

CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2022-08-05760 (Please contact the lead agency for the project number. If associated to SEPA, please contact SEPA@dahp.wa.gov to obtain the project number before creating a new project.)

Author: Jack Johnson, PhD, RPA, Emily Peterson, PhD, RPA and Cameo Kale, MA

Title of Report: Overview Assessment and Stage I Survey for the Segale Cumberland Property, King County, Washington

Date of Report: November 1, 2022

County(ies): King Sections: 9, 15, 17, 21 Township: 21N Range: 07E

Quad: Cumberland, WA Acres: 585

PDF of report submitted (REQUIRED) Yes

Historic Property Inventory Forms to be Approved Online? Yes No

Archaeological Site(s)/Isolate(s) Found or Amended? Yes No

TCP(s) found? Yes No

Replace a draft? Yes No

Satisfy a DAHP Archaeological Excavation Permit requirement? Yes # No

Were Human Remains Found? Yes DAHP Case # No

DAHP Archaeological Site #:

45KI1502

CULTURAL RESOURCES ASSESSMENT

Submitted to Segale Properties

November 1, 2022

Overview Assessment and Stage I Survey for the Segale Cumberland Property, King County, Washington



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Submitted by:



[PERTEET.COM](https://www.perreet.com)

801 SECOND AVENUE, SUITE 302
SEATTLE, WA 98104
206.436.0515

ABSTRACT

Segale Properties has acquired property in the vicinity of Cumberland, King County, Washington where they plan to develop a gravel mining facility. Proposed mine development will occur in four stages over more than a decade. Segale Properties asked Perteet to complete a cultural resources assessment of the project area. This assessment includes background research for the entire property and results of field investigations in the Stage I mining areas to assess the overall potential for cultural resources within the project area. One archaeological site, 45K11502, was identified and recorded in the course of Stage I survey and is recommended not eligible for listing in the National Register of Historic Places. One previously identified NRHP eligible historic property is also within the project area but no adverse impacts to the resource are anticipated from gravel mine development or operations. Based on the results of background research and Stage I survey, targeted archaeological monitoring is recommended following brush clearance in specific areas of elevated potential to contain historic period archaeological sites. Intensive pedestrian survey and limited subsurface investigation in stage 2-4 mining areas is also recommended. Finally, it is recommended that ground disturbance be conducted under an inadvertent discovery plan.

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INTRODUCTION

Segale Properties plans to conduct extensive gravel mining in the vicinity of Cumberland in south King County. Current plans (Appendix A) indicate gravel mining will eventually affect five distinct areas (hereafter M-1 through M-5) collectively totaling roughly 585 acres. Planned gravel mining will be conducted in four stages (hereafter Stage 1 through Stage 4), and its areal extent will expand progressively with each stage (Table 1). Importantly, this is a long-term plan, and several decades are expected to elapse between initiation of Stage 1 mining and the completion of all stages of mining activities.

Table 1. Planned Extent of Gravel Mining Areas by Stage.

Area	Acreage				Total
	Stage 1	Stage 2	Stage 3	Stage 4	
M-1	69.0	38.5	12.1	0	119.6
M-2	29.2	29.3	13.9	0	72.4
M-3	45.6	59.0	43.2	55.5	203.3
M-4	0	0	66	102.4	168.4
M-5	0	0	0	21.3	21.3
All Areas	143.8	126.8	135.2	179.2	585.0

Perteet was retained to perform a cultural resources investigation of the area that will be affected by planned gravel mining. This investigation included background research into the history of all areas that will be affected by planned long-term gravel mining and field investigation of all areas that will be affected by planned Stage 1 mining activity (roughly 144 acres; Figure 1), which is expected to commence within the next few years. This approach helped inform long-term planning while focusing more intensive field efforts on areas where ground disturbance is planned for the near future.

Project Description and Location

The project property is comprised of four blocks of contiguous land that collectively encompass roughly 900 acres arrayed adjacent to the exterior perimeter of Section 16 of Township 21N, Range 7E in the Cumberland vicinity of South King County. Within these blocks are five separate areas encompassing roughly 585 acres where mining activity is proposed. Area M-1 lies within the northern block of land (Figure 2) and includes parcel 092107-9001, which extends along the southern portion of Section 9 and occupies the terrace above the deeply-incised Green River Gorge. Area M-3 lies within the western block of land (Figure 3) and includes parcel 172107-9001, which also sits atop the terrace overlooking the Green River Gorge. Its eastern extent encompasses the eastern boundary of Section 17, and it extends west to the gorge and across SE Green River Gorge Road in the southwest. Area M-2 lies within the eastern block of land (Figure 4), which includes parcels 152107-9008, 152107-9007, 152107-9009, and 152107-9020. Collectively these eastern parcels extend between the western boundary of Section 15 and Cumberland-Kanaskat Road SE. Areas M-4 and M-5 lie within the southern block of land (Figure 5), which includes parcels 212107-9005, 212107-9006, 212107-9008, 212107-9009, 212107-9006, 212107-9015, 212107-9016, 212107-9029, and 212107-9030;

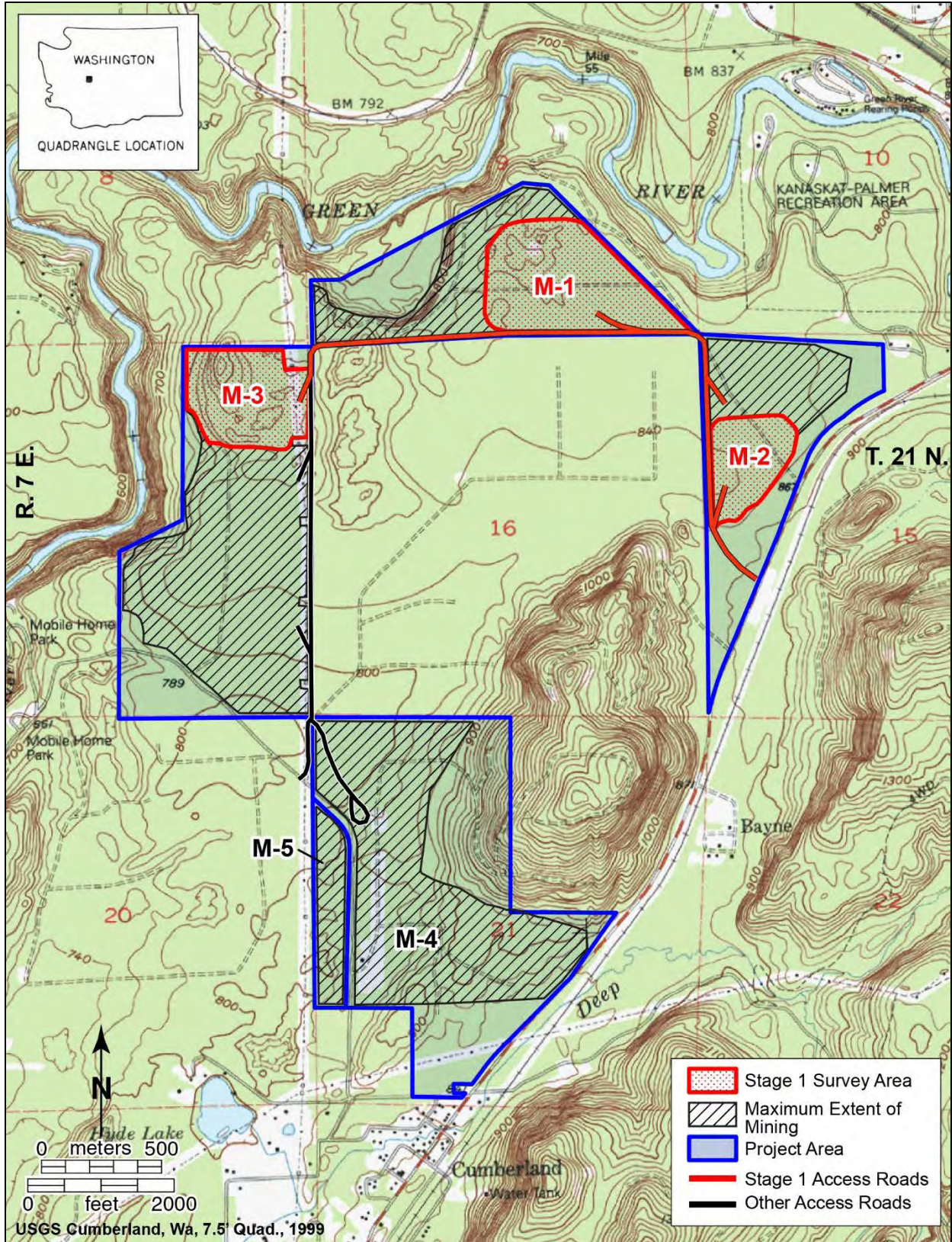


Figure 1. Project location showing Stage 1 and the maximum extent of mining.

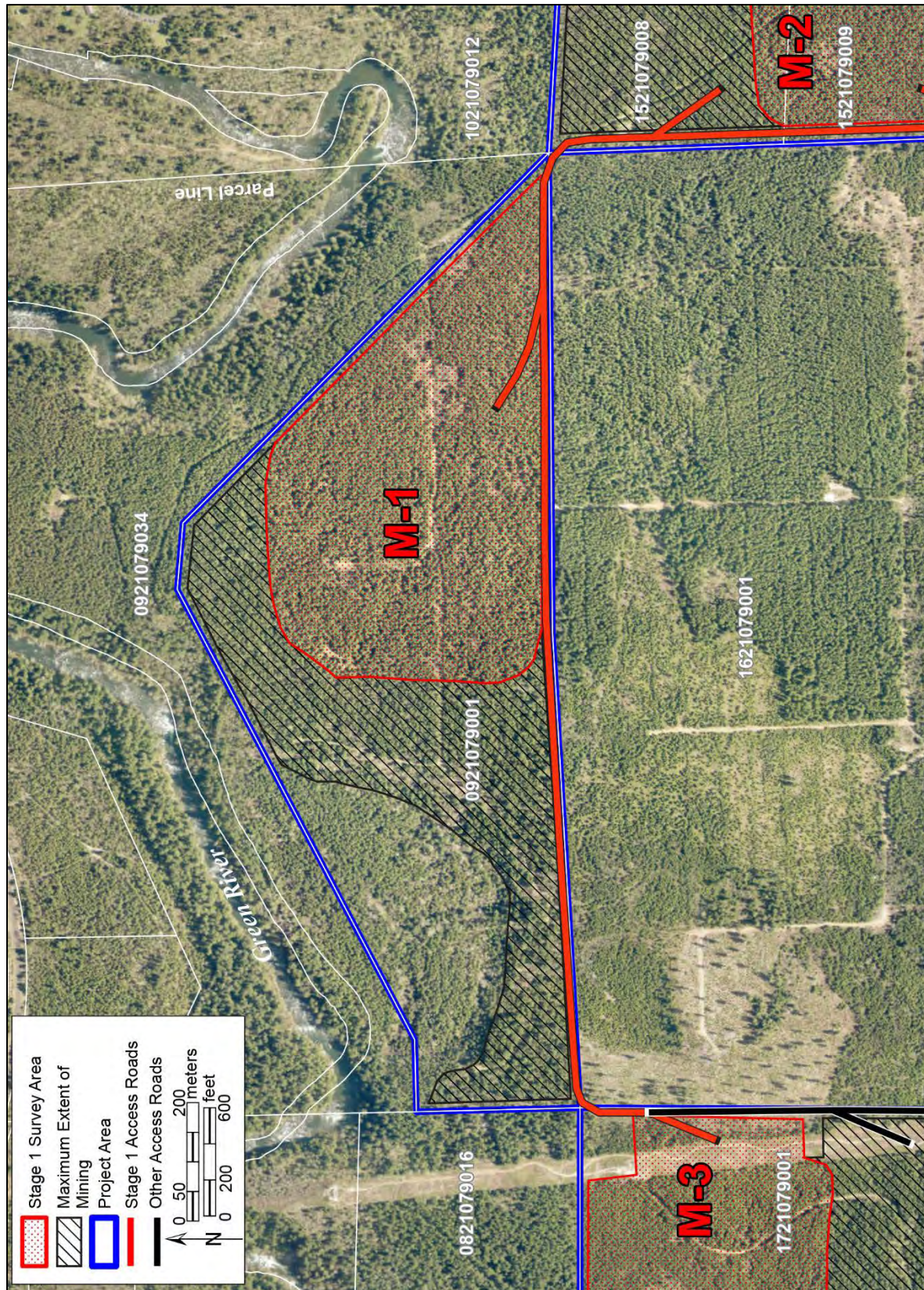


Figure 2. Air photo showing area M-1.

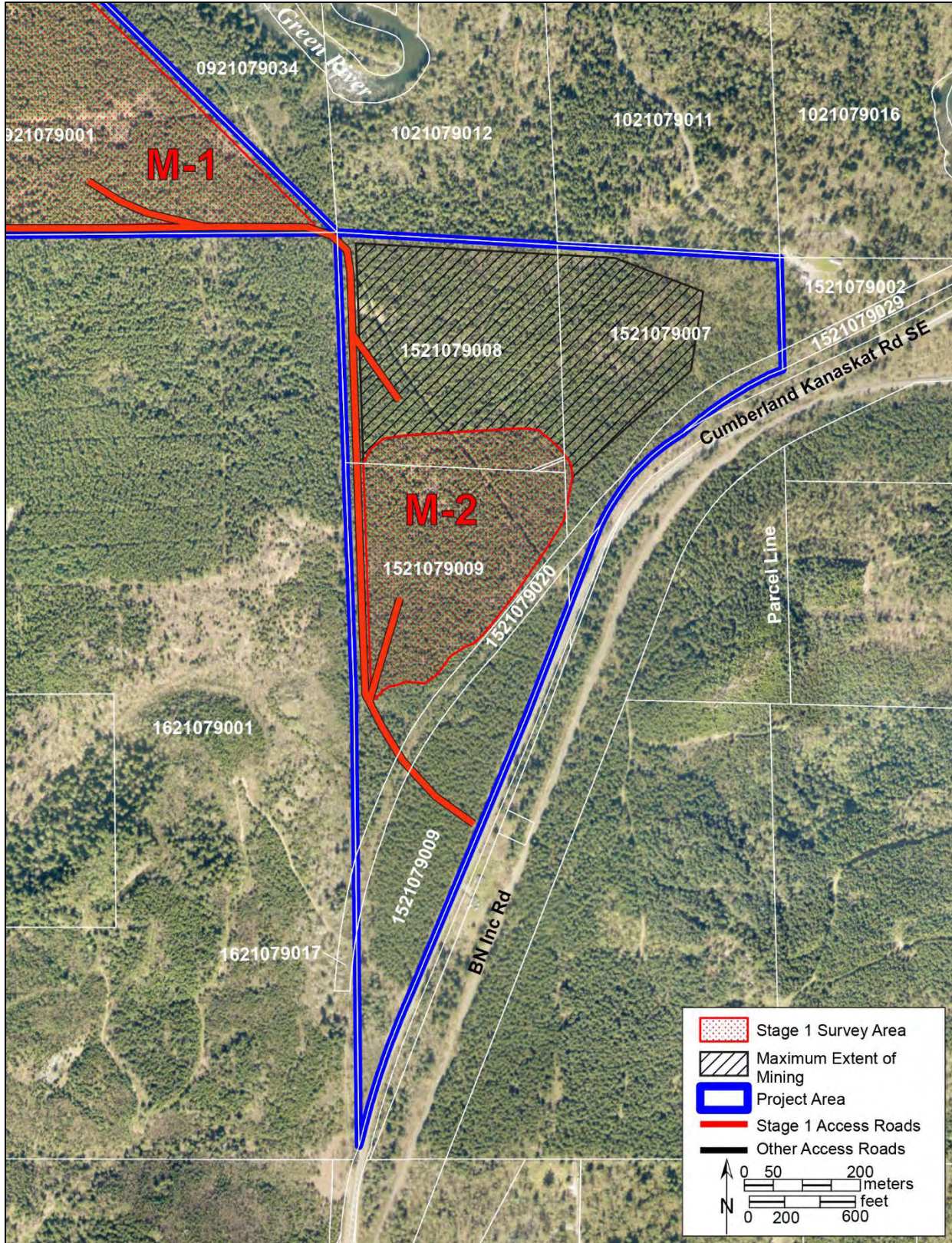


Figure 3. Air photo showing area M-2.

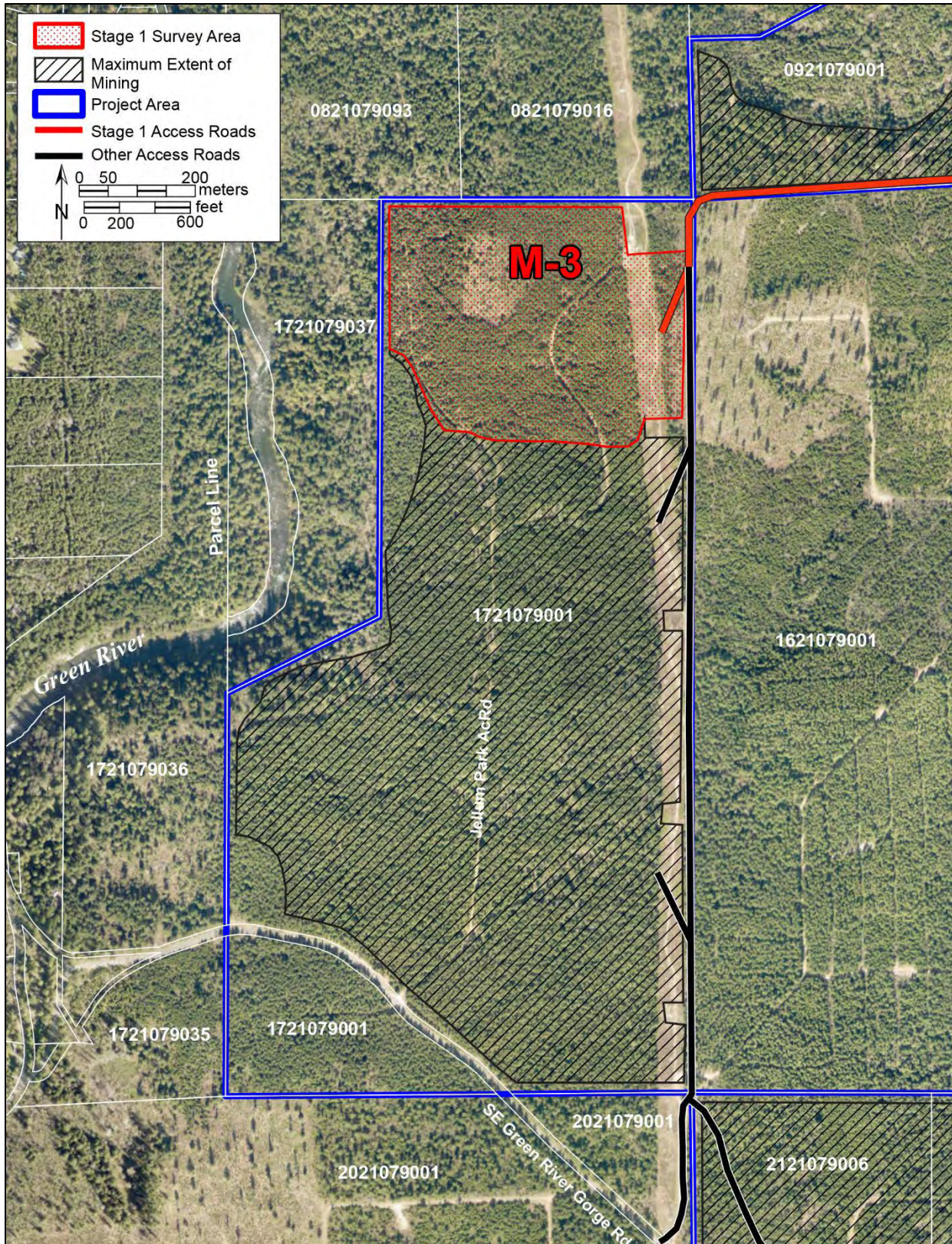


Figure 4. Air photo showing area M-3.

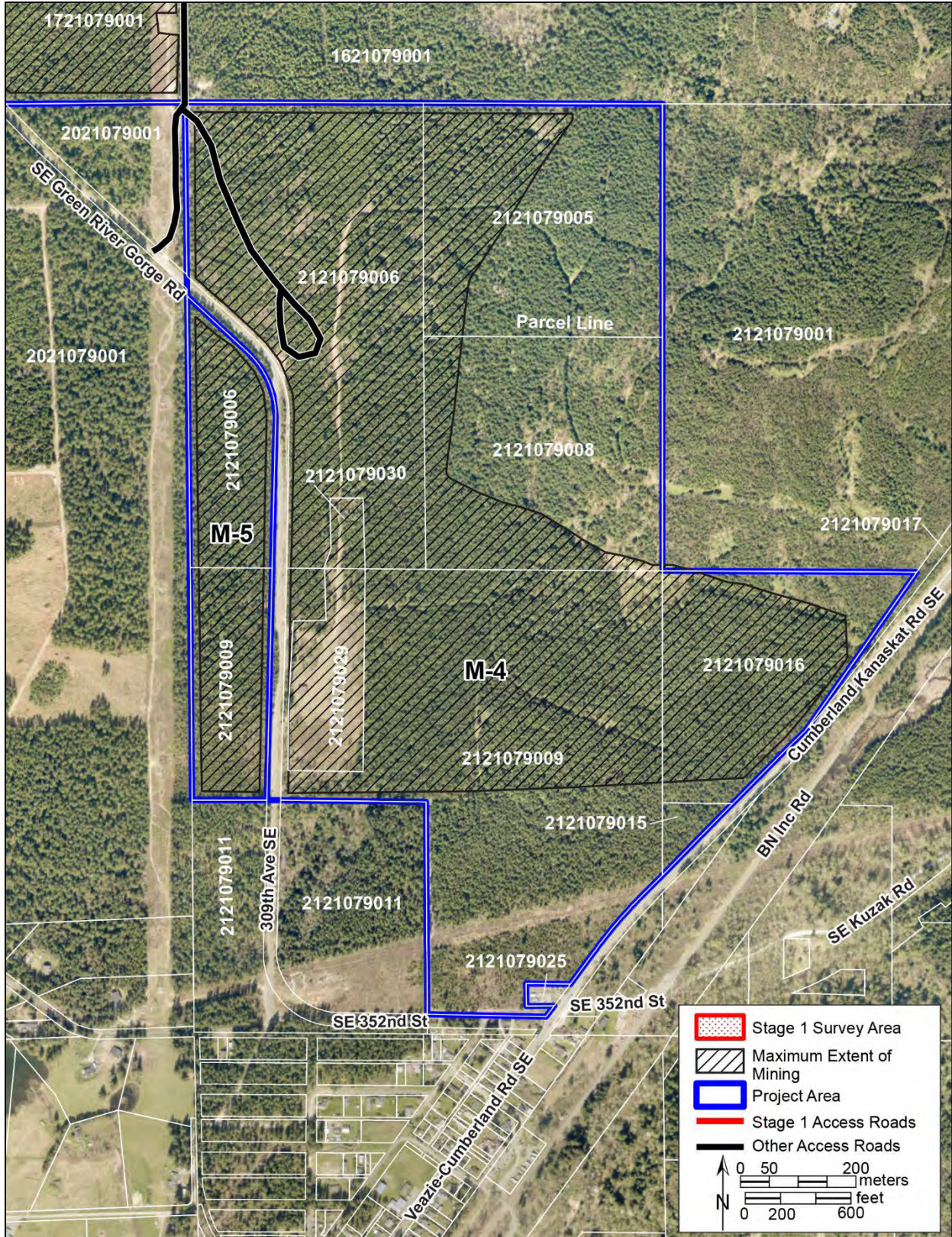


Figure 5. Air photo showing areas M-4 and M-5.

these parcels are collectively bounded by the northern boundary of Section 21 in the north, tax parcel 212107-9001 to the northeast, Cumberland-Kanaskat Road SE in the east, and SE 252nd Street in the south. This block of land straddles 309th Avenue SE in the west, and only area M-5 lies west of this road.

Project areas that will be affected by planned Stage 1 activities are limited to areas M-1 through M-3, which lie within the northern, western, and eastern blocks of project area land (Table 1, Figures 1 through 4). Planned Stage 1 mining activity is expected to directly affect a total of roughly 144 acres, and planned access road infrastructure is expected to extend along roughly 2.2 miles (3.5 km) and connect areas M-1 through M-3 to Cumberland-Kanaskat Road SE. Planned mining activity will eventually directly affect roughly 585 acres, and planned access roads are eventually expected to extend roughly 3.8 miles (6.1 km) in the project area. Ground disturbance resulting from planned gravel mining is expected to extend to depths of between roughly 100 to 150 feet below the modern surface (Appendix A). Plans for construction of infrastructure such as access roads are not yet finalized, but construction will likely involve brush clearing and grading of near-surface sediments and is therefore likely to affect near-surface native soils along constructed roadway corridors.

Regulatory Context

The proposed development is subject to review under the Washington State Environmental Policy Act (SEPA), which requires that project proponents identify and evaluate any places or objects within or adjacent to the project area that are listed in or eligible for national, state, or local preservation registers, and identify and evaluate sites of archaeological, scientific, or cultural importance within or adjacent to the project area. Further, SEPA stipulates that proponents are required to consider project impacts to these cultural resources and to describe proposed measures to reduce or control impacts to such places, objects, and sites. The Washington State Department of Archaeology and Historic Preservation (DAHP) is considered the agency with expertise in cultural resources assessments pursuant to SEPA review, except when the identified resource pertains exclusively to the built environment and is recommended eligible only at the local level of significance, in which case city and/or county agencies perform review of eligibility recommendations. Projects requiring a permit from King County are also subject to review by the King County Historic Preservation program under the County's Executive Policy for Cultural Resources Review and Protection (LUD 16-1-1-EP). The cultural resources assessment detailed in this report was performed pursuant to SEPA review and anticipated County review.

Additional state laws address archaeological sites and Native American burials. The Archaeological Sites and Resources Act (RCW 27.53) prohibits knowingly excavating or disturbing archaeological sites on public or private land. The Indian Graves and Records Act (RCW 27.44) prohibits knowingly destroying Native American graves. In the event of inadvertent disturbance through construction or other activities, human remains and artifacts from such graves must be reinterred under supervision of the appropriate Tribe. Additionally, RCW 42.56.300 exempts all records, maps, or other information identifying the location of archaeological sites, historic sites, artifacts, or sites of traditional, ceremonial, or social uses and activities of Indian Tribes from public disclosure in order to prevent the looting or depredation of such sites.

NATURAL SETTING

Archaeological evidence indicates that the Pacific Northwest was occupied by humans soon after the last continental glacial retreat and prior to 12,000 years ago (Carlson 1990; Kopperl et al. 2010; Kopperl et al. 2015; Meltzer and Dunnell 1987). After initial human occupation of the region, several natural processes continued to reshape the regional landscape throughout the Holocene, including climatic warming, global sea-level rise, isostatic rebound, evolution of fluvial systems, and seismic and volcanic activity. Reshaping of the landscape due

to these processes affected the distribution of biota, water, and landforms suitable for human occupation, travel, and resource acquisition. These processes have also been responsible for altering the physical character of the archaeological record itself by selectively preserving or destroying landforms that contain evidence of past lifeways.

Geology and Geomorphology

The study area lies within the Puget Lowland, an elongated trough and structural depression oriented on a north-south axis and bordered by the Cascade Mountains in the east and the Olympic Mountains in the west. The overall topography and surficial geology of the Puget Lowland was primarily shaped by multiple southward advances of continental glaciations during the Pleistocene epoch (1.8 million to 10,000 years ago) (Easterbrook 1963, Booth et al. 2003, Porter and Swanson 1998). The most recent glacial cycle, the Vashon Stade of the Fraser glaciation, began about 25,000 years ago and ended abruptly at the close of the Pleistocene (Armstrong et al. 1965). The Puget Lobe of the Vashon ice sheet reached its maximum extent around 16,950 calibrated radiocarbon years before the present (BP), covering the Puget Lowland as far south as modern Tenino (Porter and Swanson 1998; ¹⁴C ages recalibrated using Stuiver et al. 2020). At the height of this most recent glaciation, the project area was buried by roughly 800 meters (2625 feet) of ice (Porter and Swanson 1998; Thorson 1980). Subglacial fluvial incision during this period is likely to have carved the deep trough occupied by the modern Green River in the project vicinity (Kopperl et al. 2016:22).

The Puget Lobe began to rapidly retreat northward shortly thereafter, and the project area was free of ice by around 16,000 BP (Porter and Swanson 1998). After roughly 14,000 BP, Admiralty Inlet also became ice-free and glacial retreat accelerated (Dethier et al. 1995; Mosher and Hewitt 2004; Thorson 1989). Resulting recessional meltwater further carved the ancestral fluvial channels occupied by most of the rivers in the region.

Between initiation of glacial retreat and the time Admiralty Inlet became ice-free, proglacial and large recessional lakes, such as Lake Russell and Lake Bretz, formed along the front of the Puget Lobe and drained southwest through the Black Lake Spillway into the ancestral Chehalis River. Although these glacial lakes did not extend into the project area, they affected fluvial hydrology and local environmental conditions throughout local watersheds, including upstream locales such as the ancestral Green River. The maximum elevation of the proglacial lakes in the Seattle area was about 60 meters (200 feet) above modern sea level (Mullineaux et al. 1965, Thorson 1989). Glacial Lake Russell was controlled at 41 meters (134 feet) elevation (Troost and Booth 2008, Thorson 1980), Glacial Lake Bretz was about 30 meters (100 feet) in elevation (Thorson 1989), and the shoreline of a smaller, unnamed recessional lake is mapped at 15 meters (50 feet) elevation (Haugerud 2006).

After Admiralty Inlet became ice-free at roughly 14,000 BP, marine water flooded the Puget Lowland (Dethier et al. 1995, Mosher and Hewitt 2004). This marine incursion resulted in formation of deep, fjord-like embayments at Elliott and Commencement Bays, and the remaining glacial lakes drained into the rising marine waters (Thorson 1989). Inundation in the Green River watershed reached a maximum of about 40 meters (134 feet) elevation before isostatic rebound initiated in the Puget Lowland (Dethier et al. 1995). Marine inundation did not reach the project area itself, but is projected to have extended up the ancestral Green River nearly as far as the modern location of Flaming Geyser State Park (Kopperl et al. 2016:21). The project area is therefore likely to have been within roughly 5.5 miles (8.9 km) of the shoreline of Puget Sound during this period.

Once the Puget Lowland was freed from the weight of ice and meltwater the land began to rise due to isostatic rebound. The rate of rebound was faster than global sea level rise in the Puget Sound region, resulting in a relative sea level decline between about 12,000 and 9000 BP (Dethier et al. 1995, Dragovich et al. 1994). During rebound, rivers established new courses and carved valleys and channels deep into glacially-deposited sediments.

Isostatic rebound was mostly complete in the region by 9000 BP, although global sea level continued to rise after this time, drowning the earliest Holocene shorelines (Dethier et al. 1995, Dragovich et al. 1994). Global sea level continued to rise rapidly until about 7000 years ago, then more slowly until around 5000 years ago when its modern position was generally established.

At roughly 5700 BP, seismic activity triggered the Osceola Mudflow which blanketed the Enumclaw Plateau with more than a cubic mile of lahar sediment from Mount Rainier, transforming the vicinity to the south of the project area into a level prairie and inundating adjacent rivers (Crandell 1971). After this inundation, dramatic channel incision and erosion along the Green and White rivers caused delta deposits to rapidly march northward, reaching the area of modern Renton between 3500 and 2500 BP, (Dragovich et al. 1994). The Osceola mudflow did not reach the project area but mudflow deposits are present southwest of the project area along Newaukum Creek (Mullineaux 1970) and the mudflow would have greatly affected the natural environment available for human use in much of the nearby region.

Holocene seismic activity may have also played a role in shaping the modern landscape in the project vicinity by impacting landform elevation, fluvial hydrology, local environments and resources, habitability, or site preservation. Mapped projections of seismic impacts indicate the project area is likely to experience shaking intensities of 7 MMI in the event of major earthquakes along the Seattle Fault and the Tacoma Fault, as well as intensities of 6 MMI in the event of a major earthquake along the Cascadia Fault (DNR 2022). Shaking at a magnitude of 7 MMI is classified as “very strong” and is sufficient to cause tree damage, rockfalls, landslides, and other effects (USGS 2022), and documented Holocene earthquake activity on the SFZ has caused uplift, subsidence, shoreline alteration, river avulsion, channel abandonment, and landslides in much of the region (Atwater and Moore 1992, Blakely et al. 2009, Brocher et al. 2001, Bucknam et al. 1992, Johnson et al. 1994, Thorson 1993). In the project vicinity, landslides along the steep flanks of the Green River Gorge and Lizard Mountain are likely to have been triggered by Holocene seismic activity; prior landslides and high landslide risk areas are mapped in these locations (DNR 2022; King County 2022).

The modern terrain within the project area is generally a glacial drift terrace dominated by dense forest and uneven, undulating, hummocky ground with low hills. The prevailing ground surface in the project area sits at between roughly 820 to 860 feet (250 to 262 meters) elevation, with local hilltops reaching roughly 920 feet (280 meters) elevation in the northwest of the project area and over 1460 feet (445 meters) elevation on Lizard Mountain, whose west flank extends into the east side of the southern block of project area lands. The deeply-incised modern channel of the middle reach of the Green River flows roughly 200 to 250 feet (61 to 72 meters) below the basal terrain of the project area, and the steep slopes of this gorge about the project area’s northern and northwestern boundaries. The western slopes of the Cascade Mountains lie within roughly 2 miles to the east of the project area, and Deep Creek drains these slopes and flows southwest near the eastern boundary of the project area.

Sediment and Soils

Near-surface sediments within the project area are mapped as stratified, gravelly glacial drift dating to the Vashon Stade (DNR 2022; Vine 1969). Project area hills that extend above roughly 860 feet (262 meters) elevation are composed of bedrock outcrops of the Eocene Puget Group, which consist of continental sedimentary rocks comprised of arkosic and feldspathic micaceous sandstone, siltstone, claystone, and coal; some Vashon Stade glacial drift also blankets much of the near-surface sideslopes of these hills (Vine 1969).

Soils in the study area are dominated by Barneston gravelly ashy coarse sandy loam with slopes of 0-8%, 8-15%, and 30-65% (USDA 2022). This soil type is formed from volcanic ash and loess over sandy and gravelly glacial

outwash and commonly forms on kames, eskers, and moraines on glacial outwash and glacial drift plains. Typical topsoils of this type extend to roughly 3 inches (8 cm) below surface (bs), and subsoils extend up to roughly 19 inches (48 cm) bs. Geotechnical observations derived from drilling of nine monitoring wells distributed throughout the project area generally accord well with mapped sediments and soils, indicating that local soils are typically thin, subaerially exposed (i.e. no buried soils were encountered), and underlain by unweathered glacial sediments (AESI 2022). Buried cultural resources within the project area – if present – are therefore likely to lie within roughly 2 feet (61 cm) of the modern ground surface, making such deposits accessible to hand excavation during archaeological fieldwork.

Flora and Fauna

Before large-scale land clearing and logging commenced in the late 1800s, native vegetation in the study area was typical western hemlock (*Tsuga heterophylla*) forest, dominated by coniferous Douglas-fir, western hemlock, and red cedar. Alder and big-leaf maples are the most common deciduous trees in western hemlock forests and are sometimes more common in disturbed situations. Forest understory communities follow a moisture gradient, and in western hemlock forests generally consist of dense shrubs and herbaceous plants, including swordfern, bracken fern, salal, Oregon grape, oceanspray, blackberry, red huckleberry, and red elderberry (Franklin and Dyrness 1973). At the end of the nineteenth century, logging throughout the project vicinity dramatically altered the once densely-forested environment.

