ENVIRONMENTAL ASSESSMENT
UPPER STILES CREEK SHOOTING RANGE IMPROVEMENT PROJECT, CHENA RIVER STATE RECREATION AREA, ALASKA

June 12, 2025

Prepared for:

U.S. Fish and Wildlife Service
Alaska Region
Office of Conservation Investment
1011 East Tudor Road
Anchorage, Alaska 99503

Prepared in Part By:

The U.S. Fish and Wildlife Service's *Finding of No Significant Impact Determination* can be found at the end of this document (beginning on page 326).

Design Alaska, Inc.
601 College Road
Fairbanks, AK 99701

Alaska Department of Fish and Game
Division of Wildlife Conservation
33 Raspberry Road
Anchorage, Alaska 99518

Alaska Department of Natural Resources
Division of Outdoor Recreation
Office of Design & Construction
550 West 7th Ave, Suite 1340
Anchorage, Alaska 99501

U.S. Fish and Wildlife Service
Alaska Region
1011 East Tudor Road
Anchorage, Alaska 99503

This Page Intentionally Left Blank

This Page Intentionally Left Blank

Table of Contents

ACRONYMS AND ABBREVIATIONS

ACGP	Alaska Construction General Permit
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT	Alaska Department of Transportation
ANSCA	Alaska Native Claims Settlement Act
APDES	Alaska Pollutant Discharge Elimination System
BMP	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRSRA	Chena River State Recreation Area
CWA	Clean Water Act
DM	Departmental Manual
DPOR	Division of Parks and Outdoor Recreation
DWC	Division of Wildlife Conservation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
USEPA	U.S. Environmental Protection Agency
U.S. EPA BMP's	U.S. EPA Best Management Practices for Lead at Outdoor Shooting Ranges Manual
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FNSB	Fairbanks North Star Borough
FONSI	Finding of No Significant Impact
IPaC	Information for Planning and Consultation
ITRC	Interstate Technology and Regulatory Council
MBTA	Migratory Bird treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historical Preservation Act
NOAA	National Oceanic and Atmospheric Administration

NRA	National Rifle Association
NRHP	National Register of Historic Places
PJD	Preliminary Jurisdictional Determination
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SHPO	State Historic Preservation Office
SWPPP	Storm Water Pollution Prevention Plan
USAEC	United States Army Environmental Center
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
Service	United States Fish and Wildlife Service
WOTUS	Waters of the United States

CHAPTER 1: PROJECT DESCRIPTION

1.1 Introduction

The Alaska Department of Natural Resources (ADNR), Division of Parks and Outdoor Recreation (DPOR) has applied to the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation (DWC) for a grant to upgrade the existing Stiles Creek shooting range at Mile 36.4 of Chena Hot Springs Road, within the Chena River State Recreation Area (CRSRA) outside Fairbanks, Alaska. The range is in a former Alaska Department of Transportation (ADOT) gravel pit and lacks all safety and environmental controls found in modern ranges.

The project will be completed using grant funds administered through the United States Fish and Wildlife Service (Service) Wildlife Restoration Program. By using Federal grant monies, a federal nexus is triggered, requiring the implementation of a National Environmental Policy Act (NEPA) review resulting in the preparation of this Environmental Assessment (EA).

This EA has been prepared pursuant to NEPA (42 U.S.C. § 4321, *et seq.*), the United States Department of the Interior (USDOI) NEPA regulations (43 CFR 46), and the Departmental Manual (516 DM 8) to ensure NEPA compliance for the proposed project [1].

Pursuant to the NEPA and associated regulations, this EA assesses potential impacts caused by the Preferred Action Alternative, to the natural and human environment and includes a reasonable range of alternatives including Alternative C. Mitigation measures have been considered throughout EA development and incorporated where feasible.

[1] 1. Executive Order 14154, *Unleashing American Energy* (Jan. 20, 2025), and a Presidential Memorandum, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity* (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The [bureau] verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The U.S. Fish and Wildlife Service has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

Impacts may be beneficial or detrimental, direct, or indirect, and short-term or long-term. The EA also analyzes the potential for reasonably foreseeable effects and makes a determination as to the significance of those effects. In the absence of significant impacts to the natural and human environment, this EA would result in a Finding of No Significant Impact (FONSI). Should significant adverse impacts be identified as a result of the direct, indirect, or reasonably foreseeable effects of the Preferred Action Alternative, NEPA requires the preparation of an environmental impact statement.

The lead federal agency for the NEPA compliance is the Service. The United States Army Corps of Engineers (USACE) will serve as a cooperating agency. ADNR DPOR is a participating agency. The grant is being administered by the ADF&G, DWC Hunter Access Program.

After the Service signs a decision notice, the Preferred Action Alternative, if implemented, would be funded in part through a Service grant under the (Wildlife Restoration Act of 1937 (Pittman-Robertson Act)), which is funded by excise taxes on firearms, ammunition, and archery equipment.

1.2 Purpose and Need

The purpose of the proposed action is to improve an existing, rudimentary, public outdoor shooting range to expand capacity and promote safe, responsible, and knowledgeable firearm use. The need for the proposed action is to provide an upgraded, expanded, and more environmentally friendly public shooting range in a region severely lacking a sufficient number of shooting range facilities.

The proposed upgrades were called for in the 2006 Chena River State Recreation Area Management Plan (ADNR DPOR, 2006 p. 35-36)*:*

Shooting Range

- *1) Upgrade benches, trash receptacle, and re-install a vaulted toilet.*
- *3) Seek funding and volunteers to upgrade or extend the shooting range*

The proposed action is intended to upgrade and expand the range to conform to the current National Rifle Association (NRA) range guidance as described in the *NRA Range Source Book* (2012). In addition to increasing safety, the project will provide an expanded, confined, and cleaner environment for recreational shooting activities. Proposed range improvements would

include expansion and access upgrades including berms to increase safety and help prevent lead shot from entering adjacent waters, walkways, a covered firing line, additional benches (including an Americans with Disabilities Act (ADA)-compliant bench, additional parking (including ADA compliant parking), and access road improvements to meet visitor needs and to improve hydrological connections.

1.3 Background Information

The existing rudimentary Stiles Creek Shooting Range Facility has been owned and managed by the ADNR DPOR since the late 1960s. Prior to ADNR DPOR ownership, the gravel pit was owned by the ADOT and used as a materials site for the construction and maintenance of Chena Hot Springs Road. Once ADOT no longer had a need and the site was abandoned, the gravel pit was used by locals for recreational shooting. ADNR DPOR has turned a portion of the gravel pit into a serviceable public shooting range. Over time, a few improvements at the range were performed by volunteer groups but fell short of meeting any type of standards. The most recent improvement work was in 2006 when minimal upgrades occurred to the range in response to increased use, however, the range still does not meet any established outdoor range guidelines. Other concerns include lack of drainage, limited parking, lack of ADA access, a narrow, exposed firing line, the presence of the Winter Trail near the firing line, the presence of litter, and wildfire ignition hazard. As a result, there is a lack of accessibility, an increased concern for safety, continued site degradation, and dissatisfaction from the public.

This site is one of two public outdoor shooting ranges that serve the 7,444 square mile Fairbanks-North Star Borough and surrounding area. Given the interest in hunting and target shooting, safe, public gun ranges are too few to support the demand. Shooting ranges that are constructed for safety and public accessibility play a key role in recruiting new hunting and target shooting enthusiasts, and in improving their skill and proficiency.

ADNR DPOR is experienced in operating and maintaining this shooting range with multiple third-party groups to help. ADNR DPOR also operates and maintains numerous other properties including parks, campgrounds, and lake access areas.

1.4 Project Location

The existing Stiles Creek Shooting Range is located within the Fairbanks North Star Borough (FNSB) at latitude 64.90544, longitude -146.45802 (See Figure 1: Stiles Creek Shooting Range Site Location) and is 245,080 acres in size.

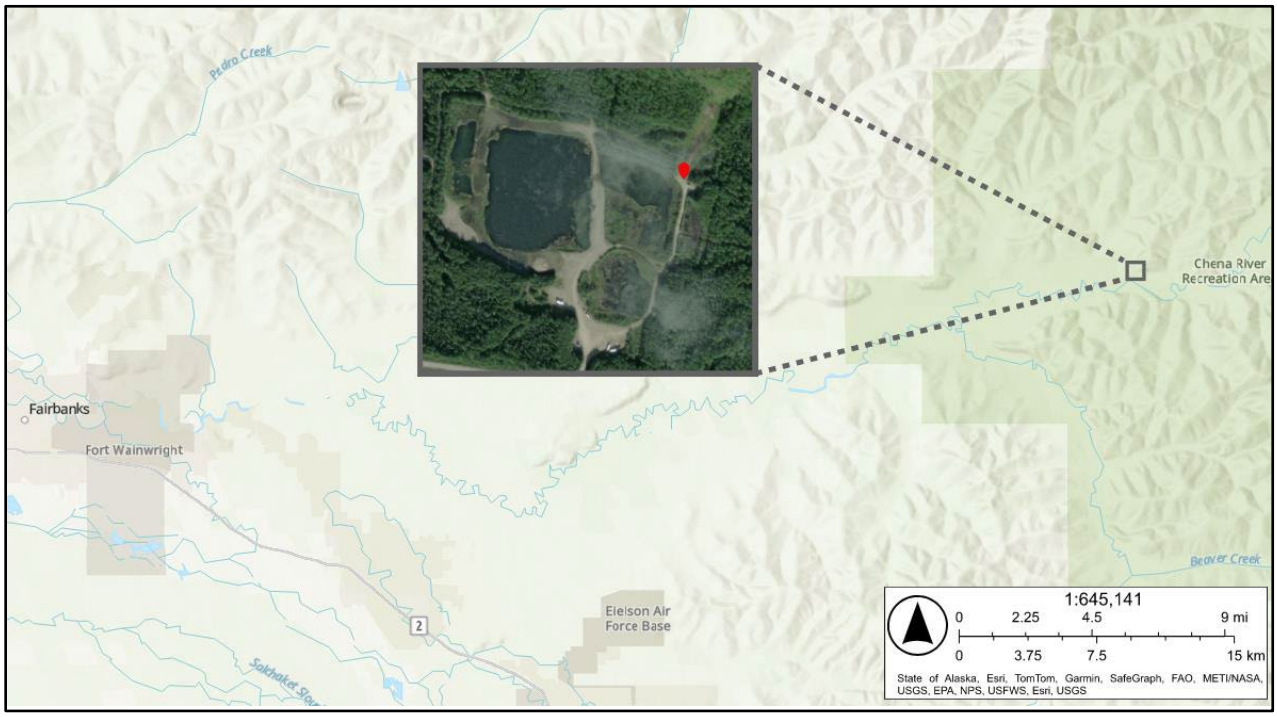


Figure 1: Stiles Creek Shooting Range Site Location

1.5 Scoping and Areas of Consideration

This draft EA was prepared in accordance with NEPA (42 USC 4321), 43 C.F.R. Part 46, and Part 516 of the Department of Interior Manual. During the internal scoping process, we reviewed the proposed action and conducted an effects analysis for the use of the (Proposed Action) Stile's Creek location for an expanded and improved shooting range.

Through internal scoping and careful consideration, we have determined that an analysis of project effects should be completed on the following resources and areas of consideration. Since the proposed project is located in a rural State Recreation Area, effects on land use and site topography as related to recreational values were analyzed. The proposed project will require land clearing, soil disturbance, deposition of spent lead, and has potential for wetland fill, therefore, effects on soils, vegetation, water (including wetlands), wildlife (including threatened and endangered species), and fish (including other aquatic species) were analyzed. Potential impacts related to noise (construction and use), local air quality, historical and cultural resources, and socioeconomic conditions were also analyzed. Cumulative effects were also looked at under each resource or area of consideration analysis. Once analysis was completed, a determination of substantial effects was made for each resource or area of consideration.

1.6 Previous Environmental Documentation

ADNR DPOR implemented the CRSRA Management Plan in 2006 to provide guidance for managing and improving outdoor recreation opportunities within the CRSRA.

In September 2023, a Wetland Delineation Report was completed (Appendix A). In May 2024 a Wetlands Assessment following the Wetland Ecosystem Services Protocol for Alaska, regionalized for use in the Interior of Alaska (WESPAK-Int) (Adamas, 2021), was used to evaluate the condition of the five discrete wetlands identified in the Shannon & Wilson, Wetland Delineation Report and to identify the functions and services they provide, and a summary report was prepared (Appendix B). Wetland Assessments are used to systematically evaluate the condition of a wetland, and/or to identify the functions and services it provides. This is done using data collected through geospatial data aggregation, rapid field testing, and sometimes monitoring. The outcome of a wetland assessment is then used to support decision-making and planning processes. The outcome of the Wetlands Assessment can be used to help determine if compensatory mitigation might be necessary under the Service's "No Net Loss" Policy based on Executive Order 11990, Protection of Wetlands (42 FR 26961), which states that federal agencies shall "provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands". The Order requires federal agencies to avoid undertaking or providing financial assistance for new construction projects located within wetlands unless no practical alternative is available. While the Stiles Creek Shooting Range upgrade project enhances the Public Interest in many ways, (safety, recreation, etc.), some Public Interest Factors pertaining to wetlands may be unavoidably impacted by the expansion of infrastructure at the site.

Soil lead sampling and a corresponding A Lead Assessment Report was completed in October 2023 (Appendix C).

1.7 Regulatory and Permit Requirements

Cultural/Historical Resources

Historic properties, or cultural resources, on federal or Tribal land are protected by many laws, regulations, and agreements. Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq.) requires, for any federal, federally assisted, or federally licensed undertaking, that the federal agency consider the effect of that undertaking on any district, site, building, structure, or object included in the National Register of Historic Places (NRHP) before

the expenditure of any federal funds or the issuance of any federal permits. Cultural resources are a broad term that encompasses sites, objects, and practices of archaeological, historical, cultural, and religious significance. Eligibility criteria (36 CFR 60.4) include association with important events or people in history, distinctive construction or artistic characteristics, and either a record of yielding or a potential to yield information important in regard to prehistory or history. In practice, properties generally are not eligible for the NRHP if they lack diagnostic artifacts, subsurface remains, or structural features, and those considered eligible are treated as though they were listed in the NRHP even when no formal nomination has been filed. The Service is required to consult with potentially affected Tribes and the State Historic Preservation Office (SHPO) concerning potential effects on historic properties. This process of considering an undertaking's effect on historic properties is known as a 'Section 106 Review'.

Wetlands

Section 404 of the Clean Water Act (CWA) regulates discharges of dredged or fill material into wetlands and waterbodies meeting the definition of Waters of the United States (WOTUS). The USACE, Regulatory Division is the agency with the authority to officially determine if an area contains Waters of the United States (WOTUS). The discharge of fill into, or work in, under or over WOTUS may require a permit from the USACE. Further, Executive Order 11990, Protection of Wetlands, directs federal agencies to avoid, to the extent possible, adverse impacts associated with the destruction or modification of wetlands, and to avoid supporting new construction in wetlands whenever there is a practicable alternative. Wetlands are present at the proposed project site as determined by the wetland delineation conducted on August 23, 2023 (see Appendix A and Section 3.1 for wetlands information). USACE Jurisdictional wetlands are areas that meet the necessary criteria in the USACE's 1987 Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Alaska Regional Supplement). A June 2024 USACE Preliminary Jurisdictional Determination (PJD) response letter confirmed the proposed project site may contain wetlands under USACE regulatory jurisdiction (Appendix D). To expand the current footprint of the range, a USACE wetland permit will be required under Section 404 CWA due to impacts to jurisdictional wetlands. The project falls within the thresholds of NWP 42 which covers discharge of dredged or fill material into non-tidal waters of the United States (US) for the construction or expansion of recreational facilities. The NWP also authorizes the construction or expansion of small support facilities, such as maintenance and storage buildings directly related to the recreational activity. The discharge may not cause the loss of greater than ½-acre of non-tidal waters of the

US. NWP 42 requires the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity.

Water Quality

The ADEC, APDES program, would require the submittal of a Storm Water Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) in accordance with the Alaska Construction General Permit (ACGP) AKR100000[2] prior to the initiation of construction activities. The ACGP would be required to comply with the provisions of the Clean Water Act (CWA), 33 U.S.C. §1251 et. seq., as amended by the Water Quality Act of 1987, P.L. 100-4, and the permit is issued under provisions of Alaska Statutes 46.03. The ACGP allows construction sites to discharge stormwater if they implement specific measures to minimize pollution in that runoff. These measures include the submittal of the SWPPP seven days prior to initiating site work and utilizing best management practices (BMP's) to control sediment and other pollutants from entering waters, thereby protecting water quality.

Per Section 401 of the Federal Clean Water Act of 1977 and the Alaska Water Quality Standards provisions, ADEC has issued a 401 Water Quality Certification (401 Cert) related to certain USACE NWPs issued in Alaska. The ADEC Program Manager for the Wastewater Discharge Authorization Program was consulted via telephone on December 9, 2024, and verified that NWP 42 is included among the NWPs covered by the ADEC 401 Certification (Personal Communication J. Rypkema, 2024).

Local Permitting

The proposed project site is located within the FNSB and would be subject to its permitting requirements, which include obtaining Floodplain Development and Building Permits.

CHAPTER 2: ALTERNATIVES

This chapter explains the alternatives considered for this project and provides a summary of the more substantive differences amongst alternatives that were evaluated in detail in the NEPA review.

[2] Alaska Construction General Permit - https://dec.alaska.gov/media/22136/2021-cgp-pmt-akr10-fnl-20201217.pdf

2.1 Alternative A – Stiles Creek Shooting Range Upgrade and Expansion (Preferred Action Alternative)

Alternative A is the Preferred Action Alternative because of the many desired amenities supportive of the 2006 CRSRA Management Plan and ADF&G's priorities for providing public shoot ranges as well as the environmental improvements beyond baseline conditions that will be implemented.

Alternative A would include widening the existing footprint of the range from approximately 80' to approximately 180' which would allow for the installation of an approximately 85-foot-long by 15-foot-wide concrete slab-covered shooting pavilion that would provide for a minimum of seven additional benches to supplement the three current benches, including an ADA-compliant bench. Side or backstop berms do not currently exist and would be designed and constructed for increased safety of range and winter trail users, as well as reducing wildfire risk and minimizing the amount of lead that might migrate off the range.

To accommodate the shooting range improvements, this project would include a parking lot expansion and paving to include ADA-compliant parking and improvements to the access road. The access road would be culverted, graded, scarified, and paved. The culverts which would be appropriately sized to restore proper hydrologic connectivity between the wetlands.

Alternative A would minimize environmental impacts related to range operations and improve current environmental conditions by following the pertinent and feasible U.S. Environmental Protection Agency's (USEPA) *Best Management Practices for Lead at Outdoor Shooting Ranges* (2005) and conform to current NRA range guidance as described in the *NRA Range Source Book* (2012). Alternative A would implement stormwater controls, and drainage structures in accordance with the ADEC, Alaska Pollutant Discharge Elimination System (APDES), General Permit for Discharges from Large and Small Construction Activities, AKR100000.

ADNR DPOR has consulted, and is working closely, with agencies such as USACE, ADF&G, and the Service to address regulatory compliance for the proposed project. Final shooting range designs may be altered to adjust to all federal, state, and local permitting as required.

The expansion and associated improvements under Alternative A would increase capacity of the range drawing additional users to the facility as intended in Pub. L. 116-17 Target Practice and Marksmanship Training Support Act of 2019 (Tar-Mark) (Appendix E) which amended the

Pittman-Robertson Wildlife Restoration Act to facilitate the construction and expansion of public target ranges in the United States.

2.2 Alternative B – Stiles Creek Shooting Range Upgrade Without Expansion

Alternative B would not expand the footprint of the existing range therefore improvements would be greatly reduced compared to Alternative A. Alternative B would provide for a covered firing line but would keep the range at the current size of approximately 80 feet wide by 400 feet long which would result in far fewer firing lanes (shooting benches) than Alternative A due to the need to construct side berms within the existing footprint. Alternative B would provide a reduced amount of additional parking commensurate with fewer shooting benches, the down range area would be elevated and resurfaced, and the access road would be minimally upgraded instead of resurfaced, paved, and culverted as under Alternative A. Alternative B would minimally improve the existing Stiles Creek Shooting Range, which could draw some additional users to the facility but would not expand capacity to the desired extent as in Alternative A.

2.3 Alternative C – No-Action Alternative

A No-Action Alternative is included reflecting baseline conditions that would continue to exist if neither Alternative A or B is implemented. With the No-Action Alternative, the proposed project site would continue to be used, in its current condition, as an active shooting range with none of the improvements called for in the CRSRA Management Plan. The range would not conform to safety standards outlined in NRA Range Source Book, nor implement the USEPA Best Management Practices for Lead at Outdoor Shooting Ranges document.

Implementation of Alternative C would result in continued potential impacts to adjacent wetland and waterways from sedimentation runoff and the potential release of lead into the environment from accumulated spent lead. The facility would continue to perpetuate existing safety issues, especially for nearby trail users and other outdoor recreationalists, and perpetuating existing access issues, especially for disabled users as the range is not currently ADA-compliant.

Alternative C would fail to expand capacity of the range as intended in grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E).

CHAPTER 3: AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

This section establishes the background conditions of the project area and its surroundings. Knowledge of these background conditions will assist in making determinations of project-related impacts, if any, that the Alternatives will have on environmental resources.

After a summary of the background conditions, any impacts to environmental resources, caused by each of the alternatives is analyzed. These impacts may also include cumulative impacts. Cumulative impacts are those environmental impacts that accumulate over time or in combination with similar events in the area. Unrelated and dissimilar activities may also have negative impacts on critical elements, thereby contributing to cumulative impacts. Because of the overall undeveloped nature of the proposed project area, past and current recreational activities, recreation infrastructure, and road infrastructure.

3.1 Land Use

The proposed project site is an existing state-owned public shooting range located at MP 36.4 Chena Hot Springs Road within the CRSRA which has been active since the mid-1960s. Alaska Statute 41.21.475 which established the CRSRA in 1967 and expanded it in 1975 reserves the area from all uses incompatible with the primary function as public recreation land. There are no designated residences in the surrounding area due to the rural location and size of the CRSRA. Multiple recreational trail systems are present within the CRSRA.

The shooting range is located in CRSRA Unit 1 as designated in the CRSRA Management Plan. The Chena River, paralleled by Chena Hot Springs Road, forms the spine of Unit 1, which contains a free-flowing clear-water stream for grayling fishing, salmon viewing, boating, river floating, camping and a variety of associated recreational opportunities. Landforms flanking the river valley rise to panoramic alpine ridges, the highest of which, Chena Dome, is 3,700 feet above the river valley. In summer, the Stiles Creek, Chena Dome, Angel Rocks, and Granite Tors areas are major hiking attractions.

The CRSRA Management Plan designated Unit 1 for Recreational Development to meet the more intensive recreational needs of the public. This unit is intended to provide convenient and well-defined access via roads, boat access, and high-standard trails; more intensively developed recreational facilities; and a potential information center to orient visitors to the unit's special features (ADNR, 2006, p29). However no reasonably foreseeable future development is

anticipated at this time in the CRSRA due to funding limitations and the priority to maintain existing sites.

The area adjacent to the shooting range is generally undeveloped forest with both winter and summer recreational public-use trails. The parking lot in the proposed project area intersects with a Winter Trail that runs behind the firing line. In winter, the area provides excellent opportunities for snowmachining, cross-country skiing, skijoring and dog mushing, especially in the lowlands adjacent to streams (ADPOR, 2006, p71). Unsanctioned camping and general day use recreation occurs throughout the year at CRSRA trails, gravel bars, and parking areas.

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

The proposed project site is currently used as an active public shooting range and the Alternative A will make substantial improvements and alterations to the existing site in accordance with the CRSRA Management Plan (ADNR, 2006, p22). These improvements will expand user accessibility and increase safety in the area, both for range users and users of the Winter Trail.

Parking lot and range construction activities would not change the current or future land use as defined within the current CRSRA Management Plan. Construction and site upgrades would improve overall site safety.

Construction of firing range berms will mitigate the existing substantial safety risks for those using the Winter Trail. Appropriate shooting range signage and trail crossing signage at the parking lot and access road would be posted during and after construction. No negative impacts to trail access are anticipated from the proposed expansion of the parking lot. Winter Trail users would have the option of following the existing route behind the firing line or rerouting around the man-made ponds via the range access road looping by the vault toilet. Chapters 2 and 3 of the CRSRA Management Plan states that ADNR DPOR will work with interested individuals and user groups to improve the shooting range and make it safer for trail users and others (ADNR, 2006, p22).

Alaska Statute 41.21.485 reserves zoning of private inholdings within the CRSRA (ADNR, 2006, p132). Planning constraints are addressed within the CRSRA Management Plan and would be reviewed accordingly for any proposed changes in land use.

No significant impacts related to land use are anticipated under alternative A.

Alternative B – Upgrade Without Expansion Alternative

Alternative B would provide similar benefits as the Alternative A and bring about some of the changes recommended in the CRSRA Management Plan. The impacts and mitigation measures would be the same as for Alternative A, though at a smaller scale since no site expansion would be included. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts related to land use are anticipated under alternative B.

Alternative C – No Action Alternative

Land use will remain the same, which fails to meet purposes of the CRSRA Management Plan which is to improve recreation facilities, trails, visitor service and other developments for today and future generations, (Lewanski, 2006, P1) and fails to increase safety and capacity at the range.

No significant impacts related to land use are anticipated under alternative C.

3.2 Topography

Topography in the immediate project area generally slopes gently to the south to the Chena River, while the existing shooting range remains relatively flat at the shooting line and further down range with an approximate elevation gain of 37 feet at the backstop. An earthen hill at the end of the existing shooting range creates a natural barrier with an elevation gain of approximately 430 feet within a 1,000-foot distance and average slope of 32.5%. Figure 2 shows the current topography and Figure 3 shows a photo of the hill beyond the shooting range.

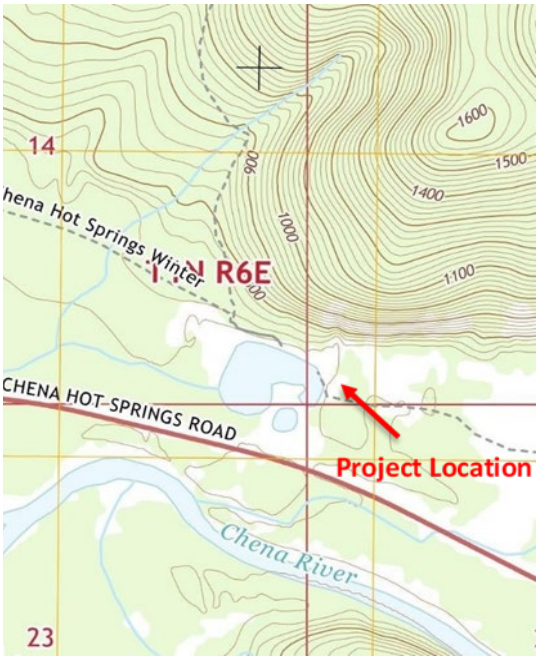


Figure 4: Site Topography (20 Feet Contours) (U.S. Geological Survey, 2023)

Figure 5: Looking Downrange to Hillside

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Alternative A would regrade the range widening it and the parking area, add appropriate berms for public safety and wildfire prevention, and install culverts appropriately sized and designed for the location. Existing topography would be utilized to the greatest extent possible; however, construction activities would move some organic material to widen, lengthen, or increase the height of the natural topography. Changes to topography would be limited and would not negatively impact user access to surrounding established trails.

While there are areas of extreme slope and rugged terrain, the renovations of Alternative A would not take place in those areas. This alternative is designed to utilize the topography to follow BMP's that include an earthen backstop that is between approximately 15 and 20 feet high with a recommended slope as steep as possible following US*EPA BMP for Lead Outdoor Shooting Ranges*, P III-2 (2005) and *NRA Range Source Book* (2012). The BMP's also state that for lead reclamation, the area should be level and flat, if possible (PII-5), making the existing established shooting range an ideal area for renovations. The main firing line areas would be constructed and elevated on the relatively flat existing topography. Ground contouring would be used to control stormwater and increase lead containment. Existing gravel roadways allow heavy equipment easy access to the site for construction renovations.

No significant impacts on topography are anticipated under Alternative A.

Alternative B – Upgrade Without Expansion Alternative

The impacts would be similar to those described in Alternative A above.

No significant impacts on topography are anticipated under Alternative B.

Alternative C – No Action Alternative

Topography will remain the same leaving inadequate safety berms, stormwater controls, and lead containment.

No significant impacts on topography are anticipated under Alternative C.

3.3 Soils

According to the U.S. Department of Agriculture (USDA) Soil Survey, a single soil type, Goldstream peat, 0 to 3 percent slopes (76.9%), and Water (23.1%) is present at the proposed project site (USDA, 2023, p1) (Appendix F). The Goldstream series consists of very poorly drained soils formed in silty alluvium and colluvium containing permafrost with pH values ranging from 4.4 (extremely acidic) to 4.9 (very strongly acidic) (USDA, 2022, p1). Lead becomes soluble in soil when the PH is less than 6.5 or greater than 8.5 (U.S. Army Environmental Center (USAEC), p9). Organic material is known to remove lead from water through absorption, particularly in oxygen deficient conditions such as wetland soils where organic carbon may reduce oxidized forms of lead into lead sulfides, which remain relatively immobile. Therefore, layers of organic material generally reduce lead leachate into groundwater (The Interstate Technology and Regulatory Council (ITRC), 2005, p9). Topography and presence of permafrost in soils may increase the horizontal migration of lead leachate. Dissolved lead migrates vertically in unfrozen soils, once it reaches the impermeable permafrost, it can be transported horizontally until it reaches ground level or surface water (USAEC, 1998 p 11).

No soils are considered prime farmland per the National Resources Conservation Service (Appendix F).

On February 2, 2023, a geotechnical investigation was conducted during the design process for the covered pavilion at the proposed project site. Two boreholes in the proposed project site were drilled to confirm soil types. Boreholes confirmed soils to be organics/vegetation upon silty gravel/sand with an observed water table at 6 feet (Appendix G). Although the organic material at the surface will bind some soluble lead, the permeable underlayers and shallow water table increases the potential for vertical movement of leachate and groundwater contamination (USAEC, 1998, p9-10).

Given the project site is an active shooting range, consideration of potential lead-contaminated soil was investigated. Shannon and Wilson completed a lead assessment for the proposed project site in October 2023 (Appendix B). Soil samples were collected following a modified incremental sampling methodology from three wooded areas on either side (east and west) of the current shooting lanes and in the planned parking lot expansion area for analytical lead testing. The report indicated that lead is present in the areas sampled but at concentrations below ADEC's soil cleanup level of 400 mg/kg and below the EPA's recently reduced residential

screening levels of 200 mg/kg (i.e., 200 ppm). The results from the Lead Assessment Report (Appendix B) are shown below.

Table 1. Lead Sampling Detectable Results Summary

Client Sample ID SC23-ISM01 Lab Sample ID: 1234625001 IRTC Incremental Samp Method (2012) Metals by ICP/MS	Parameter Multi-Incremental Sub Sampling Lead	Result 0.00 18.5	Units mg/kg
Client Sample ID SC23-ISM02 Lab Sample ID: 1234625002 IRTC Incremental Samp Method (2012) Metals by ICP/MS	Parameter Multi-Incremental Sub Sampling Lead	Result 0.00 161	Units mg/kg
Client Sample ID SC23-ISM03 Lab Sample ID: 1234625003 IRTC Incremental Samp Method (2012) Metals by ICP/MS	Parameter Multi-Incremental Sub Sampling Lead	Result 0.00 10.6	Units mg/kg
Client Sample ID SC23-ISM13 Lab Sample ID: 1234625004 IRTC Incremental Samp Method (2012) Metals by ICP/MS	Parameter Multi-Incremental Sub Sampling Lead	Result 0.00 9.43	Units mg/kg
Client Sample ID SC23-ISM23 Lab Sample ID: 1234625005 IRTC Incremental Samp Method (2012) Metals by ICP/MS	Parameter Multi-Incremental Sub Sampling Lead	Result 0.00 10.8	Units mg/kg

Lead shot is not considered a hazardous waste subject to the Resource Conservation and Recovery Act (RCRA) at the time it is discharged from a firearm because the shot is being used for its intended purpose. As such, a RCRA permit is not required to operate a shooting range (USEPA, n.d. B, p.1). Additionally, it is the USEPA's position at active, outdoor shooting ranges that the backstop and shot fall zone soils are part of a range and are not considered waste when moved or relocated within the range boundaries, as long as the site continues to be used as an active range and the backstop materials continue to be used as backstop materials.

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

The use and accumulation of spent lead at shooting ranges can have localized negative effects on soil quality. According to the USEPA's *Best Management Practices for Lead at Outdoor Shooting Ranges* (2005), lead can be introduced into the environment through one or more pathways, with each pathway being site-specific and may or may not occur at individual shooting ranges. These pathways include lead oxidizing when exposed to air and dissolving when exposed to acidic water or soil, lead bullets, bullet particles, or dissolved lead being moved by storm water runoff, and dissolved lead migrating through soils to groundwater.

Since the proposed project site has been an active shooting range since the 1960's, it would be inconceivable to think that there are no current negative impacts to soils on site. However, implementing this alternative would reduce future impacts by improving the existing site resulting in better containment and management of spent lead by stabilizing the ground surface, managing runoff, and installing side and end berms. Since solubility rates of lead are lowest in soils with a pH between 6.5 and 8.5 (USAEC 1998 p 9), neutral fill used for the backstop, side berms and firing line floor would upgrade the baseline condition of the site reducing soluble lead levels in the soil which would not be achieved under Alternative C.

Surface disturbance caused by construction activities would result in the removal of vegetation from the soil surface. Removal of vegetation could damage soil crusts and destabilize the soil. As a result, the soil surface could become more prone to accelerated erosion by wind and water which could increase lead movement. However, revegetation efforts would mitigate this to a large degree. Lead particles are heavy compared to other suspended particles of similar size, ground contouring and reseeding with grass and other vegetation would minimize the likelihood of lead particles migrating with water runoff.

The use of heavy equipment may result in soil compaction which can decreases permeability and increases surface runoff, especially in silt and clay soils. In addition, soils may be impacted by mixing of soil horizons. Soil compaction and mixing of soil horizons would be minimized by topsoil segregation and reuse.

Potential for chemical contamination of soils could occur if accidental spills or inadvertent leaks of vehicle or other fluids occur during construction activities, however appropriate BMP's will

be implemented under the ACGP. As such, this may result in temporary, minor, indirect soil impacts due to fluid releases.

BMP's would be implemented during construction to minimize soil impacts, such as re-seeding inactive areas, erosion control mats, and/or silt fences.

Since current lead concentrations in soils that will be disturbed during construction are below ADEC and EPA clean up levels, construction activities should not pose a significant risk.

No significant impacts to soils are anticipated under Alternative A. If Alternative A were implemented site upgrades would improve soil conditions into the future through increased lead containment.

Alternative B – Upgrade Without Expansion Alternative

The impacts and mitigation measures would be the same as for Alternative A, though at a smaller scale since no site expansion would be included. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity. This alternative would also improve the existing site resulting in reduced impacts to soils through improved containment/management of spent lead that will would not occur under Alternative C.

No significant impacts to soils are anticipated under Alternative B. If Alternative B were implemented site upgrades would improve soil conditions into the future through increased lead containment.

Alternative C – No Action Alternative

No significant impacts to soils are anticipated under Alternative C, as conditions at the site will not change. If Alternative C were implemented no site upgrades would occur that may improve soil conditions into the future through increased lead containment.

3.4 Vegetation

Vegetation at the proposed project site includes a mixture typical of Interior Alaska. Vegetation species includes: Bebb willow *(Salix bebbiana*) and alder (*Alnus incana*), bluejoint grass (*Calamagrostis canadensis*), iris (*Iris setosa*), Siberian yarrow (*Achillea alpina*), yellow rattle (*Rhinanthus minor*), Alaska paper birch (*Betula neoalaskana*), white spruce (*Picea glauca*),

prickly rose (*Rosa acicularis*), bunchberry (*Cornus canadensis*), meadowsweet (*Spiraea stevenii*), woodland horsetail (*Equisetum sylvaticum*), meadow horsetail (*Equisetum pratense*), fireweed (*Chamaenerion angustifolium*) as described in the Wetlands Delineation Report (Appendix A).

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Construction activities under Alternative A would cause minor temporary impacts to vegetation at the proposed project site through land clearing and construction activities. Mitigation measures would be implemented to protect the vegetation from damage by heavy equipment and tracked vehicles during construction. Additional mitigation activities include limiting construction disturbance to within the project boundary, and re-vegetation of all disturbed areas. Revegetation would begin as soon as site conditions allow and would use grasses suitable for range maintenance and lead reclamation. Only native species would be planted using an approved seed mix according to the *Revegetation Manual for Alaska* (Wright, 2008).

Loss of some vegetation through expansion of the range would not have long term or population level impacts as all species are commonly found across northern boreal forests and none are endangered, threatened, listed as a species of concern, or protected. Soluble forms of lead can be taken up from soil water through capillary action by a plants root system or from airborne sources through cellular respiration (Sharma and Dubey, 2005). While most plants that take up lead store it in their root system, some plants can store lead in the above ground parts (leaves, seeds, and stems) (ITRC, 2005, p. 13 -14). Lead concentrations in soils are known to have negative effects on vegetation growth including root elongation, seed germination, seedling development, transpiration, and chlorophyll production (Kumar et. al, 2013, p. S2340) however site improvements made through implementation of Alternative A may help to reduce soil lead concentrations. Loss of a small amount of vegetation would not impact the area's ecosystem functions.

No significant impacts to vegetation are anticipated under Alternative A. If Alternative A were implemented site upgrades may improve vegetation conditions into the future through increased lead containment.

Alternative B – Upgrade Without Expansion Alternative

A smaller overall area will be disturbed, but the applied mitigating measures would be the same as in Alternative A. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts to vegetation are anticipated under Alternative B. If Alternative B were implemented site upgrades may improve vegetation conditions into the future through increased lead containment.

Alternative C – No Action Alternative

Vegetation conditions will remain the same. No significant impacts to vegetation are anticipated under Alternative C. If Alternative C were implemented no site upgrades would occur that may improve vegetation conditions and habitat into the future through increased lead containment.

3.5 Water

The primary water body in the surrounding area is the Chena River, located approximately 1,500 feet south of the shooting range and approximately 20-feet lower in elevation. The area between the proposed project site and the river encompasses wetlands, mixed forest, an access road, an established parking area, and the Chena Hot Springs Road. A meandering channel characterizes the Chena River and drains the non-glaciated, mountainous region northeast of Fairbanks. It is estimated that as much as 42% percent of the Chena River, Two Rivers Basin is underlain by permafrost (USACE, 2012, p. 22). The presence of permafrost inhibits infiltration, thus increasing runoff. Stream flow patterns in the basin consist of high flows during the months of May through September and low flows from November through April. During the winter months, the Chena River and its tributaries are frozen over and the principal source of flow is from groundwater. As the groundwater storage is gradually depleted, the flow diminishes to a minimum in March or April. With the advent of above-freezing temperatures in April and May, the flow increases from snowmelt runoff and breakup of river ice. Peak flows generally occur in May or June but can also occur between July and September due to widespread rainfall (ADPOR, 2006, p. 78). According to the CRSRA Management Plan, the Chena River is unique, in that it is the only clear water river of such a length in Interior Alaska that is extensively road accessible. The productive grayling fishery is an indicator of its excellent water quality.

Due to the remote undeveloped nature of the CRSRA, no surface water quality reports are available, and no surface water quality testing has been conducted at the proposed project site.

Wetlands

Work that results in a discharge of dredged or fill material into waters of the United States, which may include certain wetlands, streams, rivers, lakes, and impoundments (regulated under Section 404 of the CWA of 1972). This can involve placing fill, placing dredged material, grading an area, side-casting material, or pushing material around within aquatic resources. Under Section 401 of the CWA, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a Section 401 water quality certification is issued, or certification is waived. The State of Alaska and the EPA (in certain locations) are the certifying authorities responsible for issuing water quality certifications in the State of Alaska. The Section 401 certification can cover both the construction and operation of the proposed project. Conditions of the Section 401 certification become conditions of the DA permit issued by USACE. Section 404 permits generally require Section 401 water quality certifications. A wetland delineation of the Proposed Action site was contracted and performed by Shannon & Wilson staff on August 23, 2023 (Appendix A) identified seven wetlands partially within the project area (Wetland A through G). Wetlands F (0.02 acres within project area) and G (0.07 acres within project area) are part of the wetland identified as "Wetland E" that extends into the expanded project area. Wetlands A (0.19 acres within project area), B (0.07 acres within project area), C (0.01 acres within project area), and D (0.05 acres within project area) appear to have formed after gravel pits were abandoned. Based on the prevalence of cobbles at the surface and thin organic layer in Wetlands E, F, and G, these wetlands could also have been the result of man-made disturbance connected with past gravel mining. Wetlands A through G are within the Chena River floodplain U.S. Federal Emergency Management Agency (FEMA) Flood Zone A.

Based on review of collected data, there are generally two wetland types in the Proposed Action site: 1.) palustrine scrub-shrub, broad-leaved deciduous, continuously saturated (PSS1/EM1D), and 2.) palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded (PSS1C).

Much of the area including all sampling locations have been disturbed during gravel mining in the past as stated in the 2023 Wetland Delineation Report. The wetlands around the range complex have been disrupted hydrologically because they are bisected by the access road to the range.

Based on the PJD received from the USACE, all aquatic resources determined to occur in the review area are treated as jurisdictional and are subject to the CWA, sections 404 and 401 requirements.

In March 2024, The Services' Conservation Planning Assistance Branch conducted a wetland assessment to systematically evaluate the condition of wetlands at the proposed project site, and to identify the functions and services they provide. The outcome of a wetland assessment is used to support decision-making and planning processes. When faced with the potential need to offset the loss of wetlands to development, wetland assessment scores provide a quantified result of the type and quality of the functions and benefits that will be lost post-development. The type and quality of lost functions should direct any compensatory mitigation or offset efforts within the same watershed to bring the overall loss of specific functions to zero. This is the concept of 'on site' (within the same watershed) and 'in-kind' (replace the lost function with an increase of the same function). It is often difficult to find opportunities to offset wetland loss with exactly the same type and amount of wetland gains. For this reason, WESPAK-INT aggregates the nineteen specific functions and attributes tested into four general groups: Hydrologic & Water Purification, Substrate Protection, Aquatic Connectivity, Aquatic Productivity, and Transition Zone Habitat. When identifying potential projects (restoration sites, Mitigation Bank or In-Lieu Fee credits) to offset wetland losses, one should endeavor to match the function being lost with the function being restored or preserved at least at the group level if not at the individual functions and attributes level.

All five wetland Assessment Areas evaluated for this project (Appendix B, Figure 2) scored highly for the functions of Sediment and Toxicant Retention and Stabilization and Nutrient Removal and Retention. This means they are important for intercepting and filtering suspended inorganic sediments thus allowing their deposition, resisting excessive erosion, and stabilizing underlying sediments or soil. Additionally, the evaluated wetlands provide for intercepting, retaining, and/or removing water soluble or labile toxicants. To a lesser extent, the wetlands in this project area scored moderately high to high in the functions of Keystone Mammal Habitat, which is a wetland's capacity to support an abundance of wetland-associated mammals that are ecological keystones and/or are of recognized importance as game or for subsistence in this region (primarily beaver, moose, muskrat). Not surprisingly, Wetlands "A" and "B, C" (Figure 2) also scored highly for Waterbird Habitat, which is a wetland's capacity to support or contribute to an abundance or diversity of waterbirds (ducks, geese, swans, shorebirds, and others) that breed in or migrate through the region.

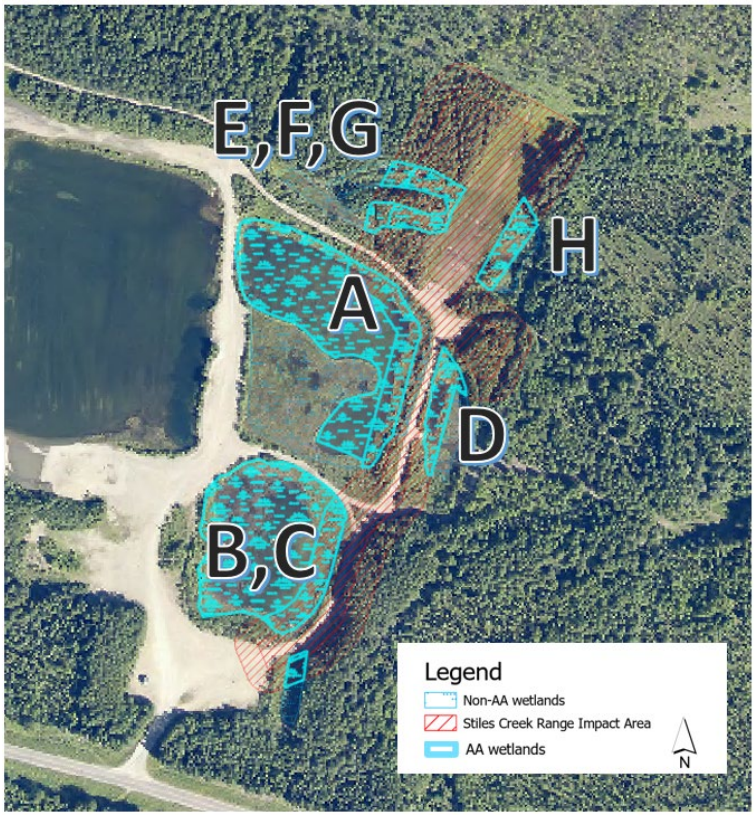


Figure 2. Wetland assessment areas (AA).

The other high scoring category across all assessed wetlands of Key Mammal Habitat is very common within the watershed. The loss of this service will not have a significant effect overall onsite or on a landscape level.

One last notable result was that the watershed position of all five wetlands was a large factor in the high benefit scores they received for the category of Water Storage and Delay. Wetland benefits are positive services provided to humans and the environment, verses wetland functions which are natural processes a wetland performs. All five wetlands can act as a protective buffer for downstream infrastructure at risk from floods (e.g., Chena Hot Springs Road and associated culverts and bridges) and provide water quantity maintenance for downstream ecological systems (e.g., the Chena River). They rated high in offering this benefit due to the downstream urban areas which rely upon the service, though functional scores in this category indicate they are only moderate to low performers in the function of Water Storage and Delay relative to other Interior wetlands.

Compensatory mitigation could be used to offset any negative impacts the range expansion will have on the wetland Public Interest Factors such as fish and wildlife values, flood hazard, water supply and conservation, and wetlands themselves among others (33 CFR Part 320.4(a)(1)). Wetlands in the CRSRA are unique in that there is very little disturbance in this portion of the watershed, and Stiles Creek is the only shooting range in the vicinity. Therefore, it is almost impossible to replace the protection these wetlands provide to overall water quality as they buffer the effects of toxicants and sediment coming off the range because there is no other similar degraded area available to protect. Offset or compensation for the loss of services such as Sediment and Toxicant Retention and Stabilization, and Nutrient Removal and Retention must happen on site, or no net-loss may not be achievable. That said, it is possible to mitigate the loss of functions by implementing best management practices that reduce the amounts of toxicants and sediments in the surrounding environment to below the current baseline. This type of 'out of kind' mitigation involves replacing functions and benefits of subject wetlands with non-wetland remedies to create uplift in the function or service categories lost. Typically, out of kind mitigation involves the addition of features that increase water quality in the same watershed or resolves specific threats to a resource such as point source pollution. In lieu of creating on-site wetlands to offset the loss of those receiving fill from range expansion activities, it is possible to mitigate the anticipated loss of function with other features to create functional uplift in the same categories. For example, the loss of Sediment and Toxicant Retention & Stabilization could be offset by using neutral fill to create berms to capture spent lead along with periodic lead removal.

Floodplains

The FEMA Flood Hazard Boundary Map for the proposed project site has not been updated since 1992. According to the recent Wetlands Delineation Report, the Proposed project site is within the FEMA Flood Zone A with a 25% chance of flooding in a 30-year period (Appendix H). The FNSB currently participates in the FEMA National Flood Program and a floodplain permit will be obtained from the FNSB. Review of the National Oceanic and Atmospheric Administration (NOAA) weather data indicates this area on average receives approximately 9.03 inches of moisture per year (Appendix I) designating it an arid region (National Park Service (NPS) 2019, p1).

Since the existing range was established within the Chena River floodplain and the proposed action is to improve/expand an existing range we did not consider any alternatives outside of the floodplain to be reasonable. Decommissioning a 60 plus year old shooting range and constructing a new range outside of the floodplain was deemed infeasible.

The NEPA statute and its reference to Executive Order No. 11988 - Floodplain Management require the agency to consider alternatives to avoid adverse effects and incompatible development in floodplains. Since the existing range was established within the Chena River floodplain and the proposed action is to improve/expand an existing range we did not consider any alternatives outside of the floodplain to be reasonable. Decommissioning a 60 plus year old shooting range and constructing a new range outside of the floodplain was deemed infeasible.

Wild and Scenic Rivers (WSR)

The Chena River, the only river within the CRSRA is not designated as a WSR or a WSR study river (National Wild and Scenic Rivers System 2025, P1).

Impaired Water Bodies

No ADEC designated impaired waterbodies exist in the area (ADEC n.d., p1).

Drinking Water

Groundwater exists in the saturated zones beneath the ground surface. Boreholes installed at the Proposed project site observed groundwater located 6 feet below ground surface (Appendix G).

The Safe Drinking Water Act of 1974 requires protection of drinking water systems that are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health. Sole-sources aquifers are groundwater supplies that provide the only source of drinking water for a particular area, which are afforded protection by the Safe Drinking Water Act. There are no sole source aquifers in Alaska (USEPA n.d. A, p. 1).

Hand-pump wells exist at the CRSRA campgrounds with the nearest campground approximately three miles from the proposed project site. Most area wells draw water from water-bearing layers (aquifers) recharged by precipitation on the hills surrounding Fairbanks (Swift, 1976, p. 1).

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Direct impacts to surface water and wetlands would be avoided to the extent possible through Alternative A design which would improve grading and drainage to the site and expand the shooting range boundaries. Based on design plans at the 100% stage we anticipate the need to fill

approximately 0.1769 acres of wetlands E, F, and G as identified in the Wetland Delineation Report completed in September 2023 (Figure 2, Appendix A, Appendix B). An end berm and side berms would be installed to contain spent lead and mitigate dissolution and leachate from moving off the range. Alternative A would also restore the connectivity of wetlands A and D across the access roadway through the installation of properly sized culverts, both of which would be beneficial to the floodplain and other aspects of the site.

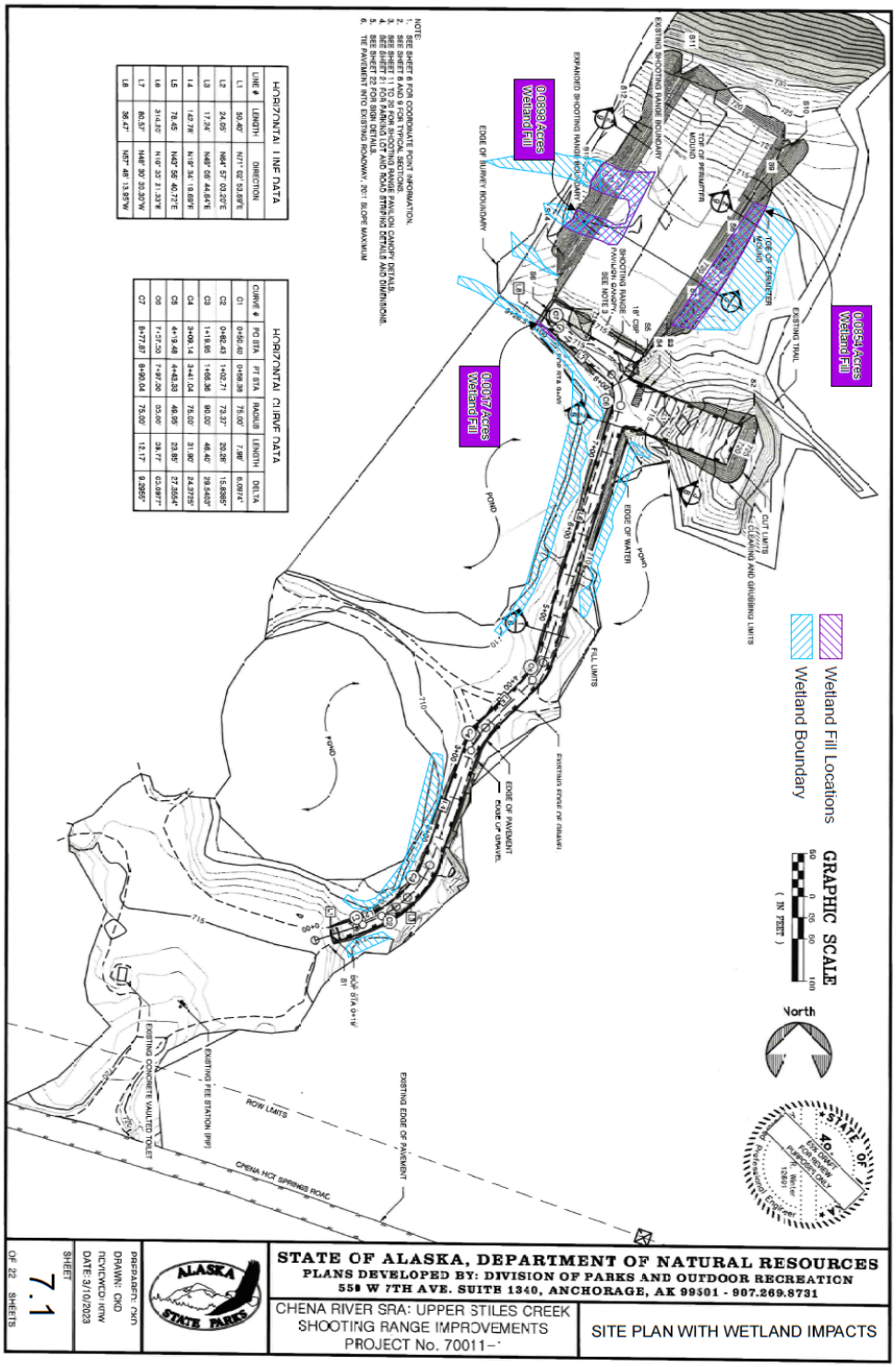


Figure 3. Anticipated Wetland Fill Locations

Based on the PJD received from the USACE, there may be jurisdictional wetlands subject to the CWA, Section 404 requirements. It is anticipated the project will be covered under NWP 42 – Recreational Facilities (USACE, n.d., p1). Under this NWP the following mitigating measures would be implemented:

- Prior to commencement of construction activities within waters of the United States, the permitted limits of disturbance shall be clearly identified at the project site with highly visible markers (e.g., construction fencing, flagging, silt barriers, etc.).
- Natural drainage patterns shall be maintained. No excessive ponding or drying adjacent to fill areas shall occur.
- Re-vegetation of all disturbed areas within the project site shall begin as soon as site conditions allow for it. Topsoil (usually the top 2-8 inches) removed from the construction area shall be separated and used for site rehabilitation. When back filling topsoil shall be placed as the top layer to provide a seed bed for regrowth. If topsoil is not available from the project site, local native soil material obtained from a commercial site may be used. Species used for seeding and planting shall be in the following order of preference: 1) species native to the site; 2) species native to the region; 3) species native to the state.

Concurrent with the Section 404 process, an ADEC Section 401 Water Quality Certification would also be obtained. ADEC has issued a general concurrence 401 in conjunction with the NWPs.

To minimize impacts caused by stormwater runoff during construction, the project will comply with the conditions found in the ACGP AKR-1000, including the preferred use of non-plastic erosion control fabrics, and installation of erosion and sediment control measures such as silt fences, sediment traps, stabilized construction access points, erosion control blankets, and soil stabilization techniques. If plastic erosion control fabrics and silt fences are used, they would be removed after construction to prevent degradation and creation of micro plastics that would remain in the environment. These control measures would be instituted to control the discharge of pollutants from the construction site prior to and during construction.

To improve water quality, Alternative A will minimize the potential of lead migration to ground water and adjacent waterways by bringing the range complex up to design guidelines recommended in the *NRA Range Source Book* (2012). Some lead management guidelines in the US*EPA Best Management Practices for Lead at Outdoor Shooting Ranges* manual (*EPA BMP's*)

(2005) would be implemented (unless restricted by a regulatory agency permit) in Alternative A and Alternative B to protect water resources in this area. These BMP's would include elevation of the range, ground contouring, use of neutral fill and vegetative cover. The construction of berms, re-establishment of vegetation, proper selection of fill soils, and other site improvements would improve the likelihood that lead will be retained on the range and not migrate into waterways.

Per EPA BMP's (2005, Ch 2, p. II-2), annual precipitation is one of the most important factors influencing lead degradation and migration (ITRC, 2005 p. 9, 11). When heavy rain saturates soils, it can cause lead particles from spent ammunition at shooting ranges to leach into ground water nearby surface waters. Since the current range is in an arid region, the relatively low level of precipitation will naturally result in reduced lead dissolution rates.

Soil acidity significantly increases the dissolution rate of lead; so, the higher pH of existing site soils would lead to higher lead dissolution (USAEC, 1998, p. 9) and mobility than the borrow and D1 fill that will be used to elevate the range and construct the berms. This fill, which is neutral in nature, would be placed as part of Alternative A and the Upgrade Without Expansion Alternative. The addition of berms to the range complex would minimize and mitigate potential impacts from lead exposure from lead bullets, or dissolved lead migrating through soils to groundwater or adjacent surface waters. Exposure can occur as lead bullets oxidize when exposed to air and dissolve when exposed to acidic water or soil. With spent bullets lodging in the newly constructed berms, less exposure to air and water will occur reducing dissolution rates and potential for movement.

The earthen backstop or end berm will be separated from the toe of the existing hillside and be constructed of neutral fill to capture and contain much of the spent lead which will allow for practical reclamation efforts in the future. Since reclamation of existing lead is not included under any of the proposed project alternatives any spent lead in the hillside which currently functions as the backstop will remain for the foreseeable future. During consultation with the ADEC, Contaminated Sites Program DPOR engineers were advised to leave any existing lead encapsulated in the current backstop (Personal Communication Rys Miranda, January 16, 2025). EPA Region 10 staff from the RCRA Corrective Action, Permits, and Polychlorinated Biphenyls Section within the Land, Chemicals, and Redevelopment Division were consulted to ensure that failure to reclaim spent lead during reconstruction would not violate EPA statutes or policies. EPA does not consider lead shot a hazardous waste subject to RCRA at the time it is discharged from a firearm because the shot is being used for its intended purpose. (USEPA, 2005, p. 1-8).

EPA staff recommended that DPOR utilize a range history and records document to permanently record that spent lead was not reclaimed from the hillside during reconstruction (ITRC, 2003, p,5, Personal Communication L. Cuaderno, March 13, 2025). This will ensure that it is not overlooked during future operations and maintenance or in the event the range is ever decommissioned. In the event of decommissioning, all spent lead would be subject to RCRA requirements. DPOR staff maintain facility files and have indicated that project documentation will be available to future staff performing due diligence work for improvements or decommissioning (Personal Communication Rys Miranda, March 19, 2025).

EPA staff also requested confirmation that a deed restriction or other mechanism esists prohibiting residential development at the proposed project site and confirmed that Alaska Statute 41.21.475 which reserves the CRSRA from all uses incompatible with the primary function as public recreation land was adequate (Personal Communication L. Cuaderno, March 13, 2025).

