

United States Department of the Interior  
National Park Service

National Register of Historic Places  
Multiple Property Documentation Form

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This form is for use in documenting multiple property groups relating to one or several historic contexts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. For additional space use continuation sheets (Form 10-900-a). Type all entries.

**A. Name of Multiple Property Listing**

Historic Resources of the Milwaukee Road in Washington, 1909-1945

**B. Associated Historic Contexts**

Milwaukee Road Electrification (1919-1980)

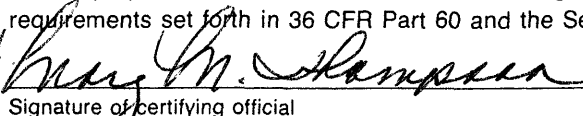
**C. Geographical Data**

The resource area is defined by the former Milwaukee Road Corridor

☐ See continuation sheet

**D. Certification**

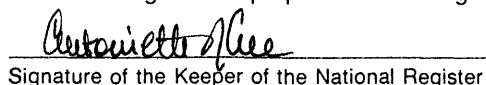
As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards for Planning and Evaluation.

  
Signature of certifying official

9/29/92  
Date

Washington State Office of Archaeology and Historic Preservation  
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

  
Signature of the Keeper of the National Register

11/19/92  
Date

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## E. Statement of Historic Contexts

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Historic Resources of the Milwaukee Road Right-of-Way in Washington, 1909-1945.

### Introduction

Of the three northern transcontinental railroads constructed across the northern tier of the western United States, the Milwaukee Road was the last to be built (1909). It followed the Northern Pacific (completed in 1883) and the Great Northern (completed in the early 1890s). Completion of the Milwaukee across Washington State in 1909 ended major railroad development in the northern tier states. Because the Milwaukee Road's competitors had previously established rail service to cities and towns throughout the northern tier, the Milwaukee's impact on settlement patterns, town-building, and local and regional development was diminished. The importance of the Milwaukee Road rests with the technological advances it pioneered, particularly in the field of railroad electrification. Upon completion of the Coast Division electrification in 1919, the Milwaukee Road operated the longest electrified railroad in the world.

The Milwaukee Road is primarily significant for its innovations in railroad electrification, and, to a lesser degree, for the advanced technology used in construction of the railroad. Today, some of the most significant intact properties representative of the Milwaukee Road's contributions to railroad technology are included in the historic resources along the Milwaukee Road right-of-way from Wanapum to Hyak, Washington. These intact properties, together with vestiges of buildings, structures, objects, and sites once necessary to the construction and operation of the railroad, represent all phases of development in locomotive technology on the Milwaukee Road during the railroad's years of existence, from the construction period (1906) until the Milwaukee Road permanently ceased operations in 1980 (see Figure 1, attached). These historic properties graphically convey a sense of both the advanced technology used in construction of the railroad and in the technological progression of motive power from coal to oil-fired steam locomotives and from that standard source of locomotion to the dramatic transformation to electrification.

### Background

Advancement of the three northern transcontinentals across the western United States shaped the development of the West perhaps more than any other single force in the history of the area. Settlement patterns, town-building, growth of agriculture and industry, and advances in technology were profoundly influenced by, or developed in response to, railroad construction across this vast space, an expanse that during the years of railroad development seemed to offer unlimited potential for growth. The three northern transcontinental railroads contributed to development of the region in overlapping ways, but to the Milwaukee Road belongs the distinction of introduction of the most novel and dramatic advances in railroad technology. Today, none of the three northern transcontinentals continue to operate under their historic names. In 1970, a business conglomerate merged to form the Burlington Northern, an entity which absorbed both the Northern Pacific and the Great Northern while the Milwaukee Road, long beset by financial woes, declared bankruptcy in 1980. At that time, the Milwaukee dismantled major sections of its trackage and razed or sold most surplus buildings and structures. The State of Washington subsequently acquired portions of the Milwaukee Road right-of-way, including the Wanapum to Hyak portion, for use as a state park. The former Milwaukee roadbed is now commonly known as the "John Wayne Trail."

### Organization of Multiple Property Types

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The multiple property documentation form identifies one historic context--Historic Resources of the Milwaukee Road Right-of-Way in Washington, 1909-1945--and several related but discrete property types, which are significantly associated with the context. The five property types are Construction Camp Sites, Division Points, Depots, Train Order Stations, and Substations and Substation Housing. The context statement outlines general historic developments related to the themes. Discussions of property types include a description of physical characteristics, and evaluation of significance, and a template of registration requirements for each property type.

### Historic Context

The Northern Pacific (NP), a land-grant-receiving railroad, completed its line from St. Paul, Minnesota, to Tacoma, Washington, in 1883. In keeping with technology then available, manual labor and the brute force of animals comprised the principal motive power in building the NP. The NP was built across a large expanse of essentially undeveloped territory. The few settlers and industries located along its route could not possibly provide enough traffic to make the NP a financial success. Thus, enticing settlers to the region and encouraging the development of industry along the NP corridor constituted the railroad's principal goal. In Washington Territory, completion of the NP line opened up much of the central part of the state and encouraged settlement and exploitation of natural resources, including timber and coal. In fact, so dramatic was the increase of settlement following the coming of the NP that Washington became a state in 1889, just six years after arrival of the railroad.

The booming economy of the Pacific Northwest and the rapidly expanding pace of settlement in the entire northern tier of states and territories encouraged the construction of a rival transcontinental railroad built roughly ten years later, the Great Northern (GN). Built without benefit of federal assistance, the GN was constructed with a greater degree of mechanization than had been used on the NP, but still with heavy reliance on the muscle power of men and of animals for grading. As with the NP, the necessary focus of the GN also centered on attracting vendors for its rolling stock. Consequently, promotional literature and other forms of advertising aimed at enticing prospective settlers and entrepreneurs to the West claimed a large share of the development budget for those railroads. Subsequent operation of the GN line through Washington spurred development of the central Columbia Basin. Growth of western railroad traffic continued to escalate into the early 1900s. This, and other factors (one of them being the Milwaukee's recognition that the cost of settlement promotion had already been borne by the NP and GN), encouraged the Milwaukee Road to expand to the West Coast, the line later referred to by the company as the "Pacific Extension."

The Milwaukee Road, officially the Chicago Milwaukee St. Paul and Pacific Railroad, had its beginnings in 1847 when the Milwaukee and Waukesha Rail Road Company was incorporated. The company grew during the 1850s and 1860s. As a result of mergers and reorganization, the company became the Chicago

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Milwaukee & St. Paul in 1863. In 1905, the company decided to extend the railroad from Mobridge, South Dakota, to the Pacific Northwest. Work began almost immediately. The preliminary route surveys were finalized and contracts let. The Milwaukee line between Chicago and Puget Sound would be shorter than either the GN (by 80 miles) or the NP (by over 100 miles), and would have easier grades. The surveys called for grades not to exceed 1.81% in the mountains, well under the 2.2% common on the NP. Plans called for the use of steel spans for all major bridges. Tunnels, cuts, and fills would be used where needed to keep curves to a minimum.

