

FINAL

Ekola Flats Wind Energy LLC
250-MW Wind Energy Project
Carbon County, Wyoming

Section 109 Industrial Siting Act
Decommissioning Plan

Prepared for

Ekola Flats Wind Energy LLC

June 2017

Prepared by



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Executive Summary

Ekola Flats Wind Energy LLC proposes to develop the Ekola Flats Wind Energy Project in Carbon County, Wyoming. This Decommissioning Plan (Plan) outlines the decommissioning and restoration process and provides an estimate of the potential cost associated with these activities. This Plan has been developed in accordance with the Rules and Regulations of the Industrial Siting Council.

The decommissioning and restoration construction costs are described as follows and in Appendix A.

Estimated Decommissioning Cost
Class V
Range +100% to -50%
Total \$9,200,000
\$92,000 per tower site

Salvage Value
Total: \$5,555,000
Per Tower: \$55,550

This executive summary provides an overview of the cost estimate. Reliance on this information is advised to be in consideration of the full context of this report.

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Acronyms and Abbreviations

CH2M	CH2M HILL Inc.
Ekola Flats	Ekola Flats Wind Energy LLC
HCSS	Heavy Construction Systems Specialists, Inc.
Invenergy	Invenergy Wind Development LLC
MW	Megawatt
Plan	Decommissioning Plan
Project	Ekola Flats Wind Energy Project

Introduction

1.1 Purpose of Decommissioning Plan

Section 9 of the Rules and Regulations of the Industrial Siting Council states that applicants shall provide a facility decommissioning plan. The purpose of this Decommissioning Plan (Plan) is to ensure that the Ekola Flats Wind Energy Project (Project) is properly decommissioned by documenting the triggers, timing, and process by which the Project will be decommissioned. The Plan also includes a Basis of Estimate, which establishes an engineer's opinion of probable cost to decommission the Project. This estimate will help inform the Wyoming Industrial Siting Council's determination of an adequate bond amount for the Project.

1.2 Project Developer

As of the date of this Plan, the Project is proposed to be developed by Ekola Flats Wind Energy LLC (Ekola Flats), a wholly-owned subsidiary of Invenergy Wind Development LLC (Invenergy).

1.3 Project Location and General Scope

Ekola Flats has advised that this Plan should be based on assumed quantities of wind turbines. As it is currently conceived, the Project is located on private and state property in Carbon County, Wyoming, approximately 2 miles northwest of Medicine Bow. This Plan is based on the assumption that 100 turbines with a total generation capacity of 250 megawatts (MW) will be built at the Project site. Associated Project facilities may include access roads, an operation and maintenance building, collector lines, a generation tie-in line, and a collector substation. The Project is bounded generally by U.S. Route 30 to the south, the Freezeout Mountains to the North, the Medicine Bow River to the east, and the existing Seven Mile Hill Wind Energy Project to the west. The Project is located approximately 55 miles south of Casper and approximately 53 miles northwest of Laramie.

1.4 Date and Preparation

This Plan was prepared in June 2017 by CH2M HILL Inc. (CH2M). Team members include the following:

- Mark Allen – Estimator
- Scott Lamb, PE – Estimator/Quality Assurance/Quality Control Review
- Doug Anderson – Environmental Planner

1.5 Cost Estimate Classification and Methodology

The cost estimate included in the Plan is a Class 5 estimate as defined by the Association for the Advancement of Cost Engineering International. Refer to Appendix B for further definition.

This cost estimate is based primarily on the use of conceptual and stochastic costs and some detailed items using separate labor, materials, and equipment costs. This estimate uses parametric costs where design information or details are insufficient to allow a detailed item method. Quotations, allowances, and other costs are as described in Section 2.

Decommissioning and Restoration Plan

2.1 Project Lifespan

The design life of the Project's wind turbines is 25 years. However, based on manner of operation and maintenance, the Project may last longer.

2.2 Decommissioning Triggers

Once constructed, the Project is required to be decommissioned in coordination with the termination of the lease.

2.3 Decommissioning Term

Decommissioning and restoration shall be completed within 1 year of Project termination, or otherwise in accordance with the terms of the lease agreement.

2.4 Methodology

Upon termination of the Project, the Project owner shall, within the decommissioning term, remove aboveground and belowground Project facilities. All belowground Project facilities shall be removed to a depth of at least 3 feet below grade. At this time, Ekola Flats intends to request a variance from the Industrial Siting Commission requirement that facilities be removed to a depth of 48 inches. Ekola Flats has obtained permission from participating private landowners to remove facilities to a depth of 3 feet, per the terms of the wind energy lease agreements signed with the landowners. All property disturbed by Ekola Flats as part of the Project construction and operation shall be restored to a condition reasonably similar to its original condition as it existed on the date that the lease agreements with private landowners were signed. This may be accomplished by contouring disturbed land to blend in with the topography of the surrounding terrain, or in a manner consistent with the proposed future use of the land. Project access roads may remain un-reclaimed if approval is obtained from the landowner.

After grading and contouring is completed, the project site shall be revegetated using an approved seed mixture consistent with surrounding native vegetation. Seeding of disturbed areas will occur during the first normal period for favorable planting conditions after final site preparation. Ekola Flats will follow standard best management practices to minimize the introduction of noxious weeds into revegetated.

Decommissioning and restoration may proceed with the following proposed general sequence and methodology:

1. Investigate site
2. Contact landowners
3. Assess site access
4. Assess public road condition
5. Assess site access roads
6. Apply for decommissioning permits, if required, and notify applicable agencies
7. Prepare site-by-site decommissioning sequence and schedule
8. Negotiate decommissioning contractor terms and conditions

9. Obtain necessary permits and approvals, if required
10. Obtain Notice to Proceed for decommissioning contractor
11. Mobilize and prepare field staff yard and offices
12. Mobilize construction equipment (cranes, lowboys, graders, utility trucks, etc.)
13. Begin site access road maintenance, and, where necessary, apply crushed rock to facilitate equipment access
14. Identify and secure laydown area at each site to process decommissioned equipment and material
15. Work with utilities, as necessary, to disconnect and secure electrical equipment from public power grid
16. Secure rotating machinery in preparation of disassembly
17. Begin fluid removal, if necessary, and processing for transportation and disposal
18. Mobilize crane(s) and erect machinery
19. Remove blades and place in laydown area for site processing
20. Remove nacelle and place in laydown area for processing. Or, alternately, load directly to lowboy and move to remote site for processing
21. Disassemble tower and place in laydown area for site processing
22. Demobilize crane and move to next site
23. Process blades and load for disposal
24. Process tower and load for transport to scrapyard
25. Remove site wires to a depth of three feet below final grade
26. Remove tower foundation to a depth of three feet below final grade using approved means and methods
27. Haul tower foundation material to disposal site for reprocessing (concrete to be crushed, rebar to be recycled)
28. Remove access road and gravel surfacing where required
29. Haul surfacing material to approved stockpile for reuse
30. Regrade site to appropriate contours, as necessary
31. Prepare soil for seeding
32. Seed site with a seed mix appropriate to the region
33. Cleanup site

Basis of Estimate

3.1 Basis Documents

This basis of estimate is based on preliminary site layout, technical data, client direction, and references requirements for decommissioning established in the Rules and Regulations of the Industrial Siting Council.

3.2 Key Assumptions

The following is a summary of the work inclusive of the bid items. Reference the Heavy Construction Systems Specialists, Inc. (HCSS) software detailed cost report (Appendix A) for buildup of crews, materials and production rates. All estimate assumptions are based on information available as of May 2017. Those assumptions include the following:

- For the purposes of this decommissioning estimate, 100 turbines would be decommissioned.
- One operations and maintenance building will be located on the Project site.
- Structural engineer and safety engineer will be with the Project for the duration of work.
- Only minor repairs to access roads will be necessary to accommodate the crane for dismantling.
- Turbine blades will be disposed at the nearest approved disposal site, with no salvage value.
- All recyclable material is processed to manageable sizes for transport from site.
- Salvage buyer will provide transportation equipment at each demolition site.
- All recycled material is provided to salvage buyer.
- Contractor will load salvage materials in appropriate sizes and weights at each site to buyer's vehicle.
- Crane dismantling is expected to occur once per every two turbine sites.
- Crane dismantling is expected to require two workdays per occurrence.
- Two days of decommissioning preparation per site, including oil removal, are allowed prior to tower dismantling.
- The pedestal portion of the foundation will be removed to the top of the spread footing. The spread footing portion of the foundation will be left in-place and backfilled at a depth of greater than 3 feet below the ground surface.
- All disturbed surfaces, including access roads installed for Project construction and operation, are assumed to be restored. Restored areas will be seeded in a manner similar to surrounding vegetation.
- There is assumed to be 42 miles of access road, 16 feet in nominal width, and 6-inch thick layer of aggregate.
- Salvaged roadway material is stockpiled or delivered within a 20-mile radius of each turbine site.
- Up to 2 miles of generation tie-in line and wooden H-frame structures will be removed.

- Estimate includes the demolition, removal, and restoration of onsite collection substation with two transformers.
- Collection lines shall be abandoned in place. Per lease agreement, facilities will be removed to a depth of approximately 3 feet. Collection lines are expected to be installed at a depth below 3 feet.
- Sales tax rate of 6.0 percent included.

