

## APPENDIX C – CULTURAL RESOURCE INVENTORY

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**A CULTURAL RESOURCE INVENTORY OF SIX LOCATIONS  
WITHIN THE BRIGHAM FACE WILDLIFE MANAGEMENT AREA,  
BOX ELDER COUNTY, UTAH**

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## ABSTRACT

In the Summer of 2008, PacifiCorp requested that Environmental Planning Group (EPG) of Salt Lake City, Utah, complete a Class III cultural resource inventory of six linear segments within the Brigham Face Wildlife Management Area (BFWMA) in support of Rocky Mountain Power's Populus to Ben Lomond 345 kV Transmission Project. This inventory was conducted in anticipation of the requirement for completion of an Environmental Assessment (EA) for the proposed project. The purpose of this inventory was to identify, record, and determine the extent and significance of all identified cultural resource sites within the six proposed project areas. A Class I cultural resource file search was completed for the entire Populus to Ben Lomond 345 kV Transmission Project corridor. A Class III cultural resource inventory was completed for six corridor segments that cross the BFWMA, the remainder of the proposed transmission line corridor is located entirely on privately owned land.

The six segments surveyed within the BFWMA during the present inventory are located between Brigham City and Willard in Box Elder County, Utah. The cultural resource survey was carried out on November 13, 2008, by Heather M. Weymouth and Gena Huffman. A total of 4.57 km (2.84 mi) of corridor and access road routes were surveyed totaling 20.55 ha (50.73 acres). Three new cultural resource sites, a 1930s canal (42BO1685), a 1920s flood control feature (42BO1686), and a ca. 1940s trash scatter (42BO1687), were identified, recorded and evaluated for eligibility to the National Register of Historic Places (NRHP) during this inventory. Two of these properties, the Ogden-Brigham Canal (42BO1685) and the Pearsons Canyon Flood Control System (42BO1686) represent significant historic irrigation and flood control features, which retain a high degree of integrity. As such, sites 42BO1685 and 42BO1686 are recommended **ELIGIBLE** to the NRHP.

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## **INTRODUCTION**

In the Summer of 2008, PacifiCorp requested that Environmental Planning Group (EPG) of Salt Lake City, Utah complete a Class III cultural resource inventory of six proposed transmission line corridor segments within the Brigham Face Wildlife Management Area (BFWMA) in support of Rocky Mountain Power's Populus to Ben Lomond 345 kV Transmission Project (Figure 1). This inventory was conducted in anticipation of the requirement for completion of an Environmental Assessment (EA) for the proposed project. The purpose of this inventory was to identify, record, and determine the extent and significance of all identified cultural resource sites within the proposed project areas.

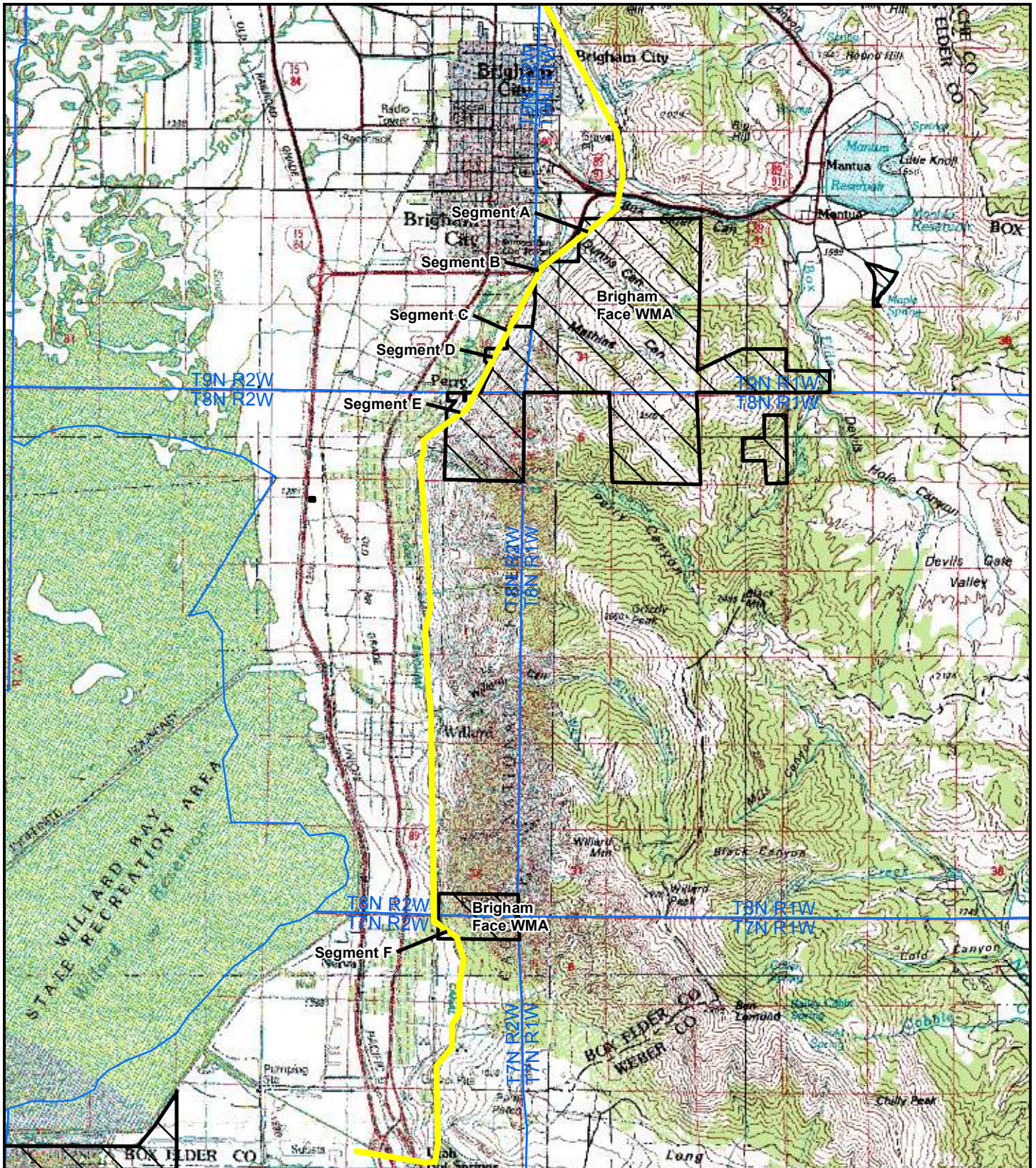
A Class I cultural resource file search was completed for the entire Populus to Ben Lomond 345 kV Transmission Project corridor. A Class III cultural resource inventory was completed for six corridor segments that cross the BFWMA, the remainder of the proposed transmission line corridor is located entirely on privately owned land. The Class III survey areas lie on lands administered by the Utah Division of Wildlife Resources (UDWR) within the BFWMA on USGS 7.5' Quadrangles Willard (1992), North Ogden (1998), Plain City (1998) and Mantua (1991). These areas are located along the foothills of the Northern Wasatch Front, east of Brigham City and Perry, and southeast of Willard, in Box Elder County, Utah. A total of six transmission line segments and four access road routes were inventoried (Figures 2-3). A total of 4.57 km (2.84 mi) of corridor and access road routes were surveyed totaling 20.55 ha (50.73 acres).

A Class III pedestrian cultural resource inventory was conducted within the Area of Potential Effect (APE) through the BFWMA. EPG conducted the pedestrian inventory on November 13, 2008, and completed site recordation on December 11, 2008. All cultural resource work was carried out under authority of State of Utah Antiquities Project No. U-08-EO-1157s and Public Lands Policy Coordinating Office Permit (PLPCO) No. 199 (Heather M. Weymouth).

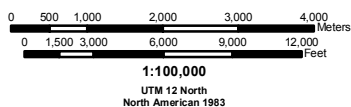
## **PREVIOUS PROJECTS AND RECORDED CULTURAL RESOURCES**

A file search for previously recorded cultural resource sites, historic standing structures, and previously conducted surveys within one mile of the current project areas was conducted on July 16, 2007, by Rebecca Halbmaier and Sandy McDaniel at the Utah Division of State History, Utah State Historic Preservation Office (SHPO) in Salt Lake City. A supplemental file search was conducted by Heather M. Weymouth on August 20, 2008. These searches identified 12 cultural resource projects and six cultural resource sites within one mile of the present project areas (Table 1). None of these cultural resource sites are located within the present project APE. The National Register of Historic Places (NRHP) was also reviewed for listed sites in the vicinity of the project area. No NRHP sites have been identified within one mile of the proposed project areas.