In Washington State, the work was undertaken by a subsidiary, the Chicago Milwaukee & St. Paul Railway Company of Washington. This company was renamed the Chicago Milwaukee & Puget Sound in 1909, and merged into the parent Milwaukee Road in 1912. The practice of using locally incorporated companies to construct portions of the railroad within individual states was a fairly common legal maneuver in railroad construction. Once operations commenced, most of the local companies were merged into the operating company.

Construction of the Milwaukee Road was mechanized to a greater degree than any other main line built to serve the region. In contrast to earlier human and animal labor, steam shovels accomplished most of the grading work. In addition, outside contractors' use of narrow gauge construction railroads for dumping and filling operations facilitated a more rapid rate of construction than had been possible in building the NP and the GN, an improvement which, among others, resulted in a less labor-intensive undertaking. Thus, compared with past railroad work crews, Milwaukee Road construction crews were smaller in number and occupied construction camps for shorter periods of time than had formerly been the case.

In part because of the efficiency of increased mechanization, construction of the Milwaukee Road across Washington State proceeded rapidly. Less than three years following the start of construction in 1906, service between the Puget Sound shipping point at Tacoma and the town of Malden, an agricultural distribution center located in eastern Washington south of Spokane, commenced (1909). In fact, the entire line was essentially complete from Chicago to Tacoma by May of 1909, although service over the complete route did not begin until August of that year. It was, however, two years before passenger service began in 1911.

The decision to build a temporary line over Snoqualmie Pass facilitated the speed of construction in Washington. The final alignment consisted of a two-mile-long tunnel from Rockdale on the west to Hyak on the east (locations included in the present Wanapum to Hyak corridor). The temporary "High Line" extended an additional 3.6 miles, and climbed an additional 443 feet to Laconia, the station at the summit of the pass. The High Line rejoined the permanent line approximately two miles east of Hyak. No switchbacks were required. The grade was 2.7% between Rockdale and Laconia. This was substantially steeper than the 2.2% grades engines hauled on the NP, and though acceptable as a temporary expedient,

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was highly undesirable from an operating standpoint. Work began on the Snoqualmie Tunnel after the railroad was completed. Company employees, rather than an outside contractor, performed the work. Following completion of the tunnel in 1915, the High Line was abandoned. However, the company telegraph line followed the abandoned High Line right-of-way, and was in service along this route until 1946. Grades traversing the remaining climb over the Cascades were kept under 2.0%. The only place in Washington State where it was impossible to keep the main line grade to under 2.0% was the nineteen-mile descent from Boylston at the crest of the Saddle Mountains to the Columbia River, across from Beverly. This grade was 2.2%, the same as the grades on the NP.

While the Milwaukee Road did directly influence town-building in some instances, such as at Lamont and Othello in eastern Washington, the effect of the railroad on the development of most Washington communities was minimal. As a result of the earlier promotional efforts by its predecessors, the Milwaukee enjoyed the advantage of sharing traffic along existing, and well-established shipping points, without the attendant expenditures for development of new market distribution centers that had been unavoidable in the case of both the NP and the GN. Accordingly, Milwaukee Road valuation maps show little industrial trackage and few industries served by the railroad along the Wanapum to Hyak corridor. This is hardly surprising, considering that many of the towns had been amply served by the NP for years. For example, of the towns located along the Corridor served solely by the Milwaukee Road, Kittitas (present population approximately 900) probably benefitted the most. Railroad payroll undoubtedly generated the greatest benefit to the local economy. Section men, three electric substation operators, station agents, and possibly helper locomotive crews, and their families lived in Kittitas and presumably traded in the community.

Other Milwaukee Road locations along the Wanapum to Hyak Corridor existed almost solely to service or assist trains. Cohasset, Cheviot, Rye, and other locations served as passing tracks for trains. Little if any local business was conducted there. While some of those locations (perhaps all) had depots with operators on duty for at least one "trick" (eight-hour shift) when the line was new in 1909, most depots at passing stations closed after automatic signals were installed in 1916. Advances in technology continued to eliminate the need for agents and operators all along the line. Exceptions included towns which conducted enough freight and passenger traffic where agents were needed to sell tickets and to process freight waybills, and in places such as Beverly and Kittitas where helper traffic was required for auxiliary locomotive movement. After the development of two-way radio for railroad use in the 1950's, virtually all operators and most written train orders were eliminated. These and other advances in railroad technology eventually led to the closure of the majority of Milwaukee Road stations. By 1970, practically every depot that did not warrant enough freight traffic to support an agent had been closed.

### The Milwaukee Road and Railroad Electrification

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At the time the Milwaukee Road began construction of the Coast Division in 1906, it operated the most advanced equipment and practiced the most streamlined operations developed by any of the three transcontinentals over the years. The NP had been built in an age typified by small, wood burning steam locomotives and small wooden cars. Ten years later, the locomotives commonly in use on the GN were moderately larger, and coal was the predominant fuel source. Cars were also somewhat larger, with wood construction still prevailing. By 1905, the Milwaukee Road bought slightly larger steam locomotives for its western lines than had been used by the GN during its construction period. However, lack of on-line coal supplies in Washington (a resource earlier dominated by the NP and GN) obliged the Milwaukee to convert most of its steam locomotives from coal to oil-firing by 1915. Further, although wooden car construction still predominated, the advent of steel underframes and a shift toward all steel rolling stock was underway by 1910, and much new Milwaukee rolling stock reflected these changes. Car capacities were also substantially greater than in 1883. Following changes in motive power and adoption of lighter-weight, modern fabrications in its rolling stock, the Milwaukee Road began its pioneering work with long distance railroad electrification shortly after completion of the Coast Division in 1915.

Although electric streetcars had been a success since the 1880s, little work had been done to electrify main line railroads. The few instances of main line electrification were for purposes of smoke abatement in long tunnels, such as the Great Northern's Cascade Tunnel (opened 1900) in Washington State. The first railroad to electrify a heavy tonnage hauling line was a Montana company, the Butte Anaconda & Pacific (BA&P), which electrified its twenty-six mile main line in 1912. Substantial savings over steam operations were realized. Inspired by the success of the BA&P, the Milwaukee (which passed through Butte) began looking seriously at possibilities for replacing their steam locomotives on the mountainous portions of its line in Montana. In 1912, the Board of Directors approved the electrification project as part of the mountainous route from Harlowton, Montana, to Avery, Idaho. The project was completed in 1915, and proved to be so successful that in 1917 the Board approved the electrification of the Coast Division from Othello to Tacoma, Washington. In 1920, proposals to electrify the Milwaukee line from Avery to Othello were deferred, undoubtedly because of the poor financial condition of the company at that time.

While the BA&P was the first heavy-duty electrified railroad in the United States, there was little that was innovative about it. On the other hand, the Milwaukee made several very important technical advances in railroad electrification. To begin, it was the first really long distance electrification in the world: the Rocky Mountain Division electrification stretched for a distance of 440 miles across the northern plains, and Coast Division electrification added another 200 miles of electrified railroad, for a total of over 600 miles. A second important technological advance involved operating voltages for locomotives (3,000 volts of Direct Current ([DC] per engine), the highest voltage used up to that time. The third, and perhaps most important innovation, was the introduction of regenerative braking. This improvement enabled electric locomotives to use their motors as generators when coming down grade

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by returning power into the supply system while slowing the train from the motor "drag" created by using the motor as a generator.

