

ATTACHMENT 6
*Biglow Canyon Wind Farm—Supplemental
Wetlands and Waters Determination and Rare Plant
Habitat Survey for Amendment III
(CH2M HILL, June 2008)*

Biglow Canyon Wind Farm – Supplemental Wetlands and Waters Determination and Rare Plant Habitat Survey for Amendment III

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DATE: June 3, 2008

Summary

CH2M HILL conducted a wetland and waters determination for the proposed Biglow Canyon Wind Farm Facility ("Facility") in the summer of 2005. Supplemental determinations were performed in both the summer and winter of 2006 based on the addition of a collector line in the Facility area. Results of previous fieldwork efforts can be found in the Site Certificate Application for the Biglow Canyon Wind Farm (October 2005), the original wetland and rare plant technical memorandum (CH2M HILL, July 2006), the collection line and access roads technical memorandum (CH2M HILL, December 2006), and Change Request No. 2 (June 2007). This memorandum serves as an amendment to the four existing reports cited above.

The purpose of this determination was to investigate additional modifications to the June 2007 Facility layout (Change Request No. 2) and to satisfy the site certificate Condition 55 criterion of performing a spring survey for rare plant species. CH2M HILL conducted site visits on March 31, 2008, and May 5, 2008, to determine the presence and extent of wetlands or jurisdictional waters, as defined under Section 404 of the Clean Water Act and the Oregon Removal-Fill Law. Suitable habitat for and presence of federal and state listed plant species were also investigated. Study areas G, H, I, J, and K were investigated for the potential presence of federal and state-listed plant species. Study areas G, H, I, J, and K were also investigated for the presence of potentially jurisdictional wetlands and waters. Figure 1 shows the study area locations.

No jurisdictional wetlands were identified within the study areas. Potentially jurisdictional waters were identified at study areas G, H, and I (see Figure 1). All three drainages are considered ephemeral streams. The potentially jurisdictional waters identified at these drainages may be affected by construction activities.

No federal or state listed plant habitat or species were identified within any of the study areas.

Methods

Office Review

Prior to conducting the site investigation, the following documents were reviewed:

- U.S. Geological Survey (USGS) Topographic Map, Klondike, Oregon quadrangle (USGS, 1971); Quinton, Oregon quadrangle (USGS, 1976); Rufus, Oregon quadrangle (USGS, 1971); Wasco, Oregon quadrangle (USGS, 1987)
- National Wetland Inventory (NWI) Map, Klondike, Oregon quadrangle (U.S. Fish and Wildlife Service [USFWS], 1991); Quinton, Oregon quadrangle (USFWS, 1983); Rufus, Oregon quadrangle (USFWS, 1983); Wasco, Oregon quadrangle (USFWS, 1988)
- Natural Resource Conservation Service (NRCS) Soil Survey of Sherman County, Oregon (NRCS, 1992)
- Hydric Soils List: Sherman County, Oregon (NRCS, 2000)
- Oregon Natural Heritage Information Center (ORNHIC) Species List (April 2007)
- US Fish and Wildlife Service (USFWS) County Species List (March 2007)
- A facilities map provided by Portland General Electric (PGE) (February 28, 2008), indicating the location and extent of the survey areas (Figure 1)

Site Investigation

Site investigation activities were as follows:

- Conducted a preliminary estimate of the area of potentially jurisdictional wetlands or waters within study areas G, H, I, J, and K that may be affected by construction
- Documented occurrence of or potential habitat for sensitive plant species within the vicinity of study areas G, H, I, J, and K

Qualified CH2M HILL biologists conducted the site investigations for study areas G through K on March 31, 2008 and May 5, 2008.

Results

Office Review

USGS Topographic Map

The Facility site is located in the Klondike, Quinton, Rufus, and Wasco, Oregon 7.5-minute quadrangle of the USGS topographic maps. USGS mapping shows streams within study areas G, H, I, J, and K.

Sherman County Soil Survey

A review of the soil types mapped within study areas G, H, I, J, and K determined that none is listed as hydric (Table 1).

