

Exhibit W Retirement and Site Restoration

Boardman to Hemingway Transmission Line Project



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Preliminary Application for Site Certificate

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ACRONYMS AND ABBREVIATIONS

Note: Not all acronyms and abbreviations listed will appear in this Exhibit.

°C	degrees Celsius
4WD	4-wheel-drive
A	ampere
A/ph	amperes/phase
AC	alternating current
ACDP	Air Contaminant Discharge Permit
ACEC	Area of Critical Environmental Concern
ACSR	aluminum conductor steel reinforced
AIMP	Agricultural Impact Mitigation Plan
AMS	Analysis of the Management Situation
aMW	average megawatt
ANSI	American National Standards Institute
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
ARPA	Archaeological Resource Protection Act
ASC	Application for Site Certificate
ASCE	American Society of Civil Engineers
ASP	Archaeological Survey Plan
AST	aboveground storage tank
ASTM	American Society of Testing and Materials
ATC	available transmission capacity
ATV	all-terrain vehicle
AUM	animal unit month
B2H	Boardman to Hemingway Transmission Line Project
BCCP	Baker County Comprehensive Plan
BCZSO	Baker County Zoning and Subdivision Ordinance
BLM	Bureau of Land Management
BMP	best management practice
BPA	Bonneville Power Administration
BOR	Bureau of Reclamation
C and D	construction and demolition
CAA	Clean Air Act
CadnaA	Computer-Aided Noise Abatement
CAFE	Corona and Field Effects
CAP	Community Advisory Process
CBM	capacity benefit margin
CFR	Code of Federal Regulations
CH	critical habitat
CIP	critical infrastructure protection
CL	centerline
cm	centimeter
cmil	circular mil
COA	Conservation Opportunity Area
CO ₂ e	carbon dioxide equivalent

COM Plan	Construction, Operations, and Maintenance Plan
CPCN	Certificate of Public Convenience and Necessity
cps	cycle per second
CRP	Conservation Reserve Program
CRT	cathode-ray tube
CRUP	Cultural Resource Use Permit
CSZ	Cascadia Subduction Zone
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	<i>Clean Water Act of 1972</i>
CWR	Critical Winter Range
dB	decibel
dBA	A-weighted decibel
DC	direct current
DoD	Department of Defense
DOE	U.S. Department of Energy
DOGAMI	Oregon Department of Geology and Mineral Industries
DPS	Distinct Population Segment
DSL	Oregon Department of State Lands
EA	environmental assessment
EDRR	Early Detection and Rapid Response
EIS	Environmental Impact Statement (DEIS for Draft and FEIS for Final)
EFSC or Council	Energy Facility Siting Council
EFU	Exclusive Farm Use
EHS	extra high strength
EMF	electric and magnetic fields
EPA	Environmental Protection Agency
EPC	Engineer, Procure, Construct
EPM	environmental protection measure
EPRI	Electric Power Research Institute
ERO	Electric Reliability Organization
ERU	Exclusive Range Use
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESU	Evolutionarily Significant Unit
EU	European Union
FAA	Federal Aviation Administration
FCC	Federal Communication Commission
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FFT	find, fix, track, and report
FLPMA	Federal Land Policy and Management Act
Forest Plan	Land and Resource Management Plan
FPA	Forest Practices Act
FSA	Farm Services Agency
FWS	U.S. Fish and Wildlife Service
G	gauss

GeoBOB	Geographic Biotic Observation
GF	Grazing Farm Zone
GHG	greenhouse gas
GHz	gigahertz
GIL	gas insulated transmission line
GIS	geographic information system
GPS	Global Positioning System
GRMW	Grande Ronde Model Watershed
GRP	Grassland Reserve Program
HAC	Historic Archaeological Cultural
HCNRA	Hells Canyon National Recreation Area
HPFF	high pressure fluid-filled
HPMP	Historic Properties Management Plan
HUC	Hydrologic Unit Code
Hz	hertz
I-84	Interstate 84
ICC	International Code Council
ICES	International Committee on Electromagnetic Safety
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
ILS	intensive-level survey
IM	Instructional Memorandum
INHP	Idaho Natural Heritage Program
INRMP	Integrated Natural Resources Management Plan
IPC	Idaho Power Company
IPUC	Idaho Public Utilities Commission
IRP	integrated resource plan
IRPAC	IRP Advisory Council
ISDA	Idaho State Department of Agriculture
JPA	Joint Permit Application
KCM	thousand circular mils
kHz	kilohertz
km	kilometer
KOP	Key Observation Point
kV	kilovolt
kV/m	kilovolt per meter
kWh	kilowatt-hour
L _{dn}	day-night sound level
L _{eq}	equivalent sound level
lb	pound
LCDC	Land Conservation and Development Commission
LDMA	Lost Dutchman's Mining Association
LiDAR	light detection and ranging
LIT	Local Implementation Team

LMP	land management plan
LOLE	Loss of Load Expectation
LRMP	land and resource management plan
LUBA	Land Use Board of Appeals
LWD	large woody debris
m	meter
mA	milliampere
MA	Management Area
MAIFI	Momentary Average Interruption Frequency Index
MCC	Malheur County Code
MCCP	Morrow County Comprehensive Plan
MCE	Maximum Credible Earthquake
MCZO	Morrow County Zoning Ordinance
mG	milligauss
MHz	megahertz
mm	millimeter
MMI	Modified Mercalli Intensity
MP	milepost
MPE	maximum probable earthquake
MRI	magnetic resonance imaging
MVAR	megavolt ampere reactive
Mw	mean magnitude
MW	megawatt
$\mu\text{V/m}$	microvolt per meter
N ₂ O	nitrous oxide
NAIP	National Agriculture Imagery Program
NED	National Elevation Dataset
NEMS	National Energy Modeling System
NEPA	<i>National Environmental Policy Act of 1969</i>
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NF	National Forest
NFPA	National Fire Protection Association
NFS	National Forest System
NGDC	National Geophysical Data Center
NHD	National Hydrography Dataset
NHOTIC	National Historic Oregon Trail Interpretive Center
NHT	National Historic Trail
NIEHS	National Institute of Environmental Health Sciences
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Division
NOI	Notice of Intent to File an Application for Site Certificate
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service