The railroad did not own the power generating plants that supplied it, but purchased power from on-line utilities. In Washington, these utilities included The Washington Water Power Company, headquartered in the eastern part of the state, and Puget Power Company, with headquarters in western Washington. The power distribution system worked as follows. Power companies supplied 100,000 volts of Alternating Current (AC) to the railroad from its hydroelectric generating plants. From the plants, current was carried over transmission lines running to substations which were located at roughly thirty-mile intervals along the railroad (in Washington, from near Othello to Tacoma). At each substation, transformers reduced voltage to 2,300 volts of alternating current, power which operated motor/generator sets. The 2,300 volt AC motors drove generators which produced 3,000 volts of Direct Current, which then fed into contact or trolley wires located twenty-four feet above the rails. In turn, the trolley wires transmitted 3,000 volts of Direct Current to locomotives.

Electric locomotives offered a number of advantages over coal and oil-firing engines. Electric locomotives required little maintenance, especially when contrasted to steam locomotives. Steam locomotives required fuel and water, and used both rapidly when working hard to pull a heavy train uphill. In addition, there were more wearing parts on steam locomotives, as well as a boiler, which required routine inspection and washing every thirty days. Further, unlike steam locomotives, which frequently spent up to 60% of their time being serviced, inspected, and prepared for work, electrics were ready for use virtually around-the-clock. Equally important, electric locomotives could pull nearly three times as much load uphill as steam locomotives. Last, passengers appreciated the clean ride behind the electrics, with no smoke and cinders to dirty the windows of the coaches or to lodge in travelers' clothing.

There was, however, one major disadvantage to electrification; cost was high. In order to justify the extremely costly capital expenditure associated with electrification, heavy traffic density was essential. Unfortunately, the increase in traffic volume projected at the time of electrification never materialized. Consequently, although the Milwaukee Road operated the most technologically advanced main line from Chicago to the Pacific Northwest, the company was in serious financial trouble almost from the instant it completed its Pacific Extension. Unknown to Milwaukee Road directors, the northern tier had nearly reached the ultimate extent of economic and industrial growth by 1905, with little increase in total freight shipped after that date. Moreover, the Panama Canal (1914) enticed much of the transcontinental traffic from the railroads, since large, bulk shipments could move entirely by ocean from coast to coast for less than the cost of shipment by rail. With the dangerous trip around South America removed by the passage through Panama, shipping became a more competitive alternative to railroad freight for non-perishable bulk freight.

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Thus, not only had the Pacific Extension arrived too late to benefit the Milwaukee from transcontinental traffic before completion of the Panama Canal, but electrification had cost far too much. The total cost of electrification exceeded four times the initial estimate--from a projected cost of \$60,000,000 in 1905 to nearly \$260,000,000. To make matters worse, railroad earnings in constant dollars from 1900 through 1917 failed to keep pace with inflation. This and other causes contributed to the collapse of the nation's railroad system in 1917, a failure which prompted the federal government's experimentation with nationalized railroads during World War I (1917-1919).

The financial stability of railroads did not improve after World War I, but instead faced new challenges; namely, competition from automobiles and long-haul trucking. Government support for paved roads ensured improved, well-maintained highway systems to facilitate truck traffic, an advantage which helped truckers to lure freight business from railroads. Likewise, better highways encouraged Americans to drive automobiles, where once they had traveled by train. These trends continued through, and were intensified by, the Great Depression of the 1930s. World War II (1941-1945) briefly stimulated the nation's railroad traffic; however, following the war, highway travel again claimed ascendancy. By the early 1960s, in addition to competition from an increasingly extensive interstate transportation system, air service also vied with railroads for passenger and freight traffic. During the decades of the 1950s and 1960s, the Milwaukee Road witnessed a gradual decline in service, followed by deferred maintenance, and an increasing loss of business to trucks, air carriers, and to other railroads. In 1961, the Milwaukee Road ended all passenger service in Washington State. Cost cutting continued to intensify. The Milwaukee retired the Coast electrification in 1970, with the remaining Rocky Mountain electrified line ceasing operations in the late 1970s. By 1978, only two scheduled through freight trains operated on the Milwaukee daily, one in each direction. The end was clearly near. Bankruptcy proceedings began in 1977, and in 1980 the last train ran. Portions of the Milwaukee line were then sold for use by other railroads, and the rest dismantled and sold for scrap. Thus ended operations of one of the most technologically advanced and innovative transcontinental railroads in the transportation history of the United States.



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## F. Associated Property Types

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I. Name of Property Type Railroad Construction Camps

II. Description

Workers constructing the Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) were housed in camps at irregular intervals along the railroad's route. Remains at the sites are generally located within a few meters of the roadbed, and include: tent platforms; privy pits and other ground depressions of unknown origin; rusted metal cans, stove, and machine parts; broken glass and ceramics; milled lumber; and other sundry materials, most associated with domestic life in these extremely temporary campsites. Historic artifacts are often mixed with more modern materials best categorized as trash dating from the later period of railroad operation, activities associated with removal of tracks and other facilities, transmission line construction, recreational travel along the abandoned railroad bed, and other sources. Artifacts are present in both dumps and on the ground surface, the latter of which has been severely affected by collection of most intact, diagnostic items. Limited testing at selected sites revealed subsurface deposits consisting of materials not unlike those visible on the surface. For the most part, cultural materials were recovered in the top 10 centimeters of test units, many of which showed evidence of disturbance, presumably from collectors.

III. Significance

Construction of the Milwaukee Road in Washington was completed by June 1909, when service was initiated between Tacoma and Malden (the latter a division point in Whitman County, eastern Washington). Work on the line progressed rapidly across the state, with service beginning on the entire length of the Milwaukee from Chicago to Tacoma in August 1909. Advances in construction technology were largely responsible for the relative speed in which the line was built. Slightly over twenty years earlier, armies of workers took years to do what machines accomplished in days on the Milwaukee. Crews relied to a considerable degree upon the muscle power of men and beasts for grading the Northern Pacific, the first transcontinental railroad to cross the northern tier states in the early 1880s. Construction methods were primitive: men with picks and shovels carved out the route; horse or mule-drawn scrapers moved earth and rock; holes for explosives were drilled by hand; blasted rock was moved by hand; and shortcuts were taken to minimize track mileage, resulting in relatively steep grades of 2.2 percent. Only the Snoqualmie Pass crossing and the segment of line from the Columbia River west to Boylston compared in steepness on the Milwaukee Road.

Work on the Milwaukee Road was highly mechanized in comparison. Steamshovels were used where possible, requiring moving heavy machinery overland ahead of the approaching rails. Contractors installed temporary narrow gauge rails on which small steam locomotives moved cars filled with rock from cuts and tunnels. Large volumes of earth and rock were handled rapidly, requiring fewer men and

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animals than had been used on earlier railroad projects. Materials removed from one place were quickly hauled and dumped in other places on the grade where fill was needed, speeding construction considerably. Unlike NP construction camps, some of which operated weeks or even months depending upon grading difficulty, Milwaukee Road camps were occupied but briefly before being abandoned as work progressed up the line.

Significance associated with construction of the Milwaukee Road is derived from the technology used in grading the line. Crews were relatively small, differed from section to section according to contractor, and lived and worked on the line only a short time. The ephemeral nature of the camps reduces the likelihood of there being an intact example retaining important information.

