SECTION 1
Project Description

1.1 Introduction

PacifiCorp in its California Public Utilities Commission (CPUC) application (A.05-12-011), filed on December 13, 2005, seeks a Permit to Construct (PTC) approximately 18.6 miles of 115 kilovolt (kV) single-circuit transmission line between the Yreka and Weed Junction Substations pursuant to CPUC General Order (GO) 131-D. The application includes the Proponent's Environmental Assessment (PEA) (PacifiCorp, 2005) prepared pursuant to Rules 17.1 and 17.3 of CPUC's Rules of Practice and Procedure.

PacifiCorp, which currently owns a single-circuit 69 kV electric transmission system in the Yreka-Weed area of Siskiyou County, requests authorization to upgrade the existing 69 kV transmission line (Line 1) with a new 17 mile 115 kV transmission line within existing right-of-way and to install an additional 1.6 miles of 115 kV transmission line within a new right-of-way from the existing Line 1, heading due east to the Weed Junction Substation. The upgraded and new line together would be called Line 75. The Proposed Project also would include modifications to two substations (Yreka and Weed Junction) as well as a rebuild of a third substation (Lucerne). Under GO 131-D, approval of this project must comply with the California Environmental Quality Act (CEQA), except that the modifications to the Yreka and Weed Junction Substations are exempt from CEQA review in accordance with Section III.B of GO 131-D (i.e., the modifications would not increase the land area and would not increase the voltage rating of the existing substations).

Also included in this CEQA review is PacifiCorp's planned rebuilding of the Weed Substation and upgrade of approximately 1.5 miles of single-circuit 69 kV transmission line to a double-circuit 115 kV transmission line (collectively called the Weed Segment). The Weed Segment was not originally included in PacifiCorp's application for the Proposed Project, but subsequently was added to the CEQA review by order of Commissioner Brown in his "Ruling Regarding Piecemealing and Substations," filed June 5, 2006.

Prior to preparing this CEQA documentation, a Constraints Analysis was conducted to examine the environmental constraints associated with locating the new 1.6-mile segment of the transmission line in the alignment proposed by PacifiCorp (called Option 3 in the PEA) versus an alternative alignment that would follow an existing transmission line into the Weed Junction Substation (called Option 1 in the PEA). Preparation of the Constraints Analysis was ordered by the Administrative Law Judge (ALJ) at the CPUC's June 20, 2006 pre-hearing conference in

response to protest filings from land owners in the vicinity of the proposed Option 3 alignment. The results of the Constraints Analysis are documented in Appendix A.

Under CEQA, the CPUC must prepare an "Initial Study" for discretionary projects such as the Proposed Project to determine whether the project may have a significant adverse effect on the environment. If an Initial Study prepared for a project indicates that such an impact could occur, the CPUC would be required to prepare an Environmental Impact Report (EIR). If an Initial Study does not reveal substantial evidence of such an effect, or if the potential effect can be reduced to a level of insignificance through project revisions, a Negative Declaration can be adopted (Public Resources Code, Division 13, Section 21080(c)(1)-(2)).

A Mitigated Negative Declaration (MND) may be adopted when "the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment" (Public Resources Code, Section 21064.5).

This Initial Study/Mitigated Negative Declaration (IS/MND) considers the potential environmental impacts from the Proposed Project and the Weed Segment.

1.2 Project Objectives

Proposed Project

PacifiCorp's objectives for the Proposed Project as stated in the PEA (PacifiCorp, 2005), are as follows:

- **Meet electric system demand** – to ensure that the system has adequate capacity to safely and reliably meet local and contractual electric system demand.
- **Ensure transmission system reliability** – to ensure the area transmission system meets planning criteria by providing an alternative transmission path in case of an outage of Line 14 between Hart Switching Station and Weed Junction by meeting Western Electricity Coordinating Council (WECC) N-1 Criteria (one line out of service).
- **Complete Project by summer 2007** – to meet summer 2007 peak loads. In order to meet this objective, construction must be started in the fall of 2006 as the ground may be too wet for construction in the spring.

The Yreka-Weed Transmission Line Upgrade Project is needed to improve reliability by increasing transmission capacity in the Yreka-Weed area in order to continue safe and reliable electric service to customers in the area, and to meet contractual obligations. Additionally, with the continued load growth in the area, Line 14 could be overloaded to the point that it would fail, resulting in a prolonged outage to the area while the line is rebuilt, thus not meeting Western

Electricity Coordinating Council (WECC) N-1 Criteria (see Appendix B). Per Category B, Contingency 2 – for the single failure of a transmission line – thermal and voltage limits should not be exceeded, the system should be stable, and firm transfers should not be curtailed. A single failure of Line 14 would result in a failure to meet these criteria.

Weed Segment

PacifiCorp states that the Weed Substation is expected to be loaded to 13.15 MVA during the summer of 2008, exceeding the existing 12.5 MVA transformer capacity by 5%. The overload is anticipated due to a 1.1 MVA industrial block load addition in 2006, combined with an annual load growth of about 350 KW. The 69 kV transmission system presently serving the Weed Substation is inadequate to support the additional load and capacity increase.

PacifiCorp's objectives for the Weed Segment are to:

- **Handle increased load** – increase the Weed Substation voltage from 69 to 115 kV and capacity from 12.5 MVA to 25 MVA.
- **Provide transmission capacity** – build a looped 115 kV transmission line extension to serve the Weed Substation thereby increasing capacity so that the load can be served.
- **Complete Project by summer 2008** – to meet summer 2008 peak loads.

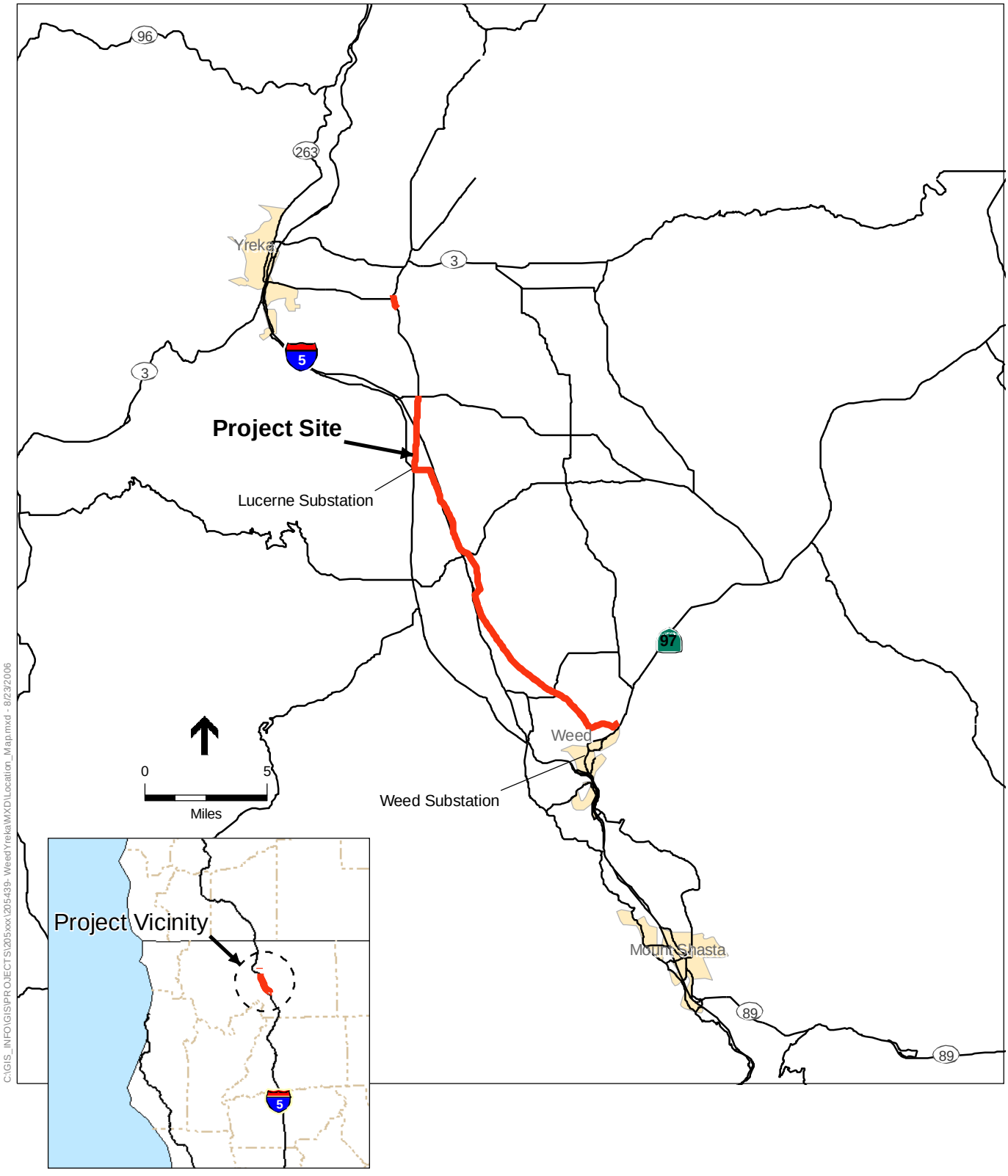
1.3 Project Location

The Proposed Project is located in central Siskiyou County between the City of Yreka and the City of Weed, California (Figure 1-1). The Proposed Project route traverses an existing PacifiCorp transmission line corridor generally paralleling local, county and state roads and traversing open space which includes features such as the valley floor of Mount Shasta, the Shasta River and other subalpine habitat. The new 1.6 mile route generally traverses open space within the valley floor of Mount Shasta, crossing at least one stream channel.

The Weed Segment is located near the City of Weed, California, which is located where Highway 97 and Interstate 5 meet (Figure 1-1).

1.4 Existing System

PacifiCorp currently serves the Yreka-Weed areas by a system of substations and electrical power transmission lines as well as an extensive network of local distribution lines throughout the Northern California and Southern Oregon region. These distribution lines generally follow city streets and back property lines carrying lower voltage electricity from the substations to PacifiCorp's residential and commercial customers. Figure 1-2(a) and Figure 1-2(b) illustrate the local PacifiCorp system as it exists now and as it would exist after construction of the Proposed Project and the Weed Segment.



CPUC Weed-Yreka Transmission Line . 205439

SOURCES: ESA (2006), PacifiCorp (2006), ESRI Streetmap USA (2004)

Figure 1-1

Project Vicinity and Location Map

Figure 1-2(a) Transmission System Pre-Project

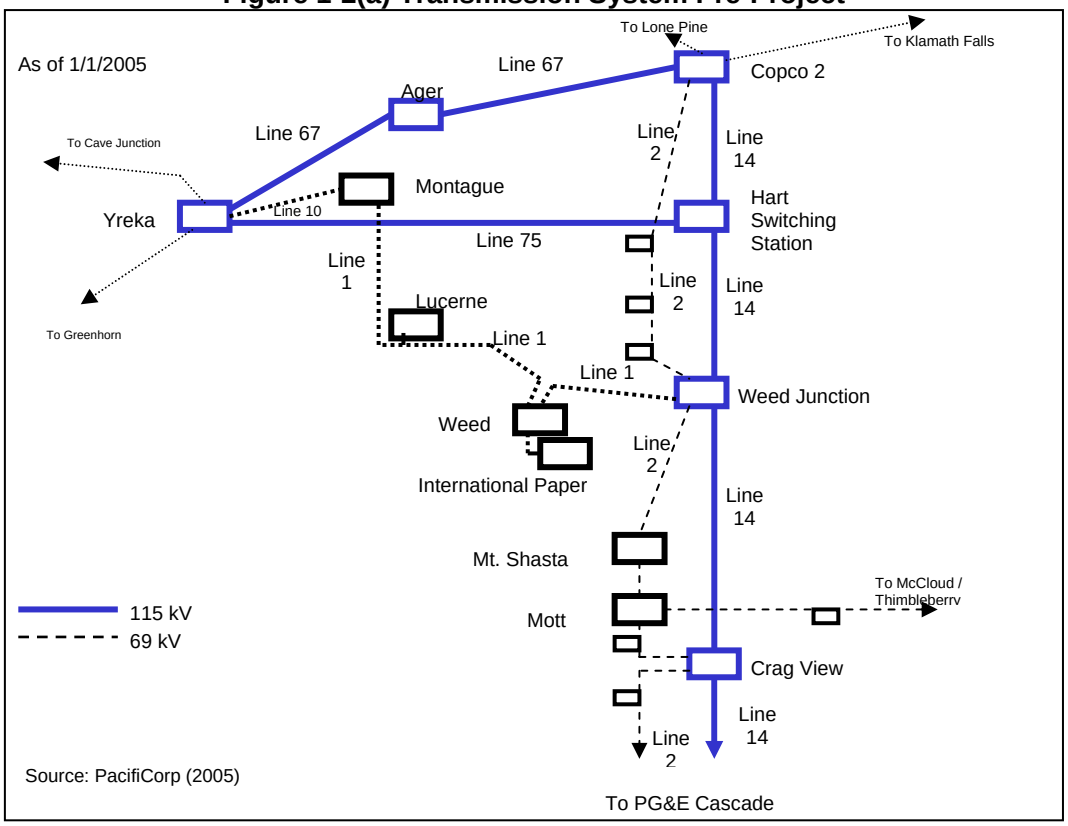
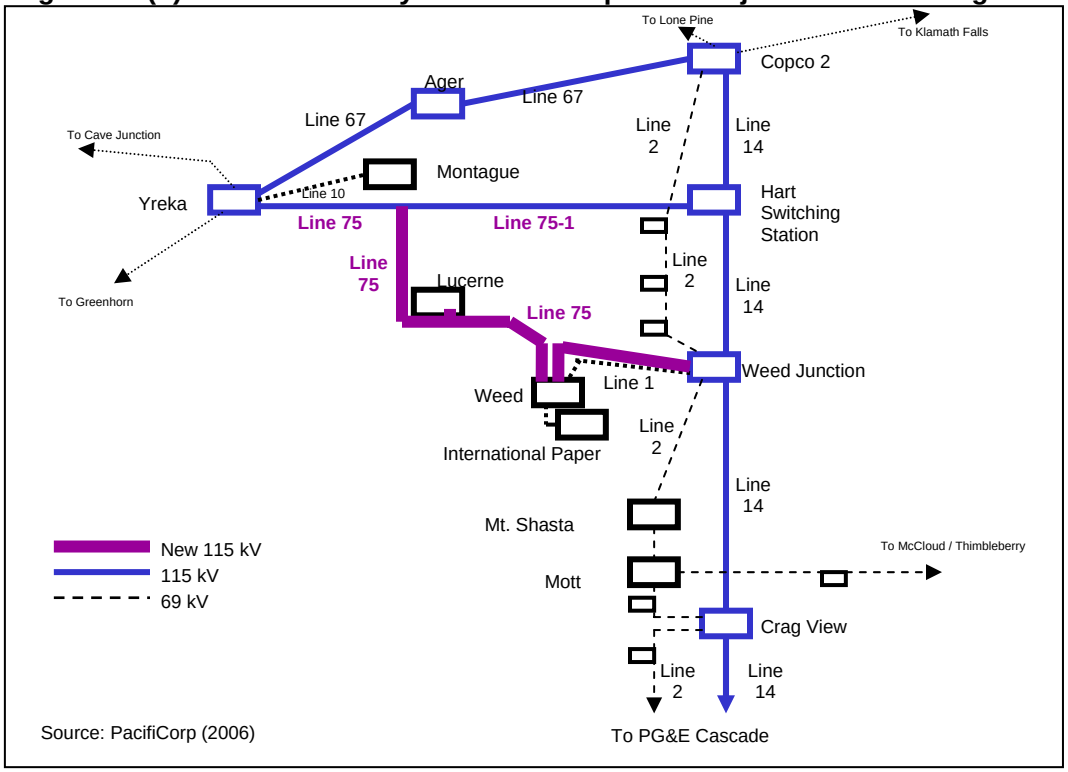


