



Proposed PUT 29 Mine Site

Cultural Resource Desktop Study, North Slope, Alaska

Hilcorp North Slope, LLC

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This document has been prepared by SLR International Corporation (SLR). The material and data in this report were prepared by Jennifer Tobey. Ms. Tobey meets the Secretary of the Interior Professional Standards in archaeology and history and is affiliated with the Register of Professional Archaeologists (RPA).

Sincerely,

SLR International Corporation



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Limitations

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Executive Summary

Hilcorp North Slope, LLC's (Hilcorp's) plans to develop the Putuligayuk (PUT) 29 Mine Site as a material resource site that will provide gravel for ongoing oil and gas field activities. Proposed Mine Site PUT 29 is located within the Prudhoe Bay Unit (PBU) on Alaska's North Slope, approximately 6.5 miles northwest of Deadhorse.

The site is immediately southeast of Drill Site-15, north of the PUT River, and approximately two miles southwest of Prudhoe Bay. Material obtained from the site would be used for such things as road and pad maintenance, infrastructure placement, and support facilities in the PBU.

This cultural resource desktop study was conducted to support Hilcorp's planning activities. In this study, SLR International Corporation (SLR) evaluated available information to identify data gaps, provide an inventory and assessment of known cultural resources potentially affected by the proposed project, and provide recommendations related to protecting cultural resources during gravel extraction activities.

SLR's research shows adequate information from previous cultural resource studies to identify historic properties and other cultural resources potentially affected by the PUT 29 Mine Site. No Alaska Heritage Resource Survey (AHRS) sites or Traditional Land Use Inventory (TLUI) sites were identified within the project's area of potential effect (APE).

Five AHRS sites were identified within five miles of the project area; however, none will be affected by potential activities. SLR did not identify any significant data gaps for the project's area of potential effect and recommends no further cultural resource fieldwork for current project plans.

SLR recommends a finding of no historic properties affected by the PUT 29 Mine Site project



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Acronyms and Abbreviations

°F	degrees Fahrenheit
AHPA	Alaska Historic Preservation Act
AHRS	Alaska Heritage Resources Survey
APE	Area(s) of Potential Effect
ARCO	Atlantic Richfield Company
ASTt	Arctic Small Tool tradition
B.P.	before present (chronometrically calibrated dates with “present” defined as 1950)
CFR	Code of Federal Regulations
DOG	Division of Oil and Gas
DS-15	Drill Site – 15
E	east
ft	foot (feet)
Hilcorp	Hilcorp North Slope LLC
IHLC	Iñupiat History, Language, and Culture
MTRS	Meridian, Township, Range, and Section
N	north
NARA	National Archives and Records Administration
NRHP	National Register of Historic Places
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NSB	North Slope Borough
OHA	Alaska Office of History and Archaeology
PBU	Prudhoe Bay Unit
PUT	Putuligayuk River
Section 106	Section 106 of the National Historic Preservation Act
SHPO	State Historic Preservation Office / Officer
SLR	SLR International Corporation
TLUI	Traditional Land Use Inventory
U	Umiat
USGS	U.S. Geological Survey



1.0 Introduction

SLR International Corporation (SLR) prepared this cultural resource desktop study to support Hilcorp North Slope, LLC's (Hilcorp's) plans to develop the Putuligayuk (PUT) 29 Mine Site. Hilcorp will develop PUT 29 as a material resource site that will provide gravel for ongoing oil and gas field activities, such as road and pad maintenance, infrastructure placement, and support facilities in the Prudhoe Bay Unit (PBU), North Slope, Alaska.

The objective of this cultural resource desktop study is to evaluate available information for the project area, identify data gaps, provide an inventory and assessment of known cultural resources potentially affected by the proposed project, and provide recommendations related to protecting cultural resources and planning material mining activities.

1.1 Project Description

Hilcorp estimates that 5 million cubic yards of useable gravel are available at the PUT 29 Mine Site. Useable gravel samples will be extracted at depths of 80 feet below grade. In addition to the mine site construction, an access road will be required to enter the area before mining activities begin. This road would connect to the existing road to Drill Site-15 (DS-15). Mining activities will consist of standard civil construction equipment (trimmers, dozers, loaders, gravel trucks, excavators, etc.). Based on hardened ice layers, permafrost thickness blasting may be required. However, this is not ideal as the site is close to infrastructure, and blasting will be avoided if not needed.

1.2 Project Area

Proposed Mine Site PUT 29 is located within the PBU on Alaska's North Slope, approximately 6.5 miles northwest of Deadhorse. The site is immediately southeast of DS-15, north of the PUT River, and approximately two miles southwest of Prudhoe Bay. It sits among extensive oil and gas infrastructure (Figure 1). PUT 29 is located on the State of Alaska-owned lands, leased by Hilcorp, and within the North Slope Borough (NSB) Resource Development District.

The mine site project area is located in the United States Geological Survey (USGS) topographic map Beechey Point B-3 and falls within portions of the following Meridian, Township, Range, and Section (MTRS) designation:

- Umiat (U) T011 North (N) R014 East (E) S22
- U T011N R014E S27

The project area covers approximately 258 acres and is in a low-lying wetland (Figure 2). Wetlands conditions generally result in areas with low potential for cultural resources because humans tend to prefer drier areas for settlements, camps, or general use areas. Coastal areas and areas of relief, for example, pingos or river terraces, are considered to have high or moderate potential for cultural resources associated with prehistoric and historic use. An exception to this is human use related to oil and gas exploration and development, and activities which surround this project. Locations and evidence of historic and modern oil and gas activities in the area are well documented and highly visible.

1.3 Area of Potential Effect

The term Area of Potential Effect (APE) defined by 36 CFR 800.16(d):



“The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

For purposes of this review, SLR used a liberal APE with the intent to encompass project activities, direct effects (such as physical effects), and indirect effects (such as visual and audible effects). This initial APE is an area extending approximately two miles beyond the project area and covers approximately 11,818 acres (Figure 1). The project footprint, within which project activities will occur, will be within the APE (Figures 1 and 2).