- Legend**
- Proposed 345kV Transmission Route
  - Brigham Face WMA
  - Township/Range Line



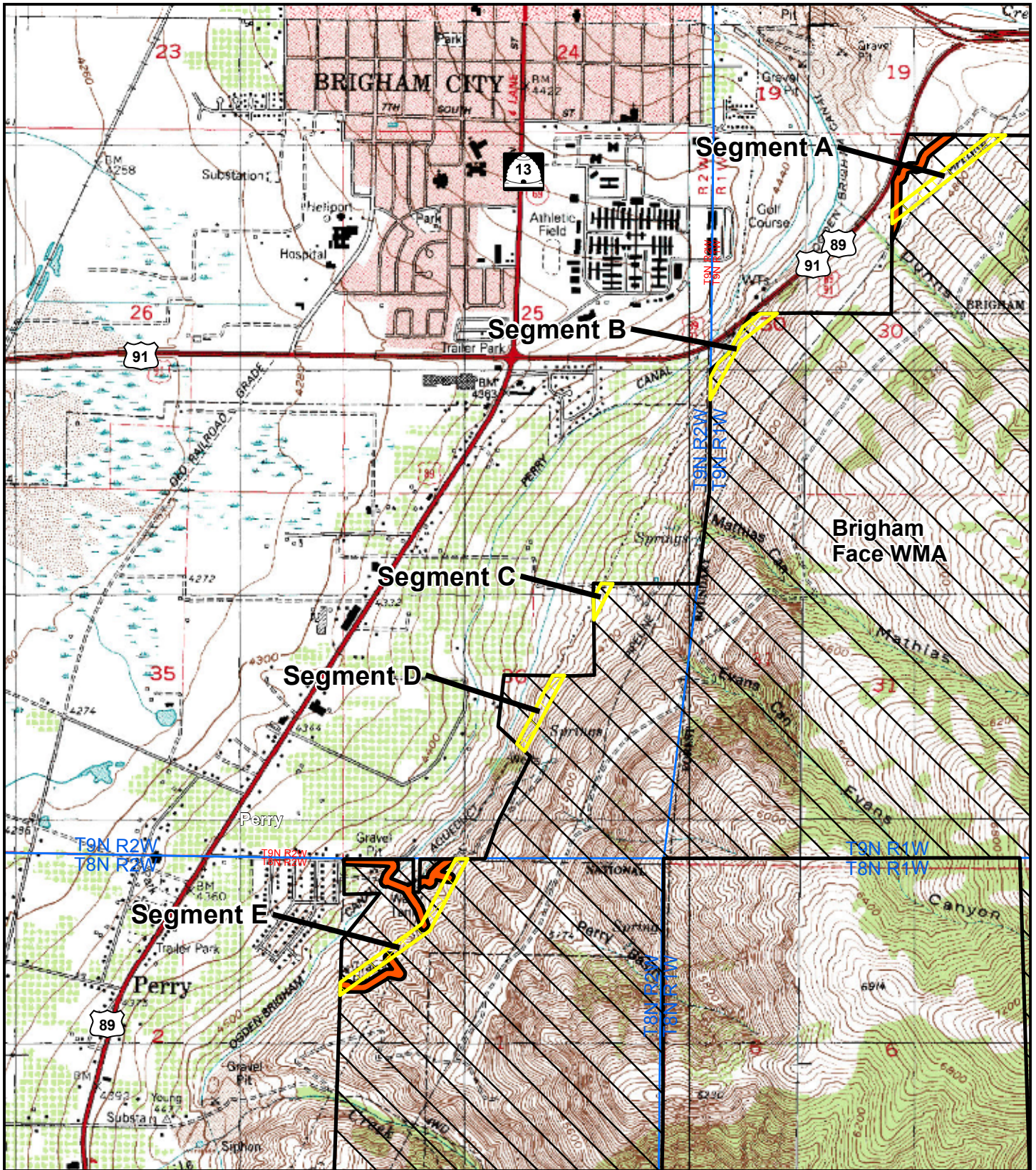
**Brigham Face WMA**  
 General Project Location Map  
 Figure 1

**Cultural Resources**  
**Final**

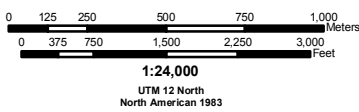
SOURCES: Topography, USGS 24K (Ward, Mantua, Plain City and North Ogden).  
 NOTE: Information is schematic and does not necessarily represent accurate locations.







- Legend**
- Inventory Corridor (Proposed 345kV Transmission Route)
  - Brigham Face WMA
  - Inventory Corridor (Access Roads)
  - Township/Range Line



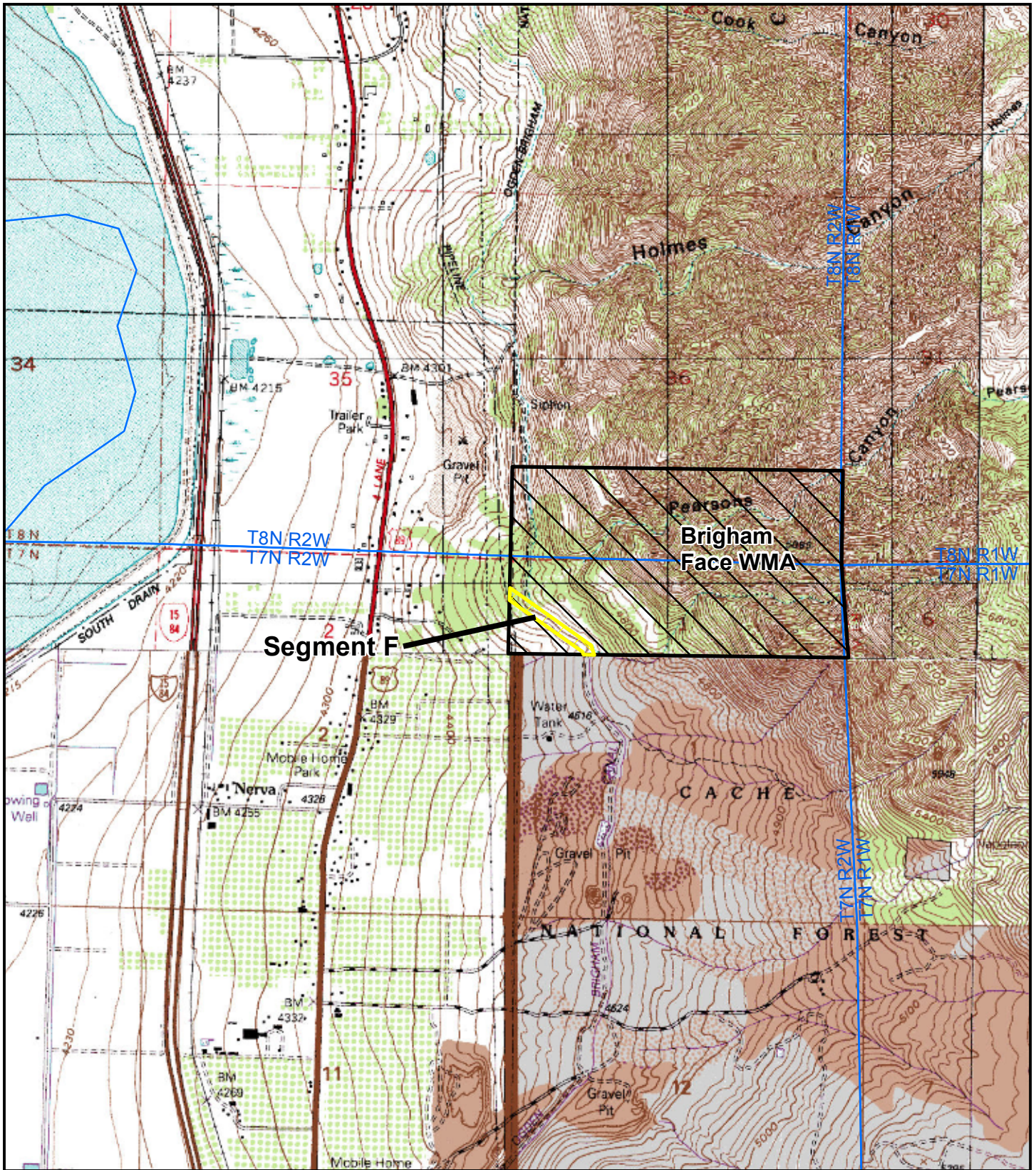
**Brigham Face WMA**  
 Detailed Project Location Map  
 Figure 2

**Cultural Resources**  
**Final**

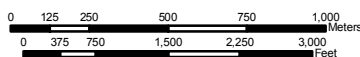
SOURCES: Topography, USGS 24K (Ward, Mathias, Plain City and North Ogden).  
 NOTE: Information is schematic and does not necessarily represent accurate locations.







