

**Jocko Valley Service Area Improvements –
Jocko K Canal North of the Jocko River**

ENVIRONMENTAL ASSESSMENT

**Bureau of Indian Affairs and
Confederated Salish and Kootenai Tribes
Flathead Indian Reservation,
Montana**

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Assembled by:



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This Environmental Assessment becomes a federal document when evaluated, signed and dated by the responsible Bureau of Indian Affairs (BIA) Official.

Responsible BIA Official

Date

TABLE OF CONTENTS

1.0 PROPOSAL AND NEED FOR PROPOSAL	1
1.1 INTRODUCTION	1
1.1.1 BACKGROUND	1
1.1.2 PROJECT AREA / EXISTING SYSTEM.....	1
1.2 PURPOSE AND NEED STATEMENT	2
1.2.1 SUPPORT OF PURPOSE AND NEED.....	2
2.0 ALTERNATIVES	5
2.1 NO ACTION ALTERNATIVE.....	5
2.1 CANAL LINING ALTERNATIVE	6
2.2 PREFERRED ALTERNATIVE (PROPOSED ACTION).....	6
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS	10
3.1 RESOURCE CONCERNS.....	10
3.2 LAND RESOURCES	12
3.2.1 TOPOGRAPHY	12
3.2.2 SOILS	13
3.3 WATER RESOURCES.....	14
3.3.1 SURFACE WATER QUALITY & QUANTITY	14
3.3.2 GROUND WATER QUALITY & QUANTITY	15
3.3.3 WATER RIGHTS AND USE.....	16
3.3.4 WATERS OF THE U.S. AND WETLANDS	18
3.4 AIR.....	19
3.4.1 AIR QUALITY/VISIBILITY	19
3.5 LIVING RESOURCES	20
3.5.1 WILDLIFE SPECIES AND HABITAT (TERRESTRIAL AND AQUATIC)	20
3.5.2 THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES (PLANTS AND ANIMALS)	21
3.5.3 MIGRATORY BIRDS / BALD AND GOLDEN EAGLES	24
3.5.4 VEGETATION COMMUNITIES AND NOXIOUS WEEDS.....	27
3.6 CULTURAL RESOURCES	28
3.6.1 HISTORIC PROPERTIES AND ARCHAEOLOGICAL RESOURCES.....	28
3.7 SOCIOECONOMIC CONDITIONS	29
3.7.1 EMPLOYMENT AND INCOME	29
3.7.2 COMMUNITY INFRASTRUCTURE	29
3.8 RESOURCE USE PATTERNS.....	30
3.8.1 HUNTING, FISHING, GATHERING	30
3.8.2 AGRICULTURE.....	31
3.8.3 LAND USE PATTERNS	32
3.9 OTHER VALUES	32
3.9.1 WILDERNESS AREAS, WILDLIFE REFUGES, & ECOLOGICALLY SENSITIVE/CRITICAL AREAS	32
3.9.2 NOISE AND LIGHT	33

3.9.3 VISUAL.....	33
3.9.4 HAZARDOUS MATERIALS.....	34
3.10 RESOURCE CUMULATIVE IMPACTS	34
3.10.1 NO ACTION ALTERNATIVE	36
3.10.2 CANAL LINING ALTERNATIVE.....	36
3.10.3 PREFERRED ALTERNATIVE	36
4.0 CONSERVATION AND MITIGATION MEASURES	37
4.1 LAND RESOURCES.....	37
4.2 WATER RESOURCES.....	37
4.3 AIR.....	37
4.4 LIVING RESOURCES.....	37
4.4.1 THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES (PLANTS AND ANIMALS)	37
4.4.2 MIGRATORY BIRDS AND BALD/GOLDEN EAGLES	38
4.4.3 VEGETATION COMMUNITIES AND NOXIOUS WEEDS.....	38
4.5 CULTURAL RESOURCES	39
4.6 OTHER RESOURCES	39
4.6.1 NOISE AND LIGHT.....	39
4.6.2 HAZARDOUS MATERIALS.....	39
5.0 CONSULTATION AND COORDINATION	40
5.1 TRIBAL.....	40
5.2 U.S. FISH AND WILDLIFE SERVICE	40
5.3 U.S. ARMY CORPS OF ENGINEERS.....	40
5.4 CSKT 401 WATER QUALITY CERTIFICATION.....	41
6.0 LIST OF CONTRIBUTORS.....	42
7.0 REFERENCES.....	43

LIST OF FIGURES

Figure 1. Existing Jocko Valley Irrigation System.....	4
Figure 2. Construction Access Routes and Staging Areas	9
Figure 3. Jocko Service Area Project Map Eagle Nests	26

LIST OF TABLES

Table 1. PLSS within Project Area	2
Table 2. Resource Concerns Summary	10
Table 3. USFWS Listed Species within the Project Area.....	21
Table 4. List of EA Contributors	42

APPENDICES

Appendix A	Figures
Appendix B	Supporting Documentation
Appendix C	Correspondence

1.0 PROPOSAL AND NEED FOR PROPOSAL

1.1 INTRODUCTION

The Bureau of Indian Affairs (BIA) and the Confederated Salish and Kootenai Tribes (CSKT) are working in conjunction with support from Morrison-Maierle, Inc. to prepare NEPA documentation for the Jocko Valley Service Area Improvements project (Project). The proposed Project is on the Flathead Indian Irrigation Project (FIIP) located on the Flathead Indian Reservation.

1.1.1 BACKGROUND

The CSKT – Montana Compact (Compact) negotiated between CSKT, the State of Montana, and the United States (US), and codified in S. 3019 Montana Water Rights Protection Act, governs water rights and allocations for the Flathead Reservation, and has an effective date of September 17, 2021. The Compact specifies Minimum Enforceable Flows (MEFs), Target Instream Flows (TIFs), River Diversion Allowances (RDAs), and Historic Farm Deliveries (HFDs) (Requirements) in its Appendices 3.1 through 3.3. The statutory requirements represented by the Compact will ultimately dictate the volumes of water allocated to irrigation uses in the Jocko District. According to Appendix 3.4 (Implementation Schedule) of the Compact, the Jocko Valley must meet targeted operational improvements within eight years of the effective date (September 17, 2029).

CSKT currently experiences adverse impacts to their water resources because of the condition of infrastructure components located in the Jocko District of the FIIP. The aging infrastructure results in high seepage rates, high maintenance costs, and an overall inefficiency of the system. The Jocko Service Area of the system has been identified as a high priority target for rehabilitation, betterment, and modernization as it relates to water delivery efficiencies. A Master Plan for the area was developed as a collaborative effort between the engineering services contractor Morrison-Maierle, CSKT staff, and FIIP staff. The conceptual design is split into six phases and implementation priority was determined by considering water savings, area served, cost, constructability, and operability. The goal of CSKT moving forward is to implement all six phases over the next three years, with three project phases that can be implemented during the irrigation season without interrupting service and three project phases that will occur outside of the irrigation season.

CSKT prepared a Biological Assessment to evaluate impacts of the project on federally listed species in accordance with Section 7 of the Endangered Species Act. Informal consultation with US Fish and Wildlife Service was completed on March 2, 2023 (Appendix C). USFWS concurred with the finding of beneficial impacts to bull trout (*Salvelinus confluentus*) and designated bull trout critical habitat due to water savings in the Jocko River system.

1.1.2 PROJECT AREA / EXISTING SYSTEM

The Project is located east of Arlee in Lake County, Montana (Attachment A, Figure 1). The existing irrigation canal system north of the Jocko River has a service area of just over 4,500 acres, with roughly 3,600 acres actively irrigated and 900 acres currently inactive (Project Area/Jocko Service Area). The land is served through over 26 miles of open canals, starting with

K Canal. The K Canal makes up for 10 of the total 26 miles of open canal network. The Project lies within the section, township, ranges identified in Table 1 below.

Table 1. PLSS within Project Area

Township	Range	Section(s)
16N	19W	5, 6, 7, 8, 9
16N	20W	1, 2
17N	19W	30, 31
17N	20W	14, 15, 23, 24, 25, 35, 36

The K Canal serves as the primary irrigation canal that supplies water to the remainder of the canals and laterals in the Jocko Service Area. Elevations across the Jocko Service Area range from approximately 3,400 feet at the foot of the mountains to approximately 3,000 feet in the valley floor. The current irrigation system traverses through rangeland, agricultural fields, and along roadsides. While many FIIP canals stop irrigation deliveries on September 15, the K Canal system continues to flow until freeze up to deliver stock water. Delivery of stock water is an important function of the K Canal system that affects over half the acreage served. Water is diverted from the Jocko River into the K Canal and subsequent canals. Since the existing open canals flow under gravity, they must pass all water diverted from the river through the conveyance system. If all diverted water is not used in the fields, it cannot be accumulated at the end of the open pipe or canal and therefore it flows out the end to open rangeland. Irrigation water that is lost to seepage throughout the system is known to influence the groundwater recharge rates in the Jocko Valley, and particularly influences the Jocko R Canal and Jocko Spring Creek (CSKT 2021b).

1.2 PURPOSE AND NEED STATEMENT

The purpose and need for the proposed project are to address the inefficiencies of the current FIIP system within the Jocko Service Area in order to comply with the requirements of the Compact. The proposed project must undergo National Environmental Protection Agency (NEPA) review due to the federal nexus of FIIP being a BIA managed project and work will/may be completed on Federal land, fee land, or land held in trust for the CSKT. The BIA has determined that the Project does not qualify for a Categorical Exclusion and must therefore be reviewed through this Environmental Assessment (EA).

1.2.1 SUPPORT OF PURPOSE AND NEED

The following water management and delivery inefficiencies have been identified within the Jocko Service Area:

- Canals and on-farm delivery points do not have accurate flow measurement.
- Lack of practical irrigation water level and flow control structures.
- Canals are overgrown with vegetation.
- Canals have high seepage losses due to the character of underlying soils.
- Almost 50% of the Jocko Unit is served directly from K Canal via private gravity-feed pipelines that replace the FIIP delivery laterals. These community-organized piped systems are aging, lack flow measurement, and are subject to pipe blowouts.

Conveyance and lateral conditions lead to difficulties measuring flows, managing the diversion and delivery of water, and keeping current on Operation and Maintenance (O&M) requirements. Due to the condition and operational challenges inherent to the FIIP infrastructure, the Jocko Service Area has low overall efficiency, and more water is diverted from the Jocko River than is needed for crop water requirements. Figure 1 shows the existing irrigation system.

Figure 1. Existing Jocko Valley Irrigation System



2.0 ALTERNATIVES

2.1 NO ACTION ALTERNATIVE

The K Canal system experiences several issues in water delivery including multiple takeoff points from the main K Canal, minimal water measurement, lack of adequate level control at turnout locations, and high canal seepage rates. Nearly 50% of the Jocko Unit is served directly from K Canal via private gravity-feed pipelines that are used instead of FIIP delivery laterals. Multiple unregulated takeoff points and lack of water measurement makes managing and regulating water deliveries difficult for FIIP Irrigation System Operators (ISOs). Other management difficulties include O&M tasks such as grading the canals or laterals, clearing vegetation, removing debris from irrigation structures, as well as on-farm issues such as field pipes leaking or failing, pumps requiring significant maintenance, and turnout maintenance. Inadequate level control and lack of measurement at turnouts means that the amount of water delivery to any given farm cannot be controlled nor measured. These management and delivery issues in both public and private systems lead to inadvertent water losses.

Seepage is a larger challenge for overall delivery efficiency in the K Canal system because it is ubiquitous across the lateral canals and cannot be remedied with a discrete structural solution. Seepage measurements were conducted along two reaches of the K-14 lateral and one reach of the K-14-9 lateral in the irrigation season of 2021 (see Figure 1). The K-14 study reaches consisted of two isolated stretches that do not have significant inflows or outflows. The upstream reach is 0.47 miles located immediately downstream of the K-14 headgate, while the downstream reach is one mile long bisected by the intersection of McLeod Road and Dumontier Road. At the upstream reach, average seepage losses were 12% of 29.5 cfs and as high as 26.5%. At the downstream reach, average losses were 38% of 5.9 cfs and as high as 100% during system startup. At the K-14-9 reach, seepage losses were as high as 31.5% during system start up, though these synoptic measurements showed wide fluctuations across the season due to pumping along this reach. Overall, these measurements, in addition to previous studies by BIA (1962), Morrison Maierle (1975), USGS (1992), and Papadopoulos (2010) indicate that seepage losses can be dramatically high, are widespread through the system, and remain persistent through the irrigation season.

With the No Action Alternative, irrigation Rehabilitation and Modernization would be limited to operation and maintenance conducted by FIIP personnel. Operational improvements, including stream, canal and reservoir management and completion of the Jocko K headworks would occur. These actions would support more control for water management and delivery, but inefficiencies related to on-farm delivery practices and canal seepage losses would persist. With Operational Improvements applied in practice, approximately 4.2 acre-feet of water per irrigated acre would remain available for future RDA diversion. With the implementation of the MEF instream flow in the Jocko River seven years (September 17, 2029) after the Effective Date (September 17, 2021), irrigation staff would need to fully implement Operational Improvements to meet historic farm deliveries to assessed irrigation tracts. The No Action Alternative would allow the inefficient system to continue operating with high seepage losses and would not meet the intent of the Compact or the purpose and need of the project.

2.1 CANAL LINING ALTERNATIVE

Canal lining would keep the 26 miles (10 miles of which are the K Canal) of existing open canal configuration but upgrade it by adding a geotextile canal liner to prevent seepage. Because an open canal remains, canal lining has several disadvantages. Animals can walk into the canal and damage the lining, sediment can be carried into the canal, water can be lost to evaporation, and potentially productive field area must be devoted to the canal.

Lining the canal with an impermeable liner would involve the physical reshaping of the canal, including topsoil stripping, clearing and grubbing, grading the canal to the desired dimensions, and anchor trench excavation. A geo-composite canal liner would be installed directly on the canal bottom and banks and anchored in at the top of each canal bank. A 6-inch ballast layer would be used on the canal bottom to secure the liner in place, to prevent floatation caused by entrapped air underneath the liner, and to provide some protection from animal punctures. It is important to note that the design life of geo-composite liner is approximately 20 years, less than the design life of piped applications.

Installing canal lining would reduce seepage, if it remains intact, but still has crucial disadvantages. As noted above, the liner can be damaged by animals and once the liner is punctured, it offers a flow path for seepage to follow. Even if the incoming irrigation water is screened for debris and sediment, the open canal can still accumulate debris and transport the ballast layer material through turnouts, leading to clogging of pumps, sprinkler nozzles, and other sprinkler equipment. A canal lining solution would also require additional investment to remedy the lack of the flow measurement and inadequate level control that are problems in the current open canal system. Lastly, because it is an open, gravity-flow system, more water must be delivered than can be used to ensure there is sufficient water depth to adequately serve the last turnout on the canal. Advantages to the canal lining alternative include easy installation, lower capital cost, and reduce seepage loss compared to current system.

Because of the disadvantages of the canal lining alternative, systemic inefficiencies in water delivery would be perpetuated. This alternative may result in reduction of irrigation water deliveries in order to meet the requirements of the Compact. However, this alternative is evaluated throughout this document.

2.2 PREFERRED ALTERNATIVE (PROPOSED ACTION)

The Preferred Alternative is to modernize the Jocko K Canal irrigation service area, north of the Jocko River, with a system of pressurized, buried pipe. Pressurized pipe operates by completely filling the pipe with water, allowing the pipe to pressurize by the effect of gravity. The high pressures in the pipe, which steadily increase as it moves downhill from the intake, require pipe with thicker walls than an open pipe. Open pipe is described as such because it is designed to not completely fill with water and is therefore left open to the atmosphere. Water can only flow downhill in an open pipe, while in a pressurized pipe, the pressure that builds up can be used to drive flow uphill if the elevation difference is not too large.

An irrigation delivery pipeline network is proposed to consolidate the delivery network, reduce chronic O&M requirements, promote crop demand-based water delivery, facilitate lateral and on-farm measurement, and reduce seepage and management-related water losses. While both a pressurized and open pipe solution provide many of these benefits, transitioning to pressurized pipe would lead to improved demand management and energy conservation, including reduced pumping costs for a majority of water users. Water users with existing elevation-driven pressure systems would also benefit through greater pressure at the turnout, FIIP-managed screening systems, and transfer of O&M of community systems to FIIP.

Disadvantages to this alternative mainly include higher construction cost and material costs for various diameters of pipes and fittings. Advantages to the system include seepage elimination, reduced need for pumping, which is a cost savings for irrigators, efficient water delivery throughout the system, less water waste, easier maintenance with installation of shut off valves, and longer design life. Additionally, the pressurize pipe allows for diverting only the flow of water needed for irrigation or maintaining ecologically significant resources, as no operational overage is needed at the end of the line. This would result in additional water savings compared to the other alternatives.

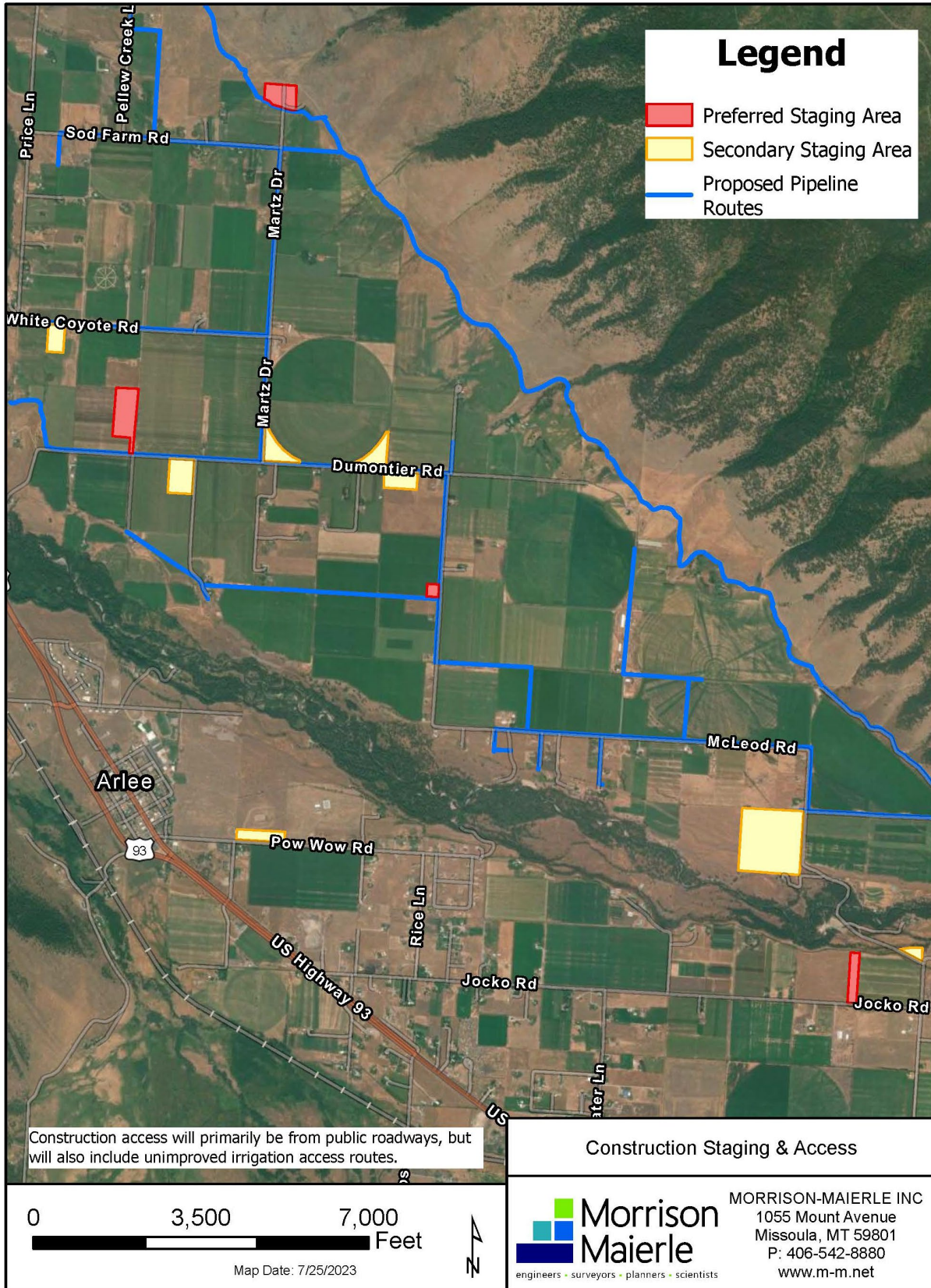
The new conveyances installed will mainly follow the existing FIIP alignments, with some new alignments that follow existing road rights-of-way or previously installed private pipelines. The preferred alternative will include securing updated/modernized easements for FIIP to keep record of more easily. Conversion of canal to pressure pipeline would involve topsoil stripping, clearing and grubbing, trench excavation, grading the pipeline to the desired slope, installing the pipe and appurtenances, backfilling the trench, and restoring the land to the landowner's desired vegetation or crop. High density polyethylene (HDPE) pipe is a versatile pipe product used in many water delivery applications with a design life of approximately 80 – 100 years. The HDPE pipe would be installed in accordance with the latest version of Montana Public Works Standard Specifications including bedding material, backfilling suitable backfill material, flow control valves, and pressure reducing valves, largely located below ground. Irrigation deliveries for pressure pipe would consist of a tee fitting, gate valves, and a flow measurement device. Flow meters installed at turnouts and key points in the distribution network will allow ISOs to know current flow rate and seasonal water volumes delivered. This data will be critical for FIIP to ensure that the applicable future RDA and HFDs are met through the irrigation season, as well as ensuring that irrigation water is properly managed between individual irrigators.

A total of 17.7 miles of pipeline are proposed, including a pipeline adjacent to the K Canal and access road. The K Canal itself will remain in place. Construction efforts will not impact FIIP system operations. Proposed pipelines will range in outside diameter between 3 and 48 inches depending on required irrigation flow for the area, and all pipelines will be buried with a minimum of three feet of cover at top of pipe. Trench widths will vary depending on pipeline size but will range from 3.5 feet to 5.5 feet with trench depths varying between 3.5 feet to 7 feet below ground surface. The pipe system will have to be drained at the end of each irrigation season and drainage will be directed to fields or surface conveyances.

Staging/storage areas include preferred areas of tribal, trust, or amendable landowner areas and secondary sites include unirrigated parcels. No removal of large vegetation or riparian vegetation

will be permitted for development of the staging/storage areas. Figure 2 shows the proposed pipeline routes and the staging areas. Construction areas will be accessed via existing public roads and farm or irrigation access roads.

Figure 2. Construction Access Routes and Staging Areas



3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

The affected environment is defined as the ecological, cultural, social, aesthetic and economic conditions of the area that the proposed alternatives could potentially impact as identified in the Guidebook (BIA 2012).

3.1 RESOURCE CONCERNS

The proposed Project has undergone extensive review through the Master Planning (Morrison-Maierle 2022) effort, Interdisciplinary Team (IDT) meetings, and completion of a Categorical Exclusion Exception Review (CEER) Checklist. During development of the CEER Checklist and IDT meetings, it has been determined that some resources are not relevant or do not have the potential to be impacted by the Project. Table 2 lists the resource concerns typical to an EA, if they are relevant to the alternatives described in Section 2.0, and rationale for why they were considered or dismissed in the detailed analysis.

Table 2. Resource Concerns Summary

Resource		Relevant to the Alternatives Considered in Detail?		Rationale
		Yes	No	
Land Resources				
Topography		X		Topography of the irrigation service area determines the feasibility of the alternatives.
Soils		X		Soil type drives the need for the proposed project. Proposed alternatives will disturb soils.
Geology/Mineral/Paleontological Resources			X	There are no known geology, mineral, or paleontological resources in the project area.
Water Resources				
Surface Water Quality & Quantity		X		Surface water resources are located within the project area.
Ground Water Quality & Quantity		X		Alternatives may change groundwater resources.
Water Rights/Use		X		The Project is a result of a tribal water rights agreement.
Waters of the U.S.		X		Waters of the US are located in the project area.
Wild and Scenic Rivers			X	No Wild and Scenic Rivers are located in the project area.
Air				
Air Quality/Visibility		X		Alternatives include construction activities that produce equipment emissions and dust.
Living Resources				

Resource		Relevant to the Alternatives Considered in Detail?		Rationale
		Yes	No	
Wildlife Species & Habitat (Terrestrial & Aquatic)		X		Alternatives have potential to impact aquatic resources.
Threatened/Endangered & Special Status Species (Plants & Animals)		X		ESA species located within the project area.
Migratory Birds/Bald and Golden Eagles		X		Migratory birds and eagles have potential to be present within project area.
Vegetation Communities & Noxious Weeds		X		Alternatives will disturb vegetation communities. Noxious weeds present.
Agriculture (Crops, Prime and Unique Farmland)		X		The Project is centered around the agricultural irrigation system.
Cultural Resources				
Historic Properties & Archeological Resources		X		No known historic or archeological resources within the project area but potential exists.
Cultural, Sacred, & Traditional Cultural Properties		X		None known within project area. Potential for undocumented features to be uncovered during construction.
Socioeconomic Conditions				
Employment and Income		X		Alternatives include cost savings evaluation for irrigators.
Demographic Trends			X	Alternatives have no demographic parameters.
Lifestyle and Cultural Values (Rural, Urban)			X	Alternatives do not have lifestyle or cultural value parameters.
Community Infrastructure (Public Services, Utilities)		X		FIIP is considered community infrastructure.
Environmental Justice			X	Alternatives have no impact on environmental justice.
Resource Use Patterns				
Hunting, Fishing, Gathering		X		Alternatives could benefit fishing.
Timber Harvesting			X	No timber land is located in the project area.
Agriculture		X		Project is based around agricultural irrigation improvements.
Mineral Extraction			X	Mineral extraction activities do not occur in the project area.
Recreation			X	No formally established public recreational opportunities exist in the project area.

Resource		Relevant to the Alternatives Considered in Detail?		Rationale
		Yes	No	
Transportation Networks			X	No transportation networks will be altered.
Land Use Patterns		X		Alternatives consider benefits for agricultural land use.
Other Values				
Wilderness Areas, Wildlife Refuges, & Ecologically Sensitive/Critical Areas		X		Tribal ecologically sensitive areas located in the project area.
National Parks, Monuments & Historical Sites			X	No national parks, monuments, or historical sites are located in the project area.
Noise and Light		X		Alternatives include construction activities.
Visual		X		Alternatives include changes to aesthetics of the project area.
Public Health and Safety			X	Alternatives do not include changes to public health and safety.
Climate Change			X	Alternatives will have no measurable impacts to climate change.
Indian Trust Assets			X	No changes to Indian trust assets.
Hazardous Materials		X		Alternatives include evaluation of coincident contamination of irrigation water.

In general, direct impacts on resources were evaluated based on a 100-foot buffer centered over the proposed project alignment. Indirect impacts were evaluated based on a larger-scale area, such as the Jocko Service Area and upstream/downstream waterway connections.

3.2 LAND RESOURCES

3.2.1 TOPOGRAPHY

Affected Environment

The project area lies within the Arlee, Montana (2020), U.S. Geological Survey (USGS) 7.5-minute Topographic Map (Appendix A, Figure 1). Most of the project area is gently sloping within the Jocko Valley with elevations between approximately 2,980 and 3,260 feet above sea level. The K Canal portion of the project area is steeply sloping with elevations ranging between approximately 3,000 to 3,400 feet above sea level. Several drainages traverse the project area, including several named creeks that include Lamoose Creek, Pellew Creek, and Spring Creek. A few other unnamed creeks and ephemeral drainages connect into the K Canal from the mountainside to the east of the project area. The Jocko River lies to the south of the project area.

No Action Alternative

The topography of the project area and the extensive network of irrigation canal and pipe leads to delivery issues at the lowest elevations of the service area. The No Action alternative would result in continued inefficiency of irrigation water delivery due to insensitive operational control and high infiltration rates and subsequent canal seepage losses in native earth material open canals.

Canal Lining Alternative

Lining of the canals would have minor impacts to the topography of the canals due to grading of the canal network to make gravity-fed delivery more efficient in flatter areas of the Jocko valley.

Preferred Alternative

Constructing a pressurized pipeline irrigation system would require trenching in the proposed alignment to place pipes at their appropriate minimum elevation. Open canals would be permanently backfilled after pipe placement. Any canals that served as secondary roadside drainage ditches would need to have a new parallel roadside ditch installed during construction. Any new conveyances would have a temporary and minor impact on local topography, as all pipeline routes will be backfilled and graded. Overall, impacts to the topography of the area would be restricted to the construction limits. Existing canals within the pipe alignment would be backfilled, having a long-term direct impact on localized topography. Other disturbed areas would have temporary, short-term impacts on topography during construction. Disturbed areas would be graded to final contours and revegetated.

3.2.2 SOILS

Affected Environment

Mapped soil types within the general project area were obtained from the Web Soil Survey (NRCS 2021b). A total of 36 mapped soil types were identified in the project area. Refer to the NRCS Soil Report located in Appendix B for soil names and descriptions.

No Action Alternative

The existing irrigation canal system experiences high seepage loss due to the character of underlying soils. O&M tasks such as grading the canals or laterals or clearing vegetation rarely occur because of the risk of increasing the permeability of the canal soil substrates. The No Action Alternative would have no impact on the soil characteristics that are one of the main causes of excessive irrigation seepage loss.

Canal Lining Alternative

Lining the canal with an impermeable liner would involve the physical reshaping of the canal, including topsoil stripping, clearing and grubbing, grading the canal to the desired dimensions, and anchor trench excavation. Underlying soils would be removed to the extent necessary and replaced with the aforementioned materials. The soil profile within the existing alignment has been previously disturbed and this alternative would therefore have no measurable impact on soil.

Preferred Alternative

Proposed pipelines will range in diameter between three and 48 inches depending on required irrigation flow for the area, and all pipelines will be buried with a minimum of three feet of cover at the top of pipe. The proposed pipeline adjacent to the K Canal will parallel the existing canal and access road as closely as possible, as the K Canal will remain in place for overflow irrigation uses. Existing soils will be set aside during trenching operations. Bedding, pipe, and backfilling material will be placed in the trench per Montana Public Works Standard Specifications. Soils will be impacted where pipelines follow an alignment different from the existing canals. However, salvage and replacement of organic soil materials will mitigate this impact.

3.3 WATER RESOURCES

3.3.1 SURFACE WATER QUALITY & QUANTITY

Affected Environment

The proposed project lies within federally unmapped floodplain areas within the Flathead Indian Reservation. There are no regulatory floodplains in the project area. Several wetlands and waterways are present in the project area. Refer to Section 3.3.4 for more details. Existing open irrigation canals are secondarily used for livestock watering where ranchers do not have other sources of water. CSKT manages several groundwater and surface water monitoring stations within the Jocko Valley that will enable comparison of historic data to future data.

The Jocko River flows to the south of the project area and irrigation return flow water has the potential to ultimately enter back into the Jocko River system through groundwater or surface overflow. Jocko Spring Creek is heavily influenced by irrigation water seepage that recharges the groundwater. Surface water of Jocko Spring Creek ultimately flows into the Jocko River. Excess irrigation water that makes it to the end of the irrigation canal system is released to the surrounding rangeland via surface flow at the end of the irrigation canal. This excess water then enters either surface waters or infiltrates into the groundwater. The open canal system raises concerns for water quality due to potential pollutants from ranching and farming operations such as sedimentation, elevated nutrients, bacterial constituents, and pesticides. Runoff from farm fields or overspray of chemicals can enter the open canal system and impact the quality of downstream water.

No Action Alternative

The No Action Alternative would allow pollutants to continue to enter the irrigation system through overland flow into the open canals. This alternative would have a negative impact on surface water quality and quantity.

Canal Lining Alternative

The Canal Lining Alternative would allow pollutants to continue to enter the irrigation system through overland flow into the open canals, similar to the No Action Alternative. This alternative would reduce the potential for infiltration of pollutants to groundwater but would not affect pollutants moving via a surface water pathway.

Preferred Alternative

Piping the irrigation system would prevent pollutants from entering the irrigation system in the canal lateral network, delivering better quality water to all irrigators. A pressurized pipe system would limit the amount of irrigation tailwater surface connection to Spring Creek, thus limiting the amount of potentially polluted water entering this natural stream. Additionally, the preferred alternative would result in less water being diverted from the Jocko River, which must be implemented to comply with the Compact target instream flows. The true water savings cannot be quantified until the new irrigation system is in place. Adaptive management and long-term monitoring efforts will be used to quantify water savings. The Tribe has worked with landowners in the project area to work through concerns of available surface water for cattle watering. For users that need stockwater delivery, there will be an irrigation turnout that can serve for stockwater use. This alternative would have beneficial impacts on surface water quality.

3.3.2 GROUND WATER QUALITY & QUANTITY

Affected Environment

Most of the project area occurs within the Jocko Valley – Outwash Hydrogeologic Unit, which is the primary aquifer unit in the Jocko Valley. Total well depths and depth to ground water decrease relatively uniformly to the north, and the water table is at or near land surface in the north extent of the unit. Substantial volumes of ground water discharge to the Jocko River and valley floor wetlands, and ground water discharge forms Jocko Spring Creek. Well yields can be high and specific capacity values average around 20 gpm/ft (CSKT, 2021b). CSKT manages several groundwater and surface water monitoring stations within the Jocko Valley that will enable comparison of historic data to future data.

Groundwater recharge is driven by infiltration from snowmelt and rainfall, seepage from the Jocko River, lateral groundwater flow from the surrounding mountains, infiltration from irrigation ditches, and infiltration of on farm irrigation. Groundwater hydraulic gradients are generally down valley to the northwest. Groundwater levels in the project area are highly sensitive to influence from canal leakage (CSKT 2021b). The Tribes have active groundwater monitoring wells that will continue to be monitored during and after completion of the proposed project. A memo provided by Casey Ryan, Hydrologist for CSKT, and a memo provided by Cody Goklish Hydrologist for CSKT, provide more details and can be found in Appendix C.

No Action Alternative

The No Action Alternative would perpetuate canal seepage losses, which would maintain seepage as a groundwater recharge source. No change to on farm infiltration would occur with the proposed action. Groundwater quality and quantity would remain similar to the current condition, with seasonal variability in water level related to cumulative recharge and discharge mechanisms and between-year climatic variability.

Canal Lining Alternative

Conversion of open canal into pipeline or lined canal would reduce canal infiltration within the canal network and decrease groundwater recharge; this may lead to a reduction in groundwater levels within the project area proximity and downstream of the project area. Additionally, lining the canals has the potential to reduce groundwater contributions to seepage influenced wetlands,

springs, and Jocko Spring Creek. Approximately 26 miles of existing ditch would be lined, eliminating canal seepage. Infiltration would still occur with any overflow water at the end of the K Canal.

Preferred Alternative

Conversion of open canal into pipe would reduce canal infiltration/seepage rates and volumes but would not reduce on farm infiltration of irrigation water. Water saved through open canal to pipe conversion would be reallocated to the Jocko River. The preferred alternative would seasonally reduce water table elevations and recharge to Jocko Spring Creek; the direction in trend would move the hydrologic system more towards a pre-irrigation water balance condition.

Canal infiltration rates are a function of water depth, canal wetted perimeter, and the permeability of canal substrate materials. The largest canal with the highest infiltration rates, Jocko K Canal, will remain in its current condition at the upper end of the valley under the proposed action. The potential aquifer recharge is greater at the upper end of the valley. This will help to limit the influence of the proposed action on groundwater levels. Water that is reallocated to the Jocko River will contribute to infiltration and groundwater recharge upgradient of the proposed project area. Also, bringing the project online in six phases will allow for groundwater monitoring and adaptive management as needed. Approximately 16 miles of existing canal (excluding the K Canal) would be replaced with 17.7 miles of new pipeline that would have no seepage/infiltration.

The magnitude of groundwater decline is inferred from groundwater evaluation and modeling completed by the CSKT and SSPA (SSPA, 2011). As a modeling exercise, a calibrated baseline groundwater model was modified to reduce canal seepage through model simulated conversion of open canal to pipe, in order to emulate a potential irrigation modernization effort. The results from this modeling effort should be considered approximate. Water table declines in two observation wells within the proposed project area seasonally declined approximately ten feet and seasonally recovered to within four feet of the baseline water table elevation in each year. Water table declines near the headwaters of Jocko Spring Creek led to lower flows in Jocko Spring Creek. The aquifer under the project area is relatively thick and water well pumps are typically set well below the top of water table. This would mitigate the effect to domestic and stockwater uses. Overall, short term and long term impacts to groundwater cannot be quantified until the proposed project is complete and can be evaluated using long term monitoring efforts and adaptive management.

3.3.3 WATER RIGHTS AND USE

Affected Environment

Within the proposed project area and directly connected water resources, water is used for environmental instream flows, FIIP irrigation, domestic and stockwater groundwater uses and incidental and other-purposed groundwater uses. There is very limited irrigation for non-FIIP agricultural lands. The Jocko Service Area contains 102 existing water rights, 70 of which are domestic well groundwater rights and 32 are surface water rights. Most of the surface water rights are from intermittent/ephemeral draws adjacent to the K Canal. The current instream flow year around on the Jocko River at the K Canal diversion is 44 cubic feet per second (cfs).

The water rights settlement identifies new values for environmental instream flows - minimum enforceable and target instream flows - and for irrigation diversion allowances – river diversion allowances. These are identified by water year type – wet, normal, and dry years, and come into force seven years after the effective date for the settlement (9/17/2021). The instream flow and river diversion allowance values can be found at <https://dnrc.mt.gov/Water-Resources/Water-Rights/adjudication-pages/Confederated-Salish-and-Kootenai-Tribes-Compact>.

No Action Alternative

With the No Action Alternative, irrigation rehabilitation and modernization would be limited to operation and maintenance conducted by FIIP personnel. Operational improvements, including stream, canal and reservoir management and completion of the Jocko K headworks would occur. These actions would support more control for water management and delivery, but inefficiencies related to on-farm delivery practices and canal seepage losses would persist. With Operational Improvements applied in practice, approximately 4.2 acre-feet of water per irrigated acre would remain available for RDA diversion. With the implementation of the MEF instream flow in the Jocko River seven years after the Effective Date, irrigation staff would need to fully implement Operational Improvements to meet historic farm deliveries to assessed irrigation tracts. Absent this, there may be reductions in on-farm water availability following implementation of the future MEF's.

Canal Lining Alternative

The Canal Lining Alternative would result in a more efficient irrigation delivery system, but the conveyance system would continue to experience water losses. The rate of loss would increase over time due to degradation in the liner system. Also, this alternative would be less likely to provide the close operational control available through the preferred alternative, and this may lead to operational losses of water.

The Canal Lining Alternative may lead to reductions in water table elevation in the project area similar to the proposed action, discussed below.

Preferred Alternative

Replacing the current system with pressurized pipe would notably reduce or eliminate canal conveyance losses over a long-term horizon. Pressurized pipe would also notably improve the irrigation project's operational control of water management. Additionally, flow meters would be installed at delivery points to allow FIIP to track water delivery and ensure the requirements of the Compacts are met. These steps should allow the irrigation project to deliver historic farm delivery amounts to irrigated tracts, while meeting upcoming instream flow levels. Extreme drought years may stress irrigation water availability as the instream flows are the senior water right; shared shortage provisions found in the settlement may partially ameliorate the effects of extreme drought in certain circumstances.

The Preferred Alternative is likely to lead to a new baseline for water table elevations in the project vicinity. Modeling results suggest the decline will seasonally be in the range of approximately ten feet and will return to a decline of approximately four feet each year. These values should be considered as approximate and variable from year to year. The Jocko Valley Outwash aquifer exhibits wide annual fluctuations in water table elevation – near forty feet in the south extent of

the proposed project area and decreasing to limited fluctuation to the northwest. The outwash aquifer is relatively thick and water well pumps are typically set well below the top of water table. This would mitigate the effect to domestic and stockwater uses.

Jocko Spring Creek is a spring-fed system. The stream exhibits an irrigation-influenced hydrograph with high flows occurring in late summer and early fall. With potential water table declines, recharge to the stream may be reduced and this could influence the flow rates seasonally. This is difficult to determine a priori but may be in the range of ten to twenty percent of flow in the mid to late summer period. Overall, water rights water allotments will be fulfilled through the Preferred Alternative.

3.3.4 WATERS OF THE U.S. AND WETLANDS

Affected Environment

A Morrison-Maierle environmental scientist performed a wetland delineation of the proposed pipeline routes in August and September 2021. The Wetland Delineation Report is included in Appendix B. A National Wetlands Inventory (NWI) map was generated as part of this report and is also included. The NWI map identifies several wetlands associated with irrigation structures and several streams within the proposed routes. However, many of the NWI wetlands were not present at the time of the field effort. An Approved Jurisdictional Determination (AJD) was received for the project area on April 18, 2022. The USACE determined all irrigation canals, wetlands, and tributaries identified during the wetland delineation are considered jurisdictional Waters of the US (Appendix C).

Jocko Spring Creek is a perennial stream which originates as a groundwater discharge spring north of White Coyote Road near the project alignment. Hydrograph data indicates that Jocko Spring Creek is influenced by groundwater recharge from canal and seepage losses (CSKT 2021b).

No Action Alternative

The No Action Alternative would have no measurable impact on waters of the U.S. Irrigation seepage water would continue to supply hydrology to groundwater, springs, and wetlands.

Canal Lining Alternative

The Canal Lining Alternative would require physical reshaping of the canals and grading to the desired dimensions. Therefore, this alternative would have permanent impacts to the irrigation canals and a portion of the delineated wetlands. Temporary impacts to waters of the U.S. would also be likely during construction. This alternative would require permitting through the U.S. Army Corps of Engineers (USACE). This alternative does not meet the requirements of Nationwide Permit (NWP) 41 – Reshaping Existing Drainage and Irrigation Ditches since the reshaping activities will increase capacity and service area from its original construction. An Individual Permit (IP) would be required for this alternative because impacts to Waters of the U.S. would exceed 0.5 acres. Mitigation measures agreed upon between CSKT and USACE would be required for losses to wetlands and waterways exceeding 0.1 acres. However, it is anticipated that the water savings and beneficial impacts to bull trout as a result of the Compact would serve as mitigation for project impacts to irrigation canals rather than requiring compensatory mitigation.

This alternative has the potential for indirect long-term impacts to Jocko Spring Creek by reducing or eliminating the canal seepage as a source of groundwater to this resource. Permanent impacts would be incurred for irrigation canals since canal dimensions would be altered. Impacts to natural streams intersecting the project area would be temporary during construction.

Preferred Alternative

Modernization of the irrigation system into pressurized pipe would result in permanent impacts (fill) to all canals converted to pipeline. Additionally, naturally occurring wetlands would be temporarily impacted during construction but placed back to pre-construction contours and revegetated. Wetlands 3 (<0.01 acres) and 4 (<0.01 acres) in the delineation report are identified as irrigation induced seeps. Wetland 3 will not be impacted by the project. Wetland 4 will not be physically impacted by the project, but its hydrology source will be permanently removed and inadvertently will eliminate the wetland. Impacts to natural streams intersecting the project area would be temporary during construction. An Individual Permit (IP) was acquired for the preferred alternative due impacts to irrigation canals exceeding 0.5 acres. The USACE File Number is NWO-2021-01508-MT and the executed permit is provided in Appendix C. No compensatory mitigation for impacts to the irrigation canals was required, as the project itself is considered mitigation for water conservation and benefits to bull trout.

This alternative has the potential for indirect long-term impacts to Jocko Spring Creek by reducing or eliminating the canal seepage as a source of groundwater to this resource. However, as stated in the CSKT BA, the Preferred Alternative will prevent excess irrigation water entering Spring Creek via overland flow, which will improve water quality in the creek.

3.4 AIR

3.4.1 AIR QUALITY/VISIBILITY

Affected Environment

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide (CO), ozone (O₃) particulate matter (PM₁₀), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), and lead (Pb). Two cities within Lake County are EPA-regulated non-attainment areas: Polson and Ronan. These areas are classified as moderate non-attainment for PM-10 (US EPA 2019). However, Arlee is not listed as a non-attainment area.

No Action Alternative

The No Action Alternative will have no impact on air quality in the project area.

Canal Lining Alternative

This alternative would have temporary impacts to localized air quality during canal reshaping and grading activities from construction equipment emissions and fugitive dust. Best Management Practices (BMPs) would be implemented under a Storm Water Pollution Prevention Plan (SWPPP) that may include dust suppression with water trucks in active construction areas.

Additionally, the disturbed areas would be reseeded post construction to stabilize the bare soils and reduce the chance for windblown particulates.

Preferred Alternative

This alternative would have temporary impacts to localized air quality during trenching and grading activities from construction equipment emissions and fugitive dust. BMPs would be implemented under a SWPPP that may include dust suppression with water trucks in active construction areas. Additionally, the disturbed areas would be backfilled and reseeded post construction to stabilize the bare soils and reduce the chance for windblown particulates.

3.5 LIVING RESOURCES

3.5.1 WILDLIFE SPECIES AND HABITAT (TERRESTRIAL AND AQUATIC)

Affected Environment

The Montana Natural Heritage Program (MTNHP) was utilized for general species information in the project area (Appendix B). The project area shows occurrences and moderate habitat suitability for Lewis's woodpecker, two myotis (bat) species, and bald eagle. Low (inductive) habitat suitability with species occurrences within the project area include the evening grosbeak, pileated woodpecker, two myotis species, great blue heron, varied thrush, pacific wren, grizzly bear, wolverine, fisher, and the western pearlshell. The report also shows suitable habitat for the bull trout and westslope cutthroat trout within the vicinity of the project area.

The Jocko River lies south and west of the project area and the Jocko watershed is the primary source of irrigation water for the Jocko Service Area. The Jocko River is a major tributary to the Flathead River that provides important habitat for bull trout and westslope cutthroat trout, in addition to a variety of other fish species.

The project area is primarily agricultural land with residences and rangeland interspersed. The area does not support adequate long-term habitat for wildlife or aquatic species but may be used for foraging or as passage to other areas with more dense vegetation cover. Wildlife may utilize the open canal system for water during irrigation season. The tributaries that intersect the project area are ephemeral to intermittent and do not support aquatic species.

No Action Alternative

The No Action Alternative would have no impact on wildlife species or their habitat.

Canal Lining Alternative

The Canal Lining Alternative would have minimal impact on wildlife or aquatic species. Wildlife may be temporarily disturbed due to construction activities and may choose to avoid the area during construction hours. The temporary construction disturbance could have short term impacts on habitat for wildlife species due to the removal of vegetation. However, disturbed areas will be minimized to the extent possible during construction and will be stabilized and revegetated as construction in each area is completed.

Lining the canals would have a long-term beneficial impact on surface water supply for the Jocko River by reducing the amount of water diverted from the watershed. Any construction equipment working near waterbodies shall follow state and federal aquatic invasive species prevention protocols. Reduction in canal seepage may reduce groundwater supply to natural springs in the Jocko Service Area, which may have impacts on surface water availability to wildlife species. Groundwater monitoring efforts will be ongoing and the true impacts to groundwater resources are unknown at this time. Impacts on these resources as a result of the canal lining alternative would likely be short term and are considered insignificant because construction would follow existing canal alignments and near active roadways.

Preferred Alternative

The Preferred Alternative would have similar impacts on wildlife, habitat, and aquatic resources as the Canal Lining Alternative. Any construction equipment working near waterbodies shall follow state and federal aquatic invasive species prevention protocols. Removing the open canal system may reduce water resources for wildlife during irrigation season. However, wildlife may still utilize nearby cattle water troughs or natural streams for water. Impacts on these resources are considered insignificant because there are additional water sources in the area and construction will be restricted to existing alignments and near active roadways.

3.5.2 THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES (PLANTS AND ANIMALS)

Affected Environment

The USFWS Information for Planning and Consultation (IPaC) website was utilized for information on threatened and endangered species for the project area. Table 3 summarizes the information provided in the IPaC Report (Appendix B).

Table 3. USFWS Listed Species within the Project Area

Common Name	Scientific Name	Status	Range - Montana
Bull Trout	<i>Salvelinus confluentus</i>	Threatened	Clark Fork, Flathead, Kootenai, St. Mary, and Belly River Basins; cold water rivers and lakes
Grizzly Bear	<i>Ursus arctos horribilis</i>	Threatened	Resident, transient; Alpine/subalpine coniferous forest
Canada Lynx	<i>Lynx canadensis</i>	Threatened	Resident; western Montana – montane spruce/fir forests
North American Wolverine	<i>Gulo gulo luscus</i>	Proposed Threatened	High elevation alpine and boreal forests that are cold and receive enough winter precipitation to reliably maintain deep persistent snow late into the warm season

Common Name	Scientific Name	Status	Range - Montana
Yellow-billed cuckoo (western population)	<i>Coccyzus americanus</i>	Threatened	Population west of the Continental Divide; riparian areas with cottonwoods and willows
Whitebark Pine	<i>Pinus albicaulis</i>	Candidate	Forested areas in central and western Montana, in high elevation, upper montane habitat near treeline.
Spalding's Campion	<i>Silene spaldingii</i>	Threatened	Upper Flathead River and Fisher River drainages; Tobacco Valley – open grasslands with rough fescue or bluebunch wheatgrass
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	Statewide June through November; variety of habitats including open fields, foothills, valley bottoms

Several of the listed species have the potential to occur within the project area but are not anticipated to frequent the area. Grizzly bears are occasionally present in the Project Area but are transient and moving through the area, typically during the night between 8pm – 6am. During the wetland delineation field effort, one monarch butterfly caterpillar was observed along the K Canal. Other listed species may be transient but have not been observed or documented in the project area.

Since the Project lies within the Flathead Indian Reservation boundaries, the CSKT Wildlife Management Program is ultimately responsible for analyzing wildlife resource impacts for the project area. CSKT completed a Biological Assessment of the Preferred Alternative in January 2023 and received concurrence from USFWS in March 2023.

No Action Alternative

The No Action Alternative would allow excessive water to continue being diverted from the Jocko River, which is habitat for bull trout. Although difficult to quantify, continuation of current water use practices will degrade aquatic habitat over time and have a long-term negative impact on bull trout and other aquatic species in the Jocko River. This alternative would have no measurable impact on any other listed species.

Canal Lining Alternative

This alternative could create a temporary nuisance to travelling listed species during construction activities. Grizzly bears have the potential to occur in the project area. Based on the habitat and location of the Proposed Action, both species may use area as migratory corridors to access other habitat with better foraging and denning. During construction, there will be enough human disturbance that interactions with the grizzly bears will be low. Typically, bears prefer to avoid areas where humans are present. Once construction is complete, bears can utilize the areas as needed. Little to no habitat alterations will occur since the alignment is existing open canal.

No Spalding's campion has been observed in the project area. Monarch butterflies may occur in the area during certain times of the year and could move through on their normal migration patterns.

The Canal Lining Alternative would have a direct beneficial impact on bull trout by increasing irrigation efficiency. This will allow more in-stream flows to stay in the Jocko River and its tributaries throughout the year, improving water quality for bull trout and their habitat. Aside from the potential for temporary avoidance by some species, this alternative will have no measurable impact on any other listed species because disturbance would be limited to the existing ditch alignments.

Preferred Alternative

CSKT completed a Biological Assessment to assess impacts to federally listed species. The Preferred Alternative would have similar impacts to listed species as the Canal Lining Alternative. A direct effect of implementing the Preferred Alternative will be a positive influence on critical habitat downstream of the Jocko K Diversion. The positive influence from the project will be twofold: it will result in improved water quality, and it will lead to increased instream flows in critical habitat downstream of the K Canal Diversion, the place of diversion for the Jocko Service Area north of the Jocko River. No short-term negative impacts on bull trout were identified, as construction is limited to irrigation ditches with no bull trout presence.

Results of the CSKT BA and USFWS Concurrence are as follows:

- Grizzly Bear (*Ursus arctos horribilis*) [Threatened]: May Affect, Not Likely to Adversely Affect
- Canada Lynx (*Lynx canadensis*) [Threatened]: No Effect
- North American Wolverine (*Gulo gulo*) [Proposed]: Not Likely to Jeopardize the Continued Existence of the
- Species
- Yellow-billed cuckoo (*Coccyzus americanus*) [Threatened]: No Effect
- Bull Trout (*Salvelinus confluentus*) [Threatened]: May Affect, Not Likely to Adversely Affect (Beneficial influence from project)
- Bull Trout Critical Habitat: May Affect, Not Likely to Adversely Affect (Beneficial influence from project)
- Spalding's Catchfly/Campion (*Silene spaldingii*) [Threatened]: No Effect

According to the CSKT BA and USFWS concurrence letter, the preferred alternative will have the following beneficial impacts on bull trout:

- Improved water quality in the Jocko River by eliminating the need to divert excess flow overland into Jocko Springs Creek (a tributary to the Jocko River).
- Reduced delivery of sediment or any other ground surface contaminants from reaching Jocko Springs Creek, and ultimately the Jocko River.
- Increase in conveyance efficiency relative to the existing system. This will result in less water diverted at the Jocko K Canal Diversion, meaning more water remains in the Jocko River.

“Because the project will not result in any sediment input or in channel disturbance, and will result in improved water quality and quantity in the Jocko River, we anticipate the effects of the project to be completely beneficial to bull trout and designated bull trout critical habitat” (USFWS 2023).

Overall, little to no habitat alterations will occur as a result of the preferred alternative since the alignment occurs along existing ditches and roadsides. The USFWS concurred with these findings during informal consultation that was completed on March 2, 2023.

3.5.3 MIGRATORY BIRDS / BALD AND GOLDEN EAGLES

Affected Environment

The MTNHP Report was utilized for bald and golden eagle observations and nesting sites in the project vicinity (Attachment B). Additionally, Kari Kingery, CSKT Wildlife Program Manager, provided information for the project area. Figure 3, below, was provided for more information on the location of active bald eagle nests as they pertain to the proposed project. Two segments of the Project Area occur within a designated 0.5-mile buffer of an active Bald Eagle nest (see blue circle in Figure 3). There are no segments of the Project Area that occur within a 0.25-mile buffer of the known bald eagle nests (see gray circle in Figure 3). No golden eagles have been observed in the project area. The following seasonal restrictions are from the CSKT Forestry Management Plan.

Table 3. Nesting Periods and Recommended Buffers For Raptors on the Flathead Indian Reservation

Species	Spatial Buffer During Nesting (miles) ¹	Spatial Buffer Permanent (miles) ²	Seasonal Buffer
*Bald Eagle	1/2	1/4	February 15-August 15
*Golden Eagle	1/2	1/4	February 1-July 31

(Adapted from “Guidelines for Raptor Conservation in the Western United States”)

*Threatened, Endangered, Sensitive, or Species of special concern

¹ -Any activity that will result in more than one house or permanent construction to include commercial use, buildings 3 or more stories high, activity that would increase human use, or project with a footprint greater than 1/2 acre.

-Construction of new marinas with routine use by 6 or more boats.

- Any use of explosives or activities that produce extremely loud noise, such as blasting, use of jackhammers or gravel crushing equipment, or fireworks.

-Forest management activities that include harvesting and heavy truck traffic in areas that don’t normally have that type of activity.

-Construction of new above ground power and utility lines.

² -Any permanent construction to include single home properties (<3 stories tall) and outbuildings.

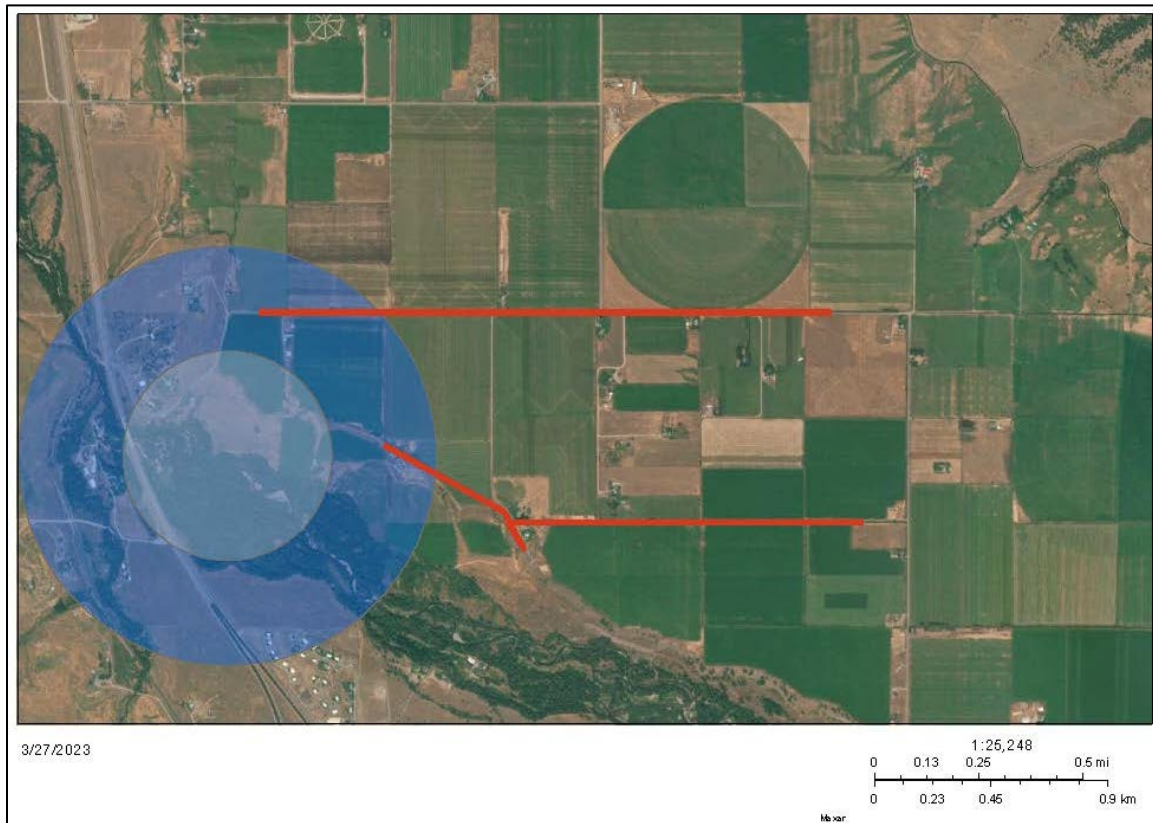
- Any construction of infrastructure such as roads and trails including dozer lines for fire management activities, except when specifically constructed to save a bald eagle nest from fire.

-Forest management activities including timber harvest layout, snag removal, prescribed fires, planting, and thinning.

Construction activities would not occur on the segments indicated in Figure 3 during this seasonal buffer between February 15 – August 15 to reduce disturbance or abandonment of an active bald eagle nest. The nest identified in Figure 3 was confirmed to be active as of a flight survey in June 2023. These seasonal restrictions are included in the construction bid documents as part of the environmental special provisions.

Construction occurring between May 15 – June 30 may displace and have impacts to migratory grassland bird breeding activities and active nesting. If construction is to occur outside this breeding window, there would be no impacts to migratory grassland nesting activities.

Figure 3. Jocko Service Area Project Map Eagle Nests



No Action Alternative

The No Action Alternative would have no impact on bald or golden eagles near the project area.

Canal Lining Alternative

Portions of the proposed alignment lie within 0.5-miles of active bald eagle nesting locations. The Canal Lining Alternative could have temporary indirect impacts on bald eagle activity during construction from increased noise, human, and equipment activity. However, the known eagle nests are all located near US Highway 93 and the eagles are likely acclimated to traffic and noise activity. Project activities will occur at least 0.25 miles away from the nearest known eagle nest. This alternative would have no impact on golden eagles.

Preferred Alternative

The Preferred Alternative would have similar impacts to known bald eagles and their nest locations as the Canal Lining Alternative. Construction timing restrictions noted above should be adhered to for both bald eagle nesting locations and for migratory bird active nesting season.

3.5.4 VEGETATION COMMUNITIES AND NOXIOUS WEEDS

Affected Environment

Montana State University maintains a list of Montana weeds in accordance with the Montana County Weed Control Act that includes 36 noxious weeds and five regulated plants (MSU 2020). The noxious weeds are divided into five priority levels: Priority 1A (not present or limited presence), 1B (limited presence), 2A (common in isolated areas), 2B (abundant and widespread), and 3 (not noxious, regulated plants). The MTNHP Report was referenced for information on noxious weeds in the project area. There are documented occurrences of one Priority 1A, two Priority 2A species, seven Priority 2B species, and one Priority 3 species.

Additionally, Tribal Lands Range Specialist, Alfred Bigby, identified medusa head, a Priority 1A noxious weed, along the K Canal in the project area. Treatment of *Ventenata dubia*, a Priority 2A species, occurred along the K Canal in October 2022 and the Tribe will continue to monitor and apply follow up treatments as necessary. During the wetland delineation performed in August and September 2021, Canada thistle, hounds' tongue, spotted knapweed, and field bindweed were all identified within the project area. Cheatgrass and ventenata are prevalent in the area and are difficult to manage.

No Action Alternative

Irrigation operators do little to no vegetation related maintenance to the existing ditches because the vegetation helps slow the infiltration of water in the poor substrate of the ditch bottoms. This lack of maintenance of the irrigation canals is not ideal for controlling the spread of noxious weeds and will have a negative long-term impact on the spread of noxious weeds.

Canal Lining Alternative

The Canal Lining Alternative would result in the clearing of vegetation and noxious weeds immediately within and adjacent to existing irrigation ditches and new proposed routes. The disturbance could result in aiding the re-establishment of noxious weeds without proper control methods post-construction. Disturbed ground will be stabilized as soon as possible to prevent noxious weeds or non-native invasive species growing on the site.

Lining the ditches would keep vegetation from growing within the canals and operators would no longer need to worry about water infiltration in the poor substrate of the ditches. Additionally, contractors would be required to ensure their equipment was weed free throughout the construction process. This alternative would have a long-term beneficial impact on vegetation communities.

Preferred Alternative

The Preferred Alternative would result in the clearing of vegetation and noxious weeds immediately within and adjacent to existing irrigation ditches and new proposed routes. Removal of vegetation would be completed through clearing and grubbing with construction equipment. All equipment would be clean and free of weeds and weed seeds before use on the proposed project site. Contractors will follow any recommended protocol for traversing across the project area to prevent the spread of any identified noxious weeds. Disturbed ground would be stabilized as soon as possible to prevent noxious weeds or non-native invasive species growing on the site. All

appropriate disturbed areas would be re-seeded with a seed mix selected by a CSKT botanist. The contractor will be required to follow noxious weed prevention protocols identified in the Environmental Quality Control specifications for construction.

Provided these mitigation measures are implemented, the proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area, or may promote the introduction, growth, or expansion of the range of such species. The project area will be monitored and treated, as appropriate, for noxious weeds for at least two years post-construction.

3.6 CULTURAL RESOURCES

3.6.1 HISTORIC PROPERTIES, ARCHAEOLOGICAL RESOURCES, CULTURAL, SACRED, & TRADITIONAL CULTURAL PROPERTIES

Affected Environment

The construction of the Flathead Indian Irrigation Project began in 1908 and was completed in the early 1960s. Since the project area lies within an Indian reservation, the cultural resources responsibilities lie with the Tribal Historic Preservation Office (THPO) rather than the state office. The CSKT Tribal Preservation office implements historic and cultural review on the Flathead Indian Reservation. The proposed project area was reviewed and approved by the CSKT Tribal Preservation Office. On April 21, 2022 the THPO Kathryn McDonald provided a letter that stated, “*The responsibilities of site protection are agreed and protocols have been thoroughly conducted and documented to ensure no site damages or significant effect to historic or cultural resources.*” The Jocko Canal is not eligible for listing on the National Register and no identified historic resources have been identified within the proposed project area. An additional THPO letter was provided on March 23, 2023, with similar language. Correspondence is provided in Appendix C.

No Action Alternative

The No Action Alternative would have no impact on known historic, archeological, cultural, sacred, or traditional cultural resources.

Canal Lining Alternative

The Canal Lining Alternative would include excavation within the current irrigation system alignments, including replacement of existing infrastructure. However, since THPO does not consider the irrigation canals or related structures as cultural resources, this alternative would have no impact on cultural or archeological resources. However, there is potential for cultural resources to become uncovered during construction and THPO monitors will be present on site. Contractors would be required to contact THPO and stop work immediately upon discovery of any potential cultural or archeological resources or human remains.

Preferred Alternative

The Preferred Alternative would include excavation within the current irrigation system alignments, including replacement of existing infrastructure, as well as some new alignments. There is likely to be “No Adverse Effect”, but as a precautionary measure the CSKT THPO will

have Cultural resource monitors present during ground disturbing activities to identify any potential cultural or historic materials and communicate with contractors. If potential cultural or historic resources are discovered, the Contractor will cease work immediately and contact CSKT THPO. Permission to resume must be obtained from CSKT THPO.

3.7 SOCIOECONOMIC CONDITIONS

3.7.1 EMPLOYMENT AND INCOME

Affected Environment

According to the 2020 US Census Bureau data, Lake County has 6,301 employed individuals with a population of 31,134 and civilian labor force of 57.7 percent. The median household income is \$52,169 compared to the state median household income of \$57,763. Lake County has 18.3 percent of its population living in poverty versus 10.5 percent of the state of Montana. The Flathead Reservation median household income in 2019 was \$44,262, approximately six percent lower than the state of Montana median household income that year (CSKT 2021a).

No Action Alternative

The No Action Alternative would allow the current system to continue to operate inefficiently. With the implementation of the MEF instream flow in the Jocko Rive seven years after the Effective Date, irrigation staff would need to fully implement Operational Improvements to meet historic farm deliveries to assessed irrigation tracts. Absent this, there may be reductions in on-farm water availability following implementation of the MEF's. Irrigation users may see reduced crop/pasture yields due to a reduction in irrigation flows to their fields, which would reduce their overall income.

Canal Lining Alternative

The Canal Lining Alternative would likely have little to no impact on income for irrigators since pumping costs would remain similar to the No Action Alternative. Tribal preference would be used for construction contracts and could have a short-term benefit on local employment opportunities.

Preferred Alternative

Placing the irrigation system into pressurized pipe would have a beneficial impact on expenses for irrigators. Transitioning to pressurized pipe would lead to improved demand management and energy conservation, including reduced electricity use resulting in lower pumping costs for a majority of water users. Tribal preference would be used for construction contracts and could have a short-term benefit on local employment opportunities.

3.7.2 COMMUNITY INFRASTRUCTURE

Affected Environment

The FIIP is part of the Flathead Reservation community infrastructure. The FIIP experiences many water management and delivery inefficiencies within the Jocko Service Area that must be addressed to comply with the requirements of the Compact. These inefficiencies include lack of accurate flow measurement, lack of water level and flow control structures, overgrown canal vegetation, and high irrigation water seepage loss.

No Action Alternative

With the No Action Alternative, irrigation rehabilitation and modernization would be limited to operation and maintenance conducted by FIIP personnel. Operational improvements, including stream, canal and reservoir management and completion of the Jocko K headworks would occur. These actions would support more control for water management and delivery, but inefficiencies related to on-farm delivery practices and canal seepage losses would persist.

Canal Lining Alternative

This alternative would greatly improve the irrigation infrastructure efficiency by addressing the seepage loss. However, this alternative is not the most efficient alternative and irrigators would continue to struggle with water delivery at the farther points of the irrigation system.

Preferred Alternative

The Preferred Alternative would have a beneficial impact on the irrigation infrastructure by creating an efficient water delivery system that can be measured and will meet the requirements of the Compact. Irrigators will have better access to irrigation water throughout the system with a pressurized pipe and will reduce O&M issues.

3.8 RESOURCE USE PATTERNS

3.8.1 HUNTING, FISHING, GATHERING

Affected Environment

The Jocko River is a major tributary to the Flathead River that provides important habitat for bull trout and westslope cutthroat trout, in addition to a variety of other fish species. The FIIP system in the Jocko Service Area is supplied by water that would ultimately reach the Jocko River through a variety of tributaries and groundwater sources. The area is mainly used for agricultural practices, but the Jocko River provides fishing opportunities. The Compact has put in place requirements for increased instream flows in the Jocko River to restore aquatic habitat. Hunting and gathering activities, if present, are minimal in the project area.

No Action Alternative

The No Action Alternative would allow current system to continue to operate inefficiently. Instream flows would have to be met by putting pressure on more efficient use of water diverted for agriculture. The Jocko River would be beneficially impacted for this reason, but at the expense of irrigators.

Canal Lining Alternative

Instream flows would be met while also increasing the efficiency of the irrigation system. This alternative would have beneficial impacts on the aquatic environment for the Jocko River by reducing water diverted from the river, therefore having a beneficial impact on fishing quality.

Preferred Alternative

The Preferred Alternative would have similar impacts on fishing as the Canal Lining Alternative but would allow for even higher flows in the Jocko River due to the elimination of irrigation seepage loss.

3.8.2 AGRICULTURE

Affected Environment

A USDA NRCS Custom Soils Report for farmland classification was generated for the proposed project area. It is available in Appendix B. The project area consists largely of Farmland of Local Importance, Prime Farmland if Irrigated, and Not Prime Farmland. The project area is part of the FIIP that is used to provide irrigation water to farmers and ranchers. The existing irrigation canal system north of the Jocko River has a service area of just over 4,500 acres, with roughly 3,600 acres actively irrigated and 900 acres currently inactive. The land is served through over 26 miles of open canals, starting with K Canal. As described in Section 2.1, the current irrigation system has significant efficiency issues related to delivery, seepage, maintenance, and accountability.

No Action Alternative

With Operational Improvements applied in practice, approximately 4.2 acre-feet of water per irrigated acre would remain available for RDA diversion. With the implementation of the MEF instream flow in the Jocko Rive seven years after the Effective Date, irrigation staff would need to fully implement Operational Improvements to meet historic farm deliveries to assessed irrigation tracts. With the No Action alternative, there may be reductions in on-farm water availability following implementation of the MEF's.

Canal Lining Alternative

The Canal Lining Alternative would have a beneficial impact on irrigation water supply for agricultural use by lowering the seepage loss in the canals and allowing farmers farther downstream better access to available water. However, the canal lining alternative would not be as efficient as the Preferred Alternative and the geo-composite liner has a design life of approximately 20 years. The irrigation canals would have to be re-lined once the liner begins to degrade over time.

Preferred Alternative

The proposed project would have a long-term beneficial impact on agricultural practices in the project area by improving water savings and reducing irrigation conveyance loss. Additionally, the pressurized pipe system paired with measurement technology will ensure that all irrigators in the system receive their appropriate water allocations. Transitioning to pressurized pipe would lead to improved demand management and energy conservation, including reduced pumping costs for a majority of water users.

3.8.3 LAND USE PATTERNS

Affected Environment

The existing irrigation canal system north of the Jocko River has a service area of just over 4,500 acres, with roughly 3,600 acres actively irrigated and 900 acres currently inactive. The land use in the project area is primarily agricultural with residential use intermixed.

No Action Alternative

The No Action Alternative would have no direct impact on land use in the project area. However, the existing irrigation system receives little maintenance and had been degrading over time. It is possible that this alternative could lead to a change in land use from agricultural to non-agricultural over the long term if the irrigation system continues to degrade and ultimately become inoperable.

Canal Lining Alternative

The Canal Lining Alternative would have a beneficial impact on land use by improving the irrigation system to allow for the continued operation of agricultural practices.

Preferred Alternative

Placing the irrigation system into pressurized pipe will ensure the longevity and efficiency of the system and have a beneficial impact on land use for agricultural practices in the project area.

3.9 OTHER VALUES

3.9.1 WILDERNESS AREAS, WILDLIFE REFUGES, & ECOLOGICALLY SENSITIVE/CRITICAL AREAS

Affected Environment

There are no wilderness areas or wildlife refuges within the project area. According to Casey Ryan, CSKT Hydrologist, the Jocko River watershed is of significant ecological and cultural importance for the Séliš, Qlispé, and Ksanka peoples. There are approximately 15,000 irrigated acres in the Jocko Valley, and withdrawals from the Jocko River at multiple points along its channel significantly alter the annual hydrograph. The geomorphology of the river has also been significantly altered through time, including the straightening of the river channel in the 1880s, the construction of thousands of feet of levees in the 1960s, as well as more recent river restoration efforts beginning in the early 2000s (CSKT 2021b). The purpose of the Compact is to work toward the restoration of this significantly impacted area by increasing the return flows to the watershed in an attempt to return the area to its historical and natural state.

No Action Alternative

The No Action Alternative would allow the irrigation system to continue diverting an excessive amount of water from the Jocko River watershed, which will continue to modify the Jocko Valley natural hydrology. Future impacts to this ecologically sensitive area are difficult to quantify, but groundwater and surface water would continue to fluctuate with the continued degradation of the FIIP system.

Canal Lining Alternative

The Canal Lining Alternative would have a beneficial impact on the Jocko River watershed by working toward the Compact requirements of increased instream flows in the river.

Preferred Alternative

The Preferred Alternative would have a similar beneficial impact to the Jocko River watershed as the Canal Lining Alternative but would create an even more efficient system to further meet the Compact goals of instream flows for the Jocko River.

3.9.2 NOISE AND LIGHT

Affected Environment

The project area mainly consists of public roadways, agricultural property, and residential property. Noise and light conditions align with typical rural areas with sources of noise and light being vehicle traffic, agricultural equipment, and residential home lighting.

No Action Alternative

The No Action Alternative would have no impact on noise or light in the project area.

Canal Lining Alternative

The Canal Lining Alternative would have a temporary impact on noise in the project area during construction from operation of equipment. Temporary noise impacts would move through the project area as construction operations progress and would not occur outside of typical work daylight hours. This alternative is unlikely to have any impacts on light. Impacts from this alternative would be minimal.

Preferred Alternative

The Preferred Alternative would have similar impacts on noise and light in the project area as the Canal Lining Alternative.

3.9.3 VISUAL

Affected Environment

The project area consists of agricultural properties, residential homes, public roadways, and the existing irrigation canal and ditch network. Many irrigated properties have established private piped systems that are aging and are subject to blowouts. Additionally, the irrigation canals contain overgrown vegetation due to the inability for FIIP to maintain the canals for fear of additional seepage loss. Privately owned pipes are not under FIIP control and are not well maintained in many cases.

No Action Alternative

The No Action Alternative would have little impact on visual quality of the project area, as canals are already overgrown, and conditions are not likely to change much over time.

Canal Lining Alternative

This alternative would improve the visual quality of the irrigation system by establishing a canal network that can be maintained for vegetation growth. Additionally, many of the private pipelines would no longer be required because the lined canals would provide a more efficient delivery system for irrigators.

Preferred Alternative

The Preferred Alternative would also improve the visual quality of the project area. This alternative would eliminate the canals and allow FIIP to maintain pipeline rights-of-way. Similar to the Canal Lining Alternative, many of the private pipelines would no longer be required with this more efficient delivery system.

3.9.4 HAZARDOUS MATERIALS

Affected Environment

The project area consists of a network of open canals through agricultural property and along public roadsides. Open canals are also used by cattle operations as a water source for their herd. The open canal system raises concerns for the water quality due to potential contaminants from ranching and farming operations such as sedimentation, nutrient load, and herbicides/insecticides. Runoff from farm fields or overspray of chemicals can enter the open canal system and impact the quality of downstream irrigation water and streams.

No Action Alternative

The No Action Alternative would allow contaminants to continue to enter the irrigation system through the open canals.

Canal Lining Alternative

The Canal Lining Alternative would allow contaminants to continue to enter the irrigation system through the open canals. Construction activities would follow BMPs outlined in a Storm Water Pollution Prevention Plan (SWPPP) to reduce the potential for hazardous materials contacting water, such as the use of silt fence, straw wattles, and confining fueling operations to upland areas away from irrigation canals.

Preferred Alternative

The Preferred Alternative would eliminate the potential for hazardous chemicals entering the irrigation system from anywhere besides the K Canal or upper reaches of the watershed. Construction activities would pose a potential risk for contamination with hazardous materials, but contractors would follow procedures and BMPs outlined in a SWPPP.

3.10 RESOURCE CUMULATIVE IMPACTS

As defined by NEPA regulations (40 Code of Federal Regulations [CFR] 1508.7), cumulative effects result from the incremental effects of the alternatives actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-

Federal) or person undertakes such other actions. For purposes of this analysis, past, present, and reasonably foreseeable future actions are defined as follows:

- Past actions include activities that were associated with past actions and may involve present operations.
- Present actions include activities that may just have been completed, are currently underway, or are planned for the near future.
- Reasonably foreseeable future actions include private or public projects already funded, permitted, or under regulatory review, or included in an approved final planning document.

The following past, present, and reasonably foreseeable future actions within the Project vicinity were identified and included in the cumulative impact analysis.

CSKT-Montana Compact

The Compact, made effective on September 17, 2021, set targets for incremental implementation of Minimum Enforceable Flows (MEFs), Target Instream Flows (TIFs), Minimum Reservoir Pool Elevations, and River Diversion Allowances (RDAs) across the FIIP system. The Compact identifies the Mission Valley south of Crow Creek, Mission Valley north of Crow Creek, Jocko Valley, and Little Bitterroot Valley as geographic priority areas for rehabilitation and betterment projects. The Jocko Valley consists of many stream reaches with identified target flows that must be met by September 2028. The interim instream flow for the Jocko River below the Jocko K Canal is 44 cfs. These will be accomplished by completion of a slew of rehabilitation and betterment projects over the next seven years, at minimum.

CSKT Projects

Upcoming CSKT projects in the vicinity of the project area include:

- Jocko K Headworks (under construction) – this project is replacing the diversion structure and fish ladder on the Jocko K Canal. Construction began Fall 2022 and will be completed in 2023.
- Lower Jocko J Diversion – includes diversion replacement with roughened channel and significant river and wetland restoration efforts. Construction anticipated to begin in 2024.
- Falls Creek Diversion – this project will replace the Falls Creek Diversion Structure and Falls Creek Bridge on Falls Creek, which is a tributary to the North Fork Jocko River. Construction is anticipated to occur in 2024.
- North Fork Jocko/Tabor Diversion – this project will fully rehabilitate the Tabor Feeder Canal diversion and a bridge on the North Fork Jocko River. Construction is anticipated to occur in 2025 or 2026.
- Upper S Diversion – will improve facilities and fish passage. Construction anticipated in 2026 or later.
- Bison Range Reach Restoration Project – will incrementally reconnect historic floodplain and improve habitat.
- Several potential stream/wetland restoration projects.

3.10.1 NO ACTION ALTERNATIVE

Although other proposed CSKT projects will improve water efficiencies in certain areas, the overall Jocko Service Area would still continue to utilize a degraded and inefficient irrigation system, resulting in a net negative cumulative impact irrigators in the Jocko Valley.

3.10.2 CANAL LINING ALTERNATIVE

The Canal Lining Alternative combined with the above-identified projects would have a beneficial cumulative impact on the FIIP system by increasing the efficiency of water delivery and working toward the instream flow and river diversion allowance goals. These projects will be implemented in phases over the foreseeable future so they will not place a burden on the irrigation system at any given time. Overall, all the identified projects will benefit fisheries in the Jocko River system, and specifically bull trout and bull trout critical habitat.

3.10.3 PREFERRED ALTERNATIVE

The Preferred Alternative combined with the above-identified projects would have similar beneficial cumulative impacts on the FIIP system and the Jocko Valley as the Canal Lining Alternative. The Preferred Alternative will have a beneficial impact on restoration of the hydrology across the Jocko Valley. Overall, all the identified projects will benefit fisheries in the Jocko River system, and specifically bull trout and bull trout critical habitat.

4.0 CONSERVATION AND MITIGATION MEASURES

4.1 LAND RESOURCES

- Contractors will abide by a SWPPP during construction to minimize impacts to land resources such as sedimentation and erosion. BMPs will include but are not limited to, maintaining vegetation buffers, minimizing the extent of open trench at any given time, separating topsoil from subsoils, and revegetating immediately after construction.