NRHP	National Register of Historic Places
NSR	noise sensitive receptor
NTTG	Northern Tier Transmission Group
NWGAP	Northwest Regional Gap Analysis Landcover Data
NWI	National Wetlands Inventory
NWPP	Northwest Power Pool
NWR	National Wildlife Refuge
NWSRS	National Wild and Scenic Rivers System
NWSTF	Naval Weapons Systems Training Facility
O ₃	ozone
O&M	operation and maintenance
OAIN	Oregon Agricultural Information Network
OAR	Oregon Administrative Rules
OATT	Open Access Transmission Tariff
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OHGW	overhead ground wire
OHV	off-highway vehicle
OPGW	optical ground wire
OPRD	Oregon Parks and Recreation Department
OPS	U.S. Department of Transportation, Office of Pipeline Safety
OPUC	Public Utility Commission of Oregon
OR	Oregon (State) Highway
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
ORWAP	Oregon Rapid Wetland Assessment Protocol
OS	Open Space
OSDAM	Oregon Streamflow Duration Assessment Methodology
OSHA	Occupational Safety and Health Administration
OSSC	Oregon Structural Specialty Code
OSWB	Oregon State Weed Board
OWC	Oregon Wetland Cover
P	Preservation
PA	Programmatic Agreement
pASC	Preliminary Application for Site Certificate
PAT	Project Advisory Team
PCE	Primary Constituent Element
PEM	palustrine emergent
PFO	palustrine forested
PGA	peak ground acceleration
PGE	Portland General Electric
PGH	Preliminary General Habitats
Pike	Pike Energy Solutions

PNSN	Pacific Northwest Seismic Network
POD	Plan of Development
POMU	Permit to Operate, Maintain and Use a State Highway Approach
PPH	Preliminary Priority Habitats
Project	Boardman to Hemingway Transmission Line Project
PSD	Prevention of Significant Deterioration
PSS	palustrine scrub-shrub
R	Retention
R-F	removal-fill
RCM	Reliability Centered Maintenance
RCRA	Resource Conservation and Recovery Act
ReGAP	Regional Gap Analysis Project
RFP	request for proposal
RLS	reconnaissance-level survey
RMP	resource management plan
ROD	Record of Decision
ROE	right of entry
RNA	research natural area
ROW	right-of-way
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SC	Sensitive Critical
SEORMP	Southeastern Oregon Resource Management Plan
SF6	sulfur hexafluoride
Shaw	Shaw Environmental and Infrastructure, Inc.
SHPO	State Historic Preservation Office
SLIDO	Statewide Landslide Inventory Database for Oregon
SMS	Scenery Management System
SMU	Species Management Unit
SPCC	Spill Prevention, Containment, and Countermeasures
SRMA	Special Recreation Management Area
SRSAM	Salmon Resources and Sensitive Area Mapping
SSURGO	Soil Survey Geographic Database
STATSGO	State Soil Geographic Database
SUP	special-use permit
SV	Sensitive Vulnerable
SWPPP	Stormwater Pollution Prevention Plan
T/A/Y	tons/acre/year
TDG	Total Dissolved Gas
TES	threatened, endangered, and sensitive (species)
TG	Timber Grazing
TMIP	Transmission Maintenance and Inspection Plan
TNC	The Nature Conservancy
tpy	tons per year
TSD	treatment, storage, and disposal
TV	television
TVES	Terrestrial Visual Encounter Surveys

TVMP	Transmission Vegetation Management Program
UBAR	Umatilla Basin Aquifer Restoration
UBWC	Umatilla Basin Water Commission
UCDC	Umatilla County Development Code
UCZPSO	Union County Zoning, Partition and Subdivision Ordinance
UDP	Unanticipated Discovery Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Department of Agriculture, Forest Service
USGS	U.S. Geological Survey
UWIN	Utah Wildlife in Need
V/C	volume to capacity
V	volt
VAHP	Visual Assessment of Historic Properties
VMS	Visual Management System
VQO	Visual Quality Objective
VRM	Visual Resource Management
WAGS	Washington ground squirrel
WCU	Wilderness Characteristic Unit
WECC	Western Electricity Coordinating Council
WHO	World Health Organization
WMA	Wildlife Management Area
WOS	waters of the state
WOUS	waters of the United States
WPCF	Water Pollution Control Facility
WR	winter range
WRCC	Western Regional Climate Center
WRD	(Oregon) Water Resources Division
WRP	Wetland Reserve Program
WWE	West-wide Energy
XLPE	cross-linked polyethylene

1 Exhibit W

2 Retirement and Site Restoration

3 1.0 INTRODUCTION

4 Exhibit W demonstrates that the Boardman to Hemingway Transmission Line Project (the
5 Project) complies with the approval standard for facility retirement, in accordance with Oregon
6 Administrative Rule (OAR) 345-022-0050(1), based on information provided pursuant to OAR
7 345-021-0010(1)(w), paragraphs (A) through (E). Specifically, Exhibit W demonstrates that
8 Idaho Power Company (IPC) can adequately restore the Project site to a useful non-hazardous
9 condition in the unlikely event that the facility is retired.