3.2.1 Salvage and Disposal

At the time of decommissioning, there may be potential salvage opportunities. For the purposes of this Plan, salvage values were estimated based on prices obtained from Scrap Register (www.scrapregister.com) in April 2017. Turbine component weights and materials are based on technical data obtained from Ekola Flats, based on General Electric specifications. Unless otherwise stated, the turbine configuration assumed for the salvage estimate is as follows:

- Wind turbine type: General Electric 2.5
- Rated output: 2.5 MW
- Hub height: 90 meters
- Hub weight: 29,000 kilograms
- Nacelle weight: 69,000 kilograms
- Tower specifications:
 - Three-section, tubular steel
 - Weight (total): 162,000 kilograms
 - Bottom section: 63,000 kilograms
 - Middle section: 55,000 kilograms
 - Top section: 44,000 kilograms
- Blade specifications:
 - Blade length: 56.9 meters
 - Rotor diameter: 116 meters
 - Blade weight: 11,000 kilograms (33,000 kilograms total per turbine)

An estimated 1 ton of copper is assumed to be salvaged from each turbine. One hundred percent of steel for the turbines is assumed to be salvageable. Salvage percentage amounts are based on weight and materials of construction documentation provided by Ekola Flats (based on manufacturer specifications).

The turbine blades are predominately constructed of non-metallic materials, and, as such, no salvage value was calculated. However, depending on the market for refurbished wind turbine blades at the time, there may be an opportunity to sell the Project's blades and recoup additional costs.

Using these assumptions, the estimated Project salvage value is approximately \$5,555,000, or \$55,550 per turbine.

3.2.2 Estimate Methodology

The estimate developed is based on bottom-up approach with crews, equipment, and production rates. The production rate is based on similar projects of this nature.

3.3 Exclusions

This cost estimate excludes the following costs:

- Non-construction or soft costs for design, services during construction, land, legal and owner administration costs
- Hazardous material removal or abatement, other than those present in the wind energy systems
- Changes to the Project location, routing, or schedule
- Schedule delays from inclement weather or other natural causes

3.4 Allowances

The current cost estimate includes the following allowances:

- Perimeter security upgrades are allocated at a fixed level of effort for labor, material, and construction equipment due to current design definition.

3.5 Labor, Materials, Subcontracts, and Other Direct Costs

3.5.1 Labor

Labor rates used are based on the current Wage Decision for Carbon County, Wyoming (6/1/2017).

3.5.2 Construction Equipment

Equipment rates based on Equipment Watch website. Equipment rates are 80 percent of that blue book value for rent and operations.

3.6 Markups, Taxes, and Other Indirect Costs

Because the estimate was developed using a bottom-up approach, the typical contractor markups in Table 1 are applied to the decommissioning cost estimate.

Table 1. Typical Contractor Markups

Description	Rate
Contractor Overhead	10.00%
Contractor Profit	10.00%
Bonds/Insurance	2.50%
Contractor Contingency	15.00%
Market Adjustment Factor	3.00%

3.7 Market Conditions

The current market conditions and the location of the work proposed in this estimate result in a market conditions adjustment, which have been applied. This adjustment is done to account for the current volatility in the construction market. Market adjustment factors are applied after typical contractor markups, estimating contingency, and cost escalation factors listed previously.

The market adjustment covers the following:

- Contractor work volume
- Owner requirements and contracting methodology
- Availability of management staff
- Availability of crafts/trades
- Volatile raw material and fuel markets
- Availability of bonds and insurance.

3.8 Escalation Costs

No escalation is applied, based on 2017 dollars.

3.9 Cost Resources

The following are the cost resources used in the development of this cost estimate.

- HCSS estimating software – bottom-up estimate
- Estimator judgment

3.10 Estimate Validity

This estimate has validity for approximately 90 days, as over time there may be significant changes in the salvage, commodity, and fuel markets.

3.11 Estimate Breakdown

Table 2 provides a summary of the Class 5 decommissioning cost estimate for the Project.

Table 2. Class 5 Cost Estimate
Ekola Flats Wind Energy Project

Description	Quantity	Unit	Unit Rate (\$)	Total (\$)	Notes
Mobilization/Site Preparation	1	LS	426,387	426,387	
Crane Mobilization and Setup	100	EA	5,971	597,071	Initial mobilization, breakdown and relocation, set up at new tower
Tower Dismantle	100	EA	20,701	2,070,142	
Tower Salvage Prep	25,236	TN	44	1,118,274	
Salvage Material Load Prep	25,236	TN	26	646,150	
Blade Disposal	300	EA	896	268,887	
Foundation Removal	100	EA	7,142	714,173	Foundation removal to 3 feet below grade
Towers Site Backfill/Restoration	100	EA	4,659	465,949	Backfill area, grade to surrounding area
Access Road Removal	65,707	CY	29	1,877,856	42-miles of 16-foot wide roads, with 6 inches of gravel

Table 2. Class 5 Cost Estimate
Ekola Flats Wind Energy Project

Description	Quantity	Unit	Unit Rate (\$)	Total (\$)	Notes
Transmission Towers and 230 kV Transmission Line Removal	12	EA	44,100	529,200	Complete tear down of 12, single circuit, wooden H-frame transmission towers. Steel or aluminum towers would have greater salvage and therefore lower overall cost. Assumes 2 miles of transmission line.
Operation and Maintenance Building Demolition	1	LS	158,397	158,397	150-foot by 40-foot building, 1,000 linear feet of chain-link fencing, and 1.5 acres of gravel.
Substation Demolition	1	LS	84,927	84,927	Two 230 kV transformers, chain link fencing, associated structure, and 3 acres of gravel
Performance and Payment Bond	1	LS	232,618	232,618	
Total Capital Cost for Decommissioning:				9,190,032	
Per Tower Decommissioning Cost:				91,900	

CY = cubic yard

EA = each

kV = kilovolt

LS = lump sum

TN = ton

3.12 Disclaimer

This estimate is an opinion of cost. Any conclusions on Project economic feasibility or funding requirements are advised to be made in the full context of this report and information available at the time the opinion was prepared. The cost of the Project is dependent on actual labor, production, equipment, and material costs; competitive market conditions; site conditions; final Project scope; schedule; continuity of personnel and engineering; final decommissioning method; and procurement means and methods, not limited to other factors. Final Project costs are expected to vary from the opinions of cost presented herein. It is advised that Project feasibility, benefit/cost ratios, risks, and funding needs be carefully reviewed prior to making Project decisions or establishing Project budgets.

Appendix A
Cost Estimate Detail Report

Cost Report

CH2MHILL
2017-EKOLA

Invenergy-Ekola Flats

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Biditem

1000

Performance and Payment Bond

Takeoff Qty: 1.000 LS
Bid Qty: 1.000 LS

Biditem

1100

Mobilization/Site Preparation

Takeoff Qty: 1.000 LS
Bid Qty: 1.000 LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	77,952.24	30,637.80	108,590.04	109,205.96	0.00	45,122.29	0.00	0.00	0.00	0.00	262,918.29
Total	77,952.24	30,637.80	108,590.04	109,205.96	0.00	45,122.29	0.00	0.00	0.00	0.00	262,918.29

	Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
	3,876.0000	0.0003	3,876.0000	67.8324	20.1115	28.0160	0.0012

Activity: 10 Contractor Submittals Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	14,538.40	5,364.69	19,903.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19,903.09
Total	14,538.40	5,364.69	19,903.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19,903.09

	Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
	380.0000	0.0026	380.0000	52.3766	14,538.4000

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
W113	Project Manager	1.00	80.00	MH	51.08	100.00	69.93	5,594.29
W420	Jr Staff Eng	1.00	250.00	MH	34.84	100.00	47.70	11,924.00
W912	Safety Professional-A	1.00	50.00	MH	34.84	100.00	47.70	2,384.80

Activity: 20 Initial Mobilization Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1,607.84	640.92	2,248.76	2,600.60	0.00	0.00	0.00	0.00	0.00	0.00	4,849.36
Total	1,607.84	640.92	2,248.76	2,600.60	0.00	0.00	0.00	0.00	0.00	0.00	4,849.36

	Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
	4,849.3600	16.0000	0.0625	303.0850	2.0000	0.5000	2.0000	2,424.6800

	Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
	96.0000	0.0104	96.0000	23.4246	1,607.8400

Calendar: 508 5 days @ 8hrs/day Hrs/Shift: 8 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8TRKGS60	Mechanics Truck 35KGVW	1.00	16.00	HR	67.43	100.00	67.43	1,078.94
8TRKHW15	Tractor 400 HP 75K GVW	1.00	16.00	HR	68.37	100.00	68.37	1,093.90
8TRKHW30	Lowbed Trailer 60 TN	1.00	16.00	HR	18.87	100.00	18.87	301.94
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	16.00	HR	7.86	100.00	7.86	125.82
LFORMN	Laborer-Foreman	1.00	16.00	MH	20.00	100.00	25.90	414.43
LGEN	Laborer-General	3.00	48.00	MH	12.44	100.00	17.45	837.37
OPMECH	Op Eng - Mechanic	1.00	16.00	MH	24.88	100.00	36.98	591.69
TDTRD	Transport Driver	1.00	16.00	MH	18.29	100.00	25.33	405.27

Activity: 30 Mob/Demob from Each Site Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	453.66	180.28	633.94	975.23	0.00	0.00	0.00	0.00	0.00	0.00	1,609.17
Total	45,366.00	18,028.41	63,394.41	97,522.56	0.00	0.00	0.00	0.00	0.00	0.00	160,916.97

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
1,609.1697	6.0000	0.1667	268.1950	75.0000	1.3333	0.7500	2,145.5596

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
2,400.0000	0.0417	24.0000	26.4143	453.6600

Calendar: 508 5 days @ 8hrs/day Hrs/Shift: 8 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: HU 6 Eff: 100.00 Crew Hrs: 600.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Notes: Includes moving equipment along alignment to complete the work - assume a total of 20 days