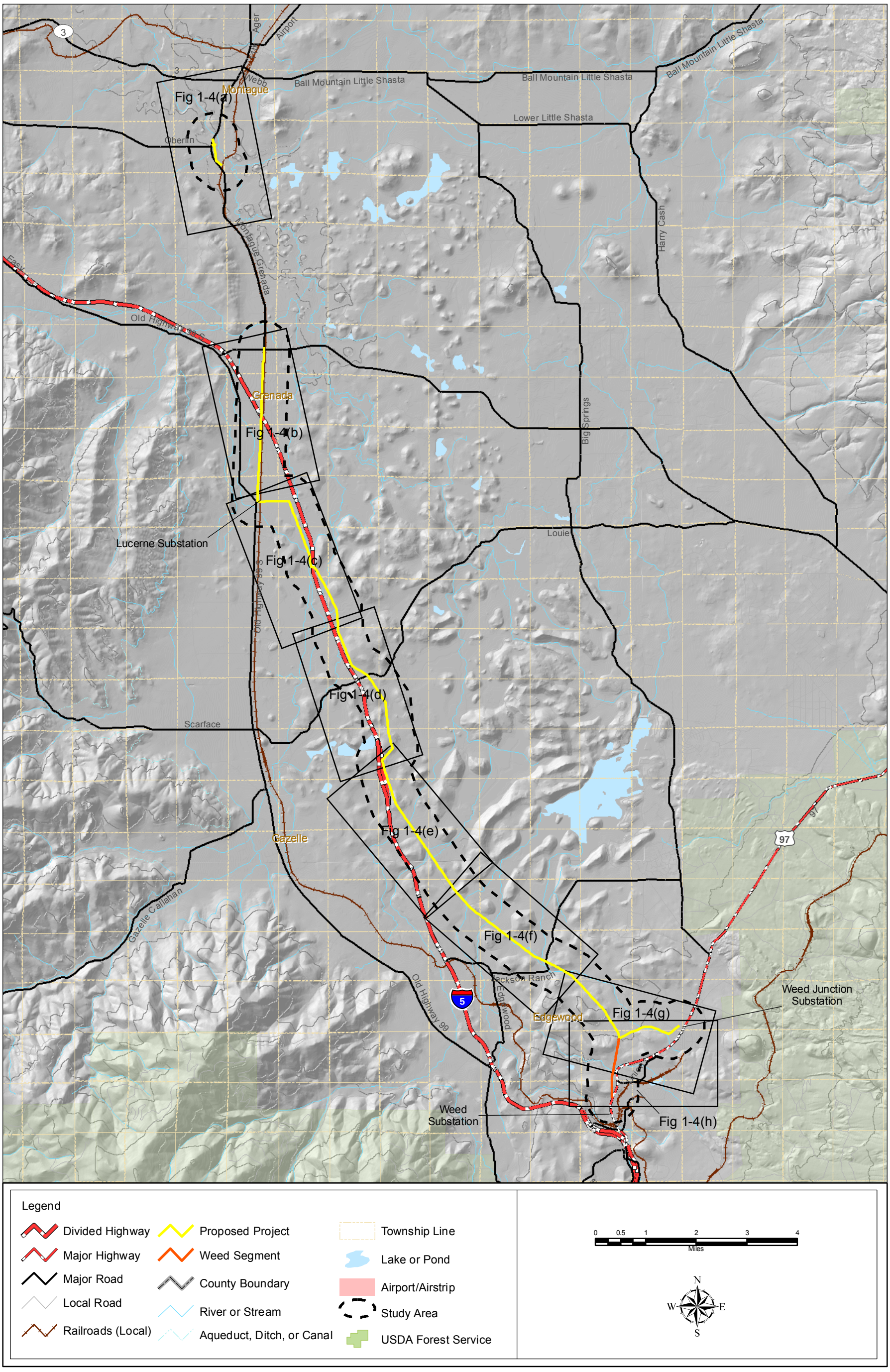
Figure 1-2(b) Transmission System Post-Proposed Project and Weed Segment



1.5 PacifiCorp's Proposed Project

Figure 1-3 shows the location and alignment of the Proposed Project. Retaining the nomenclature of the alignment as delineated in the PEA, the Proposed Project consists of connecting Line 1 to the existing Line 75 at a point approximately five miles east of the Yreka Substation by reframing the existing pole and installing new 115 kV line switches to the east, west, and south of the new tie. Then the transmission line generally would parallel Montague Grenada Road for approximately 3,000 feet (Pole 3/24 to Pole 13/24) until it connects to an existing 3.76 mile section. The line starts again near the outskirts of the Town of Grenada (Pole 11/28), generally paralleling Siskiyou Boulevard for approximately 3 miles to the Lucerne Substation. The line continues east traversing a dirt road for approximately 3,000 feet before heading southeast to traverse open space, agricultural lands and county roads for approximately 13 miles to Pole 8/45 where the line, within a new right-of-way, would traverse due east for approximately 1.6 miles to the Weed Junction Substation. The line crosses Interstate 5 in two locations: between Poles 20/29 and 21/29, and Poles 14/33 and 15/33. The upgraded 115 kV transmission line would follow the same alignment as the existing 69 kV line, except for the 1.6-mile segment which would require new right-of-way.

After the Proposed Project voltage conversion to 115 kV on Line 1, it would become part of Line 75 and would pass about 1.5 miles north of the existing Weed Substation. The 1.5-mile section of existing 69 kV Line 1 between the new Line 75 (at Pole 8/45) and the Weed Substation would remain in place but would be idle. The Weed Segment work would rebuild that 1.5-mile idle line section with 795 AAC conductor (matching Line 75) forming a double circuit loop on common structures. The Weed Segment would be constructed entirely within existing right-of-way.



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PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

SOURCES: USGS (2005a and 2005b), ESA (2006)

Figure 1-3

Overview Map - Proposed Project and Weed Segment

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1.6 Project Components

A summary of the key components of the Proposed Project and the Weed Segment is provided Table 1-1, followed by a more detailed discussion by component.

TABLE 1-1
SUMMARY OF PROJECT COMPONENTS

Proposed Project

115 kV Single Circuit Transmission Line

- Replace the existing single-circuit 69 kV transmission line with a single-circuit 115 kV line from the junction of Line 75 and Line 1 to Pole 8/45 (requiring replacement of approximately 350 existing poles)
- Install an approximately 1.6 mile new single-circuit 115 kV line from Pole 8/45 to Pole 15/48 (requiring installation of approximately 18 new poles)
- Increase conductor size to 795 aluminum conductor with steel reinforcement (ACSR)
- Transfer existing distribution and telecommunication lines to the new wood poles; remove existing wood poles
- Voltage of new circuit: 115 kV alternating current
- Pole Type: wood poles
- Pole Height: generally 65 to 75 feet
- Span between Poles: approximately 200 to 250 feet where distribution is present (i.e., upgraded portion) and 400 to 600 feet where no distribution is present (i.e., new line).

Lucerne Substation

- Installation of facilities to convert existing 69 kV substation to be able to support a 115 kV line position.
- Construct standard single circuit substation within existing substation fence line
- Replace wood frame with steel frame
- Remove existing wood structure and equipment

Yreka Substation (exempt from CEQA review per CPUC GO 131-D Section III.B)

- Remove or disable motor operator to become a breaker bypass switch.
- Install replacement breaker and relaying and control panel in the existing control house for the new breaker.

Weed Junction Substation (exempt from CEQA review per CPUC GO 131-D Section III.B)

- Split the 115 kV bus carrying the Line 14 flow and the 115 kV transformer bus and the transformer bus to be served via the new line.
- Construct 115 kV breaker line position at the north end of the 115 kV transformer bus, replacing an existing wood pole dead end structure.
- Replace existing 2G10 switch (a brown glass cap and pin switch) that would have loop opening and line dropping capabilities in order to be able to split the 115 kV buses under load
- Install sensor and relaying changes to accommodate the new equipment.
- All new equipment would be installed within the existing substation fence.

Weed Segment

Weed Substation

- Construct a temporary 14+ MVA substation adjacent to the existing Weed Substation
- Expand the substation fenced area and construct a new standard 115 kV to 12.5kV substation
- Remove temporary substation

Transmission Line Upgrade

- Build a double circuit 115 kV 1.5-mile transmission line within existing 50-foot right-of-way
- Remove 27 existing approximately 60-foot wood poles and replace with new approximately 80-foot wood poles
- Transfer existing distribution underbuild to new the new poles

Separate Line 75 at the tap point (Pole 8/45) to form a loop through the rebuilt Weed Substation

1.6.1 Transmission Line

The Proposed Project would involve upgrading the existing 69 kV single-circuit wood pole line with a new 115 kV single-circuit wood pole line for approximately 17 miles and constructing approximately 1.6 miles of new 115 kV single-circuit wood pole line. Overall, the upgraded line would require one-for-one pole replacement of approximately 350 poles and the new build would require an additional 18 new poles. All fences, metal gates, pipelines, etc. that cross or are within the transmission line right-of-way would be grounded to prevent electrical shock. The route alignment, existing pole locations, proposed new pole locations, and tentative locations of pull/tension sites and access roads are shown in Figure 1-4(a) through Figure 1-4(g).

The Weed Segment would involve replacing an existing 1.5-mile segment of 69 kV line with a double circuit 115 kV transmission line between approximately Pole 8/45 and the Weed Substation. Overall, the upgraded line would require one-for-one pole replacement of approximately 27 poles. The new Line 75 (constructed under the Proposed Project) would be split at the tap point (Pole 8/45) to create a loop through the rebuilt Weed Substation. The rebuilt line would be constructed so that one side could be maintained while keeping the circuit on the other side energized. The Weed Segment route alignment is shown in Figure 1-4(h).

1.6.2 Poles

The transmission line for the Proposed Project would be supported by wood poles, which would be approximately 18 inches in diameter and generally range from 65 to 75 feet in height, which is approximately 10 feet higher than the existing poles. Some taller poles would be required in specific locations to provide clearance for Interstate 5 and other rights of way. Appendix C describes the existing and proposed heights for each of the approximately 350 poles in the upgraded portion of the Proposed Project. For the new 1.6 mile segment, wood poles approximately 18 inches in diameter and approximately 80 feet tall would be used. For the Weed Segment, approximately 27 existing 60-foot tall wood poles would be replaced one-for-one with 80-foot (average height) wood poles. Existing distribution underbuild would be transferred to the new poles.

Three conductors would be installed on each pole with a minimum conductor height above ground being 21 feet. Figure 1-5 illustrates the proposed pole designs. Generally, Tangent poles (TF 100) would be used when the run of poles continues in a straight line; Angle poles (TF 135) would be used when the change in the run of line is between 30 and 45 degrees; and Dead End poles (TF 152) would be used when the angle is between 65 and 90 degrees. Double circuit poles (TF 171) would be used for the Weed Segment.

Span lengths between the poles would range from approximately 200 to 250 feet apart where distribution lines are present and 400 to 600 feet apart where no distribution lines are present. The poles would be direct embedded at a depth of 8 to 10 feet depending on load and soil characteristics. No foundations would be required. The new poles would be set either in the same hole as the existing pole or as close as possible (immediately adjacent) to the existing pole location, except for the approximately 18 new poles for the 1.6-mile new build where no poles currently are present.

1.6.3 Substation Modification

The Proposed Project includes modifying and adding some equipment at the existing PacifiCorp Yreka and Weed Junction Substations. These substation upgrades are exempt from CEQA review in accordance with Section III.B of CPUC GO 131-D.

A full upgrade would be required for the Lucerne Substation to be able to accommodate the proposed 115 kV line. All of the equipment associated with each of the three substation upgrades would be grounded and contained within the fencelines of the existing PacifiCorp-owned substations.

The Weed Segment would involve a rebuild of the Weed Substation and expansion of the fenceline, but still would occur entirely on PacifiCorp-owned property.

1.6.3.1 Yreka Substation Modifications

The Proposed Project would require modification of the Yreka Substation, to accommodate installation of some new equipment including a circuit breaker and a relay and control panel in the existing control house. A motor operator would be removed or disabled to become a breaker bypass switch. As previously noted modifications to the Yreka Substation are exempt from CEQA analysis and will not be analyzed within this document.