1.4 Existing Infrastructure

Existing infrastructure and previous construction activities in the area include DS-15; the PUT-23 mine site and NSB landfill to the east; DS-7 and a small gravel storage pad to the south; and C-Pad, Gathering Center 3, Construction Camp 1, Central Power Station, and Base Operations Center immediately to the west of the PUT 29 project area. Numerous pipelines and gravel roads also surround the project area (Figure 1).



Figure 1: PUT 29 Project Vicinity

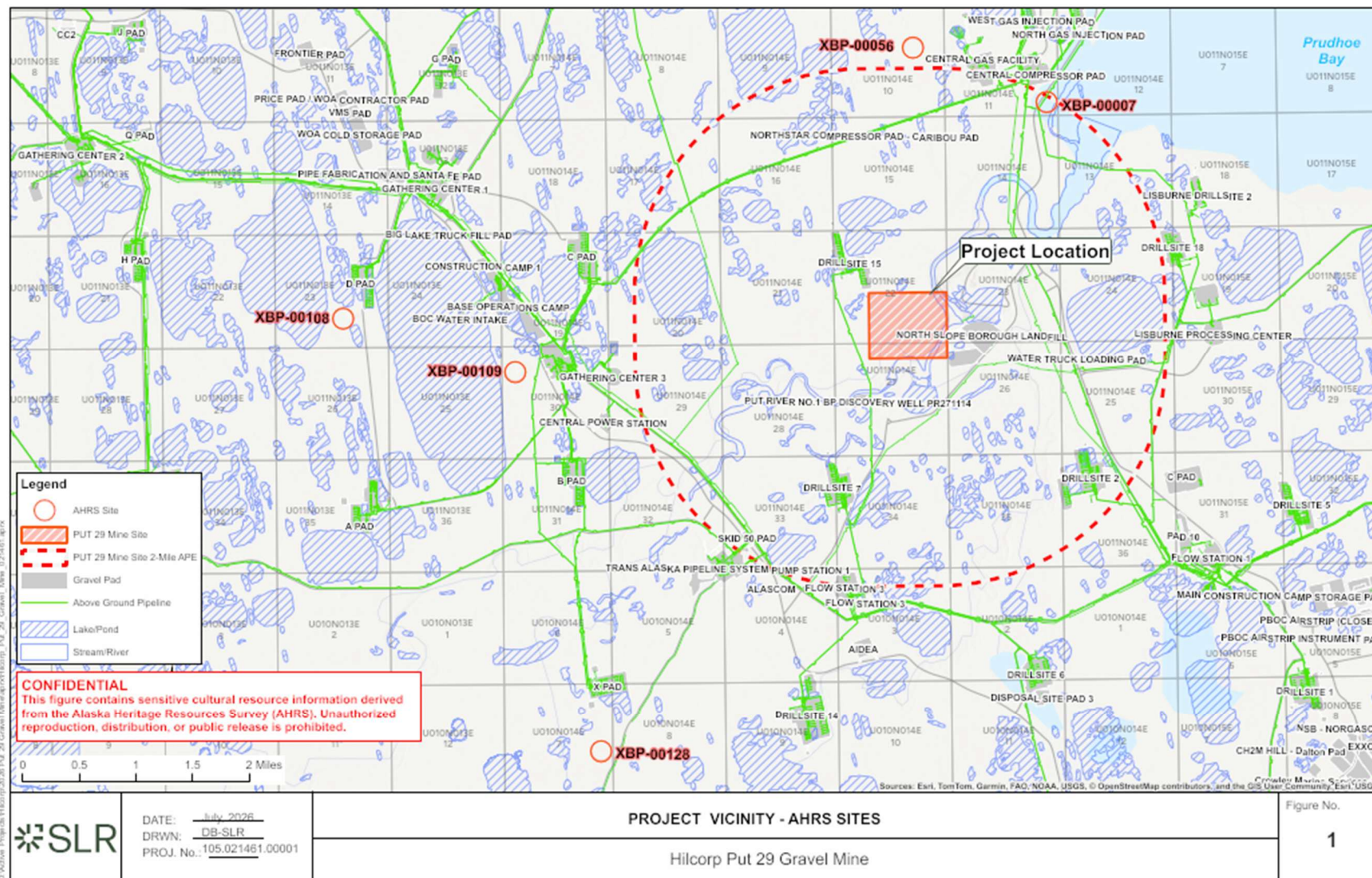


Figure 2: PUT 29 Mine Site Project Area



2.0 REGULATORY BACKGROUND

Cultural resources are protected by federal and state laws and local ordinances. Primary laws and ordinances are presented in Table 1. Section 106 of the National Historic Preservation Act (NHPA) (Section 106), National Environmental Policy Act (NEPA), Alaska Historic Preservation Act (AHPA), and NSB Municipal Code require cultural resources assessments and potential effects considerations prior to projects that may affect cultural resources.

Table 1: Legislation Protecting Cultural Resources in the Project Area

Government Tier	Scope	Applicable Laws / Ordinances
Federal	Projects that are Federal Undertakings: on federal land, receiving federal funds, or requiring federal permits or authorizations.	NHPA, Section 106
State	Projects that are State undertakings: on state land, receiving state funds, or requiring state permits or authorizations.	AHPA
Borough - NSB	Projects occurring within the NSB, regardless of land ownership.	NSB Municipal Code § 19.50.030(F) and § 19.60.040(K)

2.1 Cultural Resources and Historic Properties

Cultural resources are physical resources associated with people, their culture or cultures, a society, or societies. These resources include buildings, structures, sites, artifacts, and landscapes consisting of both the built and natural parts of the physical environment. This document focuses on cultural resources that may have historical value, traditional value, or both.

