

4.5 Cultural, Archaeological, and Historical Resources

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The following section represents a summary of cultural, archaeological, and historical resources that are known to be located on the Hanford Site. The inventory is based on a summary of archaeological, historical, and ethnographic data collected from archival records, archaeological surveys, and ethnographic interviews. It does not reflect a complete inventory as presently 24 percent of the Hanford Site has been surveyed for archaeological resources (Figure 4.5-1).

The Hanford Site is one of the richest cultural resource areas remaining in the western Columbia Plateau. The Hanford Site comprises a series of cultural landscapes that have been documented and evaluated containing the cumulative record of multiple occupations by both Native and non-Native Americans. For management and interpretive purposes, these cultural landscapes have been divided into the Native American landscape, the Early Settlers/Farming landscape, and the Manhattan Project and Cold War landscape. These landscapes contain numerous well-preserved archaeological and above-ground resources representing pre-contact, ethnographic, and historic periods. Period resources include sites with cultural materials that are thousands of years old, traditional cultural places, and buildings and structures from the pre-Hanford, Manhattan Project, and Cold War eras (DOE 1997a). Site-wide management of Hanford's cultural resources follows the *Hanford Cultural Resources Management Plan* (DOE 2003).

Approximately 1447 cultural resources sites and isolated finds, and 531 buildings and structures have been documented since 1926 on the Hanford Site. Early archaeological reconnaissance projects dating from 1926 to 1968 (Drucker 1948; Krieger 1928; Rice 1968a,b) and more recent National Historic Preservation Act, Section 110 and 106, archaeological surveys conducted between 1987 and 2004 have resulted in formal recording of these resources on archaeological site and isolate forms and Washington State Historic Property Inventory Forms. The DOE Hanford Cultural Resources Laboratory holds these records.

Of the 127 sites that have been evaluated for listing in the National Register of Historic Places (National Register), 49 have been listed (Table 4.5-1). Except for B-Reactor, which is associated with the Manhattan Project and Cold War Period, the other listed sites are associated with the Native American Landscape. Most of these are part of six Archaeological Districts and with the exception of the Rattlesnake Springs Sites and the Snively Canyon Archaeological District, are situated on the shores and islands of the Columbia River.^(a)

Eleven individual archaeological sites and three historic districts comprising 59 archaeological sites and 530 buildings or structures have also been determined to be eligible for listing in the National Register (Table 4.5-2). These sites are dispersed throughout the Hanford Site and represent the three cultural landscapes found on the Hanford Site. In addition to the National Register sites and districts, 47 of Hanford's cultural resource sites (46 in three districts and one site) are listed in the Washington Heritage Register (Table 4.5-3). These are associated with the Native American cultural landscape and are located predominantly along the Columbia River.

^(a)In order to protect resources, the National Historic Preservation Act (16 USC 470) Section 304, and Archaeological Resources Protection Act (16 USC 470aa) Section 9 requires agencies to withhold from public disclosure information on the location and character of cultural resources.

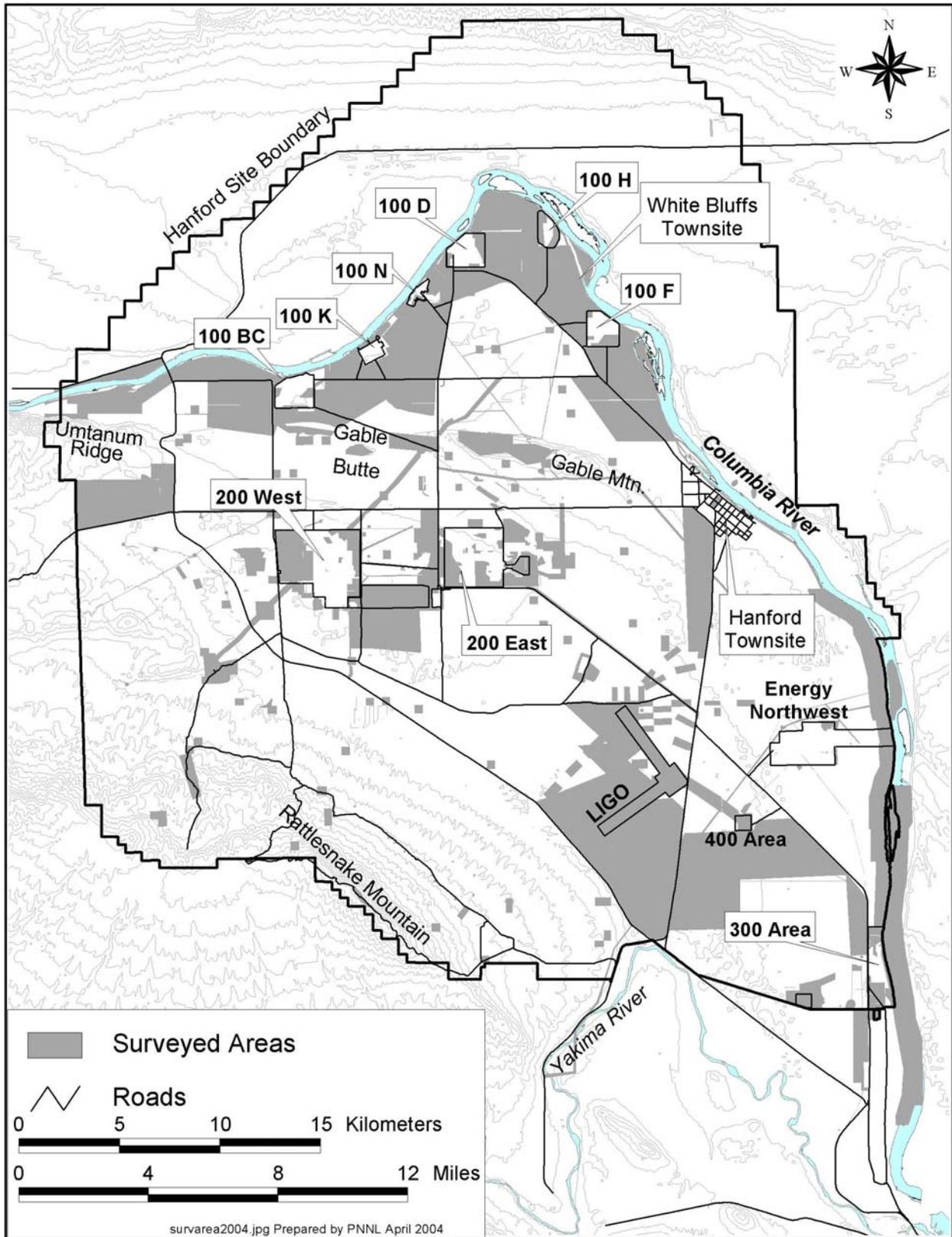


Figure 4.5-1. Areas Surveyed for Cultural Resources on the Hanford Site, Washington

Table 4.5-1. Historic Buildings, Archaeological Sites, and Districts Listed in the National Register of Historic Places on the Hanford Site, Washington