1.6.3.2 Weed Junction Substation Modifications

The Proposed Project would require modification of the Weed Junction Substation to accommodate replacement of an existing wood pole dead end structure with a 115 kV circuit breaker at the north end of the 115 kV transformer bus; replacement of Switch 2G10, a brown glass cap and pin switch, with a new switch; splitting an existing 115 kV bus carrying the Line 14 flow; and installing a 115 kV transformer bus. Additionally, sensor and relaying changes would be required to accommodate this new equipment. As previously noted, modifications to the Weed Junction Substation are exempt from CEQA analysis and will not be analyzed within this document.

1.6.3.3 Lucerne Substation Upgrade

The Proposed Project would require conversion of the Lucerne Substation to enable it to accommodate the voltage increase from 69 kV to 115 kV. The existing wood frame would be replaced with a steel frame and a standard steel single circuit substation would be constructed. The wood frame and other equipment replaced by this upgrade would be removed from the site. Figure 1-6(a) provides a plan view of the proposed upgrade while Figures 1-6(b) and (c) provide profile views.

SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(a)

Proposed Project

Legend

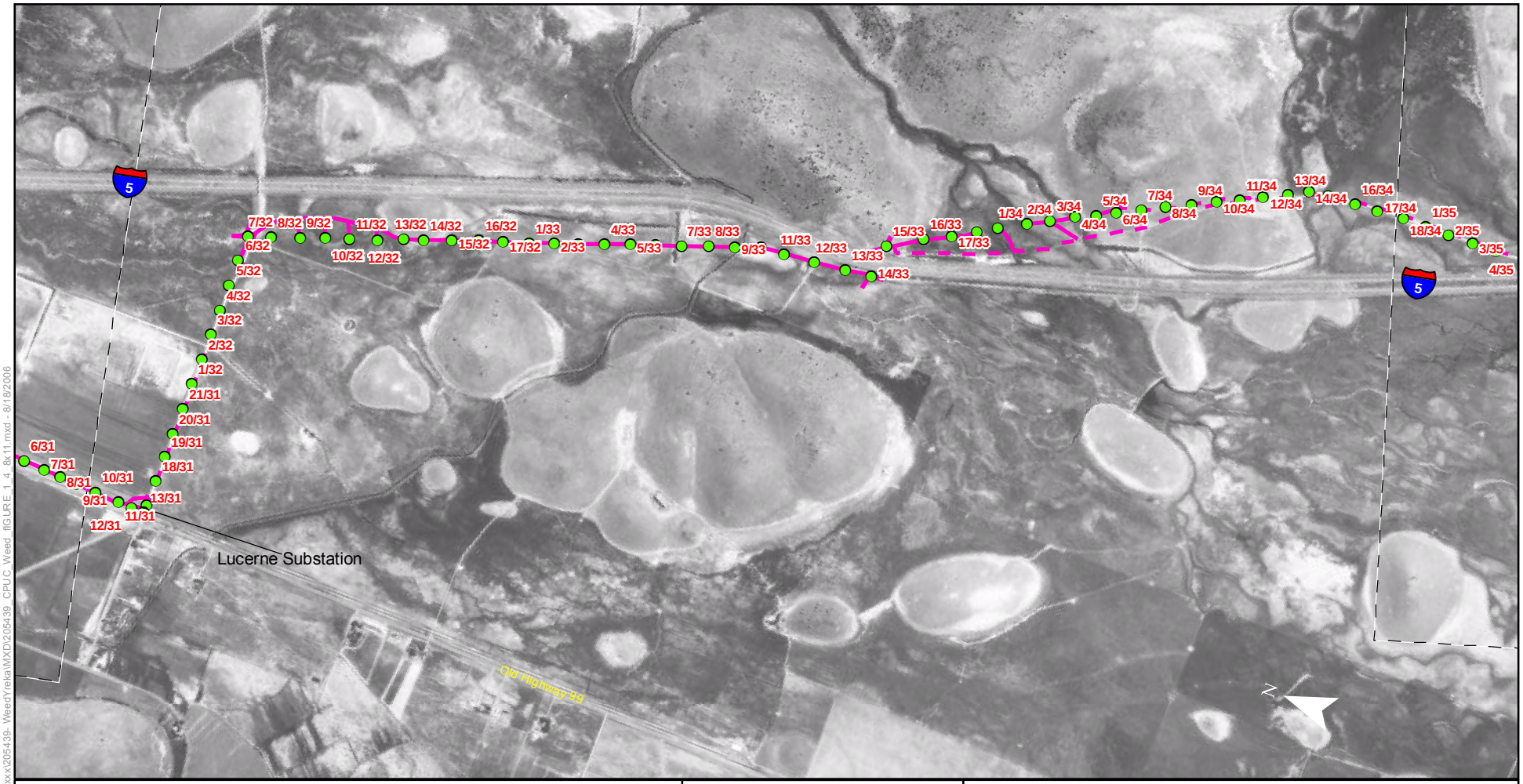
- Proposed Pole Location
- Existing Pole Location
- Existing Access Road
- New Access Road
- Pull/Tension Site
- Page Boundary

1,000 500 0 1,000 2,000 3,000 4,000
Feet

SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(b)
Proposed Project



Legend

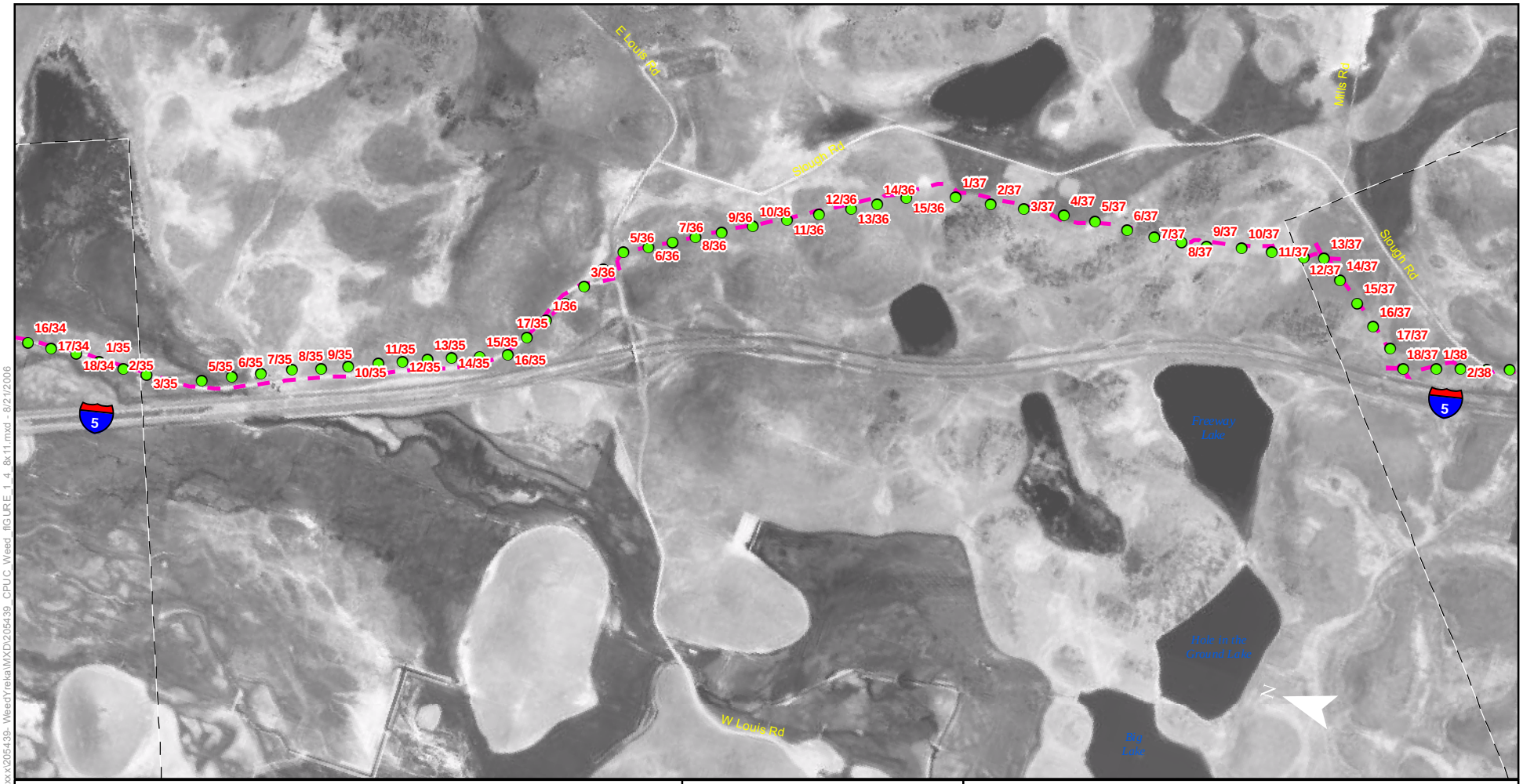
- Proposed Pole Location
- Existing Pole Location
- Existing Access Road
- New Access Road
- Pull/Tension Site
- Page Boundary

1,000 500 0 1,000 2,000 3,000 4,000
Feet

SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(c)
Proposed Project

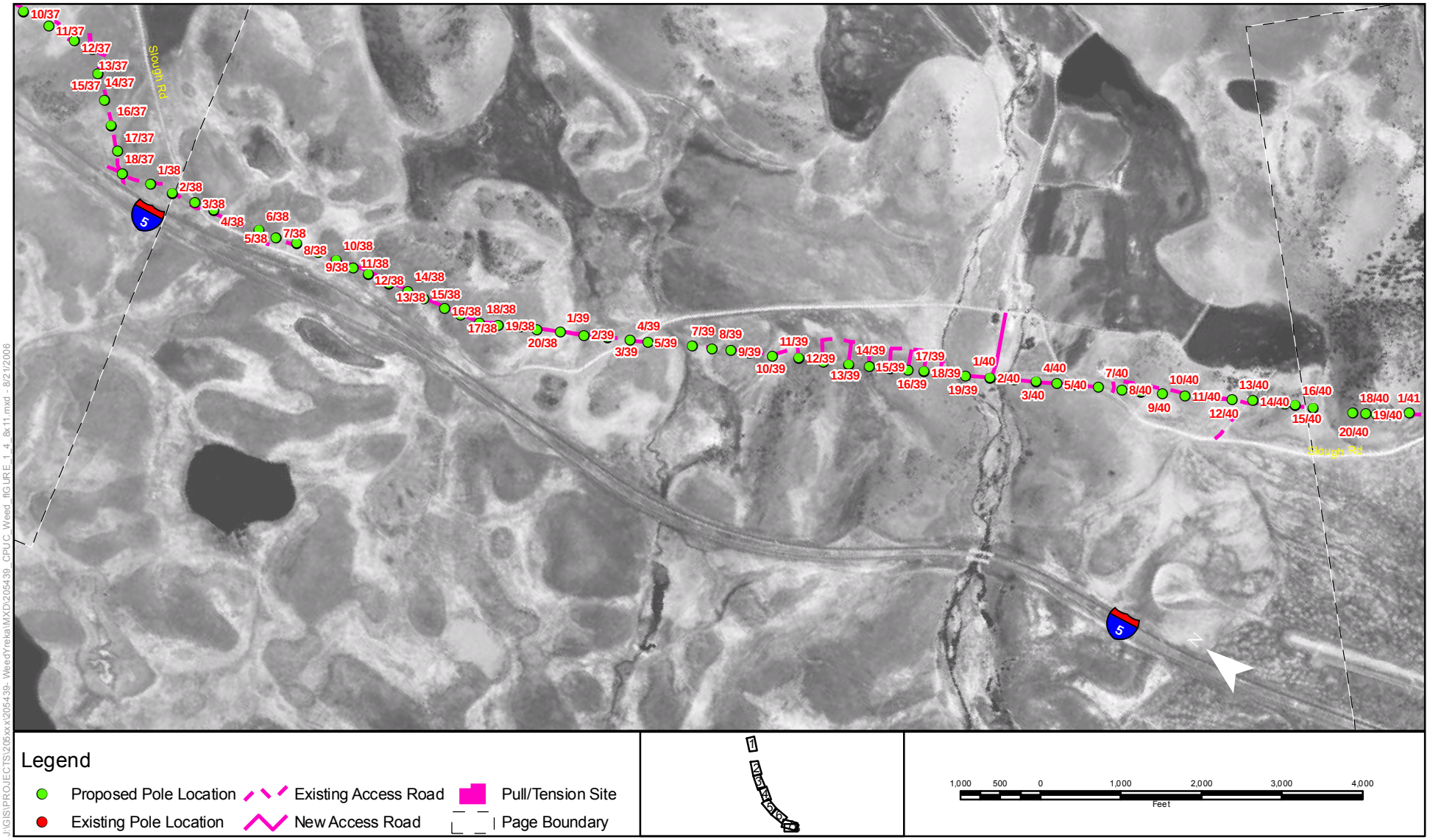


SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(d)