Spent lead remaining in the hillside may continue to degrade and produce leachate from precipitation and snow melt runoff from the steep hillside. To mitigate this potential, the area between the newly constructed backstop and the toe of the existing hillside (current backstop) will be contoured to create a vegetative swale (stormwater channel) to direct any runoff from the hillside (current backstop) and the newly constructed backstop. This vegetated stormwater channel will capture surface water, reduce water velocity thereby capturing leachate, lead and sediment and direct it off the range (USAEC, 1998, p. 21, EPA, 2005, III-8) into the adjacent forested wetlands allowing for additional sediment and toxicant retention and stabilization services.

Natural regeneration of vegetation on the hillside (current backstop) and seeding vegetation on the backside and top of the newly constructed backstop will help to reduce offsite transport of lead and sediment by reducing potential for erosion (USAEC, 1998, p. 25).

Ground contouring will be used to elevate the existing firing lane floor with neutral pH fill which will lift the base range elevation above the wet season water table, helping to prevent any spent lead from being exposed to seasonal ponding conditions and thereby reducing the leaching potential. This contouring will also allow snow melt and rain runoff to flow off the range into the adjacent wetlands allowing for sediment and toxicant retention and stabilization services of the forested wetlands to trap any potential lead leachate leaving the range. Since any spent lead in the firing lane floor will not be reclaimed during reconstruction and will be covered with fill,

EPA has recommended that DPOR utilize a range history and records document to permanently record that spent lead was not reclaimed from the firing lane floor but rather covered with fill during reconstruction (Interstate Technology and Regulatory Council, 2003, p5, Personal Communication L. Cuaderno, March, 13, 2025). This will ensure that it is not overlooked during future operations and maintenance or in the event the range is ever decommissioned. In the event of decommissioning, all spent lead would be subject to RCRA requirements. DPOR staff maintain facility files and have indicated that project documentation will be available to future staff performing due diligence work for improvements or decommissioning (Personal Communication Rys Miranda, March 19, 2025).

Spent lead remaining in the current firing lane floor and covered with fill may continue to degrade and produce leachate however it is likely that much of it sits within the organic layer at the current surface. As lead has a strong tendency to bind to organic matter (USAEC, 1998, p. 9) retention of the organic layer may reduce for potential for leachate from existing lead and from future deposits in the neutral fill placed above.

Where practical (locations outside the line-of-fire), shall be revegetated which will reduce the erosion potential and reduce the amount of surface runoff.

Wetland Assessment Areas, “A” and “B, C” scored high for Waterbird Habitat due to their larger areas of open water. These areas would not be directly impacted other than through restoring connectivity via the proposed culverts which would be beneficial. An additional 100-foot buffer was added to the areas of direct impact to represent the secondary impacts (dust, noise, erosion and sedimentation, etc.) each wetland would receive because of the primary impact of road and range upgrades. Waterbird habitat within this buffer would likely receive temporary negative indirect impacts during the construction period. These indirect impacts are not likely to be significant as many bird species will acclimate to increased activity, and activity duration and intensity is not likely to be constant. The planned range cover may help to absorb firearm noise depending on design and reduce indirect impacts on water and shore bird habitat. It is also worth noting that sound levels are greatest directly downrange and lowest 180 degrees directly behind the firing line (NRA, 2023, p. 92) which is where the ponds/waterbird habitat is located. The ponds are currently surrounded by native shrub-scrub vegetation buffers which provide visual screening and may help to ensure continued use by waterbirds and shorebirds and improve the likelihood of continued habitat use and value. Using ground contouring to direct surface water into the adjacent wetlands allowing for sediment and toxicant retention and stabilization services of the wetlands to trap any potential lead leachate will reduce the likelihood that the water and

shore bird habitat values of Wetland Assessment Areas, “A” and “B, C are not diminished through water quality effects. These measures will help to mitigate any loss of function due to indirect effects on water and shore bird wetland habitat.

Since the proposed project site has been an active shooting range since the 1960’s, it would be inconceivable to think that there are no current negative impacts to water quality and wetlands on site. However, implementing this alternative would reduce future impacts by improving the existing site and its baseline conditions. Construction of the Preferred Alternative will benefit on site water quality and offset the loss of approximately 0.1769 acres of wetlands by creating uplift in the functional or service categories lost, through sound design, appropriate mitigation measures, reestablishing wetland connectivity, and adherence to the best management practices as described.

The small addition of impermeable surface due to paving the access road and parking lot may lead to increased surface runoff into the wetlands. Due to the small scale and footprint of the project this is not expected to result in significant impacts to water quality or the Chena River floodplain. The culverts which would be appropriately sized for restore proper hydrologic connectivity will benefit hydrologic conditions within the floodplain.

No significant impacts to water quality are anticipated under Alternative A. If Alternative A were implemented site upgrades may improve water quality conditions into the future through increased lead containment.

Alternative B – Upgrade Without Expansion Alternative

Alternative B would keep the range at the current size of approximately 80 feet wide by 400 feet long, and would include construction of side berms, and an end berm and use of ground contouring which would benefit water quality as described in the Preferred Alternative. The impacts and mitigation measures would be the same as for Alternative A, though at a smaller scale since no site expansion would be included. Alternative B would eliminate the need for any wetland fill, however, expansion activities would not take place to the desired extent. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity. Alternative B would result in a smaller parking lot that would be resurfaced with gravel instead of pavement. Additionally, Alternative B would not restore the wetland connectivity along the access road.

No significant impacts to water quality are anticipated under Alternative B. If Alternative B were implemented site upgrades may improve water quality conditions into the future through increased lead containment although to a lesser extent than Alternative A.

Alternative C – No Action Alternative

Alternative C will not have any significant impacts, nor will it provide any benefits through site upgrades. Any current impacts to surface and groundwater quality will remain unchanged with the continued possibility of existing sediments and lead migration from the poorly graded and unimproved site.

3.6 Threatened and Endangered Species

The Endangered Species Act (ESA) protects specific plant and wildlife species and their habitats. A search through the Service Information for Planning and Consultation (IPaC) report (Appendix J) indicated the proposed project site is not within the range of any species listed, proposed to be listed, or considered a candidate for listing under the Endangered Species Act (ESA) by the Service. There is no federally designated critical habitat for any Service ESA-listed species on or near the proposed project site. There are no ESA listed or proposed species under jurisdiction of the National Marine Fisheries Service on or near the proposed project site. The proposed project site is not in or adjacent to the marine environment and the nearby Chena River does not contain any ESA listed anadromous fish species, and there is no designated Essential Fish Habitat on or near the site.

ENVIRONMENTAL CONSEQUENCES

All Alternatives

The proposed project site is not within the range of any species listed, proposed to be listed, or considered a candidate for listing under the ESA. Nor is there any federally designated critical habitat for any ESA-listed species at the proposed project site.

No significant impacts to Threatened and Endangered species are anticipated under any proposed Alternatives.

3.7 Wildlife

Wildlife at the proposed project site is typical to this part of Interior Alaska. Common large mammals include moose (*Alces alces*), wolf (*Canis lupus*), brown bear (*Ursus arctos)*, black bear (*Ursus americanus*), and caribou (*Rangifer tarandus*). Smaller fur bearing species include ground squirrel (*Spermophilus sp*), red squirrel (*Sciurus vulgaris*), snowshoe hare (*Lepus americanus*), river otter (*Lontra canadensis*), beaver (*Castor canadensis*), marten (*Martes martes*), mink (*Mustela vison*), weasel (*Mustela sp.*), red fox (*Vulpes vulpes*) and lynx (*Lynx canadensis*).

The federal Migratory Bird Treaty Act (MBTA) protects migratory bird species and their nests. Wetlands and riparian areas in nearby streams and lakes may provide migratory bird nesting habitat for waterfowl and shorebirds. At least 93 species of birds are known to breed in the area.

According to the USFWS IPaC report (Appendix J), the Lesser Yellowlegs (*Tringa flavipes*) a Bird of Conservation Concern (BCC) may be present at the proposed project site.

The federal Bald and Golden Eagle Protection Act protects bald and golden eagle and their nests. The proposed project site is within Bald Eagle habitat; however, an environmental planning site visit on August 29, 2023, confirmed there were no observed nests or eagle activity at the existing shooting range or immediate area (Appendix J).

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Alternative A to upgrade an established shooting range complex is not anticipated to pose long term, significant impacts to wildlife resources. Short-term impacts may include anthropogenic disturbance from increased dust, and construction noise, which may temporally stress and/or startle wildlife in the vicinity. Larger more mobile wildlife may temporarily abandon use or avoid the site during construction. Short-term impacts are anticipated to last during construction of the proposed project and would be concentrated during the summer months when construction activities would be at their peak. Natural shrub scrub vegetation which surrounds the open water ponds will help to screen construction site activities and buffer some construction noise reducing potential for disturbance. The planned cover over the range firing line will help to absorb some sound from active range operations also reducing potential for disturbance. Elevating the range above the surrounding wetlands which are lower in elevation than the open water ponds will

allow seasonal melt and runoff to flow into the wetlands thereby reducing the potential for lead leachate to degrade wildlife habitat in and around the open water ponds. Of course, there may be some minor effects to wildlife inhabiting these wetlands, but the improvements to the range will reduce those effects below current baseline. Since the area is currently an active shooting range and wildlife is habituated to the current shooting range activities, disruptions to species' normal behavior, including displacement from the area during construction, is expected to be minimal and temporary and no adverse population-level impacts are anticipated to any species.

Plants that take up and store lead may be consumed by wildlife, therefore it is possible that herbivores could potentially be affected through biomagnification of lead. Small mammals would be more susceptible due to a small home range size than would larger herbivores such as moose that utilize a larger home range. Generally large mammals are thought to be at low risk for lead contamination from shooting ranges. Insectivores and ground feeding birds are thought to have a greater risk for inadvertent lead ingestion through feeding habits or biomagnification in prey items. Waterfowl are known to ingest lead shot while feeding, however no solid lead is being deposited in the ponds behind the firing line and the forested wetlands adjacent to the range do not provide suitable habitat for most waterfowl. Amphibians, and invertebrates inhabiting the wetlands adjacent to range may be at higher risk from lead contaminated runoff. Any negative effects on wildlife would be limited to a small number of individuals making up a tiny fraction of the populations distribution and would not have population level effects on any species (The Interstate Technology & Regulatory Council, 2005, p 14-15).

Due to the need to fill approximately 0.1769 acres of wetland, there would be an insignificant loss to migratory bird and other wetland adapted species habitat. Much of the CRSRA contains similar wetland habitat so the minor loss and disturbance from Alternative A would not result in population-level impacts to migratory birds or other wildlife.

All construction activities would comply with the MBTA and Executive Order 13186 for the conservation of migratory birds, and consultation with the Service would occur as needed. To avoid impacts to migratory birds during nesting season, land clearing activities would not take between May 1 and July 15 (USFWS, 2017, p. 2). If an active migratory bird nest is encountered at any time during construction the nest will be left in place and undisturbed until the eggs hatch and the young depart the nest. Unless approval to do otherwise is received from the Service.

Long-term impacts on wildlife from construction activity is not likely as there is no shortage of habitat within the CRSRA and any displaced individuals would likely return to the proposed project site after the cessation of construction activities.

The project site and area of potential impacts will be re-surveyed for eagles' nests or eagle activity prior to initiation of construction activities. If any eagle nests are found during construction, construction activities will stop until the ADNR DPOR Project Manager, ADF&G, and the Service are notified and will not resume until the Service provides authorization.

Since the proposed project site has been an active shooting range since the 1960's, it would be inconceivable to think that there are no current localized negative impacts to wildlife on site. However, implementing this alternative would reduce future impacts by improving the existing site and its baseline conditions by reducing lead movement off the range.

No significant impacts to wildlife are anticipated under Alternative A. If Alternative A were implemented site upgrades may improve wildlife habitat into the future through increased lead containment.

Alternative B – Upgrade Without Expansion Alternative

The impacts and mitigation measures would be the similar as for Alternative A, though at a smaller scale since no site expansion would be included. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts to wildlife are anticipated under Alternative B. If Alternative B were implemented site upgrades may improve wildlife habitat into the future through increased lead containment.

Alternative C – No Action Alternative

No significant impacts will occur, any existing impacts to wildlife will continue as will the current potential for lead leachate moving off the range. If Alternative C were implemented no site upgrades would occur that may improve wildlife habitat conditions into the future through increased lead containment.

3.8 Fish and Other Aquatic Species

The Chena River located approximately 1,500 feet south of the proposed project site, provides habitat for approximately 12 species of fish with Arctic grayling (*Thymallus arcticus*) being the most popular species for sport fishing (ADEC, 2006, p87). Other aquatic species include humpback whitefish (*Coregonus pidschian*), burbot (*Lota lota*), northern pike (*Esox lucius*), longnose sucker (*Catostomus catostomus*), Arctic lamprey (*Lampetra camtschatica*), least cisco (*Coregonus sardinella*), and slimy sculpin (*Cottus cognatus*). Chinook (king) (*Oncorhynchus tshawytscha*) and chum salmon (*Oncorhynchus keta)* spawn in the Chena River in late July and early August.

A shallow man-made gravel pit pond resides directly south of the shooting range (Figure 6). However, whether aquatic species inhabit or not it is unknown. It is currently not stocked by the ADF&G according to the ADF&G Fish Stocking Database (Appendix K).

Figure 6: Existing Gravel Pit Pond South of Shooting Range

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

A man-made pond resulting from gravel extraction when the Chena Hot springs Road was built is located south of the Proposed project site, and may contain suitable habitat for fish, however

no fish are known to inhabit it. An aquatic species inventory within the man-made pond has never been conducted; however, it is assumed general aquatic species (invertebrates, waterfowl, etc.) inhabit them. ADF&G does not currently stock any of the ponds in the area (Appendix K). Alternative A would not utilize gravel material from the existing pond/pit. There is some potential for lead to migrate into the pond, however the upgraded range design included in Alternative A will reduce potential and improve current site conditions (see the water quality and wetlands sections).

Approximately 0.1769 acres of wetlands E, F, and G as identified in the Wetland Delineation Report would be filled resulting in an insignificant loss of habitat for any aquatic species present. Much of the CRSRA contains similar wetland habitat so the loss will not have material effects on any species at a population level.

No significant impacts to fish and other aquatic species are anticipated under Alternative A. If Alternative A were implemented site upgrades may improve habitat for some species into the future through increased lead containment.

Alternative B – Upgrade Without Expansion Alternative

No wetland loss will occur, and construction activities will occur on a smaller temporal and spatial scale. The impacts and mitigation measures would be the same as for Alternative A, though at a smaller scale since no site expansion would be included. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts to fish and other aquatic species are anticipated under Alternative b. If Alternative b were implemented site upgrades may improve habitat for some species into the future through increased lead containment.

Alternative C – No Action Alternative

No new impacts will occur; however, the range complex would continue as an inadequately designed active shooting range lacking environmental protections related to lead migration. If Alternative C were implemented no site upgrades would occur that may improve fish and aquatic species habitat conditions into the future through increased lead containment.

3.9 Noise

The proposed project is not creating a new use of the property at this location, current noise levels from range activities are anticipated to modestly increase with increased capacity (increased number of benches) and upgrades to the range. Temporary noise impacts will occur during construction activities form heavy vehicles, earth-moving equipment, and power tools.

Noise generators at or near the proposed project site include traffic along the Chena Hot Springs Road approximately 1,000 feet away, boat use on the Chena River approximately 1,500 feet away, off-road vehicles along trails nearby, and existing firearm use at the shooting range. The nearest airport and railroad are approximately 25 miles away, which is far beyond any airport/railroad noise and safety zones. The largest noise generator that will occur at the site is general recreational firearm use which ranges from 140-175 decibels peak pressure level (dbp) intermittently throughout the day (American Speech-Language-Hearing Association, 2024, p1).

There are two private properties (inholdings) located within a 1-mile radius of the Proposed project site according to the public use FNSB Property Search database. One is vacant land and the other is a seasonal camp, making range activity noise levels non-intrusive to local residences. The proposed project has gone through a public review process during the adoption of the CRSRA Management Plan and as described in chapter 5 (Public Involvement Process). No concerns with the existing shooting range were noted.

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Noise levels at the proposed project site would temporarily increase from construction equipment, which are anticipated to have sound levels that range between 80 and 95 decibels at 50 feet (Federal Transit Administration 2018, p 176). Field measurements in Denali National Park have shown construction equipment to be clearly audible at distances of approximately 4,300 to 4,600 feet (National Park Service 2022, p35 citing Withers 2011 and Betchkal 2013).

Although firearm noise ranges from 140-175 dbp, modestly increased noise levels are expected to occur from increased capacity. Alternative A will increase the number of shooting benches (up to eight additional benches to supplement the three current benches, including an ADA-compliant bench) which could result in concurrent increased use resulting in an increase in the amount of noise generated by gun fire. The only other recreational infrastructure close to the

range is the winter trail and since the access road to the range is not maintained in the winter it is unlikely that disturbance to the visitors of the recreation area and seasonal use of a nearby property will pose a significant impact over the baseline.

No studies were found specifically addressing the impacts of recreational shooting range noise on wildlife. Noise from recreational shooting may temporarily displace wildlife, but as the proposed project site is already an established shooting range, it is assumed no long-term effects on wildlife would occur. The CRSRA is largely undeveloped thus there is no shortage of wildlife habitat outside the range of shooting noise impacts.

Alternative A would include several noise mitigation strategies including the addition of steeper earthen berms and the already strategic placement of the existing range. The range also sits in a "basin" that is lower in elevation and oriented towards a hill of more than 430 feet of positive elevation change. Alternative A includes a covered shooting pavilion over the line of fire, this pavilion would further buffer noise coming from the shooting range. Should complaints occur from increased noise, DPOR would adjust noise mitigation strategies as needed including limiting open hours.

No significant impacts to resources or the human environment are expected to occur through implementation of Alternative A.

Alternative B – Upgrade Without Expansion Alternative

The impacts and mitigation measures would be the same as identified in Alternative A, though on a slightly smaller scale due to less construction activity and a reduced number of shooting benches than in alternative A. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts are anticipated to occur through implementation of Alternative B.

Alternative C –No Action Alternative

Under Alternative C, no significant impacts are anticipated. Baseline noise levels would remain unchanged.

3.10 Air Quality

The proposed project site is located within EPA's Northern Alaska Intrastate Air Quality Control Region 009 (ADEC, 1972, p. II-4) which covers 320,000 square miles of mostly unpopulated wilderness in the northern half of Alaska.

The Clean Air Act (CAA) of 1970 (42 USC 7401 et seq.), as amended in 1977 and 1990, is the basic federal statute governing air pollution and administered by the EPA. The EPA sets National Ambient Air Quality Standards (NAAQS) for six commonly found air pollutants under the Clean Air Act. The EPA Green Book provides detailed information on NAAQS designations, classifications, and nonattainment status of areas of the country that meet or violate the air quality standards. The nearest non-attainment area to the Proposed project site is a portion of the FNSB, including the City of Fairbanks and the City of North Pole. The areas were designated as a $PM_{2.5}$, as they exceeded the health based 24-hour $PM_{2.5}$ NAAQS standard of 35 micrograms/cubic meter. Analysis shows that local emissions from wood stoves, burning distillate oil, industrial sources, and mobile emissions contribute to particulate pollution. For planning purposes, $PM_{2.5}$ is primarily a concern during the winter months (October through March) when extremely strong temperature inversions are frequent and human-caused air pollution impacts increase (ADEC, n.d., p1).

The proposed project site is not located within the EPA-designated FNSB non-attainment air quality area, which contains an EPA Non-attainment/Maintenance area for particulate matter ($PM_{2.5}$) pollutants. On February 26, 2024, ADEC Air Quality Division confirmed that "the proposed project is not located within the PM2.5 non-attainment area or the CO maintenance area for air quality under the Clean Air Act. Therefore, it does not require an applicability analysis under the General Conformity regulations." ADEC further noted that "if any of the work involves disposal of organic debris, and the DNR DPOR, ADF&G DWC, or the contractor chooses bush burning as a disposal method, they must use "reasonable procedures to minimize adverse environmental effects and limit the amount of smoke generated." "Also, they must apply for applicable permits". "A complete description of the open burn information, including policies, can be found at: http://dec.alaska.gov/air/air-permit/open-burn-info/". "Also, any construction activities should follow all reasonable precautions in accordance with 18 AAC 50.045(d) to prevent particulate matter from being emitted into the ambient air" and "Best Management Practices (BMP's) should be used to mitigate any potential dust issues during the project" (A. Alimi personal communication, February 6, 2024.

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Northern Alaska Intrastate Air Quality Control Region 009 covers 320,000 square miles of mostly unpopulated wilderness in the northern half of Alaska but does include all of the oilfield infrastructure located on Alaska's North Slope. This makes it very difficult to assess reasonably foreseeable actions over such a large area, therefore we will restrict our effects analysis to the immediate CRSRA.

The project area is in a rural state recreation area (245,080 acres) with no infrastructure or anticipated future infrastructure that would impact air quality in the local area.

Exhaust from large equipment would temporarily affect localized air quality but would be limited to a small number of machines operating during the short construction period and localized in the vicinity of the project site. Potential dust generated during the construction phase would also be temporary in nature and would not have substantial effects on current air quality conditions. Dust generation would be minimized through BMP's in the Storm Water Pollution Prevention Plan (SWPPP).

Vehicle traffic on the Chena Hot Springs Road also contributes an insignificant amount of emissions within the CRSRA. Increasing capacity and improving the range may draw additional users which could result in a small increase in vehicle traffic and resulting emissions. However, this increase is expected to be minimal and will not result in a substantial increase in emissions that would affect local air quality. Although the increased capacity of the range is expected to draw some additional users and increase overall use, the amount of traffic is not anticipated to significantly change in the foreseeable future.

No significant impacts to air quality are anticipated if Alternative A is implemented.

Alternative B – Upgrade Without Expansion Alternative

The impacts and mitigation measures would be the same as identified in Alternative A, though on a slightly smaller scale due to less construction activity and no site expansion. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts are anticipated to occur through implementation of Alternative B.

Alternative C – No Action Alternative

Air quality will remain the same, thus no significant impacts will occur.

3.11 Historical and Cultural Resources

To fulfill the requirements of Section 106 of the NHPA, the Service offered Government to Government Consultation to seven Federally Recognized Tribes and offered to consult with seven Alaska Native Claims Settlement Act (ANSCA) Village corporations and one ANSCA Regional Corporation (Appendix L) located within a 100-mile radius of the proposed project site. No offers of consultation were accepted. The Service also consulted with the Alaska State Historic Preservation Office (SHPO) on the proposed project.

ENVIRONMENTAL CONSEQUENCES

All Alternatives

The Service conducted a NHPA Section 106 Review and recommended a finding of no historic properties affected per 36 CFR 800.4 (d)(1) (Appendix M). The Winter Trail that runs through the project site is not eligible for listing under the NRHP. On November 29, 2024, the State of Alaska, State Historical Preservation Officer concurred with the Service's finding (Appendix M).

Should historic properties (cultural or paleontological resources) be discovered during construction, all work at the proposed project site would halt and SHPO and the Service would be notified immediately. Work would not resume until Section 106 consultation is reinitiated with SHPO, the Service, and any concerned Tribes, and the Service provides authorization to resume work.

No significant impacts to historic and cultural resources are expected to occur under any alternative.

3.12 Socioeconomic Conditions

The proposed project site is located deep within 245,080-acre CRSRA which was established to ensure access to recreational opportunities for Alaskans and visitors. There are no designated

residences within the CRSRA. People who live close by to the CRSRA choose to do so for the many recreational opportunities present in the area likely including the Stiles Cr Shooting Range.

ENVIRONMENTAL CONSEQUENCES

Alternative A – Upgrade and Expansion (Preferred Action Alternative)

Alternative A has the potential to draw an increased number of individuals from around the region to visit and recreate within the CRSRA. Service stations and small community businesses which are scattered along Chena Hot Springs Road outside the CRSRA, may see an increase in business with direct benefits to the local economy. Construction activities may also provide a temporary increase in the number of local jobs with local contractors and suppliers who provide goods and services in the region. The Chena Hot Springs Resort which is a popular tourist destination is approximately 20 miles past the shooting range will not be negatively affected. Upgrading and increasing capacity of the range only adds to the attractiveness of living nearby and improves, the aesthetic quality of the recreational resource of the CRSRA.

No significant impacts to socioeconomic conditions are anticipated if Alternative A is implemented. We consider any impacts to socioeconomic conditions to be positive.

Alternative B – Upgrade Without Expansion Alternative

Alternative B will have similar impacts as Alternative A, but at a smaller scale as expansion activities would not take place to the desired extent. The purpose of the grant authorizing legislation Pub. L. 116-17 Tar-Mark (Appendix E) is to construct and expand public shooting ranges and site expansion will be necessary to achieve the desired increase in capacity.

No significant impacts to socioeconomic conditions are anticipated if Alternative B is implemented. We consider any impacts to socioeconomic conditions to be positive.

Alternative C – No Action Alternative

Under Alternative C construction activities would not occur, therefore no significant impacts would occur and the positive direct and indirect impacts to the socioeconomics of local communities would not occur.

CHAPTER 4: REASONABLY FORSEEABLE EFFECTS

Reasonably foreseeable effects pursuant to 43 CFR 46.140, would consist of the direct and indirect reasonably foreseeable effects of implementation of the action in addition to other potential past, present, and future reasonably foreseeable effects. regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

The proposed project is not expected to conflict with any local, state, Tribal or Federal plans for the area. All the adjacent land is under the ownership and managed by ADNR DPOR, no additional development or further expansion of the range is planned, once the proposed project is completed. No reasonably foreseeable future activities or development are anticipated at this time in the CRSRA due to funding limitations and the priority to maintain existing sites. Therefore, any reasonably foreseeable future effects would solely result from the proposed action, are anticipated to be minor or insignificant, and are anticipated to range from short-term, negative effects to long-term, beneficial effects as described in the analysis. None of the alternatives considered are anticipated to result in significant impacts to the quality of any aspect of the human environment.

CHAPTER 5: PUBLIC INVOLVEMENT PROCESS

Visitors of the CRSRA, area shooting enthusiasts, and members of the public have all expressed support for the upgraded shooting range as greatly needed. In October 2023 a 30-day public review of the proposed project was published electronically through the ADNR Stiles Creek Improvements webpage, online public notice, as well as the ADF&G social media page and as such, public involvement and agency coordination requirements for Alternative A were fulfilled. Records are included in Table 2 below and in Appendix N.

Table 2. –Proposed Project Public Involvement and Comment/Response Summary.

Comment Number	Summary of Comment	ADF&G/DNR DPOR Response
1	The proposed improvements to the Stiles Creek Shooting Range look great. One thing that doesn't seem to be considered is the Chena Hot Springs Winter Trail. I believe the trail passes very close to the shooting benches. The trail is sometimes used in the summer as well. Please be sure to	No re-route of the Winter Trail or shifting of the shooting area is proposed, however, construction of the berms as called for in

	coordinate a reroute of the trail or shifting of the shooting area.	Alternative A and Alternative B will substantially mitigate risk to trail users. A second option is for users to loop past the man-made ponds via the access road, past the vault toilet, and then continue on the Winter Trail Route.
2	Great…much needed!	Thank you for your comment.
3	We need something like this on the kenai!	Thank you for your comment.
4	The area is most always wet	Thank you for your comment.
5 (2019 letter)	The Northern Area Alaska State Parks Citizen Advisory Board would like to express their support for improvements to the 36.4 mile shooting range within the Chena River State Recreation Area. This range has been in use since the 1970's and is very popular. Over 1,500 people use it yearly. Law enforcement agencies also use the facilities. Alaska State Parks has issued special use permits to agencies such as the Alaska Wildlife Troopers and the Fairbanks Police Department. Sister agencies such as the State Division of Forestry and Division of Mining, Land, and Water use the facilities for bear defense shotgun training.	DPOR: Alternative A and Alternative B propose to minimize flooding concerns along the access road and on the range.

	Unfortunately, the road to the shooting range and the range itself are subject to flooding and are extremely wet during breakup in the spring. Fill needs to be brought in to build up the road and range. This will make the site easier to mechanically clean as well as making it more accessible for folks with disabilities. Outdoor shooting ranges within the Fairbanks North Star Borough (FNSB) are extremely limited. There are two in Fairbanks. One on South Cushman operated by FNSB and the other at the airport The airport range is being closed down for good in December 2019 which will put additional pressure on the remaining ranges. [The airport range did close on December 31, 2022]	
6 (2019 email)	I would like to offer my support for proposed implementation of the online reservation system, as well as the upgrades to the CRSRA shooting range. I am a regular user of the range, and it is quite instrumental for the DNR, Division of Mining, Land, and Water's Wildlife Safety training. As you know, we use the range for training several times per year. For the safety of staff as well as the public, we are required to reserve the range for agency use. Although we do our best to minimize impact to the public and to notify the public in advance, an online reservation system would be greatly beneficial and a very practical way to minimize conflicts. I also support the proposed upgrades to the range. For many years, the benches at the range have been in desperate need of repair or replacement. Often, unless a user brings their own portable bench or stool, the benches are largely unusable. Additionally, the downrange conditions are often rather poor, with large pools of standing water, occasionally untraversable. The ability to walk all the way down range	Thank you for your comment.

	would make the range a much nice place to shoot, make it easier to maintain, and would likely reduce the amount of trash and debris left down range if it is easier to recover. When we use the range for agency training, we try our best to do our part to clean it up, but the poor down range conditions make it rather challenging, especially during the wetter parts of the year. Again, I am in full support of the proposed upgrades to the CRSRA range. If you have any questions of would like any additional information, please let me know.	

COORDINATION & CONSULTATION

In preparation of this EA, the following state and federal agencies were consulted:

- Alaska Department of Environmental Conservation
- Alaska Department of Fish and Game
- Alaska Department of Natural Resources
- U.S. Army Corps of Engineers – Alaska District
- U.S. Environmental Protection Agency, Region 10
- U.S. Fish and Wildlife Service, Alaska Region

PREPARERS

Design Alaska, Inc. - Consultant and Environmental Assessment
Alaska Department of Natural Resources – Division of Parks and Outdoor Recreation
Alaska Department of Fish and Game, Division of Wildlife Conservation
U.S. Fish and Wildlife Service, Office of Conservation Investment
U.S. Fish and Wildlife Service, Conservation Planning Assistance Branch

REFERENCES

Alaska Department of Environmental Conservation. (n.d.) *Contaminated Sites* Search. [Data Set]. https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search/.

Alaska Department of Environmental Conservation. (n.d.). Impaired Waters Search. [Data Set]. Retrieved on March 12, 2025 from https://gis.data.alaska.gov/maps/9dac5c50902149c0b989fd74ae5c0778/explore?location=64.880032%2C-145.765796%2C7.88

Alaska Department of Environmental Conservation, Division of Air Quality, Air Non-Point and Mobile Sources. (n.d.). Fairbanks - Particulate Matter. Retrieved on December 6, 2024 from https://dec.alaska.gov/air/anpms/communities/fbks-particulate-matter/

Alaska Department of Environmental Conservation. 1972. State of Alaska Air Quality Control Plan Volume 1 Plan. Retrieved on February 2, 2025, from https://dec.alaska.gov/media/7664/1972-air-quality-control-plan.pdf

Adamas, Paul, Salcha Delta Soil and Water Conservation District, and U.S. Fish and Wildlife Service. 2021. Manual for Wetland Ecosystem Services Protocol for Interior Alaska (WESPAK-INT) Version 1.0." https://salchadeltaswcdorg-my.sharepoint.com/personal/admin_salchadeltaswcd_org/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fadmin%5Fsalchadeltaswcd%5Forg%2FDocuments%2Felc%2FSWCD%5FProjects%2FWetlands%5FFunctional%5FAssessment%2FWESPAK%2DINT%20website%20docs.

Alaska Department of Fish and Game. (2023). *Hatcheries and Stocking: Fish Stocking Search.* [Interactive Map]. Retrieved on November 2, 2023, from https://www.adfg.alaska.gov/index.cfm?adfg=SportStockingHatcheriesSearch.main%20.

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. (2006). *Chena River State Recreation Area Management Plan*. https://dnr.alaska.gov/parks/plans/chena/chena_complete.pdf.

American Speech-Language-Hearing Association, 2024. Audiology Information Series, Recreational Firearm Noise Exposure Retrieved on March 18, 2024 from https://www.asha.org/siteassets/ais/ais-recreational-firearm-noise-exposure.pdf.

Betchkal, D. 2013. Acoustic monitoring report, Denali National Park and Preserve – 2011. Natural Resource Data Series. NPS/DENA/NRDS—2013/474. National Park Service. Fort Collins, Colorado

Chena River State Recreation Area: Stiles Creek Outdoor Shooting Range Improvements. (n.d.). Alaska Department of Natural Resources Division of Parks & Outdoor Recreation. Retrieved on October 2023 from https://dnr.alaska.gov/parks/aspunits/northern/chenarange.htm.

Environmental Laboratory (1987). *Corps of Engineers Wetlands Delineation Manual*. https://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf.

Fairbanks North Star Borough. (2023). *Property Search*. [Interactive Map]. Retrieved on October 18, 2023, from https://propertysearch.fnsb.gov/.

Fairbanks North Star Borough. (2024). *Air Quality Program Boundaries*. [Interactive Map]. Retrieved on July 3, 2024, from https://www.fnsb.gov/338/Program-Boundaries.

Federal Emergency Management Agency. (2023). *FEMA Flood Map Service Center: Search by Address*. [Interactive Map]. Retrieved on October 18, 2023, from https://msc.fema.gov/portal/search.

Federal Transit Administration, John A. Volpe National Transportation Systems Center. (2018). Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

Google LLC. 2022. Google Earth Pro 7.3.6.9345 [Software]

Interstate Technology and Regulatory Council. 2003. Characterization and Remediation of Soils at Closed Small Arms Firing Ranges. https://itrcweb.org/wp-content/uploads/2024/09/SMART-1.pdf.

Kumar, B., K. Smita, L.C. Flores. (2017) Plant mediated detoxification of mercury and lead. Arab. J. Chem., 10, pp. S2335-S2342

Lewanski, J. (2006). Dear reader Letter from Alaska Division of Parks and Outdoor Recreation, Department of Natural Resources. (2006). *Chena River State Recreation Area Management Plan*. https://dnr.alaska.gov/parks/plans/chena/chena_complete.pdf.

National Park Service. (2019) Retrieved on 12/6/2024, https://www.nps.gov/subjects/geology/arid-landforms.htm#:~:text=Arid%20regions%20by%20definition%20receive,in%20shaping%20the%20land%20surface.

National Park Service. (2022). Denali National Park and Preserve Polychrome Area Improvements Environmental Assessment. https://parkplanning.nps.gov/showFile.cfm?sfid=558131&projectID=101706

National Rifle Association. (2023). *NRA Range Source Book: A Guide to Planning & Construction.*

National Wild and Scenic Rivers System. (n.d.). [Data Set]. Retrieved on October 30, 2023, from River Mileages & Classifications | Rivers.gov and Study Rivers | Rivers.gov.

NOWData - NOAA Online Weather Data. (n.d.). National Weather Service NOAA. Retrieved on October 30, 2023, from https://www.weather.gov/wrh/Climate?wfo=afg.

Sharma P., R.S. Dubey Lead toxicity in plants Braz. J. Plant Physiol., 17(1)(2005), pp.35-52

Swift, D. (1976). University of Alaska Fairbanks, Geophysical Institute, Alaska Science Forum. Retrieved on December 6, 2024, from https://www.gi.alaska.edu/alaska-science-forum/aquifers.

U.S. Army Corps of Engineers. (n.d.). NWP 42 Recreational Facilities. Retrieved on March 18, 2025, from https://www.poa.usace.army.mil/Portals/34/docs/regulatory/2024/NWP/NWP%2042.pdf

U.S. Army Corps of Engineers. 2012. The Chena River Watershed Hydrology Model, ERDC/CRREL TR-12-1. ERDC/CRREL TR-12-1 "The Chena River Watershed Hydrology Model".

U.S. Army Environmental Center (USAEC). 1998. Prevention of Lead Migration and Erosion From Small Arms Ranges. Report Number SFIM-AEC-ET-TR-98033. U.S. Army Environmental Center's Range XXI Team and U.S. Army Training Support Center. Aberdeen Proving Ground, Md.

U.S. Department of Agriculture, National Cooperative Soil Survey. (2022). Retrieved on March 13, 2025 from https://soilseries.sc.egov.usda.gov/OSD_Docs/G/GOLDSTREAM.html.

U.S. Department of Agriculture, Natural Resources Conservation Service. (2023) *Web Soil Survey*. [Interactive Map]. Retrieved on October 18, 2023, from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U.S. Environmental Protection Agency (n.d. A). Sole Source Aquifers. [Data Set] Retrieved on December 6, 2024, from https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b.

U.S. Environmental Protection Agency. (n.d. B). What is a Best Management Practice and How Does It Apply to Shooting Ranges. Retrieved on December 10, 2024 from https://www.epa.gov/sites/default/files/documents/bmp_lead_at_outdoor_shooting_ranges.pdf.

U.S. Environmental Protection Agency. (2005). Best Management Practices for Lead at Outdoor Shooting Ranges. https://www.epa.gov/sites/default/files/documents/epa_bmp.pdf.

U.S. Environmental Protection Agency. (2024). *Nonattainment Areas for Criteria Pollutants (Green Book)*. https://www.epa.gov/green-book.

U.S. Fish and Wildlife Service. (n.d.). *IPaC Information for Planning and Consultation* [Data Set]. Retrieved on April 26, 2024, from https://ipac.ecosphere.fws.gov/.

U.S. Fish and Wildlife Service. (2015). *Listed species with spatial current range believed to or known to occur in Alaska*. [Data Set]. Retrieved on October 18, 2023, from https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=AK&stateName=Alaska&statusCategory=Listed.

U.S. Fish and Wildlife Service. (2017). Timing Recommendations for Land Disturbance & Vegetation Clearing, Planning Ahead to Protect Nesting Birds retrieved December 10, 2024 from https://www.fws.gov/sites/default/files/documents/Timing%20Recommendations%20for%20Land%20Disturbance%20%26%20Vegetation%20Clearing%20-%20June%202017.pdf.

U.S. Fish and Wildlife Service. (2023). *National Wetlands Inventory: Surface Waters and Wetlands*. [Interactive Map]. Retrieved on November 2, 2023, from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/.

U.S. Geological Survey. (2023). *TopoView*. NGMDB. [Software]. https://ngmdb.usgs.gov/topoview/viewer/#13/64.9094/-146.4684.

Withers, J. 2011. Acoustic monitoring report, Denali National Park and Preserve - 2007. Natural Resource Data Series. NPS/CAKN/NRDS—2011/36. National Park Service, Natural Resource Program Center. Fort Collins, Colorado.

Wright, S. J. (2008, January). *A Revegetation Manual For Alaska*. Division of Agriculture, Alaska Department of Natural Resources. https://dnr.alaska.gov/ag/akpmc/pdf/RevegManual.pdf.

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Appendix A

Shannon & Wilson Stiles Creek Shooting Range Wetland Delineation Report

SUBMITTED TO:
John Rowe
Design Alaska
601 College Road
Fairbanks, Alaska 99701

BY:
Shannon & Wilson
2355 Hill Road
Fairbanks, Alaska 99709

(907) 479-0600
www.shannonwilson.com

FINAL

WETLAND DELINEATION REPORT

Stiles Creek Shooting Range

FAIRBANKS, ALASKA

SHANNON & WILSON

September 2023

Shannon & Wilson No: 110806-002

Submitted To: John Rowe
Design Alaska
601 College Road
Fairbanks, Alaska 99701

Subject: WETLAND DELINEATION REPORT, STILES CREEK SHOOTING RANGE, FAIRBANKS, ALASKA

Shannon & Wilson prepared this report and participated in this project as a consultant to Design Alaska. Our scope of services is based on verbal and email communication with Design Alaska. The wetland delineation boundary was provided by Design Alaska in a figure dated July 31, 2023 and confirmed in a teleconference with the Alaska Department of Natural Resources on August 10, 2023. This report presents the results of our wetland delineation and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON

Amber Masters
Environmental Scientist

CONTENTS

Exhibits

Figures

Appendices

ACRONYMS

bgs	below ground surface
CFR	Code of Federal Regulations
DNR DPOR	Department of Natural Resources Division of Parks & Outdoor Recreation
DP	data plot
ERDC	U.S. Army Engineer Research and Development Center
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
HGM	hydrogeomorphic
NI	No Indicator
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWPL	National Wetland Plant List
OBL	Obligate
UPL	Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

Shannon & Wilson performed this wetland delineation for future development areas at the Stiles Creek Shooting Range in Fairbanks, Alaska (Figure 1). The Stiles Creek Shooting Range is located at approximately 36.4 Mile Chena Hot Springs Road in Fairbanks North Star Borough, Alaska (Section 13, Township 1 North, Range 6 East, Fairbanks Meridian, USGS QUAD Big Delta D-5). The site coordinates are latitude 64.90544, longitude -146.45802. This report represents the results of our wetland delineation performed on August 23, 2023.

The Stiles Creek Shooting Range Improvements Project scope consists of filling and grading the existing range area, shaping the back slope, widening the existing range footprint, replacing shooting line platforms, expanding the parking area, and improving the access road. Shannon & Wilson's wetland delineation expanded on a previous delineation by the Alaska Department of Natural Resources (DNR) Division of Parks and Outdoor Recreation (DOPR), completed in 2022 (*Chena River State Recreation Area: Milepost 36.4 Shooting Range Facility Wetlands Report*). The project area increased in size after the DNR DOPR report was completed and DNR requested additional wetland delineation for the expanded project area.

1.1 Landscape Setting and Land Use

The Stiles Creek Shooting Range is located within the Rock Creek-Chena River watershed and the Interior Highlands ecoregion (Environmental Protection Agency, 2012). The shooting range is located approximately 1,500 feet north from the Chena River, the closest Traditional Navigable Water. The project area is in the Chena River floodplain in U.S. Federal Emergency Management Agency (FEMA) Flood Zone A (Appendix C). Flood Zone A is defined as areas with a 25-percent chance of flooding in a 30-year period. Three ponded gravel pits are located adjacent to or partially within the project area. A steep slope borders the project area to the north of the firing line. The areas adjacent to the Stiles Creek Shooting Range are generally undeveloped mixed deciduous and spruce forest. Aerial imagery shows trails throughout the area. During our site investigation we observed trails that appear to be frequently used by off-road vehicles.

Historically, the Stiles Creek Shooting Range was used as a materials site for the construction and maintenance of Chena Hot Springs Road. Current use includes shooting range facilities, overflow camping area, and trail access.

1.2 Study Objectives

The objectives of this study were to delineate and classify wetlands within the proposed Stiles Creek Shooting Range Improvements Project development.

2 BACKGROUND REVIEW

Background information was collected and reviewed prior to the wetland delineation fieldwork. These information sources are summarized in Exhibit 2-1. See Appendix C for associated maps and reports from the background review.

Exhibit 2-1: Background Information Review Findings

Source	Key Findings
Alaska Department of Natural Resources Division of Parks and Outdoor Recreation (DNR DPOR), *Chena River State Recreation Area: Milepost 36.4 Shooting Range Facility Wetlands Report (DNR DPOR, 2022)*	DNR delineated two wetlands along the east and west sides of the shooting range, denoted as Area C and Area E, as shown on Figure 2. Area C was characterized as palustrine emergent persistent wetland and Area E was characterized as palustrine unconsolidated bottom organic wetland.
Google Earth aerial imagery, years 1985, 2013, 2015, 2018, and 2022 (Google Earth, 2023)	A review of historical Google Earth aerial images revealed a linear pond adjacent to Wetland B. During our delineation we noted a water body to the west of the project boundary. Other ponds visible in historical imagery remain unchanged.
U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping system (USFWS, 2023)	Based on a review of the USFWS NWI, there are two wetland types in the project area (Appendix C). The wetland adjacent to the east side of the project area is described as a palustrine system, class forested, subclass needle-leaved evergreen and broad-leaved deciduous, with a seasonally saturated water regime (PFO4/1B). The NWI map is not accurate at the scale of the project area and describes a large portion of the project area as a single palustrine, unconsolidated bottom, permanently flooded pond (PUBH).
U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey interactive map (NRCS, 2023)	According to the NRCS web soil survey mapping system, the soils mapped within the project area include Goldstream peat, zero to three percent slopes, which is considered a hydric soil by the NRCS (Appendix C).

3 FIELD METHODS

Shannon & Wilson visited the Stiles Creek Shooting Range on August 23, 2023. Potential wetland conditions were evaluated using methods described in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0* (U.S. Army Engineer Research and Development Center [ERDC], 2007). Appendix A includes a detailed summary of our delineation methodology.

Following the Alaska delineation manuals, wetland delineations are best performed during the growing season (USACE, 1987; ERDC, 2007). The growing season for the project area is estimated to be between May 1 to September 23, based on wetland climate tables (WETS) prepared for the Fairbanks International Airport weather station between 2003-2023. This wetland delineation was conducted in one day on August 23, 2023.

Wetlands within the project area were identified using the triple-parameter approach, which considers vegetation types, soil conditions, and hydrologic conditions. For an area to be considered wetland, it must display each of the following: (a) dominant plant species that are considered hydrophytic according to the National Wetland Plant List (USACE, 2020), (b) soils that are considered hydric under the federal and regional manual definitions, and (c) indications of wetland hydrology in accordance with the federal and regional wetland delineation manuals.

Shannon & Wilson walked the project area to look for potential wetland conditions. Data plots (DPs) describing vegetation, soils, and hydrology were collected for each wetland type to help characterize the general conditions at the site (Figure 2). We collected corresponding upland DPs near each wetland DP. Wetland Determination Data Forms for each DP are provided in Appendix B. We marked wetland boundaries with pink "wetland boundary" flagging and DP locations with orange flagging in the field. Flag locations were collected using a handheld global positioning system unit with a theoretical accuracy of less than one meter.

4 RESULTS

Shannon & Wilson characterized the wetland and upland area conditions as described in the following sections. Plants are identified by common name with the associated scientific name and wetland indicator status in parentheses. Soils are described with the associated Munsell® Color Charts color in parentheses (Munsell, 2000).

4.1 Wetlands

Seven wetlands were delineated in the project area (Wetlands A through G, Figure 2). Wetlands were classified according to the Cowardin system and the hydrogeomorphic (HGM) classification system, as presented in Exhibit 4-1 (Federal Geographic Data Committee, 2013; Brinson, 1993). Vegetation, soils, and hydrology of these wetlands are described in Exhibits 4-2 and 4-3.

Exhibit 4-1: Wetlands Delineated within the Project Area

Wetland Classification and Location				
Wetland Name	Cowardin Classification [1]	HGM Classification [2]	Wetland Size (acre) [3]	Latitude, Longitude (WGS 84) [4]
A	PSS1/EM1D	Lacustrine Fringe	0.19	64.907691 N, -146.454589 W
B	PSS1/EM1D	Lacustrine Fringe	0.07	64.906384 N, -146.455742 W
C	PSS1/EM1D	Lacustrine Fringe	0.01	64.906005 N, -146.456118 W
D	PSS1/EM1D	Lacustrine Fringe	0.05	64.907352 N, -146.454416 W
E	PSS1C	Depressional	0.02	64.908163 N, -146.454953 W
F	PSS1C	Depressional	0.02	64.908306 N, -146.454790 W
G	PSS1C	Depressional	0.07	64.908465 N, -146.454748 W

NOTES:

1 USFWS classification is based on Cowardin (Federal Geographic Data Committee, 2013): PSS1/EM1 D = palustrine scrub-shrub, broad-leaved deciduous, continuously saturated; PSS1C = palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded.

2 HGM classification is based on Brinson (1993).

3 Wetlands continue outside of the study area.

4 Latitude and longitude of wetland center point, in World Geodetic System of 1984 (WGS 84).

We did not observe standing water on the west side of the shooting range in the area identified by DNR as "Wetland E" during our August site visit.

We considered the soil in Wetlands A through G to be problematic because of disturbance from past gravel mining activities. Because the wetlands were in a former gravel pit the organic soil layer was relatively thin and the soil contained a lot of gravel and cobbles, which impeded excavation below the depth of the water table. As a result, we were unable to dig to 20 inches below ground surface at DP1, DP3, DP5, DP7, and DP9. The low organic content in the soil made identification of redoximorphic features difficult at some locations. It was not clear if soil in some of the adjacent uplands was naturally problematic or if it had also been disturbed by gravel mining in the past. The upland locations at DP2, DP4, and DP10 had soil with high content of sand and cobbles. The Stiles Creek area was likely chosen as a gravel pit because of naturally abundant gravel and cobbles.

Exhibit 4-2: Wetland A, B, C, and D Summary

Wetland A, B, C, and D – Information Summary	
 *Wetland A Emergent Vegetation near DP1*	 *Wetland B Scrub-Shrub Vegetation near DP3*
Location	Wetlands A, B, C, and D are located south from the shooting range along the edge of several gravel pit ponds. These wetlands and the ponds they surround are isolated from each other by raised gravel access roads and trails. Wetlands A through D are characterized as a fringe of saturated and/or flooded soils bordering the gravel pit ponds. (See Figure 2; DP1, DP3, and DP5 [Appendix B]). Wetlands A, B, C, and D continue outside of the project area.
Dominant Vegetation	Wetlands A through D consist of approximately equal cover of sapling/shrub and emergent vegetation strata. The ponded areas of the wetlands included emergent vegetation, with dominant species including beaked sedge (*Carex rostrata,* OBL [Obligate]*),* bluejoint grass (*Calamagrostis canadensis,* FAC [Facultative]), and woodland horsetail (*Equisetum sylvaticum*, FAC). Shrubs and saplings occur along the saturated fringe of the wetland, dominated by Bebb willow (*Salix bebbiana*, FAC) and gray-leaf willow (*Salix glauca*, FAC). These wetlands include about 10 to 50 percent ground cover of bryophytes. The vegetation satisfied the Dominance Test indicator for hydrophytic vegetation at DP1, DP3, and DP5.
Soils	The soils for Wetlands A through D are considered significantly disturbed due to past gravel mining activities. This is evidenced in part by the thin surface organic layer. In addition, the soils are naturally problematic hydric soils due to low organic matter and abundant sand, gravel, and cobbles. The rocky soil inhibited excavation below the depth of the water table in the wetland DPs. The soil profile for DP1 in Wetland A was examined to a depth of 12 inches below ground surface (bgs). Soil had a hydrogen sulfide odor (A4). The soil profile comprised of 0.5 inches of black (7.5YR 2.5/1) hemic organic soil underlain by dark greenish gray (Gley1 4/10Y) loamy sand with strong brown (7.5YR 4/6) concentrations in the pore linings, present to five inches; and dark greenish gray (Gley1 4/10Y) sandy loam with strong brown (7.5YR 4/6) concentrations in the pore linings present to 12 inches. Soil at DP1 meets the Alaska Redox (A14) and hydrogen sulfide (A4) hydric soil indicators. The soil profile for DP3 in Wetland B was examined to a depth of 12 inches bgs. The soil is comprised of one inch of fibric organic soil underlain with dark olive gray (5Y 3/2) loamy sand with yellowish red (5YR 4/6) concentrations in the pore linings. Soil at DP3 meets the Alaska Redox hydric soil indicator (A14). The soil profile for DP5 in Wetland D was examined to a depth of 15 inches bgs. The soil had a hydrogen sulfide odor. The soil profile comprised of five inches of black (7.5YR 2.5/1) hemic organic soil underlain by black (5Y 2.5/2) loamy sand with dark brown (7.5YR 3/3) concentrations in the pore linings present to six inches; and greenish black (Gley1 2.5/10Y) loamy sand with dark brown (10YR 3/3) concentrations in the pore linings. Soil at DP5 meets the hydrogen sulfide (A4) and Alaska gleyed without hue 5Y or redder underlying layer hydric soil indicators.
Hydrology	Primary indicators of wetland hydrology in Wetlands A through D included high water table (A2) and saturation (A3). In addition, Wetland A met the hydrogen sulfide odor (C1) indicator. These wetlands also met the secondary indicator for geomorphic position (D2) because of their location along a gravel pit pond margin. The wetlands include surface water at the pond margin.

Exhibit 4-3: Wetland E, F, and G Summary

Wetland E, F, and G – Information Summary	
 *Wetland E vegetation*	 *Wetland G vegetation*
Location	Wetlands E, F, and G are located to the west of the shooting range and north of the gravel pit ponds. These wetlands are depressional with saturated soil (see Figure 2; DP7 and DP9 [Appendix B]) and appear as swales in the local topography. Wetland E continues outside of the project area.
Dominant Vegetation	Wetlands E through G consist of a sapling/shrub vegetation class dominated by Bebb willow and blueberry (*Vaccinium uliginosum,* FAC). The saturated areas of the wetland included herbaceous vegetation, with dominant species including beaked sedge, iris (*Iris setosa,* FAC), and bluejoint grass with approximately 10 to 65 percent ground cover of bryophytes. The vegetation at DP7 and DP9 satisfied the Dominance Test indicator for hydrophytic vegetation.
Soils	The soils for Wetlands E through G are considered significantly disturbed due to past gravel mining activities. This is evidenced in part by the thin surface organic layer. In addition, the soils are naturally problematic hydric soils due to low organic matter and abundant sand, gravel, and cobbles. The rocky soil inhibited excavation below the depth of the water table in the wetland DPs. The soil profile for DP7 was examined to a depth of ten inches bgs. The soil profile comprised of 0.5 inches of black (7.5YR 2.5/1) fibric organic soil underlain by black (5Y 2.5/2) sandy loam to four inches bgs, and black (5Y 2.5/2) sand present to ten inches bgs. The soil profile for DP9 was examined to a depth of 13 inches bgs. The soil profile comprised of 0.5 inches of black (10YR 2/1) fibric organic soil underlain by dusky red (2.5YR 3/2) sand to 13 inches bgs. Soil at DP7 and DP9 does not exhibit hydric soil indicators. However, this soil meets the requirements of a problematic hydric soil due to low organic content (high in sand, gravel and cobbles), in addition to the presence of both hydrophytic vegetation and primary hydrology indicators, as well as a concave surface at both DP7 and DP9.
Hydrology	Primary indicators of wetland hydrology included soil saturation (A3) and high water table (A2). We did not observe surface water in these wetlands.

4.2 Upland Areas

The upland areas were evaluated with five DP locations (DP2, DP4, DP6, DP8, and DP10; Figure 2) paired with adjacent wetland DPs. Vegetation, soil, and hydrology conditions are summarized below.

4.2.1 Upland Vegetation

Scrub-shrub upland was present near the gravel pit ponds. The shrub/sapling stratum was dominated by Bebb willow and alder (*Alnus incana*, FAC), and the herbaceous stratum by bluejoint grass, iris, Siberian yarrow (*Achillea alpina*, NI [Non- Indicator]), and yellow rattle (*Rhinanthus minor*, FACU).

Exhibit 4-4: Scrub-shrub upland vegetation near DP4.

Forested upland was present west from the shooting range, east from the parking area, and in areas along the east side of the gravel access road. The tree stratum was dominated by Alaska paper birch (*Betula neoalaskana*, FACU) and white spruce (*Picea glauca*, FACU). Species in the shrub/sapling stratum included Bebb willow, prickly rose (*Rosa acicularis*, FACU), bunchberry (*Cornus canadensis*, FACU), birch, and meadowsweet (*Spiraea stevenii*, FACU). The herbaceous stratum included woodland horsetail, meadow horsetail (*Equisetum pratense*, FACW [Facultative Wetland]), bluejoint grass, iris, fireweed (*Chamaenerion angustifolium*, FAC), and Siberian yarrow.

Exhibit 4-5: Forested upland near DP8.

4.2.2 Upland Soil

The upland soil profiles had from 0.5 to four inches of organic fibric soil, underlain by a matrix of very dark grayish brown (2.5Y 3/2) to dark olive brown (2.5Y 3/3) to dark yellowish brown (10YR 3/6) sand to sandy loam to about 20 inches. In DP2, dark greenish gray (Gley1 3/10Y) sand was present below 13 inches. Each upland soil pit contained redoximorphic features below the organic soil layer; however, the soils did not meet hydric soil criteria.

5 CONCLUSIONS

We identified seven wetlands (Wetland A through G) in the Stiles Creek Shooting Range Improvements Project expanded project area (Figure 2). Wetland F and G are part of the

wetlands identified as "Wetland E" by the DNR in 2022 that extend into the expanded project area. Wetlands A, B, C, and D appear to have formed after gravel pits were abandoned. Based on the amount of cobbles at the surface and thin organic layer in Wetlands E, F, and G, these wetlands could also have been the result of man-made disturbance connected with past gravel mining. Wetlands A through G are within the Chena River floodplain FEMA Flood Zone A.

6 CLOSING

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area and in accordance with the terms and conditions set forth in our agreement. The conclusions presented in this report are professional opinions based on the interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

Shannon & Wilson has prepared the document, *Important Information About Your Wetland Delineation/Mitigation and/or Stream Classification Report* to assist you and others in understanding the use and limitations of our reports.

7 REFERENCES

Alaska Department of Natural Resources Division of Parks and Outdoor Recreation, 2022, Chena River State Recreation Area: Milepost 36.4 Shooting Range Facility Wetlands Report, 28 p., Fairbanks, AK.

Brinson, M.M., 1993, A Hydrogeomorphic Classification for Wetlands: U.S. Army Corps of Engineers Waterways Experiment Station Wetlands Research Program Technical Report WRP-DE-4, NTIS Report no. AD-A270053, 101 p., available: https://wetlands.el.erdc.dren.mil/pdfs/wrpde4.pdf

Federal Geographic Data Committee, 2013, Classification of Wetlands and Deepwater Habitats of the United States (2nd ed.): Washington, D.C., Federal Geographic Data Committee, Wetlands Subcommittee, Report no. FGDC-STD-004-2013, 86 p., available: https://www.fgdc.gov/standards/projects/wetlands/nwcs-2013.

Google Earth, 2023, Aerial Imagery of Pleasant Valley, Alaska: Available: https://earth.google.com/web/search/PleasantValley,+AK/, accessed August and September 2023.

Munsell Color, 2000, Munsell soil color charts: Revised Washable Edition, Newburgh, N. Y., Macbeth Division of Kollmorgen Instruments Corporation, 1 v.

U.S. Army Corps of Engineers (USACE), 1987, Corps of Engineers Wetlands Delineation Manual: Vicksburg, Miss., U.S. Army Corps of Engineers Waterways Experiment Station, Wetlands Research Program Technical Report Y-87-1, 143 p., available: http://www.wli.nrcs.usda.gov/delineation/.

U.S. Army Corps of Engineers, 2020, National Wetland Plant List (NWPL), available: https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html.