- Legend**
- Inventory Corridor (Proposed 345kV Transmission Route)
  - Brigham Face WMA
  - Inventory Corridor (Access Roads)
  - Township/Range Line



1:24,000  
UTM 12 North  
North American 1983



**Brigham Face WMA**  
Detailed Project Location Map  
Figure 3

**Cultural Resources**  
**Final**

SOURCES: Topography, USGS 24K (W&A), Maricopa, Plain City and North Option).  
NOTE: Information is schematic and does not necessarily represent accurate locations.



**Figure 4. Location of Previously Recorded Sites**

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**TABLE 1. PREVIOUS CULTURAL RESOURCE PROJECTS AND SITES  
WITHIN ONE MILE OF THE PROJECT APE**

<b>State Project No.</b>	<b>Report Title</b>	<b>Sites Within One Mile</b>	<b>Sites Within APE</b>	<b>Consultant</b>
U-85-BE-0107	Cultural Resources Survey Portions of the Ogden-Brigham Canal, Box Elder County, Utah	None	None	Bureau of Reclamation (Wiens 1985)
U-84-BE-1051	Cultural Resources Survey of Riprap Areas for Arthur V. Watkins Dam, Box Elder and Weber Counties, Utah	None	None	Bureau of Reclamation (Wiens 1984)
U-87-CN-0615	Class III Cultural Resources Inventory of Proposed AT&T Fiber Optics Facilities In Utah	None:	None	Centennial Archaeology (Tucker 1987)
U-96-NR-0131	Cultural Resources Inventory Survey Completed for the Proposed WolrdCom Seattle to Salt Lake City Fiber Optic Line, Part 1: Utah	None	None	Northwest Archaeological Association, Inc. (Barlow et al. 1996)
U-92-BC-0043	An Archaeological Survey of Bureau of Reclamation Lands around Willard Bay Reservoir, Northern Utah	None	None	BYU – Office of Public Archaeology (Baker et al. 1992)
U-87-UC-0718	Archaeological Survey of the Perry City Land Exchange	None	None	UDSH-Antiquities Section (Lindsay 1987)
U-06-UQ-0013	Brigham Face Project	None	None	UT Division of Wildlife Resources (Davies 2006)
U-93-AK-0677	Cultural Resources Survey of Support Facilities for State Highway 91 Construction in the Brigham City Canyon and Mantua Localities of Box Elder County, Utah	None	None	Archaeological Research Consultants (Norman 1993)
U-94-AK-0560	Cultural Resources Survey of Support Facilities Phase 2 for US Highway 89-91 Construction in the Brigham City and Mantua Localities of Box Elder County, Utah	None	None	Archaeological Research Consultants (Norman 1994)

<b>TABLE 1. PREVIOUS CULTURAL RESOURCE PROJECTS AND SITES WITHIN ONE MILE OF THE PROJECT APE</b>				
<b>State Project No.</b>	<b>Report Title</b>	<b>Sites Within One Mile</b>	<b>Sites Within APE</b>	<b>Consultant</b>
U-88-SJ-0452	A Cultural Resources Overview of the US89/91 Corridor, Brigham City to Wellsville, Utah	None	None	Sagebrush Consultants (Polk 1988)
None	No formal report submitted	42BO399: prehistoric rockshelter; eligible 42BO400: prehistoric rockshelter; eligible	None	USFS (DeBlois 1978a; 1978b)
None	No formal report submitted	42BO409: prehistoric campsite; not eligible 42BO412: prehistoric rockshelter; eligible	None	Utah Statewide Amateur Archaeological Society (Stuart 1982a; 1982b)
None	No formal report submitted	42BO581: prehistoric rockshelter; unevaluated 42BO582: prehistoric rock art; unevaluated	None	Utah Statewide Amateur Archaeological Society (Stuart 1986a; 1986b)

## **ENVIRONMENTAL CONTEXT**

The project area lies on the western foothills of the Wasatch Range, east of Willard Bay and the Great Salt Lake in the Wasatch Front Valleys Physiographic Subdivision (Stokes 1986). The project corridor lies at elevations between 1400 and 1480 m (4600 and 4850 ft) above sea level (a.s.l.) The topography of the project area consists primarily of rolling terrain and broad sloping alluvial fans located along the former lake Bonneville shorelines. Disturbance in the area is almost entirely the result of agricultural activities and urbanization, including: farming, canal construction and maintenance, fence and power line construction, off-road vehicle activities, dumping, pipeline construction and road construction.

The Wasatch Front Valleys are situated in the northeastern Great Basin, an area characterized by north-south trending mountain ranges separated by broad, wide valleys (Grayson 1993:14). The primary feature of the area during the late Pleistocene was Lake Bonneville, which at its maximum extent covered an area approximately 19,970 square miles (Grayson 1993:88). Four distinct shorelines of the lake are clearly visible in Northern Utah along the western slopes of the Wasatch Mountains. The project area is situated in the vicinity of the Provo Shoreline, which reached its extent at 1502 m (4,930 ft) a.s.l. between 14,500 and 14,200 years ago (Grayson 1993:89-90).

Soils in the northern area (A-E) are predominantly Wasatch and Kilburn gravelly sandy loams which formed on alluvial fans and lake terraces (NRCS 2008). These soil types are representative of the extinct shorelines of Lake Bonneville and the deposition associated with seasonal runoff from the



adjacent canyons of the Wasatch Mountains. In the southern area (F), soils consist of Wasatch cobbly sandy loams formed on alluvial fans (NRCS 2008). Stony alluvial land, which forms on alluvial fans and lake terraces, is also present in the southern area. This is not a formal soil type, but a surface sediment designation. Stony alluvial land lacks formal soil properties and qualities, such as subsurface depth, drainage class, water capacity, salinity and the ability to transmit water (NRCS 2008). The location of the stony alluvial land corresponds with the modern floodplain of Pearsons Canyon.

Vegetation within the immediate project area has been greatly affected by farming activities, canal construction and maintenance and local urbanization. Much of the northern project area lies within open cultivated fields and pastures and along moderately-steep foothill slopes. Vegetation in these areas is predominantly Sagebrush Community species such as sagebrush, rabbitbrush, prickly pear cactus, and a variety of perennial and annual grasses and forbs (IMACS 1992:460-19). The southern area is dominated by species of the Oak-maple Shrubland Community, in particular Gambel oak. Scattered areas of sagebrush, prickly pear and rabbitbrush are also present (IMACS 1992:460-14).

## **PREHISTORIC CULTURAL CONTEXT**

The prehistory of the current project area parallels that of Utah and the Great Basin in general and begins near the end of the Pleistocene epoch. The series of cultural changes in the Basin are classified into four general time frames or phases: Paleoindian, Archaic, Formative, and Protohistoric. Each of these major phases is marked by a distinct lifeway. The following discussion briefly outlines each of these periods including approximate dates, descriptions of the predominant life-way, diagnostic artifacts, and important sites for each period.

### **Paleoindian (ca. 12,000 to 9000 B.C.)**

The Paleoindian Period is the earliest known period of demonstrated human occupation in the region. Also known as the Clovis Period, the Paleoindian Period is poorly understood in the eastern Great Basin. What is known about this period comes from a very few cave sites and surface sites, and isolated finds of Clovis, Folsom, and Lake Mojave projectile points (Zier 1984:21). Paleoindian social organization consisted of small groups practicing a highly mobile subsistence strategy with an emphasis on large game mammals such as giant bison, mammoth, camel, and ground sloth (Grayson 1993:71-72). However, associations of large faunal remains with Paleoindian artifacts like those commonly found in the Great Plains are absent in the eastern Great Basin. Sites and isolates attributed to Paleoindian occupation are typically found along the edges of extinct Pleistocene or early Holocene beaches suggesting a possible lake-edge marsh adaptation (Madsen 1982:213; Heizer and Baumhoff 1970). The absence of specialized tools for processing plant resources reinforces existing models of late Pleistocene subsistence strategies (Black and Metcalf 1986; Schroedl 1991). The characteristic artifacts associated with this period include Clovis, Folsom, Lake Mojave and Great Basin Stemmed projectile points (Justice 2002).

## **Early Archaic (ca. 9000 to 2000 B.C.)**

The Early Archaic Period encompasses three separate phases of culture history in the eastern Great Basin. The phases include the Bonneville Phase, the Wendover Phase, and the early Black Rock Phase. In general, the Early Archaic is represented almost exclusively by a lakeshore-marsh adaptation. Nearly all sites known from this time period in the eastern Great Basin are located on the Holocene shores of Lake Bonneville and are generally identified by the presence of Elko series, Pinto series, Humboldt, Northern Side Notched, and Sudden Side Notched projectile points (Zier 1984:21). In addition, grinding stones and the faunal remains of small rodents and birds are common at Early Archaic sites. The cultural lifeway associated with artifact assemblages and sites from this period is poorly understood at this time.