Proposed Project



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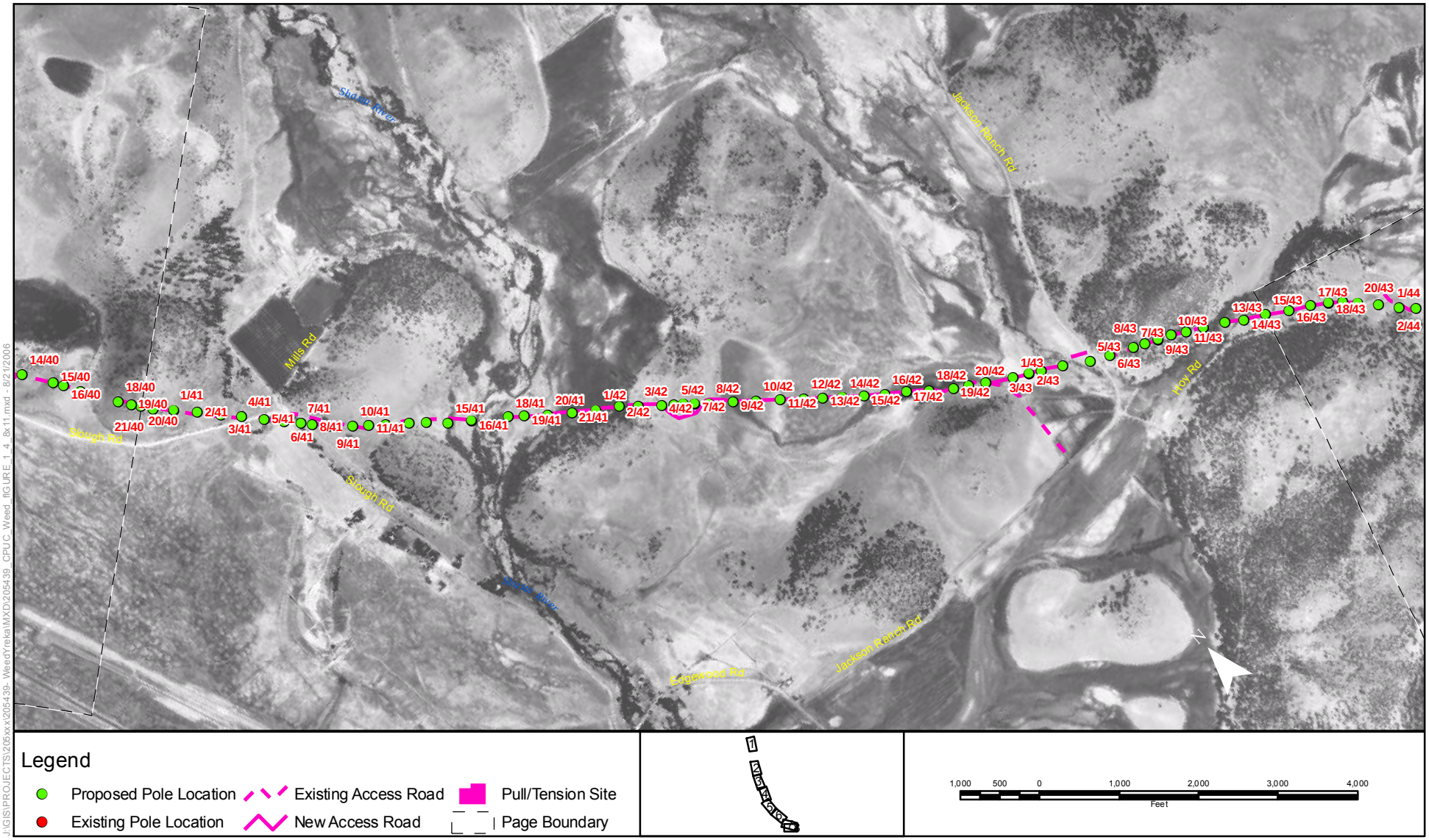
SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(e)

Proposed Project

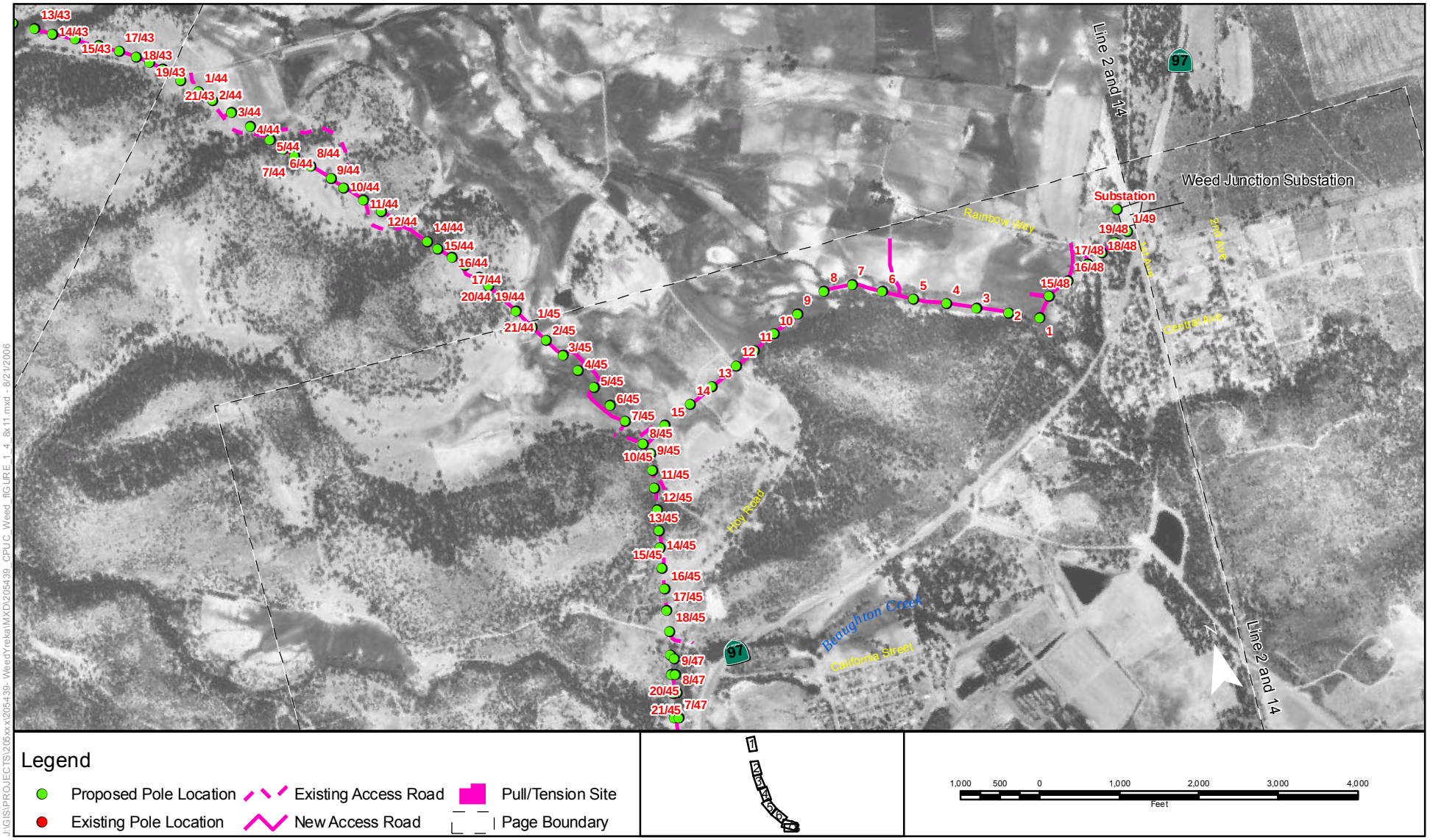


SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(f)

Proposed Project



Legend

- Proposed Pole Location
- Existing Pole Location
- Existing Access Road
- New Access Road
- Pull/Tension Site
- Page Boundary

1,000 500 0 1,000 2,000 3,000 4,000
Feet

SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(g)
Proposed Project

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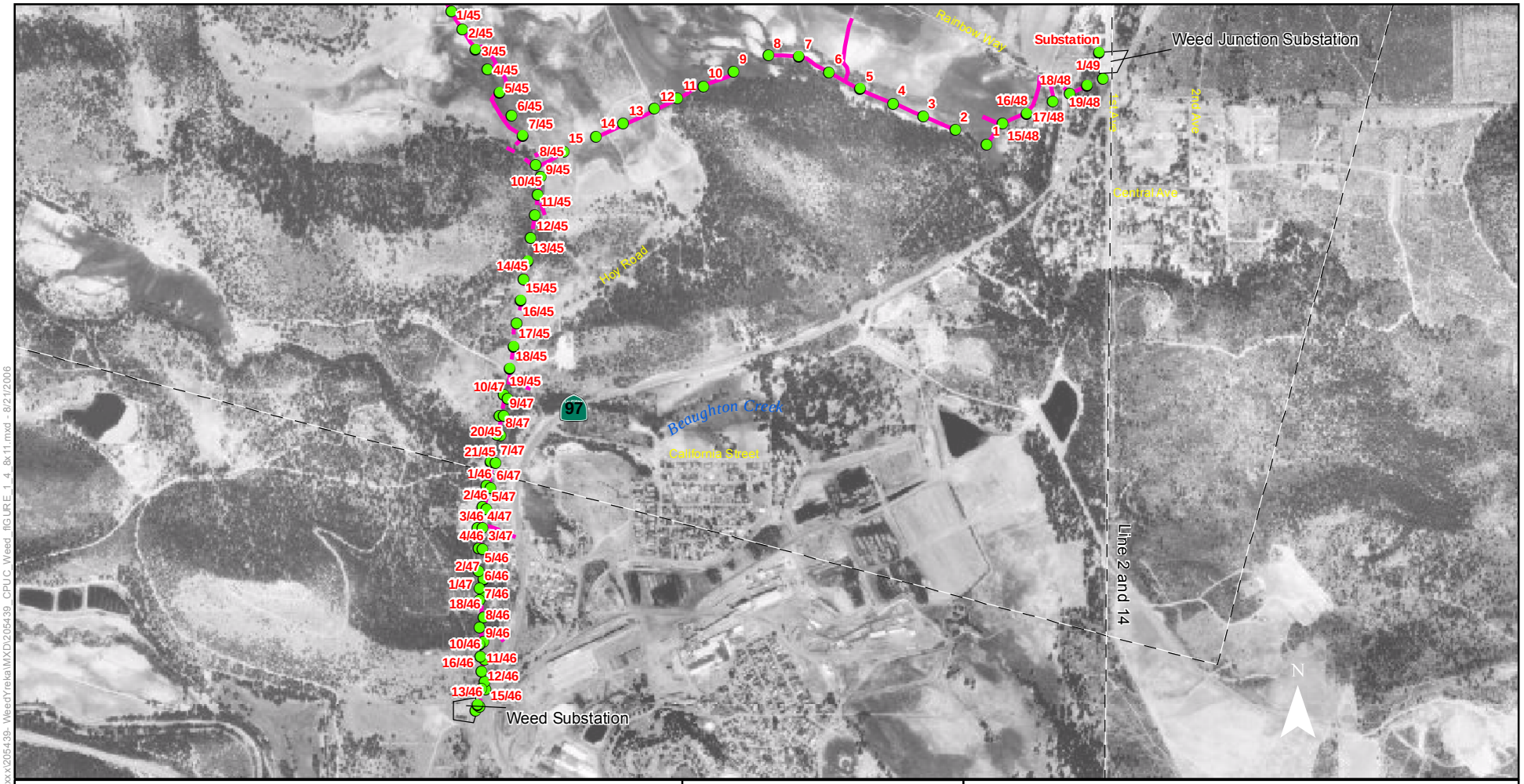


Legend

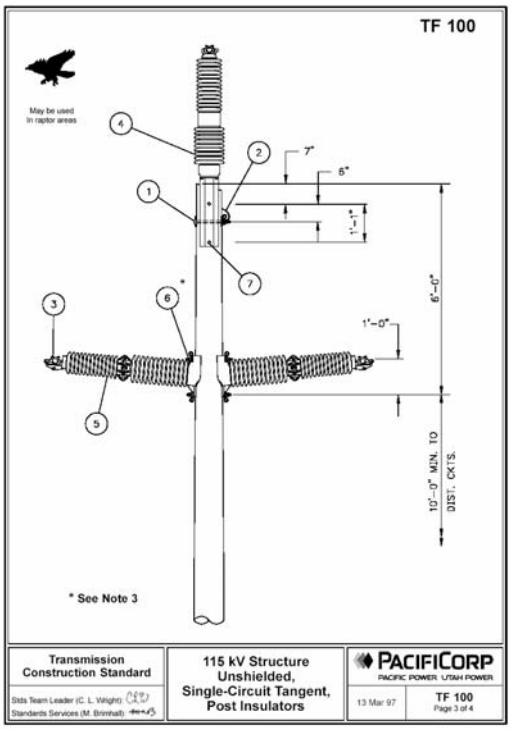
- Proposed Pole Location
- Existing Pole Location
- Existing Access Road
- New Access Road
- Pull/Tension Site
- Page Boundary

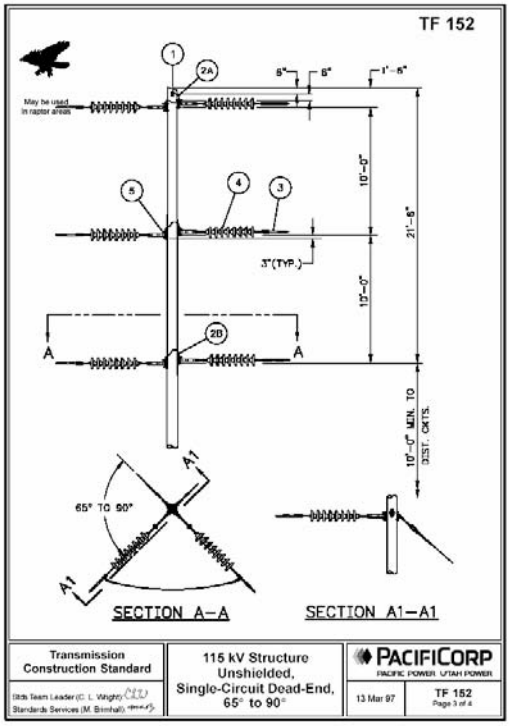
1,000 500 0 1,000 2,000 3,000 4,000
Feet