Naturally-treeless environments such as freshwater marshes and wetlands were once common nearby; early maps show several such wetlands in the project vicinity (Figure 6), including one that overlaps the eastern project area land block and one that lies adjacent to the western project area land block. These environments generally host associations of moisture-loving to semi-aquatic plants, including willow, alder, cattail, reeds, cranberries, skunk cabbage, and wapato (Deur and Turner 2005; Franklin and Dyrness 1973). In their natural state, these areas would have provided food and other useful resources for humans as well as food and cover for some of the game and waterfowl they hunted. Other plants provided additional sources of food, medicine, or raw materials (Gunther 1945). Within the last 150 years, modifications of local waterways, including removal of logjams and beaver dams and diking, ditching, and dredging, are likely to have greatly reduced the extent of wetland areas in the project vicinity (Beechie et al. 2001; Collins et al. 2003; Kerwin and Nelson 2000; Pollock et al. 2004).

Much of the wildlife that provided significant sources of food, hide, skins, shells, feathers, and bone for local Native people would have been available in the project vicinity. Culturally-important terrestrial mammals such as elk, deer, bear, coyote, mountain lion and bobcat were nearby, as were smaller animals such as rabbit, raccoon, red fox, porcupine, squirrel, weasel, and river otter. Marshes and wetlands provided habitat for beaver and muskrats and a migration corridor for ducks, geese, and other waterfowl. Nearby rivers, lakes, and beaver ponds provided abundant and diverse aquatic resources which have long been heavily utilized by Native Americans, including birds, shellfish, and a wide array of bony fish including salmon.

The overall biological productivity of the vicinity was probably once much higher than it is today, especially along local fluvial systems. Historically, the local watershed supported runs of Chinook, pink and coho salmon, and steelhead (Kerwin 2000). In the 20th century several anthropogenic alterations reduced the size of the watershed by approximately 70% and inhibited access for anadromous and resident fish (Kerwin 2000). For example, prior to 1906 there was a confluence of the White and Green Rivers at Auburn, but a flood and logjam that year diverted the flow of the White River into the Stuck River, a former distributary channel that flowed into the Puyallup River. By 1911, a series of public works projects were completed that made the diversion permanent; these projects included levee construction, a diversion dam, and channel dredging. As a result, access to spawning

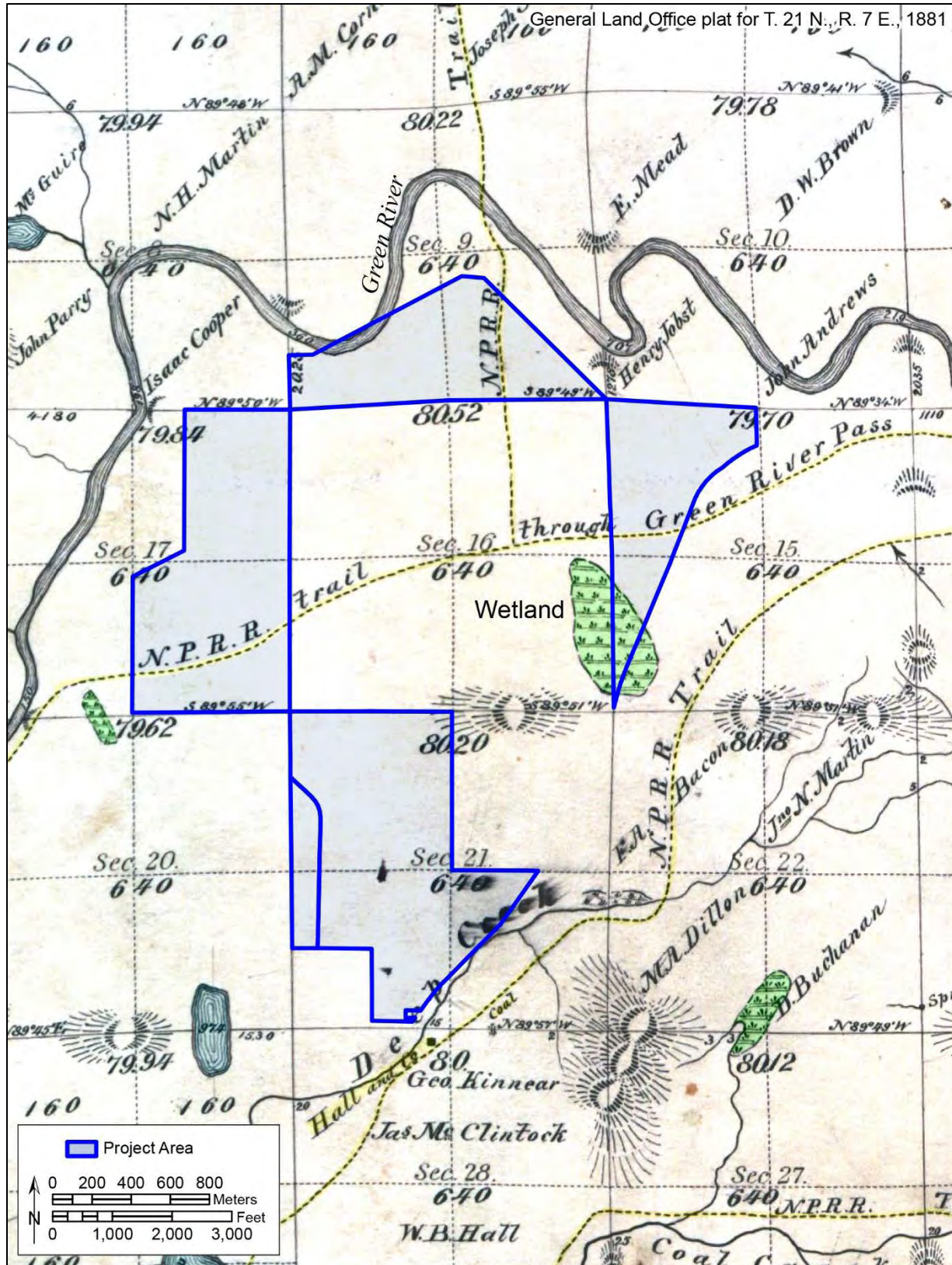


Figure 6. General Land Office plat, 1881, showing wetlands, trails, and early development in the vicinity of the project.

habitat in the former White-Green combined watershed declined significantly overall (Kerwin 2000), including within the upper reach of the Green River near the project area. Additionally, the Howard Hanson Dam was constructed upstream of the project area in 1962, further altering the natural conditions of the Green River and affecting the passage of local fish (Winans et al. 2011). Today, low overall water flow and lack of shade contribute to warmer summer water temperatures within the Green River that can be lethal to salmonids. Salmonid smolt production has diminished by an estimated 86% since earliest Euroamerican settlement along other rivers in the region (Pollock et al. 2004); salmonid populations within the Green River watershed are likely to have experienced similarly steep declines.

In short, a wide and rich array of flora and fauna have been locally-available in the project vicinity for millennia. The sheer abundance and diversity of these resources has long encouraged its use by human groups. The most intensive use by local Native Americans is likely to have been focused along resource-rich waterways and shorelines, although inland and upland settings like the project area are likely to have been repeatedly visited during hunting or gathering forays.

CULTURAL SETTING

Pre-Contact Culture History

Current archaeological evidence suggests that human occupation of the Puget Lowland probably began sometime between glacial retreat and 12,000 years ago. A small number of isolated fluted projectile points characteristic of the period between 12,000 and 11,000 BP have been found in western Washington (Carlson 1990; Meltzer and Dunnell 1987). The closest to the study area is a chert Clovis point found atop the glacial upland overlooking the Cedar River (LeTourneau 2010; Meltzer and Dunnell 1983, 1987:64). A distinctive artifact assemblage from the Bear Creek Site in Redmond (45KI839) confirms that Native American settlement of the region was established following deglaciation and well before 10,000 years ago (Johnson 2018; Kopperl et al. 2010; Kopperl et al. 2015). However, archaeological materials older than 10,000 years in age remain generally rare in western Washington due to poor overall preservation and accessibility of contemporary sediments dating to this period. Little archaeological evidence is therefore available to inform interpretations of cultural activity in this period, although it is clear that human occupation of the region would have commenced by 10,000 BP and the local population would likely have been highly mobile.

Mid-Holocene assemblages (approximately 8000 to 5000 BP), named Olcott after the type site located along the South Fork of the Stillaguamish River, are typically found in upland settings on glacial till or outwash surfaces and inland foothill valleys, where human occupation likely became established as post-glacial landforms stabilized (Blukis Onat et al. 2001; Chatters et al. 2011; Kidd 1964; Mattson 1985). Olcott stone tool assemblages typically consist of large, leaf-shaped and stemmed points and cobble and flake tools manufactured from locally available materials. Sites with these assemblages are usually interpreted as evidence of an early highly mobile hunting and gathering adaptation and contain weathered volcanic cobble and flake tools (Carlson 1990; Nelson 1990). Robust archaeological assemblages from this period are also rare, hindering interpretation of lifeways during this period based on material evidence. Coastal and lowland sites dating to this period are also likely to have been inundated by rising sea level in the mid-Holocene, implying a systematic data gap in archaeological assemblages from this period.

After climate and sea level stabilized in the late Holocene, archaeological evidence suggests human populations grew, diversified economically and technologically, and expanded their use and occupation of the landscape, especially upland areas (Ames and Maschner 1999). Beginning about 5000 BP, ground stone and tools of bone,

antler, and shell associated with fishing and plant processing become more common, and toolkits became increasingly diversified. The developing importance of woodworking is evident in the presence of tools such as adzes, wedges, and mauls (Ames and Maschner 1999; Matson and Coupland 1995). Many groups also gradually became more reliant on marine resources and anadromous fish, eventually shifting to semisedentary subsistence patterns marked by the seasonal round (Matson and Coupland 1995). Sites from about 5000 BP to 2500 BP on or near the coast often include extensive midden deposits containing the remains of shellfish, fish, large and small mammals, and birds (Ames and Maschner 1999).

The Late Period, from about 2500 BP until widespread Euroamerican contact in the early nineteenth century, is marked by trends such as full-scale development of marine-oriented cultures on the Pacific coast, the presence of a mixed marine and terrestrial economy along the shores of Puget Sound, and further development of an inland terrestrial mammal and riverine fishing tradition (Ames and Maschner 1999) that likely prevailed along the ancient Green River. Favored areas for settlement and resource gathering were littoral, riverine, and estuarine locations where today sites may be deeply buried. The Duwamish No. 1 Site (45K123) on the lower Duwamish River provides an example of a habitation site dating to this period. Investigations at 45K123 revealed cultural materials dating to three main occupation periods between A.D. 15 and A.D. 1600, with evidence of longhouses, mat lodges, fish drying racks, hearths, and food processing features in association with lithic and bone artifacts and faunal remains (Campbell 1981; Hudson et al. 2005). Temporary camps and special-use sites such as quarries are also common in the Late Period and represent the localized exploitation of specific resources by small task groups dispatched from the residential base camp. For example, the George Nelson Allotment Site (45K1450) on the Enumclaw Plateau was a specific-resource field camp oriented toward plant gathering on the Muckleshoot Prairie (Lewarch et al. 2000).

Ethnography and Ethnohistory

Initial contact with Euroamerican newcomers has led to drastic changes in Native American populations and community structures over the last few centuries, beginning with pandemics caused by the introduction of novel diseases to local Native American communities (Boyd 1999; Campbell 1989). By the time Euroamerican ethnographers began writing about the Puget Sound region in the late nineteenth century, a century or more had passed since initial contact, and the cultures these ethnographers described probably differed in significant ways from pre-contact cultures. However, the traditional knowledge of local Native American groups remains vibrant within local Native American communities, whose histories continue to inform our understanding of the project vicinity.

The project area is within the traditional territory of the Skopamish people, Lushootseed speakers whom ethnographers have classified as members of the larger Coast Salish ethnic and linguistic family of peoples. Ballard (1929:35,38) notes that Native peoples along the interior of the Green River were often bilingual, and spoke Sahaptin in addition to Lushootseed due to frequent contact with the Native peoples who lived east of the Cascade Mountains and frequently visited the upper Green River. The Skopamish people lived along the interior reaches of the Green River and had close ties to other nearby groups such as the Smulkamish or Smallkamish from the upper White River and Enumclaw Plateau, the Skekomish or Stkamish from the lower White River, and other groups who lived along the lower Green River (Ruby and Brown 1992; Smith 1940). Coast Salish groups, including the Skopamish and their neighbors, generally followed a seasonal settlement pattern directly tied to resource availability. During the spring people travelled in small groups and lived in temporary camps harvesting plants, fish, shellfish, and game (Carpenter 1986). Salmon and steelhead trout were caught in the Puget Sound and along the banks of the Duwamish, White, and Green Rivers as they migrated to their spawning grounds.

Between salmon harvests, families gathered plant resources and hunted game, activities which probably focused on prairies. Fall-run salmon were smoked or dried for the winter and provided the bulk of the food during that time (Gibbs et al. 1877; Lane 1973; Meeker 1905; Smith 1940). In winter, people returned to larger, more permanent villages and subsisted primarily on stored foods. In winter villages, multiple families occupied cedar plank longhouses with shed or gabled roofs. Winter villages usually had two to four longhouses, each up to 100 feet long, and interiors were furnished with cedar mats and fire pits. The winter months, when food-gathering activities slowed, were important for tending to social relationships, visiting, and trading with neighboring groups. Winter was also an important time for festivities, public events, and ceremonies that marked changes in status like naming, puberty, marriage, or death (Haeberlin and Gunther 1930; Miller 1999; Smith 1940).

Local waterways and wetlands provided a wealth of resources for Native peoples and were focal points of economic activity. Ethnographic sources suggest that the Green River, White River, Boise Creek, and Newaukum Creek were the most important waterways for local resource acquisition, travel, and trade. Fish were taken using weirs, dip nets, traps, and spears and dried before being transported back to the central village for storage (Lane 1975). Botanical resources served dietary, medicinal, and utilitarian needs and played a primary role in the everyday lives of local residents, and wetland areas provided an abundance of such resources. Birds, including a variety of waterfowl species, were also captured with the aid of nets and spears (Haeberlin and Gunther 1930). Terrestrial mammals such as elk, deer, bear, raccoon, and beaver were among the most economically important game animals. Hunting was conducted primarily in the late summer and fall and often in conjunction with berry picking. Historical accounts from Euroamerican settlers in the vicinity note that a small group of Natives passed through the Cumberland area and camped near the Green River for several weeks every autumn while collecting berries and conducting controlled burning as a means to manage local forage (KingGeorge 2022).

Large winter villages were also typically located along major waterways such as the Green River, White River, and Boise Creek. For example, Waterman (2001) notes several prominent villages along the lower reaches of the Green River and upstream of its former confluence with the White River near modern Auburn. However, the work of Waterman and other early Ethnographers did not extend as far up the Green River as the current project area, and the closest former winter village they documented was located roughly 4 miles (6.4 km) downstream of the project area; this village is noted as “old and important” in available documentation (Waterman 2001:160). A deep hole in the nearby river was called *čəxəlus*, meaning “clay,” and this location was apparently also known to the Yakama by a Sahaptin name transliterated as “*Mexa’xac*” and with similar meaning (Waterman 2001:165). Early ethnographers also recorded Lushootseed placenames for numerous creeks, prairies, and resource gathering areas downstream of the current study area; the landscape in the project vicinity is likely to have been similarly replete with named places that were unfortunately omitted from this ethnographic study.

Because seasonal mobility was integral to their lifeways, local Native groups traveled widely by canoe and along overland trails. Several overland trails connected local villages, and some also passed over the Cascade Range. For example, the Naches Pass Trail led from the Nisqually Delta to Yakama territory (Meany 1910) along the White River valley and passed south of the project area near modern Enumclaw. Much of the Northern Pacific Railroad (NPRR) trail system that traversed the project vicinity and led to Stampede Pass (Figure 6) probably also followed previously-existing Native trails that connected to the Naches Pass Trail.

Traditional Skopamish use of the project vicinity rapidly changed after 1853, when Isaac Stevens, the first Governor of Washington Territory and Superintendent of Indian Affairs, was given a mandate to remove Native peoples from their lands as a means of making these lands available to non-Native settlement. He did so by signing treaties with several Tribes and placing them on reservations beginning with the Medicine Creek Treaty of December 1854 (Marino 1990). The Puyallup reservation created by this treaty was initially 1,280 acres but was enlarged by executive orders in 1857 and 1873 to 18,062 acres (Ruby and Brown 1992). In addition to Puyallup

Indians, this reservation was home to people from other Tribes including the Nisqually, Cowlitz, White and Green River groups, and Steilacoom. The government began allotting Indian lands to individual Tribal members in the 1880s in an attempt to discourage Tribal affiliation and encourage agricultural pursuits.

However, the Medicine Creek Treaty did not create a reservation for Tribes from the White and Green River areas. Instead, these peoples were soon moved to the Nisqually Reservation until a suitable permanent reservation could be established. In 1856, Governor Stevens recommended the creation of a Muckleshoot Reservation on the prairie of the same name (Marino 1990; Ruby and Brown 1992). The reservation was settled mainly by Smalhkamish, Skopamish, and Stkamish people (Lane 1973), along with other peoples of Duwamish ancestry (Ruby and Brown 1992:73). In 1874, President Ulysses Grant allocated additional land to the Muckleshoot Indian Reservation to accommodate the Duwamish, who did not have their own land. Today, Native peoples who settled at this reservation, including descendants of the Skopamish, are known collectively as the Muckleshoot Indian Tribe.

For the most part, the Muckleshoot maintained friendly relations with local Euroamerican settlers after this time, providing labor, salmon, shellfish, baskets, and other resources. Some local Native peoples continued to live in rapidly-urbanizing areas despite some conflicts, eschewing residence at designated reservations (Thrush 2007). However, most vestiges of traditional Native lifeways were eventually eroded by diminishing access to lands, waters, and natural resources, shifts in settlement and intergroup relationships, forced attendance at boarding schools, and a U.S. government policy of deliberate, systematic suppression of Native language, teachings, and other cultural expressions. Nonetheless, it is clear that the project vicinity was utilized by Native Americans prior to the arrival of Euroamerican settlers given its proximity to documented settlements, travel corridors, and resource gathering areas. The vicinity also remains important to nearby Tribes, who maintain much of their historical knowledge of the project vicinity and continue to recognize the significance of the natural resources available nearby.

Euroamerican History

European American settlement in Western Washington began in 1833 when a small group of Hudson's Bay Company (HBC) fur traders camped near a Nisqually Indian village on the Puget Sound shoreline. Within a year the camp became Fort Nisqually, a fur trading post (Carpenter 1986). Dr. William Tolmie, the head of the HBC operation at Fort Nisqually, reported a coal deposit at the confluence of the Cowlitz and Toutle rivers that same year, the first such report in the Puget Sound region (Boswell 2017).

Early Euroamerican settlement and development in King County was focused on the Puget Sound shoreline and rivers, where canoe travel was most accessible and the agricultural potential of the land was high. By 1851 Euroamerican settlement of the Duwamish Valley was underway, and by 1853 coal had been found near the now-extinct Black River in the vicinity of modern Renton. Other discoveries of coal in King County soon followed, and starting in the 1860s mining quickly became a major economic driver of Euroamerican settlement throughout the county, although early mining efforts were hindered by a lack of transportation infrastructure to efficiently bring mined coal to market (Bagley 1916:130).

In south King County, early Euroamerican settlers included Allen L. Porter and Michael Connell (also Connel in some historical sources). In 1853 Connell established a Donation Land Claim on what is now known as Connell's Prairie, southwest of the project area and on the opposite side of the White River valley, and Porter took a Donation Land Claim on the White River west of modern Enumclaw (Poppleton 1995:3). Other settlers soon arrived on the Enumclaw Plateau, and the U.S. Army established a series of forts on the Enumclaw Plateau as a response to uprisings by Native Americans in the mid-1850s. The subsequent passage of the Homestead Act of

1862 helped fuel an increase in local European American settlement; this legislation offered ownership of 160 acres to any settler who resided on and improved the land for 5 consecutive years.

Project area lands were initially granted to the NPPR in 1864 (BLM 2022), and individual claims to adjacent lands began in the 1880s (Figure 7). In early 1881, a team of NPPR surveyors trekked up the Green River to locate a pass through the Cascade Mountains that would allow a rail connection between the Puget Sound and Kittitas County, creating the first transcontinental railroad to serve the region (Cheever 1948; DeCoster 2011). The trails these surveyors followed are shown on initial historical maps of the vicinity and cross the project area (Figure 6). The mountain pass they traversed eventually became known as Stampede Pass. In May of 1888, a 1.8 mile long tunnel was completed through this pass, and the Cascade Line of the NPPR was opened, becoming the mainline connecting Tacoma to Yakima and points eastward (Cheever 1948; DeCoster 2011; MacIntosh 1999; Miss 1987).

The opening of the Cascade Line was instrumental to the economic growth of King County in general and to local coal mining activities specifically, resulting in increased Euroamerican settlement near the interior of the Green River in the 1880s. Newcomers discovered coal seams in the Black Diamond-Franklin-Ravensdale field in 1880; mining began at Black Diamond in 1882 and at Ravensdale and Franklin in 1885 (Bagley 1916:131-3). Initial land claims adjacent to the project area (Figure 7) were made in the 1880s and include several areas noted as coal lands. By 1895 the American Mine (later renamed the Old Carbon) had commenced operations on the eastern side of the south face of Lizard Mountain, but this mine soon closed (Kombol 2012). In 1898, Patrick Gibbons opened the Occidental mine on the northwest side of Lizard Mountain, and by the close of the next decade the coal mining town of Bayne had also been established to the southeast of the project area for workers employed by the Carbon Coal & Clay Company (CCCC), which owned the nearby Daly and Carbon mines (Kombol 2012). Early twentieth century historical maps (Figure 8) indicate that lands in the project area were owned primarily by the Northwestern Improvement Company (NIC), an NPPR subsidiary, at this time. The NIC operated coal mines at Hiawatha (Evans 1924) and in the Roslyn area of Kittitas County to supply fuel for NPPR locomotives crossing the Cascades (Boswell 2017; Kombol 2022), but there is no evidence to suggest the NIC conducted coal mining in the project area. A portion of land in the project area was also owned by the Weyerhaeuser Timber Company at this time, an NPPR grade had been built along the easternmost edge of the project area, and the approximate routes of modern roads adjacent to the project area had been established. By 1913, the NIC owned all project area lands, a Chicago, Milwaukee, & St. Paul (CMSP) rail line had been added to Section 15 (Figure 9), several mines were mapped adjacent to the project area, and a trail between Franklin and the Occidental mine passed through the southern portion of mining area M-3 (Figure 10).

By 1917, the local CCCC mines had reached peak production (Kombol 2012) and during this heyday other nearby mines and mining companies had proliferated (Figures 11 and 12). Mines in the project vicinity included the Raven (Raven Coal Co.), Number 11 (Pacific Coast Coal Co. [PCCC]), Cannon (PCCC), Kummer (Denny-Renton Clay & Coal Co.), Hyde (Hyde Coal Co.), Kangley (Twin River Coal Co.), Hiawatha (NIC), Durham (Durham Collieries Co.), Occidental (Occidental Coal Co.), Eureka (Eureka Coal Co.), Navy (Ozark Coal Mining Co.), National (National Coal Co.), and Pocahontas (Pocahontas Coal & Coke Co.) among others (Evans 1924; Kombol 2010, 2012). By this time ownership of most of the mines in King County had been consolidated under the ownership of relatively few companies such the PCCC, which operated several large mining interests, but the mines at Lizard Mountain and to its north and east resisted consolidation and were generally owned and operated by smaller, independent interests (Kombol 2012).

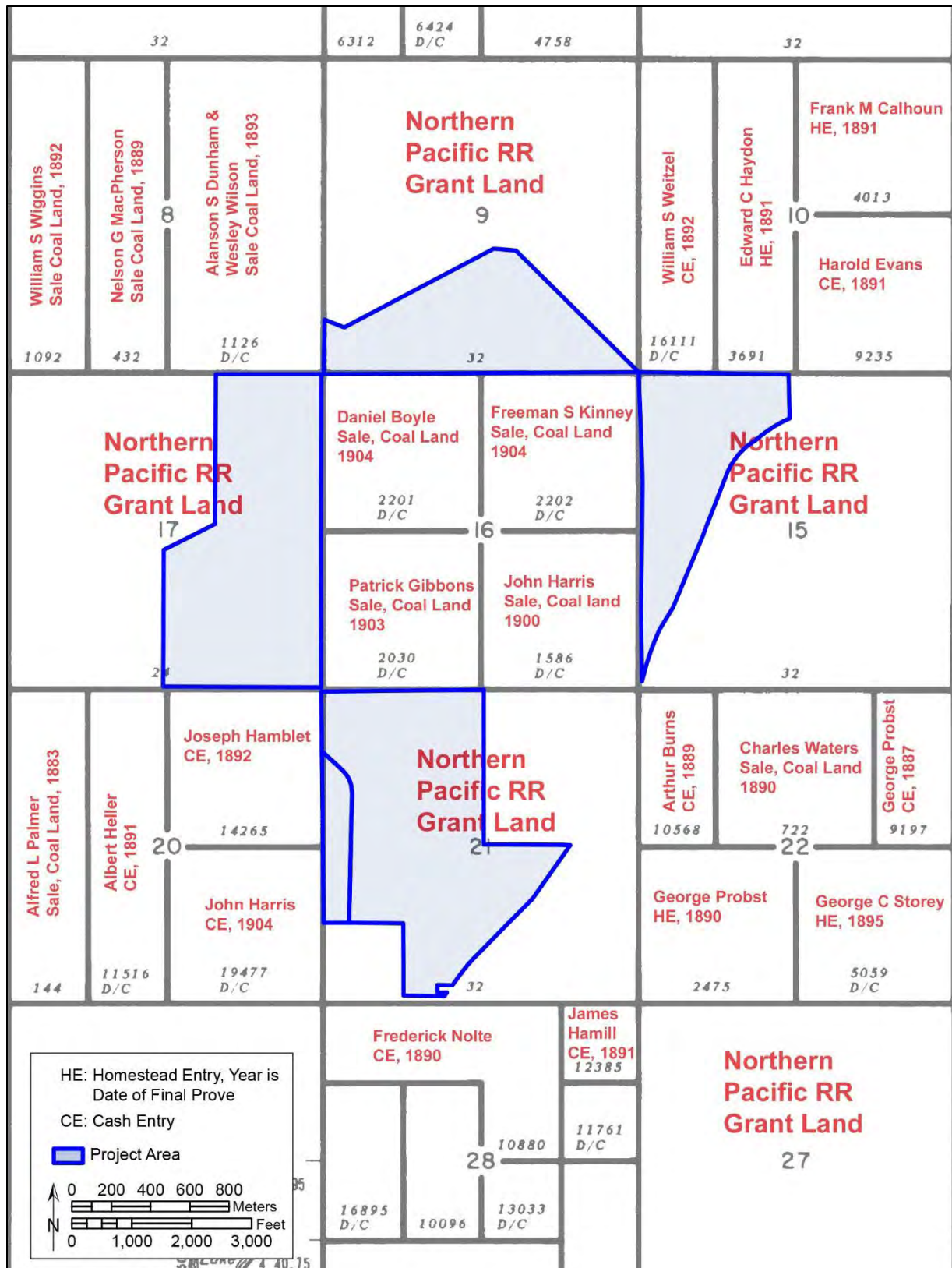


Figure 7. Land claims in the project vicinity.

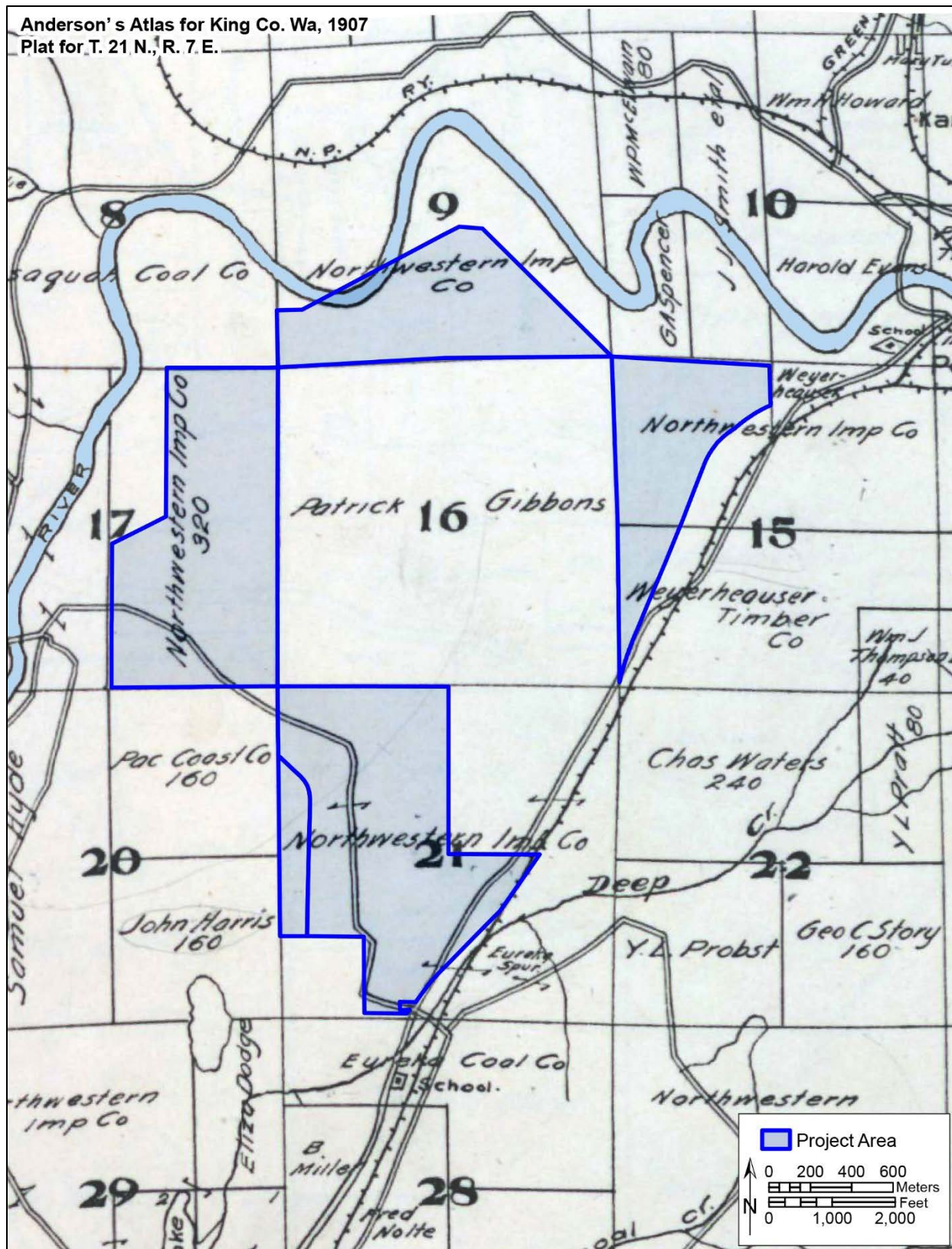


Figure 8. Early King County atlas, 1907, showing land ownership.

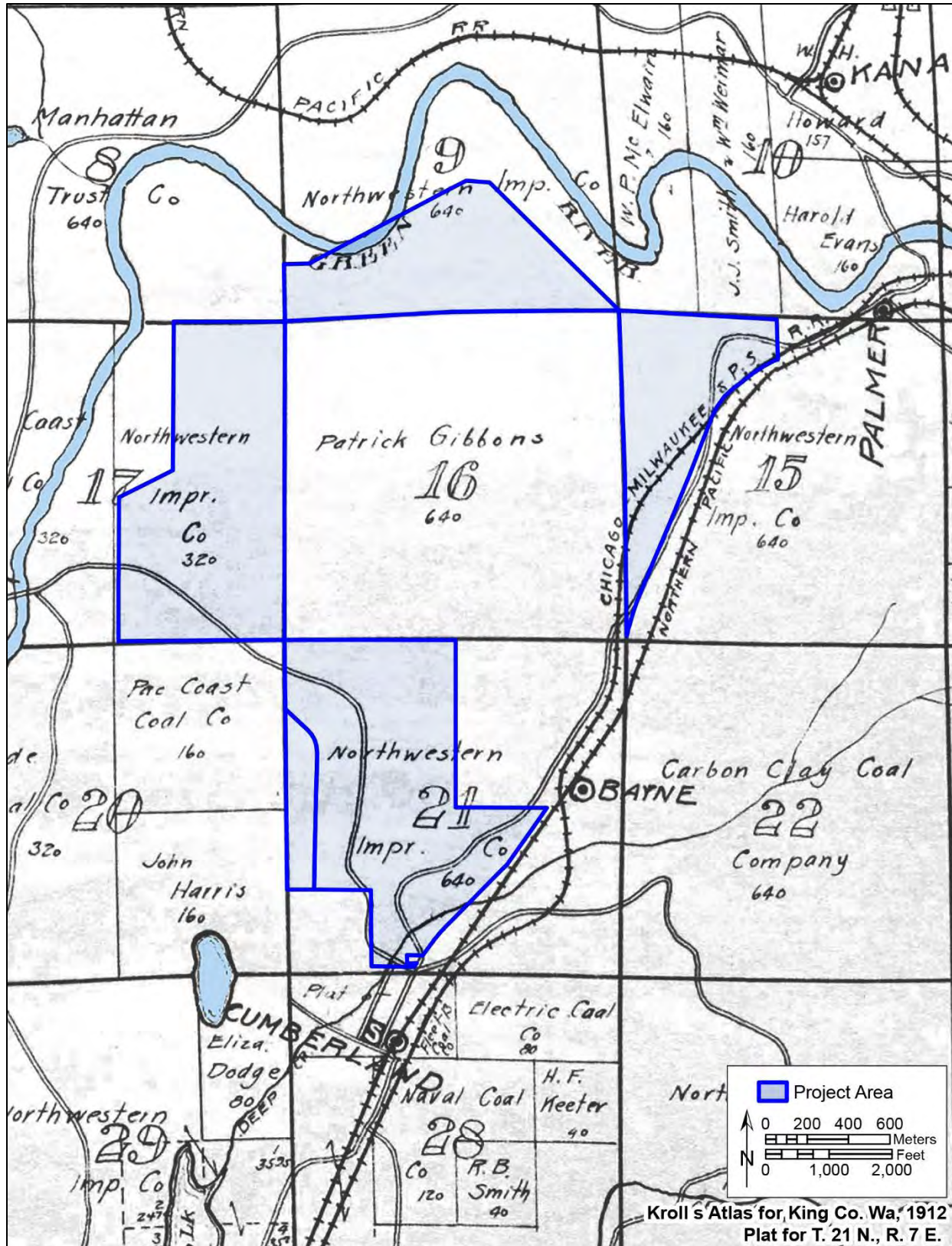


Figure 9. King County atlas, 1912, showing development in the project vicinity.