TABLE 1

Mapped Soils Study Areas G, H, I, J, and K (Sherman County, OR)

Soil ID	Soil Name	Hydric	Hydric Inclusions
1B	Anderly silt loam, 1 to 7 percent slopes	No	No
1C	Anderly silt loam, 7 to 15 percent slopes	No	No
3D	Anderly silt loam, 15 to 35 percent south slopes	No	No
16D	Licksillet very stony loam, 7 to 40 percent south slopes	No	No
31C	Walla Walla silt loam, 7 to 15 percent	No	No
32D	Walla Walla silt loam, 15 to 35 percent north slopes	No	No
33D	Walla Walla silt loam, 15 to 35 percent south slopes	No	No
36D	Wato very fine sandy loam, 15 to 35 percent south slopes	No	No

PGE Facilities Map (April 2008)

The facilities map provided by PGE indicated potentially jurisdictional waters within the boundary at study areas G, H, I, J, and K (Figure 1).

Site Investigation

The site investigation was conducted on March 31, 2008, and May 5, 2008, at study areas G, H, I, J, and K. Weather during the site investigation on March 31, 2008, was cool (45 to 55 degrees F [°F]) and cloudy. Weather during the site investigation on May 5, 2008, was warm (65 to 70 °F) and partly cloudy with no precipitation. Representative site photos are presented in the attachment to this memorandum.

Wetlands and Waters Survey

No vegetated wetlands were identified within any of the study areas. Other waters were present in study areas G, H, I, J, and K. Table 2 provides a summary of survey results. The table is followed by a narrative description of each study area.

TABLE 2

Summary of Survey Results for Study Areas G, H, I, J, and K (Sherman County, Oregon)

Site	Location	Potentially Jurisdictional Waters		Comments
		Federal Clean Water Act	Oregon Removal/Fill Law	
Site G	East and West of Wier Road	Yes	Yes	Ephemeral Tributary to Emigrant Canyon
Site H	North and South of Biglow Lane	Yes	Yes	Ephemeral Tributary to Biglow Canyon
Site I	Biglow Road (upstream of site H)	Yes	Yes	Ephemeral Tributary to Biglow Canyon
Site J	North and South of Herin Lane	No	No	
Site K	South of Herin Lane	No	No	Helm Canyon

Stream Crossing G. The potentially jurisdictional channel identified on the USGS map at Stream crossing G was verified in the field to be potentially jurisdictional. This channel is an ephemeral tributary to Emigrant Springs.

Drainage G is an ephemeral stream located near Emigrant Canyon and is a tributary to the John Day River. This drainage is located east and west of Weir Road at the southeastern portion of the Facility site (Figure 2). Vegetation along the channel banks was primarily bluegrass (*Poa bulbosa*, UPL), Russian thistle (*Salsola kali*, FACU), and dry wheat. There was no flow in the channel during the site visit. Indicators of regular flow included a culvert under Weir Road and a defined channel about 150 east of the road (Attachment, Photo Plates 1 and 2).

Potential temporary impacts to the jurisdictional water identified at Drainage G will not likely occur during construction of proposed crane pads because it is outside of the proposed impact area. Indirect impacts to this potentially jurisdictional water could be avoided by walking the crane down Weir Road and by implementing best management practices (BMPs) such as silt fencing and other erosion control measures to ensure no fill entered the channel. If impacts are unavoidable, mitigation for temporary impacts to this resource would be required by the regulatory agencies.

Stream Crossing H/I. The potentially jurisdictional channel identified on the USGS map at Sites H and I was verified in the field to be potentially jurisdictional. This channel is an ephemeral tributary to the John Day River. This drainage is located north, south, and west of Biglow Lane in the central portion of the Facility site (Figure 3). Vegetation along the channel banks was primarily bluegrass (*Poa bulbosa*, UPL), cheatgrass (*Bromus tectorum*, NOL), and tall fescue (*Festuca arundinacea*, FACU-). There was no flow in the channel during

the site visit. Indicators of regular flow included an approximate 4-foot culvert under the road, scoured unvegetated bed, sediment deposits on the bed, and eroded banks (Attachment, Photo Plates 3 and 4).