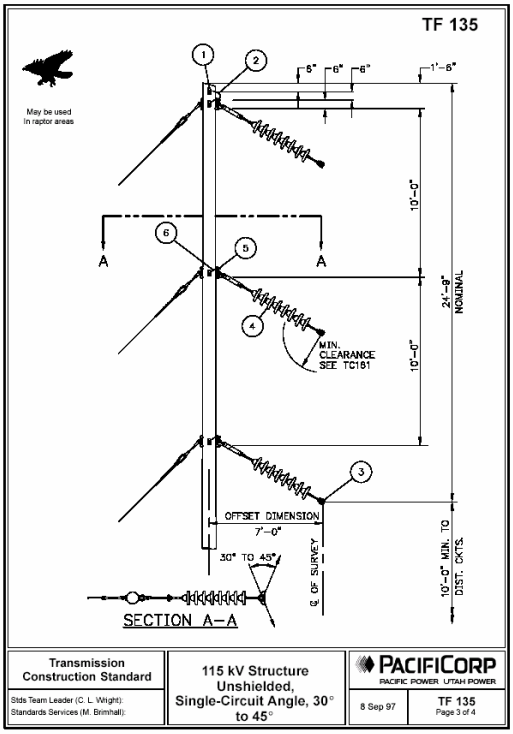
SOURCES: ESA (2006), PacifiCorp (2006), GlobeXplorer (2006)

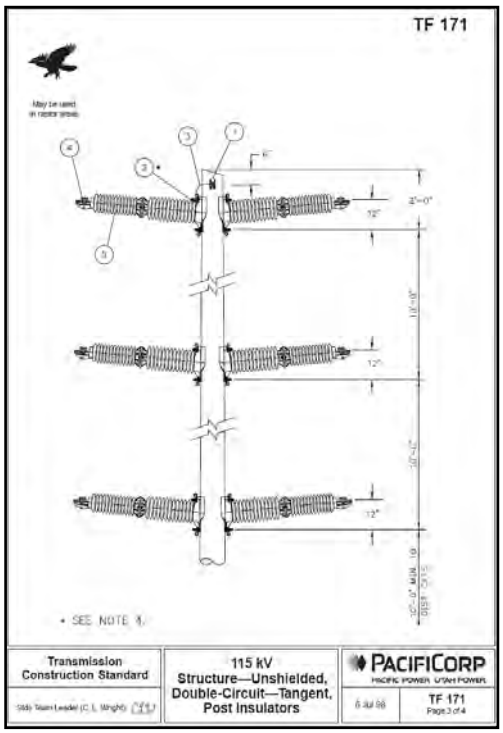
PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-4(h)
Proposed Project





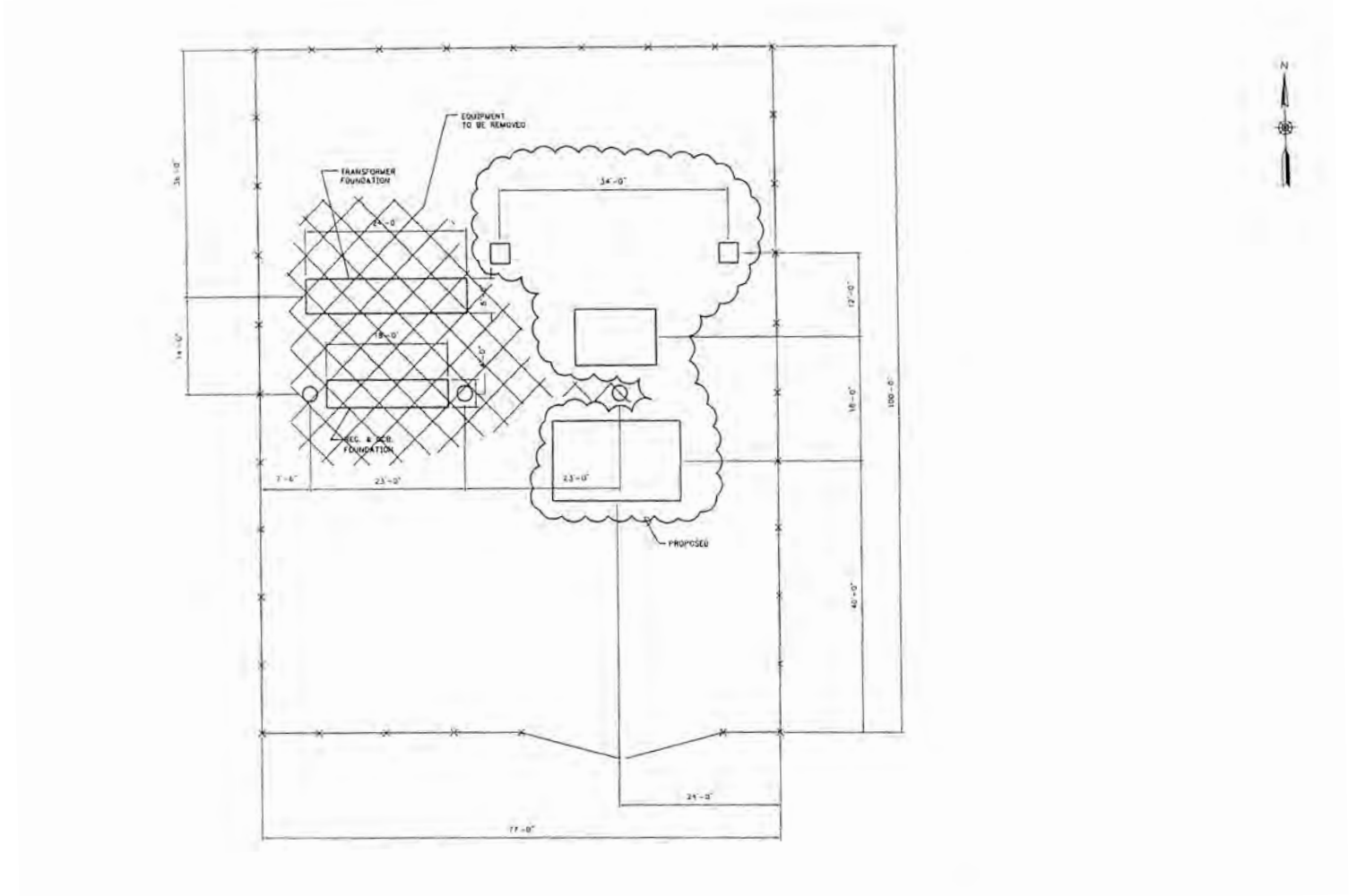




PacifiCorp's Yreka-Weed Transmission Line Upgrade Project. 205439

SOURCE: PacifiCorp (2005)

Figure 1-5
Typical Pole Designs

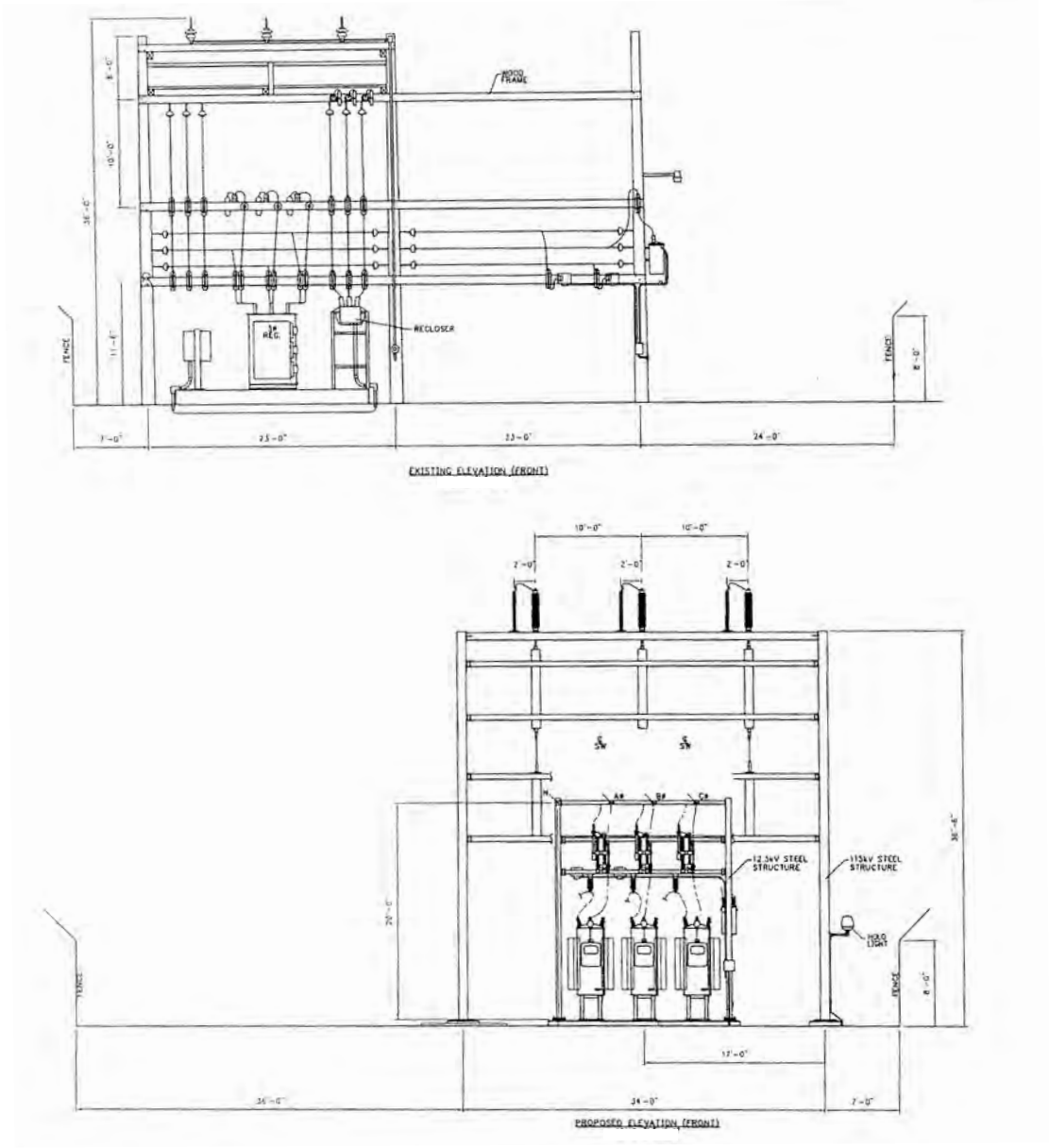


SOURCE: PacifiCorp (2005)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-6(a)

Lucerne Substation Modifications Plan View

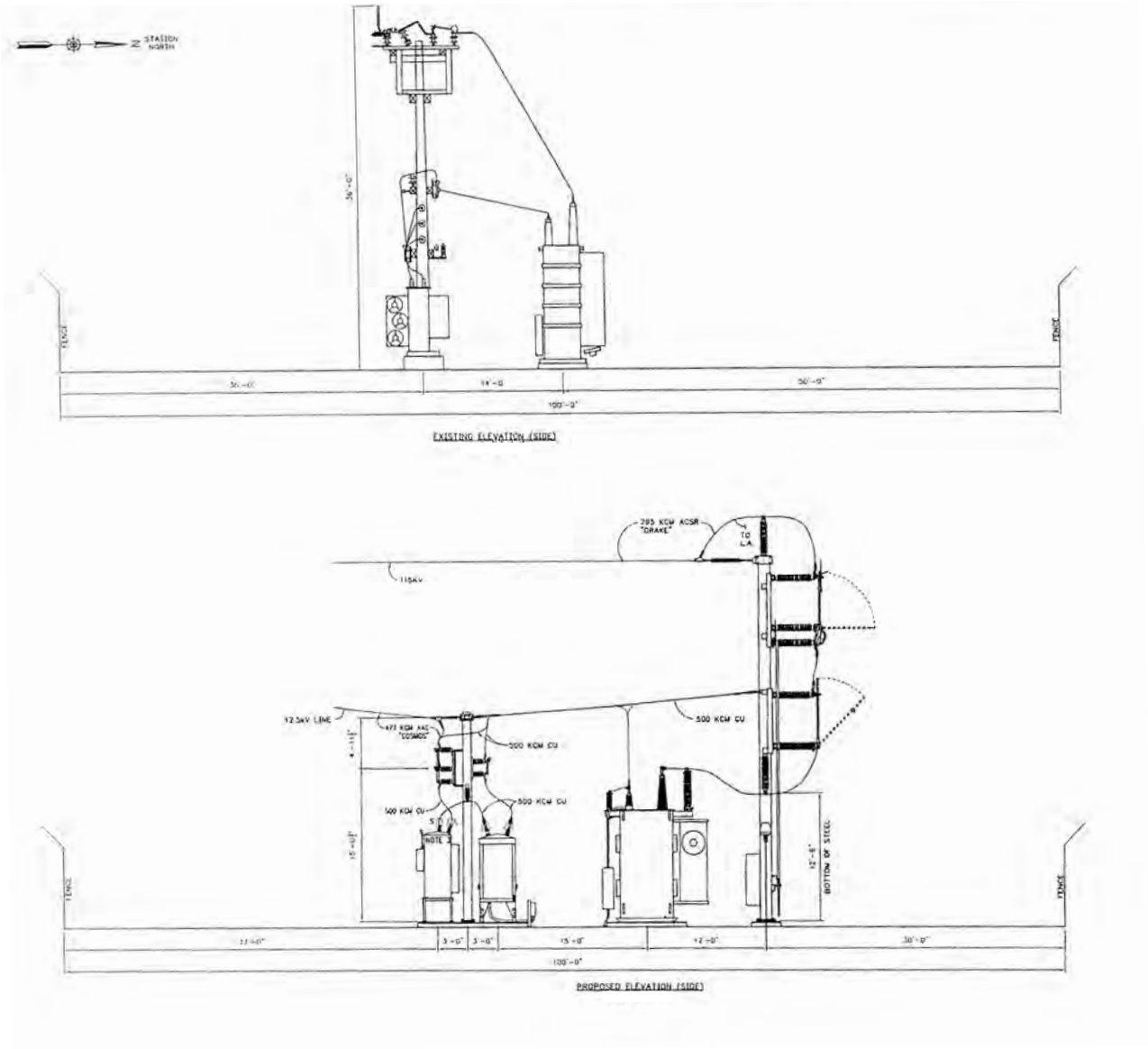


SOURCE: PacifiCorp (2005)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-6(b)

Lucerne Substation Modifications Profile View



SOURCE: PacifiCorp (2005)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-6(c)

Lucerne Substation Modifications Profile View

1.6.3.4 Weed Substation Upgrade

Rebuild of the Weed Substation as part of the Weed Segment would require construction of a temporary 14+ MVA substation using a mobile substation or spare equipment. The temporary substation would be constructed adjacent to the existing Weed Substation, within an expanded fenced area. Approximately 1,400 cubic yards of soil would need to be removed from a small hill on the north side of the substation to accommodate the expanded fenceline.