Historic Properties are a subset of cultural resources that are usually 50 years old or older and are included in or eligible for inclusion in the National Register of Historic Places (NRHP). A Historic Property can be classified as a prehistoric or historic district, site, building, structure, or object. A cultural resource that meets one or more of the NRHP criteria may qualify as a Historic Property (36 Code of Federal Regulations [CFR] 800; National Park Service [NPS], 1995). NHRP criteria include:

- Criterion A: Association with one or more important historical events.
- Criterion B: Association with a person or people who are historically significant and illustrates the person's or people's importance or important achievements.
- Criterion C: Association with historically significant design, craftsmanship, or construction.
- Criterion D: Potential to provide information to answer important research questions regarding the understanding of the past (NPS, 1995).



2.1.1 National Historic Preservation Act

The NHPA sets forth systems and standards for protecting important aspects of national heritage. The NHPA is comprehensive legislation that coordinates historic preservation efforts among federal, state, local, and tribal governments.

Projects considered federal undertakings must comply with Section 106. Federal undertakings are those that receive federal funds, require a federal permit or permits, or take place on federal lands/waters. Section 106 states that federal agencies must “take into account the effects of their undertakings on historic properties and afford the Council [Advisory Council for Historic Preservation] a reasonable opportunity to comment on such undertakings” (Public Law 13-287).

Protection of Historic Properties, 36 CFR Part 800 prescribes procedures agencies must follow in order to comply with Section 106. Section 106 does not apply to all cultural resources, but to Historic Properties (See definition in Section in 2.1 above).

2.1.2 Alaska Historic Preservation Act

The AHPA legislates the preservation of heritage resources on State of Alaska lands and within state waters. Like NHPA Section 106, the AHPA applies to state undertakings. The AHPA protects historic resources by ensuring that cultural resources that may be adversely affected are properly documented, and that any necessary mitigation measures are conducted in a timely and expeditious manner. The NRHP criteria are used to identify historic resources or properties and distinguish them from other cultural resources. Compliance with AHPA is a similar process to that of the Section 106 process.

2.1.3 North Slope Borough and the Protection of Cultural Resources Traditional Land-Use Sites

Like the federal and state governments, the NSB is responsible for protecting heritage resources within the borough boundaries. Prior to development activity, the project must obtain approval from the NSB Administrator, who will consider the project’s effects on historic and cultural resources. Specifically, NSB Code of Ordinance Title 19 (Zoning) states that proposed projects will not disturb traditional activities or values at historic or cultural resources that are identified by published studies or by the Iñupiat History, Language, and Culture (IHLC) Division of the NSB prior to professional archaeologists’ assessment of the resource (§ 19.50.030[F] and § 19.60.040[K]).

The IHLC is responsible for maintaining the record of the history of the land, people, and villages on the North Slope. This record is maintained in the form of photographs, recordings of interviews, artifacts and other physical material, and traditional land-use site/area locations. The Traditional Land Use Inventory (TLUI) is a geodatabase of place historical, archaeological, and cultural sites at which traditional subsistence activities take place, have taken place, or otherwise embody traditional value.

2.2 Effects on Cultural Resources

Effects on cultural resources are those that affect a property’s ability to convey traditional or historical value. In general, adverse effects may consist of any of the following:

- Physical destruction or damage to any part of the property;
- Alteration of the property, including restoration, rehabilitation, maintenance, stabilization, hazardous material remediation;



- Removal of property from its historic location;
- Physical change or use change that affects the property's historic character;
- Introduction of visual, atmospheric, or audible elements; or
- Neglect of a property that leads to deterioration (King, 2000).

2.3 Measures to Mitigate Adverse Effects

Measures mitigating potential adverse effects to historic properties vary by the specific historic property and specific project activity or activities. General mitigation measures may include one or more of the following:

- Avoidance,
- Historic American Building Survey/Historic American Engineering Record level documentation of historic buildings or structures,
- Archaeological excavation, analysis, and documentation of all or part of an archaeological resource/site,
- Archaeological monitoring of construction activities, or
- Development of interpretative materials with the intent to inform and involve the public.

3.0 STUDY METHODS

SLR reviewed national, state, and NSB databases and relevant available archaeological and historical literature to identify previously documented sites within the project vicinity and establish historical contexts that can be used while considering site significance and potential eligibility to the NRHP. The following sources were reviewed:

- AHRSPortal maintained by the Alaska Office of History and Archeology (OHA), which includes:
 - AHRs,
 - Historical document repository,
 - Cultural resource and historic resource survey repository, and the
 - Regulatory compliance repository (OHA 2026);
- TLUI maintained by the NSB;
- The NRHP maintained by the Keeper of the Register, NPS (NPS 2026);
- The National Archives maintained by the National Archives and Records Administration (NARA 2026);
- Published and unpublished reports, letters, and other documentation of previous cultural resource studies;
- Aerial imagery; and
- Other historical documentation.

The desktop study is a summary of reported cultural resource sites and previous archaeological investigations that were conducted in the vicinity. Thus, SLR's review included the project



vicinity as shown in Figure 1. The information listed below is only as complete as the data made public at the time of SLR's research. Any data gaps or missing information may be due to the proprietary nature of some archaeological surveys, such as those associated with some oil and gas projects.

The cultural resource desktop study's purpose is to identify cultural resources that may be adversely affected by the PUT 29 Mine Project. SLR does guarantee the study identifies all cultural resources within the APE or the project area but rather identifies the known resources and the types of cultural resources one would likely find within the project area and APE.

4.0 ENVIRONMENTAL SETTING

The North Slope has a unique physical environment because of its relative absence of heat energy that results both from the high latitude and geography. Of the physiographic divisions on the North Slope, the PUT 29 mine site is in the Arctic Coastal Plain ecoregion. The Arctic Coastal Plain is generally defined as areas of the North Slope that are 60 meters (approximately 197 feet [ft]) above sea level or less (Huryn and Hobbie 2012).

4.1 Geography

Three physiographic divisions are present on the North Slope: the Arctic Coastal Plain, Arctic Foothills, and the Brooks Range. The Arctic Coastal Plain extends from the Beaufort Sea coastline approximately 30 miles south to the Arctic Foothills (Division of Oil and Gas [DOG] 2018) and consists of a smooth plain rising from the ocean.