10 The useful life of a 500-kilovolt (kV) transmission line is indefinite, and they are designed and
11 maintained to remain in service in perpetuity. For this reason, it is highly unlikely that the Project
12 would ever be retired. Nevertheless, in compliance with Energy Facility Siting Council (EFSC or
13 Council) rules, this Exhibit describes the steps that would be necessary in the unlikely event that
14 the Project were to be retired. These steps include both the specific actions that would be
15 required to remove the Project's structures and the steps necessary to restore the site to a
16 useful condition. This exhibit also includes a detailed financial analysis of the costs that would
17 be associated with facility retirement and site restoration.

18 2.0 APPLICABLE RULES AND STATUTES

19 EFSC's facility retirement standard is set forth in OAR 345-022-0050. This standard requires
20 that, to issue a site certificate, the Council must find that:

21 *The site, taking into account mitigation, can be restored adequately to a useful, non-*
22 *hazardous condition following permanent cessation of construction or operation of the*
23 *facility.*

24 2.1 Requirements of Exhibit W – OAR 345-021-0010(1)(w)

25 To demonstrate compliance with the facility retirement and site restoration standard, and in
26 accordance with OAR 345-021-0010(1)(w), Exhibit W must include the following:

27 *(A) The estimated useful life of the proposed facility.*

28 *(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.*

29 *(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a*
30 *useful, non-hazardous condition.*

31 *(D) A discussion and justification of the methods and assumptions used to estimate site*
32 *restoration costs.*

33 *(E) For facilities that might produce site contamination by hazardous materials, a*
34 *proposed monitoring plan, such as periodic environmental site assessment and*
35 *reporting, or an explanation why a monitoring plan is unnecessary.*

2.2 Project Order Requirements

The Project Order states that all paragraphs of OAR 345-021-0010(1)(w) apply. Additionally, the Project Order includes the following requirements:

The Department's Facility Retirement Cost Estimating Guide (2005) was recently updated with an example calculation for determining the decommissioning costs of a transmission line (which has been provided to the applicant). Should the applicant elect to apply a different cost estimate methodology it must discuss the method with the Department prior to submitting its application. The Council's Retirement Standard requires a reasonable engineering estimate of the cost to retire the facility. To that end, the application should explain and justify the methodology used to estimate retirement costs, including (but not limited to) pertinent information related to facility components. The information regarding these factors can be placed in Exhibit B or in Exhibit W of the application, but should be clear enough for ODOE staff to review it. At a minimum, facility information should include quantities and detailed proposed unit costs for the following:

- *Types and sizes of transmission line support structures, including height, width, and weight of steel in the structures;*
- *Amount of concrete above three feet below grade included in transmission line support structure foundations;*
- *Spacing of transmission line support structures;*
- *Number of conductors to be mounted on the transmission line support structures;*
- *Length, width, and surfacing of new (or modifications to existing) access roads;*
- *Scope, size, and types of related or supporting facilities;*
- *Estimated area of temporary disturbance during construction of the proposed facility; and*
- *Estimated area of permanent disturbance during operation of the proposed facility.*

The Council's Retirement Standard also requires evidence that the site can be restored – following facility retirement – to a useful, non-hazardous condition consistent with site's zoning. For example, where the proposed transmission line is sited on Exclusive Farm Use land, the application must include evidence that the site can be restored to a condition suitable for the agricultural use prevalent in the surrounding vicinity.

As documented in Table W-1 (Submittal Requirements Matrix), IPC has drafted Exhibit W to respond to each paragraph of OAR 345-021-0010(1)(w) described above, as well as the additional requirements set forth in the Project Order.

3.0 ANALYSIS

3.1 Estimated Useful Life

OAR 345-021-0010(1)(w)(A)

The applicant shall include: the estimated useful life of the proposed facility.

IPC estimates that the Project and associated substations will remain in service indefinitely.

As, a general matter, IPC designs, constructs, and operates its transmission system on the assumption that the system's transmission lines will not be retired. Over time, and as necessary, portions of its transmission lines will be rebuilt using new materials and hardware; however, the

1 lines themselves will remain in operation, in order to provide reliable and safe transmission
2 capacity in perpetuity.

3 Similarly, the substations on both ends of its transmission line are necessary to ensure the
4 continued operation of the line—and other lines as well. For this reason, these substations
5 likewise are designed to have an indefinite useful life.

6 IPC's assumptions regarding the indefinite life of the Project are based on its own experience,
7 as well as informal research regarding other utilities. IPC itself has never retired any
8 transmission line. Moreover, it has found that such retirements are, in general, extremely rare—
9 occurring only when a line is rerouted. Given the limited number of transmission facilities, the
10 demand for transmission services, the high cost of building new transmission lines and the
11 intrinsic value of transmission rights-of-way, it virtually never makes sense for a retirement to
12 occur.

13 Notwithstanding the foregoing, to the extent the Council's rule requires an applicant to provide
14 an estimated useful life of the proposed facility, IPC estimates that useful life of the facility will
15 be in excess of 100 years.

16 **3.2 Site Restoration Activities**

17 **OAR 345-021-0010(1)(w)(B)**

18 Specific actions and tasks to restore the site to a useful, non-hazardous condition.

19 In the unlikely event that IPC is required to retire the transmission line, it will do so in
20 accordance with an EFSC-approved retirement plan, as required by OAR 345-027-0020(9) and
21 OAR 345-027-0110. To restore the site to a useful, non-hazardous condition, IPC or its
22 contractors will take the following basic steps:

- 23 • Removal of all facilities. For the transmission line, these facilities include all support
24 structures, conductors, overhead shield wires, and communication sites. For the
25 substation, these facilities include an interconnecting bus system, switches, breakers,
26 and instrumentation for the control and protection of the equipment.
- 27 • Removal of the foundations for each support structure to a depth of one (1) foot below
28 grade, depending on ground slope. Any foundations in EFU ground would be removed to
29 a depth three feet below grade.
- 30 • Restoration of all structure locations and access roads to a useful, non-hazardous
31 condition consistent with site zoning, including Exclusive Farm Use (EFU) zoning. See
32 Exhibit K, Attachment K-1, Appendix B for Agricultural Impacts Mitigation Plan.