4.2 WATER RESOURCES

- BMPs will be implemented during construction as part of a SWPPP to protect open water resources such as streams and wetlands from sedimentation or other contaminants.
- The Tribe will continue to monitor groundwater levels post-construction to study the hydrologic impacts of the Compact projects.
- All appropriate permits will be acquired prior to construction for impacts to Waters of the US, including USACE Section 404 permit, 401 Water Quality Certification, and Aquatic Lands Conservation Ordinance 87A (ALCO). Contractors shall comply with permit conditions and potential required mitigation measures will be implemented by the Tribe.

4.3 AIR

- Contractors will follow BMPs outlined in the SWPPP for dust suppression and any other air quality protection procedures.
- Contractors will ensure their equipment is in good working order.

4.4 LIVING RESOURCES

4.4.1 WILDLIFE SPECIES AND HABITAT (TERRESTRIAL AND AQUATIC)

Any construction equipment working near waterbodies shall follow state and federal aquatic invasive species prevention protocols.

4.4.2 THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES (PLANTS AND ANIMALS)

Due to the potential presence of grizzly bear, Canada lynx, and wolverine in the project area, the following actions and precautions must be adhered to when working within any construction or staging site to minimize disturbance and attracting bears to the work site. Avoiding potential conflicts with grizzly bears is vital to the persistence of the species, therefore, the following precautions need to be followed at the work site:

- Promptly clean up any project-related spills, litter, garbage, debris, etc. All workers will be equipped with and carry bear spray.

- Store all food, food-related items, petroleum products, antifreeze, garbage, and personal hygiene items inside a closed, hard-sided vehicle or commercially manufactured bear-resistant container.
- Remove garbage from the project site daily and dispose of it in accordance with all applicable regulations.
- Notify the CSKT Wildlife Management Program of any animal carcasses found in the area; CSKT Wildlife Management or CSKT Fish and Game will remove the carcass to remove attractant within the work site.
- Notify the CSKT Wildlife Management Program of any grizzly bears, wolverine or Canada lynx observed in the vicinity of the project.

4.4.3 MIGRATORY BIRDS AND BALD/GOLDEN EAGLES

- Two segments of the Project Area occur within a designated 0.5-mile buffer of an active Bald Eagle nest (Figure 3; see blue circle). Construction operations should occur outside of a designated seasonal buffer for any activity that will result in use of explosives or activities that produce loud noise such as blasting; use of jackhammers; or gravel crushing equipment; etc., management activities that include timber harvesting and heavy equipment and truck traffic in areas that don't normally have this type of activity, or construction of new above ground power and utility lines.
- Construction activities would not occur on the segments indicated during this seasonal buffer between February 15 – August 15 to reduce disturbance or abandonment of an active bald eagle nest. There are no segments of the Project Area that occur within the .25 spatial buffer (Figure 3; see grey circle), therefore no additional seasonal mitigation activity measures.
- Construction occurring between May 15 – June 30 may displace and have impacts to migratory grassland bird breeding activities and active nesting. If construction is to occur outside this breeding window, there would be no impacts to migratory grassland nesting activities.
- Avoid pesticides where bald eagles may scavenge. To reduce secondary poisoning limit the use of anti-coagulants and other pesticides and ensure all herbicides, pesticides, and fertilizers are disposed of properly. All use of chemicals, including the application and handling, shall follow applicable state and federal laws.
- Contact CSKT Wildlife Program Biologist for most recent information on potential impacts to active nest locations.

4.4.4 VEGETATION COMMUNITIES AND NOXIOUS WEEDS

- Contractors will implement BMPs outlined in the SWPPP to minimize impacts to vegetation and prevent the spread of noxious weeds.
- All equipment would be clean and free of weeds and weed seeds before use on the proposed project site. Contractors will follow any recommended protocol for traversing across the project area to prevent the spread of any identified noxious weeds.
- Disturbed ground would be stabilized as soon as possible to prevent noxious weeds or non-native invasive species growing on the site. All appropriate disturbed areas would be re-seeded with a seed mix selected by a CSKT botanist.

- The contractor will be required to follow noxious weed prevention protocols identified in the Environmental Quality Control specifications for construction. The project area will be monitored for noxious weeds for at least two years post-construction.
- The revegetation plan may include a wildflower seed mix beneficial to monarch butterflies and other pollinator species in areas determined by CSKT.

4.5 CULTURAL RESOURCES

- Cultural resource monitors will be present during ground disturbing activities to identify discovered materials and communicate with contractors. If potential cultural resources are discovered, the Contractor will cease work immediately and contact CSKT THPO. Permission to resume must be obtained from CSKT THPO.

4.6 OTHER RESOURCES

4.6.1 NOISE AND LIGHT

- Construction will not occur outside of typical work daylight hours.

4.6.2 HAZARDOUS MATERIALS

- Contractors will abide by BMPs established in the SWPPP to prevent hazardous materials contamination of the project area.

5.0 CONSULTATION AND COORDINATION

As a project proposed by the CSKT within the boundaries or ownership of the Reservation, the primary regulatory jurisdiction of the project is that of the Tribes. All laws of the Tribes, including environmental laws and regulations, must comply with applicable federal law. In cases where the CSKT have not yet established or enacted laws, standards, or programs for protection and management of environmental resources, federal jurisdiction and permitting would apply.

5.1 TRIBAL

The CSKT Interdisciplinary Team (IDT) is comprised of key tribal members and staff that have been involved with the proposed project from the beginning and are meant to provide valuable feedback on proposed projects on the reservation. A kickoff meeting for the project was held on May 18, 2021 to provide an introduction to the project and receive initial feedback from IDT. A Request for Comment Letter was sent to all IDT members on July 12, 2021 to request feedback on the project as it related to the NEPA process for preparation of the CEER Checklist and this EA. The proposed project has received the following regulatory concurrence:

- CSKT Tribal Historic Preservation Office (Section 106) – No known tribal or cultural resources are located within the project area. Cultural resource monitors will be present during land disturbing activities.
- CSKT Aquatic Lands Conservation Ordinance (ALCO) – An ALCO permit application was completed and submitted.

All written comments from IDT are provided in Appendix C.

5.2 U.S. FISH AND WILDLIFE SERVICE

CSKT Wildlife Department prepared a Biological Assessment to evaluate impacts of the preferred alternative on federally listed species in accordance with Section 7 of the Endangered Species Act. Informal consultation with US Fish and Wildlife Service was completed on March 2, 2023 (Appendix C). USFWS concurred with the following findings for the Project: *may affect, but is not likely to adversely affect* grizzly bear (*Ursus arctos horribilis*), bull trout (*Salvelinus confluentus*) or designated bull trout critical habitat. The BA also determined that the Project is *not likely to jeopardize the continued existence* of North American Wolverine (*Gulo gulo*). The project will have direct beneficial impacts on bull trout and bull trout critical habitat.

5.3 U.S. ARMY CORPS OF ENGINEERS

A Request for Comment Letter was submitted to the USACE on July 14, 2021. USACE responded to the request on October 12, 2021 and stated they were unable to determine what portions, if any, of the project would result in a permanent or temporary discharge into waters of the US. An Approved Jurisdictional Determination (AJD) request along with a Wetland Delineation Report was submitted to USACE on January 24, 2022. Jerin Borrego, USACE Project Manager, responded to the AJD request on April 15, 2022 and stated all delineated wetlands and waterways, including irrigation canals were considered jurisdictional features under the current

Clean Water Act regulations and definitions. A subsequent on-site meeting was held between USACE, CSKT, and Morrison-Maierle on May 25, 2022. It was determined that an Individual 404 Permit (IP) would be required for the proposed project. At the time of this EA, the IP process is underway for acquisition of a 404 Permit and implementation of any necessary mitigation components.

5.4 CSKT 401 WATER QUALITY CERTIFICATION

The CSKT Water Quality Program has jurisdiction over 401 Water Quality Certifications on the Flathead Reservation. A 401 Water Quality Certification has been acquired for construction activities.

6.0 LIST OF CONTRIBUTORS

Table 4. List of EA Contributors

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EA Preparation		
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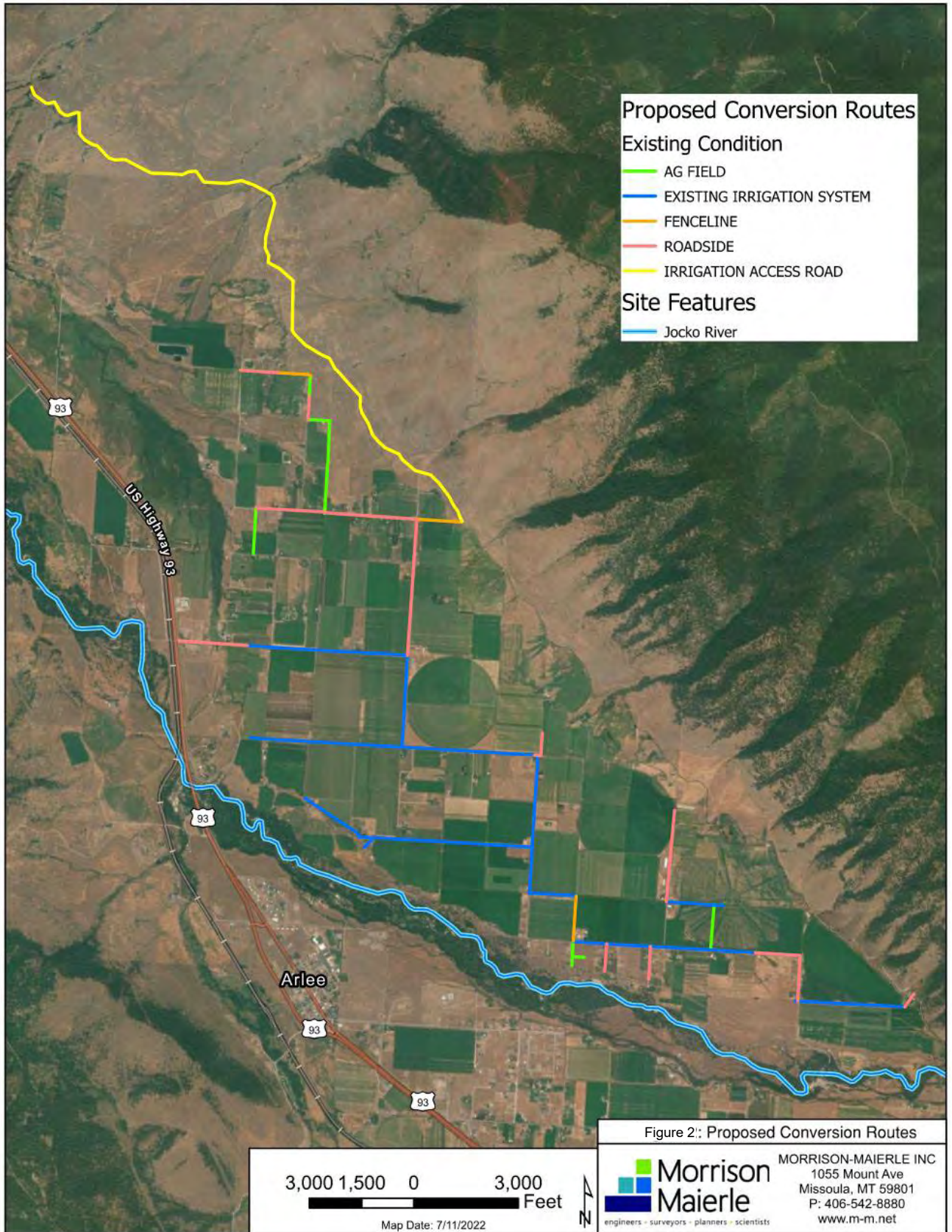
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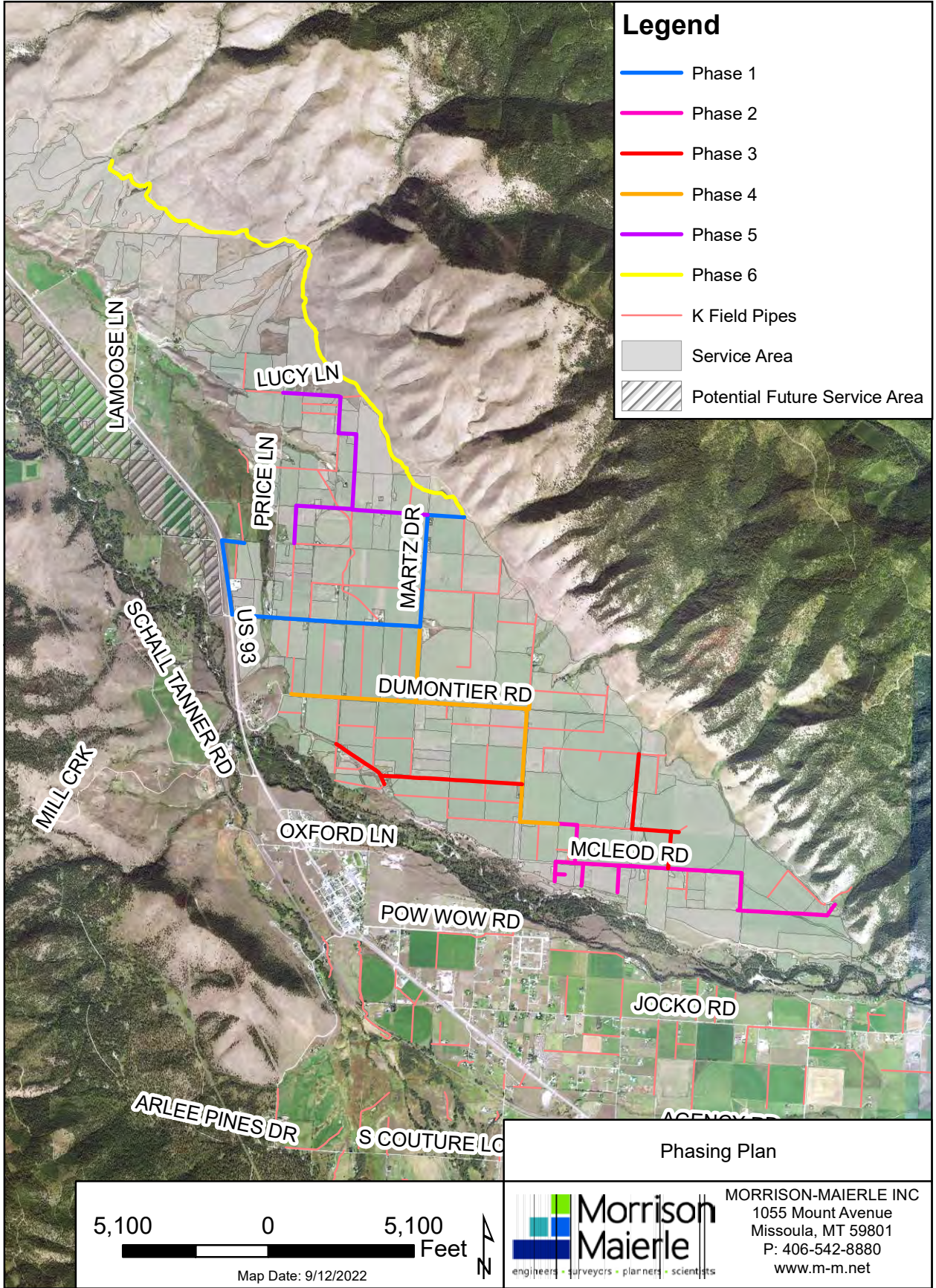
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Appendix A
Figures





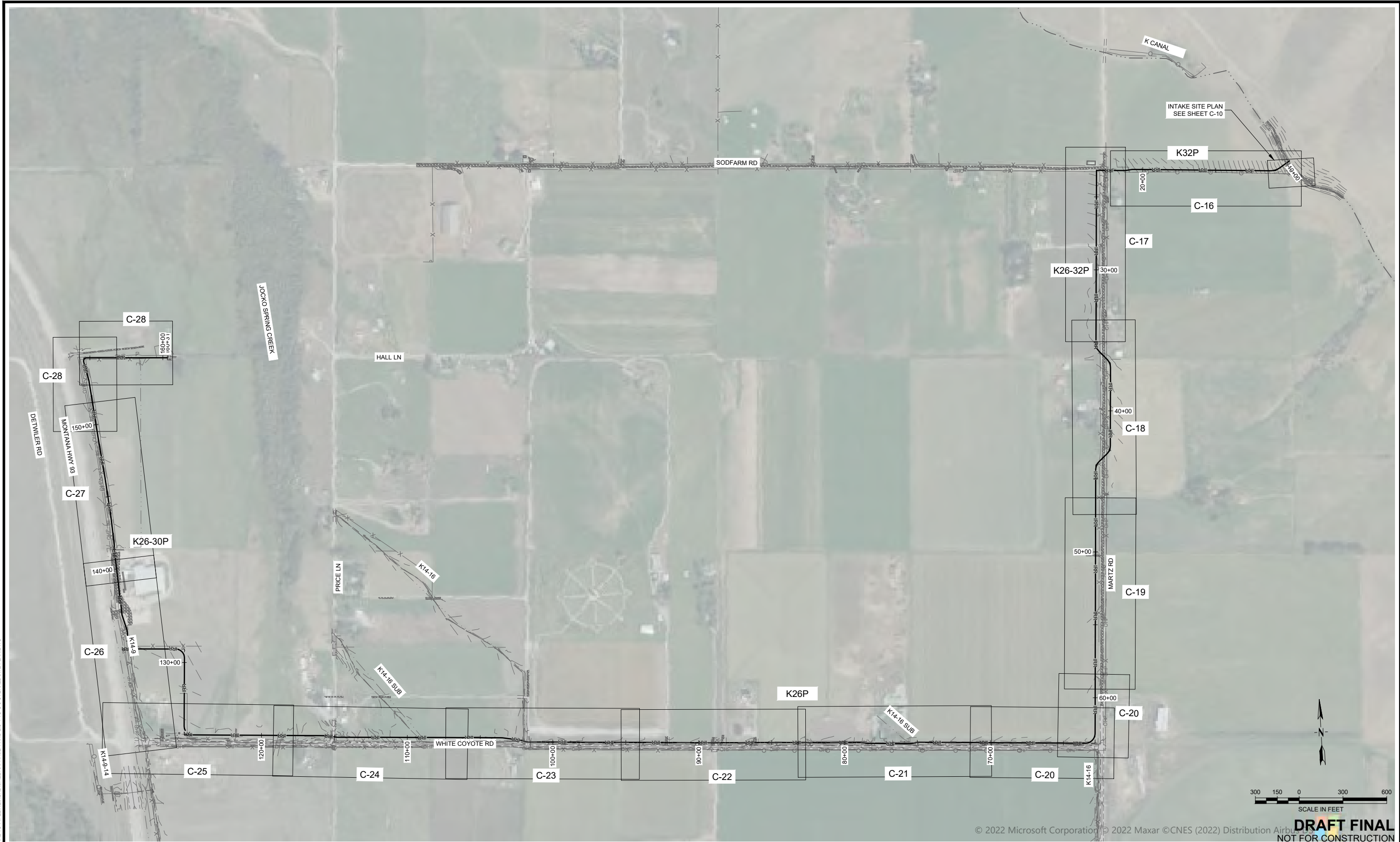
Legend

- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5
- Phase 6
- K Field Pipes
- Service Area
- Potential Future Service Area

Phasing Plan



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M:\0859 CSKT015-00_JOCKO CANAL TO PIPELINE\CAD\SHEETS\PHASE 1 AND 2\C-4 TO C-5 OVERALL SITE PLAN.DWG
 PLOTTED BY: STEPHEN MURPHY ON Feb/21/2023

VERIFY SCALE!
 THESE PRINTS MAY BE REDUCED.
 LINE BELOW MEASURES ONE INCH
 ON ORIGINAL DRAWING.
 ───────────
 MODIFY SCALE ACCORDINGLY!

REVISIONS				
NO.	DESCRIPTION	BY	DATE	



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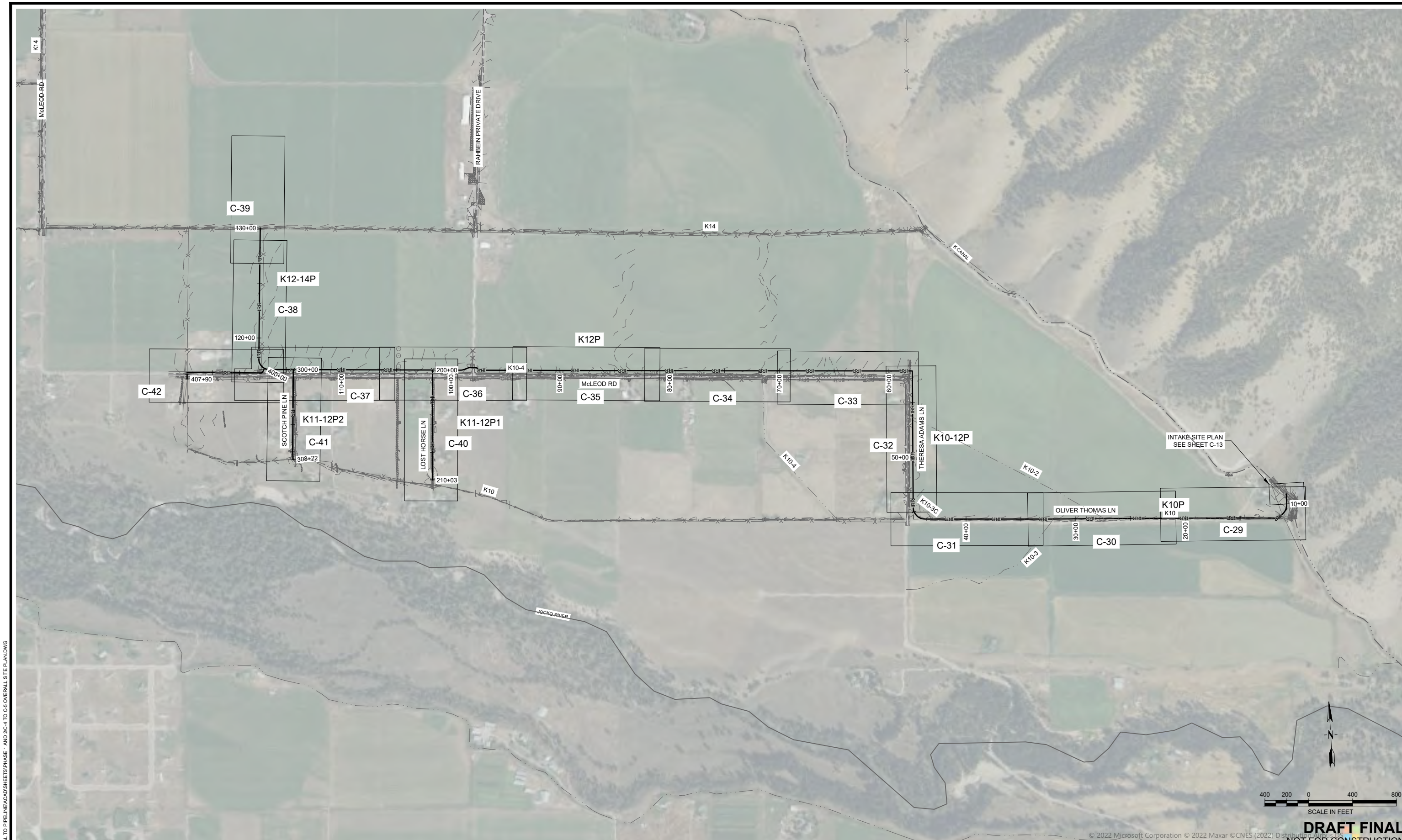
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 DSGN. BY: GPV/NAQ
 APPR. BY: MRD
 DATE: 02/2023
 Q.C. REVIEW BY: _____
 DATE: _____

CONFEDERATED SALISH AND KOOTENAI TRIBES
 JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
 JOCKO VALLEY MONTANA

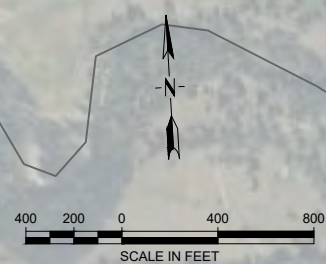
OVERALL SITE PLAN AND SHEET KEY - PHASE 1

PROJECT NUMBER 0859.015
 SHEET NUMBER
 DRAWING NUMBER C-4

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INTAKE SITE PLAN
SEE SHEET C-13



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VERIFY SCALE!
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ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY!

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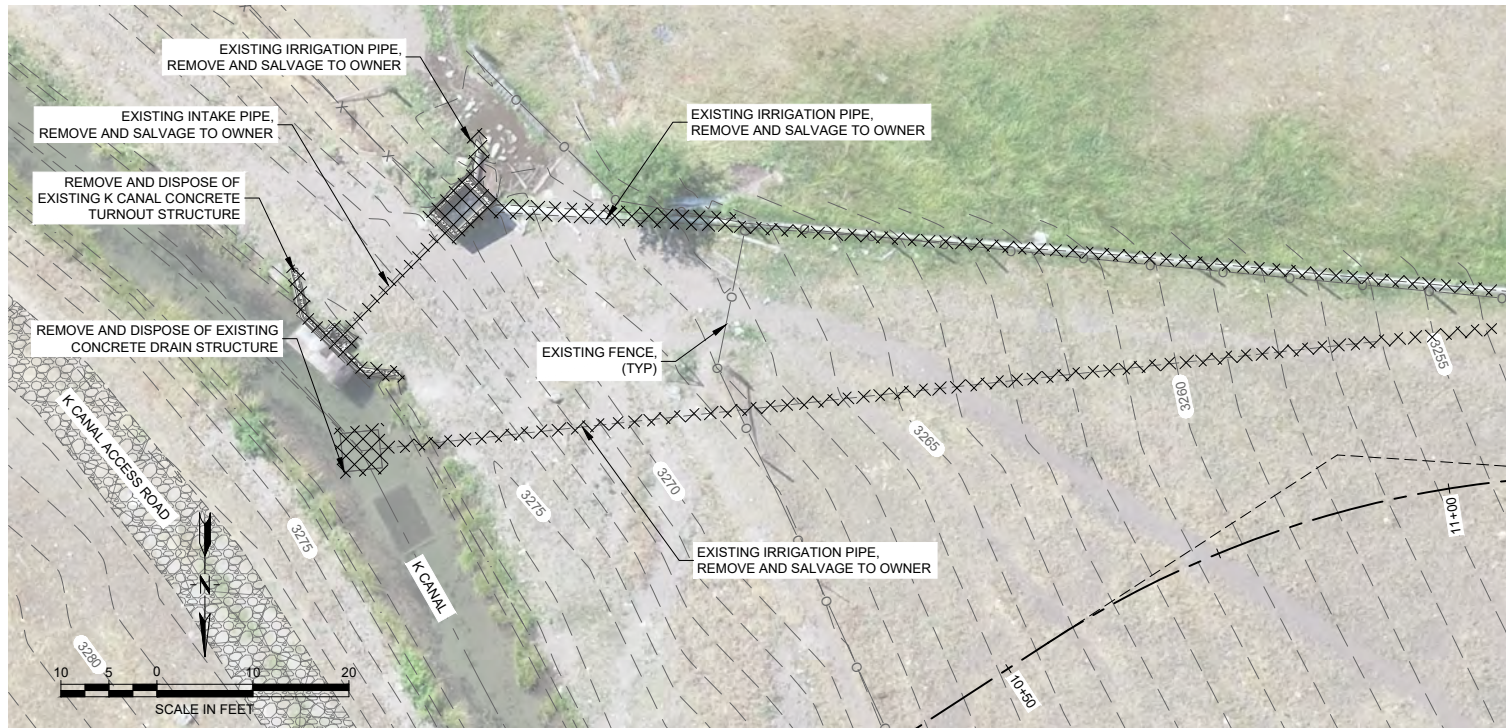
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

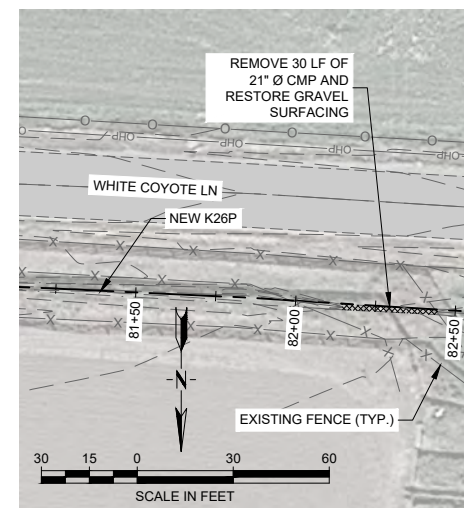
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OVERALL SITE PLAN AND SHEET KEY - PHASE 2

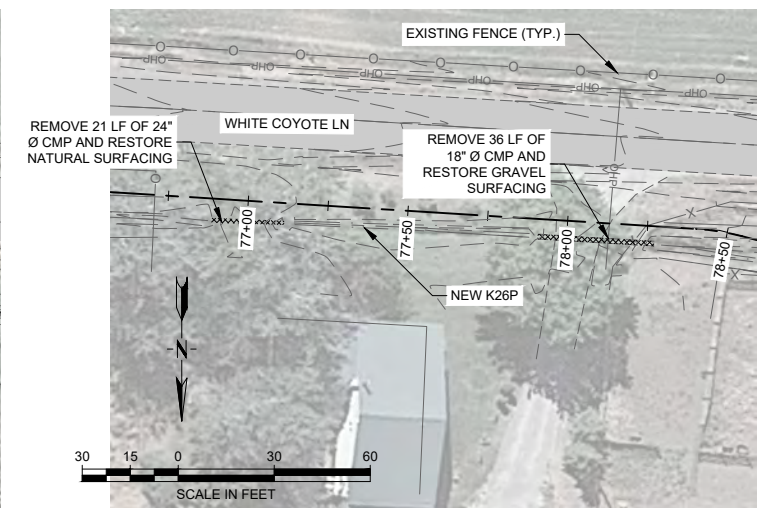
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SHEET NUMBER
DRAWING NUMBER
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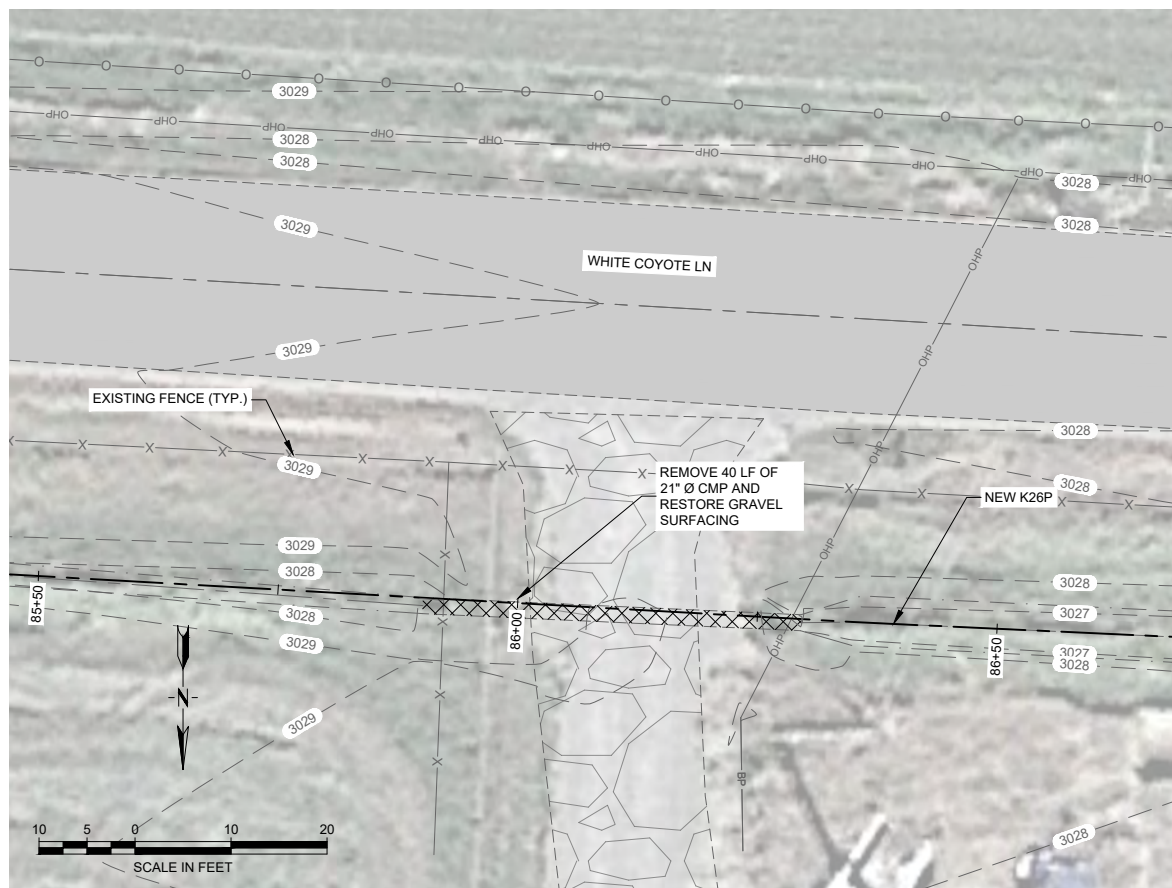
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C-16



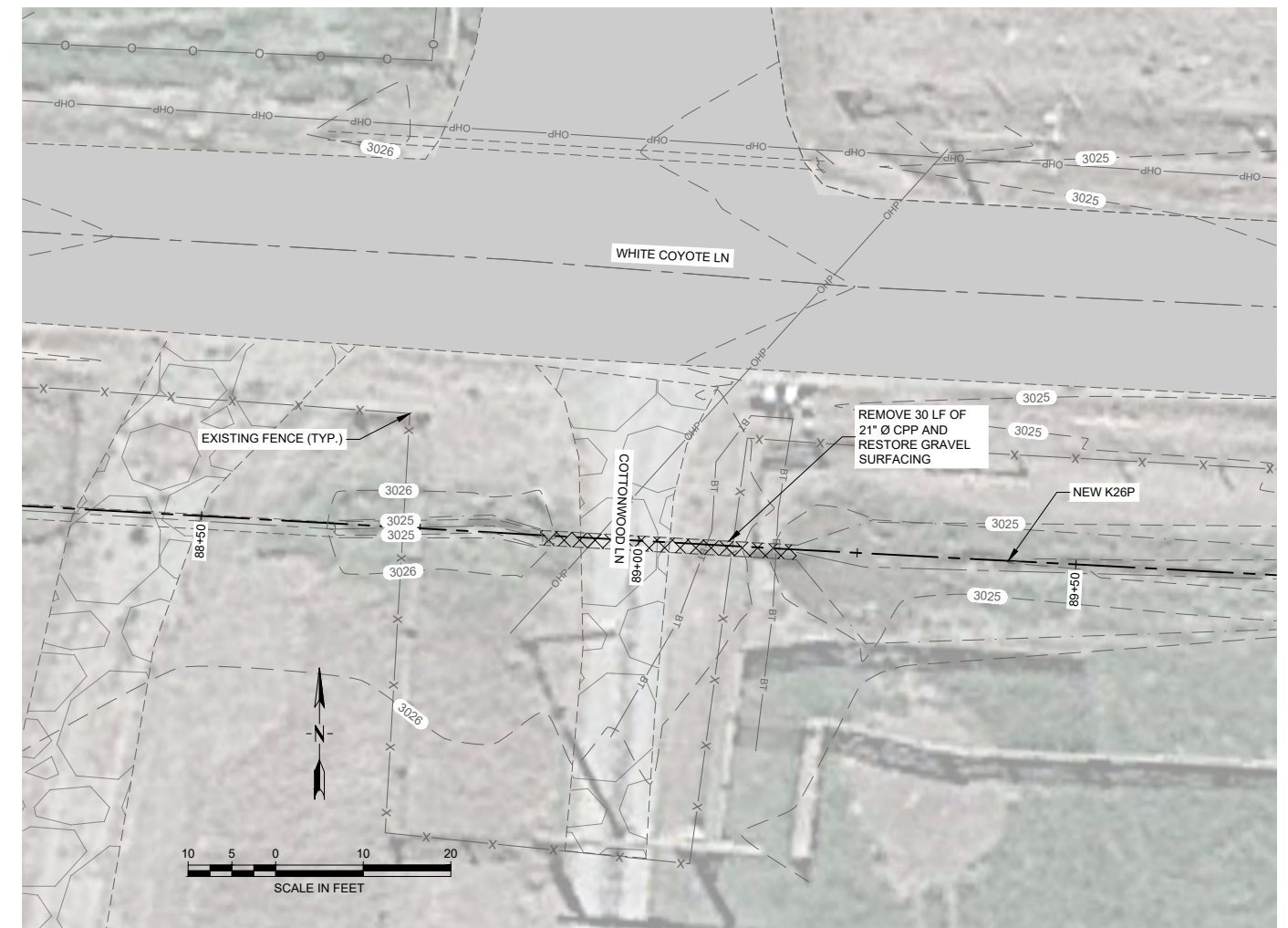
2 DETAIL
C-21



3 DETAIL
C-21



4 DETAIL
C-22



5 DETAIL
C-22

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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2

JOCKO VALLEY

MONTANA

DEMOLITION DETAILS - PHASE 1

PROJECT NUMBER

0859.015

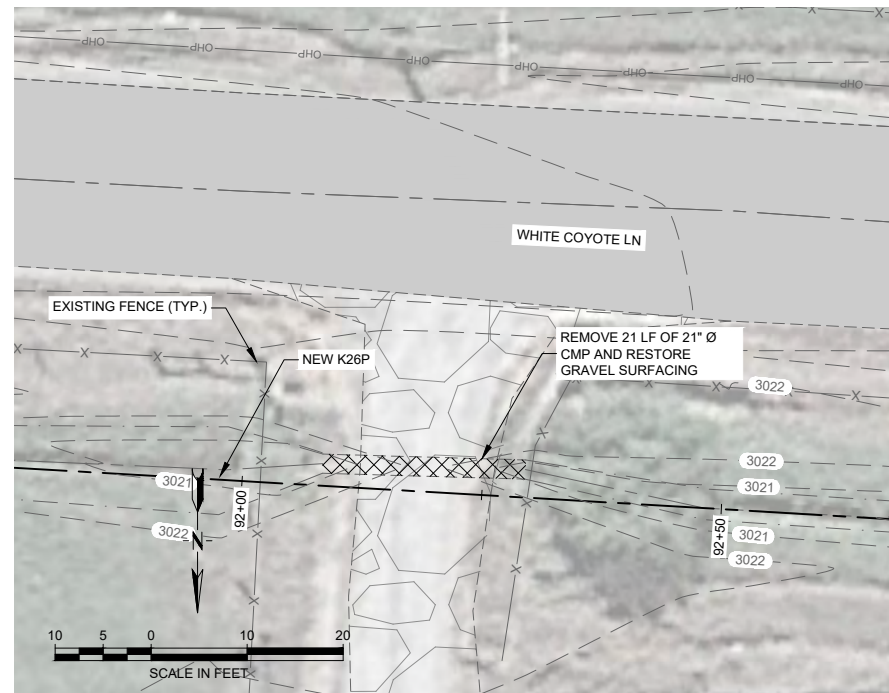
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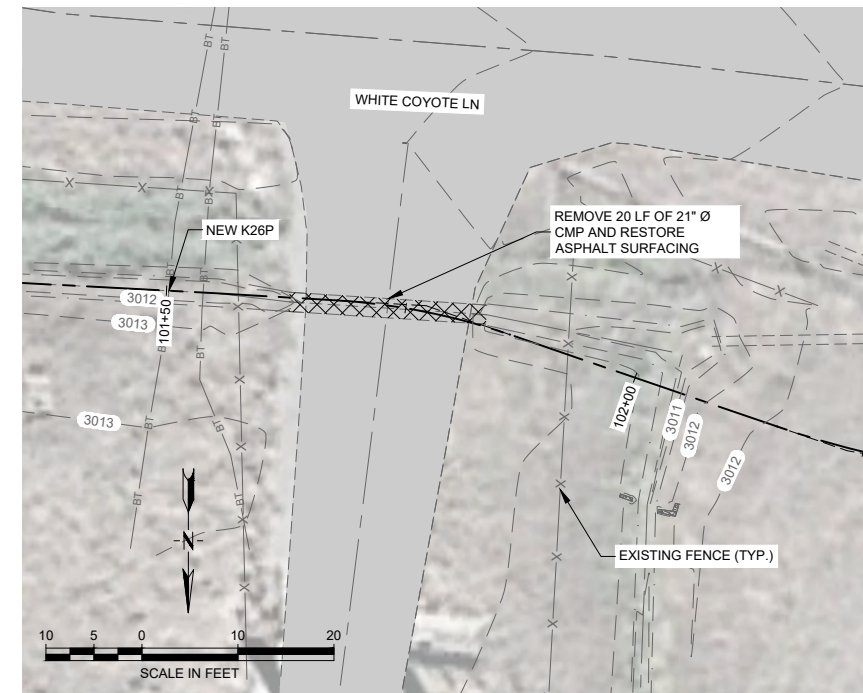
C-6

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1
C-22 DETAIL



2
C-23 DETAIL



3
C-25 DETAIL

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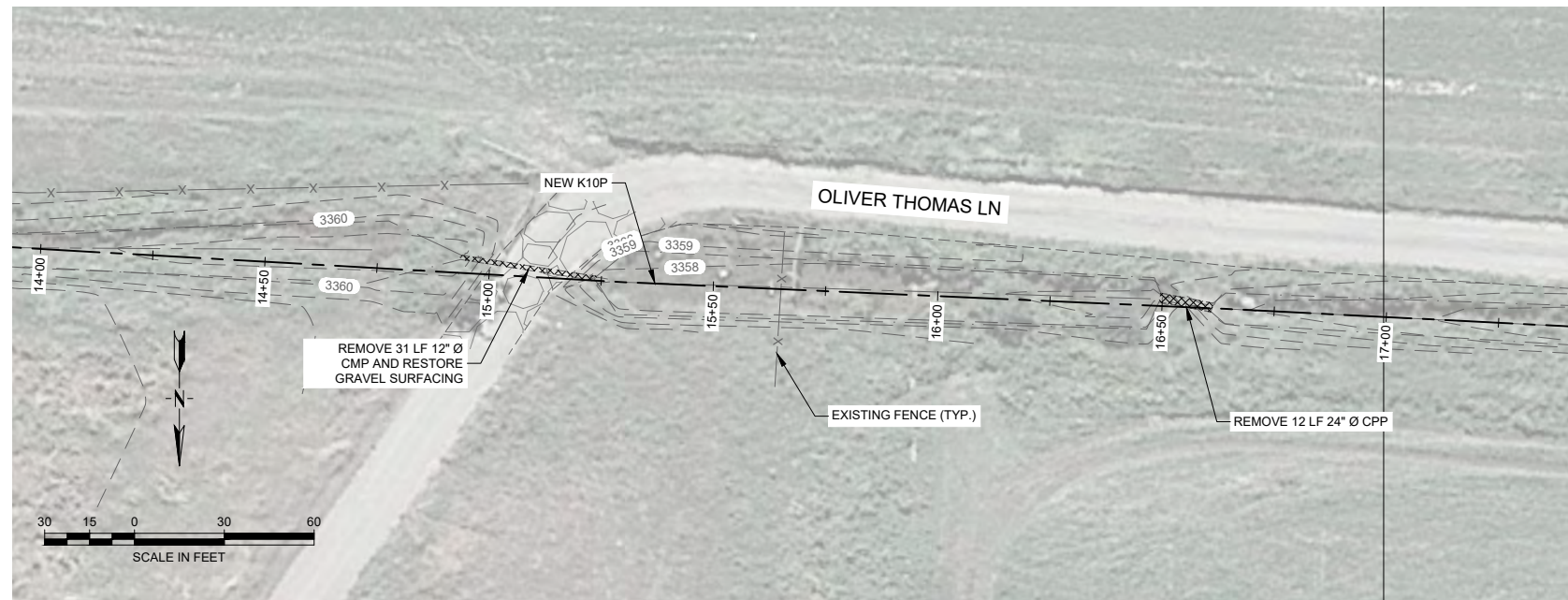
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MONTANA
DEMOLITION DETAILS - PHASE 1

PROJECT NUMBER
0859.015
SHEET NUMBER
DRAWING NUMBER
C-7



1
C-29 DETAIL

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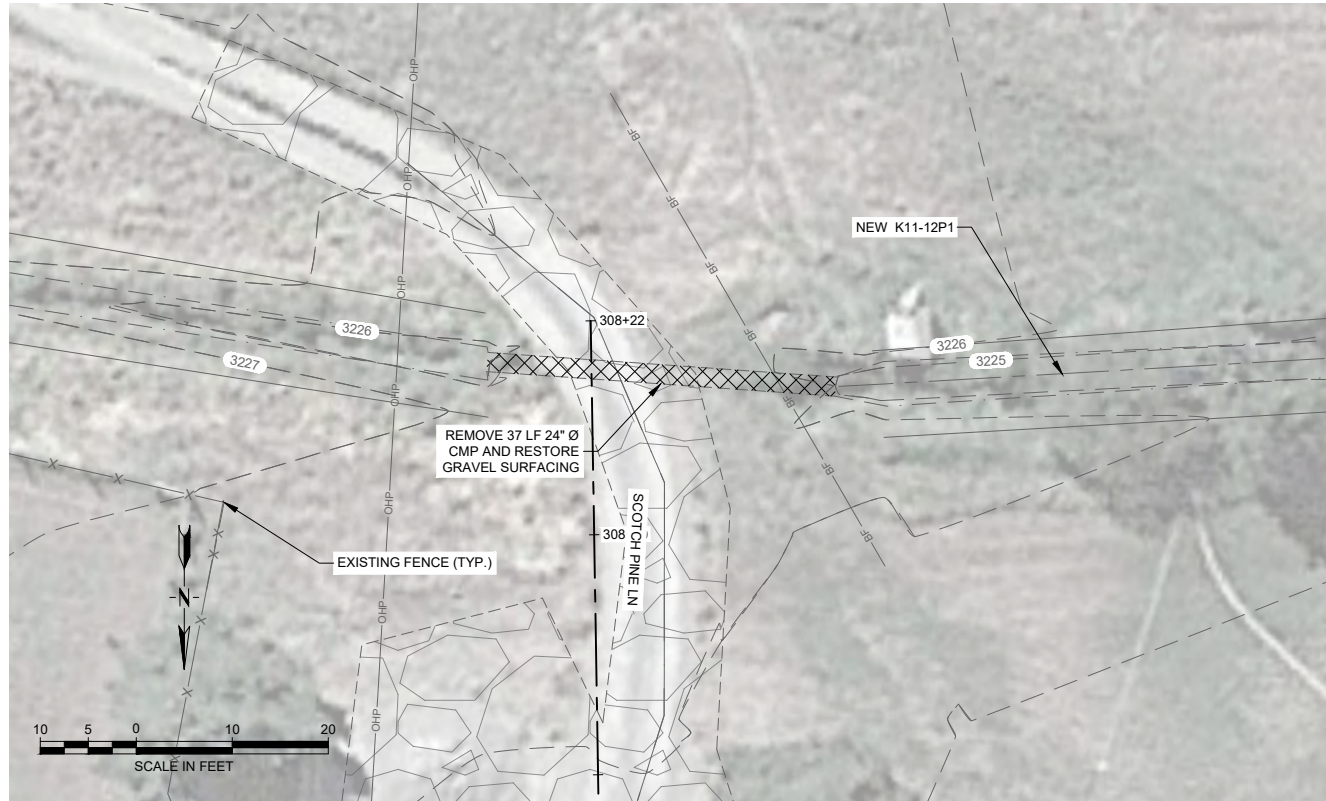
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JOCKO VALLEY MONTANA

DEMOLITION DETAILS - PHASE 2

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER C-8



1
C-41 DETAIL



2
C-42 DETAIL

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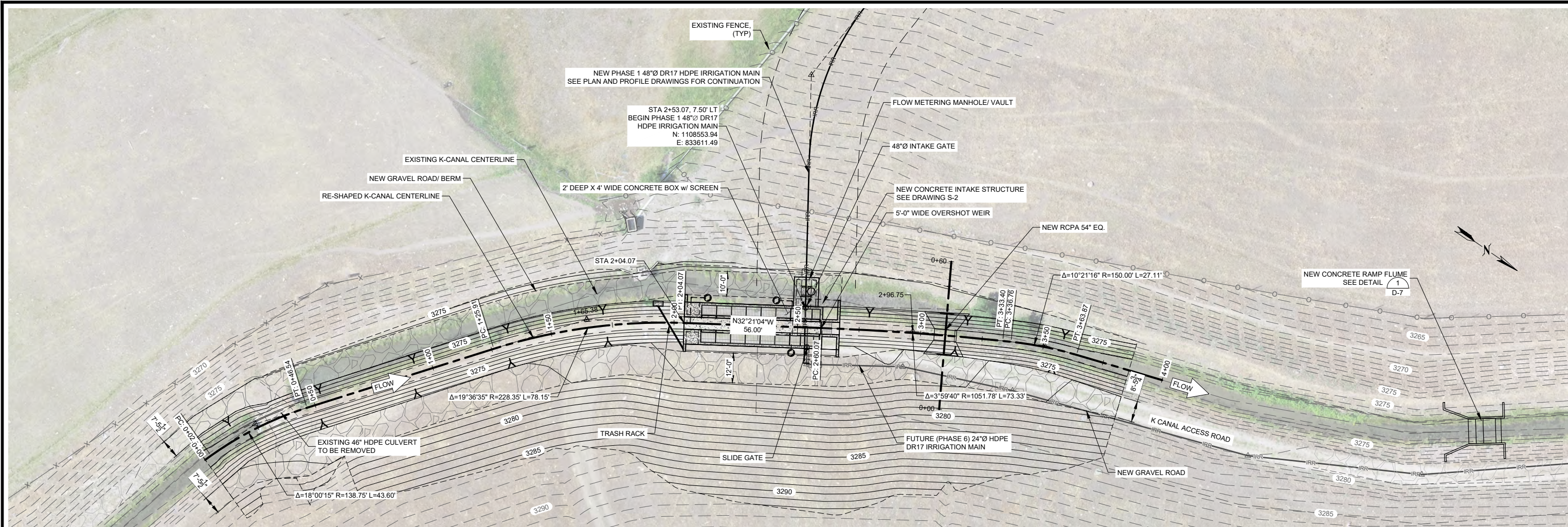
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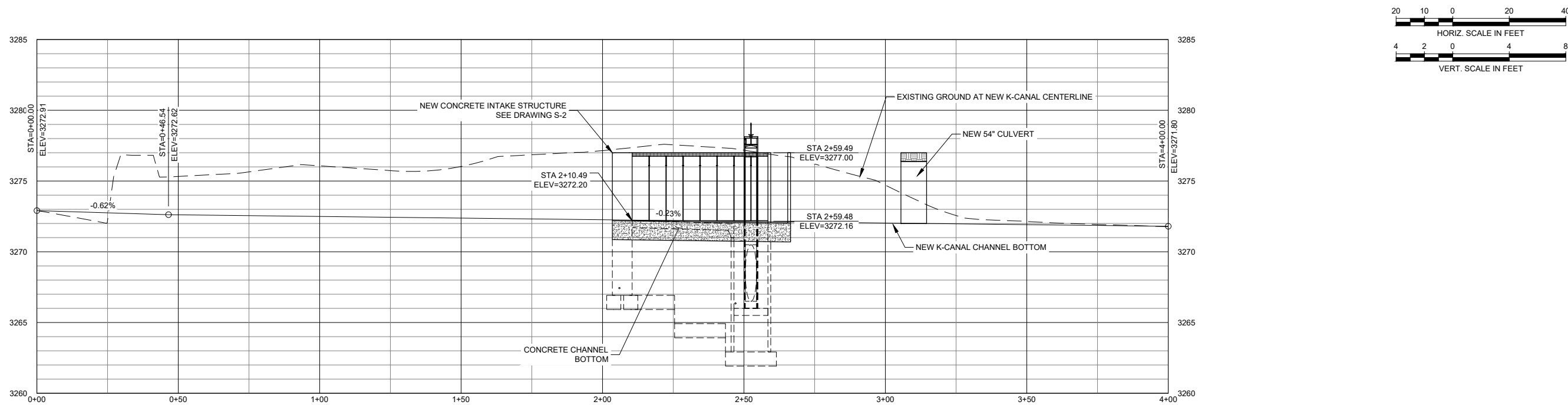
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DEMOLITION DETAILS - PHASE 2

PROJECT NUMBER
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SHEET NUMBER
DRAWING NUMBER
C-9

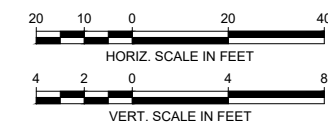
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K-CANAL INTAKE SITE PLAN



K-CANAL INTAKE PROFILE



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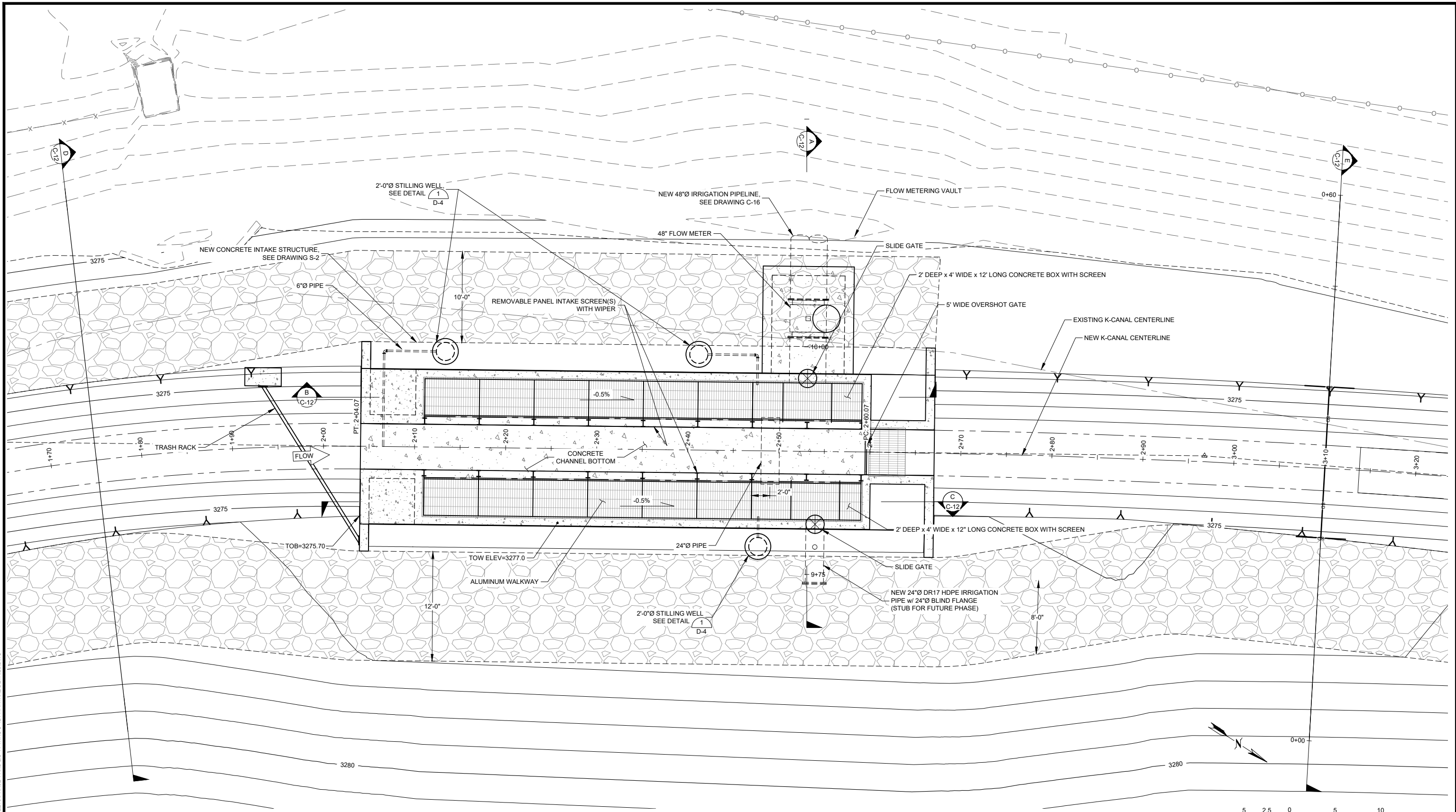
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

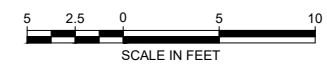
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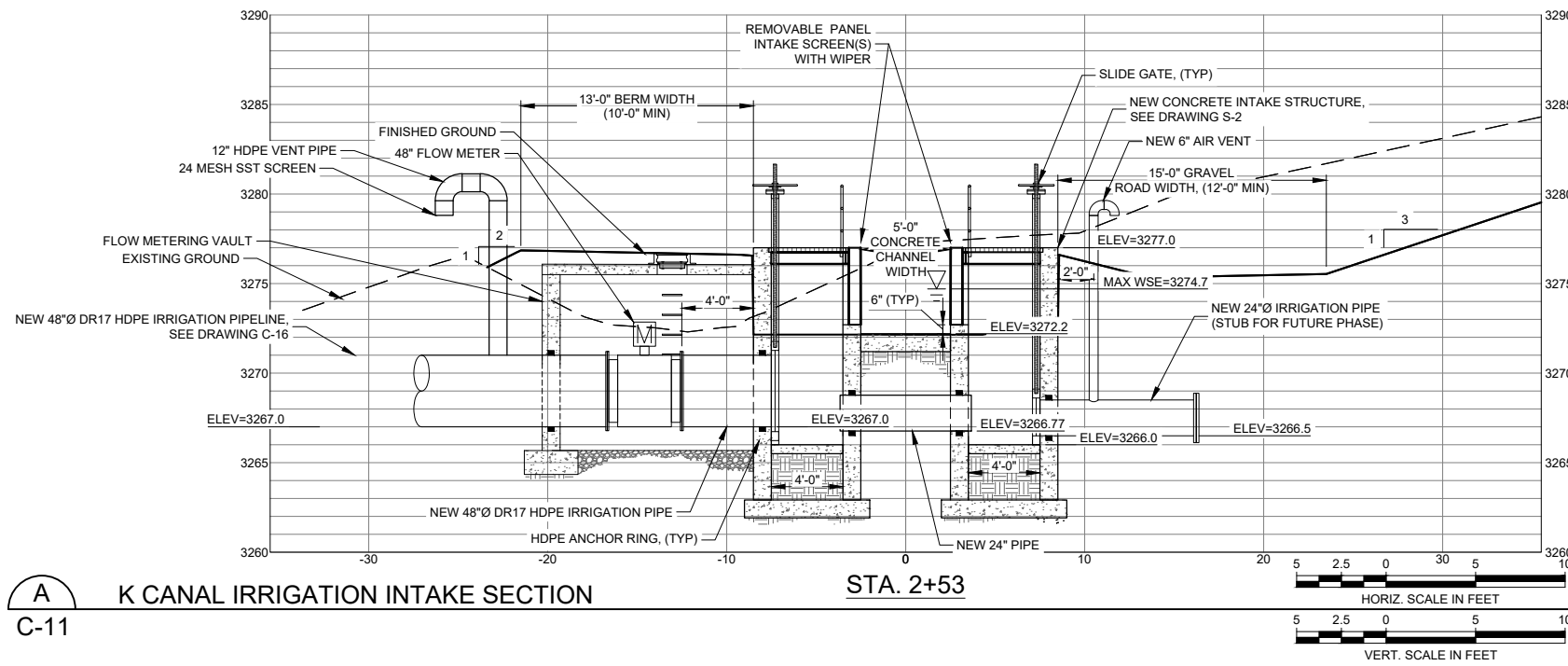
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JOCKO VALLEY MONTANA
INTAKE STRUCTURE DETAILED PLAN - PHASE 1

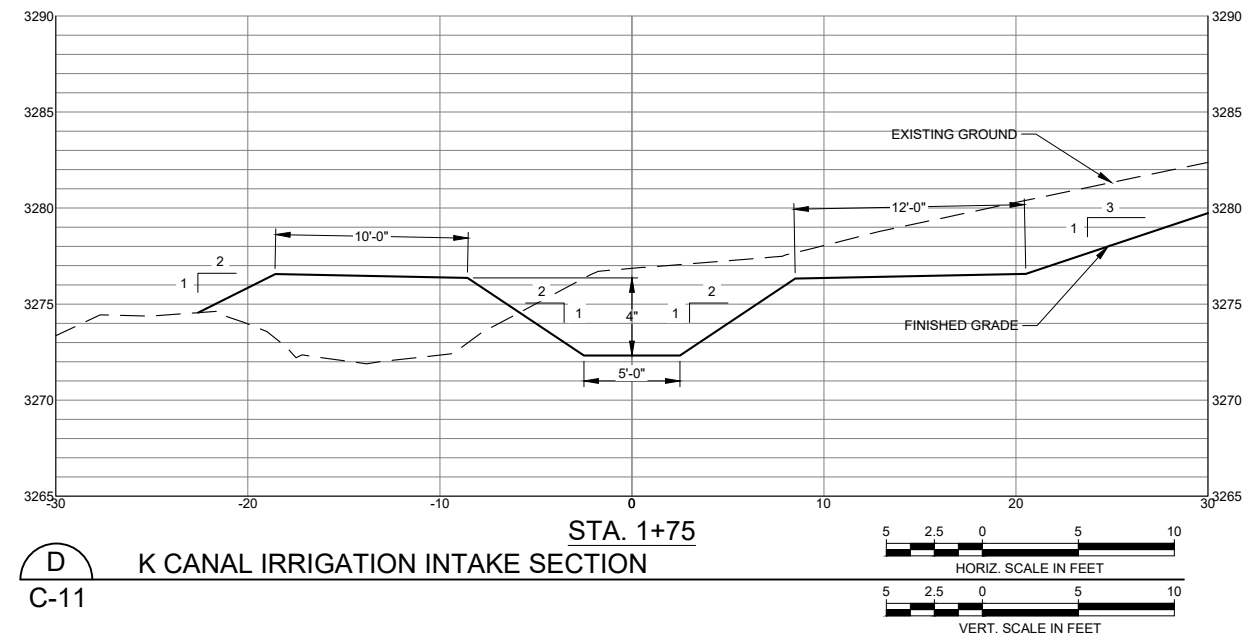
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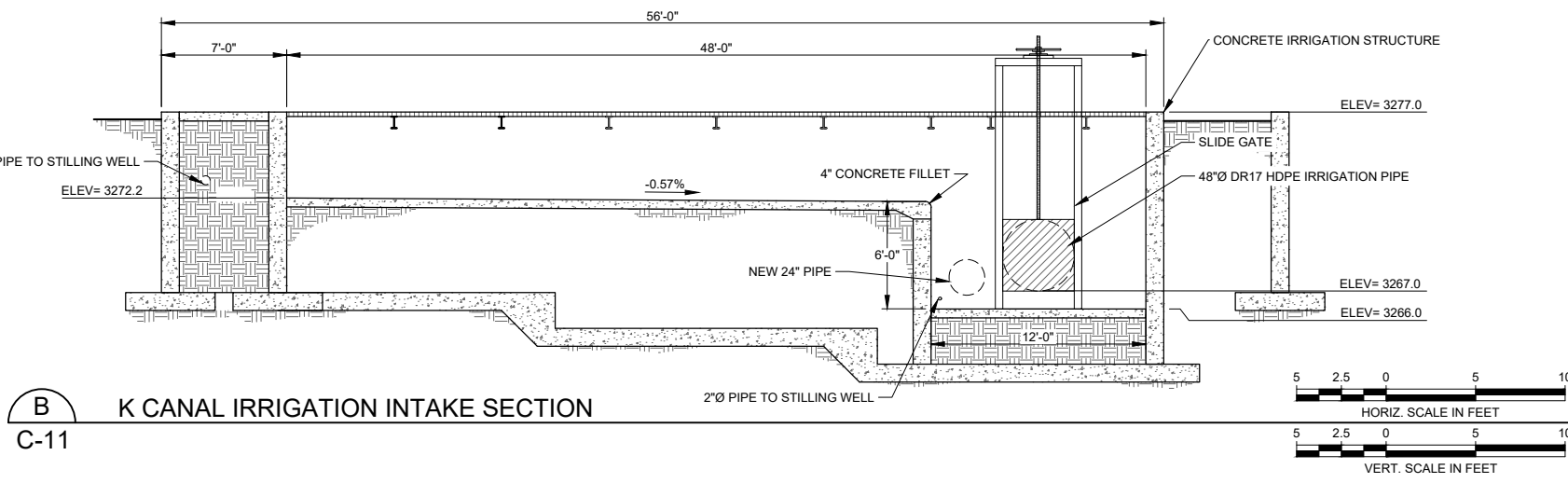
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STA. 2+53

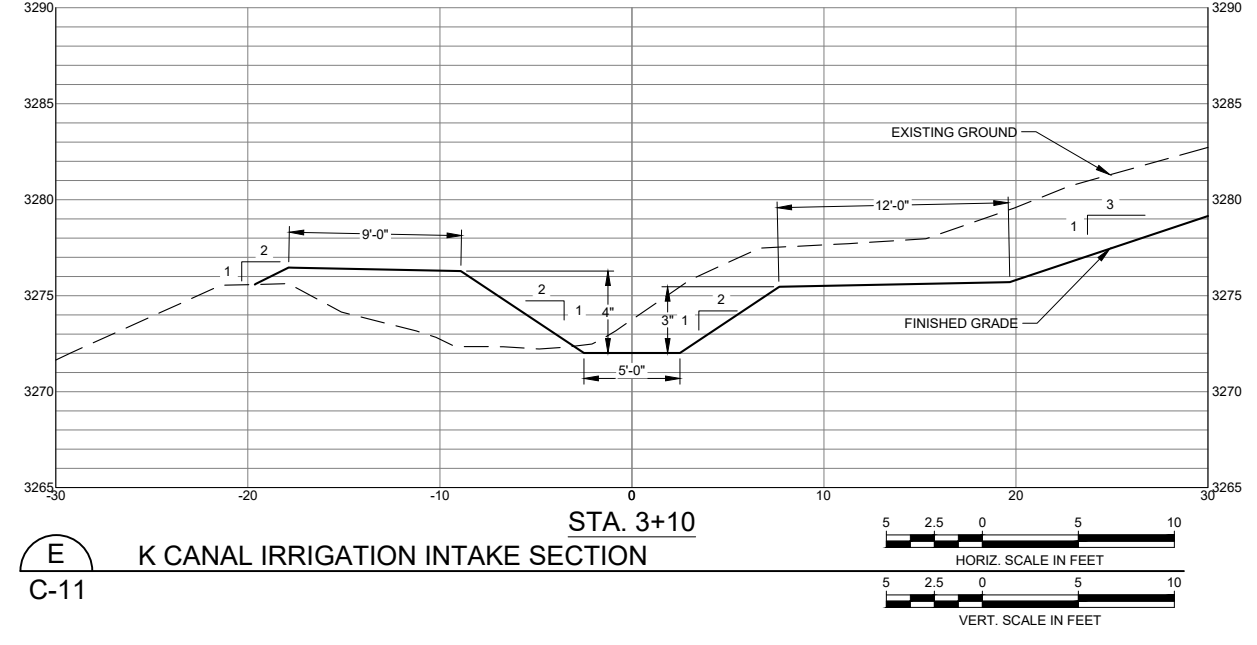


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STA. 1+75

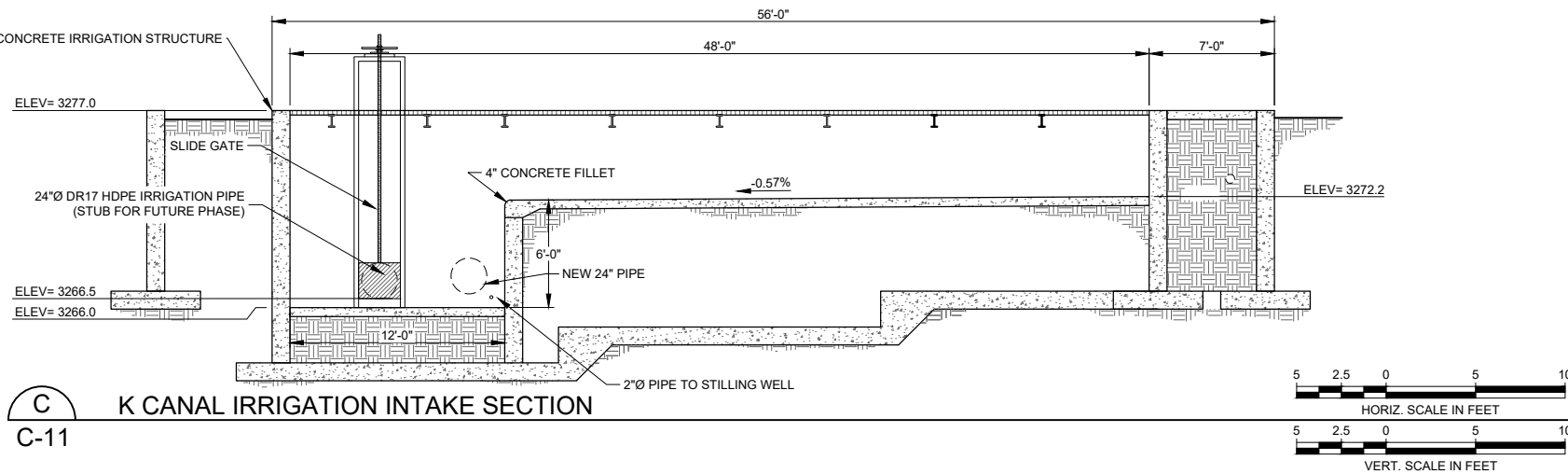


B K CANAL IRRIGATION INTAKE SECTION
C-11



E K CANAL IRRIGATION INTAKE SECTION
C-11

STA. 3+10



C K CANAL IRRIGATION INTAKE SECTION
C-11

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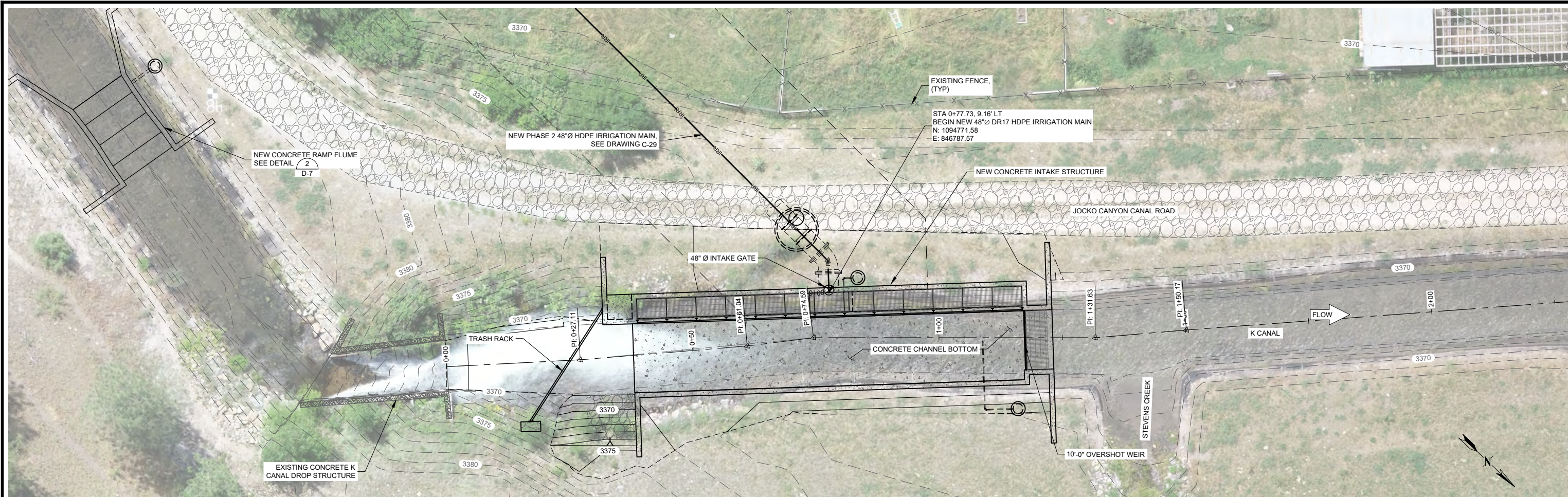
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
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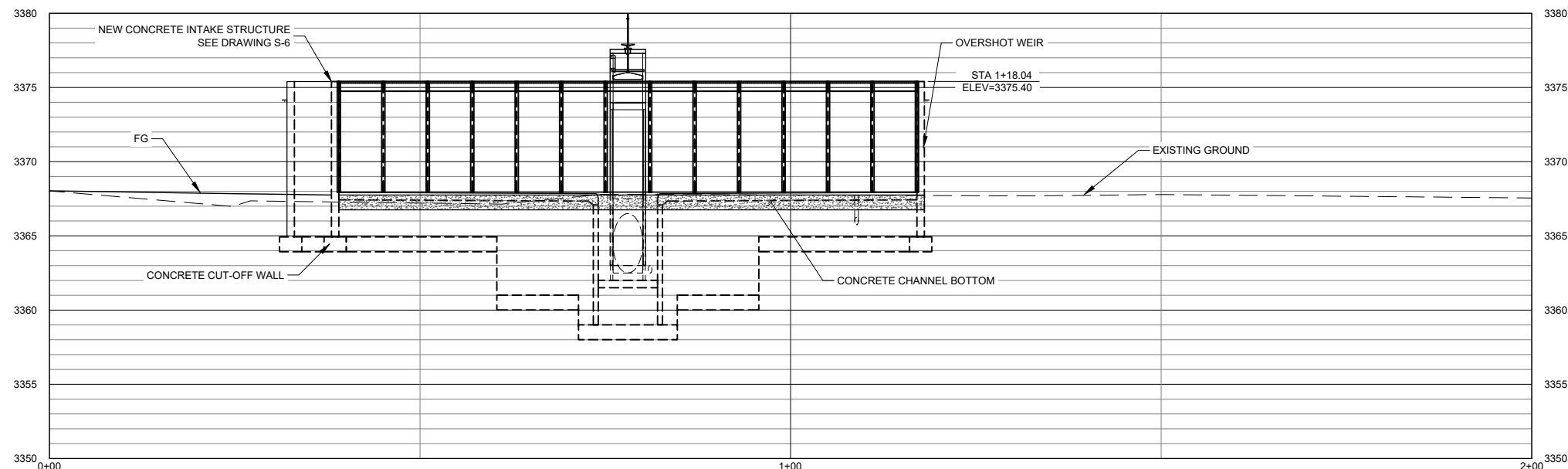
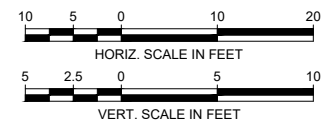
JOCKO VALLEY

INTAKE STRUCTURE SECTIONS AND DETAILS - PHASE 1

PROJECT NUMBER 0859.015
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K-CANAL INTAKE SITE PLAN



K-CANAL INTAKE PROFILE

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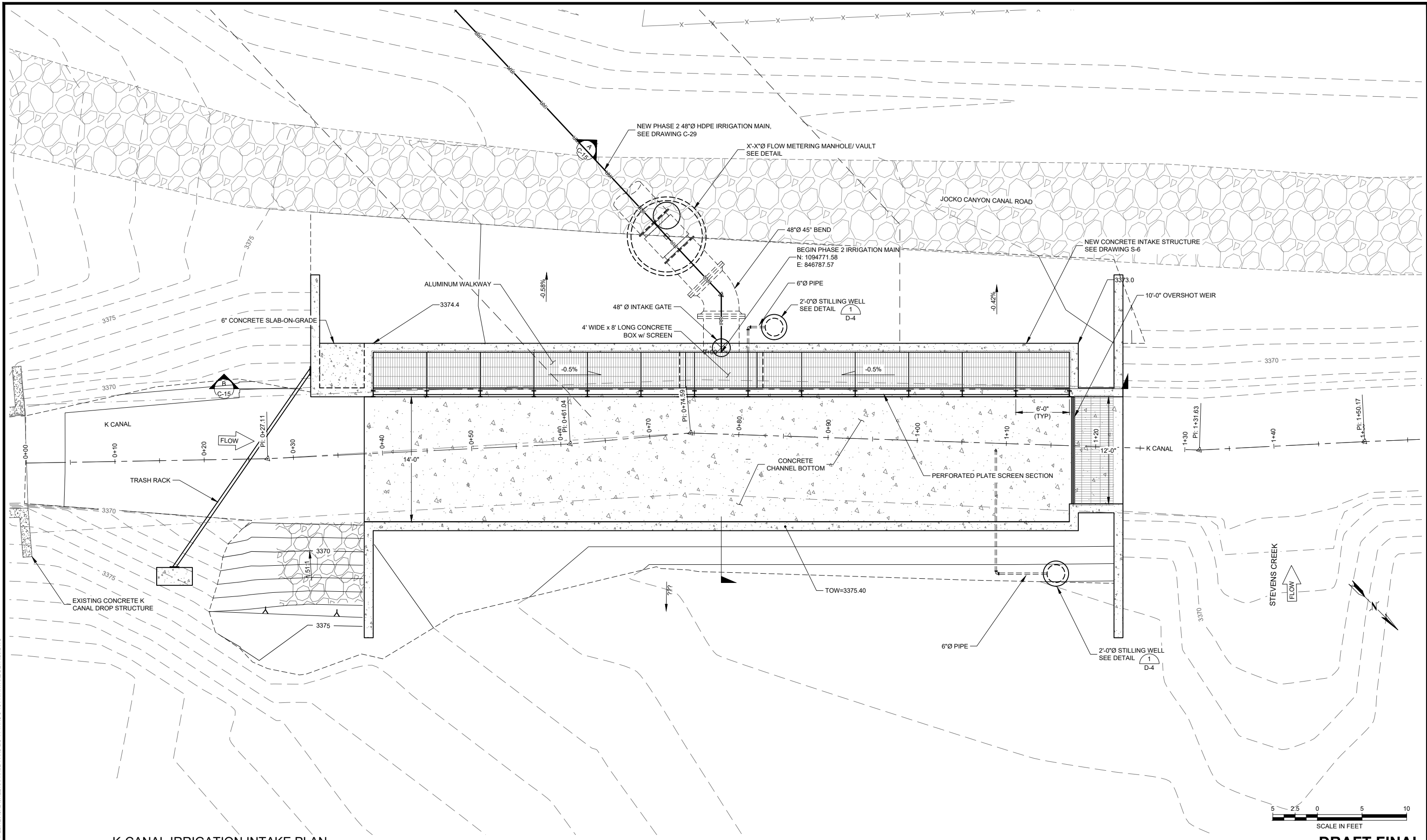
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INTAKE STRUCTURE SITE PLAN AND PROFILE - PHASE 2

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER **C-13**



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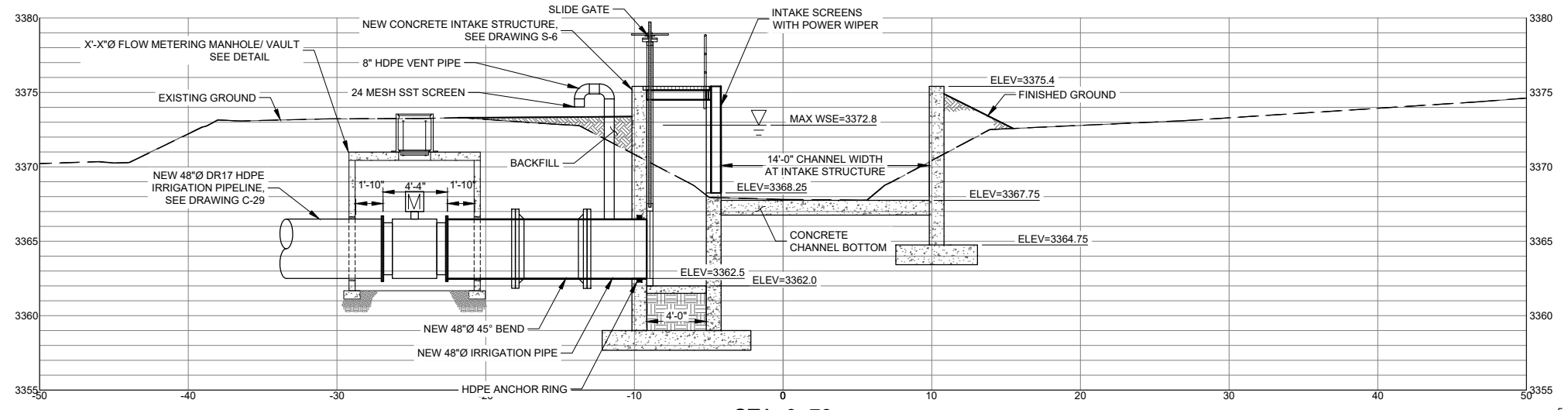
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JOCKO VALLEY MONTANA

