216.00 ea	-	26	-		-	-	0.119 /ea	26
8500	Tie wire	1.00 ea	-	35	-		-	-	34.51 /ea	35
* unassigned *			2,186	700						2,886
	22.047 Labor hours									

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Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
			Amount	Amount	Amount		Amount	Amount	Unit Cost	
<hr/>										
	03 11 13.000 Concrete Site Wall		2,186	700	0		0	0	2,886.23 /ls	2,886
	1.00 ls									
	22.047 Labor hours									
03 21 00.000			Reinforcement							
<hr/>										
* unassigned *										
1200	Chair	48.00 ea	-	61	-		-	-	1.265 /ea	61
2700	Reinforcing steel	432.00 lf	2,142	825	-		-	-	6.866 /lf	2,966
	* unassigned *		2,142	885						3,027
	21.60 Labor hours									
<hr/>										
	03 21 00.000 Reinforcement		2,142	885	0		0	0	3,026.80 /ls	3,027
	1.00 ls									
	21.60 Labor hours									
03 31 30.000			Concrete, Materials and Proportioning							
<hr/>										
* unassigned *										
n	0920 Strt concr,place,col (4000 psi),square,2% mfrng area,24"x24",includs forms(4 us),grade 60 rebar,concret (prtld cement type i),placing and finishing	9.259 cy	1,836	8,417	-		839	-	1,197.934 /cy	11,092
	* unassigned *		1,836	8,417			839			11,092
	18.518 Labor hours									
	8.365 Equipment hours									
<hr/>										
	03 31 30.000 Concrete, Materials and Proportioning		1,836	8,417	0		839	0	11,091.67 /ls	11,092
	1.00 ls									
	18.518 Labor hours									
	8.365 Equipment hours									
03 31 32.000			Concrete Finishing and Repair of Surface Defects							
<hr/>										
* unassigned *										
n	0150 Cncrt fnshn,fresh cncrt fltwr,flrs,basic fnshn for unspc fltwr,bull float,manl float&broom finsh,incl edging and joints,excl placng,strkng off&cnsldtn	9.259 cy	12	-	-		-	-	1.287 /cy	12
	* unassigned *		12							12
	0.120 Labor hours									
<hr/>										
	03 31 32.000 Concrete Finishing and Repair of Surface Defects		12	0	0		0	0	11.92 /ls	12
	1.00 ls									

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Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor		Material		Subcontract		Equipment		Other		Total	
			Amount	Amount	Amount	Name	Amount	Amount	Unit Cost	Amount				
03 31 32.000 Concrete Finishing and Repair of Surface Defects			12	0	0				0	0	11.92 /ls		12	
	1.00	Is												
	0.120	Labor hours												
DIVISION 03 CONCRETE			7,047	10,087	457				847	0	18,437.690/LS		18,438	
	1.00	LS												
	84.185	Labor hours												
	9.165	Equipment hours												
DIVISION 26 ELECTRICAL														
01 30 00.050 Administrative Requirements														
* unassigned *														
n	0140	Foreman at 15% of 393	58.95	hour	2,008	-	-		-	-	34.058 /hour		2,008	
n	0160	Journeyman 10% of 393	39.30	hour	669	-	-		-	-	17.029 /hour		669	
n	0180	Cleanup and delivery 5% of 393	19.65	hour	1,154	-	-		-	-	58.720 /hour		1,154	
		* unassigned *			3,831								3,831	
	117.90	Labor hours												
01 30 00.050 Administrative Requirements			3,831	0	0				0	0	3,830.82 /ls		3,831	
	1.00	Is												
	117.90	Labor hours												
26 05 00.000 Electrical: Basic Requirements														
* unassigned *														
	0150	3/8" expansion anchors	8.00	ea	103	15	-		-	-	14.776 /ea		118	
	0200	3/8" bolts	8.00	ea	24	7	-		-	-	3.899 /ea		31	
	0300	3/8" nuts	8.00	ea	16	1	-		-	-	2.084 /ea		17	
	0350	3/8" washers	16.00	ea	32	1	-		-	-	2.046 /ea		33	
	0900	Nameplates	2.00	ea	50	21	-		-	-	35.05 /ea		70	
	0950	Tyraps	25.00	ea	74	8	-		-	-	3.283 /ea		82	
		* unassigned *			298	53							351	
	3.01	Labor hours												
26 05 00.000 Electrical: Basic Requirements			298	53	0				0	0	350.97 /ls		351	
	1.00	Is												
	3.01	Labor hours												



## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor		Material		Subcontract		Name	Equipment		Other		Total	
			Amount		Amount		Amount			Amount		Amount		Unit Cost	Amount
<div>26 05 19.000<div>Wire and Cable: 600 volt and below</div></div>															
<div>* unassigned *</div>															
0200	Wiremarkers	100.00	ea	596	10	-		-		-		-		6.066 /ea	607
0300	Scotchloks	34.00	ea	237	10	-		-		-		-		7.245 /ea	246
2800	Crimp 1 hole lugs, copper or aluminum, 600 volt, 3/0	8.00	ea	529	132	-		-		-		-		82.62 /ea	661
3000	Crimp 1 hole lugs, copper, 4/0	8.00	ea	577	105	-		-		-		-		85.265 /ea	682
3500	Crimp 1 hole lugs, copper 350 kcmil	24.00	ea	2,719	442	-		-		-		-		131.733 /ea	3,162
1000	Wire, copper, #14	1,160.00	lf	690	188	-		-		-		-		0.757 /lf	878
1200	Wire, copper, #12	1,080.00	lf	750	242	-		-		-		-		0.918 /lf	991
1700	Wire, copper, 3/0	80.00	lf	254	589	-		-		-		-		10.541 /lf	843
2000	Wire, copper, 4/0	80.00	lf	286	762	-		-		-		-		13.093 /lf	1,047
2600	Wire, copper, 350 kcmil	240.00	lf	1,047	3,596	-		-		-		-		19.345 /lf	4,643
0700	Friction tape	6.00	ea	59	6	-		-		-		-		10.94 /ea	66
0800	Phase tape	4.00	ea	40	62	-		-		-		-		25.303 /ea	101
1000	Wire lube	4.00	ea	397	205	-		-		-		-		150.453 /ea	602
* unassigned *				8,179	6,350										14,529
82.501 Labor hours															
26 05 19.000 Wire and Cable: 600 volt and below				8,179	6,350	0		0		0		0		14,529.00 /ls	14,529
1.00 ls															
82.501 Labor hours															
<div>26 05 26.000<div>Grounding</div></div>															
<div>* unassigned *</div>															
4250	Underground marking tape	80.00	lf	63	48	-		-		-		-		1.389 /lf	111
3000	Crimp 1 hole lugs, copper, 4/0	2.00	ea	144	28	-		-		-		-		85.935 /ea	172
0100	Grounding rod, copper clad, 10' long, 3/4" diameter	4.00	ea	721	320	-		-		-		-		260.30 /ea	1,041
0220	Grounding drive studs, 3/4" diameter	4.00	ea		151	-		-		-		-		37.733 /ea	151
0250	Ground clamp	4.00	ea	99	49	-		-		-		-		37.05 /ea	148
1000	Ground wire, copper wire, bare 4/0	90.00	lf	250	597	-		-		-		-		9.406 /lf	847
2730	Exothermic weld, 4/0 wire to ground rod	4.00	ea	453	86	-		-		-		-		134.828 /ea	539
2760	Exothermic weld, 4/0 wire to 4/0 wire	2.00	ea	227	43	-		-		-		-		134.835 /ea	270
4400	Trench No 1	80.00	lf	238	140	-		-		-		-		4.718 /lf	377
4450	Compaction	80.00	lf	488	410	-		-		-		-		11.233 /lf	899
* unassigned *				2,684	1,871										4,555
27.068 Labor hours															
26 05 26.000 Grounding				2,684	1,871	0		0		0		0		4,554.83 /ls	4,555
1.00 ls															
27.068 Labor hours															

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
				Amount	Amount	Amount		Amount	Amount	Unit Cost	
<div>26 05 33.000Raceways and Boxes</div>											
<div>* unassigned *</div>											
1800	Rigid galvanized steel conduit, 1" diameter, to 15' H, incl 2 terminations, 2 elbows, 11 beam clamps, and 11 couplings per 100 LF	110.00	lf	1,342	1,566	-		-	-	26.44 /lf	2,908
1930	Rigid galvanized steel conduit, 3" diameter	20.00	lf	635	687	-		-	-	66.082 /lf	1,322
2180	Conduit fittings for rigid galvanized steel, boxes connector with set screw, plain, 1" diameter	26.00	ea	412	274	-		-	-	26.39 /ea	686
2230	Conduit fittings for rigid galvanized steel, boxes connector, 3" diameter	8.00	ea	423	2,594	-		-	-	377.164 /ea	3,017
2330	Conduit fittings for rigid galvanized steel, LB, LR or LL fittings & covers, 1" diameter	4.00	ea	397	194	-		-	-	147.633 /ea	591
1100	Flexible metallic conduit, sealtite, 1" diameter	15.00	lf	170	73	-		-	-	16.182 /lf	243
1420	Flexible metallic conduit, sealtite, 3" diameter	12.00	lf	381	244	-		-	-	52.048 /lf	625
1900	Flexible metallic conduit, sealtite, connectors, plain, 1" diameter	5.00	ea	99	81	-		-	-	36.07 /ea	180
2220	Flexible metallic conduit, sealtite, connectors, straight, 3" diameter	4.00	ea	264	2,123	-		-	-	596.755 /ea	2,387
2600	Flexible metallic conduit, sealtite, connectors, plain, 90 Deg., 1" diameter	5.00	ea	99	137	-		-	-	47.20 /ea	236
3120	Flexible metallic conduit, sealtite, connectors, 90 Deg., 3" diameter	4.00	ea	288	2,822	-		-	-	777.538 /ea	3,110
4800	Flexible metallic conduit, coupling sealtite to rigid, 1" diameter	5.00	ea	283	58	-		-	-	68.288 /ea	341
5120	Flexible metallic conduit, coupling sealtite to rigid, 3" diameter	4.00	ea	353	1,634	-		-	-	496.653 /ea	1,987
0110	Hole drilling, fire caulk	4.00	ea	264	82	-		49	-	98.773 /ea	395
0140	Hole drilling, concrete wall, 8" thick, 1" pipe size, to 10' high	4.00	ea	334	205	-		28	-	141.725 /ea	567
0020	Motor connections	5.00	ea	496	58	-		-	-	110.684 /ea	553
	* unassigned *			6,240	12,832			76			19,148
	62.943 Labor hours										
	6.035 Equipment hours										
26 05 33.000 Raceways and Boxes				6,240	12,832	0		76	0	19,148.30 /ls	19,148
1.00 ls											
	62.943 Labor hours										
	6.035 Equipment hours										
<div>26 05 43.000Electrical: Exterior Underground</div>											
<div>* unassigned *</div>											
0850	PVC cement	1.00	ea	99	26	-		-	-	124.80 /ea	125
9316	PVC conduit couplings, 1" diameter, to 15' H	8.00	ea	181	4	-		-	-	23.178 /ea	185
9360	PVC conduit, field bends, 45 Deg. to 90 Deg., 1" diameter	8.00	ea	181	-	-		-	-	22.658 /ea	181