## IV. Registration Requirements

### 1. Integrity:

For a construction camp to be National Register eligible, it must contain intact features and materials associated with both the technological and sociological aspects of this railroad construction. Tent platforms, dumps, material assemblages, and other related features must be present without overwhelming intrusion from ground disturbance and introduction of more modern paraphernalia. In particular, features and materials must date from the construction period only and not from subsequent use. A considerable percentage of the cultural materials must represent the technology used in construction. Surface and subsurface collection must not have deprived the site diagnostic items.

### 2. Research Questions:

As noted above, the most significant aspect of Milwaukee Road construction was the technology used to grade the line. Domestic elements complete the profile of a representative construction camp. Since no structures remain standing at any camp sites, features and materials must be present in sufficient numbers and with sufficient integrity to answer both the following research questions to be eligible under Criterion D:

A. Does the site have the potential to clearly depict the technology used in constructing the Milwaukee Road?

B. Does the site have the potential to clearly depict the domestic as well as the industrial/technological aspects of a construction camp on this particular railroad?

I. Name of Property Type Division Points

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### II. Description

Division points were train servicing and engine change locations, materials storage yards, crew change centers, and passenger and freight centers (depots) for the Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) during the railroad's years of operation, from 1909-1980. Following electrification of portions of the Milwaukee Road in 1919, some division points (of which the South Cle Elum Yard is an example) also accommodated brick substations and substation operators' housing (see F. ASSOCIATED PROPERTY TYPES, Substations and Substation Housing). Because of the immense size of the equipment serviced, the complexity of operations involved in maintenance of engines and rolling stock, and housing requirements for both permanent and temporary personnel, division points along the Milwaukee Road required an extensive working area or "yard." For example, although a relatively small division point, the South Cle Elum Yard encompassed at least twenty acres of land. In addition to the large land area which they covered, other character defining facilities contained in division point yards generally related to the following services, operations, and maintenance activities: passenger and freight traffic, engine and track maintenance, electric substation maintenance, and railroad workers' housing.

#### Division Point Facilities Relating to Passenger and Freight Traffic

Located adjacent the main line tracks, depots served as passenger and freight hubs, and as communication centers for railroad operations. Most depots serving small western towns such as Kittitas and South Cle Elum were modest single-story, rectangular frame structures located adjacent the main line tracks. Depots were among the most significant character defining properties associated with Milwaukee Road Division Point Operations. (see F. ASSOCIATED PROPERTY TYPES, Depots).

#### Division Point Facilities Relating to Engine Operations and Upkeep and Track Maintenance

In addition to the main and passing tracks, division point yards typically contained lead tracks serving machine shops, roundhouses, material yards, and other service facilities. Roundhouses served as centers for light engine repair and maintenance work and as storage bays for temporarily inactive steam locomotives. Accessed by turntables, roundhouses varied in size from small three-bay, pie-shaped facilities to full-circle buildings containing thirty or more stalls. Electrification of the railroad in 1919 resulted in the demolition of some Milwaukee Road roundhouses. For instance, since steam locomotives were seldom used on the line through South Cle Elum after 1919, the roundhouse there was demolished in the 1920s. Imposing in size and dramatic in appearance, roundhouses were one of the most significant character defining buildings associated with Milwaukee Road division points during the years that coal and oil provided the fuel for engines, from 1909-1919. Other buildings, structures, and sites of less structural significance included coal bins, ash pits, ice houses, oil tanks, pumping plants, mechanic shops, and tool sheds.

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### Division Point Housing

Division points normally contained bunkhouses for changing crews. Crews worked from a home base, but moved over a full 100 mile (nominal) division, which corresponded to a full day's work. The crew then turned the train over to a fresh crew and locomotive (during the days of steam-powered engines), with the fresh crew taking over operations. The old crew then rested before taking another train back to their home base, a cycle which required a bunk house for changing crews. Of simple architectural styling, bunkhouses provided overnight housing for engine and train men during crew changes. The two-story, L-shaped frame bunkhouse at South Cle Elum is representative of Milwaukee Road bunkhouse construction, and today presents essentially the same exterior appearance as it did during the period of significance. The Milwaukee moved the bunkhouse a short distance from its original location to make way for construction of an electric substation in 1919. The bunkhouse is now privately owned and serves as a bed-and-breakfast establishment. It is listed in the National Register of Historic Places. Frequently, section crew single-family dwellings also occupied division point yards. If division points contained substations (as with the South Cle Elum Yard), operator cottages for substation operators also stood in the division point yard. Bunkhouses and other railroad workers' dwellings typically found in division point yards were significant character defining properties associated with Milwaukee Road division points.

### South Cle Elum Division Point

The South Cle Elum Yard is representative of Milwaukee Road division points. Although the abandoned yard has been heavily overgrown by vegetation in the past decade, few modern man-made intrusions have compromised the historic setting of the South Cle Elum Yard. The standing buildings and structures remaining there, as well as remnants of other properties once associated with division point activities, convey a vivid sense of the action and drama that once characterized the work of men and machines at that location.

The South Cle Elum Yard contains an intact depot, substation, three adjacent substation operators' cottages, and crew bunkhouse. The single-story, frame depot is dilapidated and badly in need of repair; however, the building clearly contributes to the historic character of the setting despite its deteriorated condition. Although the substation was abandoned during the decade of the 1970s, when diesel-electric locomotives replaced the aging electrics, the imposing, roughly forty-foot-high, brick building exhibits excellent structural integrity. Likewise, the three substation operators' bungalows located adjacent (west of) the substation appear basically unaltered since the time of their construction (1919). All three cottages are presently occupied and are privately owned. While substations and substation cottages were not indigenous to division point properties, the outstanding structural integrity of the South Cle Elum substation and operators' cottages, and their integral role in division point activities following electrification, enhance potential National Register eligibility of the South Cle Elum Yard as an historic

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district. Although moved from its original location, the former bunkhouse stands on the eastern edge of the yard. The bunkhouse is listed in the National Register and further adds to the potential eligibility of the South Cle Elum Yard as an historic district. One frame coal and ice shed (once used to service cabooses) of less structural significance than the other intact properties in the yard also stands along the north side of the former main track.

Remnants of other historic buildings and structures lie scattered throughout the once-extensive yard. These include concrete foundations for an eight-stall roundhouse and eighty-five-foot turntable, a water tank, an ash pit, and a containment wall for an oil storage tank. Collectively, the intact buildings, as well as vestiges of other properties distributed throughout the yard, suggest the sequence of buildings and structures constructed throughout the period of significance to accommodate the innovative technology associated with development of railroad electrification.

Today, the South Cle Elum Yard retains elements which represent all phases of development in locomotive technology on the Milwaukee Road during the period of significance. The yard includes significant structures whose exteriors have not been substantially altered, and distinct vestiges of structures and of sites which were once important industrial facilities, as well as crucial parts of the national transportation system before the age of the automobile and development of the nearby interstate highway. These are the best preserved buildings, remnants of structures and objects, and sites associated with the electrified operations of the Milwaukee Road in Washington State which are clearly visible and easily accessible for public inspection. The number of extant buildings exhibiting architectural and historical significance, together with remains of associated buildings, structures and objects within their historic setting contributes to the potential eligibility of the recommended Chicago Milwaukee St. Paul and Pacific Railroad, South Cle Elum Yard Historic District. Division points may be eligible for the National Register either as historic districts or as individual buildings or structures.