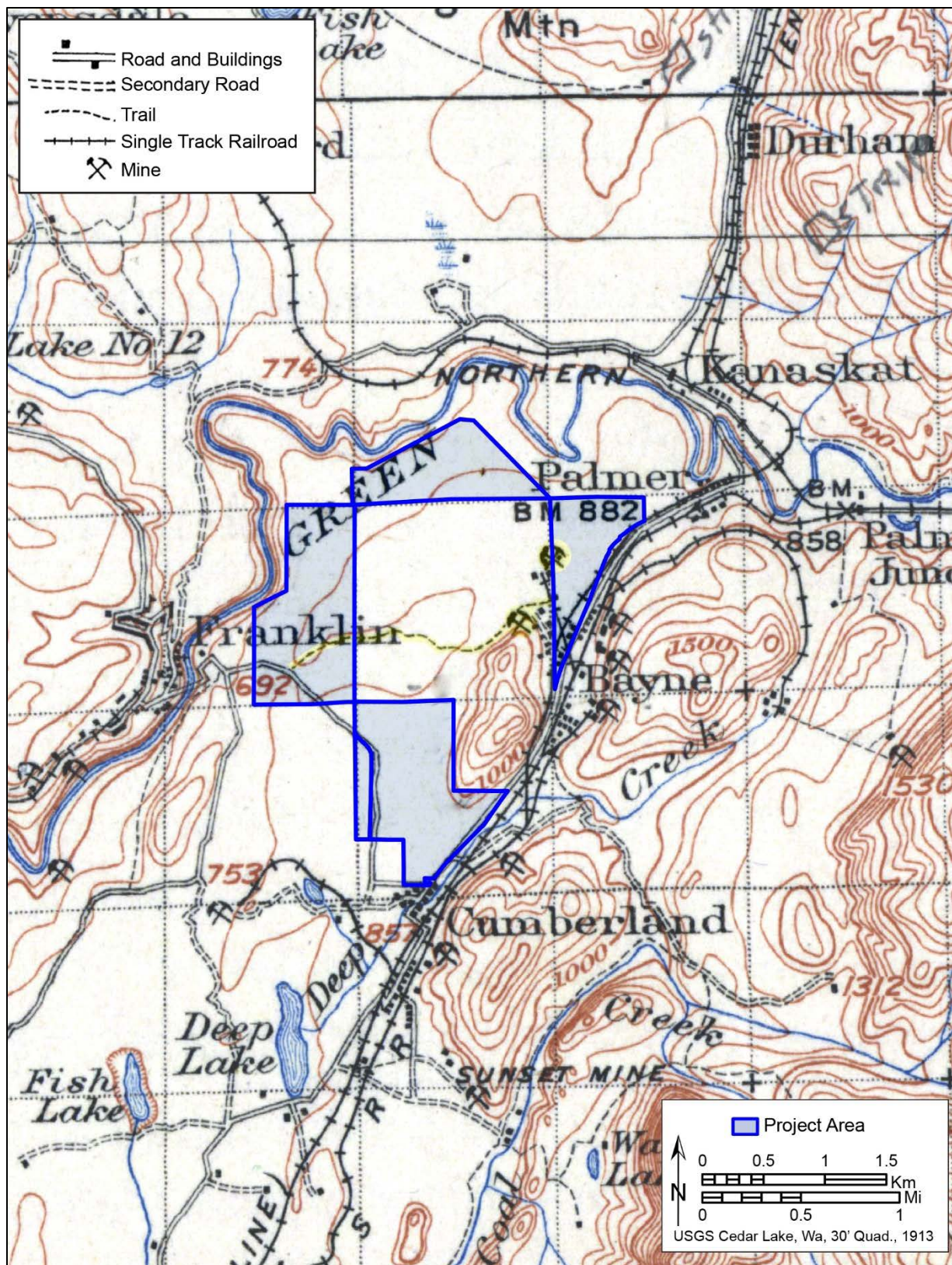


Figure 10. Early USGS map showing increasing mining and development in the project vicinity.

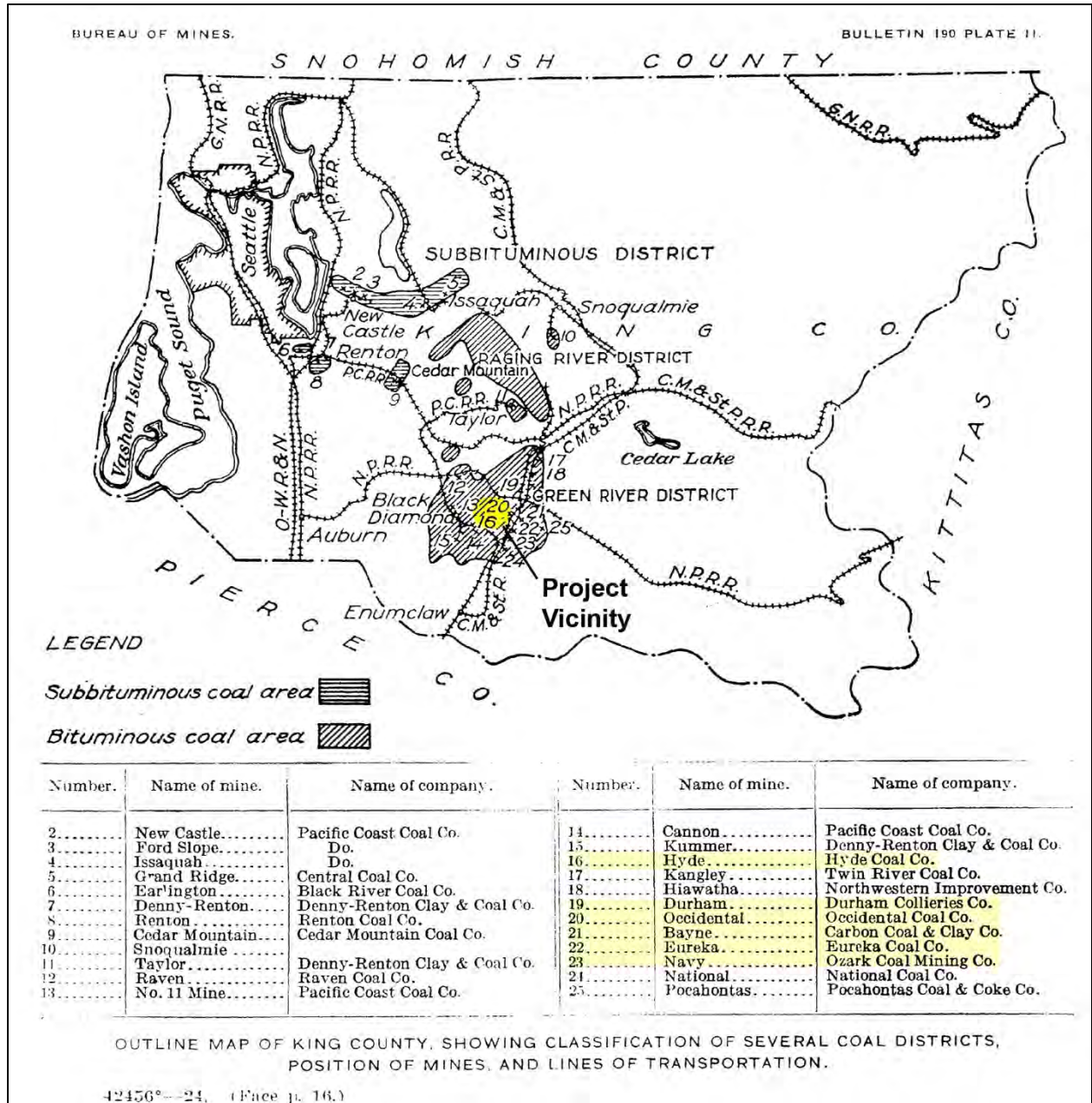


Figure 11. Map showing coal mining in King County (Evans 1924:26).

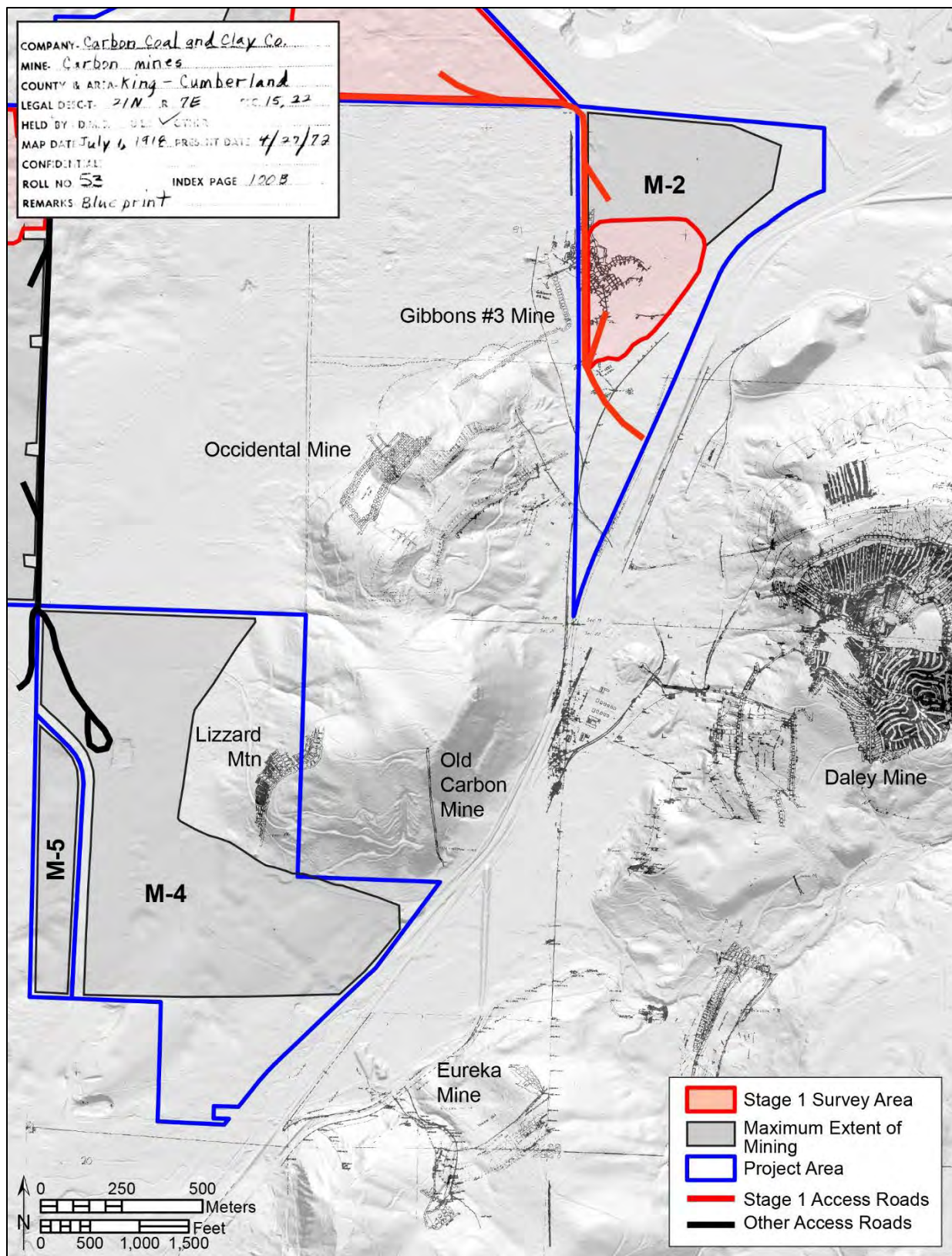


Figure 12. Coal mine map, 1918, showing mining operations in the vicinity of M-2 and M-4.

At their maximum extents, local mines were located outside the current project area, but tunnels associated with the Occidental mine extended below stage 1 mining area M-2, a road grade associated with this mine passed through area M-2, and a former bunkhouse was mapped adjacent to the western boundary of this area (Figure 12, labelled Gibbons #3 Mine). Infrastructure associated with the Old Carbon mine occupied the south aspect of Lizard Mountain and overlapped the southern block of project area land. However, remnants of this infrastructure, if present, will not be affected by proposed gravel mining, as this infrastructure was adjacent to the northeastern boundary of mining area M-4 (Figures 12 and 13).

After the end of World War I global prices for coal began to plummet and coal production in King County began to decline overall (Boswell 2017; Kombol 2012). Mining operations at nearby Franklin folded in the early 1920s, and labor disputes over declining wages occurred throughout King County coal communities, including those in the project vicinity. By the early 1940s, major labor shortages had also taken a large toll on the industry (Green 1946), and large companies such as the PCCC had ceased coal production in King County, although coal mining in Bayne operated until roughly 1950 (Kombol 2012) and informal, small-scale prospecting, mining, and logging continued in the project vicinity for the next few decades. Historical maps from this period (Figure 13) show mining access roads crossing areas M-2 and M-3 and adjacent to area M-4.

In the mid-1950s, cinnabar deposits were discovered in the walls of the Green River Gorge in Section 8 north of the project area (EMJ 1958; USBM 1965). By 1957, the Royal Reward mine (Figure 13) was opened by the Washington Mining Corporation (WMC) to exploit this discovery for the production of mercury. Its workings were located on a small terrace roughly 50 feet above the Green River (Rice 1962). In 1958, planned workings there included multiple adits, a 270 foot-deep shaft, and 1000 feet-long of lateral workings off this shaft (EMJ 1958). At this time, the Royal Reward mine was claimed to be the only productive mercury mine in Washington (EMJ 1958).

That same year, construction of a road for the Royal Reward mine revealed another deposit of cinnabar along the gorge on land leased from the NIC/NPRR in Section 17 (Figure 13). The WMC subsequently opened the Cardinal Reward mine to exploit this deposit, and by 1959 this mine had roughly 700 total feet of underground workings adjacent to the project area, a reduction plant was under construction atop a nearby hill within area M-3 of the current project area, 500 tons of ore were stockpiled near this new plant site (USBM 1965:363), and roadways were built to access the plant location. Historic maps of the Cardinal Reward mine depict two levels of tunneling by 1964, with tunnel openings roughly 200 and 450 feet away from the Green River.

However, mercury mining in the vicinity was short-lived and did not fulfill the potential anticipated just a few years earlier. By 1962 the Royal Reward mine shaft extended only 168 feet below the collar, lateral workings extended less than 100 feet, and all workings were abandoned and flooded below river level (Livingston 1971; Rice 1962). Only trace amounts of mercury had been found (Rice 1962), and the Royal Reward mine had produced only about 20 flasks of mercury total prior to abandonment (Livingston 1971). The Cardinal Reward mine was apparently also a bust by the early 1960s; no recorded production was associated with this mine (Livingston 1971), implying the 500 tons of ore stockpiled in 1958 were never processed.

From the 1960s onward, little development has been undertaken in the project vicinity and former company towns such as Bayne have fallen into decline and become largely abandoned (Kombol 2012). In 1966 the Raver-Paul No. 1 transmission line was built in the eastern portion of Section 17 within the project area; this line remains extant and passes through planned gravel mining area M-3. Review of historic aerial imagery indicates most of the project area was logged in at least three major stages between roughly 1980 and 1998. Several gravel access roads into the project area are now gated but remain in use. Former rail lines passing through the project area have been abandoned since at least the 1980s (KCDA 2022). The project area is currently forested and undeveloped land.

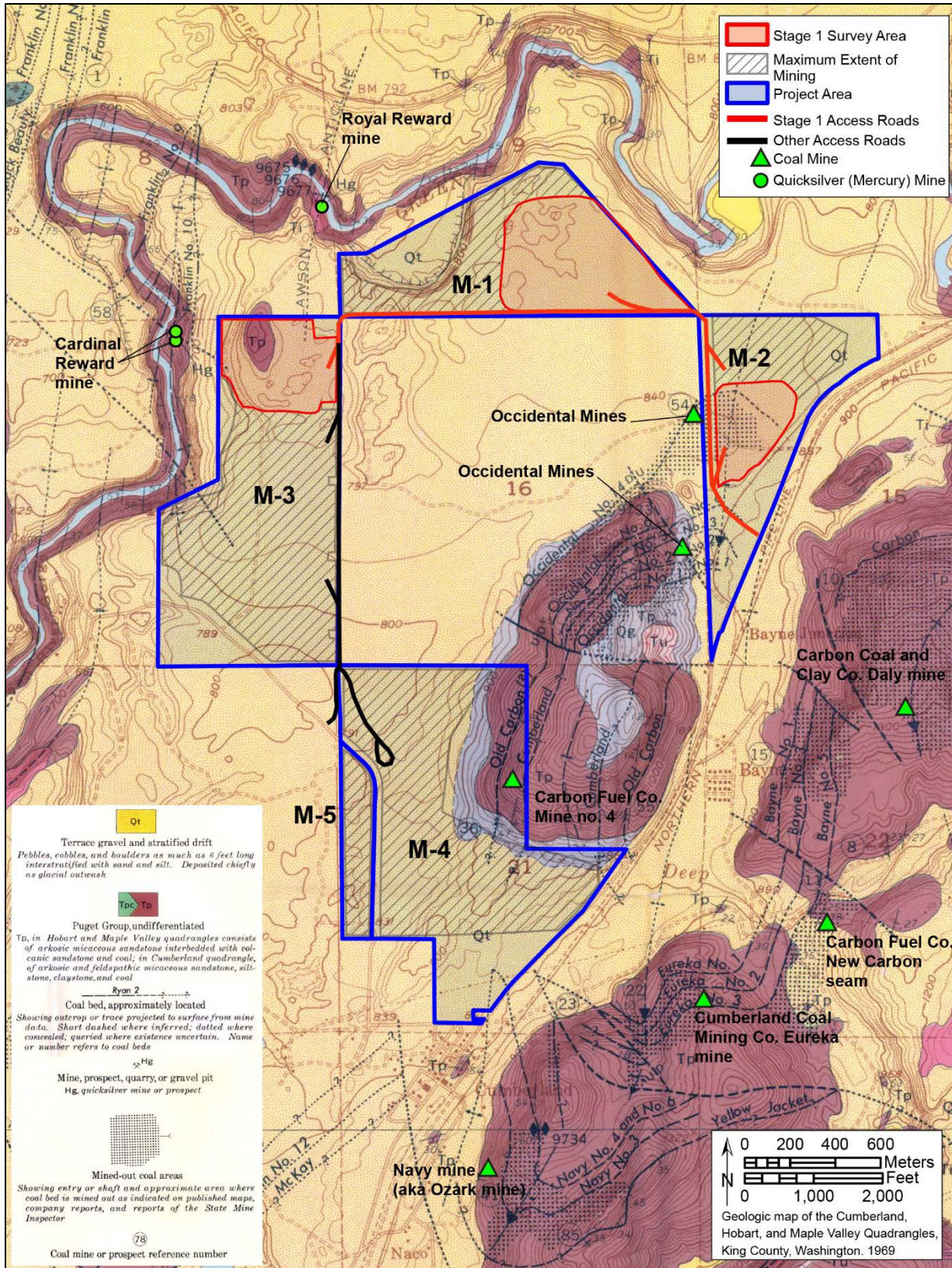


Figure 13. Surface geology map using 1953 USGS base showing mining areas and infrastructure in the project vicinity.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Records available on WISAARD indicate that a total of eleven professional cultural resources investigations have previously been completed within roughly one mile of the current project area (Table 2). Ten of these surveys were focused entirely or predominantly on locations immediately adjacent to the Green River, and only two (Schultze et al. 2013; Scott and Wright 2008) extended away from the lip of the gorge and into the interior of the forested glacial drift terrace landform that characterizes the majority of the current project area. Additionally, these two studies of the vicinity's interior were highly limited in terms of scope; one examined only a narrow corridor along the modern right-of-way of Cumberland-Kanaskat Road SE (Schultze et al. 2013), and the other examined only post-contact agricultural structures in the Enumclaw Plateau (Scott and Wright 2008). Professional archaeological investigations of native sediments within interior settings that are comparable to the current project area are therefore sparse.

However, the five previous archaeological surveys conducted at Kanaskat-Palmer State Park (Komen 2009; Luttrell 2001b, 2009, 2016; Silverman 2016), which occupies a lower-elevation glacial terrace immediately northeast of the current project area, examined depositional contexts and native soils that are roughly comparable to the current project area. One of these studies encountered site 45KI499, a sparse scatter of pre-contact lithic debitage, fire-modified rock (FMR), and burnt bone that extended over a roughly 122 meter by 37 meter area at roughly 40 cmbs (Luttrell 2001a). The other four studies in roughly comparable natural settings encountered no cultural materials.

Table 2. Previous Cultural Resources Investigations Within 1 Mile of the Project Area.

Author	Date	Project	Relation to Project Area	Results*
Luttrell	2001	Cultural Resources Investigations for the Kanaskat-Palmer State Park Campground Development Project, King County, Washington	0.23 mi N	45KI499
Gill	2008	Archaeological Assessment of the Retreat at Wildview Ridge Estates	1.0 mi NE	None
Scott and Wright	2008	Historical Agricultural Resources Survey & Inventory, Enumclaw Plateau, Washington	Overlaps SW	None
Luttrell	2009	Kanaskat-Palmer State Park, Yurt Addition Project Letter Report, King County, Washington	0.48 mi N	None
Komen	2009	Cultural resources Investigations for the Kanaskat-Palmer State Park Campground Utility Development Project, King County, Washington	100 ft N	None
Hale and Roulette	2010	Archaeological Study of the Bonneville Power Administration's Proposed Raver-Paul No. 1. Transmission Line Access Road Improvement Project, King and Pierce Counties, Washington	300 ft NW	None
Hale and Roulette	2010	Results of Shovel Test Excavations in Select Areas in the Bonneville Power Administration's Proposed Raver-Paul No. 1 Transmission Line Access Road Improvement Project, King and Pierce Counties, Washington	0.50 mi N	None

Author	Date	Project	Relation to Project Area	Results*
Schultze et al.	2013	Archaeological Resources Assessment for the Cumberland Substation Expansion project, King County, Washington.	Adjacent E	45K11134 45K11135 45K11136
Luttrell	2015	Green River Gorge Conservation Area – Mine Safety Project, King County, Washington	0.15 mi N	45K11230
Luttrell	2016	Kanaskat-Palmer State Park – Comfort Station and Sewer System Upgrade Project, King County, Washington	0.40 mi N	None
Silverman	2016	Archaeological monitoring of Kanaskat-Palmer State Park West Group Campground Gas Line Ground Disturbance Behind (South of) Comfort Station	0.35 mi N	None

*Newly recorded cultural material identified within 1 mile of project area.

In addition to site 45KI499, eleven archaeological sites, cemeteries, and historic districts have previously been recorded within roughly one mile of the current project area (Table 3). Two of these sites (45K1134 and 45K1136) lie in close proximity to project area parcels, and one site (45K1135) overlaps the eastern boundary of the east land block (Section 15) in the project area (Figure 14). These sites are comprised of post-contact debris (45K1134), a post-contact apple orchard (45K1135), and a short section of abandoned railroad track (45K1136) that likely dates to between 1907 and 1912 based on historical maps (Schultze 2013a, 2013b, 2013c). However, none of these nearby archaeological sites lies within or adjacent to planned gravel mining areas or infrastructure associated with these areas. These archaeological sites will therefore not be affected by any stage of planned gravel mining within the project area.

Table 3. . Previously Recorded Sites, Cemeteries, and Historic Districts Within 1 Mile of the Project Area.

Site No.	Compiler/Date	Age	Description	Relation to Project Area
45KI295	Miss 1987	1890-1900	Railroad tunnel and bridge piers	0.80 mi E
45KI401	Hedlund 1988	1880-1950's	Company coal mining town	0.35 mi W
45KI499	Luttrell 2001	Precontact	Precontact lithic scatter	0.30 mi NE
45K11134	Schultze 2013	pre-1917	Historic debris concentration	Adjacent SE
45K11135	Schultze 2013	1914-1930	Historic apple orchard	Overlaps E
45K11136	Schultze 2013	post-1880	Railroad spur	70 ft E
45K11230	Luttrell 2015	ca. 1954-1961	Royal Reward Mine	0.15 mi N
45K11264	Iliff 2015	1914-1918	Sunset Mine	0.95 SE
45KI856	DAHP 1994	1907	Holy Rosary Cemetery	0.40 mi W
45KI865	DAHP 2005	1974-present	Mountain Crest Memorial Park	0.65 mi S
45DT51	Not available	19th-20th Century	Green River Gorge Historic District	0.20 mi SW
45DT130	Corley 1969	1880's to present	Town of Bayne	0.20 mi SE

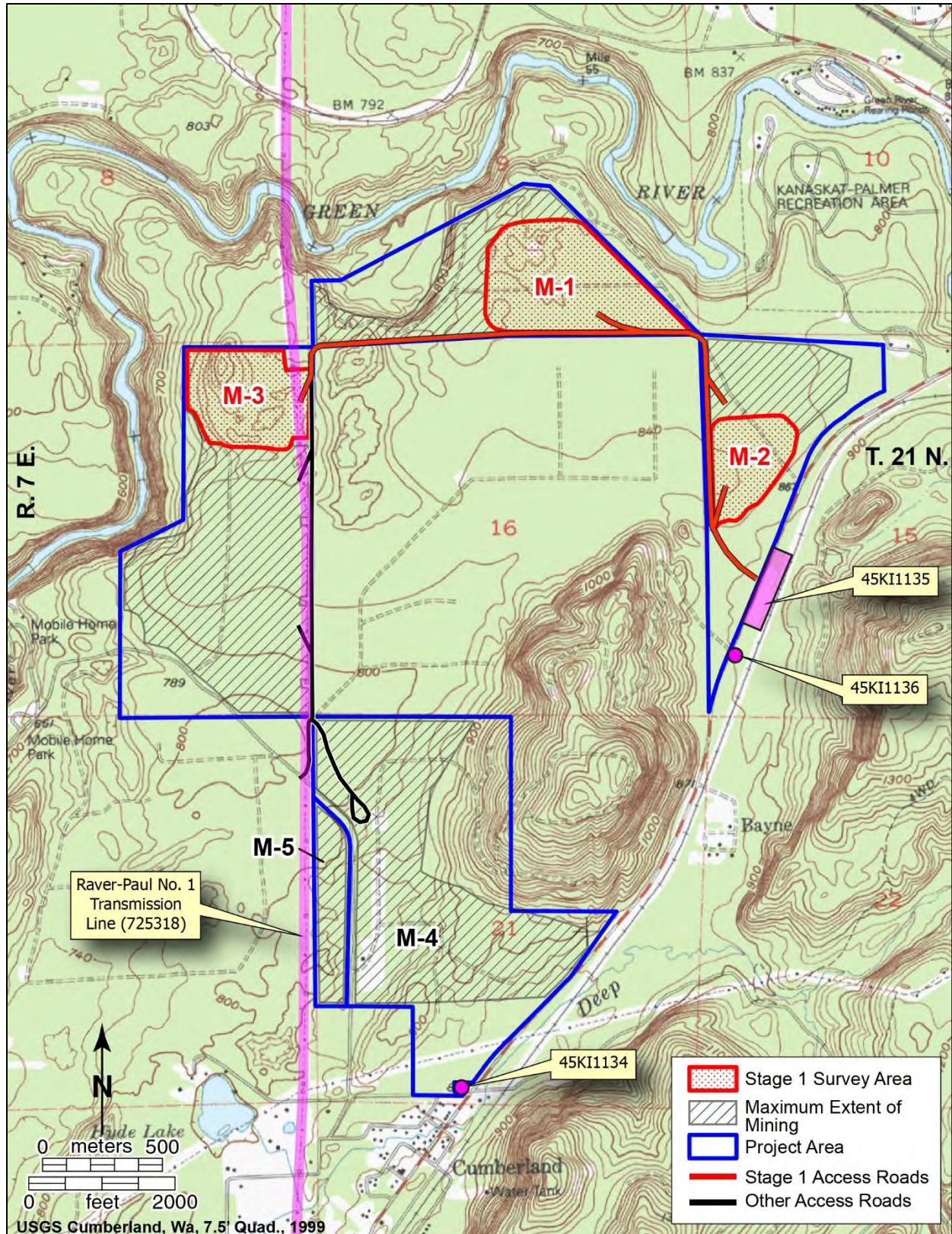


Figure 14. Cultural resources adjacent to or within the project area.

Other nearby recorded archaeological sites and districts do not lie within or adjacent to the project area and generally relate to the history of mining and railroad transportation in the vicinity. These sites include site 45KI1230, which lies in the gorge north of the project area and is comprised of structural remains, a former mine shaft, and other materials related to the Royal Reward mine (Luttrell 2001). Site 45KI401 lies along the gorge to the west of the project area and consists of sparse structural remains of the once-extensive Franklin coal mining townsite (Hedlund 1988). Site 45KI856 is a cemetery associated with the Franklin mining community (DAHP 1994). Site 45KI1264 lies southeast of the project area and consists of a subsidence feature caused by the collapse of a subterranean portion of the Sunset Mine, a coal mine which operated from 1914-1918 (Iliff 2015). The former coal mining town of Bayne lies southeast of the project area, across Cumberland-Kanaskat Road SE from the former coal mines on Lizard Mountain, and has been recorded as an historic district (Corley 1969). Another historic district related to coal mining towns in the vicinity stretches from the former Franklin townsite westward along the Green River Gorge to the former coal town of Kummer. Finally, site 45KI295 consists of a roadbed, tunnel, and set of bridge piers associated with improvements made between 1899 and 1902 to the NPPR Cascade Line (Miss 1987).

Previously-recorded historical structures in the project vicinity (Table 4) generally lie outside the project area and will not be affected by planned gravel mining activity. However, the Raver-Paul Transmission Line (Property #725318) represents a notable exception. This transmission line passes through area M-3 (Figure 14) and has been determined eligible for listing on the National Register of Historic Places (Boyd 2021). This line was constructed in 1966, energized in 1970, and is associated with the Bonneville Power Administration’s (BPA) “System Expansion” period of significance, which occurred between 1946 and 1974 (Boyd 2021). It represented a significant growth of BPA infrastructure to meet postwar electrical needs in the region. This transmission line is named for Paul J. Raver, who was the longest-serving chief BPA administrator, holding that position from 1939 to 1954 (Tate 2015).

Table 4. Historical Built Environment Adjacent to the Project Area.

Address	Property ID	Recorder/ Date	Year Built	NRHP Eligibility	Description
35822 Cumberland Way SE, Enumclaw	86453	n.d. 1987	1910	Not eligible	Single family residence
SE Green River Gorge Road, Black Diamond	86836	n.d. 2001	1914	Eligible	Green River Gorge Bridge
33501 Cumberland Kanaskat Road SE, Kanaskat	101337	Holter 2014	1946	Not determined	NPPR Kanaskat Depot
31302 SE 354th Street, Enumclaw	339226	Artifacts 2011	1918	Not eligible	Commercial Building
34123 SE Hudson Road, Ravensdale	537496	O’Connor 2010	1938	Not determined	Barn
33000 293rd Avenue NE, Black Diamond	537569	Sundberg and Hitzroth 2009	1907	Not determined	Franklin Holy Rosary Cemetery (also recorded as 45KI856)
36320 312th Avenue SE, Enumclaw	537605	n.d. 2010	1973	Not determined	Mountain Crest Memorial Park (also recorded as 45KI865)

Address	Property ID	Recorder/ Date	Year Built	NRHP Eligibility	Description
Cumberland Kanaskat Road SE, Ravensdale	717110	High 2018	1948	Not determined	Kanaskat water tower
(Not applicable)	725318	Boyd 2021	1966 1970	Eligible	Raver-Paul No 1 Transmission Line

EXPECTATIONS

The preceding review has demonstrated that the study area has been accessible for human use for several thousand years, and that humans have been present in the vicinity for at least 11,000 years. It has also shown that the study area lies in close proximity to environments, resources, travel corridors, and settlement areas that have long been valued and used by local Native Americans. Use of the study area by Native Americans prior to Euroamerican settlement of the region is therefore highly likely. Archaeological traces of precontact activity in the study area, if present would likely lie shallowly buried within the thin soils above the unweathered glacial deposit.

Euroamericans also valued the vicinity for its timber and mining potential, and numerous mines operated in and around the project area from the early to mid 20th century. Therefore, there is also high potential for archaeological sites relating to Euroamerican mining activity to be present in the project area. Such sites could consist of abandoned mining equipment or remnants of structures associated with mining operations and would most likely be encountered near the mapped locations of the Occidental Mines, Carbon Fuel Company Mine No. 4, or the Cardinal Reward mine.

METHODS

Tribal Correspondence

Prior to conducting fieldwork, Perteet contacted cultural resources professionals representing local Native American Tribes to solicit any input or concerns related to known project area cultural resources, to inform them when field investigation would be taking place, and to invite participation by Tribal cultural resources staff during field investigation (Appendix B). Tribal officials contacted by Perteet include Laura Murphy, Archaeologist for the Muckleshoot Indian Tribe, Steven Moses, Cultural Resources Director for the Snoqualmie Indian Tribe, and Brandon Reynon, Cultural Resources Director for the Puyallup Tribe of Indians. Perteet researchers also met with Warren KingGeorge, Historian for the Muckleshoot Indian Tribe, as a means of learning about the history of Native American use of the project vicinity.

Archaeology

Archaeological investigation of the project area was conducted by Perteet archaeologists Jack Johnson, Emily Peterson, Cameo Kale, Johonna Shea, Gary Geiger, Jiun-Yu Liu, and Nick Jacobs. Jack Johnson, Emily Peterson, and Cameo Kale meet the U.S. Secretary of the Interior's Professional Qualifications Standards for Archaeology as set forth by 36 CFR Part 61.

Background Research

Background research was conducted by Johonna Shea, Jack Johnson, and Emily Peterson prior to field research and helped determine the potential for encountering buried archaeological deposits and guided fieldwork, analysis, interpretation, and reporting. Perteet conducted a check of records through DAHP's WISAARD database to gather information related to previous investigations in the vicinity and to identify any known archaeological sites within or adjacent to the project area. Other background information was collected from available geotechnical reports, ethnographic and historic accounts, and historical maps and photographs.

Archaeological Fieldwork

Fieldwork was conducted by Jack Johnson, Cameo Kale, Gary Geiger, Jiun-Yu Liu, and Nick Jacobs over the course of nine days between July 20 and August 4, 2022. Fieldwork consisted of both pedestrian survey and subsurface investigation of areas where planned Stage 1 gravel mining is expected to cause disturbance to near-surface soils and sediments.

Pedestrian survey examined the routes of the planned Stage 1 road, all existing in-use roadways within planned Stage 1 gravel mining areas, and all historically mapped roadways within planned Stage 1 gravel mining areas. The remainder of planned Stage 1 gravel mining areas were surveyed at a maximum interval of roughly 50 meters (164 feet) between survey transects as a means of examining project terrain, identifying extant surficial cultural remains, and identifying depositional contexts suitable for subsurface investigation.

Subsurface investigation consisted of hand excavation of shovel probes (SPs) measuring roughly 40 cm (16 inches) in diameter to depths sufficient to expose culturally-sterile, unweathered glacial sediments. Spoils from excavated probes were screened through 1/4-inch wire mesh to identify cultural materials. Notes about content and sediments encountered during subsurface testing were kept on standard forms, and photographs of observed stratigraphy were taken for a representative sample of excavated SPs.

Shovel probes were placed only in depositional settings and in locations free of surficial obstructions and obvious prior disturbance to native sediments. As such, SPs were not placed within areas of steep slopes, exposed bedrock, extant roadways, or obstructive deadfall. Shovel probes were placed at roughly 50-meter (164-foot) intervals along survey transects (Figure 15). In Stage 1 gravel mining areas M-2 and M-3, where background research indicated an elevated probability of encountering near-surface remains of historical mining activity (see above), a 50-meter interval between SP transects was used. In Stage 1 gravel mining area M-1, where background research indicated no known historical mining activity has occurred (see below), a 100-meter (328-foot) between SP transects was used; individual SPs were nonetheless placed at 50-meter intervals along each transect in this area.