### Bonneville Phase (9000 to 7500 B.C.)

The terminal Pleistocene, called the Bonneville Period in the Great Basin by Aikens and Madsen (1986:154), is associated with the hunting of big game such as extinct bison, camel, mammoth, ground sloth and other large fauna. No doubt, humans of this time also made use of many other animal and plant species. Though evidence of this period of human activity has been found in other parts of the western United States, its presence in Utah is largely limited to isolated surface finds of large lanceolate shaped projectile points along extinct lakeshores in the western part of the state (Aikens and Madsen 1986:154). The only known site in western Utah which dates to this period is Danger Cave, southwest of the project area.

### Wendover Phase (7500 to 4000 B.C.)

This period encompasses the time when Pleistocene lakes in the Great Basin greatly receded. The change in environment gave way to a more diversified hunting and gathering subsistence strategy for prehistoric inhabitants due to a wider availability of game and plant foods. Technological changes that occurred along with these environmental shifts included the appearance of more grinding implements, such as thin slab millstones and manos, for wild plant processing and the development of atlatls or spear-throwers. Other artifacts include L-shaped scapula and splinter awls, antler flaking tools, and basketry (Jennings 1978:75). Although many more sites are known for this phase than for the Bonneville phase, Danger Cave is the nearest site to the project area which exhibits Wendover phase occupation.

### Early Black Rock Phase (4000 to 2000 B.C.)

The Early Black Rock Phase is characterized by a dramatic increase in the number of occupation sites, a movement into upland areas and a further diversification of resource exploitation (Aikens and Madsen 1986:157). The technology of the period is similar to the Wendover Period, but includes a much higher percentage of Elko and Gypsum series projectile points. Many of the changes of this period can be attributed to increased aridity during the mid-Holocene (Antevs 1955). A decrease in marsh resources due to the aridity and an increase in population may have caused the

shift away from marsh exploitation to an exploitation of upland resources (Aikens and Madsen 1986:158). Again, Danger Cave is the nearest example of this occupation.

### **Middle Archaic Period (ca. 2000 B.C. to A.D. 500)**

The Middle Archaic represents a return to a more traditionally focused Archaic lifeway with broad spectrum hunting and gathering, seasonal camp movement, and diversification of resource exploitation (Zier 1984:22). The Middle Archaic is characterized by a single phase known as the Late Black Rock Phase. It is called this because of its similarities to the previous time period.

During the Late Black Rock Phase, a neoglacial climatic change increased the effective moisture in the eastern Great Basin (Currey and James 1982:40). This change enhanced the productivity of certain biotic communities while destroying others. Rising water levels and unpredictable flooding diminished the resource base around lakeshore marshes and forced Archaic peoples away from many of their lakeside habitation sites (Aikens and Madsen 1986:158). Upland occupation continued but to a lesser degree than in the previous period. Although similar to that of the Early Black Rock Phase, the technology of this phase does have several diagnostic differences. The bow and arrow came into use during the Late Black Rock Phase and totally replaced the atlatl by the end of the phase. New projectile points accompanied the shift to the bow and arrow with much smaller arrow points taking the place of the larger dart points. Corner Notched and stemmed Rose Spring and Eastgate series projectile points also appear during this time period. In addition to artifacts from Danger Cave, numerous Middle Archaic materials have been recovered from the Fish Springs Caves, also southwest of the current project area (Aikens and Madsen 1986:158-160).

### **Late Archaic Period (ca. A.D. 500 to 1500)**

The Late Archaic Period in the eastern Great Basin is marked by a shift from a traditional hunting and gathering subsistence pattern to a more sedentary pattern of horticulture supplemented by hunting and gathering (Aikens and Madsen 1986:158). Opinions on the validity of such a general statement vary widely and debate on the topic continues. Nevertheless, the semi-sedentary subsistence strategy is accepted as a likely pattern for this period, but not necessarily as the only one.

During this period there was an increase in the number and variety of ground stone tools used for processing vegetable products and wild plant resources. Corn kernels and cobs are often found at Late Archaic sites. In addition, crude pottery appears in the archaeological record at the beginning of this period. These ceramics include Snake Valley Gray, Great Salt Lake Gray, Ivie Creek Black-on-white, and Sevier Gray. Habitation structures include both pit houses and surface dwellings. Other traits include engraved pebbles, clay figurines, and small, corner notched, side notched, and triangular projectile points (Zier 1984:23).

The Fremont Culture represents the Late Archaic Period in the eastern Great Basin. Five variants, or groups of Fremont, are recognized within Utah. The variant nearest the project area is known as the Great Salt Lake Fremont subculture. Although no Fremont sites have been located within the

immediate project area, several Great Salt Lake Fremont sites have been identified in the general region of the Salt Lake Valley. The Great Salt Lake Fremont subsistence strategy differs from surrounding Fremont variants in that their subsistence system was based more on exploitation of wild plants and animals than mixed horticulture and foraging. Habitation sites lack substantial structures with the exception of subsurface storage pits (Marwitt 1986:161-172).

### **Protohistoric Period (ca. A.D. 1200 to 1850)**

The final archaeologically identifiable period of occupation in the eastern Great Basin is that of the Protohistoric Period, historically known as the Numic Period. This occupation apparently began as Numic/Shoshonean speaking peoples migrated into the northern Utah area, about A.D. 1200 to 1300. It is not yet clear whether the Fremont abandoned the area prior to the arrival of the Shoshoneans, resource competition between the two groups forced the Fremont from the region, or whether the Fremont Culture was absorbed by the arriving Numic/Shoshonean Culture (Marwitt 1986:171-172). The Northern Utah area was occupied by Numic-speaking Shoshone groups, who continued to occupy the region into the Historic Period (Zier 1984:24).

Due to the scarcity of artifacts, Numic sites are difficult to identify. Little is known about these Shoshonean groups archaeologically other than the presence of Shoshone pottery and Desert Side Notched projectile points. Ethnographically, subsistence activities of Shoshonean groups (bands) involved seasonal movements to specific geographic localities as particular food resources became available throughout the year. The size and structure of a band fluctuated with changes in the types and availability of resources, but generally consisted of small, family-sized groups in the spring and summer, and large, multi-family groups during the fall and winter months (Steward 1938).

## **HISTORIC CULTURAL CONTEXT**

The history and development of the Northern Wasatch Front parallels that of the Utah and Salt Lake Valleys to the south. Though more rural in general, this region, centered on the communities of Brigham City, Perry and Willard, has grown and developed at a steady pace. Primary development of the region has centered on Brigham City as the largest and most established of the three communities. For the purposes of the current project, the history of the area is divided into seven developmental periods as follows: Exploration, Settlement, Commercial Development, Industrial Development, Depression and World War II, Postwar, and 21<sup>st</sup> Century.

### **Exploration (1824-1850)**

This period is marked by the initial exploration of the Brigham City area by Euroamerican fur trappers making the first contact with the local Shoshone Indians. The subsequent arrival of pioneers with the Church of Latter Day Saints (Mormons) led to further exploration of the region for potential

settlement. Although the area was thoroughly explored during this period, no permanent Euroamerican settlements were established.

The earliest record of Euroamerican incursion into the area coincides with the earliest exploration of the North American West. The Lewis and Clark expedition of 1804-1806 revealed that the rivers and streams of the region had an abundant supply of beaver. Hats made of beaver fur were popular in England and Europe in the early nineteenth century and were in great demand, so entrepreneurs rapidly formed fur companies to exploit the vast, untapped North American beaver supply (Bartlett and Goetzmann 1982:26-30).

The first white explorer to venture into the area of Brigham City was likely Jim Bridger. During the winter of 1824-25, Bridger and other members of John Weber's trapping party camped in the Cache Valley, northeast of Brigham City. Bridger traveled down the Bear River to the Great Salt Lake, passing through the future townsite of Brigham City (Vestal 1946:64). Numerous other trappers, including Peter Skene Ogden and Joseph R. Walker, explored in the vicinity of Brigham City, during the 1820s and 1830s (Utah State Historical Society 1988:5). The area along the Bear River was exploited by fur trappers ". . .until the streams were depleted of beaver, and the stylishness of beaver hats declined" (Huchel 1999:46). These trappers provided information about the native Shoshone inhabitants and reports of the region's fertile land and abundant water.