Property Name	General Location	Landscape Association
Districts:		
Hanford North Archaeological District	100-F	Native American
Locke Island Archaeological District	100-H	Native American
Ryegrass Archaeological District	100-K	Native American
Savage Island Archaeological District	Energy Northwest	Native American
Snively Canyon Archaeological District	Rattlesnake Hills	Native American
Wooded Island Archaeological District	300 Area	Native American
Sites:		
Hanford Island Archaeological Site	Hanford Townsite	Native American
Paris Archaeological Site	Vernita Bridge	Native American
Rattlesnake Springs Sites	Rattlesnake Mountain.	Native American
Building:		
105-B Reactor	100-B/C Area	Manhattan Project

Table 4.5-2. Historic Buildings, Archaeological Sites, and Districts Determined Eligible for Listing in the National Register of Historic Places on the Hanford Site, Washington

Property Name	General Location
Native American:	
<i>Wanawish</i> fishing village	600 Area
Gable Mountain/Gable Butte Cultural District	200 East Area
45BN423 ^(a)	100-K Area
45BN434	100-K Area
45BN446	100-B/C Area
45BN606	100-F Area
45BN888	100-D Area
Early Settlers:	
Midway-Benton Transmission line	600 Area
McGee Ranch/Cold Creek Valley District	Cold Creek Valley
Fry and Conforth Farm	100-B/C Area
White Bluffs Road	200 West to White Bluffs town site
First Bank of White Bluffs	White Bluffs town site
Bruggemann's Warehouse	100-B/C Area
Hanford Electrical Substation-Switching Station	Hanford Townsite
Hanford High School	Hanford Townsite
Coyote Rapids Hydroelectric Pumping Plant	100-B/C Area
Manhattan Project/Cold War:	
Hanford Site Manhattan Project and Cold War Era Historic District	100, 200 E and W, 300, 400, 600, 700, and 1100 Areas
Five Anti-Aircraft Artillery Sites	600 Area
Hanford Atmospheric Dispersion Test Facility	600 Area

^(a) Smithsonian Trinomial numbers are the standard designation for archaeological sites in the United States. 45 represents the state of Washington. BN, GR and FR represent Benton, Grant and Franklin counties. The number that follows indicates that the site was the nth archaeological site to be recorded in that county.

Table 4.5-3. Archaeological Sites and Districts Listed in the Washington Heritage Register on the Hanford Site, Washington

Property Name	General Location
Districts:	
Coyote Rapids Archaeological District	100-K Area
Hanford South Archaeological District	300 Area
Wahluke Archaeological District	100-D Area
Site:	
Gable Mountain Archaeological Site	600 Area, North of 200 East

DOE identified a National Register-eligible Hanford Site Manhattan Project and Cold War Era Historic District (Historic District) that serves to organize and delineate the evaluation and mitigation of Hanford’s plutonium production built environment (Table 4.5-2). Standards for evaluating and mitigating the built environment were established in accordance with National Register criteria, as well as historic contexts and themes associated with nuclear technology for national defense and non-military purposes, energy production, and human health and environmental protection. DOE completed a programmatic agreement that addresses management of the built environment (buildings and structures) constructed during the Manhattan Project and Cold War periods. The Federal Advisory Council on Historic Preservation and the Washington State Historic Preservation Officer accepted this programmatic agreement during 1996 (DOE 1996a).

Establishment of the Historic District resulted in the selection of 190 buildings, structures, and complexes as contributing properties within the historic district recommended for individual documentation. Certain property types, such as mobile trailers, modular buildings, storage tanks, towers, wells, and structures with minimal or no visible surface manifestations, were exempt from the identification and evaluation requirements.

Approximately 900 buildings and structures were identified as either contributing properties with no individual documentation requirement (not selected for mitigation) or as non-contributing/exempt properties (DOE 1998b).

Hanford Site projects that entail transfer or lease of property, disturbing ground, and/or altering or demolishing existing structures result in cultural resource reviews. These reviews ensure that archeological sites, traditional cultural places, and buildings and structures listed in or eligible for the National Register are considered before impacts by proposed projects.

4.5.1 Native American Cultural Landscape

For thousands of years American Indians have utilized the lands both within and around the Hanford Site (Relander 1956, Spier 1936, Walker 1998). When Euro-American explorers arrived in the early 1800s, peoples presently referred to as the Wanapum were observed inhabiting numerous villages and fishing camps scattered throughout this segment of the mid-Columbia River. Neighboring groups known today as the Yakama, Umatilla, Cayuse, Walla Walla, Palus, Nez Perce, and Middle Columbia Salish frequented the area to trade, gather resources, and conduct other activities. Many descendants of these

tribes and bands are affiliated with the Wanapum, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Reservation, Nez Perce Tribe of Idaho, or the Confederated Tribes of the Colville Reservation, and they retain traditional, cultural, and religious ties to Hanford's places and resources. The record of Native American use and history is reflected in the archaeological sites and traditional cultural places that are located across the Hanford Site.

4.5.1.1 Archaeological Resources

More than 8000 years of pre-contact human activity in the largely arid environment of the mid-Columbia River region have left extensive archaeological deposits along the river shores (DOE 2003, Greengo 1982, Leonhardy and Rice 1970). Well-watered areas inland from the river also show evidence of concentrated human activity (Chatters 1982, DOE 2003, Daugherty 1952, Greene 1975, Leonhardy and Rice 1970, Rice 1980a) and recent research (Woody 2003) has indicated ephemeral use of arid lowlands for hunting and other resource procurement activities. Throughout most of the region, hydroelectric development, agricultural activities, and domestic and industrial construction have destroyed or covered many of these deposits. Amateur artifact collectors have impacted numerous sites. Because the areas included in the Hanford Site were restricted to public access, archaeological deposits found in the Hanford Reach of the Columbia River and on adjacent plateaus and mountains are more protected than many other areas.

Approximately 720 archaeological sites and isolated finds associated with the pre-contact period have been recorded on the Hanford Site; of these, 80 contain historic components as well. Pre-contact period sites common to the Hanford Site include pit house villages, various types of open campsites, spirit quest monuments (rock cairns), hunting camps, game drive complexes, and quarries in nearby mountains and rocky bluffs (Rice 1968a, b; Rice 1980a); hunting/kill sites in lowland stabilized dunes; and small temporary camps near perennial sources of water located away from the river (Rice 1968b).

A historic context for the pre-contact period of the Hanford Site has been prepared as part of a National Register Multiple Property Documentation form to assist with the evaluation of the National Register eligibility of pre-contact archaeological resources (DOE 1997a).

4.5.1.2 Traditional Cultural Places

In 1990, the National Park Service formalized the concept of traditional cultural property or traditional cultural place (TCP) as a means to identify and protect cultural landscapes, places, and objects that have special cultural significance to American Indians and other ethnic groups (Parker and King 1990). A TCP eligible for the National Register is associated with "cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community" (Parker and King 1990).

The Hanford Reach and the greater Hanford Site, a geographic center for regional American Indian religious activities, is central to the practice of Indian religion of the region, and many believe the Creator made the first people here (DOI 1994). Indian religious leaders such as *Smoholla*, a prophet of Priest Rapids who brought the Washani religion to the Wanapum and others during the late 19th century, began their teachings here. Native plant and animal foods, some of which can be found on the Hanford Site, are used in the ceremonies performed by tribal members. Based on consultation with affected tribal members and interviews with tribal elders, it is known that prominent landforms such as Rattlesnake Mountain, Gable Mountain, and Gable Butte, as well as various sites along and including the Columbia River, remain sacred to them.