Abundant pingos add relief to the region (Wahrgaftig 1965). Common features on the landscape include pools of standing water, extensive wetlands, ponds, lakes, rivers, and streams (Huryn and Hobbie 2012). A steep cliff, measuring 50 to 200 ft, separates the Arctic Coastal Plain from the neighboring physiographic division to the south, the Arctic Foothills, which extend approximately 80 to 100 miles (Wahrgaftig 1965).

The foothills consist of a rolling upland terrain created by repeated glaciation events in the past. Kames, kame-like features, moraines, and mounds of drift are present and provide important flora and fauna habitat. The Brooks Range is the southernmost physiographic division of the North Slope.

Peaks in this region reach approximately 9,000 ft. High elevations result in almost barren habitats. Sparse patches of lichens and isolated vascular plants can be found in protected areas. In lower areas, dry meadows and heath communities are common (Huryn and Hobbie 2012).

4.2 Climate

Long, cold winters and cool summers characterize the North Slope. As a result, most of the area is underlain by permafrost. The exception is those areas under large water bodies. The average yearly temperature is about 10 degrees Fahrenheit (°F). The coldest month of the year is February, when mean temperatures range from negative 16°F (-16.6°F) to -22°F, with the temperatures generally colder near the foothills than near the Arctic coast. July is the warmest month of the year, with mean temperatures ranging from 41°F near the coast to 55°F near the Foothills (Huryn and Hobbie 2012).

This climate zone receives less than 20 inches of precipitation each year and thus meets the definition of a desert. However, it is a unique desert because the soils in both the coastal plain and foothills are saturated during the summer. A shallow top layer of soil, 12 to 39 inches, thaws



in the summer, but because it sits on top of a watertight permafrost layer, water in the soil has no place to drain (Huryn and Hobbie 2012).

4.3 Vegetation

As noted above, the North Slope region is poorly drained because it is underlain by permafrost. Additionally, the Arctic Coastal Plain has little relief. As a result, thick water-saturated organic soils support wetland flora and fauna (DOG 2018, Huryn and Hobbes 2012). Typical vegetation includes sedges (*Eriophorum angustifolium* and *Carex aquatilis*) and grasses (*Dupontia fisheri* and *Arctophila fulva*). In drier areas, dwarf willow (*Salix roundifolia*), saxifrages (*Saxifraga hieracifolia* and *Saxifraga hirculus*), coltsfoot (*Petasides frigidus*), buttercups (*Ranunculus nivalis*), and mountain avens (*Dryas ajanensis*) can be found (Huryn and Hobbie 2012).

4.4 Paleoenvironment

Climatic and environmental changes that occurred in Alaska over the past tens of thousands of years have had major influences on the plant and animal distribution of the modern-day landscape. Environmental conditions influential to early human habitation in the Americas were associated with the Wisconsin Glaciation. Specifically, it is the conditions associated with the Tioga phase of the Wisconsin Glaciation, which was the last major glaciation of northern North America and occurred approximately 20,000 years before present (B.P.).

During the terminal Pleistocene, the Cordillerian and Laurentide ice sheets retreated, creating an ice-free corridor between Siberia and the Americas: the Bering Land Bridge or Beringia. The climate of the North Slope was colder and drier, and the sea level was approximately 300 ft lower than it is today (Anders et al. 2018). Pleistocene-era Beringia experienced a significantly colder and drier environment during the Last Glacial Maximum, 25,000-14,000 B.P. Analyses of lacustrine sediment cores, loess sediment cores, loess deposits, and buried peat deposits have indicated that the Beringian environment was dominated by grasses, sedges, willow, and sage.

From 14,000-12,000 B.P., the Beringian landscape was characterized by an increase in dwarf birch (Hoffecker et al. 1993). The tundra-steppe grasses and shrubs that existed grew on the Bering Land Bridge during this time facilitated migration of diverse large mammal species from Siberia to North America. A widely accepted hypothesis states humans spread from Siberia to North America across the Bering Land Bridge during this time, as northern and interior Alaska were ice-free (Dumond 1987).

During the beginning of the Holocene era and at the end of the last Ice Age, rising sea-levels submerged the Bering Land Bridge, separating Asia and North America with the Bering Strait. As new coastlines emerged, new maritime conditions arose. Rapid sea-level rise occurred between approximately 10,000 and 9,000 years ago. People living in coastal areas undoubtedly migrated landward as the coastline changed (Dixon 2013). About 5,000 – 6,000 years ago, the sea level stabilized (Anders et al. 2018, Dixon 2013).

5.0 CULTURAL SETTING

This section of the Desktop Study provides a brief description of the human past of the project area and the surrounding region. It is not an all-inclusive examination of the past but is meant to provide context with which the historical significance and NRHP eligibility of cultural resources in the area can be evaluated. This discussion generally follows chronologically from early to present. It should be noted that spatial and temporal overlap of traditions or cultures exists.



5.1 Early Americans

The most prevalently accepted theory is that the first people crossed the ice-free corridor of Beringia into the Americas about 13,500-13,200 years B.P., while an alternative theory postulates the earliest people migrated along a Pacific coastal route around 14,500 years B.P. (Braje et al. 2020). Most of the archaeological evidence documented associated with the earliest habitation of Alaska (about 14,000 years ago) is from the Interior (Anders et al. 2018, Wygal et al. 2021) and is located near the northern “gateway” to the ice-free corridor route (Wygal et al. 2021). In contrast, the earliest documented archaeological evidence from areas between the Brooks Range and the northern Alaska coast suggest later human habitation, as early as 12,000 years ago, at the time the sea level was approximately 300 ft lower than it is today (Anders et al. 2018).

5.1.1 Paleoarctic Tradition

The Paleoarctic Tradition dates from approximately 11,000 to 7,000 years B.P. (Anders et al. 2018). Archaeological sites and artifacts from Siberia and Alaska show similarities, linking the Alaska traditions with those of Siberia (Coutouly 2012, Dixon 2013, Hirasawa and Holmes 2017, and Wygal et al. 2021). This suggests that people shared a similar technology and a similar way of life, for example, the Dyuktai Tradition in Asia and the Paleoarctic in Alaska (Dixon 2013). Artifacts defining the tradition are stone core and microblade tools. Archaeological evidence also suggests that succeeding Northern Archaic and Arctic Small Tool traditions (ASTt) are related to it (Anders et al. 2018).