INTAKE STRUCTURE DETAILED PLAN - PHASE 2

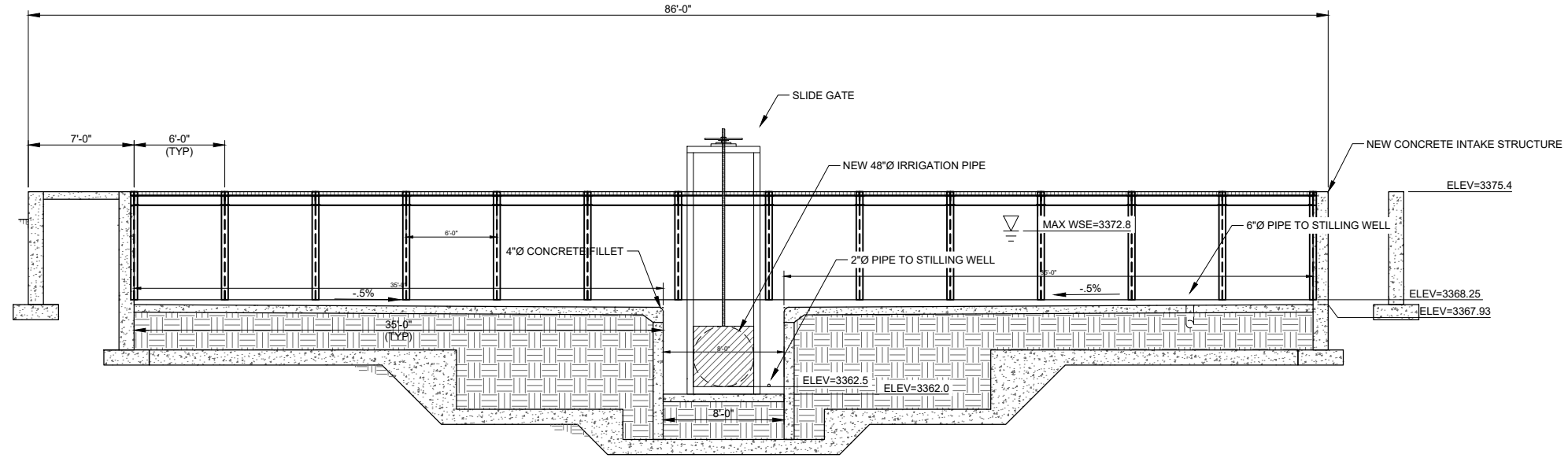
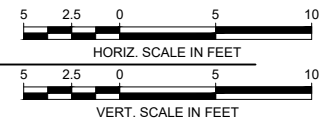
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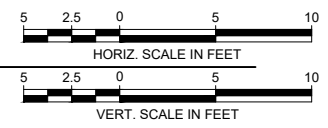


A K CANAL IRRIGATION INTAKE SECTION
C-14

STA. 0+78



B K CANAL IRRIGATION INTAKE SECTION
C-14



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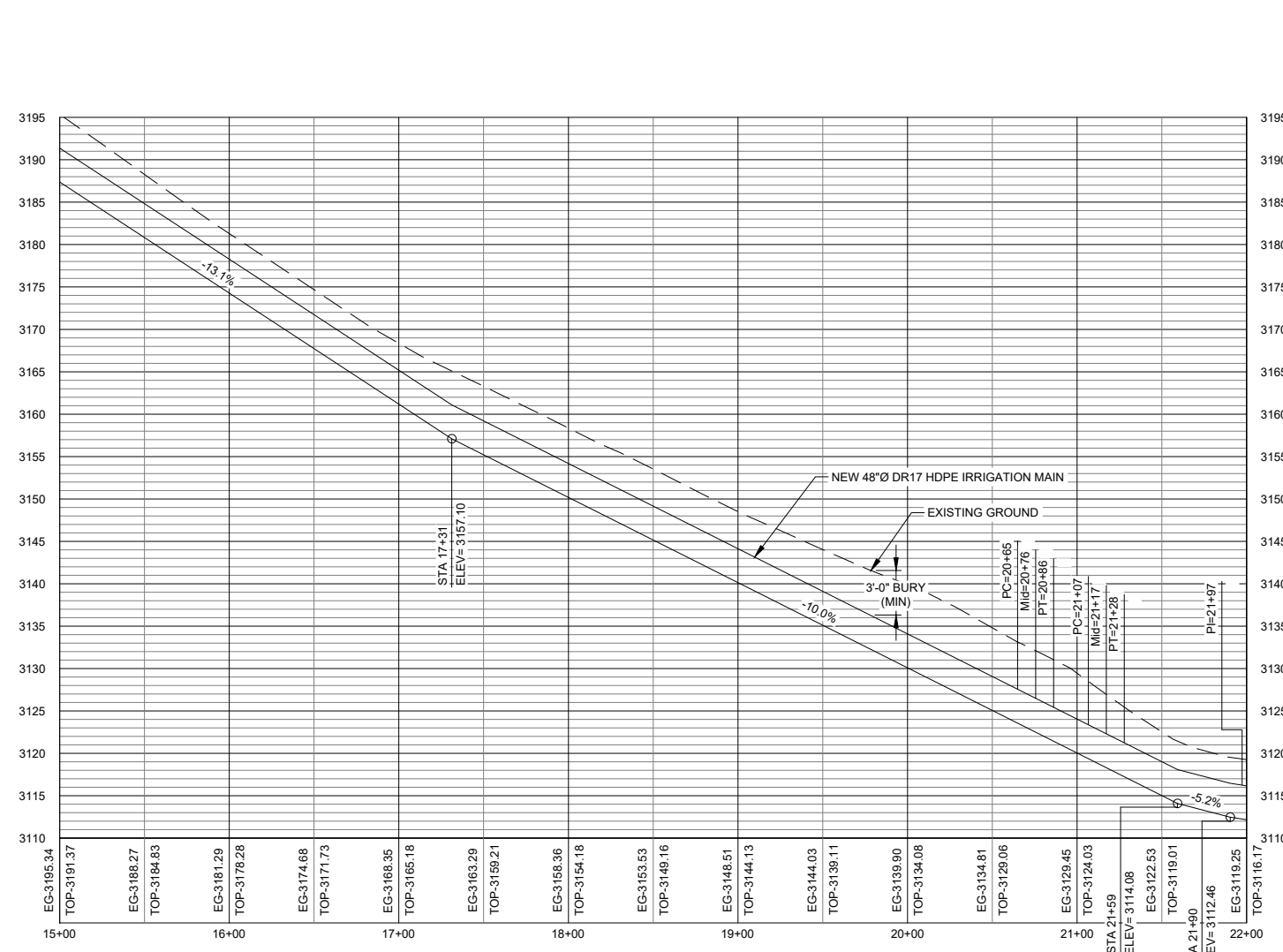
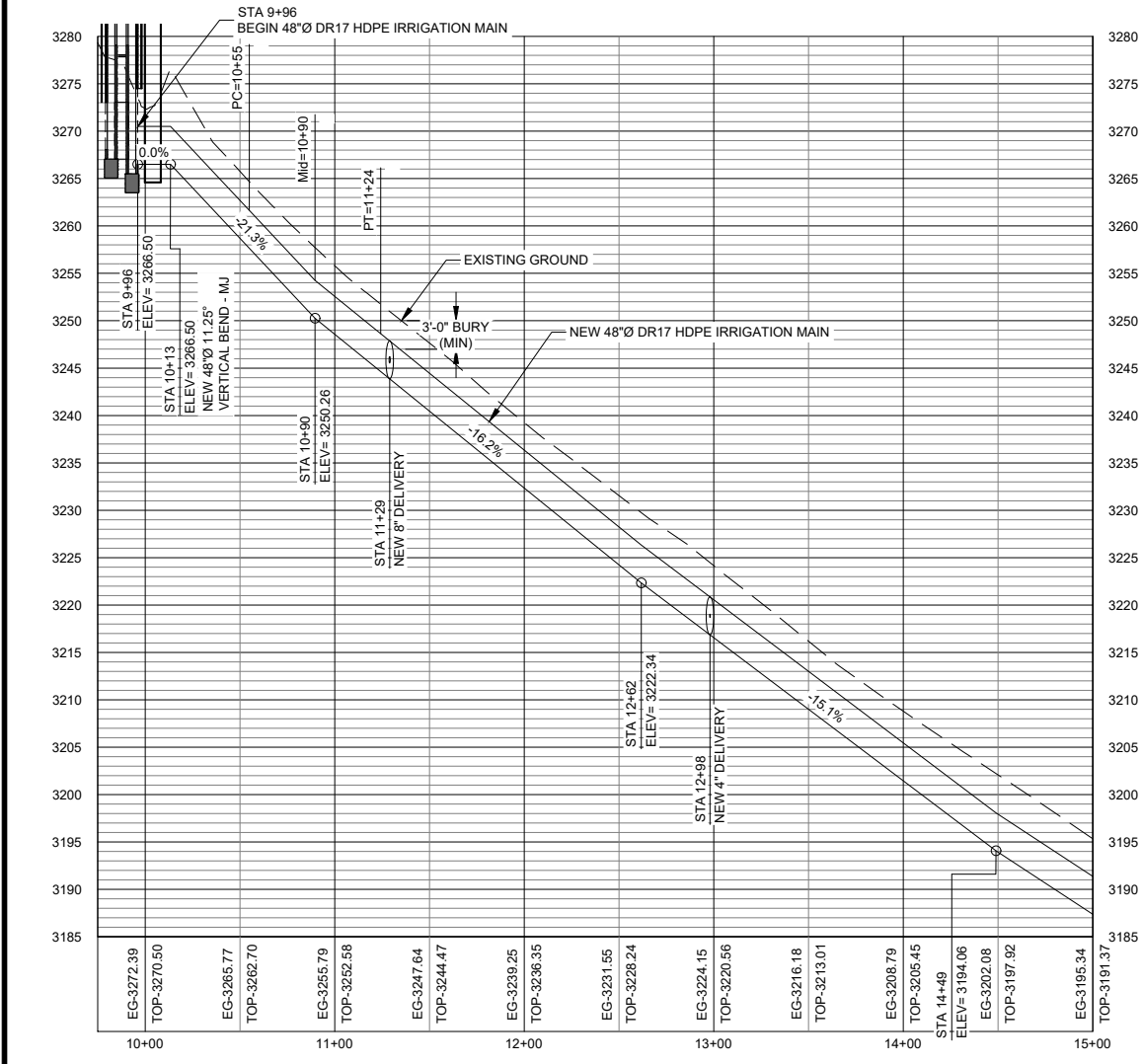
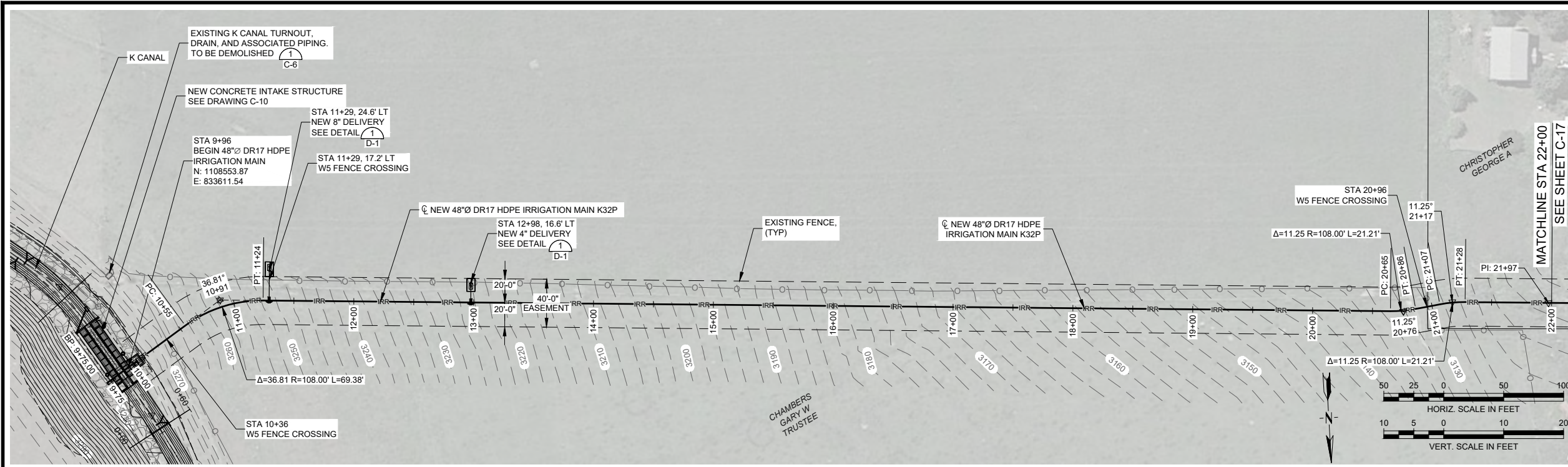
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MONTANA
INTAKE STRUCTURE SECTIONS AND DETAILS - PHASE 2

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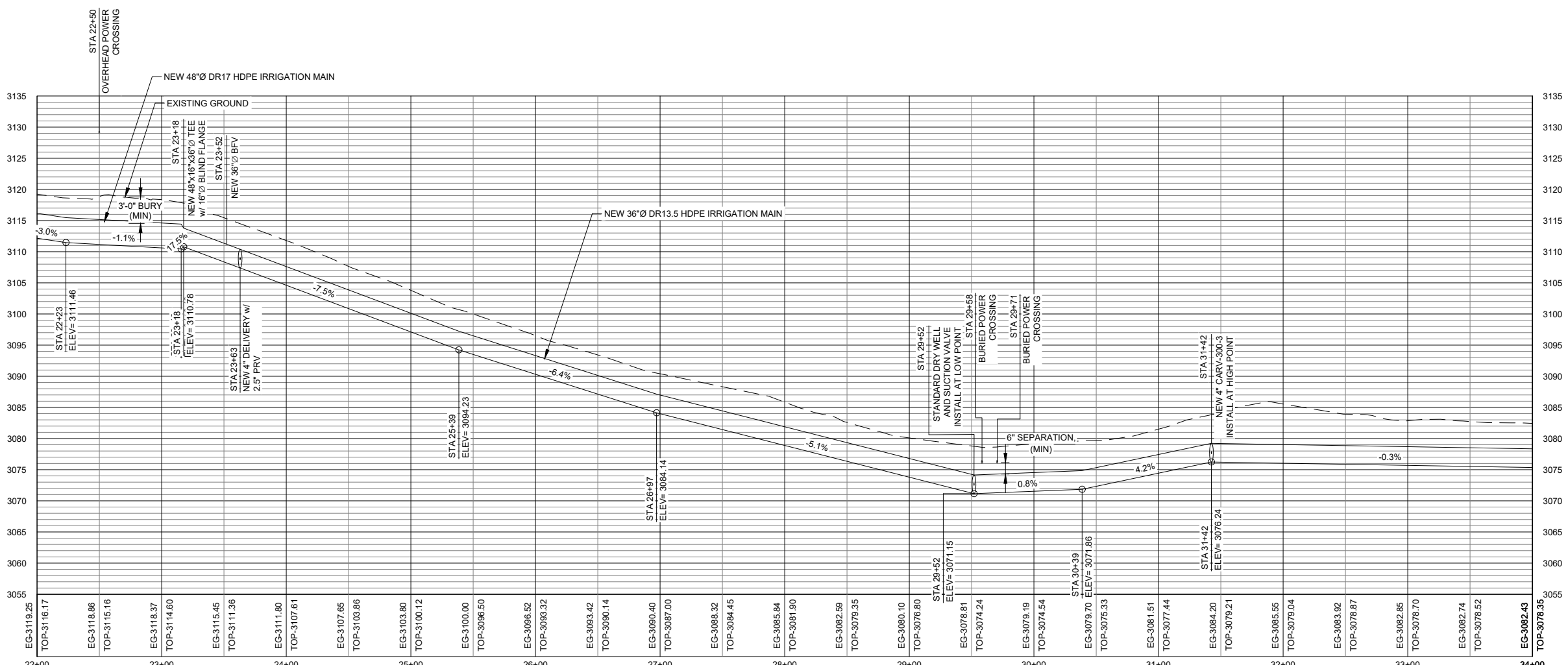
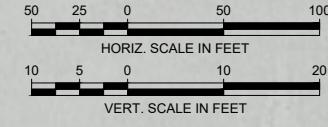
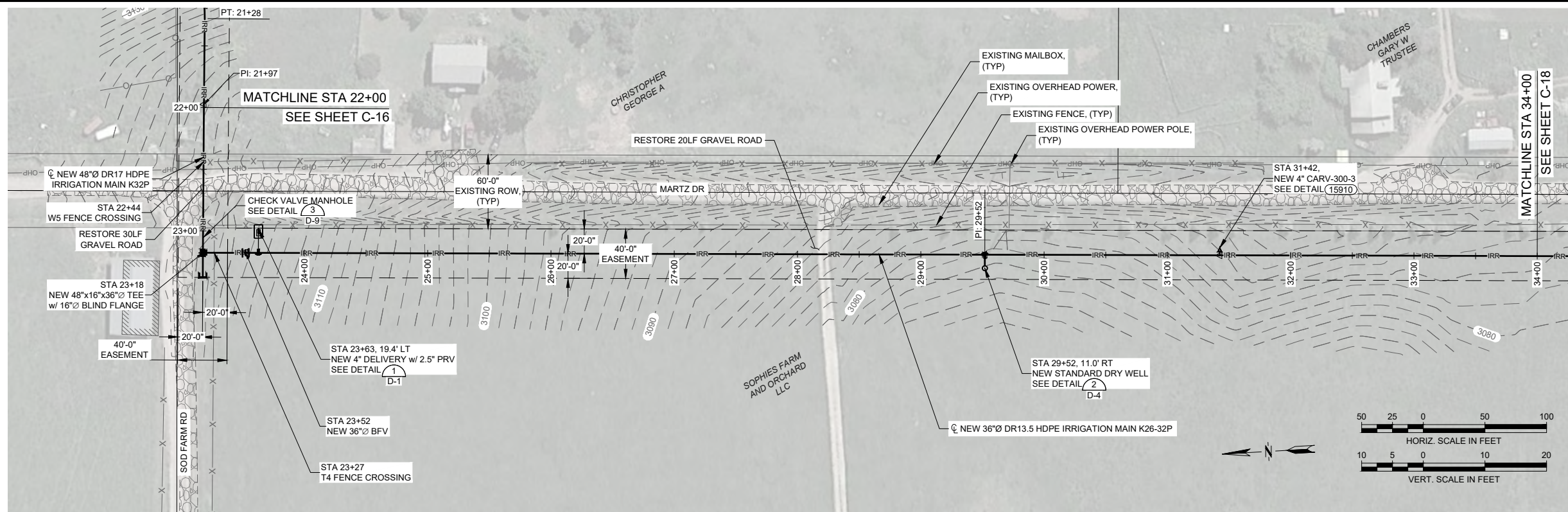
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 JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
 MONTANA

JOCKO VALLEY

K32P - STA 10+00 TO 22+00 - PHASE 1

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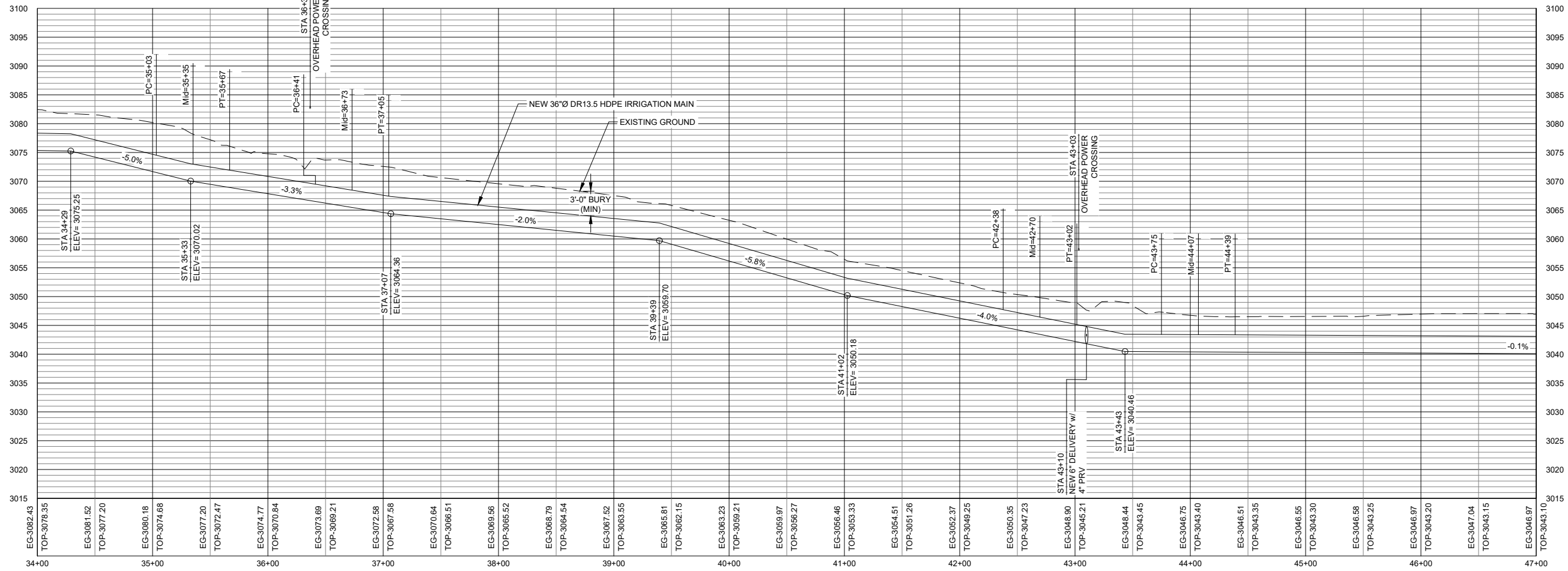
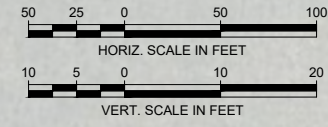
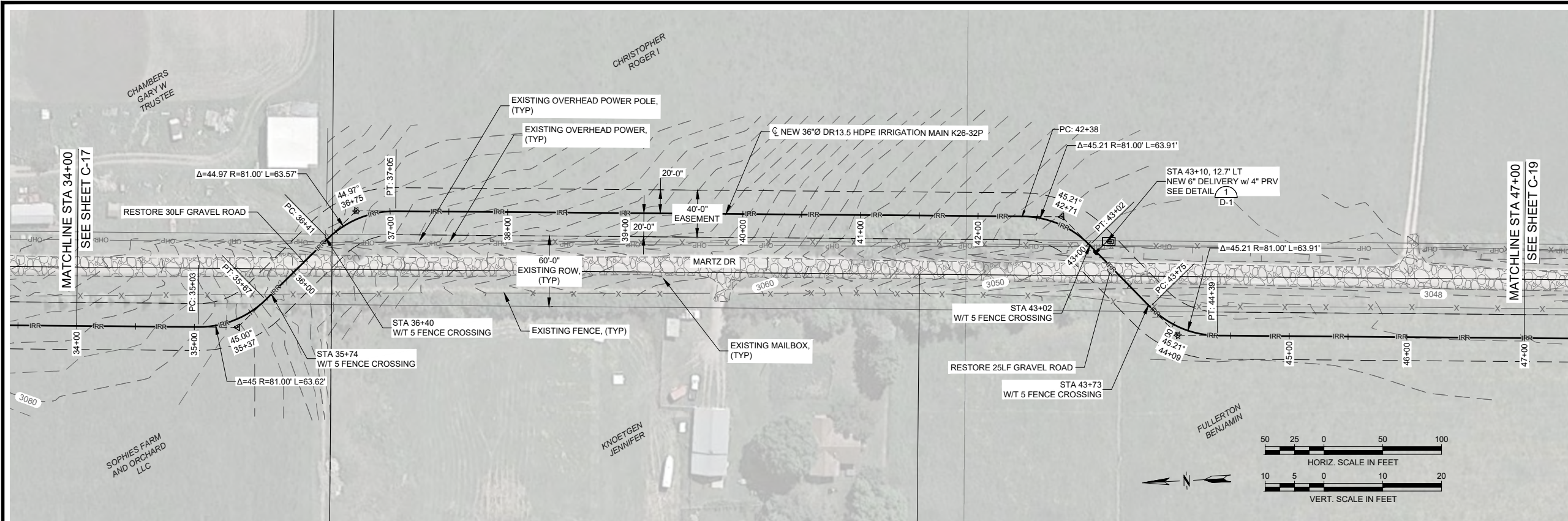
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K26-32P - STA 22+00 TO 34+00 - PHASE 1

PROJECT NUMBER
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MONTANA

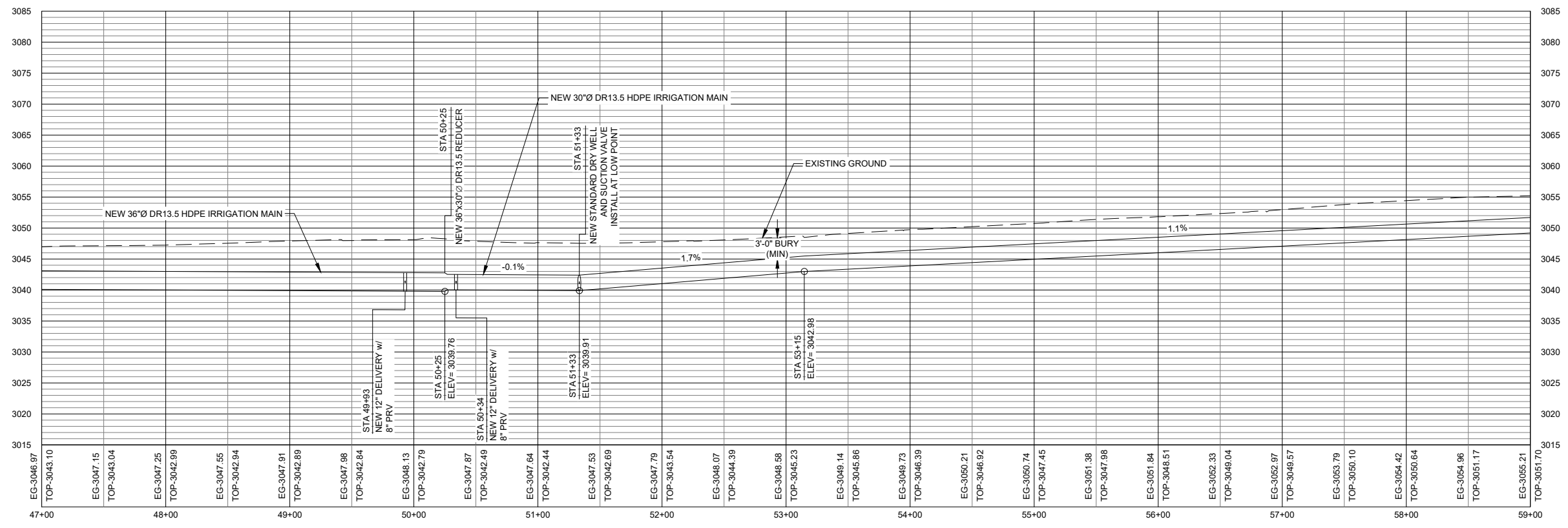
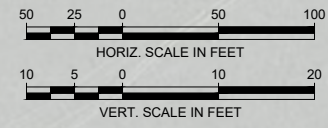
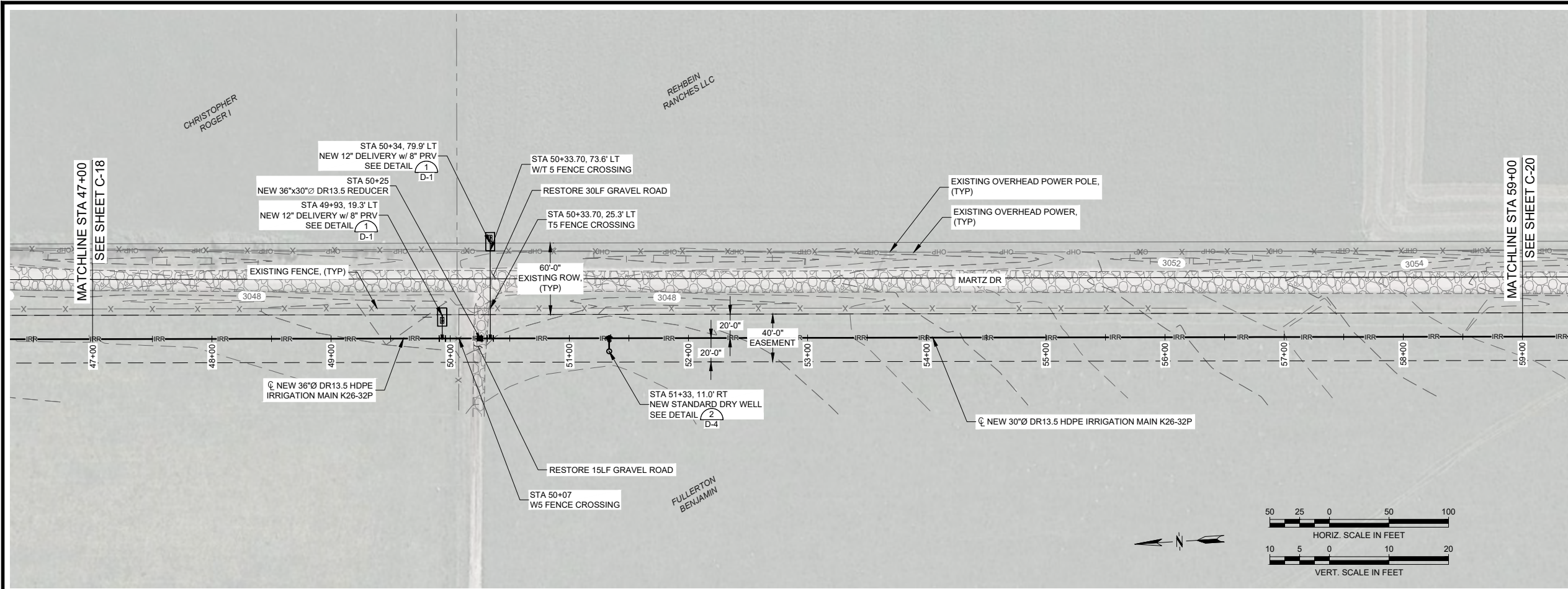
K26-32P - STA 34+00 TO 47+00 - PHASE 1

PROJECT NUMBER
0859.015

SHEET NUMBER

DRAWING NUMBER
C-18

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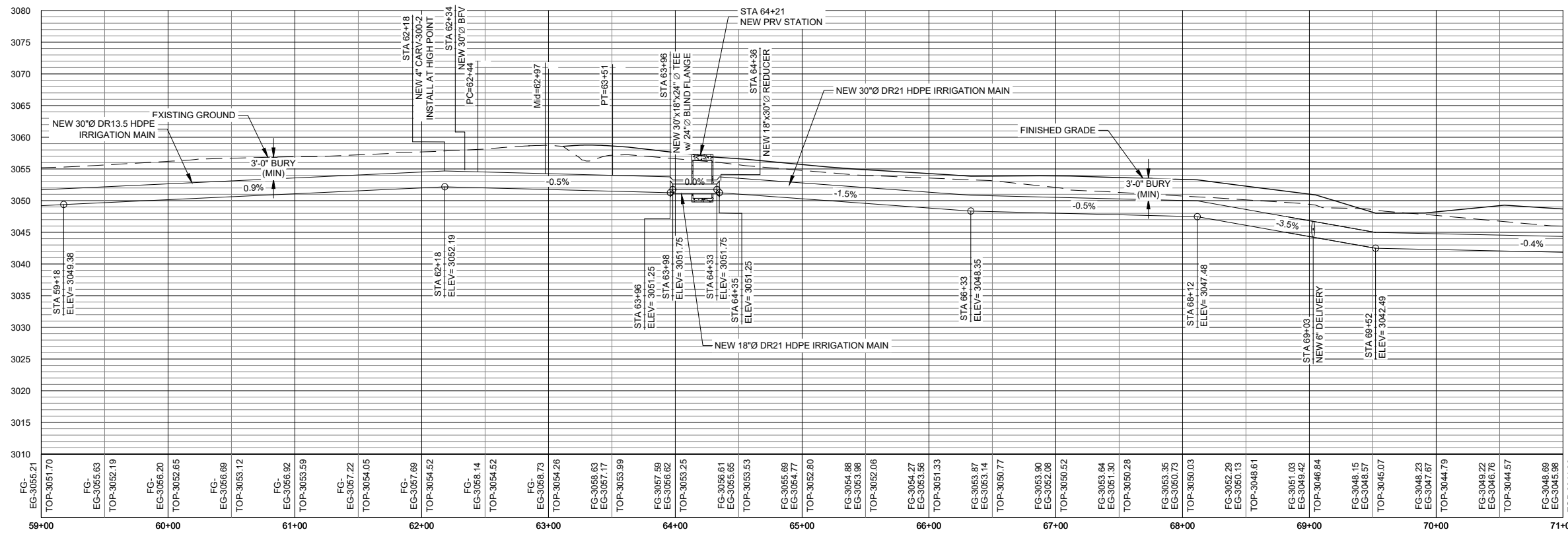
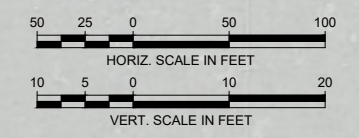
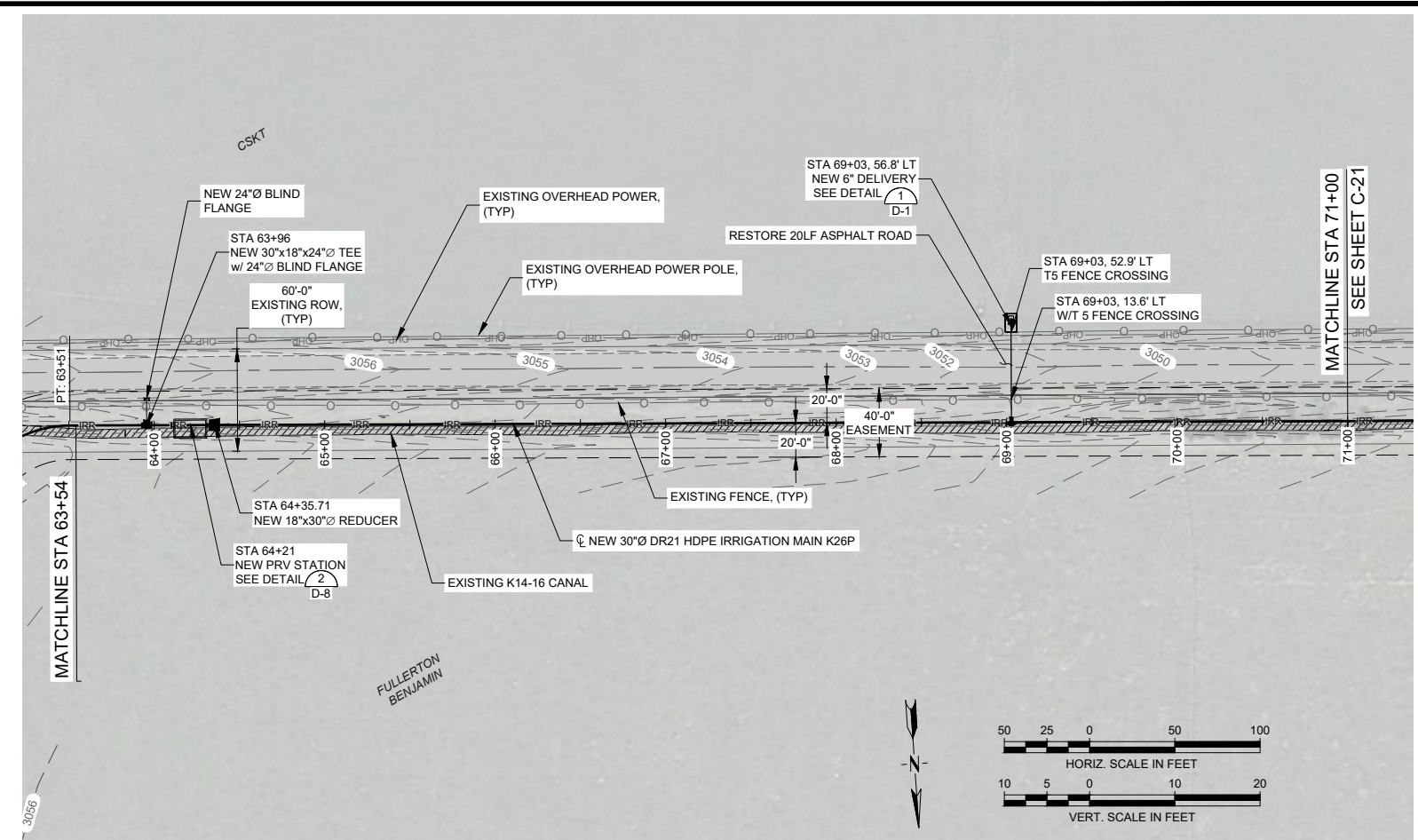
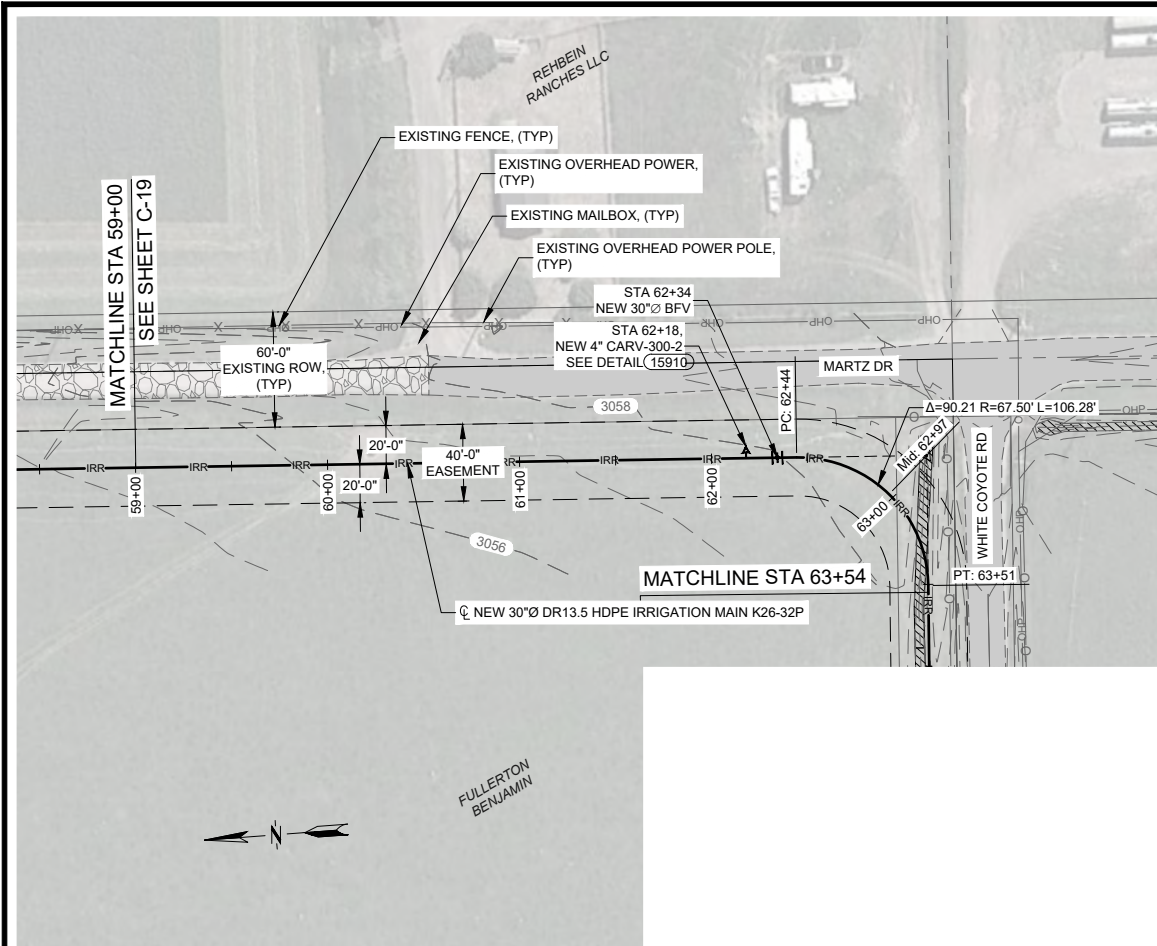
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K26-32P - STA 47+00 TO 59+00 - PHASE 1

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER **C-19**

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For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-16 Canal)	Permanent	Backfill	4559	422
	Waterway (K14-16 Canal)	Permanent	Bedding	4559	422
	Waterway (K14-16 Canal)	Permanent	30" Pipe		141

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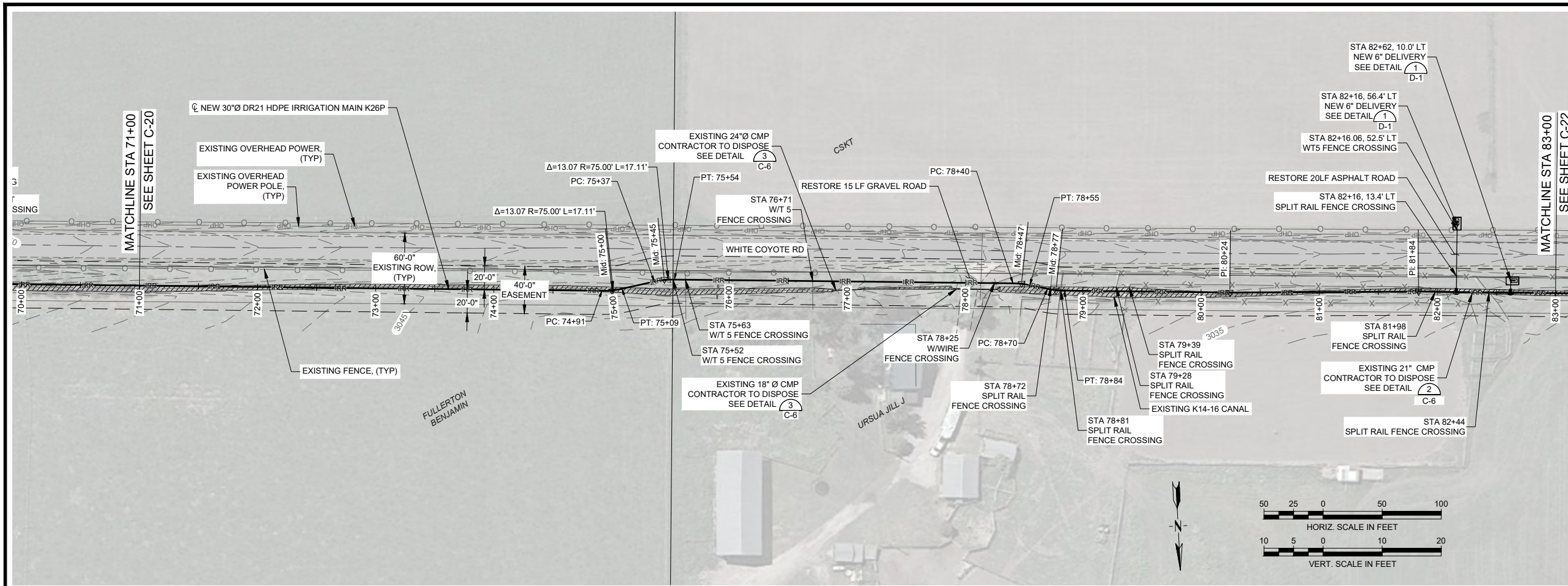
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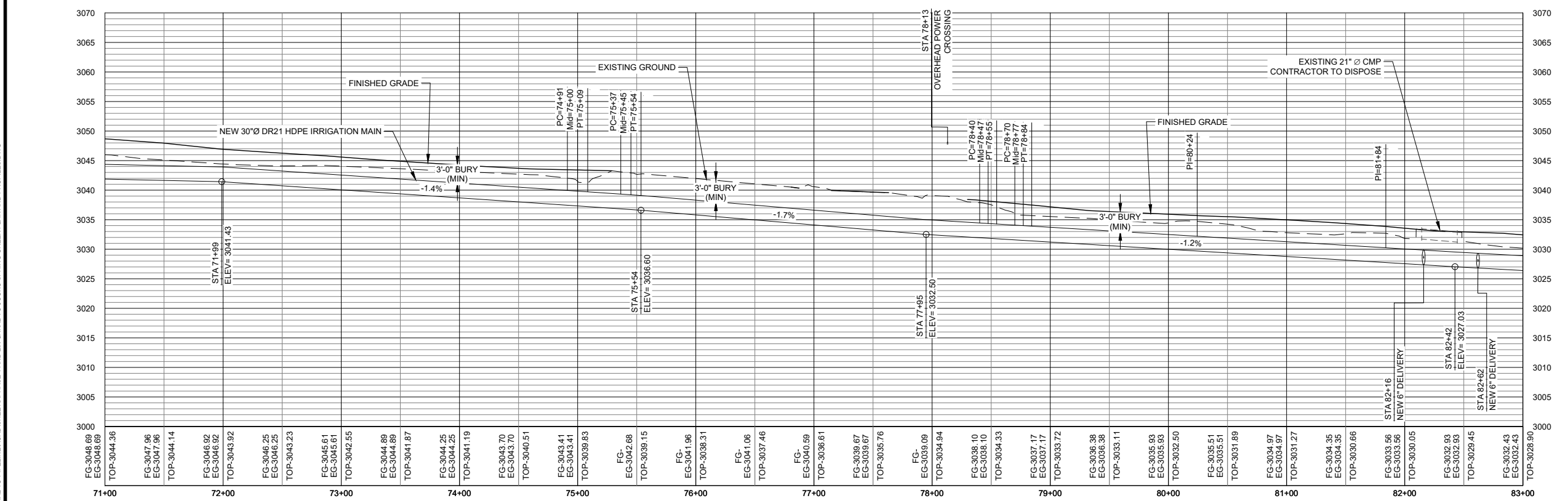
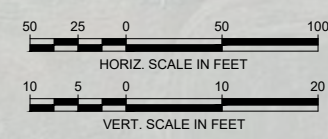
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K26P AND K26-32P - STA 59+00 TO 71+00 - PHASE 1

PROJECT NUMBER: 0859.015
SHEET NUMBER
DRAWING NUMBER: **C-20**



For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-16 Canal)	Permanent	Backfill	4596	426
	Waterway (K14-16 Canal)	Permanent	Bedding	4596	349
	Waterway (K14-16 Canal)	Permanent	30" Pipe		218



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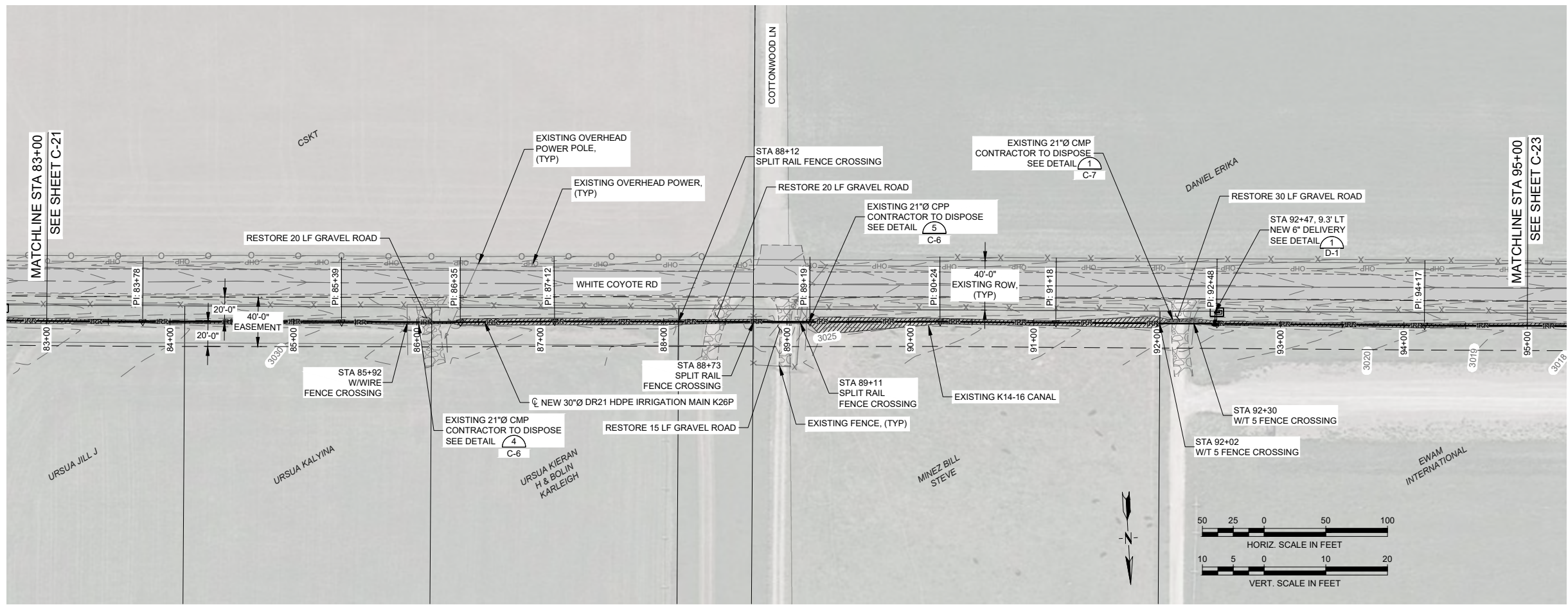
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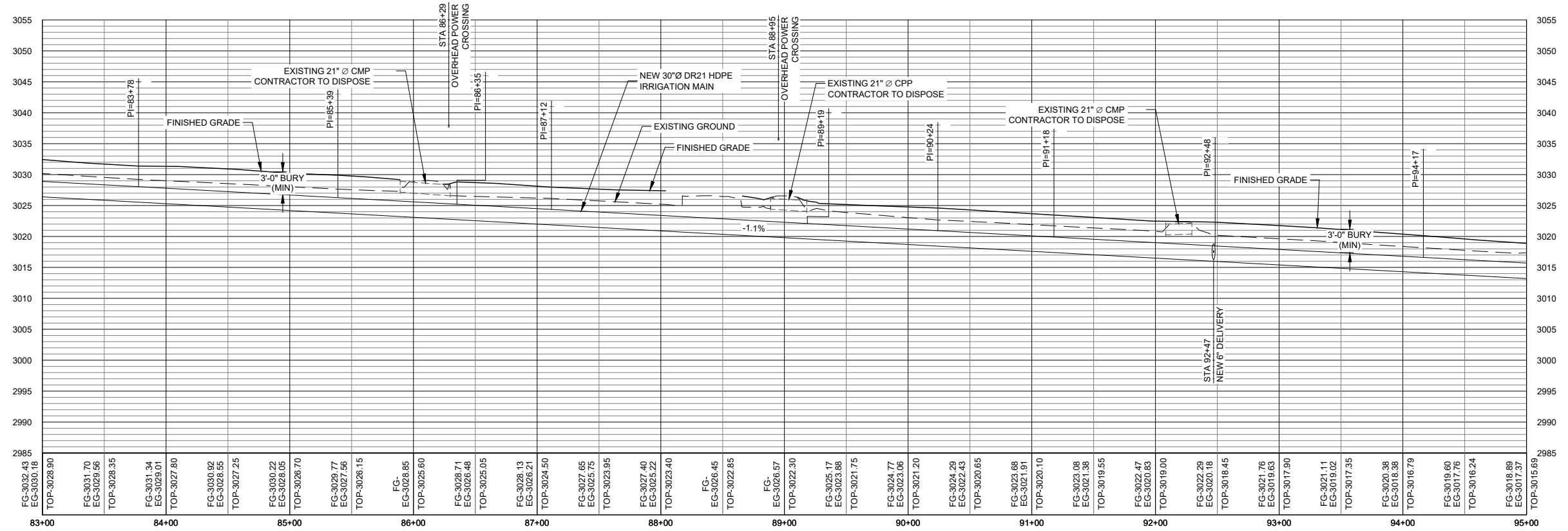
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 K26P - STA 71+00 TO 83+00 - PHASE 1

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Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-16 Canal)	Permanent	Backfill	4769	442
	Waterway (K14-16 Canal)	Permanent	Bedding	4769	371
	Waterway (K14-16 Canal)	Permanent	30" Pipe		218



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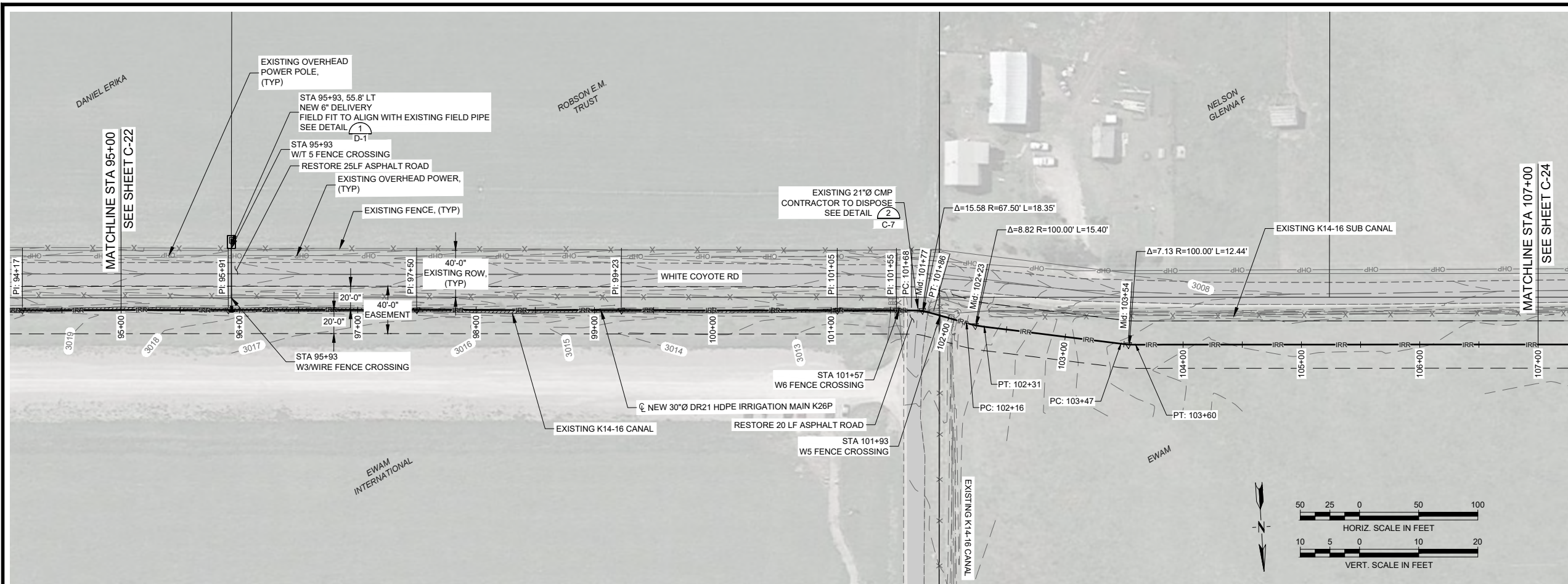
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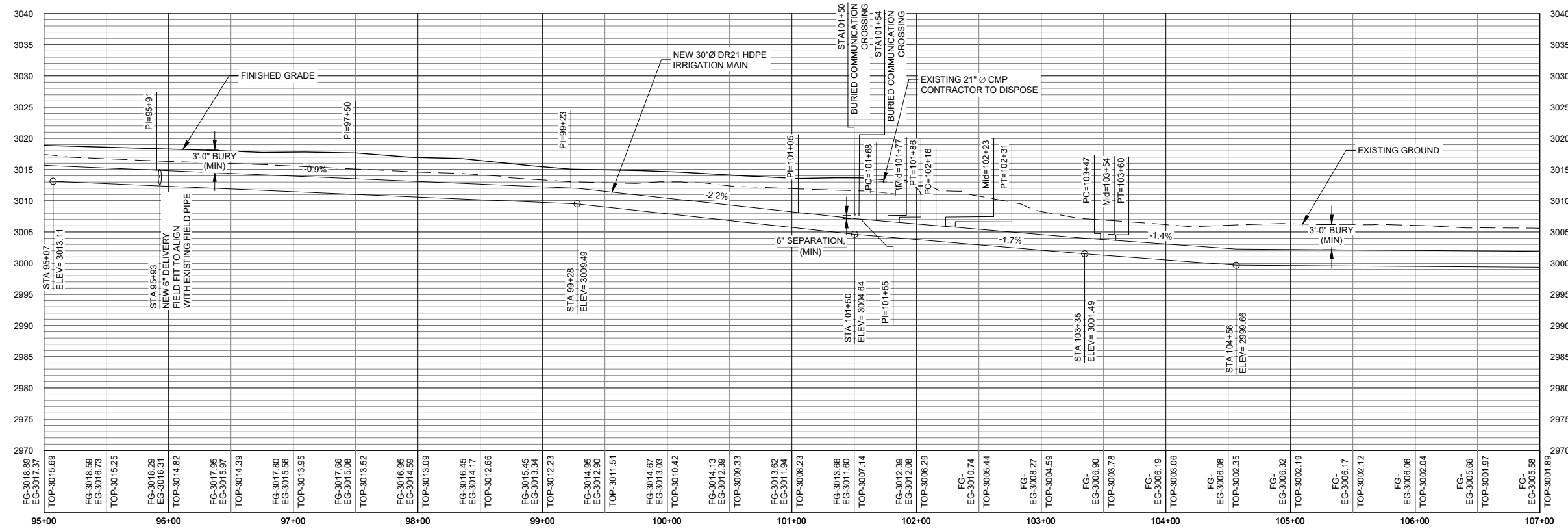
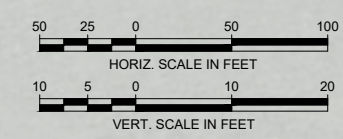
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
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K26P - STA 83+00 TO 95+00 - PHASE 1

PROJECT NUMBER: 0859.015
SHEET NUMBER: _____
DRAWING NUMBER: **C-22**



For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-16 Canal)	Permanent	Backfill	3309	306
	Waterway (K14-16 Canal)	Permanent	Bedding	3309	281
	Waterway (K14-16 Canal)	Permanent	30" Pipe		127



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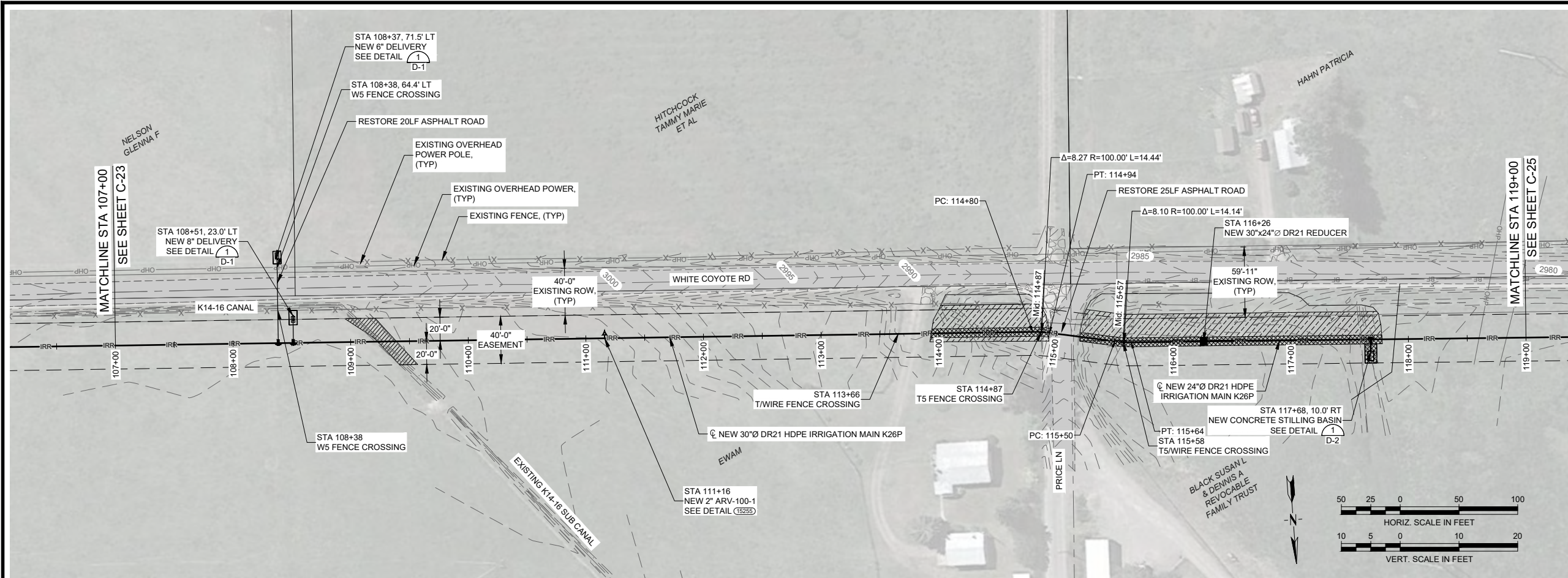
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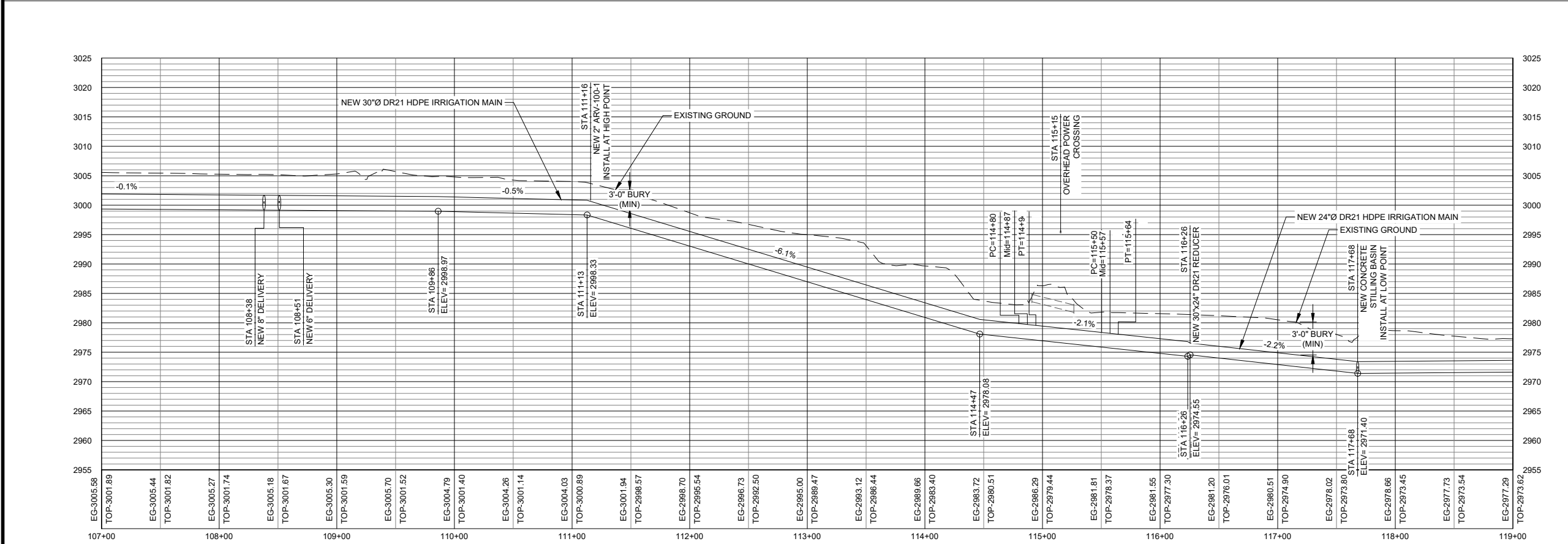
K26P - STA 95+00 TO 107+00 - PHASE 1

PROJECT NUMBER: 0859.015
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For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
[Cross-hatch pattern]	Wetland	Permanent	Backfill	1237	115
[Cross-hatch pattern]	Wetland	Permanent	Bedding	1237	112
[Cross-hatch pattern]	Wetland	Permanent	24" Pipe		18
[Cross-hatch pattern]	Wetland	Permanent	Backfill	1541	143
[Cross-hatch pattern]	Wetland	Permanent	Bedding	1541	153
[Cross-hatch pattern]	Wetland	Permanent	30" Pipe		37
[Cross-hatch pattern]	Wetland	Permanent	Concrete		10
[Diagonal lines pattern]	Wetland	Temporary	Construction	7323	



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K26P - STA 107+00 TO 119+00 - PHASE 1

C-24

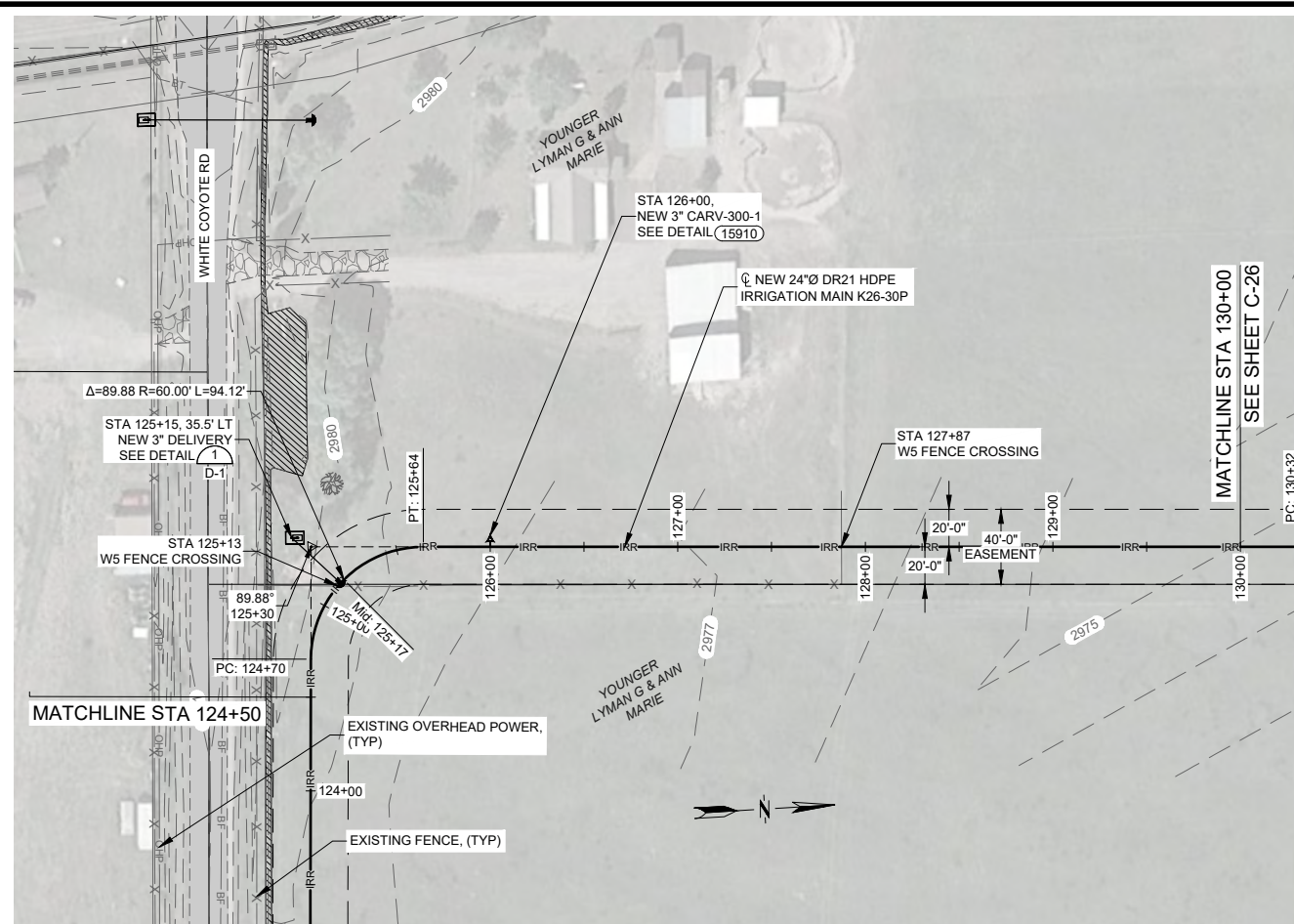
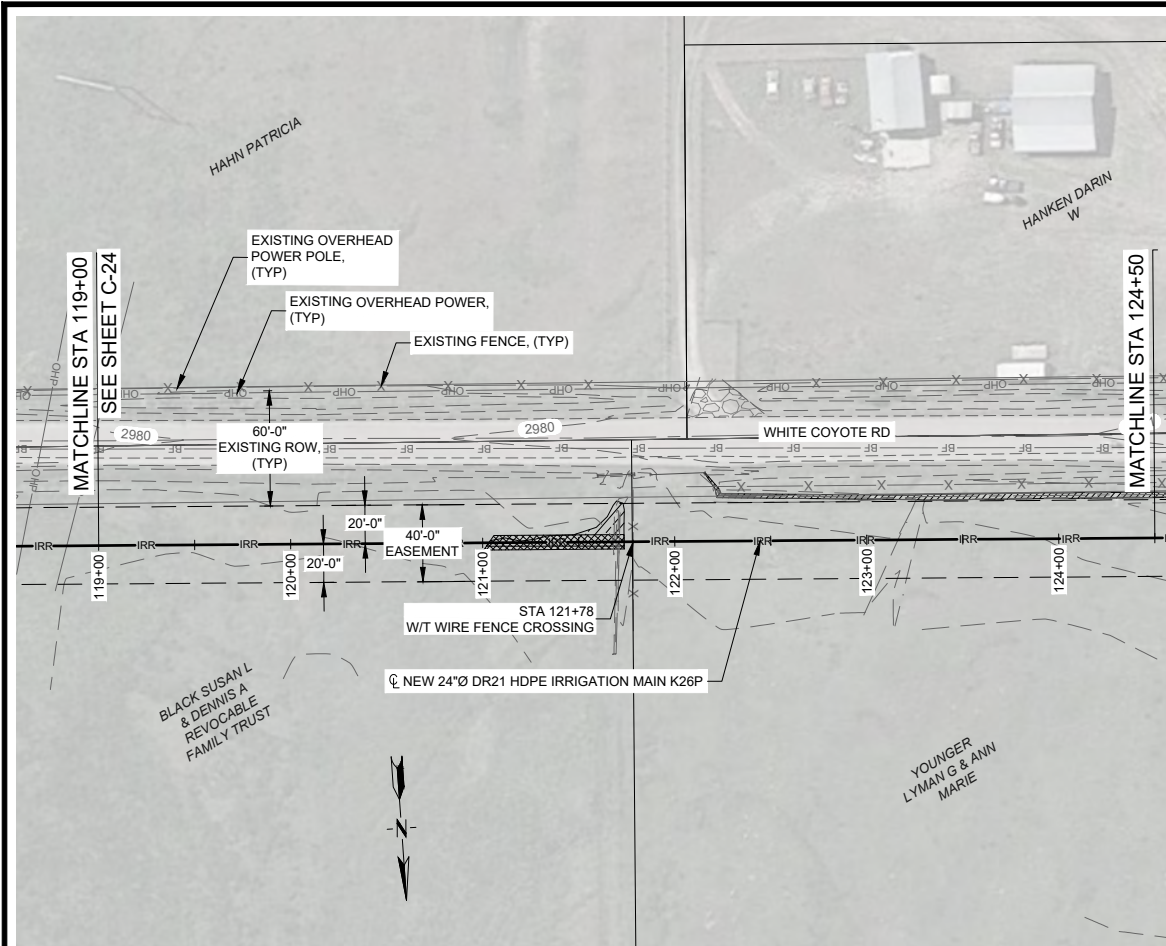
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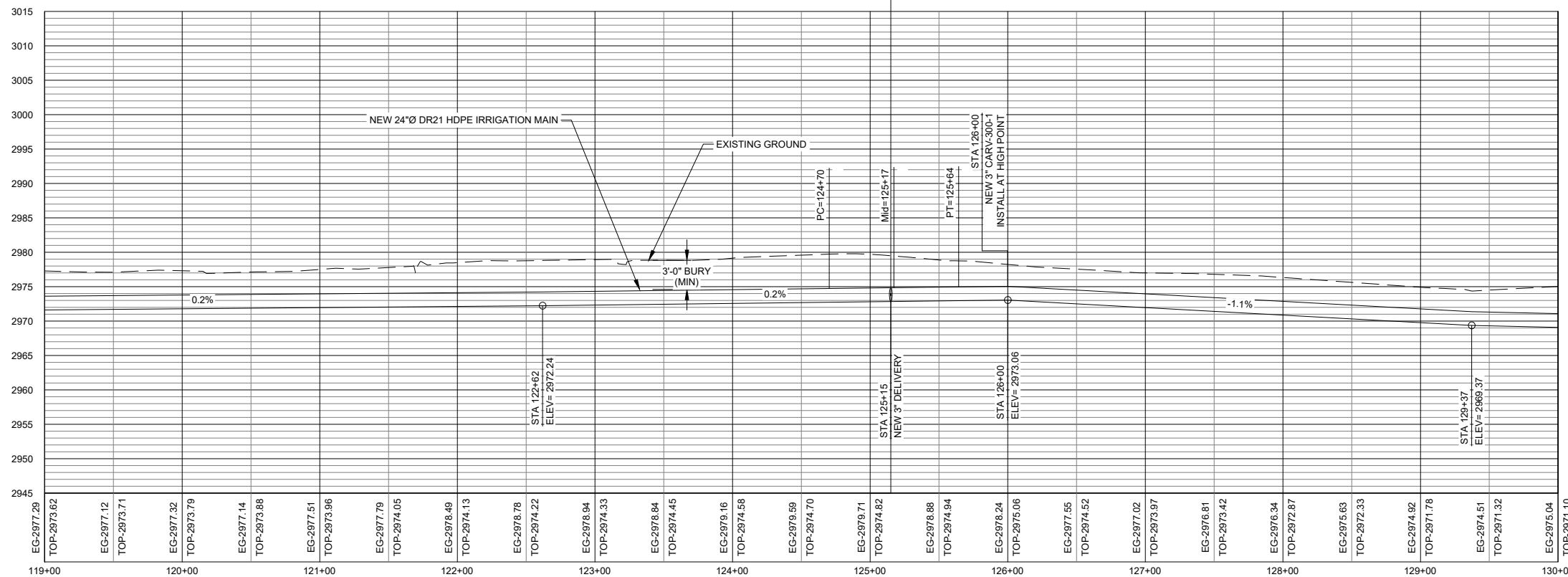
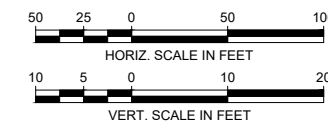
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For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Wetland	Permanent	Backfill	528	49
	Wetland	Permanent	Bedding	528	47
	Wetland	Temporary	24" Pipe	193	8



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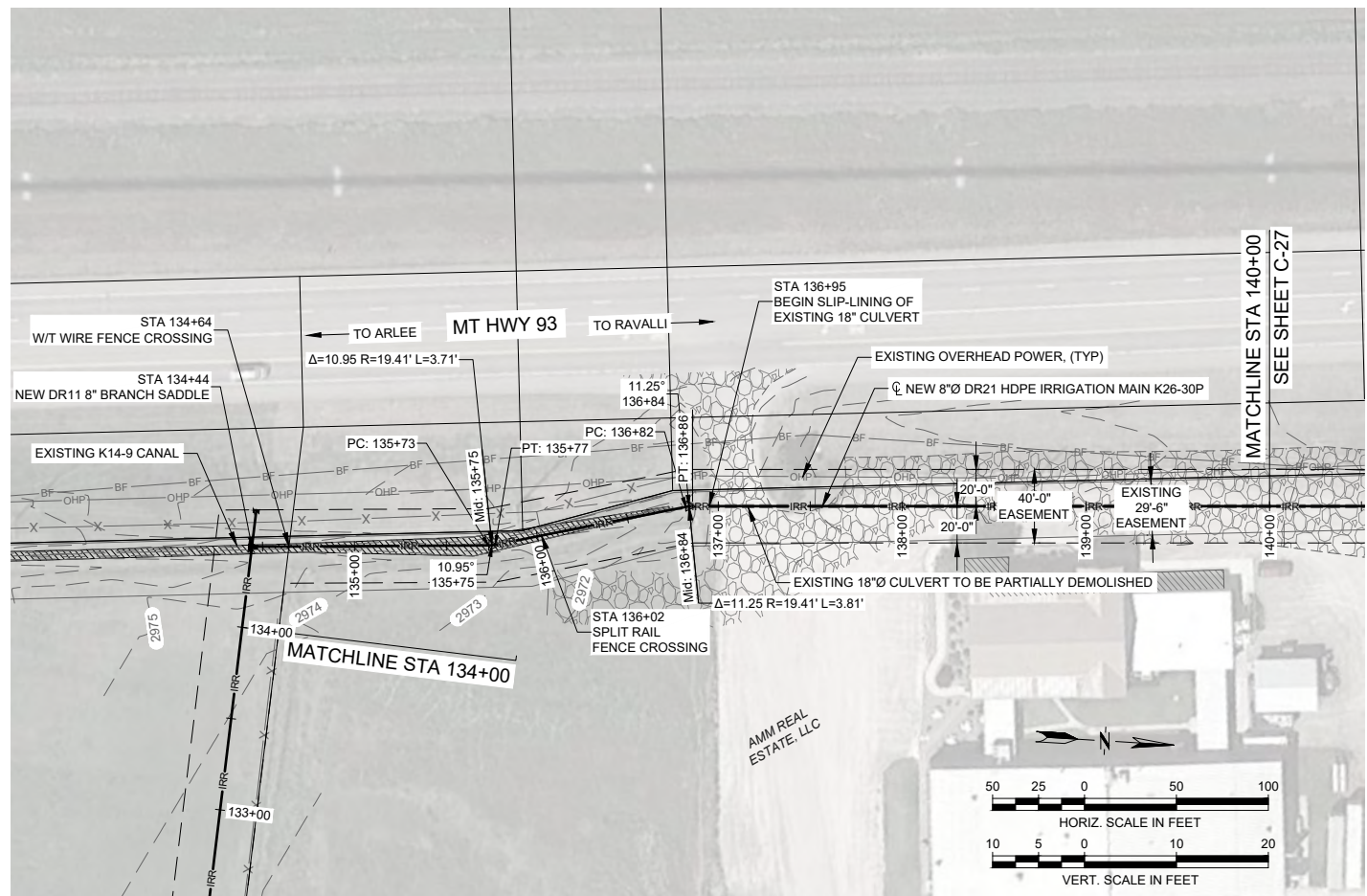
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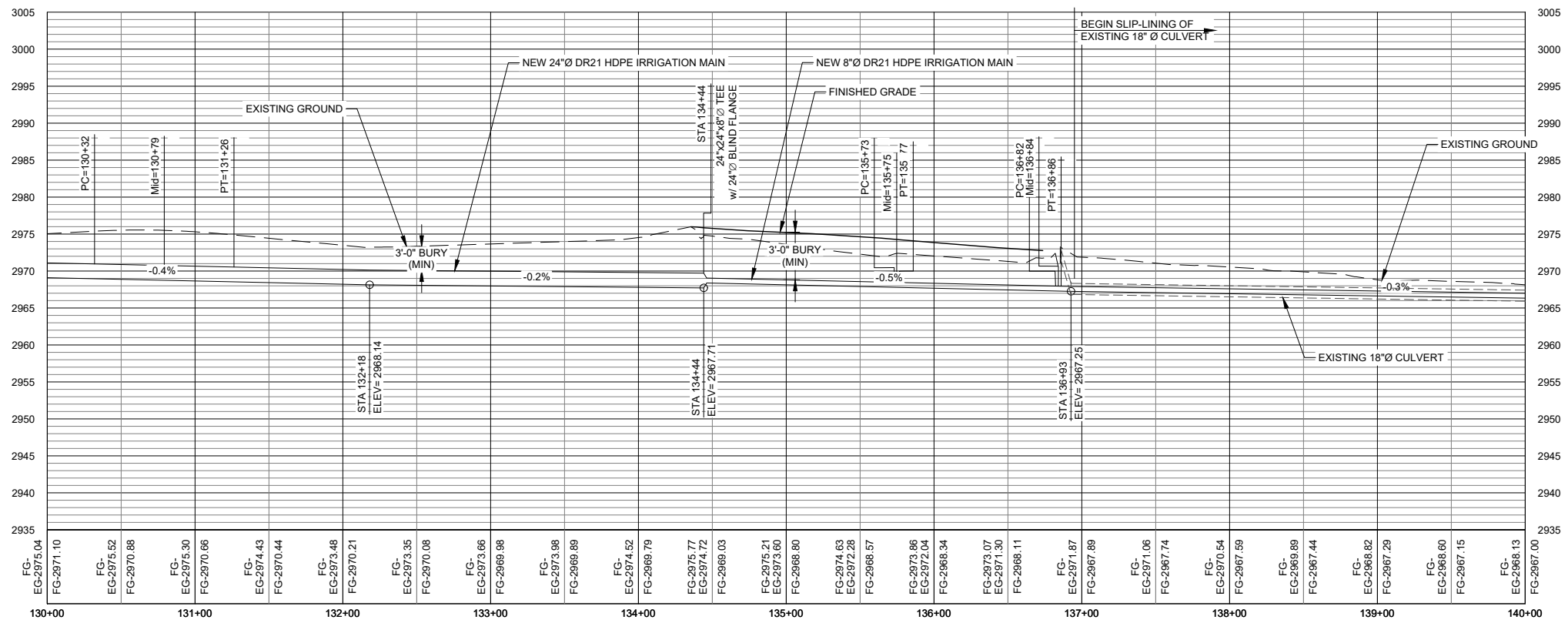
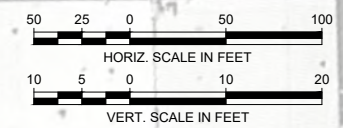
K26P - STA 119+00 TO 130+00 - PHASE 1