American Indian traditional cultural places within the Hanford Site include, but are not limited to, a wide variety of places and landscapes: archaeological sites, cemeteries, trails and pathways, campsites and villages, fisheries, hunting grounds, plant gathering areas, holy lands, landmarks, important places in Indian history and culture, places of persistence and resistance, and landscapes of the heart (Bard 1997). Because affected tribal members consider these places sacred, many traditional cultural sites remain unidentified. The DOE and HCRL continue to consult with Hanford Tribes for input on these locations, as their importance is determined through methods that are mutually agreed upon by DOE and the American Indian community.

A historic context for the Ethnographic/Contact Periods of the Hanford Site has been prepared as part of a National Register Multiple Property Documentation form to assist with the evaluation of the National Register eligibility of American Indian ethnographic resources (DOE 1997a).

4.5.2 Early Settlers/Farming Landscape

The Early Settlers/Farming landscape is comprised of those areas on the Hanford Site where people, mainly of European descent, and some of other ethnicity, settled in the Columbia River Plateau prior to the start of the Manhattan Project during 1943. Non-Native American presence in the mid-Columbia began during 1805 with the arrival of the Lewis and Clark Expedition. It was not until the late 19th and early 20th centuries, however, that non-Native American peoples began intensive settlement on the Hanford Site. A record of their activities and use is present in the archaeological sites, traditional cultural places, and buildings and structures that are located throughout the Hanford Site.

A historic context for the Euro-American resettlement period (pre-Hanford era) has been prepared as part of a National Register Multiple Property Documentation form to assist with the evaluation of the National Register eligibility of historic archaeological resources, traditional cultural places, and historic structures (DOE 1997a).

4.5.2.1 Archaeological Resources

The first Euro-Americans to pass near the Hanford Site were part of the Lewis and Clark expedition, which traveled along the Columbia and Snake rivers during their 1803 to 1806 exploration of the Louisiana Territory. The first European explorer to cross the Hanford Site was David Thompson, who traveled along the Columbia River from Canada during his 1811 exploration of the Columbia River. Other visitors included fur trappers, military units, and miners who traveled through the Hanford Site on their way to lands up and down the Columbia River and across the Columbia Basin. It was not until the 1860s that merchants set up stores, a freight depot, and the White Bluffs Ferry on the Hanford Reach. Chinese miners began to work the gravel bars for gold during the 1860s. Cattle ranches were established in the 1880s and farmers followed during the next two decades. Agricultural development, irrigation districts, and roads were established in the eastern portion of the central Hanford Site. Several small towns, including Hanford, White Bluffs, Richland, and Ringold, grew up along the riverbanks during the early 20th century. The communities' accessibility to outside markets expanded with the arrival during 1913 of the Chicago, Milwaukee, St. Paul and Pacific Railroad branch line (Priest Rapids-Hanford Line) from Beverly, Washington. Ferries were established at Richland, Hanford, Wahluke, and Vernita (Figure 4.5-2). The towns and nearly all other structures were razed in the years after the U.S. Government acquired the land for the Hanford Engineer Works during 1943 (DOE 2003, ERTEC 1981, Rice 1980a).

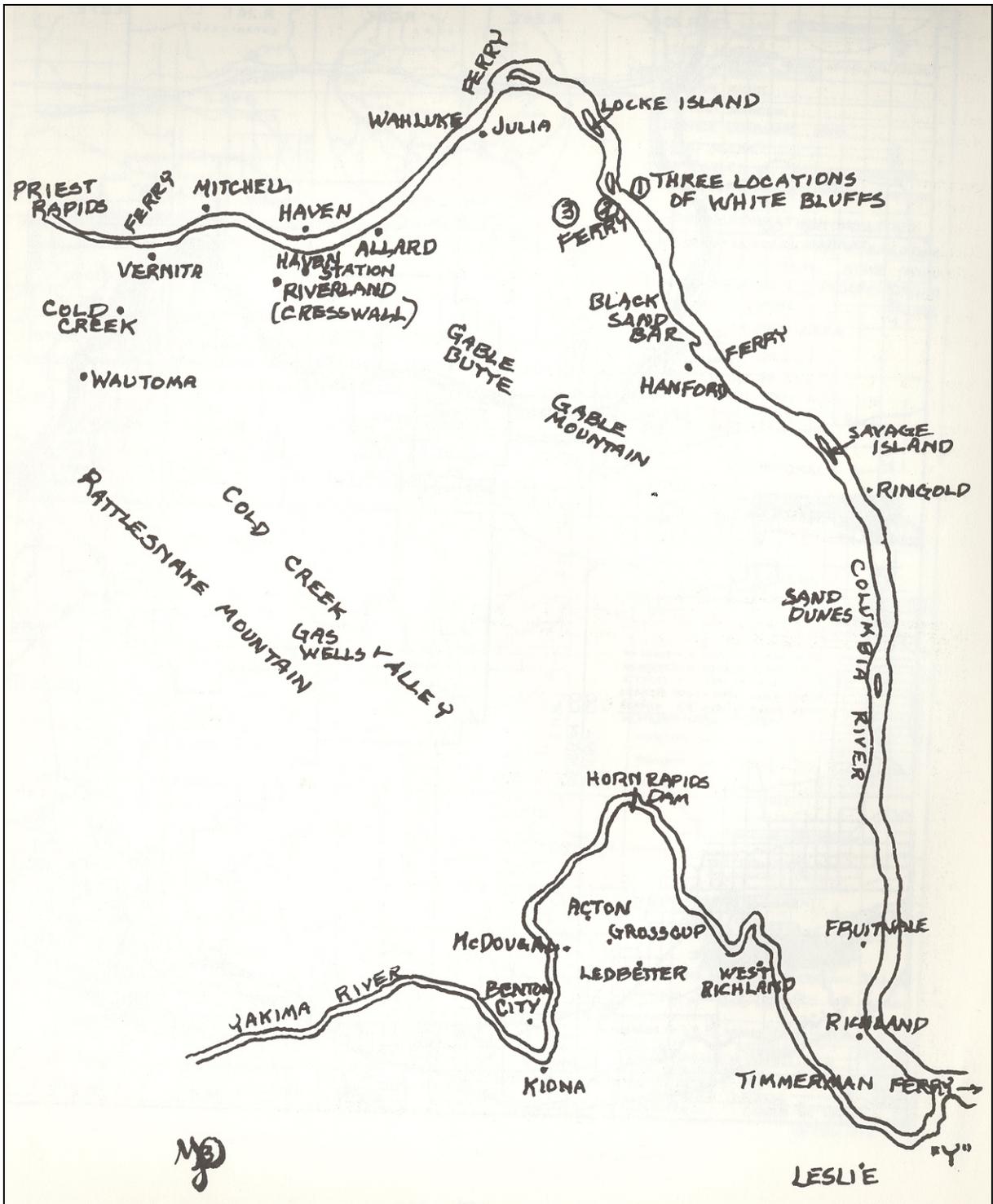


Figure 4.5-2. Map of the Hanford Site, Washington, showing towns, ferries and prominent features associated with the Early Settlers landscape (Parker 1986)

Approximately 650 historic archaeological sites associated with the Early Settlers/Farming landscape including an assortment of towns, farmsteads, corrals and domestic debris are recorded by the HCRL since 1987. Approximately 80 of these sites contain pre-contact components as well. Archaeological resources from the Early Settlers/Farming period are scattered over the entire Hanford Site and include numerous areas of gold mining features along the riverbanks of the Columbia and remains of homesteads, building foundations, agricultural equipment and fields, ranches, and irrigation features. Archaeological properties from this period include the Hanford Irrigation Canal; Hanford Townsite; Wahluke Ferry; White Bluffs town site; Vernita Ferry; White Bluffs Road; and Chicago, Milwaukee, St. Paul and Pacific Railroad (Priest Rapids-Hanford Line) and associated stops.