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
				Amount	Amount	Amount		Amount	Amount	Unit Cost	
* unassigned *											
3270	PVC conduit, schedule 40, 1" diameter, in concrete slab, incl terminations, fittings and supports	370.00	lf	1,467	828	-		-	-	6.203 /lf	2,295
3400	PVC conduit, schedule 40, 3" diameter, in concrete slab, incl terminations, fittings and supports	40.00	lf	397	360	-		-	-	18.904 /lf	756
3530	PVC conduit, schedule 40, 90 elbow, 1" diameter, in concrete slab	14.00	ea	347	1,151	-		-	-	107.00 /ea	1,498
3650	PVC conduit, schedule 40, 45 / 90 elbow, 3" diameter, in concrete slab	8.00	ea	635	1,430	-		-	-	258.114 /ea	2,065
3770	PVC conduit, schedule 40, adapter, 1" diameter, in concrete slab	14.00	ea	0	7	-		-	-	0.481 /ea	7
3900	PVC conduit, schedule 40, adapter / coupling, 3" diameter, in concrete slab	8.00	ea	0	36	-		-	-	4.493 /ea	36
4200	PVC conduit, schedule 40, end bells, 3" diameter, in concrete slab	4.00	ea	159	55	-		-	-	53.33 /ea	213
4350	Underground marking tape	100.00	lf	79	60	-		-	-	1.388 /lf	139
0400	Trench No 2	100.00	lf	397	585	-		-	-	9.815 /lf	982
0800	Dirt removal	1.11	cys	25	570	-		-	-	535.405 /cys	594
1000	Backfill	1.111	cys	55	24	-		-	-	71.125 /cys	79
1200	Sand backfill	1.11	cys	110	80	-		-	-	170.97 /cys	190
1400	Compaction	100.00	lf	268	513	-		-	-	7.808 /lf	781
* unassigned *				4,399	5,727						10,126
44.372 Labor hours											
26 05 43.000 Electrical: Exterior Underground				4,399	5,727	0		0	0	10,125.90 /ls	10,126
1.00 ls											
44.372 Labor hours											
26 09 00.000 Instrumentation & Control for Electrical Systems											
* unassigned *											
0050	Existing control panel	1.00	ea	397	895	-		-	-	1,291.53 /ea	1,292
0130	Terminate cables furnished and installed by electrical	1.00	ea	198	53					250.94 /ea	251
* unassigned *				595	948						1,542
6.00 Labor hours											
26 09 00.000 Instrumentation & Control for Electrical Systems				595	948	0		0	0	1,542.47 /ls	1,542
1.00 ls											
6.00 Labor hours											
26 24 16.000 Panelboards											
* unassigned *											

## AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	
				Amount	Amount	Amount		Amount	Amount	Unit Cost	Amount
<i>* unassigned *</i>											
0100	Panelboard directory	1.00	ea	397	103	-		-	-	499.19 /ea	499
0700	Circuit breakers, bolt-on, 10 k A I.C., 3 pole, 20 amp	3.00	ea	384	830	-		-	-	404.45 /ea	1,213
<i>* unassigned *</i>				780	932						1,713
7.871 Labor hours											
26 24 16.000 Panelboards				780	932	0		0	0	1,712.54 /ls	1,713
1.00 ls											
7.871 Labor hours											
26 28 16.000 Safety Switches											
<i>* unassigned *</i>											
1220	Circuit breaker, 3 pole, 600 volt, 1200 amp, enclosed (NEMA 1)	1.00	ea	1,983	0	-		-	-	1,982.87 /ea	1,983
<i>* unassigned *</i>				1,983							1,983
20.00 Labor hours											
26 28 16.000 Safety Switches				1,983	0	0		0	0	1,982.87 /ls	1,983
1.00 ls											
20.00 Labor hours											
26 32 14.000 Engine Generator: Diesel											
<i>* unassigned *</i>											
2005	Diesel fuel	1,800.00	ea	892	18,472	-		0	-	10.758 /ea	19,364
3250	Generator set, diesel, 3 phase 4 wire, 277/480 V, 800 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	ea	11,567	325,379	-		928	-	337,873.99 /ea	337,874
<i>* unassigned *</i>				12,459	343,851			928			357,238
125.667 Labor hours											
5.556 Equipment hours											
26 32 14.000 Engine Generator: Diesel				12,459	343,851	0		928	0	357,238.03 /ls	357,238
1.00 ls											
125.667 Labor hours											
5.556 Equipment hours											
26 36 00.000 Transfer Switches											
<i>* unassigned *</i>											
1100	Automatic transfer switches, enclosed, 3 pole, 480 volt, 1200 amp	1.00	ea	2,266	0	-		-	-	2,266.14 /ea	2,266

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
			Amount	Amount	Amount		Amount	Amount	Unit Cost	
	* unassigned *		2,266							2,266
	22.857 Labor hours									
26 36 00.000	Transfer Switches		2,266	0	0		0	0	2,266.14 /ls	2,266
	1.00 Is									
	22.857 Labor hours									
DIVISION 26 ELECTRICAL			43,715	372,562	0		1,005	0	417,281.87 /LS	417,282
	1.00 LS									
	520.189 Labor hours									
	11.591 Equipment hours									
2	ATS-02 With Future Generator Unit 2		50,762	382,649	457		1,852	0	435,719.56 /LS	435,720
	1.00 LS									
	604.374 Labor hours									
	20.756 Equipment hours									