All existing Weed Substation equipment, structures, and control house would be removed, except for the 69 kV and 12.5kV capacitors and related equipment, which would remain in use following the rebuild. The rebuild would include two 115 kV 1200 amp motor operated switch positions, a 116kV delta to 12.47kV 25 MVA transformer, and metal clad switchgear for four feeder positions. The existing 12.5kV capacitor would be reinstalled as a single stage unit. A new 69 kV tap would be constructed to connect to the existing 69 kV capacitor and equipment, and a 69 kV bypass would be constructed to provide service to the existing International Paper Company substation located on the east side of Highway 97, directly across from the Weed Substation. Two underground get-away runs would be constructed in new conduit to connect the metal clad switchgear with the two existing feeders. After construction of the rebuilt substation is completed, the temporary substation would be removed. As rebuilt, the Weed Substation would be PacifiCorp's standard low profile design, and would have a lower profile than the existing substation. Figures 1-7(a) and 1-7(b) provide plan and profile views, respectively, of the proposed Weed Substation upgrade.

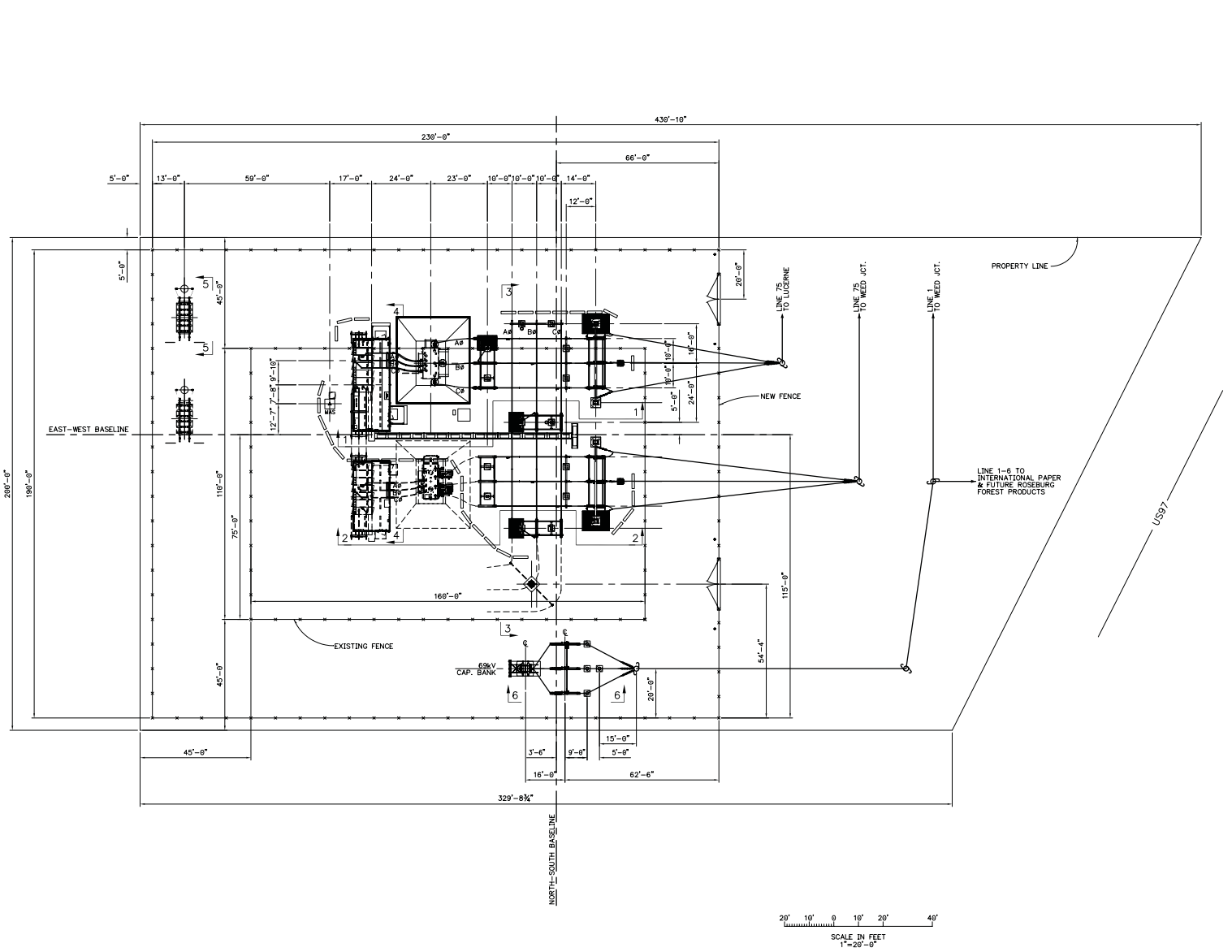
1.7 Right-of-Way Requirements

PacifiCorp owns 50-foot wide right-of-way (ROW) easements along the ROW for the existing 69 kV transmission line and would not require additional ROW for the upgrade portion of the Proposed Project. However, the new 1.6-mile 115 kV line from Pole 8/45 to Pole 14/48 to connect to the Weed Junction Substation would require new ROW easements for the construction of this portion of the work. Perpetual easements would be negotiated with and obtained from private landowners for the new 1.6-mile portion of the line.

The line to be rebuilt for the Weed Segment is within the existing 50-foot wide ROW.

1.8 Construction

This section describes construction methods to be used along the 115 kV transmission line route and at the Yreka, Weed Junction, Lucerne, and Weed Substations. Unless noted otherwise, each discussion applies to the Proposed Project and the Weed Segment.

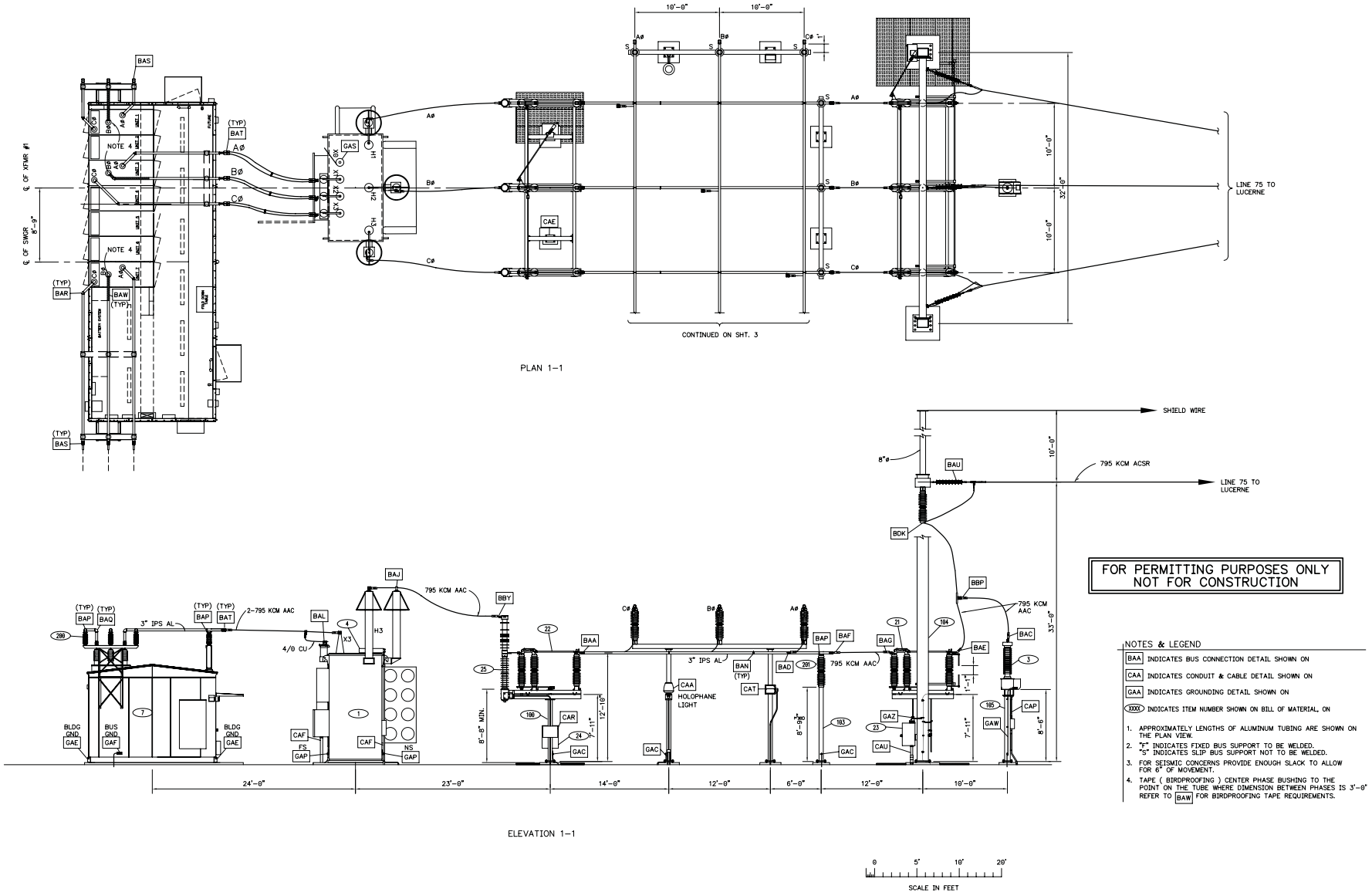


SOURCE: PacifiCorp (2005)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-7(a)

Weed Substation Modifications Plan View



SOURCE: PacifiCorp (2005)

PacifiCorp's Yreka-Weed Transmission Line Upgrade Project . 205439

Figure 1-7(b)
Weed Substation Modifications Plan and Profile View

1.8.1 Transmission Line Construction

Construction of the 115 kV transmission line would include digging a hole, assembling the wood pole (i.e., adding arms, insulators, etc.), installing the pole and subsequently stringing a new 795 ACSR conductor and 115 kV insulation for the 115 kV circuit. In addition, construction would require establishment of a staging area, work areas, pull and tension sites; and access to pole sites and pull and tension sites along the transmission line route. As noted in Section 1.7, the new 1.6 mile 115 kV transmission line to be installed as part of the Proposed Project would require acquisition of new ROW.

1.8.1.1 Staging Areas

An approximate two-acre staging area, located near poles 5/36 and 6/36 just east of East Louie Road exit from Interstate 5 would be required for materials and equipment storage as well as staging of construction activities for the Proposed Project. The staging area would serve as a field office, reporting location for workers, parking area for vehicles and equipment, and a site for temporary marshalling of construction materials, and temporarily would be fenced. The proposed staging area would require surface preparation. Approximately four inches of three inch crushed rock would be brought in to cover an area approximately 300 feet by 300 feet as well as the access road from East Louie Road. About half of the 300 foot by 300 foot area would also require grading to move large rocks and level the area. The existing gate at East Louie Road may be replaced with a larger gate if necessary to provide sufficient room for truck traffic. The same staging area would also be used for the Weed Segment, although some materials would be staged out of the Weed Substation.

1.8.1.2 Work Areas

Work areas would be required at each pole site to facilitate the safe operation of equipment and construction operations. The size of these work areas would be driven by the need to lay down the poles, install the necessary hardware, and frame them to their full length (generally 65 to 75 feet). The work areas would be cleared of vegetation only to the extent necessary to allow for equipment to maneuver safely.

Temporary disturbance for tangent structure work areas would generally be 5,000 square feet (100 feet x 50 feet). Approximately 300 tangent structure work areas would be required for construction of the Proposed Project. Temporary disturbance for angle/dead end structure work areas would generally be 5,400 square feet (100 feet x 50 feet plus 20 feet x 20 feet for guy wires). Approximately 50 angle/dead end structure work areas would be required for construction of the Proposed Project.

Grading[1] would occur where the topography is too steep or uneven to allow safe operation of equipment. After line construction, all work areas would be restored.

Hill side construction would occur in areas that would require establishing a leveled trail to access the structure location as well as a pad or leveled area to allow for equipment set-up for installation of the poles. Typically, the blading[2] for the trail would not exceed 12 feet in width, depending on the hill slope. The blading for the pad would be done along the same area as the access road to reduce the overall amount of blading required for crane set-up, and would not typically exceed 30 by 40 feet at the structure. Approximately 11 side hill construction areas would be required for construction of the Proposed Project.

1.8.1.3 Pull and Tension Sites

In order to install a length of conductor, a pull site is needed at one end (to pull the new conductor) and a tension site is needed at the other (to hold tension on the new conductor as it is pulled). The distance between the pull and tension sites would be 11,750 feet or less. Pulling and tensioning sites would result in a temporary disturbance of an area 50 feet by 250 feet with an estimated 18 such sites required for the entire transmission line including the upgrade and new line, as shown on Figure 1-4(a) through Figure 1-4(h). For mid-span setups, work areas would be located within the 50-foot right-of-way and up to 250 feet in length. Sites for corners and heavy angles would be the width of the right-of-way and up to 250 feet in length on both sides to allow for equipment to be set up in line with the pulling of the conductor. Where feasible, all pull and tension areas were selected to allow access of equipment from roads and trails without requiring them to travel long distances on the ROW and located to be in more level areas so that blading would not be required. Equipment required at the pull sites would include two pullers and a pickup truck. Tension sites would require a tensioner, a pickup truck, and two or three drum pullers. Removal of the old conductor also would be carried out in the pull and tension sites.

1.8.1.4 Access Roads

Construction crews would use existing roads and trails, which generally are used for maintenance and patrol of the existing line, along most of the upgrade portion of the project to access pole sites; these include paved roads and farm roads. Overland access to the right-of-way would also be utilized where feasible to minimize the construction of new roads. Access roads would need to be installed in four general areas for the upgraded line, and an approximately 0.25 mile access road would need to be installed for the new 1.6 miles of line into the Weed Junction Substation. These areas are identified on Figures 1-4(a) through Figure 1-4(h).