### III. Significance

Milwaukee Road division points are significant for the vital role they played in the daily operations and long-term maintenance of a major transcontinental railroad, and because they graphically illustrate the technological progression of motive power from coal to oil-fired steam locomotives, and from that standard source of locomotion to the dramatic transformation to electrification. The Milwaukee Road was the only electrified transcontinental railroad ever to operate in the United States. Upon completion of the Coast Division electrification in 1919 (including the line through the Wanapum to Hyak corridor), the Milwaukee Road held the distinction of operating the longest electrified railroad in the world. Electrified portions of the railroad included the Rocky Mountain Division (440 miles) and the Coast Division (200 miles).

The railroad pioneered the use of long distance electric operation, using readily available hydro-generated electricity at a time when fossil fuel burning steam locomotives were the industry standard. However,

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the volume of traffic necessary for the monetary success of electrification never materialized, a circumstance which eventually led to the financial collapse of the Milwaukee Road. In 1980, the company ended all service west of Miles City, Montana. Major portions of the track were dismantled at that time, and numerous buildings and structures razed or sold for scrap.

#### IV. Registration Requirements

Because of the their importance as operations, maintenance, and communication centers, Milwaukee Road division points were generally located in larger urban areas, where ground disturbance, renovation of existing properties, and construction of new buildings/facilities in transportation and industrial corridors by a variety of business enterprises is typically an ongoing affair. The nature of most transportation and industrial complexes is change; when one venture ends operations, another usually takes its place, with the new owner typically remodeling or replacing facilities in the process. Consequently, when the Milwaukee Road permanently ceased operations in 1980, many Milwaukee properties were appropriated by other business concerns for different purposes than railroad transportation. The former Milwaukee Road Ellensburg Yard is an example. Once a major city on the Milwaukee Road Coast Division, today virtually all vestiges of Milwaukee Road properties in the town of Ellensburg have been razed, as other enterprises have since located along that currently active transportation corridor. In evaluating Milwaukee Road division points as potential historic districts for inclusion in the National Register of Historic Places, therefore, the likelihood of an extant division point, complete with all the buildings, structures, objects and sites historically associated with division point yards, is, at best, remote. Thus, in recommending division point yards for potential eligibility as historic districts, the properties should be evaluated in terms of significant extant buildings and structures, quality and visibility of historic remains, integrity of setting, and the overall ability of the division point yard to adequately convey a sense of the multifarious operations that occurred there during the period of significance.

To be potentially eligible for inclusion in the National Register, division points must contain at least one significant building or structure which retains structural integrity dating from the period of significance. Significant buildings or structures include depots, substations and/or associated operators' cottages, roundhouses and turntables, bunkhouses, and substantial intact trackage. The recommended South Cle Elum Yard Historic District, for example, contains a depot, substation and three operators' cottages, and bunkhouse--all of which exhibit fair to excellent structural integrity.

In evaluating potential division point eligibility, vestiges of buildings, structures, objects, and sites once important to the complex organization and operation of the division point yard must be discernable in ways that strongly convey a sense of the scope of activities historically associated with division points, as well as to graphically exhibit the overall historic arrangement of the major elements of the division point yard. At the South Cle Elum Yard, for example, remains of the roundhouse and turntable clearly indicate form and function associated with roundhouse activities. Today, the concrete pyramid-shaped pads for the upright supports of the roundhouse and concrete inspection pits are readily visible, while

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the concrete foundation for the center pivot bearing and part of the concrete side wall foundation reveal the location and function of the former turntable. Similarly, twelve cast concrete pads which once held the South Cle Elum water tank, a structure essential to the operation of steam locomotives, is still visible, as are remnants of the lead track grade which led to the engine watering tank. Located nearby is the former Milwaukee ash pit, formerly used in servicing coal-fired steam locomotives. The partially filled ash pit and its concrete foundations are also visible, as are grades leading to the pit. These and other remains impart a definite sense of the historic layout of the South Cle Elum Yard, as well as indicate the spatial relationship of the yard's various components. These distinctive remains add to the potential eligibility of the property as an historic district.

Division point yards must be essentially free of modern intrusions that would distract from the integrity of location, design, setting, feeling, and association characteristic of the historic property during the period of significance. Modern intrusions include, but are not limited to, modern buildings; machinery or vehicular storage; animal pasturage; public or private disposals; agricultural tillage; and dozing, leveling, or other extreme forms of ground disturbance. Growth of natural vegetation is not considered an intrusion, and should not detract from National Register eligibility of the historic property unless ground cover either substantially or completely obscures the distinguishing elements of the property.

I. Name of Property Type Depots

II. Description

Depots were buildings used as shipping/receiving, passenger arrival and departure hubs, and as communication centers by the Chicago Milwaukee St. Paul and Pacific Railroad (known as the Milwaukee Road) during the railroad's years of operation, from 1909-1980. At one time these modest frame buildings stood in cities, towns, and in lonely stations in isolated rural areas throughout the western United States.

Although the physical dimensions of depots varied from place to place along the Milwaukee Road corridor, with larger depots usually serving locations having higher freight/passenger volume and greater complexity of transportation and communication activities, most Milwaukee Road depots shared similar basic features. Of simple architectural styling, the depots were single-story, rectangular buildings of wood frame construction. Depots ordinarily sat on foundations consisting of concrete piers and wood posts, with the buildings' long axis aligned parallel to the main tracks. Roof design was most commonly gable, with hip-roofed plans less frequently employed. Windows were usually double-hung, wood sashes, often with transom windows above. Freight and passenger loading platforms were also features common to all Milwaukee Road depots. Interior spaces of typical depots consisted of a passenger waiting room, an office (midsection), and a freight room (the largest of the three interior spaces) accessed by large wooden doors. Wood sign boards at both ends of the depot bearing the name of the station was another

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characteristic of Milwaukee Road depots, although, beginning in the 1950s, many of the original signs were replaced with black paint or Scotchguard letters on aluminum. A single large bay window, the most distinctive feature of most depots, was located in the office in the midsection of the building. From behind the bay window, the agent maintained an unobstructed view of the main track in either direction. While architectural embellishment was generally minimal, most depots displayed ornamental brackets, soffit detailing, or other roof line decorative treatment.