4.5.2.2 Traditional Cultural Places

Traditional cultural places associated with the Early Settlers/Farming landscape that are located on the Hanford Site include structures and places that are important to descendants of pre-1943 settlers in the region. These places are deeply rooted in the memories of local residents and include but are not limited to numerous home sites and town sites, orchards, fields, and places of former community activities, e.g., swimming holes and town square. Previous residents of the region and their descendents visit their homes annually with friends and family.

4.5.2.3 Buildings and Structures

Although most of the Early Settlers/Farming structures were demolished by the U.S. Government to build infrastructure for the Hanford Engineer Works during 1943 (DOE 2003, ERTEC 1981, Rice 1980a), a small number of buildings associated with the Early Settlers/Farming landscape remain standing today. They include the Hanford Irrigation and Power Company's pumping plant at Coyote Rapids, the high school and the electrical substation at the Hanford Townsite, First Bank of White Bluffs, Bruggemann's fruit warehouse, and the blacksmith cabin at the East White Bluffs ferry landing. These structures are located near the Columbia River.

4.5.3 Manhattan Project and Cold War Cultural Landscape

The Manhattan Project and Cold War era landscape is comprised of cultural resources associated with plutonium production, military operations, research and development, waste management, and environmental monitoring activities that took place beginning with the establishment of the Hanford Site (Hanford Engineer Works) during 1943 to the end of the Cold War during 1990.

The Hanford Site built environment is an industrial landscape that consists of buildings and structures constructed during the Manhattan Project and Cold War period. This industrial landscape makes up the Hanford Site Manhattan Project and Cold War Era Historic District. The DOE Richland Operations Office, the State Historic Preservation Officer, and the Federal Advisory Council on Historic Preservation, through a programmatic agreement to manage the Manhattan Project and Cold War built environment, determined that a historic district afforded the best means to inventory, assess, and mitigate the most significant buildings and structures constructed during the Manhattan Project and Cold War. Industrial, scientific, administrative, environmental monitoring, waste management, infrastructure, and military facilities constructed during the Manhattan Project and Cold War era can be found in all of the Site areas.

While buildings and structures representing this era are located throughout the site, evidence of military operations consists mostly of archaeological remains. Military operations in various forms took place on the Site from World War II to the early 1960s. Most of the military operations, however, took

place beginning with the establishment of Camp Hanford by the U.S. Army during 1950-51 until its closure in 1961. Camp Hanford was a military outpost, with the main cantonment located in North Richland and forward positions situated throughout the Site consisting of anti-aircraft artillery sites and Nike missile installations.

Historic contexts were completed for the Manhattan Project and Cold War eras as part of a National Register Multiple Property Documentation Form prepared for the Hanford Site to assist with the evaluation of National Register eligibility of buildings and structures site wide (DOE 1997a).

Additionally, historical narratives and individual building documentations have been completed for the *History of the Plutonium Production Facilities at the Hanford Site Historic District, 1943-1990* (DOE 2002c). Five hundred twenty-eight Manhattan Project and Cold War era buildings/structures and complexes are eligible for the National Register as contributing properties within the Historic District. Of that number, 190 are recommended for individual documentation. DOE/RL is undertaking an assessment of the contents of the contributing buildings and structures to locate and identify any Manhattan Project and Cold War era artifacts that may have interpretive or educational value for museum exhibit purposes (DOE 1998b).

4.5.3.1 Archaeological Resources

Archaeological remains of military sites associated with the Manhattan Project and Cold War landscape are scattered throughout the Hanford Site's 600 Area. These archaeological resources are mainly located within the former Camp Hanford forward positions, the 16 anti-aircraft artillery sites that encircled the 100 and 200 Areas, and the three Nike missile installations on Wahluke Slope. (A fourth Nike position, in relatively intact condition, is located at the base of Rattlesnake Mountain on Fitzner-Eberhardt Arid Lands Ecology Reserve Unit.) The Nike position on the reserve is eligible for inclusion in the National Register as a contributing property within the Hanford Site Manhattan Project and Cold War Era Historic District. Five of the 16 anti-aircraft artillery sites are eligible for the National Register.

The anti-aircraft artillery and Nike sites were strategic components in Camp Hanford's military defense of the Site's plutonium production facilities during the 1950s. Potential archeological resources at these sites include former gun emplacements, launch and radar sites, concrete foundations and pads, pathways/sidewalks, associated dumpsites, small arms firing ranges, and ammunition caches.

The archaeological remains of the Atmospheric Dispersion Test Facility Grid are located in the Hanford Site east of the 200 West Area. The facility was used for monitoring airborne waste dispersions during the operation of the plutonium production facilities on the Hanford Site.

4.5.3.2 Buildings and Structures

Historic built resources documented from the Manhattan Project and Cold War eras include buildings and structures found in the 100, 200, 300, 400, 600, 700, and 1100 Areas. The most significant of these are the plutonium production and test reactors, chemical separation and plutonium finishing buildings, and fuel fabrication/manufacturing facilities. The first reactors, 105-B, 105-D, and 105-F, were constructed during the Manhattan Project. Plutonium for the first atomic explosion and the bomb dropped on Nagasaki, Japan, at the end of World War II were produced at the Hanford Site. Additional reactors and processing facilities were constructed after World War II during the Cold War period. All reactor containment buildings still stand, although many ancillary structures have been removed, and C, DR, and F Reactors have been considerably modified.

DOE/RL will consider the retention of National Register-eligible buildings and structures that may qualify for adaptive reuse as interpretive centers, museums, industrial, or manufacturing facilities (DOE 1996a).

4.5.4 Site Areas

Archaeological sites, traditional cultural places, buildings, and structures are found in each of several areas on the Hanford Site, including the 100, 200, 300, 400, 600, and 700 Areas. Since it was the Manhattan Project that established these areas as geographical locations on the Hanford Site, many cultural resources located within these areas are associated with that landscape. Many of these areas were developed over the top of existing cultural resources from the Native American and Early Settlers/Farming landscape. Hence, these earlier landscapes were changed; however, many resources remain as they were prior to 1943. A brief synopsis of known resources found in these areas is presented in the following subsections.