U.S. Army Engineer Research and Development Center, 2007, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0): Vicksburg, Miss., U.S. Army Corps of Engineers Engineer Research and Development Center, Final Report ERDC/EL TR-07-24, 115 p., available: http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg_supp.aspx

U.S. Environmental Protection Agency, 2012, *Level III Ecoregions of Alaska:* Corvallis, Oregon US EPA Office of Research and Development- National Health and Environmental Effects Research Laboratory, available: ftp://ftp.epa.gov/wed/ecoregions/ak/ak_eco_l3.zip, http://edg.epa.gov

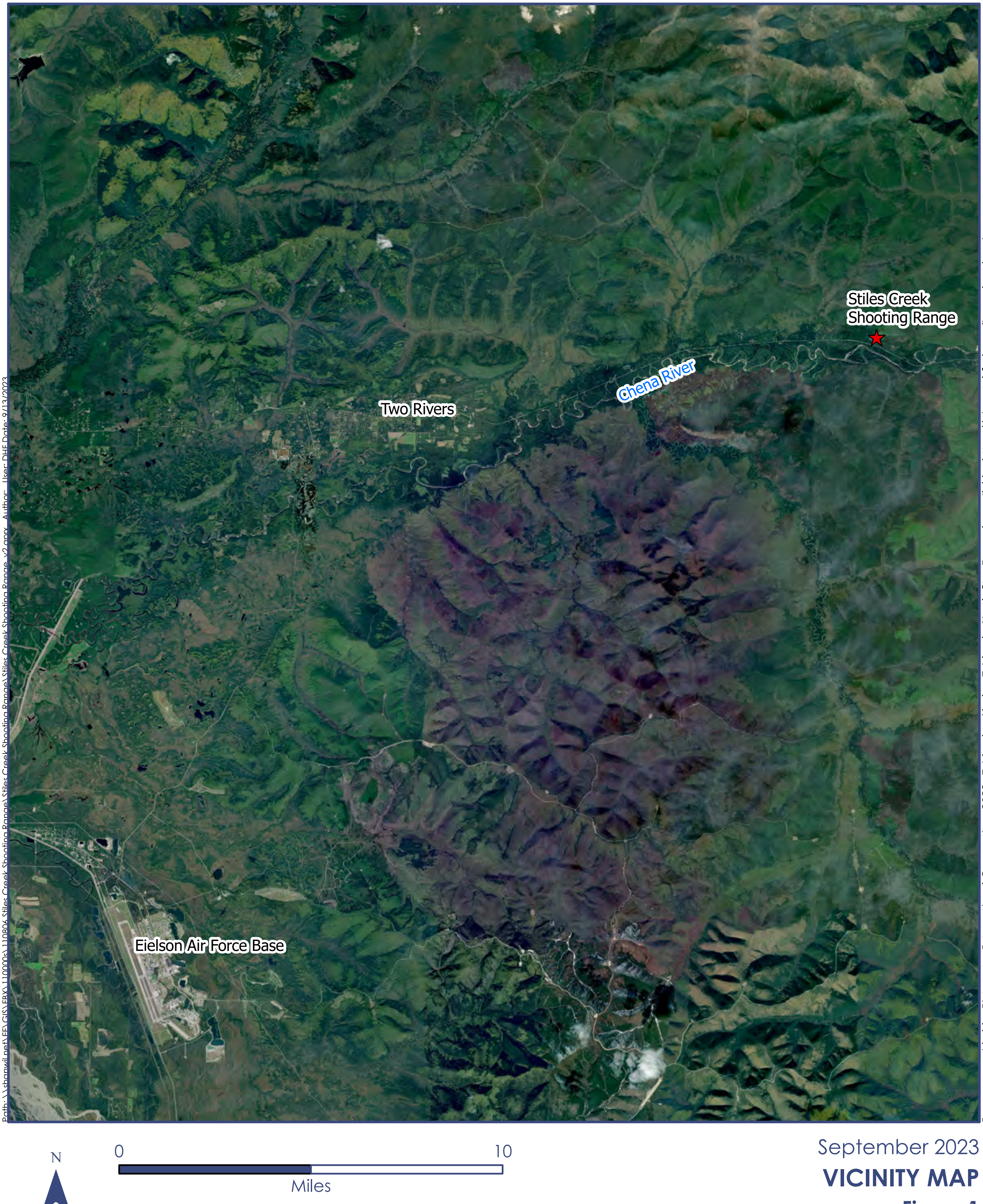
U.S. Department of Agriculture, 2018, Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 8.2, available: https://www.nrcs.usda.gov/sites/default/files/2022-09/Field_Indicators_of_Hydric_Soils.pdf.

U.S. Natural Resources Conservation Service (NRCS), 2023, Web Soil Survey: Available: http://websoilsurvey.nrcs.usda.gov/app/, accessed September 2023.

U.S. Natural Resources Conservation Service (NRCS), 1997, Hydrology Tools for Wetland Determination, in Engineering Field Handbook: Part 650, chapter 19, 63 p., available: https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=46278.wb

U.S. Fish and Wildlife Service (USFWS), 2023, National Wetlands Inventory Wetlands mapper, available: http://www.fws.gov/wetlands/Data/Mapper.html, accessed: September 2023.

U.S. Fish and Wildlife Service (USFWS), 1988, National List of Plant Species that Occur in Wetlands: 1988 national summary, Biological report 88(24), September 1988, available: https://efotg.sc.egov.usda.gov/references/public/ne/1988_National_List_of_Plant_Species.pdf



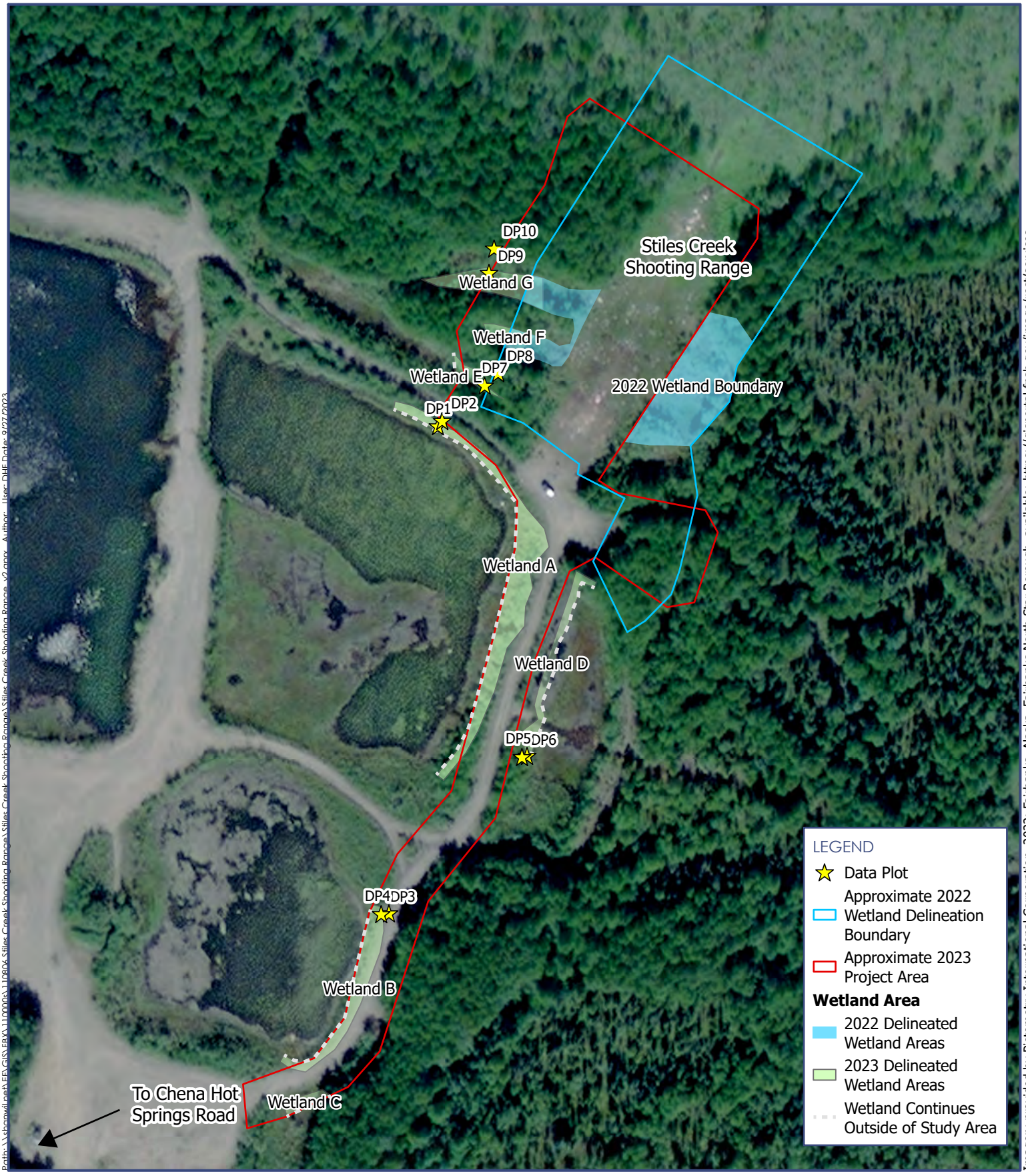
Path: \\shanwil.net\FF\GIS\FRX\110000s\110806 Stiles Creek Shooting Range\Stiles Creek Shooting Range\Stiles Creek Shooting Range_v2.aprx Author: User: DHE Date: 9/13/2023

Imagery provided by Pictometry International Corporation, 2022: Fairbanks, Alaska, Fairbanks North Star Borough, available: https://gisportal.fnsb.gov/image/rest/services

September 2023

VICINITY MAP

Figure 1



Path: \\shannonwilson\FEX-GIS\FBX\110000s\110806 Stiles Creek Shooting Range\Stiles Creek Shooting Range_v2.aprx Author: User: DhE Date: 9/27/2023

Imagery provided by Pictometry International Corporation, 2022: Fairbanks, Alaska, Fairbanks North Star Borough, available: https://gisportal.fnsb.gov/image/rest/services

N

0 100
Feet

September 2023

PROJECT AREA AND WETLANDS

Figure 2

APPENDIX A: WETLAND DELINEATION METHODOLOGY

Appendix A

Wetland Delineation Methodology

APPENDIX A: WETLAND DELINEATION METHODOLOGY

A.1 INTRODUCTION

The triple-parameter approach, as required in the USACE 1987 *Corps of Engineers Wetland Delineation Manual* and the ERDC 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: Alaska Region (Version 2.0) was used to identify and delineate the wetlands on the site described in this report. The triple-parameter approach requires that vegetation, soils, and hydrology are each evaluated to determine the presence or absence of wetlands. An area is considered a wetland if each of the following is met: (a) dominant hydrophytic vegetation is present in the area, (b) the soils in the area are hydric, and (c) the necessary hydrologic conditions within the area are met.

A determination of wetland presence was made by conducting a Routine Delineation. Corresponding upland and wetland plots were recorded to characterize surface and subsurface conditions and more accurately determine the boundaries of on-site wetlands.

A.2 WETLAND VEGETATION

Hydrophytic plants are plant species specially adapted for saturated and/or anaerobic conditions. These species can be found in areas where there is a significant duration and frequency of inundation, which produces permanently or periodically saturated soils. Hydrophytic species, due to morphological, physiological, and reproductive adaptations, have the ability to grow, effectively compete, reproduce, and thrive in anaerobic soil. Indicators of hydrophytic vegetation are based on the wetland indicator status of plant species on the National Wetland Plant List (Lichvar, Banks, Kirchner, and Melvin, 2016). Plants are categorized as OBL, FACW, FAC, FACU, or UPL. Species in the facultative categories (FACW, FAC, and FACU) are recognized as occurring in both wetlands and non-wetlands to varying degrees. Most wetlands are dominated mainly by species rated as OBL, FACW, or FAC (Exhibit A-1).

Exhibit A-1: Plant Indicator Status

Plant Indicator Status Categories
Obligate Wetland (**OBL**) – Plants that almost always occur in wetlands.
Facultative Wetland (**FACW**) – Plants that usually occur in wetlands but may occur in non-wetlands.
Facultative (**FAC**) – Plants that occur in wetlands or non-wetlands.
Facultative Upland (**FACU**) – Plants that usually occur in non-wetlands but may occur in wetlands.
Obligate Upland (**UPL**) – Plants that almost never occur in wetlands.

Source: Lichvar et al, 2016.

The approximate percentage of absolute cover for each of the different plant species occurring within the tree, sapling/shrub, and herbaceous strata was determined within a 15-foot radius. However, where site conditions merited it, the dimensions of the plot size were modified.

The dominance test is the primary hydrophytic vegetation indicator, and it is used in all wetland delineations. Dominant plant species are considered to be those that, when cumulatively totaled in descending order of absolute percent cover, exceed 50 percent of the total absolute cover for each vegetative stratum. Any additional species individually representing 20 percent or greater of the total absolute cover for each vegetative strata are also considered dominant. Hydrophytic vegetation is considered to be present when greater than 50 percent of the dominant plant species within the area had an indicator status of OBL, FACW, or FAC.

If a plant community does not meet the dominance test in areas where hydric soils and wetland hydrology are present, vegetation is reevaluated using the prevalence index, plant morphological adaptations for living in wetlands, and/or abundance of bryophytes (e.g., mosses) adapted to living in wetlands. The prevalence index is a weighted average that takes into account the abundance of all plant species within the sampling area to determine if hydrophytic vegetation is more or less prevalent. Using the prevalence index, all plants within the sampling area are grouped by wetland indicator status and absolute percent cover is summed for each group. Total cover for each indicator status group is weighted by the following multipliers: OBL=1, FACW=2, FAC=3, FACU=4, UPL=5. The prevalence index is calculated by dividing the sum of the weighted totals by the sum of total cover in the sampling area. A prevalence index of 3.0 or less indicates that hydrophytic vegetation is present.

A.3 HYDRIC SOILS

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part USDA Soil Conservation Service, 1994). Repeated periods of saturation and inundation for more than a few days, in combination with soil microbial activity, causes depletion in oxygen (anaerobic conditions) and results in delayed decomposition of organic matter and reduction of iron, manganese, and sulfur elements. As a result of these processes, most hydric soils develop distinctive characteristics observable in the field during both wet and dry periods (Vasilas, Hurt, and Berkowitz, 2018). These characteristics may be exhibited as an accumulation of organic matter; bluish-gray, green-gray, or low chroma and high value soil colors; mottling or other concentrations of iron and manganese; and/or hydrogen sulfide odor similar to a rotten egg smell.

The USDA NRCS has developed official hydric soil indicators as summarized in *Field Indicators of Hydric Soils in the United States* (Vasilas, Hurt, and Berkowitz, 2018). These indicators were developed to assist in delineation of hydric soils and are based predominantly on hydric soils near the margins of wetlands. Some hydric soils, including soils within the wettest parts of wetlands, may lack any of the approved hydric soil indicators. If a hydric soil indicator is present, the soil is determined to be hydric. If no hydric soil indicator is present, additional site information is used to assess whether the soil meets the definition of hydric soil.

Identification of hydric soils was aided through observation of surface hydrologic characteristics and indicators of wetland hydrology (e.g., drainage patterns). Soil characteristics were observation at several data points, placed both inside and outside the wetland. Holes were dug with a shovel to the depth needed to document an indicator or to confirm the absence of hydric soil indicators. Soil organic content was estimated visually and texturally. Soil colors were examined in the field immediately after sampling. Dry soils were moistened. Soil colors were determined through analysis of the hue, value, and chroma best represented in the Munsell® Soil Color Chart (Munsell Color, 1992).

A.4 WETLAND HYDROLOGY

Wetland hydrology is determined by observable evidence that inundation or soil saturation have occurred during a significant portion of the growing season repeatedly over a period of years so that wet conditions have been sufficient to produce wetland vegetation and hydric soils. Wetland hydrology indicators give evidence of a continuing wetland hydrologic regime. Wetland hydrology criteria were considered to be satisfied if they appeared during the growing season. The growing season in Interior Alaska is typically considered to be from May 3 to October 3 (123 days). However, the growing season is considered to have begun when:

(a) evidence of plant growth has begun on two non-evergreen vascular plants, and

(b) the soil reaches a temperature of 41 degrees Fahrenheit at 12 inches.

The Alaska District Corps of Engineers requires 14 consecutive days of inundation or saturation for a wetland hydrology to be considered present.

Wetland hydrology was evaluated by direct visual observation of surface inundation or soil saturation in data plots. The area near each data point was examined for indicators of wetland hydrology. Wetland hydrology indicators are categorized as primary or secondary based on their estimated reliability. Wetland hydrology was considered present if there was evidence of one primary indicator or at least two secondary indicators.

Some primary indicators include surface water, a shallow water table or saturated soils observed within 12 inches of the surface, dried watermarks, drift lines, sediment deposits, water-stained leaves, and algal mat/crust. Some secondary indicators include a water table within 12 to 24 inches of the surface during the dry season; drainage patterns; a landscape position in a depression, drainage, or fringe of a water body; and a shallow restrictive layer capable of perching water within 12 inches of the surface.

A.5 DISCLAIMER

This methodology was prepared for reference use only and is not intended to replace the USACE 1987 *Corps of Engineers Wetland Delineation Manual* or the ERDC 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: Alaska Region (Version 2.0) .

A.6 REFERENCES

Munsell Color, 1992, Munsell soil color charts: Newburgh, N.Y., Macbeth Division of Kollmorgen Instruments Corporation, 1 v.

Lichvar, R.W.; Banks, E.L.; Kirchner, W.N.; and Melvin, N.C., 2016, The National Wetland Plant List: 2016 update of wetland ratings: Phytoneuron 2016-30: 1-17. Available: http://wetland_plants.usace.army.mil/

U.S. Army Corps of Engineers (USACE), 2018, National Wetland Plant List (NWPL): Alaska, available: https://www.poa.usace.army.mil/Portals/34/docs/regulatory/2018AKNWPL.pdf

U.S. Army Engineer Research and Development Center (ERDC), 2007, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual*: Alaska Region (v. 2.0): Vicksburg, Miss., U.S. Army Corps of Engineers U.S. Army Engineer Research and Development Center, Report ERDC/EL TR-07-24, 135 p., available: https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7608

U.S. Army Corps of Engineers (USACE) Waterways Experiment Station, 1987, *Corps of Engineers Wetlands Delineation Manual*: Vicksburg, Miss., U.S. Army Corps of Engineers Waterways Experiment Station Wetlands Research Program Technical Report Y-87-1, 143 p., available: http://www.wli.nrcs.usda.gov/delineation/

U.S. Department of Agriculture Soil Conservation Service, 1994, *Changes in Hydric Soils of the United State*s: Washington, D.C., Office of the Federal Register, FR 59 (133): 35680-35681, July 13.

Vasilas, L.M.; Hurt, G.W.; and Berkowitz, J.F., eds., 2018, *Field Indicators of Hydric Soils in the United States* – A Guide for Identifying and Delineating Hydric Soils, version 8.2, 2018: Washington, D.C., National Resources Conservation Service, 48 p., available: https://www.nrcs.usda.gov/

APPENDIX B: WETLAND DATA FORMS AND PHOTOGRAPHS

Appendix B

Wetland Determination Data Forms and Photographic Log

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP1

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Pond Margin

Local relief (concave, convex, none): Concave | Slope (%): 1

Subregion: Interior Alaska | Lat: 64°54'28.777" | Long: -146°27'19.0115" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil x, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____

Are Vegetation _____, Soil x, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x No _____	**Is the Sampled Area within a Wetland?** Yes x No _____
Hydric Soil Present?	Yes x No _____	
Wetland Hydrology Present?	Yes x No _____	

Remarks:
Near pond edge, south from trail and west from shooting range. Pond is a former gravel pit.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Rosa acicularis	10		FACU
2. Salix bebbiana	40	Yes	FAC
3. Salix barclayi	5		FAC
4. Spiraea stevenii	5		FACU
5.			
6.			
Total Cover:	60		
50% of total cover: 30		20% of total cover: 12	
Herb Stratum			
1. Carex rostrata	25	Yes	OBL
2. Calamagrostis canadensis	10	Yes	FAC
3. Poa spp.	10		
4. Equisetum sylvaticum	15	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	60		
50% of total cover: 25		20% of total cover: 10	

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 0

% Cover of Wetland Bryophytes N/A (Where applicable) | Total Cover of Bryophytes 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	110 (A)		295 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No _____

Remarks:
Wetland contains emergent and scrub-shrub vegetation along a former gravel pit pond margin.

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5	7.5YR 2.5/1	100					Hemic	organic, roots common, some sand
0.5-5.0	Gley1 4/10Y	70	7.5YR 4/6	30	C	PL	Loamy sand	roots common, cobbles
5.0-12	Gley1 4/10Y	98	7.5YR 4/6	2	C	PL	Sandy loam	few roots, cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☑ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Hydrogen sulfide odor detected upon reaching saturated soil. Soil is problematic due to past gravel mining which has exposed abundant gravel and cobbles in wetland. The cobbles prevented excavation below the depth of the water table.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes x No ____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes x No ____ Depth (inches): 5

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is near surface water (pond).

Photo 1: Pond near data point 1.

Photo 2: Data point 1 ground vegetation

Photo 3: Data point 1 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP2

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Pond Margin

Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion: Interior Alaska | Lat: 64°54'28.8346" | Long: -146°27'18.9012" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Near margin of a former gravel pit pond. Soil may have been disturbed from past gravel mining activities and has abundant cobbles and low organic matter content.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	15.00	Yes	FACU
2.			
3.			
4.			
Total Cover:	15		
50% of total cover: 7.5	20% of total cover: 3		
Sapling/Shrub Stratum			
1. Rosa acicularis	20		FACU
2. Salix bebbiana	75	Yes	FAC
3. Betula neoalaskana	5		FACU
4. Spiraea stevenii	5		FACU
5. Cornus canadensis	10		FACU
6.			
Total Cover:	115		
50% of total cover: 58	20% of total cover: 23		
Herb Stratum			
1. Iris setosa	2		FAC
2. Equisetum sylvaticum	30	Yes	FAC
3. Calamagrostis canadensis	15	Yes	FAC
4. Chamaenerion angustifolium	2		FACU
5. Achillea alpina	2		NI
6.			
7.			
8.			
9.			
10.			
Total Cover:	51		
50% of total cover: 25	20% of total cover: 10		

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 0

% Cover of Wetland Bryophytes N/A (Where applicable) | Total Cover of Bryophytes 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	122	x 3 =	366
FACU species	57	x 4 =	228
UPL species	0	x 5 =	0
Column Totals:	179 (A)		594 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:
Vegetation does not pass FAC-neutral test.

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Fibric	organic, roots common
1-13	2.5Y 3/2	95	7.5YR 3/4	5	C	PL	sandy loam	roots common, cobbles
13-20	5Y 2.5/2	60	7.5YR 3/4	20	C	PL	sandy loam	few roots, cobbles
13-20	5Y 2.5/2	60	Gley1 2.5/N	20	D	M	sandy loam	few roots, cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Redox concentrations do not have a value of 4 or more. Numerous cobbles in data pit below the organic layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil is moist to ground surface. Data plot elevation is about four feet above the surface of the adjacent gravel pit pond.

Photo 4: Data point 2 vegetation

Photo 5: Data point 2 vegetation

Photo 6: Data point 2 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP3

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Pond Margin

Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'23.4646" | Long: -146°27'20.3752" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Near pond along access road to range. Pond is a former gravel pit. The soil has abundant cobbles and low organic matter content.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Salix bebbiana	40	Yes	FAC
2. Salix glauca	15	Yes	FAC
3. Alnus incana	5		FAC
4.			
5.			
6.			
Total Cover:	60		
50% of total cover:	30	20% of total cover:	12
Herb Stratum			
1. Carex rostrata	15	Yes	OBL
2. Calamagrostis canadensis	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	25		
50% of total cover:	13	20% of total cover:	5

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 5

% Cover of Wetland Bryophytes (Where applicable) N/A | Total Cover of Bryophytes 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		225 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Wetland contains emergent and scrub-shrub vegetation along a former gravel pit pond margin.

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	5Y 2.5/2	100					fibric	organic soil, roots common
1-12	5Y 3/2	85	5YR 4/6	15	C	PL	loamy sand	many cobbles, some roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Rock size increases with depth. Many cobbles present below organic soil layer. Soil is problematic due to past gravel mining which has exposed the cobbles. The cobbles prevented excavation below the depth of the water table.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes x No ____ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes x No ____ Depth (inches): 10

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Near pond.

Photo 7: Pond near data point 3

Photo 8: Data point 3 vegetation

Photo 9: Data point 3 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range Borough/City: Fairbanks North Star Borough Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska Sampling Point: DP4

Investigator(s): Dana Fjare and Amber Masters Landform (hillside, terrace, hummocks, etc.): Pond Margin

Local relief (concave, convex, none): Concave Slope (%): 1

Subregion: Interior Alaska Lat: 64°54'23.4738" Long: -146°27'20.1756" Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Near road above pond margin. Soil may have been disturbed from past gravel mining activities and has abundant cobbles and low organic matter content.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Betula neoalaskana	10		FACU
2. Alnus incana	15	Y	FAC
3. Salix bebbiana	30	Y	FAC
4. Salix glauca	10		FAC
5. Rosa acicularis	10		FACU
6. Vaccinium uliginosum	10		FAC
Total Cover:	85		
50% of total cover: 43		20% of total cover: 17	
Herb Stratum			
1. Calamagrostis canadensis	15	Y	FAC
2. Iris setosa	2		FAC
3. Achillea alpina	2		NI
4. Rhinanthus minor	2		FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	21		
50% of total cover: 10		20% of total cover: 4	

Plot size (radius, or length x width) 15/10/5 feet radius % Bare Ground 5

% Cover of Wetland Bryophytes (Where applicable) N/A Total Cover of Bryophytes 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	82	x 3 =	246
FACU species	22	x 4 =	88
UPL species	0	x 5 =	0
Column Totals:	104 (A)		334 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation does not pass FAC-neutral test.

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	100					fibric	organics, roots common
4-17	2.5Y 3/2	85	7.5YR 3/4	15	C	M	sand	many cobbles, some gravel, few roots
17-19	Gley1 3/10Y	100					sand	many cobbles, some gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Gley soil changing color upon exposure to air, present too deep for Alaska Gleyed Without 5Y or Redder indicator. Soil is problematic due to low organic matter content. Soil is sand with cobbles.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil is moist to ground surface. Data plot elevation is about four feet above the surface of the adjacent gravel pit pond.

Photo 10: Data point 4 vegetation

Photo 11: Data point 4 vegetation

Photo 12: Data point 4 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP5

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Pond Margin

Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'25.1982" | Long: -146°27'16.6634" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PF04/1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
Pond margin on east side of shooting range access road. Pond is a former gravel pit.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Picea glauca	10		FACU
2. Betula neoalaskana	15		FACU
3. Salix bebbiana	75	Yes	FAC
4. Rhododendron groenlandicum	5		FAC
5. Vaccinium ulignosum	10		FAC
6.			
Total Cover:	115		
50% of total cover: 58		20% of total cover: 23	
Herb Stratum			
1. Equisetum pratense	5		FACW
2. Equisetum sylvaticum	10	Yes	FAC
3. Carex rostrata	15	Yes	OBL
4. Poa spp.	5		
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	35		
50% of total cover: 18		20% of total cover: 7	

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 0

% Cover of Wetland Bryophytes N/A (Where applicable) | Total Cover of Bryophytes 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	5	x 2 =	10
FAC species	100	x 3 =	300
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	145 (A)		425 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:
Wetland contains emergent and scrub-shrub vegetation along a former gravel pit pond margin.

SOIL

Sampling Point: DP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1.5	7.5 YR7.5/1	100					hemic	organic soils, roots common
1.5-6.0	5YR 2.5/2	95	7.5YR 3/3	5	C	PL	loamy sand	some gravel
6.0-15	Gley1 2.5/10Y	98	10YR 3/3	2	C	PL	loamy sand	some gravel and cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☑ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Number of cobbles increases with depth. Soil is problematic due to past gravel mining which has exposed the abundant gravel and cobbles in the wetland. The cobbles prevented excavation below the depth of the water table.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes x No ____ Depth (inches): 15

Saturation Present? (includes capillary fringe) Yes x No ____ Depth (inches): 6

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is near pond.

Photo 13: Pond near data point 5

Photo 14: Data point 5 vegetation

Photo 15: Data point 5 ground vegetation

Photo 16: Data point 5 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP6

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Slope above pond

Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion: Interior Alaska | Lat: 64°54'25.1843" | Long: -146°27'16.7935" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PF04/1B

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
Slope above pond, adjacent to shooting range access road. Soil may have been disturbed by past gravel mining activities as upland area is between a gravel pit pond and road.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	10.00	Yes	FACU
2. Betula neoalaskana	5.00	Yes	FACU
3.			
4.			
Total Cover:	15		
50% of total cover: 8	20% of total cover: 3		
Sapling/Shrub Stratum			
1. Picea glauca	15		FACU
2. Betula neoalaskana	20	Yes	FACU
3. Salix bebbiana	25	Yes	FAC
4. Spiraea stevenii	5		FACU
5. Vaccinium vitis-idaea (5%)and Rhododendron groenlandicum (10%)	15		FAC
6. Cornus canadensis	25	Yes	FACU
Total Cover:	105		
50% of total cover: 53	20% of total cover: 21		
Herb Stratum			
1. Equisetum sylvaticum	30	Yes	FAC
2. Calamagrostis canadensis	2		FAC
3. Chamanaerion angustifolium	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	37		
50% of total cover: 19	20% of total cover: 7.4		

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 10

% Cover of Wetland Bryophytes (Where applicable) N/A | Total Cover of Bryophytes 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	62	x 3 =	186
FACU species	95	x 4 =	380
UPL species	0	x 5 =	0
Column Totals:	157 (A)		566 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Not enough lines for sapling/shrub stratum, combined two on one line. Thick forest canopy.

SOIL

Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5	2.5Y 3/2	100					fibric	organic, many roots
0.5-20	2.5Y 3/3	60	7.5YR 3/4	30	C	PL, M	loamy sand	some roots and gravel
0.5-20	2.5Y 3/3	60	5Y 4/1	10	D	M	loamy sand	some roots and gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Thin organic surface indicates soil may have been disturbed during past gravel mining activities.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil is moist to ground surface. Data plot elevation is about four feet above the level of the adjacent pond.

Photo 17: Data point 6 vegetation

Photo 18: Data point 6 soil

Photo 19: Data point 6 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP7

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Swale

Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'29.2232 | Long: -146°27'17.8192" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:
In swale that leads to a pond west of the shooting range. The soil may have been disturbed from past gravel mining activities. The soil is problematic because of low organic matter and abundant sand, gravel, and cobbles.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
	Total Cover:	0		
	50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum				
1.	Salix bebbiana	70	Yes	FAC
2.	Rosa acicularis	5		FACU
3.	Cornus canadensis	3		FACU
4.	Vaccinium ulignosum	5		FAC
5.	Populus balsamifera	5		FACU
6.	Salix lasiandra	5		FACW
	Total Cover:	93		
	50% of total cover:	47	20% of total cover:	19
Herb Stratum				
1.	Iris setosa	10	Yes	FAC
2.	Calamagrostis canadensis	10	Yes	FAC
3.	Carex rostrata	25	Yes	OBL
4.	Equisetum sylvaticum	5		FAC
5.	Poa spp.	5		
6.	Equisetum pratense	5		FACW
7.				
8.				
9.				
10.				
	Total Cover:	60		
	50% of total cover:	30	20% of total cover:	12

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 15

% Cover of Wetland Bryophytes (Where applicable) N/A | Total Cover of Bryophytes 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25`	x 1 =	25
FACW species	10	x 2 =	20
FAC species	100	x 3 =	300
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column Totals:	148 (A)		397 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [✓] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5	7.5YR 2.5/1	100					fibric	organic, roots common
0.5-4.0	5Y 2.5/2	100					sandy loam	some cobbles
4.0-10.0	5Y 2.5/2	100					sand	many cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Soil may be saturated too consistently to develop hydric soil indicators. Soil is also low in organic matter, possibly from past gravel mining disturbance, and soil is mostly cobbles and sand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes x No ____ Depth (inches): 7

Saturation Present? (includes capillary fringe) Yes x No ____ Depth (inches): 4

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The wetland is in a local swale feature that leads to a pond to the west.

Photo 20: Data point 7 vegetation

Photo 21: Data point 7 vegetation

Photo 22: Data point 7 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP8

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Ridge above swale

Local relief (concave, convex, none): Convex | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'29.3603" | Long: -146°27'17.4748" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: PUBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Upland ridge within a series of swales west from shooting range. Soil may have been disturbed from past gravel mining activities, as indicated by thin organic surface.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum		Absolute % Cover	Dominant Species?	Indicator Status
1.	Betula neoalaskana	40.00	Yes	FACU
2.				
3.				
4.				
	Total Cover:	40		
	50% of total cover: 20		20% of total cover: 8	
Sapling/Shrub Stratum				
1.	Betula neoalaskana	30	Yes	FACU
2.	Salix bebbiana	20	Yes	FAC
3.	Cornus canadensis	35	Yes	FACU
4.	Rosa acicularis	5		FACU
5.	Viburnum edule	2		FACU
6.	Spiraea stevenii	5		FACU
	Total Cover:	97		
	50% of total cover: 49		20% of total cover: 19	
Herb Stratum				
1.	Equisetum sylvaticum	60	Yes	FAC
2.	Equisetum pratense	10		FACW
3.	Calamagrostis canadensis	5		FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
	Total Cover:	75		
	50% of total cover: 38		20% of total cover: 15	

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 5

% Cover of Wetland Bryophytes (Where applicable) N/A | Total Cover of Bryophytes 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	80	x 3 =	240
FACU species	122	x 4 =	488
UPL species	0	x 5 =	0
Column Totals:	212 (A)		748 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Vegetation does not pass the FAC-neutral test.

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0.0-0.5	7.5YR 2.5/1	100					Fibric	roots common
0.5-22	2.5YR 3/3	55	7.5YR 4/6	40	C	M	sandy loam	some roots, some organics at 15" depth
0.5-22	2.5YR 3/3	55	5Y 4/1	5	D	M	sandy loam	some roots, some organics at 15" depth

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil is relatively dry.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data plot elevation is about three feet above the adjacent swales.

Photo 23: Data point 8 vegetation

Photo 24: Data point 8 vegetation

Photo 25: Data point 8 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP9

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Swale

Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'30.4496" | Long: -146°27'17.7285" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil X, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

In swale with hummock mosaic west from shooting range. DP9 is on a slight microtopographic high in swale. Soil may be disturbed from past gravel mining activities as indicated by thin surface organic layer and abundant cobbles and sand. Coarse sand makes soil a problematic wetland soil.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Betula neoalaskana	10		FACU
2. Populus balsamifera	5		FACU
3. Salix bebbiana	25	Yes	FAC
4. Salix lasiandra	15		FACW
5. Vaccinium uliginosum	25	Yes	FAC
6.			
Total Cover:	80		
50% of total cover:	40	20% of total cover:	16
Herb Stratum			
1. Calamagrostis canadensis	10	Yes	FAC
2. Equisetum pratense	2		FACW
3. Carex rostrata	5	Yes	OBL
4. Iris setosa	2		FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	19		
50% of total cover:	10	20% of total cover:	4

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 0

% Cover of Wetland Bryophytes N/A (Where applicable) | Total Cover of Bryophytes 65

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	17	x 2 =	34
FAC species	62	x 3 =	186
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	99 (A)		285 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Thick moss cover.

SOIL

Sampling Point: DP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0.0-0.5	10YR 2/1	100					Fibric	organic, roots common
0.5-13	2.5YR 3/2	100					Coarse sand	many cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Soil may be saturated too frequently to develop hydric soil conditions and coarse sand may not display redoximorphic features. Number of cobbles increases with depth. Cobbles and sand prevented excavation below the depth of the water table.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes x No _____ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes x No _____ Depth (inches): 10

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

In a local swale.

Photo 26: Data point 9 vegetation

Photo 27: Data point 9 vegetation

Photo 28: Data pit 9 soil pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Stiles Creek Shooting Range | Borough/City: Fairbanks North Star Borough | Sampling Date: 8/23/2023

Applicant/Owner: Shannon & Wilson, Inc. / Design Alaska | Sampling Point: DP10

Investigator(s): Dana Fjare and Amber Masters | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Convex | Slope (%): 0

Subregion: Interior Alaska | Lat: 64°54'30.7158" | Long: -146°27'17.6021" | Datum: WGS 84

Soil Map Unit Name: Goldstream Peat, 0-3 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:
On toeslope of hillside that forms the back end of the shooting range. Soil may not have been disturbed by gravel mining because elevation of plot is above the shooting range and swales.

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	40.00	Yes	FACU
2.			
3.			
4.			
Total Cover:	40		
50% of total cover: 20	20% of total cover: 8		
Sapling/Shrub Stratum			
1. Betula neoalaskana	20		FACU
2. Salix bebbiana	10		FAC
3. Cornus canadensis	5		FACU
4. Picea glauca	20		FACU
5. Rosa acicularis	75	Yes	FACU
6. Rhododendron groenlandicum (2) and Vaccinium vitis idaea (5)	7		FAC
Total Cover:	137		
50% of total cover: 64	20% of total cover: 25		
Herb Stratum			
1. Chamanerion angustifolium	2	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	2		
50% of total cover: 1	20% of total cover: 0		

Plot size (radius, or length x width) 15/10/5 feet radius | % Bare Ground 10

% Cover of Wetland Bryophytes (Where applicable) N/A | Total Cover of Bryophytes 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	17	x 3 =	51
FACU species	152	x 4 =	608
UPL species	0	x 5 =	0
Column Totals:	169 (A)		659 (B)

Prevalence Index = B/A = 3.9

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Not enough lines for shrub stratum, combined two on one line. Thick leaf litter on ground. Vegetation does not pass the FAC-neutral test.

SOIL

Sampling Point: DP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	5YR 2.5/1	100					hemic	organic, roots common
2 - 9	10YR 4/4	68	5Y 5/1	30	D	M	loam	roots common
2 - 9	10YR 4/4	68	7.5YR 4/6	2	C	PL	loam	roots common
9 -17	10YR 3/6	100					Coarse sand	many cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil is relatively dry, coarse sand with increasing cobbles below 9 inches. Coarse sand prevented excavation to 20 inches because sides of test pit kept collapsing and undermining hole.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Data plot elevation is about four feet above the elevation of the nearby swale and shooting range. Data plot is on toeslope of a steep hillside at the north end of the study area.

Photo 29: Data point 10 vegetation

Photo 30: Data point 10 soil pit

APPENDIX C: BACKGROUND REVIEW MAPS AND REPORTS

Appendix C

Background Review Maps and Reports

CONTENTS

U.S. Fish and Wildlife Service
National Wetlands Inventory

Stiles Creek Shooting Range

September 7, 2023

Wetlands

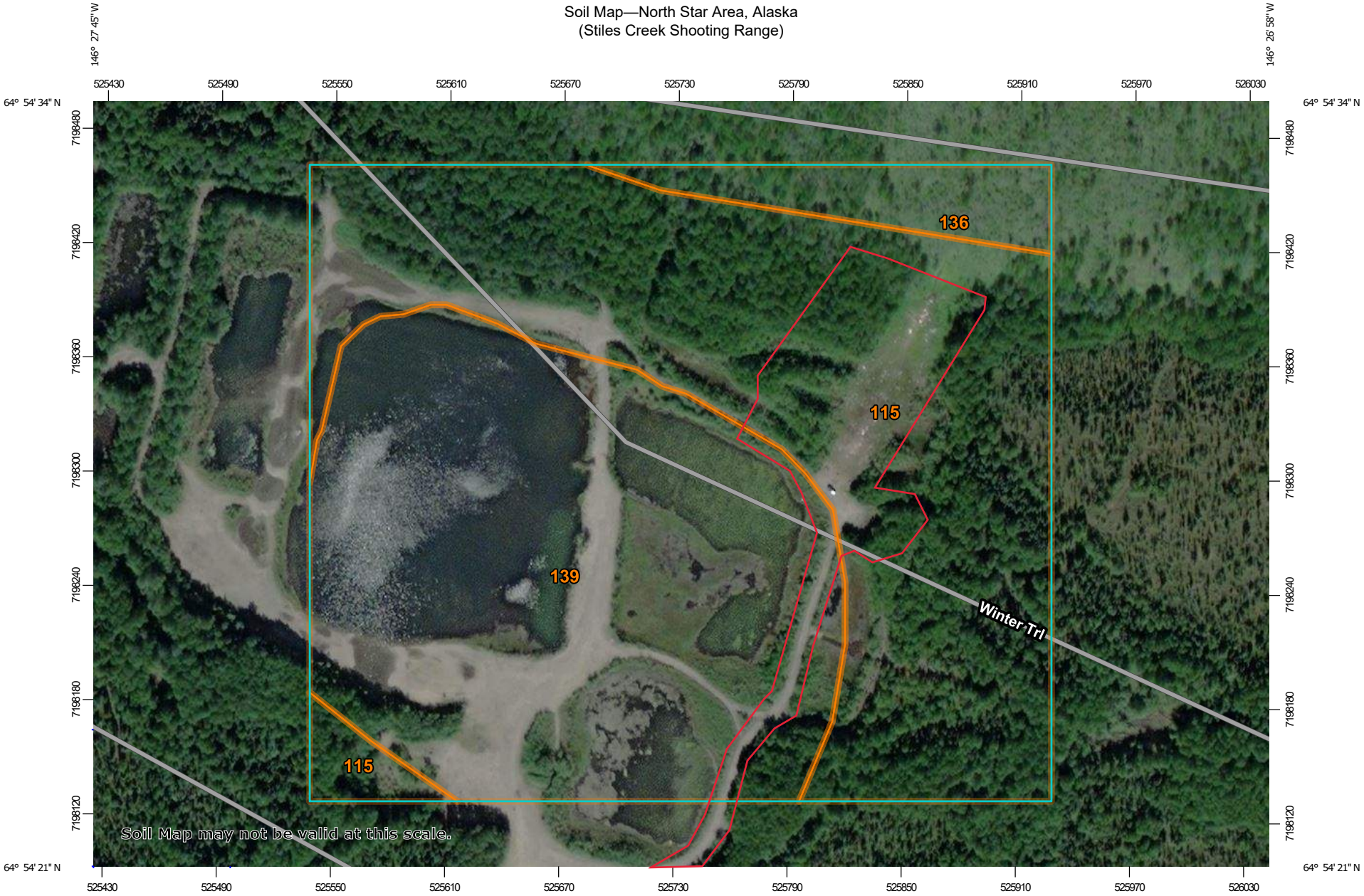
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Approximate Project Area

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Soil Map—North Star Area, Alaska
(Stiles Creek Shooting Range)



Map Scale: 1:2,820 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 6N WGS84

Approximate project boundary

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: North Star Area, Alaska
Survey Area Data: Version 19, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 16, 2010—Aug 6, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.


A
B
C
D
E
F
G
H
J
1
2
3
4
5
6
ZONE A
ZONE X
CORPORATE LIMITS
MILITARY RESERVATION
Project Area
CHENA DOME
FAIR MOUNTAIN
CHENA RIVER
LEGEND
SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
ZONE A No base flood elevations determined.
ZONE AE Base flood elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.
FLOODWAY AREAS IN ZONE AE
OTHER FLOOD AREAS
ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
OTHER AREAS
ZONE X Areas determined to be outside 500-year flood plain.
ZONE D Areas in which flood hazards are undetermined.
Flood Boundary
Floodway Boundary
Zone D Boundary
Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
Base Flood Elevation Line; Elevation in Feet*
Cross Section Line
Base Flood Elevation in Feet Where Uniform Within Zone*
Elevation Reference Mark
*Referenced to the National Geodetic Vertical Datum of 1929
NOTES
This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.
Areas of special flood hazard (100-year flood) include Zones A, AO, A1-30, AE, AH, A0, A99, V, V1-30, AND VE.
Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.
Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.
Coastal base flood elevations apply only landward of the shoreline.
For adjoining map panels see separately printed Map Index
MAP REPOSITORY
Planning Department
The Fairbanks N. S. Borough Administrative Building
809 Pioneer Road
Fairbanks, Alaska 99707
(Maps available for reference only; not for distribution)
INITIAL IDENTIFICATION:
JUNE 25, 1980
FLOOD HAZARD BOUNDARY MAP REVISIONS:
FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 25, 1980
FLOOD INSURANCE RATE MAP REVISIONS:
JULY 1, 1974: to change Zone Designations
OCTOBER 3, 1975: to reflect Corrected Flood Boundary
DECEMBER 9, 1977: to add Special Flood Hazard Areas, and to include areas of the Fairbanks and vicinity FIRM.
SEPTEMBER 11, 1978: to change Zone Designations due to construction of Levees and Dikes, and removal of Base Flood Elevations.
May revised: January 2, 1982: to add base flood elevations, to change special flood hazard areas, to delete special flood hazard areas, to change zone designations, to update map format, to add roads and road names, and to reflect updated topographic information.
To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.
APPROXIMATE SCALE IN MILES
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
FAIRBANKS
NORTH STAR BOROUGH,
ALASKA
PANEL 125 OF 400
SEE MAP INDEX FOR PANELS NOT PRINTED
PANEL LOCATION
COMMUNITY-PANEL NUMBER
025009 0125 E
MAP REVISED:
JANUARY 2, 1982
Federal Emergency Management Agency

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
115	Goldstream peat, 0 to 3 percent slopes	15.9	49.1%
136	Steese-Gilmore complex, 10 to 45 percent slopes	1.6	5.0%
139	Water	14.9	45.9%
Totals for Area of Interest		**32.3**	**100.0%**

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF PARKS AND OUTDOOR RECREATION
DESIGN AND CONSTRUCTION SECTION
550 W. 7th Avenue, Suite 1340
Anchorage, AK 99501
Main: 907.269.8731
Fax: 907.269.8917

February 16, 2022

U.S. Army Corps of Engineers – Alaska District
P.O. Box 35066
Fort Wainwright, AK 99703

Re: Request for Approved Preliminary Jurisdictional Determination

U.S. Army Corps of Engineers:

The Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, Design and Construction (DNR-DPOR D&C) is proposing to construct improvements at the Chena River State Recreation Area (SRA) MP 36.4 Shooting Range facility east of Fairbanks, Alaska (Section 13, Township 1 North, Range 6 East, Fairbanks Meridian; USGS Quad Big Delta D-5, Lat. 64.90788° N., Long. 146.45428° W., Sheet 1).

DNR-DPOR D&C has performed a wetland delineation in the location of potential development and determined there are U.S. Army Corps of Engineers (USACE) jurisdictional wetlands within the proposed project area. DNR-DPOR D&C requests an approved preliminary jurisdictional determination. To assist you in your review, the Chena River State Recreation Area: Milepost 36.4 Shooting Range Facility Wetlands Report is enclosed. The report contains wetland determination data forms, photos, and figures.

Please review the enclosed report and respond back to me, at the above address or email at chester.fehrmann@alaska.gov. If you have any questions or require additional information, please contact me at 269-8506 or via email.

Sincerely,

Chet Fehrmann
Environmental Impact Analyst
DNR-DPOR D&C

Enclosure: Chena River SRA Milepost 36.4 Shooting Range Facility Wetland Report

Alaska Department of Natural Resources Division of Parks and Outdoor Recreation

Chena River State Recreation Area: Milepost 36.4 Shooting Range Facility

Wetlands Report
February 16, 2022

Introduction

Location
The Chena River State Recreation Area (SRA) is located north of Fairbanks, AK along Chena Hot Springs Road. The Milepost 36.4 Shooting Range Facility is among several facilities including campgrounds, river access points, and day use facilities within the Chena River SRA (Section 4, Township 5 South, Range 15 West, Seward Meridian; USGS Quad Seldovia D-5; Lat. 59.77073° N., Long. 151.85539° W., Sheet 1).

Project Description
The Chena River SRA: Milepost 36.4 Shooting Range Improvements Project scope may consist of filling and grading the existing range area, shaping the backslope, widening the existing range footprint from 100 feet to 130 feet wide, replacing the shooting line platforms, and expanding the parking area into the adjacent woodlands. The area of potential impact will be limited to within the project boundary (Sheet 2).

This report represents the results of the Department of Natural Resources- Division of Parks and Outdoor Recreation, Design and Construction (DNR-DPOR D&C) wetland delineation based on data collected on August 31, 2022.

Background Information

Existing Wetland Information: The US Fish and Wildlife Service National Wetland Inventory database indicates that the delineation area consists of Uplands (Sheet 3). The FEMA Flood Insurance Rate Map indicates that the project is located within Flood Zone A (Sheet 4)

Soil and Vegetation Information: The United Sates Department of Agriculture Natural Resources Conservation Services Web Soil Survey indicates the soils within the project are Goldstream Peat, 0 to 3 percent slopes (Sheets 5-7). Dominant vegetation in the project area includes *Betula papyrifera, Rubus ideaus, Rosa acicularis, Salix alaxensis, Salix bebbiana, Equisetum sylvaticum,* and *Calamarostis canadensis.*

Historic and Current Uses: The Chena River SRA: Milepost 36.4 Shooting Range Improvements Project was previously a material site for the construction and maintenance of the Chena Hot Springs Road. It is currently owned and managed by Alaska State Parks and is used as a shooting range, overflow camping area, and trail access. There is a concrete vaulted toilet at the entrance to the site.

Methods

On August 31, 2021 DNR-DPOR D&C personnel conducted a site visit to take wetland determination samples at the Chena River SRA: Milepost 36.4 Shooting Range Improvements project area. The wetland delineation was conducted according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0), September 2007 and the 1987 Corps of Engineers Wetlands Delineation Manual. Prior to visiting the Chena River SRA: Milepost 36.4 Shooting Range Facility project area, National Wetland Inventory data and satellite imagery were used to assess potential wetlands within the proposed project area. The field survey was conducted by walking the proposed construction area, taking photographs, digging soil pits, and analyzing vegetation and hydrology surrounding the soil pit locations for each sampling point. As vegetation or topography changed additional sampling points were evaluated. Vegetation percent cover was visually estimated at all sampling points. The project area evaluated for this delineation is identified on Sheet 2. A total of 5 sampling points were evaluated for the proposed project. The weather during the surveys was partly cloudy with no precipitation. The temperature ranged from 47 to 70 degrees.

Results and Discussion

Sampling points 1-5 are described below. The locations of the five sampling points and associated boundaries are provided on Sheet 2. Results of the wetlands delineation are presented below and the data forms and associated photos are located in Appendix A.

Sampling Point 1. Uplands

Vegetation

Dominant vegetation was *Betula papyrifera* (FACU) 60%, *Rosa acicularis* (FACU) 30%, and *Equisetum sylvaticum* (FAC) 80% with a Dominance Test of 33%. The vegetation had a Prevalence Index of 3.56. This sampling point did not meet the Dominance Test or the Prevalence Index requirements for hydrophytic vegetation indication. The vegetation parameter is negative.

Soil

A soil test pit was dug to 21 inches. The soil profile was from 0-10 inches organic material, from 10-17 inches 10YR 8/2 silt loam, and from 17-21 inches 10YR 4/3 silt loam. No hydric soil indicators were observed. The soil parameter is negative.

Hydrology

No wetland hydrology parameters were observed. The hydrology parameter is negative.

This sample site was in the undisturbed forest adjacent to the shooting range. The vegetation, soil, and hydrology parameters were all negative. This site is therefore determined to be uplands. Please refer to Appendix A for Data Form Sampling Point 1 and associated photos 1-3.

Sampling Point 2. Uplands

Vegetation
Dominant vegetation included *Rubus idaeus* (FAC) 50%, *Rosa acicularis* (FACU) 20%, and *Equisetum sylvaticum* (FAC) 80% with a Dominance Test of 67% and Prevalence Index of 3.27. This sampling point met the requirements for the Dominance Test but not the Prevalence Index for hydrophytic vegetation indication. The vegetation parameter is positive.
Soil
This sample site was located on the backslope of the existing shooting range on a 50% slope. Due to the steep grade of the slope and no hydrology indicators, a soil pit was not determined to be necessary for logical determination that the soils could not be hydric. The soil parameter is negative.
Hydrology
No wetland hydrology indicators were observed at this site. The hydrology parameter is negative.

Although the vegetation parameter met the requirements for hydrophytic vegetation through the Dominance Test, there were only Facultative and Facultative Upland plants present. The unlikelihood for hydric soils due to the steep slope as well as lack of wetland hydrology indicators leads to a determination that this sample site is not within a wetland. The sample site has been determined to be uplands. The boundary for this wetland is defined by the change in slope from the flatter portion of the maintained shooting range. Please refer to Appendix A for Data Form Sampling Point 2 and associated photos 4-5.

Sampling Point 3. Palustrine Emergent Persistent (PEM1) Wetlands

Vegetation
Dominant vegetation included *Salix alaxensis* (FAC) 15%, *Salix bebbiana* (FAC) 10%, and *Calamagrostis canadensis* (FAC) 80% with a Dominance Test of 100%. The vegetation had a Prevalence Index of 2.82. This sampling point met Dominance Test and Prevalence Index requirements for hydrophytic vegetation indication. The vegetation parameter is positive.
Soil
A test pit was dug on a 0% slope to a depth of 14 inches, effectively limited by the high water table. The soil profile was 0-2 inches organic material, 2-6 inches 2.5Y 3/2 loamy sandy gravel, and 6-14 inches GLEY1 2.5/10Y loamy sandy gravel with 10% cobbles and gravel. To the depth that it was able to be analyzed, the soil was consistent with the hydric soil indicator Alaska Gleyed Without Hue 5Y or Redder Underlying Layer for “Interior Alaska”. The soil parameter was determined to be positive.
Hydrology
The water table at this location was at a depth of 8 inches with saturation to 5 inches. The shrubs present here were more sparse and smaller than the surrounding areas and the geomorphic position as a low point at the base of a hill are both secondary indicators for wetland hydrology. High Water Table, Stunted or Stressed Plants, and Geomorphic Position wetland hydrology indicators were observed. The hydrology parameter is positive.

This site was located at the fringe of a small body of open water and upland forest at a natural depression near the base of a large hill. The boundary for this wetland was determined by the lack of surface water and lack of vegetation in the tree stratum. The vegetation, soil, and hydrology parameters were all positive and this site was determined to be Palustrine Emergent Persistent Wetlands (PEM1). Please refer to Appendix A for Data Form Sampling Point 3 and associated photos 6-8.

Sampling Point 4. Uplands

Vegetation
Dominant vegetation was *Betula papyrifera* (FACU) 30%, *Salix bebbiana* (FAC) 30%, *Salix alaxensis* (FAC) 20%, *Rosa acicularis* (FAC) 15%, *Calamagrostis canadensis* (FAC) 25%, and *Equisetum sylvaticum* (FAC) 20%, with a Dominance Test of 67%. The vegetation had a Prevalence Index of 3.37. This sampling point met the Dominance Test but not the Prevalence Index requirements for hydrophytic vegetation indication. The vegetation parameter is positive.
Soil
A test pit was dug on a 2% slope to a depth of 20 inches. The soil profile was 0-2 inches of organic material, and 2-20 inches was 2.5Y 3/2 sandy loam with approximately 40% cobbles <4 inches. Hydric soil indicators were not observed. The soil parameter is negative.
Hydrology
No wetland hydrology parameters were observed. The hydrology parameter is negative.

This site was located between the depression and the existing gravel access path. The boundary for this sample point is determined by the dominance of mature *Betula papyrifera, Salix bebbiana, and Picea glauca. canadensis*. No vegetation, soil, or hydrology wetland indicators were observed and therefore is determined to be Uplands. Please refer to Appendix A for Data Form Sampling Point 4 and associated photos 9-11.

Sampling Point 5. Palustrine Unconsolidated Bottom Organic (PUB4) Wetland

Vegetation
No vegetation was observed at this site. Some localized algal blooms were observed in the water.
Soil
No soil pit was analyzed as the site was submerged.
Hydrology
Water depths up to 2 feet deep were present.

This site was void of vegetation, indicative that it contains water long enough to deprive the soils of oxygen. Local knowledge indicates that this site does occasionally dry up but is primarily inundated with water. Physical analysis with a shovel indicated that it has accumulated significant organic material below waterline. This site has been determined to be Palustrine Unconsolidated Bottom Organic (PUB4) Wetlands. Please refer to Appendix A for photo 12.

Conclusion

The project site is situated within the active floodplain of the Chena River. Access to the shooting range is via the gravel paths left behind from when it was a material site. The current shooting range intersects what was once a linear wetland feature and is now being maintained as the shooting range corridor to the backstop hill. Due to the lack of organics on the gravel, it is presumed that the existing shooting range corridor was filled in the past to accommodate the range. The active 100-foot shooting range corridor is considered as an existing gravel pad as it no longer supports wetland functions. The remaining delineation area consists of the adjacent lands to the shooting range for possible future expansion of the facility and to increase parking capacity for users.

The shooting range and parking area is within the FEMA Flood Zone "A". This project is near the outer extent of the floodplain adjacent to the Chena Dome foothills and is separated from the Chena River by the elevated Chena Hot Springs Road. Although the entire site likely receives floodwaters, not all areas retain hydrology to create hydric soils and wetland vegetation.

Sites 1, 2, and 4 were determined to be uplands with primarily non-wetland vegetation which was supported by the lack of hydric soil and wetland hydrology indicators. Sample Point 1 represents areas that contain mature *Betula papyrifera* and mixed forest with non-hydrophytic undergrowth. Sample Point 2 represents the hillside slope that was cleared in the past for development of the shooting range. Sample Point 4 represents mature mixed *Betula papyrifera, Salix* species, and *Picea glauca* forest with non-hydrophytic vegetative undergrowth.

Sample Point 3 represents the fringe between open water and upland forest with no tree stratum. Vegetation primarily consists of *Salix* species, *Calamagrostis canadensis*, and *Carex* species. Soils contain a gleyed matrix and there is saturation and a high water table associated with site. Sample Point 3 represents Palustrine Emergent Persistent (PEM1) wetlands. Sample Point 5 represents the small, shallow ponds inundated with water that support little to no non-aquatic plant life. These locations may dry up occasionally but are predominantly wet most of the year. Sample Point 5 is Palustrine Unconsolidated Bottom Organic (PUB3) wetlands.

DNR-DPOR D&C concludes that the Chena River SRA: Milepost 36.4 Shooting Range Improvements Project Facility Improvements project area contains USACE jurisdictional wetlands adjacent to the existing shooting range corridor, indicated as Areas "C" and "E" on Sheet 2. NWI data for this location is not accurate at the project scale, as there are small ponding areas within the delineation boundary not indicated with NWI data. The delineation site is prone to flooding from the nearby Chena River as well as accumulate water in low-lying areas due to the local geology/geomorphology.

References:

Johnson, D. and Kershaw, L., et al. *Plants of the Western Boreal Forest and Aspen Parkland.* Canada: Lone Pine Publishing and the Canadian Forest Service, 1995.

Little, E. and Viereck, L. *Alaska Trees and Shrubs.* Fairbanks, AK: University of Alaska Press, 2007.

Munsell Soil Color Charts, 1994 edition.

National Wetlands Inventory. 2011. Wetlands Mapper: <http://www.fws.gov/nwi/>.