Potential temporary impacts to the jurisdictional water identified at stream crossing H/I may occur during construction of the proposed crane walk and collection lines to the north and parallel to Biglow Lane. Impacts to this potentially jurisdictional water could be avoided by moving collection lines along Biglow Lane and implementing BMPs such as silt fencing and other erosion control measures to ensure no fill enters the channel. If impacts are unavoidable, mitigation for temporary impacts to this resource would be required by the regulatory agencies.

Stream Crossing J. The potentially jurisdictional channel identified on the USGS map at Site J was verified in the field as nonjurisdictional. This channel is mapped as a tributary to Biglow Canyon.

This mapped drainage is located north and south of Herin Lane in the central portion of the Facility site (Figure 1). It consists of a broad, vegetated swale dominated by bulbous bluegrass (*Poa bulbosa*, UPL), cheatgrass (*Bromus tectorum*, NOL), and gray rabbitbrush (*Chrysothamnus nauseosus*, NOL). Earthen dams both upstream and downstream of the road crossing block any potential flow (Attachment, Photo Plates 5 and 6).

Stream Crossing K. The potentially jurisdictional channel identified on the USGS map at Site K was verified in the field as potentially jurisdictional. This mapped channel is located in Helm Canyon north and south of Herin Lane in the central portion of the Facility site (Figure 1). Helm Canyon is a tributary to the John Day River. No evidence of a channel, bed, banks, or other indicators of flow was observed. The area of the mapped drainage is completely cultivated in dryland wheat (Attachment, Photo Plate 7).

Rare Plant Survey

Existing literature and scientific data were reviewed to determine species distribution and potential for occurrence within study areas. The ORNHIC database and USFWS were consulted for documented and potential occurrences of candidate, proposed, and listed species.

ORNHIC and USFWS database searches revealed four listed or candidate plant species that might occur within the study area: Northern wormwood (*Artemisia campestris* var. *wormskioldii*), Laurence's milk-vetch (*Astragalus collinus* var. *laurentii*), Henderson's ricegrass (*Achnatherum hendersonii*), and disappearing monkeyflower (*Mimulus evanescens*) (Table 3).

TABLE 3

Federal and State Listed or Candidate Plant Species Potentially Occurring Within the Study Areas (based on April 2007 Oregon Natural Heritage Information Center data)

Common Name	Scientific Name	Federal Status ¹	State Status ¹	Notes on Habitat Occurrence
Northern wormwood	<i>Artemisia campestris</i> var. <i>wormskioldii</i>	C	LE	No suitable habitat
Laurence's milk-vetch	<i>Astragalus collinus</i> var. <i>laurentii</i>	SOC	LT	No suitable habitat
Henderson's ricegrass	<i>Achnatherum</i> <i>hendersonii</i>	SOC	C	No suitable habitat
Disappearing monkeyflower	<i>Mimulus evanescens</i>	SOC	C	No suitable habitat

¹ State and Federal Status Definitions

LE—Listed Endangered. Taxa listed by the USFWS or National Marine Fisheries Service (NMFS) as Endangered under the Endangered Species Act (ESA), or by the Departments of Agriculture (ODA) and Fish and Wildlife (ODFW) of the state of Oregon under the Oregon Endangered Species Act of 1987 (OESA). Endangered taxa are those that are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range.

LT—Listed Threatened. Taxa listed by the above agencies as Threatened; defined as those taxa likely to become endangered within the foreseeable future.

C—Candidate. Candidate taxa for which NMFS or USFWS have sufficient information to support a proposal to list under the ESA, or which is a candidate for listing by the ODA under the OESA.

SoC—Species of Concern. Former Category 2 candidates for which additional information is needed in order to propose as threatened or endangered under the ESA; these species are under review for consideration as Candidates for listing under the ESA.