The Kittitas Depot (constructed circa 1909) is typical of a Milwaukee Road depot serving a small western town. It is a single-story, gable-roofed building located along the main tracks (now removed) of the Milwaukee Road in the small agricultural and stock raising town of Kittitas, Washington. The name "Kittitas" is lettered on sign boards at both the east and west end of the modest frame building. The depot's single bay window faces the location of the former main tracks, which were once scrutinized by the agent from his vantage behind the bay window. Although the Milwaukee Road tracks have been dismantled along the road bed past the depot, and other buildings, structures, and objects associated with the operation of the Kittitas Yard have been removed or fallen into disrepair, the Kittitas Depot exhibits excellent exterior integrity. The building admirably conveys a sense of the buildings' former role as a freight and passenger hub and as a communication center for a small western town. From the depot, a sweeping view of the abandoned roadbed to the east and to the west conveys a feeling of distance, space, and solitude representative of the railroad corridor during the years the Milwaukee Road passed through this semi-arid, sparsely populated portion of far western terrain. The depot's superior condition and the associative characteristics regarding its historic setting and function enhances The Kittitas Depot's potential eligibility for inclusion in the National Register of Historic Places. Similarly, although neglect, deterioration, and some modern intrusions have diminished the integrity of the South Cle Elum Depot, the building retains qualities reminiscent of a large depot which once handled the complex transportation and communications activities distinctive of division point operations (see F. ASSOCIATED PROPERTY TYPES, Division Points). Although the South Cle Elum Depot appears to be in only fair condition, the building contributes to the potential eligibility of the recommended Chicago Milwaukee St. Paul and Pacific Railroad, South Cle Elum Yard Historic District.

### III. Significance

In the late nineteenth and early twentieth centuries, railroads were the nation's primary carriers of freight and passengers. The financial security and continued economic well-being of small towns frequently were directly related to railroad service. Depots were buildings constructed to serve small towns throughout the western United States. A centrally located agent/operator's office allowed the station agent to perform the dual tasks of serving the public and assisting with the movement of trains over the railroad. From depots, agents sold tickets and checked baggage for departing passengers and handled the processing of both incoming and outgoing freight. In addition, from the bay window of the agent's office the main tracks of the Milwaukee Road could be closely scrutinized in either direction. The office also served as a communication center both for railroad operations (receiving orders to trains from the



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dispatcher) and for receiving messages from, and relaying bulletins to, the outside world via telegraph instruments, telephones, and later, radios, installed in the agent's office. Depots also played a central role in the social life of the communities which they served. Before travel by automobile became common, residents of small communities often gathered at their respective depots to visit, share news and gossip, and to watch the arrival and departure of passenger trains. Frequently depots were constructed near or at the intersection of important streets, an indication of the depot's pivotal role in the transportation, communication, and social life of many western communities. For example, located conveniently near the intersection of Main Street and Railroad Avenue (the main north/south and east/west streets of Kittitas, respectively), the location of the Kittitas Depot illustrates the prominence the depot once held in the activities of that community.

When the Milwaukee Road ceased operations in 1980, many of these once numerous depots were destroyed; others had been razed over the years as automation and advances in railroad technology replaced services formerly performed by railroad personnel from depots. The Kittitas Depot, Kittitas County, Washington, is today one of the few extant depots that has not only survived the demise of the railroading enterprise of which it was once a part, but which also exhibits excellent exterior integrity.

#### IV. Registration Requirements

To be eligible for listing in the National Register, a depot must strongly convey its historic character in both physical and associative ways and must have documented historical significance when evaluated within the context of Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) operations in the Wanapum to Hyak corridor.

During the more than seventy years of the Milwaukee Road's operation (1909-1980), thousands of depots stood in towns and cities throughout the western United States. The vagaries of time, the Milwaukee Road's demolition policy regarding surplus properties following the railroad's bankruptcy in 1980, and subsequent acquisition and alternate use (and abuse) of Milwaukee Road depots by private owners, have seriously depleted the number and the integrity of extant depots. While deterioration, neglect, and planned destruction of Milwaukee Road depots have occurred at a distressingly rapid rate, fortunately, some depots remain largely intact in their historic settings, and presently exhibit excellent structural integrity. These depots, of which the Kittitas Depot is an example, should define the threshold of eligibility for inclusion in the National Register of that property type. However, because more than a decade has passed since the Milwaukee Road permanently ceased operations, and because of subsequent increasing rarity of significant properties historically associated with the railroad, a certain amount of dilapidation of extant properties is presumed. Thus, moderate deterioration of a depot otherwise exhibiting good structural integrity should not prohibit the property from recommendation for National Register eligibility.

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Depots must retain integrity of scale, massing, roof shape, exterior cladding and trim, and original bay window (if that design feature was originally part of the depot's plan) in order to convey their historic character. Because of the singular relationship of form to function in the exterior and interior design of depots as transportation and communications centers located adjacent main line railroad tracks, changes to the buildings' original configurations could seriously compromise the integrity of the historic properties. For example, Milwaukee Road depots were always oriented toward the main tracks (with the buildings facing the tracks), and not necessarily toward the community or siding of which they were a part. Similarly, because the elongated shape of depots and their fixed location parallel to the main tracks of a major transcontinental railroad suggests the distinctive sweeping, linear quality of that historic resource, modern intrusions interfering with the visual aesthetics representative of the depot in its historic setting could also compromise the integrity of those properties. In addition, since choice of design and placement of bay windows in depots was influenced specifically for purposes of inspection of the main tracks, removal or alteration of original bay windows would compromise the integrity of one of the principal defining features of that historic resource. Further, recent extensive alteration or replacement of remaining original windows and doors by private owners for purposes other than those historically associated with railroad operations would diminish the structural integrity of depots.

During the period of significance, however, railroad buildings were routinely modified to meet changing company needs. Windows and doors were closed off or added as needed, with such changes commonly occurring throughout the life of Milwaukee Road properties. Structural modifications undertaken by the railroad as part of the ongoing development of changing railroad technology and transportation operations, therefore, should not be construed as compromising the integrity of the property, but recognized as illustrative of the property's dynamic pattern of historic use. However, any alterations or modifications to Milwaukee Road depots following the period of significance should be carefully evaluated.

Since surviving Milwaukee Road depots are no longer owned or maintained by the railroad but by various groups or individuals, repair and/or replacement of roofing fabrications incompatible with original materials is highly likely. Because upkeep of roofing is vitally important to the preservation of the building as a whole, and because roofing materials do not alter the character defining shape of the building, metal roofing and other modern fabrications should not necessarily exclude depots from potential National Register eligibility. However, metal siding or other modern cladding extensively employed as covering on exterior walls could seriously degrade the integrity of the historic resource.

At one time, Milwaukee Road depots all had one or more platforms used in handling and processing passengers and freight. Although once a necessary part of daily activities associated with depots, subsequent removal or deterioration of platforms does not detract from the structural integrity of the depot itself, and should not exclude depots from potential eligibility for listing in the National Register.

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Because of the direct relationship of location and setting to both the operation of the railroad during the period of significance and to the social and economic life of communities served by depots, moved properties are normally not eligible for inclusion in the National Register. Exceptions can be made, however, for structures having unusual historical or architectural value.

I. Name of Property Type Train Order Stations

II. Description

Train order stations were small sidings along the Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) that served a variety of functions. Small depots that once stood at all stations have been razed, as have all other buildings and structures. Function determined what buildings were erected at the sites: for instance, some stations, such as Doris and Hyak, included substations which received and transmitted electric current for use by electric locomotives after the Milwaukee Road was electrified in 1919. Those stations also included houses for substation operators (see F. ASSOCIATED PROPERTY TYPES, Substations and Substation Houses). Section crews were housed at other stations, such as Cheviot, Cohasset, Horlick, Boylston, and Whittier, where stood bunkhouses, section houses, and other structures essential to maintenance of the line and sections crews. Those structures included some facilities necessary only to steam locomotives used before electrification, such as water tanks and coal and coke bins. Some stations served local commerce, such as Rye and Cohasset, where there appear to have been stock loading chutes. Other stations catered to other local needs: timber products were shipped from Horlick, Taneum, and Whittier; potato warehouses at Regal and Thorp facilitated transport of that local commodity.