New permanent access roads would be approximately 12 feet wide. In areas where hill side slopes are significant, these roads would be bladed relatively flat. Additionally, in areas that are covered with rock that cannot be driven around, rock blading would be required to establish a level trail

1 Grading is defined as “to level or smooth to a desired or horizontal gradient”. Grading for the Proposed Project and Weed Segment would be done in accordance with applicable city and/or county regulations.

2 Blading is defined as “removal of vegetation and rock with a straight blade bulldozer”.

for maintenance of the structures. Blading would be done only to the extent required and necessary to access the transmission structures with construction vehicles and equipment. Although the exact locations that will require blading have not been identified, for the purposes of this analysis, it is assumed that all permanent access roads will be bladed. Table 1-2 below provides a summary of the different types of access roads, the type of preparation that would be required, and the estimated disturbed area.

TABLE 1-2
SUMMARY OF ACCESS ROAD REQUIREMENTS

Type of Road	Description	Area[a] Proposed Project	Area[a] Weed Segment
Existing	Typically double track. May have been graded at previously No other preparation required although a few sections may need to be re-graded and crushed rock applied in very limited areas for traction.	17.9 acres	1.8 acres
New Permanent	Would be 12 feet wide, bladed. No other preparation required although crushed rock may need to be applied in very limited areas for traction.	1.3 acres	0.1 acres
Temporary	Would be 12 feet wide, may be groomed or graded. If necessary, 4 to 5 inches of crushed rock would be applied over fabric. Temporary matting, such as Duro-Base, would be used for wettest areas. Gravel and fabric would be removed after the project is completed and the area restored.	4.4 acres	0.0 acres
Overland Access	No preparation required. Typically grassy areas that are relatively flat. No restoration would be necessary.	6.4 acres	0.0 acres

[a] Based on typical road width of 12 feet.

Turn-around areas would be required in certain areas along the right-of-way where construction travel would be restricted by rock outcrops, washes, ravines, canals, or sensitive habitat areas. The turn-around areas would be located at the last structure that can access an area as well as the first structure on the other side of the restricted access area.

1.8.1.5 Vegetation Clearance

Existing vegetation would be preserved to the maximum extent practicable during all phases of construction. Vegetation clearance for all work areas and access roads would be limited to only that necessary for the safe access and operation of equipment. Typically, only larger vegetation such as sage brush would need to be selectively removed to access some pole locations and at some pull and tension sites. Clearing of flammable fuels (i.e., vegetation) at least 10 feet in each direction around wood poles would be conducted as required under Public Resources Code Section 4292.

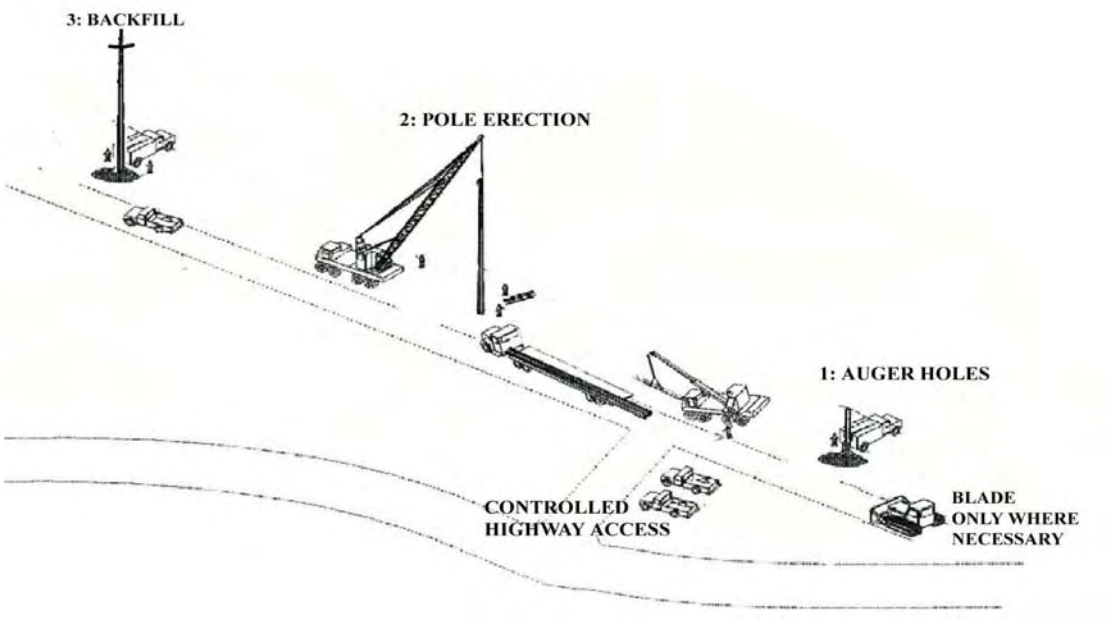
1.8.1.6 Pole Installation and Removal

Pole Removal

The poles would be removed by a line crew that would access each pole site with a line truck. The poles would be loosened by hydraulic jack then removed from their holes with a line truck, digger/derrick, or truck mounted crane. If the hole would not be reused, a backhoe and dump truck would backfill the hole with gravel. The top approximately 12 inches would be backfilled with soil removed from project-related construction activities (e.g., pole excavations) and stockpiled at the staging area. The surface would be restored with vegetation removed from the adjacent new pole hole or seeded with an appropriate (i.e., native) seed mix.

Pole Installation

Installation of the wood poles generally involves these steps: augering of the pole holes, pole and insulator assembly, and installing the new pole, backfilling, and spreading any remaining soil on the work site (See Figure 1-8).



PacifiCorp's Yreka-Weed Transmission Line Upgrade Project. 205439

SOURCE: PacifiCorp (2005)

Figure 1-8
Typical Construction Sequence

A pickup truck would be used to transport the crew, their hand tools, and other minor materials to and from pole locations. Equipment used to drill and excavate holes for the wood poles would include a power auger or drill, a crane and materials trucks (i.e., line truck and pickup truck). A power auger consists of an auger mounted on a heavy truck chassis or piece of track equipment and would be used to drill holes. Any holes left open temporarily would be covered and/or fenced

where practical to protect the public, livestock and wildlife. Soil removed from the holes would be stockpiled on the work area and used to backfill the holes. All remaining soil not needed for backfilling would be spread on the work area (see Section 1.8.1.9, Cleanup and Post-Construction Restoration).

The wood poles and associated hardware needed to assemble the poles would be delivered to each pole site by either a semi-tractor truck with a pole trailer (for loads of more than one pole) or a standard line truck with pole buggy (for single poles). Typically, insulator strings and stringing sheaves would be installed at each ground wire and conductor position while the pole is on the ground. Stringing sheaves are used to guide the conductor during the stringing process for attachment onto the insulator strings.

After assembly, a crane or line truck would be used to hoist the wood pole into place. Table 1-3 shows a summary of pole installation and associated disturbance area estimates.

TABLE 1-3
SUMMARY OF TYPICAL POLE INSTALLATION METRICS

	Proposed Project Single-circuit 115 kV wood poles (approximate metrics)	Weed Segment Double-circuit 115 kV wood poles (approximate metrics)
Pole Diameter	18 inches	18 inches
Auger Hole Depth	8 to 10 feet	8 to 10 feet
Average Work Area around Pole (e.g., for old pole removal and new pole installation)		
- Tangent structure work areas	5,000 sq. feet	5,000 sq. feet
- Dead End/Angle structure work areas	5,400 sq. feet	5,400 sq. feet
Permanent Footprint per Pole	1.77 sq. feet	1.77 sq. feet
Number of Poles	368	27
Total Permanent Footprint for Poles	Approximately 0.015 acres	Approximately 0.001 acres

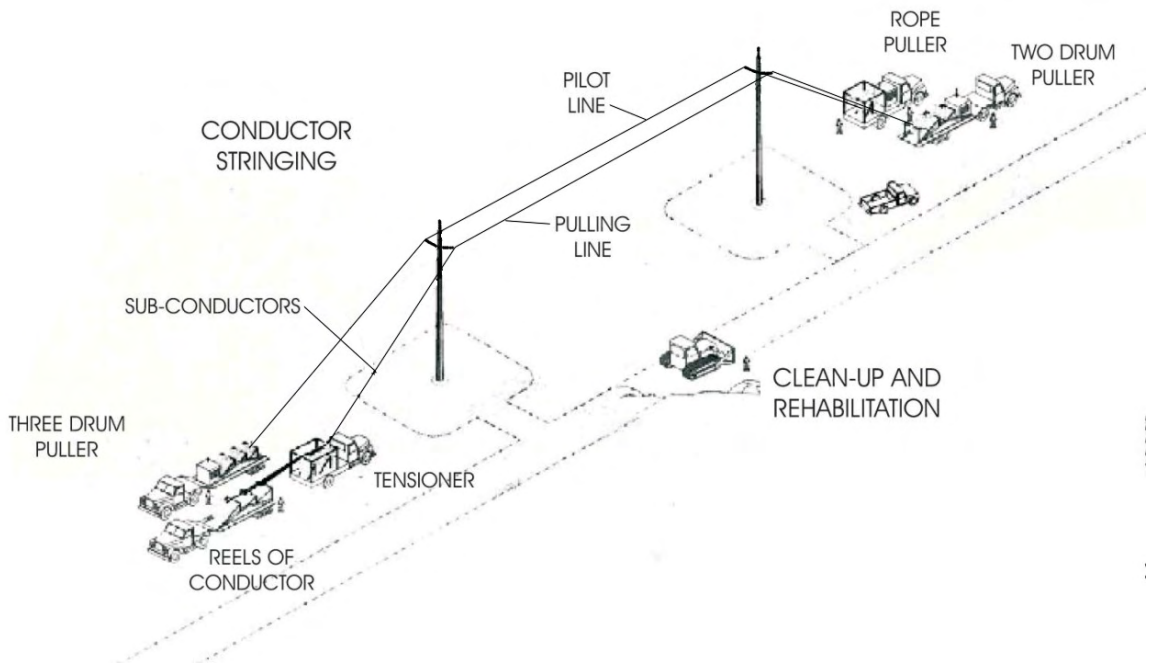
1.8.1.7 Conductor Installation

Once the new poles are installed, the existing conductor would be used to pull pilot (pulling) line from pole to pole using the stringing sheaves on each pole. The pilot line would be used to pull the new conductor and ground wire into place. Once the new conductors are pulled into place they would be attached to the insulators and the pulling sheeves removed. This process would be repeated until the ground wire and conductor is pulled through all sheaves. Figure 1-9 shows typical conductor stringing activities.

Conductor splicing would be required at the end of a conductor spool or if a conductor is damaged during stringing. The work would occur in work areas designated for the pole assembly/installation or within the pull and tension sites.

The conductor would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end. For public protection during wire installation, guard structures may be erected over roadways, other existing power-lines, structures, and other obstacles. This would likely to occur at major road crossings including pole numbers 20/29 and 21/29, and 14/33 and 15/33. Guard structures would consist of H-frame poles placed on either side of an obstacle. These structures prevent ground wire, conductor, or equipment from falling on an obstacle.

Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads. On such occasions, other safety measures such as barriers, flagmen, or other traffic control would be used. This is likely to occur at less trafficked road crossings, including pole numbers 4/36 and 5/36, 3/38 and 4/38, 4/39 and 5/39, 6/40 and 7/40, 4/41 and 5/41, and 5/43 and 6/43.



PacifiCorp's Yreka-Weed Transmission Line Upgrade Project. 205439

SOURCE: PacifiCorp (2005)

Figure 1-9
Typical Conductor Stringing Activity

1.8.1.8 Erosion and Sediment Control and Pollution Prevention during Construction

Erosion and sediment controls may be necessary to prevent soil erosion in construction areas located on hillsides where a leveled trail to access a structure location or a leveled area would be required to allow equipment set-up for pole installation. An erosion and sediment control plan using best management practices would be developed prior to construction. The goal of the erosion and sediment control plan would be to manage sediment from surface runoff before the runoff would be discharged from the project site. This would be accomplished by:

- Minimizing the acreage of disturbed and exposed soil during the construction phase and implementing stabilization measures where necessary.
- Manage sediment in runoff before it leaves the site.
- Complying with specific erosion and sediment control measures identified within the erosion and sediment control plan.

Best management practices for controlling erosion and sedimentation may include straw wattles, straw bale barriers and silt fencing placed at construction boundaries. Gravel ramps could be installed at access points to public roadways, if necessary, to prevent or minimize the tracking of mud, dirt, sediment, or similar materials onto the roadway.

Erosion control structures such as waterbars, diversion channels, terraces and slope roughening may be constructed, if necessary, to divert water and reduce soil erosion along the right-of-way, or other areas disturbed by construction where slopes exceed 30%. Selection of appropriate erosion control materials would be based on soil properties, steepness of the slope, and anticipated surface flow or runoff.

Existing vegetation would be preserved to the maximum extent practicable during all phases of construction. Vegetation clearing would be kept to a minimum and would occur only where necessary for safe operation of equipment and as required by the Public Resources Code.

All disturbed areas would be re-seeded using a native seed mix and best management practices for erosion control. On slopes greater than 30%, additional measures such as organic fiber mulching, geo-textile fabrics, and sod mats would be used.

Diesel fuel, gasoline, oil and other lubricants as well as adhesives and sealants would be utilized during the construction of the transmission line and substation. Bulk quantities would be stored in designated construction yards/staging areas. Vehicle fueling and maintenance activities would be restricted to staging areas or approved areas away from surface waters and sensitive habitats. All construction vehicles would be monitored for leaks and receive regular off-site preventive maintenance to reduce the chance of leakage.

Construction Waste Disposal

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed in an approved manner. Oils, fuels and chemicals used in connection with the project will be managed and disposed of properly, including by disposal in an approved site as appropriate. No open burning of construction refuse and trash would occur.