The next wave of exploration came after the Mormon migration to Utah in 1847. Just a few weeks after the arrival of Mormon pioneers in the Salt Lake Valley, Brigham Young sent a small exploring party into the Cache Valley. The party traveled north to the Bear River and descended Box Elder Canyon on their return to the Salt Lake Valley. Orrin Porter Rockwell homesteaded what became known as Porter Spring in 1849 (Chestnutwood 1950:34-36).

### **Settlement (1851-1863)**

This period is marked by the establishment of a permanent settlement by European-Americans. Following initial settlement of the Brigham City area there was steady growth in the region. Between 1851 and 1853, the first settlers of present day Brigham City, Willard, and Perry established cabins in the region. In 1851, William Davis and his family built a log house just west of the current Brigham City town site becoming the first settlers in the area (Chestnutwood 1950:34-36). In the first year they were joined by several other families who built a series of log houses, known collectively as the Davis Fort, sometimes referred to as the Old Fort (Forsgren 1937:257). Halfway between Davis Fort and Ogden, North Willow Creek, later to be known as Willard, was also established. In

1853, the present location of Perry was settled by William Plummer Tippetts, who was later joined by Lorenzo Perry, the town's first Mormon Bishop. Various known as Porter's Spring and Three Mile Creek, the town came to be known as Perry, in honor of Lorenzo Perry (Van Cott 1990:291).

Mormon settlement on traditional Shoshone lands resulted in raids by Shoshone bands in the ensuing

years. Davis Fort became a haven for white settlers, who only ventured outside its confines to tend to crops or livestock. By 1852, at the location of present day Brigham City, Davis Fort had nearly 1400 residents (Huchel 1999: 55-57). At that time, a slight decrease in hostilities led the residents of the fort to move onto farms, which had been laid out the previous year. By 1853, two dozen additional families had joined the community. When Shoshone raids resumed that year, Brigham Young ordered the outlying settlers to return to Davis Fort for safety (Tullidge 1889:291).

In 1854, Brigham Young ordered Mormon leader Lorenzo Snow to take fifty families from the Salt Lake Valley north in order to strengthen and develop the small settlement at Davis Fort. The new settlers were specially selected to include a schoolteacher, a mason, carpenters, blacksmiths, and other skilled craftsmen who would ensure the economic success of the community (Arrington 1964:200). Lorenzo Snow and Jesse Fox completed a survey for the townsite, dividing it up into half-acre blocks, and renaming it Brigham City in honor of Brigham Young. This town site, located east of Davis Fort at the location of present-day downtown Brigham City, was on higher ground than the original site, providing better drainage for building foundations (Chestnutwood 1950:44-45). With the influx of additional settlers, residents of Brigham City and the surrounding settlements resumed the establishment of farms.

Hostilities between whites and the Shoshone increased once again in the early 1860s. When the first Mormon pioneers entered the region the Shoshone were dependent upon the valleys and foothills of the Wasatch Mountains for their subsistence. Traditional hunting and gathering territories exploited by Shoshonean peoples for generations were now occupied by Euroamerican settlements. Cattle and sheep populations destroyed vital native plant habitats. Dependent upon native plants for a significant portion of their subsistence, the Shoshone were driven to the brink of starvation. In 1862, Shoshone leaders, desperate to feed their band members began to raid Mormon livestock and attack emigrant parties in their territory. Indian raids on Mormon settlements and along the Oregon/California Trail ultimately led to military intervention in 1863, resulting in what is now known as the Bear River Massacre (Christensen 1995:38-41).

In January 1863, Colonel Patrick Conner led a force of over 200 cavalry soldiers, 69 infantryman and two howitzers against the Shoshoni winter camp at Bear River (Christensen 1995:38-41). It is estimated that more than 250, and possibly as many as 493 Shoshoni, including Chief Bear Hunter and Chief Ashingodimah, were slaughtered by Conners men (Trenholm and Carley 1964:202; Moulton 2008). Chief Sagwitch was wounded during the battle but managed to escape. Following the Bear River Massacre a series of treaties were signed and the Northern Shoshone were assigned to reservation lands (Trenholm and Carley 1964:201-204; Madsen 1994a:497-498).

### **Commercial Development (1864-1896)**

In 1864, a large number of Scandinavian immigrants arrived at Brigham City, increasing the population of the settlement to 1,600 and fostering the development of manufacturing, crafts, and retailing (Arrington 1964:200). In order to promote economic self-sufficiency, Lorenzo Snow oversaw the establishment of the Brigham City Cooperative, a joint-stock mercantile enterprise. The

cooperative expanded quickly after shares were offered to residents at \$5.00 per share, allowing the venture to establish a tannery, wool factory, and a shoe shop. By 1870, the cooperative was the only store in Brigham City, with seven directors and 126 stockholders (Arrington 1964:201-202).

The completion of the transcontinental railroad in 1869 at Promontory provided the opportunity for the exportation of local goods to outside markets. In order to consolidate northern Utah Mormon settlements and provide a market for their agricultural and manufactured products, Mormon officials proposed a railroad connecting Brigham City with Ogden, Logan, and Franklin, Idaho (Arrington 1958:283). Seventeen leading church and business leaders of northern Utah organized the Utah Northern Railroad in 1871. The company held a ground breaking ceremony in Brigham City and by July 1872 freight and passenger trains were running twice daily from Brigham City to Hampton's Station, on the edge of the Cache Valley. In 1874 the line from Brigham City to Ogden was completed, linking Brigham City with the Union Pacific and Utah Central lines (Arrington 1958:284). Between the services of the Central Pacific and the Utah Northern Railroads, citizens of rural Box Elder County were provided new opportunities to both receive and transport goods and services.

The transcontinental railroad also increased the number and influence of non-Mormons in Utah. The town of Corrine, six miles west of Brigham City, was established in 1869 on the Union Pacific line by non-Mormons in an attempt to break the political and economic monopoly held by the Mormons. Completion of the Utah Northern line from Ogden to Franklin, Idaho effectively cut off Corrine as a link for the shipment of goods to the mining towns of western Montana and by 1879 most of the few non-Mormons had left town (Madsen 1994b:118).

Concerned that Mormon control over Utah was declining, church officials sought to stave off outside influences in the 1870s. Cooperatives established in Brigham City and Lehi provided a model for economic self-sufficiency. When the Panic of 1873 struck Utah, Brigham City experienced a period of expansion. By 1874, the Brigham City Cooperative was doing \$30,000 worth of business annually (Arrington 1964:205). Impressed with the way that Lorenzo Snow had mobilized labor and capital for the promotion of home industry and agriculture, Brigham Young encouraged similar enterprises in other areas of Utah. The cooperative economic structure was formalized into an official church policy known as the United Order (Arrington 1958:325-326).

In 1874, the reorganization of the Brigham City Cooperative into the Brigham City United Order brought about the creation of the United Order Council, a group of sixty county citizens responsible for setting policy (Arrington 1964:208). The United Order Movement met with mixed results in other Mormon settlements. It was most successful in the isolated settlements of southern Utah, where the communal structure of Orderville provided the fullest expression of the movement (May 1994:578). By 1877, the improved economy and the death of Brigham Young effectively ended the movement (Arrington 1958:337).

In 1877, the Brigham City Cooperative was the model of success. Its 500 employees were well paid and the company maintained a high rate of investment, however, a series of economic disasters

rapidly reversed the company's fortune (Arrington 1964:212). A fire destroyed the wool factory in November 1877. An attempt to supply lumber on a contract with the Utah Northern Railroad ended in futility when forty men from Brigham City were charged with cutting United States timber reserves in 1878. Heavy federal taxation also weakened the financial viability of the United Order. By 1880, most of the departments had been sold, leaving the general store as the only remnant of the once-flourishing enterprise. The store went bankrupt as a result of the economic depression of the 1890s and was taken over by the Deseret State Bank in 1896 (Arrington 1964:212-217).

### **Industrial Development (1897-1928)**

This period is characterized by the development of large-scale industry in the Brigham City area. Like the previous period, this period is marked by expansion and decline of economic enterprises.

One of the first large-scale industrial projects in the area was the Ogden Portland Cement Company plant, which opened northwest of Brigham City in 1909 (Forsgren 1937:31). By 1913, the plant was producing 700 barrels of cement a day, but ceased operation sometime prior to 1937 (Forsgren 1937:53-54; Chestnutwood 1950:119).

Another major industrial development in Brigham City came with the success of the sugar beet industry in Box Elder County. In 1903, the Utah-Idaho Sugar Company opened a factory in Garland and expanded rapidly during its initial years of operation. By 1915, the plant was harvesting more than 125,000 tons of beets per year. The company expanded its operation in 1916, opening a factory in Brigham City (Forsgren 1937:53-54). The sugar beet industry declined during a post-World War I agricultural depression and the Great Depression of the 1930s. As a result, the Brigham City factory ceased operation in 1933 (Forsgren 1937:54).