The people who made and used the Paleoarctic tools are likely those who were living on the Bering Land Bridge when the sea level began to rise, separating Asia and Alaska. Hunting caribou was important to these people, while they may have supplemented their diets by fishing. In addition to stone cores and microblades, distinctive antler arrow points with slots for microblades have been found at Paleoarctic sites (Dixon 2013). Paleoarctic sites have been found scattered across the North Slope (Anders et al. 2018).

5.1.2 Northern Paleoindian Tradition

The Paleoindian Tradition has been attributed to people associated with one of the earliest migrations into the North American Arctic. North American Paleoindian sites date from approximately 13,000 to 9,000 years of age (Dixon 2013). The tradition is defined by a stone technology designed for hunting large mammals, such as mammoth, bison, muskox, and caribou (Anders et al. 2018). This wide-reaching tradition has been associated with sites across North America and South America. Artifacts from sites in Alaska such as Spein Mountain (Ackerman 2001) and the Mesa Site (Kunz and Reanier 1996) show strong cultural correlation to the Paleoindians of Great Plains and southwestern America. These Northern Paleoindian sites have younger dates (10,000 to 9,700 years B.P.) than the Paleoindian sites of the Great Plains (11,500 to 10,900 years B.P.), leading archaeologists to suggest the tradition migrated to Alaska north from the central U.S. (Anders et al. 2018, Dixon 2013, and Dumond 2001).

The oldest known Northern Paleoindian Tradition sites on the North Slope date from the end of the last ice age to approximately 9,800 years B.P. and are associated with a fluted bifacial lithic technology that was similar to that of the Folsom cultures in Central North America during about the same time. When megafauna disappeared from the archaeological record, so did this technology (Anders et al. 2018). Perhaps the most well-known Paleoindian site in Alaska is the Mesa Site, which is located in the northern Brooks Range Foothills, outside of the project area. Archaeologists found 30 small hearths and accompanying stone tools on top of a bedrock hill.



The site was likely used as a hunting lookout and weapon repair area. Edge-ground lanceolate projectile points, other bifaces, and scrapers were found at the site (Reanier 2007).

5.2 Arctic Small Tool Tradition

ASTt sites have a wide geographic distribution and have been documented from the Alaska Peninsula to Greenland. The ASTt is associated with the earliest known “Eskimo” cultural group and tool assemblages that contain small tools, including small end-blades and side-blades, microblades, multiple types of scrapers, bifacial burins, small adze blades, and bifaces (Dumond 1987). ASTt sites date from around 5,000 to 4,000 years ago and suggest a reappearance of microblade use and a lifestyle-oriented toward marine mammal hunting. The tradition is named for microblades, blocky microblade cores, burins, and flake knives characteristic of the assemblages. Antler points and grooved shaft smoothers to make arrows are also common to the assemblages and suggest bow and arrow use (Dixon 2013).

ASTt artifacts have been found associated with a variety of sites from the Alaska Peninsula north along the coast and east to Greenland. Dixon argued that the distribution of and similarities of the ASTt sites suggests these people were able to travel relatively easily from the coast into the interior. They may have been the first humans to enter parts of Canada and Greenland (Dixon 2013).

Three phases have been identified as part of the ASTt:

- Denbigh: 4,200 – 3,600 years B.P. characterized by small exquisitely flaked lithic tools inset in bone or antler projectile points
- Choris: 2,750 -2,250 years B.P. characterized by small tools made with a controlled parallel flaking technique similar to the Denbigh complex, however, endblades and sideblades are noticeably larger and not as exquisitely flaked
- Norton: 2,500 – 1,350 years B.P. a transformative phase having lithic technology similar to the Choris technology with abundant endblades and sideblades. However, check-stamped pottery, oil lamps, and some ground slate are also associated with this complex
- Ipiutak: 2,000 – 900 years B.P. Lithic technology used flaking similar to the Denbigh complex. Other artifacts associated with this complex include elaborately carved ivory. This complex lacks oil lamps, ground slate, and pottery found in Choris complex (Anders et al. 2018).

5.3 Northern Maritime Tradition

The Northern Maritime Tradition had a large geographic distribution, from southwestern Alaska to Greenland (Dumond 1987). Northern Maritime people used toggling harpoon heads and seal darts, and they had a maritime lifestyle. Artifacts identified from this tradition include pottery, ulus, kayaks, and sleds. House features are usually rectangular, semi-subterranean, and have tunnels in the entrances.

Archaeologists divide the Northern Maritime into phases: the Old Bering Sea phase, found primarily on the Bering Sea islands; and the Birnirk and Punuk, both identified along the northern and western coast of mainland Alaska; and Thule, which developed from the Punuk and Birnirk cultures (Anders et al. 2018, Yarborough 2001). The Birnirk type site is located two miles north of Utiagvik. Other sites have been identified near Point Hope, Cape Krusenstern, Cape Espenberg, Wales, Cape Nome, St. Lawrence Island, Alaska, and Ekven on the Chukotka



Peninsula. Birnirk sites date from about 1,200 to 700 years B.P. and are oriented around sea mammal hunting (Anders et al. 2018).

Punuk sites are a little younger than the earliest Birnirk sites, dating from 1,200 to 500 years B.P. Punuk sites have a wide distribution: from St. Lawrence Island to Nunagiak near Barrow and along the southern Chukotka Peninsula coast. Evidence from Birnirk sites suggests people had a maritime lifestyle (Anders et al. 2018).

The Thule culture was defined by archaeological evidence in the Canadian Arctic and dated from 1,000 and 300 years ago (OHA 2018). Western Thule is used specifically for Thule culture in Alaska (OHA 2018, Anders et al. 2018). Western Thule people lived in permanent villages and had complex social and trade practices. They built rectangular semi-subterranean houses with driftwood or whale bones that had tunnel entrances to trap cold air. Sod was used as insulation. Houses tended to have multiple rooms, with a kitchen area separated from the main room and sleeping area (Anders et al. 2018, OHA 2018).