Each SP was assigned a unique number that incorporated its Stage 1 area designation (M-1 through M-3), its x-axis position (using ascending letter designations) within a local grid specific to each area, and its y-axis position along this grid (using ascending number designations); the relative location of the origin point for each area's grid was assigned to allow expansion throughout planned subsequent stages of mining activity in the event that additional cultural resources fieldwork is necessary for subsequent stages of mining activity. For example, mining area M-2, which will expand to the northeast from Stage 1 to Stage 3, was assigned an origin point at its southwestern extent. By contrast, area M-3, which will expand to the southeast from Stage 1 to Stage 4, was assigned a grid origin in its northwest corner. Universal Transverse Mercator (UTM) coordinates of all SP locations and all observed cultural materials were also recorded with a high-precision Trimble hand-held global

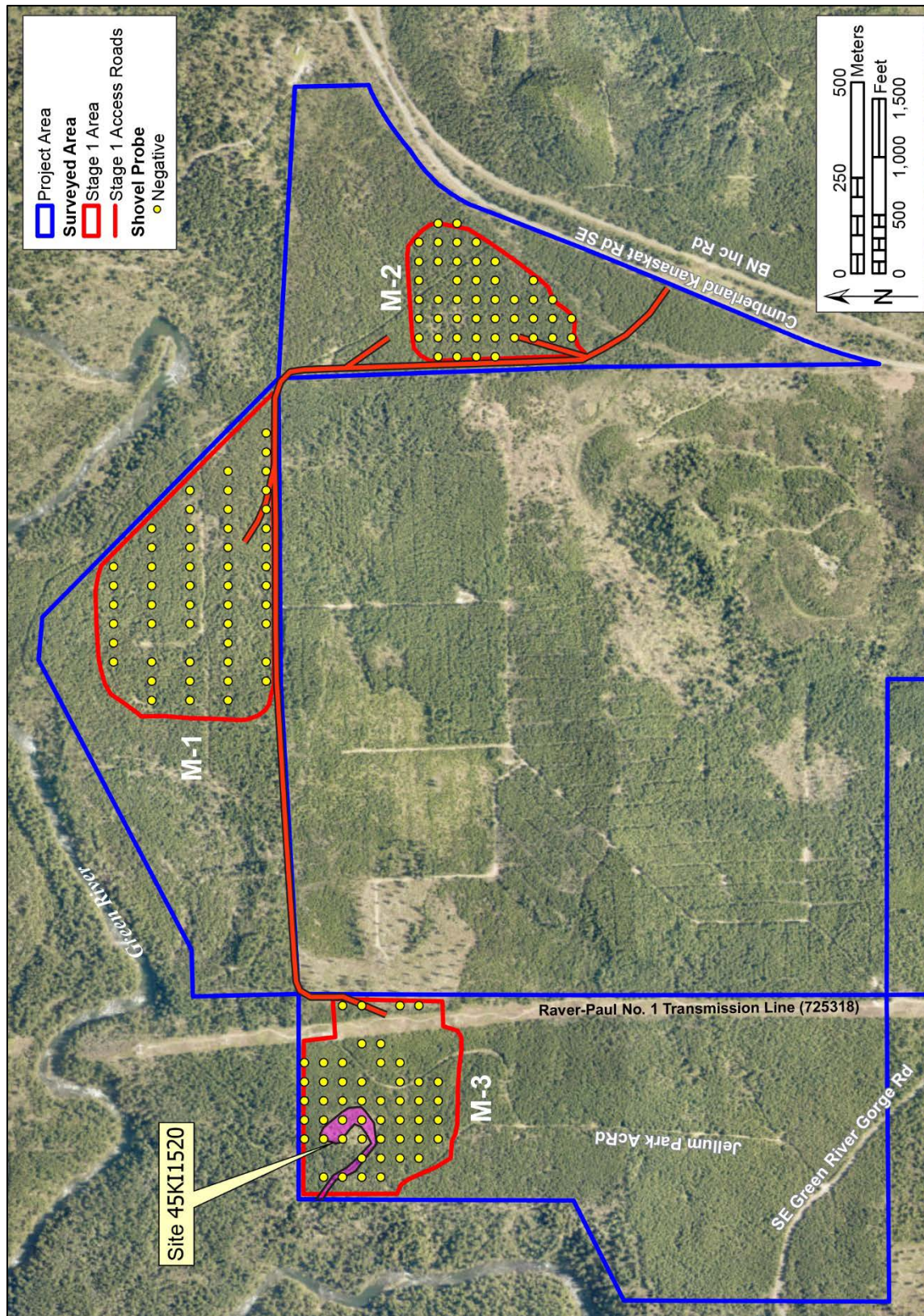


Figure 15. Air photo showing excavated shovel probes and observed cultural resources.

positioning system (GPS) unit. However, reported UTM coordinates have incurred an estimated horizontal error of roughly 5 meters (16 feet) due to interference with the GPS unit resulting from heavy brush cover throughout the project area, even after differential correction and post-processing.

RESULTS

Pedestrian Survey of Stage 1 Mining Areas

The project area is pervaded by mixed forest cover, with often-dense underbrush consisting of vine maple, blackberries, ferns, salal, and other vegetation common to local forested settings (Figure 16). Extensive brush clearing was necessary to allow traversal of all surveyed transects, and in many locations abundant deadfall also inhibited survey. Because of these factors, as well as the pervasive blanket of forest duff, surface visibility was very poor throughout the project area. However, tree tip-ups were common and their associated root ball sediments therefore frequently provided the opportunity to visually examine exposed near-surface sediments.

Project area terrain was typical for post-glacial forested terrace uplands in the region. The ground surface was generally planar at the broad scale, but at the human scale the surface was uneven and dominated by localized hummocks atop low hills and troughs. Topographic relief was most pronounced in area M-3, which includes several hillslopes in excess of 45 degrees; cleared ground along the Raver-Paul No. 1 transmission line (Figure 17) illustrates typical relief in this portion of the project area. Surficial exposures of mossy gravels and boulders were common, especially in steeply-sloped locations (Figure 18). In general, project area terrain is poorly-suited to the accumulation and preservation of Holocene sediments and buried archaeological materials and contexts.



Figure 16. Thick underbrush in area M-1 showing typical conditions within the project area; view east.



Figure 17. Overview in area M-3 along the Raver-Paul No. 1 Transmission Line; view south.



Figure 18. Moss-covered boulders in area M-3; view NE.

Pedestrian survey of Stage 1 gravel mining areas encountered archaeological materials in one location atop and adjacent to the unnamed hill in the northwest of gravel mining area M-3 (Figures 15, 19, 20, and 21). Observed materials are surficial remains and include five features (structural remains and anthropogenic topographic features), and artifacts associated with the former Cardinal Reward mercury processing plant that was in use from 1958 to no later than 1962. Artifacts associated with this site include a large treaded synthetic tire measuring roughly 8 inches thick and 40 inches in exterior diameter (Figure 22d), and five 50-gallon steel drums (Figure 21b). Structural and topographic features of this site are discussed separately below.

Site 45KI1502

Feature 1 consists of a roughly 20-foot by 50-foot reverse L-shaped reinforced concrete foundation (Figure 21 a-d) that sits between 2 feet 8 inches and 5 feet 4 inches above the surrounding grade, which slopes downward from west to east. Four rectangular reinforced concrete footings rise to heights of between 1 and 3 feet high from near the center of its southern arm, and a rectangular aperture measuring roughly 4 feet by 8 feet lies east of these footings (Figure 21c) and opens to a lower chamber whose concrete floor lies roughly 10 feet below. Parallel 6-inch thick bay walls extend roughly 15 feet from the southeast corner of this structure, and the 6-foot wide unroofed corridor between these bay walls lies at the grade of the lower chamber and leads to this chamber (Figure 21d). All observed steel drums lie atop or adjacent to this structure.

Feature 2 consists of two formerly identical concrete walls in ruin (Figure 22a). Both walls measure roughly 6 feet 3 inches high, 8 inches thick, and 10 feet long, with a semi-circular “saddle” shape inset along their top edge. Rectangular footings at the base of each wall measure roughly 1 foot 6 inches thick, 13 feet long, and 4 feet wide. The walls were probably once parallel and set roughly 9 feet apart. However, the western wall has been toppled to the east, exposing its footings, which now lay upright.

Feature 3 (Figure 22b) consists of an irregularly-shaped pile of rock mining spoils that stands between roughly 6 to 10 feet above the uneven surrounding grade. This feature may represent a visible, unvegetated portion of the 500 tons of Cardinal Reward mine ore purportedly stockpiled in this vicinity.

Feature 4 consists of the former access road grade to the Cardinal Reward mine processing plant. Its apparent surficial extent within the current project area is roughly 970 feet from the western edge of the planned gravel mining area M-3 eastward along the southern aspect to the location of Feature 1. This roadway is roughly 20 feet wide and is apparent due to a gap corridor in tree growth (Figure 22c) in some places, a roughly 3 foot high fill berm along its southern shoulder in others, and a cut up to 10 feet into the adjacent hillside in others. The large tire found in area M-3 lies south (downslope) of the southern shoulder of Feature 4.

Feature 5 consists of a concrete foundation with a corroded steel superstructure (Figure 22e) that abuts an apparently anthropogenic cut face on the southeast aspect of the hill. The concrete foundation is roughly 3 feet tall, 1 foot thick, and 10 feet long, and its steel superstructure extends roughly 6 feet 4 inches above this foundation and exhibits a length of roughly 14 feet 6 inches. The top edge of this metal structure has a saddle shape similar to the concrete walls of Feature 2. The low hill behind (northwest of) this feature is comprised primarily of large cobbles similar to Feature 3, and this hill therefore probably consists of additional mine spoils/ore. However, dense blackberry cover in the vicinity of this feature precluded delineation of the full contours of this hill for identification and documentation purposes.

As a result of this pedestrian survey, a State of Washington Archaeological Site Inventory Form was completed detailing observed cultural materials at this site and has been submitted to the Washington DAHP, and this site has been temporarily designated as site 45KI1502-1 pending. This site form is also attached as Appendix D.

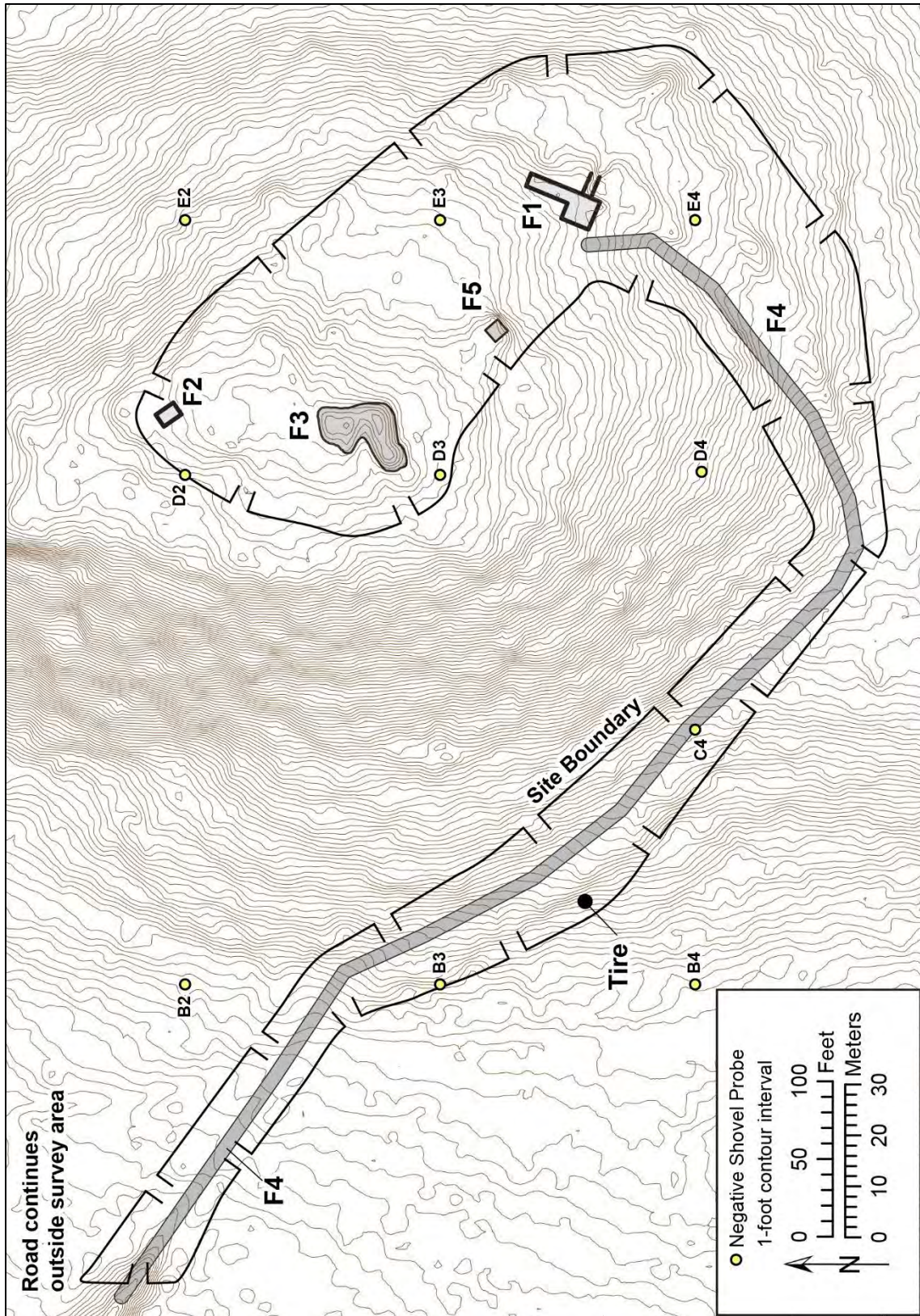


Figure 19. Sketch map, site 45K11502.



Figure 20. Photographs of Feature 1, site 45KJ1502.



Figure 21. Additional photos showing Features 2, 3, 4, and 5, site 45KII502.

Perteet has recommended this site be considered not eligible for listing in the National Register of Historic Places (NRHP) due to a lack of significance under applicable criteria. Specifically, NRHP Criteria A through C are clearly not applicable to these cultural materials. Further, the combination of the commonplace nature of observed cultural materials, the lack of nearby stratified deposits (see below), and the short-lived, recent, and insubstantial history of the Cardinal Reward mine at the local, state, and national level makes clear that this site also has no potential to yield additional information of historical significance as per NRHP Criterion D.

Prior to fieldwork, a potential archaeological site was identified from historical maps and Lidar imagery. By 1912 the grade of the Chicago Milwaukee Saint-Paul railroad ran northeast from Bayne junction and traversed the southern portion of area M-2 from southwest to northeast. The railroad grade is visible on Lidar imagery. It falls outside of the area proposed for future gravel mining but a proposed access road crosses the railroad grade (Figure 12). The access road was pedestrian surveyed but no trace of the grade, including rails, ties, berms, ditches, or anthropogenic topographic features, was observed in the field.

Other than materials at site 45K11502, no cultural materials were observed during archaeological fieldwork in planned Stage 1 gravel mining areas. However, the possibility that additional surficial cultural materials lie undiscovered within Stage 1 project areas cannot be eliminated because of heavy brush cover and very poor surface visibility. This is especially the case within or near the recorded boundary of site 45K11502, where dense blackberry cover was pervasive.

Subsurface Investigation of Stage 1 Mining Areas

A total of 151 shovel probes (SPs) were excavated throughout planned Stage 1 gravel mining areas (Figure 15), to an average maximum depth of roughly 69 cm (27 inches) bs, including 54 SPs in area M-1 (Figure 22), 46 SPs in area M-2 (Figure 23), and 51 SPs in area M-3 (Figure 24). Thirteen SPs were excavated within and adjacent to site 45K11502-1 but none contained cultural material. Observations recorded during SP excavations are presented in Appendix C. Observed soils and sediments accord well with expectations for mapped soils and sediments in the vicinity. Inceptisols derived from glacial diamict parent materials were observed throughout the project area. Typical strata (Figures 25 and 26) were comprised of a weakly-formed brown gravelly silt and sand topsoil extending to an average of 12 cm (4.7 inches) bs, a light reddish-brown gravelly silty sand subsoil extending to an average of 50 cm (19.7 inches) bs, and underlying parent materials consisting of light yellowish-brown or light greyish-brown gravelly sand, with both matrix and clasts coarsening with depth. Pedogenesis within topsoils was generally very weak, and distinct horizons of weathered subsoil were not observed in roughly 20% of sampled locations. Evidence for rooturbation of topsoils and subsoils was ubiquitous. No cultural materials were identified as a result of SP excavations.

Collectively, these observations suggest that the project area has a low potential to contain substantial deposits of buried cultural materials, including within site 45K11502. Further, if buried deposits of cultural materials exist, they are highly likely to lie within roughly 50 cm (19.7 inches) of the modern ground surface, where they have been subjected to a high degree of post-depositionalurbation. As such, extant buried cultural resources within the project area (if present) are highly likely to have been exposed to substantial taphonomic and contextual degradation. It is therefore very improbable that intact strata of potentially significant buried archaeological resources lie undiscovered within Stage 1 gravel mining areas.

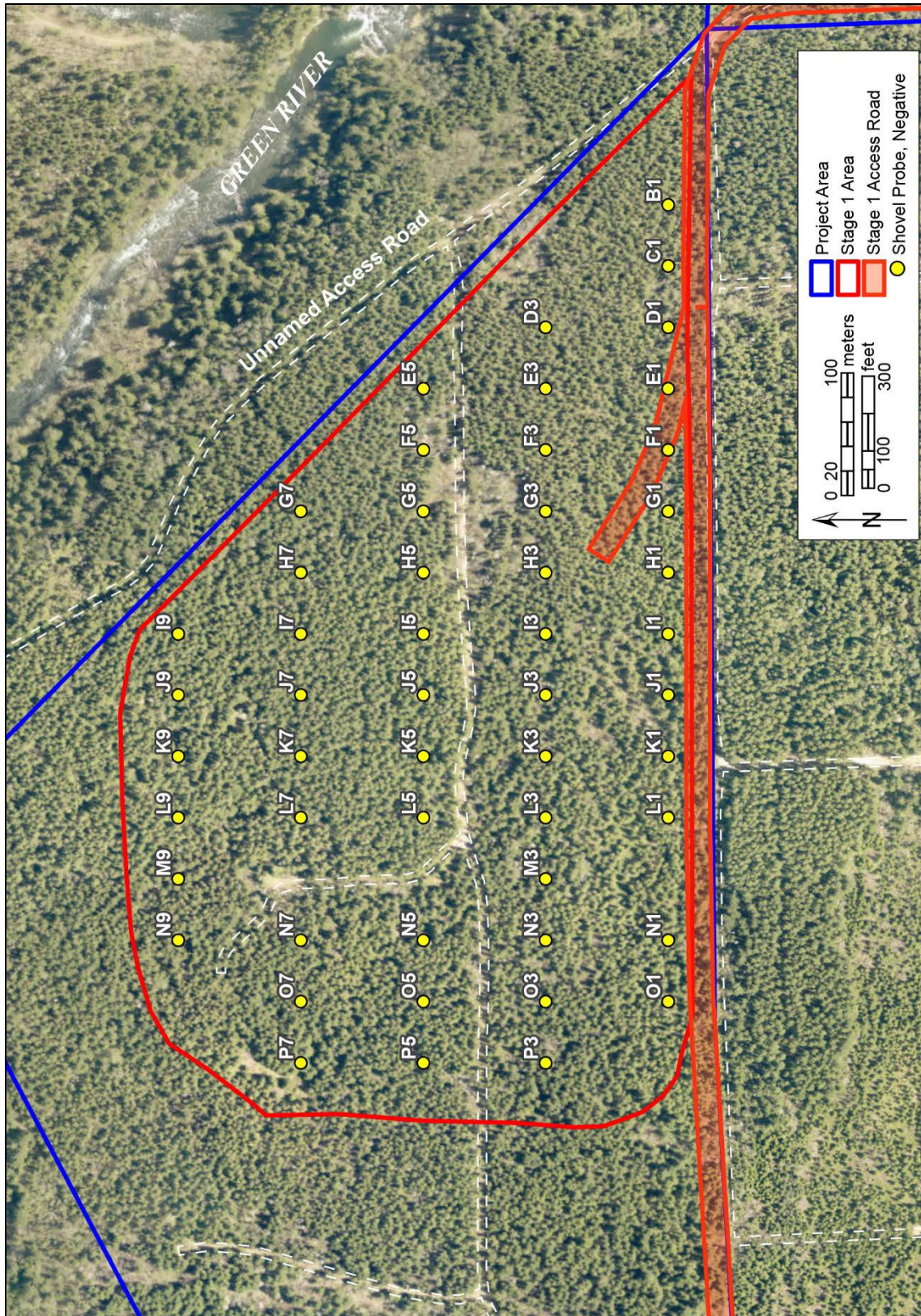


Figure 22. Locations of shovel probes excavated in area M-1, Stage 1.

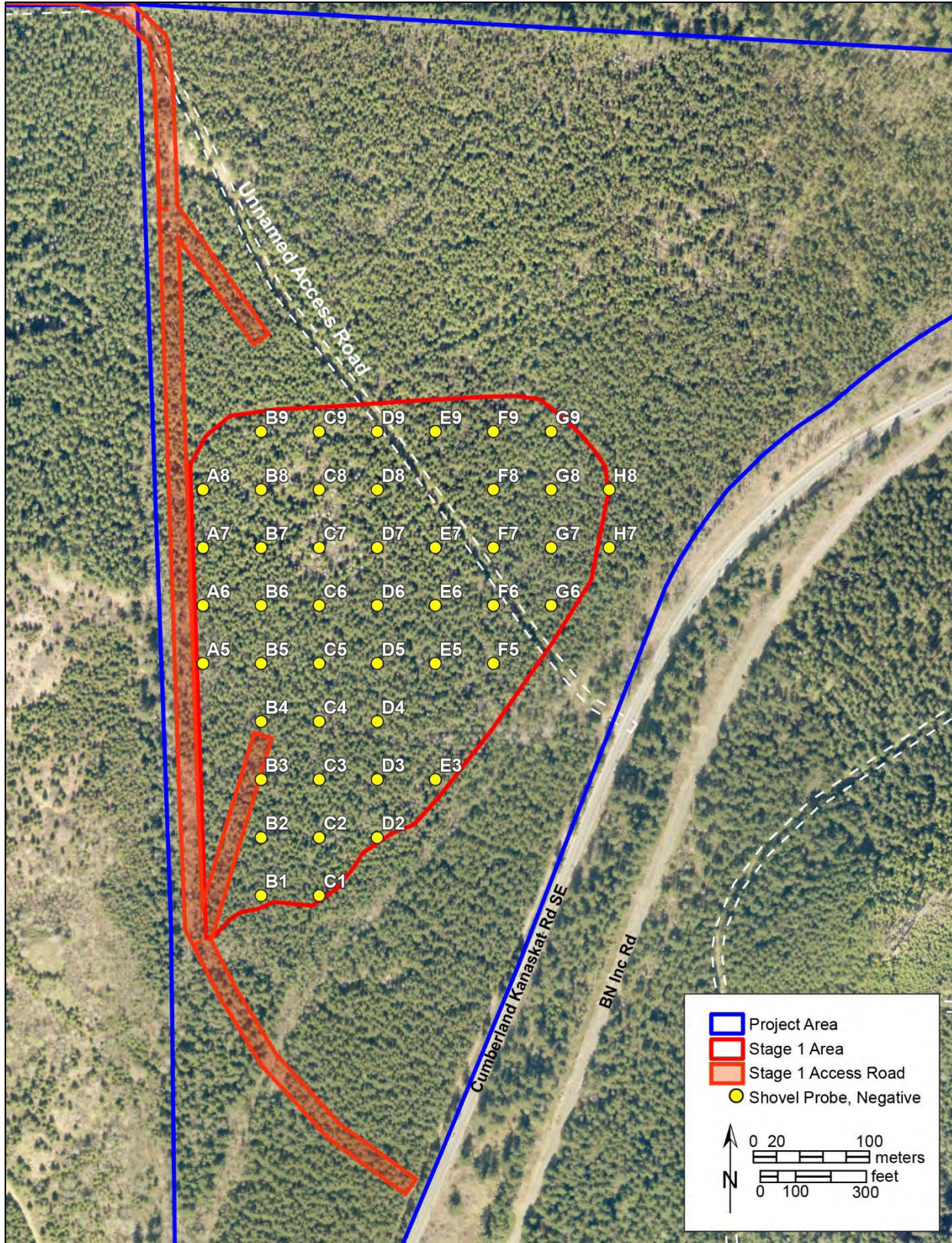


Figure 23. Locations of shovel probes excavated in area M-2, Stage 1.

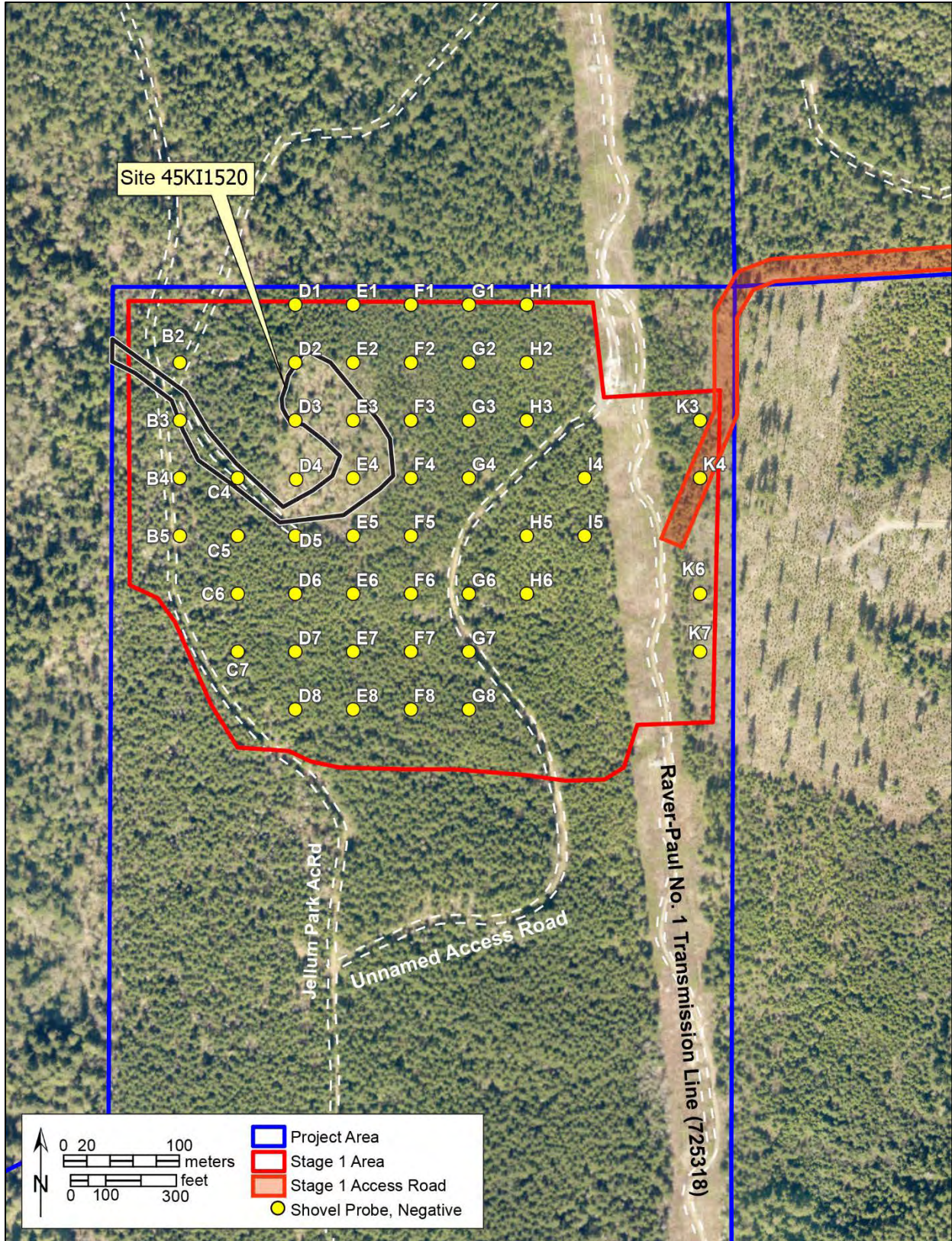


Figure 24. Locations of excavated shovel probes and observed cultural resources in area M-3, Stage 1.



Figure 25. Profile of Shovel Probe M-3 H2 showing typical stratigraphy.



Figure 26. Profile of Shovel Probe M-2 B9 showing typical stratigraphy.

DISCUSSION

Stage 1

Pedestrian survey and subsurface testing of Stage 1 mining areas did not identify any precontact archaeological sites. Based on the subsurface conditions in the project area, significant buried archaeological sites are unlikely to be extant within the project area. However, due to the poor surface visibility at the time of the survey, additional archaeological sites may be present on the surface. If encountered during the course of mine development and operation, archaeological sites must be documented, evaluated for significance, recorded on archaeological site inventory forms, and submitted to the DAHP through the WISAARD system for review and assignment of a Smithsonian trinomial. If significant sites are identified, ground disturbance within the site boundaries may require a permit from the DAHP pursuant to RCW 27.53.060.

One post-contact period archaeological site, 45KII502, was identified in area M-3. This archaeological site has been recommended not eligible for listing in the NRHP as it lacks both significance under criteria A-D and integrity. Nonetheless, additional features related to operation of the Cardinal Reward mine may be encountered in the vicinity of the recorded site boundary. If present, additional features should be recorded, the archaeological site inventory form should be updated, and NRHP eligibility should be re-evaluated in light of any new findings.

One previously recorded historic property is within the project area; the Raver-Paul Transmission line that traverses the eastern edge of area M-3 has been recorded as an historic property and determined eligible for listing in the NRHP. Therefore potential negative impacts on the integrity of this property must be considered and, if possible, avoided. Pertinent aspects of integrity include integrity of location, design, setting, materials, workmanship, feeling, and association; no aspect of the integrity of the Raver-Paul Transmission line is likely to be affected by planned gravel mining. Specifically, under BPA's Multiple Property Documentation Form (MPD), "where the corridor/line remains as originally located, changes in surrounding uses do not impact integrity," (Kramer 2012:46). Planned mining activity will not alter the locations of the corridor or transmission lines, and will therefore not adversely impact integrity of location or setting as per the MPD. Planned gravel mining will also not directly impact the transmission line structures or alignment, and therefore will not impact the integrity of design, materials, or workmanship of the property. The BPA MDP relates integrity feeling to the uniformity of repetitive structural elements in the defined corridor (Kramer 2012:47), and this aspect of integrity will also not be affected by planned gravel mining. Finally, integrity of association will also not be impacted since the transmission line will remain under BPA ownership and operation.

Stages 2 through 4

Results from the survey of proposed Stage 1 mining areas inform expectations for the later stages of proposed mining activity. Shovel probe testing in Stage 1 areas demonstrated that the landform occupied by the project area has not been an active depositional environment during the Holocene. Therefore, it is unlikely that significant cultural deposits have been preserved as buried archaeological sites in any portion of the project area. This is true of areas classified as high risk in the DAHP statewide predictive model and those classified as high in the King County precontact sensitivity model. Rather, cultural resources are most likely to be identified on the surface in areas of concentrated post-contact mining activity. The observations from extensive Stage 1 fieldwork suggest that archaeological investigations for later stage mining areas should employ a methodological approach that prioritizes intensive pedestrian survey above extensive, systematic subsurface testing.

RECOMMENDATIONS

Stage 1

Since additional features associated with archaeological site 45KI1502 may be uncovered when vegetation is cleared from area M-3, Perteet recommends that an archaeological monitor inspect this area after brush clearance and before ground disturbance. As no adverse impacts are anticipated to the Raver-Paul Transmission line, Perteet recommends that planned gravel mining proceed along this historic property without additional cultural resources work, provided on-site crews are advised of the NRHP status of this property and there will be no direct alterations to the Raver-Paul Transmission line location, alignment, or structures.

Figure 27 identifies areas recommended for monitoring. If no sites are identified on the surface once brush is removed, project ground disturbance may proceed under an inadvertent discovery plan that clearly establishes procedures and protocols to be followed in the event that buried cultural material is encountered in the course of mine development and operations. The IDP will also apply to all mine development and operation activities in other portions of the project area.

Stages 2 through 4

High probability areas in the Stage 2 through 4 expansion areas should be surveyed prior to ground disturbance. Given the dense vegetation cover and poor surface visibility, future pedestrian survey should, if possible be planned to follow vegetation clearance to improve surface visibility and ease of pedestrian movement, thereby also improving both operational efficiency and the likelihood of identifying surficial cultural materials during fieldwork. Depending on the results of pedestrian survey, subsequent subsurface testing may also be recommended within areas identified as having a high potential to contain archaeological materials.

Figure 27 shows high probability areas in yellow. These areas include locations classified as high risk in the DAHP statewide predictive model (Figure 28), locations where LiDAR imagery suggests historical mining activity, and locations near historical roads or trails identified on historical maps.

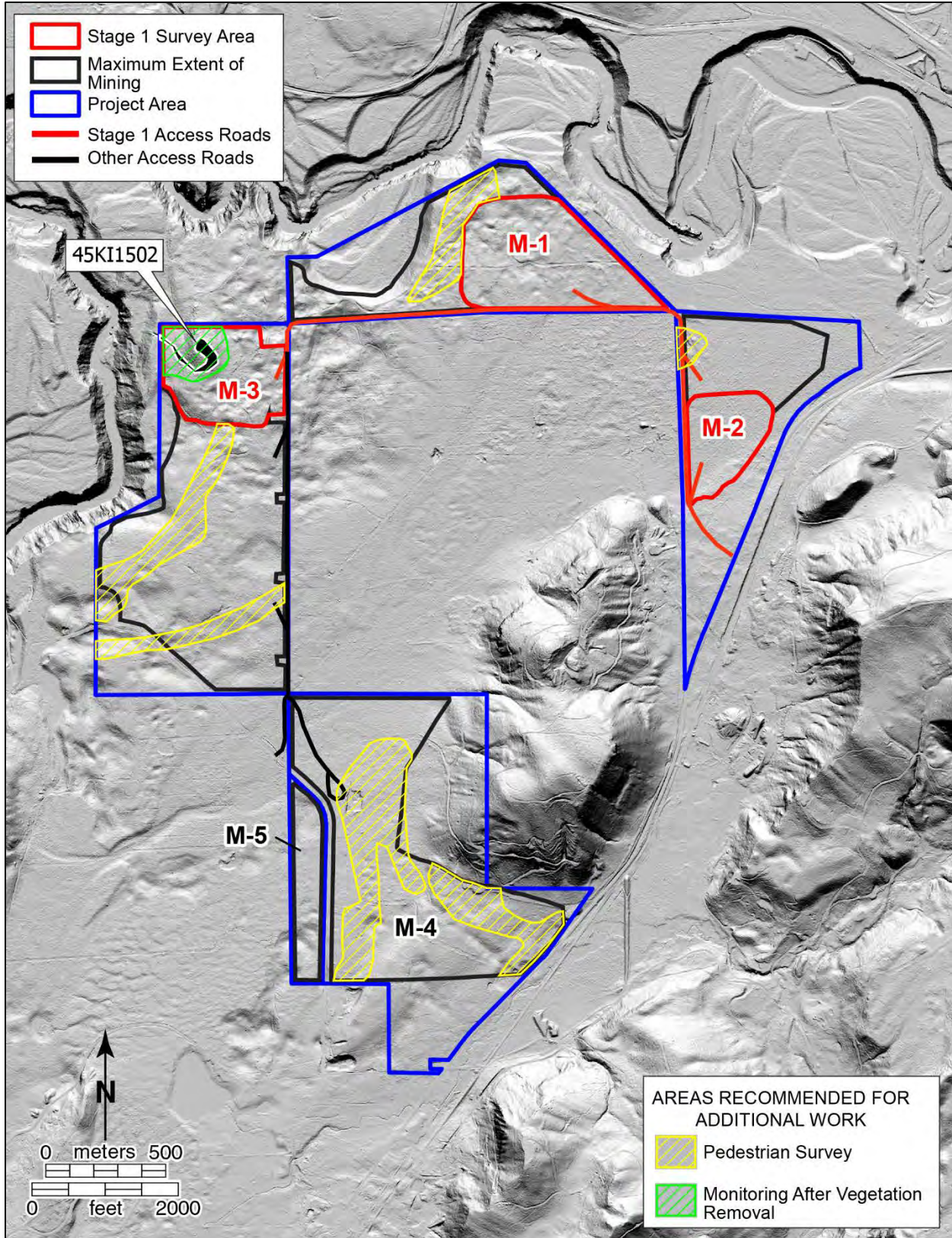


Figure 27. Areas recommended for additional work.