33 IPC will provide a final retirement plan to EFSC for approval prior to the start of retirement
34 activities. IPC's plan will address all requirements necessary to protect the public health, and the
35 environment, in addition to other permitting requirements. The retirement plan will include a
36 complete description of all actions necessary to restore the site to a useful, non-hazardous
37 condition suitable for uses comparable with the surrounding land uses, intended land use, and
38 then-current technologies. The plan will also describe the funds that will be available for
39 completion of retirement activities which may include a specified OPUC jurisdictional
40 decommissioning tariff for the recovery of decommissioning costs from customers.

3.3 Site Restoration Costs

OAD 345-021-0010(1)(w)(C)

An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.

IPC estimates that the total costs of restoring the site to a useful, non-hazardous condition is \$139,956,176 in second quarter 2012 dollars. A copy of the analysis supporting this calculation is attached as Attachment W-1.

3.4 Estimating Methods

OAD 345-021-0010(1)(w)(D)

A discussion and justification of the methods and assumptions used to estimate site restoration costs.

To develop the site restoration cost estimate, IPC used ODOE's 2005 Facility Retirement Cost Estimating Guide for Transmission Lines. Projected site restoration costs are summarized in Attachment W-1, based on the following assumptions¹:

- Mobilization and demobilization costs will be 5% of the overall contractor's costs to remove wire, towers, foundations and complete project restoration.
- Unit costs were developed by determining a loaded crew rate per hour for the given activity. Loaded crew rates include wages and benefits, per diem, equipment rates, contractor overheads and profit. Hours or days per removal of a given unit were then established for the removal of wire, structures, and foundations. Skilled laborer wages were based on 2012 Oregon BOLI prevailing wage rates.
- Regarding access roads, the majority of IPC's access roads will be primitive (non-graveled) overland travel roads, and the restoration cost estimate assumes that, over the life of the Project, the access roads will see a regrowth of vegetation adjacent to and within the traveled way. As needed, vegetation management of these roads may include mowing with a brush hog or similar piece of equipment to reduce fire danger. Existing drainages may be altered and new drainages may develop depending on the location and construction of the roads. IPC's analysis assumes that re-grading or reshaping of the roads to match previous land contours would create much more impact than leaving them as they have existed throughout the service life of the transmission line. For these reasons, the restoration costs for the access roads includes reseeding of the roads. The estimated cost of \$2,000 per acre for restoration and reseeding on rolling terrain was received from a national right-of-way clearing, road building, and restoration contractor.
- Graveled access roads will be built only where soil and/or moisture conditions warrant construction of a more robust road section, such as access roads to communication stations. The estimated decommissioning cost for gravelled access roads is \$5,700 per acre.
- Roads would be restored pursuant to the EFSC-approved retirement plan so that they become a part of the natural surroundings and are no longer recognizable or usable as a road.
- Costs associated with contractor staff are included in Attachment W-1, under "Project Overhead." This analysis assumes there would be two supervisors and two clerical staff

¹ Where IPC used assumptions that differed from the assumptions contained in ODOE's Cost Estimating Guide for Transmission Lines workbook, IPC noted the assumptions in the "Methods/Assumptions" column.

1 working full time during the retirement/restoration project. The analysis also includes
2 security guard services at three different material yards where scrap materials would be
3 stored until hauled away. Job trailers and utilities are also included.

- 4 • Several other miscellaneous costs have been approximated, including permits,
5 engineering, signage, fencing, traffic control, communication station removal, utility
6 disconnects, etc. In the context of the overall estimate, these are incidental costs making
7 up less than 2 percent of the total.
- 8 • The overhead and profit adders, 10 percent and 15 percent, respectively, have been
9 included in loaded crew rates and are consistent with current transmission contractor
10 overheads and profits.
- 11 • Lastly, the decommissioning estimate does not include the removal or restoration of the
12 Hemingway Substation or the double-circuit 138/69-kV line segment, because each is
13 part of the larger transmission grid still required for normal transmission operations even
14 if the Project were to be removed from service.

15 3.5 Monitoring Plan for Hazardous Materials Unnecessary

16 OAR 345-021-0010(1)(w)(E)

17 For facilities that might produce site contamination by hazardous materials, a proposed monitoring
18 plan, such as periodic environmental site assessment and reporting, or an explanation why a
19 monitoring plan is unnecessary.

20 For facilities that “might produce site contamination by hazardous materials,” the Council may
21 require periodic monitoring or environmental site assessment in order to ensure that the
22 contamination issues do not develop. For the reasons described in greater detail in Exhibit G,
23 the Project is not a facility likely to produce site contamination by hazardous materials.
24 Accordingly, IPC requests that the Council find that, in the unlikely event of retirement of the
25 Project, IPC will be able to restore the site to a useful, non-hazardous condition.

26 The Project is not likely to cause site contamination by hazardous materials because the
27 hazardous materials to be employed during Project construction and operation are limited to oils
28 in transformers at the substation, propane tanks at communication sites, and small quantities of
29 lubricants, vehicle fuels, and herbicides used during Project construction and maintenance. A
30 Spill Prevention, Containment, and Countermeasures Plan (SPCCP) will be developed by the
31 EPC contractor and submitted to ODOE prior to commencing construction of the Project. The
32 SPCCP is developed to prevent and address any leakage or spills of these materials that may
33 occur during construction and operations of the Project. Additionally IPC will fully comply with
34 Oregon Department of Environmental Quality requirements for storage of hazardous materials
35 and cleanup and disposal of hazardous waste on all lands associated with the Project. Given
36 the limited quantities of hazardous materials that will be used for the Project, site contamination
37 is highly unlikely and therefore a monitoring plan is unnecessary.