5.4 Iñupiat 500 B.P. – Contact

The Iñupiat are the direct successors of the Western Thule and are the Inuit Eskimo-speaking inhabitants of northern Alaska and extreme northwest Canada (Burch Jr. 1998). Their territory is roughly defined as the region north of the Arctic Circle (Spencer 1984a). The Iñupiat often established settlements near the edge of the foothills, rivers, and on the coast. They valued the tundra area for harvesting resources. Temporary fish camps were often located on the tundra (Spencer 1984a). Iñupiat houses were semi-subterranean and composed of bone and wood with sod blocks cut from the tundra. People entered houses through a ground-level tunnel that trapped the cold air, much like the Western Thule houses. Storage rooms were located to the sides of the tunnel (Spencer 1984b).

Whaling has been and remains a of prime importance to the Iñupiat. It was not only of great economic importance, but later became a center of ritual and ceremonial activity (Spencer 1984b). While coastal communities focused on maritime resources, inland groups relied on land mammals, especially the caribou. Strong social ties among people through the region facilitated the sharing and trade of marine resources with people inland and inland resources with people living along the coast. In addition to caribou, the inland north Alaska communities relied on brown bears, mountain sheep, ptarmigan, rodents, furbearing predators, and freshwater fish for subsistence (Spencer 1984b). The Iñupiat culture has maintained trade, social, and familial networks among the various villages for many generations. Subsistence resources and use of subsistence use areas were and still are shared throughout the region (Spencer 1984b).

5.5 European Exploration

The first contact between Native Alaskans and non-Natives was in the mid-1700s, between the Unangan of the Aleutian Islands and Russians (OHA 2018). Russian, French, Spanish, and English expeditions took place in various parts of Alaska in the 1700 and 1800s. Much of the early exploration occurred in southern and central portions of Alaska (Naske and Slotnick 1987), avoiding direct contact with the Iñupiat of the North Slope. Captain Cook leading perhaps the first European exploration north of the Arctic Circle, voyaged into the Arctic Ocean in 1778 in one of England's attempts to find the Northwest Passage. In 1826, Captain F. W. Beechey mapped the north coast of Alaska to the northernmost Alaska Cape, naming it Point Barrow (FitzGerald 1951, Kennedy 1980). Sent by the Hudson's Bay Company, Thomas Simpson and Peter W. Dease traveled down the MacKenzie River, Canada to the Arctic coast, and then west along the coast to Point Barrow (Kennedy 1980).



Although he was unable to locate the Northwest Passage, Beechey brought back reports of whales in the northern waters off the Arctic coast, which led to a period of commercial whaling that would greatly influence the Iñupiat of Alaska. In 1848, Thomas Roys, captain of the whaling ship *Superior* and hailing from Sag Harbor, New York, sailed through the Bering Straits into the Western Arctic. He had a very successful season, and news of his voyage spread quickly. In 1852, 200 whaling ships entered Arctic waters. The influx of European whalers had a tremendous impact on traditional Inuit culture. Europeans traded tobacco, liquor, and other goods for ivory and furs. They hired Natives to work on the whaling ships and to make clothing for the European whalers. Participation in these activities altered traditional seasonal subsistence lifestyles (Alaska Humanities Forum n.d., Naske and Slotnick 1987).

5.6 Early American Period

The U.S. purchased Alaska from Russia in 1867. Whaling and Arctic exploration continued after the purchase. The first whaling station was established at Point Barrow in the late 1800s, and by 1897, 13 whaling stations had been established between Point Barrow and Cape Seppings, along Alaska's northwest coast. Iñupiat labor supported commercial whaling in the 19th and 20th centuries (Alaska Consultants Inc. with Stephen Braund and Associates 1984, Cassell 2000, 2005). The end of the commercial whaling industry came with a decrease in demand for whale oil and a considerable decline in the population of bowheads in the late 1800s. During this demise, whalers supplemented a decreased stock by hunting walrus for blubber and ivory (Alaska Humanities Forum n.d.).

Following the collapse of the whaling industry, fur trapping grew in the North Slope's economic importance. Trading posts were established at Beechey Point and Barter Island and subposts positioned along the coast to facilitate the trade of fur harvested by North Slope Iñupiat. Fur prices peaked in the 1920s and 1930s. The fur trapping industry subsided after the Great Depression and many families moved further inland to caribou hunting sites. This resource decline, combined with the influences of missionaries, schools, and government services, encouraged many North Slope residents to move to regional centers such as Barrow (Arctic Environmental Information and Data Center 1979).

While commercial whaling was conducted in the arctic seas, little exploration or Euroamerican travel was done onshore and inland in the project area. The Canning River region was "almost unknown" until Ernest de Koven Leffingwell reported his geographic and geologic observations in 1919, even though whalers had traveled the adjacent seas and "several" explorers "hastily traversed" the coastline (Brooks 1919). In 1906, the Anglo-American Polar Expedition or the Mikkelsen-Leffingwell Expedition, as media at the time referred to it, left Victoria, British Columbia for Banks Land, northeast of the Mackenzie River mouth.

The expedition's goal was to conduct scientific studies from Bank Land to the west "as far as possible and then spend a year in explorations farther west over the Arctic Ocean" searching for land predicted by others based on tidal currents (Leffingwell 1919). The expedition got as far as Flaxman Island, where the party wintered. After the winter, the party's ship was deemed unseaworthy and all, but Leffingwell returned home via whaling ship.

Leffingwell remained in the region living with Iñupiat to conduct scientific studies. Over a ten-year period, he conducted scientific studies, including geographic exploration, employed in whaling and trading, and wrote his report on the Canning River region. He worked alone at times and at others with one or two Iñupiat assistants (Brooks 1919, Leffingwell 1919). Within his study, Leffingwell documented about 70 square miles south of Camden Bay (Leffingwell 1919). His work produced the first accurate chart of Alaska's arctic coast and has been a valuable contribution to the topography of the polar region shoreline.