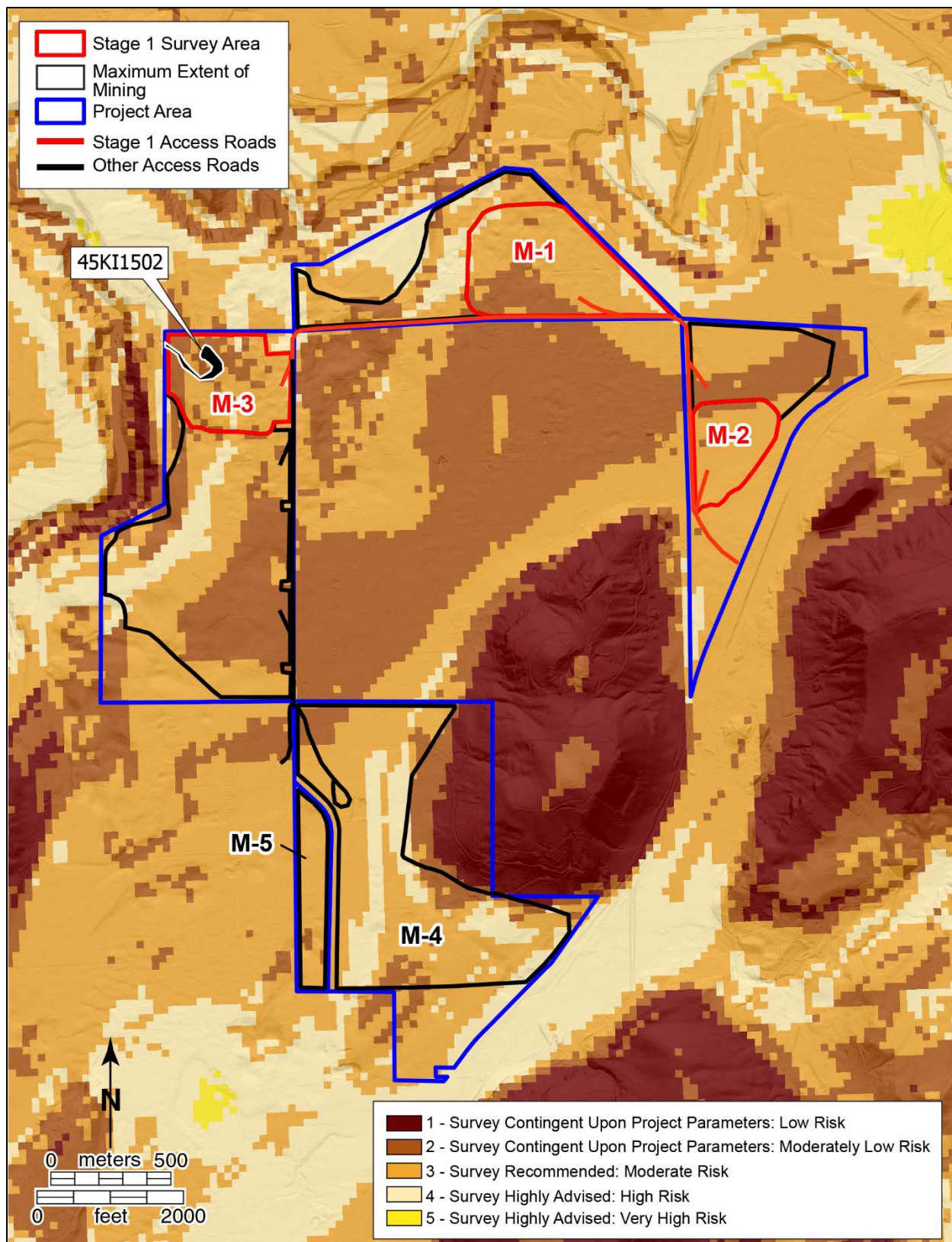


Figure 28. Project area over the State of Washington model for cultural resources sensitivity.

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APPENDIX A
Client Gravel Mining Plans

DEVELOPMENT

NVIS

SEGAL PROPERTIES

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P.O. BOX 89028 • TOWN, MA 01818
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SEPTEMBER 2021

SCALE:3-01

CUMBERLAND GRAVEL OPERATION

KING COUNTY, WA

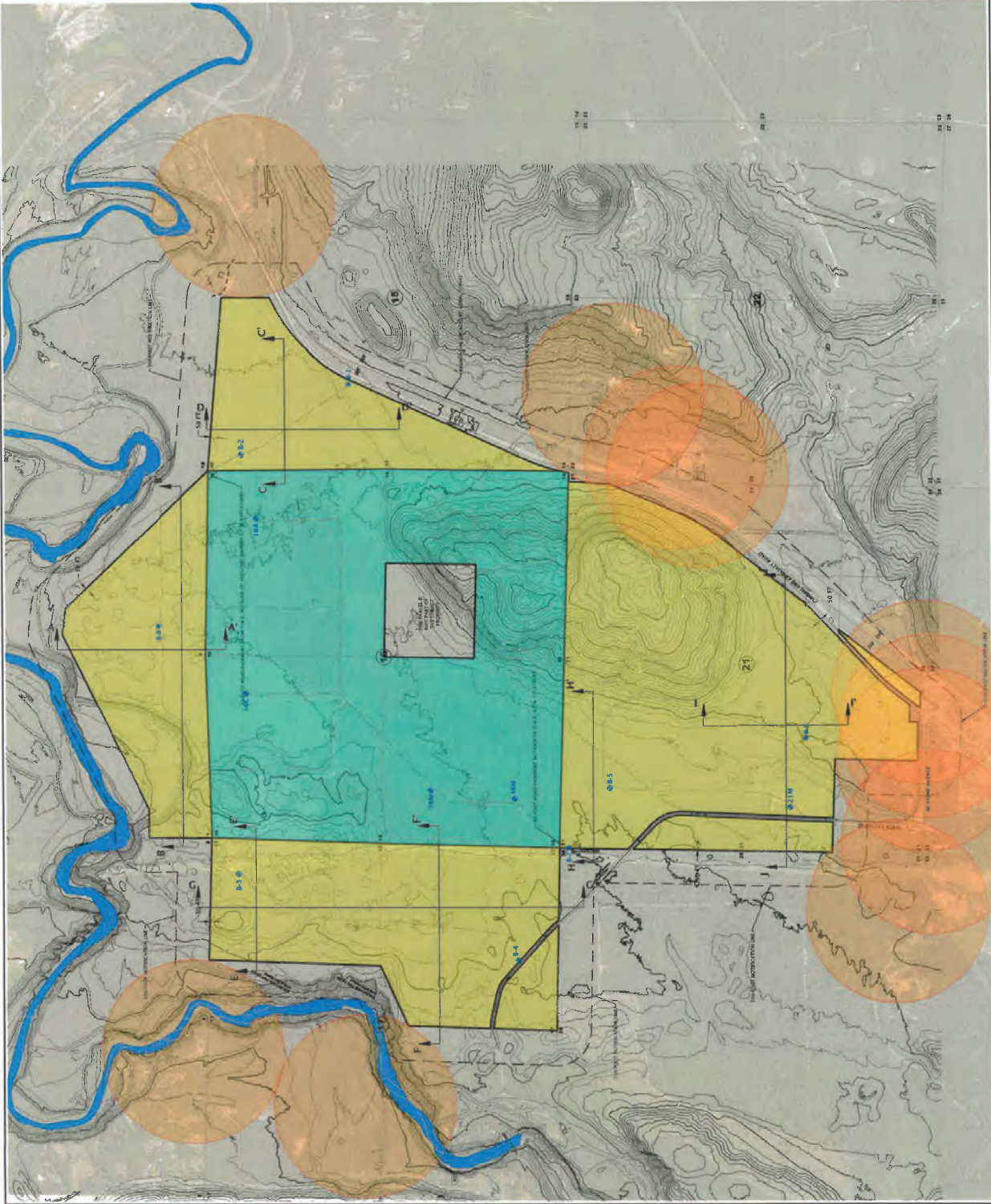
DRAFT 1

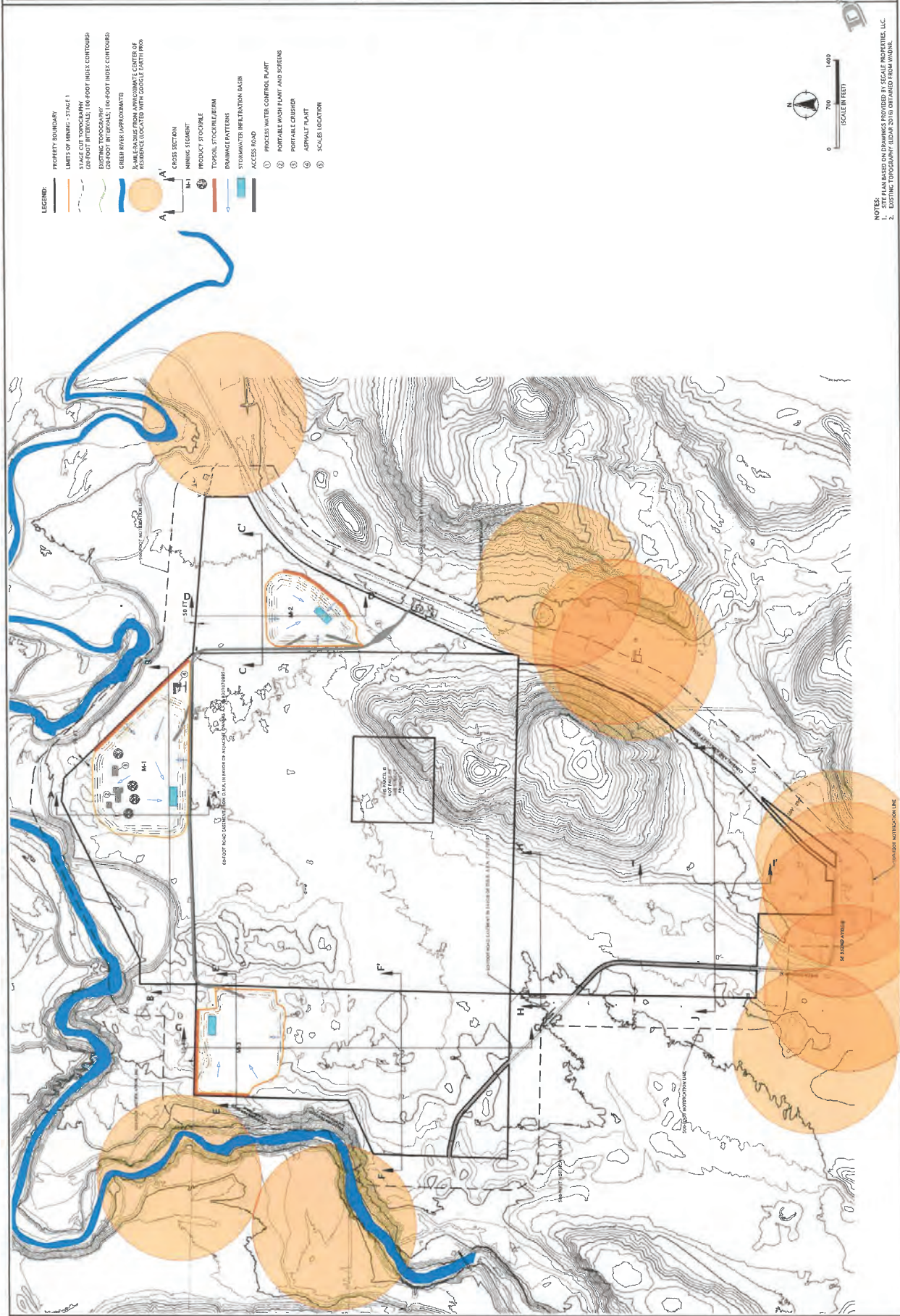
CONCEPTUAL DEVELOPMENT PLAN
EXISTING CONDITIONS MAP

NOTES:
1. SEE PLAN BASED ON DRAWING PROVIDED BY SEGAL PROPERTIES. CONTACT SEGAL PROPERTIES FOR MORE INFORMATION.
2. EXISTING TOPOGRAPHY LOCUS 20 TO OBTAINED FROM WADSWORTH.

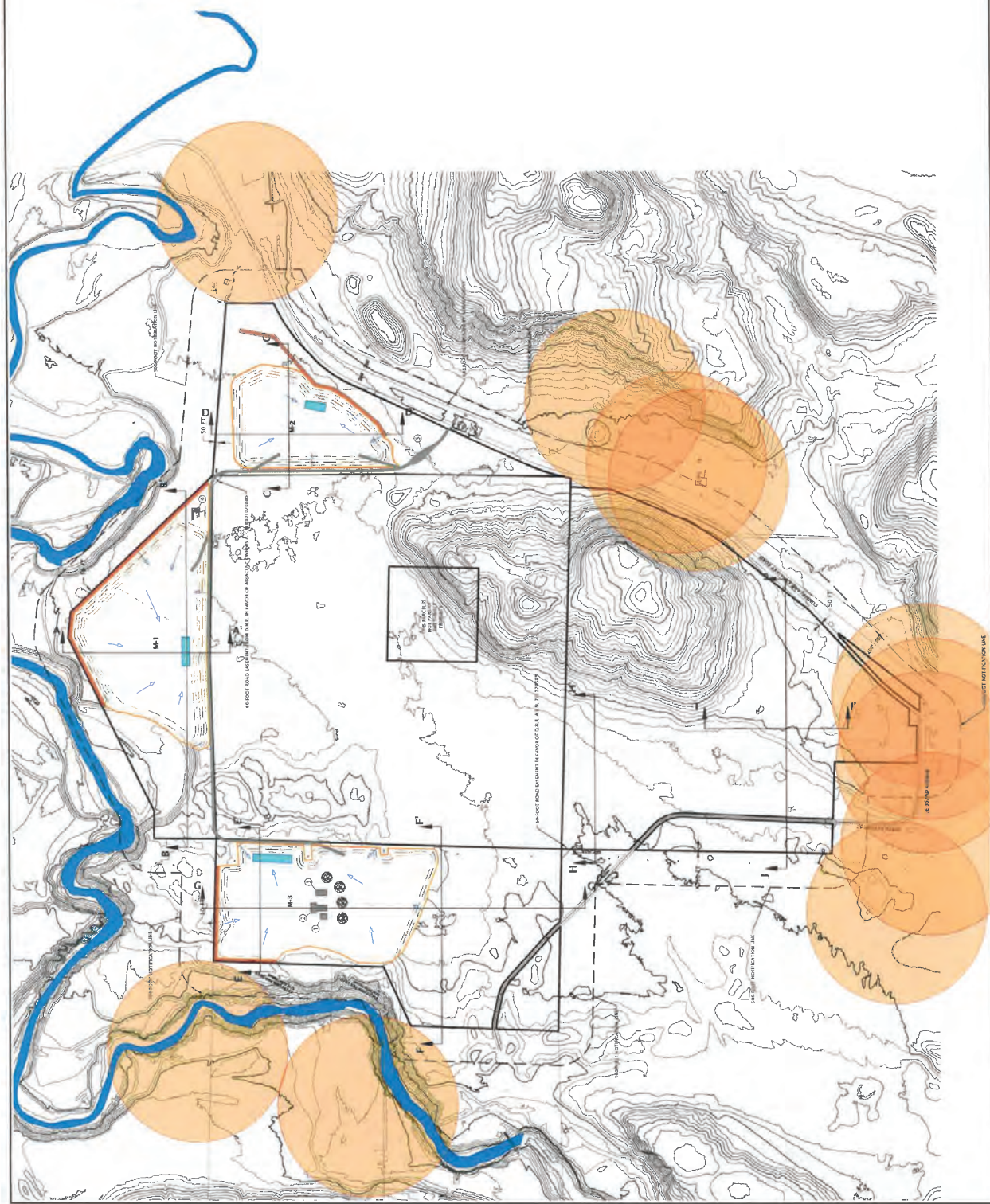



- LEGEND:
- PROPERTY BOUNDARY
 - EXISTING TOPOGRAPHY
 - 10-FOOT INTERVALS 10-FOOT HOLEY CONTOURS
 - BORING
 - WELL
 - SEGAL PROPERTIES LLC OWNERSHIP
 - DUNE OWNERSHIP
 - GREEN WETLAND (APPROXIMATED)
 - 3-MILE RADIUS FROM APPROXIMATE CENTER OF RESOURCE LOCATED WITH GOOGLE EARTH PRO
 - CROSS SECTION

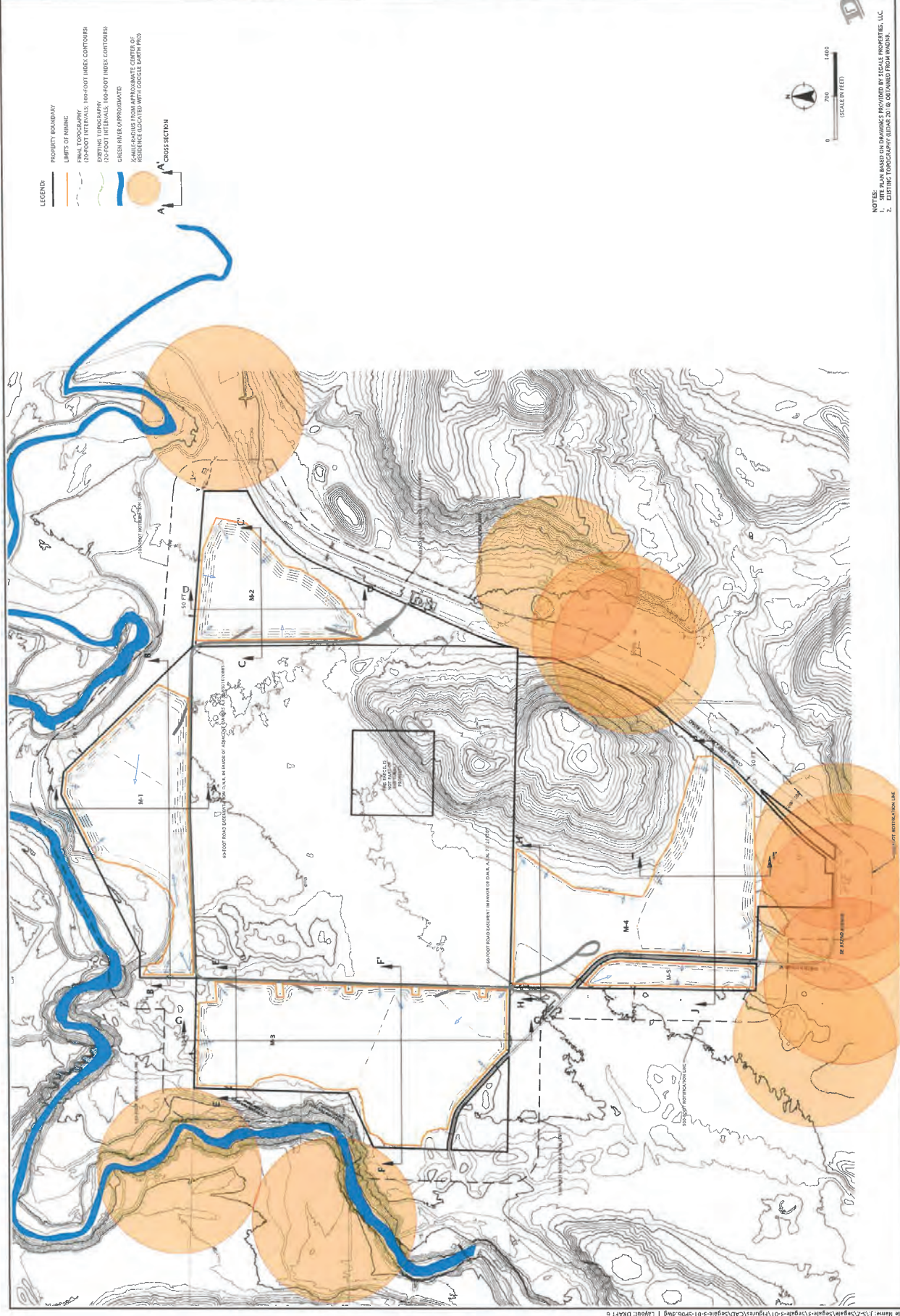




<p>COMMERCIAL • INDUSTRIAL • AGRICULTURAL • NATURAL RESOURCES P.O. BOX 2028, THIRMA, WA, 98138 206-572-5000 www.segaleproperties.com</p>	SEGALE-3-01	CONCEPTUAL DEVELOPMENT PLAN STAGE 2
	SEPTEMBER 2021	CUMBERLAND CAYAL OPERATION KING COUNTY, WA



			
DRAFT 6		SEPTEMBER 2021	
KING COUNTY, WA		CUMBERLAND GRAVEL OPERATION	
CONCEPTUAL DEVELOPMENT PLAN FINAL TOPOGRAPHY MAP		SEGALÉ-3-01	



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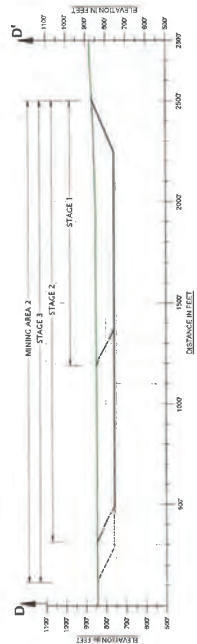
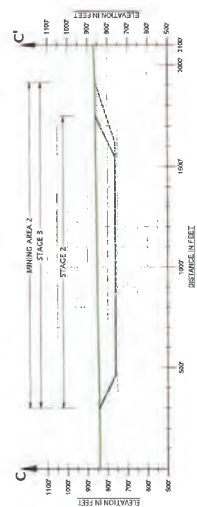
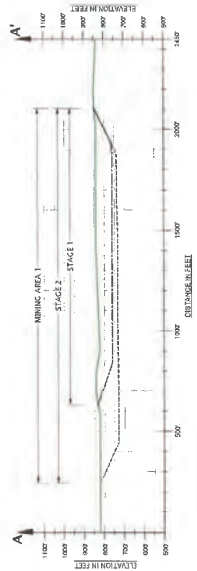
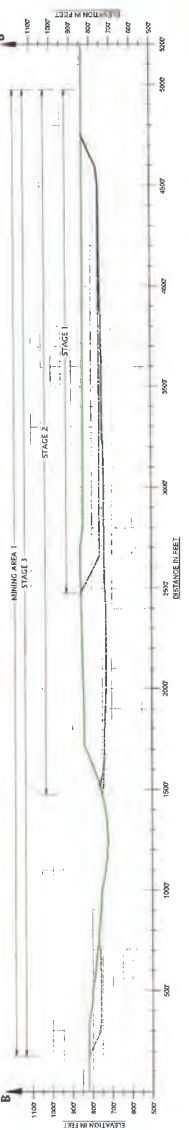
NOTES:
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 2. EXISTING TOPOGRAPHY (ELEV. 20) IS OBTAINED FROM WDCR.

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DRAFT 6



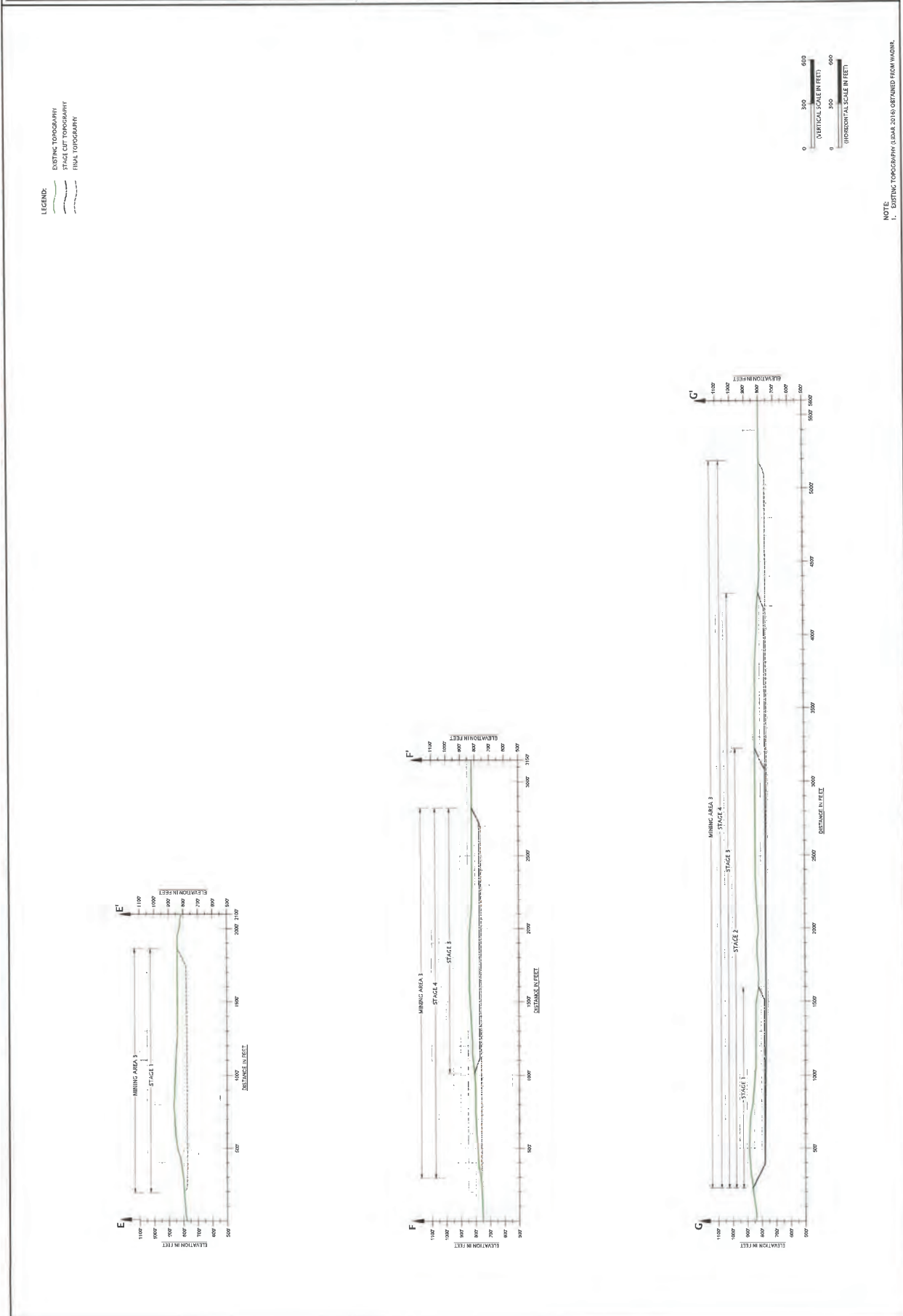
LEGEND:
 DOTTED TOPOGRAPHY
 STAGE CUT TOPOGRAPHY
 FINAL TOPOGRAPHY



NOTE:
 1. DOTTING TOPOGRAPHY LEAD 2016 OBTAINED FROM WIDEOR.

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		COMMERCIAL • INDUSTRIAL • AGRICULTURAL • NATURAL RESOURCES P.O. BOX 49026, TOWSON, MD 21286 5811 SEGALE PARK DRIVE, TOWSON, MD 21286 TEL: 410-576-2000 WWW.NIVISGROUP.COM	
CONCEPTUAL DEVELOPMENT PLAN CROSS SECTIONS MINING SEGMENT 3		SEPTEMBER 2021	KING COUNTY, WA CUMBERLAND GRAVEL OPERATION
DRAFT 8		SEPTEMBER 2021	

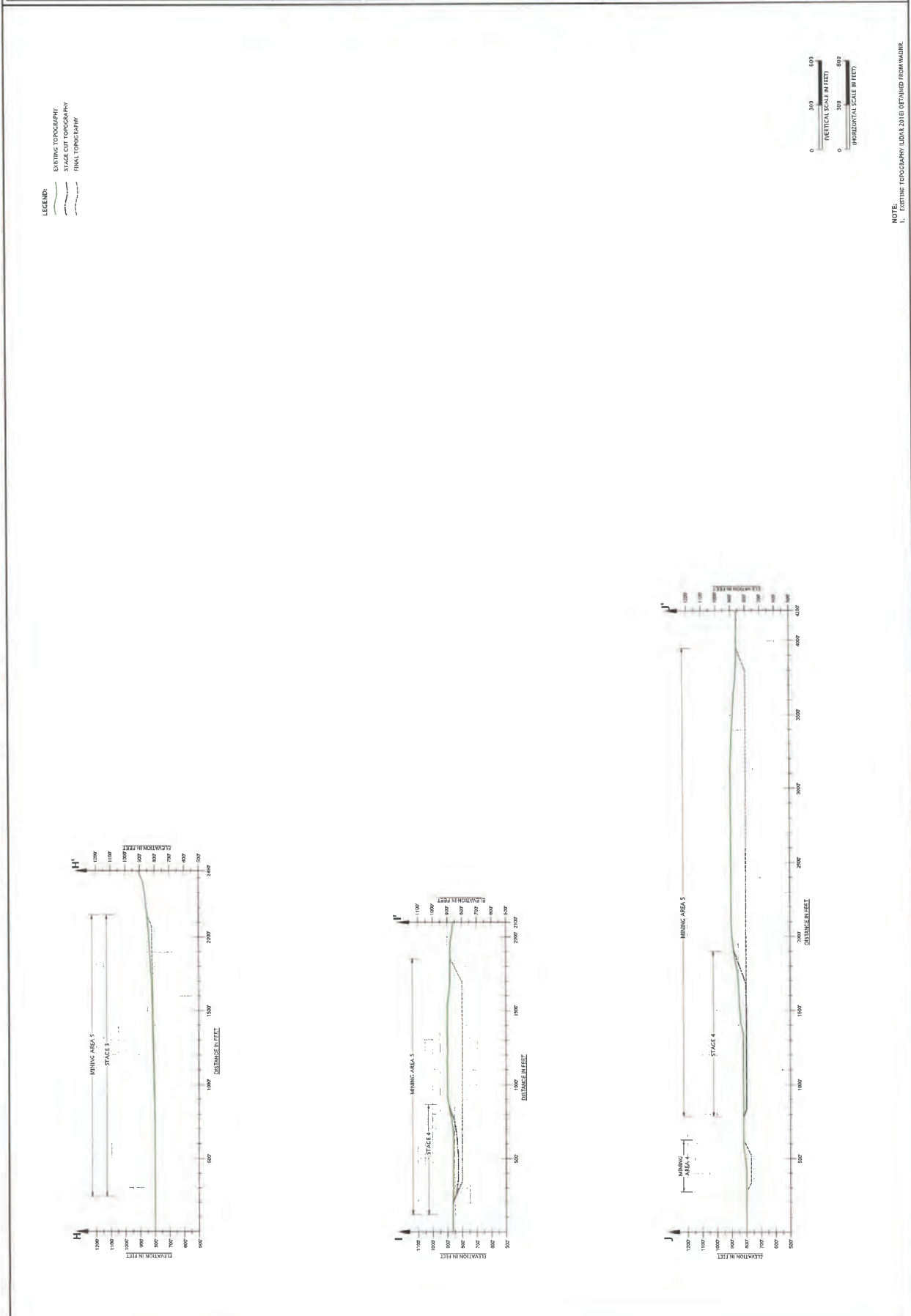


LEGEND:
 ——— EXISTING TOPOGRAPHY
 - - - - - STAGE CUT TOPOGRAPHY
 - - - - - FINAL TOPOGRAPHY



NOTE:
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CONCEPTUAL DEVELOPMENT PLAN CROSS SECTIONS MINING SEGMENTS 4 AND 5	SEGALÉ-3-01	SEPTEMBER 2021
CUMBERLAND GRAYEL OPERATION KING COUNTY, WA		DRAFT 9

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APPENDIX B
Tribal Correspondence

July 18, 2022

Laura Murphy, Archaeologist
Cultural Resources
Muckleshoot Indian Tribe
39015 172nd Avenue SE
Auburn, WA 98092

Re: Cultural Resources Assessment for Cumberland Gravel Mine, Stage 1

Dear Laura,

Segale Properties plans to conduct gravel mining on several parcels totaling roughly 900 acres between Cumberland and the Green River (Figure 1). The first stage (Stage 1) of gravel mining includes three distinct smaller areas encompassing roughly 155 acres total (Figure 1). Planned subsequent stages of work may expand this 155-acre mining area over the next several decades.

Perteet has been retained to perform a cultural resources assessment of the Stage 1 gravel mining areas in compliance with SEPA review. To this end, we plan to conduct archaeological fieldwork on the parcel from Tuesday, July 26th through Friday, July 29th and from Tuesday, August 2nd through Friday, August 5th. We plan to start work on-site at around 7:00 AM and conclude at around roughly 3:30 PM. Fieldwork will include pedestrian survey and excavation of shovel probes. If these details change, I will update you immediately.

The project area has restricted access, so please let me know in advance if you would like to join us in the field so that we can coordinate on logistics. Regardless of whether you will conduct a field visit, I am interested to know if you have any specific concerns for cultural resources in or near the project area. If so, please contact me at your earliest convenience so this information can be taken into account during planning. I will let you know immediately if we identify any cultural resources during our survey.

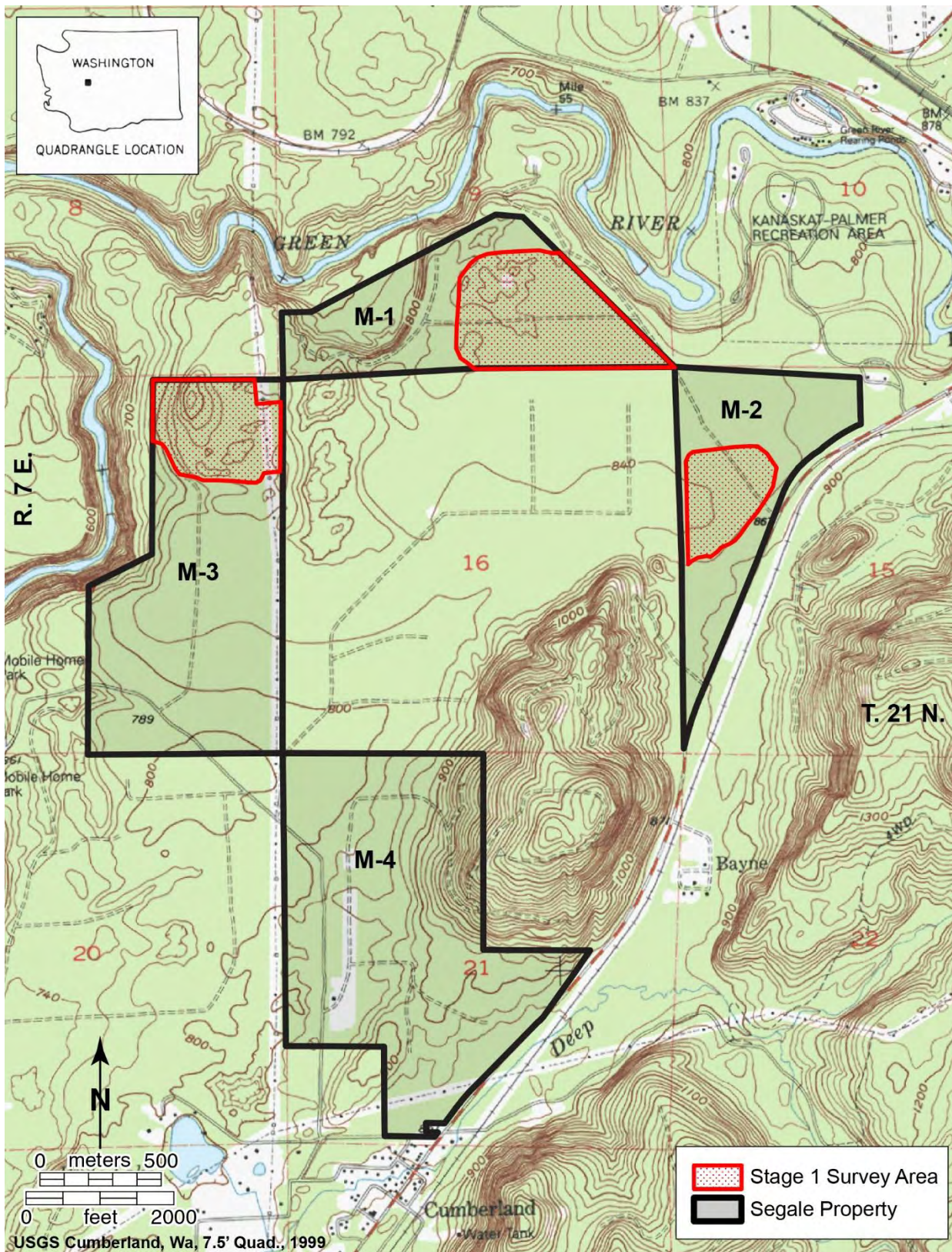
This letter is a technical inquiry and is not intended to replace government-to-government consultation. I look forward to hearing from you regarding this project and respect any concerns you may have about sharing sensitive information with me. I will be happy to work with you regarding these concerns. You can contact me by phone at 206.291.4857 or email at jack.johnson@perteet.com if you have questions or comments.