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8TRKGS60	Mechanics Truck 35KGVW	1.00	600.00	HR	67.43	100.00	67.43	40,460.16
8TRKHW15	Tractor 400 HP 75K GVW	1.00	600.00	HR	68.37	100.00	68.37	41,021.40
8TRKHW30	Lowbed Trailer 60 TN	1.00	600.00	HR	18.87	100.00	18.87	11,322.60
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	600.00	HR	7.86	100.00	7.86	4,718.40
LFORMN	Laborer-Foreman	1.00	600.00	MH	20.00	100.00	25.90	15,541.20
LGEN	Laborer-General	1.00	600.00	MH	12.44	100.00	17.45	10,467.23
OPMECH	Op Eng - Mechanic	1.00	600.00	MH	24.88	100.00	36.98	22,188.46
TDTRD	Transport Driver	1.00	600.00	MH	18.29	100.00	25.33	15,197.52

Activity: 40 Site Setup Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	164.40	66.04	230.44	90.83	0.00	451.22	0.00	0.00	0.00	0.00	772.49
Total	16,440.00	6,603.78	23,043.78	9,082.80	0.00	45,122.29	0.00	0.00	0.00	0.00	77,248.87

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
321.2658	2.0000	0.5000	160.6329	25.0000	4.0000	0.2500	3,089.9548

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
1,000.0000	0.1000	10.0000	23.0438	164.4000

Calendar: 508 5 days @ 8hrs/day Hrs/Shift: 8 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: HU 2 Eff: 100.00 Crew Hrs: 200.00 Labor Pcs: 5.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
31ECPF	Orange Safety Fence	1.00	22,727.27	LF	1.13	106.00	1.20	27,222.72
31ECPFTP	Metal Tee Posts	1.00	2,272.73	EA	7.43	106.00	7.88	17,899.57
8BHL426	BHL Cat 420E 1.25CY	1.00	200.00	HR	37.55	100.00	37.55	7,510.00
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	200.00	HR	7.86	100.00	7.86	1,572.80
LFORMN	Laborer-Foreman	1.00	200.00	MH	20.00	100.00	25.90	5,180.40
LGEN	Laborer-General	3.00	600.00	MH	12.44	100.00	17.45	10,467.23
OPEXC3	Op Eng 3- Backhoe to 3Y	1.00	200.00	MH	24.88	100.00	36.98	7,396.15

Biditem Crane Mobilization & Setup

1200

Takeoff Qty: 100.000 EA
 Bid Qty: 100.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1,107.13	461.65	1,568.78	2,112.87	0.00	0.00	0.00	0.00	0.00	0.00	3,681.65
Total	110,712.93	46,165.29	156,878.22	211,287.24	0.00	0.00	0.00	0.00	0.00	0.00	368,165.46

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
4,950.0000	0.0202	49.5000	74.3769	22.3662	31.6926	0.1111

Activity: 10 Crane Mobilization Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1,107.13	461.65	1,568.78	2,112.87	0.00	0.00	0.00	0.00	0.00	0.00	3,681.65
Total	110,712.93	46,165.29	156,878.22	211,287.24	0.00	0.00	0.00	0.00	0.00	0.00	368,165.46

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
3,681.6546	9.0000	0.1111	409.0727	100.0000	1.0000	1.0000	3,681.6546

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4,950.0000	0.0202	49.5000	31.6926	1,107.1293

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: SU 1 Eff: 100.00 Crew Hrs: 900.00 Labor Pcs: 5.50 Equipment Pcs: 4.00

Notes: Client comment on this Bid Item was that the crane would be able to track from tower to tower at most locations and would not have to be broken down and moved to more than 3 towers. Looking at googleearth, it appeared that at a minimum, towers were 1000-ft apart. To address this comment the shifts/unit for this task was reduced from 2 to 1. This will account for some breakdowns and the time to track between tower locations.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8CRANEC100	Crane Manitowoc 222B 100T	0.50	450.00	HR	141.13	100.00	141.13	63,509.40
8CRANERT600	Crane Grove RT600E 45TN Hyd	0.50	450.00	HR	90.56	100.00	90.56	40,752.00
8TRKGS60	Mechanics Truck 35KGVW	1.00	900.00	HR	67.43	100.00	67.43	60,690.24
8TRKHW15	Tractor 400 HP 75K GVW	0.50	450.00	HR	68.37	100.00	68.37	30,766.05
8TRKHW30	Lowbed Trailer 60 TN	0.50	450.00	HR	18.87	100.00	18.87	8,491.95
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	900.00	HR	7.86	100.00	7.86	7,077.60
LFORMN	Laborer-Foreman	1.00	900.00	MH	20.00	105.56	27.10	24,394.27
LGEN	Laborer-General	1.00	900.00	MH	12.44	105.56	18.19	16,374.14
OPCR100	Op Eng 1A- Crane 100-200	1.00	900.00	MH	25.19	105.56	38.84	34,958.15
OPCR70	Op Eng 1- Crane 45-99T	1.00	900.00	MH	24.88	105.56	38.48	34,629.28
OPMECH	Op Eng - Mechanic	1.00	900.00	MH	24.88	105.56	38.48	34,629.28
TDTRD	Transport Driver	0.50	450.00	MH	18.29	105.56	26.43	11,893.10

Biditem

Tower Dismantle

1300

Takeoff Qty: 100.000 EA

Bid Qty: 100.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	4,819.84	1,676.80	6,496.64	6,268.26	0.00	0.00	0.00	0.00	0.00	0.00	12,764.89
Total	481,983.79	167,679.97	649,663.76	626,825.52	0.00	0.00	0.00	0.00	0.00	0.00	1,276,489.28

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
21,600.0000	0.0046	216.0000	59.0967	22.3141	30.0770	0.0370

Activity: 10 Tower Dismantle Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	4,819.84	1,676.80	6,496.64	6,268.26	0.00	0.00	0.00	0.00	0.00	0.00	12,764.89
Total	481,983.79	167,679.97	649,663.76	626,825.52	0.00	0.00	0.00	0.00	0.00	0.00	1,276,489.28

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
12,764.8928	27.0000	0.0370	472.7738	300.0000	0.3333	3.0000	4,254.9643

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
21,600.0000	0.0046	216.0000	30.0770	4,819.8379

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: SU 3 Eff: 100.00 Crew Hrs: 2700.00 Labor Pcs: 8.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8CRANEC100	Crane Manitowoc 222B 100T	1.00	2,700.00	HR	141.13	100.00	141.13	381,056.40
8TRKGS60	Mechanics Truck 35KGVW	1.00	2,700.00	HR	67.43	100.00	67.43	182,070.72
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	3.00	8,100.00	HR	7.86	100.00	7.86	63,698.40
IW	Ironworker	4.00	10,800.00	MH	21.12	105.56	28.78	310,877.19

IWFR	Ironworker Foreman	1.00	2,700.00	MH	22.12	105.56	29.96	80,901.88
LGEN	Laborer-General	1.00	2,700.00	MH	12.44	105.56	18.19	49,122.42
OPCR100	Op Eng 1A- Crane 100-200	1.00	2,700.00	MH	25.19	105.56	38.84	104,874.43
OPMECH	Op Eng - Mechanic	1.00	2,700.00	MH	24.88	105.56	38.48	103,887.84

Biditem

Tower Salvage Prep

1400

Takeoff Qty: 25,236.030 TN

Bid Qty: 25,236.030 TN

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	12.03	4.11	16.14	11.18	0.00	0.00	0.00	0.00	0.00	0.00	27.32
Total	303,558.34	103,805.07	407,363.41	282,185.82	0.00	0.00	0.00	0.00	0.00	0.00	689,549.23

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
13,627.4500	1.8519	0.5400	50.6000	22.2755	29.8929	16.6667

Activity: 10 Tower Salvage Prep Quantity: 25236.03 Unit: TN

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	12.03	4.11	16.14	11.18	0.00	0.00	0.00	0.00	0.00	0.00	27.32
Total	303,558.34	103,805.07	407,363.41	282,185.82	0.00	0.00	0.00	0.00	0.00	0.00	689,549.23

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
27.3240	0.0600	16.6667	455.4000	168.2402	150.0000	0.0067	4,098.5997

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
13,627.4500	1.8519	0.5400	29.8929	12.0288

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: US 150 Eff: 100.00 Crew Hrs: 1514.16 Labor Pcs: 9.00 Equipment Pcs: 3.00

Notes: Nacelle>Returns: 67.9098 TN
Cooler Top: N/A
Hub: 28.5418 TN
Nose Cone: 0.4921 TN
Bottom Section: 62.0046 TN
Second Section: 54.131 TN
Top Section: 43.3048 TN

Total: 252.3603 TN/EA Tower

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8CRANERT700	Crane Grove RT700E 55TN Hyd	1.00	1,514.16	HR	111.07	100.00	111.07	168,173.21
8TRKGS60	Mechanics Truck 35KGVW	1.00	1,514.16	HR	67.43	100.00	67.43	102,105.26
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	1,514.16	HR	7.86	100.00	7.86	11,907.35
IW	Ironworker	5.00	7,570.81	MH	21.12	105.56	28.78	217,925.19
IWFR	Ironworker Foreman	1.00	1,514.16	MH	22.12	105.56	29.96	45,369.77
LGEN	Laborer-General	1.00	1,514.16	MH	12.44	105.56	18.19	27,547.85
OPCR70	Op Eng 1- Crane 45-99T	1.00	1,514.16	MH	24.88	105.56	38.48	58,260.30
OPMECH	Op Eng - Mechanic	1.00	1,514.16	MH	24.88	105.56	38.48	58,260.30

Biditem

Salvage Material Load Prep

1500

Takeoff Qty: 25,236.030 TN

Bid Qty: 25,236.030 TN

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	6.44	2.21	8.65	7.14	0.00	0.00	0.00	0.00	0.00	0.00	15.79
Total	162,519.95	55,827.93	218,347.88	180,080.56	0.00	0.00	0.00	0.00	0.00	0.00	398,428.44