Industrial growth in the region led to the development of an urban transportation network in Brigham City. In 1904, a system of street cars began operating in Brigham City and six years later the Ogden Rapid Transit Company brought rail service through the center of Brigham City (Forsgren 1937:38). In 1914, this company merged with a company in Logan to form the Ogden, Logan & Idaho Railway. The new company constructed a 44 mile long line connecting Brigham City and Logan and relocated the track running through the center of Brigham City to a corridor on the west side of town (Forsgren 1937:38; Carr and Edwards 1989:23). Several railroads operated the line until 1947, when the Utah Idaho Central Railroad Corporation abandoned it and scrapped large portions of the track (Robertson 1986:303).

### **Depression and World War II (1929-1945)**

This period is marked by the economic hardship brought on by the Great Depression and the subsequent recovery during World War II.

The Brigham City economy languished during the Great Depression which gripped the nation in the 1930s. As previously mentioned, the sugar beet industry was adversely affected, contributing to the



demise of the Utah-Idaho Sugar Factory in Brigham City in 1931. Because agriculture remained the dominant segment of the economy, Brigham City did not suffer as severely as other towns in Utah that relied more on manufacturing. Throughout the 1930s, Brigham City remained a small agricultural town specializing in fruit production (Bradford 1994:52). Comparatively few emergency relief measures were enacted; in 1933 Box Elder County had the lowest relief expenditure in Utah at \$2.31 per capita (Bluth and Hinton 1989:487).

The massive mobilization during World War II helped to revive the Brigham City economy. Demand for agricultural products soared and the community enjoyed the benefits of increased employment. The opening of Bushnell General Hospital, built in 1942, to treat wounded soldiers, provided a major boost to the local economy. The sixty-building facility provided jobs for hospital staff and a market for the products of local farmers (Bradford 1994:52).

### **Postwar (1946-1999)**

This period is marked by the growth and urbanization of Brigham City in the years after World War II. The period also includes the economic diversification of Brigham City and the development of the aerospace industry.

After a brief period of service in the war effort, Bushnell General Hospital was closed in 1946. In 1950, the Bureau of Indian Affairs (BIA) converted the facility into the Intermountain Indian School, initially attended only by Navajo students. In 1973 the BIA reorganized the school as an intertribal institution. In 1982 the Intermountain Intertribal School was attended by more than 800 Native American students (Royslance 1982:411). The facility was closed in 1984 and many of the buildings were demolished.

The availability of large tracts of open land in proximity to major transportation networks, and an urban workforce, made the Northern Wasatch Front attractive to large industry. In 1950, the opening of the Thiokol Chemical plant significantly fueled post-war growth in the region. The manufacturer of the Minuteman missile and the space shuttle booster rockets represented the largest manufacturing enterprise in the history of Box Elder County (Bradford 1994: 52). By 1988, Thiokol was employing over 5,000 people at the Brigham City facility (Utah State Historical Society 1988:5). Other large industrial facilities operating in the area at that time included Morton International, Colorado Steel, Nucor, and Vulcraft.

Increased employment opportunities in the industrial market led to a period of significant population growth. During the post-war period the population of Brigham City more than doubled, growing from 6,790 in 1950 to approximately 16,000 by 1990 (Bradford 1994:52). The development of a large industrial presence provided local jobs for the residents of the Northern Wasatch Front, allowing them to work close to home rather than commuting to the major population centers in Ogden and Salt Lake City.

## **21<sup>st</sup> Century (2000-Present)**

Today, the Northern Wasatch Front remains an area of significant growth and development. The communities of Brigham City, Perry and Willard have expanded and are no longer isolated northern satellites of the greater Wasatch Front. According to the United States Census for the year 2000, Brigham City had a population of 17,411 (Brigham City 2008). Perry has grown to a population of 2,283 and Willard to 1,630 (Census 2000). With 3,250 workers in 2005, ATK/Thiokol is still the largest private employer in Box Elder County. In 2007 Autoliv, the second largest employer in Box Elder County, employed over 4,000 in northern Utah (Brigham City 2008). Nucor Corp. is building a “\$27- million metal- building plant in Brigham City which will employ a large workforce upon completion” (Starner 2007). With the largest portion of the population employed in the field of manufacturing the Northern Wasatch Front is largely dependent upon the continued success of its supporting industries. Brigham City is currently considered to be one of the premier industrial markets in Utah (Starner 2007).

## **METHODOLOGY**

The survey area covered during this project consists of six individual transmission line segments and four access corridors in Box Elder County, Utah (Figures 2-3). Individual locations consisted of linear segments crossing through the BFWMA. The six project areas are designated as segments A-F, with several segments consisting of more than one component. Survey area A has one transmission line segment and one access road route. Survey areas B, C and D each have one transmission line. Survey area E has two transmission line segments (E1 and E2) and three access road routes. Survey area F has two transmission line segments (F1 and F2). Survey corridors varied between 100 ft, 175 ft and 200 ft in width. The Class III pedestrian survey was completed by archaeologists walking in parallel transects spaced no more than 15 m (50 ft) apart. Ground surface visibility was 80% or better over most of the areas surveyed. The areas surveyed were identified using GPS data, aerial photographs, USGS 7.5' Quadrangles, and prominent topographic features as points of reference. The details for each survey area are provided in Table 2. A total of 4.57 km (2.84 mi) of corridor and access road routes were surveyed totaling 20.55 ha (50.73 acres).

All archaeological sites more than 50 years old encountered during the inventory were documented on Intermountain Antiquities Computer Site Forms (IMACS). Photographs were taken of representative and diagnostic artifacts, cultural features, and site overviews. The site boundaries, cultural features, artifact concentrations, diagnostic artifacts and notable natural topographic features were mapped using a Magellan Professional MobileMapper CX Global Positioning System (GPS) unit. All data was differentially corrected using MobileMapper Office.

<b>Survey Area</b>	<b>Corridor Type</b>	<b>Length (ft)</b>	<b>Width (ft)</b>	<b>Legal Location</b>
A	Transmission line	1950	175	T.9N, R.1W, Section 30
A	Access Road	1800	100	T.9N, R.1W, Section 30
B	Transmission line	1460	175	T.9N, R.1W, Section 30
C	Transmission line	415	175	T.9N, R.2W, Section 36
D	Transmission line	1190	175	T.9N, R.2W, Section 36
E	Transmission lines	2625	200	T.8N, R.2W, Section 1
E	Access Roads	4085	100	T.8N, R.2W, Section 1
F	Transmission lines	1460	150	T.7N, R.2W, Section 1

All cultural resources identified, recorded or updated during the cultural resources inventory were evaluated for eligibility to the NRHP based on criteria set forth in the federal regulation *36CFR 60.4*:

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(B) that are associated with the lives of persons significant in our past; or

(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(D) that have yielded, or may be likely to yield, information important in prehistory or history.

## **RESULTS AND RECOMMENDATIONS**

A total of three new cultural resource sites, 42BO1685 (the Ogden-Brigham Canal), 42BO1686 (the Pearsons Canyon Flood Control System), and 42BO1687 (a ca. 1940s trash scatter), were identified, recorded and evaluated for eligibility to the NRHP during this inventory (Figure 5; Table 3). Two of these properties, the Ogden-Brigham Canal (42BO1685) and the Pearsons Canyon Flood Control

System (42BO1686) represent significant historic irrigation and flood control features that retain a high degree of integrity and therefore are recommended **ELIGIBLE** to the NRHP. All IMACS site forms, photographs, site locator and sketch maps, and encoding forms are provided in Appendix A.