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Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-9 Canal)	Permanent	Backfill	3984	369
	Waterway (K14-9 Canal)	Permanent	Bedding	3984	218
	Waterway (K14-9 Canal)	Permanent	8" Pipe		11



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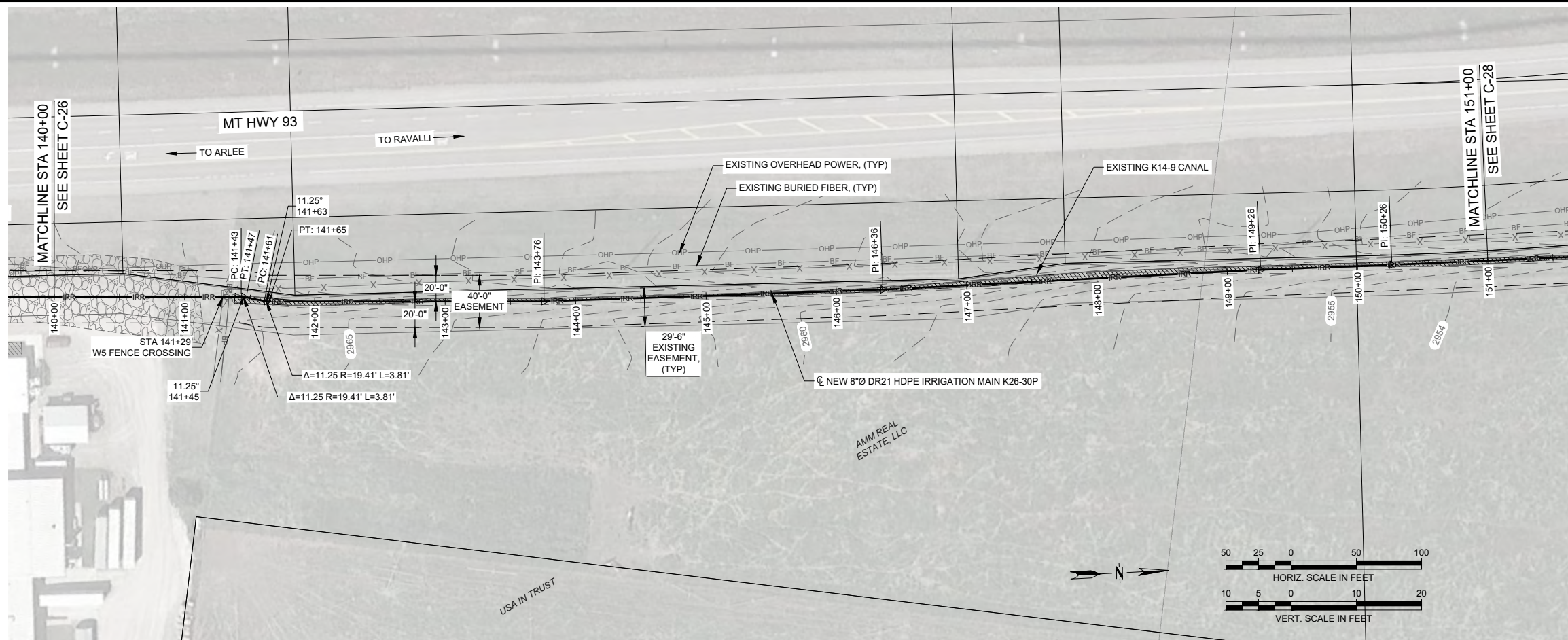
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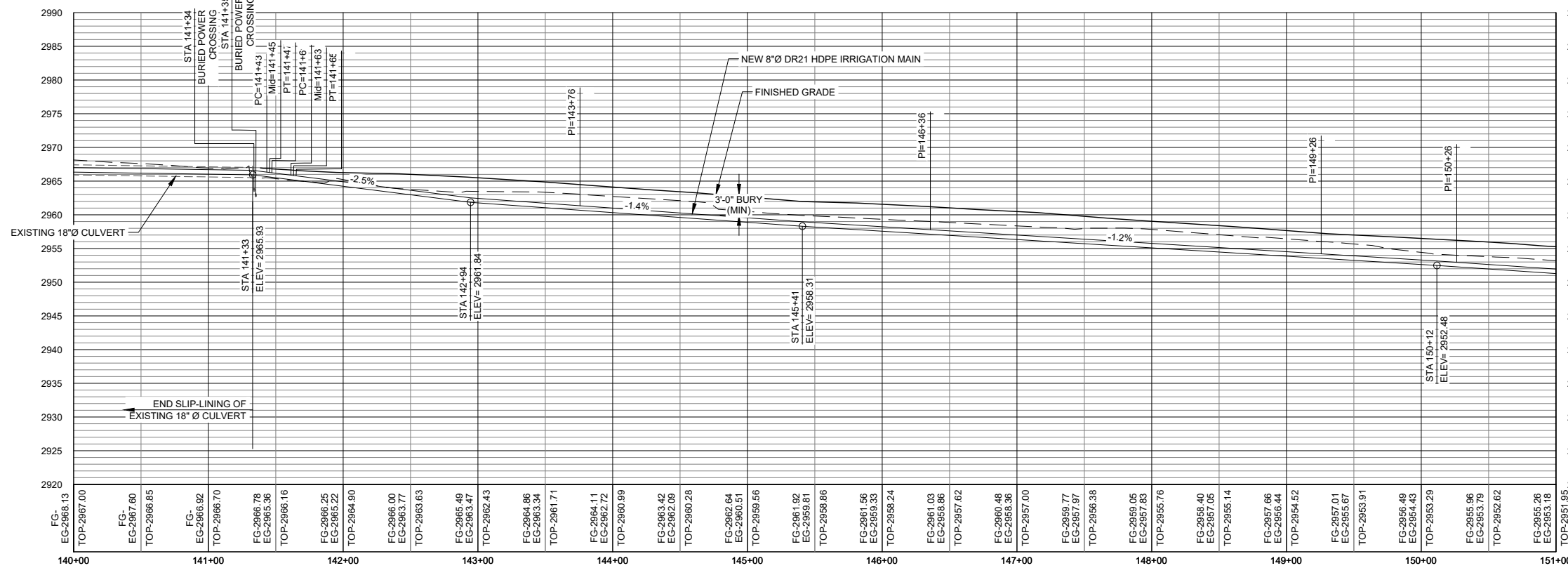
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K26-30P - STA 130+00 TO 140+00 - PHASE 1

PROJECT NUMBER: 0859.015
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For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-9 Canal)	Permanent	Backfill	3216	298
	Waterway (K14-9 Canal)	Permanent	Bedding	3216	170
	Waterway (K14-9 Canal)	Permanent	8" Pipe		15



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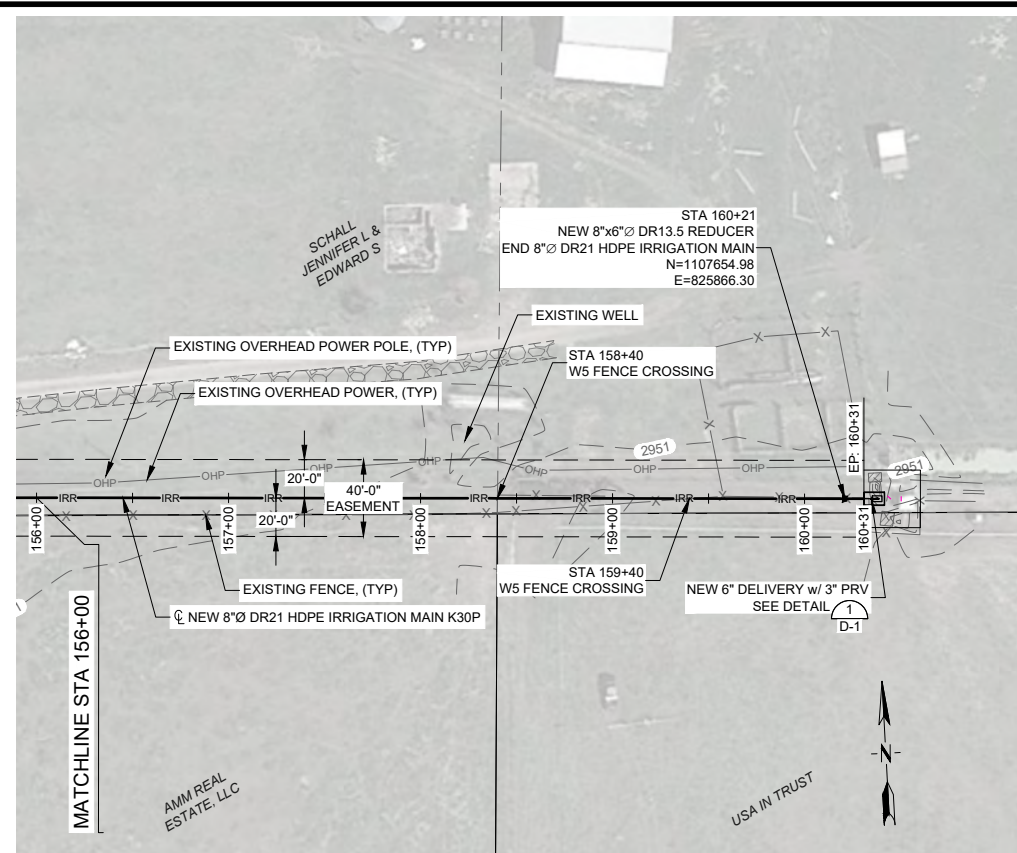
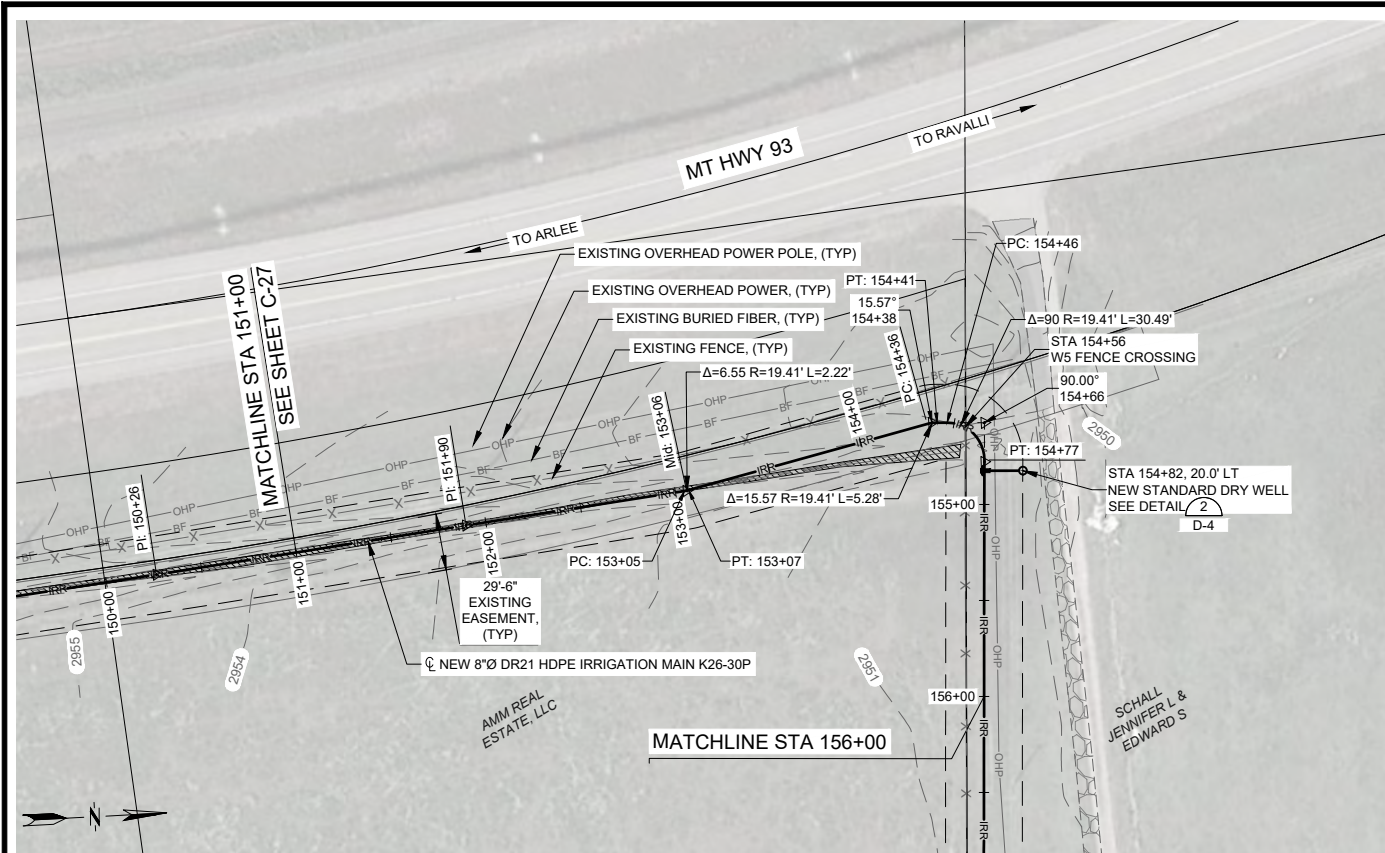
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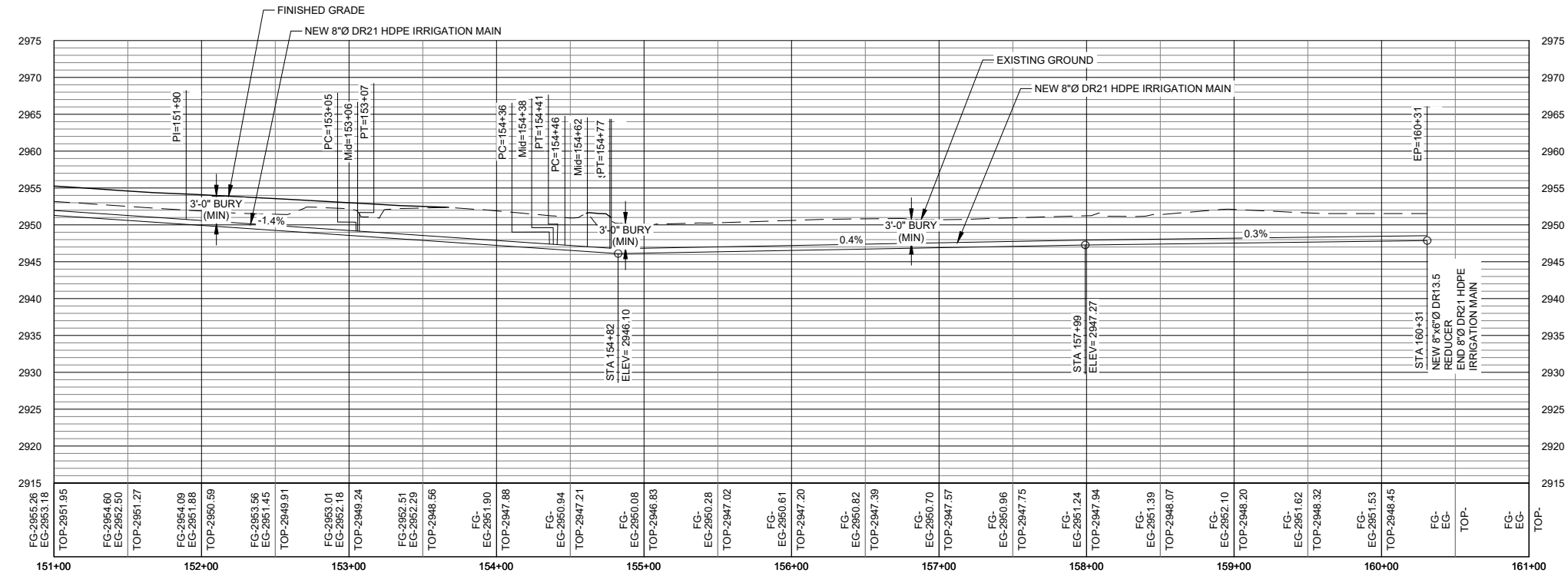
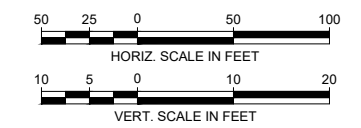
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K26-30P - STA 140+00 TO 151+00 - PHASE 1

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER C-27



For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K14-9 Canal)	Permanent	Backfill	890	82
	Waterway (K14-9 Canal)	Permanent	Bedding	890	48
	Waterway (K14-9 Canal)	Permanent	8" Pipe		3



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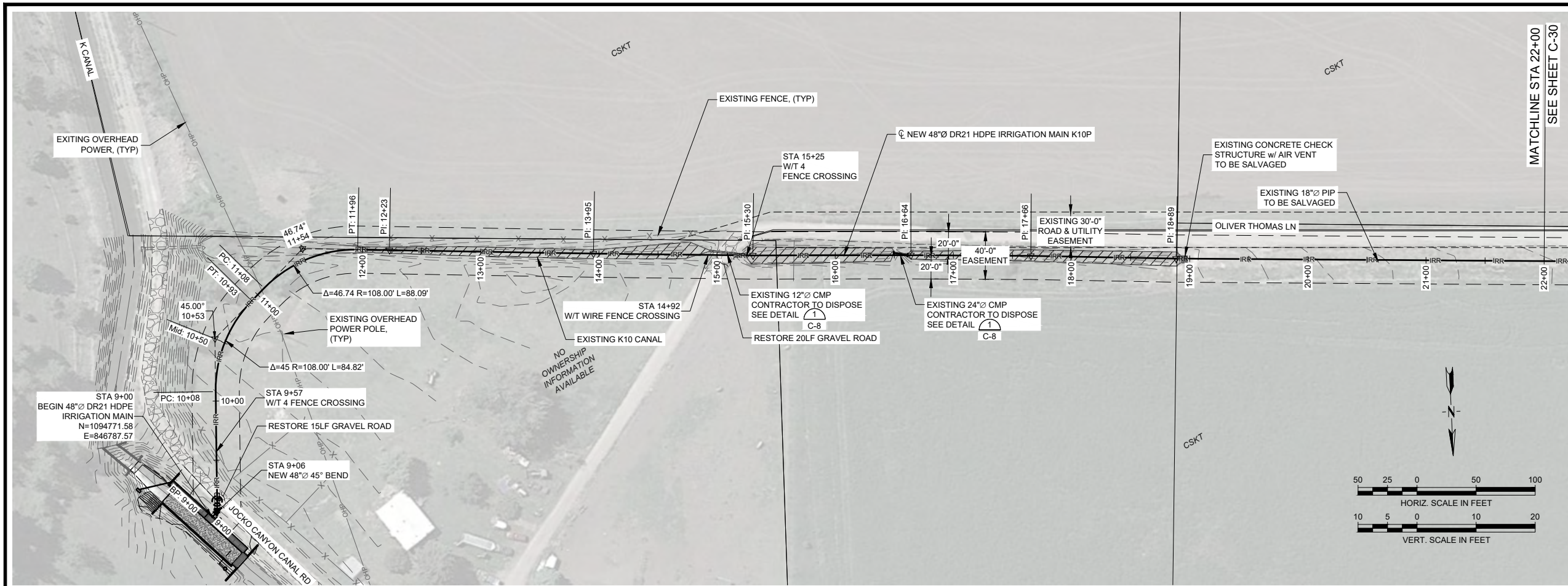
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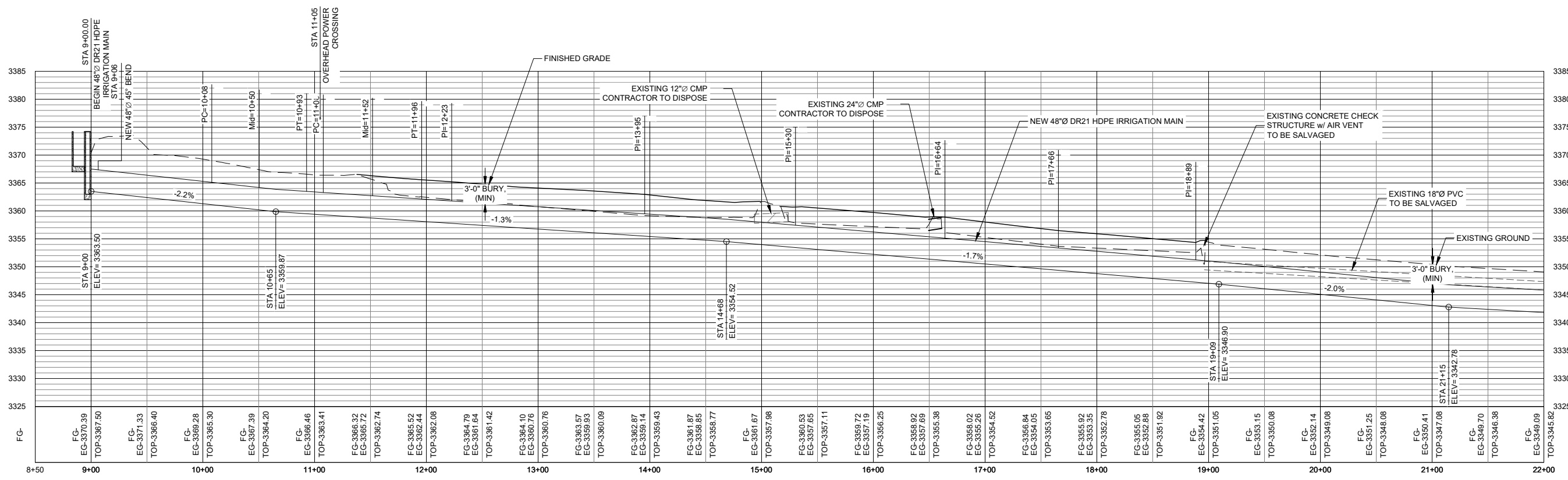
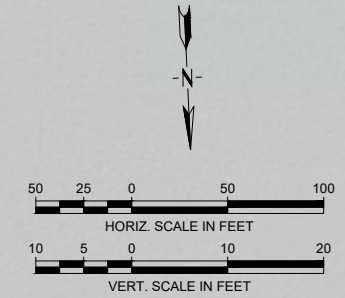
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MONTANA

K26-30P - STA 151+00 TO 161+00 - PHASE 1

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER C-28



For Permitting Agency Use					
Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K10 Canal)	Permanent	Backfill	6165	571
	Waterway (K10 Canal)	Permanent	Bedding	6165	783
	Waterway (K10 Canal)	Permanent	48" Pipe		321



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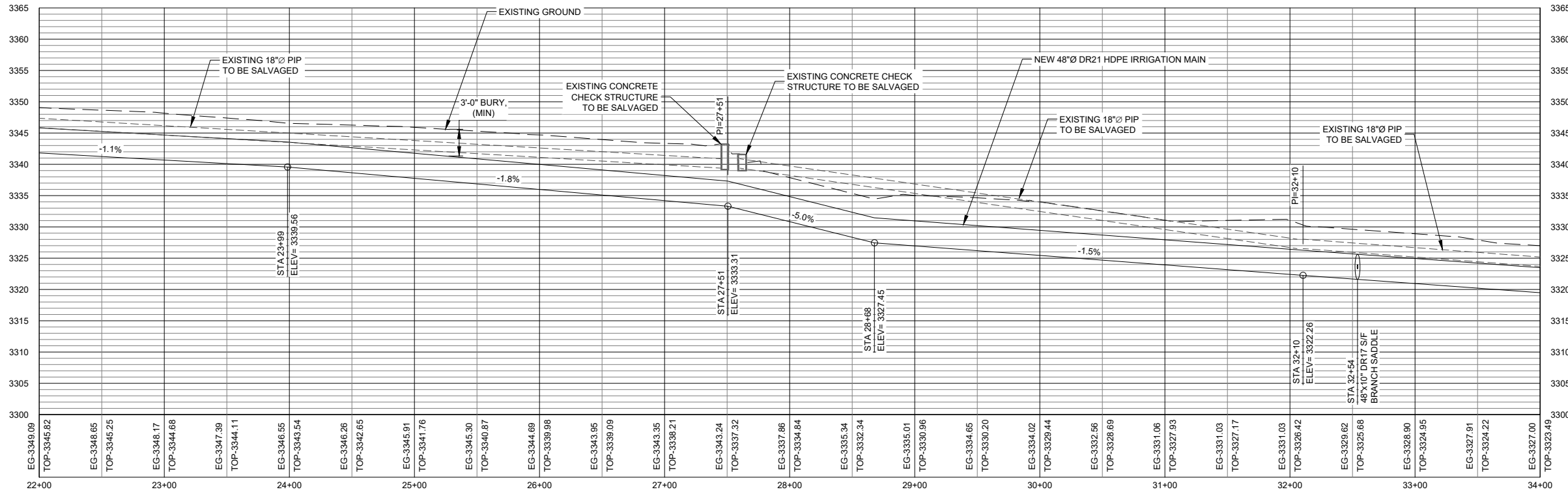
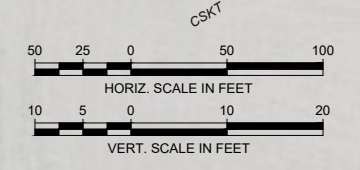
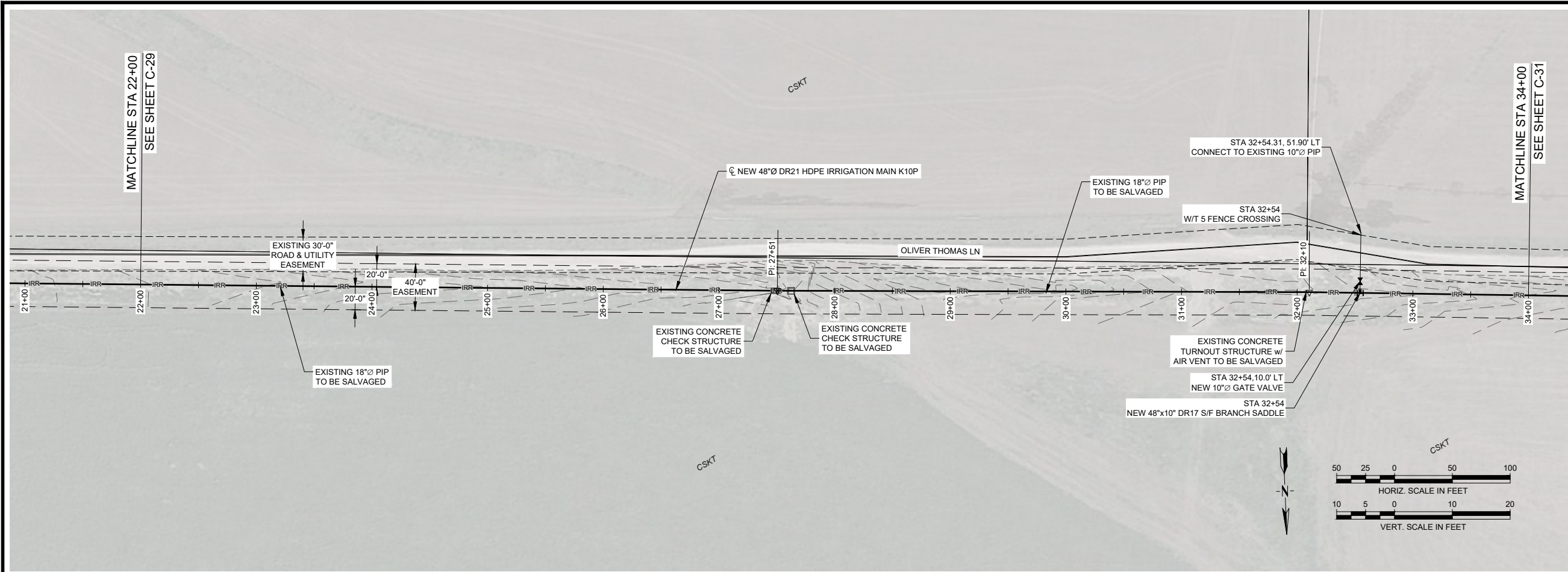
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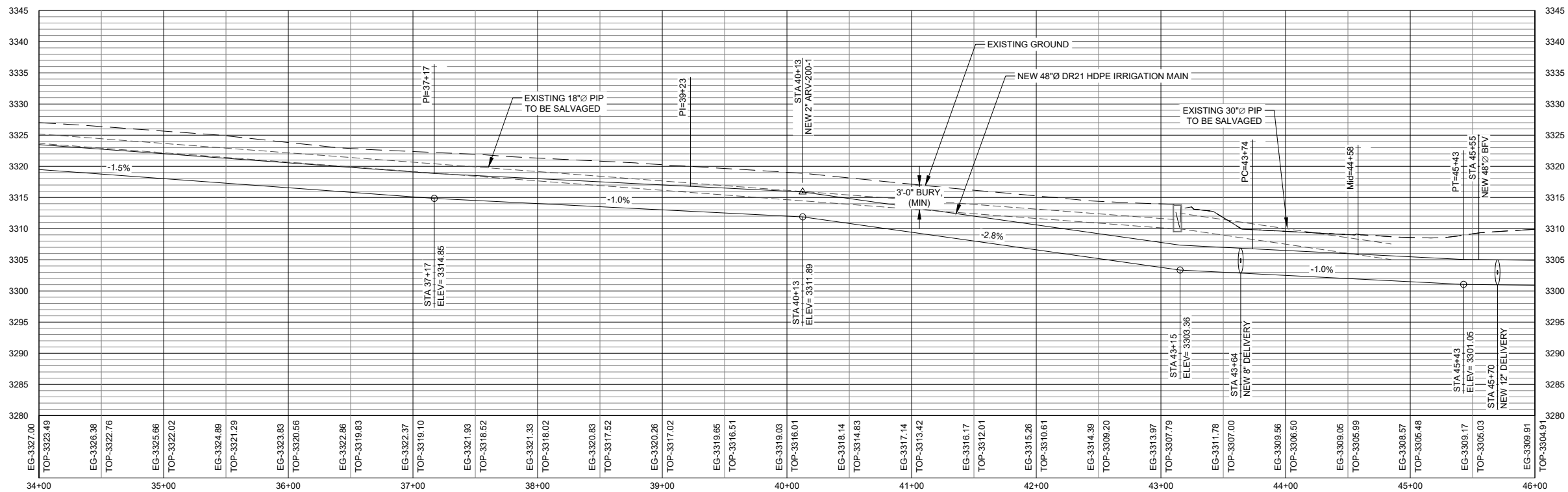
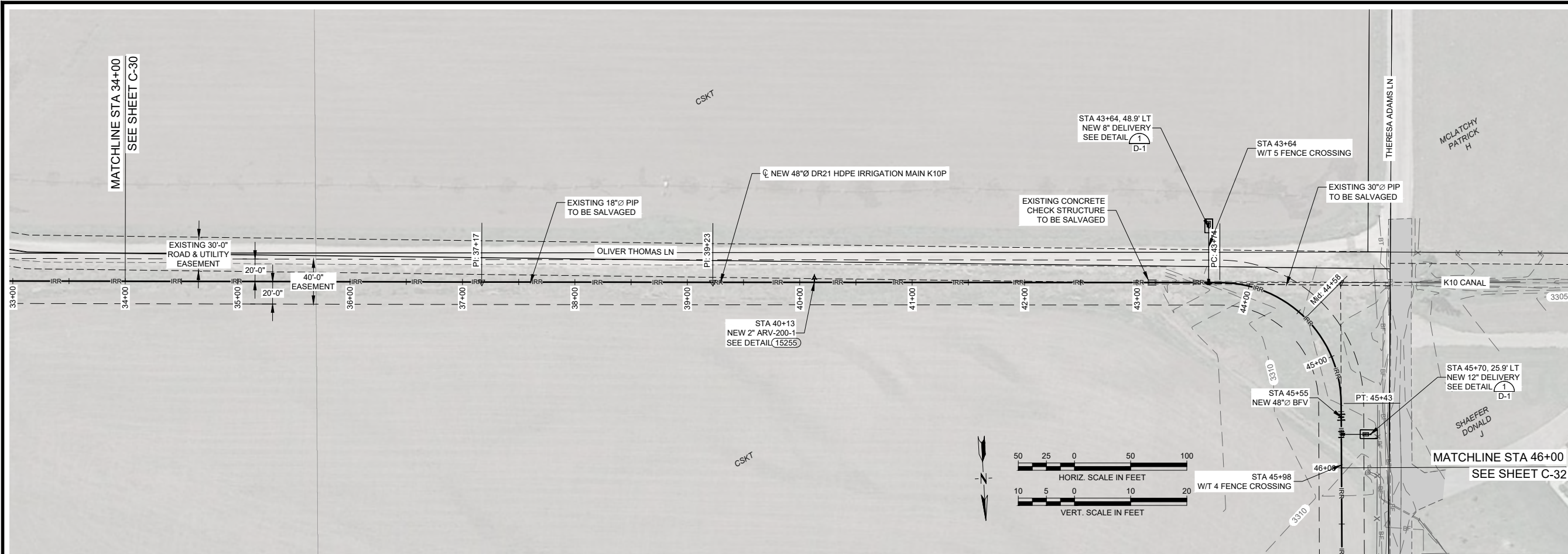
K10P - STA 22+00 TO 34+00 - PHASE 2

PROJECT NUMBER
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SHEET NUMBER

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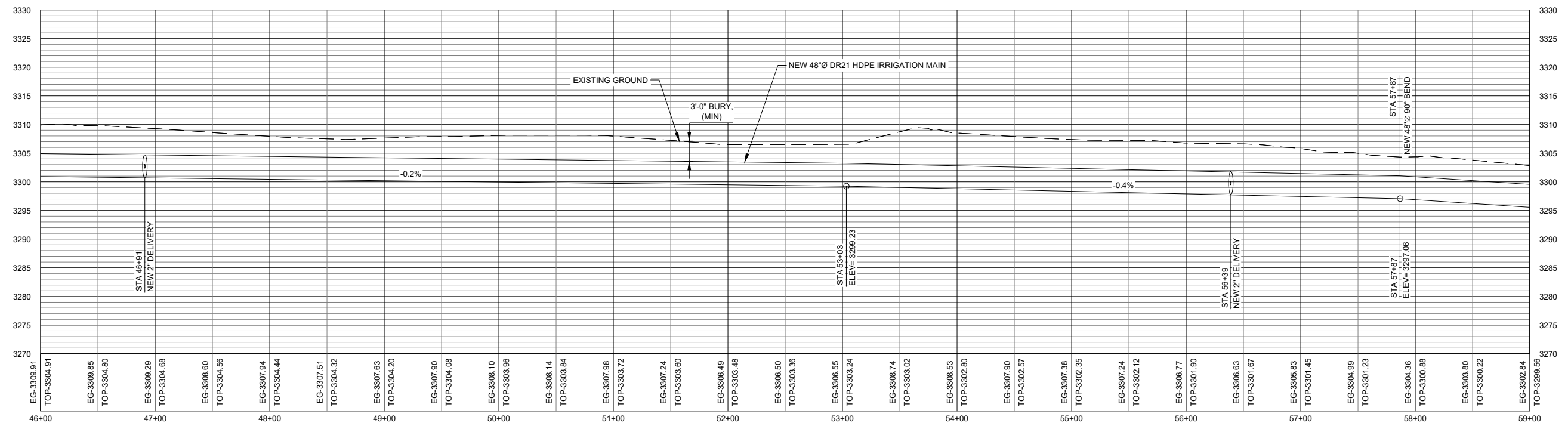
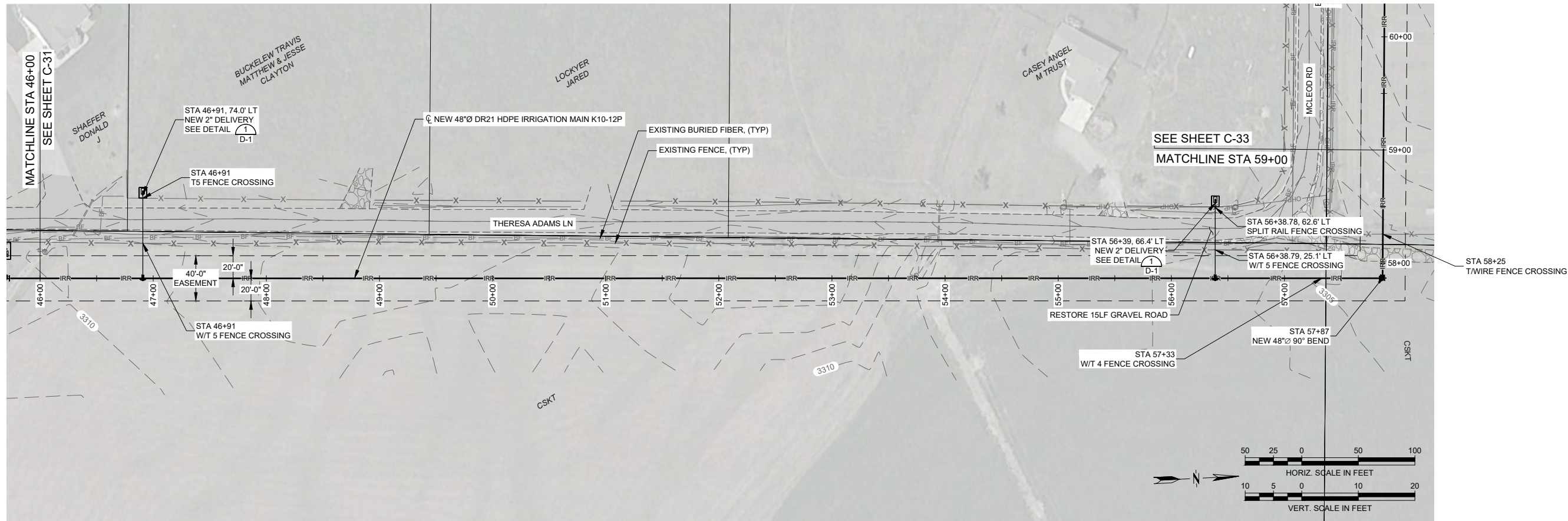
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K10P - STA 34+00 TO 46+00 - PHASE 2

PROJECT NUMBER 0859.015
SHEET NUMBER
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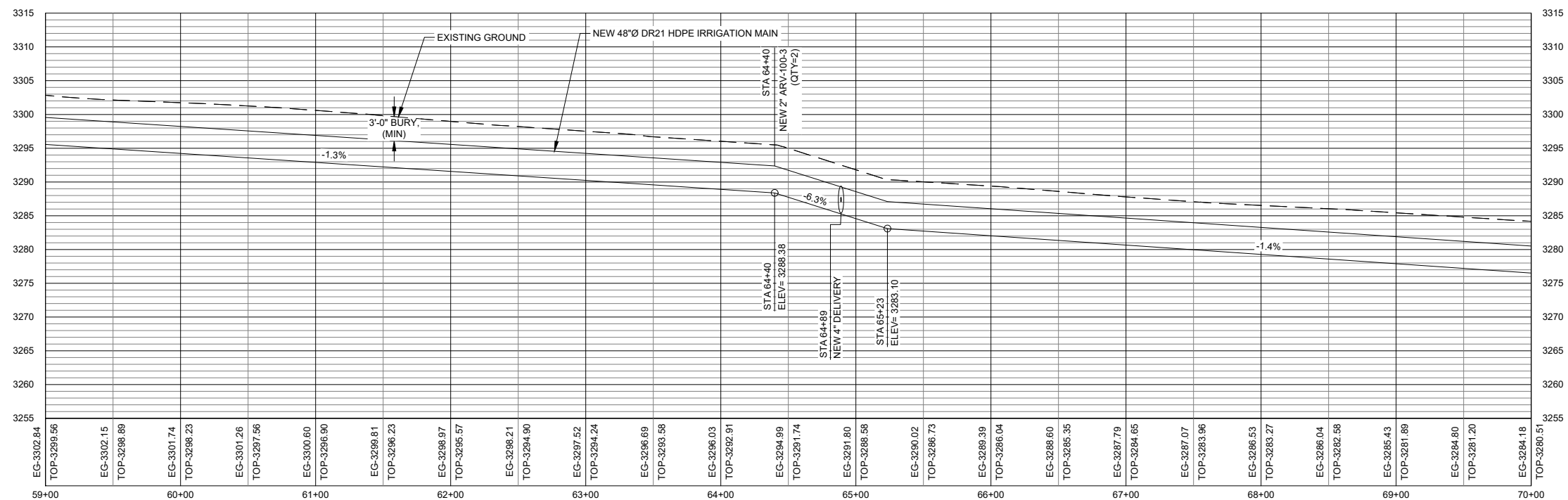
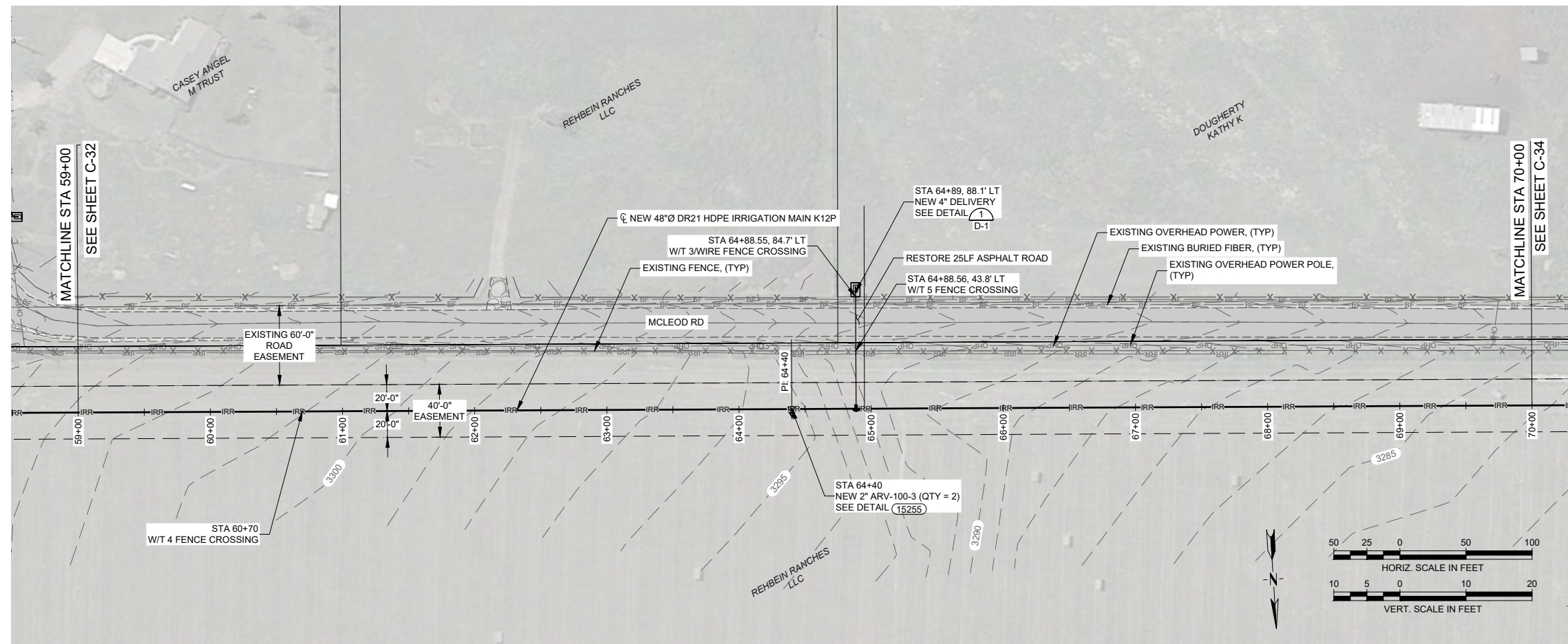
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K10-12P - STA 46+00 TO 59+00 - PHASE 2

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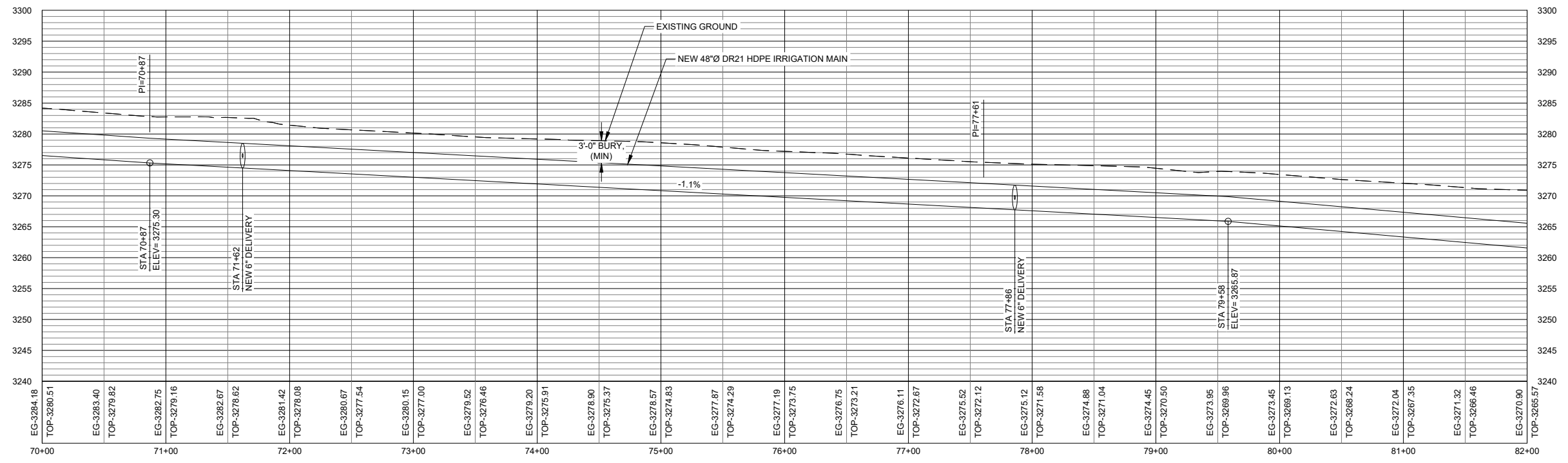
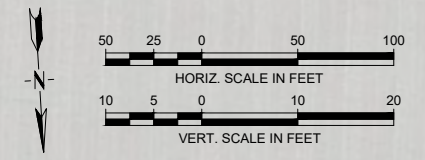
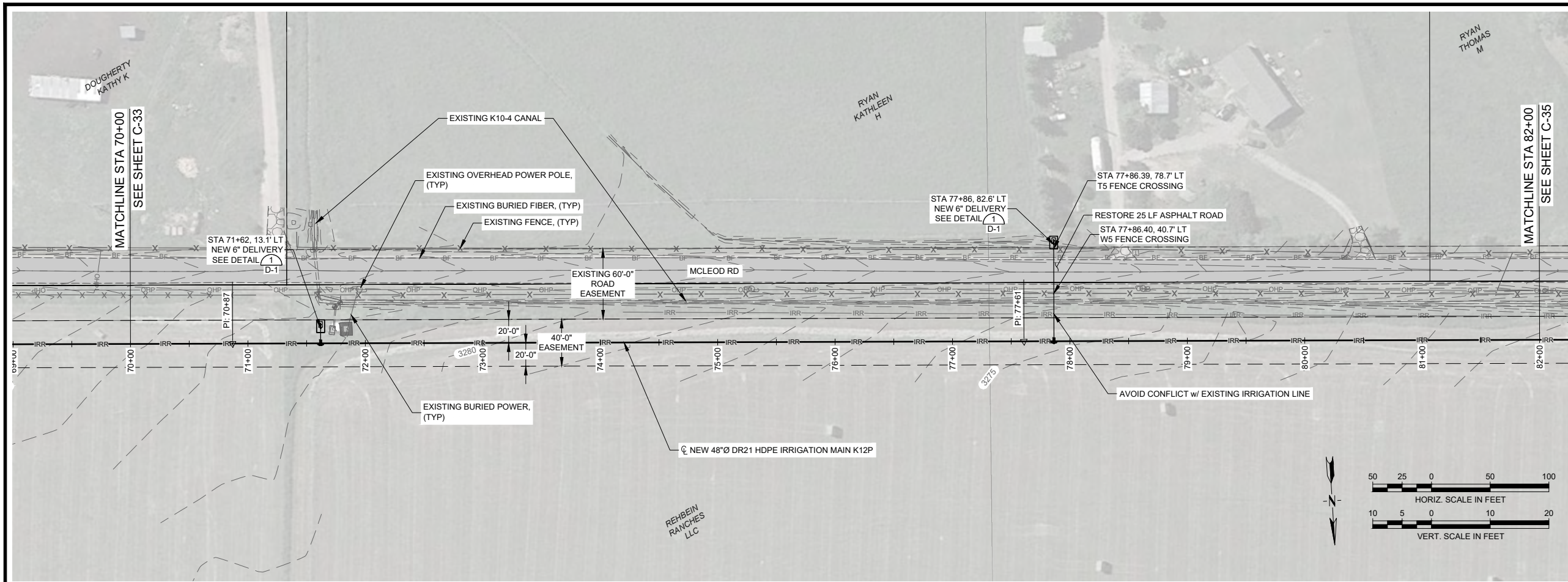
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
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K12P - STA 59+00 TO 70+00 - PHASE 2

PROJECT NUMBER
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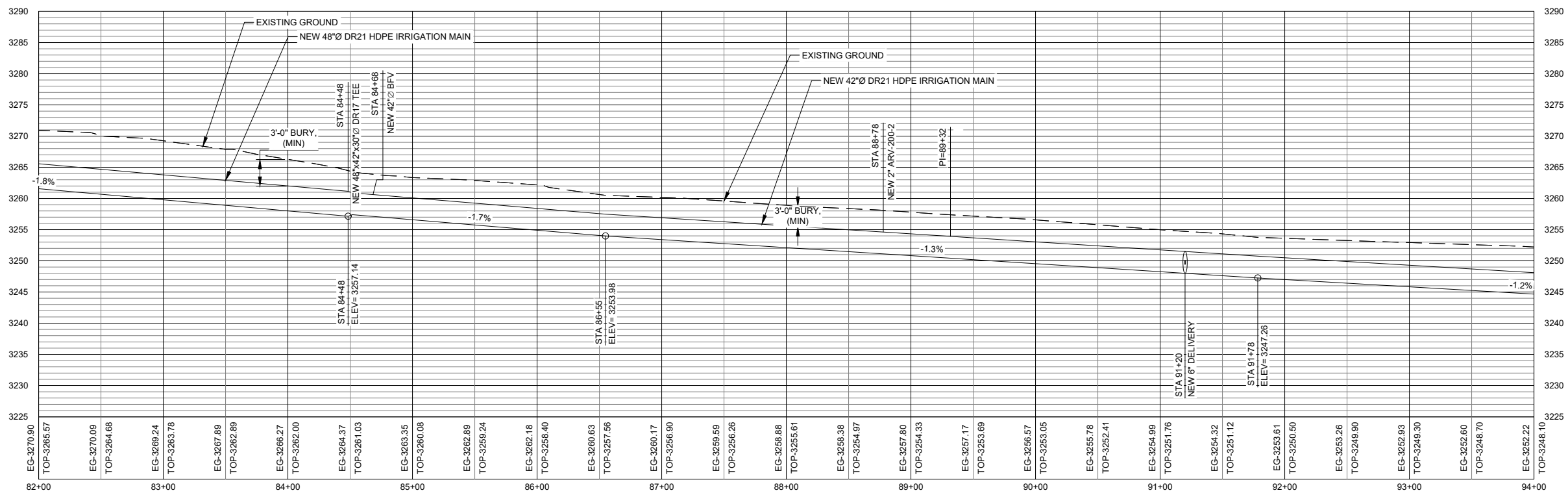
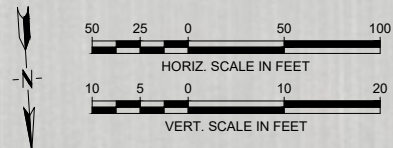
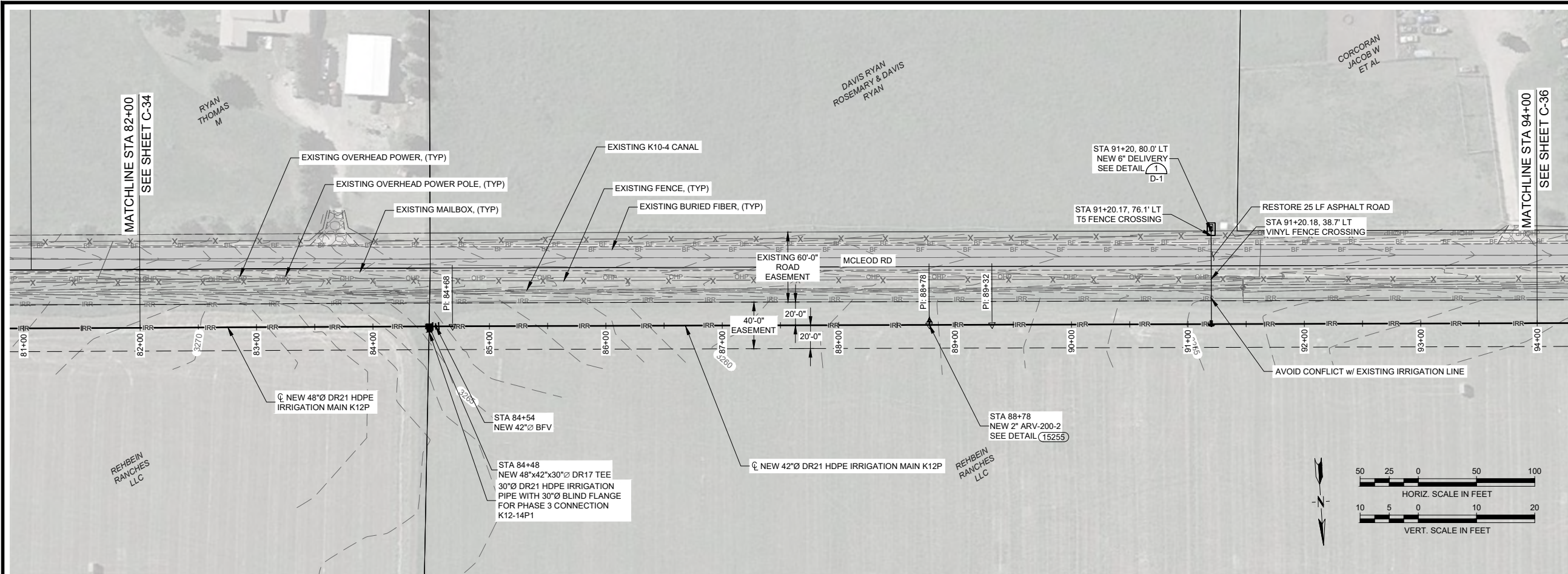
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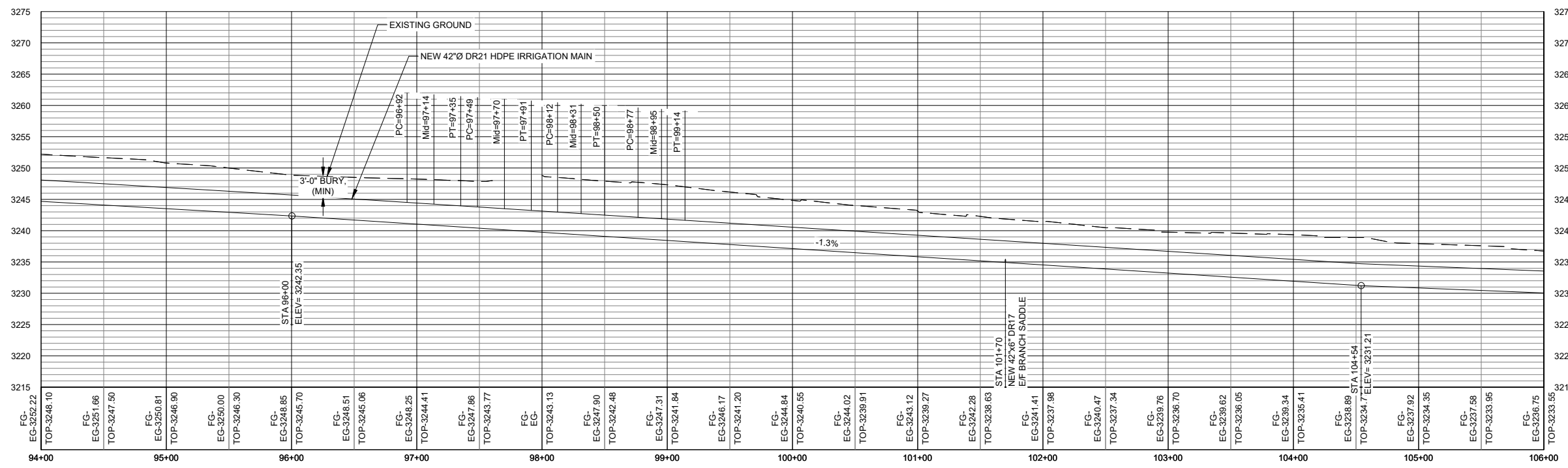
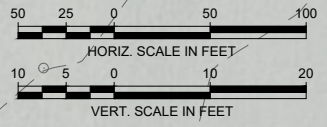
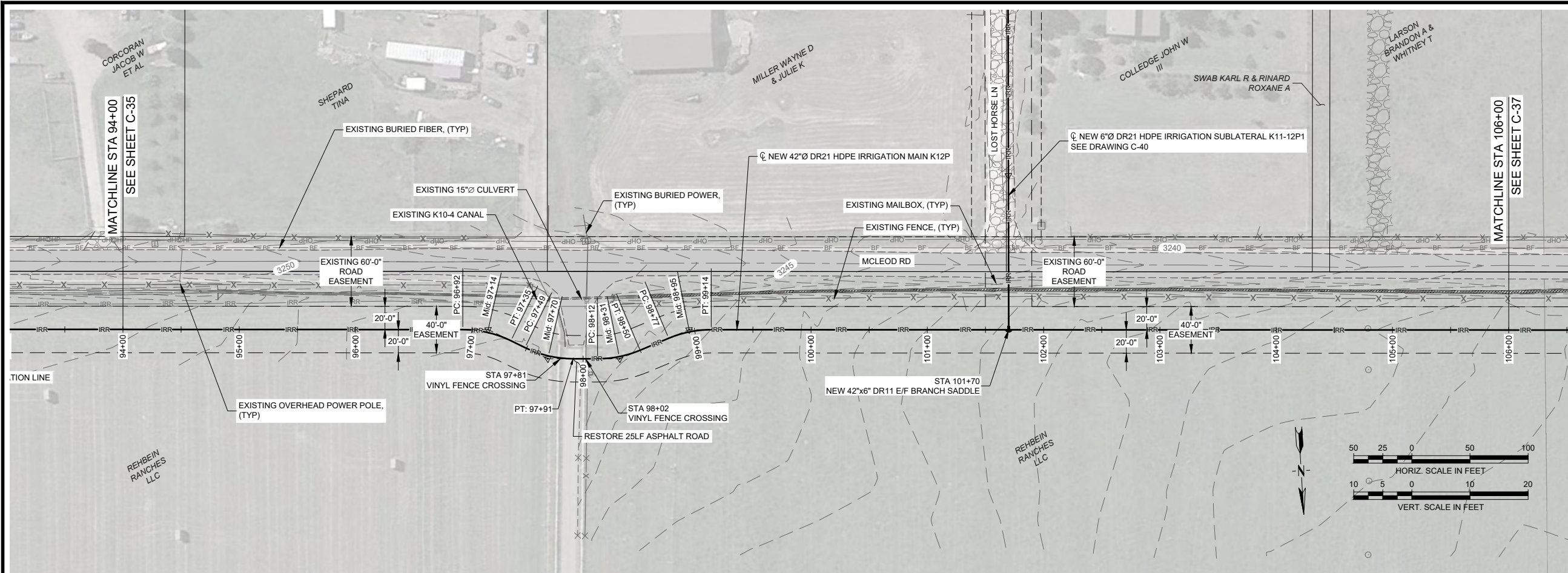
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JOCKO AREA CANAL CONVERSION PROJECT - PHASE 1 & 2
MONTANA

K12P - STA 82+00 TO 94+00 - PHASE 2

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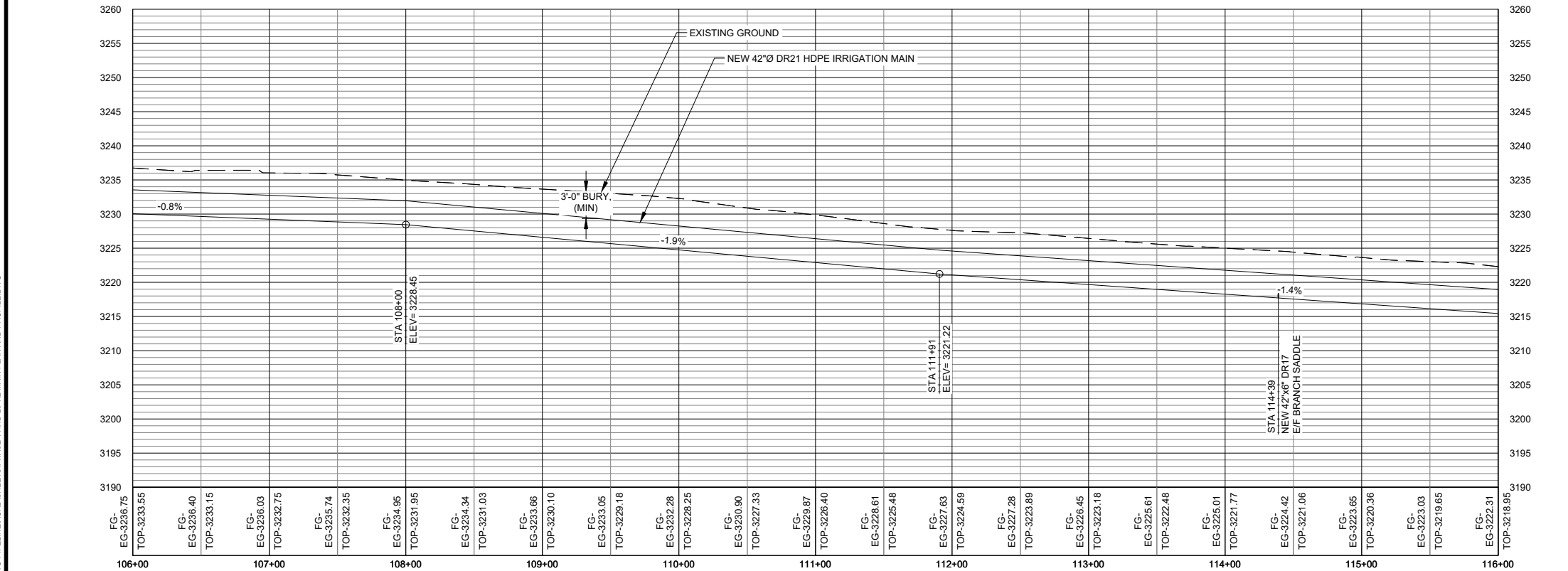
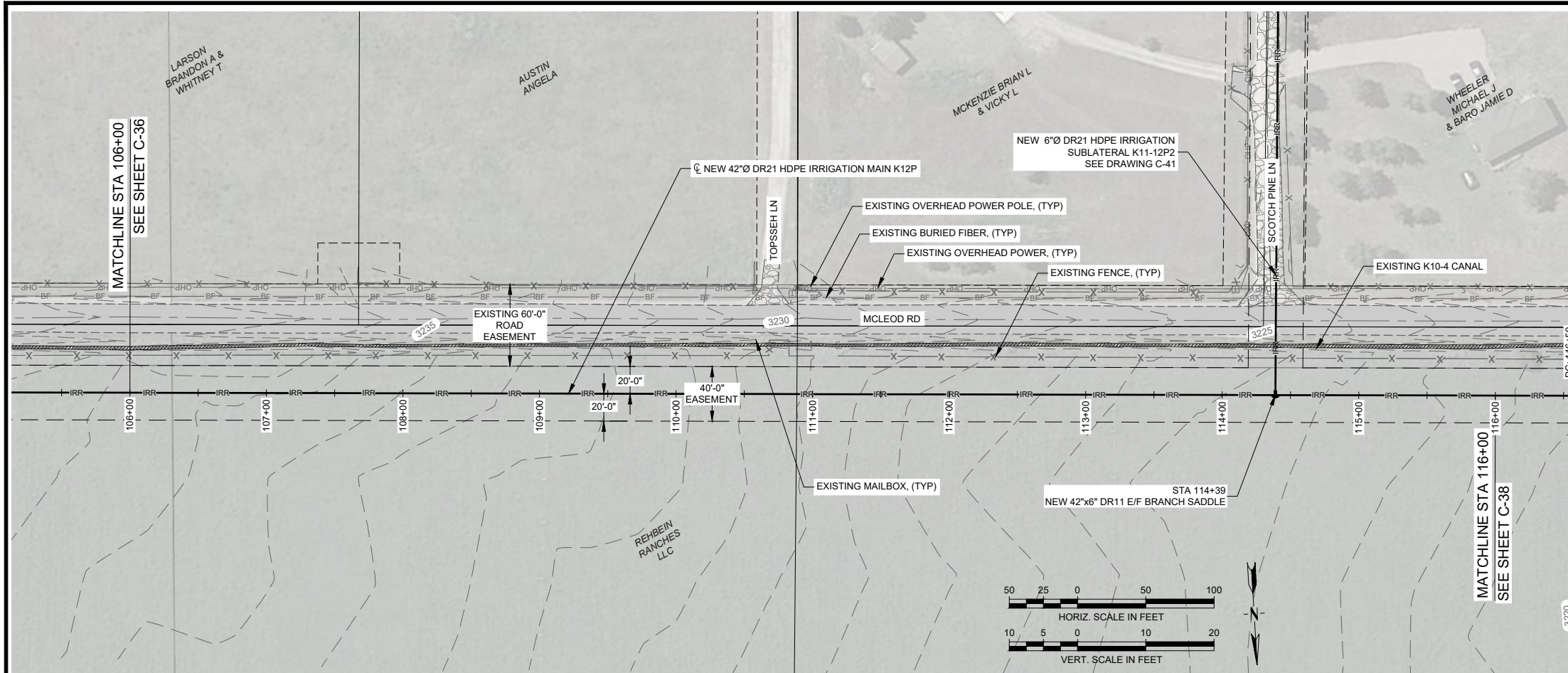
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MONTANA

K12P - STA 94+00 TO 106+00 - PHASE 2

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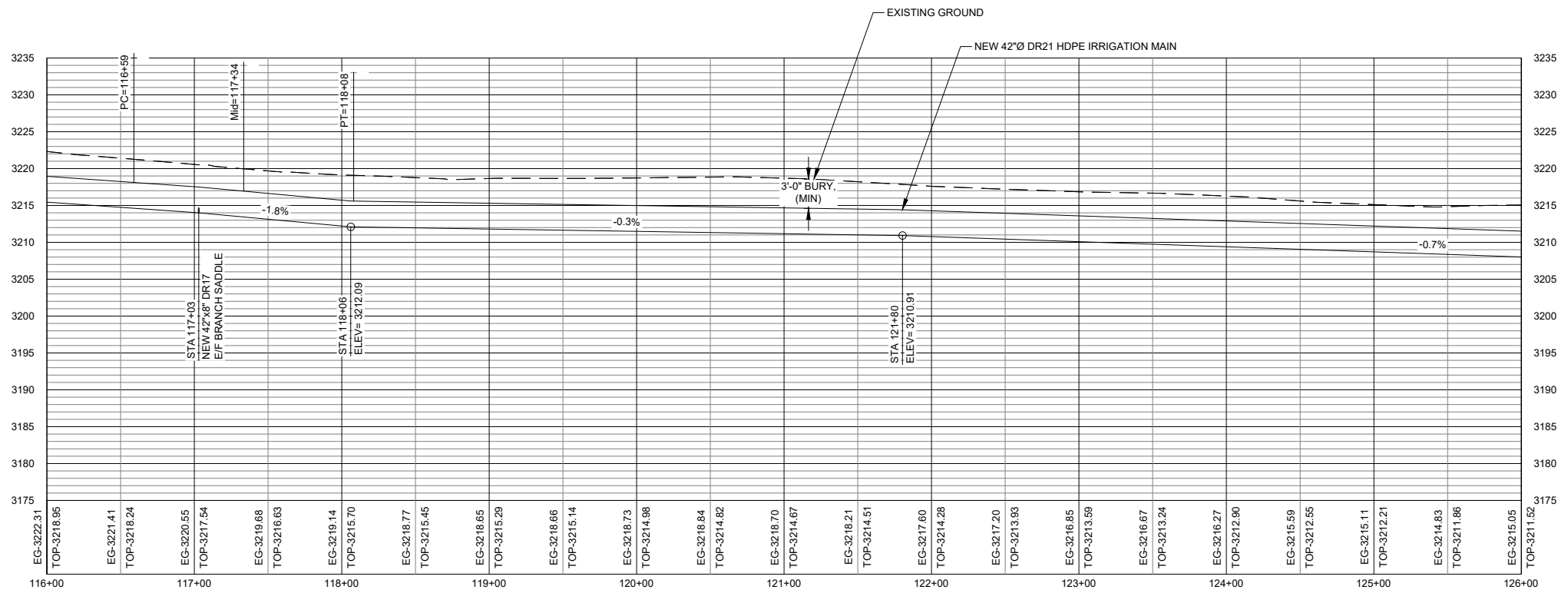
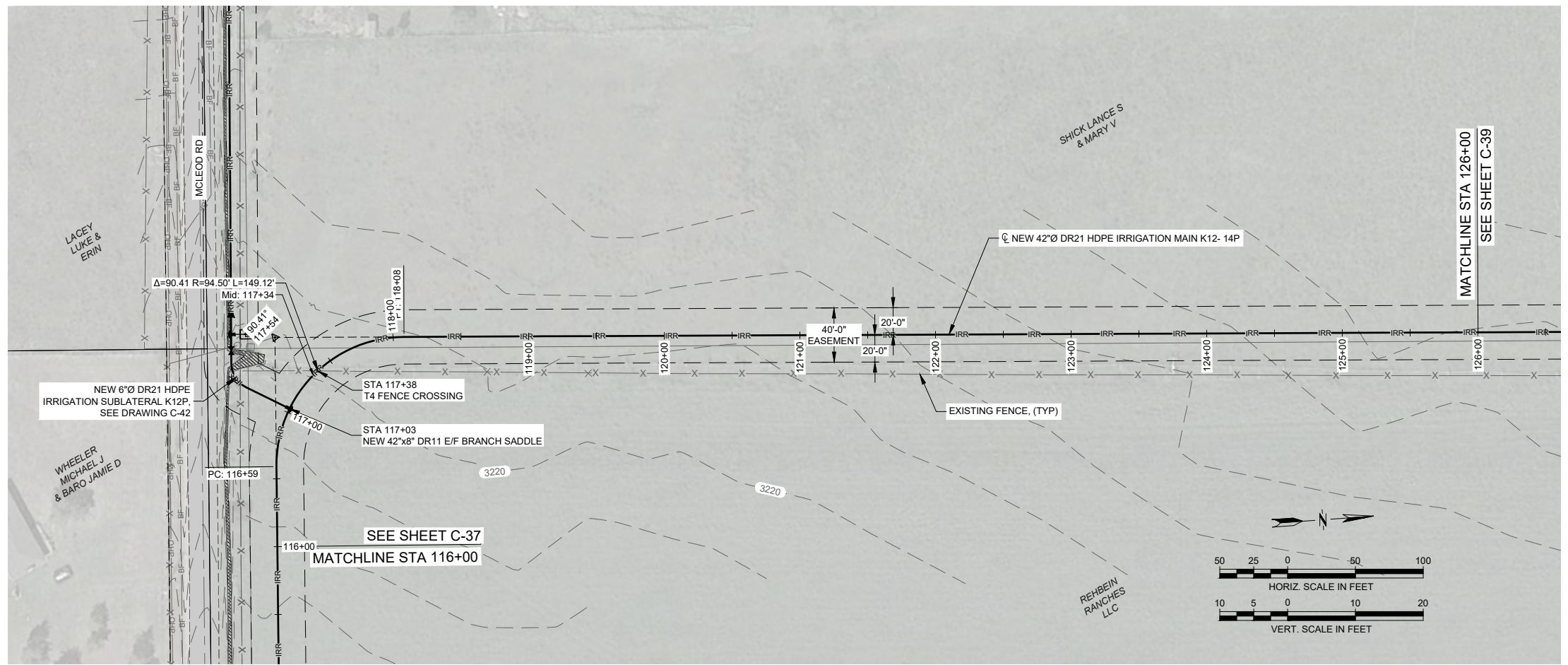
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K12P - STA 106+00 TO 116+00 - PHASE 2

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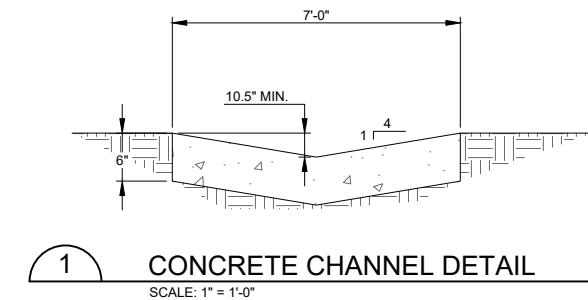
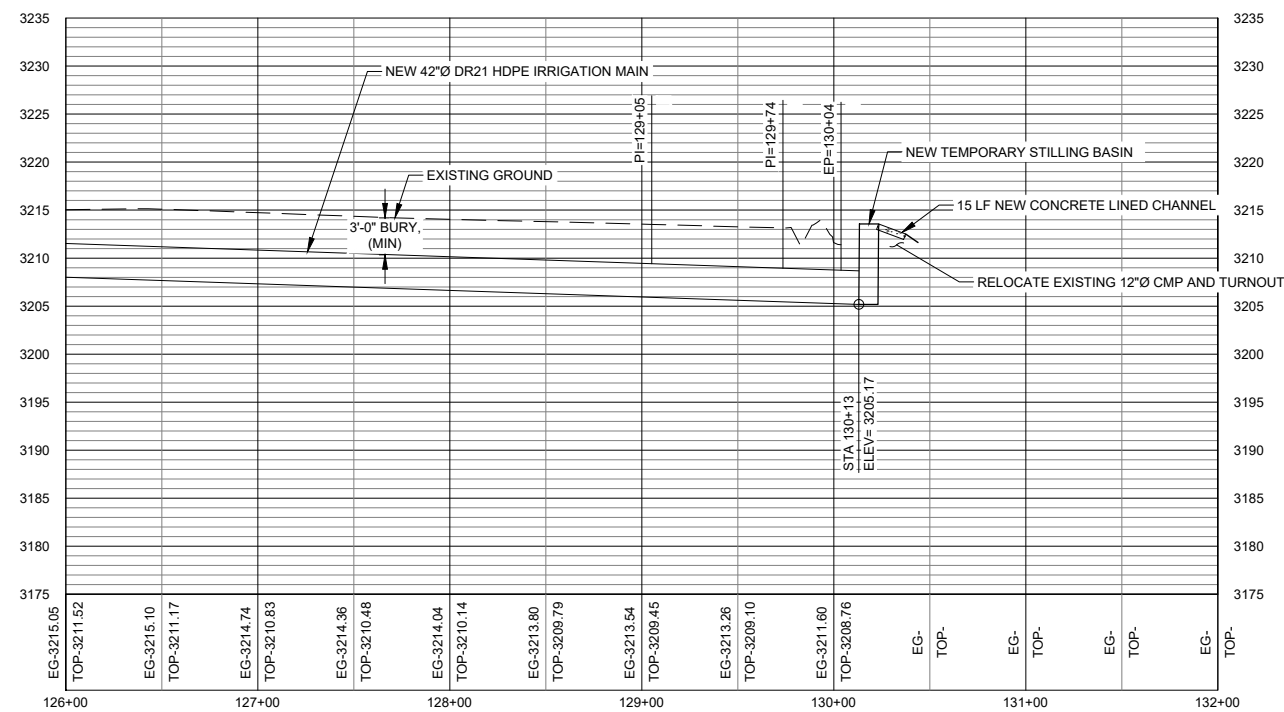
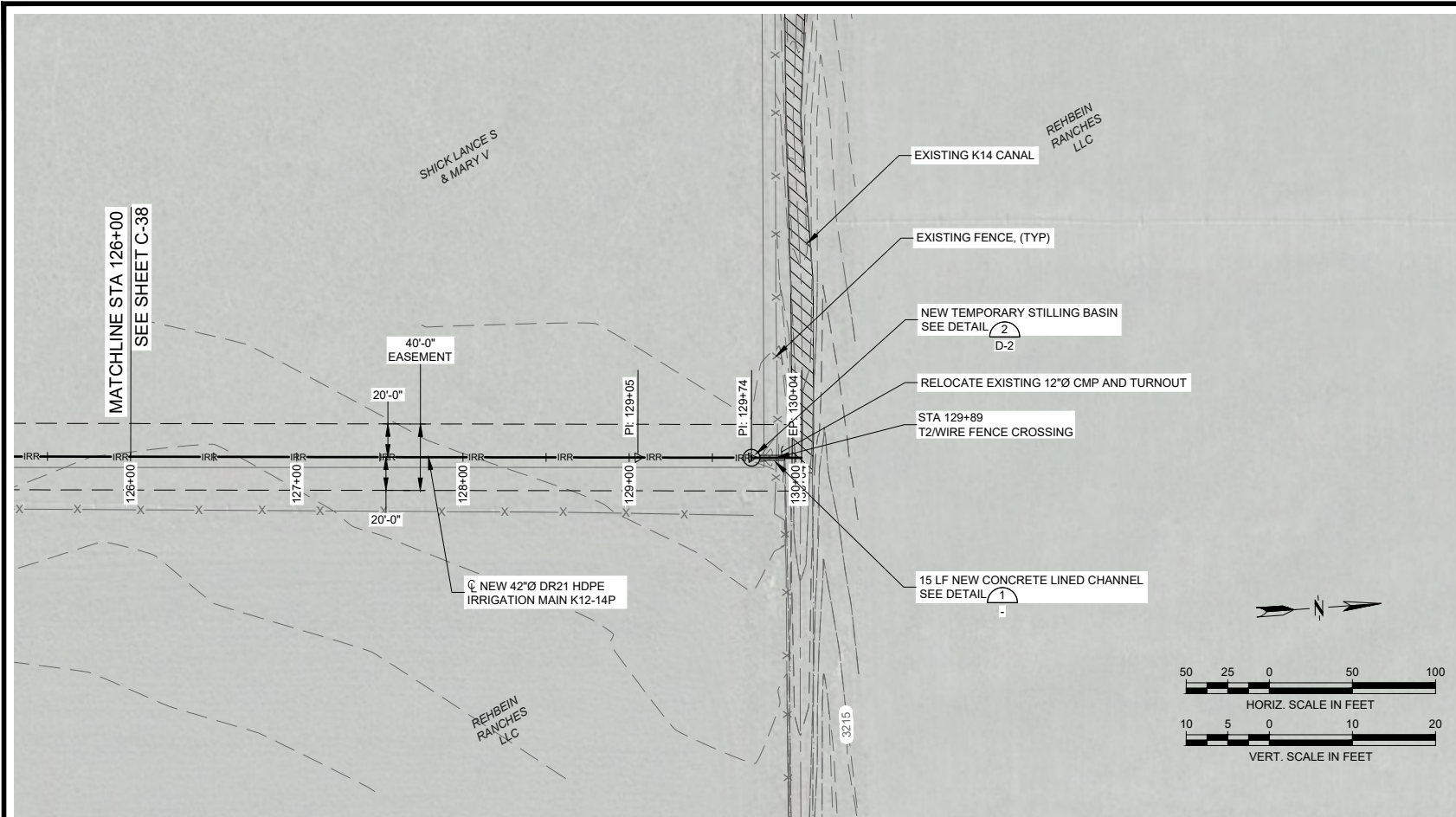
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MONTANA

JOCKO VALLEY

K12-14P - STA 116+00 TO 126+00 - PHASE 2

PROJECT NUMBER 0859.015
SHEET NUMBER
DRAWING NUMBER **C-38**

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- NOTES:**
1. CONCRETE CHANNEL SIZED FOR Q = 2 CFS.
 2. LONGITUDINAL CHANNEL SLOPE NOT TO EXCEED 0.02 FT/FT.