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
7,570.8000	3.3333	0.3000	52.6270	21.4667	28.8408	16.6667

Activity: 10 Load Salvage Material Quantity: 25236.03 Unit: TN

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	6.44	2.21	8.65	7.14	0.00	0.00	0.00	0.00	0.00	0.00	15.79
Total	162,519.95	55,827.93	218,347.88	180,080.56	0.00	0.00	0.00	0.00	0.00	0.00	398,428.44

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
15.7881	0.0600	16.6667	263.1347	168.2402	150.0000	0.0067	2,368.2119

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
7,570.8000	3.3333	0.3000	28.8408	6.4400

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: US 150 Eff: 100.00 Crew Hrs: 1514.16 Labor Pcs: 5.00 Equipment Pcs: 2.00

Notes: Trucking provided by salvage company

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8CRANERT700	Crane Grove RT700E 55TN Hyd	1.00	1,514.16	HR	111.07	100.00	111.07	168,173.21
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	1,514.16	HR	7.86	100.00	7.86	11,907.35
IW	Ironworker	2.00	3,028.32	MH	21.12	105.56	28.78	87,169.96
IWFR	Ironworker Foreman	1.00	1,514.16	MH	22.12	105.56	29.96	45,369.77
LGEN	Laborer-General	1.00	1,514.16	MH	12.44	105.56	18.19	27,547.85
OPCR70	Op Eng 1- Crane 45-99T	1.00	1,514.16	MH	24.88	105.56	38.48	58,260.30

Biditem

Blade Disposal

1600

Takeoff Qty: 300.000 EA
 Bid Qty: 300.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	56.52	22.80	79.32	93.18	0.00	104.17	0.00	276.00	0.00	0.00	552.67
Total	16,955.05	6,840.81	23,795.86	27,954.69	0.00	31,250.40	0.00	82,800.00	0.00	0.00	165,800.95

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
900.0000	0.3333	3.0000	184.2233	18.8389	26.4398	2.0000

Activity: 10 Load Blades on Truck Quantity: 300 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	56.52	22.80	79.32	93.18	0.00	0.00	0.00	0.00	0.00	0.00	172.50
Total	16,955.05	6,840.81	23,795.86	27,954.69	0.00	0.00	0.00	0.00	0.00	0.00	51,750.55

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
172.5018	0.5000	2.0000	345.0037	16.6667	18.0000	0.0556	3,105.0330

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
900.0000	0.3333	3.0000	26.4398	56.5168

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: UH 2 Eff: 100.00 Crew Hrs: 150.00 Labor Pcs: 6.00 Equipment Pcs: 3.00

Notes: 3 blades/tower x 22 towers

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8CRANERT700	Crane Grove RT700E 55TN Hyd	1.00	150.00	HR	111.07	100.00	111.07	16,660.05
8TRKGS60	Mechanics Truck 35KGVW	1.00	150.00	HR	67.43	100.00	67.43	10,115.04
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	150.00	HR	7.86	100.00	7.86	1,179.60
LFORMN	Laborer-Foreman	1.00	150.00	MH	20.00	105.56	27.10	4,065.71
LGEN	Laborer-General	3.00	450.00	MH	12.44	105.56	18.19	8,187.07
OPCR70	Op Eng 1- Crane 45-99T	1.00	150.00	MH	24.88	105.56	38.48	5,771.54
OPMECH	Op Eng - Mechanic	1.00	150.00	MH	24.88	105.56	38.48	5,771.54

Activity: 20 Haul and Dispose Quantity: 300 Unit: LOAD

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
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U. Cost	0.00	0.00	0.00	0.00	0.00	104.17	0.00	276.00	0.00	0.00	380.17
Total	0.00	0.00	0.00	0.00	0.00	31,250.40	0.00	82,800.00	0.00	0.00	114,050.40

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Notes: Blade: 3 ea/tower x 8.3 tn/ea = 24.9 TN/Tower location
Total: 100 towers x 24.9 TN = 2490 tn

1 blade per load for hauling (300 total)
Assume 3 hrs per load

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
31DFEXCTN	Excavation Dump Fee-ton	1.00	2,083.36	TN	15.00	100.00	15.00	31,250.40
5TRKED	Trucking	1.00	900.00	HR	92.00	100.00	92.00	82,800.00

Notes: Assumed a 15' diameter pedestal 5' high plus the removal of 2 ft of 50' diameter below grade spread footing to achieve a removal of 4' below existing grade.

Biditem Foundation Removal

1800

Takeoff Qty: 100.000 EA

Bid Qty: 100.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Mats	Const Mats	Sub	Services	Travel	Open	Total
U. Cost	837.70	331.55	1,169.24	2,426.36	0.00	181.60	0.00	626.52	0.00	0.00	4,403.73
Total	83,769.94	33,154.52	116,924.46	242,636.12	0.00	18,160.00	0.00	62,652.00	0.00	0.00	440,372.58

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
3,981.0000	0.0251	39.8100	110.6186	21.0424	29.3706	0.1140

Activity: 10 Expose Pedestal Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Mats	Const Mats	Sub	Services	Travel	Open	Total
U. Cost	121.01	46.54	167.55	244.22	0.00	0.00	0.00	0.00	0.00	0.00	411.77
Total	12,101.40	4,653.65	16,755.05	24,422.00	0.00	0.00	0.00	0.00	0.00	0.00	41,177.05

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
411.7705	2.0000	0.5000	205.8853	22.2222	4.5000	0.2222	1,852.9673

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
600.0000	0.1667	6.0000	27.9251	121.0140

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: HU 2 Eff: 100.00 Crew Hrs: 200.00 Labor Pcs: 3.00 Equipment Pcs: 2.00

Notes: Assume 2' around pedestal to spread footing depth - 18.5 cy/pedestal (407 cy total)
Stockpile onsite to use as backfill after demo

Assume 2 hrs/loaction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8EXC330	Excavator Cat 336D L 1.6CY	1.00	200.00	HR	114.25	100.00	114.25	22,849.20
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	200.00	HR	7.86	100.00	7.86	1,572.80
LFORMN	Laborer-Foreman	1.00	200.00	MH	20.00	105.56	27.10	5,420.95
LGEN	Laborer-General	1.00	200.00	MH	12.44	105.56	18.19	3,638.70
OPEXC3	Op Eng 3- Backhoe to 3Y	1.00	200.00	MH	24.88	105.56	38.48	7,695.40

Activity: 20 Foundation Removal Quantity: 100 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Mats	Const Mats	Sub	Services	Travel	Open	Total
U. Cost	579.33	232.19	811.52	1,966.53	0.00	0.00	0.00	0.00	0.00	0.00	2,778.05
Total	57,933.45	23,218.99	81,152.44	196,652.52	0.00	0.00	0.00	0.00	0.00	0.00	277,804.96

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
2,778.0496	4.5000	0.2222	617.3444	50.0000	2.0000	0.5000	5,556.0992

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
2,700.0000	0.0370	27.0000	30.0565	579.3345

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
2,873.1334	6.0000	0.1667	478.8556	66.6667	1.5000	0.6667	4,309.7001

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4,800.0000	0.0208	48.0000	28.7702	974.1711

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: BACKF1 Structure Backfill-Large Prod: HU 6 Eff: 100.00 Crew Hrs: 600.00 Labor Pcs: 8.00 Equipment Pcs: 5.00

Notes: Void from pedestal - 407 cy/total (22 cy/ea pedestal)
Use excavated spoils from initial ex to expose pedestal

Additional grading effort over foundation left in place to achieve 4' of cover

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BDZR06	Bulldozer Cat D6K XL	1.00	600.00	HR	62.87	100.00	62.87	37,723.20
8COMPACV04	Compactor Cat CP-433E W=66"	1.00	600.00	HR	40.01	100.00	40.01	24,004.20
8LDRW966	Loader Cat 966H 5.5CY	1.00	600.00	HR	87.12	100.00	87.12	52,272.60
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	600.00	HR	7.86	100.00	7.86	4,718.40
8TRKWTR04	Water Truck 4,000 gal	1.00	600.00	HR	50.83	100.00	50.83	30,498.00
LFORMN	Laborer-Foreman	1.00	600.00	MH	20.00	105.56	27.10	16,262.84
LGEN	Laborer-General	1.00	600.00	MH	12.44	105.56	18.19	10,916.10
LPWR	Laborer-Power Tools	2.00	1,200.00	MH	16.00	105.56	25.00	29,999.75
OPDZ9	Op Eng 3- Dozer to D9	1.00	600.00	MH	24.88	105.56	38.48	23,086.19
OPLDR6	Op Eng 2- Loader <6Y	1.00	600.00	MH	24.88	105.56	38.48	23,086.19
OPROLL	Op Eng - Rollers	1.00	600.00	MH	24.73	105.56	38.30	22,980.10
TDWT	Water Truck Driver	1.00	600.00	MH	14.88	105.56	19.61	11,765.77

Notes: Assumed 1/2 the quantity for access road removal

Biditem

Access Road Removal

2000

Takeoff Qty: 65,707.000 CY

Bid Qty: 65,707.000 CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	2.51	1.00	3.51	8.38	0.00	0.01	4.42	1.30	0.00	0.00	17.62
Total	165,192.50	65,724.74	230,917.24	550,841.49	0.00	333.60	290,500.00	85,330.00	0.00	0.00	1,157,922.33

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
7,363.0100	8.9239	0.1121	157.2621	22.4355	31.3618	24.3841

Activity: 10 Access Road Removal Quantity: 65707 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	0.66	0.27	0.93	1.95	0.00	0.00	0.00	0.00	0.00	0.00	2.88
Total	43,385.15	17,740.92	61,126.07	128,022.50	0.00	0.00	0.00	0.00	0.00	0.00	189,148.57