<b>TABLE 3. NEW SITES RECORDED WITHIN THE PROJECT APE</b>			
<b>Site #</b>	<b>Description</b>	<b>Recommendations</b>	<b>Segment Location</b>
42BO1685	Historic Ogden-Brigham Canal	Eligible	F
42BO1686	Pearsons Canyon Flood Control System	Eligible	F
42BO1687	Trash Scatter	Not Eligible	F

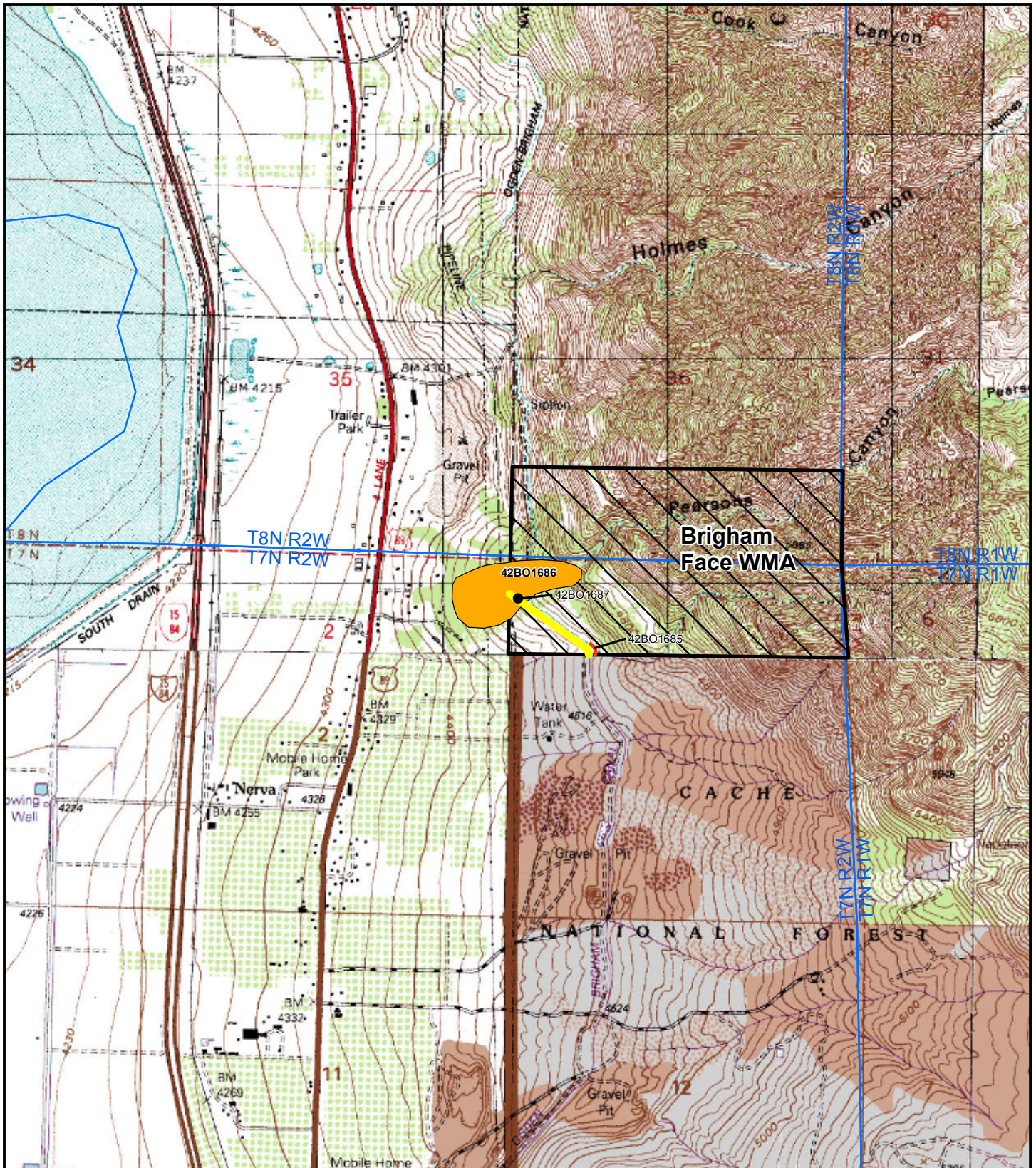
### **42BO1685 (Ogden-Brigham Canal)**

Site 42BO1685 is 200 ft long segment of the historic Ogden-Brigham Canal that was constructed between 1935 and 1937. The canal was constructed in conjunction with the Ogden River Project, a \$3 million Depression era public works reclamation project that was funded by the 1933 National Recovery Act (Stene 1993). The canal was needed to bring irrigation water to communities along the Wasatch Front in Weber and Box Elder counties. Work on the canal began in September 1935, under construction contracts with J.A. Terteling and Sons Company, Utah Construction Company, and Morrison-Knudsen Company. The excavation and lining of the canal was completed by the end of 1936 and work on the siphons was finished by June 1937. There was additional minor work and clean-up done during 1938 and 1939 (Stene 1993).

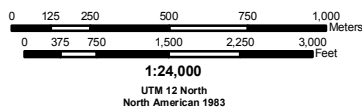
The Ogden-Brigham canal is approximately 24.2 miles in length and has a capacity of 120 cubic feet per second (Stene 1993). It originates at the junction of the Ogden Canyon Conduit and the Pioneer Powerplant, in Ogden, Utah, and travels north, then northwest to its confluence with the Box Elder Canal in Brigham City, Utah. The canal is currently maintained and remains in use, conveying water from Pineview Reservoir to communities and agricultural lands between Ogden and Brigham City. The canal segment recorded during the present project is located within the BFWMA southeast of Willard, Utah, along the foothills below Willard Peak.

The Ogden-Brigham Canal has been previously recommended ELIGIBLE (42WB435) to the NRHP under criterion A, due to its significant role in the development of communities and farming along the Wasatch Front in Box Elder and Weber counties. Although the segment record during the present project has undergone routine maintenance, as a part of an operational irrigation network, it still functions within its historic corridor and serves its historic purpose. There are no visible structural





- Legend**
- Inventory Corridor (Proposed 345kV Transmission Route)
  - Brigham Face WMA
  - Township/Range Line
- Sites**
- Site 42BO1685
  - Site 42BO1686
  - Site 42BO1687



**Brigham Face WMA**  
 Location of Newly Identified Sites

Figure 5

**Cultural Resources**  
**Final**

SOURCES: Topography, USGS 24K (Ward, Marika, Plain City and North Ogle).  
 NOTE: Information is schematic and does not necessarily represent accurate locations.





upgrades that have compromised the integrity of the canal design or workmanship. There has been no encroachment of modern development that would compromise the integrity of location, setting or feeling. The segment recorded during the present project is considered contributing to the general eligibility of this eligible property. Therefore, EPG recommends site 48BO1685 ELIGIBLE to the NRHP under criterion A.

#### **42BO1686 (Pearsons Canyon Flood Control System)**

Site 42BO1686 is a historic barrier system for flood and gravel control constructed ca. 1924-1928 at the mouth of Pearsons Canyon east of Willard, Utah. The flood control system represented at site 42BO1686 appears to remain intact and in relatively good repair. A series of eight stone features (F1-F5 and F8-F10 [lateral embankments, gabions, and stone walls]), an earthen barrier with spillway (F6), and a stilling basin (F7) were identified in association with this site. What appears to be one additional stone feature is visible on aerial photographs. This feature, located approximately 1,000 feet north of the main stream channel on a secondary channel, was not investigated during the present project.

*The Barrier System of Flood Control* was developed by L.M. Winsor, Irrigation Engineer for the Bureau of Agricultural Engineering, United States Department of Agriculture, in cooperation with the Utah Experiment Station between 1923 and 1933 (Winsor 1933a). L.M. Winsor was a highly respected Irrigation Engineer noted for his groundbreaking work in irrigation and flood control both nationally and internationally. In addition to his significant work in the Western United States he is known for his work in Iran, Chile, and Canada. Winsor was appointed and served five years as Director General at the Ministry of Agriculture in Iran by the U.S. President during the 1940s (Utah State University 2008).

Winsor's Barrier System of Flood Control consists of three primary components: 1) a series of lateral embankments; 2) a stilling basin; and 3) a barrier with spillway. This system was designed specifically for use in areas where flooding mountain streams carried heavy loads of rock and debris. A series of embankments constructed of local earth, rock, and sometimes concrete installed along the flood path serve to direct flow, reduce velocity, and spread the flood stream laterally. Through this process, boulders, rock, gravel, and debris are deposited on the upstream surface allowing unburdened flood waters to flow downstream into a stilling basin where sand and silt are gravity deposited prior to the water flowing over the barrier spillway and into the natural stream channel.

The barrier flood control system recorded at Pearsons Canyon represents the most intact remaining system identified on the Northern Wasatch Front. Analysis of aerial photographs of canyons between Farmington and Brigham City indicate that other similar flood control systems constructed during the 1920s and 1930s have largely been destroyed. Although remnant features associated with these systems are still in evidence, the systems themselves are no longer a visible part of the landscape. Historic flood control features in Utah are generally assumed to represent remnants of the efforts of the Civilian Conservation Corps (CCC) during the 1930s, however, significant flood control structures were installed along the Northern Wasatch Front prior to the conception of the

CCC. In August of 1923, a substantial flood episode occurred in Northern Utah, extending from Box Elder County to Juab County along the Wasatch Front. The storm proved to be particularly destructive, with more than six lives lost and an estimated \$75,000-\$85,000 in property damage (Paul and Baker 1925). Flood control structures installed in 1922, along Salt Creek, near the town of Nephi largely protected that community during the 1923 flood (Winburn 1934). The unprotected communities of Willard and Farmington were the most severely affected by the storm. Massive walls of water pushing a roiling mass of mud and debris rushed down Willard and Farmington Canyons scouring the canyon bottoms of trees, rocks and everything else in the path of destruction. In an effort to prevent further losses due to future flood episodes, Box Elder and Davis Counties initiated construction of flood control features similar to those installed near Nephi (Winburn 1934). A review of the minutes of the Box Elder County Commission (Box Elder County 1923; 1927) and the Willard City Council (Willard City 1928; 1929) between October 1923 and December 1928 has provided some insight into the nature of these efforts in Box Elder County. Further documentary research in the Winsor Papers and Winsor Photograph Collection housed in the Special Collections of the Quinney Library at Utah State University provided additional documentation on flood control efforts during the 1920s (Winsor 1963; 1964).