The U.S. military would be the next notable agent influencing residents of the region. The military constructed several facilities to support the Distant Early Warning (DEW) Line during the Cold War. Facilities were built across the North Slope to provide the U.S. and Canada advance warning of potential Soviet Union attack. The DEW line was operational by 1957, and the military used it for more than 30 years. (Denfeld 1994, Grover 2014).

5.7 History of the Oil and Gas Industry

Executive Order 3797-A established the National Petroleum Reserve-Alaska, a 23.5-million-acre area east of the Colville River (Grover 2014). From 1923 to 1926, the USGS performed exploratory investigations. However, because of the area's remoteness and harsh weather, a lack of demand for petroleum, and the Great Depression, oil and gas explorations in the area were stalled until World War II. Then, from 1944 to 1953, the USGS and the U.S. Navy led an oil exploration (Grover 2014, Reed 1958). The first oil field discovered on the North Slope was at Umiat in 1946. The first significant discovery was in 1949 in the South Barrow Gas Fields. The fields were developed to supply fuel to Barrow (Gallaway 2001, Pedersen et al. 2009).

The discovery of oil in Prudhoe Bay had and continues to have a notable influence on the Alaskan arctic through oil-related construction and exploration. The first large discovery at Prudhoe Bay was made by Atlantic Richfield Company (ARCO) (ConocoPhillips Alaska maintains ARCO Alaska assets now) and its partner Humble Oil (now Exxon Mobil) on March 13, 1968. In 1969, ARCO, BP Exploration, and its partners began development in the Prudhoe Bay field (Gallaway 2001, Sweet 2008). This discovery led to notable and related events in Alaska's history: the Alaska Native Claims Settlement Act (ANCSA) and the Trans Alaska Pipeline System (Naske and Slotnick 1987).

The need to transport oil from the North Slope resulted in the design of the 800-mile Trans Alaska Pipeline System from the North Slope south to Valdez. Construction of the pipeline required crossing federal and state lands and lands claimed by Native Alaskans. Much of the latter was also claimed by the state under the Statehood Act of 1959. At the time of the Prudhoe Bay discovery, claims were unsettled. The North Slope Native Association claimed almost all land above the 68 parallel (Gallaway 2001).

In 1969, Prudhoe Bay field development began, and pipeline owner companies began purchasing right-of-way easements from Natives and offered jobs to them (Gallaway 2001, Roderick 1997). Many Native landowner groups granted right-of-way access. However, the Arctic North Slope Native Association did not. The issue of land claims was complex, and as a result, a federal land freeze was implemented, delaying pipeline construction. In December 1971, the ANCSA was enacted, and the path toward a pipeline right-of-way permit began.

While ANCSA addressed questions about land ownership, it also paved the way for establishing Alaska Native corporations and influenced the formation of the NSB (Roderick 1997). During the late 1960s and early 1970s, designing and planning the pipeline occurred. In May 1975, the first pipe was laid, and the final pipeline weld was in May 1977. Oil began to flow through the pipeline in Jun of that same year (Gallaway 2001).

The oil and gas industry remains an important part of Alaska's economy through permanent and temporary jobs with the oil companies and oil field service companies, taxes, fees, and the permanent fund dividend. North Slope exploration and development have contributed appreciably to the state's economy and culture.



6.0 PREVIOUS CULTURAL RESOURCE STUDIES IN THE PROJECT AREA

During the literature review, SLR identified four cultural resource studies that included a portion of or the entirety of the PUT 29 Mine APE. These studies included desktop studies and field studies (Table 2). None of these studies identified cultural resources in the project area. From these studies, SLR determined that all of the project area has been the subject of at least one cultural resource field survey.

Table 2: Previous Cultural Resource Surveys

Title	Reference	Study Type	Notes
Cultural Resources Report Literature Review, Archaeological and Historic Resource Survey, and Recommendations SAExploration, Inc. Greater Prudhoe Bay 3D Seismic Project	Anders et al. 2018	Desktop and Field Survey	Field survey did not include the PUT 29 Project Area because the area had been surveyed previously. Anders et al. determined the area did not need to be surveyed again.
Cultural Resources Review, North Prudhoe Bay 2015 Vibroseis Seismic Survey, North Slope and Beaufort Sea, Alaska	Rogers 2014	Literature Review	Review encompassed PUT 29 APE. Mr. Rogers' review did not identify any cultural resource sites within the PUT 29 APE.
Phase I Cultural Resource Report: Archaeological Survey and Site Documentation, USAKE-UR-SRZZZ-00-0021	Greiser et al. 2013	Reconnaissance field survey: helicopter overflight survey, pedestrian survey with subsurface testing in high potential areas.	Survey included overlap of parts of the PUT 29 APE. No cultural resources were identified in the current APE.
Letter Report Re: BP Exploration (Alaska), Inc. Proposal to Conduct PSI Gravity Survey in the Prudhoe Bay Vicinity	Reanier 2001	Field survey	Mr. Reanier's investigations include the PUT 29 APE. No cultural resource sites were documented in the PUT 29 APE.

7.0 KNOWN CULTURAL RESOURCES IN THE PROJECT AREA

Reviews of the AHRS and the TLUI databases show no known cultural resource sites in the APE. Five previously documented AHRS sites are within five miles of the project location; three are within three miles (Table 3). The closest site, XBP-00109, is approximately 2.4 miles away (OHA, 2021). No TLUI sites are within 5 miles of the project area. Hilcorp reviewed the TLUI information in coordination with the NSB (Iles, pers. comm. 2022).