4.5.4.1 100 Areas

Field surveys were completed in the 100 Area from 1991 to 1995 (Andrefsky *et al.* 1996, Chatters *et al.* 1992, Wright 1993). Much of the surface area within the 100 Area operable units has been disturbed by the industrial activities that have taken place during the past 50 years. However, these areas still contain many cultural resources.

Each of the three landscapes is represented in the 100 Area by the presence of archaeological sites, traditional cultural properties, and reactor facilities. Most of these resources reflect past use of river resources such as open camps, fishing sites, farmsteads, pump houses, gold mining pits, and water intake and outtake structures.

Plutonium production reactors and their ancillary and support facilities were located in the 100 Area. The production reactors functioned to irradiate uranium fuel elements, the essential second step in the plutonium production process. A complete inventory of 100 Area buildings and structures was completed during FY 1995, and a National Register evaluation for each was finalized during 1996. To date, 146 buildings/structures have been inventoried in the 100 Area. Of that number, 55 have been determined eligible for the National Register as contributing properties within the Historic District recommended for individual documentation (DOE 1998b). As remediation continues in the 100 Areas, the potential exists for inadvertent discoveries of archaeological resources. To understand impacts to cultural resources and to reduce the need to perform extensive reviews on highly disturbed areas, disturbance maps and reports have been completed for 100-B/C, 100-D/DR, and 100-F Areas.

100-B/C Area

Archaeological Resources. There is a high density of archaeological resources associated with the Native American cultural landscape in the 100-B/C Area. Three are located partially within the 100-B/C Area (Rice 1968a, Rice 1980a, b), and 35 have been recorded within the immediate vicinity of the B/C Area during archaeological surveys completed during 1995.

Historic archaeological resources include the remains of Haven Station, a small stop on the former Chicago, Milwaukee, St. Paul and Pacific Railroad, located to the west of the 100-B/C Area. One archaeological site and the remains of the small community of Haven lie on the opposite bank of the Columbia River.

Two archaeological sites (45BN447 and 45BN446^(a)) located near 100-B/C have been investigated. Test excavations conducted during 1991 at archaeological site 45BN447 revealed large quantities of deer and mountain sheep bone, and projectile points dating from 500 to 1500 years ago. The second archaeological site, 45BN446, is considered to be eligible for listing in the National Register, in part, because it may contain new information about the Frenchman Springs and Cayuse Phases of mid-Columbia prehistory.

Traditional Cultural Places. Many sites related to hunting and religious activities are located at the west end of Gable Butte. These sites are associated with the Gable Mountain Cultural District.

Buildings and Structures. The only structure associated with the Early Settlers/Farming landscape in the 100-B/C Area is the Hanford Irrigation and Power Company pumping plant built at Coyote Rapids during 1908. It is located east of the 100-B/C Area and the 105-B Reactor.

The 105-B Reactor was the world's first full-scale plutonium production reactor and is designated as a National Historic Mechanical Engineering Landmark. It is also listed in the National Register, is a National Civil Engineering Landmark, and was given the Nuclear Historic Landmark Award. Historic American Engineering Record (HAER) documentation of B Reactor was completed during 1999 (DOE 2001b). A total of 14 buildings and structures within the reactor area have been recorded on historic property inventory forms. Of that number, 10 properties are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. These include 105-B Reactor, 181-B River Pump house, 104-B-1 Tritium Vault, 104-B-2 Tritium Laboratory, 105-B-Rod Tip Cave, 116-B Reactor Exhaust Stack, 117-B Exhaust Air Filter Building, 118-B-1 Solid Waste Burial Trench, and 182-B Reservoir and Pump house (DOE 1998b).

An assessment of the contents of the 105-B Reactor was conducted to locate and identify Manhattan Project and Cold War era artifacts that may have interpretive or educational value in potential exhibits. Thirty-nine industrial artifacts were identified and tagged, with many on display as interpretive exhibits in the reactor. Tagged artifacts from 105-D and F Reactors were transferred to B Reactor to be displayed as interpretive exhibits.

100-D/DR Area

Archaeological Resources. Twenty-three known archaeological sites lie within 1 km (0.6 mi) of the 100-D/DR Area: three on the northern bank and the remainder on the southern bank of the Columbia River. The Wahluke Archaeological District is located north of the reactor area. Most remaining sites represent early Euro-American settlement activities. The former community of Wahluke, which was at the landing of a ferry of the same name, is situated on the river's north bank. Remains of historic farmsteads are scattered throughout the nearby area. An archaeological excavation was completed in 2001 of 45BN888, a camp site associated with the Native American cultural landscape adjacent to the reactor area.

Traditional Cultural Places. Twenty-seven individual rock cairns located south of the reactor area are associated with an area known to have traditional cultural importance to affected tribes.

^(a) Smithsonian Trinomial numbers are the standard designation for archaeological sites in the United States. 45 represents the state of Washington. BN, GR and FR represent Benton, Grant and Franklin counties. The number that follows indicates that the site was the nth archaeological site to be recorded in that county.

Buildings and Structures. All the buildings and structures in the 100-D/DR Area were built during the Manhattan Project and Cold War eras. Twenty buildings/structures have been inventoried, including the 105-D and 105-DR Reactor buildings. Both reactors are eligible for the National Register as contributing properties within the Historic District, but are not recommended for individual documentation. An assessment of the contents of 105-D and 105-DR was conducted to locate and identify Manhattan Project and Cold War era artifacts that may have interpretive or educational value in potential exhibits. Twenty-four industrial artifacts were identified and tagged in 105-D, including control panels, a reactor curtain, lunch tables, benches, tools, and signs. All the tagged artifacts in 105-D were transferred to B Reactor. Ten industrial artifacts were identified and tagged on 105-DR, including a radiological worker procedures poster, an instrument ladder, three metal signs, a lead sampling chamber “pig,” a control panel, vintage ceiling lights, and graphite blocks. The 185/189-D buildings and adjoining facilities, all part of the 190-D complex, are eligible for the National Register and were documented to HAER standards (DOE 1998b). The 190-D Complex has been demolished.

100-F Area

Archaeological Resources. The 100-F Area is situated on the shore of the Columbia River and contains many cultural sites associated with the Native American cultural landscape. According to Relander (1956), a nearly continuous string of camps and villages of the Wanapum extended from the Hanford Townsite upstream to the White Bluffs Townsite. Sixty-seven archaeological sites have been recorded within 1 km (0.6 mi) of the 100-F Area. Sites of particular importance include a site that is eligible to the National Register (45BN606) and an historic Wanapum cemetery.

The principal site associated with the Early Settlers/Farming landscape near 100-F is the White Bluffs Townsite and ferry landing. This location was the upriver terminus of shipping during the mid-19th century. It was at this point that supplies for trappers, traders, and miners were off-loaded, and commodities from the interior were transferred from pack trains and wagons to riverboats. The first store and ferry of the mid-Columbia region were located at the ferry landing (ERTEC 1981). A log cabin, thought to have been a blacksmith shop built during the late 19th century, still stands there. Test excavations conducted at the cabin by the University of Idaho revealed historic and pre-contact cultural materials. The structure was recorded according to standards of the Historic American Buildings Survey (Rice 1976). Stabilization of the structure was carried out by the USFWS during 2001. The only remaining structure associated with the White Bluffs town site (near the railroad) is the First Bank of White Bluffs.