Sincerely,



Jack Johnson, Ph.D., RPA
Project Archaeologist, Perteet Inc.

Figure 1. Project location.



July 18, 2022

Brandon Reynon
Cultural Resources
Puyallup Tribe of Indians
3009 Portland Avenue
Tacoma, WA 98404

Re: Cultural Resources Assessment for Cumberland Gravel Mine, Stage 1

Dear Brandon,

Segale Properties plans to conduct gravel mining on several parcels totaling roughly 900 acres between Cumberland and the Green River (Figure 1). The first stage (Stage 1) of gravel mining includes three distinct smaller areas encompassing roughly 155 acres total (Figure 1). Planned subsequent stages of work may expand this 155-acre mining area over the next several decades.

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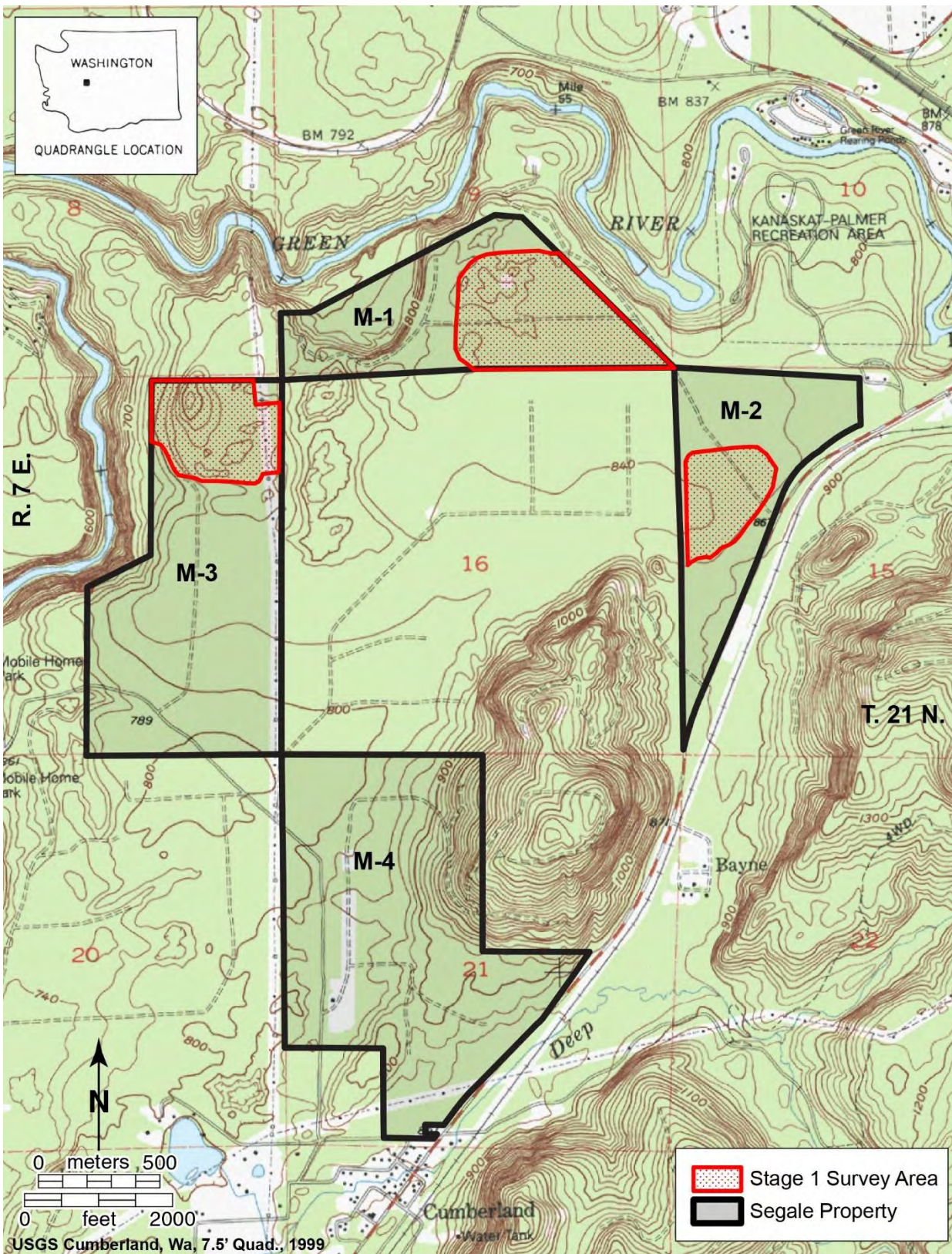
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Sincerely,



Jack Johnson, Ph.D., RPA
Project Archaeologist, Perteet Inc.

Figure 1. Project location.



July 18, 2022

Steven Moses, Director
Archaeology and Historic Preservation
Snoqualmie Indian Tribe
P.O. Box 969
Snoqualmie, WA 98065

Re: Cultural Resources Assessment for Cumberland Gravel Mine, Stage 1

Dear Steven,

Segale Properties plans to conduct gravel mining on several parcels totaling roughly 900 acres between Cumberland and the Green River (Figure 1). The first stage (Stage 1) of gravel mining includes three distinct smaller areas encompassing roughly 155 acres total (Figure 1). Planned subsequent stages of work may expand this 155-acre mining area over the next several decades.

Perteet has been retained to perform a cultural resources assessment of the Stage 1 gravel mining areas in compliance with SEPA review. To this end, we plan to conduct archaeological fieldwork on the parcel from Tuesday, July 26th through Friday, July 29th and from Tuesday, August 2nd through Friday, August 5th. We plan to start work on-site at around 7:00 AM and conclude at around roughly 3:30 PM. Fieldwork will include pedestrian survey and excavation of shovel probes. If these details change, I will update you immediately.

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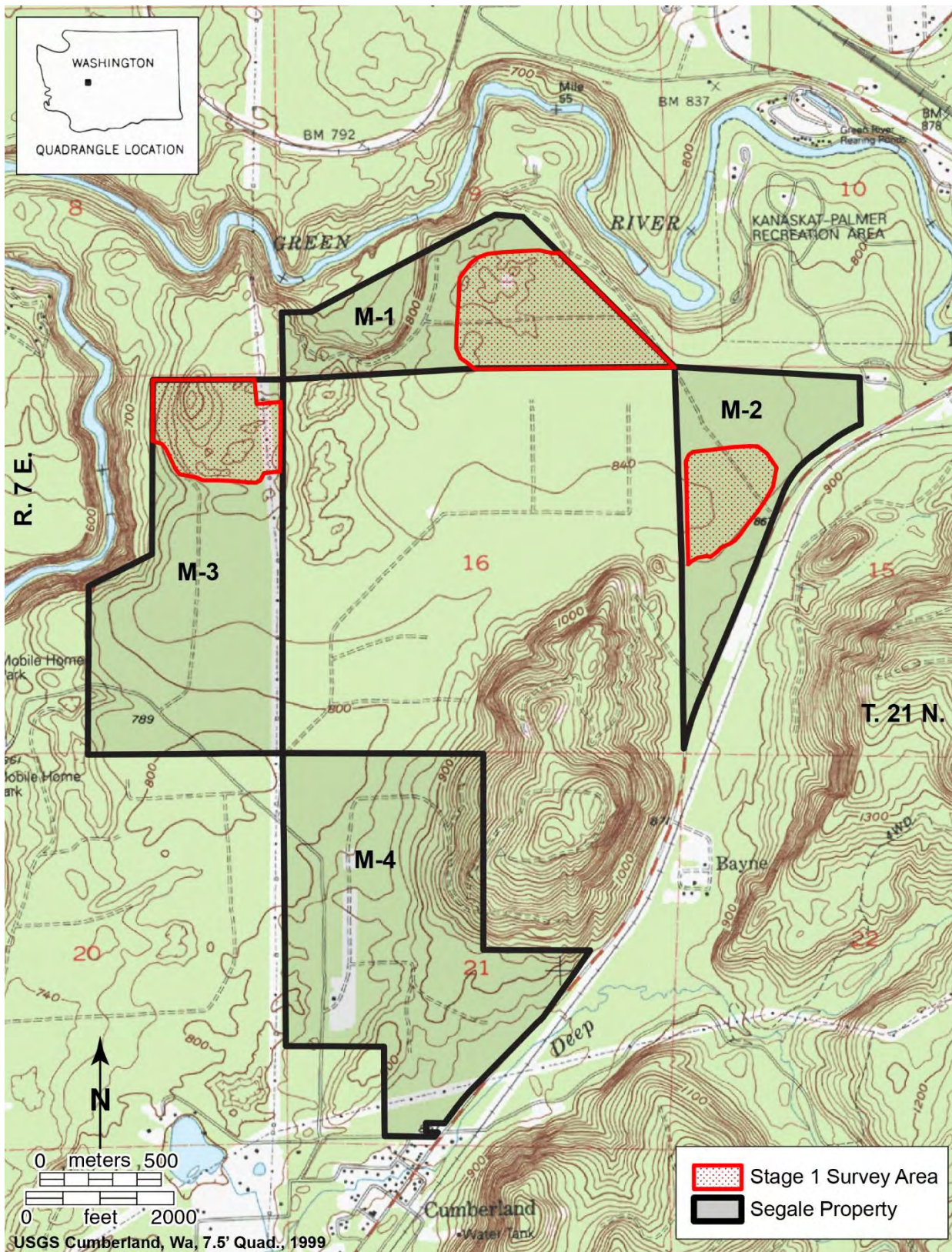
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Sincerely,



Jack Johnson, Ph.D., RPA
Project Archaeologist, Perteet Inc.

Figure 1. Project location.