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
2.8787	0.0076	131.4140	378.2971	55.5556	1,182.7260	0.0008	3,404.6743

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
2,000.0000	32.8535	0.0304	30.5630	0.6603

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform

Crew: EXC6 Excavate D-6 Dozer Prod: US 1182.726 Eff: 100.00 Crew Hrs: 500.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Notes: Road Section:

Haul to central location - no disposal

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BDZR08	Bulldozer Cat D8T	1.00	500.00	HR	161.06	100.00	161.06	80,530.00
8LDRW966	Loader Cat 966H 5.5CY	1.00	500.00	HR	87.12	100.00	87.12	43,560.50
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	500.00	HR	7.86	100.00	7.86	3,932.00

LFORMN	Laborer-Foreman	1.00	500.00	MH	20.00	105.56	27.10	13,552.37
LGEN	Laborer-General	1.00	500.00	MH	12.44	105.56	18.19	9,096.74
OPDZ9	Op Eng 3- Dozer to D9	1.00	500.00	MH	24.88	105.56	38.48	19,238.48
OPLDR6	Op Eng 2- Loader <6Y	1.00	500.00	MH	24.88	105.56	38.48	19,238.48

Activity: 20 Haul to Central Stockpile Area Quantity: 2738 Unit: LOAD

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
0.0000	0.3342	2.9923	0.0000	101.6667	26.9311	0.0371	828.0000

Calendar: 509 5 days @ 9 hrs/day Hrs/Shift: 9 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: UH 2.9923 Eff: 100.00 Crew Hrs: 915.00 Labor Pcs: 0.00 Equipment Pcs: 0.00

Notes: Assumed 3 loads per truck per hour

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
5TRKED	Trucking	1.00	915.00	HR	92.00	100.00	92.00	84,180.00

Activity: 30 Stockpile Management Quantity: 65707 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	0.18	0.08	0.26	1.13	0.00	0.00	0.00	0.00	0.00	0.00	1.39
Total	11,987.18	5,389.06	17,376.24	73,988.71	0.00	0.00	0.00	0.00	0.00	0.00	91,364.95

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
1.3905	0.0067	150.0160	208.5958	43.8000	1,500.1598	0.0007	2,085.9578

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
438.0000	150.0160	0.0067	39.6718	0.1824

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform
 Crew: EXC7 Excavate D-8 Dozer Prod: US 1500.1598 Eff: 100.00 Crew Hrs: 438.00 Labor Pcs: 1.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BDZR08	Bulldozer Cat D8T	1.00	438.00	HR	161.06	100.00	161.06	70,544.28
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	438.00	HR	7.86	100.00	7.86	3,444.43
OPDZ9	Op Eng 3- Dozer to D9	1.00	438.00	MH	24.88	110.00	39.67	17,376.24

Activity: 50 Remove Culverts Quantity: 25 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	105.09	39.13	144.23	217.95	0.00	13.34	0.00	46.00	0.00	0.00	421.52
Total	2,627.37	978.26	3,605.63	5,448.68	0.00	333.60	0.00	1,150.00	0.00	0.00	10,537.91

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
362.1724	1.6667	0.6000	217.3033	4.1667	6.0000	0.1667	2,529.0964

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
125.0100	0.2000	5.0004	28.8427	105.0948

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: UH 0.6 Eff: 100.00 Crew Hrs: 41.67 Labor Pcs: 3.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
31DFBLDL	Bldg Debris Dump Fee-load	1.00	4.17	LD	80.00	100.00	80.00	333.60
5TRKED	Trucking	1.00	12.50	HR	92.00	100.00	92.00	1,150.00
8EXC330TH	Excavator Cat 336D L w/Thumb	1.00	41.67	HR	122.89	100.00	122.89	5,120.99
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	41.67	HR	7.86	100.00	7.86	327.69
LFORMN	Laborer-Foreman	1.00	41.67	MH	20.00	110.00	28.07	1,169.49
LGEN	Laborer-General	1.00	41.67	MH	12.44	110.00	18.79	783.02
OPEXC3	Op Eng 3- Backhoe to 3Y	1.00	41.67	MH	24.88	110.00	39.67	1,653.12

Activity: 60 Regrade Alignment Quantity: 394240 Unit: SY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
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U. Cost	0.27	0.11	0.38	0.87	0.00	0.00	0.00	0.00	0.00	0.00	1.25
Total	107,192.80	41,616.50	148,809.30	343,381.60	0.00	0.00	0.00	0.00	0.00	0.00	492,190.90

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
1.2485	0.0020	492.8000	615.2386	80.0000	4,928.0000	0.0002	6,152.3863

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
4,800.0000	82.1333	0.0122	31.0019	0.2719

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Crew: FG1 Fine Grade - Large Area Prod: US 4928 Eff: 100.00 Crew Hrs: 800.00 Labor Pcs: 6.00 Equipment Pcs: 5.00

Notes: Regrade to drain - cut to fill - no import

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BDZR08RIP	Bulldozer Cat D8T w/Ripper	1.00	800.00	HR	180.58	100.00	180.58	144,462.40
8GRDR014	Grader Cat 14M 259 HP	1.00	800.00	HR	102.83	100.00	102.83	82,267.20
8LDRW966	Loader Cat 966H 5.5CY	1.00	800.00	HR	87.12	100.00	87.12	69,696.80
8TRKP055	Leased 4x2, 1/2 Ton Gas Supe	1.00	800.00	HR	7.86	100.00	7.86	6,291.20
8TRKWTR04	Water Truck 4,000 gal	1.00	800.00	HR	50.83	100.00	50.83	40,664.00
LFORMN	Laborer-Foreman	1.00	800.00	MH	20.00	110.00	28.07	22,452.16
LGEN	Laborer-General	1.00	800.00	MH	12.44	110.00	18.79	15,032.71
OPDZ9	Op Eng 3- Dozer to D9	1.00	800.00	MH	24.88	110.00	39.67	31,737.43
OPLDR6	Op Eng 2- Loader <6Y	1.00	800.00	MH	24.88	110.00	39.67	31,737.43
OPMG	Op Eng - Motor Grader	1.00	800.00	MH	24.73	110.00	39.49	31,590.22
TDWT	Water Truck Driver	1.00	800.00	MH	14.88	110.00	20.32	16,259.35

Activity: 70 Seeding Quantity: 83 Unit: AC

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4LAND	Landscape & Irrigation Sub	1.00	83.00	AC	3,500.00	100.00	3,500.00	290,500.00

Biditem 230kV Transmission Line Removal

3000

Takeoff Qty: 12.000 EA

Bid Qty: 12.000 EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	12,744.50	5,818.94	18,563.44	25,525.63	0.00	0.00	0.00	0.00	0.00	0.00	44,089.08
Total	152,934.01	69,827.32	222,761.33	306,307.59	0.00	0.00	0.00	0.00	0.00	0.00	529,068.92

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
5,916.0000	0.0020	493.0000	89.4302	25.8509	37.6540	0.0243

Activity: 20 Complete Teardown Quantity: 12 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	12,744.50	5,818.94	18,563.44	25,525.63	0.00	0.00	0.00	0.00	0.00	0.00	44,089.08
Total	152,934.01	69,827.32	222,761.33	306,307.59	0.00	0.00	0.00	0.00	0.00	0.00	529,068.92

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
44,089.0767	41.0833	0.0243	1,073.1621	49.3000	0.2434	4.1083	10,731.6211

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
5,916.0000	0.0020	493.0000	37.6540	12,744.5008

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: SU 4.1083 Eff: 100.00 Crew Hrs: 493.00 Labor Pcs: 12.00 Equipment Pcs: 12.00

Notes: assume 21 towers/mile

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
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8BHL426	BHL Cat 420E 1.25CY	1.00	493.00	HR	37.55	100.00	37.55	18,512.15
8COMPR04	Compressor 185 CFM 80HP	1.00	493.00	HR	15.66	100.00	15.66	7,718.90
8CRANERT700	Crane Grove RT700E 55TN Hyd	1.00	493.00	HR	111.07	100.00	111.07	54,756.03
8EXC330TH	Excavator Cat 336D L w/Thumb	1.00	493.00	HR	122.89	100.00	122.89	60,586.74
8MLIFT080	Manlift Grove T80 80' Boom	1.00	493.00	HR	41.76	100.00	41.76	20,589.65
8TRKGS05	Boom Truck 28,000# Cap	1.00	493.00	HR	64.86	100.00	64.86	31,976.47
8TRKGS10	Flatbed Truck 15K 200HP	1.00	493.00	HR	24.61	100.00	24.61	12,134.21
8TRKGS60	Mechanics Truck 35KGVW	1.00	493.00	HR	67.43	100.00	67.43	33,244.76
8TRKHW15	Tractor 400 HP 75K GVW	1.00	493.00	HR	68.37	100.00	68.37	33,705.92
8TRKHW35	Flat Deck Trailer 40', 40 TN	1.00	493.00	HR	8.41	100.00	8.41	4,146.62
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	493.00	HR	7.86	100.00	7.86	3,876.95
8TRKWTR04	Water Truck 4,000 gal	1.00	493.00	HR	50.83	100.00	50.83	25,059.19
ELECTF	Electrical Foreman	1.00	493.00	MH	31.00	110.00	52.98	26,118.92
ELECTJ	Electrical Journeyman	1.00	493.00	MH	30.00	110.00	51.75	25,514.13
LFORMN	Laborer-Foreman	1.00	493.00	MH	20.00	110.00	28.07	13,836.14
LGEN	Laborer-General	1.00	493.00	MH	12.44	110.00	18.79	9,263.91
OPCR70	Op Eng 1- Crane 45-99T	1.00	493.00	MH	24.88	110.00	39.67	19,558.19
OPEXC3	Op Eng 3- Backhoe to 3Y	2.00	986.00	MH	24.88	110.00	39.67	39,116.38
OPLIFT	Op Eng 4- Boom Tk <10T	1.00	493.00	MH	29.47	110.00	47.65	23,492.74
OPMECH	Op Eng - Mechanic	1.00	493.00	MH	24.88	110.00	39.67	19,558.19
TDED	End Dump Driver	1.00	493.00	MH	26.41	110.00	46.29	22,820.34
TDTRD	Transport Driver	1.00	493.00	MH	18.29	110.00	27.31	13,462.57
TDWT	Water Truck Driver	1.00	493.00	MH	14.88	110.00	20.32	10,019.82