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JOCKO VALLEY

MONTANA

K12-14P - STA 126+00 TO 132+00 - PHASE 2

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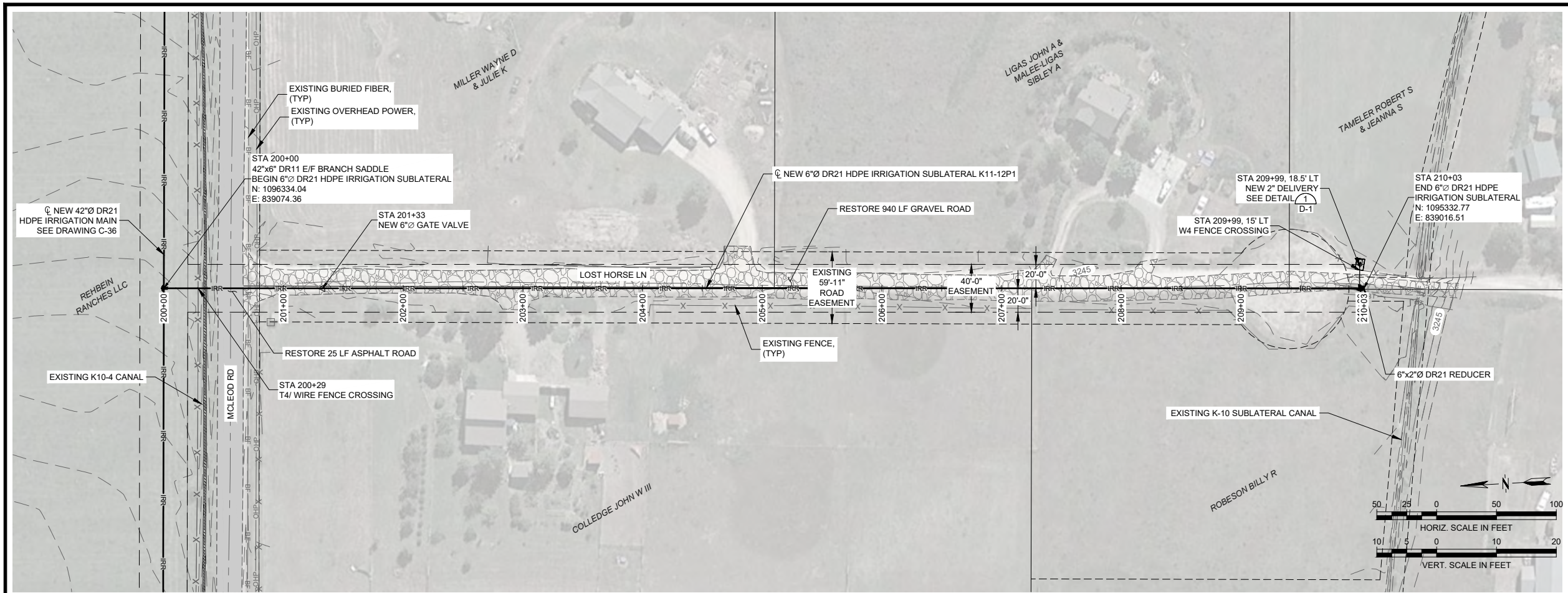
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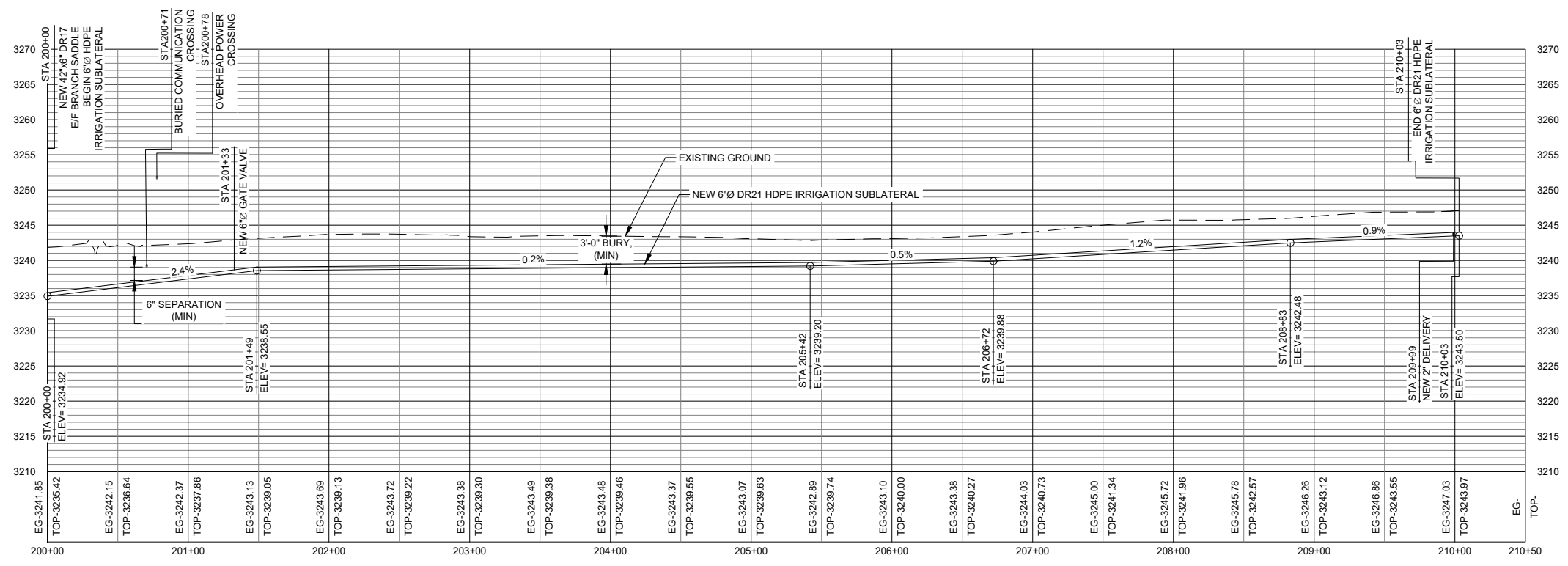
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Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway	Permanent	Backfill	10	1
	Waterway	Permanent	Bedding	10	1
	Waterway	Permanent	42" Pipe		1



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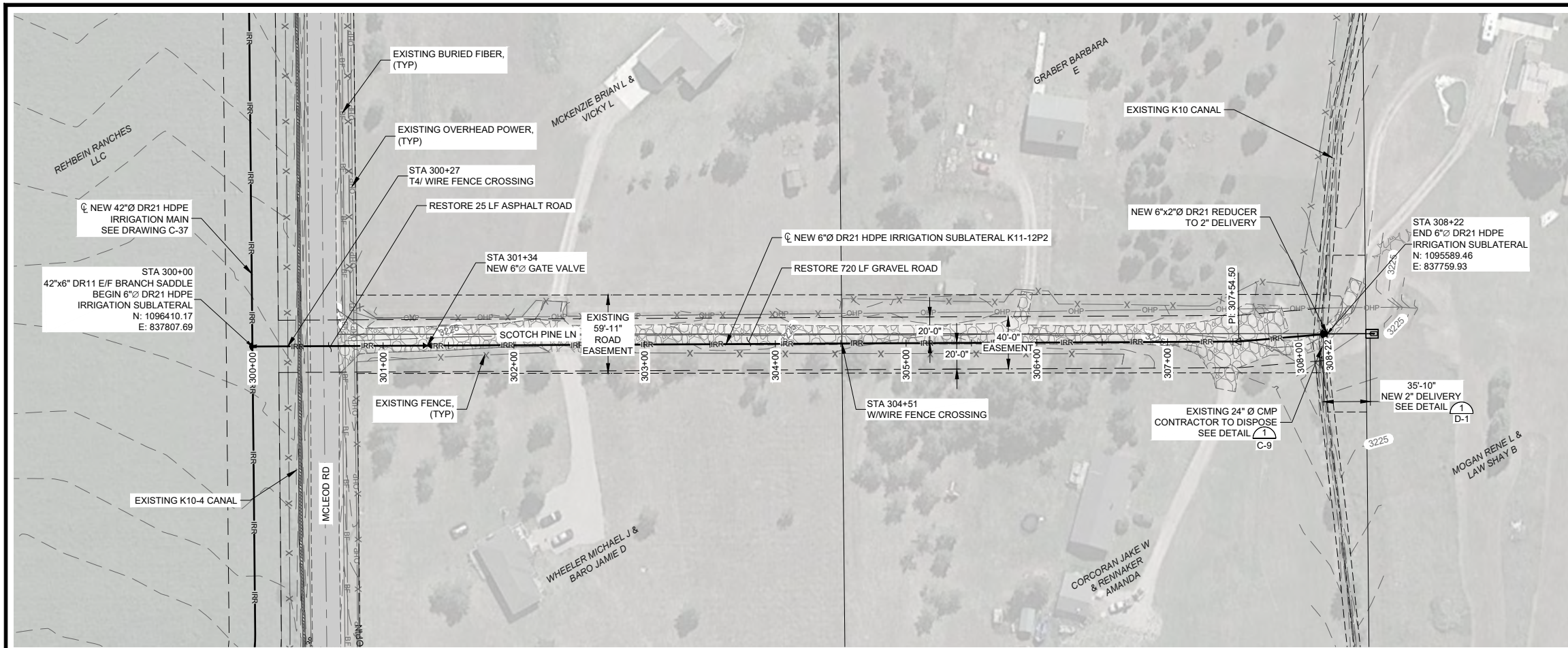
K11-12P1 - STA 200+00 TO 210+50 - PHASE 2

PROJECT NUMBER
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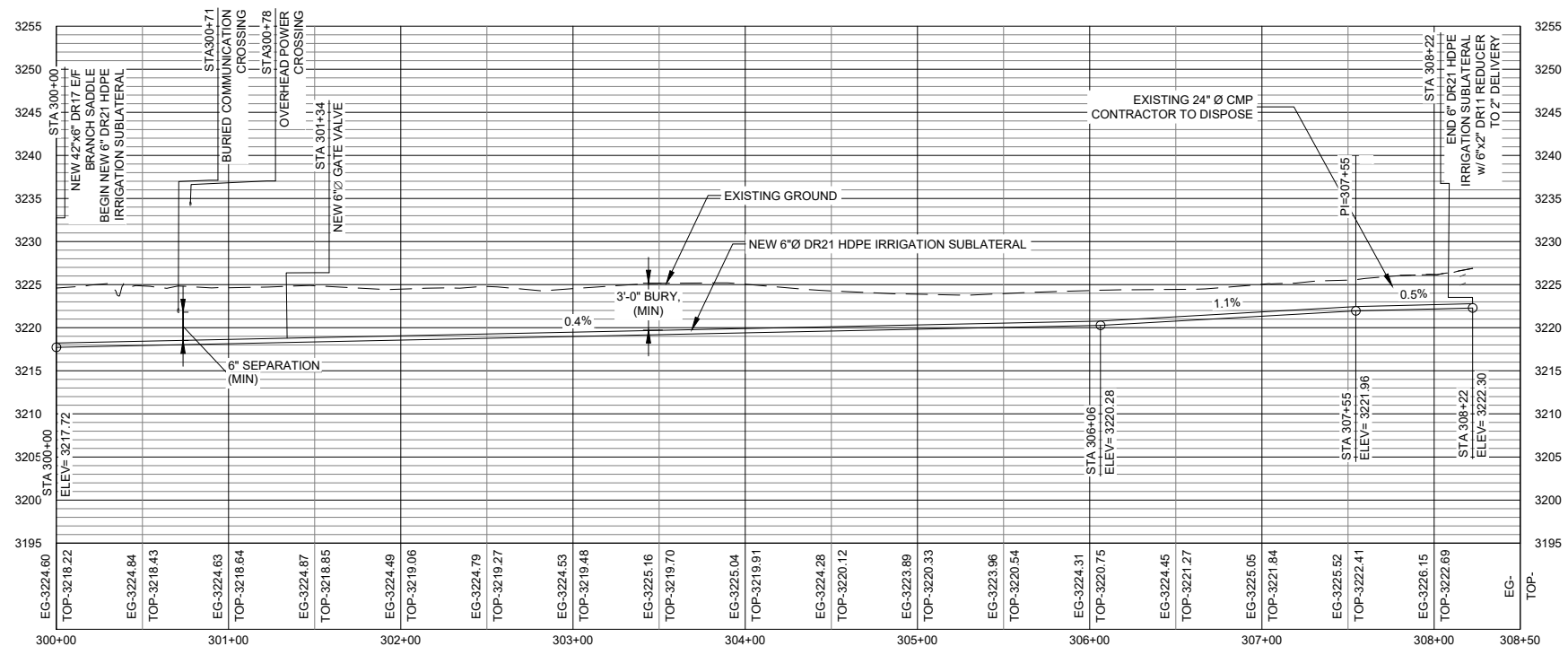
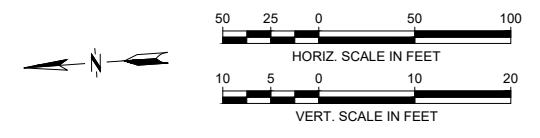
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Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K10 & K10-4 Canals)	Permanent	Backfill	10	1
	Waterway (K10 & K10-4 Canals)	Permanent	Bedding	10	0
	Waterway (K10 & K10-4 Canals)	Permanent	4" Pipe		.01



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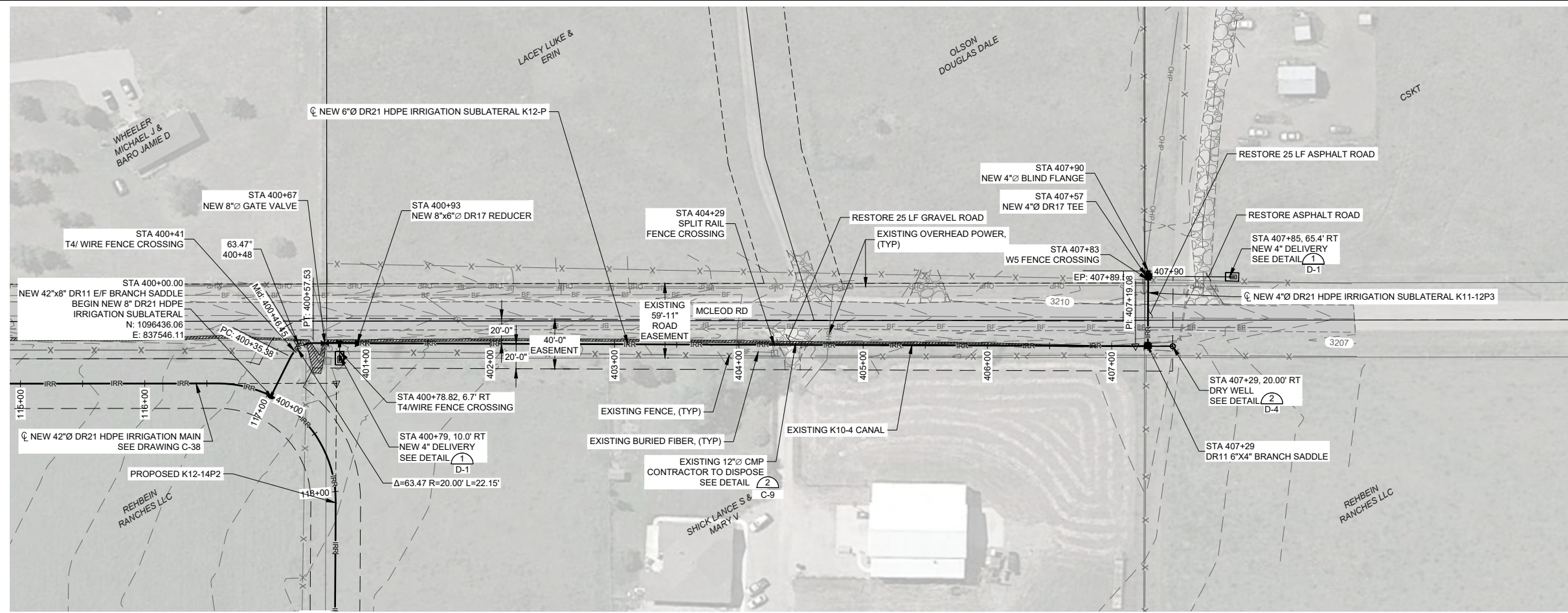
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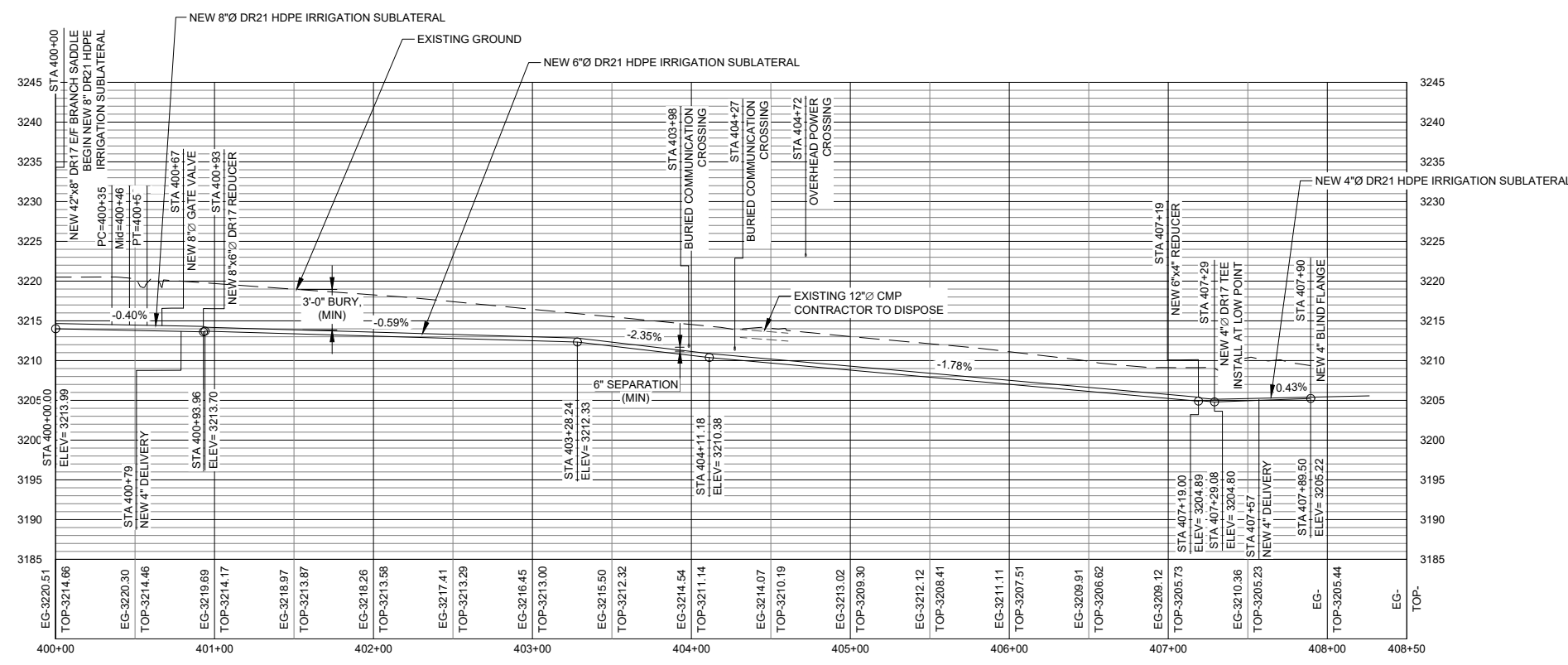
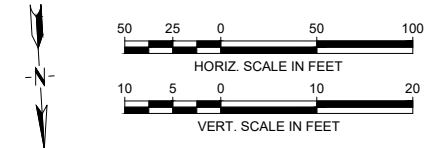
K11-12P2 - STA 300+00 TO 308+50 - PHASE 2

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Legend	Impact	Category	Description	Area (SF)	Volume (CY)
	Waterway (K10-4 Canal)	Permanent	Backfill	1277	118
	Waterway (K10-4 Canal)	Permanent	Bedding	1277	60
	Waterway (K10-4 Canal)	Permanent	6" Pipe		6



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K12P - STA 400+00 TO 407+90 - PHASE 2

PROJECT NUMBER
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SHEET NUMBER
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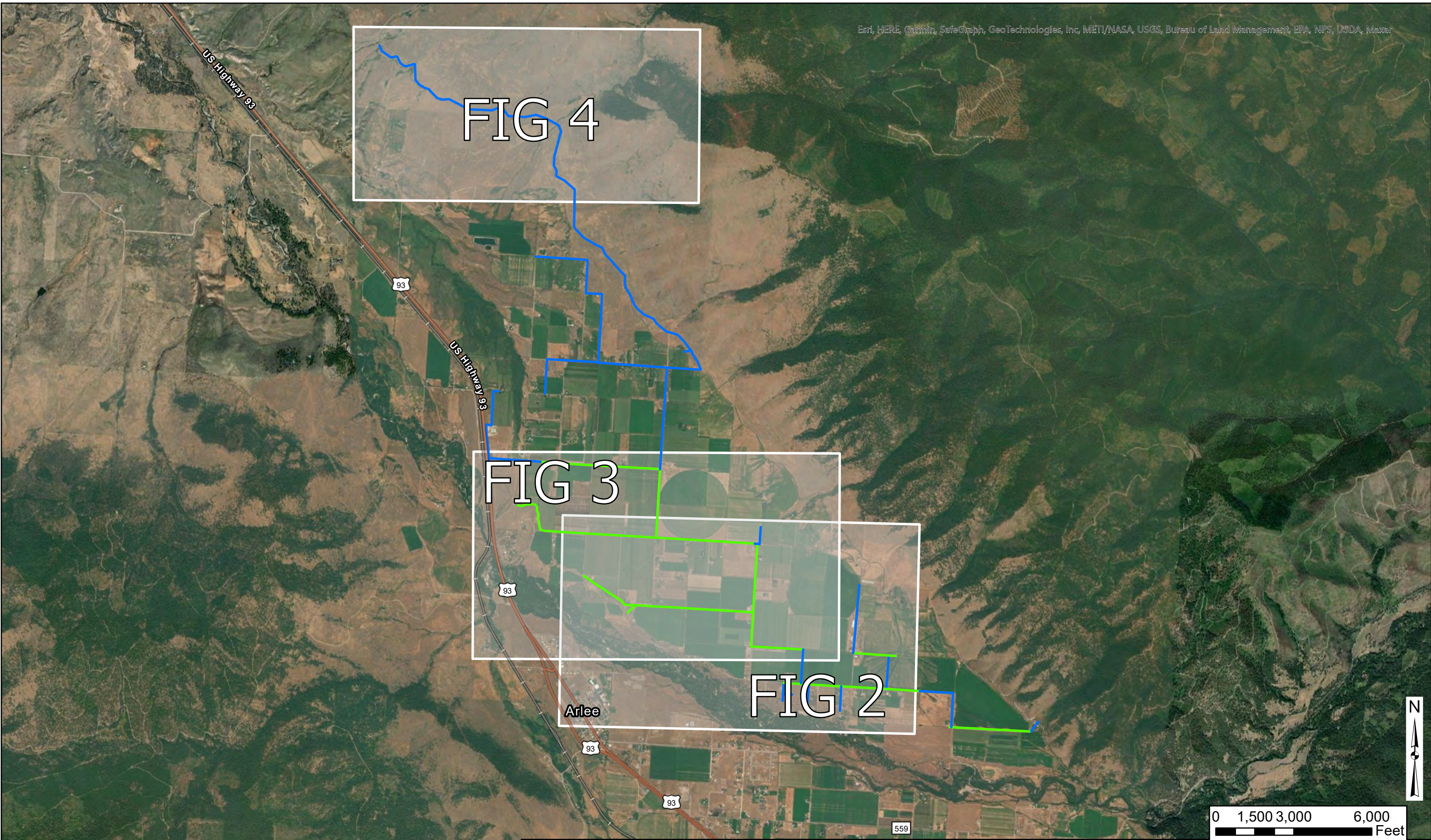
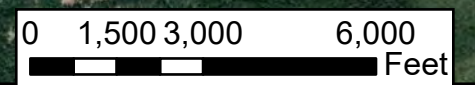


FIG 4

FIG 3

FIG 2

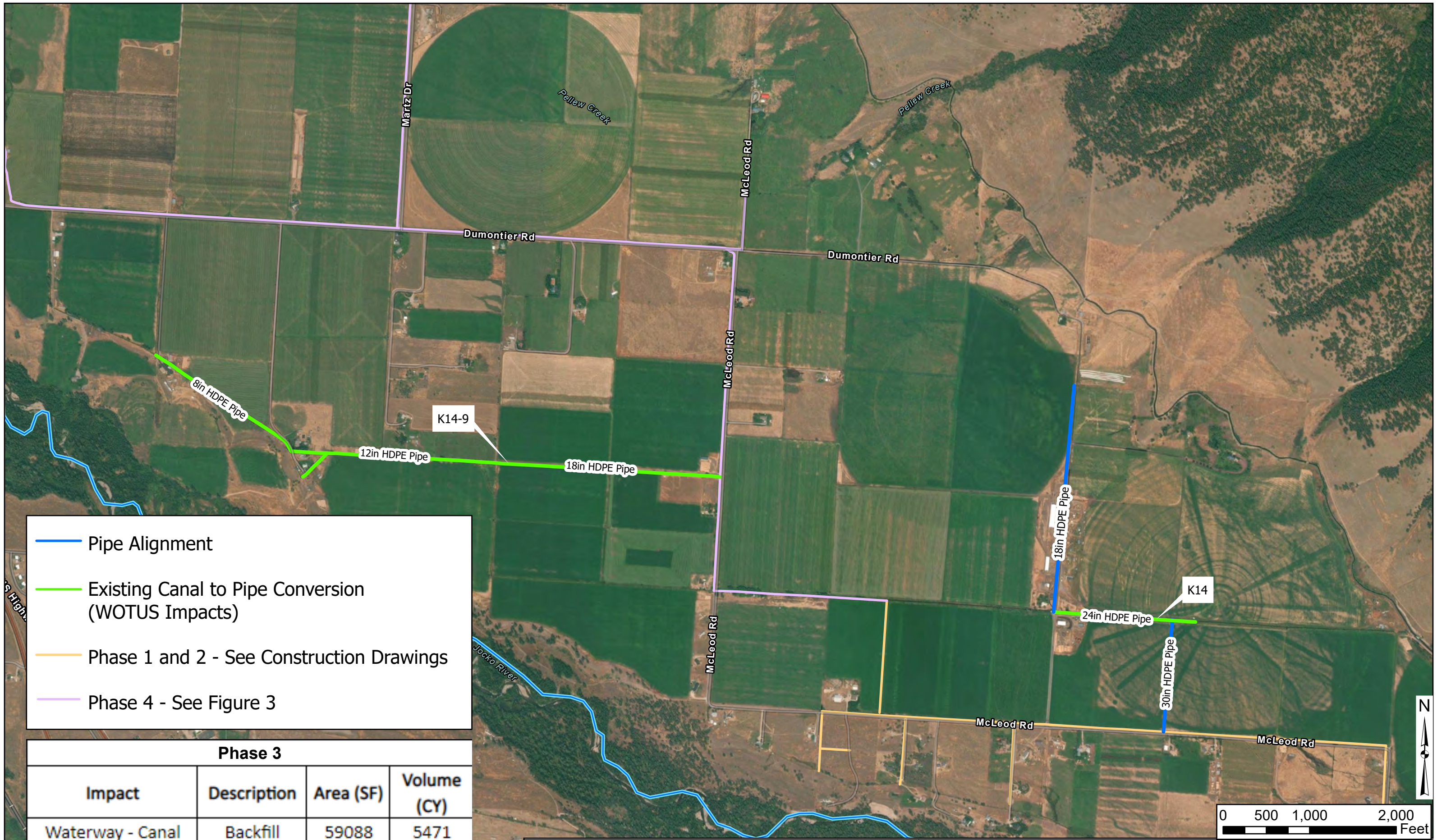
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ARLEE	USACE WOTUS IMPACTS EXHIBITS INDEX	PROJECT NO. 0859.01500
	CSKT Jocko Canals Conversion	FIGURE NO. FIG. 1



— Pipe Alignment
— Existing Canal to Pipe Conversion (WOTUS Impacts)
— Phase 1 and 2 - See Construction Drawings
— Phase 4 - See Figure 3

Phase 3			
Impact	Description	Area (SF)	Volume (CY)
Waterway - Canal	Backfill	59088	5471
Waterway - Canal	Bedding	59088	4575
Waterway - Canal	Pipe		492



- Pipe Alignment
- Existing Canal to Pipe Conversion (WOTUS Impacts)
- Phase 1 and 2 - See Construction Drawings
- Phase 3 - See Figure 2

Phase 4			
Impact	Description	Area (SF)	Volume (CY)
Waterway - Canal	Backfill	122318	11326
Waterway - Canal	Bedding	122318	11293
Waterway - Canal	Pipe		3123



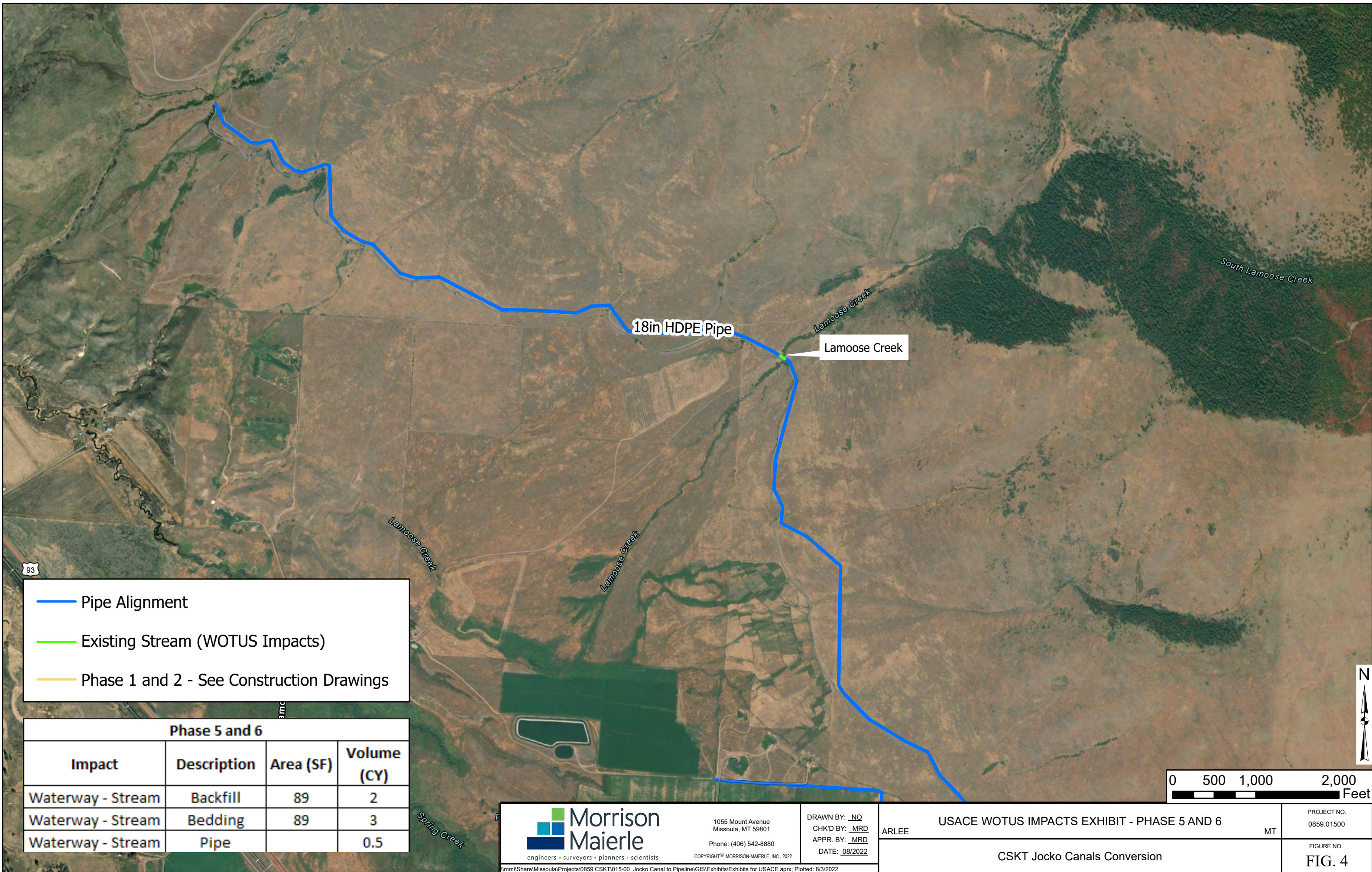
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CSKT Jocko Canals Conversion			FIGURE NO. FIG. 3

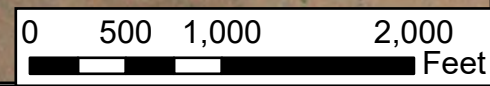
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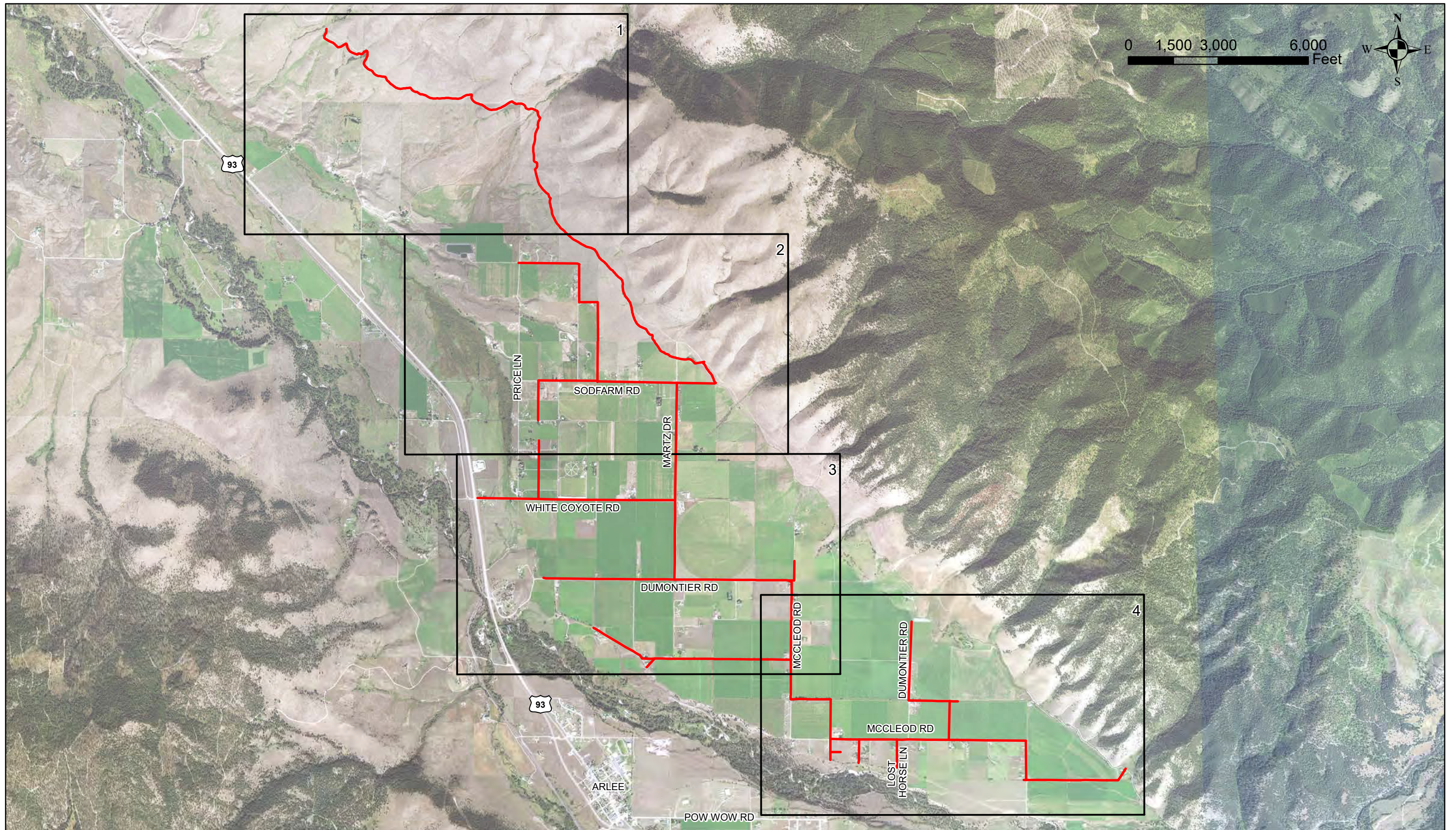
- Pipe Alignment
- Existing Stream (WOTUS Impacts)
- Phase 1 and 2 - See Construction Drawings

Phase 5 and 6			
Impact	Description	Area (SF)	Volume (CY)
Waterway - Stream	Backfill	89	2
Waterway - Stream	Bedding	89	3
Waterway - Stream	Pipe		0.5



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			CSKT Jocko Canals Conversion	

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Legend

— Jocko Conversion Routes □ Index Map



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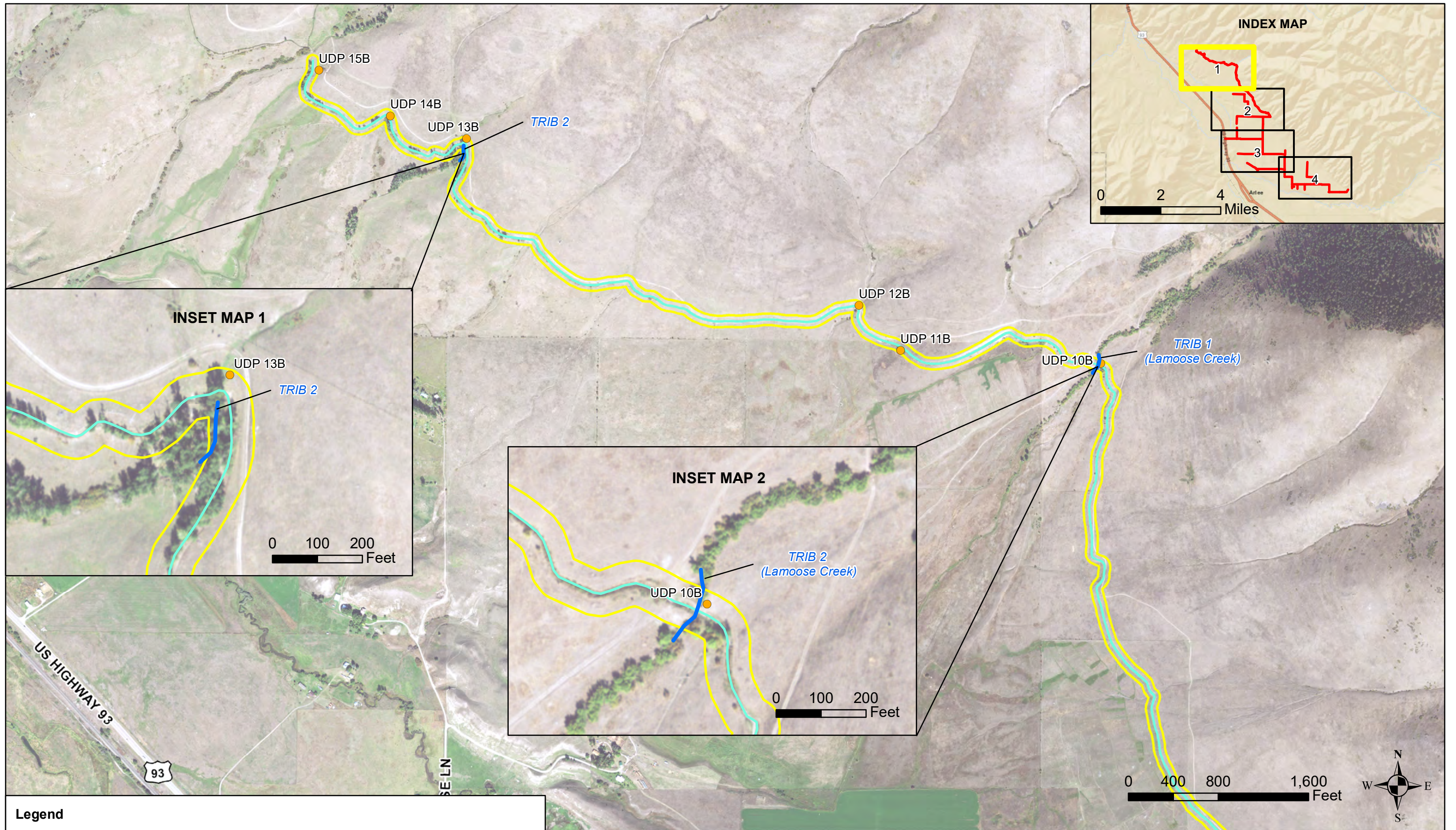
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NAIP 2019 AERIAL MAP

PROJECT NO.
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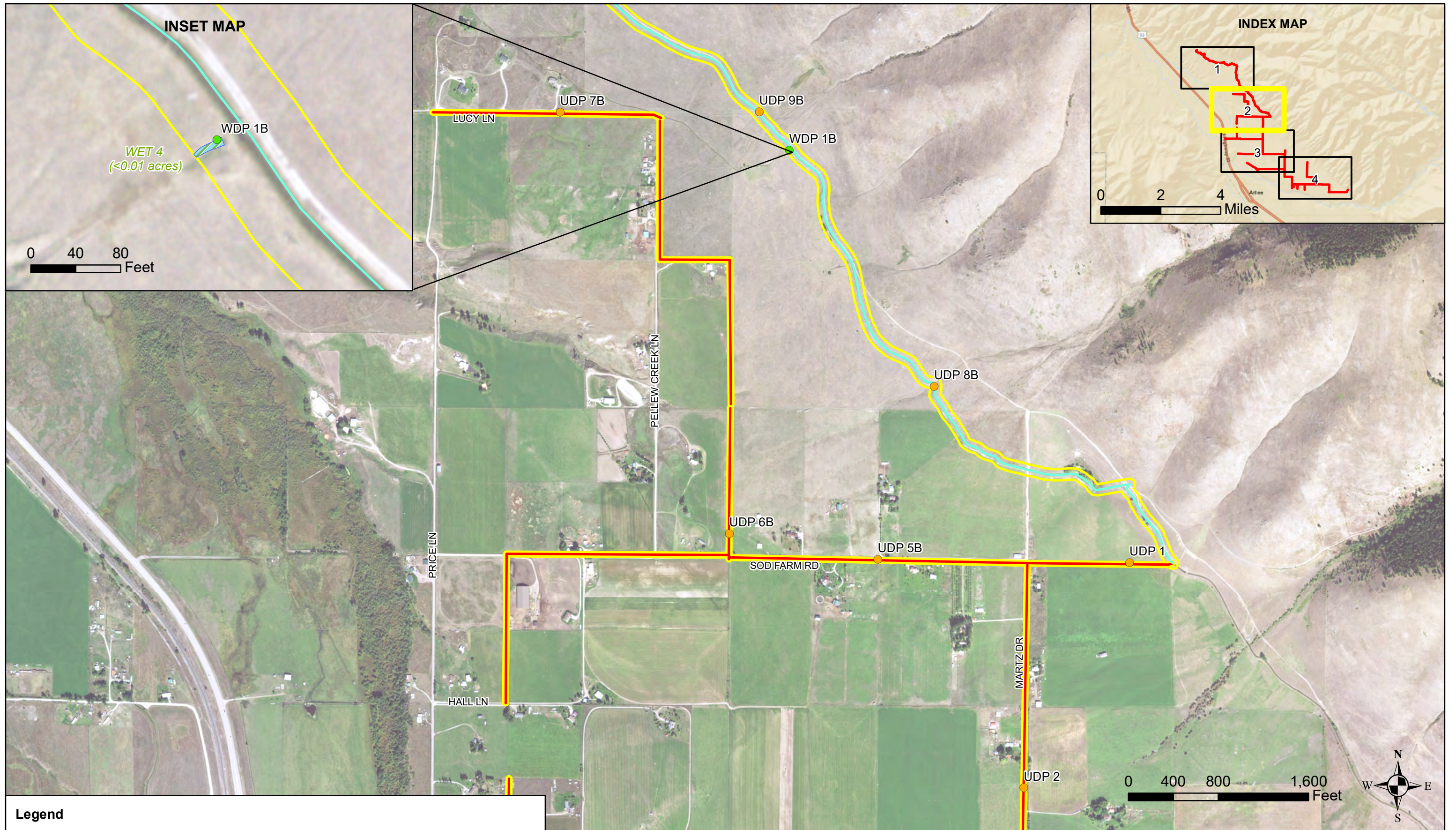
Figure 2



Legend			
	Jocko Conversion Routes		Existing Irrigation Canal
	Investigation Area		Wetlands
	Stream		Upland Data Point
			Wetland Data Point

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		<p>CSKT JOCKO AREA CANAL CONVERSION PROJECT</p>		<p>Figure 6.1</p>

M:\0859 CSKT\015-00_Jocko Canal to Pipeline\GIS\Wetland Delineation\Figure 6.1_WD Map.mxd



Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Stream
- Investigation Area
- Wetlands
- Upland Data Point
- Wetland Data Point

**Morrison
Maierle**
engineers • surveyors • planners • scientists

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DRAWN BY: BNC
CHK'D BY: CAP
APPR. BY: CAP
DATE: 10/4/21

WETLAND DELINEATION MAP

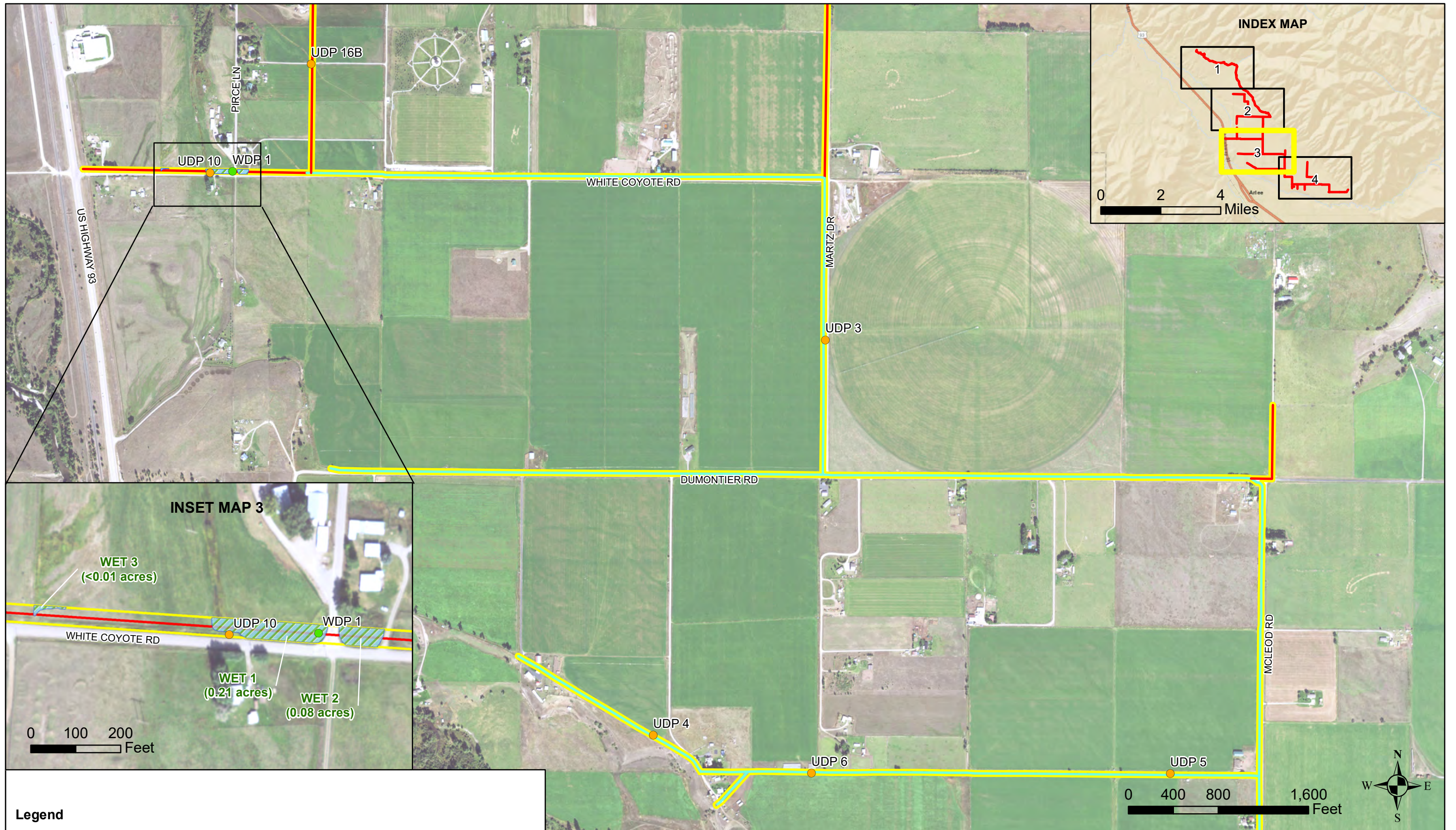
CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.2

M:\0859 CSKT\015-00_Jocko Canal to Pipeline\GIS\Wetland Delineation\Figure 6.2_WD Map.mxd

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Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Wetlands
- Stream
- Upland Data Point
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WETLAND DELINEATION MAP

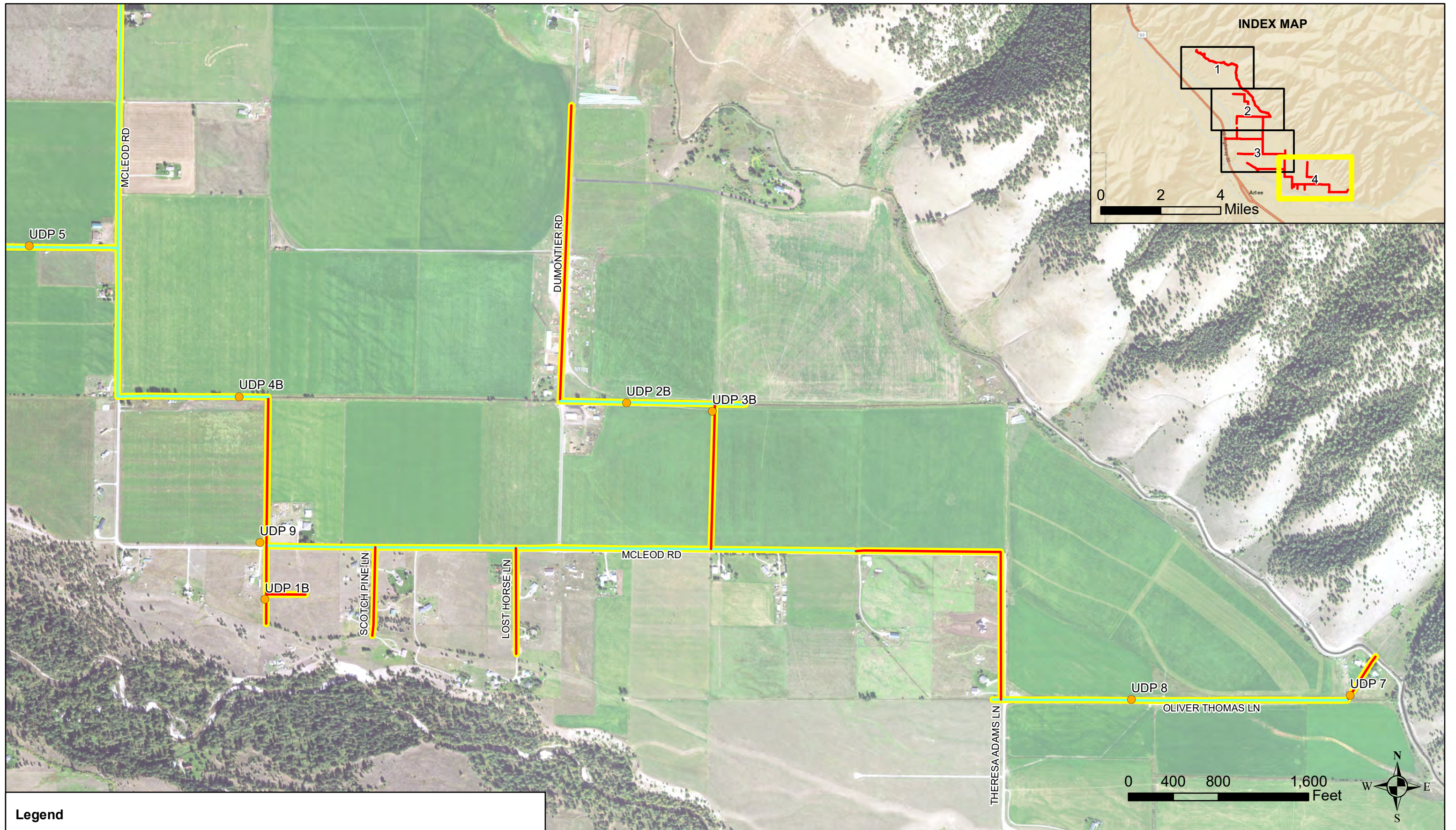
CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.3

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Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Stream
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- Wetlands
- Upland Data Point
- Wetland Data Point



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DATE: 10/4/21

WETLAND DELINEATION MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.4

Appendix B

Supporting Documentation

- NRCS Soils Reports
- Wetland Delineation Report (including USFWS NWI Maps)
- MTNHP Environmental Summary
- USFWS IPaC Report
- MTNHP Bald Eagle – Species Occurrence Report
- NRCS Farmland Classification



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Lake County Area, Montana

Jocko Area



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
Soil Map	6
Soil Map.....	7
Legend.....	8
Map Unit Legend.....	9
Map Unit Descriptions.....	10
Lake County Area, Montana.....	13
6—Belton silt loam, 8 to 15 percent slopes.....	13
9—Belton-Kerl silt loams, 4 to 8 percent slopes.....	14
15—Bigarm-Hogsby-Rock outcrop complex, 30 to 60 percent slopes.....	16
17—Bohnly silt loam, 0 to 2 percent slopes.....	18
19—Borohemists, 0 to 1 percent slopes.....	20
22—Colake silt loam, 0 to 1 percent slopes.....	20
23—Colake silt loam, drained, 0 to 1 percent slopes.....	22
39—Dryfork silt loam, 0 to 4 percent slopes.....	23
50—Finleypoint cobbly loam, 2 to 8 percent slopes.....	25
57—Flott gravelly loam, 2 to 8 percent slopes.....	26
60—Flott gravelly loam, 30 to 60 percent slopes.....	28
61—Flott very gravelly loam, dry, 30 to 60 percent slopes.....	29
63—Gird silt loam, 0 to 2 percent slopes.....	30
67—Gird-Vincom silt loams, 8 to 15 percent slopes.....	32
72—Hogsby-Rock outcrop complex, 15 to 45 percent slopes.....	34
81—Jocko gravelly loam, 0 to 4 percent slopes.....	35
82—Jocko gravelly loam, 4 to 15 percent slopes.....	37
84—Kerl loam, 2 to 4 percent slopes.....	38
93—Lamoose loam, 0 to 2 percent slopes.....	40
101—McCollum fine sandy loam, 0 to 2 percent slopes.....	41
102—McCollum fine sandy loam, 2 to 4 percent slopes.....	42
104—McCollum fine sandy loam, gravelly substratum, 0 to 2 percent slopes.....	43
122—Niarada gravelly loam, 8 to 15 percent slopes.....	45
123—Niarada gravelly loam, cool, 15 to 30 percent slopes.....	46
124—Niarada gravelly loam, cool, 30 to 60 percent slopes.....	48
125—Niarada-Kerl complex, 8 to 15 percent slopes.....	49
126—Ninepipe silt loam, 0 to 2 percent slopes.....	51
155—Sacheen loamy fine sand, 0 to 8 percent slopes.....	52
160—Selow silty clay loam, 0 to 2 percent slopes.....	54
165—Truscreek silt loam, 0 to 2 percent slopes.....	55
170—Vincom silt loam, 15 to 60 percent slopes.....	56
174—Walstead gravelly loam, 0 to 2 percent slopes.....	58
175—Walstead gravelly loam, 2 to 4 percent slopes.....	60
176—Walstead gravelly loam, 4 to 15 percent slopes.....	61
188—Xerofluvents, 0 to 2 percent slopes.....	62
192—Yellowbay very gravelly loam, 15 to 30 percent slopes.....	63

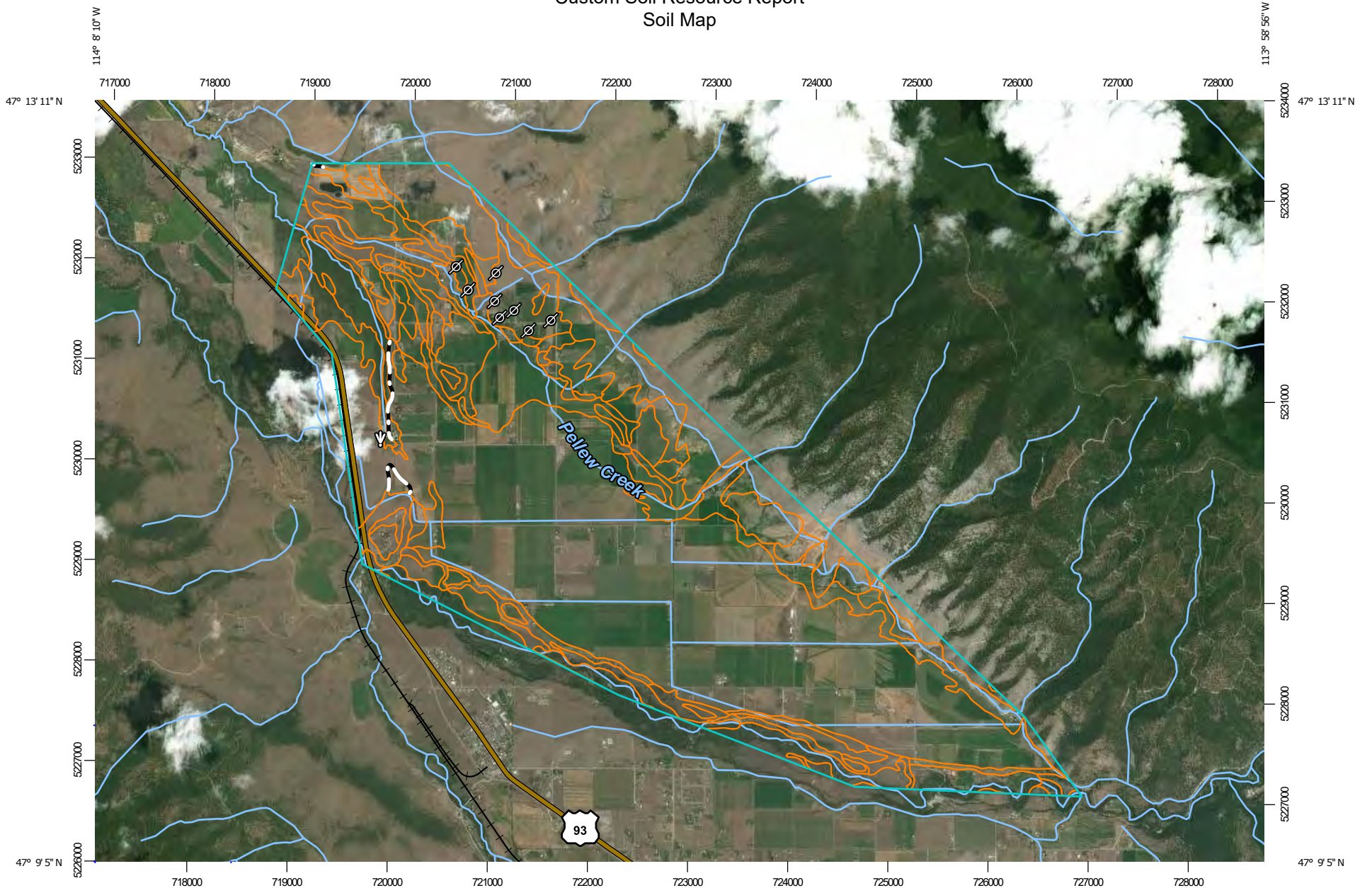
Custom Soil Resource Report

References.....65

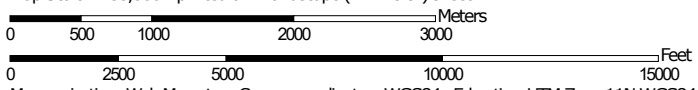
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:53,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N 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 1:20,000.

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: Lake County Area, Montana
 Survey Area Data: Version 22, Jun 4, 2020

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

Date(s) aerial images were photographed: Aug 30, 2012—Nov 2, 2016

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
6	Belton silt loam, 8 to 15 percent slopes	146.8	2.7%
9	Belton-Kerl silt loams, 4 to 8 percent slopes	52.1	1.0%
15	Bigarm-Hogsby-Rock outcrop complex, 30 to 60 percent slopes	48.0	0.9%
17	Bohnly silt loam, 0 to 2 percent slopes	23.9	0.4%
19	Borohemists, 0 to 1 percent slopes	81.2	1.5%
22	Colake silt loam, 0 to 1 percent slopes	3.4	0.1%
23	Colake silt loam, drained, 0 to 1 percent slopes	24.1	0.4%
39	Dryfork silt loam, 0 to 4 percent slopes	70.2	1.3%
50	Finleypoint cobbly loam, 2 to 8 percent slopes	10.1	0.2%
57	Flott gravelly loam, 2 to 8 percent slopes	3.2	0.1%
60	Flott gravelly loam, 30 to 60 percent slopes	0.1	0.0%
61	Flott very gravelly loam, dry, 30 to 60 percent slopes	0.6	0.0%
63	Gird silt loam, 0 to 2 percent slopes	11.6	0.2%
67	Gird-Vincom silt loams, 8 to 15 percent slopes	93.3	1.7%
72	Hogsby-Rock outcrop complex, 15 to 45 percent slopes	4.9	0.1%
81	Jocko gravelly loam, 0 to 4 percent slopes	2,899.5	53.5%
82	Jocko gravelly loam, 4 to 15 percent slopes	254.5	4.7%
84	Kerl loam, 2 to 4 percent slopes	16.5	0.3%
93	Lamoose loam, 0 to 2 percent slopes	158.3	2.9%
101	McCollum fine sandy loam, 0 to 2 percent slopes	59.0	1.1%
102	McCollum fine sandy loam, 2 to 4 percent slopes	29.1	0.5%
104	McCollum fine sandy loam, gravelly substratum, 0 to 2 percent slopes	116.0	2.1%

Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
122	Niarada gravelly loam, 8 to 15 percent slopes	18.4	0.3%
123	Niarada gravelly loam, cool, 15 to 30 percent slopes	411.1	7.6%
124	Niarada gravelly loam, cool, 30 to 60 percent slopes	145.9	2.7%
125	Niarada-Kerl complex, 8 to 15 percent slopes	125.0	2.3%
126	Ninepipe silt loam, 0 to 2 percent slopes	351.9	6.5%
155	Sacheen loamy fine sand, 0 to 8 percent slopes	3.1	0.1%
160	Selow silty clay loam, 0 to 2 percent slopes	26.8	0.5%
165	Truscreek silt loam, 0 to 2 percent slopes	16.3	0.3%
170	Vincom silt loam, 15 to 60 percent slopes	76.9	1.4%
174	Walstead gravelly loam, 0 to 2 percent slopes	26.0	0.5%
175	Walstead gravelly loam, 2 to 4 percent slopes	81.9	1.5%
176	Walstead gravelly loam, 4 to 15 percent slopes	17.9	0.3%
188	Xerofluvents, 0 to 2 percent slopes	6.8	0.1%
192	Yellowbay very gravelly loam, 15 to 30 percent slopes	7.1	0.1%
Totals for Area of Interest		5,421.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

Custom Soil Resource Report

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lake County Area, Montana

6—Belton silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4w4k
Elevation: 2,500 to 3,600 feet
Mean annual precipitation: 10 to 22 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Belton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Belton

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

Typical profile

Ap - 0 to 8 inches: silt loam
Bt/E - 8 to 10 inches: silty clay loam
Btn - 10 to 19 inches: silty clay
Bkn - 19 to 29 inches: silty clay
C - 29 to 60 inches: silty clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 40.0
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Kerl

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

Post

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

Round butte

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW124MT - Clayey (Cy) 10-14" p.z.
Hydric soil rating: No

9—Belton-Kerl silt loams, 4 to 8 percent slopes

Map Unit Setting

National map unit symbol: 4w85
Elevation: 2,500 to 4,900 feet
Mean annual precipitation: 10 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Belton and similar soils: 45 percent
Kerl and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Belton

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

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Typical profile

Ap - 0 to 9 inches: silt loam
Btn - 9 to 13 inches: silty clay
Bkn - 13 to 29 inches: silty clay
C - 29 to 60 inches: silty clay loam

Properties and qualities

Slope: 4 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 40.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Description of Kerl

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

Typical profile

A - 0 to 7 inches: silt loam
Bw - 7 to 20 inches: gravelly loam
Bk - 20 to 60 inches: gravelly loam

Properties and qualities

Slope: 4 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

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Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Ninepipe

Percent of map unit: 5 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Polson

Percent of map unit: 5 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Round butte, moist

Percent of map unit: 3 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW124MT - Clayey (Cy) 10-14" p.z.
Hydric soil rating: No

Niarada

Percent of map unit: 2 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

15—Bigarm-Hogsby-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 575l
Elevation: 2,620 to 5,490 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 70 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Bigarm and similar soils: 40 percent
Hogsby and similar soils: 25 percent
Rock outcrop: 20 percent
Minor components: 15 percent

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Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bigarm

Setting

Landform: Hills

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Colluvium derived from argillite and/or quartzite

Typical profile

A1 - 0 to 5 inches: cobbly loam

A2 - 5 to 17 inches: very cobbly loam

Bw - 17 to 38 inches: very cobbly sandy loam

C - 38 to 60 inches: very cobbly loamy sand

Properties and qualities

Slope: 30 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.71 to 2.13 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: R043AA038MT - Droughty Steep (Drstp) LRU 43A-A,

R043AP810MT - UPLAND GRASSLAND 43A LRU P

Hydric soil rating: No

Description of Hogsby

Setting

Landform: Hills

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Colluvium over residuum weathered from argillite and/or quartzite

Typical profile

A - 0 to 9 inches: cobbly loam

Bw - 9 to 12 inches: very cobbly loam

C - 12 to 17 inches: extremely channery loam

R - 17 to 60 inches: bedrock

Properties and qualities

Slope: 30 to 60 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high
(0.01 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Custom Soil Resource Report

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R043AA138MT - Shallow Droughty (Swdr) LRU 43A-A,
R043AP805MT - SHALLOW GRASSLAND 43A LRU P
Hydric soil rating: No

Description of Rock Outcrop

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Finleypoint

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Douglas-fir/ninebark-ninebark phase (PK261),
Douglas-fir/snowberry-pinegrass phase (PK312)
Hydric soil rating: No

Bigarm, greater slopes

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R043AA038MT - Droughty Steep (Drstp) LRU 43A-A
Hydric soil rating: No

Rubble land

Percent of map unit: 5 percent
Hydric soil rating: Unranked

17—Bohnly silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vys
Elevation: 2,500 to 3,800 feet
Mean annual precipitation: 14 to 30 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 130 days

Custom Soil Resource Report

Farmland classification: Not prime farmland

Map Unit Composition

Bohnly and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bohnly

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Silty alluvium

Typical profile

A - 0 to 8 inches: silt loam

Bw - 8 to 36 inches: silt loam

Cg1 - 36 to 46 inches: silt loam

Cg2 - 46 to 60 inches: stratified silt loam to fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 6 to 24 inches

Frequency of flooding: OccasionalNone

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): 5w

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D

Ecological site: R044AP801MT - BOTTOMLAND 44A LRU P

Hydric soil rating: Yes

Minor Components

Colake

Percent of map unit: 8 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R044XW188MT - Wet Meadow (WM) 15-19" p.z.

Hydric soil rating: No

Borohemists and similar soils

Percent of map unit: 2 percent

Landform: Channels

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R043XW154MT - Wet Meadow (WM) 20"+ p.z.

Hydric soil rating: Yes

19—Borochemists, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 4vzt
Elevation: 2,670 to 5,000 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Borochemists and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Borochemists

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Depth to water table: About 0 to 12 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R044AP801MT - BOTTOMLAND 44A LRU P
Hydric soil rating: Yes

Minor Components

Somewhat poorly drained soils

Percent of map unit: 10 percent
Hydric soil rating: No

22—Colake silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 4w06

Custom Soil Resource Report

Elevation: 2,500 to 3,600 feet
Mean annual precipitation: 12 to 19 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Colake and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colake

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous alluvium

Typical profile

A - 0 to 10 inches: silt loam
Bkg - 10 to 19 inches: silt loam
Cg - 19 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R043AP807MT - SUBIRRIGATED GRASSLAND 43A LRU P
Hydric soil rating: Yes

Minor Components

Bohnly

Percent of map unit: 8 percent
Landform: Depressions
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW188MT - Wet Meadow (WM) 15-19" p.z.
Hydric soil rating: Yes

Somewhat poorly drained soils

Percent of map unit: 7 percent
Ecological site: R044XW134MT - Saline Lowland (SL) 10-14" p.z.
Hydric soil rating: No

23—Colake silt loam, drained, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 4w07
Elevation: 2,400 to 3,600 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Colake and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colake

Setting

Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous alluvium

Typical profile

A - 0 to 10 inches: silt loam
Bkg - 10 to 19 inches: silt loam
Cg - 19 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R044AP806MT - SUBIRRIGATED GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Mccollum

Percent of map unit: 5 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Jocko

Percent of map unit: 5 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

Colake, undrained

Percent of map unit: 5 percent
Landform: Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW188MT - Wet Meadow (WM) 15-19" p.z.
Hydric soil rating: Yes

39—Dryfork silt loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 4w1n
Elevation: 2,500 to 3,100 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 105 to 120 days
Farmland classification: Farmland of local importance

Map Unit Composition

Dryfork and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dryfork

Setting

Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Typical profile

A - 0 to 10 inches: silt loam

Custom Soil Resource Report

Bw - 10 to 16 inches: silt loam
Bk - 16 to 31 inches: silt loam
C - 31 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 40.0
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Kerrdam

Percent of map unit: 4 percent
Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW125MT - Silty (Si) 10-14" p.z.
Hydric soil rating: No

Irvine

Percent of map unit: 3 percent
Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Selow

Percent of map unit: 3 percent
Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW124MT - Clayey (Cy) 10-14" p.z.
Hydric soil rating: No

50—Finleypoint cobbly loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 4w3n
Elevation: 2,900 to 5,200 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 70 to 105 days
Farmland classification: Not prime farmland

Map Unit Composition

Finleypoint and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Finleypoint

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

O_i - 0 to 1 inches: mucky peat
A - 1 to 10 inches: cobbly loam
E - 10 to 31 inches: very gravelly loam
E/Bw - 31 to 43 inches: very gravelly loam
C - 43 to 60 inches: very gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F043AP909MT - UPLAND COOL WOODLAND 43A LRU P
Hydric soil rating: No

Minor Components

Finleypoint

Percent of map unit: 5 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F043AP909MT - UPLAND COOL WOODLAND 43A LRU P

Hydric soil rating: No

Wildgen

Percent of map unit: 5 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Poorly drained soils

Percent of map unit: 3 percent

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: Yes

Somewhat poorly drained soils

Percent of map unit: 2 percent

Hydric soil rating: No

57—Flott gravelly loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 4w4g

Elevation: 2,900 to 5,200 feet

Mean annual precipitation: 16 to 25 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 70 to 105 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Flott and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Flott

Setting

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Glacial till

Custom Soil Resource Report

Typical profile

Oi - 0 to 2 inches: mucky peat
A - 2 to 12 inches: gravelly loam
E - 12 to 25 inches: very gravelly loam
E/Bw - 25 to 46 inches: very gravelly loam
Bk - 46 to 60 inches: very gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F044AP903MT - UPLAND COOL WOODLAND 44A LRU P
Hydric soil rating: No

Minor Components

Kingspoint

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Wildgen

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Finleypoint

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

60—Flott gravelly loam, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 4w4l
Elevation: 2,900 to 4,600 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 105 days
Farmland classification: Not prime farmland

Map Unit Composition

Flott and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Flott

Setting

Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

O_i - 0 to 2 inches: mucky peat
A - 2 to 15 inches: gravelly loam
E - 15 to 20 inches: very gravelly loam
E/Bw - 20 to 25 inches: very gravelly loam
Bk - 25 to 60 inches: very gravelly loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043AP911MT - UPLAND WARM WOODLAND 43A LRU P
Hydric soil rating: No

Minor Components

Kingspoint

Percent of map unit: 8 percent
Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

61—Flott very gravelly loam, dry, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 4w4m
Elevation: 2,900 to 4,600 feet
Mean annual precipitation: 18 to 25 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 105 days
Farmland classification: Not prime farmland

Map Unit Composition

Flott and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Flott

Setting

Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

Oi - 0 to 2 inches: mucky peat
A - 2 to 12 inches: very gravelly loam
E - 12 to 20 inches: very gravelly loam
E/Bw - 20 to 25 inches: very gravelly loam
Bk - 25 to 60 inches: very gravelly loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches

Custom Soil Resource Report

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F043AP911MT - UPLAND WARM WOODLAND 43A LRU P
Hydric soil rating: No

Minor Components

Kingspoint

Percent of map unit: 8 percent
Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

63—Gird silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4w4y
Elevation: 2,300 to 4,300 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Gird and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gird

Setting

Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciofluvial deposits

Typical profile

Ap - 0 to 10 inches: silt loam

Custom Soil Resource Report

Bw - 10 to 17 inches: silt loam

Bk - 17 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Mccollum

Percent of map unit: 5 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Polson

Percent of map unit: 5 percent

Landform: Stream terraces, alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Ninepipe

Percent of map unit: 3 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Dubay

Percent of map unit: 2 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

67—Gird-Vincom silt loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4w5d
Elevation: 2,400 to 3,500 feet
Mean annual precipitation: 10 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 130 days
Farmland classification: Farmland of local importance

Map Unit Composition

Gird and similar soils: 50 percent
Vincom and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gird

Setting

Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

Typical profile

Ap - 0 to 7 inches: silt loam
Bw - 7 to 29 inches: silt loam
Bk - 29 to 60 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Description of Vincom

Setting

Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Typical profile

A - 0 to 5 inches: silt loam
Bk - 5 to 22 inches: silt loam
C - 22 to 60 inches: stratified silt loam to silty clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 8 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Selow

Percent of map unit: 3 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW124MT - Clayey (Cy) 10-14" p.z.
Hydric soil rating: No

Truscreek

Percent of map unit: 3 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Kerrdam

Percent of map unit: 2 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW125MT - Silty (Si) 10-14" p.z.

Hydric soil rating: No

Dryfork

Percent of map unit: 2 percent

Landform: Lake plains

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R044XW125MT - Silty (Si) 10-14" p.z.

Hydric soil rating: No

72—Hogsby-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting

National map unit symbol: 4w68

Elevation: 2,600 to 6,000 feet

Mean annual precipitation: 15 to 25 inches

Mean annual air temperature: 41 to 46 degrees F

Frost-free period: 75 to 100 days

Farmland classification: Not prime farmland

Map Unit Composition

Hogsby and similar soils: 60 percent

Rock outcrop: 25 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hogsby

Setting

Landform: Mountains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Colluvium

Typical profile

A1 - 0 to 5 inches: stony loam

A2 - 5 to 18 inches: extremely channery loam

R - 18 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 45 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R043AP805MT - SHALLOW GRASSLAND 43A LRU P
Hydric soil rating: No

Description of Rock Outcrop

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Bigarm

Percent of map unit: 5 percent
Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW185MT - Silty-Cool (SiCool) 15-19" p.z.
Hydric soil rating: No

Finleypoint

Percent of map unit: 5 percent
Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rubble land

Percent of map unit: 5 percent
Hydric soil rating: No

81—Jocko gravelly loam, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 4w70
Elevation: 2,500 to 3,900 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Farmland of local importance

Map Unit Composition

Jocko and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jocko

Setting

Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash

Typical profile

A - 0 to 13 inches: gravelly loam
Bw1 - 13 to 19 inches: very gravelly loam
Bw2 - 19 to 25 inches: very gravelly loamy sand
Bk - 25 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Walstead

Percent of map unit: 5 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Jocko, very gravelly loam

Percent of map unit: 5 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

Lamoose

Percent of map unit: 5 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

82—Jocko gravelly loam, 4 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4w71
Elevation: 2,400 to 3,600 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Farmland of local importance

Map Unit Composition

Jocko and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Jocko

Setting

Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash

Typical profile

A - 0 to 7 inches: gravelly loam
Bw1 - 7 to 16 inches: very gravelly loam
Bw2 - 16 to 22 inches: very gravelly loamy sand
Bk - 22 to 60 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Kerl

Percent of map unit: 6 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

Mccollum

Percent of map unit: 6 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Jocko, stony loam

Percent of map unit: 3 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

84—Kerl loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 4w7d
Elevation: 2,400 to 4,900 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Kerl and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kerl

Setting

Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciofluvial deposits

Typical profile

A - 0 to 7 inches: loam

Custom Soil Resource Report

Bw - 7 to 20 inches: gravelly loam

Bk - 20 to 60 inches: gravelly loam

Properties and qualities

Slope: 2 to 4 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Gird

Percent of map unit: 4 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Belton

Percent of map unit: 4 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Polson

Percent of map unit: 4 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Niarada

Percent of map unit: 3 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.