A field survey was conducted on May 5, 2008, by a CH2M HILL botanist to determine potential presence of the identified state or federally listed or candidate plant species. Focused surveys were conducted in all locations within the study area not planted in wheat or other cultivated or developed. Table 4 presents all plant species observed in the course of the surveys. No plants identified as state- or federally listed or candidate plant species were observed and no suitable habitat was identified to support any of these species.

TABLE 4
Plant Species Observed

Family	Scientific Name	Common Name
Apiaceae	<i>Lomatium triternatum</i>	nine-leaf biscuitroot
Asteraceae	<i>Artemisia tridentata</i>	big sagebrush
	<i>Balsamorhiza sagitata</i>	balsam root
	<i>Centurium</i> sp.	knapweed
	<i>Chrysothamnus nauseosus</i>	gray rabbitbrush
	<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush
	<i>Crepis capillaris</i>	smooth hawksbeard
	<i>Crepis setosa</i>	bristly hawksbeard
	<i>Salsola kali</i>	Russian thistle
Brassicaceae	<i>Chorispora tenella</i>	blue mustard
	<i>Idahoia scapigera</i>	scalepod
	<i>Sisymbrium altissimum</i>	tumble mustard
Geraniaceae	<i>Erodium cicutarium</i>	stork's bill
Poaceae	<i>Bromus tectorum</i>	cheatgrass
	<i>Festuca arundinaceae</i>	tall fescue
	<i>Poa bulbosa</i>	bulbous bluegrass
	<i>Triticum aestivum</i>	wheat
Polygonaceae	<i>Eriogonum nudicaule</i>	barestem buckwheat
	<i>Polygonum aviculare</i>	prostrate knotweed
Portulacaceae	<i>Claytonia perfoliata</i>	miner's lettuce

Conclusion

An office review of USGS data, NWI and soils maps, and the PGE facilities map identified five potentially jurisdictional waters within the study areas. Field visits performed on March 31, 2008, and May 5, 2008, confirmed streams G, H, and I as potentially jurisdictional waters of the U.S. and the State of Oregon (see Figures 2 and 3). It was determined that the other two potentially jurisdictional waters (drainages J and K) did not have enough evidence of flow (e.g., defined bed and banks, sediment deposits) to be considered jurisdictional.

Impacts to the potentially jurisdictional waters identified at drainages G, H, and I could be avoided by moving crane paths and collector lines to nearby existing roads and implementing BMPs to prevent any fill or removal that could occur at this drainage. Avoiding impact at these drainages obviates the need for subsequent wetland delineation reports, modifications to the existing permit authorizations, and the submittal of a mitigation and restoration plan to the resource agencies. If impacts are unavoidable, mitigation for temporary impacts to these resources would be required by the regulatory agencies.

No jurisdictional wetlands were identified within the study areas. No rare plants or rare plant habitat were identified within the study areas.