38 4.0 CONCLUSION

39 IPC’s Exhibit W fulfills the requirements of OAR 345-021-0010(1)(w), and establishes that the
40 site, taking into account mitigation, can be restored adequately to a useful, non-hazardous
41 condition following permanent cessation of construction or operations of the facility. IPC has
42 demonstrated that it complies with the retirement and site restoration approval standard that is
43 set forth in OAR 345-022-0050(1).

1 5.0 SUBMITTAL AND APPROVAL COMPLIANCE MATRIX

2 Table W-1 provides cross references between exhibit submittal requirements of OAR 345-021-
3 0010 and where discussion can be found in this Exhibit.

4 **Table W-1.** Submittal Requirements Matrix

Requirement	Location
OAR 345-021-0010(1)(w)	
(w) Exhibit W. Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:	
(A) The estimated useful life of the proposed facility.	Section 3.1
(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition.	Section 3.2
(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.	Section 3.3
(D) A discussion and justification of the methods and assumptions used to estimate site restoration costs.	Section 3.4, Attachment W-1
(E) For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.	Section 3.5
OAR 345-022-0050	
(1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.	Throughout Exhibit W; see also Exhibits B and M.
Project Order	
<p>The Department's Facility Retirement Cost Estimating Guide (2005) was recently updated with an example calculation for determining the decommissioning costs of a transmission line (which has been provided to the applicant). Should the applicant elect to apply a different cost estimate methodology it must discuss the method with the Department prior to submitting its application. The Council's Retirement Standard requires a reasonable engineering estimate of the cost to retire the facility. To that end, the application should explain and justify the methodology used to estimate retirement costs, including (but not limited to) pertinent information related to facility components. The information regarding these factors can be placed in Exhibit B or in Exhibit W of the application, but should be clear enough for ODOE staff to review it. At a minimum, facility information should include quantities and detailed proposed unit costs for the following:</p> <ul style="list-style-type: none"> • Types and sizes of transmission line support structures, including height, width, and weight of steel in the structures; • Amount of concrete above three feet below grade included in transmission line support structure foundations; • Spacing of transmission line support structures; • Number of conductors to be mounted on the transmission line support structures; Length, width, and surfacing of new (or modifications to existing) access roads; 	Exhibit B

5

1 **Table W-1. Submittal Requirements Matrix (continued)**

Requirement	Location
<ul style="list-style-type: none"> • Scope, size, and types of related or supporting facilities; • Estimated area of temporary disturbance during construction of the proposed facility; and • Estimated area of permanent disturbance during operation of the proposed facility. 	Exhibit B (cont.)
<p>The Council's Retirement Standard also requires evidence that the site can be restored – following facility retirement – to a useful, non-hazardous condition consistent with site's zoning. For example, where the proposed transmission line is sited on Exclusive Farm Use land, the application must include evidence that the site can be restored to a condition suitable for the agricultural use prevalent in the surrounding vicinity.</p>	Section 3.2; Exhibit K

2

3 **6.0 RESPONSE TO COMMENTS FROM REVIEWING AGENCIES AND**
4 **THE PUBLIC**

5 There were no comments from reviewing agencies and the public regarding Exhibit W.

6 **7.0 REFERENCES**

7 None.

8

**ATTACHMENT W-1
FACILITIES REMOVAL AND SITE RESTORATION
COST ESTIMATE**

Grid-Enhancing Electric Transmission Lines

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
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1. GENERAL COSTS

A. PERMITS

1. DEMOLITION	EA	0	\$0.00	\$0	All permits included in line item cost below	
2. STREET USE	EA	0	\$0.00	\$0	All permits included in line item cost below	
3. UTILITIES	EA	0	\$0.00	\$0	All permits included in line item cost below	
4. EPA ASBESTOS NOTICE	EA	0	\$0.00	\$0	Not applicable	
5. PERMITS (ALL)	LS	1	\$25,000.00	\$25,000		Estimated cost to obtain necessary permits.
Task Subtotal				\$25,000		

B. MOBILIZATION & DEMOBILIZATION

1. LABOR	LS	1	\$2,500,000.00	\$2,500,000	A construction project of this size is expected to have mobilization costs of approximately 5% of the overall Project Cost	Estimator assumes ~2.5% of total construction cost before contingency, ODOE adders
2. EQUIPMENT	LS	1	\$2,500,000.00	\$2,500,000	A construction project of this size is expected to have mobilization costs of approximately 5% of the overall Project Cost	Estimator assumes ~2.5% of total construction cost before contingency, ODOE adders
Task Subtotal				\$5,000,000		

C. ENGINEERING

1. ENGINEERING	HR	1000	\$120.00	\$120,000	Engineering subcontracted by Owner to develop SOW, removal specifications and support Owner during decommissioning.	Estimator assumes 1,000 hours of engineering time at average rate of \$120/hr.
2. LAYOUT / TESTING	LS	0	\$0.00	\$0	N/A	
3. CUSTOM TOOLS & EQUIP	LS	0	\$0.00	\$0	N/A	
Task Subtotal				\$120,000		