3 ATS-03 With Future Generator Unit 3

DIVISION 03 CONCRETE

01 30 00.050 Administrative Requirements										
* unassigned *										
n	0140	Foreman at 15% of 87	13.05 hour	444	-	-	-	-	34.057 /hour	444
n	0160	Journeyman at 10% of 87	8.70 hour	148	-	-	-	-	17.033 /hour	148
n	0180	Cleanup and delivery at 5% of 87	4.35 hour	255	-	-	-	-	58.720 /hour	255
		* unassigned *		848						848
	26.10	Labor hours								
01 30 00.050	Administrative Requirements			848	0	0	0	0	848.07 /ls	848
	1.00	Is								
	26.10	Labor hours								
01 41 00.000 Testing										
* unassigned *										
	1950	Concrete testing, compressive strength test, incl. picked up by lab, average	1.00 ea	-	-	32	-	-	32.47 /ea	32
	2400	Concrete testing, drying shrinkage at 28 days	1.00 ea	-	-	425	-	-	424.84 /ea	425

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
			Amount	Amount	Amount		Amount	Amount	Unit Cost	
* unassigned *					457					457
01 41 00.000 Testing			0	0	457	0		0	457.31 /ls	457
1.00 ls										
02 22 00.000 Existing Conditions										
* unassigned *	0600	Boundary & survey markers, monuments	1.00 ea	238	84	-	8	-	330.16 /ea	330
* unassigned *			238	84		8				330
2.40 Labor hours										
0.80 Equipment hours										
02 22 00.000 Existing Conditions			238	84	0		8	0	330.16 /ls	330
1.00 ls										
2.40 Labor hours										
0.80 Equipment hours										
03 11 13.000 Concrete Site Wall										
* unassigned *	0020	C.I.P. concrete forms, equipment foundations, 1 use, includes erecting, bracing, stripping and cleaning	90.00 lf	2,677	686	-	-	-	37.363 /lf	3,363
	2000	Chamfer strip, polyvinyl chloride, 1/2" wide with leg	90.00 lf	133	137	-	-	-	3.008 /lf	271
	6000	Tie hangers	306.00 ea	-	36	-	-	-	0.119 /ea	36
	8500	Tie wire	1.00 ea	-	35	-	-	-	34.54 /ea	35
* unassigned *			2,810	894						3,704
28.346 Labor hours										
03 11 13.000 Concrete Site Wall			2,810	894	0		0	0	3,704.38 /ls	3,704
1.00 ls										
28.346 Labor hours										
03 21 00.000 Reinforcement										
* unassigned *	1200	Chair	56.00 ea	-	71	-	-	-	1.264 /ea	71
	2700	Reinforcing steel	612.00 lf	3,034	1,168	-	-	-	6.866 /lf	4,202
* unassigned *			3,034	1,239						4,273
30.60 Labor hours										

AAACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	
			Amount	Amount	Amount		Amount	Amount	Unit Cost	Amount
	03 21 00.000 Reinforcement		3,034	1,239	0		0	0	4,272.75 /ls	4,273
	1.00 ls									
	30.60 Labor hours									
03 31 30.000 Concrete, Materials and Proportioning										
* unassigned *										
n 0920	Stirt concrt,place,col (4000 psi),square,2% mfrng area,24"x24" ,includes forms(4 us),grade 60 rebar,concret (prtInd cement type i),placing and finishng	12.96 cy	2,570	11,781	-		1,175	-	1,197.935 /cy	15,525
	* unassigned *		2,570	11,781			1,175			15,525
	25.92 Labor hours									
	11.709 Equipment hours									
	03 31 30.000 Concrete, Materials and Proportioning		2,570	11,781	0		1,175	0	15,525.24 /ls	15,525
	1.00 ls									
	25.92 Labor hours									
	11.709 Equipment hours									
03 31 32.000 Concrete Finishing and Repair of Surface Defects										
* unassigned *										
n 0150	Cncrt fnshn,fresh cncrt fltwr,flrs,basic fnshn for unspc fltwr,bull float,manl float&broom finsh,incl edging and joints,excl placng,strkng off&cnsltdn	12.96 cy	17	-	-		-	-	1.288 /cy	17
	* unassigned *		17							17
	0.168 Labor hours									
	03 31 32.000 Concrete Finishing and Repair of Surface Defects		17	0	0		0	0	16.69 /ls	17
	1.00 ls									
	0.168 Labor hours									
DIVISION 03 CONCRETE			9,517	13,998	457		1,183	0	25,154.60 /LS	25,155
	1.00 LS									
	113.534 Labor hours									
	12.509 Equipment hours									