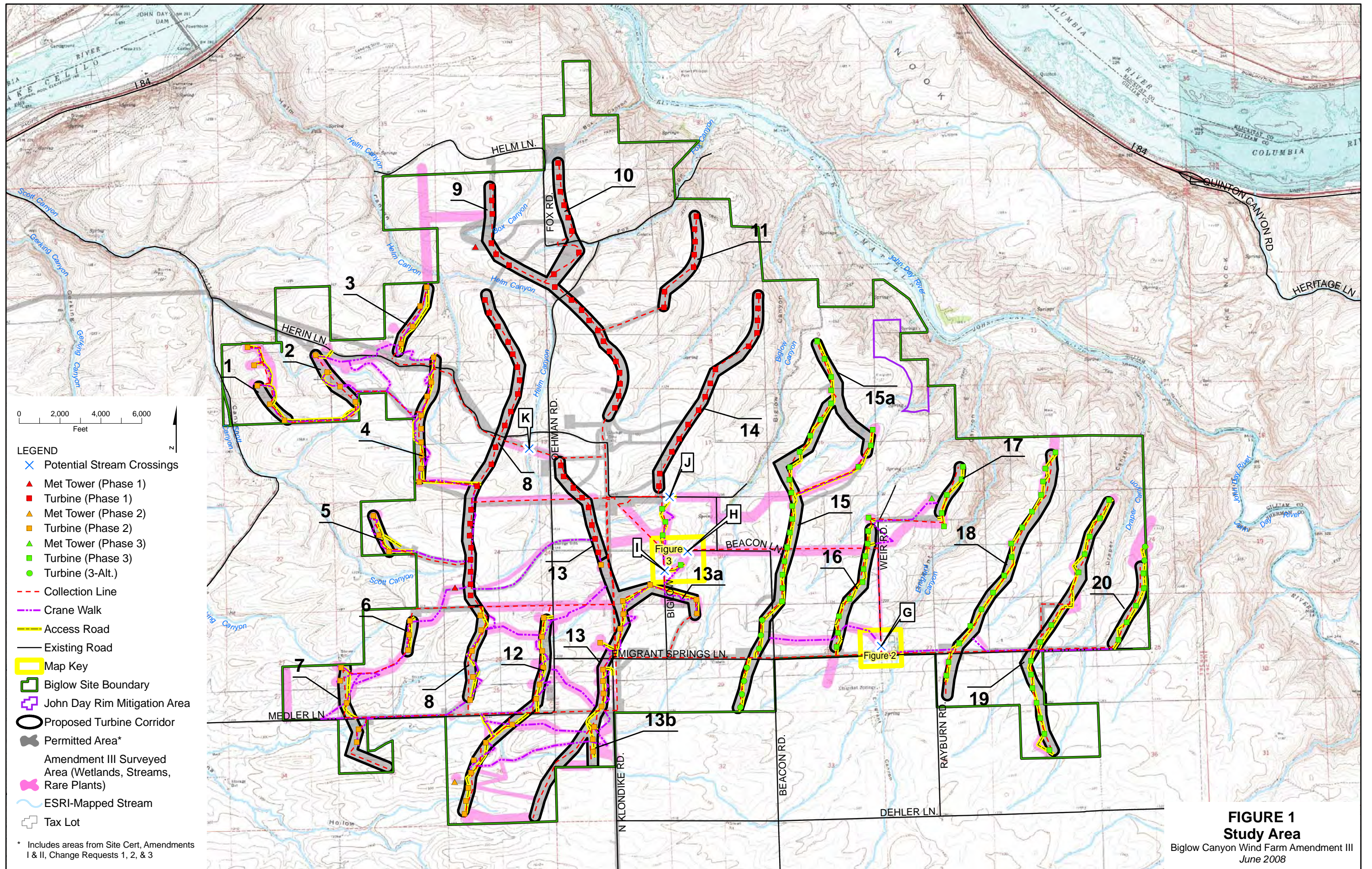
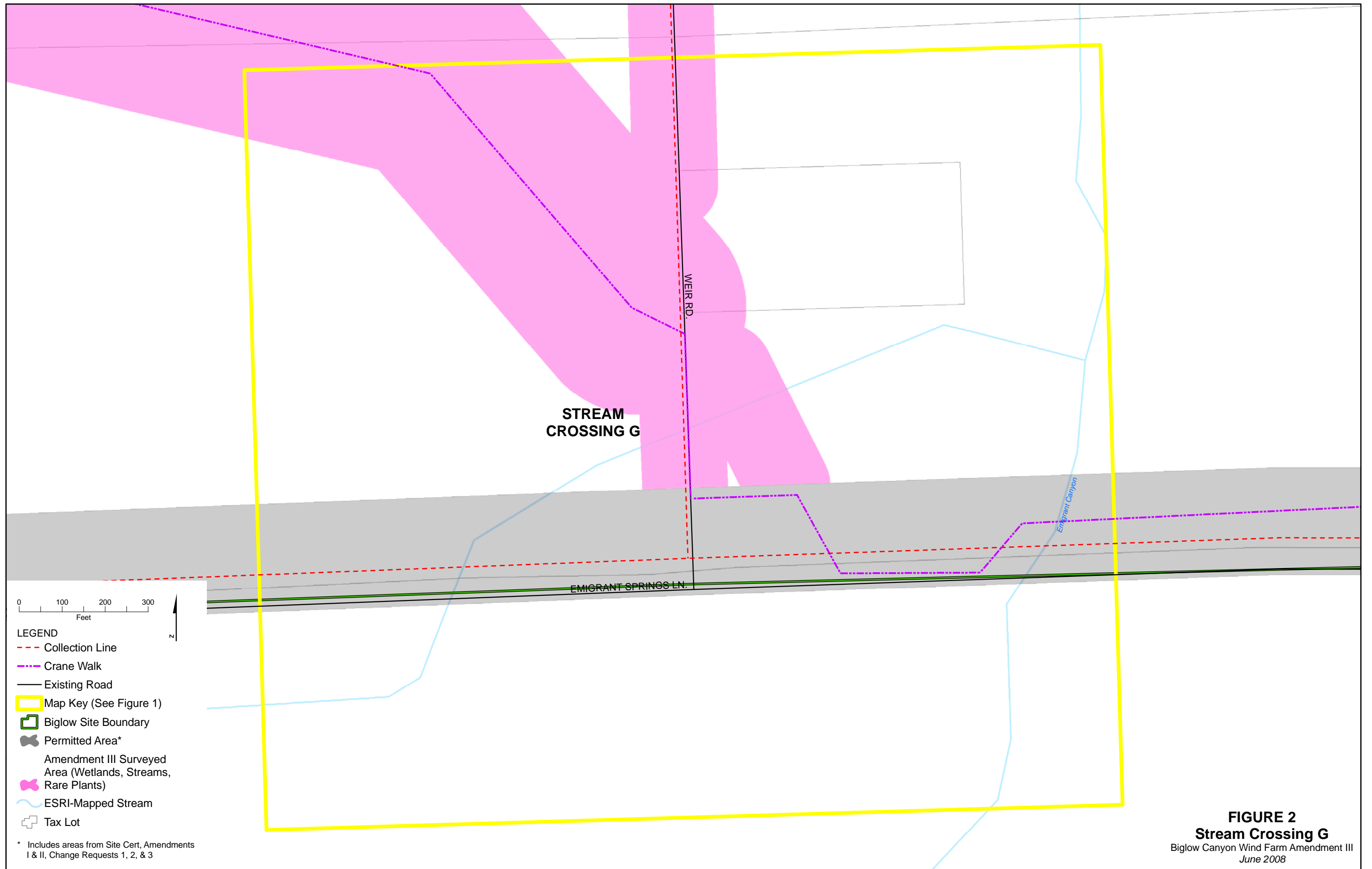