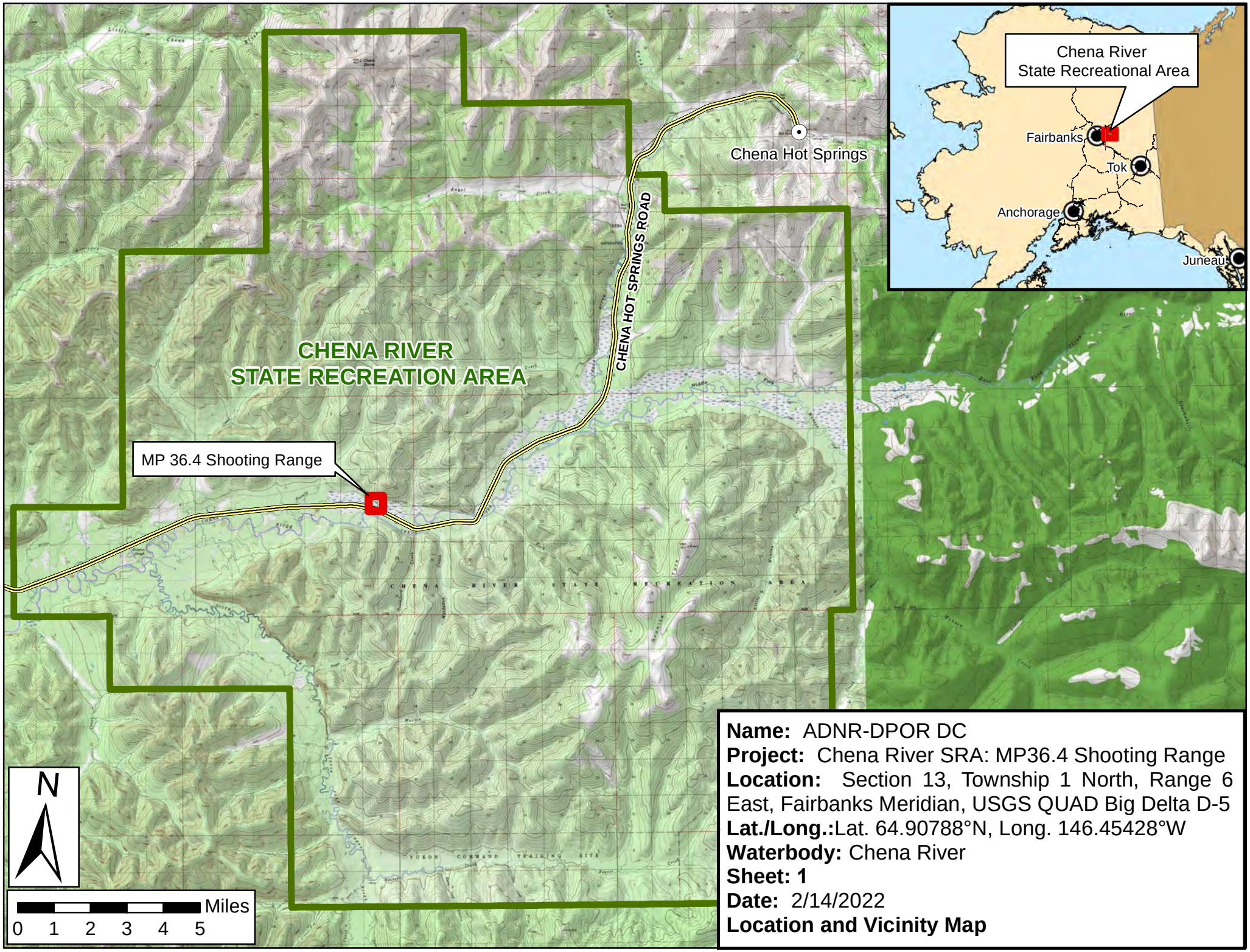
Pratt, Verna E. *A Field Guide to Alaskan Wildflowers*. Anchorage, AK: Alaskakrafts, Inc. 1989. Print

U.S. Army Corps of Engineers, (USACOE). 2012. US Army Corps of Engineers North American Digital Flora: National Wetland Plant List; < https://wetland-plants.sec.usace.army.mil/nwpl_static/v34/species/species.html?DET=001100>

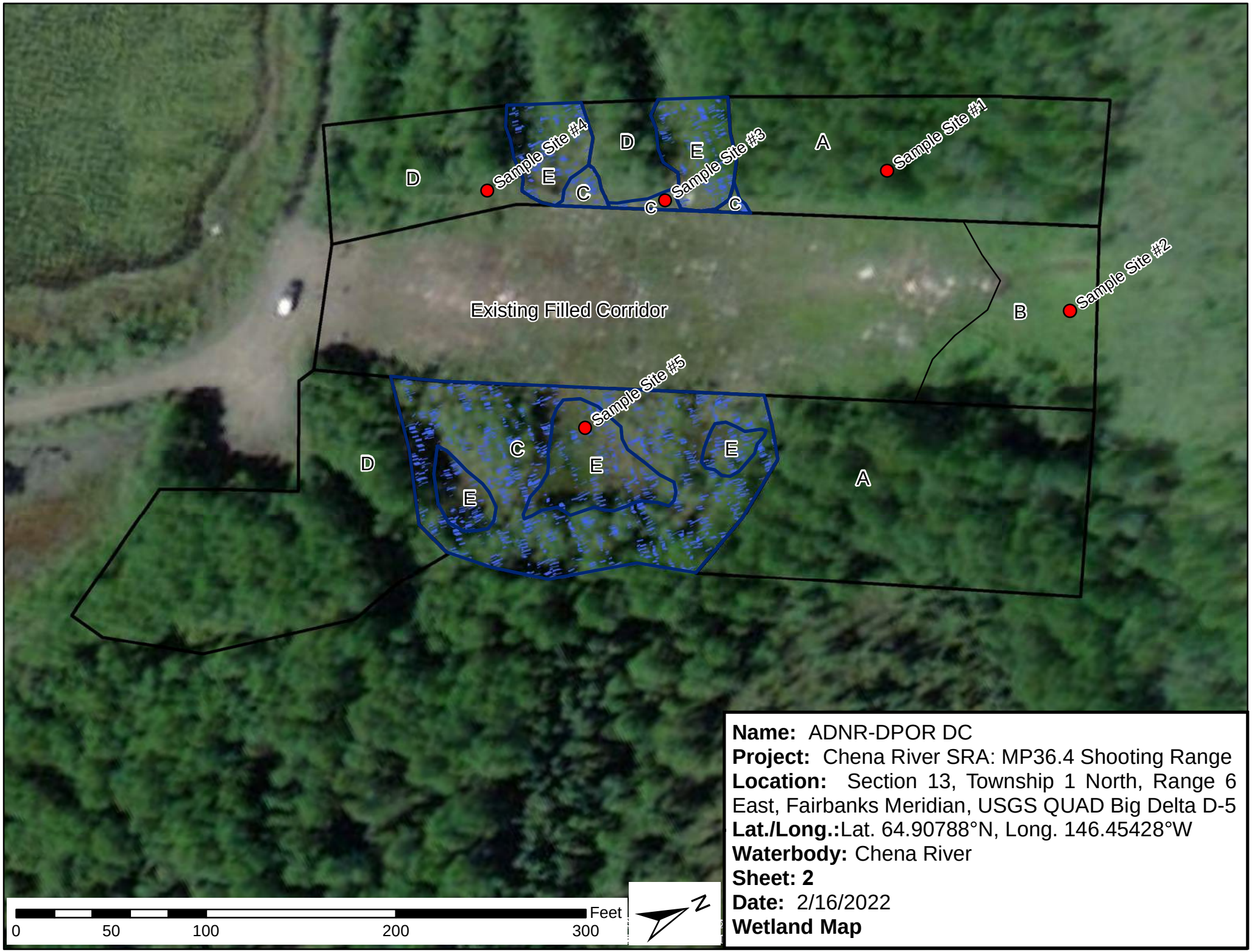
U.S. Army Corps of Engineers, (USACOE). 1987. Corps of Engineers Wetlands Delineation Manual. United States Army Corps of Engineers Waterways Experiment Station. Vicksburg, Mississippi. Technical Report Y-87-1.

U.S. Army Corps of Engineers, (USACOE). 2007. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0). Technical Report ERDC/EL TR-06-3. Vicksburg, Mississippi.

United States Department of Agriculture- Natural Resources Conservation Service. 2012. Web Soil Survey: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

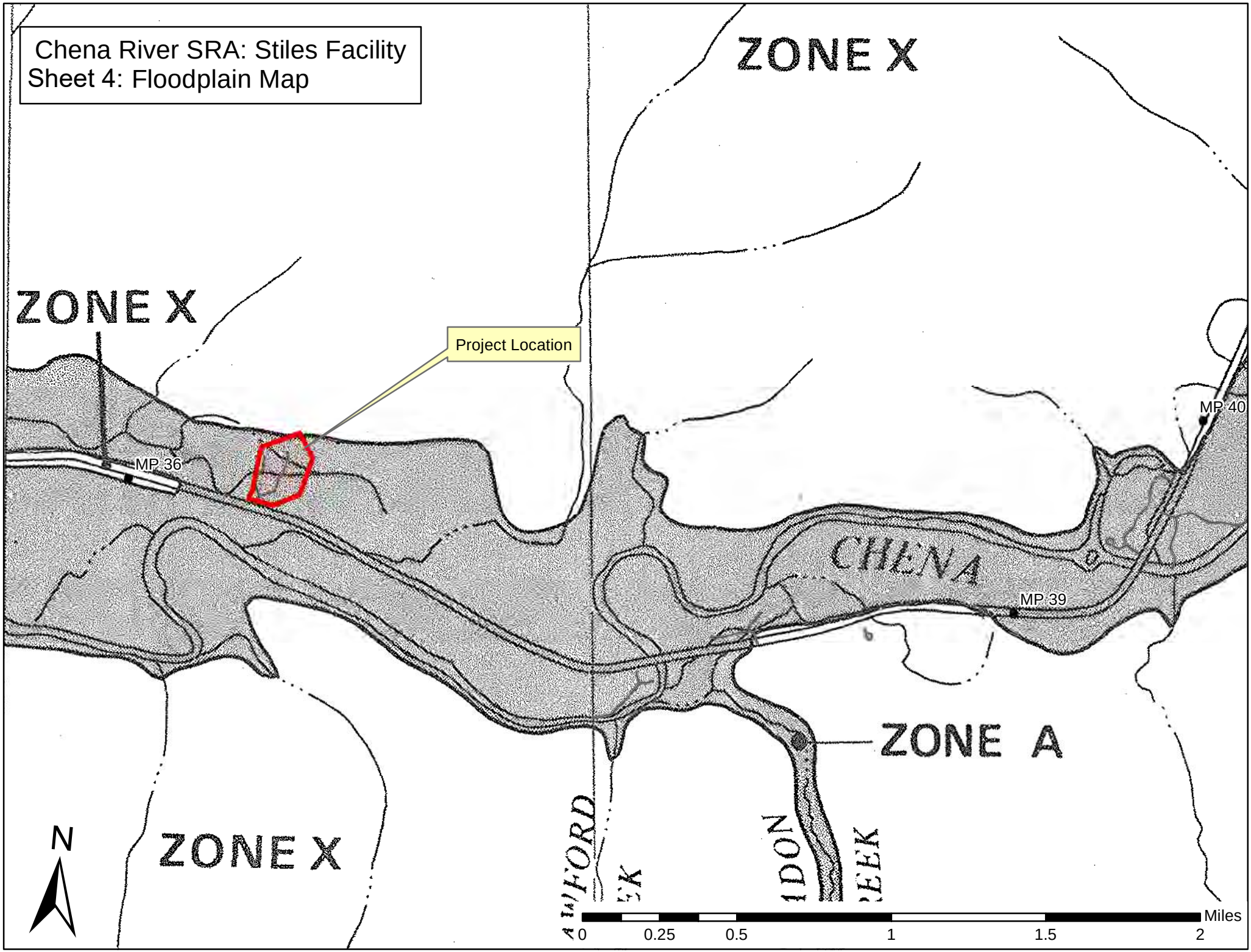


Name: ADNR-DPOR DC
Project: Chena River SRA: MP36.4 Shooting Range
Location: Section 13, Township 1 North, Range 6 East, Fairbanks Meridian, USGS QUAD Big Delta D-5
Lat./Long.: Lat. 64.90788°N, Long. 146.45428°W
Waterbody: Chena River
Sheet: 1
Date: 2/14/2022
Location and Vicinity Map

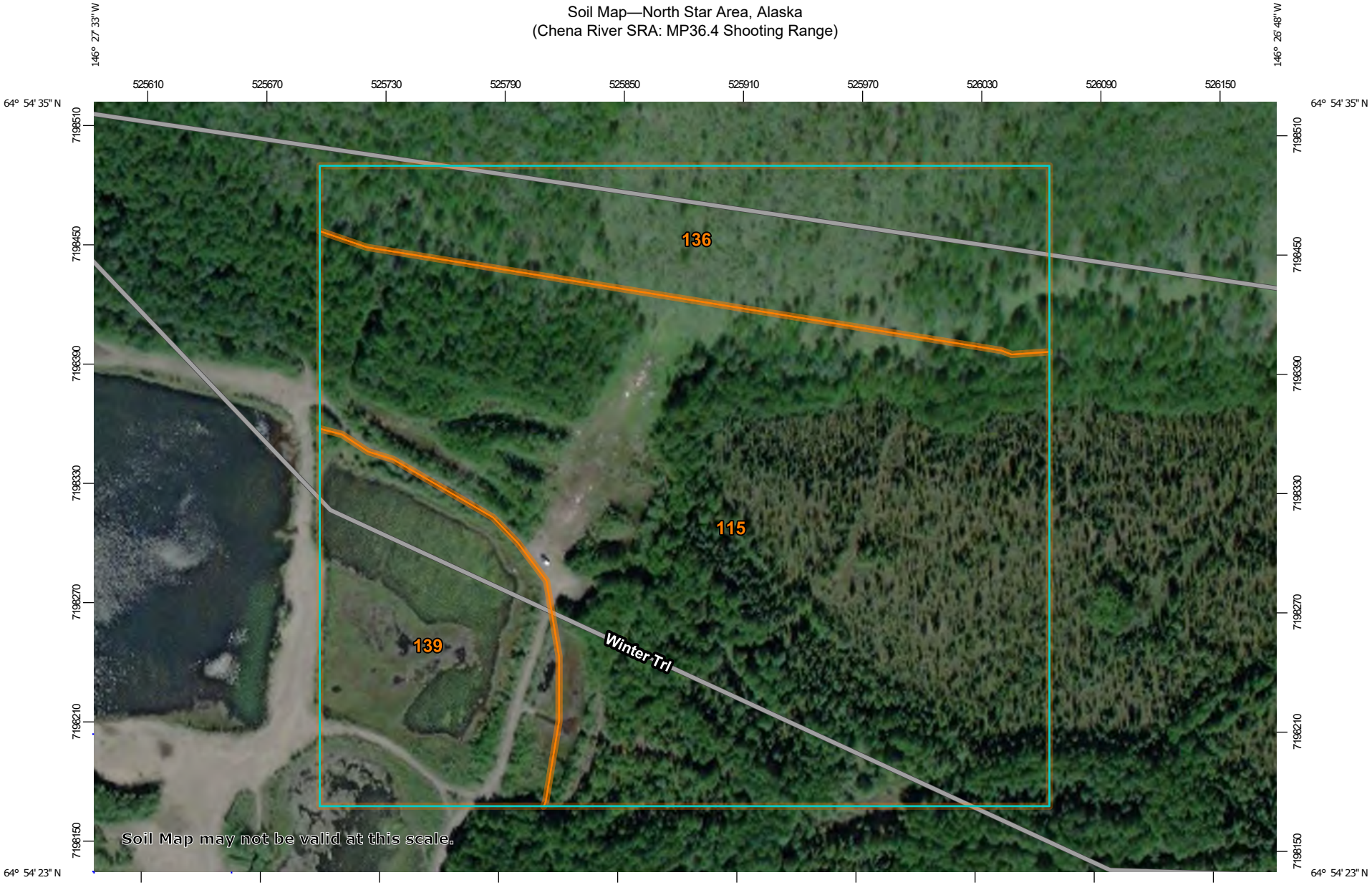


Name: ADNR-DPOR DC
Project: Chena River SRA: MP36.4 Shooting Range
Location: Section 13, Township 1 North, Range 6 East, Fairbanks Meridian, USGS QUAD Big Delta D-5
Lat./Long.: Lat. 64.90788°N, Long. 146.45428°W
Waterbody: Chena River
Sheet: 2
Date: 2/16/2022
Wetland Map


Chena River SRA: Stiles Facility
Sheet 3: Wetland Map
CHENA HOT SPRINGS ROAD
N
Miles
0
0.0275
0.055
0.11
0.165
0.22


Chena River SRA: Stiles Facility
Sheet 4: Floodplain Map
ZONE X
ZONE X
Project Location
MP 36
MP 40
MP 39
CHENA
ZONE A
ZONE X
N
0
0.25
0.5
1
1.5
2
Miles

Soil Map—North Star Area, Alaska
(Chena River SRA: MP36.4 Shooting Range)



Map Scale: 1:2,720 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 6N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: North Star Area, Alaska
Survey Area Data: Version 18, Sep 9, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 16, 2010—Aug 6, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
115	Goldstream peat, 0 to 3 percent slopes	18.6	63.4%
136	Steese-Gilmore complex, 10 to 45 percent slopes	6.1	20.7%
139	Water	4.6	15.8%
Totals for Area of Interest		**29.4**	**100.0%**

Appendix A

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Chena River State Recreation Area: MP 36.4 Shooting Range Borough/City: Fairbanks North Star Borough Sampling Date: 8/31/2021

Applicant/Owner: ADNR-DPOR D&C Sampling Point: 1

Investigator(s): Chet Fehrmann, Environmental Impact Analyst Landform (hillside, terrace, hummocks, etc.): hillside

Local relief (concave, convex, none): none Slope (%): 5

Subregion: Interior Alaska Lat: 64.908647 N Long: 146.45389 W Datum: WGS 84

Soil Map Unit Name: Goldstream peat, 0 to 3 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula payrifera	60.00	X	FACU
2. Picea glauca	10.00		FACU
3.			
4.			
Total Cover:	70		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum			
1. Rosa acicularis	30	X	FACU
2. Salix sp.	5		FAC
3. Viburnum edule	5		FACU
4.			
5.			
6.			
Total Cover:	40		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum			
1. Equisetum sylvaticum	80	X	FAC
2. Chamaenerion angustifolium	10		FACU
3. Calamagrostis canadensis	5		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	95		
50% of total cover: 47.5	20% of total cover: 19		

Plot size (radius, or length x width) r=30' % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	205 (A)		730 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10							organic	
10-17	10YR 8/2	100					silt loam	tiny roots present
17-21	10YR 4/3	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Roots present throughout the depths. Rocks <3" encountered at 20" depth. Although the organic layer was >8", no evidence of saturation associated with hydrology were observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling Point 1

Photo 1: Ground Vegetation

Photo 2: Vegetation

Photo 3: Soil Pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Chena River State Recreation Area: MP 36.4 Shooting Range Borough/City: Fairbanks North Star Borough Sampling Date: 8/31/2021

Applicant/Owner: ADNR-DPOR D&C Sampling Point: 2

Investigator(s): Chet Fehrmann, Environmental Impact Analyst Landform (hillside, terrace, hummocks, etc.): hillside

Local relief (concave, convex, none): none Slope (%): 50

Subregion: Interior Alaska Lat: 64.90878 N Long: 146.453175 W Datum: WGS 84

Soil Map Unit Name: Goldstream peat, 0 to 3 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____	20% of total cover: _____		
Sapling/Shrub Stratum			
1. Rubus idaeus	50	X	FAC
2. Rosa acicularis	20	X	FACU
3. Betula papyrifera	5		FACU
4. Populus tremuloides	5		FACU
5.			
6.			
Total Cover:	80		
50% of total cover: 40	20% of total cover: 16		
Herb Stratum			
1. Equisetum sylvaticum	80	X	FAC
2. Agrostis mertensii	10		FACU
3. Cornus canadensis	10		FACU
4. Calamagrostis canadensis	2		FAC
5. Galium boreale	1		FACU
6.			
7.			
8.			
9.			
10.			
Total Cover:	103		
50% of total cover: 51.5	20% of total cover: 20.6		

Plot size (radius, or length x width) 20'x20' % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	132	x 3 =	396
FACU species	51	x 4 =	204
UPL species	0	x 5 =	0
Column Totals:	183 (A)		600 (B)

Prevalence Index = B/A = 3.27

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Rocky loam, site is the backslope of a shooting range and is too steep to retain water. Beneath the living organic root mat there was no evidence of accumulating organic material.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface wetland hydrology indicators were identified at this site.

Sampling Point 2

Photo 4: Vegetation

Photo 5: Vegetation

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Chena River State Recreation Area: MP 36.4 Shooting Range Borough/City: Fairbanks North Star Borough Sampling Date: 8/31/2021

Applicant/Owner: ADNR-DPOR D&C Sampling Point: 3

Investigator(s): Chet Fehrmann, Environmental Impact Analyst Landform (hillside, terrace, hummocks, etc.): base of slope

Local relief (concave, convex, none): concave Slope (%): 0

Subregion: Interior Alaska Lat: 64.908347 N Long: 146.44166 W Datum: WGS 84

Soil Map Unit Name: Goldstream peat, 0 to 3 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: _____		20% of total cover: _____	
Sapling/Shrub Stratum			
1. Salix alaxensis	15	X	FAC
2. Salix bebbiana	10	X	FAC
3. Salix lasiandra	5		FACW
4.			
5.			
6.			
Total Cover:	30		
50% of total cover:	15	20% of total cover:	6
Herb Stratum			
1. Calamagrostis canadensis	80	X	FAC
2. Carex aquatilis	10		OBL
3. Achillea millefolium	5		FACU
4. Equisetum fluviatile	1		OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	96		
50% of total cover:	48	20% of total cover:	19.2

Plot size (radius, or length x width) r=20' % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	5	x 2 =	10
FAC species	105	x 3 =	315
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	126 (A)		356 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [✓] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-6	2.5Y 3/2						loamy sandy gravel	cobble <5"
6-14	GLEY1 2.5/10Y	90					loamy sandy gravel	10% cobble and gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Due to the water table, the requirements for Alaska Gleyed (A13) could not be verified. The sample site is consistent, though, with the definition for "Interior Alaska" under Alaska Gleyed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☑ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes X No ____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 5

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling Point 3

Photo 6: Vegetation

Photo 7: Ground Vegetation

Photo 8: Soil Pit

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Chena River State Recreation Area: MP 36.4 Shooting Range Borough/City: Fairbanks North Star Borough Sampling Date: 8/31/2021

Applicant/Owner: ADNR-DPOR D&C Sampling Point: 4

Investigator(s): Chet Fehrmann, Environmental Impact Analyst Landform (hillside, terrace, hummocks, etc.): base of slope

Local relief (concave, convex, none): concave Slope (%): 0

Subregion: Interior Alaska Lat: 64.90813 N Long: 146.454487 W Datum: WGS 84

Soil Map Unit Name: Goldstream peat, 0 to 3 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

VEGETATION – Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula papyrifera	30.00	X	FACU
2. Salix bebbiana	30.00	X	FAC
3. Picea glauca	10.00		FACU
4.			
Total Cover:	70		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum			
1. Salix alaxensis	20	X	FAC
2. Rosa acicularis	15	X	FACU
3. Shepherdia canadensis	5		FACU
4.			
5.			
6.			
Total Cover:	40		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum			
1. Calamagrostis canadensis	25	X	FAC
2. Equisetum sylvaticum	20	X	FAC
3. Equisetum arvense	10		FAC
4. Chamaenerion angustifolium	2		FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover:	57		
50% of total cover: 28.5	20% of total cover: 11.4		

Plot size (radius, or length x width) 20' x 20' % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	62	x 4 =	248
UPL species		x 5 =	0
Column Totals:	167 (A)		563 (B)

Prevalence Index = B/A = 3.37

Hydrophytic Vegetation Indicators:

- [✓] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-20	2.5Y 3/2	60					sandy loam	cobbles <4" approx. 40%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sampling Point 4

Photo 9: Vegetation

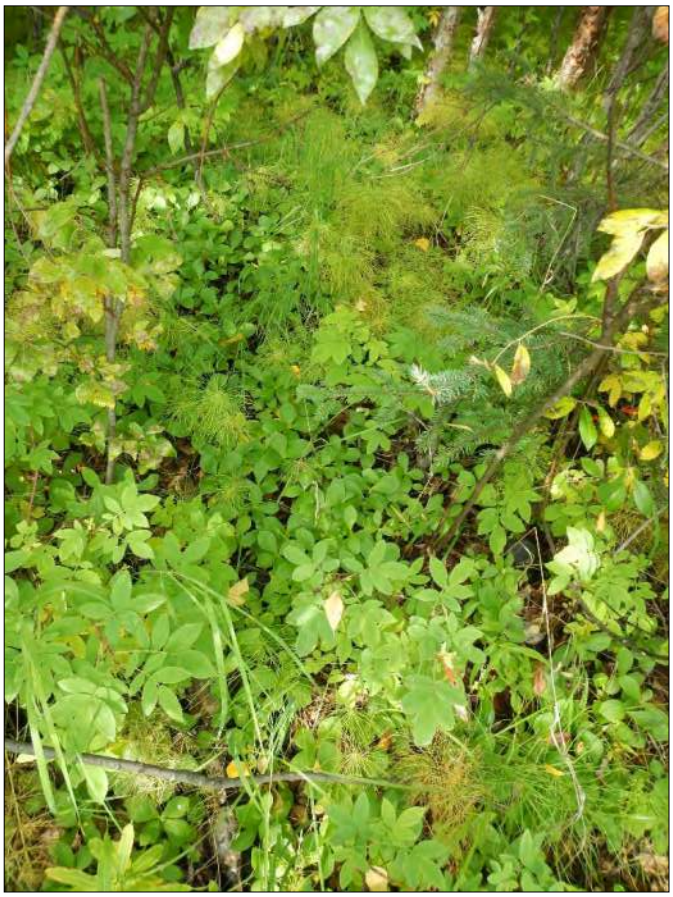


Photo 10: Vegetation Ground Cover

Photo 11: Soil Pit

Sampling Point 5

Photo 12: Hydrology and Vegetation

IMPORTANT INFORMATION

Important Information

About Your Wetland Delineation Report

IMPORTANT INFORMATION

A WETLAND/STREAM REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Wetland delineation/mitigation and stream classification reports are based on a unique set of project-specific factors. These typically include the general nature of the project and property involved, its size and configuration, historical use and practice, the location of the project on the site and its orientation, and the level of additional risk the client assumed by virtue of limitations imposed upon the exploratory program. The jurisdiction of any particular wetland/stream is determined by the regulatory authority(ies) issuing the permit(s). As a result, one or more agencies will have jurisdiction over a particular wetland or stream with sometimes confusing regulations. It is necessary to involve a consultant who understands which agency(ies) has jurisdiction over a particular wetland/stream and what the agency(ies) permitting requirements are for that wetland/stream. To help reduce or avoid potential costly problems, have the consultant determine how any factors or regulations (which can change subsequent to the report) may affect the recommendations.

Unless your consultant indicates otherwise, your report should not be used:

- If the size or configuration of the proposed project is altered.
- If the location or orientation of the proposed project is modified.
- If there is a change of ownership.
- For application to an adjacent site.
- For construction at an adjacent site or on site.
- Following floods, earthquakes, or other acts of nature.

Wetland/stream consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of our final report.

Wetland boundaries identified and stream classifications made by Shannon & Wilson are considered preliminary until validated by the U.S. Army Corps of Engineers (Corps) and/or the local jurisdictional agency. Validation by the regulating agency(ies) provides a certification, usually written, that the wetland boundaries verified are the boundaries that will be regulated by the agency(ies) until a specified date, or until the regulations are modified, and that the stream has been properly classified. Only the regulating agency(ies) can provide this certification.

MOST WETLAND/STREAM "FINDINGS" ARE PROFESSIONAL ESTIMATES.

Site exploration identifies wetland/stream conditions at only those points where samples are taken and when they are taken, but the physical means of obtaining data preclude the determination of precise conditions. Consequently, the information obtained is intended to be sufficiently accurate for design but is subject to interpretation. Additionally, data derived through sampling and subsequent laboratory testing are extrapolated by the consultant who then renders an opinion about overall conditions, the likely reaction to proposed construction activity, and/or appropriate design. Even under optimal circumstances, actual conditions may differ from those thought to exist because no consultant, no matter how qualified, and no exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock, and time. Nothing can be done to prevent the unanticipated, but steps can be taken to help reduce their impacts. For this reason, most experienced owners retain their

IMPORTANT INFORMATION

consultants through the construction or wetland mitigation/stream classification stage to identify variances, conduct additional evaluations that may be needed, and recommend solutions to problems encountered on site.

WETLAND/STREAM CONDITIONS CAN CHANGE.

Since natural systems are dynamic systems affected by both natural processes and human activities, changes in wetland boundaries and stream conditions may be expected. Therefore, delineated wetland boundaries and stream classifications cannot remain valid for an indefinite period of time. The Corps typically recognizes the validity of wetland delineations for a period of five years after completion. Some city and county agencies recognize the validity of wetland delineations for a period of two years. If a period of years has passed since the wetland/stream report was completed, the owner is advised to have the consultant reexamine the wetland/stream to determine if the classification is still accurate.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or water fluctuations may also affect conditions and, thus, the continuing adequacy of the wetland/stream report. The consultant should be kept apprised of any such events and consulted to determine if additional evaluation is necessary.

THE WETLAND/STREAM REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when plans are developed based on misinterpretation of a wetland/stream report. To help avoid these problems, the consultant should be retained to work with other appropriate professionals to explain relevant wetland, stream, geological, and other findings, and to review the adequacy of plans and specifications relative to these issues.

DATA FORMS SHOULD NOT BE SEPARATED FROM THE REPORT.

Final data forms are developed by the consultant based on interpretation of field sheets (assembled by site personnel) and laboratory evaluation of field samples. Only final data forms are customarily included in a report. These data forms should not, under any circumstances, be drawn for inclusion in other drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to reduce the possibility of misinterpreting the forms. When this occurs, delays, disputes, and unanticipated costs are frequently the result.

To reduce the likelihood of data from misinterpretation, contractors, engineers, and planners should be given ready access to the complete report. Those who do not provide such access may proceed under the mistaken impression that simply disclaiming responsibility for the accuracy of information always insulates them from attendant liability. Providing the best available information to contractors, engineers, and planners helps prevent costly problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because a wetland delineation/stream classification is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in written transmittals. These are not exculpatory clauses designed to foist the consultant's liabilities onto someone else; rather, they are definitive clauses that identify where

the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

THERE MAY BE OTHER STEPS YOU CAN TAKE TO REDUCE RISK.

Your consultant will be pleased to discuss other techniques or designs that can be employed to mitigate the risk of delays and to provide a variety of alternatives that may be beneficial to your project.

Contact your consultant for further information.

Appendix B

U.S. Fish and Wildlife Service Wetland Methodology Assessment

Stiles Creek Wetland Assessment Summary

May 14, 2024

Amy Tippery, Conservation Planning Assistance
Ecological Services, Fairbanks Field Office, R7
Email: Amy.Tippery@fws.gov

Background

The Office of Conservation Investment approached the Conservation Planning Assistance Branch of Ecological Services in March, 2024 to discuss potential wetland compensatory mitigation for the Stiles Creek Shooting Range Upgrade project with Fairbanks North Star Borough. As per the "No Net Loss" Policy described in Executive Order 11990, Protection of Wetlands (42 FR 26961), federal agencies shall "provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands". Generally speaking, the Order requires federal agencies to avoid undertaking or providing financial assistance for new construction projects located within wetland sunless no practical alternative is available. While the Stiles Creek Shooting Range upgrade project enhances the Public Interest in many ways, (safety, recreation, etc.), some Public Interest Factors pertaining to wetlands will be unavoidably impacted by the expansion of infrastructure at the site. Therefore, compensatory mitigation is being considered to offset negative impacts the range expansion will have on Public Interest Factors such as fish and wildlife values, flood hazard, water supply and conservation, and wetlands themselves among others (33 CFR Part 320.4(a)(1)). A common way to evaluate these factors is by using a Wetland Assessment. Wetland Assessments are used to systematically evaluate the condition of a wetland, and/or to identify the functions and services it provides. This is done using data collected through geospatial data aggregation, rapid field testing, and sometimes monitoring. The outcome of a wetland assessment is then used to support decision-making and planning processes.

Methods

The Wetland Ecosystem Services Protocol for Alaska, regionalized for use in the Interior of Alaska (WESPAK-Int)[1], was used to valuate each of five discrete wetlands identified in the Shannon & Wilson, Wetland Delineation Report, Stiles Creek Shooting Range,[2] which was an Appendix to the Environmental Analysis document. WESPAK-INT was chosen because it is a standardized method for assessing most of the important natural functions of wetlands in the Interior of Alaska, including water storage, permafrost protection, fish and wildlife habitat

[1]Adamas, P., 2021. Manual for Wetland Ecosystem Services Protocol for Interior Alaska (WESPAK-INT) Version 1.0 Salcha Delta Soil and Water Conservation District US Fish and Wildlife Service, Fairbanks Alaska
[2] Shannon & Wilson, 2023. WETLAND DELINEATION REPORT Stiles Creek Shooting Range FAIRBANKS, ALASKA, September, No: 110806-002, Fairbanks, Alaska

support, and others. Is a tool that can be applied rapidly by one trained person during a single visit to a wetland, or with a desktop geospatial analysis. The assessment tool standardizes the data collected and the way it is interpreted to yield relative estimates of a wide variety of important wetland functions and their associated benefits. The desktop version (v.1.0) was used for this project. Associated shapefiles were aggregated and analyzed using ArcPro (3.2.0) with aerial imagery from the Fairbanks North Star Borough (2017) and the State of Alaska Quickbird QL2 Imagery showing DSM Hillshade and DTM Hillshade showing 0.5-meter relief of the project area (Figures 1 and 2, 2017).[3] Other geospatial layers such as the State of Alaska Department of Environmental Conservation Water Quality Mapper (Figure 3) were used establish the presence or absence of environmental factors influencing the group of wetlands. Other data are listed in the Citations section.

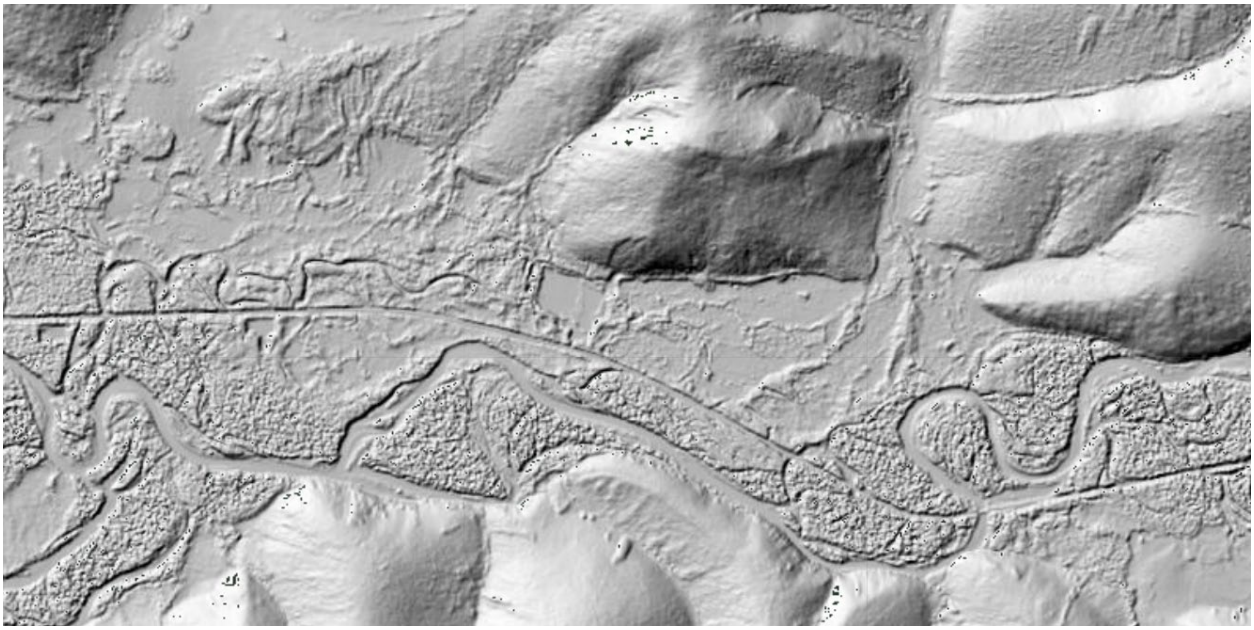


Figure 1. Fairbanks QL2 2017 Imagery showing DSM Hillshade. The large open water gravel pit is visible in the center of the imagery with Stiles Creek shooting range directly to the east. These features are in the pathway of a historic tributary to the Chena River.

[3] https://elevation.alaska.gov/#64.90812:-146.46414:13 State of Alaska Div. of Geological and Geophysical Surveys, accessed 05/01/2024

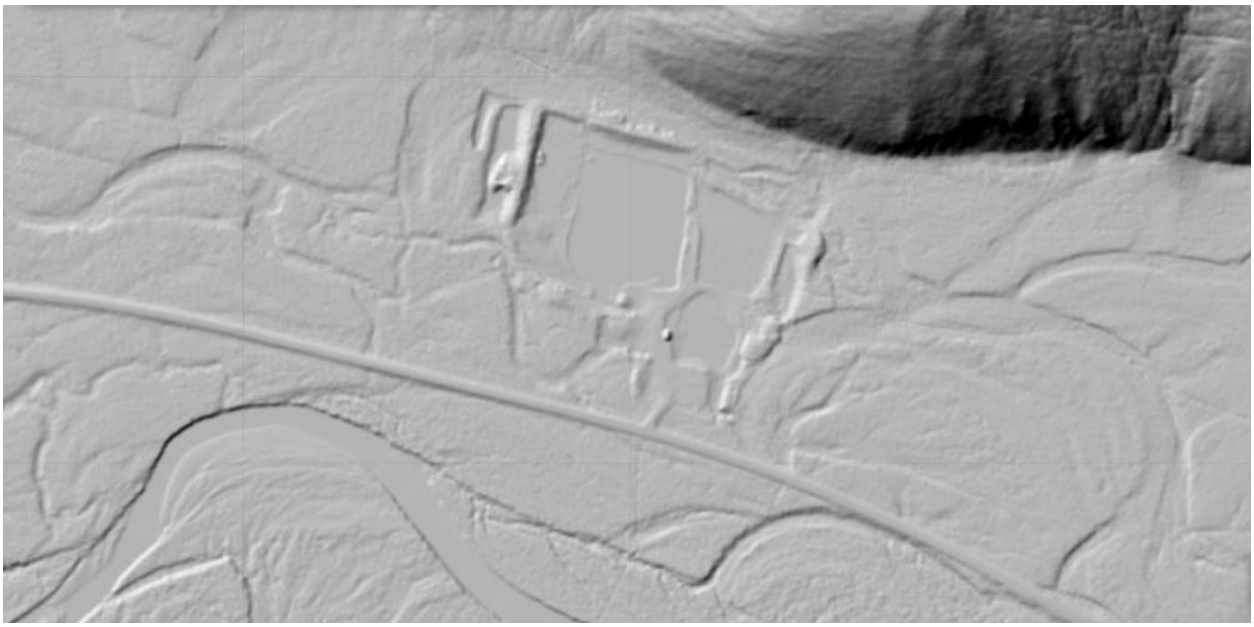


Figure 2. DTM Hillshade from Fairbanks QL2 2017 Imagery showing side channel connecting the gravel pit and adjacent and abutting wetlands to the Chena River. Red arrow points to relic channel of lower Stiles Ck. This is where water ponds in wetland E, F, G.

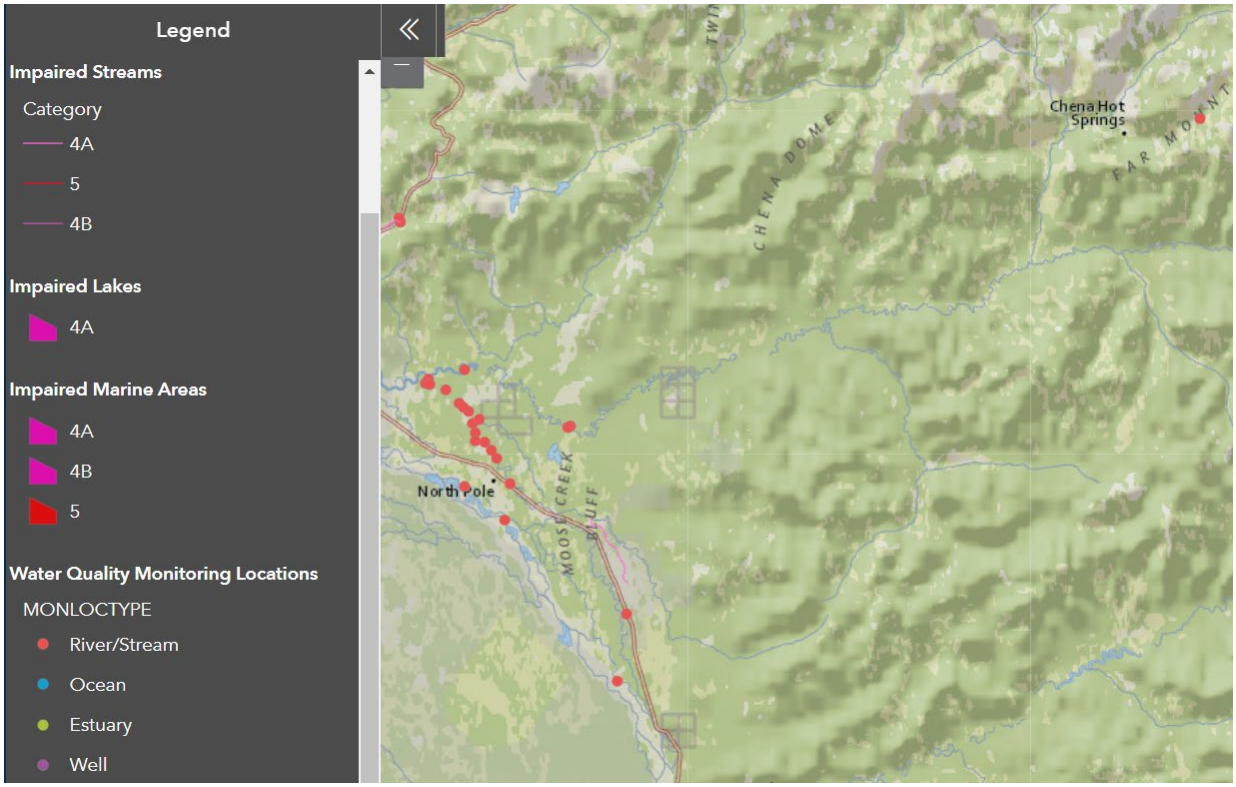


Figure 3. Department of Environmental Conservation, Water Quality Mapper (accessed online 05-13-2024). Note the lack of water quality sampling locations in the upper Chena Watershed (approximate location of Stiles Ck. shooting range shown with red arrow).

The assessment areas (AA's) analyzed for this project were comprised of distinct wetlands within the footprint of direct impact of the range expansion (areas to receive fill material). An additional buffer area of 100 feet was added the areas of direct impact to represent the secondary impacts (dust, noise, erosion and sedimentation, etc.) each wetland would receive as a result of the primary impact. There were five AA's in total (Figure 4). Two wetland AA's (A and B) are abutting open water areas of under 20 acres; therefore, the open water was considered as part of the AA for each of these wetlands. Wetlands B and C were considered one AA unit because it appears they are hydrologically connected by a perched culvert under the range access road (Figure 5).

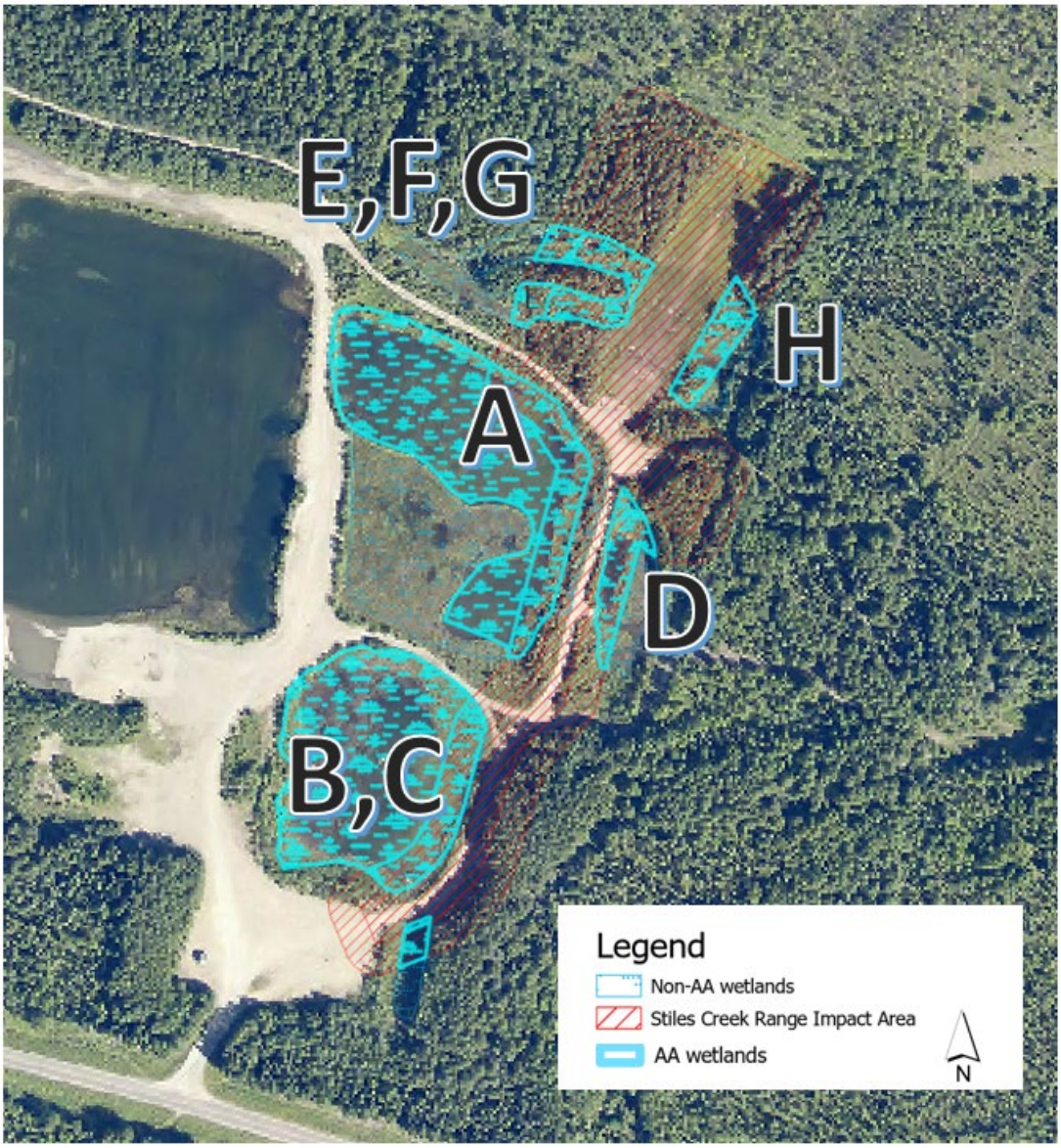


Figure 4.Wetland assessment areas (AA) shown in bright blue.

Figure 5. Small, perched culvert draining Wetland B into Wetland C is visible in this DNR Public Notice website. Picture facing south. Ponded water visible in Wetlands H and D. Photo appears to be taken in early fall.

Findings and Discussion

Wetland A

Wetland A was 10.1 acres, including abutting open water outside of the direct impact area and its 100-foot buffer. Its highest performing functions are in the categories of Sediment & Toxicant Retention & Stabilization, and Nutrient Removal & Retention. These are related to the character of open water ponds. If compensatory mitigation is necessary, it should take the form of creation, credits, or other uplift of open water wetlands in the watershed.

Functions & Attributes	Function Score (Normalized)	Function Rating	Benefits Score (Normalized)	Benefits Rating
Water Storage and Delay (WS)	4.44	Lower	10.00	Higher
Stream Flow & Temperature Support (SFTS)	0.00	Lower	0.00	Lower
Sediment & Toxicant Retention & Stabilization (SR)	10.00	Higher	9.80	Higher
Permafrost Protection (PP)	1.44	Lower	3.01	Lower
Nutrient Removal & Retention (NRR)	10.00	Higher	2.43	Moderate
Carbon Stock (CS)	6.00	Lower		
Organic Nutrient Export (NX)	0.00	Lower		
Aquatic Primary Productivity (APP)	5.72	Moderate	3.62	Moderate
Soil Stabilization (SS)	4.56	Lower	4.87	Higher
Fish Habitat (FH)	0.00	Lower	0.00	Lower
Keystone Mammal Habitat (KMH)	8.32	Higher	2.75	Moderate
Waterbird Habitat (WBH)	7.19	Higher	10.00	Higher
Carbon Accumulation Capacity (CAC)	4.33	Lower		
Other BirdHabitat (OBH)	5.70	Higher	0.00	Lower
Native Plant Habitat (PH)	6.07	Moderate	4.84	Moderate
Pollinator Habitat (POL)	5.17	Moderate	5.28	Moderate
Cultural & Recreational Importance (CRI)			5.30	Higher
Fire Resistance (FR)	4.72	Moderate	0.90	Lower
Wetland Stressors (STR)			8.25	Higher
GROUPS:				
Hydrologic & Water Purification Group (HWg)	10.00	Higher	10.00	Higher
Substrate Protection Group (SPg)	6.00	Moderate	4.87	Higher
Aquatic Connectivity Group (ACg)	0.00	Lower	0.00	Lower
Aquatic Productivity Group (APg)	7.19	Higher	10.00	Higher
Transition Zone Habitat Group (THg)	8.32	Higher	5.28	Moderate

Figure 6. Wetland A functions and attribute scores.

Wetland B, C

Wetland B, C was 7.6 acres, including abutting open water outside of the direct impact area and its 100-foot buffer. The two delineated wetlands are considered to be one AA because they appear to be hydrologically connected, at least in high water, by a culvert. Similar to Wetland A, B, C Wetland's highest performing functions are in the categories of Sediment & Toxicant Retention & Stabilization, and Nutrient Removal & Retention. These are related to the character of open water ponds. If compensatory mitigation is necessary, it should take the form of creation, credits, or other uplift of open water wetlands in the watershed.

Functions & Attributes	Function Score (Normalized)	Function Rating	Benefits Score (Normalized)	Benefits Rating
Water Storage and Delay (WS)	4.44	Lower	10.00	Higher
Stream Flow & Temperature Support (SFTS)	0.00	Lower	0.00	Lower
Sediment & Toxicant Retention & Stabilization (SR)	10.00	Higher	9.80	Higher
Permafrost Protection (PP)	1.44	Lower	3.01	Lower
Nutrient Removal & Retention (NRR)	10.00	Higher	2.43	Moderate
Carbon Stock (CS)	6.00	Lower		
Organic Nutrient Export (NX)	0.00	Lower		
Aquatic Primary Productivity (APP)	5.72	Moderate	3.28	Moderate
Soil Stabilization (SS)	5.04	Moderate	4.87	Higher
Fish Habitat (FH)	0.00	Lower	0.00	Lower
Keystone Mammal Habitat (KMH)	8.45	Higher	3.38	Moderate
Waterbird Habitat (WBH)	7.04	Higher	10.00	Higher
Carbon Accumulation Capacity (CAC)	4.33	Lower		
Other BirdHabitat (OBH)	5.03	Moderate	1.25	Lower
Native Plant Habitat (PH)	6.28	Moderate	4.57	Moderate
Pollinator Habitat (POL)	5.22	Moderate	5.47	Moderate
Cultural & Recreational Importance (CRI)			5.28	Higher
Fire Resistance (FR)	4.72	Moderate	0.90	Lower
Wetland Stressors (STR)			8.25	Higher
GROUPS:				
Hydrologic & Water Purification Group (HWg)	10.00	Higher	10.00	Higher
Substrate Protection Group (SPg)	6.00	Moderate	4.87	Higher
Aquatic Connectivity Group (ACg)	0.00	Lower	0.00	Lower
Aquatic Productivity Group (APg)	7.04	Higher	10.00	Higher
Transition Zone Habitat Group (THg)	8.45	Higher	5.47	Moderate

Figure 7. Wetland B, C functions and attribute scores.

Wetland D

Wetland D was approximately 1 acre including the direct impact area and its 100-foot buffer. It is bounded on two sides by unmaintained dirt roads and appears to have standing water for a significant portion of the growing season, making it similar in some respects to Wetlands A, B and C which abut open water. Its proximity to relatively more erodible surfaces (roads) somewhat increased its value in the Substrate Protection group.

Functions & Attributes	Function Score (Normalized)	Function Rating	Benefits Score (Normalized)	Benefits Rating
Water Storage and Delay (WS)	5.37	Moderate	10.00	Higher
Stream Flow & Temperature Support (SFTS)	0.00	Lower	0.00	Lower
Sediment & Toxicant Retention & Stabilization (SR)	10.00	Higher	9.83	Higher
Permafrost Protection (PP)	1.44	Lower	2.50	Lower
Nutrient Removal & Retention (NRR)	10.00	Higher	2.43	Moderate
Carbon Stock (CS)	7.14	Moderate		
Organic Nutrient Export (NX)	0.00	Lower		
Aquatic Primary Productivity (APP)	6.06	Moderate	3.32	Moderate
Soil Stabilization (SS)	4.72	Lower	1.79	Moderate
Fish Habitat (FH)	0.00	Lower	0.00	Lower
Keystone Mammal Habitat (KMH)	7.35	Higher	2.75	Moderate
Waterbird Habitat (WBH)	5.91	Moderate	10.00	Higher
Carbon Accumulation Capacity (CAC)	2.90	Lower		
Other BirdHabitat (OBH)	6.33	Higher	0.00	Lower
Native Plant Habitat (PH)	7.17	Higher	6.13	Higher
Pollinator Habitat (POL)	7.40	Moderate	6.24	Moderate
Cultural & Recreational Importance (CRI)			5.13	Higher
Fire Resistance (FR)	1.74	Lower	0.90	Lower
Wetland Stressors (STR)			8.06	Higher
GROUPS:				
Hydrologic & Water Purification Group (HWg)	10.00	Higher	10.00	Higher
Substrate Protection Group (SPg)	7.14	Moderate	2.50	Moderate
Aquatic Connectivity Group (ACg)	0.00	Lower	0.00	Lower
Aquatic Productivity Group (APg)	6.06	Moderate	10.00	Higher
Transition Zone Habitat Group (THg)	7.40	Higher	6.24	Higher

Figure 8. Wetland D, functions and attribute scores.

Wetland E, F, G

Wetland E, F, G was approximately 2.5 acres including the direct impact area and its 100-foot buffer. It directly abuts the current range, which gave it a high value score in the categories of Sediment & Toxicant Retention & Stabilization and Nutrient Removal & Retention. Additionally, it is directly down slope of a steep hillside with erodible soils, placing it in a favorable location to intercept sediment before it is washed downhill to other aquatic areas like the Chena River. It has a small area of ephemeral standing water, which did not add to overall importance.

Functions & Attributes	Function Score (Normalized)	Function Rating	Benefits Score (Normalized)	Benefits Rating
Water Storage and Delay (WS)	4.12	Lower	10.00	Higher
Stream Flow & Temperature Support (SFTS)	0.00	Lower	0.00	Lower
Sediment & Toxicant Retention & Stabilization (SR)	10.00	Higher	9.77	Higher
Permafrost Protection (PP)	2.03	Lower	0.71	Lower
Nutrient Removal & Retention (NRR)	10.00	Higher	1.40	Lower
Carbon Stock (CS)	7.51	Higher		
Organic Nutrient Export (NX)	0.00	Lower		
Aquatic Primary Productivity (APP)	5.96	Moderate	1.71	Lower
Soil Stabilization (SS)	3.33	Lower	0.00	Lower
Fish Habitat (FH)	0.00	Lower	0.00	Lower
Keystone Mammal Habitat (KMH)	7.44	Higher	3.38	Moderate
Waterbird Habitat (WBH)	3.43	Lower	2.83	Lower
Carbon Accumulation Capacity (CAC)	3.74	Lower		
Other BirdHabitat (OBH)	4.92	Moderate	1.25	Lower
Native Plant Habitat (PH)	5.46	Moderate	3.98	Moderate
Pollinator Habitat (POL)	4.04	Moderate	4.76	Moderate
Cultural & Recreational Importance (CRI)			4.67	Moderate
Fire Resistance (FR)	1.25	Lower	0.90	Lower
Wetland Stressors (STR)			10.00	Higher
GROUPS:				
Hydrologic & Water Purification Group (HWg)	10.00	Higher	10.00	Higher
Substrate Protection Group (SPg)	7.51	Higher	0.90	Lower
Aquatic Connectivity Group (ACg)	0.00	Lower	0.00	Lower
Aquatic Productivity Group (APg)	5.96	Moderate	2.83	Lower
Transition Zone Habitat Group (THg)	7.44	Higher	4.76	Moderate

Figure 9. Wetland E, F, G assessment area, functions and attribute scores.

Wetland H

Wetland H was 0.9 acres and is expected to only incur secondary impacts within the 100-foot buffer of direct impact range improvements. It was similar to Wetland E, F, G with sits directly across the range.

Functions & Attributes	Function Score (Normalized)	Function Rating	Benefits Score (Normalized)	Benefits Rating
Water Storage and Delay (WS)	5.37	Moderate	10.00	Higher
Stream Flow & Temperature Support (SFTS)	0.00	Lower	0.00	Lower
Sediment & Toxicant Retention & Stabilization (SR)	10.00	Higher	9.80	Higher
Permafrost Protection (PP)	2.03	Lower	0.71	Lower
Nutrient Removal & Retention (NRR)	10.00	Higher	1.13	Lower
Carbon Stock (CS)	7.54	Higher		
Organic Nutrient Export (NX)	0.00	Lower		
Aquatic Primary Productivity (APP)	5.70	Moderate	2.40	Lower
Soil Stabilization (SS)	6.67	Moderate	0.00	Lower
Fish Habitat (FH)	0.00	Lower	0.00	Lower
Keystone Mammal Habitat (KMH)	6.78	Higher	3.38	Moderate
Waterbird Habitat (WBH)	4.88	Moderate	10.00	Higher
Carbon Accumulation Capacity (CAC)	3.74	Lower		
Other BirdHabitat (OBH)	5.12	Moderate	1.25	Lower
Native Plant Habitat (PH)	5.29	Moderate	4.99	Moderate
Pollinator Habitat (POL)	6.05	Moderate	4.61	Moderate
Cultural & Recreational Importance (CRI)			4.72	Moderate
Fire Resistance (FR)	1.25	Lower	0.90	Lower
Wetland Stressors (STR)			7.46	Higher
GROUPS:				
Hydrologic & Water Purification Group (HWg)	10.00	Higher	10.00	Higher
Substrate Protection Group (SPg)	7.54	Higher	0.90	Lower
Aquatic Connectivity Group (ACg)	0.00	Lower	0.00	Lower
Aquatic Productivity Group (APg)	5.70	Moderate	10.00	Higher
Transition Zone Habitat Group (THg)	6.78	Higher	4.99	Moderate

Figure 10. Wetland H assessment area, functions and attribute scores.

The results of these assessments are best understood in a relative context. Not all wetlands perform all possible functions well or even perform them all. For example, the Stiles Creek shooting range wetlands are not hydrologically connected with the nearby Chena River, and therefore have no possibility of providing rearing habitat for fish. Similarly, these wetlands are all near a source of potential pollutants, lead shot left on the range, which allows for the opportunity to perform the function of water purification for toxicants whereas if the same wetland was in another location without an adjacent range, it would not perform this function. Functional scores describe how well the wetland performs intrinsic processes. These are scored in comparison to regional reference values of similar wetlands in Interior Alaska. Benefits scores are an estimate of the services, both social and biological, the wetland has a chance to provide.

All five wetland AAs assessed for this project scored highly for the functions of Sediment & Toxicant Retention & Stabilization and Nutrient Removal & Retention. This means they are important for intercepting and filtering suspended inorganic sediments thus allowing their deposition, as well as reducing energy of waves and currents, resisting excessive erosion, and stabilizing underlying sediments or soil. Additionally, they provide for intercepting, retaining, and/or removing soluble and non-soluble forms of phosphorus and/or nitrogen, among other water soluble or labile toxicants. To a lesser extent, the wetlands in this project area scored

moderately high to high in the functions of Keystone Mammal Habitat, which is a wetland's capacity to support an abundance of wetland-associated mammals that are ecological keystones and/or are of recognized importance as game or for subsistence in this region (primarily beaver, moose, muskrat). Not surprisingly, Wetlands A and B, C also scored highly for Waterbird Habitat, which is a wetland's capacity to support or contribute to an abundance or diversity of waterbirds (ducks, geese, swans, shorebirds, others) that breed in or migrate through the region.

One last notable result was that the position of all five wetlands was a large factor in the high benefit scores they received for the category of Water Storage and Delay. This means that they act as a protective buffer for downstream infrastructure at risk from floods and provide water quantity maintenance for downstream ecological systems (e.g., the Chena River). They offer this benefit very well, even though they aren't the best at providing the actual service relative to other wetlands as seen from only moderate functional scores in this category.