D. PROJECT OVERHEAD

1. SUPERVISION	HR	7800	\$110.00	\$858,000	Owner's on-site supervision and inspection during decommissioning.	Estimator assumes \$110/hr per supervisor for burdened wages, vehicle & materials. Assume 2 supervisors, 50 hrs/wk, 78 week duration.
2. FOREMAN	HR	0	\$0.00	\$0	Supervision included above	
3. GUARD SERVICE	WK	234	\$3,000.00	\$702,000	Third party guard service for equipment and materials at project salvage yards.	Estimator assumes 3 guarded sites for 78 weeks. Night and weekend service at \$3,000/wk.
4. CLERICAL	HR	6240	\$30.00	\$187,200	Office staff assistant. One per Owner supervisor.	Estimator assumes \$30/hr for burdened wages and equipment. Assume 2 clerical support staff, 50 hr/wk, 78 week duration.
5. JOBSITE OFFICE	MO	57	\$800.00	\$45,600	Jobsite office to house temporary demolition services personnel.	Estimator assumes rental cost of \$800/month. 3 trailers for 19 mo duration.
6. TEMP. UTILITIES	WK	234	\$75.00	\$17,550	Jobsite temporary utilities during decommissioning.	Jobsite temporary utilities during decommissioning. Estimator assumes cost of \$75/wk for 3 job trailers for 78 week duration.
7. SPECIAL INSURANCE	LS	0	\$0.00	\$0	Included in Contractor Overheads	
8. SUBSISTENCE	WK	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$1,810,350		

E. HAZARDOUS MATERIALS INSPECTIONS

1. ASBESTOS ABATEMENT	EA	0	\$0.00	\$0	No hazardous materials expected	
2. LEAD	EA	0	\$0.00	\$0	No hazardous materials expected	
Task Subtotal				\$0		

F. PROTECTION

1. SIGNS	LS	1	\$25,000.00	\$25,000	Nominal Amount for Signage	
2. FENCES	LS	3	\$20,000.00	\$60,000	Chain link fencing around material storage/salvage yards.	Estimator assume \$20K in fencing per storage yard for 3 yards
3. PEDESTRIAN WALKWAY	LF	0	\$0.00	\$0	N/A	
4. SCAFFOLDING	SF	0	\$0.00	\$0	N/A	
5. SHORING	SF	0	\$0.00	\$0	N/A	
6. FLAGGING	LS	1	\$25,000.00	\$25,000	Nominal Amount for Traffic Control	
7. TOOLS AND CONSUMABLES	LS	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$110,000		

2. SITE CONSTRUCTION

A. UTILITY DISCONNECTS

1. POWER	EA	9	\$2,500.00	\$22,500	Disconnect costs from local utility.	Estimator assumes \$2,500 disconnect cost from local distribution utility for 9 communication stations.
Task Subtotal				\$22,500		

B. PRELIMINARY WORK

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
1. FENCE/GATE REMOVAL	EA	9	\$5,000.00	\$45,000	Removal of existing facility fencing and gates.	Estimator assumes removal of fencing around 9 communication stations. Approximately \$5,000 per site.
2. SAW CUTTING, ETC.	LF	0	\$0.00	\$0	N/A	
Task Subtotal				\$45,000		
C. SITE GRADING						
0. ACCESS ROAD RESTORATION - OVERLAND TRAVEL ROADS AND TOWER PADS.	AC	536	\$2,000.00	\$1,072,000	Restoration includes scarifying road bed, minimal re-grading, re-seeding.	Estimator assumes 202 miles of overland travel roads restored @ 15' width; 33 miles of bladed roads on <10% sideslopes restored @ 23' width; 27.6 miles of bladed roads on >30% slopes restored at @ 3' width; and 1410 acres of tower pad restoration (same work as on overland travel roads)
0A. ACCESS ROAD RESTORATION - BUILT UP ALL-WEATHER ROADS.	AC	198	\$5,700.00	\$1,128,600	Restoration includes full restoration of built-up all-weather road. Removal of gravel, re-grading as necessary for restoration of natural contours, re-seeding.	Estimator assumes all communication station roads are included, 62 miles of new bladed roads on 10-30% side slopes.
1. ROADWAY REMOVAL (GRAVEL)	AC	0	\$0.00	\$0	Included in 0A.	
2. SITE PREPARATION (TOPSOIL)	AC	365	\$8,650.00	\$3,157,250	Topsoil preservation and prep for tower pads	Estimator assumes 2 man crew can complete topsoil prep at one site per day (~0.3 acres). Crew rate is \$260/hour.
3. SEEDING	AC	0	\$0.00	\$0	Included in 0 and 0A.	
4. MASS EXCAVATION ONSITE	CY	0	\$0.00	\$0	N/A	
4A. MASS EXCAVATION OFFSITE	CY	0	\$0.00	\$0	N/A	
5. MASS BACKFILL ONSITE	CY	0	\$0.00	\$0	N/A	
5A. MASS BACKFILL IMPORT	CY	2281200	\$6.00	\$13,687,200	Backfill required to restore tower benched areas to natural contours.	Estimator assumes 1,000 CY for tower benches on < 10% slopes; 3,000 CY
Task Subtotal				\$19,045,050		
D. UNDERGROUND UTILITY REMOVAL						
1. ELECTRICAL DUCT BANK	EA	9	\$2,200.00	\$19,800	Remove and backfill underground ducts at communication sites.	Estimator assumes 50' of ug duct at 9 comm stations. 4 Man Crew will complete in 5 hours per site. Burdened labor cost of \$110/hour incl equipment.
2. MH/CB/VAULT REMOVAL	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$19,800		
3. CONCRETE WRECKING [Imported from Tab 3]						
Enter data on tab "03 Concrete Wrecking."						
A. REINFORCED CONCRETE						
1. SLAB ON GRADE	EA	9	\$5,000.00	\$45,000	Each communication station will have one slab for removal. Includes removal, haul and disposal.	Estimator assumes 4 man crew can remove 1 slab per day. Loaded crew rate is \$500/hour includes equipment.
2. MINOR FOOTINGS	CY	0	\$0.00	\$0	N/A	
3. MASS FOUNDATIONS	CY	0	\$0.00	\$0	N/A	
4. TRANSMISSION STRUCTURE FOUNDATIONS	CY	7530	\$339.00	\$2,552,670	Foundation removal to 1' below grade, includes haul and disposal.	Estimator assumes 5 man crew can remove foundations at 3 structures per day (~18 cy/day). Loaded crew rate is \$610/hour.
Task Subtotal				\$2,597,670		
B. NON-REINFORCED CONCRETE/OTHER						
1. DEAD MEN	CY	0	\$0.00	\$0	N/A	
2. SECURITY RAILS	LF	0	\$0.00	\$0	N/A	
3. CONCRETE RECYCLE	CY	0	\$0.00	\$0	N/A	
4. PILING	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$0		
4. BUILDING WRECKING (All building wrecking assumes the structure is knocked down and put into stockpile for sorting.)						
1. COMMUNICATION STATION CONTROL BUILDING	EA	9	\$25,000.00	\$225,000	Removal of control building at communication stations. Includes removal of equipment inside building, hauling and disposal.	Estimator assumes 4-man crew will remove salvageable equipment from building in three days. Building wrecking, hauling and disposal will take two days. Loaded crew rate is \$500/hour including equipment.
2. ELECTRICAL/MCC	SF	0	\$0.00	\$0	Included above	
Task Subtotal				\$225,000		
5. STEEL WRECKING (All steel wrecking assumes material is knocked down and put into stockpile for sorting.) [Imported from Tab 5]						
Enter data on tab "05 Steel Wrecking."						
1. 500-kV LATTICE TOWERS	EA	1,173	\$41,500.00	\$48,679,500	Removal of hardware and disassembly of 500 kV lattice towers.	Estimator assumes 7 man crew to remove 1 tower in 5 days. Loaded crew rate is \$830/hour including equipment.
2. 500-kV ALTERNATE STRUCTURES	EA	43	\$16,600.00	\$713,800	Removal of hardware and disassembly of 500 Kv Alternate Structures	Estimator assumes 7 man crew to remove 1 alternate structure in 2 days. Loaded crew rate is \$830/hour including equipment.
3. SORT/CLEAN/HAUL	EA	0	\$0.00	\$0	Included in Section 17	
4. LABOR	EA	0	\$0.00	\$0	Included above	
5. EQUIPMENT	EA	0	\$0.00	\$0	Included above	
Task Subtotal				\$49,393,300		