Traditional Cultural Places. Cemeteries associated with the Native American landscape are known to be in the vicinity of the 100-F Area.

Buildings and Structures. Three Manhattan Project/Cold War era buildings/structures have been inventoried in this area, including the 105-F Reactor building. An assessment of the contents of 105-F was conducted to identify any artifacts that may have value as potential museum exhibits. Eleven industrial artifacts were identified and tagged, including a fuel scale, elevator control panel, two shop signs, four safety signs, a hardhat, graphite blocks, and vintage ceiling lights. All tagged artifacts were transferred to either B Reactor or the Columbia River Exhibition of History, Science and Technology (CREHST) museum in Richland, Washington, for inclusion into the Hanford Collection.

100-H Area

Archaeological Resources. As of 2004, there have been 31 archaeological sites recorded within 1 km (0.6 mi) of the 100-H Area. Included in this group are two historic Wanapum cemeteries, six camps, and three house pit villages. The largest village contains approximately 100 house pits and

numerous storage caches. It appears to have been occupied consistently from 2500 years ago to 1943 (Rice 1968a). The cemeteries, camps, and villages are included in the Locke Island Archaeological District.

Archaeological sites associated with the Early Settlers/Farming landscape in 100-H include several 20th century farmsteads and associated domestic debris. None of these sites have yet been evaluated for eligibility to the National Register. Remains of military encampments associated with the Manhattan Project and Cold War landscape are also located near the 100-H Area.

Traditional Cultural Places. Wanapum cemeteries are known to be located in the vicinity of the 100-H Area.

Buildings and Structures. Four Cold War era buildings/structures were inventoried in the 100-H Area. Of that number, only the 105-H Reactor is eligible for the National Register as a contributing property within the Historic District. The reactor, however, was not recommended for individual documentation (DOE 1998b). An assessment of the contents of 105-H was conducted to locate and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. No items were tagged.

100-K Area

Archaeological Resources. An archaeological survey of the 100-K Area during 1991 revealed five previously unrecorded archaeological sites. Archaeological surveys conducted in the 100-K Area during 1995 resulted in documentation of 31 additional pre-contact and historic sites. Two of these sites (45BN423 and 45BN434) are believed to date to the Cascade Phase 8000 to 4000 years ago and are eligible for listing in the National Register. The Coyote Rapids Archaeological District and the Ryegrass Archaeological District are located near the 100-K Area.

The Hanford Irrigation Canal and the former Chicago, Milwaukee, St. Paul and Pacific Railroad, two important linear features associated with the Early Settlers/Farming landscape, are also present in the 100-K Area. Archaeological remains of the Early Settlers/Farming community at Coyote Rapids and a number of historic farmstead sites are located west of the 100-K Area.

Traditional Cultural Places. Events took place at this locale during the mid-19th century that are important to American Indian people of the interior Northwest (Relander 1956). The Washani religion (also known as Seven Drums or Dreamer religion) was first practiced here, eventually spreading to many neighboring tribes. A group of pit houses with an associated long house and sweat lodge have been identified that may have been the site of the Wanapum religious leader Smohalla's first *Washat* dance. An area located a short distance upstream is also recognized as a traditional cultural place because of its association with Wanapum history and traditional cultural beliefs (Relander 1956).

Buildings and Structures. Thirty-eight buildings and structures have been inventoried in the 100-K Area, including the 105-KE and KW Reactor buildings. Of that number, 13 are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. These include the 105-KW Reactor, 190-KW Main Pump house, 107-KW Retention Basin, 183-KW Filter Plant, and 181-KW River Pump house (DOE 1998b).

An assessment of the contents of 105-KE and KW was conducted to identify any artifacts that may have educational or interpretive value as potential museum exhibits. Twenty-two industrial artifacts were identified and tagged in 105-KE Reactor, including tools, signage, radiation monitoring equipment, and furniture. Nine artifacts were identified and tagged from 105-KW Reactor, including furniture, a

measurement scale, tools, and a floodlight. An assessment of the contents of the other historic buildings in the 100-K Area resulted in 23 additional artifacts being identified and tagged.

100-N Area

Archaeological Resources. Twenty archaeological sites associated with the Native American cultural landscape have been recorded within 1 km (0.6 mi) of the 100-N Area perimeter. Three sites (two house pit villages, 45BN150 and 45BN180, and one cemetery, 45BN151) comprise the Ryegrass Archaeological District. Site 45BN179, once considered for a National Register nomination as the Hanford Generating Plant Site, has been found to be part of 45BN149, which is already listed in the National Register. Extant knowledge about the archaeology of the 100-N Area is based largely on reconnaissance-level archaeological surveys conducted during the late 1960s to late 1970s (Rice 1968b; Rice 1980a, b), which do not purport to produce complete inventories of the areas covered.

The most common evidence of activities associated with the Early Settlers/Farming landscape found near the 100-N Area consists of the archaeological remains of farmhouses and agricultural fields. The historic Hanford Irrigation Canal is adjacent to and south of the 100-N Area.

Traditional Cultural Places. Three places near the 100-N Area are known to have been of importance to the Wanapum. Cataclysmic flooding at the end of the Pleistocene formed the numerous small rolling hills known as *Mooli Mooli*, which means Little Stacked Hills. Gable Mountain (called *Nookshai* or Otter) and Gable Butte, which lie to the south of the river, are highly significant to affect tribes. According to Relander (1956) these are places where Wanapum youths would go on overnight vigils seeking guardian spirits. Rock cairns located in these areas indicate ethnographic use of these areas. Sites of religious importance may also exist near the 100-N Area.

Buildings and Structures. The 100-N Reactor, completed during 1963, was the last of the plutonium production, graphite-moderated reactors. The design of N Reactor differed from the previous eight reactors in several ways to afford greater safety and to enable co-generation of electricity. Sixty-six Cold War era buildings and structures were inventoried in the 100-N Area. Thirty 100-N Area buildings/structures are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation (DOE 1998b). These include the 105-N Reactor, 109-N Heat Exchanger Building, 181-N River Water Pump house, 183-N Water Filter Plant, 184-N Plant Service Powerhouse, 185-N Export Powerhouse, and the 1112-N Guard Station (DOE 1997d).

An assessment of the contents of 185-N was conducted to locate and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. Six artifacts were identified and tagged, including control room panels, phone booths, a “hear-here” phone, metal cart, and a safety sign. All the artifacts were photographed and transferred to CREHST Museum in Richland, Washington, for inclusion in the Hanford Collection. Building 185-N was recently demolished.

4.5.4.2 200 Areas

Much of the 200 Areas has been altered by Hanford operations. The Hanford Cultural Resources Laboratory conducted a comprehensive archaeological resources survey of the fenced portions of the 200 Areas during 1987 and 1988 (Chatters and Cadoret 1990). The results indicate that evidence of cultural resources associated with the Native American cultural landscape and the Early Settlers/Farming landscape is minimal. Archaeological surveys conducted since that time have revealed much the same pattern.