Conclusions

When faced with the need to offset the loss of wetlands to development, wetland assessment scores provide a quantified result of the type and quality of the functions and benefits that will be lost post-development. The type and quality of lost functions should direct any compensatory mitigation or offset efforts within the same watershed to bring the overall loss of specific functions to zero. This is the concept of 'on site' (within the same watershed) and 'in-kind' (replace the lost function with an increase of the same function). It is often difficult to find opportunities to offset wetland loss with exactly the same type and amount of wetland gains. For this reason, WESPAK-INT aggregates the nineteen specific functions and attributes tested into four general groups: Hydrologic & Water Purification, Substrate Protection, Aquatic Connectivity, Aquatic Productivity, and Transition Zone Habitat. When identifying potential projects (restoration sites, Mitigation Bank or In-Lieu Fee credits) to offset wetland losses, one should endeavor to match the function being lost with the function being restored or preserved at least at the group level if not at the individual functions and attributes level.

Wetlands at Stiles Creek shooting range are unique in that there is very little disturbance in the watershed, and no other shooting range. Therefore, it is almost impossible to replace the protection they provide to overall water quality as they buffer the effects of toxicants and sediment coming off the range because there is no other similar degraded area available to protect. Offset or compensation for the loss of services such as Sediment & Toxicant Retention & Stabilization and Nutrient Removal & Retention must happen on site, or no net-loss may not be achievable. The other high scoring category across all assessed wetlands of Key Mammal Habitat is very common within the watershed. The loss of this service will not have a significant effect overall onsite or on a landscape level. Two wetland AAs, A and B, C, scored high for Waterbird habitat due to their larger areas of open water. This feature is not readily available in most places in the watershed and should be strongly considered when and if compensatory

mitigation is chosen as an outcome of this process. Loss of these open water habitats is not restricted to 'on site' because it is not dependent upon other landscape features. As such, purchasing off-site credits from an entity such as a mitigation bank or in-lieu fee service would be a practicable solution to achieving "no net loss" of wetlands.

Citations

Alaska Department of Fish and Game. (2022, July 15). Alaska Fish Resource Monitor, Anadromous Waters Catalog. Retrieved from State of Alaska: https://adfg.maps.arcgis.com/apps/MapSeries/index.html?appid=a05883caa7ef4f7ba17c99274f2c198f

Hydrologic Unit Code 12 Watershed Boundaries. Accessed 12/2023. Data available from the USGS at: https://apps.nationalmap.gov/services/

Hoffman, F.M., J. Kumar, R.T. Mills, and W.W. Hargrove. 2013. Representativeness-based sampling network design for the State of Alaska. Landscape Ecology 28:1567-1586.

Kittel, T.G.F., N.A. Rosenbloom, C. Kaufman, J.A. Royle, C. Daly, H.H. Fisher, W.P. Gibson, S. Aulenbach, D.N. Yates, R. McKeown, D.S. Schimel, and VEMAP2 PARTICIPANTS. 2016. VEMAP 2: Monthly Historical and Future Climate Data, Alaska, USA. ORNL DAAC, Oak Ridge, Tennessee, USA**.** http://dx.doi.org/10.3334/ORNLDAAC/1344

Smith, M., N. J. Walker, I. J. Stenhouse, C. M. Free, M. Kirchhoff, O. Romanenko, S. Senner, N. Warnock, and V. Mendenhall, 2014. Important Bird Areas of Alaska. Audubon Alaska, Anchorage, Alaska.

United States Geological Survey. 2023. National Hydrography Dataset Accessed 06/2023. Data available from the USGS at: https://www.usgs.gov/national-hydrography/national-hydrography-dataset U.S. Geological Survey (1980). *Geologic map of Alaska*. Reston, Virginia.

Appendix C

Shannon & Wilson Stiles Creek Shooting Range Lead Report

SUBMITTED TO:
Design Alaska, Inc.
601 College Road
Fairbanks, AK 99701

BY:
Shannon & Wilson
2355 Hill Rd.
Fairbanks, AK 99709

(907)479-0600
www.shannonwilson.com

LEAD ASSESSMENT SUMMARY REPORT

Milepost 36.4 Shooting Range Improvements Project

FAIRBANKS, ALASKA

October 19, 2023

Shannon & Wilson No: 110806-001

SHANNON & WILSON

PAGE INTENTIONALLY LEFT BLANK FOR DOUBLE-SIDED PRINTING

Submitted To: Design Alaska, Inc.
601 College Road
Fairbanks, AK 99701
Attn: John Rowe, RLA, ASLA

Subject: LEAD ASSESSMENT SUMMARY REPORT, MILEPOST 36.4 SHOOTING RANGE IMPROVEMENTS PROJECT, FAIRBANKS, ALASKA

Shannon & Wilson prepared this report and participated in this project as a subconsultant to Design Alaska, Inc. Our scope of services was specified in Letter of Agreement for Professional Services with Design Alaska, Inc. dated August 16, 2023. This report presents environmental findings and recommendations and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or if we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON

Christopher Darrah, LG, CPG, CPESC
Vice President

CONTENTS

Figures

Tables

Appendices

ACRONYMS

°C	degrees Celsius
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
bgs	below the ground surface
CV	coefficient of variance
DPOR	Division of Parks and Outdoor Recreation
DU	Decision Unit
EPA	Environmental Protection Agency
ISM	Incremental Sampling Methodology
LDRC	laboratory data review checklist
Mg/kg	milligrams per kilogram
QA	quality assurance
QC	quality control
RCRA	Resource Conservation, and Recovery Act
RSD	relative standard deviation
SGS	SGS North America, Inc.

1 INTRODUCTION

This report presents a summary of soil sampling and analysis conducted in support of proposed improvements at the Stiles Creek Shooting Range north of Fairbanks, Alaska (Figure 1). The shooting range is owned and managed by the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation (DPOR), and is located at Mile 36.4 Chena Hot Springs Road. This report presents our findings from the analysis of lead in soil for this project, laboratory results, environmental discussion, and recommendations for the handling of excavated material for this project. The following introductory sections summarize our purpose and scope of services, project understanding, and the criteria and guidance used.

1.1 Project Understanding

The Milepost 36.4 Shooting Range Improvements Project generally comprises widening the existing range footprint, replacing the shooting line platforms, shaping the backstop berm, filling and grading the range area, and expanding the parking area into the adjacent woodlands.

The purpose of the soil sampling and analysis described in this report was to evaluate the presence of lead in soil in planned expansion areas outside the current active shooting lane. The presence of lead in soil impacts the methodology for handling of excavated material for this project. We did not collect samples from the active shooting lanes or backstop: you indicated the design team will assume lead is present in these areas.

According to the DPOR website, the Milepost 36.4 Shooting Range, also referred to as the Stiles Creek Shooting Range, began as an unmanaged gravel pit used by locals for recreation that eventually turned into an undeveloped outdoor range. We understand that the range has been owned and actively managed by DPOR since the late 1960s. Currently the site does not meet established outdoor range guidelines, has unstable ground due to lack of drainage, is often littered with garbage, has limited parking and access, and fails to meet user expectations.

The Stiles Creek Shooting Range is not a listed Alaska Department of Environmental Conservation (ADEC) contaminated site.

1.2 Scope of Services

Our scope of services included collecting samples for laboratory analysis of lead from three areas: two wooded areas on either side (east and west) of the active shooting lanes, and the planned parking-area expansion.

The authorized scope of services was based on the project objectives, schedule, and budget. If a service is not specifically indicated in this report, do not assume that it was performed.

2 FIELD ACTIVITIES AND OBSERVATIONS

On August 23, 2023 Shannon & Wilson field representatives Justin Risley and Rachel Willis visited the Stiles Creek Shooting Range project site to collect soil samples for analytical testing. They collected one sample from each of the three target areas and two replicate samples for quality control (QC) purposes. Figure 2 shows the three target areas, labeled Decision Units (DUs) 1, 2, and 3. Soil samples were collected following a modified Incremental Sampling Methodology (ISM) process.

The ISM process entails establishing a grid within the area to be sampled, collecting an aliquot of soil from each grid area, and compositing the aliquots into a single sample to submit to the laboratory for analysis for total lead. The method recommends replicate samples from at least one area, which we collected from DU3. The ISM procedure limits the size of a DU to a maximum of 10,000 square feet. Given the large area to be sampled and limited time available to perform the sampling, we established one DU for each of the three target areas, which resulted in two of the three DUs exceeding 10,000 square feet. For these same reasons, as well as the sampling areas being densely wooded, we did not physically mark sampling grids in the field. Rather, we loaded the target sample-point locations into a hand-held GPS unit, which guided our field staff to each sample location.

For the purpose of sample collection, each DU was subdivided into 32 equal grids, with subsamples collected from each grid and placed into a single sample container that constituted the DU sample. We collected soil samples from inorganic soil approximately 6 inches below ground surface (bgs).

Analytical results are summarized in Table 1 and sample locations are shown on Figure 2. Detectable concentrations of lead were reported in all project samples. None of the reported results exceeded the ADEC soil cleanup level of 400 milligrams per kilogram (mg/kg) as published in 18 AAC 75 *Table B1 Method Two - Soil Cleanup Levels Table (Human Health)*.

3 ANALYTICAL QUALITY CONTROL

We reviewed the analytical results for SGS North America, Inc. Laboratory (SGS) work order 1234625, and also conducted our own quality assurance (QA) assessment. We reviewed chain of custody records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample-holding times, and kept samples properly chilled (between 0 °C and 6 °C) during shipping. Our QA-review procedures allow us to document accuracy and precision of the analytical data and check that the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

Our level II review of the data revealed that the samples arrived at the laboratory in good condition. Proper sample handling procedures were followed, and sample custody was documented. Our review of the data identified no analytical irregularities and found no adverse impact on the sample results. The samples collected are generally considered to be representative of site conditions at the locations and times they were obtained. We have enclosed the SGS laboratory report and our ADEC Laboratory Data Review Checklist (LDRC) in Appendix A.

By collecting a primary sample and duplicate and triplicate quality control samples from one DU we are able to calculate a relative standard deviation (RSD) and coefficient of variance (CV) for that sample set. We collected a primary/duplicate/triplicate sample set from DU3; the RSD and CV were within the ISM procedure acceptable limits. We further used these sample set results to calculate a 95% upper confidence limit lead concentration of 11.5 mg/kg.

4 DISCUSSION & RECOMMENDATIONS

Analytical sample results indicate that lead is present in the areas sampled but at concentrations below its ADEC soil cleanup level. Nonetheless, because of the proximity of these areas to a shooting range that has been used for 60 years or more, the potential presence of particulate lead in soil and vegetation should not be discounted. Site preparation activities such as tree removal, clearing and grubbing, and soil excavation and grading should be conducted in a manner that ensures waste materials are not removed from the site until it is demonstrated that they do not pose an unacceptable risk to human health or the environment.

The assumed presence of lead in soil in the active portions of the shooting range triggers various requirements and recommendations for the DPOR and its construction contractor to

follow for the protection of human health and the environment and worker safety. Key concepts include:

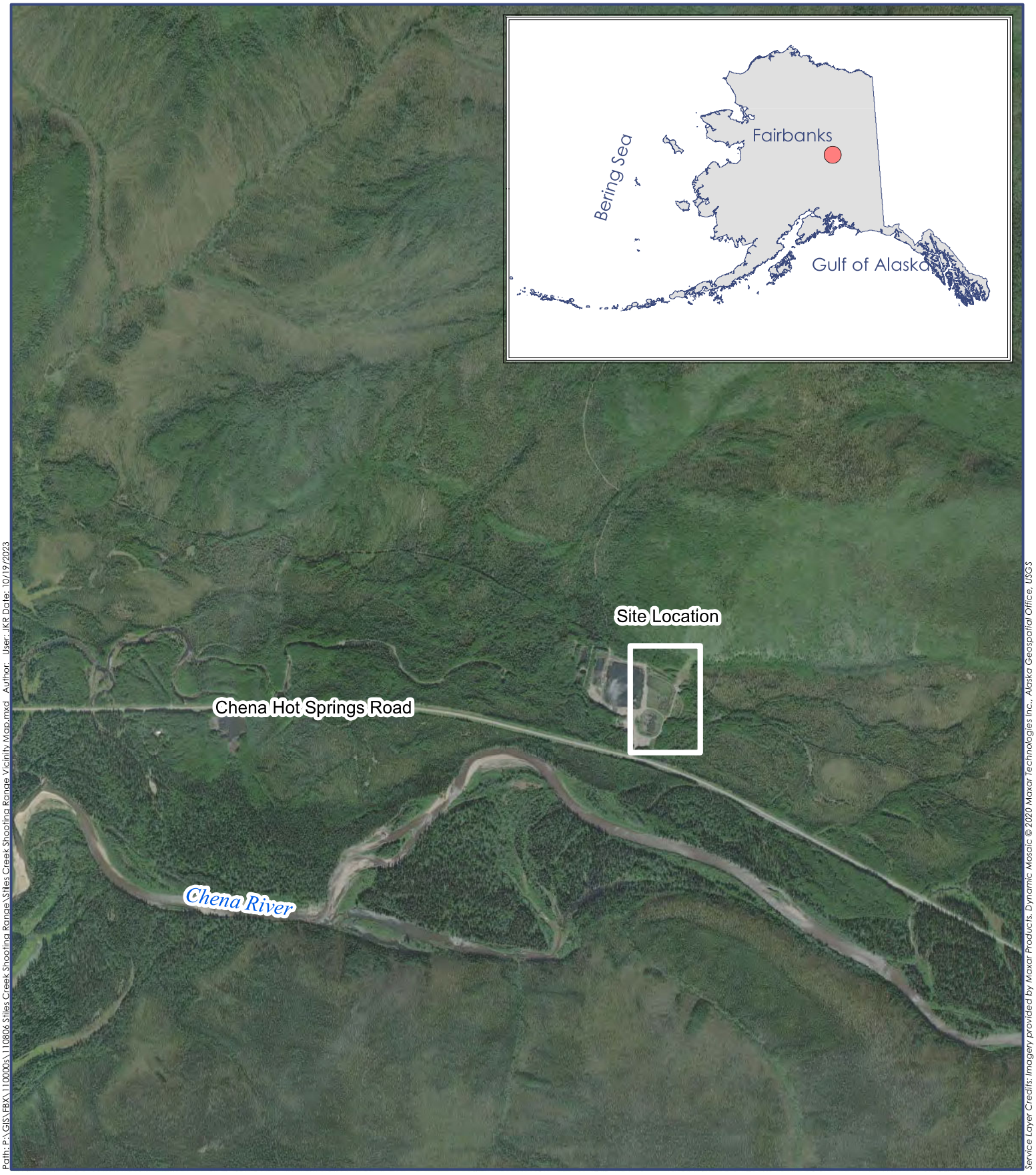
- Under traditional interpretations of ADEC and Resource Conservation, and Recovery Act (RCRA) regulations, lead shot and lead-contaminated soil that is moved, excavated or otherwise managed is a generated waste, and subject to 40 CFR 262.11 requiring evaluation for hazardous characteristics that may cause it to be classified as a hazardous waste. Based on the sampling conducted at the Stiles Creek Shooting Range, soil excavated *from the areas sampled* would not likely be classified as a characteristic hazardous waste. However, we assume that lead is present in the active shooting lanes and backstop, and that those soils could be classified as characteristic hazardous waste if they fail the RCRA criteria for leachable lead. If such soils were to be transported off-site, this classification would necessitate obtaining an Environmental Protection Agency (EPA) identification number, conducting cradle-to-grave tracking of the generated material, and disposing the material in a permitted RCRA Subtitle C landfill.
- It is the EPA's position at active, outdoor shooting ranges that backstop and shotfall-zone soils are part of a range and are not wastes when they are moved or relocated within the range boundaries, as long as the range continues to be used as a range and the backstop materials continue to be used as backstop materials. EPA strongly recommends recovery of lead from materials that are moved or relocated.
- Moreover, recent court cases and EPA interpretations suggest that lead shot in the environment, even if undisturbed by human activities, can become a RCRA waste, if present at a closed or abandoned shooting range. This changes the traditional interpretation and can require removing all lead shot from the range; regardless if the soil samples pass the ADEC and RCRA criteria.
- In the course of constructing the range safety and Americans with Disability Act (ADA) improvements, the DPOR should include lead reclamation at the backstop and other areas of soil disturbance. The purpose of this reclamation should be to support a position that the lead shot is being recycled and not disposed in place.
- Covering lead-containing soil with new fill could be considered disposal, which could result in a determination by EPA that the range is an uncontrolled hazardous waste disposal facility.
- Any soil removed from the range should be assumed to be hazardous waste unless and until further testing demonstrates it is not hazardous.
- The construction contractor should prepare a project work plan/safety plan reviewed by a Certified Industrial Hygienist that describes worker-safety protections and procedures to address anticipated worker exposure to lead during construction.
- The DPOR should develop and implement an Environmental Stewardship Plan for the Stiles Creek Shooting Range.

5 CLOSURE

Our interpretations, analyses, conclusions, and recommendations are based on:

- The limitations of our approved scope, schedule, and budget.
- Our understanding of the project and information provided by our client.
- Our previous experience near the project site, and on similar projects in the area.

This report was prepared for the exclusive use of Design Alaska, Inc. for specific application to the design and construction of the Milepost 36.4 Shooting Range Improvements Project. Please review "Important Information About Your Geotechnical/Environmental Report," which is attached to this report.



N

0 0.5

Miles

October 2023

VICINITY MAP

Figure 1

Path: \\shanwil.net\EF\GIS\FBX\110000s\110806 Stiles Creek Shooting Range\DU Sampling Locations_REV01.mxd Author: msl User: DHF Date: 10/19/2023

Imagery provided by Pictometry International Corporation, 2022; Fairbanks, Alaska, Fairbanks North Star Borough, available: https://gisportal.fnsb.gov/image/rest/services

N

0 100 200
Feet

October 2023

ISM SAMPLE LOCATIONS

Figure 2

Table 1 - Lead ISM Sample Results

Analytical Method	Analyte	DEC Regulatory Limit	Units	SC23 - ISM01	SC23 - ISM02	SC23 - ISM03				
						Primary	Duplicate	Triplicate	CV	95% UCL
EPA 6020	Total Lead	400	mg/kg	18.5	161	10.6	9.43	10.8	0.072	11.5

Notes: Results reported from SGS Laboratory Work Order 1234625.

Regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Under 40 Inch Zone; Human Health).

DEC Alaska Department of Environmental Conservation

EPA U.S. Environmental Protection Agency

mg/kg milligrams per kilogram

APPENDIX A: LABORATORY REPORT AND LABORATORY DATA REVIEW CHECKLIST

Appendix A

Laboratory Report and Laboratory Data Review Checklist

CONTENTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99709

Report Number: **1234625**

Client Project: **110806-001 Stiles Creek Range**

Dear Rachel Willis,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede
2023.09.20
16:57:01 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1234625**
Project Name/Site: **110806-001 Stiles Creek Range**
Project Contact: **Rachel Willis**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SC23 - ISM01	1234625001	08/23/2023	08/29/2023	Soil/Solid (dry weight)
SC23 - ISM02	1234625002	08/23/2023	08/29/2023	Soil/Solid (dry weight)
SC23 - ISM03	1234625003	08/23/2023	08/29/2023	Soil/Solid (dry weight)
SC23 - ISM13	1234625004	08/23/2023	08/29/2023	Soil/Solid (dry weight)
SC23 - ISM23	1234625005	08/23/2023	08/29/2023	Soil/Solid (dry weight)

Method	Method Description
SW6020B	Metals by ICP-MS (S)
MI-ITRC ISM (Feb 2012)	MI Sampling/Sieving
SM21 2540G	Percent Solids SM2540G

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **SC23 - ISM01**
Lab Sample ID: 1234625001

Parameter	Result	Units
ITRC Incremental Samp Method (2012)		
Multi-Incremental Sub Sampling	0.00	
Metals by ICP/MS		
Lead	18.5	mg/kg

Client Sample ID: **SC23 - ISM02**
Lab Sample ID: 1234625002

Parameter	Result	Units
ITRC Incremental Samp Method (2012)		
Multi-Incremental Sub Sampling	0.00	
Metals by ICP/MS		
Lead	161	mg/kg

Client Sample ID: **SC23 - ISM03**
Lab Sample ID: 1234625003

Parameter	Result	Units
ITRC Incremental Samp Method (2012)		
Multi-Incremental Sub Sampling	0.00	
Metals by ICP/MS		
Lead	10.6	mg/kg

Client Sample ID: **SC23 - ISM13**
Lab Sample ID: 1234625004

Parameter	Result	Units
ITRC Incremental Samp Method (2012)		
Multi-Incremental Sub Sampling	0.00	
Metals by ICP/MS		
Lead	9.43	mg/kg

Client Sample ID: **SC23 - ISM23**
Lab Sample ID: 1234625005

Parameter	Result	Units
ITRC Incremental Samp Method (2012)		
Multi-Incremental Sub Sampling	0.00	
Metals by ICP/MS		
Lead	10.8	mg/kg

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Results of **SC23 - ISM01**

Client Sample ID: **SC23 - ISM01**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625001
Lab Project ID: 1234625

Collection Date: 08/23/23 09:00
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **ITRC Incremental Samp Method (2012)**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	08/30/23 09:52

Batch Information

Analytical Batch: SPT11891
Analytical Method: MI-ITRC ISM (Feb 2012)
Analyst: KNT
Analytical Date/Time: 08/30/23 09:52
Container ID: 1234625001-A

Results of **SC23 - ISM01**

Client Sample ID: **SC23 - ISM01**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625001
Lab Project ID: 1234625

Collection Date: 08/23/23 09:00
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Lead	18.5		0.0266	0.00824	0.0133	mg/kg	10		09/14/23 18:11

Batch Information

Analytical Batch: MMS12065
Analytical Method: SW6020B
Analyst: HGS
Analytical Date/Time: 09/14/23 18:11
Container ID: 1234625001-A

Prep Batch: MXX36133
Prep Method: SW3050B
Prep Date/Time: 08/29/23 15:39
Prep Initial Wt./Vol.: 10.415 g
Prep Extract Vol: 50 mL

Print Date: 09/20/2023 4:53:38PM

J flagging is activated

Results of **SC23 - ISM02**

Client Sample ID: **SC23 - ISM02**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625002
Lab Project ID: 1234625

Collection Date: 08/23/23 09:15
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):61.8
Location:

Results by **ITRC Incremental Samp Method (2012)**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	08/30/23 09:52

Batch Information

Analytical Batch: SPT11891
Analytical Method: MI-ITRC ISM (Feb 2012)
Analyst: KNT
Analytical Date/Time: 08/30/23 09:52
Container ID: 1234625002-A

Results of **SC23 - ISM02**

Client Sample ID: **SC23 - ISM02**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625002
Lab Project ID: 1234625

Collection Date: 08/23/23 09:15
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):61.8
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Lead	161		0.153	0.0475	0.0765	mg/kg	50		09/18/23 20:57

Batch Information

Analytical Batch: MMS12069
Analytical Method: SW6020B
Analyst: HGS
Analytical Date/Time: 09/18/23 20:57
Container ID: 1234625002-A

Prep Batch: MXX36133
Prep Method: SW3050B
Prep Date/Time: 08/29/23 15:39
Prep Initial Wt./Vol.: 10.553 g
Prep Extract Vol: 50 mL

Print Date: 09/20/2023 4:53:38PM

J flagging is activated

Results of **SC23 - ISM03**

Client Sample ID: **SC23 - ISM03**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625003
Lab Project ID: 1234625

Collection Date: 08/23/23 12:05
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):85.2
Location:

Results by **ITRC Incremental Samp Method (2012)**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	08/31/23 10:07

Batch Information

Analytical Batch: SPT11893
Analytical Method: MI-ITRC ISM (Feb 2012)
Analyst: KNT
Analytical Date/Time: 08/31/23 10:07
Container ID: 1234625003-A

Results of **SC23 - ISM03**

Client Sample ID: **SC23 - ISM03**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625003
Lab Project ID: 1234625

Collection Date: 08/23/23 12:05
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):85.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Lead	10.6		0.225	0.0699	0.113	mg/kg	10		09/06/23 20:17

Batch Information

Analytical Batch: MMS12058
Analytical Method: SW6020B
Analyst: HGS
Analytical Date/Time: 09/06/23 20:17
Container ID: 1234625003-C

Prep Batch: MXX36145
Prep Method: SW3050B
Prep Date/Time: 09/01/23 12:16
Prep Initial Wt./Vol.: 10.408 g
Prep Extract Vol: 500 mL

Print Date: 09/20/2023 4:53:38PM

J flagging is activated

Results of **SC23 - ISM13**

Client Sample ID: **SC23 - ISM13**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625004
Lab Project ID: 1234625

Collection Date: 08/23/23 11:55
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **ITRC Incremental Samp Method (2012)**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	08/31/23 10:07

Batch Information

Analytical Batch: SPT11893
Analytical Method: MI-ITRC ISM (Feb 2012)
Analyst: KNT
Analytical Date/Time: 08/31/23 10:07
Container ID: 1234625004-A

Results of **SC23 - ISM13**

Client Sample ID: **SC23 - ISM13**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625004
Lab Project ID: 1234625

Collection Date: 08/23/23 11:55
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Lead	9.43		0.231	0.0715	0.116	mg/kg	10		09/06/23 20:25

Batch Information

Analytical Batch: MMS12058
Analytical Method: SW6020B
Analyst: HGS
Analytical Date/Time: 09/06/23 20:25
Container ID: 1234625004-C

Prep Batch: MXX36145
Prep Method: SW3050B
Prep Date/Time: 09/01/23 12:16
Prep Initial Wt./Vol.: 10.297 g
Prep Extract Vol: 500 mL

Print Date: 09/20/2023 4:53:38PM

J flagging is activated

Results of **SC23 - ISM23**

Client Sample ID: **SC23 - ISM23**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625005
Lab Project ID: 1234625

Collection Date: 08/23/23 11:45
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **ITRC Incremental Samp Method (2012)**

Parameter	Date Analyzed
Multi-Incremental Sub Sampling	08/31/23 10:07

Batch Information

Analytical Batch: SPT11893
Analytical Method: MI-ITRC ISM (Feb 2012)
Analyst: KNT
Analytical Date/Time: 08/31/23 10:07
Container ID: 1234625005-A

Results of **SC23 - ISM23**

Client Sample ID: **SC23 - ISM23**
Client Project ID: **110806-001 Stiles Creek Range**
Lab Sample ID: 1234625005
Lab Project ID: 1234625

Collection Date: 08/23/23 11:45
Received Date: 08/29/23 09:53
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Lead	10.8		0.221	0.0685	0.111	mg/kg	10		09/06/23 20:28

Batch Information

Analytical Batch: MMS12058
Analytical Method: SW6020B
Analyst: HGS
Analytical Date/Time: 09/06/23 20:28
Container ID: 1234625005-C

Prep Batch: MXX36145
Prep Method: SW3050B
Prep Date/Time: 09/01/23 12:16
Prep Initial Wt./Vol.: 10.569 g
Prep Extract Vol: 500 mL

Print Date: 09/20/2023 4:53:38PM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1863421 [MXX/36133]
Blank Lab ID: 1731207

Matrix: Soil/Solid (dry weight)

QC for Samples:
1234625001, 1234625002

Results by **SW6020B**

Parameter	Results	LOQ/CL	DL	LOD	Units
Lead	0.100U	0.200	0.0620	0.100	mg/kg

Batch Information

Analytical Batch: MMS12050
Analytical Method: SW6020B
Instrument: P7 Agilent 7800
Analyst: HGS
Analytical Date/Time: 8/30/2023 5:07:00PM

Prep Batch: MXX36133
Prep Method: SW3050B
Prep Date/Time: 8/29/2023 3:39:08PM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234625 [MXX36133]
Blank Spike Lab ID: 1731208
Date Analyzed: 08/30/2023 17:10

Matrix: Soil/Solid (dry weight)

QC for Samples: 1234625001, 1234625002

Results by **SW6020B**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Lead	50	50.8	102	(84-118)

Batch Information

Analytical Batch: **MMS12050**
Analytical Method: **SW6020B**
Instrument: **P7 Agilent 7800**
Analyst: **HGS**

Prep Batch: **MXX36133**
Prep Method: **SW3050B**
Prep Date/Time: **08/29/2023 15:39**
Spike Init Wt./Vol.: 50 mg/kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1731209
MS Sample ID: 1731212 MS
MSD Sample ID: 1731213 MSD

Analysis Date: 09/18/2023 17:21
Analysis Date: 09/18/2023 17:23
Analysis Date: 09/18/2023 17:35
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1234625001, 1234625002

Results by **SW6020B**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Lead	2.87	47.3	50.6	101	48.4	51.4	100	84-118	1.69	(< 20)

Batch Information

Analytical Batch: MMS12069
Analytical Method: SW6020B
Instrument: P7 Agilent 7800
Analyst: HGS
Analytical Date/Time: 9/18/2023 5:23:00PM

Prep Batch: MXX36133
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 8/29/2023 3:39:08PM
Prep Initial Wt./Vol.: 1.06g
Prep Extract Vol: 50.00mL

Print Date: 09/20/2023 4:53:44PM

Method Blank

Blank ID: MB for HBN 1863590 [MXX/36145]
Blank Lab ID: 1732019

Matrix: Soil/Solid (dry weight)

QC for Samples:
1234625003, 1234625004, 1234625005

Results by **SW6020B**

Parameter	Results	LOQ/CL	DL	LOD	Units
Lead	0.100U	0.200	0.0620	0.100	mg/kg

Batch Information

Analytical Batch: MMS12058
Analytical Method: SW6020B
Instrument: P7 Agilent 7800
Analyst: HGS
Analytical Date/Time: 9/6/2023 3:29:00PM

Prep Batch: MXX36145
Prep Method: SW3050B
Prep Date/Time: 9/1/2023 12:16:00PM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

Print Date: 09/20/2023 4:53:46PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234625 [MXX36145]
Blank Spike Lab ID: 1732020
Date Analyzed: 09/06/2023 15:32

Matrix: Soil/Solid (dry weight)

QC for Samples: 1234625003, 1234625004, 1234625005

Results by **SW6020B**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Lead	50	48.4	97	(84-118)

Batch Information

Analytical Batch: **MMS12058**
Analytical Method: **SW6020B**
Instrument: **P7 Agilent 7800**
Analyst: **HGS**

Prep Batch: **MXX36145**
Prep Method: **SW3050B**
Prep Date/Time: **09/01/2023 12:16**
Spike Init Wt./Vol.: 50 mg/kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1732021
MS Sample ID: 1732022 MS
MSD Sample ID: 1732023 MSD

Analysis Date: 09/06/2023 15:34
Analysis Date: 09/06/2023 15:37
Analysis Date: 09/06/2023 15:39
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1234625003, 1234625004, 1234625005

Results by **SW6020B**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Lead	8.57	49.1	56.6	98	49.6	56.3	96	84-118	0.66	(< 20)

Batch Information

Analytical Batch: MMS12058
Analytical Method: SW6020B
Instrument: P7 Agilent 7800
Analyst: HGS
Analytical Date/Time: 9/6/2023 3:37:00PM

Prep Batch: MXX36145
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/1/2023 12:16:00PM
Prep Initial Wt./Vol.: 1.02g
Prep Extract Vol: 50.00mL

Print Date: 09/20/2023 4:53:51PM

Method Blank

Blank ID: MB for HBN 1863455 [SPT/11892]
Blank Lab ID: 1731357

Matrix: Soil/Solid (dry weight)

QC for Samples:
1234625001, 1234625002

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	LOD	Units
Total Solids	100				%

Batch Information

Analytical Batch: SPT11892
Analytical Method: SM21 2540G
Instrument:
Analyst: LJC
Analytical Date/Time: 8/29/2023 6:49:00PM

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Duplicate Sample Summary

Original Sample ID: 1234614019
Duplicate Sample ID: 1731362
QC for Samples:

Analysis Date: 08/29/2023 18:49
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	89.0	88.8	%	0.29	(< 15)

Batch Information

Analytical Batch: SPT11892
Analytical Method: SM21 2540G
Instrument:
Analyst: LJC

Print Date: 09/20/2023 4:53:58PM

Duplicate Sample Summary

Original Sample ID: 1234619007
Duplicate Sample ID: 1731363
QC for Samples:
1234625001, 1234625002

Analysis Date: 08/29/2023 18:49
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	82.3	80.6	%	2.10	(< 15)

Batch Information

Analytical Batch: SPT11892
Analytical Method: SM21 2540G
Instrument:
Analyst: LJC

Print Date: 09/20/2023 4:53:58PM

Method Blank

Blank ID: MB for HBN 1863522 [SPT/11894]
Blank Lab ID: 1731737

Matrix: Soil/Solid (dry weight)

QC for Samples:
1234625003, 1234625004, 1234625005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	LOD	Units
Total Solids	99.9				%

Batch Information

Analytical Batch: SPT11894
Analytical Method: SM21 2540G
Instrument:
Analyst: APS
Analytical Date/Time: 8/30/2023 6:49:00PM

Print Date: 09/20/2023 4:54:06PM

Duplicate Sample Summary

Original Sample ID: 1234647002
Duplicate Sample ID: 1731738
QC for Samples:
1234625003, 1234625004, 1234625005

Analysis Date: 08/30/2023 18:49
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	92.0	92.2	%	0.19	(< 15)

Batch Information

Analytical Batch: SPT11894
Analytical Method: SM21 2540G
Instrument:
Analyst: APS

Print Date: 09/20/2023 4:54:08PM

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

408867 JD

Laboratory SGS
Attn: Jen Dawkins

SGS-MSA

Quote No:

Turn Around Time: [X] Normal [ ] Rush — Please Specify

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

1234625

Sample Identity	Lab No.	Time	Date Sampled	Total LEAD (EPA 6020)	Total	Remarks/Matrix Composition/Grab? Sample Containers
SC23-ISM01	1AD	0900	8/23/23	X	1	Soil (ISM sample)
SC23-ISM02	2AD	0915				
SC23-ISM03	3AD	1205				
SC23-ISM13	4AD	1155				
SC23-ISM23	5AD	1145				

Project Information

Number: 110806-001
Name: Stiles Creek Range
Contact: rachel.w.ilis@shanw.com
Ongoing Project? Yes [ ] No [X]
Sampler: RLW, JKR

Sample Receipt

Total No. of Containers: 5
COC Seals/Intact? Y/N/NA:
Received Good Cond./Cold:
Temp: 4.6
Delivery Method:

Notes:

All samples are ISM samples

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1120	Signature: Time: 1500	Signature: Time:
Printed Name: Rachel Willis Date: 8/25/23	Printed Name: Jen Dawkins Date: 8/28/23	Printed Name: Date:
Company: Shannon & Wilson Inc	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1120	Signature: Time:	Signature: Jordan Time: 0953
Printed Name: Jen Dawkins Date: 8/25/23	Printed Name: Date:	Printed Name: Jordan Creech Date: 08/29/23
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Temp: 2.6 °C

No. 411792

SGS

1234625

SAMPLE RECEIPT FORM

Project Manager Completion				
Was all necessary information recorded on the COC upon receipt? (temperature, COC seals, etc.?)	Yes	No	N/A	
Was temperature between 0-6° C?	Yes	No	N/A	If "No", are the samples either exempt* or sampled <8 hours prior to receipt?
Were all analyses received within holding time*?	Yes	No	N/A	
Was a method specified for each analysis, where applicable? If no, please note correct methods.	Yes	No	N/A	
Are compound lists specified, where applicable? For project specific or special compound lists please note correct analysis code.	Yes	No	N/A	
If rush was requested by the client, was the requested TAT approved?	Yes	No	N/A	If "NO", what is the approved TAT?
If SEDD Deliverables are required, were Location ID's and an NPDL Number provided?	Yes	No	N/A	*If "NO", contact client for information.*
Sample Login Completion				
Do ID's on sample containers match COC?	Yes	No	N/A	
If provided on containers, do dates/times collected match COC?	Yes	No	N/A	Note: If times differ <1 hr., record details below and login per COC.
Were all sample containers received in good condition?	Yes	No	N/A	
Were proper containers (type/mass/volume/preservative) received for all samples? **See form F-083 "Sample Guide"*	Yes	No	N/A	*Note: If 200.8/6020 Total Metals are received unpreserved, preserve and note HNO3 lot here: If 200.8/6020 Dissolved Metals are received unpreserved, log in for LABFILTER and do not preserve. For all non-metals methods, inform Project Manager.*
Were Trip Blanks (VOC, GRO, Low-Level Hg, etc.) received with samples, where applicable*?	Yes	No	N/A	
Were all VOA vials free of headspace >6mm?	Yes	No	N/A	
Were all soil VOA samples received field extracted with Methanol?	Yes	No	N/A	
Did all soil VOA samples have an accompanying unpreserved container for % solids?	Yes	No	N/A	
If special handling is required, were containers labelled appropriately? e.g. MI/ISM, foreign soils, lab filter, Ref Lab, limited volume	Yes	No	N/A	MI
For Rush/Short Holding time, was the lab notified?	Yes	No	N/A	
For any question answered "NO", was the Project Manager notified?	Yes	No	N/A	PM Initials:
Was Peer Review of sample numbering/labelling completed?	Yes	No	N/A	Reviewer Initials: JC.
Additional Notes/Clarification where Applicable, including resolution of "No" answers when a change order is not attached:				

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1234625001-A	No Preservative Required	OK			
1234625001-B	No Preservative Required	OK			
1234625001-C	No Preservative Required	OK			
1234625001-D	No Preservative Required	OK			
1234625002-A	No Preservative Required	OK			
1234625002-B	No Preservative Required	OK			
1234625002-C	No Preservative Required	OK			
1234625002-D	No Preservative Required	OK			
1234625003-A	No Preservative Required	OK			
1234625003-B	No Preservative Required	OK			
1234625003-C	No Preservative Required	OK			
1234625003-D	No Preservative Required	OK			
1234625004-A	No Preservative Required	OK			
1234625004-B	No Preservative Required	OK			
1234625004-C	No Preservative Required	OK			
1234625004-D	No Preservative Required	OK			
1234625005-A	No Preservative Required	OK			
1234625005-B	No Preservative Required	OK			
1234625005-C	No Preservative Required	OK			
1234625005-D	No Preservative Required	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Kristen Freiburger	**CS Site Name:**	N/A	**Lab Name:**	SGS
Title:	Associate	**ADEC File No.:**	N/A	**Lab Report No.:**	1234625
Consulting Firm:	S&W	**Hazard ID No.:**	N/A	**Lab Report Date:**	Sept. 20, 2023

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments:

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments:

   b. Were the correct analyses requested?
   Yes ☒ No ☐ N/A ☐
   Analyses requested: Total lead by EPA 6020.
   Comments:

3. **Laboratory Sample Receipt Documentation**

   a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
   Yes ☒ No ☐ N/A ☐

Cooler temperature(s): The cooler was measured within the acceptable temperature range upon receipt at the Fairbanks receiving office and the Anchorage laboratory.
Sample temperature(s): N/A
Comments:

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☒ No ☐ N/A ☐
Comments: The laboratory notes the samples were received in good condition.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
Comments: The laboratory notes the samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?
Yes ☐ No ☐ N/A ☒
Comments: The laboratory notes the samples were received in good condition.

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☐ No ☐ N/A ☒
Comments: There were no discrepancies noted in the case narrative or laboratory report.

c. Were all the corrective actions documented?
Yes ☐ No ☐ N/A ☒
Comments: See above.

d. What is the effect on data quality/usability according to the case narrative?
Comments: N/A; see above. See the following sections for our assessment.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments:

c. Are all soils reported on a dry weight basis?
Yes ☒ No ☐ N/A ☐
Comments:

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☐ No ☐ N/A ☒
Comments: Lead was detected in each sample and therefore a comparison of non-detect results to the cleanup level is not necessary.

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments:

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments:

iii. If above LoQ or RL, what samples are affected?
Comments: N/A; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

v. Data quality or usability affected?

Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
Yes ☐ No ☐ N/A ☒
Comments: Organic analyses were not submitted with this work order.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: LCS samples in conjunction with MS/MSD samples were reported for each metals batch. See the following sections for the assessment of MS/MSD samples.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
Yes ☒ No ☐ N/A ☐
Comments:

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
Yes ☐ No ☐ N/A ☒
Comments: LCSD samples were not reported.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: None, %R were within the acceptable limits.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Organic analyses were not submitted with this work order.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: MS/MSD samples were reported for each batch.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☒ No ☐ N/A ☐
Comments:

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.
Yes ☒ No ☐ N/A ☐
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: None; %R and RPDs were within acceptable limits.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments:

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?
Yes ☐ No ☐ N/A ☒
Comments: Surrogates are not reported for metals analysis.

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK

Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: N/A; see above.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒
Comments: Trip blanks are not required for metals analysis.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

iii. If above LoQ or RL, what samples are affected?
Comments: N/A; see above.

iv. Is the data quality or usability affected?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments: ISM triplicate samples were submitted as the following samples: *SC23-ISM03, SC23-ISM13,* and *SC23-ISM23.*

ii. Was the duplicate submitted blind to lab?
Yes ☒ No ☐ N/A ☐
Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☐ N/A ☒
Comments: For ISM samples, RPD is not calculated. However, the relative standard deviation (RSD) and coefficient of variant (CV) were calculated and within limits.
The RSD = 7.20%
The CV = 0.072

iv. Is the data quality or usability affected? (Explain)
Yes ☐ No ☒ N/A ☐
Comments: The data quality and usability were not affected.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☐ No ☐ N/A ☒
Comments: Reusable equipment was not used between the samples and therefore an equipment blank is not required.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

iii. If above LoQ or RL, specify what samples are affected.
Comments: N/A; see above.

iv. Are data quality or usability affected?
Yes ☐ No ☐ N/A ☒
Comments: N/A; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?
Yes ☐ No ☐ N/A ☒
Comments: No further flagging provided.

IMPORTANT INFORMATION

Important Information

About Your Geotechnical / Environmental Report

IMPORTANT INFORMATION

IMPORTANT INFO HEADING
CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.
Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be

IMPORTANT INFORMATION

kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

IMPORTANT INFORMATION

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the Geoprofessional Business Association (https://www.geoprofessional.org)

Appendix D

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination (PJD) for the Stiles Creek Shooting Range Project

DEPARTMENT OF THE ARMY
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS
REGULATORY DIVISION
P.O. BOX 6898
JBER, AK 99506-0898

June 18, 2024

Regulatory Division
POA-2022-00294

Alaska State Parks
Design and Construction Section
Attn: Chester Fehrmann
550 West 7th Avenue, Suite 1340
Anchorage, Alaska 99501

Dear Mr. Fehrmann,

This letter is in response to your March 27, 2024 request for a Department of the Army (DA) Preliminary Jurisdictional Determination (PJD) for the Stiles Creek Shooting Range Project as described in your submitted application. Your project has been assigned number POA-2022-00294, which should be referred to in all correspondence with our office. The subject property is located approximately 36 miles east of Fairbanks within Sections 13, 14, 23, 24, Township 1 North, Range 6 East, at milepost 36.4 on Chena Hot Springs Road, Latitude 64.908140° North, Longitude -146.453781° West, Fairbanks North Star Borough, Alaska.

Based on our review of the information you provided and available to our office, we have preliminarily determined that the subject property area consisting of wetlands A, B, C, D, E, F, and G may contain waters of the U.S. under the U.S. Army Corps of Engineers (Corps) regulatory jurisdiction. A PJD Form has been completed for this project and is attached. Please sign and return the form to our office. A PJD is not appealable, however, if you have additional information you would like the Corps to consider you may submit that information at any time. In addition, at any time you have the right to request and obtain an Approved Jurisdictional Determination (AJD), which can be appealed. If it is your intent to request an AJD, we recommend that work not commence until one is obtained.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C.

403). Section 10 navigable waters are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark and/or those waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. You can find a copy of the DA permit application online at www.poa.usace.army.mil/Missions/Regulatory.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

If you have questions or to request a hard copy of the DA permit application, please contact me via email at Jonathan.R.Hegna@usace.army.mil, by mail at the address above, by phone at 907-753-2708, or toll free from within Alaska at 800-478-2712. For more information about the Regulatory Program, please visit our website at www.poa.usace.army.mil/Missions/Regulatory.

Sincerely,

Jonathan R. Hegna
Project Manager

Enclosures

1. PJD Form
2. Map of Review Area

To: Chester Fehrmann chester.fehrmann@alaska.gov

Preliminary Jurisdictional Determination Form

This preliminary JD find that there "*may be*" waters of the United States on the subject project site that could be affected by the proposed activity based on the following information:

District Office: Alaska District Office | File/ORM #: POA-2022-00294 | PJD Date: June 18, 2024

State: AK | City/County: Fairbanks North Star Borough

Nearest Waterbody: Chena River

Project Location: Section(s): 13, 14, 23, 24 | Township: 1 N | Range: 6 E | Meridian:

Name and Address of Person Requesting PJD: Alaska State Parks
Design and Construction Section
550 West 7th Avenue, Suite 1340
Anchorage, Alaska 99501

USGS Quad Map: | Latitude: 64.908140° N | Longitude: -146.453781° W

Subdivision Name, Block, Lot, Directions to Project Site: Chena River State Recreation Area, Stiles Creek Shooting Range. Milepost 36.4 Chena Hot Springs Road, Fairbanks, Alaska.

Identify (Estimate) Amount of Waters in the Review Area

Non-Wetland Waters:

Linear ft	Width	Acres	Stream Flow

Wetlands: A,B,C,D,E,F,G

Acres	Cowardin Class:
0.43	Palustrine scrub shrub

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: | Non-Tidal:

☒ Office (Desk) Determination ☐ Field Determination | Date of Site Visit:

SUPPORTING DATA: Data Review for Preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below)

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Submitted application materials dated March 27, 2024.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant. Delineation report dated September 2023.
  - ☒ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data Sheet prepared by the Corps
- ☐ Corps navigable waters' study:
  - ☒ USGS NHD Data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s) Cite quad name: USGS The National Map; 1:9,028
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☒ National Wetlands Inventory map(s): USFWS National Wetlands Inventory Mapper
- ☐ State/Local Wetland Inventory map(s):
- ☐ FEMA/FIRM map(s):
- ☐ 100-year Floodplain Elevation:
- ☒ Photographs:
  - ☒ Aerial (Name & Date) Google Earth Pro Imagery, Alaska Geoportal Imagery
  - ☐ Other (Name & Date)
- ☐ Previous determination(s). File # and date of response letter:
- ☐ Other Information:

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Chet Fehrmann
ADNR-DPOR D&C

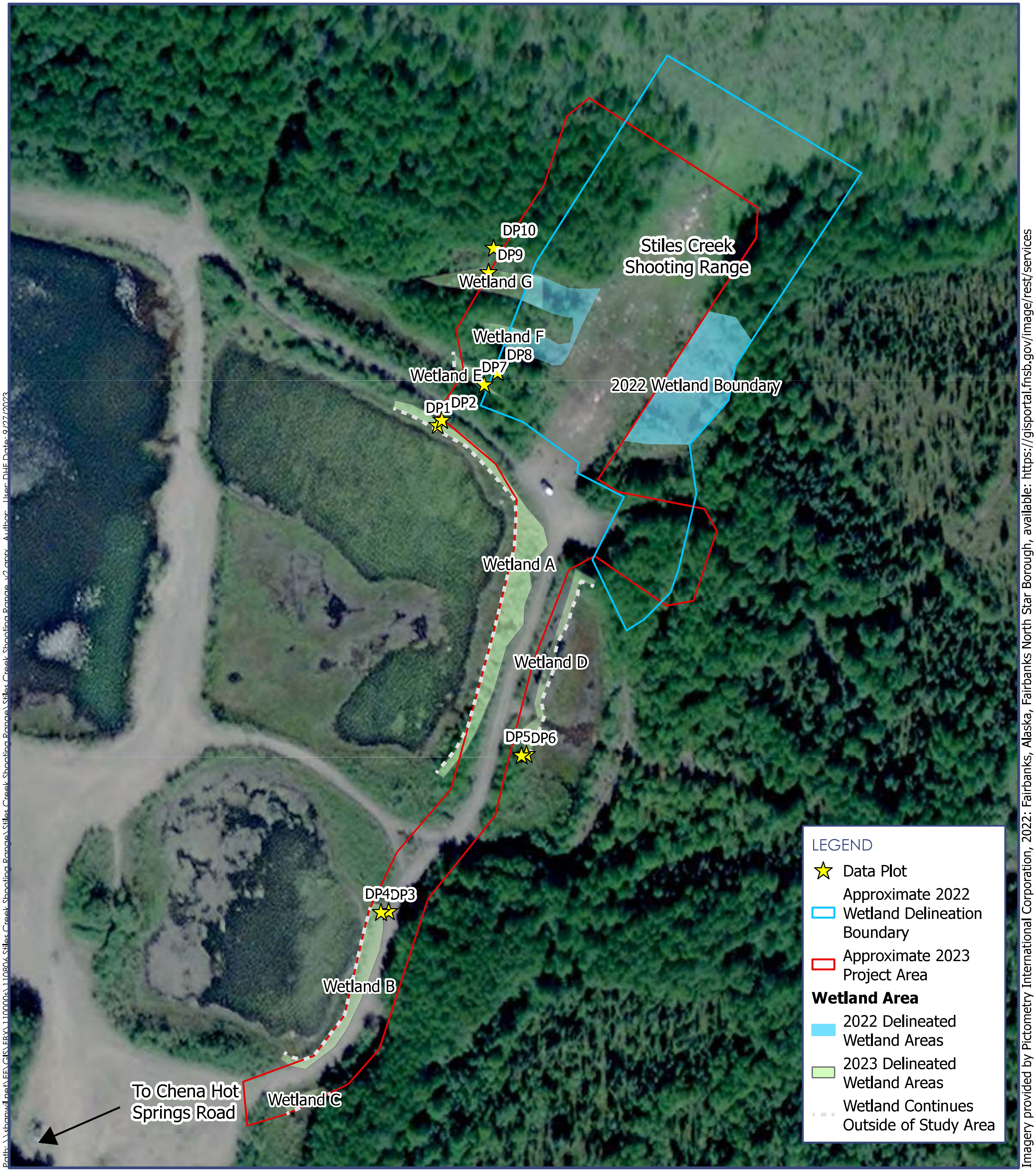
Jonathan Hegna June 18, 2024

Signature and Date of Regulatory Project Manager (REQUIRED)

6/20/2024

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS: 1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time. 2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.



N
0 100
Feet

September 2023

PROJECT AREA AND WETLANDS

Figure 2

Appendix E

Target Practice and Marksmanship Training Support Act, Public Law 116–17—May 10, 2019

PUBLIC LAW 116–17—MAY 10, 2019

TARGET PRACTICE AND MARKSMANSHIP TRAINING SUPPORT ACT

Public Law 116–17
116th Congress

An Act

May 10, 2019
[H.R. 1222]

To amend the Pittman-Robertson Wildlife Restoration Act to facilitate the establishment of additional or expanded public target ranges in certain States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Target Practice and Marksmanship Training Support Act.
16 USC 669 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Target Practice and Marksmanship Training Support Act".

16 USC 669a note.

SEC. 2. FINDINGS; PURPOSE.

(a) FINDINGS.—Congress finds that—

(1) the use of firearms and archery equipment for target practice and marksmanship training activities on Federal land is allowed, except to the extent specific portions of that land have been closed to those activities;

(2) in recent years preceding the date of enactment of this Act, portions of Federal land have been closed to target practice and marksmanship training for many reasons;

(3) the availability of public target ranges on non-Federal land has been declining for a variety of reasons, including continued population growth and development near former ranges;

(4) providing opportunities for target practice and marksmanship training at public target ranges on Federal and non-Federal land can help—

(A) to promote enjoyment of shooting, recreational, and hunting activities; and

(B) to ensure safe and convenient locations for those activities;

(5) Federal law in effect on the date of enactment of this Act, including the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. 669 et seq.), provides Federal support for construction and expansion of public target ranges by making available to States amounts that may be used for construction, operation, and maintenance of public target ranges; and

(6) it is in the public interest to provide increased Federal support to facilitate the construction or expansion of public target ranges.

(b) PURPOSE.—The purpose of this Act is to facilitate the construction and expansion of public target ranges, including ranges on Federal land managed by the Forest Service and the Bureau of Land Management.

SEC. 3. DEFINITION OF PUBLIC TARGET RANGE.

16 USC 669a note.

In this Act, the term "public target range" means a specific location that—

(1) is identified by a governmental agency for recreational shooting;

(2) is open to the public;

(3) may be supervised; and

(4) may accommodate archery or rifle, pistol, or shotgun shooting.

SEC. 4. AMENDMENTS TO PITTMAN-ROBERTSON WILDLIFE RESTORATION ACT.

(a) DEFINITIONS.—Section 2 of the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. 669a) is amended—

(1) by redesignating paragraphs (2) through (8) as paragraphs (3) through (9), respectively; and

(2) by inserting after paragraph (1) the following:

"(2) the term 'public target range' means a specific location that—

"(A) is identified by a governmental agency for recreational shooting;

"(B) is open to the public;

"(C) may be supervised; and

"(D) may accommodate archery or rifle, pistol, or shotgun shooting;".

(b) EXPENDITURES FOR MANAGEMENT OF WILDLIFE AREAS AND RESOURCES.—Section 8(b) of the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. 669g(b)) is amended—

(1) by striking "(b) Each State" and inserting the following:

"(b) EXPENDITURES FOR MANAGEMENT OF WILDLIFE AREAS AND RESOURCES.—

"(1) IN GENERAL.—Except as provided in paragraph (2), each State";

(2) in paragraph (1) (as so designated), by striking "construction, operation," and inserting "operation";

(3) in the second sentence, by striking "The non-Federal share" and inserting the following:

"(3) NON-FEDERAL SHARE.—The non-Federal share";

(4) in the third sentence, by striking "The Secretary" and inserting the following:

"(4) REGULATIONS.—The Secretary"; and

(5) by inserting after paragraph (1) (as designated by paragraph (1) of this subsection) the following:

"(2) EXCEPTION.—Notwithstanding the limitation described in paragraph (1), a State may pay up to 90 percent of the cost of acquiring land for, expanding, or constructing a public target range.".

(c) FIREARM AND BOW HUNTER EDUCATION AND SAFETY PROGRAM GRANTS.—Section 10 of the Pittman-Robertson Wildlife Restoration Act (16 U.S.C. 669h–1) is amended—

(1) in subsection (a), by adding at the end the following:

"(3) ALLOCATION OF ADDITIONAL AMOUNTS.—Of the amount apportioned to a State for any fiscal year under section 4(b), the State may elect to allocate not more than 10 percent, to be combined with the amount apportioned to the State under paragraph (1) for that fiscal year, for acquiring land for, expanding, or constructing a public target range.";

(2) by striking subsection (b) and inserting the following:
"(b) COST SHARING.—

"(1) IN GENERAL.—Except as provided in paragraph (2), the Federal share of the cost of any activity carried out using a grant under this section shall not exceed 75 percent of the total cost of the activity.

"(2) PUBLIC TARGET RANGE CONSTRUCTION OR EXPANSION.—The Federal share of the cost of acquiring land for, expanding, or constructing a public target range in a State on Federal or non-Federal land pursuant to this section or section 8(b) shall not exceed 90 percent of the cost of the activity."; and

(3) in subsection (c)(1)—

(A) by striking "Amounts made" and inserting the following:

"(A) IN GENERAL.—Except as provided in subparagraph (B), amounts made"; and

(B) by adding at the end the following:

Time period.
Effective date.

"(B) EXCEPTION.—Amounts provided for acquiring land for, constructing, or expanding a public target range shall remain available for expenditure and obligation during the 5-fiscal-year period beginning on October 1 of the first fiscal year for which the amounts are made available.".

SEC. 5. SENSE OF CONGRESS REGARDING COOPERATION.

It is the sense of Congress that, consistent with applicable laws and regulations, the Chief of the Forest Service and the Director of the Bureau of Land Management should cooperate with State and local authorities and other entities to carry out waste removal and other activities on any Federal land used as a public target range to encourage continued use of that land for target practice or marksmanship training.

Approved May 10, 2019.

LEGISLATIVE HISTORY—H.R. 1222 (S. 94):

SENATE REPORTS: No. 116–8 (Comm. on Environment and Public Works) accompanying S. 94.

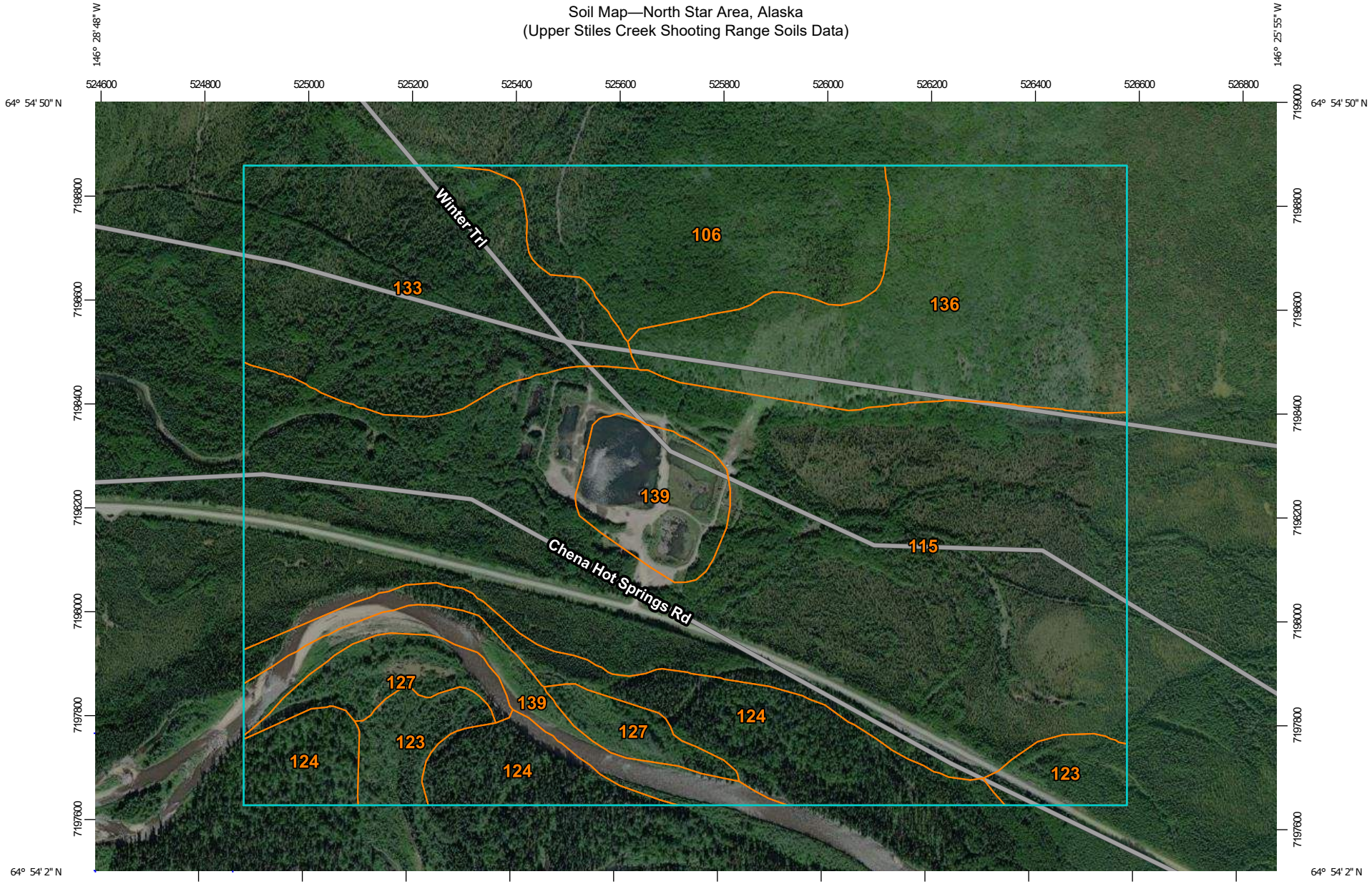
CONGRESSIONAL RECORD, Vol. 165 (2019):
Apr. 29, considered and passed House.
Apr. 30, considered and passed Senate.