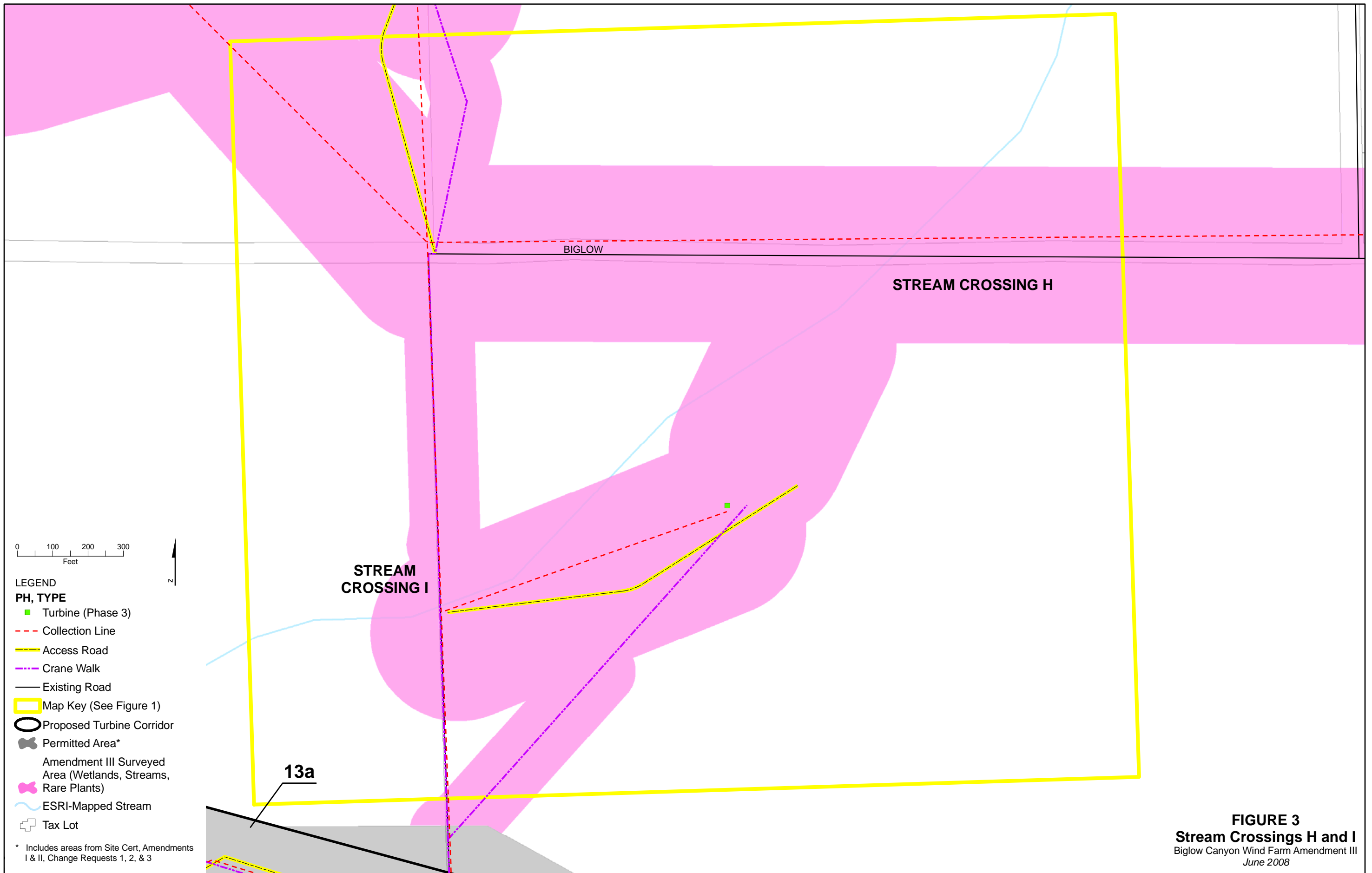
FIGURE 1
Study Area
 Biglow Canyon Wind Farm Amendment III
 June 2008