Biditem

Operation & Maintenance Building Demolition

3100

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

	Base Labor	Burden	Total Labor	Equipment	Perm Mats	Const Mats	Sub	Services	Travel	Open	Total
U. Cost	15,403.96	6,388.11	21,792.07	60,598.81	0.00	1,200.00	0.00	14,080.00	0.00	0.00	97,670.88
Total	15,403.96	6,388.11	21,792.07	60,598.81	0.00	1,200.00	0.00	14,080.00	0.00	0.00	97,670.88

Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
640.0000	0.0016	640.0000	152.6108	24.0687	34.0501	0.0083

Activity: 10 Demo Buildings Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Mats	Const Mats	Sub	Services	Travel	Open	Total
U. Cost	12,584.00	5,317.14	17,901.14	55,183.60	0.00	0.00	0.00	0.00	0.00	0.00	73,084.74
Total	12,584.00	5,317.14	17,901.14	55,183.60	0.00	0.00	0.00	0.00	0.00	0.00	73,084.74

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
73,084.7400	100.0000	0.0100	730.8474	10.0000	0.1000	10.0000	7,308.4740

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
500.0000	0.0020	500.0000	35.8023	12,584.0000

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: S 10 Eff: 100.00 Crew Hrs: 100.00 Labor Pcs: 5.00 Equipment Pcs: 10.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BHL426	BHL Cat 420E 1.25CY	1.00	100.00	HR	37.55	100.00	37.55	3,755.00
8COMPR04	Compressor 185 CFM 80HP	1.00	100.00	HR	15.66	100.00	15.66	1,565.70
8DEMO06	Jackhammer 80#	1.00	100.00	HR	0.64	100.00	0.64	63.80
8DEMO12	Exc Cat 345D L W/Breaker	1.00	100.00	HR	187.98	100.00	187.98	18,798.40
8EXC330TH	Excavator Cat 336D L w/Thumb	1.00	100.00	HR	122.89	100.00	122.89	12,289.40
8LDRW966	Loader Cat 966H 5.5CY	1.00	100.00	HR	87.12	100.00	87.12	8,712.10
8MLIFT060	Manlift Grove T60 60' Boom	1.00	100.00	HR	29.14	100.00	29.14	2,914.10
8SLIFT30	Scissor Lift 30' 1500#	1.00	100.00	HR	12.16	100.00	12.16	1,215.70

8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	100.00	HR	7.86	100.00	7.86	786.40
8TRKWTR04	Water Truck 4,000 gal	1.00	100.00	HR	50.83	100.00	50.83	5,083.00
OPEXC3	Op Eng 3- Backhoe to 3Y	3.00	300.00	MH	24.88	110.00	39.67	11,901.54
OPLDR6	Op Eng 2- Loader <6Y	1.00	100.00	MH	24.88	110.00	39.67	3,967.18
TDWT	Water Truck Driver	1.00	100.00	MH	14.88	110.00	20.32	2,032.42

Activity: 20 Remove Fence Quantity: 1000 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1.48	0.57	2.05	2.87	0.00	0.00	0.00	0.00	0.00	0.00	4.91
Total	1,478.40	571.47	2,049.87	2,865.01	0.00	0.00	0.00	0.00	0.00	0.00	4,914.88

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
4.9149	0.0100	100.0000	491.4880	1.0000	1,000.0000	0.0010	4,914.8800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
70.0000	14.2857	0.0700	29.2839	1.4784

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: UH 100 Eff: 100.00 Crew Hrs: 10.00 Labor Pcs: 7.00 Equipment Pcs: 7.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BHL426	BHL Cat 420E 1.25CY	1.00	10.00	HR	37.55	100.00	37.55	375.50
8DEMO06	Jackhammer 80#	1.00	10.00	HR	0.64	100.00	0.64	6.38
8EXC330TH	Excavator Cat 336D L w/Thumb	1.00	10.00	HR	122.89	100.00	122.89	1,228.94
8FORK06	Forklift Cat TL1255 12K#, 55	1.00	10.00	HR	58.86	100.00	58.86	588.61
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	2.00	20.00	HR	7.86	100.00	7.86	157.28
8TRKWTR04	Water Truck 4,000 gal	1.00	10.00	HR	50.83	100.00	50.83	508.30
LFORMN	Laborer-Foreman	1.00	10.00	MH	20.00	110.00	28.07	280.65
LGEN	Laborer-General	2.00	20.00	MH	12.44	110.00	18.79	375.82
OPEXC3	Op Eng 3- Backhoe to 3Y	2.00	20.00	MH	24.88	110.00	39.67	793.43
OPLDR6	Op Eng 2- Loader <6Y	1.00	10.00	MH	24.88	110.00	39.67	396.72
TDWT	Water Truck Driver	1.00	10.00	MH	14.88	110.00	20.33	203.25

Activity: 30 T&D Demolition Debris Quantity: 15 Unit: LD

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	80.00	0.00	938.67	0.00	0.00	1,018.67
Total	0.00	0.00	0.00	0.00	0.00	1,200.00	0.00	14,080.00	0.00	0.00	15,280.00

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
31DFBLDL	Bldg Debris Dump Fee-load	1.00	15.00	LD	80.00	100.00	80.00	1,200.00
5DH80	Rolloff Bin Delivery	1.00	15.00	EA	800.00	100.00	800.00	12,000.00
5DH81	Bin Rental	1.00	5.00	DY	11.00	100.00	11.00	55.00
5DH83	Bin Transportation	1.00	15.00	HR	135.00	100.00	135.00	2,025.00

Activity: 40 Site Restoration Quantity: 1.25 Unit: AC

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1,073.25	399.60	1,472.85	2,040.16	0.00	0.00	0.00	0.00	0.00	0.00	3,513.01
Total	1,341.56	499.50	1,841.06	2,550.20	0.00	0.00	0.00	0.00	0.00	0.00	4,391.26

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
3,513.0080	8.0000	0.1250	439.1260	1.0000	1.2500	0.8000	4,391.2600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
70.0000	0.0179	56.0000	26.3009	1,073.2480

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform
 Crew: ZZZ ***BLANK CREW*** Prod: S 1 Eff: 100.00 Crew Hrs: 10.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
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8DISKTR10	Rome 12' Wide Disk Harrow	1.00	10.00	HR	22.08	100.00	22.08	220.84
8DISKTR12	John Deere Tractor	1.00	10.00	HR	87.12	100.00	87.12	871.21
8LDRW966	Loader Cat 966H 5.5CY	1.00	10.00	HR	87.12	100.00	87.12	871.21
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	10.00	HR	7.86	100.00	7.86	78.64
8TRKWTR04	Water Truck 4,000 gal	1.00	10.00	HR	50.83	100.00	50.83	508.30
LFORMN	Laborer-Foreman	1.00	10.00	MH	20.00	110.00	28.07	280.65
LGEN	Laborer-General	3.00	30.00	MH	12.44	110.00	18.79	563.73
OPLDR6	Op Eng 2- Loader <6Y	2.00	20.00	MH	24.88	110.00	39.67	793.43
TDWT	Water Truck Driver	1.00	10.00	MH	14.88	110.00	20.33	203.25

Biditem

3200

Substation Demolition

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	17,626.62	8,037.98	25,664.60	26,703.08	0.00	0.00	0.00	0.00	0.00	0.00	52,367.68
Total	17,626.62	8,037.98	25,664.60	26,703.08	0.00	0.00	0.00	0.00	0.00	0.00	52,367.68

	Manhours	Unit/MH	MH/Unit	\$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
	735.0000	0.0014	735.0000	71.2485	23.9818	34.9178	0.0095

Activity: 10 Substation Demolition Quantity: 1 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	11,384.34	5,682.27	17,066.61	14,754.96	0.00	0.00	0.00	0.00	0.00	0.00	31,821.57
Total	11,384.34	5,682.27	17,066.61	14,754.96	0.00	0.00	0.00	0.00	0.00	0.00	31,821.57

	Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
	31,821.5700	60.0000	0.0167	530.3595	6.0000	0.1667	6.0000	5,303.5950

	Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
	420.0000	0.0024	420.0000	40.6348	11,384.3400

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: S 6 Eff: 100.00 Crew Hrs: 60.00 Labor Pcs: 7.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BHLD426	BHL Cat 420E 1.25CY	1.00	60.00	HR	37.55	100.00	37.55	2,253.00
8FORK06	Forklift Cat TL1255 12K#, 55	1.00	60.00	HR	58.86	100.00	58.86	3,531.66
8TRKGS05	Boom Truck 28,000# Cap	1.00	60.00	HR	64.86	100.00	64.86	3,891.66
8TRKHW15	Tractor 400 HP 75K GVW	1.00	60.00	HR	68.37	100.00	68.37	4,102.14
8TRKHW35	Flat Deck Trailer 40', 40 TN	1.00	60.00	HR	8.41	100.00	8.41	504.66
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	60.00	HR	7.86	100.00	7.86	471.84
ELECTF	Electrical Foreman	1.00	60.00	MH	31.00	110.00	52.98	3,178.77
ELECTJ	Electrical Journeyman	1.00	60.00	MH	30.00	110.00	51.75	3,105.17
LGEN	Laborer-General	1.00	60.00	MH	12.44	110.00	18.79	1,127.46
OPLDR6	Op Eng 2- Loader <6Y	1.00	60.00	MH	24.88	110.00	39.67	2,380.30
OPLIFT	Op Eng 4- Boom Tk <10T	1.00	60.00	MH	29.47	110.00	47.65	2,859.15
TDED	End Dump Driver	1.00	60.00	MH	26.41	110.00	46.29	2,777.32
TDTRD	Transport Driver	1.00	60.00	MH	18.29	110.00	27.31	1,638.44