All forms of refuse and waste produced along the right-of-way during construction would be collected and disposed of in a designated landfill or appropriate waste disposal site. Refuse and waste is defined as any discarded material, trash, garbage, packing material, containers, waste petroleum products, broken equipment, used parts, excess construction materials.

1.8.1.9 Cleanup and Post-Construction Restoration

Disturbed areas within the right-of-way would be graded and reseeded. The natural drainage pattern along the right-of-way would be restored as near as possible to the original pattern. The reclamation would be accomplished using a truck (for hauling equipment and tools), motor grader (for restoring the grade), pickup truck (for hauling workers and hand tools), and a water truck (for dust control).

Work sites, including the staging area, would be restored using excess materials, vegetation and topsoil stockpiled from the site preparation activities. The contractor would dispose of excess soil materials, rock, and other objectionable materials that cannot be used in restoration work.

Disturbed areas, with the exception of access roads, would be restored, as nearly as possible, to their original contour and pre-Project condition, and reseeded where appropriate. Ripping and other surface scarification on construction roads or other areas would be done as necessary. In some cases the limited amount of soil compaction and vegetation destruction may not warrant ripping and reclamation.

1.8.2 Substation Modifications and Construction

Construction at the Yreka, Weed Junction, Lucerne, and Weed Substations would be performed completely on PacifiCorp property. Materials and equipment would be stored on PacifiCorp property. Each substation work crew would use a mobile office and tool van, both of which would be located within the existing substation yards. Traffic control would be provided if necessary, but is not anticipated.

1.8.3 Construction Workforce and Equipment

Project construction would require several specific work crews. Including both PacifiCorp and contracted construction personnel, the total number of construction crew members for the Proposed Project and the Weed Segment is roughly estimated to be 30 to 35 crew members, each. It is expected that construction crews would work concurrently; however, the actual deployment

of crews depends upon the timing of project approval and other factors. PacifiCorp expects that various crews may be operating at the same time at different locations. Table 1-4 provides a detailed description of these various construction crews and identifies the equipment that each would utilize for construction. Table 1-5 describes the general purpose(s) of the equipment expected to be used during project construction.

TABLE 1-4
TRANSMISSION LINE CONSTRUCTION
ESTIMATED PERSONNEL AND EQUIPMENT

Activity	People	Quantity of Equipment
Survey	3	1 pickup truck
Access Road Construction	2 to 3	1 bulldozer (D-8 Cat) 1 motor grader 1 pickup truck 1 water truck (for construction)
Auger Holes, Direct Embed Poles	5	1 hole digger 1 water truck 1 pickup truck 1 line truck
Material Haul	3	1 tractor/trailer 2 yard and field cranes or line trucks 1 fork lift
Structure Assembly, Per Crew 2 Crews Required	4	1 pickup truck 1 truck (2 ton)
Structure Erection, Per crew 2 Crews Required (includes old pole removal)	4	1 truck (2 ton) 1 pickup truck 1 bucket truck 1 line truck
Wire Installation (includes old conductor removal)	8	1 wire reel trailer 1 diesel tractor 1 crane 1 line truck 3 pickup trucks 2 bucket trucks 2 3-drum pullers 1 single drum puller (large) 1 double bull-wheel tensioner (heavy)
Right-of-Way Restoration and Cleanup	4	1 truck 1 motor grader 1 pickup truck 1 water truck

NOTE: Maximum total personnel required considering all tasks is 30 to 35 persons (actual personnel at any one time will be less)

SOURCE: PacifiCorp (2005)

TABLE 1-5
GENERAL PURPOSE FOR THE EQUIPMENT EXPECTED TO BE USED DURING PROJECT CONSTRUCTION

Type of Equipment	Use
• Bucket Truck (i.e. Cherry Picker)	• Lift and transport workers
• Crane	• Erect pole structures, lift and transport heavy construction items
• Crew-Cab Truck/Pick-Ups	• Transport personnel, tools, and materials
• Diesel Tractor	• Pull pole trailer for multi-pole loads
• Dump Truck	• Haul material
• Fork Lift	• Lift and transport heavy construction items
• Grooming/Grading Equipment: – dozer – water truck – motor grader	• Road construction (staging, pull sites) – move/compact soils – compaction and dust control – to properly pitch road for run-off
• Hole Auger/Truck Auger	• Excavate holes
• Line Truck and Trailer	• Haul conductor, poles, equipment, materials, and people, and to install pole/conductor
• Mobile Offices	• Supervision and clerical office
• Pullers, Reel Dolly	• Install conductor
• Tensioner	• Install and move conductor
• Tractor/Trailer	• Haul materials, equipment, tools, etc.
• Two-Ton Truck	• Haul materials
• Static Wire Reel Trailer	• Transport reels of conductor

SOURCE: PacifiCorp (2005)

1.8.4 Construction Schedule

Table 1-6 provides a summary of the proposed construction schedule for the Proposed Project and Weed Segment. The construction period for the upgraded portion of the transmission line is expected to last approximately three months, construction of the new 1.6-mile portion of the line is expected to last approximately six weeks, and construction at each substation is expected to take approximately 10 to 12 weeks, depending on weather. For the Weed Segment, construction would not begin until after completion of the Proposed Project, and is expected to last approximately nine months.

1.9 Operation and Maintenance

1.9.1 General System Monitoring and Control

PacifiCorp uses industry standard monitoring and protection equipment on its transmission system, which would include the Proposed Project and Weed Segment. The transmission line would be protected with power circuit breakers and related line relay protection equipment. If conductor failure were to occur, then power automatically would be removed from the line.

1.9.2 Facility Inspection and Maintenance Procedures

The 115 kV transmission line would be inspected on a yearly basis by an area line patrolman driving a pick-up or an all terrain vehicle as access conditions allow. Substations would be inspected monthly. Maintenance would be performed regularly and otherwise as needed. When

TABLE 1-6
PROPOSED CONSTRUCTION SCHEDULE

Project Activity	Proposed Project	Weed Segment
Permit To Construct decision adopted and effective	October 19, 2006	December 15, 2006
Acquisition of required permits	August 19 – October 19, 2006	June 15 – December 15, 2006
Right-of-way / property acquisition	August 19 – October 19, 2006	January 2007 – May 2007
Final engineering completed	September 1. 2006	December 31, 2006
Construction begins	October 23, 2006	N/A
Transmission line construction	October 23, 2006 – May 1, 2007	September 1 – November 15, 2007
Temporary Substation Construction	N/A	February 1 – May 1, 2007
Substation construction	October 23 – December 8, 2006	October 1, 2007 – May 1, 2008
Project operational	June 1, 2007	June 1, 2008
Clean up	May 1 – July 1, 2007	May 31, 2008

access would be required for non-emergency maintenance and repairs, the maintenance crews would minimize environmental impacts by performing maintenance during the dry season when possible, using existing roads, using all terrain vehicles with flotation tires when it is not practical to stay on existing roads, or inspecting poles on foot.

Emergency maintenance would involve prompt movement of repair crews to repair or replace any damage. Crews would be instructed to protect crops, plants, wildlife, and other environmental resources to the maximum extent feasible under the exigency of the circumstances. Restoration procedures following completion of repair work would be similar to those described in Section 1.8.1.9.

1.10 Electric and Magnetic Fields Summary

1.10.1 Electric and Magnetic Fields

This IS/MND does not consider electric and magnetic fields (EMF) in the context of the CEQA analysis of potential environmental impacts because [1] there is no agreement among scientists that EMF creates a potential health risk, and [2] there are no defined or adopted CEQA standards for defining health risk from EMF. However, recognizing that there is a great deal of public interest and concern regarding potential health effects from human exposure to EMF from transmission lines, this document does provide information regarding EMF associated with electric utility facilities and human health and safety. Thus, the EMF information in this initial study is presented for the benefit of the public and decision makers.

Potential health effects from exposure to *electric fields* from transmission lines (i.e., the effect produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume

of space or medium that surrounds it) typically do not present a human health risk since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to *magnetic fields* (i.e., the invisible fields created by moving charges) from transmission lines. Additional information on electric and magnetic fields generated by transmission lines is presented in Appendix D.

After several decades of study regarding potential public health risks from exposure to power line EMF, research results remains inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMF causes cancer. Most recently the International Agency for Research on Cancer (IARC) and the California Department of Health Services (DHS) both classified EMF as a *possible* carcinogen.

Presently, there are no applicable federal, State or local regulations related to EMF levels from power lines or related facilities, such as substations. However, the California Public Utilities Commission has implemented a decision (D.06-01-042) requiring utilities to incorporate "low-cost" or "no-cost" measures for managing EMF from power lines up to approximately 4% of total project cost. Using the 4 percent benchmark, PacifiCorp has incorporated low-cost and no-cost measures to reduce magnetic field levels along the transmission corridor.

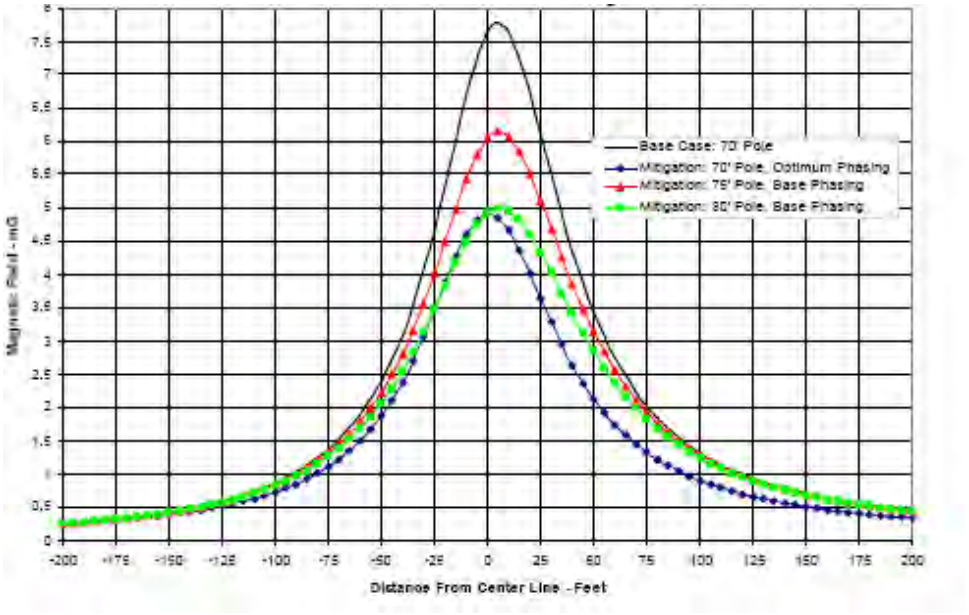
1.10.2 EMF and the Proposed Project

PacifiCorp has prepared an EMF Plan that provides EMF information regarding the Proposed Project. Similar information will be prepared for the Weed Segment. The Plan includes a brief introduction to EMF characteristics, scientific research related to possible health effects, and public policy activities. In addition, the Plan identifies PacifiCorp's guidelines and general methods for managing EMF for new electrical facilities.

Consistent with PacifiCorp's Electro Magnetic Fields, California Design Guidelines, modeling has been provide for the Proposed Project delineating the magnetic field levels for both the existing power lines and the proposed line and substations. As part of the Proposed Project, PacifiCorp would incorporate "no cost" and "low cost" magnetic field reduction steps. The specific measures proposed by PacifiCorp to reduce magnetic field exposure are:

- Optimum phasing would be used wherever there is distribution underbuild (this is a total of approximately 43% of the upgraded and new transmission line for the Proposed Project);
- The three poles that do not have distribution underbuild but are in an agricultural land use area would be raised 5 feet (from the base case pole height of 70 feet);
- No mitigation would be applied to poles without distribution underbuild in land use areas that are designated as unpopulated or forested;
- For the Weed Segment, optimum phasing would be used for the double-circuit transmission line.

Figure 1-10 shows EMF levels for the Proposed Project overhead transmission line with and without EMF reduction measures. Similar calculations have not been conducted for the Weed Segment, although similar reductions from a base case are expected to occur with optimum phasing and different pole heights.



PacifiCorp's Yreka-Weed Transmission Line Upgrade Project. 205439

SOURCE: PacifiCorp (2006)

Figure 1-10
Estimated EMF Levels with and without EMF Reduction Measures

1.11 Required Permits and Approvals

The CPUC is the CEQA lead agency for the Project. PacifiCorp would obtain permits, approvals, and licenses as needed from, and would participate in reviews and consultations as needed with, federal, state, and local agencies as shown in Table 1-7.

TABLE 1-7
SUMMARY OF PERMIT REQUIREMENTS

Agency	Permits and Other Requirements	Jurisdiction/Purpose
Federal Agencies		
U.S. Army Corps of Engineers	Nationwide Permit, Section 404 of Clean Water Act	Fill in a wetland, water of the U.S.
U.S. Fish and Wildlife Service	Endangered Species Act Section 7 Consultation	Consultation on federally-listed species
Federal Aviation Administration	Notice of Proposed Construction or Alteration (14 CFR §§ 77.13 – 77.15)	Tower location and height in relation to air traffic

TABLE 1-7 (continued)
SUMMARY OF PERMIT REQUIREMENTS

Agency	Permits and Other Requirements	Jurisdiction/Purpose
State Agencies		
California Public Utilities Commission	Permit to Construct	Project approval and CEQA review
California Department of Fish and Game	Endangered Species Act Section 10 Consultation	Consultation on state-listed species
	Fish & Game Code Section 1600 Streambed Alteration Agreement	Alteration or construction in a streambed or drainage channel
State Historic Preservation Officer (SHPO)	National Historic Preservation Act Section 106 Consultation	Consultation on cultural and/or historic resources
State Water Resources Control Board	NPDES General Permit for Storm water	Construction impacting 1 or more acres
California Department of Transportation	Encroachment Permit (Streets & Highways Code §§ 660-734)	Crossing of Interstate 5
Local Agencies		
Siskiyou County	Encroachment Permit	Crossing of county roads
City of Weed	Encroachment Permit	Crossing of city roads

References – Project Description

PacifiCorp, 2005. *Proponent's Environmental Assessment for the Yreka / Weed Transmission Line Upgrade Project*, November 2005.