Hydric soil rating: No

93—Lamoose loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4w8f
Elevation: 2,500 to 3,500 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Lamoose and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoose

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 7 inches: loam
Bg - 7 to 19 inches: gravelly loam
2C - 19 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: R044AP801MT - BOTTOMLAND 44A LRU P
Hydric soil rating: Yes

Minor Components

Areas that frequently flood

Percent of map unit: 5 percent
Hydric soil rating: No

Jocko

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

Areas that rarely flood

Percent of map unit: 5 percent
Hydric soil rating: No

101—McCollum fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vww
Elevation: 2,300 to 3,400 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Mccollum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mccollum

Setting

Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 29 inches: fine sandy loam
Bw2 - 29 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Custom Soil Resource Report

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Selon

Percent of map unit: 10 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

102—McCollum fine sandy loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 4vvx

Elevation: 1,300 to 4,600 feet

Mean annual precipitation: 14 to 20 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 105 to 130 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Mccollum and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mccollum

Setting

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

Ap - 0 to 7 inches: fine sandy loam

Bw1 - 7 to 29 inches: fine sandy loam

Bw2 - 29 to 60 inches: fine sandy loam

Custom Soil Resource Report

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Gird

Percent of map unit: 10 percent
Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sacheen

Percent of map unit: 5 percent
Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

104—McCollum fine sandy loam, gravelly substratum, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vvz
Elevation: 1,300 to 4,600 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Mccollum and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mccollum

Setting

Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 29 inches: fine sandy loam
Bw2 - 29 to 42 inches: fine sandy loam
2C - 42 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Jocko

Percent of map unit: 10 percent
Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

Sacheen

Percent of map unit: 5 percent
Landform: Stream terraces, alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW183MT - Sandy (Sy) 15-19" p.z.
Hydric soil rating: No

122—Niarada gravelly loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4vwp
Elevation: 2,400 to 4,900 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Farmland of local importance

Map Unit Composition

Niarada and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niarada

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

Ap - 0 to 7 inches: gravelly loam
Bw - 7 to 14 inches: very gravelly loam
Bk - 14 to 60 inches: very gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P
Hydric soil rating: No

Minor Components

Niarada, stony loam

Percent of map unit: 5 percent
Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

Mccollum

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Jocko

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

123—Niarada gravelly loam, cool, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 4vwq
Elevation: 2,500 to 6,000 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Niarada and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niarada

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

Ap - 0 to 7 inches: gravelly loam

Custom Soil Resource Report

A - 7 to 14 inches: very gravelly loam
Bw - 14 to 18 inches: very gravelly loam
Bk - 18 to 60 inches: very gravelly loam

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P
Hydric soil rating: No

Minor Components

Hogsby

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW146MT - Shallow (Sw) 15-19" p.z.
Hydric soil rating: No

Jocko

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW150MT - Shallow to Gravel (SwGr) 15-19" p.z.
Hydric soil rating: No

Niarada, stony loam

Percent of map unit: 3 percent
Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

124—Niarada gravelly loam, cool, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: 4vwr
Elevation: 2,700 to 6,000 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Niarada and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niarada

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

Ap - 0 to 7 inches: gravelly loam
A - 7 to 14 inches: very gravelly loam
Bw - 14 to 18 inches: very gravelly loam
Bk - 18 to 60 inches: very gravelly loam

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P
Hydric soil rating: No

Minor Components

Flott

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hogsby

Percent of map unit: 5 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW146MT - Shallow (Sw) 15-19" p.z.
Hydric soil rating: No

Walstead

Percent of map unit: 3 percent
Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

125—Niarada-Kerl complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4vws
Elevation: 2,600 to 4,900 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Niarada and similar soils: 50 percent
Kerl and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Niarada

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear

Custom Soil Resource Report

Parent material: Glacial till

Typical profile

Ap - 0 to 9 inches: gravelly loam
Bw - 9 to 14 inches: very gravelly loam
Bk - 14 to 60 inches: very gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Description of Kerl

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

A - 0 to 7 inches: silt loam
Bw - 7 to 20 inches: gravelly loam
Bk - 20 to 60 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Ninepipe

Percent of map unit: 4 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Polson

Percent of map unit: 3 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Niarada, stony loam

Percent of map unit: 3 percent

Landform: Stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R044XW184MT - Silty (Si) 15-19" p.z.

Hydric soil rating: No

126—Ninepipe silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vwt

Elevation: 2,500 to 4,300 feet

Mean annual precipitation: 14 to 19 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 100 to 135 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ninepipe and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ninepipe

Setting

Landform: Alluvial fans, stream terraces, drainageways

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Custom Soil Resource Report

Typical profile

Ap - 0 to 10 inches: silt loam
Bw1 - 10 to 28 inches: silt loam
Bw2 - 28 to 41 inches: silty clay loam
C - 41 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 2c
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Belton

Percent of map unit: 10 percent
Landform: Alluvial fans, stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bohnly

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW188MT - Wet Meadow (WM) 15-19" p.z.
Hydric soil rating: Yes

155—Sacheen loamy fine sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 4vy7
Elevation: 1,300 to 4,600 feet
Mean annual precipitation: 14 to 20 inches
Mean annual air temperature: 39 to 45 degrees F

Custom Soil Resource Report

Frost-free period: 105 to 130 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Sacheen and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sacheen

Setting

Landform: Dunes

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Eolian deposits

Typical profile

O_i - 0 to 1 inches: mucky peat

A - 1 to 4 inches: loamy fine sand

C - 4 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(1.42 to 7.09 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 4s

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Mccollum

Percent of map unit: 10 percent

Landform: Dunes

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

160—Selow silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vyf
Elevation: 2,400 to 3,300 feet
Mean annual precipitation: 10 to 18 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Selow and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Selow

Setting

Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

Typical profile

Ap - 0 to 9 inches: silty clay loam
Btn - 9 to 15 inches: silty clay loam
Bkn - 15 to 20 inches: silty clay loam
2C1 - 20 to 28 inches: silt loam
2C2 - 28 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to slightly saline (1.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 40.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: D
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Mccollum

Percent of map unit: 7 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Polson

Percent of map unit: 6 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Selow, gravelly substratum

Percent of map unit: 2 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

165—Truscreek silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vym
Elevation: 2,400 to 3,500 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 105 to 135 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Truscreek and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truscreek

Setting

Landform: Stream terraces, alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciofluvial deposits

Typical profile

Ap1 - 0 to 8 inches: silt loam
Ap2 - 8 to 12 inches: silt loam
Bw - 12 to 24 inches: silt loam

Custom Soil Resource Report

Bk - 24 to 32 inches: silt loam

C - 32 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P

Hydric soil rating: No

Minor Components

Gird

Percent of map unit: 5 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Polson

Percent of map unit: 5 percent

Landform: Alluvial fans, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Belton

Percent of map unit: 5 percent

Landform: Stream terraces, alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

170—Vincom silt loam, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 4vyt

Elevation: 2,000 to 3,300 feet

Custom Soil Resource Report

Mean annual precipitation: 10 to 19 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 100 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Vincom and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vincom

Setting

Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits

Typical profile

A - 0 to 5 inches: silt loam
Bk - 5 to 22 inches: silt loam
C - 22 to 60 inches: stratified silt loam to silty clay loam

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 8 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Truscreek

Percent of map unit: 3 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Polson

Percent of map unit: 3 percent
Landform: Lake plains
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear
Hydric soil rating: No

Lonepine

Percent of map unit: 3 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW125MT - Silty (Si) 10-14" p.z.
Hydric soil rating: No

Vincom, gravelly loam

Percent of map unit: 2 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW125MT - Silty (Si) 10-14" p.z.
Hydric soil rating: No

Badland, lake sediment outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

Irvine

Percent of map unit: 2 percent
Landform: Lake plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW658MT - Thin Clayey (TCy) 10-14" p.z.
Hydric soil rating: No

174—Walstead gravelly loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vyz
Elevation: 2,900 to 5,000 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 125 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Walstead and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walstead

Setting

Landform: Alluvial fans
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 13 inches: gravelly loam

Bw - 13 to 32 inches: very gravelly loam

Bk - 32 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P

Hydric soil rating: No

Minor Components

Mcdonald

Percent of map unit: 4 percent

Landform: Alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Flott

Percent of map unit: 3 percent

Landform: Alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Finleypoint

Percent of map unit: 3 percent

Landform: Mountains

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

175—Walstead gravelly loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 4vz0

Elevation: 2,900 to 5,000 feet

Mean annual precipitation: 16 to 25 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 70 to 125 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Walstead and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walstead

Setting

Landform: Alluvial fans

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

A - 0 to 8 inches: gravelly loam

AB - 8 to 15 inches: gravelly loam

Bw - 15 to 36 inches: very gravelly loam

Bk - 36 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 4 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P

Hydric soil rating: No

Minor Components

Flott

Percent of map unit: 5 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mcdonald

Percent of map unit: 5 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Finleypoint

Percent of map unit: 5 percent
Landform: Mountains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

176—Walstead gravelly loam, 4 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4vz2
Elevation: 2,900 to 5,000 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 125 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Walstead and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walstead

Setting

Landform: Moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glacial till

Typical profile

A - 0 to 8 inches: gravelly loam
AB - 8 to 15 inches: gravelly loam
Bw - 15 to 36 inches: very gravelly loam

Custom Soil Resource Report

Bk - 36 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 4 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 30 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: R043AP810MT - UPLAND GRASSLAND 43A LRU P

Hydric soil rating: No

Minor Components

Flott

Percent of map unit: 5 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Mcdonald

Percent of map unit: 5 percent

Landform: Moraines

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R044XW185MT - Silty-Cool (SiCool) 15-19" p.z.

Hydric soil rating: No

Finleypoint

Percent of map unit: 5 percent

Landform: Mountains

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

188—Xerofluvents, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 4vzq

Elevation: 2,500 to 3,440 feet

Custom Soil Resource Report

Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 105 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Xerofluvents and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xerofluvents

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Ecological site: R044AP801MT - BOTTOMLAND 44A LRU P
Hydric soil rating: No

Minor Components

Poorly drained soils

Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R044XW188MT - Wet Meadow (WM) 15-19" p.z.
Hydric soil rating: Yes

192—Yellowbay very gravelly loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 4vzy
Elevation: 2,400 to 5,200 feet
Mean annual precipitation: 16 to 25 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 70 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Yellowbay and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yellowbay

Setting

Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash

Typical profile

O_i - 0 to 1 inches: mucky peat
A - 1 to 5 inches: very gravelly loam
B_w - 5 to 15 inches: extremely gravelly sandy loam
BC - 15 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (K_{sat}): Moderately high to high
(1.42 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R044AP808MT - UPLAND GRASSLAND 44A LRU P
Hydric soil rating: No

Minor Components

Finleypoint

Percent of map unit: 5 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Wildgen

Percent of map unit: 5 percent
Landform: Outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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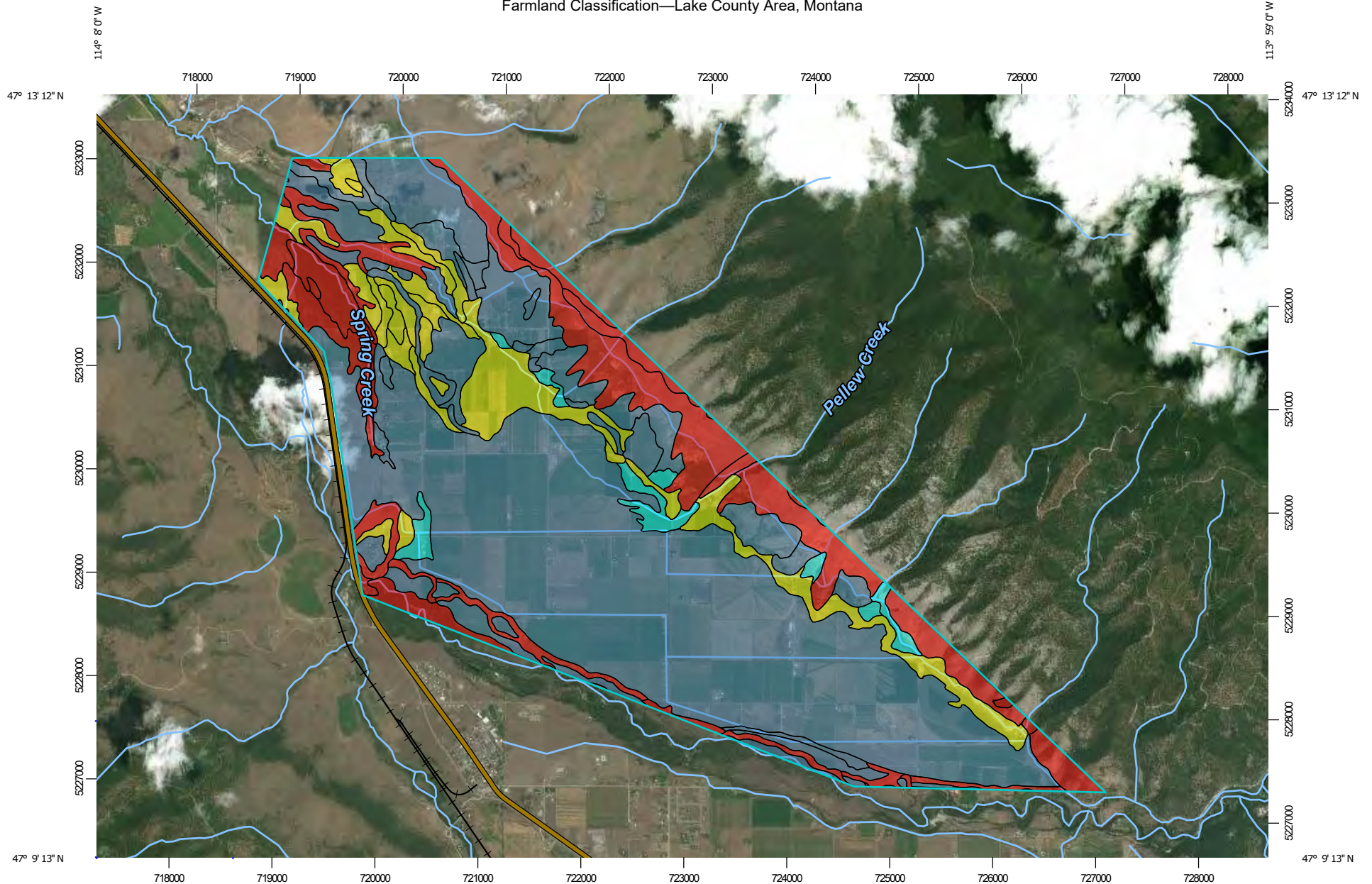
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Farmland Classification—Lake County Area, Montana




Map Scale: 1:52,000 if printed on A landscape (11" x 8.5") sheet.
0 500 1000 2000 3000 Meters
0 2500 5000 10000 15000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84











MAP LEGEND








Area of Interest (AOI)






 Area of Interest (AOI)







Soils



Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season









-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of statewide importance, if drained
-  Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated

-  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated and drained
-  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
-  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60




































-  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough
-  Farmland of local importance
-  Farmland of local importance, if irrigated

-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Farmland Classification—Lake County Area, Montana

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	Soil Rating Points			Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Prime farmland if drained		Farmland of statewide importance
	Farmland of statewide importance, if drained		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated				Farmland of local importance		Prime farmland if irrigated and drained		Farmland of statewide importance, if irrigated
					Farmland of local importance, if irrigated		Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		

Farmland Classification—Lake County Area, Montana

<p> Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if irrigated and drained</p> <p> Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer</p> <p> Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60</p>	<p> Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium</p> <p> Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough</p> <p> Farmland of statewide importance, if thawed</p> <p> Farmland of local importance</p> <p> Farmland of local importance, if irrigated</p>	<p> Farmland of unique importance</p> <p> Not rated or not available</p> <p>Water Features</p> <p> Streams and Canals</p> <p>Transportation</p> <p> Rails</p> <p> Interstate Highways</p> <p> US Routes</p> <p> Major Roads</p> <p> Local Roads</p> <p>Background</p> <p> Aerial Photography</p>	<p>The soil surveys that comprise your AOI were mapped at 1:20,000.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>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.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Lake County Area, Montana Survey Area Data: Version 23, Sep 2, 2021</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Aug 30, 2012—Nov 2, 2016</p> <p>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.</p>
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Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6	Belton silt loam, 8 to 15 percent slopes	Farmland of local importance	156.4	2.9%
9	Belton-Kerl silt loams, 4 to 8 percent slopes	Farmland of local importance	54.0	1.0%
15	Bigarm-Hogsby-Rock outcrop complex, 30 to 60 percent slopes	Not prime farmland	43.7	0.8%
17	Bohnly silt loam, 0 to 2 percent slopes	Not prime farmland	36.1	0.7%
19	Borochemists, 0 to 1 percent slopes	Not prime farmland	81.2	1.5%
22	Colake silt loam, 0 to 1 percent slopes	Not prime farmland	3.4	0.1%
23	Colake silt loam, drained, 0 to 1 percent slopes	Prime farmland if irrigated	17.8	0.3%
39	Dryfork silt loam, 0 to 4 percent slopes	Farmland of local importance	70.2	1.3%
60	Flott gravelly loam, 30 to 60 percent slopes	Not prime farmland	3.4	0.1%
61	Flott very gravelly loam, dry, 30 to 60 percent slopes	Not prime farmland	3.2	0.1%
63	Gird silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	11.6	0.2%
67	Gird-Vincom silt loams, 8 to 15 percent slopes	Farmland of local importance	93.0	1.7%
72	Hogsby-Rock outcrop complex, 15 to 45 percent slopes	Not prime farmland	28.2	0.5%
81	Jocko gravelly loam, 0 to 4 percent slopes	Farmland of local importance	2,698.6	50.3%
82	Jocko gravelly loam, 4 to 15 percent slopes	Farmland of local importance	246.8	4.6%
84	Kerl loam, 2 to 4 percent slopes	Prime farmland if irrigated	16.5	0.3%
93	Lamoose loam, 0 to 2 percent slopes	Not prime farmland	123.4	2.3%
101	McCullum fine sandy loam, 0 to 2 percent slopes	Prime farmland if irrigated	59.0	1.1%
102	McCullum fine sandy loam, 2 to 4 percent slopes	Prime farmland if irrigated	29.1	0.5%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
104	McCollum fine sandy loam, gravelly substratum, 0 to 2 percent slopes	Prime farmland if irrigated	118.0	2.2%
122	Niarada gravelly loam, 8 to 15 percent slopes	Farmland of local importance	18.4	0.3%
123	Niarada gravelly loam, cool, 15 to 30 percent slopes	Not prime farmland	466.1	8.7%
124	Niarada gravelly loam, cool, 30 to 60 percent slopes	Not prime farmland	241.4	4.5%
125	Niarada-Kerl complex, 8 to 15 percent slopes	Farmland of local importance	125.0	2.3%
126	Ninepipe silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	357.3	6.7%
155	Sacheen loamy fine sand, 0 to 8 percent slopes	Prime farmland if irrigated	3.1	0.1%
160	Selow silty clay loam, 0 to 2 percent slopes	Farmland of local importance	28.2	0.5%
165	Truscreek silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	16.3	0.3%
170	Vincom silt loam, 15 to 60 percent slopes	Not prime farmland	78.4	1.5%
174	Walstead gravelly loam, 0 to 2 percent slopes	Farmland of statewide importance	26.0	0.5%
175	Walstead gravelly loam, 2 to 4 percent slopes	Farmland of statewide importance	81.9	1.5%
176	Walstead gravelly loam, 4 to 15 percent slopes	Farmland of statewide importance	20.5	0.4%
188	Xerofluvents, 0 to 2 percent slopes	Not prime farmland	5.8	0.1%
Totals for Area of Interest			5,364.4	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Jocko Area Canal Conversion Lake County, Montana Wetland Delineation



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December 2021
Project No. 0859.015

Table of Contents

1	Introduction	1
2	Methods	1
2.1	Vegetation	1
2.2	Soil	1
2.3	Hydrology	2
3	Results.....	2
3.1	Vegetation	2
3.2	Soil	3
3.3	Hydrology	3
3.3.1	Topography	3
3.3.2	National Wetland Inventory	3
3.3.3	Floodplains	4
3.3.4	On-Site Hydrology	4
4	Conclusions	5
5	References	6

Appendices

Appendix A	Figures
Appendix B	USACE Wetland Determination Forms
Appendix C	Site Photographs
Appendix D	NRCS Soil Report

EXECUTIVE SUMMARY

A wetland delineation was performed by Morrison-Maierle, Inc. (Morrison-Maierle) for Confederated Salish and Kootenai Tribes (CSKT) (Client) for the Jocko Area Canal Conversion project in Lake County, Montana. The investigation area consists of a 40-foot buffer centered over approximately 13.6 miles of proposed irrigation pipeline and a 100-foot buffer centered over approximately 4.1 miles of K Canal (Appendix A, Figure 1). Much of the proposed route lies within existing irrigation open canals, roadsides, or private irrigation piping/ditches.

The subject property was evaluated for its content of potential jurisdictional wetlands and waterbodies, based on criteria set forth in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0)* (Environmental Laboratory 2010).

Prior to the site visit, Morrison-Maierle reviewed existing project area literature including historical aerial photography, topographic maps, and hydrology data. A subsequent field evaluation was performed to identify hydric soils, hydrology, and hydrophytic vegetation. Vegetation communities were evaluated and documented to delineate wetland and upland boundaries.

Based on the wetland delineation presented in this report and the data collected, it is Morrison-Maierle's professional judgement that waters of the U.S. are present within the project area. The project area contains four palustrine emergent (PEM) wetland (0.31 acres), one intermittent and one perennial stream (230 linear feet). Additionally, approximately 11.3 miles (59,675 linear feet) of existing irrigation canals/ditches are present within the project area.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) are the final authority over the jurisdictional status of both wetlands and waters of the U.S. per Section 404 of the Clean Water Act. The findings discussed in this report are solely the opinion of Morrison-Maierle and have not been verified by the aforementioned regulatory government agencies.

1 Introduction

At the request of CSKT, Morrison-Maierle completed a wetland delineation for the Jocko Area Canal Conversion project in Lake County, Montana. The investigation area consists of a 40-foot buffer centered over approximately 13.6 miles of proposed irrigation pipeline and a 100-foot buffer centered over approximately 4.1 miles of K Canal (Appendix A, Figure 1). Much of the proposed route lies within existing irrigation open canals, roadsides, or private irrigation piping/ditches. This technical report summarizes the findings of the wetland delineation for the project site.

2 Methods

This wetland delineation utilized the methodology presented in the 1987 U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and subsequent modifications outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0)* (Environmental Laboratory 2010). The methodology includes sampling procedures for vegetation, hydrology, and soil parameters.

Upland data points (UDP) and wetland data points (WDP) were established as needed during the field visit. Data points were collected during two separate field visits, August 30, 2021 and September 23, 2021. Data points that were recorded during the September 23, 2021 site visit have a corresponding "B" after the data point number (ex., UDP 1B) since data points were not numbered sequentially from the August 30 field visit. Data for vegetation, hydrology, and soils were recorded in the field and entered on Wetland Determination Data Forms. Corresponding photographs were taken at each data point.

Sample points and wetland boundaries (if present) were recorded using a Trimble® GeoXH™ 7000 DGPS receiver and post-processed to sub meter accuracy. These data were imported to ArcGIS 10.7.1 to create project maps.

2.1 Vegetation

Vegetation at upland and wetland data points was classified based on wetland indicator status. The indicator status of vegetation was derived from the USACE 2018 National Wetlands Plant List (NWPL). Using the current plant list, vegetation cover qualified as hydrophytic where over 50% of the dominant plant species had an indicator status of obligate (OBL), facultative wet (FACW), and/or facultative (FAC). FAC plants, such as Canada thistle (*Cirsium arvense*), are equally likely to occur in wetlands and non-wetlands. Vegetation cover was considered as upland where over 50% of the dominant plant species were classified as upland (UPL), and/or facultative upland (FACU). Plants observed within each data plot were identified using *Montana Manual of Vascular Plants* (Lesica 2012). Vegetation nomenclature follows USACE NWPL (2018) and Lesica (2012).

2.2 Soil

Wetlands must meet the qualifications of at least one hydric soil indicator, or meet the definition of a hydric soil (a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 2019a)).

Soils at each data point were evaluated and described notating the depth, matrix color, mottle abundance and contrast (if present), texture, etc. (Environmental Laboratory, 1987 and 2010). Moist matrix color and moist mottle color of the soils were determined utilizing the *Munsell Soil Color Chart* (Kollmorgan Instruments Corporation, 2009).

2.3 Hydrology

Primary and secondary hydrologic indicators were assessed at each wetland and upland data point; one primary indicator or two secondary indicators are required to qualify the area as containing wetland hydrology. Examples of primary hydrology indicators are saturation within 12 inches of the ground surface, surface water, and water table within 12 inches of the ground surface. Examples of secondary hydrology indicators are FAC-neutral test and geomorphic position on the landscape.

3 Results

A wetland delineation of the project area was performed by Morrison-Maierle environmental scientists on August 30 and September 23, 2021. The vegetation, hydrology, and soil characteristics at each of 28 data points were documented in the field and recorded on Wetland Determination Data Forms for the *Western Mountains, Valleys, and Coast* (Supplement, 2010) (Appendix B). Representative photographs of the investigation area are provided in Appendix C.

3.1 Vegetation

Vegetation communities were evaluated and documented to delineate wetland and upland boundaries. The location of all data points are identified on Figure 5 of Appendix A.

Upland herbaceous communities within the project area consisted of irrigated and non-irrigated pasture, roadside, and existing irrigation canals. Forested or scrub-shrub communities occurred in some areas along existing canals. Additionally, palustrine emergent wetland communities were present within the project area.

Upland herbaceous communities were typically consisted of smooth brome (*Bromus inermis*, UPL), meadow foxtail (*Alopecurus pratensis*, FAC), tall goldenrod (*Solidago altissima*, FACU), spotted knapweed (*Centaurea stoebe*, NI), houndstongue (*Cynoglossum officinale*, FACU), and Canada thistle (*Cirsium arvense*, FAC). Forested and scrub-shrub communities consisted of the aforementioned herbaceous species in addition to cottonwood (*Populus balsamifera*, FAC), hawthorn (*Crataegus douglasii*, FAC), common snowberry (*Symphoricarpos albus*, FACU), and wood's rose (*Rosa woodsii*, FACU).

Irrigation canals commonly contained a mixture of herbaceous and scrub shrub communities. Additionally, plant species composition was often slightly different along the water line of the canals. More water tolerant species were noted such as timothy grass (*Phleum pratense*, FAC), reed canarygrass (*Phalaris arundinacea*, FACW), tufted hairgrass (*Deschampsia cespitosa*, FACW), and fringed willowherb (*Epilobium ciliatum*, FACW).

Wetland areas 1 through 3 were dominated by Nebraska sedge (*Carex nebrascensis*, OBL), common horsetail (*Equisetum pratense*, FACW), and tufted hairgrass. Wetland 4 was a less established, more seasonal wetland consisting of tufted hairgrass, baltic rush (*Juncus balticus*, FACW), and tall buttercup (*Ranunculus acris*, FAC).

3.2 Soil

Mapped soil types within the general project area were obtained from the *Web Soil Survey* (NRCS 2021b). A total of 36 mapped soil types were identified in the project area (Appendix A, Figure 3). Refer to the NRCS Soil Report located in Appendix D for soil names and descriptions.

Soils were analyzed in the field for texture and color using the Munsell Soil Color Charts (Munsell 2009). Most upland soils across the entire project area were very shallow and had a restrictive layer of compacted soil and gravel between 3 and 8 inches in depth. The soils typically exhibited a 10YR 2/2 (very dark brown) loam, 3/2 (very dark greyish brown) silty clay loam, or a 10YR 4/2 (dark greyish brown) silty clay loam.

Soils within Wetlands 1 – 3 exhibited a 2.5Y 2.5/1 (black) silty clay loam to eight inches with heavy organic/muck content. These soils met the characteristics of Black Hystic (A3) hydric soils. The soil within Wetland 4 exhibited a 10YR 3/1 (very dark grey) silty clay loam surface layer of two inches with 10YR 5/1 (gray) loamy clay matrix with five percent 10YR 5/6 (yellowish brown) redoximorphic features down to eight inches. This soil met the characteristics of a Depleted Matrix (F3).

3.3 Hydrology

3.3.1 Topography

The project area lies within the *Arlee, Montana* (2020), U.S. Geological Survey (USGS) 7.5-minute Topographic Map. The majority of the project area is gently sloping within the Jocko Valley with elevations between approximately 2,980 and 3,260 feet above sea level. The K Canal portion of the project area is steeply sloping with elevations ranging between approximately 3,000 to 3,200 feet above sea level (Appendix A, Figure 2). Several drainages traverse the project area, including several named creeks that include Lamoose Creek, Pellew Creek, and Spring Creek. A few other named creeks and drainages connect into the K Canal from the mountainside to the east of the project area. The Jocko River lies to the south of the project area. During the site evaluation, the elevation and slope of the project area appeared to be consistent with the USGS topographic map.

3.3.2 National Wetland Inventory

The U.S. Fish and Wildlife Service maintains the National Wetlands Inventory (NWI), which serves as a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of U.S. wetlands.

According to the NWI database, approximately 55 features traverse the project area. Specifically, NWI features within the investigation areas includes 8 freshwater emergent wetland (PEM1Ad

and PEM1C) features, 16 freshwater forested/scrub wetlands (PFO1C and PSS1C) features, one freshwater pond, and 30 riverine (R4SBC, R5UBFx, R3UBFx, and R3UBF) features (USFWS 2021). Appendix A, Figure 4 depicts the NWI features in the project vicinity.

The majority of the NWI wetland features within the project area appear to be connected to the irrigation canal system and are likely largely influenced by seasonal irrigation seepages. At the time of the field investigations, most of these features did not meet the characteristics of a wetland due to the seasonality of water flow through the canals. Alternatively, many of the riverine NWI features are irrigation canals or ditches that were confirmed during the field investigation. Depending on their location, some features were receiving water flow and others appeared to have been shut off and were dry ditches. Additionally, some NWI wetland features were shown to be associated with the natural stream features delineated during the field investigation. However, the field investigation refuted the presence of these wetlands.

3.3.3 Floodplains

The majority of the project area is located within Federal Emergency Management Agency (FEMA) FIRM Panel 30047C1225C with an effective date of February 6, 2013 (FEMA 2021). However, the FIRM panel only has portions of the Jocko River mapped and no mapping exists within the project area. Other areas of the project are part of the Flathead Indian Reservation (Area Not Included) for FEMA. Therefore, the project does not lie within any mapped 100-year floodplains.

3.3.4 On-Site Hydrology

A hydrography map is provided as Figure 5 in Appendix A to help identify which water features are natural versus a man-made canal or ditch. As displayed in the Figure 5 maps, that majority of the NWI riverine features are canal ditches. Additionally, the named and unnamed natural creek features that traverse the project area are shown as intermittent streams. However, Lamoose Creek and one unnamed intermittent tributary were the only “natural” features that displayed a bed and bank and received a steady source of water. These two tributaries are considered intermittent to perennial features based on field observations.

At the time of the field investigations, many of the natural riverine features did not display any hydrology and did not have a well-defined bed and bank. Most features would be considered more of a topographical “draw” on the landscape.

The K Canal was approximately 10 feet wide with a foot or more water depth in much of the canal. Therefore, the K Canal was not crossed unless a crossing was provided or visibility to the downhill side of the canal was poor. Most data points were recorded on the uphill side of the K Canal for this reason.

Hydrology within wetland areas consisted of surface water, saturation, high water table, and geomorphic position.

4 Conclusions

Based on the wetland delineation presented in this report and the data collected, it is Morrison-Maierle’s professional judgement that wetlands and waterways are present within the project area. The project area contains four palustrine emergent (PEM) wetland (0.31 acres), one intermittent and one perennial stream (230 linear feet). Table 1 below provides further details for the delineated features.

Table 1. Wetland and Waterway Features within the Investigation Area

Feature ID	Feature Type	Area (acres)	Length (linear feet)	Hydraulic Influence
WET 1	PEM Wetland	0.21	NA	Natural & roadside drainage
WET 2	PEM Wetland	0.08	NA	Natural & roadside drainage
WET 3	PEM Wetland	<0.01	NA	Irrigation Seep
WET 4	PEM Wetland	<0.01	NA	Irrigation Seep
TRIB 1	Perennial Tributary	NA	105	Natural stream (Lamoose Creek)
TRIB 2	Tributary/Irrigation	NA	125	Irrigation
NA	Irrigation Canal/Ditch*	NA	59,675	Irrigation

**Irrigation canals and ditches are accounted for collectively in this table and were not assigned individual Feature IDs.*

Wetlands (WET) 1 and 2 appear to be directly hydrologically connected to Spring Creek and natural drainages. Although very close to Spring Creek, WET 3 appears to be directly influenced by irrigation pipe seepage. WET 4 is located within an irrigation turnout drainage that appears to provide seepage water to the turnout ditch directly from the K Canal.

Lamoose Creek (TRIB 1) is considered a perennial stream, and it flows underneath the K Canal through a concrete culvert. Therefore, it does not appear to be influenced by irrigation water supply. Alternatively, the intermittent tributary mapped at the northern end of the K Canal, TRIB 2, is directly supplied by irrigation water from K Canal through an overflow pipe. There is a natural draw uphill of the K Canal, but the area did not have flowing water or have a defined bed or bank. An overflow turnout pipe from the K Canal supplies water to the intermittent feature and it creates a “natural” appearing tributary that eventually flows into Spring Creek to the south.

Approximately 11.3 miles (59,675 linear feet) of existing irrigation canals/ditches are present within the project area. Figure 6 in Appendix A identifies the location of the delineated wetland and tributary features. The irrigation canals/ditches were not delineated in the field due to them being man-made and highly visible on current aerial imagery.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) are the final authority over the jurisdictional status of both wetlands and waters of the U.S. per Section 404 of the Clean Water Act. The findings discussed in this report are solely the opinion of Morrison-Maierle and have not been verified by the aforementioned regulatory government agencies.

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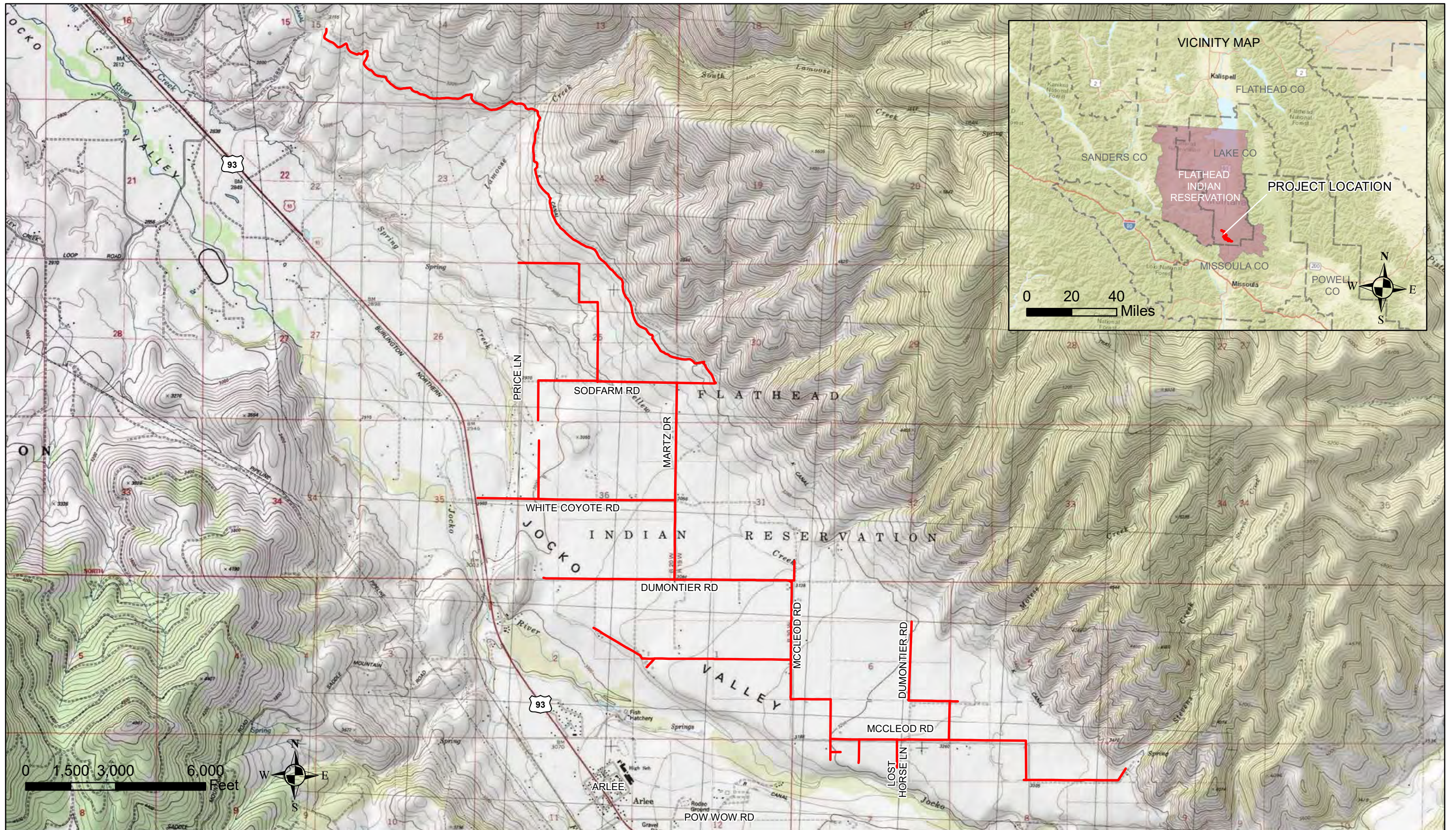
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US Army Corps of Engineers (USACE) 2018. National Wetland Plant List 2018 version 3.4. <http://wetland-plants.usace.army.mil/>


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APPENDIX A: FIGURES



Legend

 Jocko Conversion Routes



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
Fax: (406) 752-2391

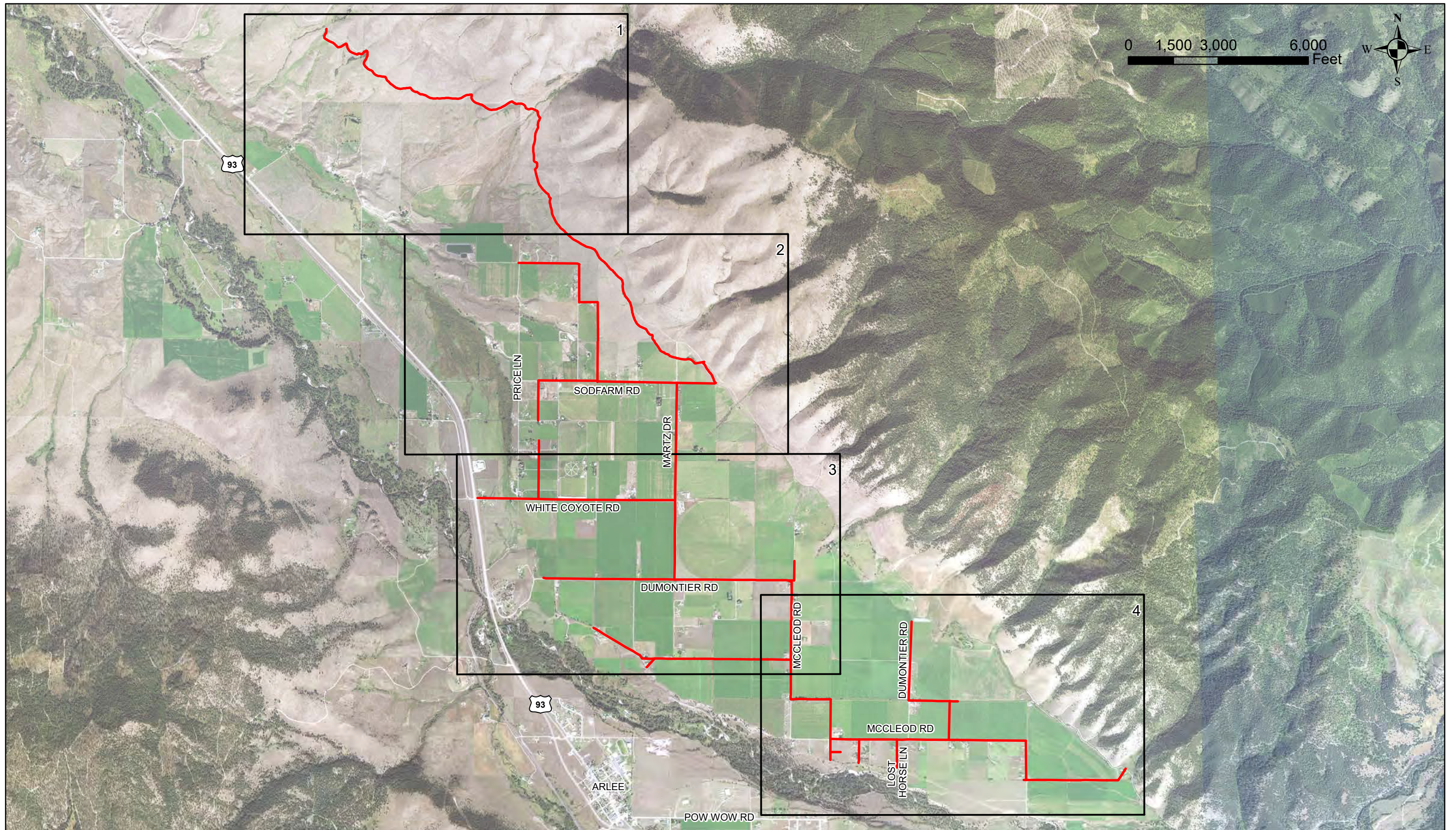
DRAWN BY: BNC
CHK'D BY: CAP
APPR. BY: CAP
DATE: 9/21/21

USGS TOPOGRAPHIC MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 1



Legend

— Jocko Conversion Routes □ Index Map



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
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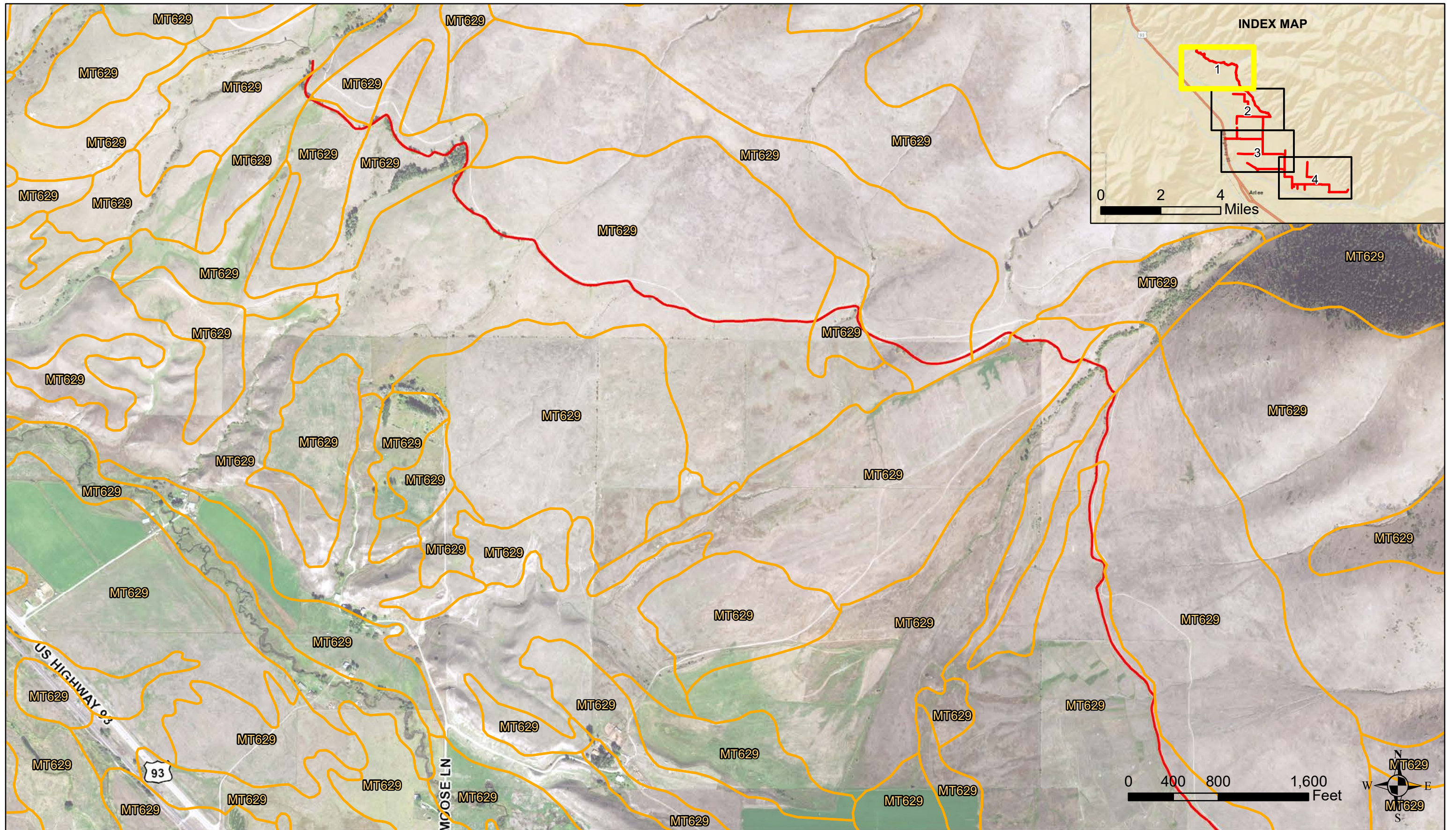
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CHK'D BY: CAP
APPR. BY: CAP
DATE: 9/21/21

NAIP 2019 AERIAL MAP

PROJECT NO.
0859.015

CSKT JOCKO AREA CANAL CONVERSION PROJECT

Figure 2



Legend

— Jocko Conversion Routes □ NRCS Soil Map Unit



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
Fax: (406) 752-2391

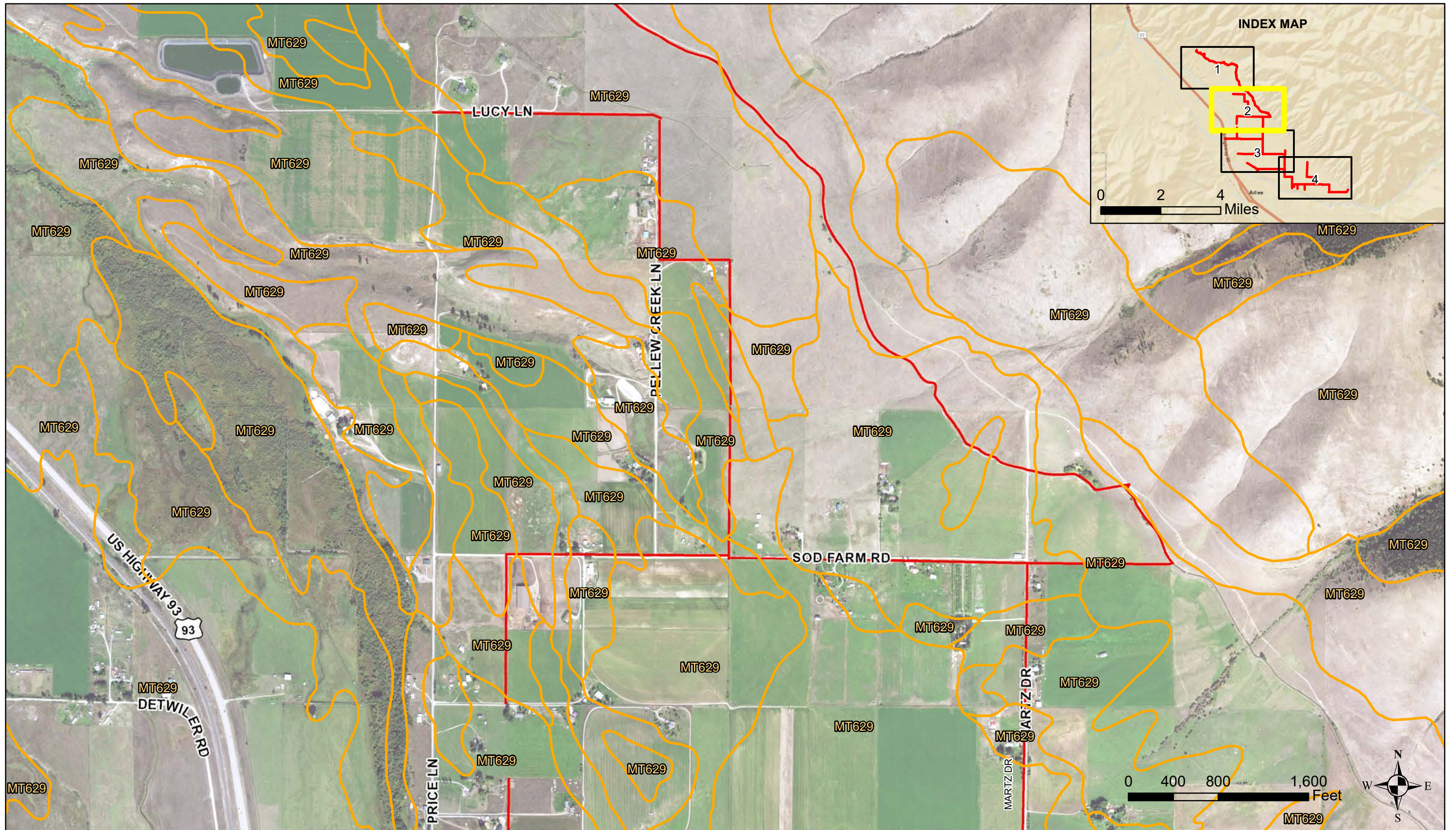
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CHK'D BY: CAP
APPR. BY: CAP
DATE: 10/4/21

NRCS SOIL MAP

PROJECT NO.
0859.015

CSKT JOCKO AREA CANAL CONVERSION PROJECT

Figure 3.1



Legend

- Jocko Conversion Routes
- NRCS Soil Map Unit



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
Fax: (406) 752-2391

DRAWN BY: BNC
CHK'D BY: CAP
APPR. BY: CAP
DATE: 10/4/21

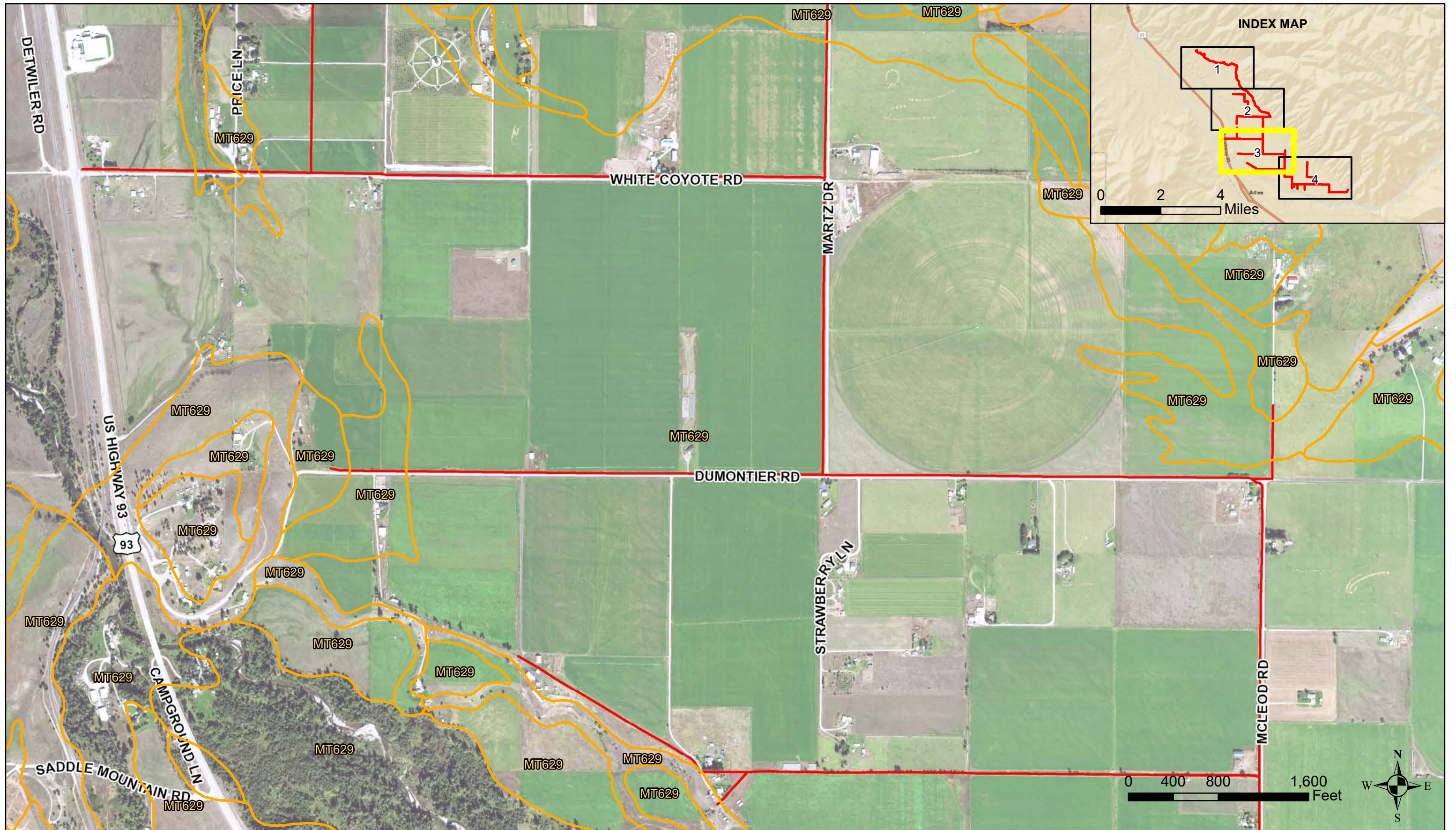
NRCS SOIL MAP

PROJECT NO.
0859.015

CSKT JOCKO AREA CANAL CONVERSION PROJECT

Figure 3.2

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M:\0859 CSKT\015-00_Jocko Canal to Pipeline\GIS\Wetland Delineation\Figure 3 Soils.mxd



Legend

- Jocko Conversion Routes
- NRCS Soil Map Unit



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
Fax: (406) 752-2391

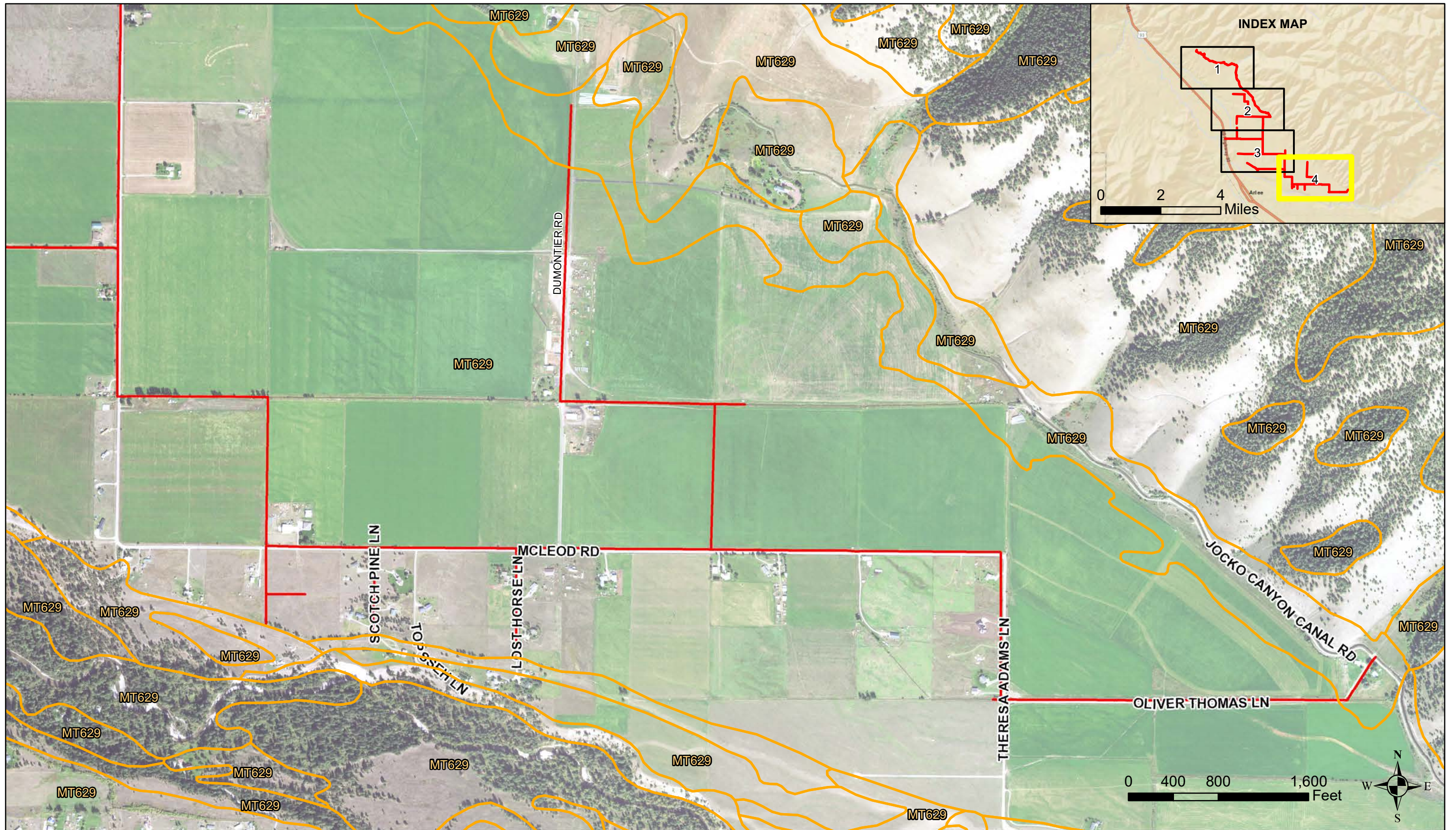
DRAWN BY: BNC
CHK'D BY: CAP
APPR. BY: CAP
DATE: 10/4/21

NRCS SOIL MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 3.3



Legend

- Jocko Conversion Routes
- NRCS Soil Map Unit



172 Timberwolf Parkway
 Kalispell, MT 59901
 Phone: (406) 752-2216
 Fax: (406) 752-2391

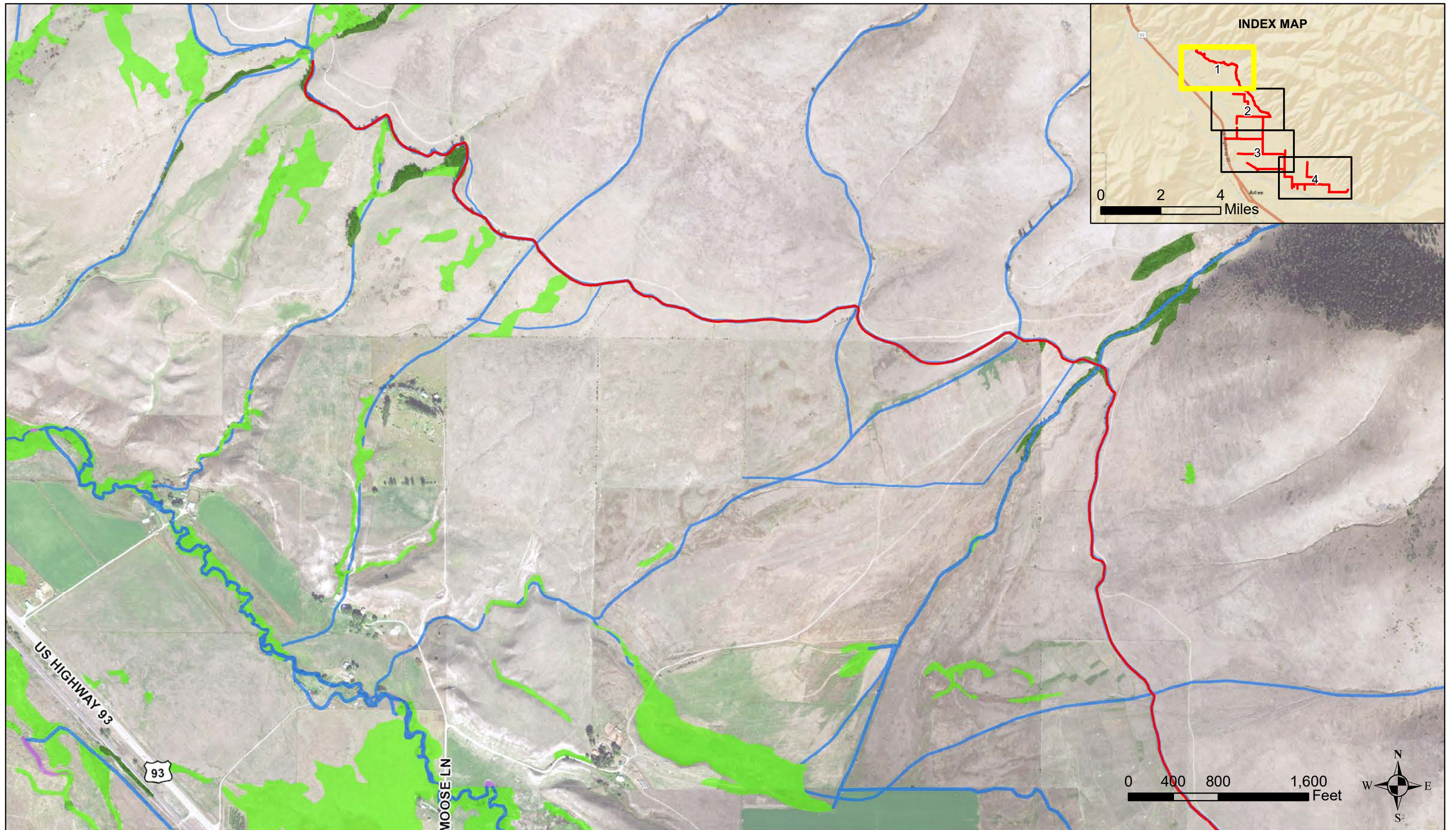
DRAWN BY: BNC
 CHK'D BY: CAP
 APPR. BY: CAP
 DATE: 10/4/21

NRCS SOIL MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 3.4



Legend

- Jocko Conversion Routes
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine



172 Timberwolf Parkway
Kalispell, MT 59901
Phone: (406) 752-2216
Fax: (406) 752-2391

DRAWN BY: BNC
CHK'D BY: CAP
APPR. BY: CAP
DATE: 10/4/21

NATIONAL WETLAND INVENTORY MAP

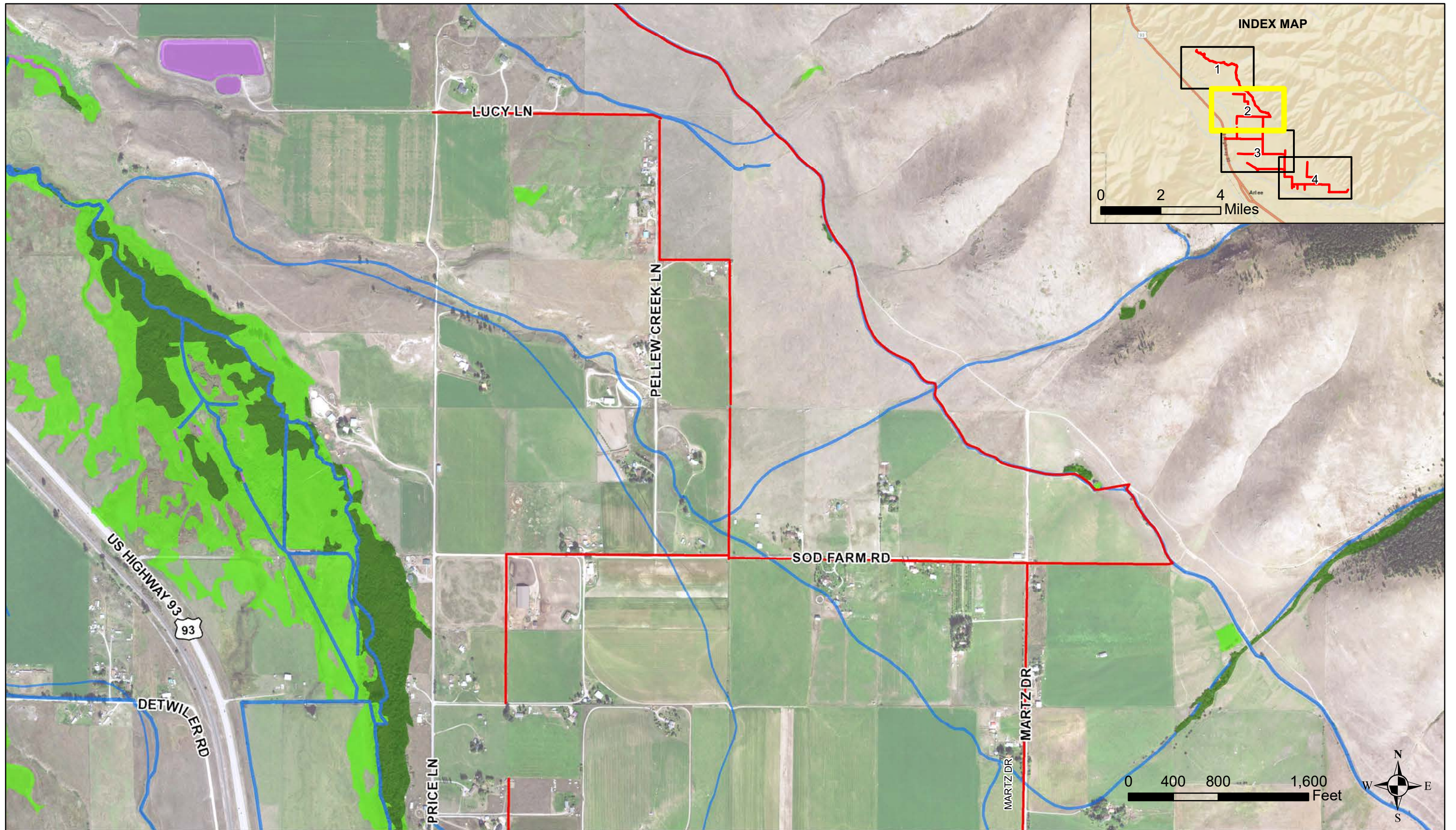
CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 4.1

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Legend

- Jocko Conversion Routes
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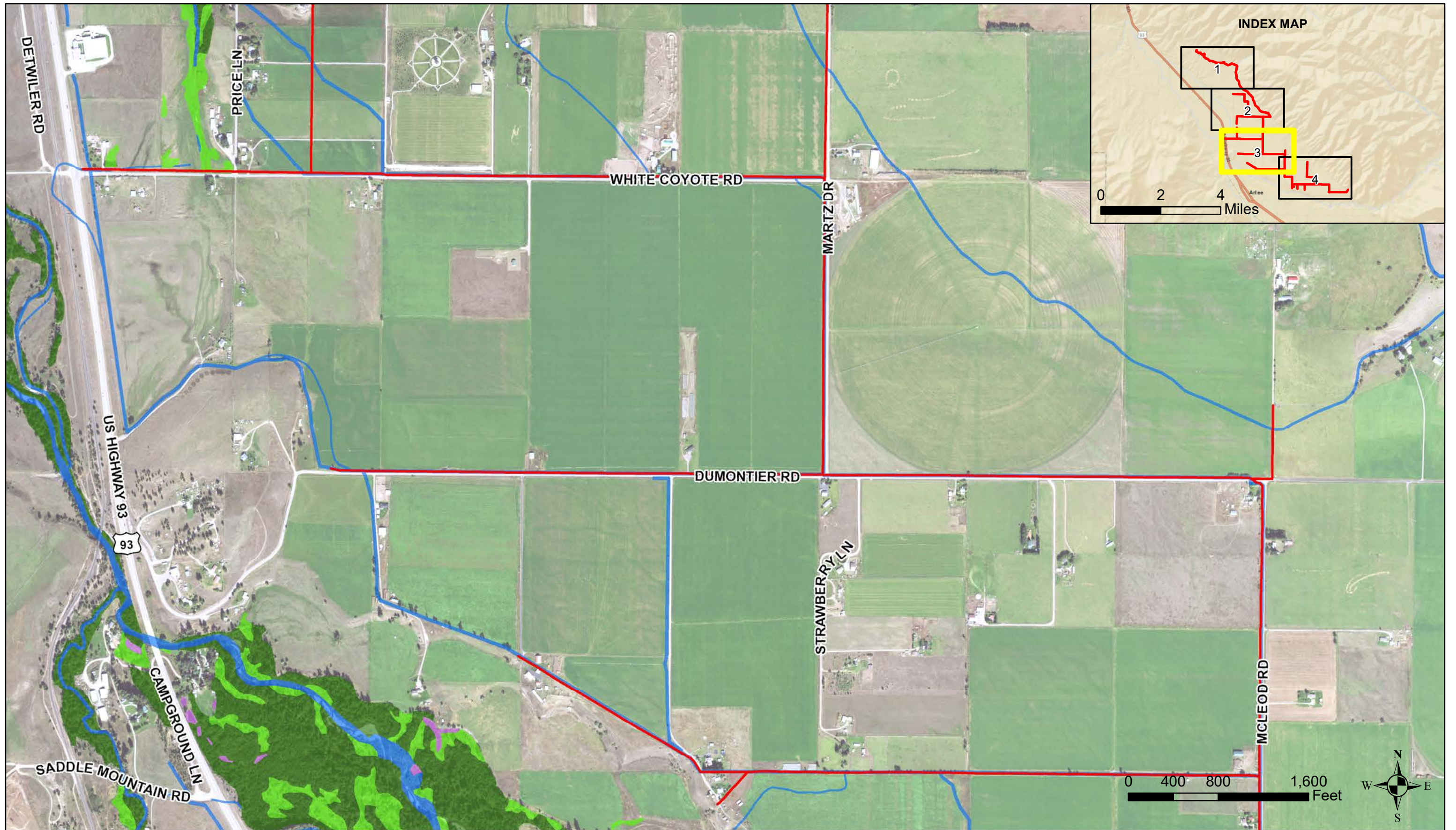
NATIONAL WETLAND INVENTORY MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

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 0859.015

Figure 4.2

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Legend

- Jocko Conversion Routes
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
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- Riverine



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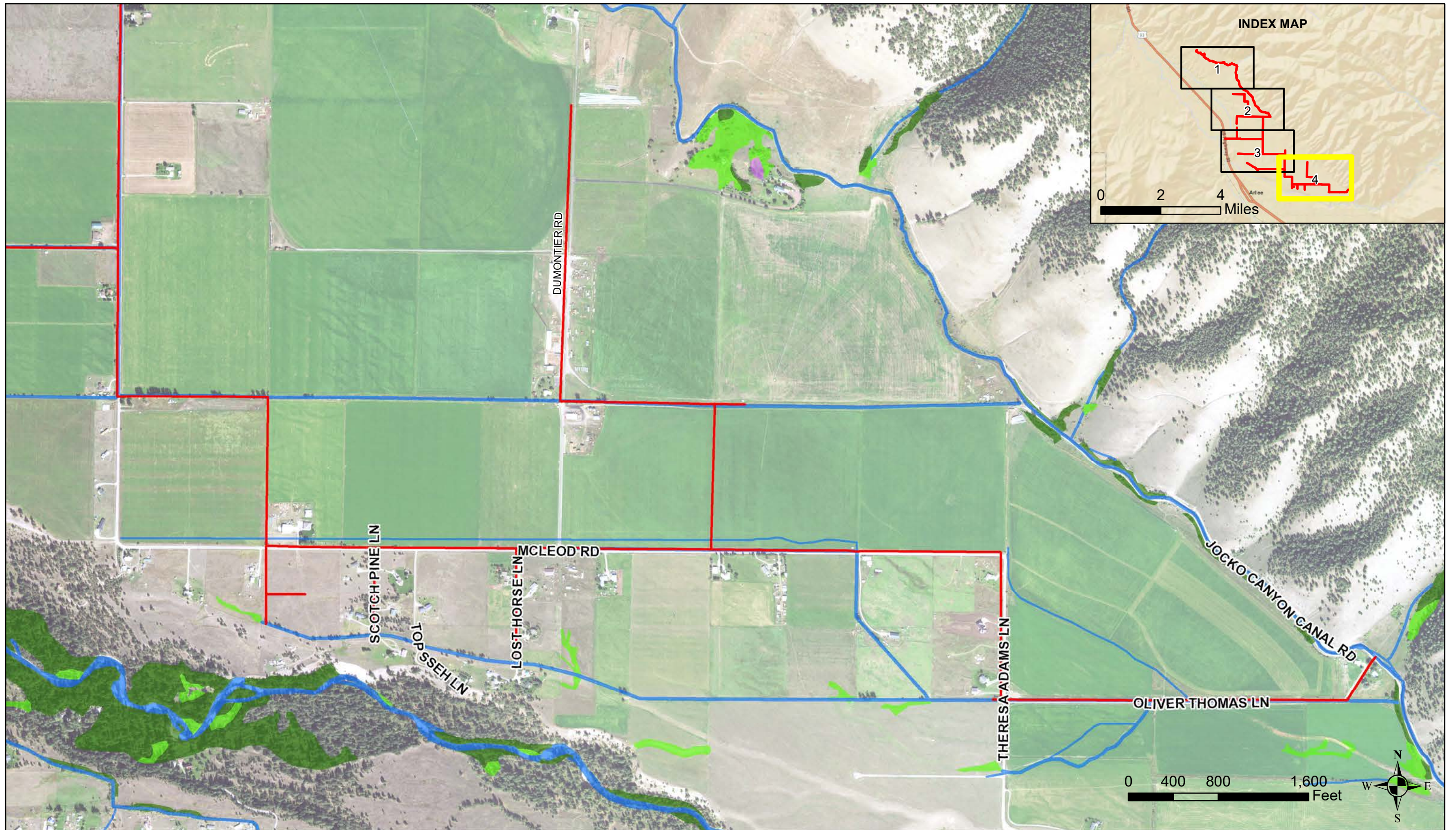
CSKT JOCKO AREA CANAL CONVERSION PROJECT

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Figure 4.3

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Legend

- Jocko Conversion Routes
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
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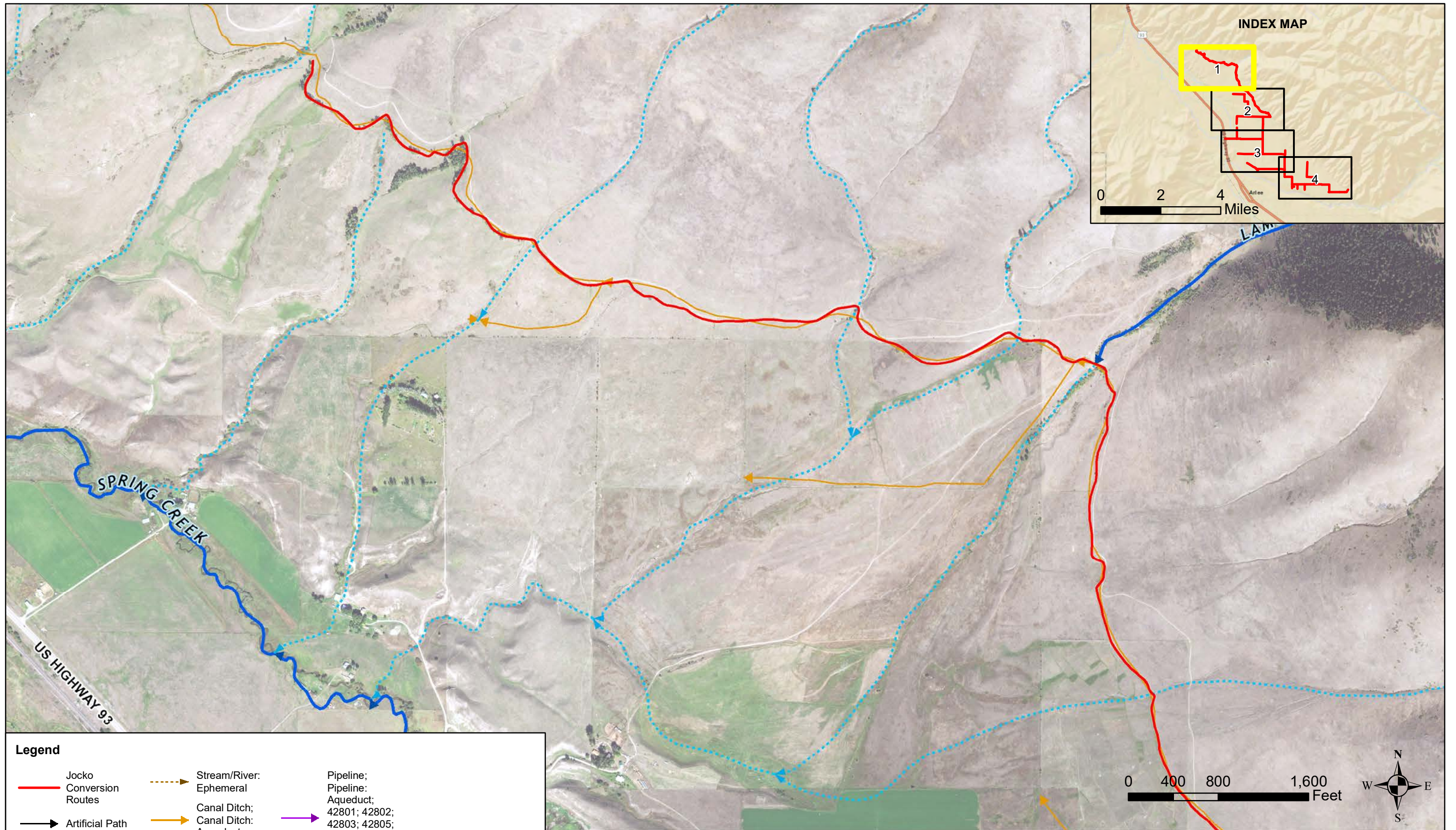
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NATIONAL WETLAND INVENTORY MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
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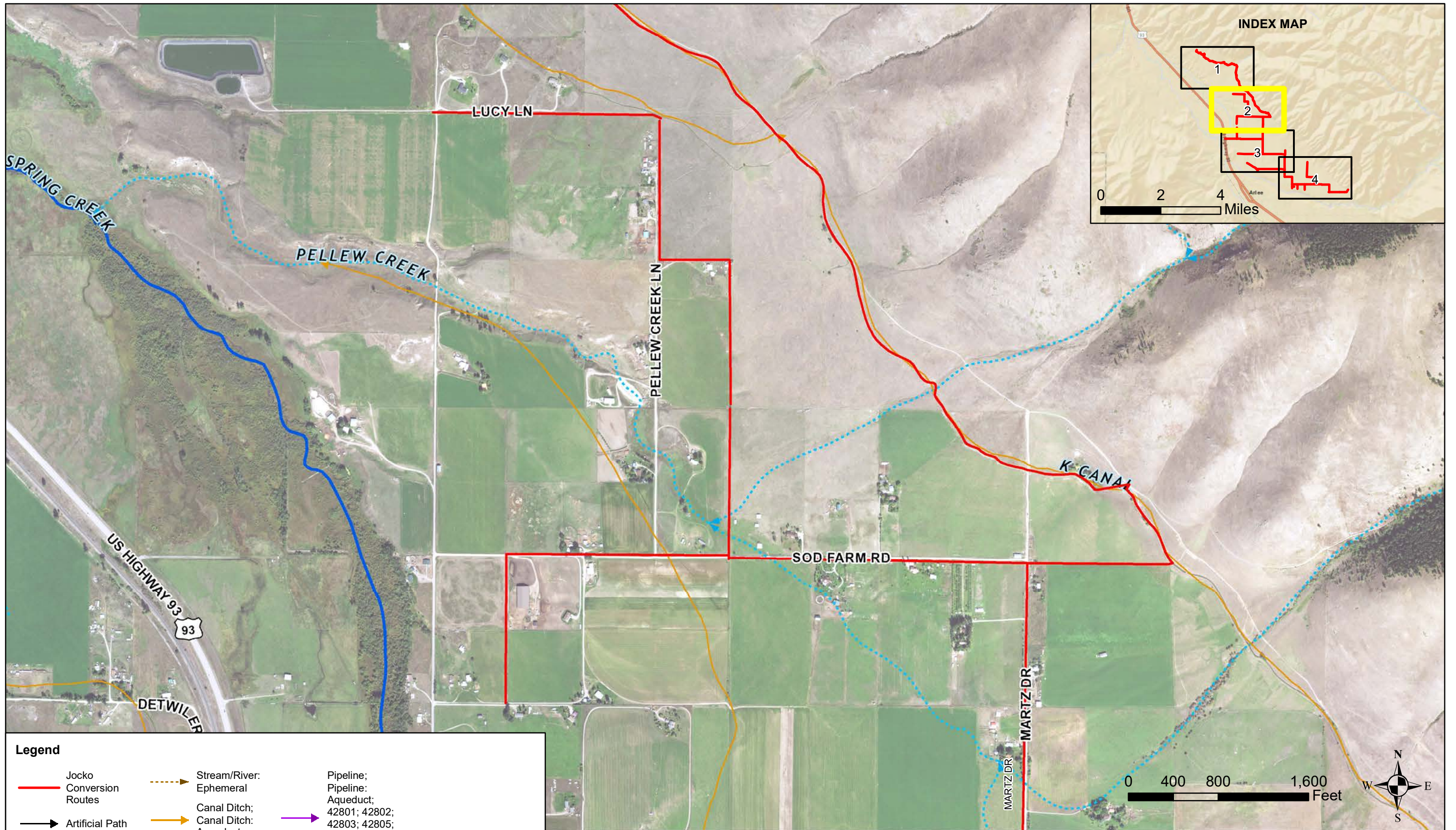
Figure 4.4