- LEGEND**
- - - Collection Line
 - - - Crane Walk
 - Existing Road
 - Map Key (See Figure 1)
 - Biglow Site Boundary
 - ⊕ Permitted Area*
 - ⊕ Amendment III Surveyed Area (Wetlands, Streams, Rare Plants)
 - ~ ESRI-Mapped Stream
 - ⊕ Tax Lot

* Includes areas from Site Cert, Amendments I & II, Change Requests 1, 2, & 3

FIGURE 2
Stream Crossing G
 Biglow Canyon Wind Farm Amendment III
 June 2008



LEGEND

PH, TYPE

- Turbine (Phase 3)
- - - Collection Line
- Access Road
- · - · Crane Walk
- Existing Road
- Map Key (See Figure 1)
- Proposed Turbine Corridor
- ⊕ Permitted Area*
- ⊕ Amendment III Surveyed Area (Wetlands, Streams, Rare Plants)
- ~ ESRI-Mapped Stream
- ⊕ Tax Lot

* Includes areas from Site Cert, Amendments I & II, Change Requests 1, 2, & 3

FIGURE 3
Stream Crossings H and I
 Biglow Canyon Wind Farm Amendment III
 June 2008

ATTACHMENT
Photo Plates



Photo Plate 1 View west, upstream, at stream crossing G, tributary to Emigrant Springs.