○

Appendix F

USDA Soils Information

Soil Map—North Star Area, Alaska
(Upper Stiles Creek Shooting Range Soils Data)



Map Scale: 1:10,400 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 6N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: North Star Area, Alaska
Survey Area Data: Version 22, Sep 15, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 16, 2010—Aug 6, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
106	Ester-Gilmore complex, 15 to 45 percent slopes	46.0	8.8%
115	Goldstream peat, 0 to 3 percent slopes	213.7	41.1%
123	Jarvis-Stratify complex, 0 to 3 percent slopes	16.5	3.2%
124	Jarvis-Salchaket complex, 0 to 3 percent slopes	53.0	10.2%
127	Riverwash	17.6	3.4%
133	Saulich-Fairbanks complex, 3 to 12 percent slopes	67.2	12.9%
136	Steese-Gilmore complex, 10 to 45 percent slopes	73.4	14.1%
139	Water	32.7	6.3%
Totals for Area of Interest		**520.1**	**100.0%**

Soil Data Access (SDA) Prime and other Important Farmlands

An SDA-populated select list is used to pick a state and SSA which enables creation of a "Prime and other Important Farmlands" based upon those selections. The data is not static; it hits Soil Data Access Live. To reset the table hit F5 on the keyboard. Once a survey is selected and table appears, if a new survey is selected it will append to the table at the bottom. For more information about the table,

Alaska

selected stateId = AK

Greater Fairbanks Area, Alaska

selected SSA areasymbol = AK610

State_Sym	Area_Symbol	Area_Name	mukey	Mapunit_SYM	Mapunit_Name	Farm_Class
AK	AK610	Greater Fairbanks Area, Alaska	692855	101	Bolio peat	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692861	102	Bradway very fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692868	103	Chatanika mucky silt loam, 0 to 3 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692869	104	Chatanika mucky silt loam, 3 to 7 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692870	105	Chatanika mucky silt loam, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692871	106	Chatanika mucky silt loam, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692905	107	Chatanika-Goldstream complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692867	108	Chena very fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692932	109	Dumps, landfill	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692933	110	Dumps, mine	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692902	111	Eielson fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area,	692863	112	Eielson-Piledriver complex	Not prime farmland

		Alaska				
AK	AK610	Greater Fairbanks Area, Alaska	692901	113	Eielson-Tanana complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692894	114	Ester peat, 20 to 45 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692893	115	Ester peat, very steep	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692875	116	Fairbanks silt loam, 3 to 7 percent slopes	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692876	117	Fairbanks silt loam, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692878	118	Fairbanks silt loam, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692879	119	Fairbanks silt loam, 20 to 30 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692880	120	Fairbanks silt loam, 30 to 45 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692877	121	Fairbanks silt loams, strongly sloping and steep	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692917	122	Fairbanks-Steese complex, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692918	123	Fairbanks-Steese complex, 20 to 30 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692911	124	Stratify-Piledriver complex, occasionally flooded	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692887	125	Gilmore silt loam, 3 to 7 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692888	126	Gilmore silt loam, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692889	127	Gilmore silt loam, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692890	128	Gilmore silt loam, 20 to 30 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area,	692891	129	Gilmore silt loam, 30 to 45 percent slopes	Not prime farmland

		Alaska				
AK	AK610	Greater Fairbanks Area, Alaska	692892	130	Gilmore silt loam, 45 to 70 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692923	131	Gilmore-Ester complex, 12 to 70 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692924	132	Gilmore-Steese complex, 3 to 15 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692858	133	Goldstream peat, 0 to 3 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692859	134	Goldstream peat, 3 to 7 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692906	135	Goldstream-Histels complex, 0 to 3 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692854	136	Histels	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692866	137	Jarvis fine sandy loam	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692909	138	Jarvis-Chena complex	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692912	139	Jarvis-Salchaket complex	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692856	140	Lemeta peat	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692927	141	Liscum-Noonku complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692872	142	Minto silt loam, 0 to 3 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692873	143	Minto silt loam, 3 to 7 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692874	144	Minto silt loam, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692913	145	Minto-Chatanika complex, 0 to 3 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area,	692914	146	Minto-Chatanika complex, 3 to 7 percent slopes	Not prime farmland

		Alaska				
AK	AK610	Greater Fairbanks Area, Alaska	692915	147	Minto-Chatanika complex, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692916	148	Minto-Chatanika complex, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692857	149	Mosquito mucky peat	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692929	150	Mosquito-Noonku complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692903	151	Noonku very fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692865	152	North Pole fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692904	153	North Pole-Mosquito-Liscum complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692908	154	North Pole-Noonku complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692898	155	Peede silt loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692900	156	Peede-Mosquito complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692899	157	Piledriver very fine sandy loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692928	158	Piledriver-Eielson complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692910	159	Piledriver-Stratify complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692931	160	Pits, gravel	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	825072	161	Pits, quarry	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692934	162	Riverwash	Not prime farmland
AK	AK610	Greater Fairbanks Area,	692864	163	Salchaket very fine sandy loam	Farmland of local

		Alaska				importance
AK	AK610	Greater Fairbanks Area, Alaska	692938	164	Salchaket-Typic Cryorthents complex	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692895	165	Saulich peat, 3 to 7 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692896	166	Saulich peat, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692897	167	Saulich peat, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692925	168	Saulich-Minto complex, 3 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692926	169	Saulich-Minto complex, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692881	170	Steese silt loam, 3 to 7 percent slopes	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692882	171	Steese silt loam, 7 to 12 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692883	172	Steese silt loam, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692884	173	Steese silt loam, 20 to 30 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692885	174	Steese silt loam, 30 to 45 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692886	175	Steese silt loam, 45 to 70 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692919	176	Steese-Gilmore complex, 12 to 20 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692920	177	Steese-Gilmore complex, 20 to 30 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692921	178	Steese-Gilmore complex, 30 to 45 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692922	179	Steese-Gilmore complex, 45 to 70 percent slopes	Not prime farmland
AK	AK610	Greater Fairbanks Area,	692860	180	Tanacross peat	Not prime farmland

		Alaska				
AK	AK610	Greater Fairbanks Area, Alaska	692862	181	Tanana mucky silt loam	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692907	182	Tanana-Mosquito complex	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692937	183	Typic Cryaquent, Histic Cryaquept, and Terric Cryofibrist soils	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692930	184	Typic Cryorthents, pit spoil	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692935	185	Typic Cryorthents-Urban land complex	Farmland of local importance
AK	AK610	Greater Fairbanks Area, Alaska	692939	186	Urban land	Not prime farmland
AK	AK610	Greater Fairbanks Area, Alaska	692936	187	Water	Not prime farmland

Report Metadata: Back to top

- **Area_Symbol:** A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Dane Co., Wisconsin is WI025).
- **Area_Name:** The name given to the specified geographic area.
- **mukey:** A non-connotative string of characters used to uniquely identify a record in the Mapunit table.
- **Mapunit_SYM:** The symbol used to uniquely identify the soil mapunit in the soil survey.
- **Mapunit_Name:** Correlated name of the mapunit (recommended name or field name for surveys in progress).
- **Prime and other Important Farmlands:** Identification of map units as prime farmland, farmland of statewide importance, or farmland of local importance.

Prime and other Important Farmlands Description:

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available

for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be farmland of local importance for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Appendix G

Stiles Creek Geotechnical Report

Geotechnical Investigation Field Report

Date:	02-03-2023	**Field Visit Date:**	02-02-2023
Project:	Stiles Creek Shooting Range Pavilion	**Field Visit Time:**	11:00 am
Location:	Stiles Creek Shooting Range, 36 Mile Chena Hot Springs Road	**Weather:**	10°F and Snowing
Present at Site:	Isaac Ladines, Taylor Tharp, Ron Drumhiller		

The following field report documents the results of a geotechnical investigation performed for the Stiles Creek Shooting Range Pavilion in Fairbanks, Alaska. The purpose of the investigation was to obtain a general understanding of the subsurface conditions. Based off the topography and location adjacent to gravel pits used to construct the Chena Hot Springs Road, it is likely that the first few feet at the drilling locations are overburden from the original gravel extraction.

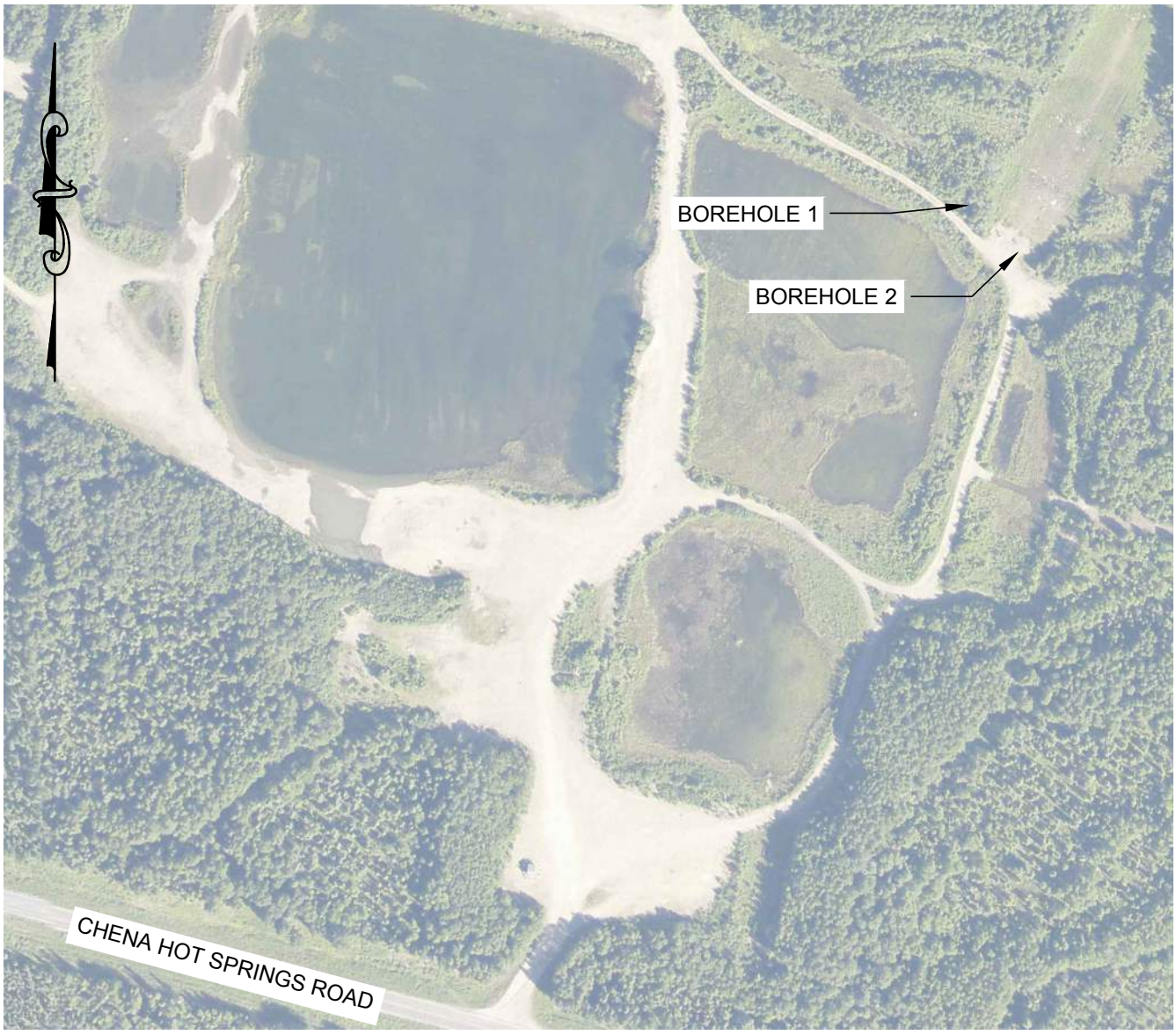
Two boreholes were performed. BH-1 was advanced within the western footprint of the proposed pavilion while BH-2 was advanced within the eastern footprint. The borings were advanced with a truck mounted auger. Borehole data is attached to this report and findings discussed below.

BH-1 encountered a vegetative mat a few inches thick followed by frozen silt with organic debris through the first 3’ beneath the snowpack. At 3-5’ the material transitioned to a frozen silty gravel then to a thawed silty gravel with slightly larger aggregate before hitting groundwater at an approximate 6’ depth. From 7’ to 14’ the consistency of the material was a saturated poorly graded gravel with silt and some sand. The gravel appeared alluvial in nature with round rocks up to 1" in size and smaller subrounded rocks.

BH-2 similarity encountered frozen silt with organic debris to the first 3’. From 3-5’ frozen silty gravel was encountered before transitioning to a thawed silty gravel just before hitting ground water at approximately 6’. From 7-15’ there was a significant amount of free water and the material was composed mostly of poorly graded gravel with silt with some sand. The gravel appeared lighter in color but overall similar to what was discovered in BH-1.

Figure 1: BH-1 Bottom of boring material.

Figure 2: BH-2 Bottom of boring material.



2/3/2023 3:54 PM STILES CREEK BORING LOACTIONS.DWG

Design Alaska

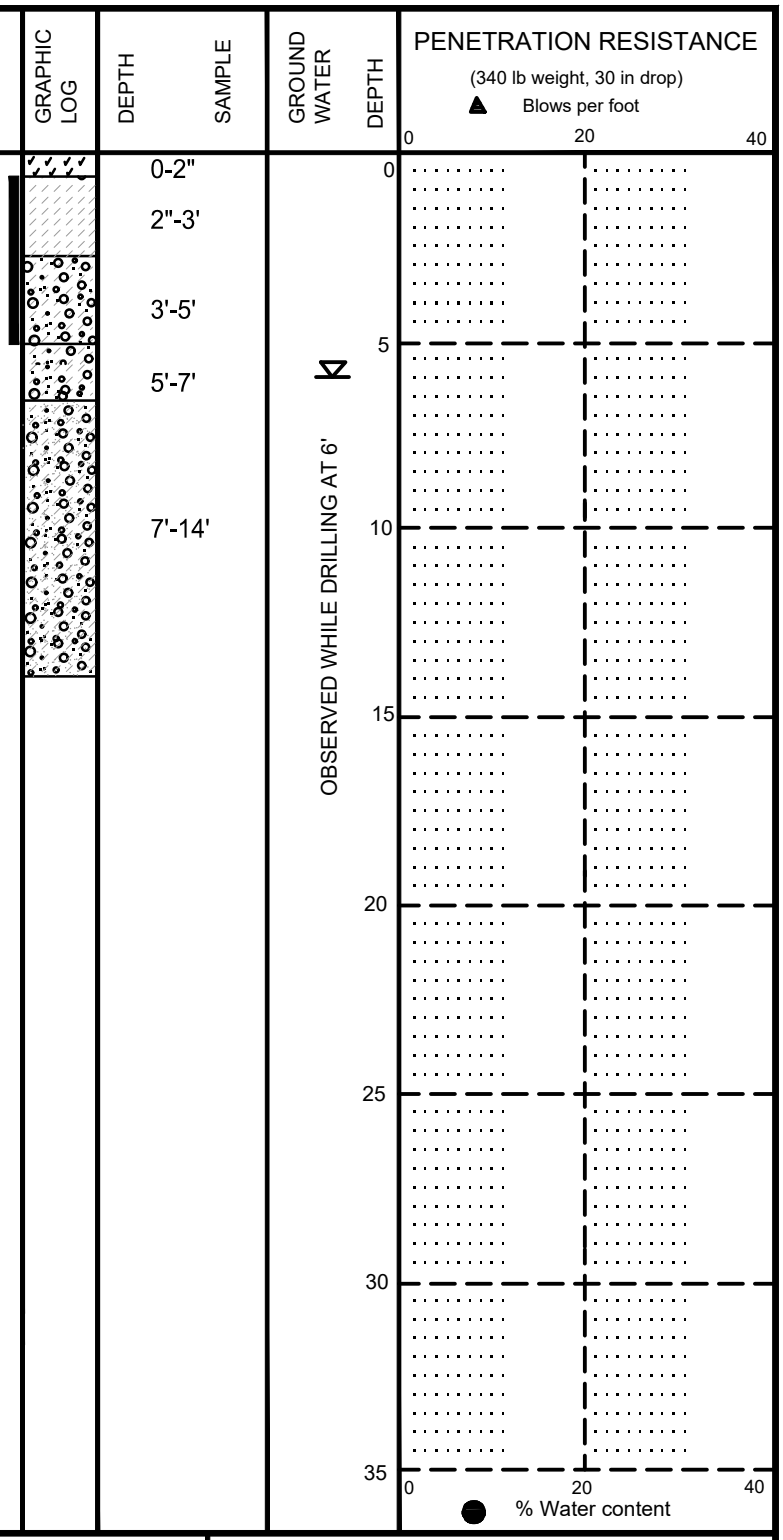
Architects • Engineers • Surveyors
601 College Road Fairbanks AK 99701
907.452.1241 AECC511 designalaska.com

STILES CREEK SHOOTING RANGE BORE HOLE LOCATIONS
SCALE 1" = 200'

ISSUE DATE	10-FEB-2023
COMM. NUMBER	862203
DESIGNED BY	-
DRAWN BY	IAL

0" 1"

SOIL DESCRIPTION	DEPTH / SAMPLE
Surface Elevation: UNKNOWN	
ORGANICS/VEGETATION	0-2"
FROZEN SILT W/ORGANICS (OH/OL)	2"-3"
FROZEN SILTY GRAVEL (GM)	3'-5'
SILTY GRAVEL (GM)	5'-7'
POORLY GRADED GRAVEL WITH SILT AND SOME SAND (GP)	7'-14'



Legend

Frozen Ground

Gravel
Sand
Silt
Clay
Peat
Organic Content

Water level

1 Sample number

* Sample not recovered

Note: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

PROJECT: STILES CREEK SHOOTING RANGE

LOG OF BORING No. 1

DATE DRILLED: 2-2-23
LOGGED BY: IAL
DRILLING METHOD: AUGER
DRILL RIG TYPE: TRUCK MOUNTED
DRILLED BY: RON (THE DRILLING COMPANY)
SURFACE ELEVATION: UNKNOWN
COMMENTS: ADJACENT BLACK SPRUCE AND SOME WILLOW

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

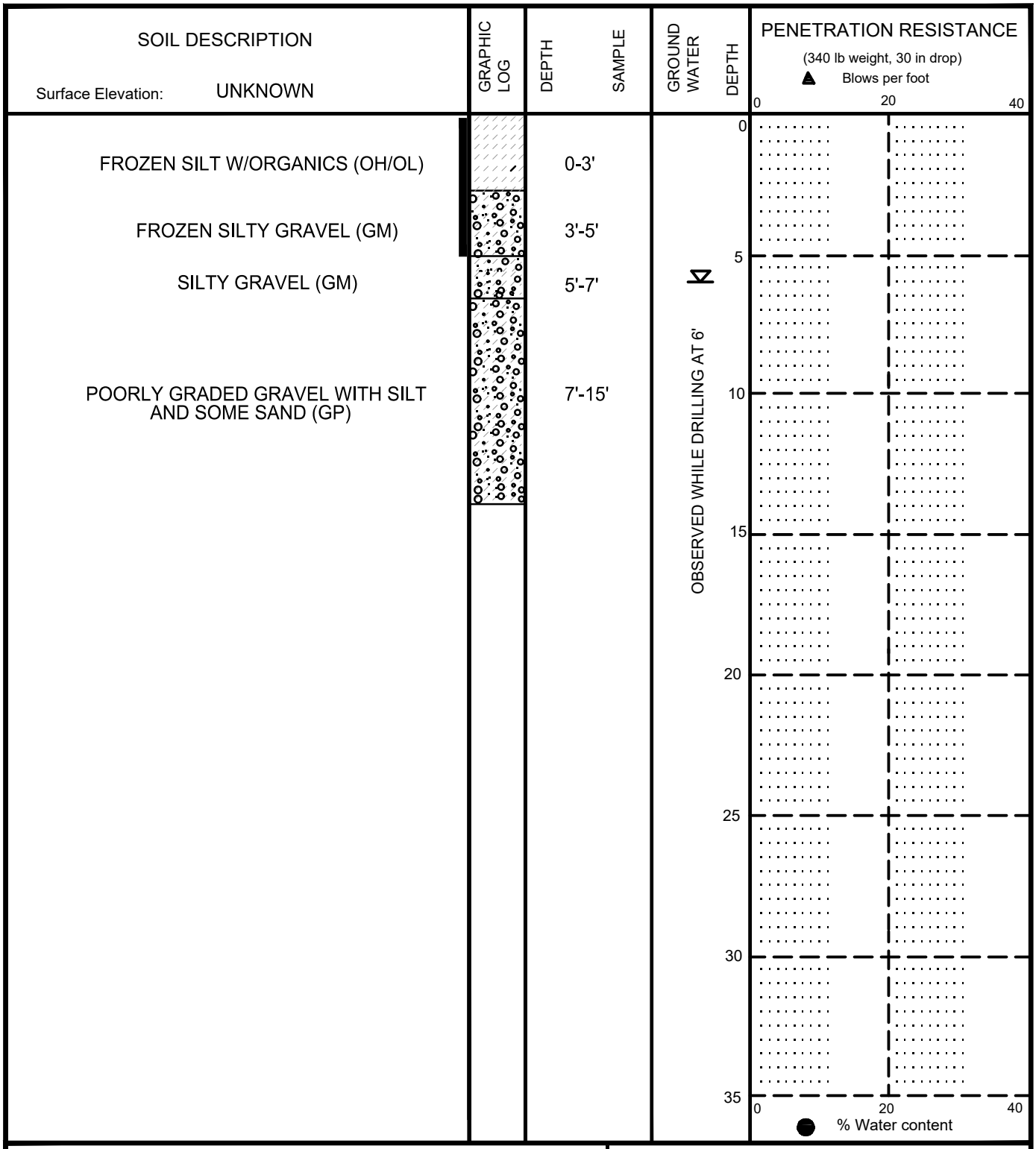
PROJ. NO: 862203

DRAWN BY: IAL

DATE: 2/3/2023

FIG.

X:\ACAD\LIB\CIVIL\Master Borelog.dwg 03/13/02 02:03:50 PM AST



Legend

Frozen Ground

Gravel
Sand
Silt
Clay
Peat
Organic Content

Water level

1 Sample number

* Sample not recovered

Note: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

PROJECT: STILES CREEK SHOOTING RANGE

LOG OF BORING No. 2

DATE DRILLED: 2-2-23
LOGGED BY: IAL
DRILLING METHOD: AUGER
DRILL RIG TYPE: TRUCK MOUNTED
DRILLED BY: RON (THE DRILLING COMPANY)
SURFACE ELEVATION: UNKNOWN
COMMENTS: ADJACENT BLACK SPRUCE AND SOME WILLOW

Design Alaska
Architects Engineers Surveyors
601 College Road Fairbanks, Alaska 99701
Telephone 907 452 1241

PROJ. NO: 862203

DRAWN BY: IAL

DATE: 2/3/2023

FIG.

X:\ACAD\LIB\CIVIL\Master Borelog.dwg 03/13/02 02:03:50 PM AST

Appendix H

FEMA Flood Information

Project location

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL. 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all permanent features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Planning Department
The Fairbanks N. S. Borough Administrative Building
809 Pioneer Road
Fairbanks, Alaska 99707
(Maps available for reference only, not for distribution)

INITIAL IDENTIFICATION:
JUNE 25, 1969

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 25, 1969

FLOOD INSURANCE RATE MAP REVISIONS:
JULY 1, 1974: to change Zone Designations.
OCTOBER 3, 1975: to reflect Curvilinear Flood Boundary.
DECEMBER 9, 1977: to add Special Flood Hazard Areas; and to include areas of the Fairbanks and vicinity FIRM.
SEPTEMBER 11, 1978: to change Zone Designations due to construction of Levees and Dams; and removal of Base Flood Elevations.
May revised January 2, 1992 to add base flood elevations; to change special flood hazard areas; to delete special flood hazard areas; to change zone designations; to update map format; to add roads and road names and to reflect updated topographic information.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN MILES
1 0 1

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

FAIRBANKS
NORTH STAR BOROUGH,
ALASKA

PANEL 125 OF 400
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
025009 0125 E

MAP REVISED:
JANUARY 2, 1992

Federal Emergency Management Agency

Community Status Book Report

Communities Participating in the National Flood Program

ALASKA

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
020005#	ANCHORAGE, MUNICIPALITY OF	ANCHORAGE MUNICIPALITY	06/09/70	09/05/79	09/25/09	09/05/79	No	10/01/95	05/01/20	7	15%	05%
	INCLUDES CHUGIAK, EAGLE RIVER, GIRDWOOD, EKLUTNA AND THE HISTORIC CITY & BOROUGH OF ANCHORAGE.											
020033#	ANIAK, CITY OF	BETHEL CENSUS AREA	09/05/78	04/02/90	09/29/06	04/02/90	No					
020104#	BETHEL, CITY OF	BETHEL CENSUS AREA	06/28/74	03/16/76	09/25/09	03/16/76	No					
020037A	CORDOVA, CITY OF	VALDEZ-CORDOVA CENSUS AREA	05/24/77	04/02/79	12/16/15	04/02/79	No					
020041#	DILLINGHAM, CITY OF	DILLINGHAM CENSUS AREA	05/31/74	09/30/82	09/30/82	09/30/82	No					
020125#	EMMONAK, CITY OF	WADE HAMPTON CENSUS AREA		09/21/98	09/25/09	09/21/98	No					
025009E	FAIRBANKS NORTH STAR BOROUGH	FAIRBANKS NORTH STAR BOROUGH		06/25/69	09/18/20	05/15/70	No					
	INCLUDES CITY OF FAIRBANKS & VICINITY & NORTH POLE											
020045#	FORT YUKON, CITY OF	YUKON-KOYUKUK CENSUS AREA		02/03/10	02/03/10	02/03/10	No					
020124#	GALENA, CITY OF	YUKON-KOYUKUK CENSUS AREA	10/12/82	03/01/84	03/01/84	03/01/84	No					
020007	HAINES BOROUGH	HAINES BOROUGH	05/31/74	05/01/87	05/01/87(L)	02/02/05	No					
	NOW INCLUDES THE DEFUNCT COMMUNITY OF HAINES CITY OF AS OF 10/17/2002. ON 9/1/2004 THE BOROUGH ADOPTED FHBM OF AUGUST 22, 1975 INITIALLY DEVELOPED FOR THE CITY OF HAINES WHICH WAS SUBSEQUENTLY CONVERTED TO A FIRM BY LETTER.											
020107B	HOMER, CITY OF	KENAI PENINSULA BOROUGH	05/19/81	06/16/99	10/20/16	06/02/03	No	05/01/16	10/01/20	9	05%	05%
020049#	HOONAH, CITY OF	SKAGWAY-HOONAH-ANGOON CENSUS A	06/07/74	04/02/79	06/04/10	04/02/79	No					
020009B	JUNEAU, CITY AND BOROUGH OF	JUNEAU CITY AND BOROUGH	05/09/70	02/04/81	09/18/20	02/04/81	No					
	INCLUDES THE CITY OF DOUGLAS.											
020012B	KENAI PENINSULA BOROUGH	KENAI PENINSULA BOROUGH		05/19/81	10/20/16	11/20/86	No	05/01/00	10/01/20	9	05%	05%
	INCLUDES THE CITIES OF SELDOVIA AND KACHEMAK.											
020114B	KENAI, CITY OF	KENAI PENINSULA BOROUGH	06/14/74	05/19/81	10/20/16	11/30/22	No					
	FORMERLY PARTICIPATED UNDER THE BOROUGH OF KENAI PENINSULA'S APPLICATION. CURRENTLY NOT PARTICIPATING IN THE NFIP. FAILED TO ADOPT REQUIRED MEASURES.											
020003#	KETCHIKAN GATEWAY BOROUGH	KETCHIKAN GATEWAY BOROUGH	05/09/78	04/16/90	04/16/90	04/16/90	No	10/01/05	05/01/16	10		0%
	INCLUDES THE CITIES OF KETCHIKAN AND SAXMAN											
020013	KETCHIKAN, CITY OF	KETCHIKAN GATEWAY BOROUGH					No					
	INCLUDES THE CITIES OF KETCHIKAN AND SAXMAN											
020059#	KOTZEBUE, CITY OF	NORTHWEST ARCTIC BOROUGH	06/21/74	07/18/83	07/18/83	07/18/83	No					
020127	KOYUKUK, CITY OF	YUKON-KOYUKUK CENSUS AREA				01/15/02(E)	No					
020130	KWETHLUK, CITY OF	BETHEL CENSUS AREA				10/26/99(E)	No					
025063#	LAKE AND PENINSULA BOROUGH	LAKE AND PENINSULA BOROUGH		02/03/10	02/03/10	02/03/10	No					
020021B	MATANUSKA-SUSITNA, BOROUGH OF	MATANUSKA-SUSITNA BOROUGH	02/28/78	05/01/85	09/27/19	05/01/85	No					
	INCLUDES THE INCORPORATED AREAS OF THE CITIES OF HOUSTON, PALMER AND WASILA.											
020128#	MCGRATH, CITY OF	YUKON-KOYUKUK CENSUS AREA		10/04/11	10/04/11	10/04/11	No					
025010#	NENANA, CITY OF	YUKON-KOYUKUK CENSUS AREA		06/09/72	04/07/99	06/09/72	No					
020069#	NOME, CITY OF	NOME CENSUS AREA	06/28/74	09/01/83	05/03/10	09/01/83	No	10/01/05	05/01/20	8	10%	05%
020121	NORTHWEST ARCTIC BOROUGH	NORTHWEST ARCTIC BOROUGH				05/17/05(E)	No					
020074#	PETERSBURG, CITY OF	WRANGELL-PETERSBURG CENSUS ARE	06/14/74	06/01/82	06/01/82	06/01/82	No					

Community Status Book Report

Communities Participating in the National Flood Program

ALASKA

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
020113B	SEWARD, CITY OF	KENAI PENINSULA BOROUGH		05/19/81	10/20/16	11/20/86	No	10/01/05	10/01/20	10		0%
	THE CITY OF SEWARD HAS ADOPTED THE KENAI PENINSULA BOROUGH (020012) FIRM.											
020084#	SHISHMAREF, CITY OF	NOME CENSUS AREA		05/03/10	05/03/10	08/23/01	No					
020006B	SITKA, CITY AND BOROUGH OF	SITKA CITY AND BOROUGH	06/28/74	06/01/82	08/01/19	06/01/82	No					
025011	SKAGWAY, CITY OF	SKAGWAY-HOONAH-ANGOON CENSUS A	09/09/70	03/01/77	03/01/77	03/01/77	No					
020090#	TOGIAK, CITY OF	DILLINGHAM CENSUS AREA	05/10/77	02/03/10	02/03/10	05/21/09	No					
020094B	VALDEZ, CITY OF	VALDEZ-CORDOVA CENSUS AREA	11/01/74	09/03/80	01/03/19	09/03/80	No	10/01/92	05/01/20	8	10%	05%

Summary:

Total In Flood Program	33
Total In Emergency Program	3
Total In the Regular Program	29
Total In Regular Program with No Special Flood Hazard	0
Total In Regular Program But Minimally Flood Prone	1

Community Status Book Report

Communities Not in the National Flood Program

ALASKA

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Sanction Date	Tribal	CRS Entry Date	Curr Eff Date	Curr Class	% Disc SFHA	% Disc Non SFHA
020040#	DELTA JUNCTION, CITY OF	SOUTHEAST FAIRBANKS CENSUS ARE	10/25/77	09/16/82	09/16/82	02/01/16(W)	No					
020014#	SOLDOTNA, CITY OF	KENAI PENINSULA BOROUGH	06/14/74	12/06/99	12/06/99	06/14/75	No					
020098#	WRANGELL, CITY AND BOROUGH OF	WRANGELL-PETERSBURG CENSUS ARE	06/28/74	06/15/82	06/15/82	06/15/82(S)	No					

Summary:

Total Not in Flood Program	3
Total Suspended from Emergency Program	0
Total Suspended from Regular Program	1
Total Withdrawn Communities Not In Program	1
Total Not In Program With Hazard Area Identified	3
Total Not In Program With Hazard Area Identified < 1 Year	0

Legend:

(E)	Indicates Entry In Emergency Program
NSFHA	No Special Flood Hazard Area - All Zone C
(>)	Date of Current Effective Map is after the Date of This Report
N/A	Not Applicable At This Time
(S)	Suspended Community
(W)	Withdrawn Community
(M)	No Elevation Determined - All Zone A, C and X
(L)	Original FIRM by Letter - All Zone A, C and X

Appendix I

NOAA FNSB Average Precipitation

Monthly Total P cipitation for FAIRBANKS INTL AP, AK

Y r	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2022	0.20	1.44	0.13	0.02	1.09	0.53	0.51	1.39	1.45	0.77	0.64	1.13	9.30
2023	0.65	1.03	0.36	0.51	0.28	1.66	0.70	1.83	0.92	1.12	M	M	M
Mean	0.43	1.24	0.25	0.27	0.69	1.10	0.61	1.61	1.19	0.95	0.64	1.13	9.30
Max	0.65 2023	1.44 2022	0.36 2023	0.51 2023	1.09 2022	1.66 2023	0.70 2023	1.83 2023	1.45 2022	1.12 2023	0.64 2022	1.13 2022	9.30 2022
Min	0.20 2022	1.03 2023	0.13 2022	0.02 2022	0.28 2023	0.53 2022	0.51 2022	1.39 2022	0.92 2023	0.77 2022	0.64 2022	1.13 2022	9.30 2022

Appendix J

Alaska Federally Threatened and Endangered Species Lists, Service Information for Planning and Consultation (IPaC) Report, and Eagle Survey Notes

Endangered, Threatened, and Candidate Species in Alaska

Species under NOAA Fisheries Authority deemed endangered, threatened, and/or candidate species and residing in the Alaska region.

Whales

Common Name	Scientific Name	Status	Critical Habitat in AK?
Bowhead Whale	*Balaena mysticetus*	Endangered	No
Sei Whale	*Balaenoptera borealis*	Endangered	No
Blue Whale	*Balaenoptera musculus*	Endangered	No
Fin Whale	*Balaenoptera physalus*	Endangered	No
Cook Inlet DPS Beluga Whale	*Delphinapterus leucas*	Endangered	Yes
Western North Pacific DPS Gray Whale	*Eschrichtius robustus*	Endangered	No
North Pacific Right Whale	*Eubalaena japonica*	Endangered	Yes
Mexico DPS Humpback Whale	*Megaptera novaeangliae*	Threatened	No
Western North Pacific DPS Humpback Whale	*Megaptera novaeangliae*	Endangered	No
Sperm Whale	*Physeter macrocephalus*	Endangered	No

Pinnipeds

Common Name	Scientific Name	Status	Critical Habitat in AK?
Arctic Ringed Seal	*Phoca hispida hispida*	Threatened	No

Beringia DPS, Bearded Seal	*Erignathus barbatus nauticus*	Threatened	No
Western DPS Steller Sea Lion	*Eumetopias jubatus*	Endangered	Yes

Reptiles

Common Name	Scientific Name	Status	Critical Habitat in AK?
Loggerhead Sea Turtle	*Caretta caretta*	Threatened	No
Green Sea Turtle	*Chelonia mydas*	Threatened	No
Leatherback Sea Turtle	*Dermochelys coriacea*	Endangered	No
Olive Ridley Sea Turtle	*Lepidochelys olivacea*	Threatened	No

Fish

Common Name	Scientific Name	Status	Critical Habitat in AK?
Green Sturgeon (Southern DPS)*	*Acipenser medirostris*	Threatened	No
Hood Canal Summer-run Chum Salmon*	*Oncorhynchus keta*	Threatened	No
Lower Columbia River Coho Salmon*	*Oncorhynchus kisutch*	Threatened	No
Lower Columbia River Steelhead*	*Oncorhynchus mykiss*	Threatened	No
Middle Columbia River Steelhead*	*Oncorhynchus mykiss*	Threatened	No
Snake River Basin Steelhead*	*Oncorhynchus mykiss*	Threatened	No
Upper Columbia River Steelhead*	*Oncorhynchus mykiss*	Threatened	No
Upper Willamette River Steelhead*	*Oncorhynchus mykiss*	Threatened	No
Snake River Sockeye Salmon*	*Oncorhynchus nerka*	Endangered	No
Lower Columbia River Chinook Salmon*	*Oncorhynchus tshawytscha*	Threatened	No
Puget Sound Chinook Salmon*	*Oncorhynchus tshawytscha*	Threatened	No
Snake River Fall Chinook Salmon*	*Oncorhynchus tshawytscha*	Threatened	No
Snake River Spring/Summer-run Chinook Salmon*	*Oncorhynchus tshawytscha*	Threatened	No
Upper Columbia River Spring Chinook Salmon*	*Oncorhynchus tshawytscha*	Endangered	No

Upper Willamette River Chinook Salmon*	*Oncorhynchus tshawytscha*	Threatened	No

*These species spawn on the West Coast of the Lower 48, but may occur in Alaskan waters during the marine phase of their life cycles

More Information

- ESA Species Directory (searchable)
- Section 7 Consultations in Alaska
- Expedited Informal Consultation Process in Alaska
- Endangered Species Directory
- ESA Petition and Listing Process
- Endangered Species Conservation

Last updated by Alaska Regional Office on 05/18/2021

Listed species with spatial current range believed to or known to occur in Alaska

Notes:

- This report includes species only if they have a **Spatial Current Range** in ECOS.
- **As of 02/13/2015 the data in this report has been updated to use a different set of information.** Results are based on where the species is believed to or known to occur. The FWS feels utilizing this data set is a better representation of species occurrence. Note: there may be other federally listed species that are not currently known or expected to occur in this state but are covered by the ESA wherever they are found; Thus if new surveys detected them in this state they are still covered by the ESA. The FWS is using the best information available on this date to generate this list.
- This report shows listed species or populations believed to or known to occur in AK
- This list does not include experimental populations and similarity of appearance listings.
- Click on the highlighted scientific names below to view a Species Profile.

Listed Species

Sort by group: ☑

CSV

Show 10 entries

Search:

8 Species Listings

Scientific Name	Common Name	Where Listed	Region	ESA Listing Status
Birds				
Numenius borealis	Eskimo curlew	Wherever found	7	Endangered

Scientific Name	Common Name	Where Listed	Region	ESA Listing Status
Phoebastria (=Diomedea) albatrus	Short-tailed albatross	Wherever found	7	Endangered
Somateria fischeri	Spectacled eider	Wherever found	7	Threatened
Polysticta stelleri	Steller's Eider	AK breeding pop.	7	Threatened
Ferns and Allies				
Polystichum aleuticum	Aleutian shield fern	Wherever found	7	Endangered
Mammals				
Enhydra lutris kenyoni	Northern Sea Otter	Southwest Alaska DPS	7	Threatened
Ursus maritimus	Polar bear	Wherever found	7	Threatened
Bison bison athabascae	Wood Bison	Wherever found	7	Threatened

Showing 1 to 8 of 8 entries

Previous 1 Next

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Northern Alaska Fish & Wildlife Field Office
101 12th Avenue
Room 110
Fairbanks, AK 99701-6237
Phone: (907) 456-0203 Fax: (907) 456-0208

In Reply Refer To: January 05, 2024
Project Code: 2024-0033079
Project Name: Stiles Creek Shooting Range Expansion and Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Northern Alaska Fish & Wildlife Field Office
101 12th Avenue
Room 110
Fairbanks, AK 99701-6237
(907) 456-0203

PROJECT SUMMARY

Project Code: 2024-0033079
Project Name: Stiles Creek Shooting Range Expansion and Improvements
Project Type: Recreation - Maintenance / Modification
Project Description: Renovate and expand the DNR DPOR Chena SRA shooting range to expand recreational hooting capacity.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@64.90720329999999,-146.4558730363205,14z

Counties: Fairbanks North Star County, Alaska

ENDANGERED SPECIES ACT SPECIES

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Department of Interior
Name: Jonathan Snyder
Address: 1011 E Tudor Rd
City: anchorage
State: AK
Zip: 99503
Email jonathan_snyder@fws.gov
Phone: 9072292736

Environmental Planning Site Visit

Facility: CRSRA

Date: 6/29/2023

Park Unit: MP 36.4 Stiles Shooting Range

Analyst: Chat Fehrmann

MTRS: Section 13, T1N, R6E, FM

Weather:
64 F, Calm, Mostly Sunny

Site Description:
Old material site w/ ponds + gravel paths. Shooting Range and trails, 1 toilet.

NWI Data = Uplands

Floodplain Status:
FEMA FIRM indicates Flood Zone A

Eagle Nests:
The area was visually scanned with the naked eye as well as with binoculars for eagles + eagle nests, from the parking area as well as end of shooting range. No nests were observed within VLOS, nor were any eagles or signs of eagle activity observed.

Appendix K

ADF&G Fish Stocking Map

Filter Lakes | Go To Location | Options

Filters

Select desired filters and click the Refresh Lakes button to view results on the Google map.

Currently Stocked		☑
Previously Stocked		☑
Not Stocked		☑

Search By Stocking Date

Start Date: mm/dd/yyyy

End Date: mm/dd/yyyy

View Data in Metric Units ◉ **View Data in Standard Units** ○

Management Areas and Lakes

Stocked Species

Other Species

Refresh Lakes | Export Data | Clear Filters

Appendix L

U.S. Fish and Wildlife Service
Tribal and ANSCA
Corporation Consultation List

Stiles Creek Shooting Range Improvement and Expansion Project Consultation Invitation List
Invitation Letters Sent December 2023

Entity	Entity Type	Response
Beaver Village	Federally Recognized Tribe	None
Birch Creek Tribe	Federally Recognized Tribe	None
Circle Native Community	Federally Recognized Tribe	None
Healy Lake Village	Federally Recognized Tribe	None
Native Village of Minto	Federally Recognized Tribe	None
Nenana Native Association	Federally Recognized Tribe	None
Native Village of Stevens	Federally Recognized Tribe	None
Beaver Kwit'chin Corporation	ANCSA Village Corporation	None
Danzhit Hanlaii Corporation	ANCSA Village Corporation	None
Dinyea Corporation	ANCSA Village Corporation	None
Mendas Cha-ag Native Corporation	ANCSA Village Corporation	Decline
Seth-De-Ya-Ah Corporation	ANCSA Village Corporation	None
Tihteet'aii Incorporated	ANCSA Village Corporation	None
Toghotthele Corporation	ANCSA Village Corporation	None
Doyon, Ltd.	ANCSA Regional Corporation	None

Appendix M

NHPA Determination

National Historic Preservation Act Section 106 Review of Project

Cultural Resources (CR) Staff Section 106 Review:

Date Request Received: March 29, 2023

Project Name: Stiles Creek Shooting Range Improvements

CR Project Number: 2023-008

CR Staff Reviewer: Jake Adams, Archaeologist

CR Staff Notes: Describe salient points of project description and any other pertinent information

This project will improve the Stiles Creek Shooting range up to NRA guidelines by expanding the footprint of the existing range, adding additional shooting lanes, constructing a roof structure, and increasing the parking area. This area is highly disturbed and is next to a wetland area and pond that limits the expansion to ~40 feet. The end berm/hillside serves as the backdrop for the range. There is one known site in the APE-the Chena to Fairbanks winter trail. Eligibility on this site is unclear as it is stated on the site card that it was determined not eligible for the NRHP with SHPO concurrence in 2017; however, it mentions that the determination of eligibility was pending review by the Keeper of the NRHP as of 2017. I reached out to SHPO about this on 2/1/2023 and received no response other than that the other two sections of the trail are listed as not eligible so there may be an error in the database. The short portion of the site that goes through the APE is already in a heavily disturbed area.

Type of Review: **Literature/Archival**

CR Review Results:

Based on the above narrative this project has a finding of *no historic properties affected* per 36 CFR 800.4 (d)(1).

Other Instructions:

NHPA Section 106 review is complete.

Section 106 Finding: **No Historic Properties Affected**

Regional Historic Preservation Officer Use Only:

RHPO Comments:

Section 106 Finding Approved:

JACOB ADAMS Digitally signed by JACOB ADAMS
Date: 2023.04.03 12:09:51 -08'00'

Jacob S. Adams
Archaeologist

Date

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
1011 East Tudor Road
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

Judy Bittner, State Historic Preservation Officer
State Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

Dear Ms. Bittner:

The US Fish and Wildlife Service (Service), Office of Conservation Investment, is providing funding for improvements at the Stiles Creek Shooting Range located 13 miles northeast of Fairbanks, Alaska directly north of Chena Hot Springs Road. The Area of Potential Effects (APE) for the project is approximately 4-acres (Enclosure 1) and the proposed work is considered an undertaking per 36 CFR 800.16(y) of the National Historic Preservation Act (NHPA).

The project goal is to improve the shooting range up to NRA guidelines by expanding the footprint of the existing range, adding additional shooting lanes, constructing a roof structure, and increasing the parking area. The area is extremely disturbed and is next to a wetland area and pond that limits the expansion (Enclosure 2; photos and Enclosure 3; for engineering plans).

There is one known cultural resource that goes through the APE, XBD-00280, the Fairbanks to Chena Hot Springs Winter Trail which was determined not eligible for the National Register of Historic Places in 2017. Other than the trail there are no known cultural resources within 1.5 miles of the project area.

With the project area being in a highly disturbed area that has been developed throughout time and being surrounded by a wetland context the undertaking in its entirety is being recommended as a finding of *no historic properties affected* per 36 CFR 800.4(d)(1) of the NHPA.

If you have any questions or concerns, please contact Jake Adams at jacob_adams@fws.gov.

Sincerely,

Jacob S. Adams

Archaeologist, USFWS

Enclosure(s)

Legend

APE

Stiles Creek Shooting Range Improvements
Scale: 1:3,500

0 0.04 0.07 0.15 Miles

N

Figure 1.–View of hillside at the end of the firing line.

Figure 2.–View of the existing shooting range and firing line.

Figure 3.–View downrange from the firing line.

Figure 4.–View from downrange looking back at firing line.

Figure 5.–Existing firing line and makeshift shooting tables.

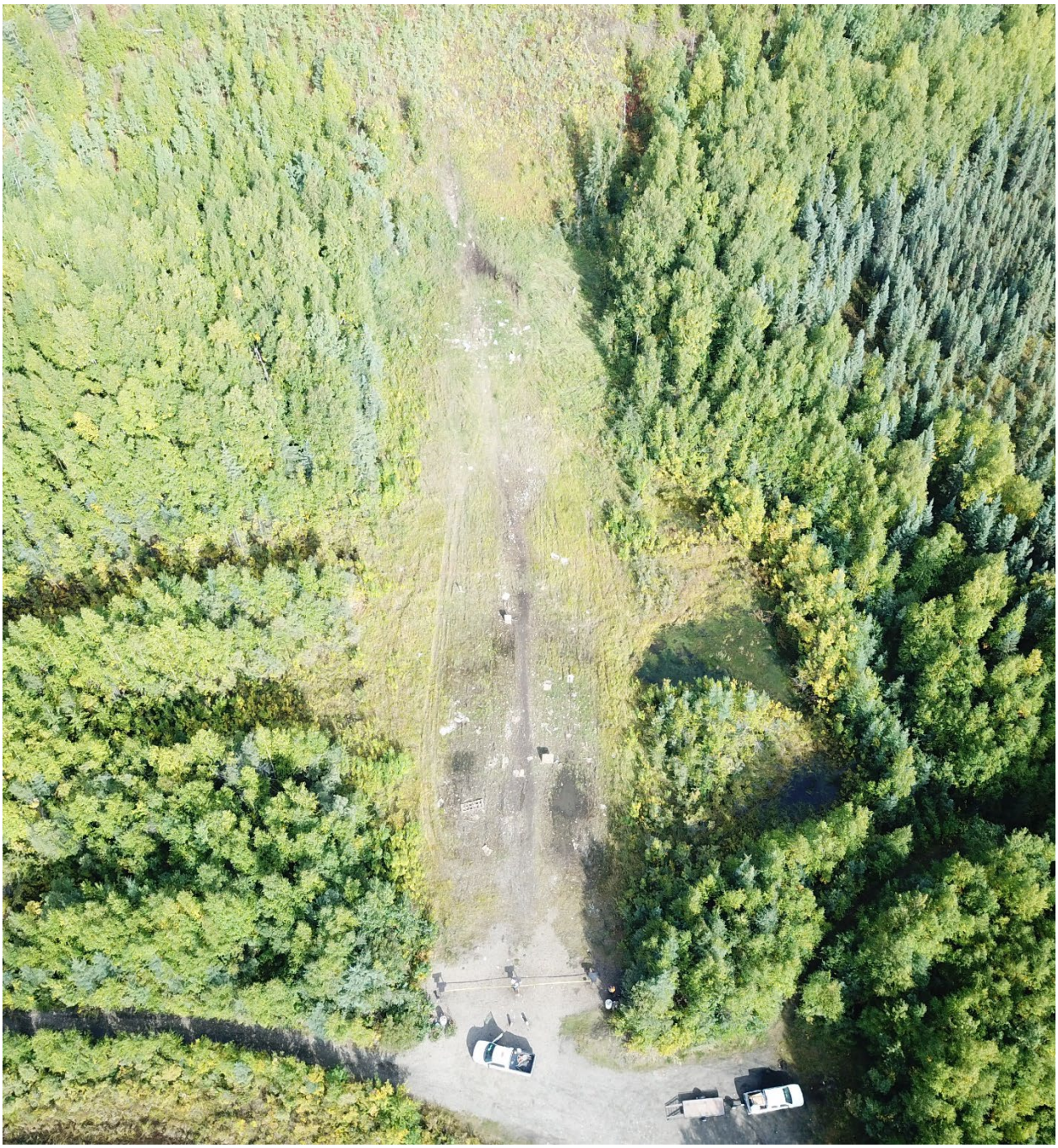


Figure 6.–View looking down onto the range.

Figure 7.–View looking to the hillside behind the range.

Figure 8.–View from the hillside looking back at the range, ponds, and Chena Hot Springs Road.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS
AND
OUTDOOR RECREATION

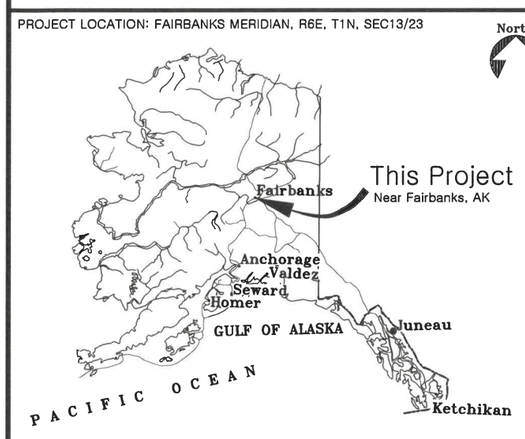
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS

PROJECT NO. 70011-1

65% REVIEW SET

Vicinity Map

PROJECT LOCATION: FAIRBANKS MERIDIAN, R6E, T1N, SEC13/23



INDEX

The following Division of Parks & Outdoor Rec. standard drawings apply to this project: NONE
The following D.O.T.(Highways) standard drawings apply to this project: S-00.11, S-05.01, S-30.04

Plans developed by:
STATE OF ALASKA
Department of Natural Resources
Division of Parks & Outdoor Recreation
550 W 7th Ave. Suite 1340, Anchorage, AK 99501

Recommended:

Rys Miranda, P.E. — Date
Chief, Design & Construction

Approved:

65% DRAFT FOR REVIEW PURPOSES ONLY

Ricky [illegible]se — Date
Director, Alaska State Parks

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
201.0003.0000	CLEARING AND GRUBBING	ACRE	0.95
202.0001.0000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	ALL REQ'D
203.0005.000A	BORROW, TYPE A	C.Y.	7500
203.0003.0000	UNCLASSIFIED EXCAVATION	C.Y.	4900
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	TON	830
401.0001.002B	HOT MIX ASPHALT, TYPE II, CLASS B	TON	311
603.0001.0018	CSP 18 INCH	L.F.	32
615.0001.0000	STANDARD SIGN	S.F.	31.5
618.0002.0000	SEEDING	LB	23
620.0001.000B	TOPSOIL, CLASS B	S.Y.	2500
622.2019.0000	SHOOTING RANGE BENCH	EACH	11
622.2060.0000	SHOOTING RANGE PAVILION CANOPY	L.S.	ALL REQ'D
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	L.S.	ALL REQ'D
641.0001.0000	EROSION, SEDIMENT, AND POLLUTION CONTROL ADMINISTRATION	L.S.	ALL REQ'D
641.0002.0000	TEMPORARY EROSION, SEDIMENT, AND POLLUTION CONTROL	C.S.	ALL REQ'D
641.0006.0000	WITHHOLDING	C.S.	ALL REQ'D
642.0001.0000	CONSTRUCTION SURVEYING	L.S.	ALL REQ'D
642.0003.0000	THREE PERSON SURVEY PARTY	HOUR	10
642.0004.0000	SET PRIMARY MONUMENT	EACH	3
643.0002.0000	TRAFFIC MAINTENANCE	L.S.	ALL REQ'D
647.0006.0000	HYDRAULIC EXCAVATOR, 1 CY, 100 HP, MINIMUM	HOUR	10
670.0001.0000	PAINTED TRAFFIC MARKINGS	L.S.	ALL REQ'D

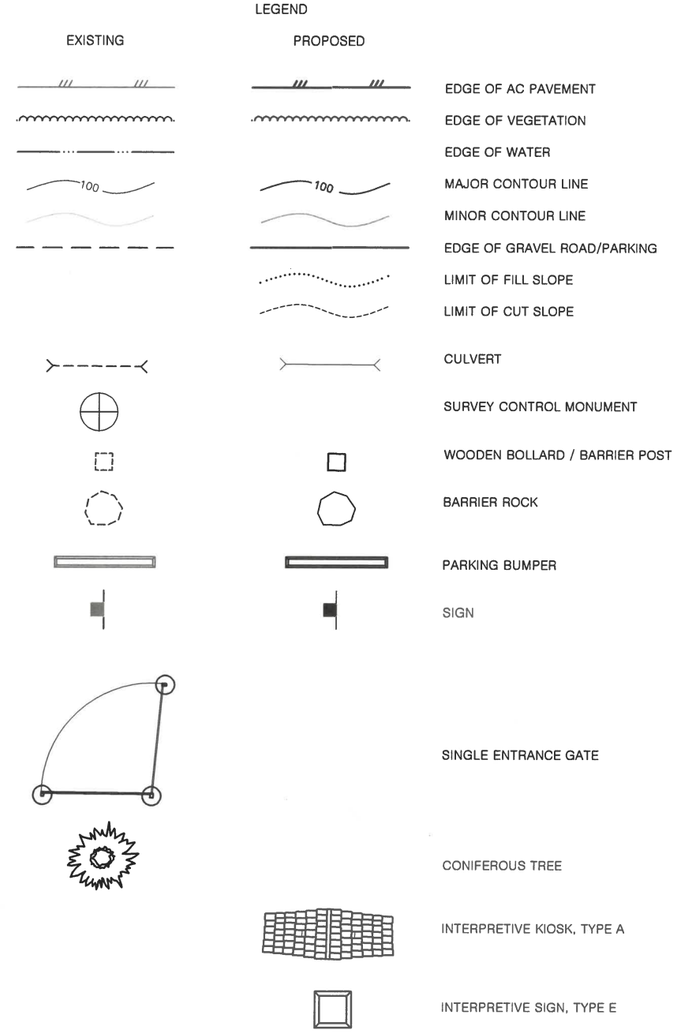
TABLE OF ESTIMATING FACTORS

ITEM NO.	ITEM DESCRIPTION	ESTIMATING FACTOR
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D-1	144 LB/CF
401.0001.002B	HOT MIX ASPHALT, TYPE II, CLASS B ASSUME 6% OIL	151 LB/C.F.