Stone and concrete foundations, building footprints or outlines, earthen platforms on which buildings or tents stood, ground depressions, milled lumber, and artifact scatters are all that remain at the train order station sites. Facilities at the stations were razed by the railroad as they became obsolete, such as those serving steam locomotives after the line was electrified. Others that operated throughout the life of the railroad were razed when the Milwaukee Road abandoned its track after the last train ran in 1980.

III. Significance

Train order stations served a variety of functions along the main line of the Milwaukee Road (see above). Function and significance changed with electrification, but always the stations served limited functions specific to their locations along the line. While some functioned to support actual operation of the railroad, others served local commercial needs at least as much as they served the railroad's operation. Those with section crew facilities were obviously more essential to keeping the Milwaukee Road in service, and not surprisingly contained a commensurate number of facilities not located at stations of lesser importance. Never were train order stations as significant to the railroad's operation as main

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depots (see F. ASSOCIATED PROPERTY TYPES, Depots) or electrification points (see F. ASSOCIATED PROPERTY TYPES, Substations and Substation Housing). The most significant stations were those providing the most combined functions, such as section crew and electrification stations. As the Milwaukee Road itself derived significance primarily in terms of its innovations in electrical engineering, stations providing electrification services appear potentially to be of greatest significance.

## IV. Registration Requirements

### 1. Integrity:

**Buildings:** For eligibility, foundations of depots/stations must be visible and identifiable as such. Remains and foundations of other ancillary buildings will contribute to potential eligibility if their original size, configuration, construction, and function can be clearly identified.

**Surface Deposits:** Railroad-related materials must be present in considerable amounts, without overwhelming intrusion of modern materials. Historic railroad-related materials must include objects reflecting actual operation of the railroad and its technology. Domestic material may contribute to eligibility if present in extensive, intact deposits, but alone will not constitute significance.

**Subsurface Deposits:** There must be evidence of extensive dumps (deposits with subsurface depth) containing early twentieth century materials, without intrusion of modern materials. Like surface materials, subsurface deposits must contain material reflecting actual operation of the railroad and its technology. Domestic material may contribute to eligibility, but alone will not constitute significance.

### 2. Research Questions:

As noted above, the Milwaukee Road derives its historical significance primarily from its innovations in railroad electrification. Since no structures remain standing at any train order stations, sites must retain features and materials with sufficient integrity to answer both the following research questions to be eligible under Criterion D:

- A. Does the site have the potential to clearly depict an early twentieth century train order station serving the railroad during its period of electrification (1919-1971)?
- B. Does the site have the potential to clearly depict its function and the technology employed at the station?

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I. Name of Property Type Substations and Substation Housing

II. Description

Substations were brick buildings constructed along the main line of the Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) to receive and transmit electric current from commercial electric utility company distribution lines to Milwaukee Road engines when the railroad adopted electrification as the source of motive power in 1919. At substations, Alternating Current (AC) voltage was converted to Direct Current (DC) voltage, which powered motor/generator sets that operated the railroad's electric locomotives. From the substation, 3,000 DC voltage was fed into overhead trolley wire above the track. In turn, locomotives drew 3,000 DC voltage from the overhead wire. Substations were constructed at roughly thirty-mile intervals along the electrified portion of the Milwaukee Road Corridor. Electric operation of the Milwaukee Road Coast Division ended in 1971, at which time substations became surplus property, with most then being razed or sold.

Substation single-family housing consisted of three nearly identical substation operators' bungalows located adjacent the substation. Operators manned the substation round-the-clock in order to accommodate the power requirements of electric engines. The more locomotives which drew current at a given time, the more current-load was required from the substation. Hence, operators had to be on duty at all times in order to monitor actual power use by trains, and to ensure that the substation provided enough electric current to power the engines without wasting electricity. Three dwellings for the operators and their families were required: one for each operator working an eight-hour "trick," or shift.

South Cle Elum Substation

Located in the South Cle Elum division point yard (see F. ASSOCIATED PROPERTY TYPES, Division Points), the South Cle Elum substation is representative of Milwaukee Road substations which operated from 1919-1971. The building features an irregular plan, measuring approximately 20 x 120 feet. The ten-sided red brick building rises to a height of roughly 40 feet. Roofing for the substation appears to be galvanized metal. The building rests on a poured concrete foundation. The substation is located immediately west of the depot, between Milwaukee Street and the site of the main track of the railroad. The building exhibits excellent exterior integrity and appears little changed from the time of its completion in 1919. A chain link fence presently surrounds the substation, which is privately owned.

South Cle Elum Substation Housing

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The three operators bungalows located adjacent (west of) the South Cle Elum substation typify Milwaukee Road substation housing. The bungalows feature rectangular plans, which are nearly square, with a smaller rectangular front porch located at the west corner of each dwelling. The upstairs of each bungalow appears to be an attic. Exterior cladding consists of clapboard siding. The gable-roofed dwellings stand over poured concrete basements. Main floor windows are double-hung, wood-sash, while attic windows appear to be fixed panes, located in the east and west end walls of each bungalow. Original roofing materials appear to have been replaced on each of the three dwellings. The only other notable change to the dwellings since the period of significance is the color of their exterior paint, each being a separate hue. Shortly before end of electric operations in 1971, the bungalows were painted gray--then the standard company color for Milwaukee Road buildings.

Although modern storm windows, repainting, and new roofing fabrications have slightly modified the appearance of the bungalows, the three houses are today essentially unaltered from their appearance at the time of their construction in 1919. The South Cle Elum substation operators' bungalows are the only remaining intact set of substation housing in Washington State. The structural integrity of the bungalows, intact presence of the substation they were built to support, and distinction as the last remaining example of this property type in the state enhances potential National Register eligibility of the South Cle Elum substation and substation housing.

### III. Significance

Of the three northern transcontinental railroads constructed in the United States, the Milwaukee Road was the last to be built (1909). It followed the Northern Pacific (completed in 1883) and the Great Northern (completed in the early 1890s). Because the Milwaukee Road's competitors had previously established rail service to cities and towns throughout the northern tier of the western United States, the Milwaukee's impact on settlement patterns, town-building, and local and regional development was diminished. The significance of the Milwaukee Road rested with its pioneering efforts and subsequent success in the field of railroad electrification. In order to facilitate operation of the system, new buildings, structures, and objects were constructed and installed. Of the many properties associated with this dramatic new use of motive power for railroad electrification, none more perfectly illustrates the technological advances which made this power source standard for the Milwaukee Road than the railroad's electric substations; for it was these imposing brick buildings that received and transmitted electricity to run the longest completely electrified heavy tonnage hauling line ever to operate in the United States. Substations, together with their attendant, and adjacent, set of three operators' dwellings, illustrate the affiliation between the advanced technology represented by railroad electrification and the human vigilance required to monitor and attend such a system. Milwaukee Road substations and substation housing are significant as perhaps the one set of historic properties remaining from the period of significance that most vividly manifests the Milwaukee Road's successful pioneering efforts in railroad electrification.