Archaeological Resources. The most significant archaeological resource located in the 200 Area is an extensive linear feature known as the White Bluffs Road, a portion of which passes diagonally southwest to northeast through the 200 West Area. This road, in its entirety, is eligible for listing in the National Register, except for non-contributing segments of the White Bluffs Road that are located in the 200 West Area. Non-contributing segments of the White Bluffs Road are those sections that have been so considerably altered that they lack historic integrity, but retain evidence of its contiguous bearing. Originally a trail used by area tribes, it played a role in Euro-American immigration, development, agriculture, and Hanford Site operations. The survey conducted in 2000 on the White Bluffs Road recorded an additional 54 historic isolated finds and 2 pre-contact isolated finds, as well as six can dump features.

Traditional Cultural Places. Many sites related to hunting and religious activities are located on Gable Mountain and Gable Butte north of the 200 West and 200 East Areas. These sites are associated with the Gable Mountain/Gable Butte Cultural District.

Buildings and Structures. The 200 Areas contain many significant buildings and structures associated with the Manhattan Project and Cold War landscape. They were formerly used as chemical separations (processing) plants and ancillary and support facilities. The plants functioned to dissolve the irradiated fuel elements to separate out the plutonium, the essential third step in plutonium production. Historic property inventory forms have been completed for 72 buildings/structures in the 200 Area. Of that number, 58 buildings are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. These include the 202-A Purex Plant, 212-N Lag Storage Facility, 221-T Plant, 222-S Redox Plant, 225-B Encapsulation Building, 231-Z Plutonium Metallurgical Laboratory, 234-5Z Plutonium Finishing Plant, 236-Z Plutonium Reclamation Facility, 242-Z Water Treatment Facility, 282-E Pump house and Reservoir Building, 283-E Water Filtration Plant, and the 284-W Powerhouse and Steam Plant. The 232-Z Waste Incinerator Facility and the 233-S Plutonium Concentration Building are also eligible for the National Register and along with 221-T Plant, have been documented to HAER standards (DOE 1998b). The 233-S building was recently demolished.

An assessment of the contents of nine facilities in the Plutonium Finishing Plant (PFP) complex was conducted during 1998 and 2002, and a letter report was completed entitled “Interpretive and Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the PFP Complex”. These buildings and structures included the 234-5Z PFP, 291-Z Exhaust Stack, 232-Z Waste Recovery Facility, 236-Z Plutonium Reclamation Facility, 2704-Z Safeguards and Security Building, the 2736-Z, ZA, and ZB Plutonium Storage Facilities, and 2736-ZC (non-historic) Cargo Restraint Transport Facility. Because of security/radiological exposure concerns, Buildings 2701-ZA and 242-Z were not accessible for walkthroughs. In 234-5Z, the entire Remote Mechanical C line (glove boxes) and control room, and the Remote Mechanical A line (glove boxes) and control room were identified and tagged. Ten additional Cold War era artifacts were identified and tagged as a result of a walkthrough of the Analytical Laboratories in 234-5Z. The assessment of the 2704-Z Building resulted in two tagged artifacts: a typology of “cans” poster and demonstration training cans. A third artifact, the classified documents vault, was identified but not tagged. The non-historic 2736-ZA building contains historic metal pedestals and a wooden mockup pedestal that were tagged.

Thirty-two industrial artifacts were identified and tagged in chemical separations buildings located in the 200 Area. The following buildings were inspected for artifacts during the walkthroughs: 202-A, 202-S, 221-T, 221-U, 224-U, 224-B, and 271-U. Types of artifacts selected included electrical equipment, control panels, tools, vintage lights, health and safety items, signage, and communications equipment.

4.5.4.3 300 Area

Much of the 300 Area has been used for industrial activities associated with the Manhattan Project and Cold War cultural landscape. Prior to the Manhattan Project during 1943, the 300 Area was used by Native Americans as a camp location and by early settlers who developed a farming community known as Fruitvale. Due to its proximity to the Columbia River, many archaeological resources associated with both these landscapes are located along the river shore outside of the 300 Area fence. Subsurface archaeological deposits are likely to be located underneath existing 300 Area facilities in pockets of undisturbed ground.

Archaeological Resources. Five recorded archaeological sites, including campsites, house pits, and a historic trash scatter, are located at least partially within the 300 Area. Many more may be located in subsurface deposits. Twenty-three archaeological sites and 10 isolated artifacts have been recorded within 1 km (0.6 mi) of the 300 Area fence. Archaeological site 45BN162 has been determined eligible for listing in the National Register. Several archaeological sites in this area are in the Hanford South Archaeological District, which is listed in the Washington Heritage Register. Archaeological sites associated with the Early Settlers/Farming cultural landscape in the 300 Area are comprised mainly of domestic debris scatters and roadbeds associated with farmsteads.

Traditional Cultural Places. A documented historic Wanapum cemetery is located near the 300 Area.

Buildings and Structures. The 300 Area, the location of the uranium fuel fabrication plants that manufactured fuel rods to be irradiated in the Hanford Site reactors, provided the first essential step in the plutonium production process. The 300 Area was also the location of most of the Hanford Site's research and development laboratories. One hundred fifty-nine buildings/structures in the 300 Area have been documented on historic property inventory forms. Of that number, 47 buildings/structures are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. This total includes the 305 Test Pile, 313 Fuels Fabrication Facility, 314 Metal Press/Extrusion Building, 318 High Temperature Lattice Test Reactor, 321 Separation Building, 325 Radiochemistry Laboratory, 333 Fuel Cladding Facility, 3706 Radiochemistry Laboratory, and the 3760 (former) Hanford Technical Library (DOE 1998b).

Assessments/walkthroughs of the contents of former fuel manufacturing and reactor operations facilities in the 300 Area have been conducted including the 303-A Magazine Product Storage Building, 305 Test Pile, 305-B Engineers Development Lab Annex, 306-W Materials Development Laboratory, 306-E Fabrication Test Lab, 308 Plutonium Fabrication Pilot Plant, 309 Plutonium Recycle Test Reactor, 313 Fuels Fabrication Facility/Metal Fabrication Building, 314 Press Building, and the 333 Fuel Cladding Facility. The 27 Manhattan Project/Cold War era artifacts that were identified and tagged are mainly industrial in nature associated with the fuel manufacturing processes and reactor operations. A second walkthrough of Building 333 resulted in an additional 12 artifacts being identified including a selection of safety signs/posters, a control panel, a safety shower, protective worker clothes, and a sample uranium fuel element.