APPENDIX C
Shovel Probe Data

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240650	582200	M-1	A	1	0-12	Dark brown fine sandy silt. Very few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240650	582200	M-1	A	1	12-44	Reddish to yellowish brown gravelly silty fine to medium sand. Common angular to rounded very small to very large pebbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240650	582200	M-1	A	1	44-61	Yellowish grey gravelly medium to coarse sand. Many angular to rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240650	582150	M-1	B	1	0-5	Dark brown gravelly silty fine sand. Very few rounded very small pebbles. Moss surface; few rootlets to small roots. Weakly developed A horizon, very thin. Gradual, smooth lower boundary. O/A horizon.	N/A
5240650	582150	M-1	B	1	5-80	Yellowish brown gravelly sandy silt. Few rounded very small to medium pebbles. Very few rootlets to small roots; small charcoal pieces. Below 70cmbs, layer of greyish yellow brown silt with no roots. C horizon.	N/A
5240650	582100	M-1	C	1	0-10	Dark brown fine silt. Very few sub-rounded to rounded very small to small pebbles. Roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240650	582100	M-1	C	1	10-40	Brown fine sandy silt. Very few sub-rounded to rounded very small to small pebbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240650	582100	M-1	C	1	40-80	Brown compact silty fine sand. Very few sub-rounded to rounded very small to small pebbles. No organics. C horizon.	N/A
5240750	582100	M-1	C	3	0-18	Dark brown gravelly fine sandy silt. Few angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	582100	M-1	C	3	18-52	Reddish to yellowish brown gravelly fine to medium sand. Common sub-angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon formed in glacial sediments.	N/A
5240750	582100	M-1	C	3	52-76	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon, glacial sediment.	N/A
5240650	582050	M-1	D	1	0-13	Dark brown gravelly fine sandy silt. Few angular to rounded very small to very large pebbles. One 25cm diam. Boulder just under moss cap. Many rootlets to medium roots; moss, ferns. Gradual, smooth lower boundary. O/A horizon.	N/A
5240650	582050	M-1	D	1	13-59	Reddish brown gravelly silty medium sand. Many sub-angular to sub-rounded very small pebbles to large cobbles. Very few small to medium roots. Clear, smooth lower boundary. B horizon.	N/A
5240650	582050	M-1	D	1	59-71	Grey coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240750	582050	M-1	D	3	0-9	Dark brown gravelly fine sandy silt. Common angular to rounded very small pebbles to large cobbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	582050	M-1	D	3	9-57	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240750	582050	M-1	D	3	57-68	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebble to large cobbles. No organics. C horizon.	N/A
5240650	582000	M-1	E	1	0-10	Dark brown fine sandy silt. Very few gravels. Roots; charcoal. Clear, smooth lower boundary. O/A horizon.	N/A
5240650	582000	M-1	E	1	10-30	Reddish brown fine sandy silt. Common gravels. Roots. Clear, smooth lower boundary. B horizon.	N/A
5240650	582000	M-1	E	1	30-50	Yellowish brown fine silty sand. Many gravels. No organics. C horizon.	N/A
5240750	582000	M-1	E	3	0-15	Very dark brown gravelly fine sandy silt. Few rounded small to large pebbles. Rootlets to small roots; moss cap. Abrupt, smooth lower boundary. O/A horizon, weakly developed.	N/A
5240750	582000	M-1	E	3	15-45	Yellowish brown gravelly fine to coarse sandy silt. Many rounded medium pebbles to small cobbles. Few rootlets and one large root. Gradual, smooth lower boundary. B horizon.	N/A
5240750	582000	M-1	E	3	45-60	Yellowish brown gravelly fine sandy silt. Few rounded very small to very large pebbles. No organics. C horizon.	N/A
5240850	582000	M-1	E	5	0-18	Dark brown fine sandy silt. Very few sub-angular to rounded very small to very large pebbles. Many rootlets to small roots; woody debris and burned wood. Root burn. Smooth, gradual lower boundary. O/A horizon.	N/A
5240850	582000	M-1	E	5	18-85	Reddish brown to greyish brown gravelly silty fine to medium sand. Common sub-angular to sub-rounded very small to large pebbles. Very few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5240850	582000	M-1	E	5	85-106	Yellowish grey slightly compact gravelly silty coarse sand. Common angular to sub-rounded very small to medium pebbles. No organics. C horizon.	N/A
5240650	581950	M-1	F	1	0-5	Dark brown to very dark brown fine sandy silt. Very few rounded very small to small pebbles. Few rootlets; moss cap; ashes. Wavy lower boundary. O/A horizon.	N/A
5240650	581950	M-1	F	1	5-35	Brown gravelly fine to medium sandy silt. Few sub-rounded to rounded medium to very large pebbles. Few rootlets to small roots. Clear, smooth to wavy lower boundary. B horizon.	N/A
5240650	581950	M-1	F	1	35-40	Brown coarse sandy silt. Rounded very small to large pebble gravels. Increased coarse sand content compared to previous layer. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240750	581950	M-1	F	3	0-10	Dark brown gravelly fine silt. Common sub-rounded to rounded very small to medium pebbles. Roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581950	M-1	F	3	10-30	Reddish brown gravelly fine sandy silt. Many sub-rounded to rounded very small pebbles to large cobbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240750	581950	M-1	F	3	30-50	Gravelly silty fine sand. Many sub rounded to rounded very small pebbles to large cobbles. C horizon.	N/A
5240850	581950	M-1	F	5	0-10	Greyish brown fine sandy silt. Very few rounded very small to small pebbles. Few rootlets to small roots. Clear, smooth lower boundary. O/A horizon, weak.	N/A
5240850	581950	M-1	F	5	10-50	Brown to reddish brown fine to coarse sandy silt. Very few rounded very small to small pebbles. Few rootlets. Clear, smooth lower boundary. B horizon.	N/A
5240850	581950	M-1	F	5	50-70	Yellowish grey silt. Very few rounded very small to small pebbles. No organics. C horizon.	N/A
5240650	581900	M-1	G	1	0-20	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots; decaying wood in north half of probe. Clear, smooth lower boundary. O/A horizon.	N/A
5240650	581900	M-1	G	1	20-68	Yellowish brown gravelly silty medium to coarse sand. Few sub-angular to rounded very small to very large pebbles. Few rootlets to small roots. C horizon.	N/A
5240650	581900	M-1	G	1	68-94	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240750	581900	M-1	G	3	0-8	Brown gravelly fine sandy silt. Few angular to rounded very small to large pebbles. Many rootlets to medium roots; ferns, forest duff. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581900	M-1	G	3	8-43	Reddish brown silty gravelly medium to coarse sand. Many angular to sub-rounded very small pebbles to boulders. Many rootlets; one large 6cm diam. Root running E/W across middle of probe (top of root at 40cmbs). Gradual, smooth lower boundary. B horizon.	N/A
5240750	581900	M-1	G	3	43-56	Yellowish brown silty gravelly coarse sand. Many angular to sub-rounded very small pebbles to boulders. No organics. C horizon.	N/A
5240850	581900	M-1	G	5	0-10	Very dark brown gravelly fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots; moss cap. Clear, smooth lower boundary. O/A horizon.	N/A
5240850	581900	M-1	G	5	10-40	Brown gravelly fine to coarse sandy silt. Few rounded very small to small pebbles. Roots; few charcoal at 20-25cmbs. Sediments not very dense. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240850	581900	M-1	G	5	40-100	Yellowish grey slightly compact silty sand. Very few rounded very small to small pebbles. No organics. C horizon.	N/A
5240950	581900	M-1	G	7	0-9	Very dark brown fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets, small roots; organic debris. Clear, smooth lower boundary. O/A horizon.	N/A
5240950	581900	M-1	G	7	9-23	Brown compact fine sandy silt. Common sub-rounded to rounded very small to large pebbles. Rootlets and small roots. Abrupt, smooth lower boundary. B horizon.	N/A
5240950	581900	M-1	G	7	23-80	Reddish brown compact fine silty sand. Common angular to rounded very small pebbles to boulders. Roots. C horizon.	N/A
5240650	581850	M-1	H	1	0-8	Dark brown gravelly fine sandy silt. Few Angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240650	581850	M-1	H	1	8-64	Reddish to yellowish brown gravelly silty fine to medium sand. Common angular to rounded very small to very large pebbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240650	581850	M-1	H	1	64-81	Yellowish grey gravelly medium to coarse sand. Many angular to rounded very small pebbles to large cobbles. No organics. Loose sediments. C horizon.	N/A
5240750	581850	M-1	H	3	0-9	Greyish brown fine sandy silt. Very few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	581850	M-1	H	3	9-49	Yellowish brown silty fine to medium sand. Very few sub-angular to rounded very small to medium pebbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240750	581850	M-1	H	3	49-72	Yellowish grey gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240850	581850	M-1	H	5	0-12	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small pebbles to small cobbles. Many rootlets to medium roots; burned wood from root burn. Gradual, wavy lower boundary. O/A horizon.	N/A
5240850	581850	M-1	H	5	12-49	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small pebbles to large cobbles. Many rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240850	581850	M-1	H	5	49-64	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240950	581850	M-1	H	7	0-11	Dark brown gravelly fine sand. Common angular to rounded very small pebbles to small cobbles. Common small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240950	581850	M-1	H	7	11-51	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Few small roots. Terminated due to very large cobble obstruction. B horizon.	N/A
5240650	581800	M-1	I	1	0-9	Dark brown gravelly fine sandy silt. Few angular to rounded very small to very large pebbles and one 30 cm diam boulder just under moss cap. Many rootlets to medium roots; moss. Gradual, wavy lower boundary. O/A horizon.	N/A
5240650	581800	M-1	I	1	9-36	Reddish brown gravelly silty medium to coarse sand. Common sub-angular to sub-rounded very small pebbles to boulders. 25 cm diam boulder in south wall. Many rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240650	581800	M-1	I	1	36-50	Greyish brown gravelly coarse sand. Many angular to sub-rounded very small pebbles to boulders. No organics. C horizon.	N/A
5240750	581800	M-1	I	3	0-10	Dark brown gravelly fine silt. Sub-rounded to rounded very small to medium pebbles. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581800	M-1	I	3	10-30	Light reddish brown gravelly fine sandy silt. Common sub-rounded to rounded very small pebbles to large cobbles. Roots. B horizon.	N/A
5240750	581800	M-1	I	3	30-60	Light yellowish brown gravelly silty fine sand. Many sub-rounded to rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240850	581800	M-1	I	5	0-10	Very dark brown fine sandy silt. Few sub-rounded to rounded very small pebbles to small cobbles. Rootlets to small roots; ash. Abrupt, wavy lower boundary. O/A horizon.	N/A
5240850	581800	M-1	I	5	10-50	Yellowish brown coarse sandy silt. Many sub-angular to rounded large pebbles to large cobbles. Many rootlets. Loose sediments. Clear, smooth lower boundary. B horizon.	N/A
5240850	581800	M-1	I	5	50-60	Light yellowish brown silty gravelly coarse sand. Very small to very large pebbles. No organics. Loose sediments. C horizon.	N/A
5240950	581800	M-1	I	7	0-10	Very dark brown fine sandy silt. Few Sub-rounded to rounded very small to medium pebbles. Rootlets, small to large roots; organic debris. Clear, smooth lower boundary. O/A horizon.	N/A
5240950	581800	M-1	I	7	10-50	Light reddish brown slightly compact fine silty sand. Predominant angular to rounded very small pebbles to large cobbles. Rootlets and small roots. B/C horizon.	N/A
5241050	581800	M-1	I	9	0-16	Dark brown gravelly fine to medium sand. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5241050	581800	M-1	I	9	16-81	Reddish to yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots; common woody debris; trace charcoal. Terminated due to root obstruction. B/C horizon.	N/A
5240650	581750	M-1	J	1	0-10	Dark brown fine sandy silt. Few sub-rounded to rounded small to medium pebbles. Abundant roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240650	581750	M-1	J	1	10-40	Reddish brown fine sandy silt. Common sub-rounded to rounded very small pebbles to small cobbles. Abundant roots. Gradual, smooth lower boundary. B horizon.	N/A
5240650	581750	M-1	J	1	40-60	Yellowish brown fine silty sand. Many sub-rounded to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240750	581750	M-1	J	3	0-11	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles and one 20 cm diam boulder near surface. Many rootlets to medium roots; organic debris; decaying wood. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581750	M-1	J	3	11-39	Reddish brown silty gravelly medium sand. Many angular to sub-rounded very small pebbles to large cobbles. Many rootlets. Clear, smooth lower boundary. B horizon.	N/A
5240750	581750	M-1	J	3	39-61	Greyish brown coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to boulders. No organics. C horizon.	N/A
5240850	581750	M-1	J	5	0-8	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Many rootlets to small roots; charcoal and burned wood in north wall. Clear, irregular lower boundary. O/A horizon.	N/A
5240850	581750	M-1	J	5	8-62	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small pebbles to small cobbles. Many rootlets to small roots; burned wood continues down in north wall, root burn. Clear, irregular lower boundary. B horizon.	N/A
5240850	581750	M-1	J	5	62-78	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics apart from burned root that continues down north wall. C horizon.	N/A
5240950	581750	M-1	J	7	0-10	Dark brown gravelly fine sand. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240950	581750	M-1	J	7	10-46	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Common small roots. Gradual, wavy lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240950	581750	M-1	J	7	46-65	Yellowish brown gravelly medium sand. Many angular to rounded very small pebbles to large cobbles. No organics. Sediments are loose. C horizon.	N/A
5241050	581750	M-1	J	9	0-10	Very dark brown compact fine sandy silt. Common sub-rounded to rounded very small to large pebbles. Rootlets to small roots. Clear lower boundary. O/A horizon.	N/A
5241050	581750	M-1	J	9	10-30	Reddish brown silty fine sand. Few sub-rounded to rounded very small to medium pebbles. Rootlets to roots. Gradual lower boundary. B horizon.	N/A
5241050	581750	M-1	J	9	30-70	Yellowish brown silty fine sand. Many angular to rounded very small to medium pebbles. Large roots. Coarsens with depth. C horizon.	N/A
5240650	581700	M-1	K	1	0-9	Brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Many fine to small roots; 2.5 cm diam root along top of NE probe wall. Gradual, smooth lower boundary. O/A horizon.	N/A
5240650	581700	M-1	K	1	9-39	Reddish brown gravelly silty medium to coarse sand. Many sub-angular to sub-rounded very small pebbles to large cobbles. Many rootlets to small roots. Increasingly cobbly with depth. Clear, smooth lower boundary. B horizon.	N/A
5240650	581700	M-1	K	1	39-61	Yellowish grey silty gravelly coarse sand. Predominant angular to sub-rounded very small pebbles to boulders. One medium root; boulders in bottom of probe and north wall. C horizon.	N/A
5240750	581700	M-1	K	3	0-10	Greyish dark brown gravelly fine sandy silt. Common gravels, large pebbles to small cobbles. Rootlets to small roots. Ash and FMR present. Clear, smooth lower boundary. O/A horizon.	FMR
5240750	581700	M-1	K	3	10-60	Yellowish brown gravelly coarse sandy silt. Many gravels, small pebbles to large cobbles. Rootlets to small roots. Smooth lower boundary. B horizon.	N/A
5240750	581700	M-1	K	3	60-65	Greyish brown gravelly coarse sandy silt. Common gravels, small to very large pebbles. No organics. C horizon.	N/A
5240850	581700	M-1	K	5	0-11	Dark brown gravelly fine sandy silt. Few angular to rounded very small to very large pebbles and one 20cm diam boulder at surface. Many rootlets to medium roots; forest duff; ferns. Clear, smooth lower boundary. O/A horizon.	N/A
5240850	581700	M-1	K	5	11-53	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small pebbles to boulders. Many rootlets to medium roots. Clear, smooth lower boundary. B horizon.	N/A
5240850	581700	M-1	K	5	53-65	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240950	581700	M-1	K	7	0-9	Dark brown gravelly fine to medium sand. Common angular to rounded very small pebbles to small cobbles. Many rootlets to medium roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240950	581700	M-1	K	7	9-56	Reddish to yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles and one boulder in west wall. Few small roots. Terminated due to cobble obstruction. B horizon.	N/A
5241050	581700	M-1	K	9	0-13	Dark brown gravelly fine sand. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots. Clear, wavy lower boundary. O/A horizon.	N/A
5241050	581700	M-1	K	9	13-43	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Gradual, wavy lower boundary. B horizon.	N/A
5241050	581700	M-1	K	9	43-62	Yellowish grey gravelly medium to coarse sand. Many angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon.	N/A
5240650	581650	M-1	L	1	0-7	Dark brown gravelly fine sandy silt. Common angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240650	581650	M-1	L	1	7-39	Reddish to yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240650	581650	M-1	L	1	39-55	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. Loose sediments. C horizon.	N/A
5240750	581650	M-1	L	3	0-6	Brown gravelly fine to medium sand. Few sub-angular to rounded very small to very large pebbles. Few small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	581650	M-1	L	3	6-71	Yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240750	581650	M-1	L	3	71-92	Yellowish grey gravelly fine to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240850	581650	M-1	L	5	0-5	Very dark brown fine sandy silt. Few sub-rounded to rounded very small to very large pebbles. Roots; moss cap. Clear, smooth lower boundary. O/A horizon.	N/A
5240850	581650	M-1	L	5	5-45	Yellowish brown fine to coarse sandy silt. Few sub-rounded to rounded very small to very large pebbles. Roots. Clear, smooth lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240850	581650	M-1	L	5	45-60	Yellowish brown fine to coarse sandy silt. Few sub-rounded to rounded very small to very large pebbles. No organics. C horizon.	N/A
5240950	581650	M-1	L	7	0-10	Dark brown gravelly silty sand. Few sub-rounded to rounded very small to medium pebbles. Roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240950	581650	M-1	L	7	10-30	Reddish brown gravelly sand. Few very small to medium pebbles and boulders. Roots; charcoal. Gradual, smooth lower boundary. B horizon.	N/A
5240950	581650	M-1	L	7	30-60	Reddish brown gravelly sand. Few very small to medium pebbles and boulders. C horizon.	N/A
5241050	581650	M-1	L	9	0-9	Dark brown gravelly fine to medium sand. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5241050	581650	M-1	L	9	9-51	Reddish to yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Few small roots. Terminated due to very large cobble obstruction. B/C horizon.	N/A
5240650	581600	M-1	M	1	N/A	[Terminated after attempts at 3 locations due to root and boulder obstructions.]	
5240750	581600	M-1	M	3	0-12	Dark brown gravelly fine sandy silt. Few angular to rounded very small to large pebbles. Many rootlets to small roots; forest duff; moss. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581600	M-1	M	3	12-66	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small to very large pebbles. Few rootlets to medium roots. Clear, smooth lower boundary. B horizon.	N/A
5240750	581600	M-1	M	3	66-76	Grey compact gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5241050	581600	M-1	M	9	0-9	Very dark brown fine sandy silt. Common sub-rounded to rounded very small to large pebbles. Abundant rootlets to small roots. Clear, smooth lower boundary. Loose texture. O/A horizon.	N/A
5241050	581600	M-1	M	9	9-30	Light brown compact silty fine sand. Common angular to rounded very small pebbles to large cobbles. Many roots. Gradual, smooth lower boundary.	N/A
5241050	581600	M-1	M	9	30-60	Light yellowish brown compact, friable silty fine sand. Many angular pebbles to large cobbles. Few roots. C horizon.	N/A
5240650	581550	M-1	N	1	0-5	Very dark brown fine sandy silt. Very few rounded small to medium pebbles. Rootlets to small roots; few worms. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240650	581550	M-1	N	1	5-35	Brown silty gravelly coarse sand. Few sub-rounded to rounded medium pebbles to small cobbles. Common rootlets to small roots. Wavy lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240650	581550	M-1	N	1	35-50	Yellowish brown gravelly coarse sand. Few sub-angular to rounded very small to large pebbles. No organics. Loose sediments. C horizon.	N/A
5240750	581550	M-1	N	3	0-10	Dark brown silt. Few sub-rounded to rounded small pebbles. Roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240750	581550	M-1	N	3	10-30	Reddish to yellowish brown gravelly silty sand. Many angular to rounded very small pebbles to boulders. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240750	581550	M-1	N	3	30-50	Reddish brown gravelly sand. Many very small pebbles to boulders. No organics. C horizon.	N/A
5240850	581550	M-1	N	5	0-10	Dark brown silt. Few sub-rounded to rounded small to medium pebbles. Roots; charcoal. Clear, smooth lower boundary. O/A horizon.	N/A
5240850	581550	M-1	N	5	10-40	Reddish brown fine sandy silt. Many sub-rounded to rounded very small to large pebbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240850	581550	M-1	N	5	40-60	Reddish brown silty fine sand. Many sub-rounded to rounded very small to large pebbles. C horizon.	N/A
5240950	581550	M-1	N	7	0-5	Dark brown fine sandy silt. Very few rounded small to medium pebbles. Few rootlets to small roots. Smooth lower boundary. O/A horizon.	N/A
5240950	581550	M-1	N	7	5-45	Brown compact coarse sandy silt. Common sub-rounded to rounded very small pebbles to boulders. Very few rootlets. Terminated due to boulder obstruction. B/C horizon.	N/A
5241050	581550	M-1	N	9	0-6	Dark brown silty fine sand. Very few angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5241050	581550	M-1	N	9	6-59	Yellowish brown gravelly fine to medium sand. Few angular to rounded very small to very large pebbles. Few small to medium roots. Gradual, wavy lower boundary. B horizon.	N/A
5241050	581550	M-1	N	9	59-73	Yellowish brown gravelly medium sand. Many angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240650	581500	M-1	O	1	0-7	Greyish brown fine sandy silt. Very few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240650	581500	M-1	O	1	7-65	Yellowish brown gravelly fine to medium sand. Few angular to rounded very small to large pebbles. Few small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240650	581500	M-1	O	1	65-86	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240750	581500	M-1	O	3	0-13	Dark brown gravelly fine sandy silt. Common angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	581500	M-1	O	3	13-42	Yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Common small roots. Clear, wavy lower boundary. B horizon.	N/A
5240750	581500	M-1	O	3	42-67	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. Loose sediments. C horizon.	N/A
5240850	581500	M-1	O	5	0-10	very dark brown fine sandy silt. Very few gravels. Roots; decomposing wood; charcoal and ash. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240850	581500	M-1	O	5	10-40	Brown coarse sandy silt. Many sub-angular to rounded medium pebbles to small cobbles. Common roots. Clear, smooth lower boundary. B horizon.	N/A
5240850	581500	M-1	O	5	40-80	Greyish brown fine sandy silt. Common sub-rounded to rounded very small to large pebbles. No organics. C horizon.	N/A
5240950	581500	M-1	O	7	0-21	Reddish dark brown organic-rich fine sandy silt. Very few angular to rounded very small pebbles to small cobbles. Common small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240950	581500	M-1	O	7	21-62	Yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Common small roots. Terminated due to gravel/cobble obstruction. C horizon.	N/A
5240750	581450	M-1	P	3	0-14	Dark brown fine sandy silt. Very few sub-angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240750	581450	M-1	P	3	14-51	Yellowish brown silty fine to medium sand. Very few sub-angular to rounded very small to large pebbles. Few rootlets to small roots. Clear, wavy lower boundary. B horizon.	N/A
5240750	581450	M-1	P	3	51-72	Yellowish grey gravelly coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240850	581450	M-1	P	5	0-12	Dark brown gravelly fine sandy silt. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240850	581450	M-1	P	5	12-61	Reddish to yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Common small roots. Loose sediment. Clear, wavy lower boundary. B horizon.	N/A
5240850	581450	M-1	P	5	61-75	Grey gravelly coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediment. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240950	581450	M-1	P	7	0-14	Dark brown organic-rich fine sandy silt. Very few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240950	581450	M-1	P	7	14-54	Reddish brown gravelly fine to medium sand. Common angular to rounded very small to medium pebbles and a few large angular cobbles. Common small roots. Terminated due to large cobble obstruction. B horizon.	N/A
5240050	582350	M-2	A	5	0-10	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240050	582350	M-2	A	5	10-42	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to large cobbles and one 20cm diam boulder. Few rootlets to fine roots; difficult to dig through due to cobbles. Clear, smooth lower boundary. B horizon.	N/A
5240050	582350	M-2	A	5	42-53	Yellowish grey compact gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles and one boulder in bottom of probe. No organics. C horizon.	N/A
5240100	582350	M-2	A	6	0-14	Dark brown fine sandy gravelly silt. Very few sub-rounded to rounded small to medium pebbles. Common rootlets to small roots. Clear, wavy lower boundary. O/A horizon.	N/A
5240100	582350	M-2	A	6	14-71	Light reddish brown silty gravelly fine sand. Very few sub-angular to rounded very small to medium pebbles. Few small roots and woody debris. Clear, wavy lower boundary. B horizon.	N/A
5240100	582350	M-2	A	6	71-97	Yellowish brown gravelly silty fine to medium sand. Common sub-angular to rounded very small to very large pebbles. Few small roots. Coarsens with depth. C horizon.	N/A
5240150	582350	M-2	A	7	0-9	Brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots. Gradual, smooth lower boundary. O/A horizon (weak).	N/A
5240150	582350	M-2	A	7	9-61	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small to very large pebbles. Few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5240150	582350	M-2	A	7	61-82	Yellow medium to coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. One medium 2cm diameter root. C horizon.	N/A
5240200	582350	M-2	A	8	0-11	Dark brown fine sandy silt. Very few sub-rounded to rounded small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240200	582350	M-2	A	8	11-71	Reddish to yellowish brown silty fine sand. Very few sub-angular to rounded very small to medium pebbles. Few small roots; woody debris. Clear, wavy lower boundary. Disturbed B horizon.	N/A
5240200	582350	M-2	A	8	71-101	Light yellowish brown gravelly silty fine to medium sand. Few sub-angular to rounded very small to large pebbles. Becomes increasingly gravelly with depth. No organics. C horizon.	N/A
5239850	582400	M-2	B	1	0-10	Dark brown. Very few rounded small pebbles. Roots; charcoal. Clear, smooth lower boundary. O/A horizon.	N/A
5239850	582400	M-2	B	1	10-30	Light brown. Many sub-angular to rounded very small pebbles to small cobbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5239850	582400	M-2	B	1	30-60	Yellowish brown. Many sub-angular to rounded very small to large pebbles. No organics. C horizon.	N/A
5239900	582400	M-2	B	2	0-10	Dark brown fine sandy silt. Very few very small to small pebbles. Abrupt, smooth lower boundary. O/A horizon.	N/A
5239900	582400	M-2	B	2	10-60	Reddish brown fine sandy silt. Very few very small to small pebbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5239900	582400	M-2	B	2	60-85	Reddish brown fine sand. Very few very small to small pebbles. No organics. C horizon.	N/A
5239950	582400	M-2	B	3	0-20	Brown fine sandy silt. Very few very small to small pebbles. Few roots. O/A horizon.	N/A
5239950	582400	M-2	B	3	20-80	Reddish brown fine sandy silt. Few sub-rounded to rounded very small pebbles to small cobbles. Roots. B/C horizon.	N/A
5240000	582400	M-2	B	4	0-3	Dark brown fine sandy silt. Very few rounded small to medium pebbles. Many rootlets; forest duff. Clear, wavy lower boundary. O horizon.	N/A
5240000	582400	M-2	B	4	3-35	Brown fine sandy silt. Many sub-rounded to rounded medium pebbles to large cobbles. Rootlets to small roots; few charcoal fragments. Clear, wavy lower boundary. Turbated A/B horizon.	N/A
5240000	582400	M-2	B	4	35-55	Brown coarse sandy silt. Common sub-rounded to rounded small pebbles to small cobbles. Very few rootlets. C horizon.	N/A
5240050	582400	M-2	B	5	0-3	Greyish brown coarse sandy silt. Few sub-rounded to rounded small to large pebbles. Rootlets to small roots; moss cap. Clear, smooth lower boundary. O horizon.	N/A
5240050	582400	M-2	B	5	3-40	Brown to reddish brown coarse sandy silt. Common sub-angular to rounded very small pebbles to small cobbles. Rootlets. Smooth lower boundary. B horizon.	N/A
5240050	582400	M-2	B	5	40-50	Greyish yellow sand. Common sub-rounded to rounded very small to large pebbles. No organics. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240100	582400	M-2	B	6	0-11	Dark brown organic-rich gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240100	582400	M-2	B	6	11-62	Reddish to yellowish brown gravelly silty fine to medium sand. Many sub-angular to rounded very small pebbles to large cobbles. Few rootlets to small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240100	582400	M-2	B	6	62-81	Yellowish grey gravelly medium to coarse sand. Many sub-angular to sub rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240150	582400	M-2	B	7	0-11	Brown gravelly fine sandy silt. Common sub-angular to rounded very small to large pebbles. Many rootlets to medium roots; moss. Gradual, smooth lower boundary. O/A horizon.	N/A
5240150	582400	M-2	B	7	11-51	Yellowish brown gravelly silty medium sand. Many sub-angular to sub-rounded very small to very large pebbles. Few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5240150	582400	M-2	B	7	51-60	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240200	582400	M-2	B	8	0-13	Dark brown gravelly fine sandy silt. Common angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	582400	M-2	B	8	13-43	Reddish brown slightly compact gravelly silty fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240200	582400	M-2	B	8	43-74	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon.	N/A
5240250	582400	M-2	B	9	0-10	Brown organic-rich gravelly fine to medium sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots. Gradual, smooth lower boundary. O/weak A horizon.	N/A
5240250	582400	M-2	B	9	10-62	Reddish brown slightly compact gravelly medium sandy silt. Common sub-angular to sub-rounded very small pebbles to small cobbles. Very few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240250	582400	M-2	B	9	62-74	Yellowish grey compact gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. Difficult to dig through cobbles. C horizon.	N/A
5239850	582450	M-2	C	1	0-10	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots; moss cap. Gradual, smooth lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5239850	582450	M-2	C	1	10-61	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to small cobbles. Very few small roots. Clear, smooth lower boundary. B horizon.	N/A
5239850	582450	M-2	C	1	61-80	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5239900	582450	M-2	C	2	0-14	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5239900	582450	M-2	C	2	14-52	Yellowish brown gravelly silty fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5239900	582450	M-2	C	2	52-72	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. Loose sediments. C horizon.	N/A
5239950	582450	M-2	C	3	0-24	Dark brown gravelly fine to medium sandy silt. Common sub-angular to rounded very small to very large pebbles. Common rootlets to small roots. Clear, wavy lower boundary. O/A horizon.	N/A
5239950	582450	M-2	C	3	24-55	Yellowish brown compact gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Becomes less compact with depth. Clear, wavy lower boundary. B horizon.	N/A
5239950	582450	M-2	C	3	55-78	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon.	N/A
5240000	582450	M-2	C	4	0-33	Dark brown fine sandy silt. Very few sub-angular to rounded very small to large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon, disturbed.	N/A
5240000	582450	M-2	C	4	33-68	Yellowish brown compact gravelly silty fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. Few small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240000	582450	M-2	C	4	68-84	Light yellowish brown gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. Few small roots. Loose sediment. C horizon.	N/A
5240050	582450	M-2	C	5	0-5	Dark brown fine sandy silt. Few rounded very small to medium pebbles. Rootlets to small roots; moss; forest duff; worms. Clear, smooth lower boundary. O horizon.	N/A
5240050	582450	M-2	C	5	5-35	Dark greyish brown fine to coarse sandy silt. Sub-rounded to rounded very small to large pebbles. Few rootlets. Clear, wavy lower boundary. B horizon.	N/A
5240050	582450	M-2	C	5	35-45	Light yellowish brown compact coarse sandy silt. Few rounded very small to large pebbles. No organics. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240100	582450	M-2	C	6	0-15	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Common rootlets to small roots; woody debris; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240100	582450	M-2	C	6	15-71	Reddish to yellowish brown gravelly fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240100	582450	M-2	C	6	71-90	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240150	582450	M-2	C	7	0-3	Dark brown fine to coarse sandy silt. Very few rounded small to medium pebbles. Rootlets; moss cap. Clear, smooth lower boundary. O horizon.	N/A
5240150	582450	M-2	C	7	3-40	Yellowish brown to reddish brown silty coarse sand. Common sub-rounded to rounded very small to large pebbles. Few rootlets. Clear, wavy lower boundary. Turbated A/B horizon.	N/A
5240150	582450	M-2	C	7	40-50	Light yellowish brown silty coarse sand. Common sub-rounded to rounded very small to medium pebbles. Very few rootlets near top of layer. C horizon.	N/A
5240200	582450	M-2	C	8	0-10	Very dark brown fine sandy silt. Common sub-rounded to rounded small to very large pebbles. Gradual, undulating lower boundary. O/A horizon.	FMR
5240200	582450	M-2	C	8	10-80	Yellowish brown gravelly silty sand. Common sub-angular to rounded very small pebbles to large cobbles. Roots. B/C horizon.	N/A
5240250	582450	M-2	C	9	0-13	Brown gravelly fine to medium sandy silt. Few sub-rounded to rounded very small to very large pebbles. Many rootlets to small roots; few medium roots. Gradual, wavy lower boundary. O/A horizon.	N/A
5240250	582450	M-2	C	9	13-77	Reddish brown gravelly medium sandy silt. Common sub-angular to sub-rounded very small pebbles to small cobbles. Few small to medium roots. Clear, smooth lower boundary. B horizon.	N/A
5240250	582450	M-2	C	9	77-87	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5239900	582500	M-2	D	2	0-15	Dark brown fine sandy silt. Very few rounded very small pebbles. Moss cap; forest duff; few worms. Abrupt, smooth lower boundary. O/A horizon.	N/A
5239900	582500	M-2	D	2	15-40	Yellowish brown fine to medium sand. Few rounded very small to medium pebbles. Rootlets to small roots; charcoal fragments. Wavy lower boundary. B horizon.	N/A
5239900	582500	M-2	D	2	40-65	Yellowish brown sand. Few sub-rounded to rounded very small to very large pebbles. Very few roots. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5239950	582500	M-2	D	3	0-10	Very dark brown fine sandy silt. Very few rounded very small to medium pebbles. Rootlets to small roots. Abrupt, smooth lower boundary. O/A horizon.	N/A
5239950	582500	M-2	D	3	10-60	Brown coarse sandy silt. Very few rounded very small to medium pebbles. Very few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5239950	582500	M-2	D	3	60-80	Greyish brown coarse sandy silt. Few sub-rounded to rounded very small to large pebbles. No organics. C horizon.	N/A
5240000	582500	M-2	D	4	0-10	Greyish yellow fine sandy silt. Few sub-rounded to rounded small to medium pebbles. Abundant rootlets to small roots. Loose sediments. Clear, smooth lower boundary. O/A horizon	N/A
5240000	582500	M-2	D	4	10-40	Brown fine sandy silt. Few sub-rounded to rounded medium to very large pebbles with few boulders. Few rootlets. Loose sediments, easy to dig. Gradual, wavy lower boundary. B horizon.	N/A
5240000	582500	M-2	D	4	40-65	Greyish to yellowish brown gravelly fine sandy silt. Common rounded very small to medium pebbles. Very few rootlets. Loose sediments. C horizon.	N/A
5240050	582500	M-2	D	5	0-20	Dark brown fine sandy silt. Few rounded small to medium pebbles. Roots; charcoal; woody debris. O/A horizon.	N/A
5240050	582500	M-2	D	5	20-75	Reddish brown fine sandy silt. Many sub-rounded to rounded small pebbles to large cobbles. Roots. Terminated due to cobble obstruction. B horizon.	N/A
5240100	582500	M-2	D	6	0-14	Dark brown gravelly fine sandy silt. Common angular to rounded very small to very large pebbles. Many small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240100	582500	M-2	D	6	14-51	Yellowish brown gravelly fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. Common small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240100	582500	M-2	D	6	51-66	Yellowish grey gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. Few small roots. Loose sediment. C horizon.	N/A
5240150	582500	M-2	D	7	0-19	Brown gravelly fine to medium sandy organic-rich silt. Few sub-angular to rounded very small to very large pebbles. Many rootlets to small roots; moss cap; forest duff. Gradual, smooth lower boundary. O/weak A horizon.	N/A
5240150	582500	M-2	D	7	19-55	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to large cobbles. Few small roots. Increasingly compact and cobbly with depth. Clear, smooth lower boundary. B horizon.	N/A
5240150	582500	M-2	D	7	55-76	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. Very few small roots. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240200	582500	M-2	D	8	0-12	Dark brown gravelly fine sandy silt. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	582500	M-2	D	8	12-52	Reddish to yellowish brown slightly compact gravelly silty fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240200	582500	M-2	D	8	52-78	Yellowish grey gravelly medium to coarse sand. Many angular to rounded very small pebbles to small cobbles. No organics. Loose sediments. C horizon.	N/A
5240250	582500	M-2	D	9	0-5	Dark brown fine sandy silt. Few rounded small to medium pebbles. Many rootlets; moss cap; forest duff. Clear, smooth lower boundary. O/A horizon.	N/A
5240250	582500	M-2	D	9	5-30	Yellow to light yellow clayey fine to coarse sandy silt. Many sub-rounded to rounded large pebbles to large cobbles. Few rootlets to small roots. Gradual, wavy lower boundary. B horizon.	N/A
5240250	582500	M-2	D	9	30-50	Greyish yellow fine to coarse sandy silt. Many rounded very small to very large pebbles. No organics. C horizon.	N/A
5239950	582550	M-2	E	3	0-9	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Many rootlets to medium roots; moss. Gradual, smooth lower boundary. O/A horizon.	N/A
5239950	582550	M-2	E	3	9-50	Reddish brown gravelly silty medium sand. Many sub-angular to sub-rounded very small pebbles to large cobbles. Very few rootlets to small roots. Gradual, wavy lower boundary. B horizon.	N/A
5239950	582550	M-2	E	3	50-56	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles and one large 30cm diam boulder in bottom of probe. No organics. Terminated due to cobble obstruction. C horizon.	N/A
5240050	582550	M-2	E	5	0-19	Dark brown gravelly fine sandy silt. Few angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240050	582550	M-2	E	5	19-65	Reddish to yellowish brown gravelly silty fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240050	582550	M-2	E	5	65-81	Yellowish grey gravelly medium to coarse sand. Many sub-angular to sub-rounded very small pebbles to small cobbles. No organics. Loose sediment. C horizon, glacial sediment.	N/A
5240100	582550	M-2	E	6	0-20	Brown silty fine sand. Sub-rounded to rounded very small to medium pebbles. Roots; charcoal. Clear, smooth lower boundary. O/A horizon.	N/A
5240100	582550	M-2	E	6	20-80	Reddish brown fine sandy silt. Many sub-rounded to rounded very small pebbles to large cobbles. Roots. Terminated due to gravels. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240150	582550	M-2	E	7	0-5	Dark greyish brown fine sandy silt. Few rounded small to medium pebbles. Roots; moss. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240150	582550	M-2	E	7	5-35	Brownish yellow silty sand. Many sub-rounded to rounded small pebbles to large cobbles. Few rootlets. Dry sediments. Clear, smooth lower boundary. B horizon.	N/A
5240150	582550	M-2	E	7	35-50	Greyish to brownish yellow compact coarse sandy and sandy silt. Many small pebbles to large cobbles. Very few rootlets. C horizon.	N/A
5240250	582550	M-2	E	9	0-8	Dark brown gravelly fine sandy silt. Common angular to rounded very small pebbles to small cobbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240250	582550	M-2	E	9	8-37	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few rootlets to small roots. Clear, wavy lower boundary. B horizon.	N/A
5240250	582550	M-2	E	9	37-63	Greyish brown gravelly medium to coarse sand. Many angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240050	582600	M-2	F	5	0-14	Dark brown fine sandy silt. Very few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240050	582600	M-2	F	5	14-60	Yellowish brown silty fine to medium sand. Very few sub-rounded to rounded very small to large pebbles. Few small roots. Clear, smooth lower boundary. B horizon.	N/A
5240050	582600	M-2	F	5	60-74	Grey very compact gravelly fine to medium sand. Few sub-angular to rounded very small to large pebbles. No organics. C horizon.	N/A
5240100	582600	M-2	F	6	0-20	Dark brown fine sandy silt. Very few sub-rounded to rounded medium pebbles. Roots; charcoal. Clear, smooth lower boundary. O/A horizon.	Pot sherds, non-diagnostic.
5240100	582600	M-2	F	6	20-70	Reddish brown fine sandy silt. Many sub-rounded to rounded small pebbles to large cobbles. Roots. Terminated due to gravels. B/C horizon.	N/A
5240150	582600	M-2	F	7	0-20	Brown fine sandy silt. Few sub-rounded to rounded small to large pebbles. Dark brown lens. Clear lower boundary. O/A horizon.	Clay pigeon fragment
5240150	582600	M-2	F	7	20-100	Yellowish brown gravelly silty sand. Common sub-angular large pebbles to small cobbles. Coarsens with depth. C horizon.	N/A
5240200	582600	M-2	F	8	0-15	Brown fine sandy silt. Common sub-rounded to rounded small to large pebbles. Clear, smooth lower boundary. O/A horizon.	N/A
5240200	582600	M-2	F	8	15-100	Light brown gravelly fine sandy silt. Many sub-angular to rounded small pebbles to boulders. Roots. B/C horizon.	N/A
5240250	582600	M-2	F	9	0-16	Dark brown gravelly fine sandy silt. Common angular to rounded very small to very large pebbles. Common small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240250	582600	M-2	F	9	16-48	Reddish brown gravelly silty fine sand. Many angular to rounded very small pebbles to small cobbles. Few rootlets to small roots. Loose sediment. Clear, wavy lower boundary. B horizon.	N/A
5240250	582600	M-2	F	9	48-65	Yellowish brown gravelly medium sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediment. C horizon.	N/A
5240100	582650	M-2	G	6	0-19	Dark brown gravelly fine to medium sandy silt. Few sub-angular to sub-rounded very small to large pebbles. Common rootlets to small roots. Gradual, smooth lower boundary. O/A horizon.	N/A
5240100	582650	M-2	G	6	19-75	Reddish brown slightly compact gravelly medium sandy silt with pocket of grey clay in west wall at 35-40cmbs. Few sub-angular to sub-rounded very small to very large pebbles and one 25cm diam boulder. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240100	582650	M-2	G	6	75-96	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240150	582650	M-2	G	7	0-20	Brown. Common sub-rounded to rounded small pebbles to small cobbles. Gradual lower boundary. O/A horizon.	N/A
5240150	582650	M-2	G	7	20-60	Light brown. Many small pebbles to small cobbles. No organics. Terminated due to gravels. B horizon.	N/A
5240200	582650	M-2	G	8	0-10	Dark brown gravelly fine to medium sandy silt. Few sub-angular to sub-rounded very small to large pebbles. Common rootlets to small roots; moss and ferns. Clear, smooth lower boundary. O/A horizon.	N/A
5240200	582650	M-2	G	8	10-80	Reddish brown gravelly medium sandy silt. Common sub-angular to sub-rounded very small pebbles to large cobbles. Very few small roots. Increasingly compact with depth. Clear, smooth lower boundary. B horizon.	N/A
5240200	582650	M-2	G	8	80-100	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240250	582650	M-2	G	9	0-15	Dark brown gravelly fine sandy silt. Common angular to rounded very small to very large pebbles. Many small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240250	582650	M-2	G	9	15-59	Reddish to yellowish brown. Many angular to rounded very small pebbles to small cobbles. Common small roots. Loose sediment. Gradual, wavy lower boundary. B horizon.	N/A
5240250	582650	M-2	G	9	59-71	Yellowish brown gravelly medium to coarse sand. Many sub-angular to rounded very small pebbles to large cobbles. No organics. Very loose sediment. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240150	582700	M-2	H	7	0-24	Dark brown gravelly fine sandy silt. Common sub-angular to rounded very small to very large pebbles. Common small roots; forest duff; woody debris; trace charcoal. Clear, wavy lower boundary. O/A horizon.	N/A
5240150	582700	M-2	H	7	24-48	Reddish brown gravelly silty fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240150	582700	M-2	H	7	48-64	Yellowish brown gravelly fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240200	582700	M-2	H	8	0-5	Very dark brown sandy silt. Few rounded very small to medium pebbles. Many rootlets to small roots; charcoal fragments and ash. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	582700	M-2	H	8	5-60	Greyish yellow sandy silt. Common sub-rounded to rounded very small pebbles to small cobbles. Few rootlets to small roots. Abrupt, smooth lower boundary. B horizon.	N/A
5240200	582700	M-2	H	8	60-80	Brown compact coarse sandy silt. Common sub-rounded to rounded small to medium pebbles. Very few organics. C horizon.	N/A
5240550	580200	M-3	B	1	0-15	Organic-rich fine silt. Very few sub-rounded to rounded very small to medium pebbles. Roots; woody debris. Lower boundary is ash and charcoal lens. Abrupt, irregular lower boundary. O/A horizon.	N/A
5240550	580200	M-3	B	1	20-65	Reddishbrown fine sandy silt. Very few sub-rounded to rounded very small to medium pebbles. Roots; root burn. Gradual, smooth lower boundary. B horizon.	N/A
5240550	580200	M-3	B	1	65-80	Reddish brown firm medium to coarse sandy silt. Very few sub-rounded to rounded very small to medium pebbles. Few roots. C horizon.	N/A
5240500	580200	M-3	B	2	0-29	Greyish brown gravelly silty fine to medium sand. Many angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff. Loose sediment. Clear, wavy lower boundary. O/A horizon.	N/A
5240500	580200	M-3	B	2	29-77	Reddish to yellowish brown gravelly silty fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few small roots; trace charcoal from root burn. B/C horizon.	N/A
5240450	580200	M-3	B	3	0-12	Brown silty fine sand. Very few angular to rounded very small to medium pebbles. Common rootlets to small roots; Forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240450	580200	M-3	B	3	12-71	Yellowish brown silty fine to medium sand. Very few angular to rounded very small to medium pebbles. Few small roots. Clear, wavy lower boundary. B/C horizon.	N/A
5240450	580200	M-3	B	3	71-86	Light yellowish brown compact gravelly fine to medium sand. Few angular to rounded very small to large pebbles. No organics. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240400	580200	M-3	B	4	0-28	Brown silty fine sand. Very few angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240400	580200	M-3	B	4	28-48	Reddish brown compact silty fine to medium sand. Very few angular to rounded very small to medium pebbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A
5240400	580200	M-3	B	4	48-71	Yellowish brown gravelly fine to medium sand. Many sub-angular to rounded very small to very large pebbles. No organics. C horizon.	N/A
5240350	580200	M-3	B	5	0-22	Brown silty fine sand. Very few sub-angular to rounded very small to small pebbles. Common rootlets to small roots. Clear, wavy lower boundary. O/A horizon.	N/A
5240350	580200	M-3	B	5	22-84	Yellowish brown silty fine to medium sand. Very few sub-angular to rounded very small to medium pebbles. Few rootlets to small roots. Clear, wavy lower boundary. B horizon.	N/A
5240350	580200	M-3	B	5	84-98	Yellowish grey silty fine to medium sand. Very few sub-angular to rounded very small to medium pebbles. Few small roots. C horizon.	N/A
5240400	580250	M-3	C	4	0-7	Dark brown silty fine sand. Very few angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240400	580250	M-3	C	4	7-27	Reddish brown compact gravelly fine to medium sand. Few angular to rounded very small to large pebbles. Few rootlets. Gradual, wavy lower boundary. B horizon.	N/A
5240400	580250	M-3	C	4	27-55	Yellowish brown very compact gravelly fine to medium sand. Few angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240350	580250	M-3	C	5	0-10	Very dark brown fine sandy silt. Common sub-rounded to rounded small to large pebbles. Roots; moss cap. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240350	580250	M-3	C	5	10-50	Yellowish brown compact sandy silt. Many sub-rounded to rounded very small pebbles to small cobbles. Very few rootlets. Clear, smooth lower boundary. B horizon.	N/A
5240350	580250	M-3	C	5	50-60	Greyish to yellowish brown gravelly coarse sandy silt. Many rounded very small to very large pebbles. No organics. C horizon.	N/A
5240300	580250	M-3	C	6	0-10	Dark brown organic-rich fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots. Loose sediment. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240300	580250	M-3	C	6	10-30	Reddish brown compact gravelly fine sandy silt. Many angular to rounded very small pebbles to large cobbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240300	580250	M-3	C	6	30-55	Light brown compact fine sandy silty gravel. Predominant angular to rounded very small pebbles to large cobbles. Very few roots. C horizon.	N/A
5240250	580250	M-3	C	7	0-20	Dark greyish brown fine sandy silt. Common sub-rounded to rounded small to large pebbles. Roots; moss cap; ash and charcoal. Smooth lower boundary. O/A horizon.	N/A
5240250	580250	M-3	C	7	20-50	Brown coarse sandy silt. Common sub-rounded to rounded very small pebbles to small cobbles. Rootlets. Gradual, wavy lower boundary. B horizon.	N/A
5240250	580250	M-3	C	7	50-60	Greyish yellowish brown silty coarse sand. Common sub-rounded to rounded very small to large pebbles. No organics. C horizon.	N/A
5240550	580300	M-3	D	1	0-18	Dark brown gravelly fine sandy silt. Charcoal lense 14-16cmbs all the way around probe except for SE corner. Sediments below charcoal lense are ashy white, especially in the north wall and extend down to 34cmbs. Many rootlets to small roots; woody debris; moss. Gradual, irregular lower boundary. O/A horizon.	N/A
5240550	580300	M-3	D	1	18-66	Reddish brown gravelly silty medium sand. Common angular to sub-angular very small to large pebbles. Common rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240550	580300	M-3	D	1	66-88	Light grey silty coarse sandy gravel. Predominant angular very small to large pebbles. No organics. Weathered rock. C horizon.	N/A
5240500	580300	M-3	D	2	0-14	Brown gravelly fine sandy silt. Few sub-angular to sub-rounded very small to large pebbles. Many rootlets to medium roots; forest duff. Gradual, smooth lower boundary. O/A horizon.	N/A
5240500	580300	M-3	D	2	14-53	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small to large pebbles. Many rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240500	580300	M-3	D	2	53-70	Yellowish grey gravelly silty coarse sand. Common angular to sub-angular very small to very large pebbles. Very few small roots; no organics 65-70cmbs. C horizon.	N/A
5240500	580300	M-3	D	3	0-6	Dark brown organic-rich fine sand. No gravels. Common rootlets to small roots. Clear, wavy lower boundary. O/A horizon.	N/A
5240450	580300	M-3	D	3	6-48	Light brown very compact light brown gravelly fine to medium sand. Many angular to sub-angular very small to large pebbles. No organics. Terminated due to extreme compaction. Fill.	N/A
5240400	580300	M-3	D	4	0-12	Brown gravelly silty fine sand. Common angular to rounded very small pebbles to small cobbles. Many rootlets to medium roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240400	580300	M-3	D	4	12-39	Greyish brown gravelly fine to medium sand. Common angular to rounded very small to very large pebbles. Few small roots. Clear, wavy lower boundary. Disturbed B horizon.	N/A
5240400	580300	M-3	D	4	39-54	Yellowish brown very compact gravelly fine to medium sand. Common angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240350	580300	M-3	D	5	0-7	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small pebbles to small cobbles. Many rootlets to small roots. Clear, smooth lower boundary. O/A horizon.	N/A
5240350	580300	M-3	D	5	7-66	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small pebbles to large cobbles. Few rootlets to small roots; no organics below 38cmbs. Increasingly compact and rocky with depth. Terminated due to cobble obstructions. B/C horizon.	N/A
5240300	580300	M-3	D	6	0-16	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small pebbles to small cobbles. Many rootlets to small roots; woody debris; forest duff; moss cap. Gradual, wavy lower boundary. O/A horizon.	N/A
5240300	580300	M-3	D	6	16-59	Reddish brown gravelly silty medium sand. Common angular to sub-rounded common rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240300	580300	M-3	D	6	59-82	Light greyish brown coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240250	580300	M-3	D	7	0-11	Dark brown gravelly fine sandy silt. Common angular to rounded very small to very large pebbles. Many rootlets to small roots; woody debris; forest duff. Gradual, smooth lower boundary. O/A horizon.	N/A
5240250	580300	M-3	D	7	11-44	Brown gravelly silty fine to medium sand. Common angular to sub-rounded very small pebbles to large cobbles. Many rootlets; one large 4cm diam forked root in SW wall; root forks angle down to north and east walls. Gradual, smooth lower boundary. B horizon.	N/A
5240250	580300	M-3	D	7	44-52	Light yellowish brown silty coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. Large forked root continues down in north and east side walls. Rocky, difficult to dig. C horizon.	N/A
5240200	580300	M-3	D	8	0-11	Brown gravelly fine sand. Few sub-angular to rounded very small to medium pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	580300	M-3	D	8	11-44	Reddish brown gravelly fine to medium sand. Common sub-angular to rounded very small to large pebbles. Few small roots. Clear, wavy lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240200	580300	M-3	D	8	44-63	Light yellowish brown compact gravelly fine to medium sand. Common sub-angular to rounded very small to large pebbles. No organics. C horizon.	N/A
5240550	580350	M-3	E	1	0-20	Dark brown fine to coarse sandy silt. Few sub-rounded to rounded very small to small pebbles. Few roots; moss cap; charcoal and ash. Wavy lower boundary. O/A horizon.	N/A
5240550	580350	M-3	E	1	20-65	Yellowish brown fine sandy silt. Common sub-rounded to rounded very small to medium pebbles. Very few rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240550	580350	M-3	E	1	65-80	Greyish yellow fine to coarse sand. Few angular to sub-angular very small to large pebbles. No organics. Weathered rock. C horizon.	N/A
5240500	580350	M-3	E	2	0-13	Dark brown gravelly fine sandy silt. Very few sub-angular to sub-rounded very small to medium pebbles. Many rootlets to small roots; forest duff. Clear, smooth lower boundary. O/A horizon.	N/A
5240500	580350	M-3	E	2	13-68	Reddish brown gravelly silty medium sand. Common angular to sub-rounded very small to very large pebbles. Very few rootlets to medium roots. Gradual, smooth lower boundary. B horizon.	N/A
5240500	580350	M-3	E	2	68-84	Light yellowish brown very compact gravelly silty medium to coarse sand. Many angular to sub-rounded very small pebbles to small cobbles. C horizon.	N/A
5240450	580350	M-3	E	3	0-10	Dark brown organic-rich fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots; woody debris; charcoal. Loose sediment. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240450	580350	M-3	E	3	10-20	Light brown compact silty fine sand. Many angular to rounded gravels. Few roots. B horizon.	N/A
5240450	580350	M-3	E	3	20-40	Light brown very compact gravels. Predominant sub-angular to rounded very small to very large pebbles. C horizon.	N/A
5240400	580350	M-3	E	4	0-8	Brown organic-rich gravelly fine sandy silt. Common sub-rounded to rounded very small to large pebbles. Rootlets to small roots. Abrupt, wavy lower boundary. O/A horizon.	N/A
5240400	580350	M-3	E	4	8-15	Light brown compact gravelly coarse sand. Many sub-rounded to rounded very small to large pebbles. No organics. Terminated due to compactness. Fill.	N/A
5240350	580350	M-3	E	5	0-10	Yellowish grey fine sandy silt. Very few sub-rounded to rounded very small to small pebbles. Rootlets to small roots; ash. Wavy lower boundary. O/A horizon.	N/A
5240350	580350	M-3	E	5	10-50	Brown fine sandy silt. Very few sub-rounded to rounded very small to small pebbles. Rootlets to small roots. Gradual, wavy lower boundary. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240350	580350	M-3	E	5	50-80	Greyish to reddish brown fine sandy silt. Very few sub-rounded to rounded very small to small pebbles. No organics. C horizon.	N/A
5240300	580350	M-3	E	6	0-10	Dark greyish brown fine to coarse sandy silt. Sub-rounded to rounded medium pebbles to large cobbles. Rootlets to small roots; moss cap. Clear, smooth lower boundary. O/A horizon.	N/A
5240300	580350	M-3	E	6	10-40	Yellowish brown silty coarse sand. Common sub-angular to rounded very small pebbles to small cobbles. Rootlets. Gradual, smooth lower boundary. B horizon.	N/A
5240300	580350	M-3	E	6	40-55	Greyish yellowish brown silty fine to coarse sand. Sub-rounded to rounded very small to medium pebbles. No organics. C horizon.	N/A
5240250	580350	M-3	E	7	0-13	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Many rootlets to small roots; woody debris; 1 cm diam charcoal fragments and smears and ash throughout. Gradual, smooth lower boundary. O/A horizon.	N/A
5240250	580350	M-3	E	7	13-62	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to large cobbles. Few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5240250	580350	M-3	E	7	62-78	Light yellowish grey coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240200	580350	M-3	E	8	0-15	Brown gravelly silty fine sand. Common angular to rounded very small to very large pebbles. Many rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	580350	M-3	E	8	15-61	Reddish to yellowish brown gravelly fine to coarse sand. Many angular to rounded very small pebbles to small cobbles. Few small roots. Becomes increasingly coarse with depth. B/C horizon.	N/A
5240550	580400	M-3	F	1	0-16	Dark brown gravelly fine sandy silt. Very few sub-angular to rounded very small to large pebbles. Many rootlets to small roots; woody debris; charcoal lense 14-16cmbs in west wall mixed with woody debris (root burn). Clear, irregular lower boundary. O/A horizon.	N/A
5240550	580400	M-3	F	1	16-74	Reddish brown gravelly silty medium sand. Few sub-angular to sub-rounded very small to very large pebbles. Few rootlets to small roots. Abrupt, smooth lower boundary. B horizon.	N/A
5240550	580400	M-3	F	1	74-88	Light yellowish greyish brown gravelly silty coarse sand. Common angular to sub-rounded very small pebbles to small cobbles. No organics. Weathered rock. C horizon.	N/A
5240500	580400	M-3	F	2	0-10	Very dark brown fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Few roots; ash; moss cap. Clear, smooth lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240500	580400	M-3	F	2	10-30	Reddish brown fine to coarse sandy silt. Few sub-rounded to rounded very small to medium pebbles. Few roots. Gradual lower boundary. B horizon.	N/A
5240500	580400	M-3	F	2	30-50	Light yellowish greyish brown silty fine to coarse sand. Common sub-angular to sub-rounded small to large pebbles. Very few roots. Weathered rocks. C horizon.	N/A
5240450	580400	M-3	F	3	0-11	Dark brown fine sandy silt. Very few angular to rounded very small to small pebbles. Few rootlets to small roots; forest duff. Clear, wavy lower boundary. O/A horizon.	N/A
5240450	580400	M-3	F	3	11-42	Reddish to yellowish brown compact silty fine to medium sand. Very few angular to rounded very small to small pebbles. Few small roots. Clear, wavy lower boundary. Disturbed B horizon.	N/A
5240450	580400	M-3	F	3	42-64	Yellowish brown compact fine to medium sand. Very few angular to rounded very small to small pebbles. No organics. C horizon.	N/A
5240400	580400	M-3	F	4	0-8	Greyish brown organic-rich fine sandy silt. Very few sub-rounded to rounded very small to small pebbles. Rootlets to 3cm diam roots; charcoal. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240400	580400	M-3	F	4	8-45	Light brown silt. Very few sub-rounded to rounded very small to small pebbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240400	580400	M-3	F	4	45-80	Light brown gravelly silt. Common angular to rounded very small to large pebbles. Roots. C horizon.	N/A
5240350	580400	M-3	F	5	0-8	Dark brown fine sandy silt. Very few sub-angular to sub-rounded very small to large pebbles. Common rootlets to small roots; forest duff; trace charcoal smears throughout. Gradual, smooth lower boundary. O/weak A horizon.	N/A
5240350	580400	M-3	F	5	8-74	Reddish brown gravelly silty medium sand. Few sub-angular to sub-rounded very small to large pebbles. Very few rootlets to small roots; on large 5cm diam root at 70cmbs. Abrupt, smooth lower boundary. B horizon.	N/A
5240350	580400	M-3	F	5	74-95	Light yellowish brown gravelly fine sandy silt. Common angular to sub-rounded very small to very large pebbles. No organics. Weathered rock. C horizon.	N/A
5240300	580400	M-3	F	6	0-15	Dark brown organic-rich fine sandy silt. Very few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots; woody debris; ash layer under woody debris. Loose sediment. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240300	580400	M-3	F	6	15-60	Reddish brown compact gravelly fine sandy silt. Common sub-rounded to rounded very small pebbles to large cobbles. Roots. B/C horizon.	N/A
5240250	580400	M-3	F	7	0-10	Very dark brown fine sandy silt. Many rounded small to large pebbles. Rootlets to small roots; moss cap; ash and charcoal. Clear, smooth lower boundary. O/A horizon.	FMR