Legend		
	Jocko Conversion Routes	
	Artificial Path	
	Stream/River: Perennial	
	Stream/River: Intermittent	
	Stream/River: Ephemeral	
	Canal Ditch; Canal Ditch: Aqueduct	
	Connector	
	Pipeline; Pipeline: Aqueduct; 42801; 42802; 42803; 42805; 42807; 42808; 42809; 42810; 42811; 42813	
	Underground Conduit	

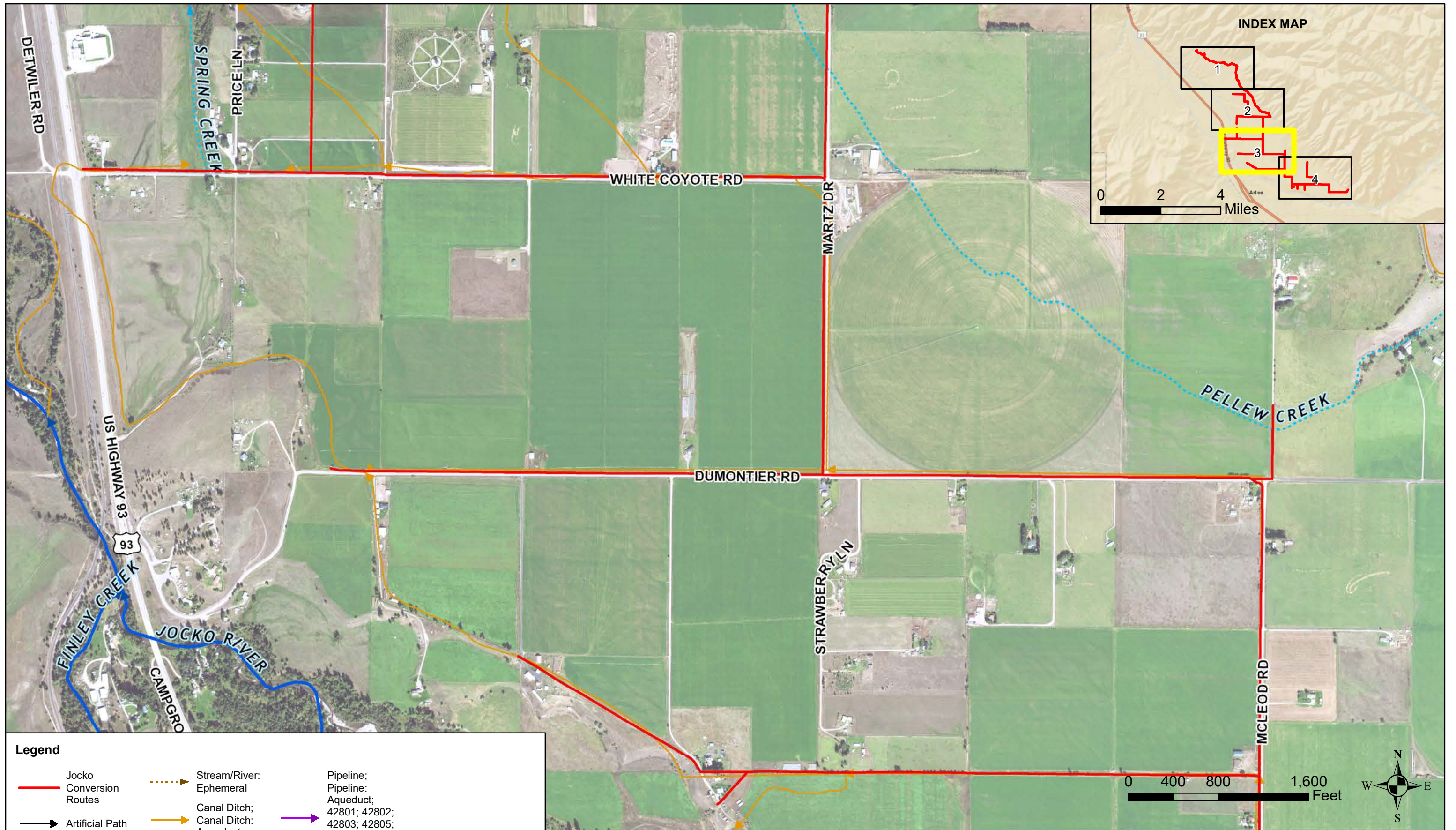
<p>engineers • surveyors • planners • scientists</p>	<p>172 Timberwolf Parkway Kalispell, MT 59901</p> <p>Phone: (406) 752-2216 Fax: (406) 752-2391</p> <p><small>COPYRIGHT © MORRISON-MAIERLE, INC., 2019</small></p>	<p>DRAWN BY: <u>BNC</u> CHK'D BY: <u>CAP</u> APPR. BY: <u>CAP</u> DATE: <u>10/4/21</u></p>	<p>HYDROGRAPHY MAP</p>	<p>PROJECT NO. 0859.015</p>
			<p>CSKT JOCKO AREA CANAL CONVERSION PROJECT</p>	

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			CSKT JOCKO AREA CANAL CONVERSION PROJECT	

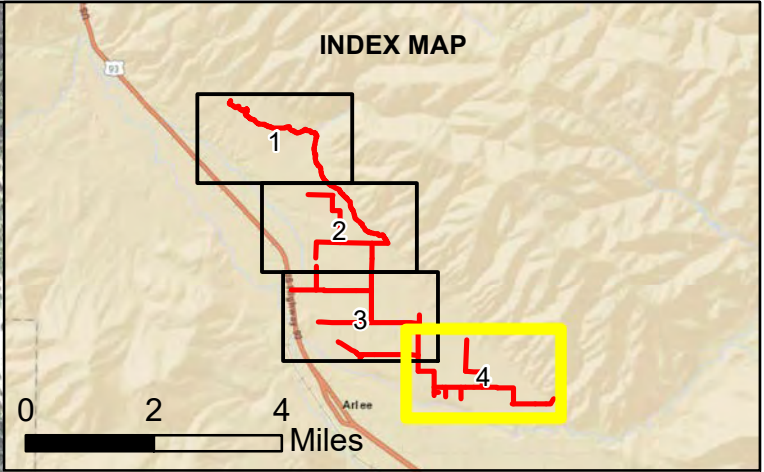
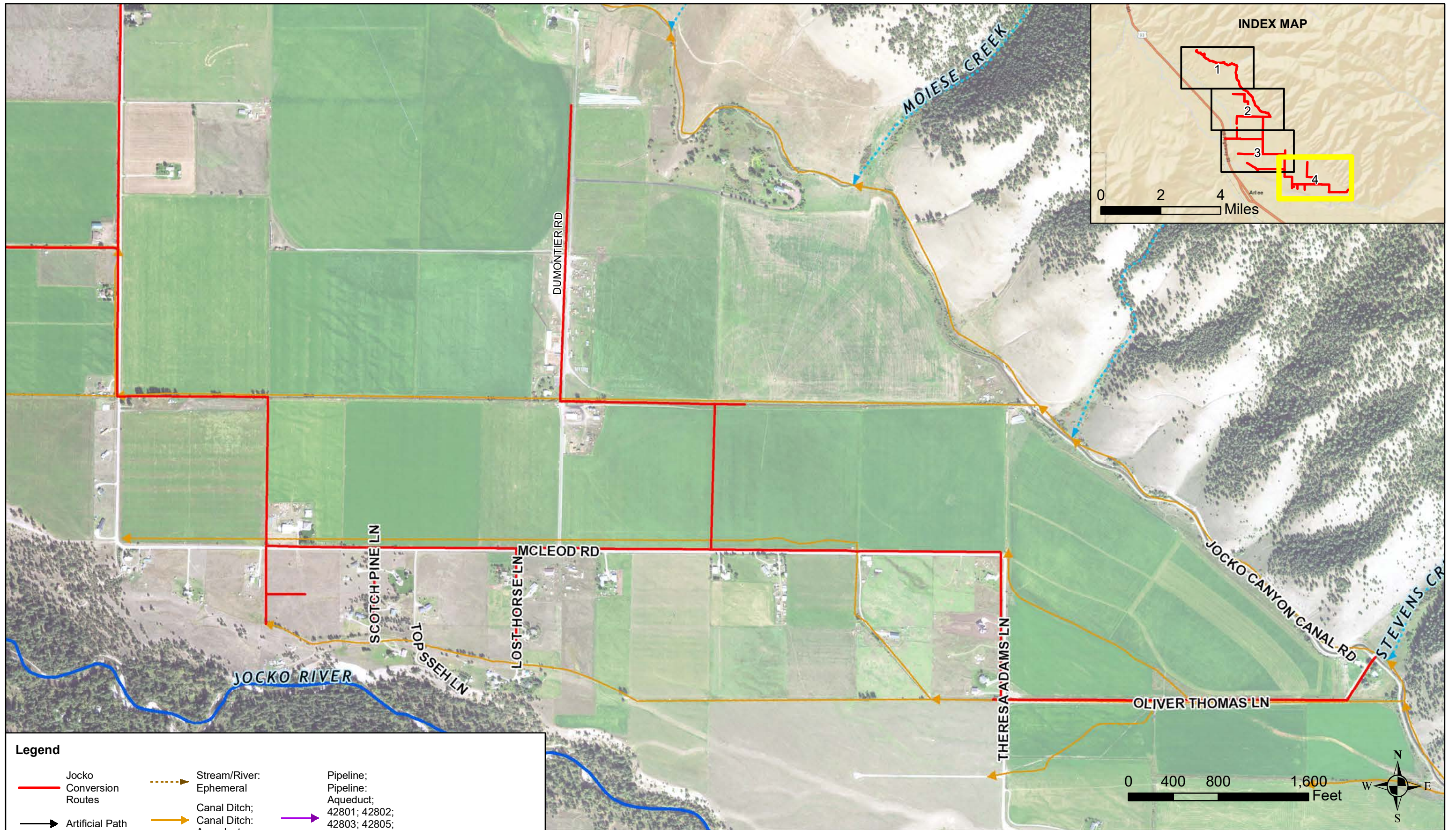
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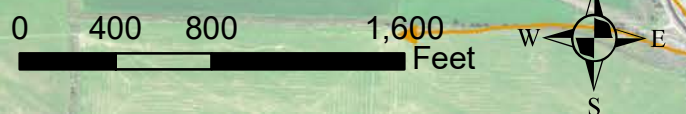
Legend		
	Jocko Conversion Routes	
	Artificial Path	
	Stream/River: Perennial	
	Stream/River: Intermittent	
	Stream/River: Ephemeral	
	Canal Ditch; Canal Ditch: Aqueduct	
	Connector	
	Pipeline; Pipeline: Aqueduct; 42801; 42802; 42803; 42805; 42807; 42808; 42809; 42810; 42811; 42813	
	Underground Conduit	

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		CSKT JOCKO AREA CANAL CONVERSION PROJECT	

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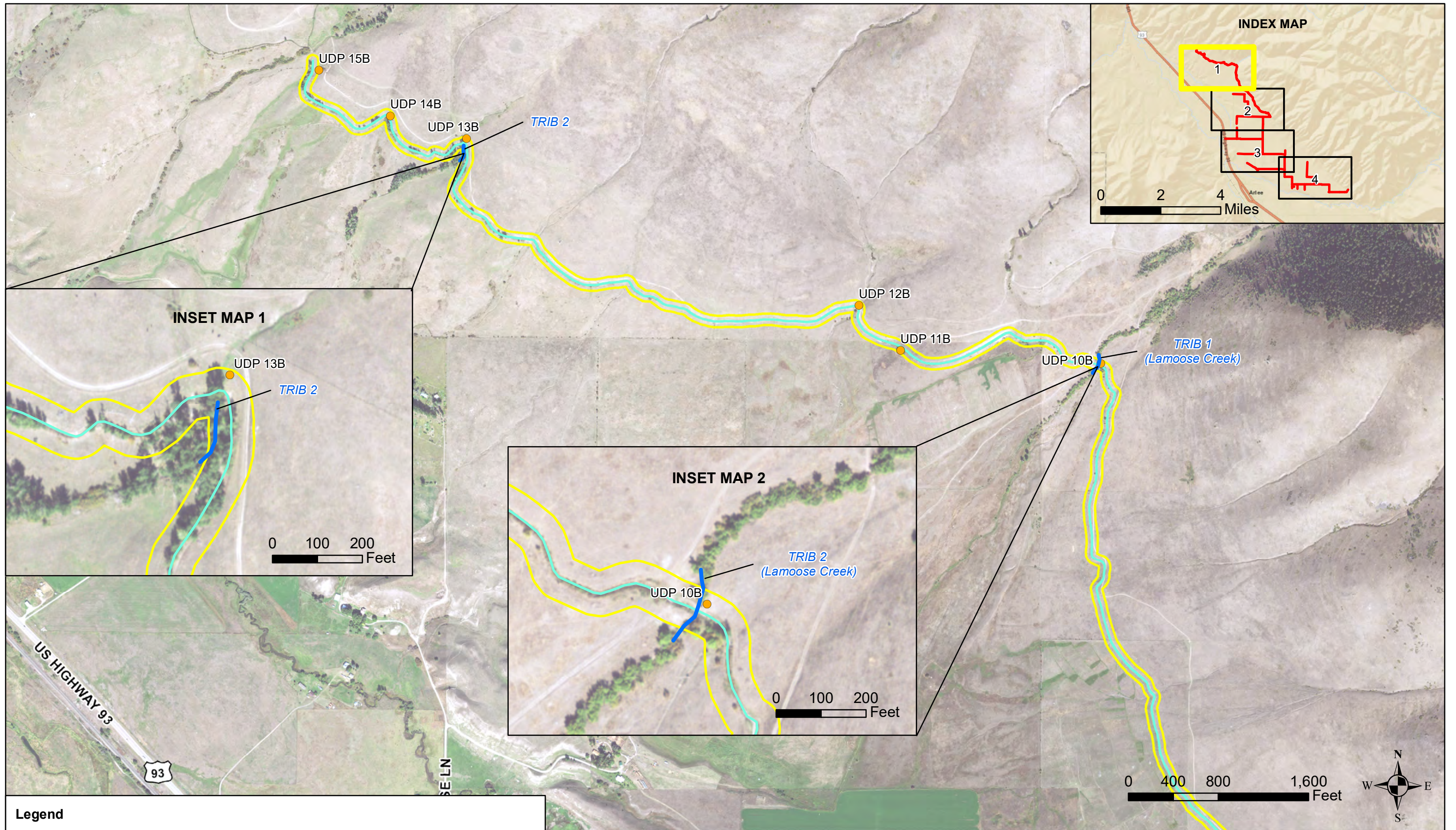


Legend		
Jocko Conversion Routes	Stream/River: Ephemeral	Pipeline; Pipeline: Aqueduct; 42801; 42802; 42803; 42805; 42807; 42808; 42809; 42810; 42811; 42813
Artificial Path	Canal Ditch; Canal Ditch: Aqueduct	Underground Conduit
Stream/River: Perennial	Connector	
Stream/River: Intermittent		



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		CSKT JOCKO AREA CANAL CONVERSION PROJECT	

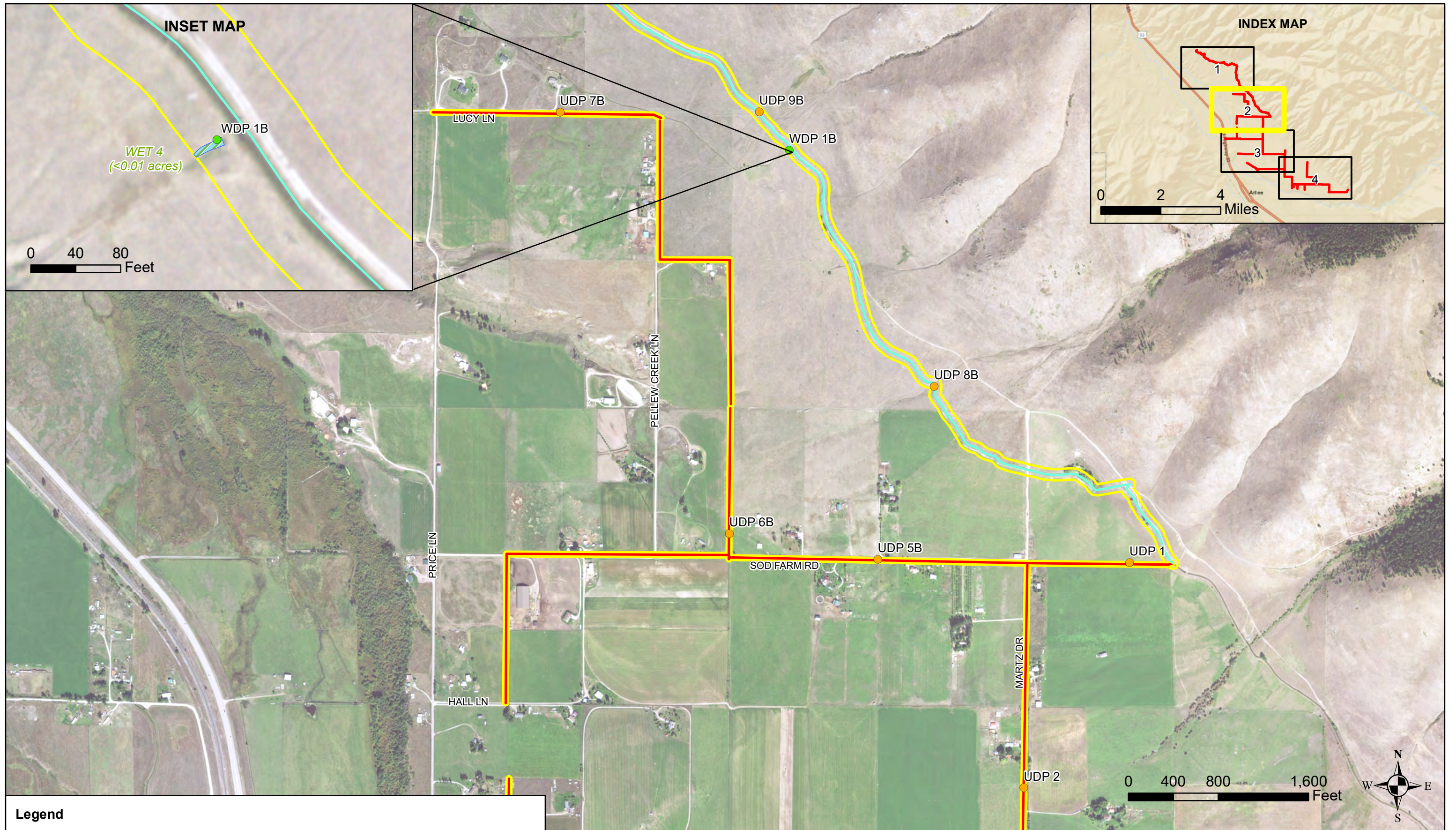
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Legend			
	Jocko Conversion Routes		Existing Irrigation Canal
	Investigation Area		Wetlands
	Stream		Upland Data Point
	Wetland Data Point		

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		<p>CSKT JOCKO AREA CANAL CONVERSION PROJECT</p>		<p>Figure 6.1</p>

M:\0859 CSKT\015-00_Jocko Canal to Pipeline\GIS\Wetland Delineation\Figure 6.1_WD Map.mxd



Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Stream
- Wetlands
- Upland Data Point
- Wetland Data Point
- Investigation Area

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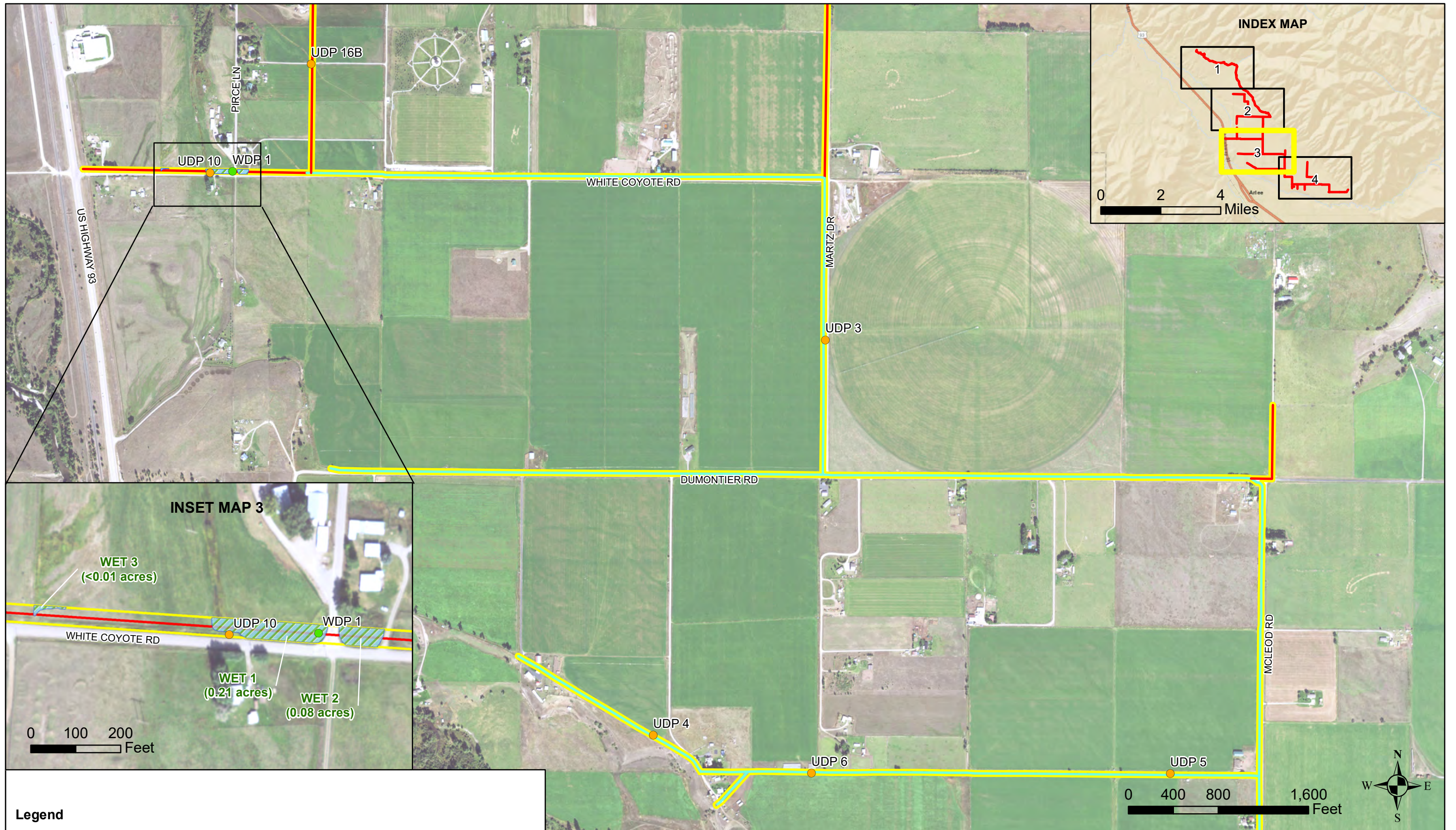
WETLAND DELINEATION MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.2

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Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Wetlands
- Upland Data Point
- Investigation Area
- Stream
- Wetland Data Point

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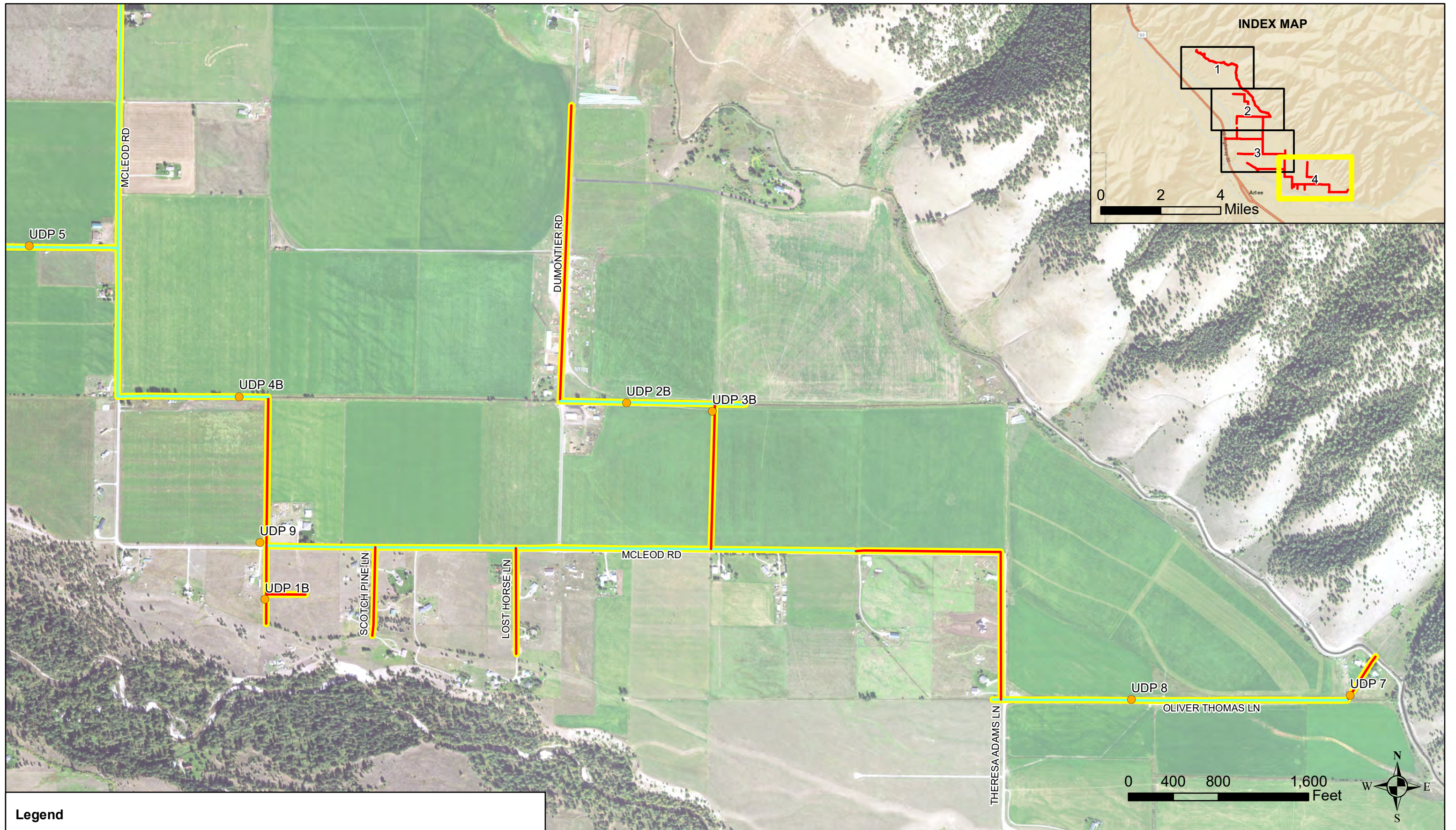
WETLAND DELINEATION MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.3

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Legend

- Jocko Conversion Routes
- Existing Irrigation Canal
- Wetlands
- Stream
- Upland Data Point
- Investigation Area
- Wetland Data Point



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WETLAND DELINEATION MAP

CSKT JOCKO AREA CANAL CONVERSION PROJECT

PROJECT NO.
0859.015

Figure 6.4

APPENDIX B: USACE WETLAND DETERMINATION FORMS

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 1
 Investigator(s): B. Cline, C. Andregg Section/Range: S30 T17 N R19 W Slope (%): 5-10
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.199784° Long: -114.071961°
 Soil Map Unit Name: Niarada gravelly loam, cool, 15 to 30 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: This data point is located in an irrigated, grazed field. Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 1
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>65</u> (A) (B) <u>245</u> Prevalance Index = B/A = <u>4</u>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	<i>Thinopyrum intermedium</i>	35	YES	NA		
2	<i>Alopecurus pratensis</i>	25	YES	FAC		
3	<i>Bromus inermis</i>	20	YES	UPL		
4	<i>Cirsium arvense</i>	10	NO	FAC		
5	<i>Cynoglossum officinale</i>	10	NO	FACU		
6						
7						
8						
9						
10						
11						
12						
		Total Cover	<u>100</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 1

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 2/2	100					clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 5

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 1B
 Investigator(s): B. Cline, C. Andregg Section/Range: S07 T16 N R19 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.165968° Long: -114.054798°
 Soil Map Unit Name: Lamoose loam, 0 to 2 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>

Remarks: Based on the absence of hydrophytic vegetation, hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Dominance Test Worksheet:

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

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

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

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>40</u>	x 5 =	<u>200</u>
Column Totals:	<u>40</u>	(A) (B)	<u>200</u>

Multiply by:

Prevalance Index = B/A = 5

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1	<u>Bromus inermis</u>	<u>40</u>	<u>YES</u>
2	<u>Thinopyrum intermedium</u>	<u>30</u>	<u>YES</u>
3	<u>Centaurea stoebe</u>	<u>30</u>	<u>YES</u>
4			
5			
6			
7			
8			
9			
10			
11			
12			
	Total Cover	<u>100</u>	

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

YES
 NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana **UDP 1B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 2
 Investigator(s): B. Cline, C. Andregg Section/Range: S31 T17 N R19 W Slope (%): 5-10
 Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.194283° Long: -114.075698°
 Soil Map Unit Name: Ninepipe silt loam, 0 to 2 percent slopes NWI classification: R4SBC
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants				Montana	UDP 2	
Tree Stratum (Plot Sizes: 30')				Absolute % Cover	Dominant Species?	
1						
2						
3						
4						
5						
6						
7						
Total Cover				0		
Sapling Stratum (30')				Absolute % Cover	Dominant Species?	
1	Symphoricarpos albus	5	YES	FACU		
2						
3						
4						
5						
6						
7						
Total Cover				5		
Shrub Stratum (30')				Absolute % Cover	Dominant Species?	
1						
2						
3						
4						
5						
6						
7						
Total Cover				0		
Herb Stratum (30')				Absolute % Cover	Dominant Species?	
1	Bromus inermis	90	YES	UPL		
2	Cirsium arvense	10	NO	FAC		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
Total Cover				100		
Woody Vine Stratum (30')				Absolute % Cover	Dominant Species?	
1						
2						
3						
4						
5						
Total Cover				0		
Dominance Test Worksheet:						
				Number of Dominant Species	0	(A)
				That Are OBL, FACW, or FAC:		
				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	10	x 3 = 30
				FACU species	5	x 4 = 20
				UPL species	90	x 5 = 450
				Column Totals:	105	(A) (B) 500
				Prevalence Index = B/A = 5		
Hydrophytic Vegetation Indicators:						
Rapid Test for Hydrophytic Vegetation						
Dominance Test is >50%						
Prevalence Index ≤ 3.0 ¹						
Morphological Adaptation ¹ (Provide supporting data)						
Wetland Non-Vascular Plants ¹						
Problematic Hydrophytic Vegetation ¹ (Explain)						
¹ Indicators of hydric soil and wetland hydrology must be present.						
Definitions for Four Vegetation Strata:						
Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height						
Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.						
Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.						
Woody vine - All woody vines greater than 1 meter in height.						
Hydrophytic Vegetation Present?						
<input type="checkbox"/> YES			<input checked="" type="checkbox"/> NO			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 2

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 3/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S06 T16 N R19 W Slope (%): 0-5
 Investigator(s): B. Cline, C. Andregg Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Landform (hillslope, terrace, etc.): roadside Lat: 47.170802° Long: -114.041920°
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest NWI classification: R3UBFx
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: Based on the absence of hydrophytic vegetation, hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>5</u>	x 2 =	<u>10</u>
FAC species	<u>35</u>	x 3 =	<u>105</u>
FACU species	<u>10</u>	x 4 =	<u>40</u>
UPL species	<u>45</u>	x 5 =	<u>225</u>
Column Totals:	<u>95</u>	(A) (B)	<u>380</u>

Prevalance Index = B/A = 4

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1	<u>Bromus inermis</u>	<u>45</u>	<u>YES</u>
2	<u>Phleum pratense</u>	<u>35</u>	<u>YES</u>
3	<u>Sisymbrium altissimum</u>	<u>10</u>	<u>NO</u>
4	<u>Centaurea stoebe</u>	<u>5</u>	<u>NO</u>
5	<u>Rumex salicifolius</u>	<u>5</u>	<u>FACW</u>
6			
7			
8			
9			
10			
11			
12			
	Total Cover	<u>100</u>	

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

<input type="checkbox"/>	<input checked="" type="checkbox"/>
YES	NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana UDP 2B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed): Type: <u>compacted gravel berm</u> Depth (inches): <u>0</u>	Hydric Soil Present?	
	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Remarks: Hydric soil indicators were not observed at this location. No soil sample was collected due to the site location on a compacted soil/gravel irrigation berm.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 8/30/2021
 Applicant/Owner: CSKT Section/Range: S36 T17 N R20 W Sampling Point: UDP 3
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.185066° Long: -114.075731°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R5UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 3
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>75</u> x 5 = <u>375</u> Column Totals: <u>115</u> (A) (B) <u>525</u> Prevalance Index = B/A = <u>5</u>	
1	<u>Symphoricarpos albus</u>	15	YES	FACU		
2						
3						
4						
5						
6						
		Total Cover	<u>15</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	<u>Bromus inermis</u>	75	YES	UPL		
2	<u>Solidago altissima</u>	15	NO	FACU		
3	<u>Cirsium arvense</u>	10	NO	FAC		
4						
5						
6						
7						
8						
9						
10						
11						
		Total Cover	<u>100</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 3

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 3/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S06 T16 N R19 W Slope (%): 0-5
 Investigator(s): B. Cline, C. Andregg Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Landform (hillslope, terrace, etc.): field Lat: 47.170614° Long: -114.038850°
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest NWI classification: none
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>

Remarks: Based on the absence of hydrophytic vegetation, hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>5</u>	x 3 =	<u>15</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>95</u>	x 5 =	<u>475</u>
Column Totals:	<u>100</u>	(A) (B)	<u>490</u>

Prevalance Index = B/A = 5

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1	<u>Medicago sativa</u>	<u>80</u>	<u>YES</u>
2	<u>Bromus inermis</u>	<u>15</u>	<u>NO</u>
3	<u>Plantago major</u>	<u>5</u>	<u>NO</u>
4			
5			
6			
7			
8			
9			
10			
11			
12			
	Total Cover	<u>100</u>	

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

	X
YES	NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana **UDP 3B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 2/2	100					loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (**LRR O, S**)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 4
 Investigator(s): B. Cline, C. Andregg Section/Range: S2 T16 N R20 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrigation field Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.175414° Long: -114.081799°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R5UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?	
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____		Yes _____
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____		No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 4
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>25</u> x 5 = <u>125</u> Column Totals: <u>70</u> (A) (B) <u>295</u> Prevalance Index = B/A = <u>4</u>	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Centaurea stoebe	30	YES	NI		
2	Bromus inermis	25	YES	UPL		
3	Solidago altissima	15	NO	FACU		
4	Phleum pratense	10	NO	FAC		
5	Symphyotrichum ascendens	10	NO	FACU		
6	Cynoglossum officinale	5	NO	FACU		
7	Geranium robertianum	5	NO	FACU		
8						
9						
10						
11						
12						
Total Cover		<u>100</u>				
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
Total Cover		<u>0</u>				
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 4

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 4B
 Investigator(s): B. Cline, C. Andregg Section/Range: S06 T16 N R19 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.170907° Long: -114.055765°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 4B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>100</u> (A) (B) <u>345</u> Prevalance Index = B/A = <u>3</u>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalance Index ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptation ¹ (Provide supporting data) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	<u>Bromus inermis</u>	40	YES	UPL		
2	<u>Phalaris arundinacea</u>	25	YES	FACW		
3	<u>Phleum pratense</u>	20	YES	FAC		
4	<u>Equisetum pratense</u>	10	NO	FACW		
5	<u>Rumex crispus</u>	5	NO	FAC		
6						
7						
8						
9						
10						
11						
12						
		Total Cover	<u>100</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">X YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was observed at this location.						

SOIL

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

Montana **UDP 4B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-12	10YR 2/2	100					loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 12

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 8/30/2021
 Applicant/Owner: CSKT Section/Range: S1 T16 N R20 W Sampling Point: UDP 5
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrig. canal adjacent Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.174551° Long: -114.063302°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 5		
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>60</u> x 5 = <u>300</u> Column Totals: <u>110</u> (A) (B) <u>465</u> Prevalance Index = B/A = <u>4</u>			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>			
1	Alnus viridis	15	YES	FACW				
2	Symphotrichum ascendens	10	YES	FACU				
3								
4								
5								
6								
		Total Cover	<u>25</u>					
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.			
1	Bromus inermis	60	YES	UPL				
2	Solidago altissima	20	YES	FACU				
3	Centaurea stoebe	15	NO	NI				
4	Phleum pratense	5	NO	FAC				
5								
6								
7								
8								
9								
10								
11								
		Total Cover	<u>100</u>					
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>			
1								
2								
3								
4								
5								
		Total Cover	<u>0</u>					
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.								

SOIL

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

Montana UDP 5

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S25 T17 N R20 W Sampling Point: UDP 5B
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.199831° Long: -114.080968°
 Soil Map Unit Name: Jocko gravelly loam, 4 to 15 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)

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 5B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>35</u> x 5 = <u>175</u> Column Totals: <u>55</u> (A) (B) <u>255</u> Prevalance Index = B/A = <u>5</u>	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Bromus inermis	35	YES	UPL		
2	Thinopyrum intermedium	30	YES	NA		
3	Sisymbrium altissimum	15	NO	FACU		
4	Centaurea stoebe	15	NO	NI		
5	Taraxacum officinale	5	NO	FACU		
6						
7						
8						
9						
10						
11						
12						
Total Cover		<u>100</u>				
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
Total Cover		<u>0</u>				
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana **UDP 5B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 4/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (**LRR O, S**)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 8/30/2021
 Applicant/Owner: CSKT Section/Range: S1 T16 N R20 W Sampling Point: UDP 6
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrig. canal adjacent Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.174507° Long: -114.076128°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 6		
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>45</u> x 4 = <u>180</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>100</u> (A) (B) <u>375</u> Prevalance Index = B/A = <u>4</u>			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>			
1	Rosa woodsii	15	YES	FACU				
2	Crataegus douglasii	10	YES	FAC				
3								
4								
5								
6								
		Total Cover	<u>25</u>					
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.			
1	Solidago altissima	30	YES	FACU				
2	Bromus inermis	20	YES	UPL				
3	Phleum pratense	15	NO	FAC				
4	Phalaris arundinacea	10	NO	FACW				
5	Silene latifolia	5	NO	NI				
6								
7								
8								
9								
10								
11								
		Total Cover	<u>80</u>					
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>			
1								
2								
3								
4								
5								
		Total Cover	<u>0</u>					
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.								

SOIL

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

Montana UDP 6

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/1	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S25 T17 N R20 W Slope (%): 0-5
 Investigator(s): B. Cline, C. Andregg Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Landform (hillslope, terrace, etc.): natural draw Lat: 47.200435° Long: -114.086289°
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest NWI classification: R4SBC
 Soil Map Unit Name: McCollum fine sandy loam, 0 to 2 percent loams
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <u>X</u>
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Prevalance Index Worksheet:

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species	35	x 5 =	175
Column Totals:	95	(A) (B)	335

Prevalance Index = B/A = 4

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
Total Cover	100		

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
Total Cover	0		

Hydrophytic Vegetation Present?

	X
YES	NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana **UDP 6B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 2/1	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- _____ Histosol (A1)
- _____ Histic Epipedon (A2)
- _____ Black Histic (A3)
- _____ Hydrogen Sulfide (A4)
- _____ Depleted Below Dark Surface (A11)
- _____ Thick Dark Surface (A12)
- _____ Sandy Mucky Mineral (S1) (**LRR O, S**)
- _____ Sandy Gleyed Matrix (S4)

- _____ Sandy Redox (S5)
- _____ Stripped Matrix (S6)
- _____ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- _____ Loamy Gleyed Matrix (F2)
- _____ Depleted Matrix (F3)
- _____ Redox Dark Surface (F6)
- _____ Depleted Dark Surface (F7)
- _____ Redox Depressions (F8)

- _____ 2 cm Muck (A10)
- _____ Red Parent Material (TF2)
- _____ Very Shallow Dark Surface (TF12)
- _____ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 7
 Investigator(s): B. Cline, C. Andregg Section/Range: S09 T16 N R19 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.163774° Long: -114.016000°
 Soil Map Unit Name: Ninepipe silt loam, 0 to 2 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants				Montana	UDP 7
Tree Stratum (Plot Sizes: 30')				Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1		Absolute %	Dominant		
2		Cover	Species?		
3			Indicator		
4			Status		
5					
6					
7					
Total Cover		<u>0</u>			
Sapling Stratum (30')				Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>80</u> (A) (B) <u>340</u> Prevalance Index = B/A = <u>4</u>	
1		Absolute %	Dominant		
2		Cover	Species?		
3			Indicator		
4			Status		
5					
6					
7					
Total Cover		<u>0</u>			
Shrub Stratum (30')				Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>	
1		Absolute %	Dominant		
2		Cover	Species?		
3			Indicator		
4			Status		
5					
6					
7					
Total Cover		<u>0</u>			
Herb Stratum (30')				Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Bromus inermis	40	YES		
2	Solidago altissima	20	YES		
3	Thinopyrum intermedium	10	NO		
4	Deschampsia caespitosa	10	NO		
5	Symphyotrichum ascendens	5	NO		
6	Rosa woodsii	5	NO		
7					
8					
9					
10					
11					
12					
Total Cover		<u>90</u>			
Woody Vine Stratum (30')				Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1		Absolute %	Dominant		
2		Cover	Species?		
3			Indicator		
4			Status		
5					
Total Cover		<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.					

SOIL

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

Montana UDP 7

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 4/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted
 Depth (inches): 2

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 7B
 Investigator(s): B. Cline, C. Andregg Section/Range: S25 T17 N R20 W Slope (%): 5-10
 Landform (hillslope, terrace, etc.): natural draw Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.210675° Long: -114.092429°
 Soil Map Unit Name: Belton silt loam, 8 to 15 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 7B		
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>100</u> (A) (B) <u>380</u> Prevalance Index = B/A = <u>4</u>			
1								
2								
3								
4								
5								
6								
		Total Cover	<u>0</u>					
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.			
1	<u>Symphoricarpos albus</u>	15	YES	FACU				
2								
3								
4								
5								
6								
		Total Cover	<u>15</u>					
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.			
1	<u>Bromus inermis</u>	20	YES	UPL				
2	<u>Phleum pratense</u>	15	NO	FAC				
3	<u>Centaurea stoebe</u>	15	NO	NI				
4	<u>Sisymbrium altissimum</u>	15	NO	FACU				
5	<u>Potentilla gracilis</u>	15	NO	FAC				
6	<u>Verbascum thapsus</u>	10	NO	FACU				
7	<u>Asclepias speciosa</u>	10	NO	FAC				
8								
9								
10								
11								
12								
		Total Cover	<u>100</u>					
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>			
1								
2								
3								
4								
5								
		Total Cover	<u>0</u>					
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.								

SOIL

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

Montana **UDP 7B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (**LRR O, S**)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (**except MLRA 1**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 8
 Investigator(s): B. Cline, C. Andregg Section/Range: S08 T16 N R19 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.163649° Long: -114.023814°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>

Remarks: Based on the absence of hydrophytic vegetation, hydric soils and wetland hydrology, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 8
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>50</u> x 4 = <u>200</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>55</u> (A) (B) <u>215</u> Prevalance Index = B/A = <u>4</u>	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
7						
Total Cover		<u>0</u>				
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Medicago polymorpha	30	YES	FACU		
2	Thinopyrum intermedium	15	YES	NA		
3	Lepidium densiflorum	15	YES	FACU		
4	Urtica dioica	5	NO	FAC		
5	Convolvulus arvensis	5	NO	NI		
6	Sisymbrium altissimum	5	NO	FACU		
7						
8						
9						
10						
11						
12						
Total Cover		<u>75</u>				
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
Total Cover		<u>0</u>				
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 8

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S25 T17 N R20 W Sampling Point: UDP 8B
 Investigator(s): B. Cline, C. Andregg Slope (%): 5-10 Datum: NAD83 SP MT
 Landform (hillslope, terrace, etc.): irrigation canal/draw Local relief (concave, convex, none): concave
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.204050° Long: -114.078989°
 Soil Map Unit Name: Jocko gravelly loam, 4 to 15 percent slopes NWI classification: R4SBC
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

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)

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>10</u>	x 3 =	<u>30</u>
FACU species	<u>30</u>	x 4 =	<u>120</u>
UPL species	<u>25</u>	x 5 =	<u>125</u>
Column Totals:	<u>65</u>	(A) (B)	<u>275</u>

Prevalance Index = B/A = 4

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1	<u>Bromus inermis</u>	<u>25</u>	<u>YES</u>
2	<u>Bromus tectorum</u>	<u>20</u>	<u>YES</u>
3	<u>Hypericum perforatum</u>	<u>15</u>	<u>NO</u>
4	<u>Rosa woodsii</u>	<u>15</u>	<u>NO</u>
5	<u>Potentilla gracilis</u>	<u>10</u>	<u>NO</u>
6			
7			
8			
9			
10			
11			
12			
	Total Cover	<u>85</u>	

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

	X
YES	NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana **UDP 8B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 3

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 9
 Investigator(s): B. Cline, C. Andregg Section/Range: S06 T16 N R19 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrigated field Local relief (concave, convex, none): flat Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.167353° Long: -114.054995°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____
Wetland Hydrology Present?	Yes <u>X</u>	No _____		No <u>X</u>

Remarks: Based on the absence of hydric soils, this location does not meet the criteria of a wetland. This data point was recorded in an irrigated field that appeared to receive additional water from seasonal irrigation piping leaks.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes <u>X</u>	No _____	Depth (inches) <u>2</u>	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes <u>X</u>	No _____	Depth (inches) <u>4</u>	
				Yes _____
				No _____

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

Remarks: Hydrologic indicators were observed at this location. Hydrology appeared to be entirely influenced by seasonal irrigation and irrigation piping leaks.

Vegetation- Use scientific names of plants					Montana	UDP 9																												
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																													
1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
		Total Cover	<u>0</u>																															
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 20%; text-align: right;">Multiply by:</td> <td style="width: 20%;"></td> </tr> <tr> <td>OBL species</td> <td style="text-align: right;"><u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: right;"><u>60</u></td> <td>x 2 = <u>120</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: right;"><u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: right;"><u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: right;"><u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: right;"><u>100</u></td> <td>(A) (B) <u>240</u></td> </tr> <tr> <td colspan="2"></td> <td colspan="2" style="text-align: center;">Prevalance Index = B/A =</td> <td style="text-align: center;"><u>2</u></td> <td colspan="2"></td> </tr> </table>			Multiply by:		OBL species	<u>0</u>	x 1 = <u>0</u>	FACW species	<u>60</u>	x 2 = <u>120</u>	FAC species	<u>40</u>	x 3 = <u>120</u>	FACU species	<u>0</u>	x 4 = <u>0</u>	UPL species	<u>0</u>	x 5 = <u>0</u>	Column Totals:	<u>100</u>	(A) (B) <u>240</u>			Prevalance Index = B/A =		<u>2</u>		
	Multiply by:																																	
OBL species	<u>0</u>	x 1 = <u>0</u>																																
FACW species	<u>60</u>	x 2 = <u>120</u>																																
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FACU species	<u>0</u>	x 4 = <u>0</u>																																
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1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
		Total Cover	<u>0</u>																															
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalance Index $\leq 3.0^1$ <input type="checkbox"/> Morphological Adaptation ¹ (Provide supporting data) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																													
1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
		Total Cover	<u>0</u>																															
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.																													
1	Phleum pratense	40	YES	FAC																														
2	Rumex salicifolius	30	YES	FACW																														
3	Deschampsia caespitosa	20	YES	FACW																														
4	Epilobium ciliatum	10	NO	FACW																														
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		
		Total Cover	<u>100</u>																															
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">X YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">NO</div> </div>																													
1																																		
2																																		
3																																		
4																																		
5																																		
		Total Cover	<u>0</u>																															
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was observed at this location.																																		

SOIL

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

Montana UDP 9

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/1	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S25 T17 N R20 W Sampling Point: UDP 9B
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrigation canal Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.210715° Long: -114.085301°
 Soil Map Unit Name: Niarada gravelly loam, cool, 15 to 30 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 9B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>35</u> x 5 = <u>175</u> Column Totals: <u>85</u> (A) (B) <u>360</u> Prevalance Index = B/A = <u>4</u>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Bromus inermis	35	YES	UPL		
2	Potentilla gracilis	15	NO	FAC		
3	Hypericum perforatum	10	NO	FACU		
4	Rosa woodsii	10	NO	FACU		
5	Taraxacum officinale	10	NO	FACU		
6	Verbascum thapsus	5	NO	FACU		
7						
8						
9						
10						
11						
12						
		Total Cover	<u>85</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana **UDP 9B**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 5

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 10
 Investigator(s): B. Cline, C. Andregg Section/Range: S06 T16 N R19 W Slope (%): 5-10
 Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.189043° Long: -114.097761°
 Soil Map Unit Name: Lamoose loam, 0 to 2 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: Based on the absence of hydrophytic vegetation, hydrology and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Dominance Test Worksheet:

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

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

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

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of: Multiply by:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>15</u>	x 2 =	<u>30</u>
FAC species	<u>5</u>	x 3 =	<u>15</u>
FACU species	<u>25</u>	x 4 =	<u>100</u>
UPL species	<u>80</u>	x 5 =	<u>400</u>
Column Totals:	<u>125</u>	(A) (B)	<u>545</u>
Prevalance Index = B/A =			<u>4</u>

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1	<u>15</u>	<u>YES</u>	<u>FACU</u>
2	<u>10</u>	<u>YES</u>	<u>FACU</u>
3			
4			
5			
6			
7			
	Total Cover	<u>25</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status
Herb Stratum (30')			
1	<u>80</u>	<u>YES</u>	<u>UPL</u>
2	<u>15</u>	<u>NO</u>	<u>FACW</u>
3	<u>5</u>	<u>NO</u>	<u>FAC</u>
4			
5			
6			
7			
8			
9			
10			
11			
12			
	Total Cover	<u>100</u>	

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

YES
 NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana **UDP 10**

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 2/2	100					silty clay loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S24 T17 N R20 W Sampling Point: UDP 10B
 Investigator(s): B. Cline, C. Andregg Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrigation canal/draw Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.224668° Long: -114.094750°
 Soil Map Unit Name: Ninepipe silt loam, 0 to 2 percent slopes NWI classification: R3UFB
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland. This data point was recorded adjacent Lamoose Creek where it flows under the K Canal.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Prevalance Index Worksheet:

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	60	x 5 =	300
Column Totals:	130	(A) (B)	550

Prevalance Index = B/A = 4

	Absolute % Cover	Dominant Species?	Indicator Status	
Shrub Stratum (30')				
1	Crataegus douglasii	20	YES	FAC
2	Symphoricarpos albus	15	YES	FACU
3	Rosa woodsii	10	YES	FACU
4				
5				
6				
7				
Total Cover	45			

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status	
Herb Stratum (30')				
1	Bromus inermis	60	YES	UPL
2	Solidago altissima	15	NO	FACU
3	Dipsacus fullonum	10	NO	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
Total Cover	85			

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
Total Cover	0		

Hydrophytic Vegetation Present?

YES
 NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana UDP 10B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 5

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S23 T17 N R20 W Slope (%): 10-15
 Investigator(s): B. Cline, C. Andregg Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Landform (hillslope, terrace, etc.): hillslope Lat: 47.224955° Long: -114.101917°
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest NWI classification: none
 Soil Map Unit Name: Niarada gravelly loam, cool, 15 to 30 percent slopes
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?		
Hydric Soils Present?	Yes _____	No <u>X</u>		Yes _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>		No <u>X</u>	

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 11B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)	
1	<u>Crataegus douglasii</u>	35	YES	FAC		
2	_____					
3	_____					
4	_____					
5	_____					
6	_____					
Total Cover		<u>35</u>				
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>85</u> x 5 = <u>425</u> Column Totals: <u>155</u> (A) (B) <u>670</u> Prevalance Index = B/A = <u>4</u>	
1	_____					
2	_____					
3	_____					
4	_____					
5	_____					
6	_____					
Total Cover		<u>0</u>				
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>	
1	<u>Symphoricarpos albus</u>	15	YES	FACU		
2	<u>Rosa woodsii</u>	5	YES	FACU		
3	_____					
4	_____					
5	_____					
6	_____					
Total Cover		<u>20</u>				
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	<u>Bromus inermis</u>	85	YES	UPL		
2	<u>Cynoglossum officinale</u>	15	NO	FACU		
3	_____					
4	_____					
5	_____					
6	_____					
7	_____					
8	_____					
9	_____					
10	_____					
11	_____					
12	_____					
Total Cover		<u>100</u>				
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1	_____					
2	_____					
3	_____					
4	_____					
5	_____					
Total Cover		<u>0</u>				
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 11B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 5

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S14 T17 N R20 W Sampling Point: UDP 12B
 Investigator(s): B. Cline, C. Andregg Slope (%): 5-10
 Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.226040° Long: -114.103421°
 Soil Map Unit Name: Belton silt loam, 15 to 35 percent slopes NWI classification: R4SBC
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?	
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____		Yes _____
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____		No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 12B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>90</u> (A) (B) <u>410</u> Prevalance Index = B/A = <u>5</u>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>	
1	<u>Symphoricarpos albus</u>	10	YES	FACU		
2	<u>Rosa woodsii</u>	5	YES	FACU		
3						
4						
5						
6						
		Total Cover	<u>15</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	<u>Bromus inermis</u>	50	YES	UPL		
2	<u>Taraxacum officinale</u>	15	YES	FACU		
3	<u>Cynoglossum officinale</u>	10	NO	FACU		
4						
5						
6						
7						
8						
9						
10						
11						
		Total Cover	<u>75</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 12B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 6

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 13B
 Investigator(s): B. Cline, C. Andregg Section/Range: S14 T17 N R20 W Slope (%): 10-15
 Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.230045° Long: -114.117497°
 Soil Map Unit Name: Minesinger-Walstead very stony loams, 15 to 45 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____
Hydric Soils Present?	Yes _____	No <u>X</u>		No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>		

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____ No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 13B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)	
1	Populus balsamifera	15	YES	FAC		
2						
3						
4						
5						
6						
		Total Cover <u>15</u>				
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>50</u> x 4 = <u>200</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>115</u> (A) (B) <u>495</u> Prevalance Index = B/A = <u>4</u>	
1						
2						
3						
4						
5						
6						
		Total Cover <u>0</u>				
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) <small>¹Indicators of hydric soil and wetland hydrology must be present.</small>	
1	Symphoricarpos albus	5	YES	FACU		
2	Rosa woodsii	5	YES	FACU		
3						
4						
5						
6						
		Total Cover <u>10</u>				
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Bromus inermis	50	YES	UPL		
2	Taraxacum officinale	15	NO	FACU		
3	Cynoglossum officinale	10	NO	FACU		
4	Verbascum thapsus	10	NO	FACU		
5	Rosa woodsii	5	NO	FACU		
6						
7						
8						
9						
10						
11						
12						
		Total Cover <u>90</u>				
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; width: 80px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; width: 80px; text-align: center;">X NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover <u>0</u>				
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.						

SOIL

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

Montana UDP 13B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake State: Montana Sampling Date: 9/23/2021
 Applicant/Owner: CSKT Section/Range: S15 T17 N R20 W Sampling Point: UDP 14B
 Investigator(s): B. Cline, C. Andregg Slope (%): 10-15
 Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.230585° Long: -114.120229°
 Soil Map Unit Name: Minesinger-Walstead very stony loams, 15 to 45 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Tree Stratum (Plot Sizes: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Sapling Stratum (30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
Total Cover	0		

Prevalance Index Worksheet:

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	45	x 4 =	180
UPL species	40	x 5 =	200
Column Totals:	95	(A) (B)	410

Prevalance Index = B/A = 4

Shrub Stratum (30')	Absolute % Cover	Dominant Species?	Indicator Status	
1	Crataegus douglasii	10	YES	FAC
2	Symphoricarpos albus	5	YES	FACU
3	Rosa woodsii	5	YES	FACU
4				
5				
6				
7				
Total Cover	20			

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Herb Stratum (30')	Absolute % Cover	Dominant Species?	Indicator Status	
1	Bromus inermis	40	YES	UPL
2	Taraxacum officinale	15	YES	FACU
3	Cynoglossum officinale	10	NO	FACU
4	Verbascum thapsus	5	NO	FACU
5	Rosa woodsii	5	NO	FACU
6				
7				
8				
9				
10				
11				
12				
Total Cover	75			

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

Woody Vine Stratum (30')	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
Total Cover	0		

Hydrophytic Vegetation Present?

YES
 NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana UDP 14B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-4	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 15B
 Investigator(s): B. Cline, C. Andregg Section/Range: S15 T17 N R20 W Slope (%): 10-15
 Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.231687° Long: -114.122790°
 Soil Map Unit Name: Minesinger-Walstead very stony loams, 15 to 45 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 _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____	
				Yes _____
				No <u>X</u>

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

Remarks: Hydrologic indicators were not observed at this location.

Vegetation- Use scientific names of plants					Montana	UDP 15B																								
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)																									
1	Populus balsamifera	15	YES	FAC																										
2																														
3																														
4																														
5																														
6																														
Total Cover		<u>15</u>																												
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: <u> </u> Multiply by: <table style="margin-left: 20px; border-collapse: collapse;"> <tr><td>OBL species</td><td style="text-align: center;"><u>0</u></td><td>x 1 =</td><td style="text-align: center;"><u>0</u></td></tr> <tr><td>FACW species</td><td style="text-align: center;"><u>0</u></td><td>x 2 =</td><td style="text-align: center;"><u>0</u></td></tr> <tr><td>FAC species</td><td style="text-align: center;"><u>25</u></td><td>x 3 =</td><td style="text-align: center;"><u>75</u></td></tr> <tr><td>FACU species</td><td style="text-align: center;"><u>40</u></td><td>x 4 =</td><td style="text-align: center;"><u>160</u></td></tr> <tr><td>UPL species</td><td style="text-align: center;"><u>45</u></td><td>x 5 =</td><td style="text-align: center;"><u>225</u></td></tr> <tr><td>Column Totals:</td><td style="text-align: center;"><u>110</u></td><td>(A) (B)</td><td style="text-align: center;"><u>460</u></td></tr> </table> Prevalance Index = B/A = <u>4</u>		OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>0</u>	x 2 =	<u>0</u>	FAC species	<u>25</u>	x 3 =	<u>75</u>	FACU species	<u>40</u>	x 4 =	<u>160</u>	UPL species	<u>45</u>	x 5 =	<u>225</u>	Column Totals:	<u>110</u>	(A) (B)	<u>460</u>
OBL species	<u>0</u>	x 1 =	<u>0</u>																											
FACW species	<u>0</u>	x 2 =	<u>0</u>																											
FAC species	<u>25</u>	x 3 =	<u>75</u>																											
FACU species	<u>40</u>	x 4 =	<u>160</u>																											
UPL species	<u>45</u>	x 5 =	<u>225</u>																											
Column Totals:	<u>110</u>	(A) (B)	<u>460</u>																											
1																														
2																														
3																														
4																														
5																														
6																														
Total Cover		<u>0</u>																												
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalance Index $\leq 3.0^1$ Morphological Adaptation ¹ (Provide supporting data) Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																									
1	Crataegus douglasii	10	YES	FAC																										
2	Symphoricarpos albus	5	YES	FACU																										
3	Rosa woodsii	5	YES	FACU																										
4																														
5																														
6																														
Total Cover		<u>20</u>																												
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.																									
1	Bromus inermis	45	YES	UPL																										
2	Centaurea stoebe	15	NO	NI																										
3	Cynoglossum officinale	15	NO	FACU																										
4	Verbascum thapsus	10	NO	FACU																										
5	Rosa woodsii	5	NO	FACU																										
6																														
7																														
8																														
9																														
10																														
11																														
Total Cover		<u>90</u>																												
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">X NO</div> </div>																									
1																														
2																														
3																														
4																														
5																														
Total Cover		<u>0</u>																												
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.																														

SOIL

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

Montana UDP 15B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 3

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: UDP 16B
 Investigator(s): B. Cline, C. Andregg Section/Range: S36 T17 N R20 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): field Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.191712° Long: -114.094172°
 Soil Map Unit Name: Jocko gravelly loam, 0 to 4 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sample Area within a Wetland?	Yes _____	
Hydric Soils Present?	Yes _____	No <u>X</u>		No _____	<u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: Based on the absence of hydrology, hydrophytic vegetation and hydric soils, this location does not meet the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches) _____	Wetland Hydrology Present?	
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches) _____		Yes _____
Saturation Present? (includes capillary fringe)	Yes _____	No <u>X</u>	Depth (inches) _____		No _____

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

Remarks: Hydrologic indicators were not observed at this location.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot Sizes: 30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

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)

	Absolute % Cover	Dominant Species?	Indicator Status
Sapling Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Prevalance Index Worksheet:

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>15</u>	x 3 =	<u>45</u>
FACU species	<u>40</u>	x 4 =	<u>160</u>
UPL species	<u>45</u>	x 5 =	<u>225</u>
Column Totals:	<u>100</u>	(A) (B)	<u>430</u>

Prevalance Index = B/A = 4

	Absolute % Cover	Dominant Species?	Indicator Status
Shrub Stratum (30')			
1			
2			
3			
4			
5			
6			
7			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Indicators:

Rapid Test for Hydrophytic Vegetation

Dominance Test is >50%

Prevalance Index $\leq 3.0^1$

Morphological Adaptation¹ (Provide supporting data)

Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

	Absolute % Cover	Dominant Species?	Indicator Status	
Herb Stratum (30')				
1	<u>Bromus inermis</u>	<u>45</u>	<u>YES</u>	<u>UPL</u>
2	<u>Trifolium pratense</u>	<u>35</u>	<u>YES</u>	<u>FACU</u>
3	<u>Cirsium arvense</u>	<u>15</u>	<u>NO</u>	<u>FAC</u>
4	<u>Verbascum thapsus</u>	<u>5</u>	<u>NO</u>	<u>FACU</u>
5				
6				
7				
8				
9				
10				
11				
12				
	Total Cover	<u>100</u>		

Definitions for Four Vegetation Strata:

Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height

Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall.

Woody vine - All woody vines greater than 1 meter in height.

	Absolute % Cover	Dominant Species?	Indicator Status
Woody Vine Stratum (30')			
1			
2			
3			
4			
5			
	Total Cover	<u>0</u>	

Hydrophytic Vegetation Present?

YES
 NO

Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was not observed at this location.

SOIL

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

Montana UDP 16B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	10YR 3/2	100					silt loam	

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 8

Hydric Soil Present?

Yes No

Remarks: Hydric soil indicators were not observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 8/30/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: WDP 1
 Investigator(s): B. Cline, C. Andregg Section/Range: S35 T17 N R20 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): roadside Local relief (concave, convex, none): convex Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.189084° Long: -114.096962°
 Soil Map Unit Name: Lamoose loam, 0 to 2 percent slopes NWI classification: PEM1Ad
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sample Area within a Wetland?		Yes <u>X</u>
Hydric Soils Present?	Yes <u>X</u>	No _____		No	
Wetland Hydrology Present?	Yes <u>X</u>	No _____		No	

Remarks: Based on the presence of hydrophytic vegetation, hydrology and hydric soils, this location meets the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> MLRA 1, 2, 4A, and d4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes _____	No _____	Depth (inches) _____	Wetland Hydrology Present?
Water Table Present?	Yes <u>X</u>	No _____	Depth (inches) <u>6</u>	
Saturation Present? (includes capillary fringe)	Yes <u>X</u>	No _____	Depth (inches) <u>throughout</u>	
				Yes _____
				No _____

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

Remarks: Hydrologic indicators were observed at this location.

Vegetation- Use scientific names of plants					Montana	WDP 1																												
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)																													
1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
		Total Cover	<u>0</u>																															
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="width: 20%;"></td> <td style="width: 20%; text-align: right;">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;"><u>60</u></td> <td>x 1 = <u>60</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>40</u></td> <td>x 2 = <u>80</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>100</u></td> <td>(A) (B)</td> <td style="text-align: center;"><u>140</u></td> </tr> <tr> <td colspan="3"></td> <td colspan="2" style="text-align: center;">Prevalance Index = B/A =</td> <td style="text-align: center;"><u>1</u></td> </tr> </table>				Multiply by:	OBL species	<u>60</u>	x 1 = <u>60</u>	FACW species	<u>40</u>	x 2 = <u>80</u>	FAC species	<u>0</u>	x 3 = <u>0</u>	FACU species	<u>0</u>	x 4 = <u>0</u>	UPL species	<u>0</u>	x 5 = <u>0</u>	Column Totals:	<u>100</u>	(A) (B)	<u>140</u>				Prevalance Index = B/A =		<u>1</u>
		Multiply by:																																
OBL species	<u>60</u>	x 1 = <u>60</u>																																
FACW species	<u>40</u>	x 2 = <u>80</u>																																
FAC species	<u>0</u>	x 3 = <u>0</u>																																
FACU species	<u>0</u>	x 4 = <u>0</u>																																
UPL species	<u>0</u>	x 5 = <u>0</u>																																
Column Totals:	<u>100</u>	(A) (B)	<u>140</u>																															
			Prevalance Index = B/A =		<u>1</u>																													
1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
		Total Cover	<u>0</u>																															
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalance Index ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptation ¹ (Provide supporting data) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																													
1																																		
2																																		
3																																		
4																																		
5																																		
6																																		
7																																		
		Total Cover	<u>0</u>																															
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.																													
1	Carex nebrascensis	60	YES	OBL																														
2	Equisetum pratense	25	YES	FACW																														
3	Deschampsia caespitosa	10	NO	FACW																														
4	Polygonum lapathifolium	5	NO	FACW																														
5																																		
6																																		
7																																		
8																																		
9																																		
10																																		
11																																		
12																																		
		Total Cover	<u>100</u>																															
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">X YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">NO</div> </div>																													
1																																		
2																																		
3																																		
4																																		
5																																		
		Total Cover	<u>0</u>																															
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was observed at this location.																																		

SOIL

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

Montana WDP 1

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8	2.5Y 2.5/1	100					silty clay loam	heavy organics/muck

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 4

Hydric Soil Present?

Yes

No

Remarks: Hydric soil indicators were observed at this location.

Morrison-Maierle, Inc.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project Site: Jocko Area Conversion Project City/County: Lake Sampling Date: 9/23/2021
 Applicant/Owner: CSKT State: Montana Sampling Point: WDP 1B
 Investigator(s): B. Cline, C. Andregg Section/Range: S25 T17 N R20 W Slope (%): 0-5
 Landform (hillslope, terrace, etc.): irrigation canal Local relief (concave, convex, none): concave Datum: NAD83 SP MT
 Subregion (LRR or MLRA): Rocky Mountain Range and Forest Lat: 47.209783° Long: -114.084222°
 Soil Map Unit Name: Niarada gravelly loam, cool, 15 to 30 percent slopes NWI classification: R3UBFx
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ Hydrology _____ significantly disturbed?
 Are Vegetation _____ Soil _____ Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)
 Are "Normal Circumstances" present? Yes X No _____

SUMMARY OF FINDINGS- Attach site map showing sampling point locations, transects, important features, ect.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sample Area within a Wetland?	Yes <u>X</u>
Hydric Soils Present?	Yes <u>X</u>	No _____		No _____
Wetland Hydrology Present?	Yes <u>X</u>	No _____		No _____

Remarks: Based on the presence of hydrophytic vegetation, hydrology and hydric soils, this location meets the criteria of a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

Secondary Indicators (minimum of two required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and d4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and d4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <u>X</u>	No _____	Depth (inches) <u>1</u>	Wetland Hydrology Present?
Water Table Present?	Yes _____	No _____	Depth (inches) _____	
Saturation Present? (includes capillary fringe)	Yes <u>X</u>	No _____	Depth (inches) <u>throughout</u>	
				Yes _____ No _____

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

Remarks: Hydrologic indicators were observed at this location.

Vegetation- Use scientific names of plants					Montana	WDP 1B
Tree Stratum (Plot Sizes: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Sapling Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Prevalance Index Worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) (B) <u>230</u> Prevalance Index = B/A = <u>2</u>	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Shrub Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalance Index ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptation ¹ (Provide supporting data) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
1						
2						
3						
4						
5						
6						
		Total Cover	<u>0</u>			
Herb Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Definitions for Four Vegetation Strata: Tree - Woody plants, excluding vines, 3 inches or more in diameter at breast height (DBH), regardless of height Sapling/Shrub - Woody plants, excluding vines less than 3 inch DBH and greater than 1 meter tall. Herb - All herbaceous (non-woody) plants, regardless of size, and wood plants less than 1 meter tall. Woody vine - All woody vines greater than 1 meter in height.	
1	Deschampsia caespitosa	35	YES	FACW		
2	Juncus balticus	35	YES	FACW		
3	Ranunculus acris	30	YES	FAC		
4						
5						
6						
7						
8						
9						
10						
11						
12						
		Total Cover	<u>100</u>			
Woody Vine Stratum (30')		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">X YES</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">NO</div> </div>	
1						
2						
3						
4						
5						
		Total Cover	<u>0</u>			
Remarks: (If observed, list morphological adaptations below) Hydrophytic vegetation was observed at this location.						

SOIL

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

Montana WDP 1B

Matrix			Redox Fetures					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2	10YR 3/1	100					silty clay loam	
2-8	10YR 5/1	95	10YR 5/6	5	C	M	loamy clay	20% gravel

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils³:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR O, S) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if observed):

Type: compacted/gravel
 Depth (inches): 8

Hydric Soil Present?

Yes

No

Remarks: Hydric soil indicators were observed at this location.

APPENDIX C: SITE PHOTOGRAPHS



Photo 1: Representative view of a proposed pipeline route that is an existing irrigation handline and fence line surrounded by pastureland.



Photo 2: Representative view one of the existing irrigation ditches along the roadside that is proposed to be converted to pipeline.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT\015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 3: View of wetland (WET) 1 & 2, a palustrine emergent (PEM) wetland, facing west toward US Highway 93.



Photo 4: View of WET 3, a PEM wetland, facing north.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 5: Representative view of an irrigation ditch that was not in use during the site investigation.



Photo 6: View of one of the existing irrigation canals in use in the project area that is surrounded by hay fields.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 7: Representative view of a proposed pipeline route adjacent to a residential public roadway.



Photo 8: View of the existing K Canal where it is intersected by Martz Road, facing west.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 9: View of WET 4, a PEM wetland largely influenced by irrigation seepage.



Photo 10: Representative view of the rangeland adjacent to and uphill of the existing K Canal.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 11: View of Lamoose Creek (TRIB 1) where it is routed under the K Canal and outlet through a culvert to the south.

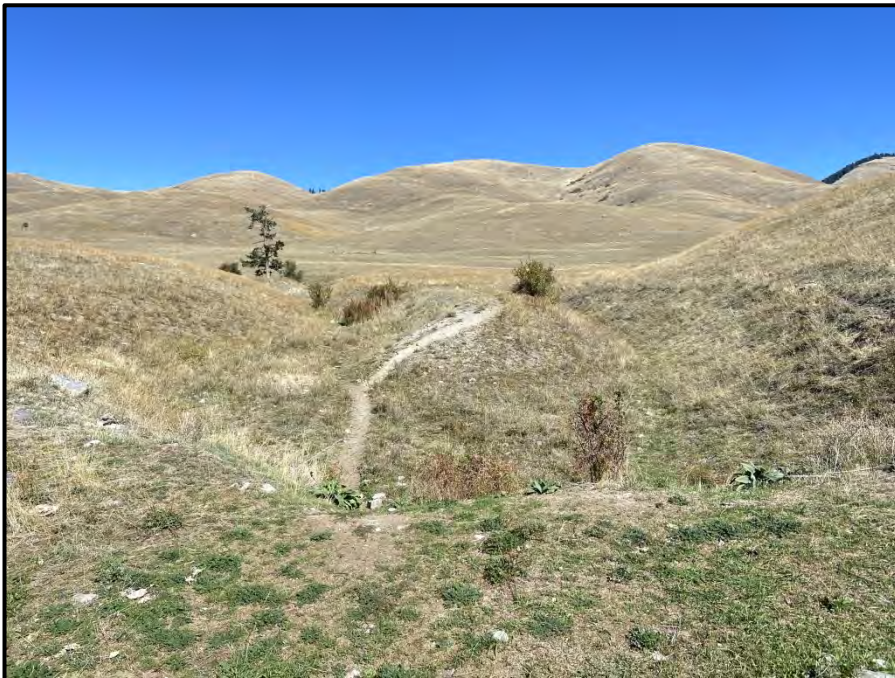


Photo 12: Representative view of the dry draws on the uphill side of the K Canal.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 13: View of one of the many headgate structures on the K Canal.



Photo 14: View of the inlet for supplying water to TRIB 2 directly from the K Canal.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

M:\0859 CSKT015-00_Jocko Canal to Pipeline\Image\Wetland Delineation



Photo 15: View of TRIB 2 where it flows through a Cottonwood tree dominated area.



Photo 16: Representative view of the K Canal and its adjacent upland vegetation communities.

**Jocko Area Canal Conversion Project
Wetland Investigation
Arlee, Montana**

Photo Date: August 30 & September 24, 2021

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P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.5363 • <http://mtnhp.org>

June 10, 2022

Breanne Carr
Morrison-Maierle
172 Timber Wolf Parkway
Kalispell, MT 59901

Dear Breanne Carr,

Thank you for your request for Natural Heritage information for the Jocko Area Canal to Pipeline Project, in Lake County. Included with this letter is an Environmental Summary report PDF and a companion Excel workbook summarizing information managed in the Montana Natural Heritage Program's (MTNHP) databases for: (1) species occurrences; (2) other observed species without Species Occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys (organized efforts following a protocol capable of detecting one or more species); (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. The PDF report contains introductory materials and limitations associated with the use of each of these data types, a list of additional information resources, data use terms and conditions, and suggested contacts. The Excel workbook contains worksheets for each data type that can be easily sorted to summarize particular information needs. In addition to these materials, we have included a compilation of one page snapshots containing general description, habitat, spatial and temporal distribution, and conservation status information for each species listed in the species occurrence, other observed species, and other potential species sections of the Environmental Summary report. These three field guide compilations are excerpted from the full accounts found on the Montana Field Guide <http://fieldguide.mt.gov> for general reference use and, if desired, as appendices to environmental review documents.

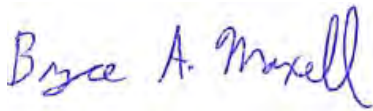
Please keep in mind the following when using and interpreting the enclosed information:

- (1) This information is intended for distribution or use only within your department, agency, or business. Please see the Data Use Terms and Conditions in the Environmental Summary report PDF for additional guidelines.
- (2) Our minimum search area for standard information requests consists of the requested area buffered by an additional mile in order to capture records that may be immediately adjacent to the requested area. Please let us know if a buffer greater than 1 mile would be of use to your efforts.

- (3) Additional information on animal, plant, and lichen species and ecological systems in Montana is available on the Montana Field Guide at <http://fieldguide.mt.gov/>
- (4) In addition to the information you receive from us, we encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located (see Environmental Summary report PDF).

I hope the enclosed information is helpful to you. Please feel free to contact me at the phone or email address below if you have any questions, require additional information, or have suggestions for how we could improve our information resources.

Sincerely,

A handwritten signature in blue ink that reads "Bryce A. Maxell". The signature is written in a cursive style.