Photo Plate 2 View east, downstream, at stream crossing G, tributary to Emigrant Springs.



Photo Plate 3 View southwest, upstream, at stream crossing H, tributary to Biglow Canyon.



Photo Plate 4 View northeast, downstream, at stream crossing H, tributary to Biglow Canyon.



Photo Plate 5 View east, downstream, at stream crossing I, tributary to Biglow Canyon, upstream of stream crossing H.



Photo Plate 6 View west, upstream, at stream crossing I, tributary to Biglow Canyon, upstream of stream crossing H.



Photo Plate 7 View southwest, upstream, at crossing J, ESRI- mapped tributary to Biglow Canyon. Note earthen dam blocking drainage.



Photo Plate 8 View northeast, downstream, at crossing J, ESRI- mapped tributary to Biglow Canyon. Note earthen dam blocking drainage.

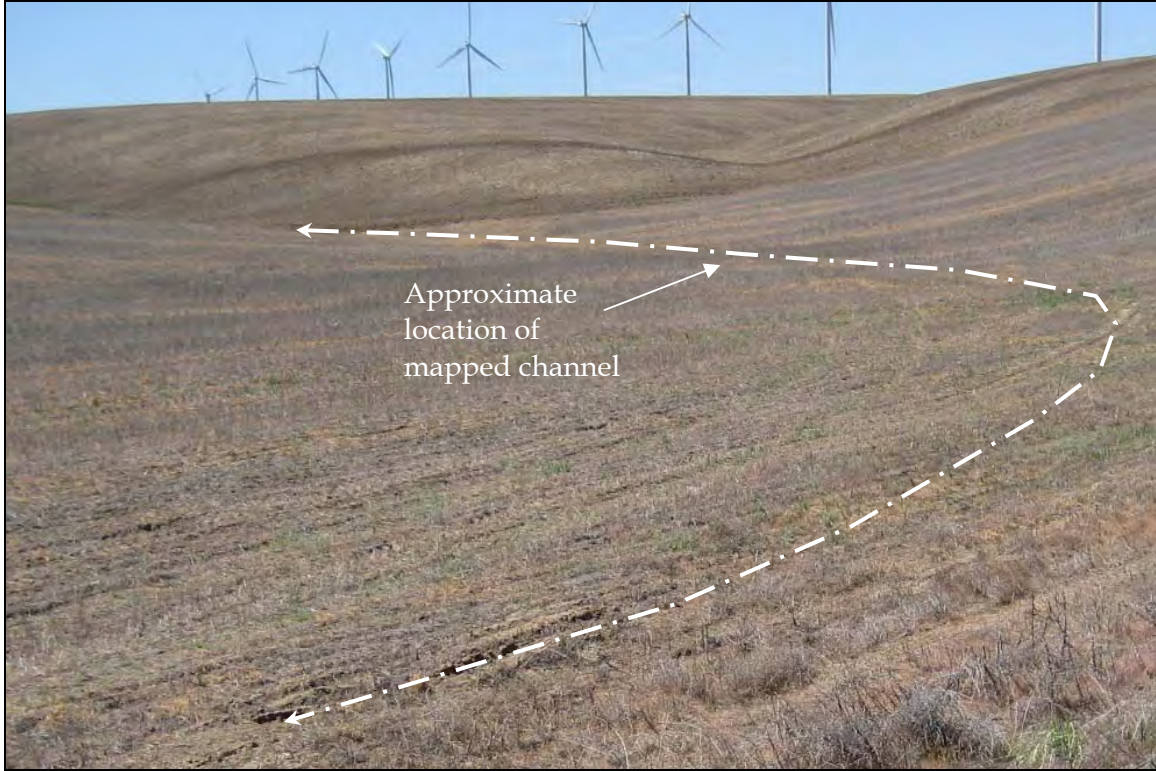


Photo Plate 9 View south, upstream, at crossing K, Helm Canyon.