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
6. TIMBER WRECKING (All timber wrecking assumes material is knocked down and put into stockpile for sorting).					[Imported from Tab 6]	
Enter data on tab "06 Timber Wrecking."						
1. 230-kV TIMBER TOWER	MBF	0	\$0.00	\$0	N/A	
2. 115-kV TIMBER TOWER	MBF	0	\$0.00	\$0	N/A	
Task Subtotal				\$0		
16. ELECTRICAL WRECKING					[Imported from Tab 16]	
Enter data on tab "16 Electrical Wrecking."						
1. TRANSFORMERS	EA	0	\$0.00	\$0	N/A	
2. MOTOR CONTROL CENTER	EA	0	\$0.00	\$0	N/A	
3. WIRING	LF	0	\$0.00	\$0	N/A	
4. SWITCH YARD	SF	0	\$0.00	\$0	N/A	
5. SWITCH YARD TOWERS	EA	0	\$0.00	\$0	N/A	
6. GROUNDING	LF	120,460	\$0.00	\$0	Included in tower removal costs	
7. TRANSMISSION CONDUCTOR - 500 kV	MI	278	\$78,000.00	\$21,684,000	Removal, loading and hauling of triple bundle 1272 ACSR Conductor, Dampers, OHGW and OPGW. Includes guard structures. Unit is circuit-mile.	Estimator assumes 13 man crew to remove one mile in 6 days. Loaded crew rate is \$1300/hour.
8. INSULATOR STRINGS	EA	10,890	\$0.00	\$0	Included in tower removal costs	
9. TRANSMISSION LINE WIRING EQUIPME	MI	0	\$0.00	\$0	N/A	
Task Subtotal				\$21,684,000		
17. LOAD & HAUL						
1. LOAD & HAUL - STRUCTURE STEEL	LD	1,216	\$5,000.00	\$6,080,000	Loading and hauling of tower steel to laydown/salvage yard.	Estimator assumes 4 man crew to load/haul one structure per day. Loaded crew rate is \$500/hour. Assume steel will be salvaged w/o disposal fee.
2. DISPOSAL - DEBRIS	LD	0	\$0.00	\$0	N/A	
3. LOAD & HAUL CONC.	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
4. DISPOSAL - CONCRETE	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
5. SCRAP STEEL	LD	0	\$0.00	\$0	N/A	
Task Subtotal				\$6,080,000		
SUBTOTAL				\$106,177,670		Sum of all task subtotals.
OVERHEAD @	0.0%			\$0		Contractor overhead built into loaded labor costs
COSTS + OVERHEAD				\$106,177,670		
PROFIT @	0.0%			\$0		Contractor profit built into loaded labor costs
COSTS + OVERHEAD + PROFIT				\$106,177,670		
INSURANCE @	0.0%			\$0		Contractor insurance built into overhead costs
COSTS + OVERHEAD + PROFIT + INSURANCE				\$106,177,670		
18. SCRAP CREDIT (Currently not allowed by EFSC.)				\$24,549		[Imported from Tab 18]
SUBTOTAL (if scrap credit given)				\$106,153,121		
19. SEPARATE SPECIALTY CONTRACTS				\$415,000		[Imported from Tab 19]
SUBTOTAL (including specialty contracts)				\$106,592,670		
GROSS COST				\$106,592,670		
ADDERS						
PERFORMANCE BOND	@ 1%			\$1,065,927		
GROSS COST (ADJUSTED)				\$107,658,597		
ADMINISTRATION AND PROJECT MANAGEMENT	@ 10%			\$10,765,860		
FUTURE DEVELOPMENTS CONTINGENCY	@ 20%			\$21,531,719		
HAZARDOUS MATERIALS MANAGEMENT CONTINGENCY	LS			\$0		Per Cost Estimating Guide, this line item intended for gas-fired energy facilities and LNG facilities. Potentially hazardous materials present on transmission line facilities are much lower. Assume contingency would be used to pay for any remediation during restoration.
TOTAL SITE RESTORATION COST (not adjusted)				\$139,956,176		