Activity: 20 Remove Fence Quantity: 1500 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1.48	0.57	2.05	2.87	0.00	0.00	0.00	0.00	0.00	0.00	4.91
Total	2,217.60	857.21	3,074.81	4,297.52	0.00	0.00	0.00	0.00	0.00	0.00	7,372.33

	Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
	4.9149	0.0100	100.0000	491.4887	1.5000	1,000.0000	0.0010	4,914.8867

	Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
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105.0000	14.2857	0.0700	29.2839	1.4784
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Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: UH 100 Eff: 100.00 Crew Hrs: 15.00 Labor Pcs: 7.00 Equipment Pcs: 7.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8BHLD426	BHL Cat 420E 1.25CY	1.00	15.00	HR	37.55	100.00	37.55	563.25
8DEMO06	Jackhammer 80#	1.00	15.00	HR	0.64	100.00	0.64	9.57
8EXC330TH	Excavator Cat 336D L w/Thumb	1.00	15.00	HR	122.89	100.00	122.89	1,843.41
8FORK06	Forklift Cat TL1255 12K#, 55	1.00	15.00	HR	58.86	100.00	58.86	882.92
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	2.00	30.00	HR	7.86	100.00	7.86	235.92
8TRKWTR04	Water Truck 4,000 gal	1.00	15.00	HR	50.83	100.00	50.83	762.45
LFORMN	Laborer-Foreman	1.00	15.00	MH	20.00	110.00	28.07	420.98
LGEN	Laborer-General	2.00	30.00	MH	12.44	110.00	18.79	563.73
OPEXC3	Op Eng 3- Backhoe to 3Y	2.00	30.00	MH	24.88	110.00	39.67	1,190.16
OPLDR6	Op Eng 2- Loader <6Y	1.00	15.00	MH	24.88	110.00	39.67	595.08
TDWT	Water Truck Driver	1.00	15.00	MH	14.88	110.00	20.32	304.86

Activity: 40 Site Restoration Quantity: 3 Unit: AC

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
U. Cost	1,341.56	499.50	1,841.06	2,550.20	0.00	0.00	0.00	0.00	0.00	0.00	4,391.26
Total	4,024.68	1,498.50	5,523.18	7,650.60	0.00	0.00	0.00	0.00	0.00	0.00	13,173.78

Crew \$/Unit	Crew Hrs/Unit	Units/Crew Hr	\$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	\$/Shift
4,391.2600	10.0000	0.1000	439.1260	3.0000	1.0000	1.0000	4,391.2600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
210.0000	0.0143	70.0000	26.3009	1,341.5600

Calendar: 510 5 days @ 10hrs/day Hrs/Shift: 10 WC: CCISP CCI Self Perform

Crew: ZZZ ***BLANK CREW*** Prod: S 3 Eff: 100.00 Crew Hrs: 30.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8DISKTR10	Rome 12' Wide Disk Harrow	1.00	30.00	HR	22.08	100.00	22.08	662.52
8DISKTR12	John Deere Tractor	1.00	30.00	HR	87.12	100.00	87.12	2,613.63
8LDRW966	Loader Cat 966H 5.5CY	1.00	30.00	HR	87.12	100.00	87.12	2,613.63
8TRKPU55	Leased 4x2, 1/2 Ton Gas Supe	1.00	30.00	HR	7.86	100.00	7.86	235.92
8TRKWTR04	Water Truck 4,000 gal	1.00	30.00	HR	50.83	100.00	50.83	1,524.90
LFORMN	Laborer-Foreman	1.00	30.00	MH	20.00	110.00	28.07	841.96
LGEN	Laborer-General	3.00	90.00	MH	12.44	110.00	18.79	1,691.19
OPLDR6	Op Eng 2- Loader <6Y	2.00	60.00	MH	24.88	110.00	39.67	2,380.30
TDWT	Water Truck Driver	1.00	30.00	MH	14.88	110.00	20.32	609.73

Report Summary

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Services	Travel	Open	Total
Total	1,686,026	634,769	2,320,796	2,773,843	0	96,066	290,500	244,862	0	0	5,726,067

Job Notes

Estimate created on: 05/30/2017 by User#: 0 -
Source used: C:\HEAVYBID\HBSAVE\16-320.zip (a backup) from 06/27/2016 12:45:30 PM

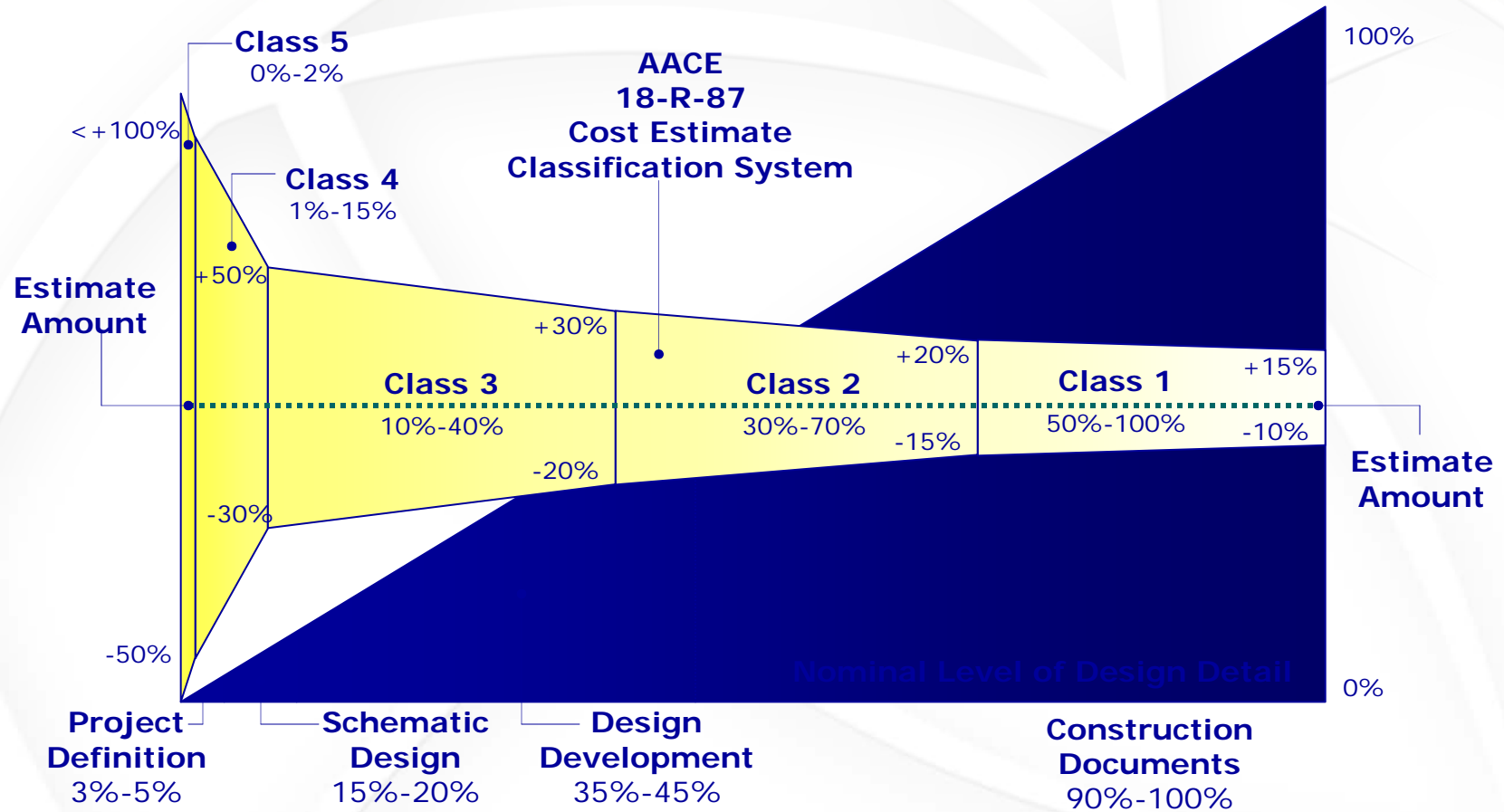
*****Estimate created on: 05/30/2017 by User#: 0 -
Source used: C:\HEAVYBID\2016\HBSAVE\16-320.zip (a backup) from 05/30/2017 2:49:01 PM

Calendars Used In Estimate

- 510 5 days @ 10hrs/day
- 508 5 days @ 8hrs/day
- 509 5 days @ 9 hrs/day

Appendix B
Association for the Advancement
of Cost Engineering
Estimate Accuracy Chart