Table 3: AHRs Sites in the Vicinity of PUT 29 Mine Site

Site Name	AHRs Number	Period	Association	National Register/NRHP Status	Proximity to Mine Site (miles)
Putuligayuk River Delta Overlook	XBP-00007	Prehistoric	Exact unknown. Archaeological evidence dates from about 2075 B.P.	Not evaluated	2.3
Prudhoe Bay Oil Field Discovery Well Site	XBP-00056	Historic	Alaska Oil and Gas Industry, 1967-1968	Listed	2.5
XBP-00109	XBP-00109	Historic	Iñupiat	Not evaluated	3.7
Oil Exploration Road	XBP-00128	Historic	Oil and Gas Industry, 1969	Determined not eligible	4.8
XBP-00108	XBP-00108	Prehistoric	Iñupiat	Not evaluated	5.2

8.0 RECOMMENDATIONS

Based on the efforts of this desktop study, SLR recommends Hilcorp seek a finding of “No Historic Properties Affected” from the State Historic Preservation Office/Officer (SHPO), lead regulatory agency, and the NSB. Based on a review of available cultural resources datasets, previous surveys conducted that included the APE and surrounding area, and information on known cultural resources, SLR recommends existing field investigations would not be required to identify resources in the project area.

Due to the distance from the proposed project and existing infrastructure between the project area and the one historic property and four additional cultural resources identified in the vicinity; the proposed project will not directly or indirectly adversely affect these resources. Furthermore, based on the previous cultural resource desktop and field investigations, and because the proposed project is located in wetlands, there is a low likelihood that undocumented cultural resources are located within the project area. Considerable data on the proposed project area is available from previous investigations, reducing the likelihood that there are undiscovered cultural resources.

8.1 Inadvertent Discovery: Protection of Undocumented Sites

Although SLR did not identify any cultural resources within the APE and the project is within a region of the state that has been heavily studied and surveyed, a small chance exists that Hilcorp could encounter undocumented sites. This desktop, like archaeological surveys, literature reviews, and other desktop studies, was done in good faith to identify resources within the project area but is not exhaustive.

SLR recommends that Hilcorp implement an Inadvertent Discovery Plan. If a previously undiscovered cultural resource is observed, any activity that has the potential to harm that resource should cease. The project should notify the lead regulatory agency and SHPO immediately. Consultation with SHPO regarding avoiding or mitigating adverse effects should then be pursued.

Activities that can be harmful to cultural resources include:



- ground-disturbing activities;
- vegetation removal; and
- any activity that can irreversibly damage or change the cultural resource.



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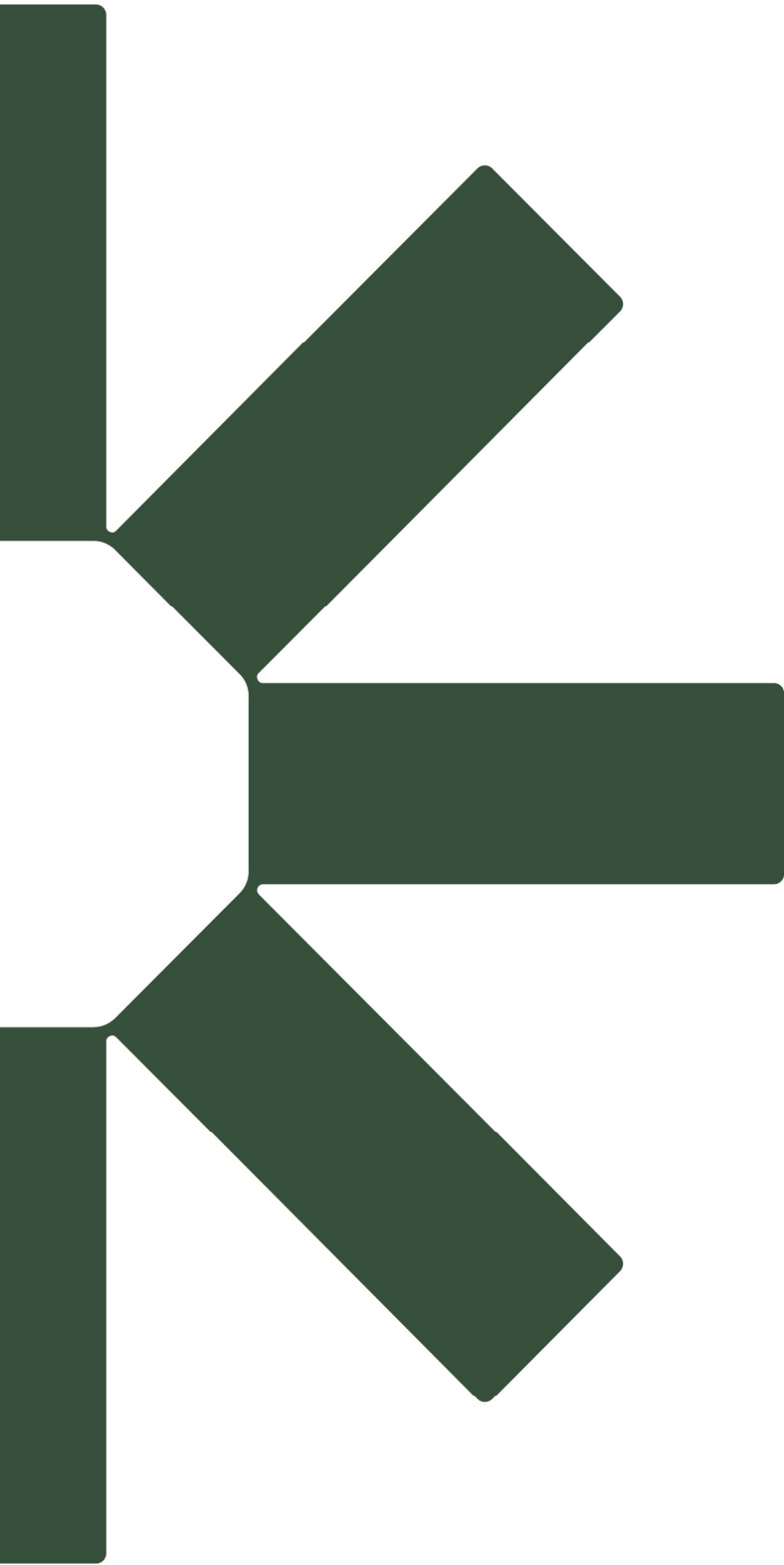


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