ABBREVIATIONS

⌀	DIAMETER
℄	CENTERLINE
AC	ASPHALT CONCRETE
AFB	AIR FORCE BASE
APPRX.	APPROXIMATE
BLDG	BUILDING
BOP	BEGINNING OF PROJECT
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
C.F.	CUBIC FOOT
CP	CONTROL POINT
CPP	CORRUGATED POLYETHYLENE PIPE
C.S.	CONTINGENT SUM
C.Y.	CUBIC YARD
ELEV	ELEVATION
EOP	END OF PROJECT
EST	ESTIMATE
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
INV.	INVERT
LB	POUND
LB/LBS	POUND/POUNDS
L.F.	LINEAR FEET
L.S	LUMP SUM
M.E.	MATCH EXISTING
MAX	MAXIMUM
MIN	MINIMUM
MP	MILEPOST
NO.	NUMBER
OC	ON CENTER
OHW	ORDINARY HIGH WATER
PCC	PORTLAND CEMENT CONCRETE
PIP	PROTECT IN PLACE
QTY.	QUANTITY
REQ'D	REQUIRED
S.F.	SQUARE FEET
SRA	STATE RECREATION AREA
STA	STATION
S.Y.	SQUARE YARD
TYP.	TYPICAL

LEGEND



EDGE OF AC PAVEMENT
EDGE OF VEGETATION
EDGE OF WATER
MAJOR CONTOUR LINE
MINOR CONTOUR LINE
EDGE OF GRAVEL ROAD/PARKING
LIMIT OF FILL SLOPE
LIMIT OF CUT SLOPE
CULVERT
SURVEY CONTROL MONUMENT
WOODEN BOLLARD / BARRIER POST
BARRIER ROCK
PARKING BUMPER
SIGN
SINGLE ENTRANCE GATE
CONIFEROUS TREE
INTERPRETIVE KIOSK, TYPE A
INTERPRETIVE SIGN, TYPE E

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

ESTIMATE OF QUANTITIES, LEGEND, ABBREVIATIONS, AND TABLE OF ESTIMATING FACTORS

ALASKA STATE PARKS

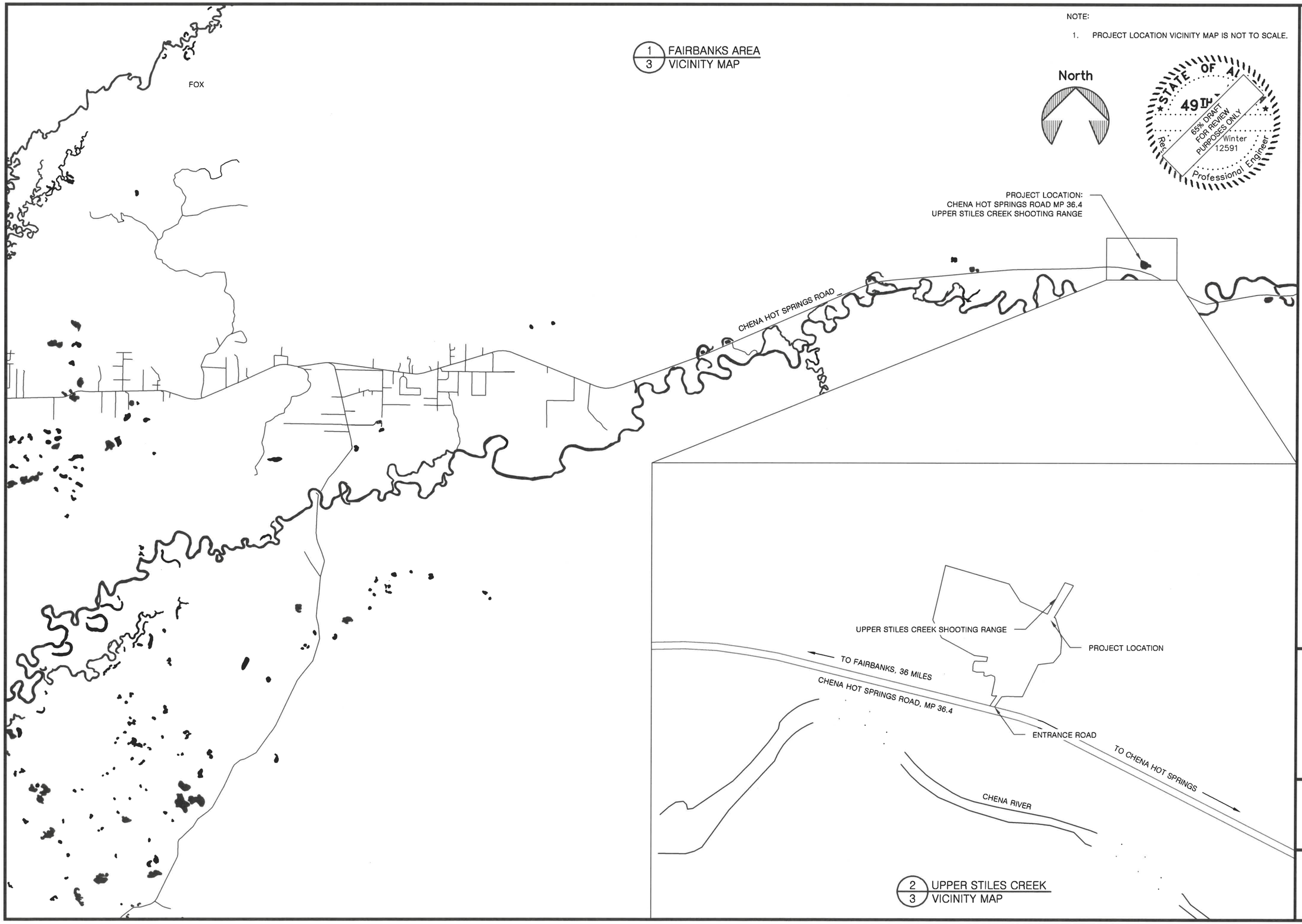
PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/8/2023

SHEET 2 OF 22 SHEETS

NOTE:

1. PROJECT LOCATION VICINITY MAP IS NOT TO SCALE.

1/3 FAIRBANKS AREA VICINITY MAP



2/3 UPPER STILES CREEK VICINITY MAP

STATE OF ALASKA
49TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Winter
12591
Professional Engineer

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

VICINITY MAP

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/8/2023

SHEET 3 OF 22 SHEETS

LEGEND

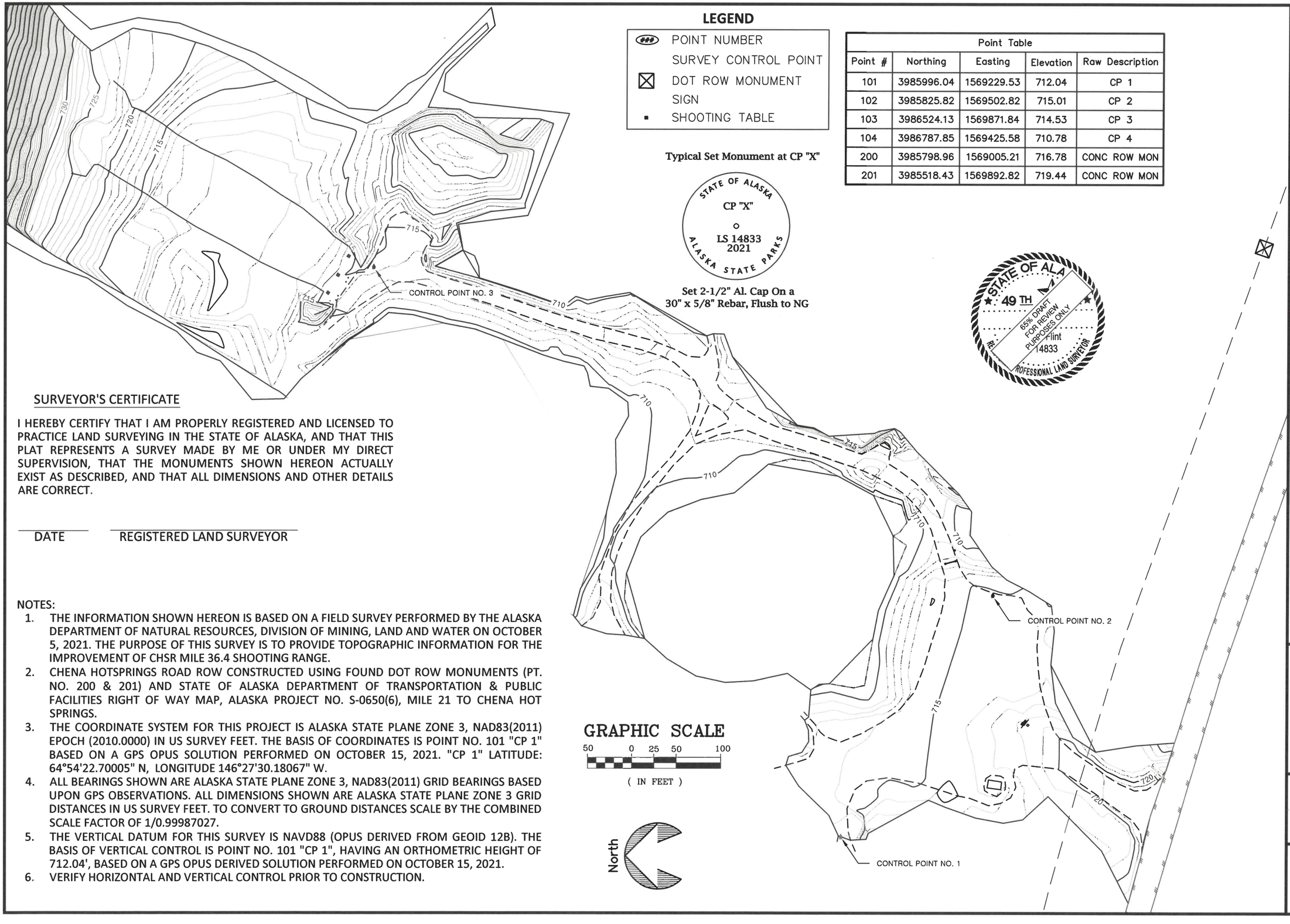
- ### POINT NUMBER
- SURVEY CONTROL POINT
- DOT ROW MONUMENT
- SIGN
- SHOOTING TABLE

Typical Set Monument at CP "X"

STATE OF ALASKA
CP "X"
LS 14833
2021
ALASKA STATE PARKS

Set 2-1/2" Al. Cap On a 30" x 5/8" Rebar, Flush to NG

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
101	3985996.04	1569229.53	712.04	CP 1
102	3985825.82	1569502.82	715.01	CP 2
103	3986524.13	1569871.84	714.53	CP 3
104	3986787.85	1569425.58	710.78	CP 4
200	3985798.96	1569005.21	716.78	CONC ROW MON
201	3985518.43	1569892.82	719.44	CONC ROW MON



STATE OF ALA
49 TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Flint
14833
PROFESSIONAL LAND SURVEYOR

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, AND THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT.

DATE

REGISTERED LAND SURVEYOR

NOTES:

1. THE INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY THE ALASKA DEPARTMENT OF NATURAL RESOURCES, DIVISION OF MINING, LAND AND WATER ON OCTOBER 5, 2021. THE PURPOSE OF THIS SURVEY IS TO PROVIDE TOPOGRAPHIC INFORMATION FOR THE IMPROVEMENT OF CHSR MILE 36.4 SHOOTING RANGE.
2. CHENA HOTSPRINGS ROAD ROW CONSTRUCTED USING FOUND DOT ROW MONUMENTS (PT. NO. 200 & 201) AND STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES RIGHT OF WAY MAP, ALASKA PROJECT NO. S-0650(6), MILE 21 TO CHENA HOT SPRINGS.
3. THE COORDINATE SYSTEM FOR THIS PROJECT IS ALASKA STATE PLANE ZONE 3, NAD83(2011) EPOCH (2010.0000) IN US SURVEY FEET. THE BASIS OF COORDINATES IS POINT NO. 101 "CP 1" BASED ON A GPS OPUS SOLUTION PERFORMED ON OCTOBER 15, 2021. "CP 1" LATITUDE: 64°54'22.70005" N, LONGITUDE 146°27'30.18067" W.
4. ALL BEARINGS SHOWN ARE ALASKA STATE PLANE ZONE 3, NAD83(2011) GRID BEARINGS BASED UPON GPS OBSERVATIONS. ALL DIMENSIONS SHOWN ARE ALASKA STATE PLANE ZONE 3 GRID DISTANCES IN US SURVEY FEET. TO CONVERT TO GROUND DISTANCES SCALE BY THE COMBINED SCALE FACTOR OF 1/0.99987027.
5. THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88 (OPUS DERIVED FROM GEOID 12B). THE BASIS OF VERTICAL CONTROL IS POINT NO. 101 "CP 1", HAVING AN ORTHOMETRIC HEIGHT OF 712.04', BASED ON A GPS OPUS DERIVED SOLUTION PERFORMED ON OCTOBER 15, 2021.
6. VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO CONSTRUCTION.

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)

North

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

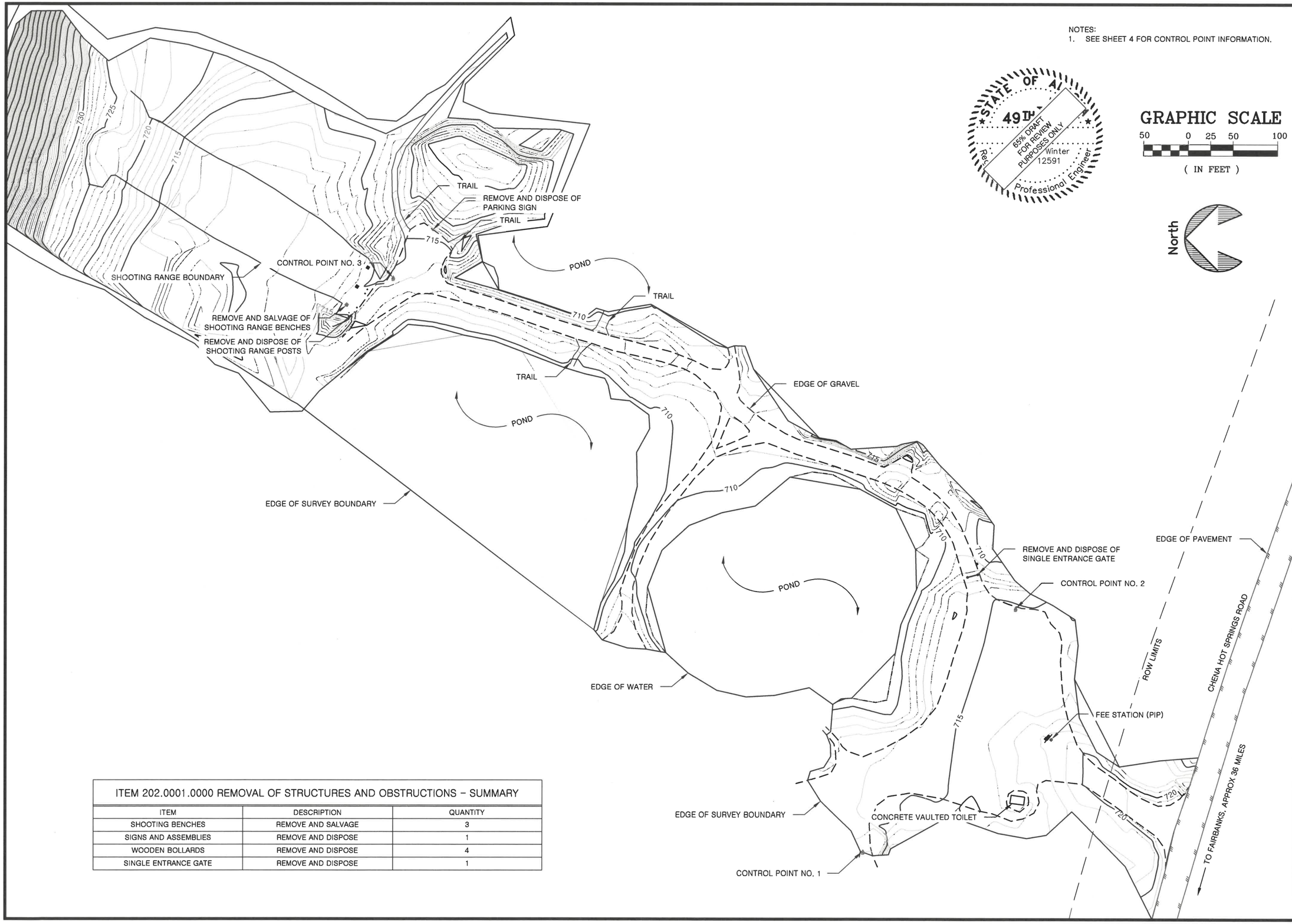
SURVEY CONTROL

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: JMD
REVIEWED: PF
DATE: 11/12/2021

SHEET
4
OF 22 SHEETS

NOTES:
1. SEE SHEET 4 FOR CONTROL POINT INFORMATION.



STATE OF ALASKA
49TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Winter
12591
Professional Engineer

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)

North

ITEM 202.0001.0000 REMOVAL OF STRUCTURES AND OBSTRUCTIONS – SUMMARY		
ITEM	DESCRIPTION	QUANTITY
SHOOTING BENCHES	REMOVE AND SALVAGE	3
SIGNS AND ASSEMBLIES	REMOVE AND DISPOSE	1
WOODEN BOLLARDS	REMOVE AND DISPOSE	4
SINGLE ENTRANCE GATE	REMOVE AND DISPOSE	1

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

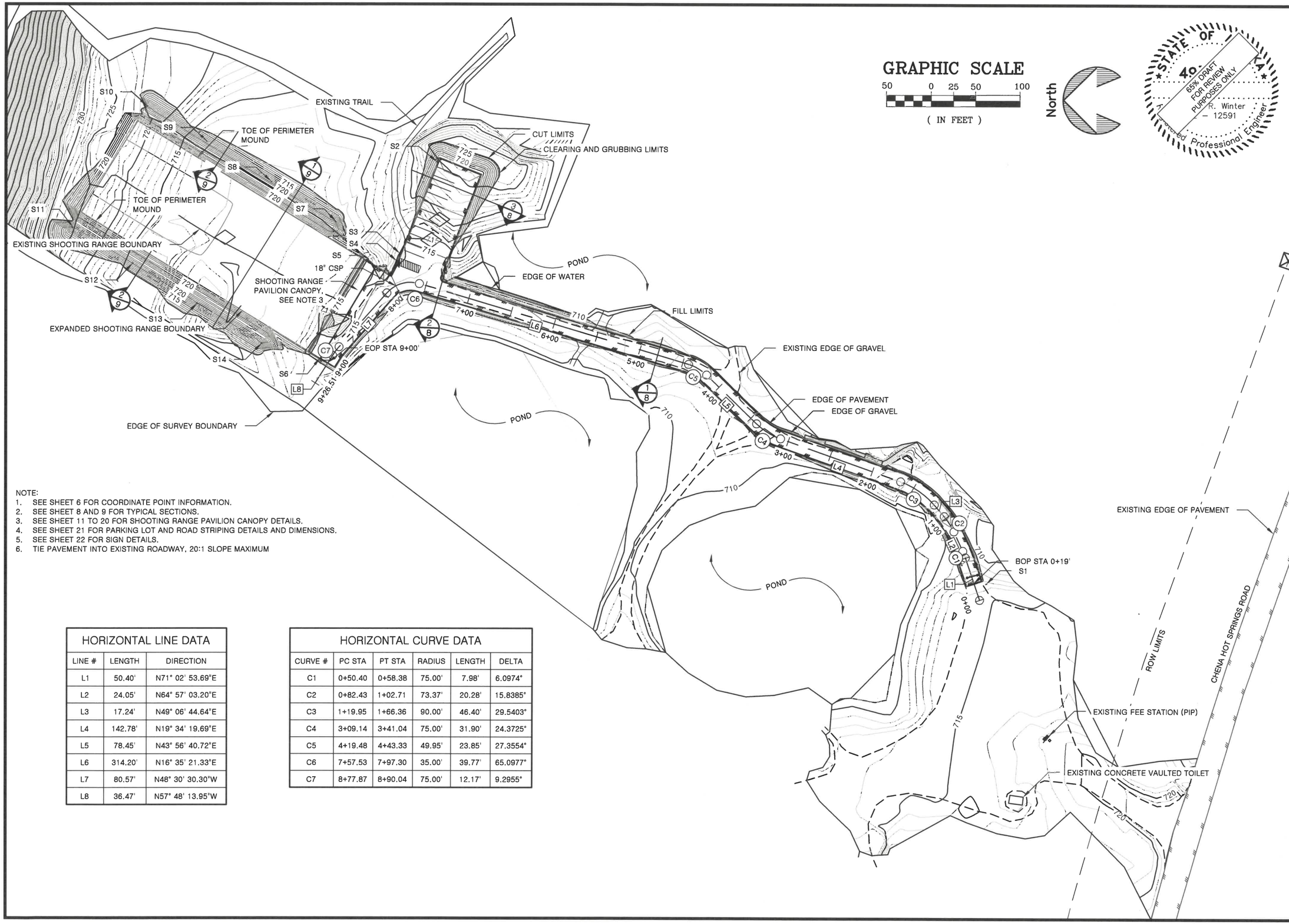
EXISTING CONDITIONS

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-0011-1

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/09/2023

SHEET
5
OF 22 SHEETS



NOTE:
1. SEE SHEET 6 FOR COORDINATE POINT INFORMATION.
2. SEE SHEET 8 AND 9 FOR TYPICAL SECTIONS.
3. SEE SHEET 11 TO 20 FOR SHOOTING RANGE PAVILION CANOPY DETAILS.
4. SEE SHEET 21 FOR PARKING LOT AND ROAD STRIPING DETAILS AND DIMENSIONS.
5. SEE SHEET 22 FOR SIGN DETAILS.
6. TIE PAVEMENT INTO EXISTING ROADWAY, 20:1 SLOPE MAXIMUM

HORIZONTAL LINE DATA		
LINE #	LENGTH	DIRECTION
L1	50.40'	N71° 02' 53.69"E
L2	24.05'	N64° 57' 03.20"E
L3	17.24'	N49° 06' 44.64"E
L4	142.78'	N19° 34' 19.69"E
L5	78.45'	N43° 56' 40.72"E
L6	314.20'	N16° 35' 21.33"E
L7	80.57'	N48° 30' 30.30"W
L8	36.47'	N57° 48' 13.95"W

HORIZONTAL CURVE DATA					
CURVE #	PC STA	PT STA	RADIUS	LENGTH	DELTA
C1	0+50.40	0+58.38	75.00'	7.98'	6.0974°
C2	0+82.43	1+02.71	73.37'	20.28'	15.8385°
C3	1+19.95	1+66.36	90.00'	46.40'	29.5403°
C4	3+09.14	3+41.04	75.00'	31.90'	24.3725°
C5	4+19.48	4+43.33	49.95'	23.85'	27.3554°
C6	7+57.53	7+97.30	35.00'	39.77'	65.0977°
C7	8+77.87	8+90.04	75.00'	12.17'	9.2955°

STATE OF ALASKA
40
65% DRAFT FOR REVIEW PURPOSES ONLY
R. Winter – 12591
Professional Engineer

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

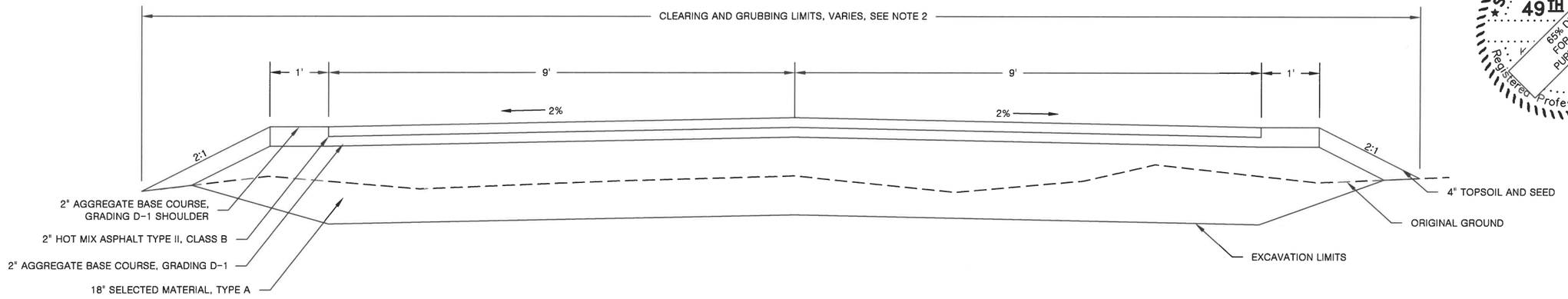
SITE PLAN

ALASKA STATE PARKS

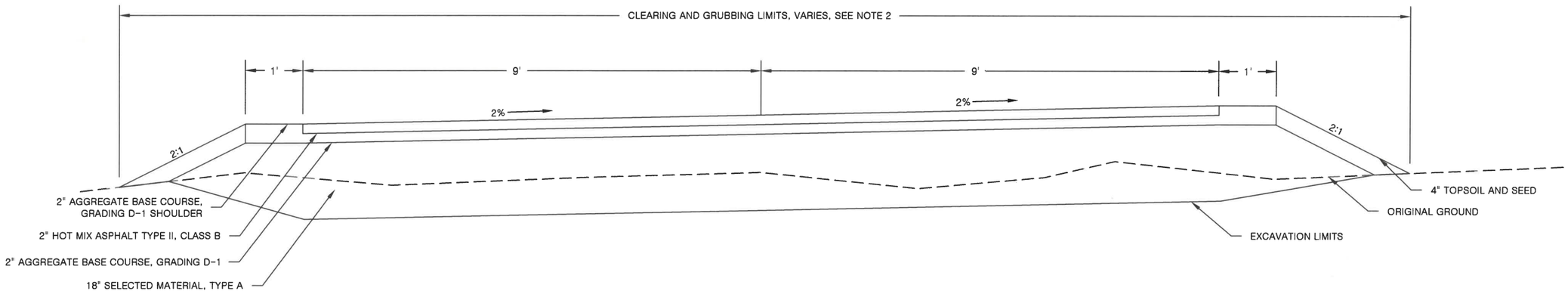
PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/10/2023

SHEET 7 OF 22 SHEETS

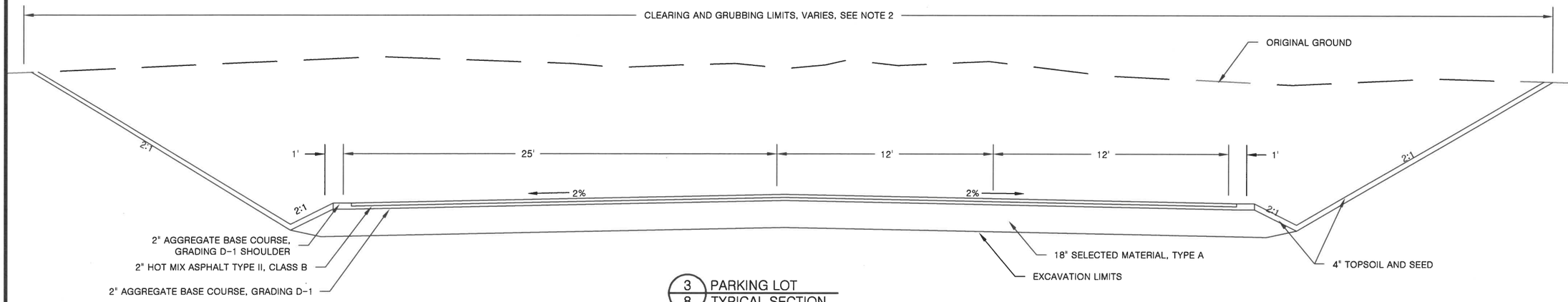
NOTE:
1. CLEARING AND GRUBBING LIMITS TO EXTEND TO TOE OF FILL SLOPE, OR TOP OF CUT SLOPE.
2. DITCHING ONLY REQUIRED ON CUT SLOPES.
3. SEE SHEET 6 FOR COORDINATE POINT TABLES.



1/8 ACCESS ROAD
TYPICAL SECTION STA. 0+19 TO 7+35



2/8 ACCESS ROAD
TYPICAL SECTION STA. 7+35 TO 9+00



3/8 PARKING LOT
TYPICAL SECTION

STATE OF ALASKA
49TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Registered Professional Engineer
Winter
12591

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

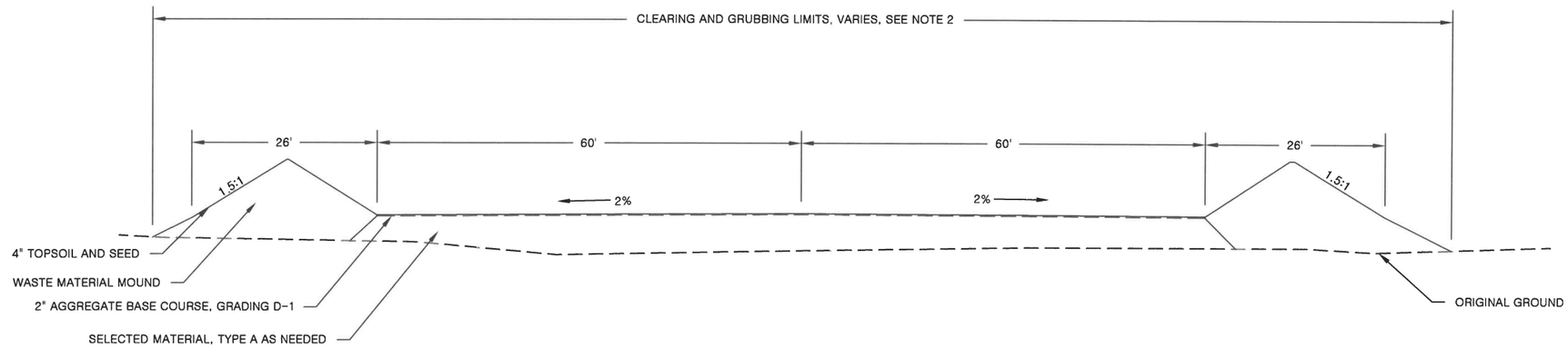
CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-2011-1

TYPICAL SECTIONS

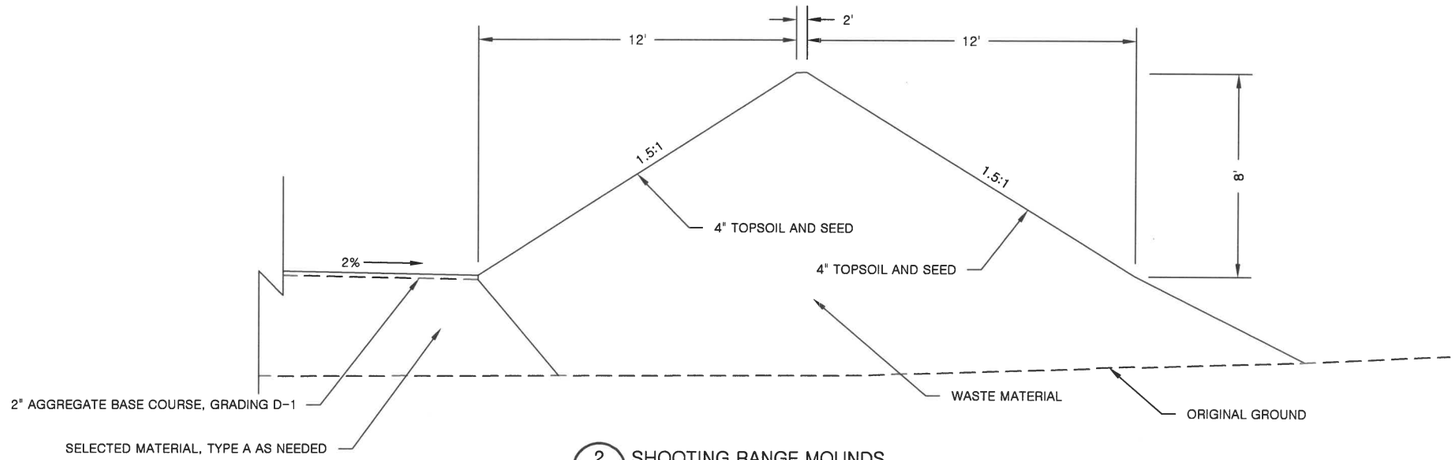
ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/05/2023

SHEET 8
OF 22 SHEETS



1/9 SHOOTING RANGE TYPICAL SECTION



2/9 SHOOTING RANGE MOUNDS TYPICAL SECTION

NOTE:
1. CLEARING AND GRUBBING LIMITS TO EXTEND TO TOE OF FILL SLOPE, OR TOP OF CUT SLOPE.
2. DITCHING ONLY REQUIRED ON CUT SLOPES.
3. SEE SHEET 6 FOR COORDINATE POINT TABLES.

STATE OF ALASKA
49TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Winter
12591
Registered Professional Engineer

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

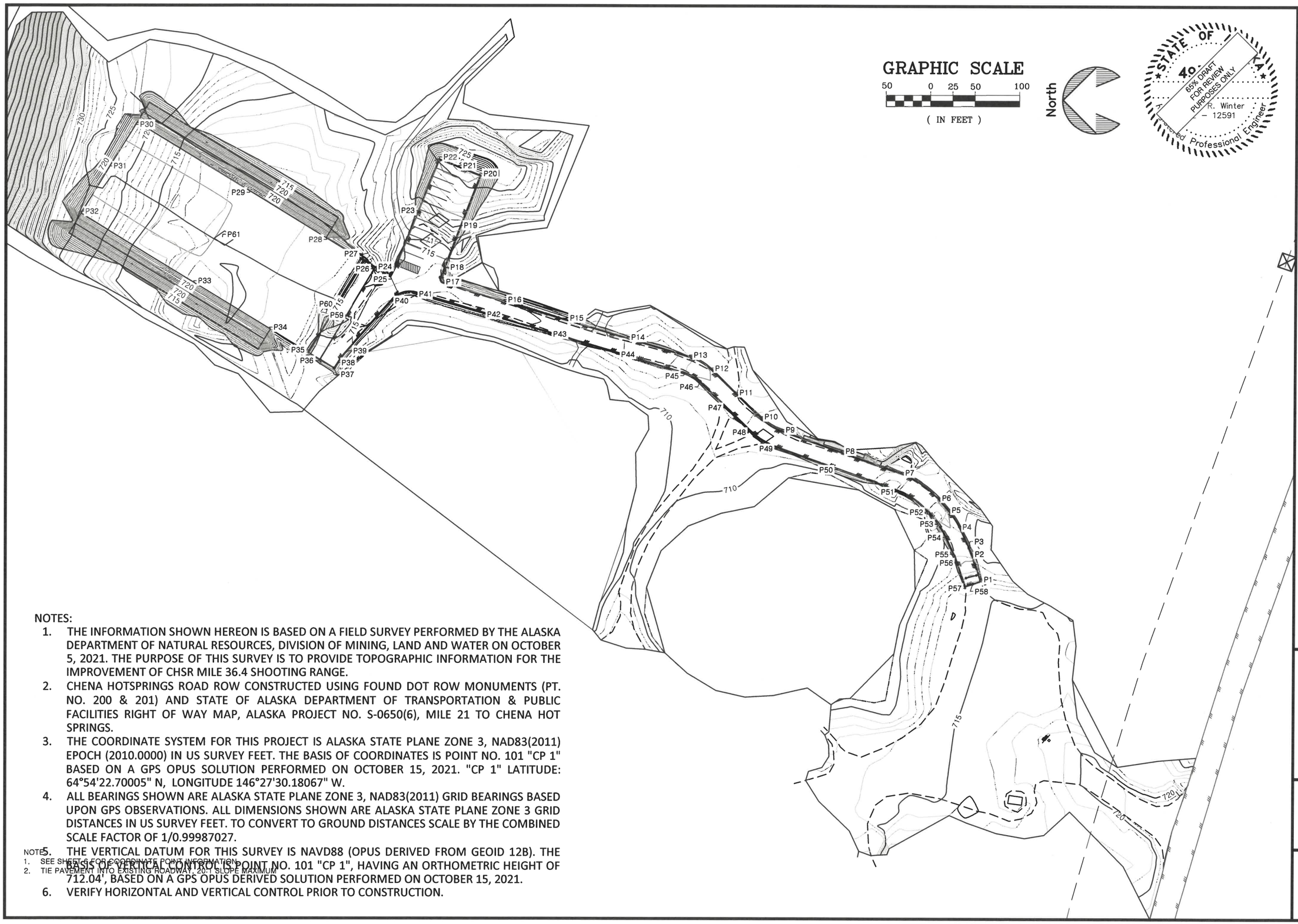
CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-2011-1

SHOOTING RANGE TYPICAL SECTIONS

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/10/2023

SHEET 9 OF 22 SHEETS



NOTES:

1. THE INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY THE ALASKA DEPARTMENT OF NATURAL RESOURCES, DIVISION OF MINING, LAND AND WATER ON OCTOBER 5, 2021. THE PURPOSE OF THIS SURVEY IS TO PROVIDE TOPOGRAPHIC INFORMATION FOR THE IMPROVEMENT OF CHSR MILE 36.4 SHOOTING RANGE.
2. CHENA HOTSPRINGS ROAD ROW CONSTRUCTED USING FOUND DOT ROW MONUMENTS (PT. NO. 200 & 201) AND STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES RIGHT OF WAY MAP, ALASKA PROJECT NO. S-0650(6), MILE 21 TO CHENA HOT SPRINGS.
3. THE COORDINATE SYSTEM FOR THIS PROJECT IS ALASKA STATE PLANE ZONE 3, NAD83(2011) EPOCH (2010.0000) IN US SURVEY FEET. THE BASIS OF COORDINATES IS POINT NO. 101 "CP 1" BASED ON A GPS OPUS SOLUTION PERFORMED ON OCTOBER 15, 2021. "CP 1" LATITUDE: 64°54'22.70005" N, LONGITUDE 146°27'30.18067" W.
4. ALL BEARINGS SHOWN ARE ALASKA STATE PLANE ZONE 3, NAD83(2011) GRID BEARINGS BASED UPON GPS OBSERVATIONS. ALL DIMENSIONS SHOWN ARE ALASKA STATE PLANE ZONE 3 GRID DISTANCES IN US SURVEY FEET. TO CONVERT TO GROUND DISTANCES SCALE BY THE COMBINED SCALE FACTOR OF 1/0.99987027.
5. THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88 (OPUS DERIVED FROM GEOID 12B). THE BASIS OF VERTICAL CONTROL IS POINT NO. 101 "CP 1", HAVING AN ORTHOMETRIC HEIGHT OF 712.04', BASED ON A GPS OPUS DERIVED SOLUTION PERFORMED ON OCTOBER 15, 2021.
6. VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO CONSTRUCTION.

NOTES:
1. SEE SHEET 6 FOR COORDINATE POINT INFORMATION.
2. TIE PAVEMENT INTO EXISTING ROADWAY, 20:1 SLOPE MAXIMUM

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

GRADING PLAN

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/13/2023

SHEET
10
OF 22 SHEETS

GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA

1.	BUILDING CODE	2021 IBC (INTERNATIONAL BUILDING CODE)
	GOVERNING JURISDICTION	STATE OF ALASKA
2.	DEAD LOADS	
	ROOF SUPERIMPOSED DEAD LOAD	7 PSF
3.	SNOW LOADS	
	GROUND SNOW LOAD P_g	60 PSF
	BALANCED ROOF SNOW LOAD P_s	50 PSF (ENGINEER ELECTED)
	SNOW EXPOSURE FACTOR C_e	0.9
	SNOW LOAD IMPORTANCE FACTOR I	1.0
	THERMAL FACTOR C_t	1.2
4.	WIND LOADS	
	ULTIMATE DESIGN WIND SPEED V_{ULT}	110 MPH
	NOMINAL DESIGN WIND SPEED V_{ASD}	85 MPH
	RISK CATEGORY	II
	EXPOSURE	D
	INTERNAL PRESSURE COEFFICIENT	NA

WIND LOADING ZONE PRESSURES

COMPONENTS AND CLADDING ULTIMATE DESIGN PRESSURE IN PSF FOR EFFECTIVE AREA OF 0-10 SF ARE LISTED. NET PRESSURES INCLUDE CONTRIBUTIONS FROM TOP AND BOTTOM SURFACES FOR OPEN AIR STRUCTURE. (SEE FIG 30.7-1 ASCE 7-16) LISTED PRESSURES CAN BE CONVERTED TO ASD LOADS BY APPLYING A LOAD FACTOR OF 0.6

ZONE 1		ZONE 2		ZONE 3	
POS	NEG	POS	NEG	POS	NEG
+41	-44	+62	-67	+83	-88

5.	SEISMIC LOADS	
	S_S	0.79
	S_1	0.32
	S_{DS}	0.63
	S_{D1}	0.42
	C_S	0.18
	R	3.5
	SITE CLASS	D (DEFAULT)
	SEISMIC DESIGN CATEGORY	D
	RISK CATEGORY	II
	IMPORTANCE FACTOR	1.0
	BASIC SEISMIC FORCE RESISTING SYSTEM	STEEL ORDINARY MOMENT FRAME
	DESIGN BASE SHEAR	5.1 KIPS
	ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE METHOD

B. GENERAL

1. THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO: BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS.)
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SCAFFOLDING, BRACING AND SHORING.
3. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD.
4. DO NOT USE SCALED DIMENSIONS TAKEN FROM STRUCTURAL DRAWINGS. CONTACT STRUCTURAL ENGINEER IF DIMENSIONAL INFORMATION IS MISSING.
5. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALASKA.

C. WOOD CONSTRUCTION

1. ROOF SHEATHING SHALL BE APA RATED SHEATHING:
   a. SPAN RATING: 40/20
   b. EXPOSURE DURABILITY CLASSIFICATION: EXPOSURE 1
   c. EDGE DETAIL - SQUARE
   d. THICKNESS PER DRAWINGS
2. LUMBER NAILERS: PRESSURE TREATED SPF

D. FOUNDATION

1. FOUNDATION DESIGN IS BASED ON A GEOTECHNICAL INVESTIGATION PREPARED BY DESIGN ALASKA DATED 02/23.
2. ALLOWABLE SOIL BEARING PRESSURE: 2000 PSF
3. ALL ORGANIC AND/ OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM SUB-GRADE AND BACKFILLED WITH STRUCTURAL FILL.
4. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUB-GRADE BEFORE AND AFTER PLACING CONCRETE UNTIL SUCH SUB-GRADES ARE PERMANENTLY PROTECTED BY THE BUILDING STRUCTURE.

E. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WIDE FLANGE MEMBERS SHALL BE ASTM A572 - GRADE 50 (Fy = 50 KSI) OR A992 (Fy = 50 KSI).
2. SQUARE/RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE C (Fy = 50 KSI).
3. ANGLES, PLATES, AND CHANNELS SHALL BE ASTM A36 (Fy = 36 KSI).
4. ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
5. BOLTED CONNECTIONS SHALL BE ACCOMPLISHED WITH TENSION-CONTROLLED HIGH-STRENGTH BOLTS CONFORMING TO ASTM F3125 GRADE F1852 (A325-TC) IN STANDARD HOLES UNLESS NOTED OTHERWISE.
6. ALL BOLTED CONNECTIONS SHALL BE PRE-TENSIONED UNLESS NOTED OTHERWISE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH REGARD TO TEMPERATURE DIFFERENTIALS.
8. WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES. WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE-STEEL, LATEST EDITION. ALL WELDS ARE INTENDED TO BE CONTINUOUS UNLESS NOTED OTHERWISE.
9. FIELD WELDS NOTED THROUGHOUT THE CONTRACT DOCUMENTS ARE ACCEPTABLE LOCATIONS FOR FIELD WELDING AT THE CONTRACTOR'S OPTION. FIELD WELDS MAY BE PERFORMED IN THE SHOP.
10. ALL STRUCTURAL STEEL COMPONENTS WITHIN MOMENT FRAMES SHALL CONFORM TO THE FOLLOWING ADDITIONAL REQUIREMENTS:
    a. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH A WELDING PROCEDURE SPECIFICATION (WPS) AS REQUIRED IN AWS D1.1 AND APPROVED BY THE ENGINEER OF RECORD. WELDS SHALL BE MADE WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN AWS D1.8 CLAUSE 6.3.
    b. WELDS DESIGNATED AS DEMAND CRITICAL SHALL BE MADE WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN AWS D1.8 CLAUSE 6.3.
    c. ALL FAYING SURFACES DESIGNATED AS SLIP-CRITICAL SHALL BE PREPARED AS REQUIRED FOR CLASS A OR BETTER SLIP-CRITICAL JOINTS.

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

STRUCTURAL GENERAL NOTES

ALASKA STATE PARKS

PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET 11 OF 22 SHEETS

3/8/2023 2:51:45 PM

F. CONCRETE

A. GENERAL:

1. ALL CAST-IN-PLACE CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:
   a. A MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'c) OF 4500 PSI.
   b. MAXIMUM AGGREGATE SIZE: 3/4"
   c. 6% ±1.5% AIR ENTRAINMENT BY VOLUME.
   d. MAXIMUM WATER TO CEMENT RATIO OF 0.45
   e. MAXIMUM SLUMP OF 6" AT TRUCK CHUTE DISCHARGE POINT.
   f. EXTERIOR CONCRETE TO BE BROOM FINISHED.
2. CONCRETE SHALL BE TESTED FOR TEMPERATURE. SLUMP, AIR CONTENT AND STRENGTH VERIFICATION IN ACCORDANCE WITH ASTM C 1064, ASTM C 143, ASTM C321, ASTM C31 & C39 RESPECTIVELY. TESTING FREQUENCY SHALL BE AS FOLLOWS:
   a. 0-25 CY PER DAY: ONE TEST
   b. ONE TEST PER EACH ADDITIONAL 50 CY
3. CONCRETE SHALL MEET ALL REQUIREMENTS OF ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE BUILDINGS.
4. ALL PERMANENTLY EXPOSED CONCRETE EDGES TO BE CHAMFERED 3/4", UNO.

B. REINFORCING:

1. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60.
2. DETAIL REINFORCING BARS IN ACCORDANCE WITH THE ACI DETAILING MANUAL AND THE ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION.
3. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON THE DRAWINGS. PROVIDE SUFFICIENT TIE BARS TO SUPPORT ALL REINFORCING.
4. DO NOT CUT ANY REINFORCEMENT AT OPENINGS.
5. UNLESS A REINFORCING SPLICE, CLEAR DISTANCE BETWEEN REINFORCING SHALL NOT BE LESS THAN 1.5 BAR DIAMETERS NOR LESS THAN 1 1/2".
6. MINIMUM LAP SPLICE LENGTHS FOR REINFORCING BARS SHALL BE AS FOLLOWS:
   a. SPLICES WITH 12" OR MORE OF FRESH CONCRETE PLACED BENEATH: 80 BAR DIAMETERS
   b. ALL OTHER SPLICES: 62 BAR DIAMETERS
7. PROVIDE REINFORCEMENT COVER AS FOLLOWS (ACI 7.7), UNLESS NOTED OTHERWISE ON DRAWINGS:
   a. CONCRETE SLABS ON GRADE: CENTERED IN SLAB

C. POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
2. SCREW ANCHORS: SIMPSON TITEN HD, 316 STAINLESS
3. INSTALL POST-INSTALLED ANCHORS ONLY AS INDICATED ON THE DRAWINGS OR WITH SPECIFIC WRITTEN APPROVAL OF THE ENGINEER PRIOR TO INSTALLATION.
4. THE CONTRACTOR MAY NOT USE SUBSTITUTES FOR THE POST-INSTALLED ANCHORS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
5. SEE DRAWINGS FOR ANCHOR TYPE, SIZE, AND EMBEDMENT DEPTHS. INSTALL ANCHORS AS OUTLINED IN MANUFACTURER'S SPECIFICATIONS AND ICC REPORTS. UTILIZE PROPER DRILL TYPE, BIT SIZE, AND HOLE CLEANING, DRIVING OR TIGHTENING TECHNIQUES, UNLESS NOTED OTHERWISE.

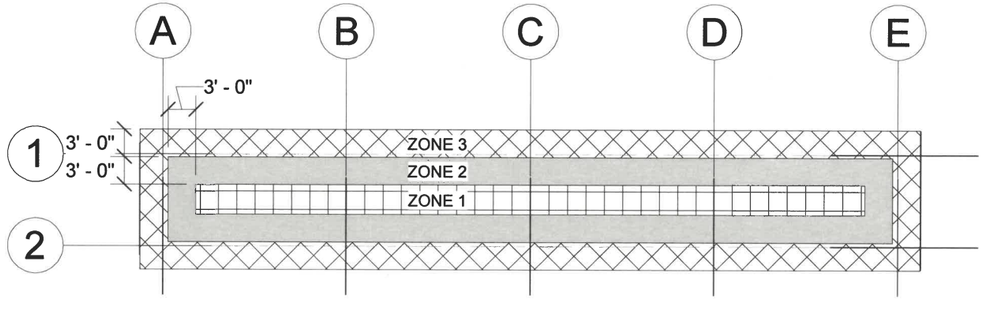
D. COLD-WEATHER CONCRETE:

COLD WEATHER CONDITIONS EXIST WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40°F DURING CONCRETE PLACEMENT OR STANDARD PROTECTION PERIOD OR AT ANYTIME DURING THE PROTECTION PERIOD DURATION AS OUTLINED BELOW. COMPLY WITH ACI 306.1, STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING AND AS FOLLOWS:

1. SUBGRADE TO BE THAWED PRIOR TO CONCRETE PLACEMENT.
2. DO NOT PLACE CONCRETE ON FROZEN MATERIALS, ICE, SNOW, OR STANDING WATER.
3. DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE SPECIFIED AND APPROVED IN MIXTURE DESIGNS.
4. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW IN THE CONCRETE MIXTURE.
5. ALL MASSIVE EMBEDMENTS (STRUCTURAL STEEL EMBEDMENTS IN CONTACT WITH CONCRETE WITH A CROSS-SECTIONAL AREA GREATER THAN 4 IN ²) MUST BE ABOVE FREEZING BEFORE CONCRETE PLACEMENT.
6. PROTECT CONCRETE DURING PLACEMENT AND THROUGHOUT THE PROTECTION PERIOD:
   a. MAINTAIN A MINIMUM CONCRETE TEMPERATURE OF 55°F DURING THE PROTECTION PERIOD.
   b. PROTECTION PERIOD DURATION:
      • 5 DAYS FOR FOUNDATIONS AND THICKENED EDGE SLABS.
      • UNTIL CONCRETE HAS REACHED A MINIMUM IN-PLACE COMPRESSIVE STRENGTH OF 3500 PSI.
   c. DO NOT REMOVE SHORING OR FORMWORK DURING THE PROTECTION PERIOD.
   d. AVOID OVERHEATING AND DRYING CONCRETE SURFACES DURING PROTECTION.
   e. RECORD CONCRETE TEMPERATURE AT REGULAR TIME INTERVALS AT LEAST TWICE EVERY 24 HOURS.
   f. PROTECTION TERMINATION REQUIREMENTS:
      • FOLLOWING THE PROTECTION PERIOD GRADUALLY COOL CONCRETE SURFACE BY THE FOLLOWING MAXIMUM COOLING RATE UNTIL THE CONCRETE SURFACE TEMPERATURE IS WITHIN 20°F OF THE AMBIENT AIR TEMPERATURE.
         • SECTION THICKNESS LESS THAN 12"..... 50°F PER 24 HOURS
7. FOR FLATWORK, USE LOW SLUMP CONCRETE TO MITIGATE PROBLEMS DUE TO BLEED WATER.
8. ALL WATER ADDED TO THE CONCRETE MIX SHALL NOT BE LESS THAN 55°F.

North

95% DRAFT FOR REVIEW PURPOSES ONLY



1/12 ROOF WIND PRESSURE ZONE MAP
1/16" = 1'-0"

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

STRUCTURAL GENERAL NOTES

PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET 12 OF 22 SHEETS

SPECIAL INSPECTIONS					
THE FOLLOWING STRUCTURAL ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTIONS 1704-1707. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR INSPECTION AND TESTING THAT ARE NOT PART OF SPECIAL INSPECTIONS.					
CONTINUOUS: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.					
PERIODIC: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.					
SYSTEM or MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
DIVISION #03 - CONCRETE					
CONCRETE					
INSPECT REINFORCEMENT	TABLE 1705.3	ACI 318-19: CH. 20, 25.2, 25.3, 26.6.1 - 26.6.3		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI CHAPTER 25
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE, MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED BELOW		ACI 318-19: 26.7, 6.13.3.2(h), 26.13.3.2(i)		X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE. INSPECTION FREQUENCY PER MANUFACTURER'S REQUIREMENTS BUT NOT LESS THAN 10% OF EACH ANCHOR, DOWEL, OR ADHESIVE TYPE
INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES. VERIFY USE OF APPROVED MIX DESIGN	TABLE 1705.3, 1904.1, 1904.2	ACI 318-19: 26.5, 26.13.3	X		
DIVISION #05 - STRUCTURAL STEEL					
FABRICATORS					
FABRICATORS	1704.2.5 1704.2.5.1	AISC 360-16: N6		X	SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP. NOTE: SPECIAL INSPECTION IS NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION
PRIOR TO BOLTING/WELDING					
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	1705.2.1	AISC 360-16: TABLE N5.6-1	X		
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		AISC 306-16: TABLE N5.6-1 RCSC SPECIFICATION FOR STRUCTURAL JOINTS FIGURE C-2.1		X	
CORRECT BOLTING PROCEDURE AND FASTENERS SELECTED FOR JOINT DETAIL		AISC 360-16: TABLE N5.6-1		X	GRADE, TYPE, BOLT LENGTH, IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		AISC 360-16: TABLE N5.6-1		X	
PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS		AISC 360-16: TABLE N5.6-1		X	
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS		AISC 360-16: TABLE N5.4-1		X	
WPS AVAILABLE		AISC 360-16: TABLE N5.4-1	X		
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		AISC 360-16: TABLE N5.4-1		X	
MATERIAL IDENTIFICATION		AISC 360-16: TABLE N5.4-1		X	TYPE/GRADE
WELDER IDENTIFICATION SYSTEM		AISC 360-16: TABLE N5.4-1		X	THE FABRICATOR OR ERECTOR SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED
FIT-UP OF FILLET AND GROOVE WELDS		AISC 360-16: TABLE N5.4-1		X	JOINT PREPARATIONS, DIMENSIONS, CLEANLINESS, TACKING, BACKING TYPE AND FIT

95% DRAFT
FOR REVIEW
PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

SPECIAL INSPECTIONS

PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET
13
OF 22 SHEETS

3/8/2023 2:51:46 PM

SPECIAL INSPECTIONS, CONTINUED					
SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
DIVISION #05 - STRUCTURAL STEEL					
DURING BOLTING/WELDING					
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED AND COMPONENT NOT TURNED BY THE WRENCH PREVENTED BY ROTATING	1705.2.1	AISC 360-16: TABLE N5.6-2		X	
JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		RCSC SPECIFICATION FOR STRUCTURAL JOINTS BOLTS SECTION 9 AISC 306-16: TABLE N5.6-2 AISC 360: SECT. N5.6a		X	ALL CONNECTIONS INSPECTED AND VERIFIED SNUG
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES		AISC 360-16: TABLE N5.6-2		X	
CONTROL AND HANDLING OF WELDING CONSUMABLES		AISC 360-16: TABLE N5.4-2		X	ITEMS INCLUDE: PACKAGING AND EXPOSURE CONTROL
NO WELDING OVER CRACKED TACK WELDS		AISC 360-16: TABLE N5.4-2		X	
WPS FOLLOWED PLAN FOR ENVIRONMENTAL CONDITIONS		AISC 360-16: TABLE N5.4-2		X	WIND SPEED WITHIN LIMITS, PRECIPITATION AND TEMPERATURE
AFTER BOLTING/WELDING					
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS OR WELDED JOINT OR MEMBER	1705.2.1	AISC 360-16: TABLE N5.6-3, TABLE N5.4-3	X		
WELDS CLEANED		AISC 360-16: TABLE N5.4-3		X	
SIZE, LENGTH, AND LOCATION OF WELDS.		AISC 360-16: TABLE N5.4-3	X		
WELDS MEET VISUAL ACCEPTANCE CRITERIA		AISC 360-16: N5.4, TABLE N5.4-3	X		
ARC STRIKES		AISC 360-16: TABLE N5.4-3	X		
REPAIR ACTIVITIES		AISC 360-16: TABLE N5.4-3	X		
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR		AISC 360-16: TABLE N5.4-3		X	
HIGH STRENGTH BOLTING: PRETENSIONED AND SLIP-CRITICAL JOINT HIGH-STRENGTH BOLT INSTALLATION USING TURN-OF-THE-NUT METHOD WITH MATCH MARKING, TWIST-OFF BOLT, OR DIRECT TENSION INDICATOR METHOD		RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS SECTION 9 AISC 360, SECTION M2.5, N5.6b, TABLE N5.6-2		X	ALL CONNECTIONS INSPECTED AFTER PRETENSIONING
COMPLETE JOINT PENETRATION WELDS		AISC 360 N5.5	X		ALL WELDS TO BE VISUALLY INSPECTED PER AWS D1.1 6.9 ULTRASONIC TESTING (UT) IS REQUIRED FOR CJP WELDS, UT FREQUENCY IS 10%.
DIVISION #31 - EARTHWORK					
SOILS					
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	TABLE 1705.6			X	BY THE GEOTECHNICAL ENGINEER OR OTHER APPROVED INSPECTOR
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY				X	BY THE GEOTECHNICAL ENGINEER OR OTHER APPROVED INSPECTOR

95% DRAFT FOR REVIEW PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

SPECIAL INSPECTIONS

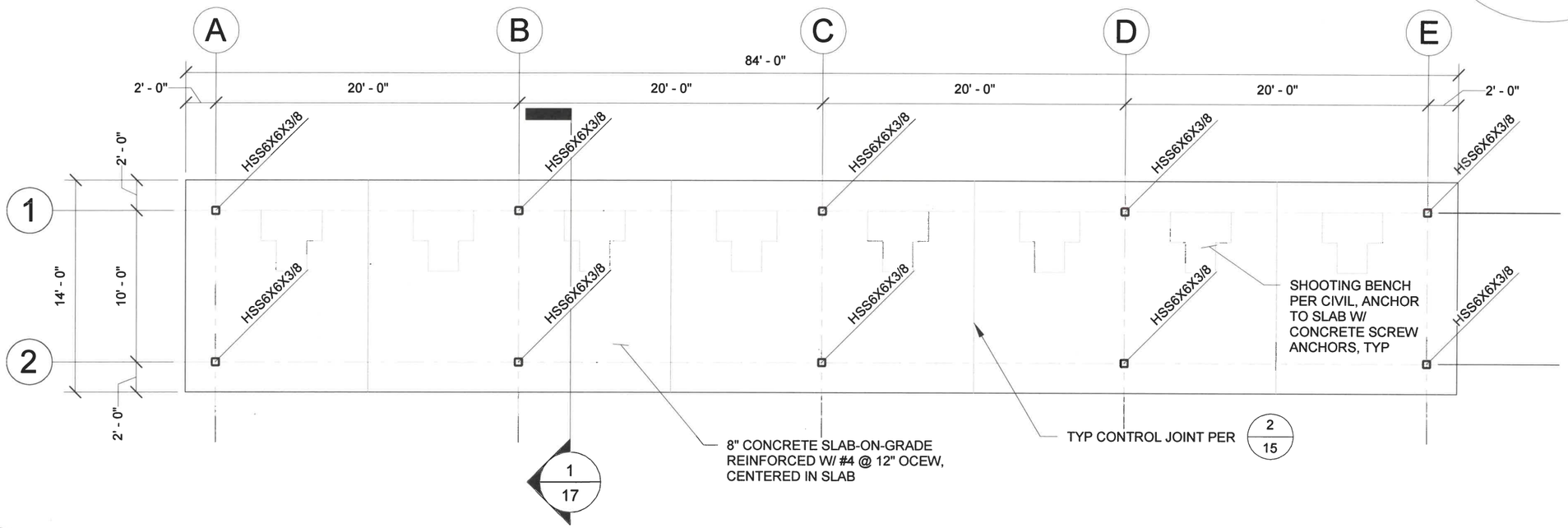
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET
14
OF 22 SHEETS

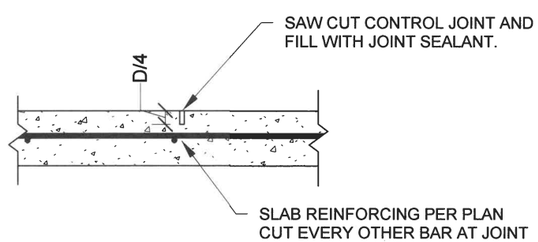
3/8/2023 2:51:47 PM

North

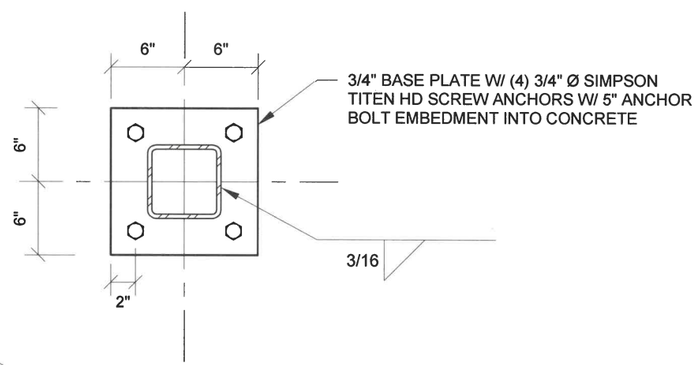
95% DRAFT
FOR REVIEW
PURPOSES ONLY



1/15 FOUNDATION PLAN
1/8" = 1'-0"



2/15 TYPICAL CONCRETE CONTROL JOINT
3/4" = 1'-0"



3/15 HSS COLUMN BASEPLATES
1" = 1'-0"

3/8/2023 2:51:47 PM

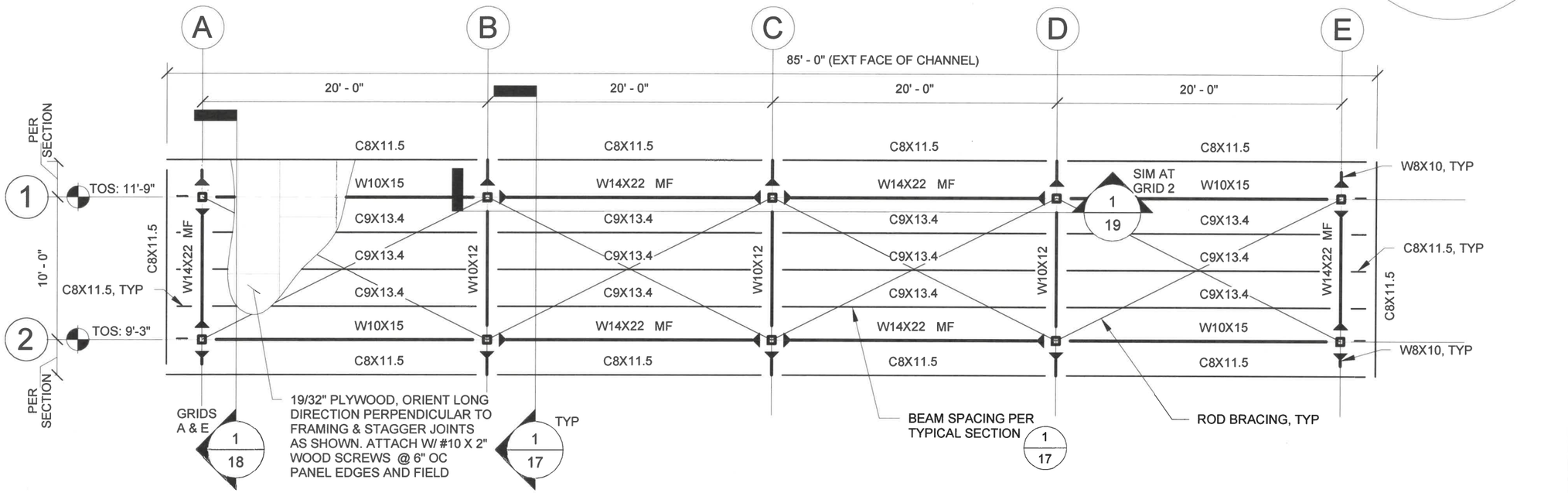
STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

PAVILION FOUNDATION PLAN

PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET
15
OF 22 SHEETS



1/16 ROOF PLAN
1/8" = 1'-0"

ROOFING ASSEMBLY:

1. PROVIDE CONTINUOUS LAPPED 15# FELT UNDERLAYMENT.
2. PROVIDE 29 GA HEAD, RAKE, AND EAVE FLASHING. FACTORY FINISHED, PAINT FINISH TO BE 0.8 MIL ACRYLIC EMULSION FINISH COAT OVER 0.2 MIL BAKED-ON ACRYLIC PRIMER, COLOR TO MATCH DENALI GREEN BY IMSA BUILDING PRODUCTS INC. OR APPROVED EQUAL.
3. PAINT UNDERSIDE OF PLYWOOD ROOF SHEATHING, COLOR TO MATCH STRUCTURAL STEEL.
4. PROVIDE OWENS CORNING DURATION ASPHALT SHINGLE ROOFING, OR EQUAL. COLOR: CHATEAU GREEN

SOUND DEADENING:

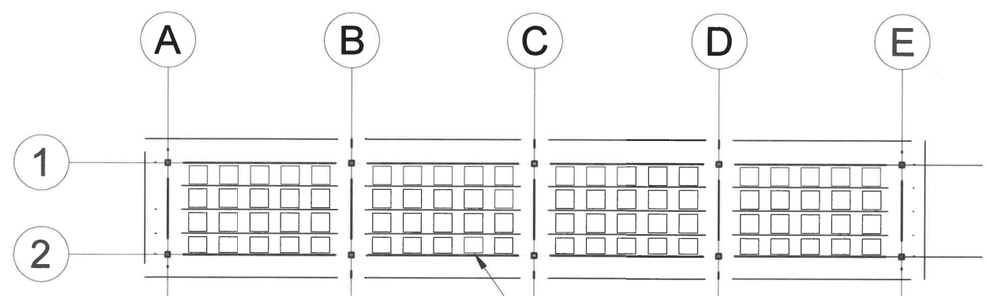
1. PROVIDE ACOUSTICAL SURFACES INC., ARPRO 24" X 24" X 2" OUTDOOR RATED ACOUSTIC PANELS, OR EQUAL. CENTER BETWEEN INTERIOR CHANNELS, 5 PANELS WIDE BETWEEN GRIDLINES, EVENLY SPACED. COLOR: CHARCOAL.