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240250	580400	M-3	F	7	10-25	Yellowish brown silty coarse sand. Many sub-rounded to rounded medium pebbles to large cobbles. Rootlets and one big root. Clear, smooth lower boundary. B horizon.	N/A
5240250	580400	M-3	F	7	25-60	Greyish yellow fine to coarse sandy gravel. Predominant rounded very small to very large pebbles. No organics. C horizon.	N/A
5240200	580400	M-3	F	8	0-16	Reddish brown forest duff. No gravels. Forest duff; common rootlets to small roots; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	580400	M-3	F	8	16-51	Yellowish brown fine to coarse sandy gravel. Predominant angular to rounded very small pebbles to small cobbles. Few rootlets. B/C horizon.	N/A
5240550	580450	M-3	G	1	0-10	Dark greyish brown fine sandy silt. Common sub-rounded to rounded small to very large pebbles. Rootlets to large roots; moss cap; ash. Smooth lower boundary. O/A horizon.	N/A
5240550	580450	M-3	G	1	10-45	Yellowish brown. Many large pebbles to small cobbles and one boulder. Rootlets; one large root. Clear, smooth lower boundary. B horizon.	N/A
5240550	580450	M-3	G	1	45-55	Brown to reddish brown. Common very small to large pebbles. No organics. C horizon.	N/A
5240500	580450	M-3	G	2	0-10	Dark greyish brown fine sandy silt. Common sub-rounded to rounded large pebbles to large cobbles. Rootlets to small roots; ash; moss cap. Clear, smooth lower boundary. O/A horizon.	N/A
5240500	580450	M-3	G	2	10-40	Yellowish brown fine to coarse sandy silt. Many sub-rounded to rounded large pebbles to large cobbles. Many rootlets. Clear, smooth lower boundary. B horizon.	N/A
5240500	580450	M-3	G	2	40-50	Greyish yellow fine sandy silt. Many sub-rounded to rounded medium to very large pebbles. Few roots. C horizon.	N/A
5240450	580450	M-3	G	3	0-8	Grey ashy gravelly fine sand. Many angular to rounded very small pebbles to small cobbles. Common rootlets to medium roots; forest duff; few charcoal stained pebbles/cobbles. Clear, irregular lower boundary. O/A horizon.	N/A
5240450	580450	M-3	G	3	8-53	Reddish brown ravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Few small to medium roots. Terminated due to cobble and root obstructions. B horizon.	N/A
5240400	580450	M-3	G	4	0-3	Dark brown organic-rich fine sandy silt. Few rounded medium to very large pebbles. Rootlets to small roots; moss cap; Abrupt, smooth lower boundary. O/A horizon.	N/A
5240400	580450	M-3	G	4	3-40	Yellowish brown fine sandy silt. Common sub-rounded to rounded very small pebbles to small cobbles. Roots more dense in top 20cm; charcoal. Terminated due to cobbles. C horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240300	580450	M-3	G	6	0-10	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles and one 23cm diam boulder at surface. Many rootlets to small roots; moss and ferns. Gradual, smooth lower boundary. O/A horizon.	N/A
5240300	580450	M-3	G	6	10-53	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to small cobbles. Few rootlets to small roots; rootburn in east wall 27-29cmbs. Gradual, smooth lower boundary. B horizon.	N/A
5240300	580450	M-3	G	6	53-64	Greyish brown coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240250	580450	M-3	G	7	0-10	Dark brown organic-rich fine sandy silt. Rootlets to small roots. Abrupt, smooth lower boundary. A horizon.	N/A
5240250	580450	M-3	G	7	10-30	Light brown compact fine to medium sandy silt. Many angular to rounded very small pebbles to small cobbles. Roots. Gradual, smooth lower boundary. B horizon.	N/A
5240250	580450	M-3	G	7	30-70	Light brown compact medium sandy silt. Many angular to rounded very small pebbles to small cobbles. Few roots. C horizon.	N/A
5240200	580450	M-3	G	8	0-14	Reddish brown forest duff. No gravels. Forest duff; common rootlets to small roots; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240200	580450	M-3	G	8	14-68	Reddish to yellowish brown gravelly silty fine to medium sand. Few sub-angular to rounded very small to large pebbles. Few small roots. Slightly compact from 14-40cmbs. Gradual, wavy lower boundary. B horizon.	N/A
5240200	580450	M-3	G	8	68-81	Light yellowish brown gravelly fine to medium sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A
5240550	580500	M-3	H	1	0-13	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots; Moss; few 1cm diam charcoal frags. Gradual, smooth lower boundary. O/A horizon.	N/A
5240550	580500	M-3	H	1	13-62	Reddish brown gravelly silty medium sand. Common angular to rounded very small pebbles to small cobbles. Few rootlets to small roots. Clear, smooth lower boundary. B horizon.	N/A
5240550	580500	M-3	H	1	62-75	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240500	580500	M-3	H	2	0-8	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to large pebbles. Many rootlets to small roots; forest duff. Clear smooth lower boundary. O/A horizon.	N/A
5240500	580500	M-3	H	2	8-71	Reddish brown compact gravelly silty medium sand. Common sub-angular to sub-rounded very small to large pebbles. Very few rootlets to small roots. B horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240500	580500	M-3	H	2	71-86	Yellowish grey gravelly coarse sand. Many angular to sub-rounded very small to large pebbles. No organics. C horizon.	N/A
5240450	580500	M-3	H	3	0-10	Very dark brown organic-rich fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets to roots; charcoal; woody debris. Clear, smooth lower boundary. O/A horizon.	N/A
5240450	580500	M-3	H	3	10-40	Light brown compact gravelly fine sandy silt. Many angular to rounded very small pebbles to large cobbles. Rootlets. Clear, smooth lower boundary. B horizon.	N/A
5240450	580500	M-3	H	3	40-70	Light brown fine to coarse gravels. Predominant angular to rounded very small pebbles to large cobbles. Few rootlets. C horizon.	N/A
5240350	580500	M-3	H	5	0-15	Dark brown organic-rich fine sandy silt with pale grey compact gravelly silt lens 10-15 cmbs. Very few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots. Abrupt, undulating lower boundary. O/A horizon.	N/A
5240350	580500	M-3	H	5	15-60	Reddish brown gravelly silty sand. Many angular to rounded very small pebbles to large cobbles. Few roots. B/C horizon.	N/A
5240300	580500	M-3	H	6	0-8	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small to very large pebbles. Many rootlets to small roots; moss. Clear, smooth lower boundary. O/A horizon.	N/A
5240300	580500	M-3	H	6	8-75	Reddish brown gravelly silty medium sand. Common sub-angular to sub-rounded very small pebbles to small cobbles. Few rootlets and one 3cm diam root in southwest wall starting at 52 cmbs. Gradual, smooth lower boundary. B horizon.	N/A
5240300	580500	M-3	H	6	75-96	Yellowish grey coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240400	580550	M-3	I	4	0-9	Dark brown gravelly fine sandy silt. Few sub-angular to rounded very small pebbles to small cobbles. Many rootlets to small roots; moss and ferns. Gradual, smooth lower boundary. O/A horizon.	N/A
5240400	580550	M-3	I	4	9-49	Greyish brown gravelly silty medium to coarse sand. Common angular to sub-rounded very small pebbles to small cobbles. Many rootlets to few small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240400	580550	M-3	I	4	49-63	Light greyish brown coarse sandy gravel. Predominant angular to sub-rounded very small pebbles to large cobbles. No organics. C horizon.	N/A
5240350	580550	M-3	I	5	0-10	Dark greyish brown organic-rich fine sandy silt. Very few sub-rounded to rounded very small to medium pebbles. Rootlets to 4cm diam roots. Abrupt, smooth lower boundary. O/A horizon.	N/A

UTM (10N, NAD83)		Provenience			Depth (cmbs)	Stratigraphic Description	Cultural Material
Northing	Easting	Area	Column	Row			
5240350	580550	M-3	I	5	10-40	Light brown compact gravelly silt. Few sub-rounded to rounded very small to medium pebbles. Roots. Gradual lower boundary. B horizon.	N/A
5240350	580550	M-3	I	5	40-70	Light brown compact gravelly silt. Common sub-angular to rounded very small to very large pebbles. C horizon.	N/A
5240450	580650	M-3	K	3	0-15	Brown organic-rich gravelly fine sandy silt. Few sub-rounded to rounded very small to medium pebbles. Rootlets to small roots; charcoal; woody debris. Abrupt, smooth lower boundary. O/A horizon.	N/A
5240450	580650	M-3	K	3	15-40	Light brown very compact gravelly fine sandy silt. Common sub-angular to rounded very small to large pebbles. Rootlets to small roots. Gradual, smooth lower boundary. B horizon.	N/A
5240450	580650	M-3	K	3	40-70	Reddish brown compact fine sandy gravelly silt. Many angular to rounded very small pebbles to large cobbles. Few roots. C horizon.	N/A
5240400	580650	M-3	K	4	0-8	Brown gravelly fine sand. Common angular to rounded very small pebbles to small cobbles. Many rootlets to small roots; forest duff; woody debris. Clear, wavy lower boundary. O/A horizon.	N/A
5240400	580650	M-3	K	4	8-54	Reddish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to large cobbles. Common small roots. Loose sediment. Clear, wavy lower boundary. B horizon, formed in glacial sediment.	N/A
5240400	580650	M-3	K	4	54-68	Yellowish brown gravelly fine to coarse sand. Many sub-angular to rounded very small pebbles to small cobbles. No organics. Loose sediment. C horizon, glacial sediment.	N/A
5240300	580650	M-3	K	6	0-11	Greyish brown gravelly fine to medium sand. Many angular to rounded very small to very large pebbles. Common rootlets to small roots; forest duff. Clear, wavy lower boundary. Disturbed O/A horizon.	N/A
5240300	580650	M-3	K	6	11-54	Yellowish brown gravelly fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Few rootlets. C horizon, glacial sediment.	N/A
5240250	580650	M-3	K	7	0-37	Greyish brown gravelly silty fine to medium sand. Many angular to rounded very small pebbles to small cobbles. Many rootlets to small roots; forest duff. Gradual, wavy lower boundary. Disturbed O/A horizon.	N/A
5240250	580650	M-3	K	7	37-52	Yellowish brown gine to medium sandy gravel. Predominant angular to rounded very small pebbles to small cobbles. No organics. C horizon.	N/A

APPENDIX D
Archaeological Site Inventory Form



STATE OF WASHINGTON ARCHAEOLOGICAL SITE INVENTORY FORM

Smithsonian Number: 45KI01502

County: King

Date: 8/30/2022

Human Remains? DAHP Case No.:

Compiled By: Jack Johnson

Perteet, Inc.

Archaeological Sites are exempt from public disclosure per RCW 42.56.300

SITE DESIGNATION

Site Name:

Field/Temporary ID: M-3-2022-01

Site Type: Historic Mining Properties

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this request for determination of eligibility meet the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the site

meets does not meet the National Register Criteria.

I recommend that this property be considered significant at the following level(s) of significance:

Criteria

Statement of Significance

Perteet has recommended this site be considered not eligible for listing in the National Register of Historic Places (NRHP) due to a lack of significance under applicable criteria. Specifically, NRHP Criteria A through C are clearly not applicable to these cultural materials, which lack distinctiveness and association with significant persons or events. Further, the combination of the commonplace nature of observed cultural materials, the lack of stratified deposits of cultural materials within this site, and the short-lived, recent, and insubstantial history of the Cardinal Reward mine at the local, state, and national level makes clear that this site also has no potential to yield additional information of historical significance as per NRHP Criterion D.

Integrity

Observed cultural materials are generally structural features in ruin and therefore exhibit integrity of location and association insofar as they remain in situ and spatially associated with one another. However, these remains include only the ruins of a few crude concrete foundations, a former road grade, and a pile of mining spoils, and they generally fail to convey a distinctive sense of design, setting, feeling, materials, or workmanship. Thus they have very low integrity overall.

SHPO Determination

Eligibility Potentially Eligible Determined On 9/22/2022

Determined By

SHPO Comments

SITE LOCATION

USGS Quad Map Name(s): CUMBERLAND

T: 21 R: 07 E/W: E Section: 17

UTM: Zone: 10 Easting: 580301 Northing: 5240435

Latitude: 47.3125 Longitude: -121.9376 Elevation (ft/m):

Drainage, Major: Duwamish Drainage, Minor: Green River River Mile

Location Description (General State Specific) to 45 degrees

This site is located atop a glacially-deposited upland terrace along the southeast side of the Green River Gorge about 1.8 miles north of Cumberland, on King County tax parcel number 1721079001 in Township 21N, Range 07E, Section 17. The site lies along the top and southerly aspect of a local hill at an elevation ranging from roughly 800 to 900 feet above sea level. Local terrain is uneven and rugged, with mature forest cover and dense underbrush.

Directions (For Relocation Purposes):

From Cumberland, Washington, follow 309th Ave. SE northward until it veers northwestward and becomes SE Green River Gorge Rd. Travel 0.57 miles northwest along SE Green River Gorge Rd. (1.27 miles from the intersection of 309th Ave. SE and SE 352nd St.), then turn right to enter a gated private access road on the north side of SE Green River Gorge Rd. Travel roughly 0.75 miles along this private access road (staying left at the fork at roughly 0.53 miles along this private access road). The site generally lies atop the low hill to the east of this location.

SITE DESCRIPTION

Narrative Description (Overall Site Observations):

This site (P2022-1 through P2022-3) is limited to surficial remains that consist of structural remains, anthropogenic topographic features, and artifacts associated with the former Cardinal Reward mercury processing plant that was in use from 1958 to no later than 1962.

In the mid-1950s, cinnabar deposits were discovered in the walls of the Green River Gorge to the north of the eventual location of the site detailed here (EMJ 1958; USBM 1965). By 1957, the Royal Reward mine was opened at the location of this initial discovery by the Washington Mining Corporation (WMC) to exploit this discovery for the production of mercury. Its workings were located on a small terrace roughly 50 feet above the Green River (Rice 1962). In 1958, planned workings there included multiple adits, a 270 foot-deep shaft, and 1000 feet-long of lateral workings off this shaft (EMJ 1958). At this time, the Royal Reward mine was claimed to be the only productive mercury mine in Washington (EMJ 1958).

That same year, construction of a road for the Royal Reward mine revealed another deposit of cinnabar along the gorge on land leased from the Northern Pacific Railroad. The WMC subsequently opened the Cardinal Reward mine to exploit this deposit, and by 1959 this mine had roughly 700 total feet of underground workings that were accessed by tunnel entrances along the Green River Gorge. A reduction plant was also under construction nearby, 500 tons of ore were stockpiled near this new plant site (USBM 1965:363), and roadways were built to access the plant location. The archaeological site recorded here constitutes the remains of this reduction plant.

However, mercury mining in the vicinity was short-lived and did not fulfill the potential anticipated just a few years earlier. By 1962 the Royal Reward mine was abandoned and flooded below river level (Livingston 1971; Rice 1962). Only trace amounts of mercury had been found (Rice 1962), and the Royal Reward mine had produced only about 20 flasks of mercury total prior to abandonment (Livingston 1971). The Cardinal Reward mine was apparently also a bust by the early 1960s; no recorded production was associated with this mine (Livingston 1971), implying the 500 tons of ore stockpiled in 1958 were never processed.

At present, archaeological materials observed at the Cardinal Reward mine processing plant lie on the modern ground surface atop a low hill and along its southern aspect. Heavy forest and brush cover blanket the site, and surface visibility is very poor. Subsurface investigation of this site included hand excavation of 14 shovel probes at roughly 50 meter intervals across this site, but found no evidence for subsurface cultural materials or intact archaeological contexts.

Site Dimensions (Overall Site Dimensions):

Length: Approximately 800 feet **Direction:** Northwest to southeast **Width:** Approximately 450 feet **Direction:** Southwest to northeast

Method of Horizontal Measurement: GIS

Depth: Surface only **Method of Vertical Measurement:** Tape measure

Vegetation (On Site):

Local: Mixed mature (second-growth) forest with a heavy understory of blackberries, sword ferns, vine maple, salal, and other brush. **Regional:** Western hemlock forest.

Landforms (On Site):

Local: Glacial drift terrace atop the south bank of the Green River Gorge. Foothills of the Cascades are within 2 miles to the east. Most of this site lies atop a low (~100 feet tall) hill made of Eocene sedimentary rock. **Regional:**

Water Resources (Type): There are no water resources on site. The Green River lies within roughly 0.2 miles west of this site at the bottom of a roughly 250 foot deep gorge. **Distance:** Roughly 0.2 miles. **Permanence:** The Green River is a perennial stream.

CULTURAL MATERIALS AND FEATURES

Narrative Description (Specific Inventory Details):

Artifacts associated with this site include a large treaded synthetic tire measuring roughly 8 inches thick and 40 inches in exterior diameter and five 50-gallon steel drums (P2022-1 through P2022-3). Structural and topographic features of this site are discussed separately below.

Feature 1 consists of a roughly 20-foot by 50-foot reverse L-shaped reinforced concrete foundation (P2022-4, P2022-5) that sits between 2 feet 8 inches and 5 feet 4 inches above the surrounding grade, which slopes downward from west to east. Four rectangular reinforced concrete footings rise to heights of between 1 and 3 feet high from near the center of its southern arm, and a rectangular aperture measuring roughly 4 feet by 8 feet lies east of these footings and opens to a lower chamber whose concrete floor lies roughly 10 feet below. Parallel 6-inch thick bay walls extend roughly 15 feet from the southeast corner of this structure, and the 6-foot wide unroofed corridor between these bay walls lies at the grade of the lower chamber and leads to this chamber (P2022-6). All observed steel drums lie atop or adjacent to this structure.

Feature 2 consists of two formerly identical concrete walls in ruin (P2022-7, P2022-8). Both walls measure roughly 6 feet 3 inches high, 8 inches thick, and 10 feet long, with a semi-circular "saddle" shape inset along their top edge. Rectangular footings at the base of each wall measure roughly 1 foot 6 inches thick, 13 feet long, and 4 feet wide. The walls were probably once parallel and set roughly 9 feet apart. However, the western wall has been toppled to the east, exposing its footings, which now lay upright.

Feature 3 consists of an irregularly-shaped pile of rock mining spoils that stands between roughly 6 to 10 feet above the uneven surrounding grade (P2022-9). This feature may represent a visible, unvegetated portion of the 500 tons of Cardinal Reward mine ore purportedly stockpiled in this vicinity.

Feature 4 consists of the former access road grade to the Cardinal Reward mine processing plant. It extends roughly 970 feet from the western edge of the parcel eastward along the southern aspect to the location of Feature 1. This roadway is roughly 20 feet wide and is apparent due to a gap corridor in tree growth (P2022-10) in some places, a roughly 3 foot high fill berm along its southern shoulder in others, and a cut up to 10 feet into the adjacent hillside in others. The large tire found at this site lies south (downslope) of the southern shoulder of Feature 4.

Feature 5 consists of a concrete foundation with a corroded steel superstructure (P2022-11) that abuts an apparently anthropogenic cut face on the southeast aspect of the hill. The concrete foundation is roughly 3 feet tall, 1 foot thick, and 10 feet long, and its steel superstructure extends roughly 6 feet 4 inches above this foundation and exhibits a length of roughly 14 feet 6 inches. The top edge of this metal structure has a saddle shape similar to the concrete walls of Feature 2. The low hill behind (northwest of) this feature is comprised primarily of large cobbles similar to Feature 3, and this hill

ARCHAEOLOGICAL SITE INVENTORY FORM

Smithsonian Number: 45KI01502

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therefore probably consists of additional mine spoils/ore. However, dense blackberry cover in the vicinity of this feature precluded delineation

Method of Collection:

Not collected.

Location of Artifacts (Temporary/Permanent):

Cultural materials observed at this site remain in situ.

SITE AGE

Component Type	Historic
Dates	1958 to 1962
Dating Method	Historical documents
Phase	
Basis for Phase Designation	

SITE RECORDERS

Observed By	Address		
Jack Johnson	2707 Colby Ave. Suite 900, Everett, WA 98201		
Date Recorded:	8/30/2022		
Recorded by (Professional Archaeologist):	Jack Johnson		
Organization:	Perteet, Inc.	Phone Number:	(206) 543-7696
Address:	2707 Colby Ave. Suite 900, Everett, WA 98201	Email:	jack.johnson@perteet.com

SITE HISTORY

Previous Archaeological Work:

No previous archaeological work has occurred at this site.

LAND OWNERSHIP

Owner	Address	Parcel
Segale Properties LLC	5811 Segale Park Drive C, Tukwila, Washington, 98188	1721079001

RESEARCH REFERENCES

ARCHAEOLOGICAL SITE INVENTORY FORM

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Items/Documents Used in Research:

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Livingston, Vaughn E.

1971 Geology and mineral resources of King County, Washington. Washington Division of Mines and Geology Bulletin 63. Rice, William L.

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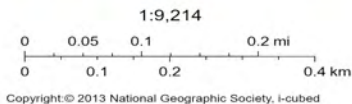
United States Bureau of Mines

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USGS MAP

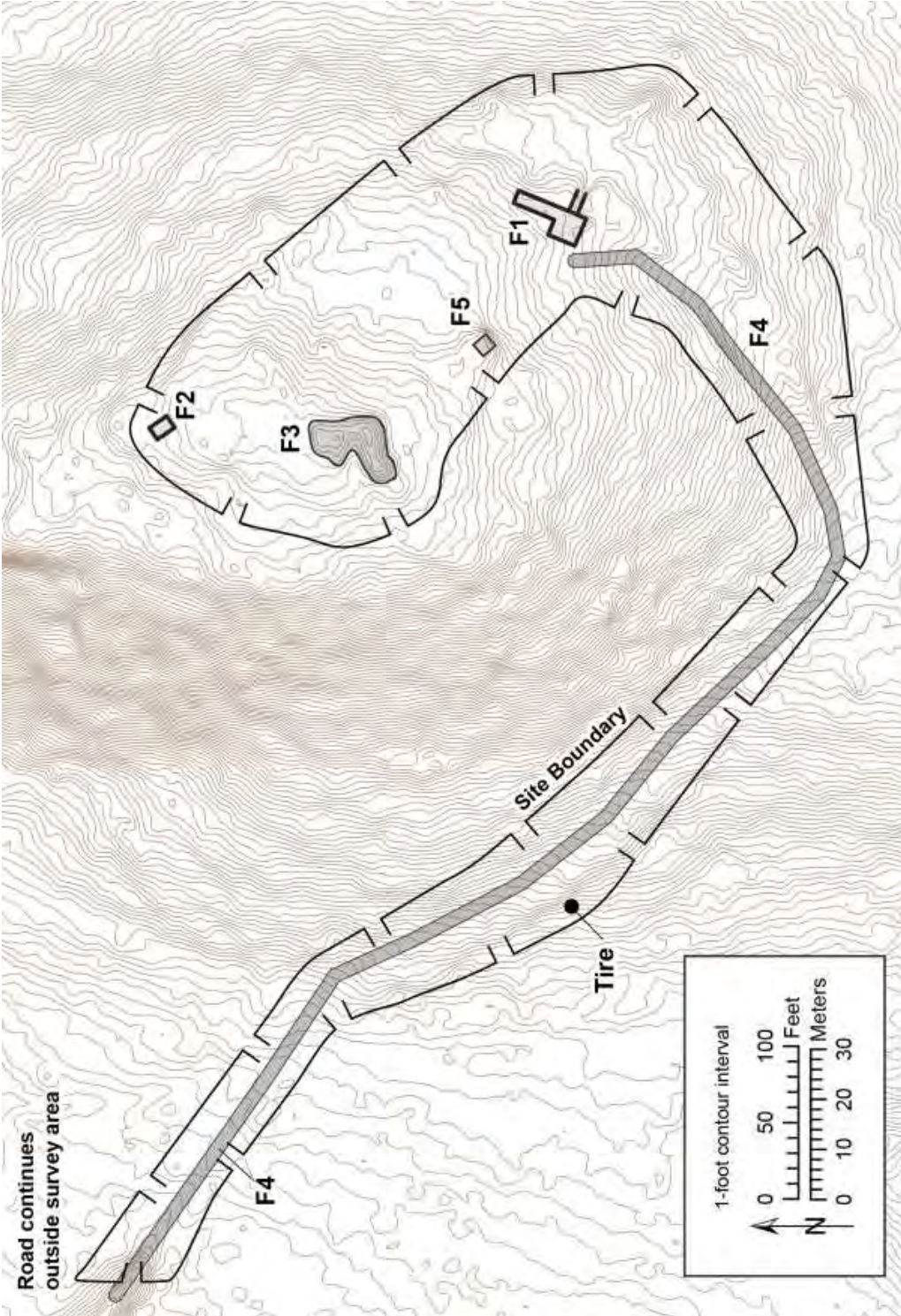


November 1, 2022

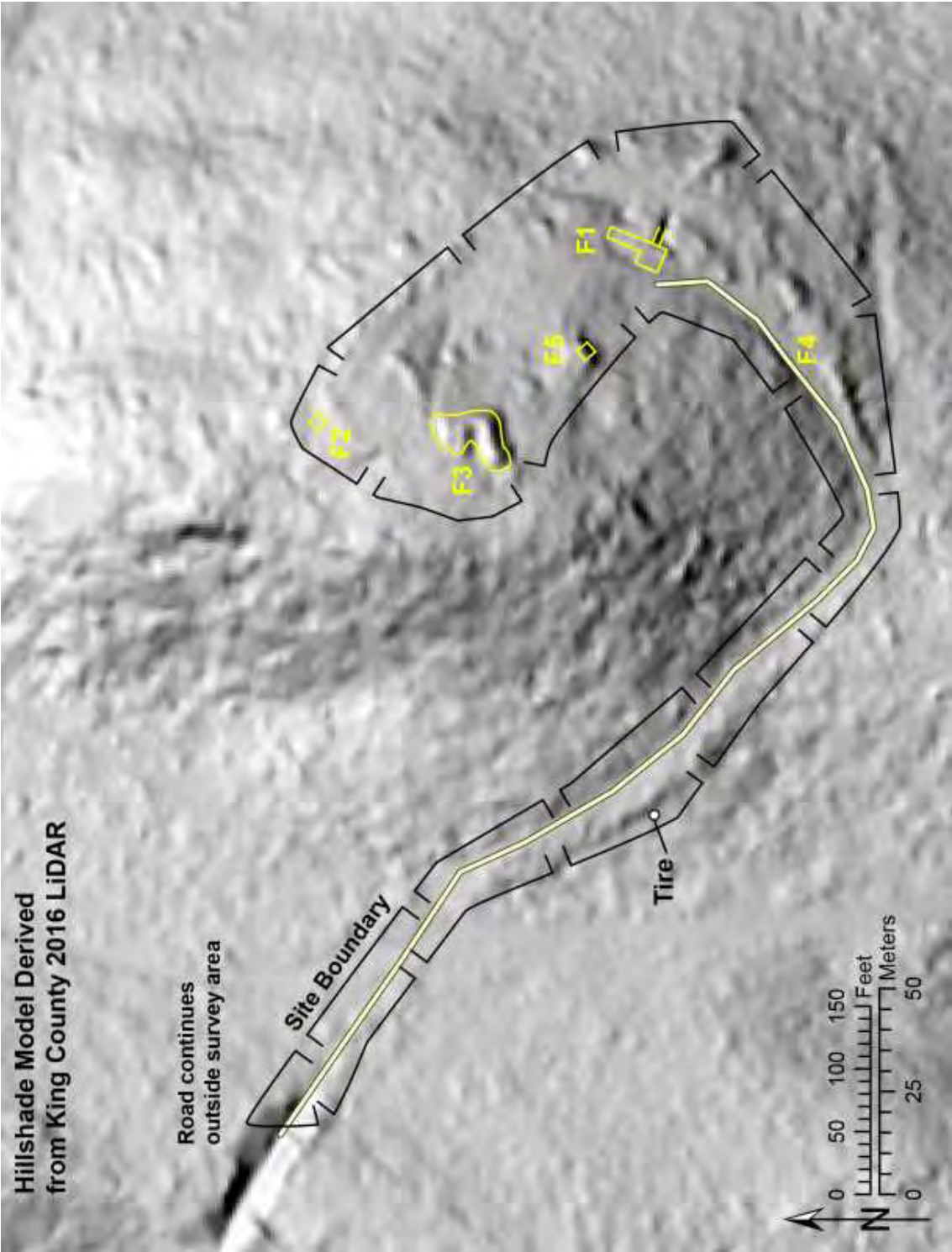


SKETCH MAPS

Source Information



Source Information



Source Information



Photographs, Tables and Additional Information



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FEATURE 2

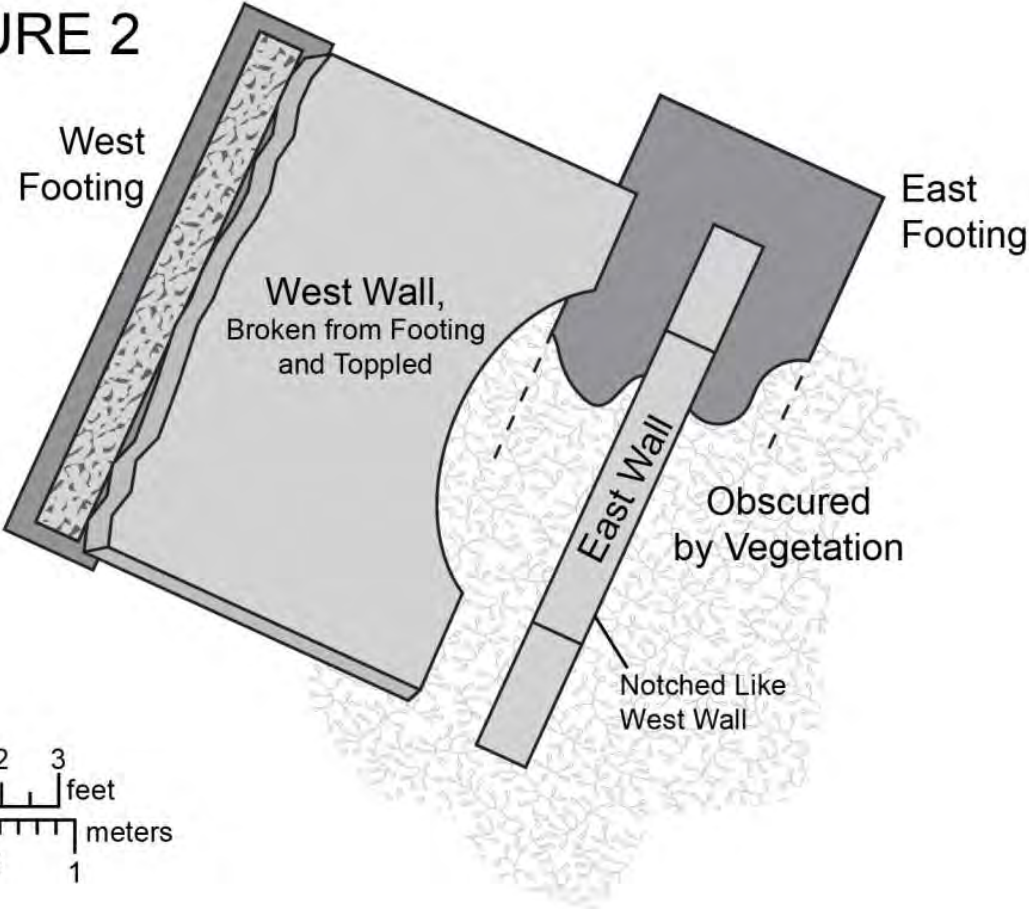


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FEATURE 1

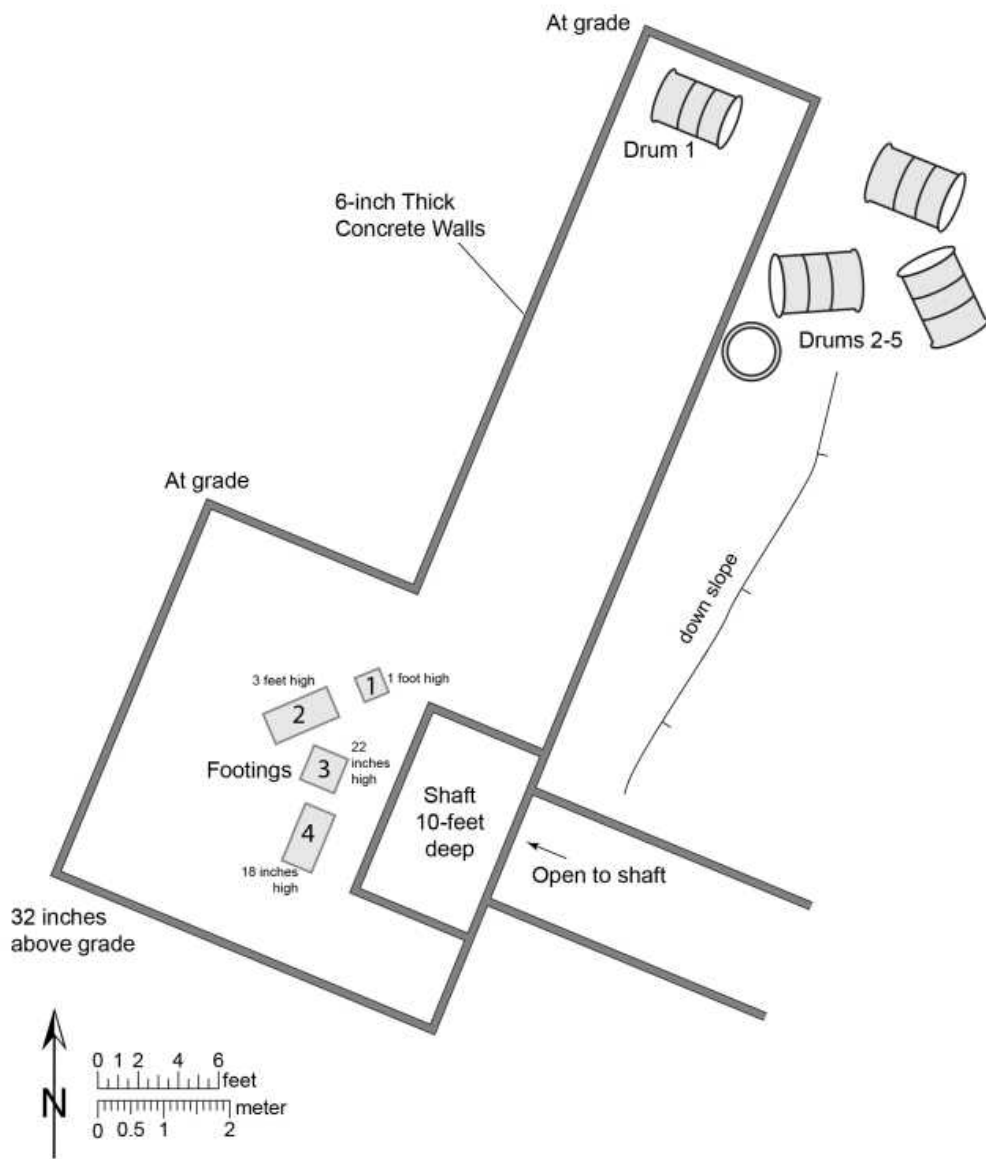


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