AACE – Classification System



Construction Cost Estimate Accuracy Ranges

Estimate Class	Class 5	Class 4	Class 3	Class 2	Class 1
LEVEL OF PROJECT DEFINITION Expressed as a % of complete definition	0% to 2%	1% to 15%	10% to 40%	30% to 70%	50% to 100%
END USAGE Typical Purpose of Estimate	Concept Screening	Study or Feasibility	Budget Authorization, or Control	Control or Bid / Tender	Check Estimate or Bid / Tender
METHODOLOGY Typical estimating method	Capacity Factored, Parametric Models, Judgment, or Analogy	Equipment Factored or Parametric Models	Semi-Detailed Unit Costs with Assembly Level Line Items	Detailed Unit Cost with Forced Detailed Take-Off	Detailed Unit Cost with Detailed Take-Off
EXPECTED ACCURACY RANGE Typical variation in low and high ranges [a]	L: -20% to -50% H: +30% to +100%	L: -15% to -30% H: +20% to +50%	L: -10% to -20% H: +10% to +30%	L: -5% to -15% H: +5% to +20%	L: -3% to -10% H: +3% to +15%
PREPARATION EFFORT Typical degree of effort relative to least cost index of 1 [b]	1	2 to 4	3 to 10	4 to 20	5 to 100
REFINED CLASS DEFINITION	Class 5 estimates are generally prepared based on very limited information, and subsequently have very wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systematic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with very little effort expended - sometimes requiring less than 1 hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation.	Class 4 estimates are generally prepared based on very limited information, and subsequently have very wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 5% complete, and would comprise at a minimum the following: plant capacity, block schematics, indicated layout, process flow diagrams (PFDs) for main process systems and preliminary engineered process and utility equipment lists. Level of Project Definition Required: 1% to 15% of full project definition.	Class 3 estimates are generally prepared to form the basis for budget authorization, appropriation, and/or funding. As such, they typically form the initial control estimate against which all actual costs and resources will be monitored. Typically, engineering is from 10% to 40% complete, and would comprise at a minimum the following: process flow diagrams, utility flow diagrams, preliminary piping and instrument diagrams, utility flow diagrams, preliminary piping and instrument diagrams, plot plan, developed layout drawings, and essentially complete engineering process and utility equipment lists. Level Of Project Definition Required: 10% to 40% of full project definition.	Class 2 estimates are generally prepared to form a detailed control baseline against which all project work is monitored in terms of cost and progress control. For contractors, this class of estimate is often used as the "bid" estimate to establish contract value. Typically, engineering is from 30% to 70% complete, and would comprise at a minimum the following: Process flow diagrams, utility flow diagrams, piping and instrument flow diagrams, heat and material balances, final plot plan, final layout drawings, complete engineered process and utility equipment lists, single line diagrams for electrical, electrical equipment and motor schedules, vendor quotations, detailed project execution plans, resourcing and work force plans, etc.	Class 1 estimates are generally prepared for discrete parts or sections of the total project rather than generating this level of detail for the entire project. The parts of the project estimated at this level of detail will typically be used by subcontractors for bids, or by owners for check estimates. The updated estimate is often referred to as the current control estimate and becomes the new baseline for cost/schedule control of the project. Class 1 estimates may be prepared for parts of the project to comprise a fair price estimate or bid check estimate to compare against a contractor's bid estimate, or to evaluate/dispute claims. Typically, engineering is from 50% to 100% complete, and would comprise virtually all engineering and design documentation of the project, and complete project execution and commissioning plans. Level for Project Definition Required: 50% to 100% of full project definition.
END USAGE DEFINED	Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs and budgeting, long-range capital planning, etc.	Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval or approval to proceed to next stage.	Class 3 estimates are typically prepared to support full project funding requests, and become the first of the project phase "control estimate" against which all actual costs and resources will be monitored for variations to the budget. They are used as the project budget until replaced by more detailed estimates. In many owner organizations, a Class 3 estimate may be the last estimate required and could well form the only basis for cost/schedule control.	Class 2 estimates are typically prepared as the detailed control baseline against which all actual costs and resources will now be monitored for variation to the budget, and form a part of the change/variation control program.	Class 1 estimates are typically prepared to form a current control estimate to be used as the final control baseline against which all actual costs and resources will now be monitored for variations to the budget, and form a part of the change/variation control program. They may be used to evaluate bid checking, to support vendor/contractor negotiations, or for claim evaluations and dispute resolution.
ESTIMATING METHODS USED	Class 5 estimates virtually always use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modeling techniques.	Class 4 estimates virtually always use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, the Miller method, gross unit costs/ratios, and other parametric and modeling techniques.	Class 3 estimates usually involve more deterministic estimating methods that stochastic methods. They usually involve a high degree of unit cost line items, although these may be at an assembly level of detail rather than individual components. Factoring and other stochastic methods may be used to estimate less-significant areas of the project.	Class 2 estimates always involve a high degree of deterministic estimating methods. Class 2 estimates are prepared in great detail, and often involve tens of thousands of unit cost line items. For those areas of the project still undefined, an assumed level of detailed takeoff (forced detail) may be developed to use as line items in the estimate instead of relying on factoring methods.	Class 1 estimates involve the highest degree of deterministic estimating methods, and require a great amount of effort. Class 1 estimates are prepared in great detail, and thus are usually performed on only the most important or critical areas of the project. All items in the estimate are usually unit cost line items based on actual design quantities.
EXPECTED ACCURACY RANGE	Typical accuracy ranges for Class 5 estimates are -20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.	Typical accuracy ranges for Class 4 estimates are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.	Typical accuracy ranges for Class 3 estimates are -10% to -20% on the low side, and +10% to +30% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.	Typical accuracy ranges for Class 2 estimates are -5% to -15% on the low side, and +5% to +20% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.	Typical accuracy ranges for Class 1 estimates are -3% to -10% on the low side, and +3% to +15% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.
EFFORT TO PREPARE (for US\$20MM project):	As little as 1 hour or less to prepare to perhaps more than 200 hours, depending on the project and the estimating methodology used.	Typically, as little as 20 hours or less to perhaps more than 300 hours, depending on the project and the estimating methodology used.	Typically, as little as 150 hours or less to perhaps more than 1500 hours, depending on the project and the estimating methodology used.	Typically, as little as 300 hours or less to perhaps more than 3000 hours, depending on the project and the estimating methodology used. Bid Estimates typically require more effort than estimates used for funding or control purposes	Class 1 estimates require the most effort to create, and as such are generally developed for only selected areas of the project, or for bidding purposes. A complete Class 1 estimate may involve as little as 600 hours or less, to perhaps more than 6,000 hours, depending on the project and the estimating methodology used. Bid estimate typically require more effort than estimates used for funding or control purposes.
ANSI Standard Reference Z94.2-1989 name; Alternate Estimate Names, Terms, Expressions, Synonyms:	Order of Magnitude Estimate; Ratio, ballpark, blue sky, seat-of-pants, ROM, idea study, prospect estimate, concession license estimate, guesstimate, rule-of thumb.	Budget Estimate; Screening, top-down, feasibility, authorization, factored, pre-design, pre-study.	Budget Estimate; Budget, scope, sanction, semi-detailed, authorization, preliminary control, concept study, development, basic engineering phase estimate, target estimate.	Definitive Estimate; Detailed Control, forced detail, execution phase, master control, engineering, bid, tender, change order estimate.	Definitive Estimate; Full detail, release, fall-out, tender, firm price, bottoms-up, final, detailed control, forced detail, execution phase, master control, fair price, definitive, change order estimate.

Estimate Class	Class 5	Class 4	Class 3	Class 2	Class 1
	Class 5	Class 4	Class 3	Class 2	Class 1
GENERAL PROJECT DATA					
Project Scope Description	General	Preliminary	Defined	Defined	Defined
Plant Production / Facility Capacity	Assumed	Preliminary	Defined	Defined	Defined
Plant Location	General	Approximate	Specific	Specific	Specific
Soils & Hydrology	None	Preliminary	Defined	Defined	Defined
Integrated Project Plan	None	Preliminary	Defined	Defined	Defined
Project Master Schedule	None	Preliminary	Defined	Defined	Defined
Escalation Strategy	None	Preliminary	Defined	Defined	Defined
Work Breakdown Structure	None	Preliminary	Defined	Defined	Defined
Project Code of Accounts	None	Preliminary	Defined	Defined	Defined
Contracting Strategy	Assumed	Assumed	Preliminary	Defined	Defined
ENGINEERING DELIVERABLES:	Class 5	Class 4	Class 3	Class 2	Class 1
Block Flow Diagrams	Started / Preliminary	Preliminary / Complete	Complete	Complete	Complete
Plot Plans		Started	Preliminary / Complete	Complete	Complete
Process Flow Diagrams (PFDs)		Started / Preliminary	Preliminary / Complete	Complete	Complete
Utility Flow Diagrams (UFDs)		Started / Preliminary	Preliminary / Complete	Complete	Complete
Piping & Instrument Diagrams (P&IDS)		Started	Preliminary / Complete	Complete	Complete
Heat and Material Balances		Started	Preliminary / Complete	Complete	Complete
Process Equipment List		Started / Preliminary	Preliminary / Complete	Complete	Complete
Utility Equipment List		Started / Preliminary	Preliminary / Complete	Complete	Complete
Electrical One Line Drawings		Started / Preliminary	Preliminary / Complete	Complete	Complete
Specifications and Datasheets		Started	Preliminary / Complete	Complete	Complete
General Equipment Arrangement Drawings		Started	Preliminary / Complete	Complete	Complete
Spare Parts Lists			Started / Preliminary	Preliminary	Complete
Architectural Details / Schedules		Started	Preliminary / Complete	Complete	Complete
Structural Details		Started	Preliminary / Complete	Complete	Complete
Mechanical Discipline Drawings			Started	Preliminary	Preliminary / Complete
Electrical Discipline Drawings			Started	Preliminary	Preliminary / Complete
System Discipline Drawings			Started	Preliminary	Preliminary / Complete
Civil/Site Discipline Drawings			Started	Preliminary	Preliminary / Complete
Demolition Details		Started	Preliminary / Complete	Complete	Complete