STEEL COATING:

1. ALL STRUCTURAL STEEL TO BE PRIMED WITH 1 COAT MACROPOXY 646 AND FINISHED WITH 1 TOP COAT OF ACROLON 218 HS, COLOR: SW 3045 RUSSET BROWN. SUBMIT SAMPLES FOR APPROVAL.

FRAMING LEGEND

MOMENT CONNECTION



2/16 ACOUSTIC PANELS PLAN
1/16" = 1'-0"

North

95% DRAFT FOR REVIEW PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

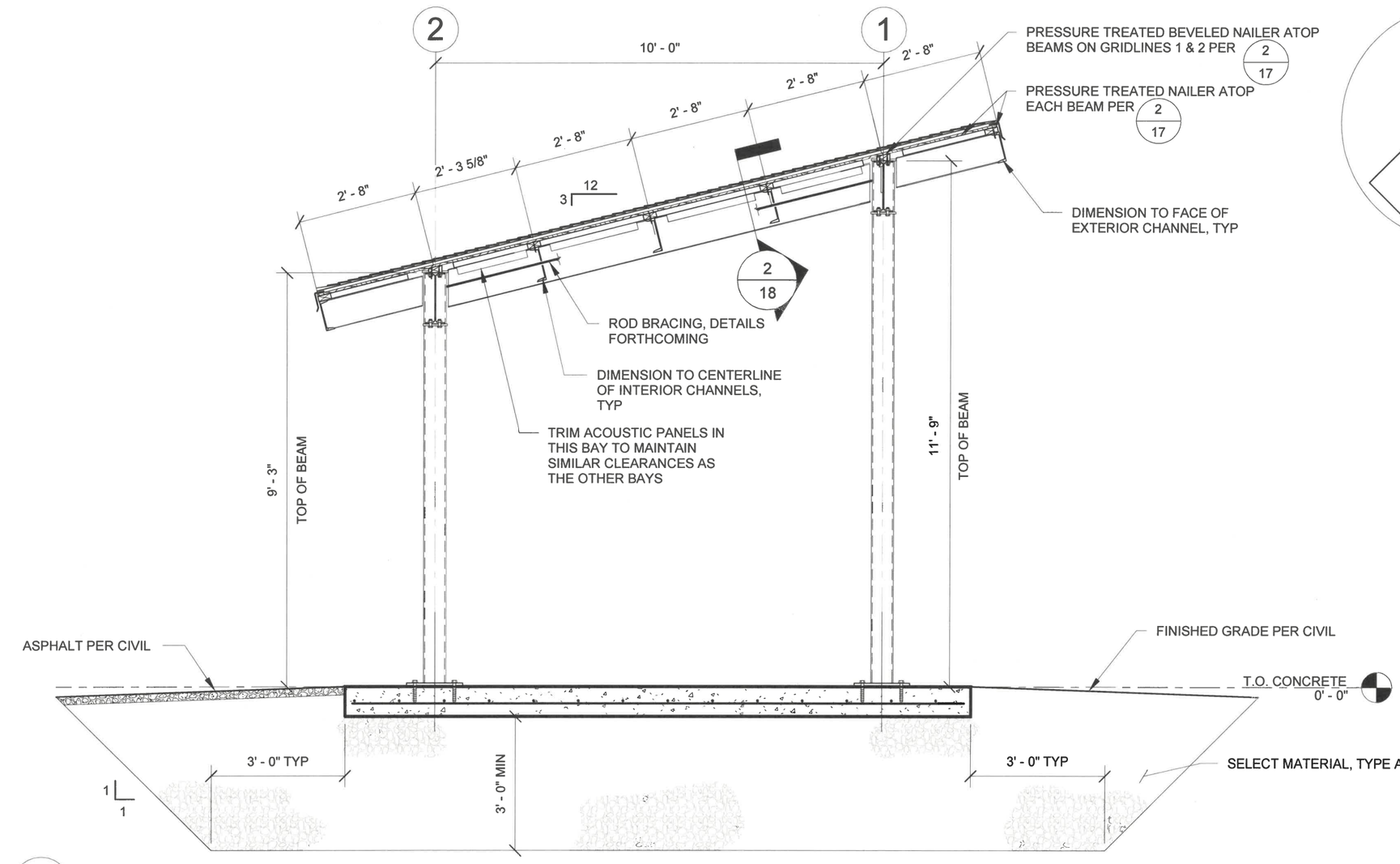
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

PAVILION ROOF PLAN

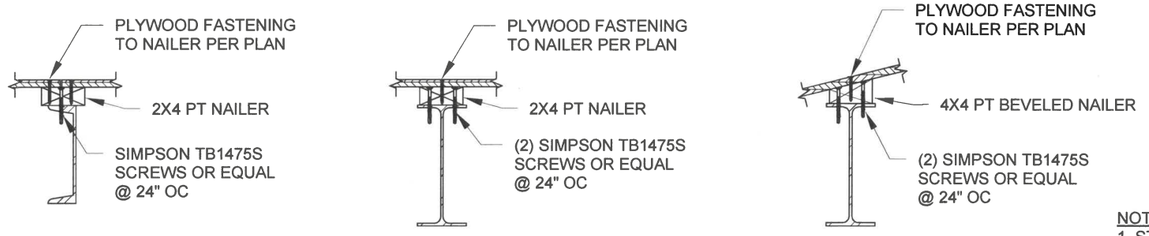
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET 16
OF 22 SHEETS

3/8/2023 2:51:48 PM



1/17 TYPICAL PAVILION SECTION
3/8" = 1'-0"



NOTES:
1. STOP AND START NAILERS WITHIN 2" OF CONNECTION INTERFERENCES.
2. TREAT CUT EDGE OF BEVELED NAILER WITH WOOD PRESERVATIVE COATING.

2/17 NAILER CONNECTION
1" = 1'-0"

95% DRAFT FOR REVIEW PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

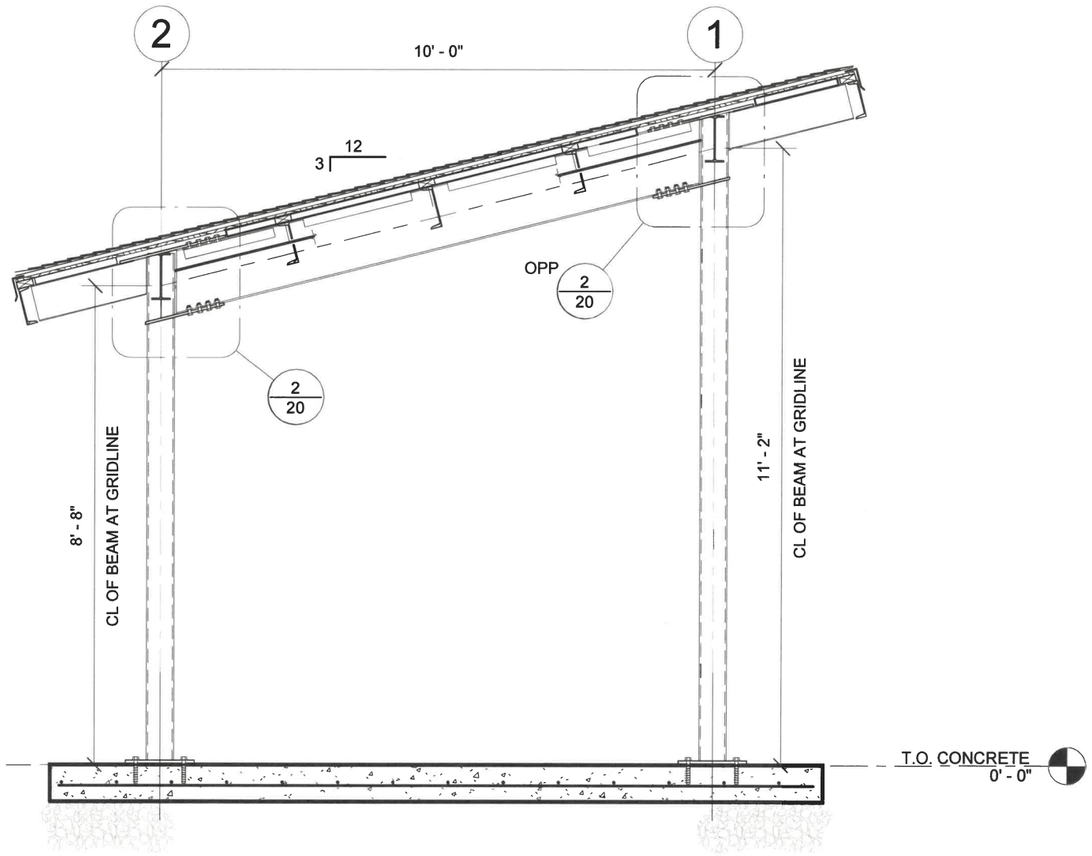
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

TYPICAL PAVILION SECTION

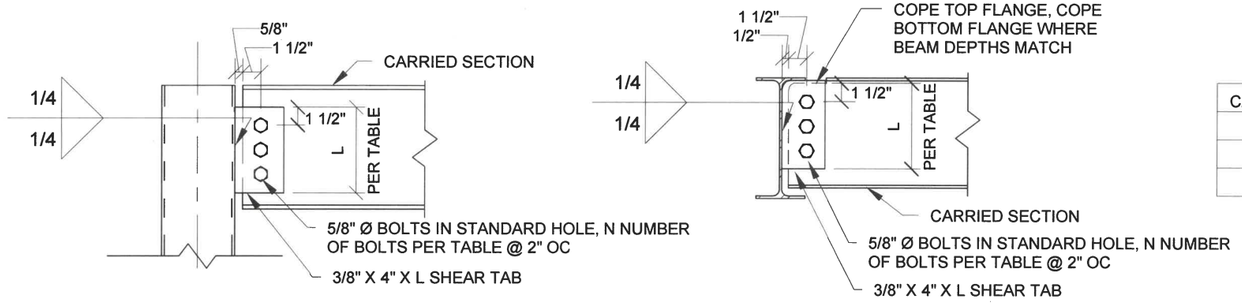
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET 17
OF 22 SHEETS

3/8/2023 2:51:49 PM



1/18 PAVILION SECTION AT MOMENT FRAME (GRIDLINES A & E)
3/8" = 1'-0"



CARRIED SECTION	N	L (IN)
W8 / C8	2	5
W10 / C9	3	7
W14	4	9

2/18 TYPICAL STEEL SHEAR TAB
1" = 1'-0"

95% DRAFT
FOR REVIEW
PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

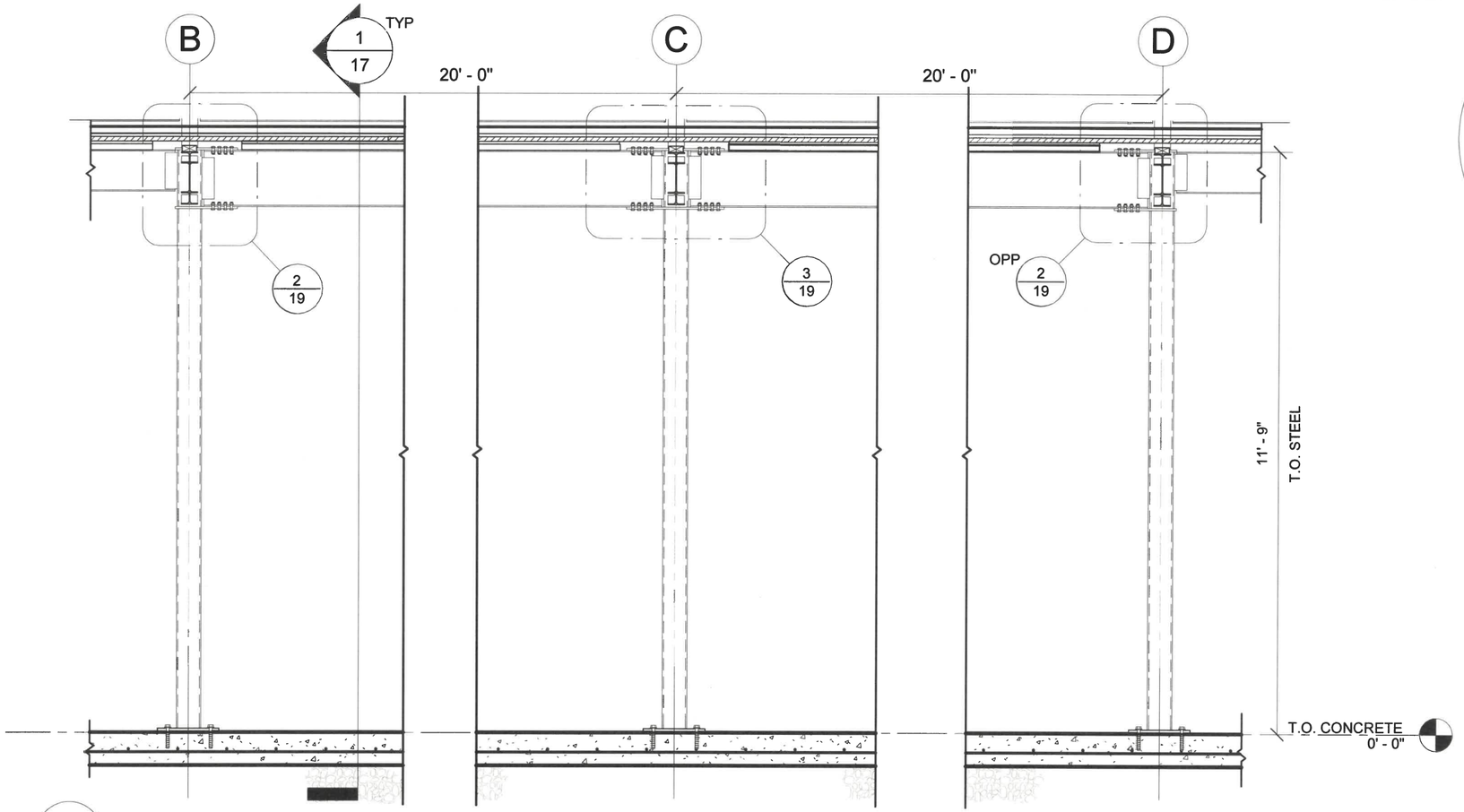
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

PAVILION SECTION AT MOMENT FRAME, GRIDLINES A & E

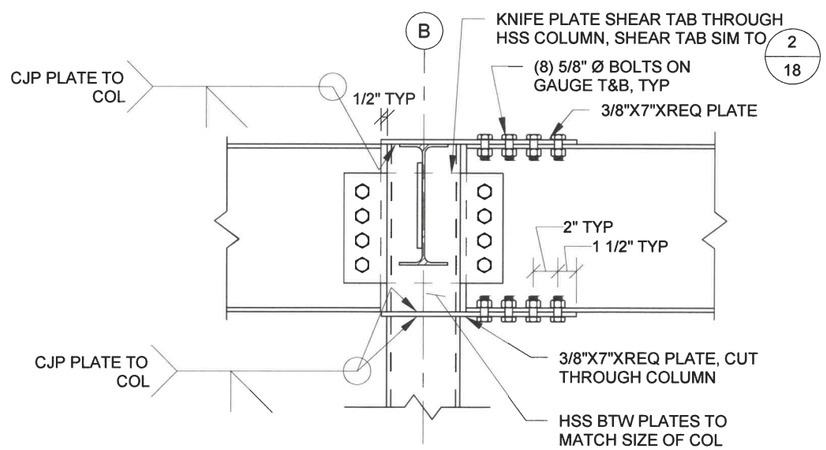
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET
18
OF 22 SHEETS

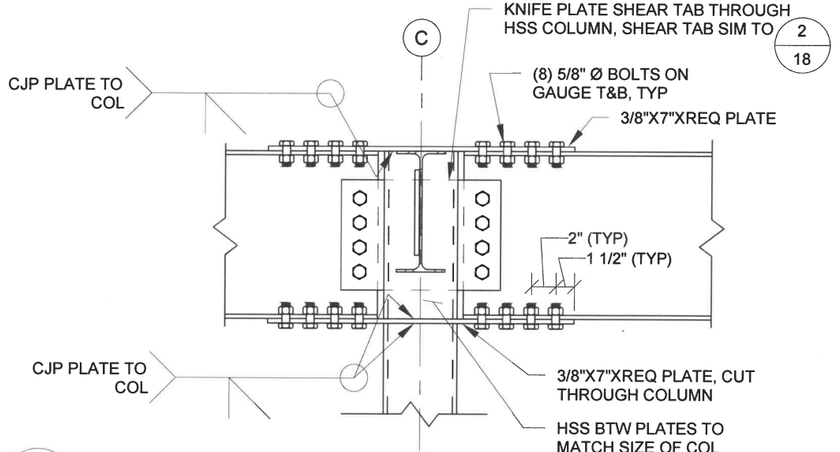
3/8/2023 2:51:50 PM



1/19 PAVILION SECTION AT MOMENT FRAME, GRIDLINES 1 & 2
3/8" = 1'-0"



2/19 WIDE FLANGE TO HSS COL MOMENT CONNECTION AT GRIDLINE B & D
1" = 1'-0"



3/19 WIDE FLANGE TO HSS COL MOMENT CONNECTION AT GRIDLINE C
1" = 1'-0"

95% DRAFT FOR REVIEW PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

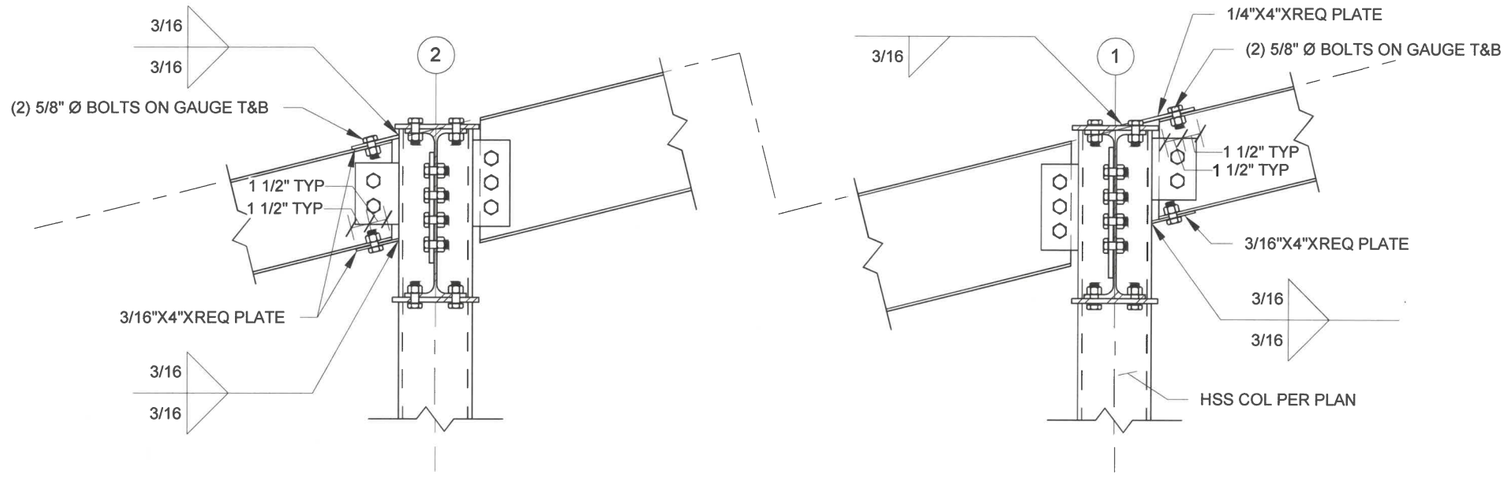
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

PAVILION SECTION AT MOMENT FRAME, GRIDLINES 1 & 2

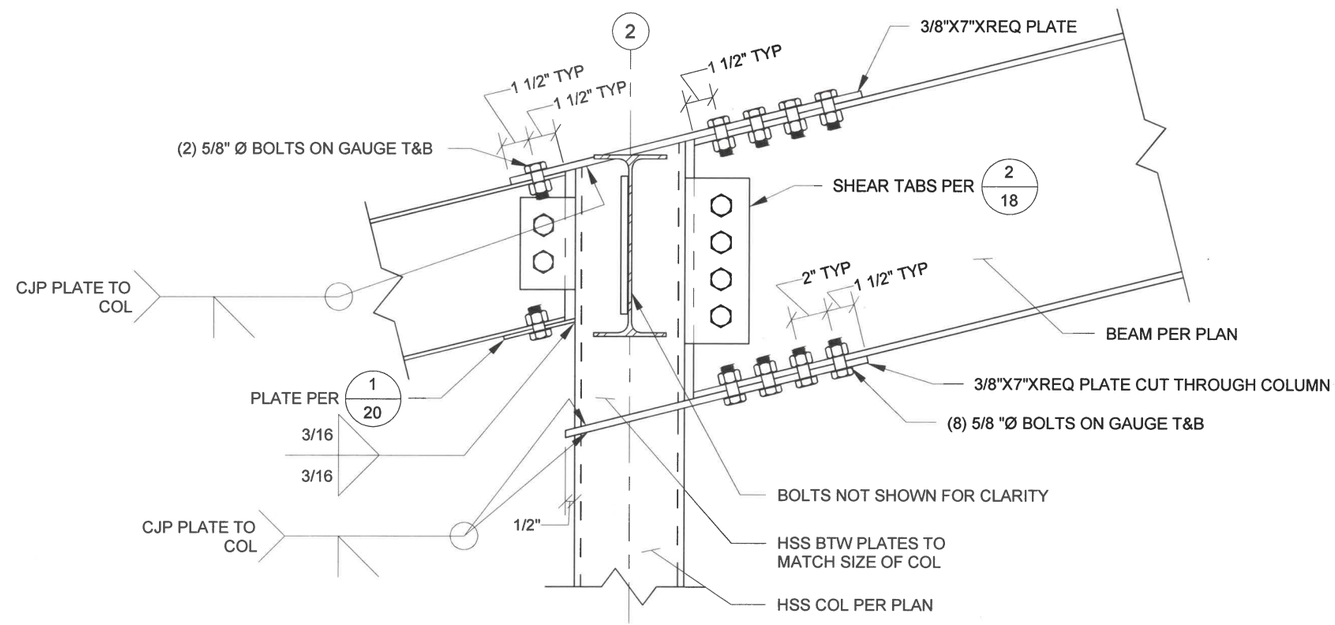
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET
19
OF 22 SHEETS

3/8/2023 2:51:51 PM



1/20 WF OUTLOOKERS MOMENT CONNECTION AT GRIDLINES B, C, & D
1" = 1'-0"



2/20 SLOPED WIDE FLANGE TO HSS COL MOMENT FRAME AND OUTLOOKER CONNECTION
1 1/2" = 1'-0"

95% DRAFT FOR REVIEW PURPOSES ONLY

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

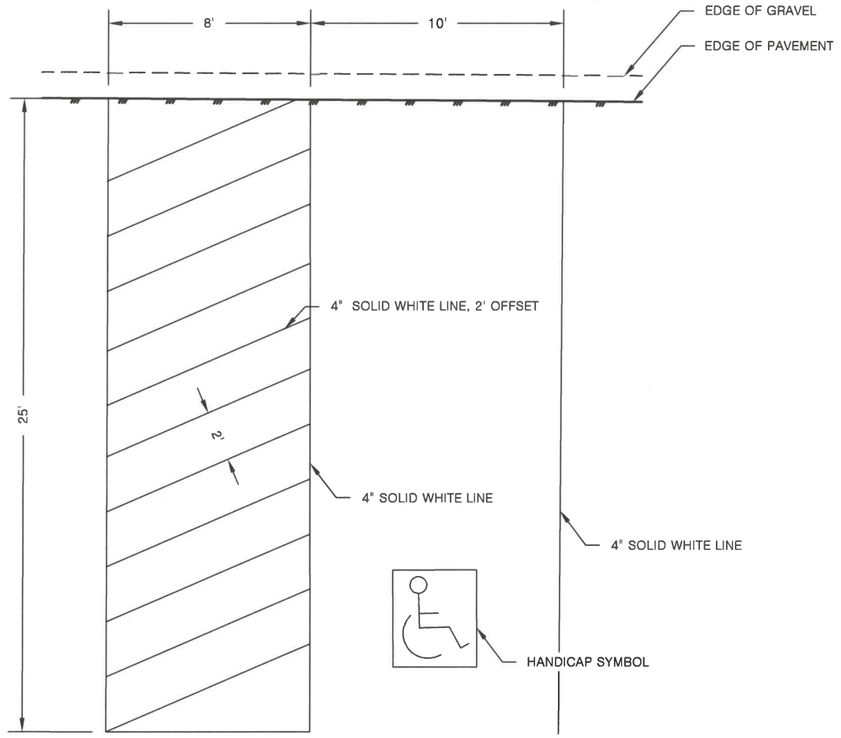
CHENA RIVER SRA: UPPER STILES CREEK SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

STRUCTURAL DETAILS

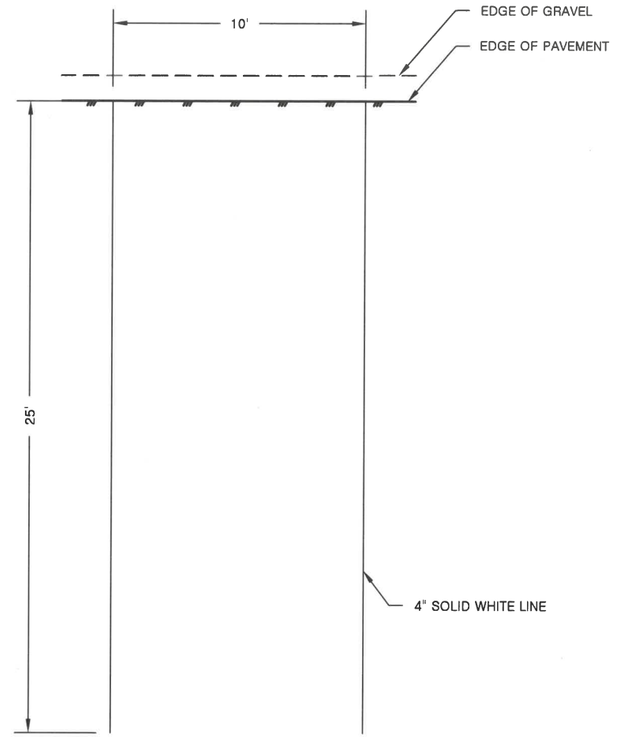
PREPARED: TBT
DRAWN: TBT
REVIEWED: PSB
DATE: 03/08/2023

SHEET 20 OF 22 SHEETS

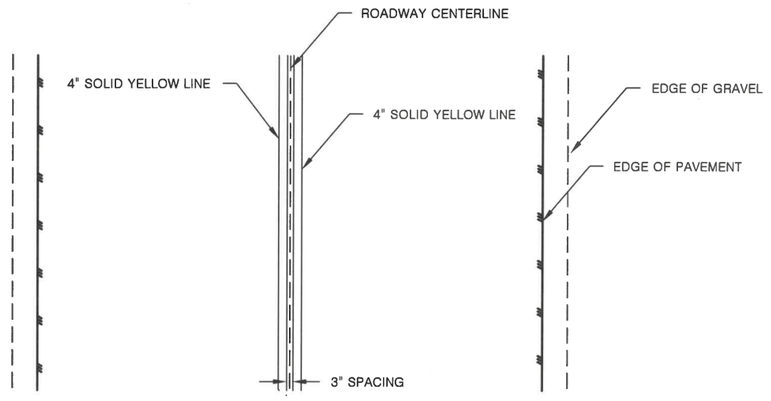
3/8/2023 2:51:52 PM



1/21 HANDICAP STRIPING DETAIL



2/21 STANDARD SPACE STRIPING DETAIL



3/21 CENTERLINE STRIPING DETAIL

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

STRIPING DETAILS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/13/2023

SHEET
21
OF 22 SHEETS

STATE OF ALASKA
49TH
65% DRAFT FOR REVIEW PURPOSES ONLY
Winter
12591
Registered Professional Engineer

615.0001.0000 STANDARD SIGN – SIGN SUMMARY

SIGN NO.	ORIENTATION	TYPE	LEGEND	SIZE (IN. X IN.)	AREA (S.F.)	THICKNESS (IN.)	SIGN POST DATA		
							TYPE	SIZE (IN.)	NO.
S1	WEST	R2-1		24 X 18	3	0.125	PST	2.5 X 2.5	1
	NORTHING	3985855.8066							
	EASTING	1569528.2074							
S2	SOUTHWEST	R7P-101R		18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986472.3257							
	EASTING	1570001.4270							
S3	SOUTHWEST	R7-8		18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986514.5786							
	EASTING	1569900.0747							
S4	SOUTHWEST	R7P-101L		18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986516.6718							
	EASTING	1569890.5158							
S5	SOUTHWEST	SEE DETAIL 1/22	SEE DETAIL 1/22	36 X 24	6	0.125	RANGE CANOPY MOUNTED	N/A	N/A
	NORTHING	3986540.5471							
	EASTING	1569883.8640							
S6	SOUTHWEST	SEE DETAIL 1/22	SEE DETAIL 1/22	36 X 24	6	0.125	RANGE CANOPY MOUNTED	N/A	N/A
	NORTHING	3986602.5696							
	EASTING	1569781.1607							
S7	SOUTHEAST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986585.3774							
	EASTING	1569934.6948							
S8	SOUTHEAST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986657.8111							
	EASTING	1569979.8081							
S9	SOUTHEAST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986729.8058							
	EASTING	1570024.5744							
S10	NORTHEAST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986796.7402							
	EASTING	1570063.9857							
S11	NORTH	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986880.8634							
	EASTING	1569928.1165							
S12	NORTHWEST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986813.2280							
	EASTING	1569887.6061							
S13	NORTHWEST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986740.8786							
	EASTING	1569842.9002							
S14	NORTHWEST	SEE DETAIL 2/22	SEE DETAIL 2/22	18 X 12	1.5	0.125	PST	2.5 X 2.5	1
	NORTHING	3986668.6382							
	EASTING	1569797.9078							

(1/22) RANGE REGULATIONS SIGN SIMILAR TO

(2/22) ACTIVE SHOOTING RANGE KEEP OUT SIGN SIMILAR TO

STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES
PLANS DEVELOPED BY: DIVISION OF PARKS AND OUTDOOR RECREATION
550 W 7TH AVE. SUITE 1340, ANCHORAGE, AK 99501 - 907.269.8731

CHENA RIVER SRA: UPPER STILES CREEK
SHOOTING RANGE IMPROVEMENTS
PROJECT No. 70011-1

SIGN SUMMARY

ALASKA STATE PARKS

PREPARED: CKD
DRAWN: CKD
REVIEWED: KRW
DATE: 3/09/2023

SHEET
22
OF 22 SHEETS

Outlook

FW: [EXTERNAL] RE: NHPA Section 106 Finding-Stiles Creek Shooting Range, Fairbanks, Alaska USFWS

From Adams, Jacob S <jacob_adams@fws.gov>
Date Mon 12/23/2024 7:25 AM
To Snyder, Jonathan JS <Jonathan_Snyder@fws.gov>

Good Morning Jonathan-

See email below from SHPO concurring with our finding of no historic properties affected for the Stiles Creek shooting range.

Best,
Jake

Jacob S. Adams Ph.D., RPA
Archaeologist
US Fish and Wildlife Service, Alaska Region
1011 E. Tudor Rd.
Anchorage, AK 99503
406-223-5359 or Microsoft Teams
jacob_adams@fws.gov

From: Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>
Sent: Friday, December 20, 2024 2:22 PM
To: Adams, Jacob S <jacob_adams@fws.gov>
Cc: Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>
Subject: [EXTERNAL] RE: NHPA Section 106 Finding-Stiles Creek Shooting Range, Fairbanks, Alaska USFWS

3130-1R FWS / 2024-01152

Good afternoon,

The Alaska State Historic Preservation Office (AK SHPO) received your correspondence (dated November 21, 2024) concerning the subject project on November 29, 2024. Following our review of the documentation provided, we concur with the finding of No Historic Properties Affected.

This email serves as our office's official correspondence for the purposes of Section 106. Please note that our office may need to re-evaluate our concurrence if changes are made to the project's scope or design, or comments are received from other consulting parties. As stipulated in 36 CFR 800.3, other consulting parties such as the local government and Tribes are required to be notified of the undertaking. Our response does not end the 30-day review period provided to other consulting parties. Should unidentified cultural resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register of Historic Places eligibility criteria (36 CFR 60.4), in consultation with our office. Please note that some sites can be deeply buried and that fossils are considered cultural resources subject to the Alaska Historic Preservation Act.

Thank you for the opportunity to comment. Please contact me if you have any questions or if we can be of further assistance.

Best,
Sarah

Sarah Meitl
Review and Compliance Coordinator
Alaska State Historic Preservation Office
Office of History and Archaeology
907-269-8720

From: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>
Sent: Friday, November 29, 2024 8:08 AM
To: jacob_adams@fws.gov
Cc: Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>
Subject: FW: NHPA Section 106 Finding-Stiles Creek Shooting Range, Fairbanks, Alaska USFWS

Good morning,

The Office of History and Archaeology/Alaska State Historic Preservation Office received your documentation, and its review has been logged in with me under 2024-01152. Our office has 30 calendar days after receipt to complete our review and may contact you if we require additional information. Please contact the project reviewer or me by email if you have any questions or concerns.

Best,
Sarah

Sarah Meitl
Review and Compliance Coordinator
Alaska State Historic Preservation Office
Office of History and Archaeology
sarah.meitl@alaska.gov

From: Adams, Jacob S <jacob_adams@fws.gov>
Sent: Thursday, November 21, 2024 1:22 PM
To: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>

Cc: Karchut, Jeremy M <jeremy_karchut@fws.gov>; Snyder, Jonathan JS <Jonathan_Snyder@fws.gov>; Farmer, Carolyn (DNR sponsored) <Carolyn.H.Farmer@usace.army.mil>
Subject: NHPA Section 106 Finding-Stiles Creek Shooting Range, Fairbanks, Alaska USFWS

Good Afternoon-

Please see the attached letter and three enclosures for a project improving the existing Stiles Creek Shooting Range near Fairbanks, Alaska. Feel free to reach out with questions or for further information.

Thanks,
Jake

Jacob S. Adams Ph.D., RPA
Archaeologist
US Fish and Wildlife Service, Alaska Region
1011 E. Tudor Rd.
Anchorage, AK 99503
406-223-5359 or Microsoft Teams
jacob_adams@fws.gov

Appendix N

Public Comment Documents

Jones, Marina

From: DFG, DWC Hunter Access (DFG sponsored) <DFG.DWC.HunterAccess@alaska.gov>
Sent: Friday, October 6, 2023 3:00 PM
To: Winter, Katie R (DNR)
Subject: FW: Stiles Range Comments

Hi Katie, the post is out. I haven't had a chance to look at it yet but here is one comment right off the bat. Brian was the PI for our range project with the Fairbanks North Star Borough and as far as I know still works for FNSB although this came in as a personal comment.

https://www.facebook.com/alaskafishandgame/

From: Brian Charlton <bcskijor@yahoo.com>
Sent: Friday, October 6, 2023 2:51 PM
To: DFG, DWC Hunter Access (DFG sponsored) <DFG.DWC.HunterAccess@alaska.gov>
Subject: Stiles Range Comments

Hello,
The proposed improvements to the Stiles Creek Shooting Range look great. One thing that doesn't seem to be considered is the Chena Hot Springs Winter Trail. I believe the trail passes very close to the shooting benches. The trail is sometimes used in the summer as well. Please be sure to coordinate a reroute of the trail or shifting of the shooting area.

Thanks!

Brian Charlton

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS & OUTDOOR RECREATION

NORTHERN AREA
3700 AIRPORT WAY
FAIRBANKS, ALASKA 99709
PHONE: (907) 451-2695
FAX: (907) 451-2754

11/13/2019

Mr. Rys Miranda
Chief of Design and Construction
ADNR, Division of Parks and Outdoor Recreation
550 West 7th Avenue, Suite 1380
Anchorage, Alaska 99501

Dear Mr. Miranda:

The Northern Area Alaska State Parks Citizen Advisory Board would like to express their support for improvements to the 36.4-mile shooting range within Chena River State Recreation Area.

This range has been in use since the 1970's and is very popular. Over 1,500 people use it yearly. Law enforcement agencies also (delete) use the facilities. Alaska State Parks has issued special use permits to agencies such as the Alaska Wildlife Troopers and the Fairbanks Police Department. Sister agencies such as the State Division of Forestry and Division of Mining, Land, and Water use the facilities for bear defense shotgun training.

Unfortunately, the road to the shooting range and range itself are subject to flooding and are extremely wet during breakup in the spring. Fill needs to be brought in to build up the road and range. This will make the site easier to mechanically clean as well as making it more accessible for folks with disabilities.

Outdoor shooting ranges within the Fairbanks North Star Borough (FNSB) are extremely limited. There are two in Fairbanks. One on South Cushman operated by FNSB and the other at the airport. The airport range is being closed down for good in December of 2019 which will put additional pressure on the remaining ranges.

Sincerely,

Don Kiely, Chair
Northern Area Alaska State Parks
Citizen Advisory Board

Miranda, Rys B (DNR)

From: Thomas, Ian C (DNR)
Sent: Tuesday, October 22, 2019 1:06 PM
To: Miranda, Rys B (DNR)
Subject: FW: CRSRA Shooting Range

Here is a letter of support for the shooting range grant. I have one more that should be coming in later this afternoon from a Fairbanks Police Sergeant who uses the range for training.

Ian

From: Shilling, Timothy A (DNR)
Sent: Monday, October 21, 2019 6:10 PM
To: Thomas, Ian C (DNR) <ian.thomas@alaska.gov>
Subject: CRSRA Shooting Range

Hello Ian,

I would like to offer my support for proposed implementation of the online reservation system, as well as the upgrades to the CRSRA shooting range. I am a regular user of the range, and it is quite instrumental for the DNR, Division of Mining, Land and Water's Wildlife Safety training. As you know, we use the range for training several times per year. For the safety of staff as well as the public, we are required to reserve the range for agency use. Although we do our best to minimize impact to the public and to notify the public in advance, an online system would be greatly beneficial and a very practical way to minimize conflicts.

I also support the proposed upgrades to the range. For many years, the benches at the range have been in desperate need of repair or replacement. Often, unless a user brings their own portable bench or stool, the benches are largely unusable. Additionally, the downrange conditions are often rather poor, with large pools of standing water, occasionally untraversable. The ability to walk all the way down range would make the range a much nicer place to shoot, make it easier to maintain, and would likely reduce the amount of trash and debris left down range if it is easier to recover. When we use the range for agency training we try our best to do our part to clean it up, but the poor down range conditions make it rather challenging, especially during the wetter parts of the year.

Again, I am in full support of the proposed upgrades to the CRSRA range. If you have any questions or would like any additional information, please let me know.

Sincerely,

Timothy Shilling
Competitive Land Sales Manager
3700 Airport Way
Fairbanks, AK 99709
phone: (907) 451-2734
fax: (907) 451-2751

Facebook post on 10/6/2023 and comments on post as of 12 pm on 10/9/2023.

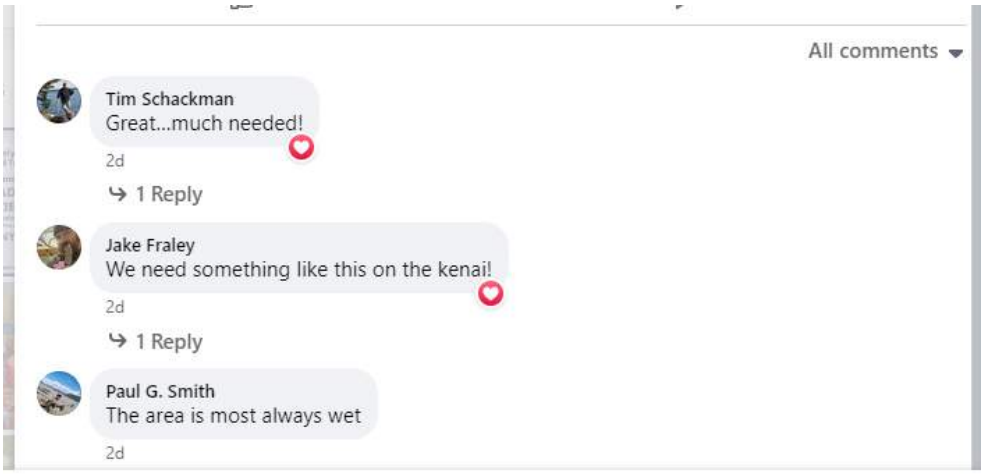
Alaska Department of Fish and Game - Official
2d ·

Hey Alaska! 👋 Do you enjoy the outdoors and recreational shooting in the Interior? 🏞️ Then check out this exciting project that Alaska State Parks and the ADF&G Hunter Access Program are partnering on. ⭐ We are soliciting comments on proposed improvements to the Stiles Creek outdoor shooting range near Fairbanks in the Chena SRA.

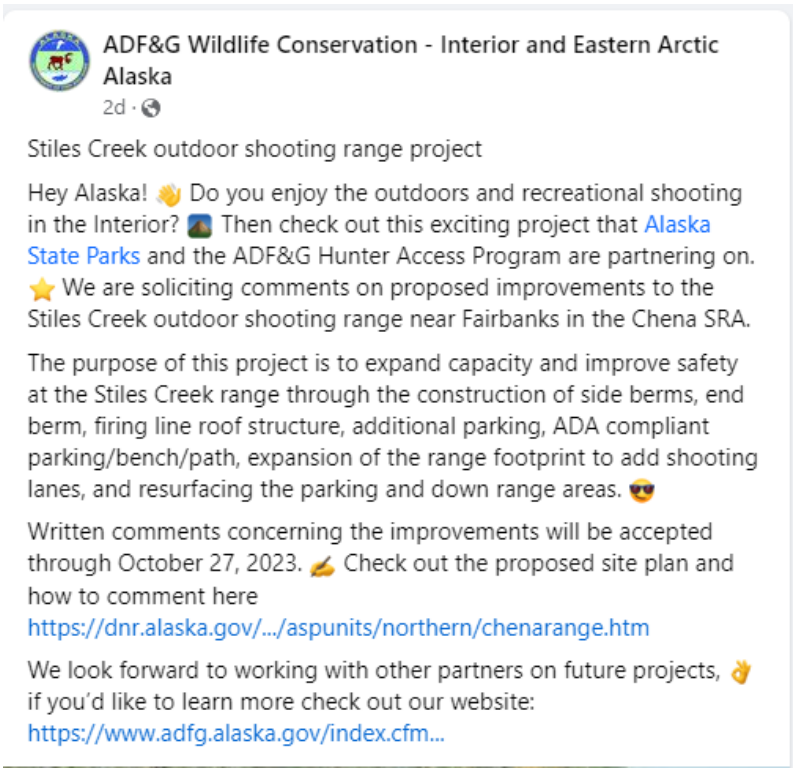
The purpose of this project is to expand capacity and improve safety at the Stiles Creek range through the construction of side berms, end berm, firing line roof structure, additional parking, ADA compliant parking/bench/path, expansion of the range footprint to add shooting lanes, and resurfacing the parking and down range areas. 😎

Written comments concerning the improvements will be accepted through October 27, 2023. ✍️ Check out the proposed site plan and how to comment here
https://dnr.alaska.gov/.../aspunits/northern/chenarange.htm
We look forward to working with other partners on future projects, 👌 if you'd like to learn more check out our website:
https://www.adfg.alaska.gov/index.cfm...

34 7 3



Interior FB Page:



ADF&G Wildlife Conservation - Interior and Eastern Arctic Alaska

2d ·

Stiles Creek outdoor shooting range project

Hey Alaska! 👋 Do you enjoy the outdoors and recreational shooting in the Interior? 🏞️ Then check out this exciting project that Alaska State Parks and the ADF&G Hunter Access Program are partnering on. ⭐ We are soliciting comments on proposed improvements to the Stiles Creek outdoor shooting range near Fairbanks in the Chena SRA.

The purpose of this project is to expand capacity and improve safety at the Stiles Creek range through the construction of side berms, end berm, firing line roof structure, additional parking, ADA compliant parking/bench/path, expansion of the range footprint to add shooting lanes, and resurfacing the parking and down range areas. 😎

Written comments concerning the improvements will be accepted through October 27, 2023. ✍️ Check out the proposed site plan and how to comment here https://dnr.alaska.gov/.../aspunits/northern/chenarange.htm

We look forward to working with other partners on future projects, 👌 if you'd like to learn more check out our website: https://www.adfg.alaska.gov/index.cfm...

11 3

Like Comment

FINDING OF NO SIGNIFICANT IMPACT

The U.S. Department of the Interior (DOI), Fish and Wildlife Service (Service) is proposing to provide Wildlife Restoration (Pittman Robertson) Act grant funding to the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation to upgrade and expand the public Upper Stiles Creek Shooting Range. The project is located in the Chena River State Recreation Area (CRSRA) within the Fairbanks North Star Borough (FNSB), Alaska. The U.S. Army Corps of Engineers (USACE) served as a cooperating agency and the Alaska Department of Fish and Game, and the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation (ADNR DPOR) served as participating agencies.

The Service and a State of Alaska Contractor prepared the Upper Stiles Creek Shooting Range Improvement Project, Chena River State Recreation Area, Alaska**,** incorporated herein by reference, pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) the DOI NEPA regulations (43 CFR 46), and the DOI Departmental Manual part 516 chapters 1-4 and 8.

Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the NEPA. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The Service verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 CFR Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. The Service has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 CFR Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

Background

The existing rudimentary Stiles Creek Shooting Range Facility has been owned and managed by the ADNR DPOR since the late 1960s. Prior to ADNR DPOR ownership, the gravel pit was owned by the Alaska Department of Transportation and used as a materials site for the construction and maintenance of Chena Hot Springs Road. Once ADOT no longer had a need and the site was abandoned, the gravel pit was used by locals for recreational shooting. ADNR

DPOR has turned a portion of the gravel pit into a rudimentary but serviceable public shooting range. Over time, a few improvements at the range were performed by volunteer groups but fell short of meeting any type of standards. The most recent improvement work was in 2006 when minimal upgrades occurred to the range in response to increased use, however, the range still does not meet any established outdoor range guidelines. Other concerns include lack of drainage, limited parking, lack of Americans with Disabilities Act (ADA) access, a narrow and exposed firing line, the presence of the winter trail near the firing line, the presence of litter, and wildfire ignition hazard. As a result, there is a lack of accessibility, an increased concern for safety, continued site degradation, and dissatisfaction from the public.

This site is one of two public outdoor shooting ranges that serve the 7,444 square mile FNSB and surrounding area. Given the interest in hunting and target shooting, safe, public gun ranges are too few to support the demand. Shooting ranges that are constructed for safety and public accessibility play a key role in recruiting new hunting and target shooting enthusiasts, and in improving their skill and proficiency.

Purpose and Need for Action

The purpose of the proposed action is to improve an existing, rudimentary, public outdoor shooting range to expand capacity and promote safe, responsible, and knowledgeable firearm use. The need for the proposed action is to provide an upgraded, expanded, and more environmentally friendly public shooting range in a region severely lacking a sufficient number of shooting range facilities.

The proposed action is intended to upgrade and expand the range to conform to the current National Rifle Association (NRA) range guidance as described in the *NRA Range Source Book* (2012). In addition to increasing safety, the project will provide an expanded, confined, and cleaner environment for recreational shooting activities. Proposed range improvements would include expansion and access upgrades including berms to increase safety and help prevent lead shot from entering adjacent waters, walkways, a covered firing line, additional benches (including an ADA-compliant bench, additional parking (including ADA compliant parking), and access road improvements to meet visitor needs and to improve hydrological connections.

Agency, Public and Tribal Coordination and Consultation

The proposed project is not controversial and visitors of the CRSRA, area shooting enthusiasts, and members of the public have all expressed support for the upgraded shooting range as greatly needed. In October 2023, a 30-day public review of the proposed project was published

electronically through the ADNR DPOR Stiles Creek Improvements webpage, online public notice, as well as the ADF&G social media page.

To fulfill the requirements of Section 106 of the National Historic Preservation Act, the Service offered Government to Government Consultation to seven Federally Recognized Tribes and offered to consult with seven Alaska Native Claims Settlement Act (ANSCA) Village corporations and one ANSCA Regional Corporation located within a 100-mile radius of the proposed project site. No offers of consultation were accepted. The Service also consulted with the Alaska State Historic Preservation Office on the proposed project.

Required Permits and Authorizations

The proposed project site may contain wetlands under USACE regulatory jurisdiction, therefore, a USACE wetland fill permit may be required under Section 404 of the Clean Water Act. An application has been submitted and is under review by the USACE.

The Alaska Department of Environmental Conservation (ADEC), Alaska Pollutant Discharge Elimination System (APDES) Program, would require the submittal of a Storm Water Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) in accordance with the Alaska Construction General Permit (ACGP) AKR100000 prior to the initiation of construction activities. The ACGP would be required to comply with the provisions of the Clean Water Act (CWA), 33 U.S.C. §1251 et. seq., as amended by the Water Quality Act of 1987, P.L. 100-4, and the permit is issued under provisions of Alaska Statutes 46.03. The ACGP allows construction sites to discharge stormwater if they implement specific measures to minimize pollution in that runoff. These measures include the submittal of the SWPPP seven days prior to initiating site work and utilizing best management practices (BMP's) to control sediment and other pollutants from entering waters, thereby protecting water quality.

The proposed project site is located within the FNSB and would be subject to its permitting requirements, which include obtaining Floodplain Development and Building Permits. Applications to be submitted prior to commencing construction.

The proposed project site is not within the range of any species listed, proposed to be listed, or considered a candidate for listing under the ESA. Nor is there any federally designated critical habitat for any ESA-listed species at the proposed project site.

The Service conducted a National Historic Preservation Act Section 106 Review and recommended a finding of no historic properties affected per 36 CFR 800.4 (d)(1). On

November 29, 2024, the State of Alaska, State Historical Preservation Officer concurred with the Service's finding

No Action Alternative, Proposed Action, and Reasonable Range of Alternatives

This section provides a summary and comparison of the reasonable range of alternatives as described in more detail in the Environmental Assessment. The terminology "reasonable range of alternatives" refers to a range of alternatives that are technically and economically feasible and meet the purpose and need for action. This section provides a comparative overview of the baseline No Action Alternative and the reasonable range of alternatives including the proposed action.

Alternative A is the Preferred Action Alternative because of the many desired amenities supportive of the 2006 CRSRA Management Plan and ADF&G's priorities for providing public shoot ranges as well as the environmental improvements beyond baseline conditions that will be implemented.

Alternative A – Stiles Creek Shooting Range Upgrade and Expansion

Alternative A would include widening the existing footprint of the range from approximately 80' to approximately 180' which would allow for the installation of an approximately 85-foot-long by 15-foot-wide concrete slab-covered shooting pavilion that would provide for a minimum of seven additional benches to supplement the three current benches, including an ADA-compliant bench. Side or backstop berms do not currently exist and would be designed and constructed for increased safety of range and winter trail users, as well as reducing wildfire risk and minimizing the amount of lead that might migrate off the range.

To accommodate the shooting range improvements, this project would include a parking lot expansion and paving to include ADA-compliant parking and improvements to the access road. The access road would be culverted, graded, scarified, and paved. The culverts which would be appropriately sized to restore proper hydrologic connectivity between the wetlands.

Alternative A would minimize environmental impacts related to range operations and improve current environmental conditions by following the pertinent and feasible U.S. Environmental Protection Agency's (USEPA) *Best Management Practices for Lead at Outdoor Shooting Ranges* (2005) and conform to current NRA range guidance as described in the *NRA Range Source Book* (2012). Alternative A would implement stormwater controls, and drainage structures in accordance with the ADEC APDES, General Permit for Discharges from Large and Small Construction Activities, AKR100000.

ADNR DPOR has consulted, and is working closely, with agencies such as USACE, ADF&G, and the Service to address regulatory compliance for the proposed project. Final shooting range designs may be altered to adjust to all federal, state, and local permitting as required.

The expansion and associated improvements under Alternative A would increase capacity of the range drawing additional users to the facility as intended in Pub. L. 116-17 Target Practice and Marksmanship Training Support Act of 2019 (Tar-Mark) which amended the Pittman-Robertson Wildlife Restoration Act to facilitate the construction and expansion of public target ranges in the United States.

Alternative B – Stiles Creek Shooting Range Upgrade Without Expansion

Alternative B would not expand the footprint of the existing range therefore improvements would be greatly reduced compared to Alternative A. Alternative B would provide for a covered firing line but would keep the range at the current size of approximately 80 feet wide by 400 feet long which would result in far fewer firing lanes (shooting benches) than Alternative A due to the need to construct side berms within the existing footprint. Alternative B would provide a reduced amount of additional parking commensurate with fewer shooting benches, the down range area would be elevated and resurfaced, and the access road would be minimally upgraded instead of resurfaced, paved, and culverted as under Alternative A. Alternative B would minimally improve the existing Stiles Creek Shooting Range, which could draw some additional users to the facility but would not expand capacity to the desired extent as in Alternative A.

Alternative C – No-Action Alternative

A No-Action Alternative is included reflecting baseline conditions that would continue to exist if neither Alternative A or B is implemented. With the No-Action Alternative, the proposed project site would continue to be used, in its current condition, as an active shooting range with none of the improvements called for in the CRSRA Management Plan. The range would not conform to safety standards outlined in NRA Range Source Book, nor implement the USEPA Best Management Practices for Lead at Outdoor Shooting Ranges document.

Implementation of Alternative C would result in continued potential impacts to adjacent wetland and waterways from sedimentation runoff and the potential release of lead into the environment from accumulated spent lead. The facility would continue to perpetuate existing safety issues, especially for nearby trail users and other outdoor recreationalists, and perpetuating existing access issues, especially for disabled users as the range is not currently ADA-compliant.

Alternative C would fail to expand capacity of the range as intended in grant authorizing legislation Pub. L. 116-17 Tar-Mark.

Summary of Reasonably Foreseeable Effects to the Human Environment

This section provides a summary and comparison of the reasonably foreseeable effects of the No Action Alternative as compared to the reasonable range of alternatives including the proposed action as described in the Environmental Assessment (EA). The terminology "reasonably foreseeable effects" refers to effects that are sufficiently likely to occur and that encompass both the direct and indirect effects of the action as well as effects of the action in addition to other potential past, present, and future effects.

The proposed project is not expected to conflict with any local, state, Tribal or Federal plans for the area. All the adjacent land is under the ownership and managed by ADNR DPOR for recreational purposes, no additional development or further expansion of the range is planned, once the proposed project is completed. No reasonably foreseeable future activities or development are anticipated at this time in the CRSRA due to funding limitations and the priority to maintain existing sites. Therefore, any reasonably foreseeable future effects would solely result from the proposed action, are anticipated to be minor or insignificant, and are anticipated to range from short-term, negative effects to long-term, beneficial effects as described in the EA analysis. None of the alternatives considered are anticipated to result in significant impacts to the quality of any aspect of the human environment.

Both alternative A (Preferred Action Alternative) and alternative B are expected to provide long term recreational, economic, environmental, and safety benefits for the public and local community, while minimizing any adverse impacts to an insignificant level through the use of mitigation measures and best management practices as outlined in the EA. The current range lacks safety features and engineered controls to reduce lead migration of site. Implementation of side and end berms and ground contouring will provide the long-term benefit of permanently increasing public safety and improving baseline environmental conditions by containing spent lead on site and reducing leachate and its potential negative effects on wildlife and surrounding habitats. Minor short term negative impacts include effects of construction noise on wildlife, and increased emissions and dust from construction activities. Minor long term negative impacts include loss of an insignificant amount of natural habitat, increased vehicle emissions from additional range users, and increased runoff from the addition of impervious surfaces. The main difference in environmental effects between alternatives A and B is that the Preferred Action

Alternative will result in the loss of approximately 0.1769 acres of wetland due to the footprint expansion necessary to meet desired range capacity.

Construction of the Preferred Action Alternative will achieve the desired level of increased range capacity, improve baseline environmental conditions at the proposed project site, benefit water quality and offset wetland loss (without need for compensatory mitigation) by creating uplift in the wetland function or service categories (primarily sediment and toxicant retention) lost through footprint expansion. This will be accomplished through sound project design, appropriate mitigation measures, reestablishing wetland connectivity, and adherence to the best management practices as described in the EA.

Alternative C (No Action Alternative) will not result in any new environmental impacts, nor will it provide any benefits (social or environmental) through site upgrades. Any current impacts to surface and groundwater quality will remain unchanged with the continued possibility of existing sediments and lead migration from the poorly graded and unimproved site.

Finding of No Significant Impact Determination

Based on review and evaluation of the EA, I have determined that the proposed action, that consists of providing Wildlife Restoration Act grant funding to ADF&G for expansion and upgrades to the ADNR DPOR owned/operated Upper Stiles Creek (public) Shooting Range is not a major Federal action that would significantly affect the quality of the human environment pursuant to section 102(2) of the NEPA. Accordingly, preparation of an environmental impact statement on the proposed action is not required.

Office of Conservation Investment

Regional Manager