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Milwaukee Road management envisioned that the efficiency of electrification, together with projected increases in the volume of freight which the electric system was designed to haul, would defray the enormous capital expense committed to electrification. Sufficient tonnage necessary to ensure the financial success of electrification, in fact, never materialized, one of the main causes that eventually led to the Milwaukee Road's demise. Despite the ultimate financial failure of the railroad, however, the introduction of electrification was an unqualified success as one of the most innovative, efficient, and daring developments in the history of railroad technology.

#### IV. Registration Requirements

Once located at roughly thirty-mile intervals along the electrified portions of the Milwaukee Road corridor, substations were located at major division points in cities and towns, at small-town stations, and at various lonely and uninhabited points along the Milwaukee Road main line as it traversed the vast reaches of the western terrain. As the financially unstable Milwaukee Road continued to lose revenue to trucks and other railroad carriers over the years, cost-cutting measures led to a decline in service. The Milwaukee Road ended all passenger service in Washington State in 1961. In 1971, Coast Division electrification was shut down, with the remainder of electrified service suspending operations in 1974. Diesel-electric locomotives operated over the Milwaukee Road from 1950 until the railroad ceased operations in 1980. The last steam locomotives were not retired until the late 1950s. Retirement of the Coast Division electrics in 1971 made that division 100% diesel operated. With the end of Rocky Mountain electrification in the late 1970s, 100% dieselization occurred, over twenty-five years after the last steam locomotive had been retired.

Following termination of the electrification system, properties associated with that form of motive power became surplus. In order to avoid taxation and maintenance on surplus property, the Milwaukee Road either razed or sold surplus properties, which included substations and substation housing. Consequently within ten years of the end of electrification most substations and substation housing had disappeared or passed from the railroad into private ownership. Today, the South Cle Elum Substation and substation housing is the only intact set of housing, substation, and crew change point in Washington State. Therefore, the South Cle Elum substation and operators housing serve as models in defining the threshold of National Register Eligibility for this property type.

#### Substations

Substations must retain integrity of scale, massing, roof shape, and exterior cladding in order to convey their historic character. Extensive alteration by subsequent owners of original exterior openings (windows and doors), addition of alternate exterior cladding, or attachment of modern additions to the building would compromise the integrity of the substation.

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Addition of roofing fabrication incompatible with original roofing material should not prevent recommendation of the property for National Register eligibility, as roof replacement and repair ensures the protection and preservation of the building without changing the character defining shape of the roof line.

Location of substations depended on electrical load requirements, and on the necessity of placing substations adjacent the main line tracks in order to provide DC voltage to trolley cables above the track. Substations were placed at approximately thirty-mile intervals, the maximum distance AC current could travel over transmission lines before losing power. In the case of steep grades or very heavy traffic, substations were placed less than thirty miles apart. In short, Milwaukee Road substations have been historically associated with electric transmission along the railroad right-of-way since the time of their construction. Therefore, replacement of electrical transmission towers or lines by other utilities can be viewed as an ongoing process of power transmission along the Milwaukee Road corridor, and should not compromise the integrity of the substation unless placement or replacement of aboveground or underground utilities would result in actual physical destruction to part or all of the substation.

Because of the shape, mass, and height of substations, it is unlikely extant properties would be moved from their historic location. However, because of the direct relationship between the location of substations (adjacent the main line tracks) and the function they performed (providing DC current to engines), moved properties would normally not be eligible for inclusion in the National Register.

### Substation Housing

Since extant Milwaukee Road substation housing is no longer owned or maintained by the railroad, but by private individuals, repair and/or replacement of roofing fabrications incompatible with original materials is highly likely. Because upkeep of roofing is vitally important to the preservation of the building as a whole, and because roofing materials do not alter the character defining shape of the building, metal roofing and other modern fabrications should not necessarily exclude depots from potential National Register eligibility. However, metal siding or other modern cladding extensively employed as covering on exterior walls could seriously degrade the integrity of the historic resource.

Modern additions to substation bungalows, or extensive remodeling or repositioning of character defining features (the dwellings' front porches, for example) could seriously degrade the integrity of the buildings. Likewise, in cases where extreme neglect or deterioration would make repair or rehabilitation of the dwelling to its historic condition impossible, the property would normally not be eligible for inclusion in the National Register.

While the setting of bungalow housing is industrial rather than residential, these single-family homes nevertheless contained well-kept landscaped yards comparable with, and imitative,



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of, working class housing in cities and towns throughout the West during the period of significance. Therefore, degradation of character defining landscaping because of neglect, excessive litter, or any modern intrusion that might destroy or mostly destroy the quality of landscaping associated with the historic property could compromise the potential National Register eligibility of substation operators' housing.

Because of the direct relationship between the proximity of substation housing to both the substation which the dwellings were built to attend and to the main line track of the Milwaukee Road, moved properties would not normally be eligible for inclusion in the National Register.

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### G. Summary of Identification and Evaluation Methods

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Discuss the methods used in developing the multiple property listing.

At the request of the Puget Sound Power and Light Company (Puget Power), Archaeological and Historical Services (AHS) of Eastern Washington University conducted a cultural resources survey and literature search of the former Chicago Milwaukee St. Paul and Pacific Railroad (Milwaukee Road) corridor from Wanapum to Hyak, Washington. AHS conducted the survey prior to Puget Power's proposed upgrade of the Wanapum Substation to Hyak segment of their Intermountain Power transmission line, a project which includes the replacement of the existing single pole structures and conductors with double

☒ See continuation sheet

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☒ See continuation sheet

Primary location of additional documentation:

- ☐ State historic preservation office  
☐ Other State agency  
☐ Federal agency

- ☐ Local government  
☐ University  
☐ Other

Specify repository: \_\_\_\_\_

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### I. Form Prepared By

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pole H-frame structures with new conductors. The properties identified in the "Historic Resources of the Milwaukee Road Right-of-Way Wanapum to Hyak, Washington, 1909-1980" National Register of Historic Places (NRHP) Multiple Property Determination of Eligibility (DOE) resulted from this work. The current MPD expands to include information on the entire corridor in Washington State.

Although determinations of eligibility were requested only for properties located along the Wanapum to Hyak, Washington, Milwaukee Road corridor, the context statement and associated property types address buildings, structures, and sites that are representative of Milwaukee Road properties once important to the operation of the railroad along the entire Milwaukee Road line, from Chicago, Illinois, to Tacoma, Washington. The context and descriptive information are provided to apply to evaluation of similar property types within the defined Milwaukee Road corridor.

The Milwaukee Road, which operated from 1909-1980, was significant for its pioneering efforts in railroad electrification, and, to a lesser extent, for advanced technological mechanisms used during construction of the railroad. Five discrete property types exhibiting significance within the developed context were identified in the DOE. They include Construction Camps, Division Points, Depots, Train Order Stations, and Substations and Substation Housing. Since design of the Milwaukee roadbed did not represent advanced or novel engineering concepts, and because its design is not representative of the historic characteristics which contribute to the railroad's primary significance, the roadbed was not included as a property type in the multiple property nomination, and does not appear eligible for inclusion in the National Register of Historic Places.

Although the standard National Register criteria were used in the initial evaluation of the properties, specific standards of integrity were developed from survey information and historical literature for evaluation of the various property types. Those specialized standards vary according to property type.

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