Other 300 Area buildings assessed include the 303-K Fresh Metal Storage Building, 304 Uranium Scrap Concentration Storage Facility, 324 Chemical Engineering Laboratory, 325 Radiochemistry Laboratory, 327 Post Irradiation Test Laboratory, 329 Biophysics Laboratory, 334 Chemical Handling Facility, 334-A Acid Pump house, 3701-D (former) Hanford Patrol Building, 3707-G Change House, 3716 Fuels Manufacturing Storage/Automotive Repair Shop, 3727 Classified Storage Facility, 3746 Radiological Physics Building, 3762 Technical Safety Building, the 340 Waste Neutralization

Complex, 3745-B Positive Ion Accelerator Building, 3708 Radiochemical Lab, 3706 Radiochemistry Lab, 326 Physics Lab, 3707-D Patrol Headquarters, 384 Power House, 328 Engineering Services Building, 3720 Environmental Sciences Laboratory, 3745-A Electron Accelerator Building, 3722 Area Shop, and the 3713 Storeroom. Approximately 75 to 80 Manhattan Project/Cold War era artifacts were identified and tagged in these buildings.

4.5.4.4 400 Area

Most of the 400 Area has been so altered by construction activities that archaeologists surveying the site during 1978 were able to find only 0.12 km² (0.047 mi²) of land that was undisturbed (Rice *et al.* 1978). They found no cultural resources in this area. No archaeological sites are known to be located within 1 km (0.6 mi) of the 400 Area.

The 400 Area consists of the Fast Flux Test Facility (FFTF) complex. The 405 Reactor Containment Building includes a 400-megawatt, sodium-cooled test reactor designed primarily to test fuels and materials for advanced nuclear power plants. All the buildings and structures in the 400 Area were constructed during the Cold War era. Twenty-one building/structures have been recorded on historic property inventory forms. Of that number, six have been determined eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. These include the 405 Reactor Containment Building, 436 Training Facility, 4621-W Auxiliary Equipment Facility, 4703 FFTF Control Building, 4710 Operation Support Building, and the 4790 Patrol Headquarters (DOE 1998b). In response to the production of a Curation Plan for the Deactivation and Decommissioning of Historic Buildings at the FFTF, walkthroughs were conducted of the contributing properties requiring mitigation except for the 4790 patrol headquarters. In addition, walkthroughs were also conducted of 16 contributing properties at FFTF where no individual documentation was required. Operations carried out in these facilities were closely related to the work conducted in the five contributing buildings that required mitigation. Thirty artifacts were identified and tagged in 8 of the 21 historic buildings: 405, 4703, 436, 403, 4621-W, 4621-E, 4710, and 4701-A. Two of the identified artifacts are located in Building 4732-C, a non-historic building. The types of artifacts included industrial equipment and machinery, photographs, publications, control room panels, and models.

An assessment of the contents of Building 427 was also conducted to locate and identify Cold War era artifacts that may have interpretive or educational value in potential exhibits. Four artifacts were identified and tagged, including fuel assembly components.

4.5.4.5 600 Area

The 600 Area includes all of the Hanford Site not occupied by the 100, 200, 300, and 400 Areas. Project-driven surveys have been conducted throughout the area, but much of the 600 Area has not been surveyed. Based on what is known, the 600 Area contains cultural resources associated with all three cultural landscapes that exist on the Hanford Site. Representing a full range of human activity across the Hanford Site, the activities are best characterized for the Native American cultural landscape by the gathering of inland resources (quarry sites, hunting sites, religious use sites, plant gathering sites) and riverine resources (fishing sites, open camp sites, root gathering). The Early Settlers/Farming landscape is present in the 600 Area, mainly consisting of the archaeological remains of former farmsteads, ranches, and pre-1943 transportation routes. Evidence of cultural resources associated with the Manhattan Project and Cold War Era landscape consists of anti-aircraft artillery sites, meteorological towers, and roads located in the 600 Area.

Archaeological Resources. Numerous National Register Districts associated with the Native American landscape are located within the 600 Area including the Hanford Archaeological Site, Hanford North Archaeological District, the Paris Archaeological Site (45GR317), Rattlesnake Springs Sites (45BN170 and 45BN171), Savage Island Archaeological District, Snively Basin Archaeological District, and Wooded Island Archaeological District.

Archaeological properties associated with the Early Settlers/Farming landscape in the 600 Area include the Hanford Townsite; the White Bluffs town site and ferry landing; the Chicago, Milwaukee, St. Paul and Pacific Railroad line and associated whistle stops; early settler's farmsteads; and the Hanford Irrigation Canal and associated irrigation features. The McGee Ranch/Cold Creek Valley District is located in the 600 Area and is eligible for listing in the National Register.

Cold War era archaeological resources that are located in the 600 Area include five National Register-eligible anti-aircraft artillery sites associated with Camp Hanford's defense of the Hanford Site during the 1950s. The Hanford Atmospheric Dispersion Test Facility is a contributing property within the Historic District and is recommended for individual documentation. Numerous artifacts in the facility were identified as having interpretive or educational value in potential exhibits. A selected representative number of artifacts were removed from the facility and curated into the Hanford Collection.

Traditional Cultural Places. Areas of traditional cultural importance include Rattlesnake Mountain and foothills, the Columbia River, Gable Mountain, Gable Butte, and National Register-eligible *Wanawish*. Cemeteries associated with the Native American cultural landscape are also dispersed throughout the 600 Area.

Buildings and Structures. There are several structures associated with the Early Settlers/Farming landscape that are located in the 600 Area. The Bruggemann Warehouse, located approximately 1.6 km (3 mi) east of 100-B/C, is eligible for listing in the National Register. During 2002, the Hanford Electrical Substation-Switching Station, the Hanford Townsite high school, the Coyote Rapids Pumping Plant, and the First Bank of White Bluffs are eligible for listing in the National Register.

Fifteen Cold War era buildings/structures, including the former underground missile storage facility, have been inventoried at the former 6652 Nike launch and control center in the Fitzner-Eberhardt Arid Lands Ecology Reserve Unit. The 622 Meteorological Complex, located near 200 West, includes seven inventoried properties. Both complexes are eligible for the National Register as contributing properties within the Historic District and recommended for mitigation. An assessment of the contents of 622-F and the 6652 Nike site were conducted. No artifacts of interpretive or educational value were identified.

Five other 600 Area properties, the 604 Yakima Patrol Checking Station, 604-A Sentry House, 607 Batch Plant, 618-10 Solid Waste Burial Trench, and Hanford Site Railroad System are eligible for the National Register as contributing properties within the Historic District recommended for individual documentation. Twenty-five railcars located at the 212-N rail spur were designated Register-eligible as contributing features of the Hanford Site Railroad and recommended for mitigation. Documentation/mitigation of the 25 railcars was completed as an addendum to the Expanded Historic Property Inventory Form of the Hanford Site Railroad System. Due to their high contamination levels, most of the railcars have been removed from the Hanford Site.

The former Central Shops complex located in the 600 Area north of the 200 Areas is not eligible for the National Register (DOE 1997a).

Buildings 623 (Gable Mountain Relay Station) and 213 (Magazine/Waste Storage Vault) are contributing properties within the Historic District recommended for individual documentation.

4.5.4.6 700 Area

The 700 Area was the location of the administrative functions of the early Hanford Site period. Most of the 700 Area was altered by industrial and demolition activities. Of the seven Manhattan Project and Cold War era buildings/structures identified in this area, the 703 Administrative Building, 712 Records/Printing/Mail Office Facility, and the 748 Emergency Decontamination Facility are eligible for listing in the National Register as contributing properties within the Historic District and recommended for individual documentation (DOE 1998b).