DIVISION 26 ELECTRICAL

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor Amount	Material Amount	Subcontract Amount	Name	Equipment Amount	Other Amount	Unit Cost	Total Amount
<u>01 30 00.050</u> <i>Administrative Requirements</i>										
* unassigned *										
n	0140 Foreman at 15% of 606	90.90 hour	3,096	-	-		-	-	34.058 /hour	3,096
n	0160 Journeyman 10% of 606	60.60 hour	1,032	-	-		-	-	17.029 /hour	1,032
n	0180 Cleanup and delivery 5% of 606	30.30 hour	1,779	-	-		-	-	58.720 /hour	1,779
* unassigned *			5,907							5,907
181.80 Labor hours										
01 30 00.050 Administrative Requirements			5,907	0	0		0	0	5,907.04 /ls	5,907
1.00 ls										
181.80 Labor hours										
<u>26 05 00.000</u> <i>Electrical: Basic Requirements</i>										
* unassigned *										
	0150 3/8" expansion anchors	8.00 ea	103	15	-		-	-	14.776 /ea	118
	0200 3/8" bolts	8.00 ea	24	7	-		-	-	3.898 /ea	31
	0300 3/8" nuts	8.00 ea	16	1	-		-	-	2.086 /ea	17
	0350 3/8" washers	16.00 ea	32	1	-		-	-	2.044 /ea	33
	0900 Nameplates	2.00 ea	50	21	-		-	-	35.05 /ea	70
	0950 Tyraps	25.00 ea	74	8	-		-	-	3.283 /ea	82
* unassigned *			298	53						351
3.01 Labor hours										
26 05 00.000 Electrical: Basic Requirements			298	53	0		0	0	350.95 /ls	351
1.00 ls										
3.01 Labor hours										
<u>26 05 19.000</u> <i>Wire and Cable: 600 volt and below</i>										
* unassigned *										
	0200 Wiremarkers	164.00 ea	978	17	-		-	-	6.066 /ea	995
	0300 Scotchlocks	50.00 ea	348	14	-		-	-	7.245 /ea	362
	2600 Crimp 1 hole lugs, copper, 2/0	12.00 ea	635	155	-		-	-	65.826 /ea	790
	2800 Crimp 1 hole lugs, copper or aluminum, 600 volt, 3/0	12.00 ea	793	198	-		-	-	82.623 /ea	991
	3500 Crimp 1 hole lugs, copper 350 kcmil	18.00 ea	2,040	332	-		-	-	131.734 /ea	2,371
	1000 Wire, copper, #14	1,000.00 lf	595	162	-		-	-	0.757 /lf	757
	1200 Wire, copper, #12	765.00 lf	531	171	-		-	-	0.918 /lf	702
	1650 Wire, copper, 2/0	270.00 lf	723	1,590	-		-	-	8.567 /lf	2,313
	1700 Wire, copper, 3/0	270.00 lf	857	1,989	-		-	-	10.541 /lf	2,846
	2600 Wire, copper, 350 kcmil	810.00 lf	3,533	12,136	-		-	-	19.345 /lf	15,669
	0700 Friction tape	8.00 ea	79	8	-		-	-	10.941 /ea	88
	0800 Phase tape	4.00 ea	40	62	-		-	-	25.305 /ea	101

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%



## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	
				Amount	Amount			Amount	Amount	Unit Cost	Amount
* unassigned *											
1000	Wire lube	8.00	ea	793	410	-		-	-	150.451 /ea	1,204
	* unassigned *			11,944	17,246						29,190
	120.470 Labor hours										
	26 05 19.000 Wire and Cable: 600 volt and below			11,944	17,246	0		0	0	29,189.71 /ls	29,190
	1.00 ls										
	120.470 Labor hours										
<b>26 05 26.000 Grounding</b>											
* unassigned *											
4250	Underground marking tape	100.00	lf	79	60	-		-	-	1.388 /lf	139
3000	Crimp 1 hole lugs, copper, 4/0	2.00	ea	144	28	-		-	-	85.935 /ea	172
0100	Grounding rod, copper clad, 10' long, 3/4" diameter	4.00	ea	721	320	-		-	-	260.305 /ea	1,041
0220	Grounding drive studs, 3/4" diameter	4.00	ea		151	-		-	-	37.733 /ea	151
0250	Ground clamp	4.00	ea	99	49	-		-	-	37.058 /ea	148
1000	Ground wire, copper wire, bare 4/0	110.00	lf	305	729	-		-	-	9.405 /lf	1,035
2730	Exothermic weld, 4/0 wire to ground rod	4.00	ea	453	86	-		-	-	134.828 /ea	539
2760	Exothermic weld, 4/0 wire to 4/0 wire	2.00	ea	227	43	-		-	-	134.830 /ea	270
4400	Trench No 1	100.00	lf	297	174	-		-	-	4.719 /lf	472
4450	Compaction	100.00	lf	610	513	-		-	-	11.232 /lf	1,123
	* unassigned *			2,937	2,153						5,090
	29.618 Labor hours										
	26 05 26.000 Grounding			2,937	2,153	0		0	0	5,089.76 /ls	5,090
	1.00 ls										
	29.618 Labor hours										
<b>26 05 33.000 Raceways and Boxes</b>											
* unassigned *											
1800	Rigid galvanized steel conduit, 1" diameter, to 15' H, incl 2 terminations, 2 elbows, 11 beam clamps, and 11 couplings per 100 LF	140.00	lf	1,708	1,993	-		-	-	26.440 /lf	3,702
1930	Rigid galvanized steel conduit, 3" diameter	30.00	lf	952	1,031	-		-	-	66.084 /lf	1,983
2180	Conduit fittings for rigid galvanized steel, boxes connector with set screw, plain, 1" diameter	26.00	ea	412	274	-		-	-	26.389 /ea	686
2230	Conduit fittings for rigid galvanized steel, boxes connector, 3" diameter	12.00	ea	635	3,891	-		-	-	377.166 /ea	4,526
2330	Conduit fittings for rigid galvanized steel, LB, LR or LL fittings & covers, 1" diameter	4.00	ea	397	194	-		-	-	147.63 /ea	591
1100	Flexible metallic conduit, sealtite, 1" diameter	15.00	lf	170	73	-		-	-	16.183 /lf	243
1440	Flexible metallic conduit, sealtite, 4" diameter	18.00	lf	952	553	-		-	-	83.621 /lf	1,505