Grid-Enhancing Electric Transmission Lines
COST ESTIMATE FOR FACILITY SITE RESTORATION
(2nd Quarter 2012 Dollars)

Adjustment Factor:

1

GDP Index 2nd Quarter 2012:

115.1

<http://www.oregon.gov/DAS/OEA/economic.shtml>

GDP Index Current Quarter:

115.1

General Costs			
A. PERMITS			\$25,000
B. MOBILIZATION			\$5,000,000
C. ENGINEERING			\$120,000
D. PROJECT OVERHEAD			\$1,810,350
E. HAZARDOUS MATERIALS INSPECTIONS			\$0
F. PROTECTION			\$110,000
General Costs Subtotal			\$7,065,350
Site Construction			
A. UTILITY DISCONNECTS			\$22,500
B. PRELIMINARY WORK			\$45,000
C. SITE GRADING			\$19,045,050
D. UNDERGROUND UTILITY REMOVAL			\$19,800
Site Construction Subtotal			\$19,132,350
Concrete Wrecking			
A. REINFORCED CONCRETE			\$2,597,670
B. NON-REINFORCED CONCRETE			\$0
Concrete Wrecking Subtotal			\$2,597,670
Building Wrecking			\$225,000
Steel Wrecking			\$49,393,300
Timber Wrecking			\$0
Electrical Wrecking			\$21,684,000
Load & Haul			\$6,080,000
Costs Subtotal			\$106,177,670
	Overhead @	0%	\$0
	Profit @	0%	\$0
	Insurance @	0%	\$0
Specialty Contracts (subcontracted work)			\$415,000
Subtotal			\$106,592,670
Subtotal Adjusted to Current Dollars			\$106,592,670
	Performance Bond @	1%	\$1,065,927
Gross Cost (Adjusted)			\$107,658,597
	Administration and Project Management @	10%	\$10,765,860
	Future Developments Contingency @	20%	\$21,531,719
	Hazardous Materials Management Contingency		\$0
Total Site Restoration Cost (current dollars)			\$139,956,176
Total Site Restoration Cost (rounded to nearest \$1,000)			\$139,956,000

Grid-Enhancing Electric Transmission Lines

Tab 03 - Concrete Wrecking

A. Reinforced Concrete

1 Slab on Grade (CY)		
	Work Item	Quantity
1	Communication Station Pads (8 ea)	61
2		
3		
4		
5		
Total		61

2 Minor Footings (CY)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3 Mass Footings (CY)		
	Work Item	Quantity
1	See below	
2		
3		
4		
5		
Total		0

4 Transmission Foundations (CY)		
	Work Item	Quantity
1	Remove 500 kV Tower Fdns	7206
2	Remove 500 kV Alternate Fdns	324
3		
4		
5		
Total		7530

Tab 03 - Concrete Wrecking

B. Non-Reinforced Concrete

1 Dead Men (CY)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

2 Security Rails (LF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3 Concrete Recycle (CY)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

4 Piling (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines

Tab 05 - Steel Wrecking

1 500-kV Towers (EA)		
	Work Item	Quantity
1	500 kV Steel Lattice Towers	1173
2	500 kV Alternate Structures	43
3		
4		
5		
6		
7		
8		
9		
10		
	Total	1216

2 138/69-kV Monopole Structures (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

3 115-kV Towers (TN)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

4 Sort/Clean (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

5 Labor (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

6 Equipment (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 06 - Timber Wrecking

1 230-kV Towers (MBF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

2 115-kV Towers (MBF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 16 - Electrical Wrecking

1 Transformers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

2 Motor Control Center (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

3 Wiring (LF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

4 Switch Yard (SF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 16 - Electrical Wrecking

5 Switch Yard \Towers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

6 Grounding (LF)		
	Work Item	Quantity
1	Copper ground wire (incl. all str's)	120,460
2		
3		
4		
5		
Total		120460

7 Transmission Line Wiring (MI)		
	Work Item	Quantity
1	1272 ACSR Conductor (500 kV wire)	278
2	Steel Overhead Ground Wire	278
3	48-strand Optical Ground Wire	278
4		
5		
6		
7		
Total		834

8 Breaker/Insulator/Misc (EA)		
	Work Item	Quantity
1	Transmission Insulator Strings (all volt	10890
2		
3		
4		
5		
Total		10890

9 Transmission Line Wiring Equipment (MI)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines

Tab 18 - Scrap

Scrap Item	Quantity	Unit	Unit Rate	Value
Scrap Iron	0.0	TN		0
Pile	0.0	EA		0
Stainless Steel	0.0	TN		0
Copper	7,350.0	LB	\$3.34	24549
				0
				0
				0
				0
Equip Scrap Value				0
Total				24549

Grid-Enhancing Electric Transmission Lines

Tab 19 - Separate Specialty Contracts

Subcontractor	Quantity	Unit	Unit Rate	Value
Lot Rentals	1	LS	60,000	60000
Port-a-John Rentals	1	LS	25,000	25000
Dumpster Rentals	1	LS	30,000	30000
LIDAR Survey	300	MI	1,000	300000
		LS		0
Total				415000