On December 27, 1923, Box Elder County entered into a cooperative agreement with the Willard Water Company for flood control improvements in the mouth of Willard Canyon. Improvements were to consist of “extending the channel approximately 300 feet toward the mountain and building wing-walls from the head of said channel diagonally to the sides of the canyon to insure a free passage of the waters of Willard Creek into the new channel which has been constructed” (Box Elder County Commission 1924:279). Flood control work along the Northern Wasatch Front continued through the 1920s as funding and manpower became available. New stream channels were excavated, flood barriers, spillways, rubble masonry embankments, gabions, and dykes were constructed at the canyons most vulnerable to flooding (Winburn 1934; Willard City Council 1928:322; 1929:335-337). In March 1927, an agreement was reached between Box Elder County and the North Willard and Three Mile Creek Irrigation Companies funding construction of a new 4,000 foot long channel for control of flood waters emanating from Perry Canyon. The channel extended from the mouth of Perry Canyon to the highway and was built to protect the road and adjacent properties (Box Elder County Commission 1927:583). Flood barriers and spillway structures to hold back rock, gravel, and debris during flood episodes were constructed at North Willard Creek at North Willard (Willard Canyon), Willow Creek at Willard (believed to be present day Pearsons Canyon), and Three Mile Creek at Perry (Perry Canyon) (Winsor 1933b). These efforts greatly reduced damages during the flooding in the 1930s. Portions of these barriers and spillways are still present at these three locations with the spillway structure and retention basin at Willard remaining operational (Braegger 2008, pers. comm.).

The barrier flood control system recorded at Pearsons Canyon represents the most intact remaining system of its kind identified on the Northern Wasatch Front and is recommended eligible to the NRHP under criteria A, B, and C. Although remnant individual features associated with similar systems are still in evidence in Willard, Layton, and Farmington, the systems themselves are no longer in existence. The flood control system represented at site 42BO1686 appears to remain intact,

in relatively good repair, and likely still serves as a functional flood control barrier during extreme flood episodes. This site and its constituent parts retain a high degree of integrity and represent a historically significant period in Utah history. This system, constructed after the disastrous 1923 flood, is the result of a cooperative effort between the local citizenry, city, county, state, and private enterprise to protect the community of Willard and local transportation corridors from future losses due to flooding. The Pearsons Canyon Flood Control System represents a series of distinctive features on the Wasatch Front that are representative of a class of resources which has played a highly significant role in the history of the State of Utah. Based upon the significant role of early flood control practices in the historic development of the Wasatch Front, EPG recommends site 42BO1686 ELIGIBLE to the NRHP under criterion A.

The barrier flood control system represented at this site, developed by Utah native L.M. Winsor, has since been employed throughout the West and represents an important stage in the development of flood control systems in the Intermountain West. L.M. Winsor was a highly respected Irrigation Engineer noted for his groundbreaking and innovative work in irrigation and flood control both nationally and internationally. Winsor was at the forefront of the industry during the most critical point in the development of irrigation and flood control works in the West. He was responsible for many of the key innovations that are still in practice today. Based upon the site's ties to Engineer L.M. Winsor and his significant contributions to flood control and irrigation development in the West, EPG recommends site 42BO1686 ELIGIBLE to the NRHP under criterion B.

This site pre-dates CCC flood control work in the region and represents a significant example of early flood barrier architecture in Utah. This site embodies a distinctive type and method of construction associated with early flood control work in the Western United States and retains a remarkable degree of integrity of location, design, setting, materials, workmanship, feeling and association. The stonework has withstood more than 80 years of erosion and flooding with little effect to the physical nature of the individual structures within the system. Individually these structures are important, taken as a group they represent a very significant distinguishable historic entity. Based upon retention of overall integrity and association of significant features within an intact system, EPG recommends site 42BO1686 ELIGIBLE to the NRHP under criterion C.

#### **42BO1687 (1940s trash scatter)**

Site 42BO1687 is a historic trash scatter located on a southwest-trending plain in an area of Gambel oak. Approximately 330 artifacts were identified including: glass, ceramics, tin cans and other miscellaneous household items. Two artifact concentrations (AC1 and AC2) were identified. AC1 is a dense domestic debris scatter that measures approximately 18 ft x 12 ft located in the center of the site. The majority of the artifacts at the site are located within this concentration. AC2 is a small glass and tin can scatter that measures approximately 3 ft diameter located in the eastern margin of the site. No features were found in association with this site. There are approximately 150 glass fragments, with amethyst, clear, brown, green, blue, yellow, and milk glass represented. These fragments are from a variety of domestic bottles including beverage bottles, cosmetic jars, household jars and bottles, and medical/chemical bottles. More than 150 tin cans and can fragments are present,



although many are in poor condition. Approximately 25 ceramic fragments were identified including colored glazed earthenware, whiteware, semi-porcelain, and Japanese import porcelain. The ceramics are from a variety of tablewares. Diagnostic artifacts demonstrate the site was occupied during the historic period, likely between 1940 and 1945. Vegetation is predominantly Gambel oak, but there is some pinyon, juniper, sagebrush and rabbitbrush. Soils are alluvial-deposited, poorly developed, sandy loams with a high content of gravel. The site is somewhat overgrown by the surrounding Gambel oak and the accumulation of plant debris. No datum was established at the site.

Site 42BO1687 is a surface scatter of historic debris. The site represents a single episode dump of artifacts commonly found at mid-20<sup>th</sup> century historic sites in Utah. The site has been thoroughly documented and is not likely to provide additional data important to the understanding of historic patterns or occupation of the region. Therefore, EPG recommends site 42BO1687 NOT eligible to the NRHP.

## CONCLUSIONS

Both the Ogden-Brigham Canal (42BO1685) and the Pearsons Canyon Flood Control System (42BO1686) have been recommended ELIGIBLE to the NRHP under Criterion A because they represent distinctive features on the Wasatch Front that are representative of a class of resources which has played a highly significant role in the history of the State of Utah. Irrigation and water control related sites and structures within the State of Utah are considered to be very significant. The nature of our desert climate makes water related sites and features extremely important to the historic growth and development of our state. Through additional study of these features further understanding may be gained regarding their design, construction method, and operational characteristics. This data has potential to yield significant information regarding historic irrigation and flood control development and practice in the region. The Pearsons Canyon Flood Control System (42BO1686) has been recommended ELIGIBLE to the NRHP under criterion B based upon its ties to prominent irrigation engineer L.M. Winsor a Utah native and a well known pioneer in his field. This site is also recommended ELIGIBLE to the NRHP under criterion C because it illustrates, as defined in National Register Bulletin 15 (18), “distinctive characteristics of types, periods, and methods of construction”. This site retains “the essential physical features” (ibid 45) and integrity that make it eligible, the site and its features are both visible and able to clearly convey their significance upon examination.

Avoidance is the preferred mitigation for recommended eligible properties. The nature of the project provides opportunity for avoidance of significant cultural resource properties through project planning. The project corridor crosses many drainages and rough uneven terrain where movement of heavy equipment may not be feasible within the proposed transmission line right-of-way. Construction access to the proposed transmission line corridor would be limited to existing rights-of-way and surveyed access routes. In areas where this strategy does not prove adequate additional inventory may be necessary. Spanning of the recommended eligible sites would likely provide adequate avoidance and provide for a finding of no significant effect to cultural properties. If

avoidance is not possible, mitigation of effects to potentially eligible properties could include further archival research and documentation for the affected properties. Appropriate mitigation measures would be determined in consultation with the SHPO and the UDWR.

This investigation was conducted using techniques that are considered to be adequate for evaluating cultural resources that are visible for inspection and could be adversely affected by the project. However, should such resources be discovered during construction, a report should be made immediately to the Archaeologist at the Utah Division of Wildlife Resources, Salt Lake City, Utah.

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## APPENDIX A - IMACS SITE FORMS