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract		Equipment	Other	Total	
				Amount	Amount	Amount	Name	Amount	Amount	Unit Cost	Amount
* unassigned *											
1900	Flexible metallic conduit, sealtite, connectors, plain, 1" diameter	5.00	ea	99	81	-		-	-	36.072 /ea	180
2240	Flexible metallic conduit, sealtite, connectors, straight, 4" diameter	6.00	ea	595	3,980	-		-	-	762.467 /ea	4,575
2600	Flexible metallic conduit, sealtite, connectors, plain, 90 Deg., 1" diameter	5.00	ea	99	137	-		-	-	47.198 /ea	236
3140	Flexible metallic conduit, sealtite, connectors, 90 Deg., 4" diameter	6.00	ea	680	4,612	-		-	-	881.915 /ea	5,291
4800	Flexible metallic conduit, coupling sealtite to rigid, 1" diameter	5.00	ea	283	58	-		-	-	68.288 /ea	341
5140	Flexible metallic conduit, coupling sealtite to rigid, 4" diameter	6.00	ea	560	3,032	-		-	-	598.698 /ea	3,592
0110	Hole drilling, fire caulk	4.00	ea	264	82	-		49	-	98.78 /ea	395
0140	Hole drilling, concrete wall, 8" thick, 1" pipe size, to 10' high	4.00	ea	334	205	-		28	-	141.718 /ea	567
0020	Motor connections	5.00	ea	496	58	-		-	-	110.684 /ea	553
* unassigned *				8,635	20,255			76			28,966
87.101 Labor hours											
6.035 Equipment hours											
26 05 33.000 Raceways and Boxes				8,635	20,255	0		76	0	28,966.33 /ls	28,966
1.00 ls											
87.101 Labor hours											
6.035 Equipment hours											
26 05 43.000 Electrical: Exterior Underground											
* unassigned *											
0850	PVC cement	2.00	ea	198	51	-		-	-	124.79 /ea	250
9316	PVC conduit couplings, 1" diameter, to 15' H	5.00	ea	113	3	-		-	-	23.182 /ea	116
9330	PVC conduit couplings, 4" diameter, to 15' H	6.00	ea	523	33	-		-	-	92.67 /ea	556
9360	PVC conduit, field bends, 45 Deg. to 90 Deg., 1" diameter	5.00	ea	113	-	-		-	-	22.658 /ea	113
9430	PVC conduit, field bends, 45 Deg. to 90 Deg., 4" diameter	6.00	ea	476	-	-		-	-	79.318 /ea	476
3270	PVC conduit, schedule 40, 1" diameter, in concrete slab, incl terminations, fittings and supports	215.00	lf	853	481	-		-	-	6.203 /lf	1,334
3440	PVC conduit, schedule 40, 4" diameter, in concrete slab, incl terminations, fittings and supports	210.00	lf	3,331	2,633	-		-	-	28.403 /lf	5,965
3530	PVC conduit, schedule 40, 90 elbow, 1" diameter, in concrete slab	14.00	ea	347	1,151	-		-	-	107.00 /ea	1,498
3700	PVC conduit, schedule 40, 45 / 90 elbow, 4" diameter, in concrete slab	12.00	ea	1,360	3,668	-		-	-	418.935 /ea	5,027
3770	PVC conduit, schedule 40, adapter, 1" diameter, in concrete slab	14.00	ea	0	7	-		-	-	0.481 /ea	7

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
				Amount	Amount	Amount		Amount	Amount	Unit Cost	
<i>* unassigned *</i>											
3950	PVC conduit, schedule 40, adapter / coupling , 4" diameter, in concrete slab	12.00	ea	0	76	-		-	-	6.343 /ea	76
4300	PVC conduit, schedule 40, end bells, 4" diameter, in concrete slab	6.00	ea	340	114	-		-	-	75.673 /ea	454
4350	Underground marking tape	80.00	lf	63	48	-		-	-	1.388 /lf	111
0400	Trench No 2	80.00	lf	317	468	-		-	-	9.815 /lf	785
0800	Dirt removal	1.296	cys	29	665	-		-	-	535.424 /cys	694
1000	Backfill	1.296	cys	64	28	-		-	-	71.119 /cys	92
1200	Sand backfill	0.108	cys	11	8	-		-	-	171.00 /cys	18
1400	Compaction	80.00	lf	214	410	-		-	-	7.808 /lf	625
<i>* unassigned *</i>				8,353	9,844						18,197
84.251 Labor hours											
26 05 43.000 Electrical: Exterior Underground				8,353	9,844	0		0	0	18,196.55 /ls	18,197
1.00 ls											
84.251 Labor hours											
26 09 00.000 Instrumentation & Control for Electrical Systems											
<i>* unassigned *</i>											
0050	Existing control panel	1.00	ea	397	895	-		-	-	1,291.56 /ea	1,292
0130	Terminate cables furnished and installed by electrical	1.00	ea	198	53					250.92 /ea	251
<i>* unassigned *</i>				595	948						1,542
6.00 Labor hours											
26 09 00.000 Instrumentation & Control for Electrical Systems				595	948	0		0	0	1,542.48 /ls	1,542
1.00 ls											
6.00 Labor hours											
26 24 16.000 Panelboards											
<i>* unassigned *</i>											
0100	Panelboard directory	1.00	ea	397	103	-		-	-	499.20 /ea	499
0700	Circuit breakers, bolt-on, 10 k A I.C., 3 pole, 20 amp	3.00	ea	384	830	-		-	-	404.443 /ea	1,213
<i>* unassigned *</i>				780	932						1,713
7.871 Labor hours											
26 24 16.000 Panelboards				780	932	0		0	0	1,712.53 /ls	1,713
1.00 ls											
7.871 Labor hours											

## AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
				Amount	Amount	Amount		Amount	Amount	Unit Cost	
<div>26 28 16.000Safety Switches</div>											
<div>* unassigned *</div>											
1260	Circuit breaker, 3 pole, 600 volt, 2000 amp, enclosed (NEMA 1)	1.00	ea	2,479	0	-		-	-	2,478.60 /ea	2,479
	<div>* unassigned *</div>			2,479							2,479
	25.00 Labor hours										
26 28 16.000 Safety Switches				2,479	0	0		0	0	2,478.60 /ls	2,479
	1.00 ls										
	25.00 Labor hours										
<div>26 32 14.000Engine Generator: Diesel</div>											
<div>* unassigned *</div>											
2005	Diesel fuel	2,600.00	ea	1,289	26,681	-			-	10.758 /ea	27,970
3270	Generator set, diesel, 3 phase 4 wire, 277/480 V, 1350 kW, incl battery, charger, muffler, & day tank, excl conduit, wiring, & concrete	1.00	ea	20,930	558,258	-		1,238	-	580,425.64 /ea	580,426
	<div>* unassigned *</div>			22,219	584,939			1,238			608,396
	224.112 Labor hours										
	7.407 Equipment hours										
26 32 14.000 Engine Generator: Diesel				22,219	584,939	0		1,238	0	608,395.940/ls	608,396
	1.00 ls										
	224.112 Labor hours										
	7.407 Equipment hours										
<div>26 36 00.000Transfer Switches</div>											
<div>* unassigned *</div>											
1300	Automatic transfer switches, enclosed, 3 pole, 480 volt, 2000 amp	1.00	ea	3,173	0	-		-	-	3,172.58 /ea	3,173
	<div>* unassigned *</div>			3,173							3,173
	32.00 Labor hours										
26 36 00.000 Transfer Switches				3,173	0	0		0	0	3,172.58 /ls	3,173
	1.00 ls										
	32.00 Labor hours										

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	Amount
			Amount	Amount	Amount		Amount	Amount	Unit Cost	
	DIVISION 26 ELECTRICAL		67,320	636,369	0		1,314	0	705,002.47 /LS	705,002
	1.00 LS									
	801.234 Labor hours									
	13.443 Equipment hours									
	3 ATS-03 With Future Generator Unit 3		76,836	650,367	457		2,497	0	730,157.07 /LS	730,157
	1.00 LS									
	914.768 Labor hours									
	25.951 Equipment hours									

4 Demolition of Existing ATS and Generator

DIVISION 26 ELECTRICAL

01 21 00.000				Allowances							
* unassigned *											
n	0920	Bypass wiring and overtime for service transition	1.00	ls		14,616			14,616.15 /ls	14,616	
n	0925	GC demolition and patching allowance	1.00	ls		48,720			48,720.43 /ls	48,720	
n	0999	Mechanical piping demolition allowance	1.00	ls		19,488			19,488.170 /ls	19,488	
* unassigned *						82,825				82,825	
01 21 00.000 Allowances					0	0	82,825	0	0	82,824.75 /ls	82,825
1.00 ls											
01 30 00.050				Administrative Requirements							
* unassigned *											
n	0140	Foreman at 15% of 120	18.00	hour	613	-	-	-	-	34.058 /hour	613
n	0160	Journeyman 10% of 120	12.00	hour	204	-	-	-	-	17.029 /hour	204
n	0180	Cleanup and delivery 5% of 120	6.00	hour	352	-	-	-	-	58.718 /hour	352
* unassigned *					1,170						1,170
36.00 Labor hours											
01 30 00.050 Administrative Requirements					1,170	0	0	0	0	1,169.70 /ls	1,170
1.00 ls											
36.00 Labor hours											
02 41 00.000				Demolition							

AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

## Detail Report - With Contractor Markups

Item	Description	Takeoff Qty		Labor	Material	Subcontract	Name	Equipment	Other	Total	
				Amount	Amount	Amount		Amount	Amount	Unit Cost	Amount
* unassigned *											
0100	Conduit, rigid galvanized steel, 3/4" diameter, electrical demolition, remove conduit to 15' high, including fittings & hangers	60.00	lf	197	-	-		-	-	3.278 /lf	197
0140	Conduit, rigid galvanized steel, 3" diameter, electrical demolition, remove conduit to 15' high, including fittings & hangers	90.00	lf	473	-	-		-	-	5.252 /lf	473
1830	Wire, THW-THWN-THHN, #14, electrical demolition, removed from in place conduit, to 15' high	280.00	lf	28	-	-		-	-	0.099 /lf	28
1840	Wire, THW-THWN-THHN, #12, electrical demolition, removed from in place conduit, to 15' high	210.00	lf	21	-	-		-	-	0.099 /lf	21
1930	Wire, THW-THWN-THHN, 3/0, electrical demolition, removed from in place conduit, to 15' high	135.00	lf	80	-	-		-	-	0.595 /lf	80
1970	Wire, THW-THWN-THHN, 350 kcmil, electrical demolition, removed from in place conduit, to 15' high	405.00	lf	361	-	-		-	-	0.892 /lf	361
0240	Ground wire, bare copper or aluminum, electrical demolition, remove	30.00	lf	17	-	-		-	-	0.567 /lf	17
5700	Sealtite flexible conduit, 3/4" diameter, electrical demolition, remove	6.00	lf	11	-	-		-	-	1.883 /lf	11
5740	Sealtite flexible conduit, 3" diameter, electrical demolition, remove	9.00	lf	95	-	-		-	-	10.578 /lf	95
6500	Equipment connection, electrical demolition, remove	4.00	ea	138	-	-		-	-	34.483 /ea	138
2160	Generator set, 3 phase 4 wire, 277/480 V, 450 kW, electrical demolition, remove, incl accessories	1.00	ea	5,408	-	-		-	-	5,407.84 /ea	5,408
0690	Transfer switches, enclosed, 1000 A, electrical demolition, remove	1.00	ea	453	-	-		-	-	453.23 /ea	453
3010	Circuit breaker, bolt-on or plug in, 15 A - 50 A, electrical demolition, remove	3.00	ea	119	-	-		-	-	39.657 /ea	119
* unassigned *				7,401							7,401
74.651 Labor hours											
02 41 00.000 Demolition				7,401	0	0		0	0	7,401.15 /ls	7,401
1.00 ls											
74.651 Labor hours											
26 05 00.000 Electrical: Basic Requirements											
* unassigned *											
0150	3/8" expansion anchors	8.00	ea	103	0	-		-	-	12.889 /ea	103
0200	3/8" bolts	8.00	ea	24	0	-		-	-	2.973 /ea	24
0300	3/8" nuts	8.00	ea	16	0	-		-	-	1.983 /ea	16
0350	3/8" washers	16.00	ea	32	0	-		-	-	1.983 /ea	32

## AACE Classification Accuracy Range

Upper Range +30%

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty			Subcontract	Name	Equipment	Other	Total	
			Labor	Material					Unit Cost	Amount
	* unassigned *		174							174
	1.76 Labor hours									
	26 05 00.000 Electrical: Basic Requirements		174	0	0		0	0	174.48 /ls	174
	1.00 ls									
	1.76 Labor hours									
26 05 19.000 Wire and Cable: 600 volt and below										
* unassigned *										
2600	Crimp 1 hole lugs, copper or aluminum, 600 volt, 2/0	6.00 ea	317	101	-		-	-	69.718 /ea	418
2800	Crimp 1 hole lugs, copper or aluminum, 600 volt, 3/0	6.00 ea	397	99	-		-	-	82.622 /ea	496
3500	Crimp 1 hole lugs, copper or aluminum, 600 volt, 350 kcmil	18.00 ea	2,040	438	-		-	-	137.632 /ea	2,477
5520	Distribution block	1.00 ea	248	572	-		-	-	819.65 /ea	820
	* unassigned *		3,001	1,210						4,211
	30.271 Labor hours									
	26 05 19.000 Wire and Cable: 600 volt and below		3,001	1,210	0		0	0	4,211.07 /ls	4,211
	1.00 ls									
	30.271 Labor hours									
26 05 26.000 Grounding										
* unassigned *										
3000	Crimp 1 hole lugs, copper, 4/0	2.00 ea	144	0	-		-	-	72.10 /ea	144
	* unassigned *		144							144
	1.455 Labor hours									
	26 05 26.000 Grounding		144	0	0		0	0	144.200/ls	144
	1.00 ls									
	1.455 Labor hours									
26 05 33.000 Raceways and Boxes										
* unassigned *										
1610	Pull boxes, hinged, steel, 36" W x 36" H x 8" D, NEMA 1	1.00 ea	397	697	-		-	-	1,093.100 /ea	1,093
	* unassigned *		397	697						1,093
	4.00 Labor hours									

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

Detail Report - With Contractor Markups

Item	Description	Takeoff Qty	Labor	Material	Subcontract	Name	Equipment	Other	Total	
			Amount	Amount	Amount		Amount	Amount	Amount	Unit Cost
	26 05 33.000 Raceways and Boxes		397	697	0		0	0	1,093.100/ls	1,093
	1.00 ls									
	4.00 Labor hours									
26 09 00.000 Instrumentation & Control for Electrical Systems										
* unassigned *										
0050	Existing control panel	1.00 ea	397	0	-		-	-	396.57 /ea	397
	* unassigned *		397							397
	4.00 Labor hours									
	26 09 00.000 Instrumentation & Control for Electrical Systems		397	0	0		0	0	396.57 /ls	397
	1.00 ls									
	4.00 Labor hours									
26 24 16.000 Panelboards										
* unassigned *										
0100	Panelboard directory	1.00 ea	397	103	-		-	-	499.20 /ea	499
	* unassigned *		397	103						499
	4.00 Labor hours									
	26 24 16.000 Panelboards		397	103	0		0	0	499.20 /ls	499
	1.00 ls									
	4.00 Labor hours									
DIVISION 26 ELECTRICAL			13,081	2,009	82,825		0	0	97,914.22 /LS	97,914
	1.00 LS									
	156.137 Labor hours									
4 Demolition of Existing ATS and Generator			13,081	2,009	82,825		0	0	97,914.22 /LS	97,914
	1.00 LS									
	156.137 Labor hours									

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%



Detail Report - With Contractor Markups

Estimate Totals

Description	Amount	Totals	Rate
Labor	173,151		
Material	1,065,123		
Equipment	5,936		
Subcontract	84,197		
Other			
Total		1,328,407	

Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%

*Detail Report - With Contractor Markups*

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Upper Range +30%

AACE Classification Accuracy Range

Lower Range -15%