Bryce A. Maxell
Montana Natural Heritage Program
(406) 444-3989
bmaxell@mt.gov



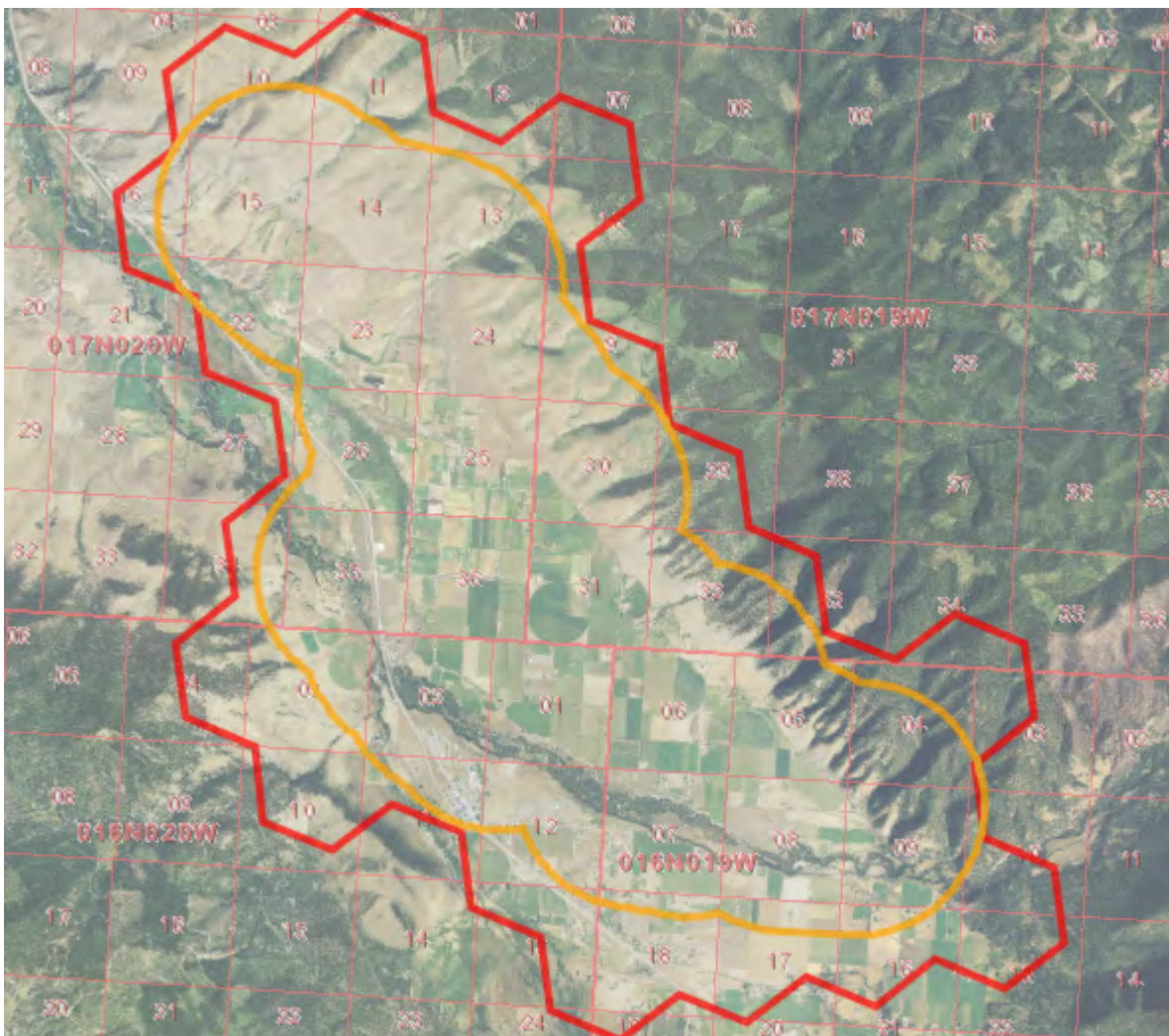
MONTANA
**Natural Heritage
 Program**

1515 East 6th Avenue
 Helena, MT 59620
 (406) 444-5363
mtnhp.org



Latitude	Longitude
47.13148	-113.98802
47.26109	-114.14322

Summarized by:
22trbl0004
(Custom Area of Interest)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.
 for Latitude 47.13148 to 47.26109 and Longitude -113.98802 to -114.14322. Retrieved on 6/10/2022.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of NatureServe, a network of over 80 similar programs in states, provinces, and nations throughout the Western Hemisphere, working to provide current and comprehensive distribution and status information on species and biological communities.



Table of Contents

- [Species Report](#)
- [Structured Surveys](#)
- [Land Cover](#)
- [Wetland and Riparian](#)
- [Land Management](#)
- [Biological Reports](#)
- [Invasive and Pest Species](#)
- [Introduction to Montana Natural Heritage Program](#)
- [Data Use Terms and Conditions](#)
- [Suggested Contacts for Natural Resource Agencies](#)
- [Introduction to Native Species](#)
- [Introduction to Land Cover](#)
- [Introduction to Wetland and Riparian](#)
- [Introduction to Land Management](#)
- [Introduction to Invasive and Pest Species](#)
- [Additional Information Resources](#)

Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#), the [Index of Environmental Permits for Montana](#) and our [Suggested Contacts for Natural Resource Management Agencies](#). The report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the MTNHP databases for: (1) species occurrences; (2) other observed species without species occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys that follow a protocol capable of detecting one or more species; (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across the western United States (e.g., Western Association of Fish and Wildlife Agencies - [Crucial Habitat Assessment Tool](#)).

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. Users are reminded that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species' range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. **Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.**



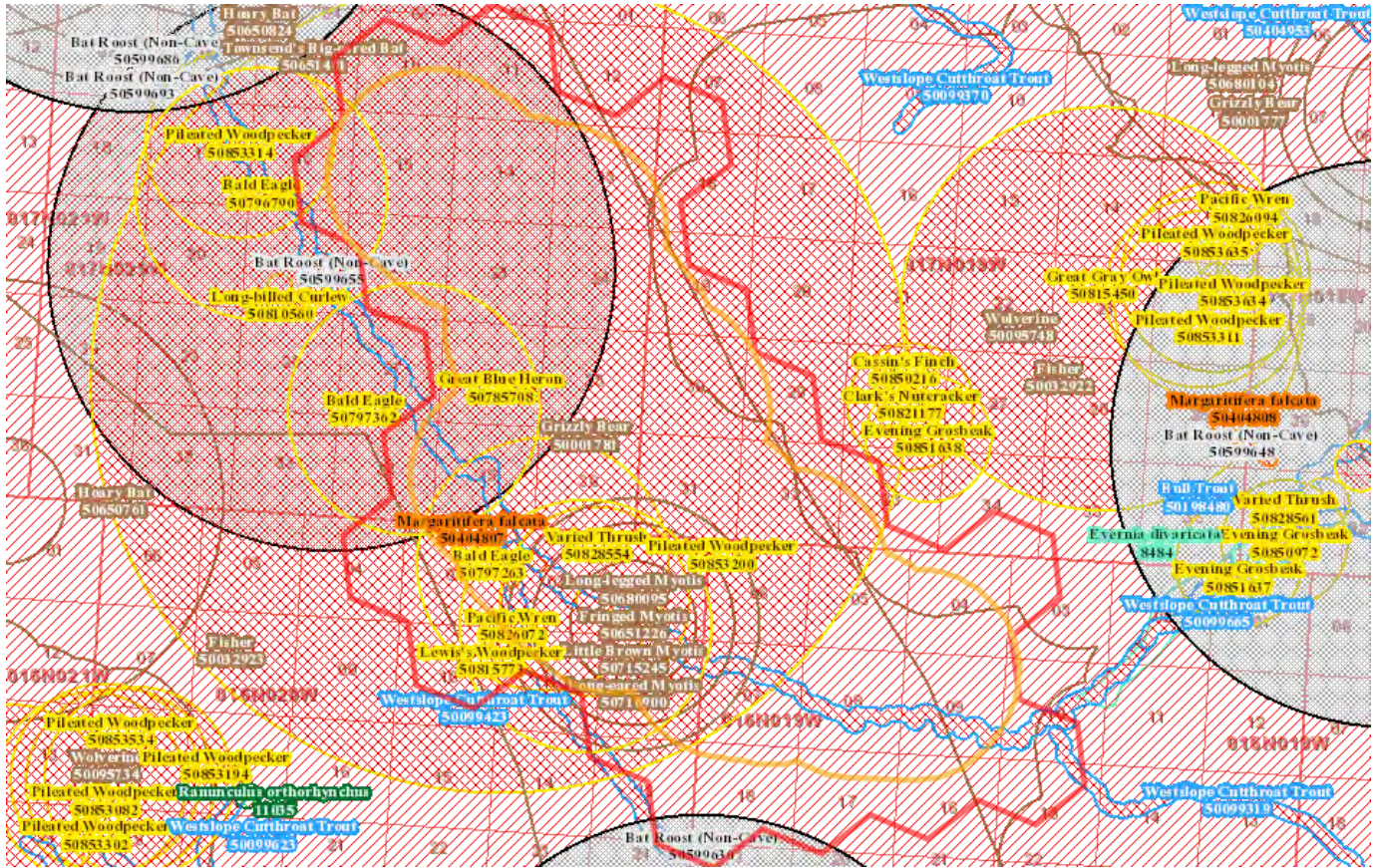
Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historic	



Latitude 47.13148
Longitude -113.98802
47.26109 -114.14322

Native Species

Summarized by: **22trbl0004** (Custom Area of Interest)
All Species (not filtered by Status)



Species Occurrences

Species	USFWS Sec7	# SO	# Obs	Predictive Model	Associated Habitat	Range
F - Bull Trout (<i>Salvelinus confluentus</i>) SOC	7	1	1		Not Assigned	Y
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S2 USFWS: LT; CH BLM: THREATENED FWP SWAP: SGCN2</p> <p>Delineation Criteria Stream reaches and standing water bodies where the species is believed to be present based on the professional judgement of a fisheries biologist, potentially supported by habitat assessment, direct capture, or confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Mar 30, 2018)</p> <p>Predictive Models: 31% Suitable (native range) (deductive)</p>						
F - Westslope Cutthroat Trout (<i>Oncorhynchus clarkii lewisii</i>) SOC		2	2		Not Assigned	Y
<p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: G5T4 State: S2</p> <p>USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)</p> <p>Species of Conservation Concern in Forests (CG, HLC) BLM: SENSITIVE FWP SWAP: SGCN2</p> <p>Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Sep 15, 2020)</p> <p>Predictive Models: 17% Suitable (native range) (deductive)</p>						
B - Lewis's Woodpecker (<i>Melanerpes lewis</i>) SOC		2	1			S M
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S2B USFWS: MBTA; BCC10; BCC17 USFS: Species of Conservation Concern in Forests (HLC)</p> <p>BLM: SENSITIVE FWP SWAP: SGCN2 PIF: 2</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the likely foraging area used by breeding adults around the nest tree and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 13, 2022)</p> <p>Predictive Models: 20% Optimal (inductive), 51% Moderate (inductive), 26% Low (inductive) Associated Habitats: 18% Common, 3% Occasional</p>						
M - Long-legged Myotis (<i>Myotis volans</i>) SOC		1	1			Y

<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G4G5 State: S3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass the average distances traveled from capture locations to roosts in Washington, Oregon, and in the Black Hills of South Dakota and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 2,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Apr 08, 2021)</p> <p>Predictive Models: 3% Optimal (inductive), 97% Moderate (inductive) Associated Habitats: 64% Common, 8% Occasional</p>
<p>M - Fringed Myotis (<i>Myotis thysanodes</i>) SOC 1 1 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S3 BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass the range of distances traveled from capture locations to roosts in the Black Hills of South Dakota and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 2,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Dec 18, 2020)</p> <p>Predictive Models: 66% Moderate (inductive), 34% Low (inductive) Associated Habitats: 64% Common, 8% Occasional</p>
<p>B - Bald Eagle (<i>Haliaeetus leucocephalus</i>) SSS 3 23+ </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Special Status Species - Native Species Global: G5 State: S4 USFWS: BGEPA; MBTA USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE PIF: 2</p> <p>Delineation Criteria Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for reneesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 27, 2022)</p> <p>Predictive Models: 34% Moderate (inductive), 40% Low (inductive) Associated Habitats: 21% Common, 42% Occasional</p>
<p>B - Evening Grosbeak (<i>Coccothraustes vespertinus</i>) SOC 1 5 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA; BCC10 FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the maximum foraging distance from nests reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 14, 2022)</p> <p>Predictive Models: 26% Moderate (inductive), 40% Low (inductive) Associated Habitats: 26% Common, 1% Occasional</p>
<p>B - Pileated Woodpecker (<i>Dryocopus pileatus</i>) SOC 2 5 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 2</p> <p>Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 1,500 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 15, 2022)</p> <p>Predictive Models: 23% Moderate (inductive), 34% Low (inductive) Associated Habitats: 21% Common, 1% Occasional</p>
<p>M - Long-eared Myotis (<i>Myotis evotis</i>) SOC 1 1 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the average distances traveled from capture locations to roosts and between roosts in western Montana, Alberta, and Oregon and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Oct 06, 2021)</p> <p>Predictive Models: 20% Moderate (inductive), 80% Low (inductive) Associated Habitats: 64% Common, 9% Occasional</p>
<p>M - Little Brown Myotis (<i>Myotis lucifugus</i>) SOC 1 1 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G3G4 State: S3 FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, or definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 1,600 meters in order to encompass the greater than 1,500 meters foraging distance reported for the species in New Brunswick, Canada and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,600 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Oct 06, 2021)</p> <p>Predictive Models: 9% Moderate (inductive), 83% Low (inductive) Associated Habitats: 68% Common, 32% Occasional</p>
<p>B - Great Blue Heron (<i>Ardea herodias</i>) SOC 1 9 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 22, 2021)</p> <p>Predictive Models: 6% Moderate (inductive), 57% Low (inductive) Associated Habitats: 4% Common</p>
<p>B - Varied Thrush (<i>Ixoreus naevius</i>) SOC 1 2 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 225 meters in order to encompass the reported minimum stand size occupied by breeding pairs and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 14, 2022)</p> <p>Predictive Models: 6% Moderate (inductive), 14% Low (inductive) Associated Habitats: 23% Common, 1% Occasional</p>
<p>B - Pacific Wren (<i>Troglodytes pacificus</i>) SOC 1 4 </p>
<p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 2</p> <p>Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Apr 14, 2022)</p> <p>Predictive Models: 3% Moderate (inductive), 20% Low (inductive) Associated Habitats: 21% Common, 1% Occasional</p>

<p>M - Grizzly Bear (<i>Ursus arctos</i>) SOC</p> <p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S2S3 USFWS: PS: LT; XN BLM: THREATENED FWP SWAP: SGCN2-3</p> <p>Delineation Criteria Species Occurrence polygons represent areas delineated by the U.S. Fish and Wildlife Service (USFWS) that encompass both home ranges and potential transitory movements based on verified sightings. Within these areas, the USFWS wants project proponents to consider whether the species may be present when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Jan 25, 2022)</p> <p>Predictive Models: 40% Low (inductive) Associated Habitats: 65% Common, 1% Occasional</p>	<p>7 1 +</p> <p>Y</p>
<p>M - Wolverine (<i>Gulo gulo</i>) SOC</p> <p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles. Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013). These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model. (Last Updated: Oct 06, 2021)</p> <p>Predictive Models: 31% Low (inductive) Associated Habitats: 18% Common, 4% Occasional</p>	<p>7 1</p> <p>Y</p>
<p>M - Fisher (<i>Pekania pennanti</i>) SOC</p> <p>View in Field Guide View Predicted Models View Associated Habitat View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles within tracking regions containing core habitat for the species. Outer boundaries of tracking regions are defined by areas of forest cover on individual mountain ranges or clusters of adjacent mountain ranges with continuous forest cover. (Last Updated: Oct 06, 2021)</p> <p>Predictive Models: 11% Low (inductive) Associated Habitats: 21% Common, 1% Occasional</p>	<p>2</p> <p>Y</p>
<p>I - Margaritifera falcata (<i>Western Pearlshell</i>) SOC</p> <p>View in Field Guide View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S2 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN2</p> <p>Delineation Criteria Stream reaches where the species recent presence has been confirmed through detection of live individuals or recent shells. Detection locations are buffered up and downstream by 500 meters to encompass potential adjacent populations and occupied stream reaches separated by less than 2000 meters are combined into a single species occurrence. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Apr 19, 2022)</p>	<p>1 1</p> <p>Not Available Not Assigned Y</p>
<p>O - Bat Roost (Non-Cave) (<i>Bat Roost (Non-Cave)</i>) IAH</p> <p>View in Field Guide</p> <p>Important Animal Habitat - Native Species Global: GNR State: SNR</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings). Point observation locations are buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for Townsend's Big-eared Bat (a resident Montana bat Species of Concern) and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 22, 2019)</p>	<p>2</p> <p>Not Available Not Assigned</p>

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historic	



Latitude	Longitude
47.13148	-113.98802
47.26109	-114.14322

Native Species

Summarized by: **22trbl0004** (*Custom Area of Interest*)

All Species (not filtered by Status)

Other Observed Species

No Species were found for the filters selected

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historic	



Latitude	Longitude
47.13148	-113.98802
47.26109	-114.14322

Native Species

Summarized by: **22trbl0004** (*Custom Area of Interest*)
All Species (not filtered by Status)

Other Potential Species

No Species were found for the filters selected

Structured Surveys

Summarized by: **22trbl0004** (*Custom Area of Interest*)

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

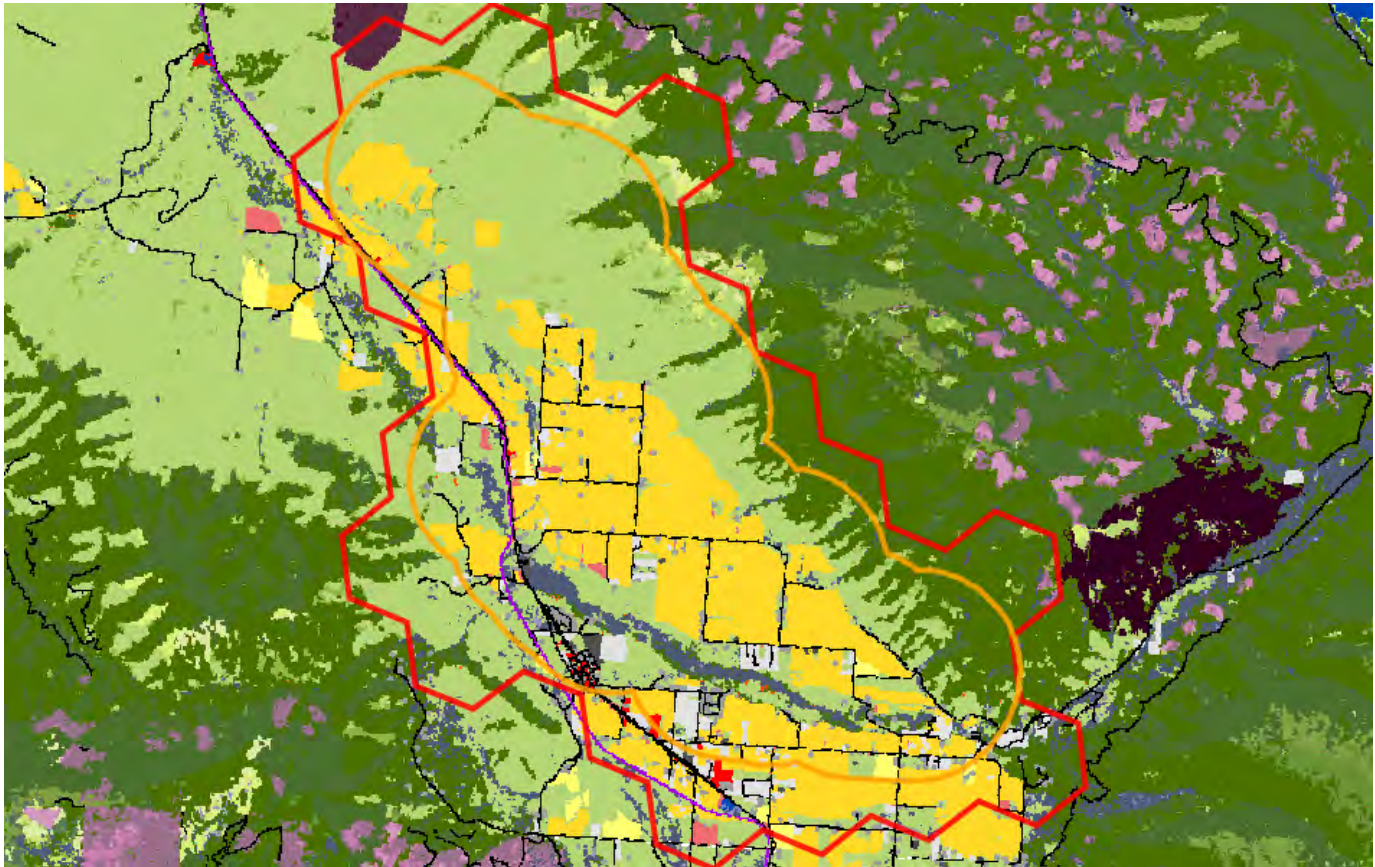
Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

B-Bald Eagle Nest (<i>Bald Eagle Nest Survey</i>)	Survey Count: 14	Obs Count: 13	Recent Survey: 2021
B-Long-billed Curlew (<i>Long-billed Curlew, Road-based, Point Count</i>)	Survey Count: 40	Obs Count:	Recent Survey: 2017
B-MAPS (<i>Monitoring Avian Production and Survival Station</i>)	Survey Count: 1	Obs Count: 49	Recent Survey: 2003
E-Eastern Heath Snail (<i>Eastern Heath Snail Survey</i>)	Survey Count: 2	Obs Count:	Recent Survey: 2012
E-Eurasian Water-milfoil Rake (<i>Rake tows/pulls for Eurasian Water-milfoil</i>)	Survey Count: 2	Obs Count: 3	Recent Survey: 2021
E-Invasive Mussel Plankton Tow (<i>Plankton tows for veligers of Invasive Mussels</i>)	Survey Count: 6	Obs Count:	Recent Survey: 2021
E-Kicknet (<i>Kicknet Collection Survey for Invasive Mussels and Snails</i>)	Survey Count: 3	Obs Count:	Recent Survey: 2021
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 9	Obs Count: 29	Recent Survey: 2005
E-Visual Aquatic Invasives (<i>Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater</i>)	Survey Count: 8	Obs Count: 1	Recent Survey: 2020
M-Bat Mistnet (<i>Bat Mistnet Survey</i>)	Survey Count: 1	Obs Count: 6	Recent Survey: 2009
P-Wetland EIA (<i>MTNHP Wetland EIA</i>)	Survey Count: 1	Obs Count: 61	Recent Survey: 2016



Land Cover

Summarized by: **22trbl0004** (Custom Area of Interest)



Grassland Systems Montane Grassland

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

40% (8,884
Acres)

This grassland system of the northern Rocky Mountains is found at lower montane to foothill elevations in mountains and valleys throughout Montana. These grasslands are floristically similar to Big Sagebrush Steppe but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. They are found at elevations from 548 - 1,650 meters (1,800-5,413 feet). In the lower montane zone, they range from small meadows to large open parks surrounded by conifers; below the lower treeline, they occur as extensive foothill and valley grasslands. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline. Microphytic crust may be present in high-quality occurrences. This system is typified by cool-season perennial bunch grasses and forbs (>25%) cover, with a sparse shrub cover (<10%). Rough fescue (*Festuca campestris*) is dominant in the northwestern portion of the state and Idaho fescue (*Festuca idahoensis*) is dominant or co-dominant throughout the range of the system. Bluebunch wheatgrass (*Pseudoroegneria spicata*) occurs as a co-dominant throughout the range as well, especially on xeric sites. Western wheatgrass (*Pascopyrum smithii*) is consistently present, often with appreciable coverage (>10%) in lower elevation occurrences in western Montana and virtually always present, with relatively high coverages (>25%), on the edge of the Northwestern Great Plains region. Species diversity ranges from a high of more than 50 per 400 square meter plot on mesic sites to 15 (or fewer) on xeric and disturbed sites. Most occurrences have at least 25 vascular species present. Farmland conversion, noxious species invasion, fire suppression, heavy grazing and oil and gas development are major threats to this system.



Human Land Use Agriculture

Cultivated Crops

25% (5,702
Acres)

These areas used for the production of crops, such as corn, soybeans, small grains, sunflowers, vegetables, and cotton, typically on an annual cycle. Agricultural plant cover is variable depending on season and type of farming. Other areas include more stable land cover of orchards and vineyards.



Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

14% (3,130 Acres)

This ecological system, composed of highly variable montane conifer forests, is found throughout Montana. It is associated with a submesic climate regime with annual precipitation ranging from 250 to 1,000 millimeters (10-39 inches), with most precipitation occurring during winter, and April through June. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,676 meters (5,500 feet) in northwestern Montana and up to 2,286 meters (7,500 feet) on warm aspects in southern Montana. In northwestern and west-central Montana, this ecosystem forms a forest belt on warm, dry to slightly moist sites. It generally occurs on gravelly soils with good aeration and drainage and a neutral to slightly acidic pH. In the western part of the state, it is seen mostly on well drained mountain slopes and valleys from lower treeline to up to 1,676 meters (5,500 feet). Immediately east of the Continental Divide, in north-central Montana, it occurs at montane elevations. Douglas-fir (*Pseudotsuga menziesii*) is the dominant conifer both as a seral and climax species. West of the Continental Divide, occurrences can be dominated by any combination of Douglas-fir and long-lived, seral western larch (*Larix occidentalis*), grand fir (*Abies grandis*), ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*). Aspen (*Populus tremuloides*) and western white pine (*Pinus monticola*) have a minor status, with western white pine only in extreme western Montana. East of the Continental Divide, larch is absent and lodgepole pine is the co-dominant. Engelmann spruce (*Picea engelmannii*), white spruce, (*Picea glauca*) or their hybrid, become increasingly common towards the eastern edge of the Douglas-fir forest belt.

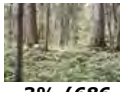


Wetland and Riparian Systems
Floodplain and Riparian

Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland

3% (750 Acres)

This ecological system is found throughout the Rocky Mountain and Colorado Plateau regions. In Montana, sites occur at elevations of 609-1,219 meters (2,000-4,000 feet) west of the Continental Divide. East of the Continental Divide, this system ranges up to 1,676 meters (5,500 feet). It generally comprises a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime with annual to episodic flooding, so it is usually found within the flood zone of rivers, on islands, sand or cobble bars, and along streambanks. It can form large, wide occurrences on mid-channel islands in larger rivers, or narrow bands on small, rocky canyon tributaries and well-drained benches. It is also typically found in backwater channels and other perennially wet but less scoured sites, such as floodplains, swales and irrigation ditches. In some locations, occurrences extend into moderately high intermountain basins where the adjacent vegetation is sage steppe. Black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) is the key indicator species. Other dominant trees may include boxelder maple (*Acer negundo*), narrowleaf cottonwood (*Populus angustifolia*), eastern cottonwood (*Populus deltoides*), Douglas-fir (*Pseudotsuga menziesii*), peachleaf willow (*Salix amygdaloides*), or Rocky Mountain juniper (*Juniperus scopulorum*). Dominant shrubs include Rocky Mountain maple (*Acer glabrum*), thinleaf alder (*Alnus incana*), river birch (*Betula occidentalis*), redbud dogwood (*Cornus sericea*), hawthorne (*Crataegus* species), chokecherry (*Prunus virginiana*), skunkbush sumac (*Rhus trilobata*), willows (*Salix* species), rose (*Rosa* species), silver buffaloberry (*Shepherdia argentea*), or snowberry (*Symphoricarpos* species).

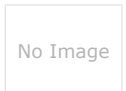


Forest and Woodland Systems
Conifer-dominated forest and woodland (mesic-wet)

Rocky Mountain Mesic Montane Mixed Conifer Forest

3% (686 Acres)

These forests are generally dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*). They are found in areas influenced by incursions of mild, wet, Pacific maritime air masses west of the Continental Divide in Montana. Occurrences are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its distribution, this system is confined to moist canyons and cooler, moister aspects. Generally, these are moist, non-flooded or upland forest sites that are not saturated yearlong. In northwestern Montana, western hemlock and western red cedar forests occur on bottomland and northerly exposures between 609-1,585 meters (2,000-5,200 feet) on sites with an average annual precipitation of 635 millimeters (25 inches). These forests are common in extreme northwestern Montana, and extend eastward to the Continental Divide in the Lake McDonald drainage of Glacier National Park. Isolated stands of western hemlock occur in the Swan Valley, but are found most commonly in the Libby and Thompson Falls vicinities, west to the Idaho border. Western red cedar occurs extensively in the Mission Mountain ranges south to Missoula, and on lower flanks of the Swan Range north of Lion Creek. It is confined to the riparian zone of major streams on the east face of the Bitterroot Mountain Range. Grand fir, being less moisture dependent, occurs in more southerly and easterly sites than western red cedar and western hemlock. This system is similar to Rocky Mountain Dry-Mesic Mixed Montane Conifer Forest, which can be described as a seral phase of this system on appropriate sites west of the Continental Divide.



Human Land Use
Developed

Other Roads

3% (651 Acres)

County, city and or rural roads generally open to motor vehicles.



Human Land Use
Developed

Developed, Open Space

3% (620 Acres)

Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes. Impervious surfaces account for less than 20% of total cover. This category often includes highway and railway rights of way and graveled rural roads.

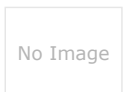


Human Land Use
Developed

Low Intensity Residential

2% (425 Acres)

Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-50% of total cover. These areas most commonly include single-family housing units in rural and suburban areas. Paved roadways may be classified into this category.



Shrubland, Steppe and Savanna Systems
Deciduous Shrubland



























Rocky Mountain Montane-Foothill Deciduous Shrubland

2% (360 Acres)

This system is found in the lower montane and foothill regions of western Montana, and north and east into the northern Rocky Mountains. These shrublands typically occur below treeline, within the matrix of surrounding low-elevation grasslands and sagebrush shrublands. They are usually found on steep slopes of canyons, on toeslopes and occasionally on valley bottom lands. These communities can occur on all aspects. In northwestern and west-central Montana, this system forms within Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) forests and adjacent to fescue grasslands and big sagebrush (*Artemisia tridentata*) shrublands. In northwestern Montana, these shrublands commonly occur within the upper montane grasslands and forests along the Rocky Mountain Front. Immediately east of the Continental Divide, this system is found within montane grasslands and steep canyon slopes. Most sites have shallow soils that are either loess deposits or volcanic clays. Common ninebark (*Physocarpus malvaceus*), bittercherry (*Prunus emarginata*), common chokecherry (*Prunus virginiana*), rose (*Rosa* spp.), smooth sumac (*Rhus glabra*), Rocky Mountain maple (*Acer glabrum*), serviceberry (*Amelanchier alnifolia*), and oceanspray (*Holodiscus discolor*) are the most common dominant shrubs.

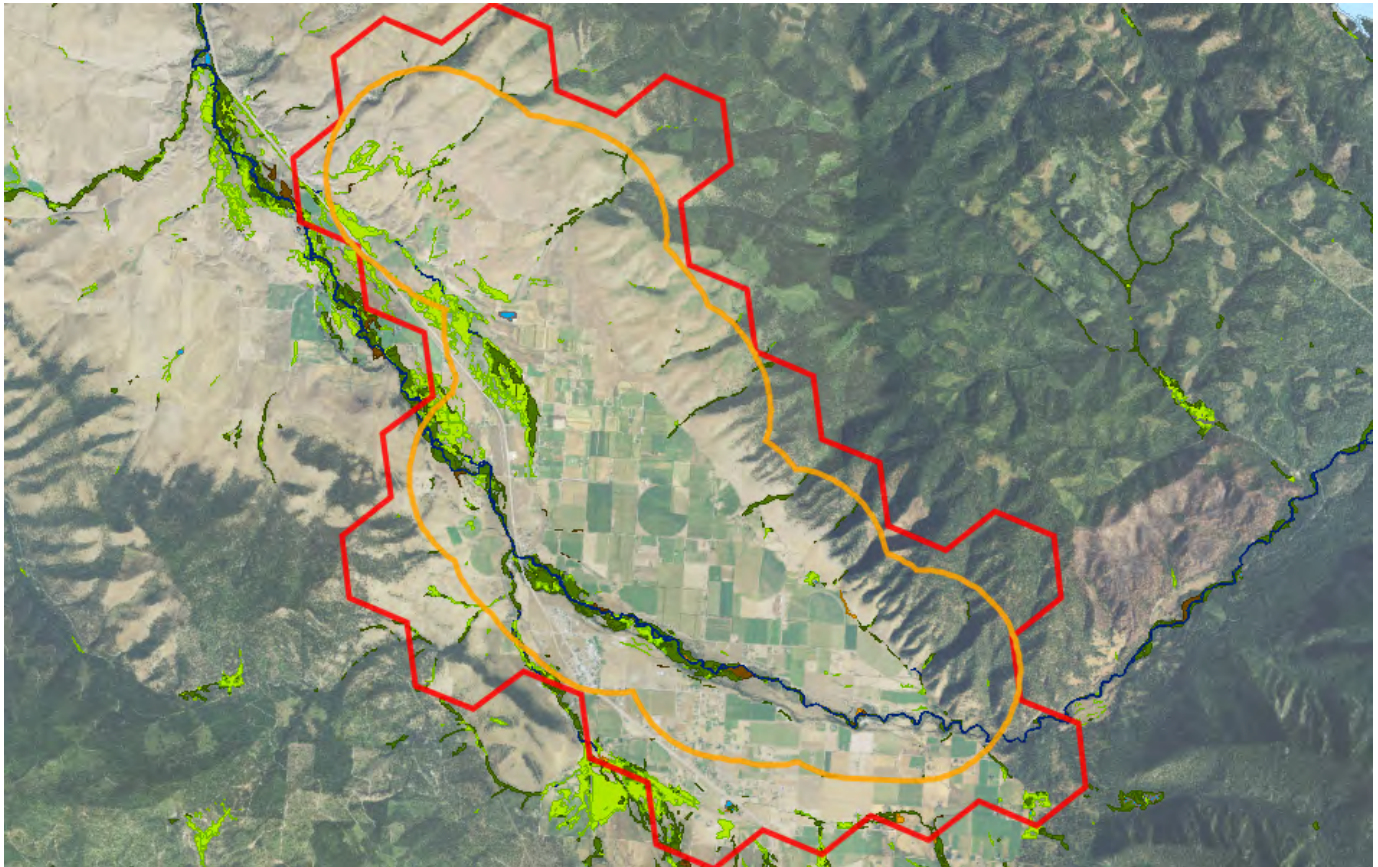
Additional Limited Land Cover

1% (156 Acres) **Major Roads**

1% (135 Acres)  [Rocky Mountain Subalpine-Upper Montane Grassland](#)
 1% (127 Acres)  [Introduced Upland Vegetation - Annual and Biennial Forbland](#)
 1% (127 Acres)  [Railroad](#)
 <1% (112 Acres)  [Recently burned grassland](#)
 <1% (111 Acres)  [Pasture/Hay](#)
 <1% (60 Acres)  [Rocky Mountain Ponderosa Pine Woodland and Savanna](#)
 <1% (58 Acres)  [Commercial / Industrial](#)
 <1% (57 Acres)  [High Intensity Residential](#)
 <1% (50 Acres)  [Rocky Mountain Subalpine Deciduous Shrubland](#)
 <1% (49 Acres)  [Rocky Mountain Subalpine-Montane Mesic Meadow](#)
 <1% (31 Acres)  [Alpine-Montane Wet Meadow](#)
 <1% (17 Acres)  [Aspen Forest and Woodland](#)
 <1% (14 Acres)  [Rocky Mountain Cliff, Canyon and Massive Bedrock](#)
 <1% (12 Acres)  [Harvested forest-tree regeneration](#)
 <1% (9 Acres)  [Emergent Marsh](#)
 <1% (9 Acres)  [Insect-Killed Forest](#)
 <1% (9 Acres)  [Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland](#)
 <1% (7 Acres)  [Harvested forest-shrub regeneration](#)
 <1% (6 Acres)  [Open Water](#)
 <1% (2 Acres)  [Rocky Mountain Lodgepole Pine Forest](#)
 <1% (2 Acres)  [Harvested forest-grass regeneration](#)
 <1% (1 Acres)  [Rocky Mountain Subalpine-Montane Fen](#)
 <1% (1 Acres)  [Recently burned forest](#)
 <1% (1 Acres)  [Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland](#)
 <1% (0 Acres)  [Aspen and Mixed Conifer Forest](#)
 <1% (0 Acres)  [Rocky Mountain Conifer Swamp](#)

Wetland and Riparian

Summarized by: **22trbl0004** (Custom Area of Interest)



Wetland and Riparian Mapping

[Explain](#)

P - Palustrine

UB - Unconsolidated Bottom

H - Permanently Flooded	11 Acres
(no modifier)	2 Acres PUBH
h - Diked/Impounded	6 Acres PUBHh
x - Excavated	3 Acres PUBHx

P - Palustrine, UB - Unconsolidated Bottom

Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.

AB - Aquatic Bed

H - Permanently Flooded	2 Acres
(no modifier)	2 Acres PABH
h - Diked/Impounded	<1 Acres PABHh
x - Excavated	<1 Acres PABHx

P - Palustrine, AB - Aquatic Bed

Wetlands with vegetation growing on or below the water surface for most of the growing season.

US - Unconsolidated Shore

A - Temporarily Flooded	<1 Acres
(no modifier)	<1 Acres PUSA
C - Seasonally Flooded	2 Acres
h - Diked/Impounded	2 Acres PUSCh

P - Palustrine, US - Unconsolidated Shore

Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.

EM - Emergent

A - Temporarily Flooded	235 Acres
(no modifier)	230 Acres PEMA
d - Partially Drained/Ditched	2 Acres PEMAd
f - Farmed	3 Acres PEMAf
B - Saturated	139 Acres
(no modifier)	92 Acres PEMB
d - Partially Drained/Ditched	47 Acres PEMBd
C - Seasonally Flooded	309 Acres
(no modifier)	268 Acres PEMC
d - Partially Drained/Ditched	41 Acres PEMCd
F - Semipermanently Flooded	3 Acres
(no modifier)	3 Acres PEMF
h - Diked/Impounded	<1 Acres PEMFh
x - Excavated	<1 Acres PEMFx

P - Palustrine, EM - Emergent

Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

SS - Scrub-Shrub		
A - Temporarily Flooded	99 Acres	
(no modifier)	99 Acres	PSSA
B - Saturated	127 Acres	
(no modifier)	121 Acres	PSSB
d - Partially Drained/Ditched	6 Acres	PSSBd
C - Seasonally Flooded	78 Acres	
(no modifier)	78 Acres	PSSC
h - Diked/Impounded	<1 Acres	PSSCh
F - Semipermanently Flooded	4 Acres	
(no modifier)	4 Acres	PSSF

P - Palustrine, SS - Scrub-Shrub
 Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

FO - Forested		
A - Temporarily Flooded	196 Acres	
(no modifier)	194 Acres	PFOA
d - Partially Drained/Ditched	1 Acres	PFOAd
x - Excavated	1 Acres	PFOAx
B - Saturated	1 Acres	
(no modifier)	1 Acres	PFOB
C - Seasonally Flooded	6 Acres	
(no modifier)	6 Acres	PFOC

P - Palustrine, FO - Forested
 Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

R - Riverine (Rivers)

3 - Upper Perennial

UB - Unconsolidated Bottom		
F - Semipermanently Flooded	<1 Acres	
x - Excavated	<1 Acres	R3UBFx
H - Permanently Flooded	70 Acres	
(no modifier)	70 Acres	R3UBH

R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom
 Stream channels where the substrate is at least 25% mud, silt or other fine particles.

US - Unconsolidated Shore		
A - Temporarily Flooded	1 Acres	
(no modifier)	1 Acres	R3USA
C - Seasonally Flooded	13 Acres	
(no modifier)	13 Acres	R3USC

R - Riverine (Rivers), 3 - Upper Perennial, US - Unconsolidated Shore
 Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

Rp - Riparian

1 - Lotic

SS - Scrub-Shrub		
(no modifier)	11 Acres	Rp1SS

Rp - Riparian, 1 - Lotic, SS - Scrub-Shrub
 This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

FO - Forested		
(no modifier)	28 Acres	Rp1FO

Rp - Riparian, 1 - Lotic, FO - Forested
 This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

2 - Lentic

FO - Forested		
(no modifier)	<1 Acres	Rp2FO

Rp - Riparian, 2 - Lentic, FO - Forested
 This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.



Land Management

Summarized by: **22trbl0004** (Custom Area of Interest)



Land Management Summary

[Explain](#)




	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	152 Acres (1%)			
State	72 Acres (<1%)			
Montana Fish, Wildlife and Parks	56 Acres (<1%)			
MTFWP Owned	56 Acres (<1%)			
Montana Department of Transportation	16 Acres (<1%)			
MTDOT Owned	16 Acres (<1%)			
Local	80 Acres (<1%)			
Local Government	80 Acres (<1%)			
Local Government Owned	80 Acres (<1%)			
Reservation Boundaries		22,373 Acres (100%)		
Flathead Indian Reservation		22,373 Acres (100%)		
Conservation Easements			311 Acres (1%)	
Private			90 Acres (<1%)	
Montana Land Reliance			90 Acres (<1%)	
Federal			221 Acres (1%)	
US Government			221 Acres (1%)	
Private Lands or Unknown Ownership	-463 Acres (0%)			

Biological Reports

Summarized by: **22trbl0004** (*Custom Area of Interest*)

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MTHNP) databases are listed and, where possible, links to the documents are included.

The MTHNP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mtnhp@mt.gov

-  Confluence Consulting Inc. 2010. **Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.**
-  Confluence Consulting Inc. 2011. **Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites).** MDT Helena, MT.
-  Confluence Consulting. 2013. US Highway 93 Onsite: Bouchard, Mud Creek, and Peterson Property, Lake county, Montana, Montana Department of Transportation Wetland Mitigation Monitoring Report: Year 2013. Bozeman, MT: Confluence Consulting. 56 p plus appendices.
-  Post, Buckley, Schuh, and Jernigan. 2008. US Highway 93 Onsite, Bouchard, Jocko River Bridge, Jocko Spring creek, and Peterson Property, Montana Department of Transportation Wetland Mitigation Monitoring Report: Year 2008. Helena, MT: Post, Buckley, Schuh, and Jernigan. 54 p plus appendices.
-  Post, Buckley, Schuh, and Jernigan. 2009. Beaverhead Gateway, Dillon, Montana, Montana Department of Transportation Wetland Mitigation Monitoring Report: Year 2009. Helena, MT: Post, Buckley, Schuh, and Jernigan. 64 p plus appendices.

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Non-native	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional		+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability			
Low Suitability			
Suitable (introduced range)			



Latitude 47.13148 Longitude -113.98802
47.26109 -114.14322

Invasive and Pest Species

Summarized by: **22trbl0004** (*Custom Area of Interest*)

	# Obs	Predictive Model	Associated Habitat	Range
Aquatic Invasive Species				
<input type="checkbox"/> V - Iris pseudacorus (<i>Yellowflag Iris</i>) N2A/AIS			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predictive Models: 57% Optimal (inductive), 11% Moderate (inductive), 26% Low (inductive)				
<input type="checkbox"/> V - Potamogeton crispus (<i>Curly-leaf Pondweed</i>) N2B/AIS			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predictive Models: 9% Moderate (inductive), 54% Low (inductive)				
<input type="checkbox"/> V - Butomus umbellatus (<i>Flowering-rush</i>) N2A/AIS			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predictive Models: 3% Moderate (inductive), 31% Low (inductive)				
<input type="checkbox"/> V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predictive Models: 6% Low (inductive)				
<input type="checkbox"/> V - Nymphaea odorata (<i>American Water-lily</i>) AIS				
View in Field Guide View Predicted Models View Associated Habitat View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predictive Models: 43% Suitable (introduced range) (deductive) Associated Habitats: 1% Common				
Noxious Weeds: Priority 1A				
<input type="checkbox"/> V - Centaurea solstitialis (<i>Yellow Starthistle</i>) N1A			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predictive Models: 43% Optimal (inductive), 26% Moderate (inductive), 9% Low (inductive)				
<input type="checkbox"/> V - Taeniatherum caput-medusae (<i>Medusahead</i>) N1A	1		Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: G4G5 State: SNA Predictive Models: 3% Optimal (inductive), 11% Moderate (inductive), 54% Low (inductive)				
<input type="checkbox"/> V - Isatis tinctoria (<i>Dyer's Woad</i>) N1A			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predictive Models: 17% Moderate (inductive), 43% Low (inductive)				
<input type="checkbox"/> V - Phragmites australis ssp. australis (<i>European Common Reed</i>) N1A			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: G5T5 State: SNA Predictive Models: 11% Low (inductive)				
Noxious Weeds: Priority 1B				
<input type="checkbox"/> V - Lythrum salicaria (<i>Purple Loosestrife</i>) N1B			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA Predictive Models: 26% Optimal (inductive), 31% Moderate (inductive), 17% Low (inductive)				
<input type="checkbox"/> V - Echiochium vulgare (<i>Blueweed</i>) N1B			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predictive Models: 6% Optimal (inductive), 60% Moderate (inductive), 34% Low (inductive)				
<input type="checkbox"/> V - Polygonum cuspidatum (<i>Japanese Knotweed</i>) N1B			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNRTNR State: SNA Predictive Models: 3% Optimal (inductive), 51% Moderate (inductive), 40% Low (inductive)				
<input type="checkbox"/> V - Cytisus scoparius (<i>Scotch Broom</i>) N1B			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predictive Models: 9% Moderate (inductive), 63% Low (inductive)				
<input type="checkbox"/> V - Chondrilla juncea (<i>Rush Skeletonweed</i>) N1B			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predictive Models: 6% Moderate (inductive), 86% Low (inductive)				

Noxious Weeds: Priority 2A

<p>V - <i>Ventena dubia</i> (<i>Ventena dubia</i>) N2A 9 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 57% Optimal (inductive), 37% Moderate (inductive), 6% Low (inductive)</p>	
<p>V - <i>Iris pseudacorus</i> (<i>Yellowflag Iris</i>) N2A/AIS Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predictive Models: 57% Optimal (inductive), 11% Moderate (inductive), 26% Low (inductive)</p>	
<p>V - <i>Hieracium praealtum</i> (<i>Kingdevil Hawkweed</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 11% Optimal (inductive), 31% Moderate (inductive), 40% Low (inductive)</p>	
<p>V - <i>Rhamnus cathartica</i> (<i>Common Buckthorn</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 3% Optimal (inductive), 14% Moderate (inductive), 23% Low (inductive)</p>	
<p>V - <i>Ranunculus acris</i> (<i>Tall Buttercup</i>) N2A 2 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: G5 State: SNA Predictive Models: 29% Moderate (inductive), 40% Low (inductive)</p>	
<p>V - <i>Hieracium aurantiacum</i> (<i>Orange Hawkweed</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 9% Moderate (inductive), 80% Low (inductive)</p>	
<p>V - <i>Hieracium caespitosum</i> (<i>Meadow Hawkweed</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 9% Moderate (inductive), 80% Low (inductive)</p>	
<p>V - <i>Lepidium latifolium</i> (<i>Perennial Pepperweed</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 6% Moderate (inductive), 46% Low (inductive)</p>	
<p>V - <i>Senecio jacobaea</i> (<i>Tansy Ragwort</i>) N2A Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Non-native Species Global: GNR State: SNA Predictive Models: 3% Moderate (inductive), 51% Low (inductive)</p>	
<p>V - <i>Butomus umbellatus</i> (<i>Flowering-rush</i>) N2A/AIS Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predictive Models: 3% Moderate (inductive), 31% Low (inductive)</p>	
<p>V - <i>Myriophyllum spicatum</i> (<i>Eurasian Water-milfoil</i>) N2A/AIS Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predictive Models: 6% Low (inductive)</p>	
Noxious Weeds: Priority 2B	
<p>V - <i>Tanacetum vulgare</i> (<i>Common Tansy</i>) N2B Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 17% Optimal (inductive), 49% Moderate (inductive), 31% Low (inductive)</p>	
<p>V - <i>Linaria dalmatica</i> (<i>Dalmatian Toadflax</i>) N2B 4 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA Predictive Models: 9% Optimal (inductive), 74% Moderate (inductive), 17% Low (inductive)</p>	
<p>V - <i>Leucanthemum vulgare</i> (<i>Oxeye Daisy</i>) N2B 4 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 3% Optimal (inductive), 60% Moderate (inductive), 31% Low (inductive)</p>	
<p>V - <i>Potentilla recta</i> (<i>Sulphur Cinquefoil</i>) N2B Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 89% Moderate (inductive), 11% Low (inductive)</p>	
<p>V - <i>Cynoglossum officinale</i> (<i>Common Hound's-tongue</i>) N2B 13 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 66% Moderate (inductive), 34% Low (inductive)</p>	
<p>V - <i>Centaurea stoebe</i> (<i>Spotted Knapweed</i>) N2B 22 Not Assigned </p> <p>View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 63% Moderate (inductive), 37% Low (inductive)</p>	
<p>V - <i>Hypericum perforatum</i> (<i>Common St. John's-wort</i>) N2B 4 Not Assigned </p>	

View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 63% Moderate (inductive), 37% Low (inductive)			Not Assigned		
V - <i>Lepidium draba</i> (Whitetop) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 40% Moderate (inductive), 34% Low (inductive)			Not Assigned		
V - <i>Centaurea diffusa</i> (Diffuse Knapweed) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 31% Moderate (inductive), 43% Low (inductive)			Not Assigned		
V - <i>Linaria vulgaris</i> (Yellow Toadflax) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 20% Moderate (inductive), 69% Low (inductive)			Not Assigned		
V - <i>Convolvulus arvensis</i> (Field Bindweed) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 17% Moderate (inductive), 40% Low (inductive)			Not Assigned		
V - <i>Cirsium arvense</i> (Canada Thistle) N2B		11		Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA Predictive Models: 14% Moderate (inductive), 66% Low (inductive)			Not Assigned		
V - <i>Euphorbia virgata</i> (Leafy Spurge) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNRTNR State: SNA Predictive Models: 9% Moderate (inductive), 91% Low (inductive)			Not Assigned		
V - <i>Potamogeton crispus</i> (Curly-leaf Pondweed) N2B/AIS			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predictive Models: 9% Moderate (inductive), 54% Low (inductive)			Not Assigned		
V - <i>Berteroa incana</i> (Hoary False-allysum) N2B		1		Not Assigned	
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 69% Low (inductive)			Not Assigned		
V - <i>Acroptilon repens</i> (Russian Knapweed) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 49% Low (inductive)			Not Assigned		
V - <i>Tamarix ramosissima</i> (Salt Cedar) N2B			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA Predictive Models: 11% Low (inductive)			Not Assigned		

Regulated Weeds: Priority 3



V - <i>Bromus tectorum</i> (Cheatgrass) R3		3		Not Assigned	
View in Field Guide View Predicted Models View Range Maps Regulated Weed: Priority 3 - Non-native Species Global: GNR State: SNA Predictive Models: 43% Moderate (inductive), 46% Low (inductive)			Not Assigned		
V - <i>Elaeagnus angustifolia</i> (Russian Olive) R3			Not Assigned		
View in Field Guide View Predicted Models View Range Maps Regulated Weed: Priority 3 - Non-native Species Global: GNR State: SNA Predictive Models: 11% Low (inductive)			Not Assigned		

Biocontrol Species



I - <i>Oberea erythrocephala</i> (Red-headed Leafy Spurge Stem Borer) BIOCNTL			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Biocontrol Species - Non-native Species Global: GNR State: SNA Predictive Models: 60% Optimal (inductive), 37% Moderate (inductive), 3% Low (inductive)			Not Assigned	
I - <i>Cyphocleonus achates</i> (Knapweed Root Weevil) BIOCNTL			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Biocontrol Species - Non-native Species Global: GNR State: SNA Predictive Models: 29% Optimal (inductive), 51% Moderate (inductive), 14% Low (inductive)			Not Assigned	
I - <i>Mecinus janthiniformis</i> (Dalmatian Toadflax Stem-boring Weevil) BIOCNTL			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Biocontrol Species - Non-native Species Global: GNR State: SNA Predictive Models: 11% Optimal (inductive), 80% Moderate (inductive), 9% Low (inductive)			Not Assigned	
I - <i>Aphthona lacertosa</i> (Brown-legged Leafy Spurge Flea Beetle) BIOCNTL			Not Assigned	
View in Field Guide View Predicted Models View Range Maps Biocontrol Species - Non-native Species Global: GNR State: SNA Predictive Models: 74% Moderate (inductive), 3% Low (inductive)			Not Assigned	
I - <i>Aphthona nigricutis</i> (Black Dot Leafy Spurge Flea Beetle) BIOCNTL			Not Assigned	

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

[Biocontrol Species - Non-native Species](#) Global: **GNR** State: **SNA**



Predictive Models:  51% Moderate (inductive),  40% Low (inductive)

 **I - Mecinus janthinus** (*Yellow Toadflax Stem-boring Weevil*) **BIOCNTL**

 Not Assigned 

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

[Biocontrol Species - Non-native Species](#) Global: **GNR** State: **SNA**

Predictive Models:  3% Moderate (inductive),  49% Low (inductive)

Introduction to Montana Natural Heritage Program



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.5363 • mtnhp.org

INTRODUCTION

The Montana Natural Heritage Program (MTNHP) is Montana's source for reliable and objective information on Montana's native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is "a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana" (MCA 90-15-102). MTNHP's activities are guided by statute as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 80 natural heritage programs throughout the Western Hemisphere.

VISION

Our vision is that public agencies, the private sector, the education sector, and the general public will trust and rely upon MTNHP as the source for information and expertise on Montana's species and habitats, especially those of conservation concern. We strive to provide easy access to our information in order for users to save time and money, speed environmental reviews, and inform decision making.

CORE VALUES

- We endeavor to be a single statewide source of accurate and up-to-date information on Montana's plants, animals, and aquatic and terrestrial biological communities.
- We actively listen to our data users and work responsively to meet their information and training needs.
- We strive to provide neutral, trusted, timely, and equitable service to all of our information users.
- We make every effort to be transparent to our data users in setting work priorities and providing data products.

CONFIDENTIALITY

All information requests made to the Montana Natural Heritage Program are considered library records and are protected from disclosure by the Montana Library Records Confidentiality Act (MCA 22-1-11).

INFORMATION MANAGED

Information managed at the Montana Natural Heritage Program is botanical, zoological, and ecological information that describes the distribution (e.g., observations, structured surveys, range polygons, predicted habitat suitability models), conservation status (e.g., global and state conservation status ranks, including threats), and other supporting information (e.g., accounts and references) on the biology and ecology of species and biological communities.

Data Use Terms and Conditions


- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.
- MTNHP has no natural resource management or regulatory authority. Products, statements, and services from MTNHP are intended to inform parties as to the state of scientific knowledge about certain natural resources, and to further develop that knowledge. The information is not intended as natural resource management guidelines or prescriptions or a determination of environmental impacts. MTNHP recommends consultation with appropriate state, federal, and tribal resource management agencies and authorities in the area where your project is located.
- Information on the status and spatial distribution of biological resources produced by MTNHP are intended to inform parties of the state-wide status, known occurrence, or the likelihood of the presence of those resources. **These products are not intended to substitute for field-collected data, nor are they intended to be the sole basis for natural resource management decisions.**
- MTNHP does not portray its data as exhaustive or comprehensive inventories of rare species or biological communities. **Field verification of the absence or presence of sensitive species and biological communities will always be an important obligation of users of our data.**
- MTNHP responds equally to all requests for products and services, regardless of the purpose or identity of the requester.
- Because MTNHP constantly updates and revises its databases with new data and information, products will become outdated over time. Interested parties are encouraged to obtain the most current information possible from MTNHP, rather than using older products. We add, review, update, and delete records on a daily basis. Consequently, we strongly advise that you update your MTNHP data sets at a minimum of every four months for most applications of our information.
- MTNHP data require a certain degree of biological expertise for proper analysis, interpretation, and application. Our staff is available to advise you on questions regarding the interpretation or appropriate use of the data that we provide. See [Contact Information for MTNHP Staff](#)
- The information provided to you by MTNHP may include sensitive data that if publicly released might jeopardize the welfare of threatened, endangered, or sensitive species or biological communities. This information is intended for distribution or use only within your department, agency, or business. Subcontractors may have access to the data during the course of any given project, but should not be given a copy for their use on subsequent, unrelated work.
- MTNHP data are made freely available. Duplication of hard-copy or digital MTNHP products with the intent to sell is prohibited without written consent by MTNHP. Should you be asked by individuals outside your organization for the type of data that we provide, please refer them to MTNHP.
- MTNHP and appropriate staff members should be appropriately acknowledged as an information source in any third-party product involving MTNHP data, reports, papers, publications, or in maps that incorporate MTNHP graphic elements.
- Sources of our data include museum specimens, published and unpublished scientific literature, field surveys by state and federal agencies and private contractors, and reports from knowledgeable individuals. MTNHP actively solicits and encourages additions, corrections and updates, new observations or collections, and comments on any of the data we provide.
- MTNHP staff and contractors do not enter or cross privately-owned lands without express permission from the landowner. However, the program cannot guarantee that information provided to us by others was obtained under adherence to this policy.

Suggested Contacts for Natural Resource Management Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service’s [Information Planning and Consultation \(IPAC\) website](#) regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling Brian.Wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game and Nongame Animal Data	Smith Wells – MFWP Data Analyst smith.wells@mt.gov (406) 444-3759
Fisheries Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector’s Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kammi McClain for Wildlife Kammi.McClain@mt.gov (406) 444-2612 Kim Wedde for Fisheries kim.wedde@mt.gov (406) 444-5594
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry CSperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts 	Region 1 (Kalispell) (406) 752-5501 fwprg12@mt.gov Region 2 (Missoula) (406) 542-5500 fwprg22@mt.gov Region 3 (Bozeman) (406) 577-7900 fwprg3@mt.gov Region 4 (Great Falls) (406) 454-5840 fwprg42@mt.gov Region 5 (Billings) (406) 247-2940 fwprg52@mt.gov Region 6 (Glasgow) (406) 228-3700 fwprg62@mt.gov Region 7 (Miles City) (406) 234-0900 fwprg72@mt.gov

Montana Department of Agriculture

General Contact Information: <https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices>

Noxious Weeds: <https://agr.mt.gov/Noxious-Weeds>

Montana Department of Environmental Quality

Permitting and Operator Assistance for all Environmental Permits: <https://deq.mt.gov/Permitting>

Montana Department of Natural Resources and Conservation

Overview of, and contacts for, licenses and permits for state lands, water, and forested lands:

<http://dnrc.mt.gov/licenses-and-permits>

Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.).

<http://dnrc.mt.gov/divisions/cadd/conservation-districts/the-310-law>

Flood and Fire Resources: <http://dnrc.mt.gov/flood-and-fire>

Bureau of Land Management

Montana Field Office Contacts:	
	
Billings	(406) 896-5013
Butte	(406) 533-7600
Dillon	(406) 683-8000
Glasgow	(406) 228-3750
Havre	(406) 262-2820
Lewistown	(406) 538-1900
Malta	(406) 654-5100
Miles City	(406) 233-2800
Missoula	(406) 329-3914

United States Army Corps of Engineers

Montana Regulatory Office for federal permits related to construction in water and wetlands

<https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/> (406) 441-1375

United States Environmental Protection Agency

Environmental information, notices, permitting, and contacts <https://www.epa.gov/mt>

Gateway to state resource locators <https://www.envcap.org/srl/index.php>

United States Fish and Wildlife Service

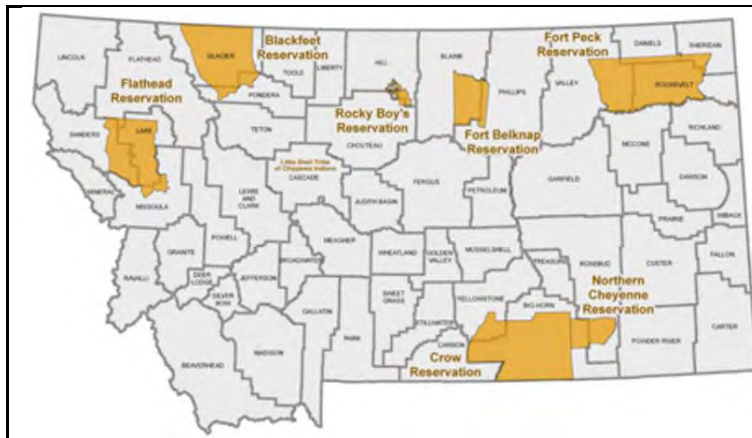
Information Planning and Conservation (IPAC) website: <https://ecos.fws.gov/ipac/>

Montana Ecological Services Field Office: <https://www.fws.gov/montanafieldoffice/> (406) 449-5225

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammy.fletcher2@usda.gov	(406) 329-3086
Wildlife Ecologist	Cara Staab	cara.staab@usda.gov	(406) 329-3677
Fish Program Leader	Scott Spaulding	scott.spaulding@usda.gov	(406) 329-3287
Fish Ecologist	Cameron Thomas	cameron.thomas@usda.gov	(406) 329-3087
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Acting Regional Botanist	Amanda Hendrix	amanda.hendrix@usda.gov	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	marry.manning@usda.gov	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation](#)

[Assiniboine & Sioux Tribes – Fort Peck Reservation](#)

[Blackfeet Tribe - Blackfeet Reservation](#)

[Chippewa Creek Tribe - Rocky Boy's Reservation](#)

[Crow Tribe – Crow Reservation](#)

[Little Shell Chippewa Tribe](#)

[Northern Cheyenne Tribe – Northern Cheyenne Reservation](#)

[Salish & Kootenai Tribes - Flathead Reservation](#)

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces

[Alberta Conservation Information Management System](#)

[British Columbia Conservation Data Centre](#)

[Idaho Natural Heritage Program](#)

[North Dakota Natural Heritage Program](#)

[Saskatchewan Conservation Data Centre](#)

[South Dakota Natural Heritage Program](#)

[Wyoming Natural Diversity Database](#)

Invasive Species Management Contacts and Information

Aquatic Invasive Species

[Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff](#)

[Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program](#)

[Montana Invasive Species Council \(MISC\)](#)

[Upper Columbia Conservation Commission \(UC3\)](#)

Noxious Weeds

[Montana Weed Control Association Contacts Webpage](#)

[Montana Biological Weed Control Coordination Project](#)

[Montana Department of Agriculture - Noxious Weeds](#)

[Montana Weed Control Association](#)

[Montana Fish, Wildlife, and Parks - Noxious Weeds](#)

[Montana State University Integrated Pest Management Extension](#)

[Integrated Noxious Weed Management after Wildfires](#)

[Fire Management and Invasive Plants](#)

Introduction to Native Species

Within the report area you have requested, separate summaries are provided for: (1) Species Occurrences (SO) for plant and animal Species of Concern, Special Status Species (SSS), Important Animal Habitat (IAH) and some Potential Plant Species of Concern; (2) other observed non Species of Concern or Species of Concern without suitable documentation to create Species Occurrence polygons; and (3) other non-documented species that are potentially present based on their range, predicted suitable habitat model output, or presence of associated habitats. Each of these summaries provides the following information when present for a species: (1) the number of [Species Occurrences](#) and associated delineation criteria for construction of these polygons that have long been used for considerations of documented Species of Concern in environmental reviews; (2) the number of observations of each species; (3) the geographic range polygons for each species that the report area overlaps; (4) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (5) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the [Montana Field Guide](#); and (6) a variety of conservation status ranks and links to species accounts in the [Montana Field Guide](#). Details on each of these information categories are included under relevant section headers below or are defined on our [Species Status Codes](#) page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document native and introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are restricted by budgets, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species and biological communities will always be an important obligation of users of our data.**

If you are aware of observation datasets that the MTNHP is missing, please report them to the Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have animal observations that you would like to contribute, you can submit them to our [Animal Observation Entry Tool](#). You can also submit plant and animal observations via Excel spreadsheets posted at <https://mtnhp.org/observations.asp> or via the [Montana Natural Heritage Observations project in iNaturalist](#)

Observations

The MTNHP manages information on several million animal and plant observations that have been reported by professional biologists and private citizens from across Montana. The majority of these observations are submitted in digital format from standardized databases associated with research or monitoring efforts and spreadsheets of incidental observations submitted by professional biologists and amateur naturalists. At a minimum, accepted observation records must contain a credible species identification (i.e. appropriate geographic range, date, and habitat and, if species are difficult to identify, a photograph and/or notes on key identifying features), a date or date range, observer name, locational information (ideally with latitude and longitude in decimal degrees), notes on numbers observed, and species behavior or habitat use (e.g., is the observation likely associated with reproduction). Bird records are also required to have information associated with date-appropriate breeding or overwintering status of the species observed. MTNHP reviews observation records to ensure that they are mapped correctly, occur within date ranges when the species is known to be present or detectable, occur within the known seasonal geographic range of the species, and occur in appropriate habitats. MTNHP also assigns each record a locational uncertainty value in meters to indicate the spatial precision associated with the record's mapped coordinates. Only records with locational uncertainty values of 10,000 meters or less are included in environmental summary reports and number summaries are only provided for records with locational uncertainty values of 1,000 meters or less.

Species Occurrences

The MTNHP evaluates plant and animal observation records for species of higher conservation concern to determine whether they are worthy of inclusion in the [Species Occurrence](#) (SO) layer for use in environmental reviews; observations not worthy of inclusion in this layer include long distance dispersal events, migrants observed away from key migratory stopover habitats, and winter observations. An SO is a polygon depicting what is known about a species occupancy from direct observation with a defined level of locational uncertainty and any inference that can be made about adjacent habitat use from the latest peer-reviewed science. If an observation can be associated with a map feature that can be tracked (e.g., a wetland boundary for a wetland associated plant) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the SO. Species Occurrences generally belong to one of the following categories:

Plant Species Occurrences

A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and their spatial proximity likely allows them to interbreed). Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Plant SO's are only created for Species of Concern and Potential Species of Concern.

Animal Species Occurrences

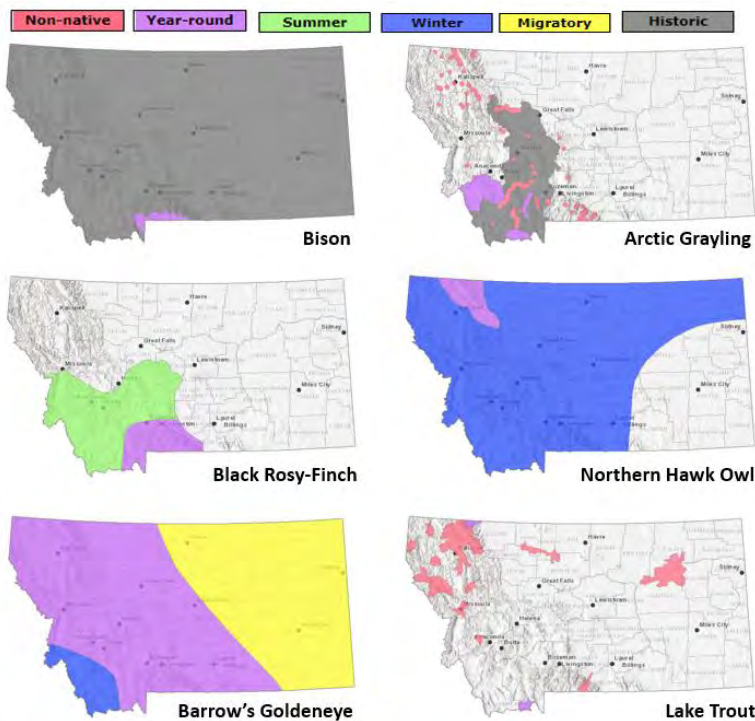
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream segments to encompass occupied streams and immediate adjacent riparian habitats; (3) polygonal features encompassing known or likely breeding populations (e.g., a wetland for some amphibians or a forested portion of a mountain range for some wide ranging carnivores); or (4) combinations of the above. Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Species Occurrence polygons may encompass some unsuitable habitat in some instances in order to avoid heavy data processing associated with clipping out habitats that are readily assessed as unsuitable by the data user (e.g., a point buffer of a terrestrial species may overlap into a portion of a lake that is obviously inappropriate habitat for the species). Animal SO's are only created for Species of Concern and Special Status Species (e.g., Bald Eagle).

Other Occurrence Polygons

These include significant biological features not included in the above categories, such as Important Animal Habitats like bird rookeries and bat roosts, and peatlands or other wetland and riparian communities that support diverse plant and animal communities.

Geographic Range Polygons

Geographic range polygons are still under development for most plant and invertebrate species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced



populations have been defined for most vertebrate animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).

Predicted Suitable Habitat Models

Predicted habitat suitability models have been created for plant and animal Species of Concern and are undergoing development for non-Species of Concern. For species for which models have been completed, the environmental summary report includes simple rule-based associations with streams for aquatic species and seasonal habitats for game species as well as mathematically complex Maximum Entropy models (Phillips et al. 2006, *Ecological Modeling* 190:231-259) constructed from a variety of statewide biotic and abiotic layers and presence only data for individual species for most terrestrial species. For the Maximum Entropy models, we reclassified 90 x 90-meter continuous model output into suitability classes (unsuitable, low, moderate, and optimal) then aggregated that into the one square mile hexagons used in the environmental summary report; this is the finest spatial scale we suggest using this information in management decisions and survey planning. Full model write ups for individual species that discuss model goals, inputs, outputs, and evaluation in much greater detail are posted on the MTNHP's [Predicted Suitable Habitat Models](#) webpage. Evaluations of predictive accuracy and specific limitations are included with the metadata for models of individual species. **Model outputs should not be used in place of on-the-ground surveys for species. Instead model outputs should be used in conjunction with habitat evaluations to determine the need for on-the-ground surveys for species.** We suggest that the percentage of predicted optimal and moderate suitable habitat within the report area be used in conjunction with geographic range polygons and the percentage of commonly associated habitats to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning.

Associated Habitats

Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the [Montana Field Guide](#). We assigned common or occasional use of each of the ecological

systems mapped in Montana by: (1) using personal knowledge and reviewing literature that summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

We suggest that the percentage of commonly associated habitat within the report area be used in conjunction with geographic range polygons and the percentage of predicted optimal and moderate suitable habitat from predictive models to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning. Users of this information should be aware that land cover mapping accuracy is particularly problematic when the systems occur as small patches or where the land cover types have been altered over the past decade. Thus, particular caution should be used when using the associations in assessments of smaller areas (e.g., evaluations of public land survey sections).

Introduction to Land Cover

Land Use/Land Cover is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100,000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's [Geographic Information Clearinghouse](#)

Within the report area you have requested, land cover is summarized by acres of Level 1, Level 2, and Level 3 Ecological Systems.

Literature Cited

- Anderson, J.R. E.E. Hardy, J.T. Roach, and R.E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey Professional Paper 964.
- Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

Introduction to Wetland and Riparian

Within the report area you have requested, wetland and riparian mapping is summarized by acres of each classification present. Summaries are only provided for modern MTNHP wetland and riparian mapping and not for outdated (NWI Legacy) or incomplete (NWI Scalable) mapping efforts; [described here](#). MTNHP has made all three of these datasets and associated metadata available for separate download on the [Montana Wetland and Riparian Framework](#) web page.

Wetland and Riparian mapping is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The wetland and riparian framework layer consists of spatial data representing the extent, type, and approximate location of wetlands, riparian areas, and deep water habitats in Montana.

Wetland and riparian mapping is completed through photointerpretation of 1-m resolution color infrared aerial imagery acquired from 2005 or later. A coding convention using letters and numbers is assigned to each mapped wetland. These letters and numbers describe the broad landscape context of the wetland, its vegetation type, its water regime, and the kind of alterations that may have occurred. Ancillary data layers such as topographic maps, digital elevation models, soils data, and other aerial imagery sources are also used to improve mapping accuracy. Wetland mapping follows the federal Wetland Mapping Standard and classifies wetlands according to the Cowardin classification system of the National Wetlands Inventory (NWI) (Cowardin et al. 1979, FGDC Wetlands Subcommittee 2013). Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI. Similar coding, based on U.S. Fish and Wildlife Service conventions, is applied to riparian areas (U.S. Fish and Wildlife Service 2009). These are mapped areas where vegetation composition and growth is influenced by nearby water bodies, but where soils, plant communities, and hydrology do not display true wetland characteristics. **These data are intended for use at a scale of 1:12,000 or smaller. Mapped wetland and riparian areas do not represent precise boundaries and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.**

See a detailed overview, with examples, of both [wetland and riparian classification systems and associated codes](#)

Literature Cited

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79/31. Washington, D.C. 103pp.
- Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.
- U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

Introduction to Land Management

Within the report area you have requested, land management information is summarized by acres of federal, state, and local government lands, tribal reservation boundaries, private conservation lands, and federal, state, local, and private conservation easements. Acreage for “Owned”, “Tribal”, or “Easement” categories represents non-overlapping areas that may be totaled. However, “Other Boundaries” represents managed areas such as National Forest boundaries containing private inholdings and other mixed ownership which may cause boundaries to overlap (e.g. a wilderness area within a forest). Therefore, acreages may not total in a straight-forward manner.

Because information on land stewardship is critical to effective land management, the Montana Natural Heritage Program (MTNHP) began compiling ownership and management data in 1997. The goal of the Montana Land Management Database is to manage a single, statewide digital data set that incorporates information from both public and private entities. The database assembles information on public lands, private conservation lands, and conservation easements held by state and federal agencies and land trusts and is updated on a regular basis. Since 2011, the Information Management group in the Montana State Library’s Digital Library Division has led the Montana Land Management Database in partnership with the MTNHP.

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide [Montana Cadastral Parcel layer](#). Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the land owner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5363 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library’s [GIS Data List](#) at the following links:

[Public Lands](#)

[Conservation Easements](#)

[Private Conservation Lands](#)

[Managed Areas](#)

Map features in the Montana Land Management Database or summaries provided in this report are not intended as a legal depiction of public or private surface land ownership boundaries and should not be used in place of a survey conducted by a licensed land surveyor. Similarly, map features do not imply public access to any lands. The Montana Natural Heritage Program makes no representations or warranties whatsoever with respect to the accuracy or completeness of this data and assumes no responsibility for the suitability of the data for a particular purpose. The Montana Natural Heritage Program will not be liable for any damages incurred as a result of errors displayed here. Consumers of this information should review or consult the primary data and information sources to ascertain the viability of the information for their purposes.

Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species, Noxious Weeds, Agricultural Pests, Forest Pests, and Biocontrol species that have been documented or potentially occur there based on the predicted suitability of habitat. Definitions for each of these invasive and pest species categories can be found on our [Species Status Codes](#) page.

Each of these summaries provides the following information when present for a species: (1) the number of observations of each species; (2) the geographic range polygons for each species, if developed, that the report area overlaps; (3) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (4) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the [Montana Field Guide](#); and (5) links to species accounts in the [Montana Field Guide](#). Details on each of these information categories are included under relevant section headers under the Introduction to Native Species above or are defined on our [Species Status Codes](#) page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what invasive and pest species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are limited, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species will always be an important obligation of users of our data.**

If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at mtnhp.org/AddObs or via Excel spreadsheets posted at mtnhp.org/observations.asp

Additional Information Resources

[MTNHP Staff Contact Information](#)

[Montana Field Guide](#)

[MTNHP Species of Concern Report - Animals and Plants](#)

[MTNHP Species Status Codes - Explanation](#)

[MTNHP Predicted Suitable Habitat Models](#) (for select Animals and Plants)

[MTNHP Request Information page](#)

[Montana Cadastral](#)

[Montana Code Annotated](#)

[Montana Fisheries Information System](#)

[Montana Fish, Wildlife, and Parks Subdivision Recommendations](#)

[Montana GIS Data Layers](#)

[Montana GIS Data Bundler](#)

[Montana Greater Sage-Grouse Project Submittal Site](#)

[Montana Ground Water Information Center](#)

[Montana Index of Environmental Permits, 21st Edition \(2018\)](#)

[Montana Environmental Policy Act \(MEPA\)](#)

[Montana Environmental Policy Act Analysis Resource List](#)

[Laws, Treaties, Regulations, and Agreements on Animals and Plants](#)

[Montana Spatial Data Infrastructure Layers](#)

[Montana State Historic Preservation Office Review and Compliance](#)

[Montana Stream Permitting: a guide for conservation district supervisors and others](#)

[Montana Water Information System](#)

[Montana Web Map Services](#)

[National Environmental Policy Act](#)

[Penalties for Misuse of Fish and Wildlife Location Data](#) (MCA 87-6-222)

[U.S. Fish and Wildlife Service Information for Planning and Consultation](#) (Section 7 Consultation)

[Web Soil Survey Tool](#)

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Lake County, Montana



Local office

Montana Ecological Services Field Office

☎ (406) 449-5225

📅 (406) 449-5339

585 Shenhard Way Suite 1

300 Stephanie Way, Suite 1
Helena, MT 59601-6287

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Grizzly Bear <i>Ursus arctos horribilis</i> There is proposed critical habitat for this species. https://ecos.fws.gov/ecp/species/7642	Threatened
North American Wolverine <i>Gulo gulo luscus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout <i>Salvelinus confluentus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Insects

NAME	STATUS
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Monarch Butterfly *Danaus plexippus*

Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

Flowering Plants

NAME

STATUS

Spalding's Catchfly *Silene spaldingii*

Threatened

Wherever found

There is **proposed** critical habitat for this species.<https://ecos.fws.gov/ecp/species/3681>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME

TYPE

Bull Trout *Salvelinus confluentus*

Final

<https://ecos.fws.gov/ecp/species/8212#crithab>

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take->

[migratory-birds](#)

- Nationwide conservation measures for birds

<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
California Gull <i>Larus californicus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

<p>Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jun 1 to Aug 31
<p>Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 15 to Aug 10
<p>Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680</p>	Breeds Jan 1 to Aug 31
<p>Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408</p>	Breeds Apr 20 to Sep 30
<p>Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914</p>	Breeds May 20 to Aug 31
<p>Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002</p>	Breeds Apr 15 to Jul 15
<p>Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743</p>	Breeds Jun 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

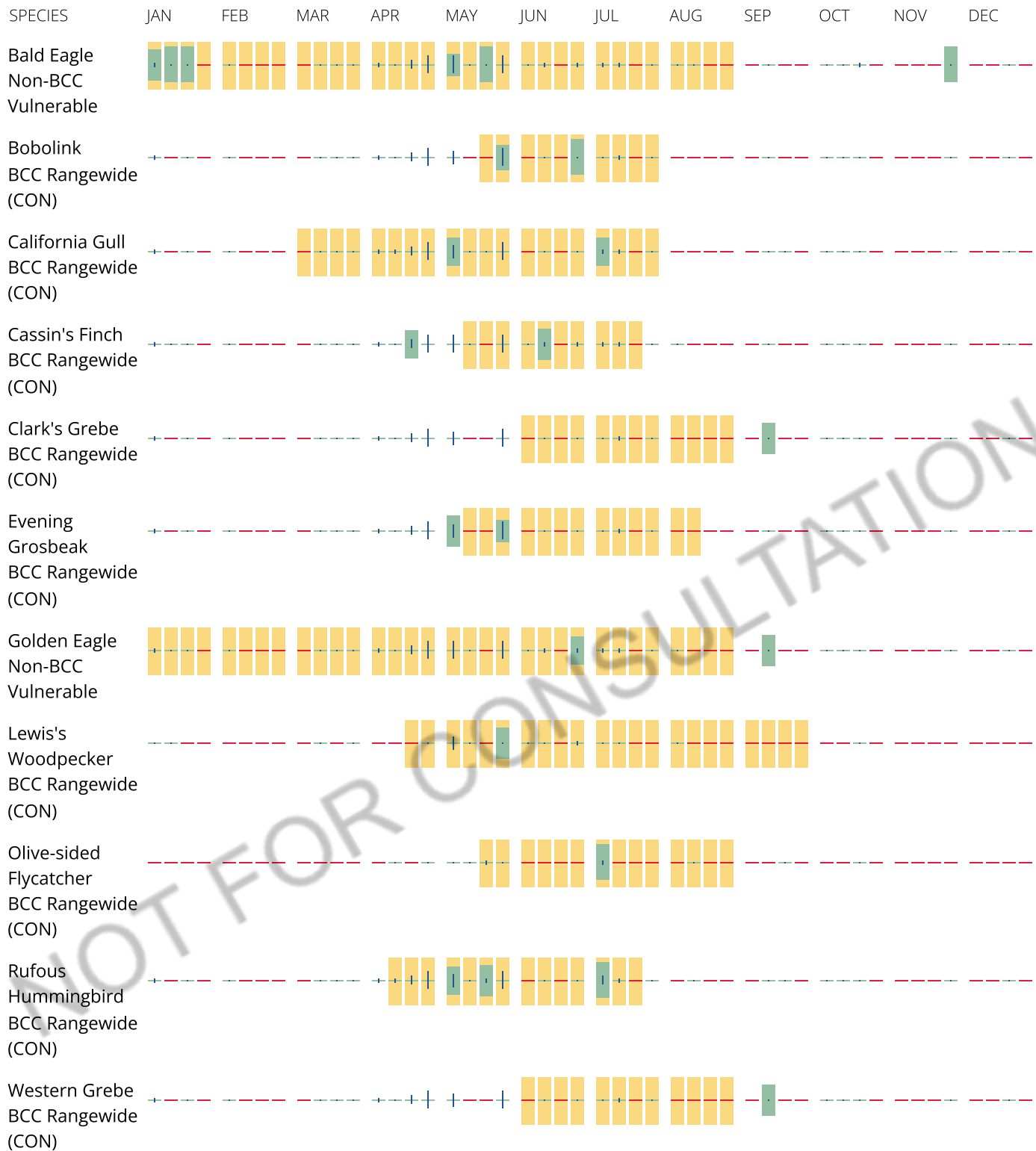
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort — no data



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in

offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



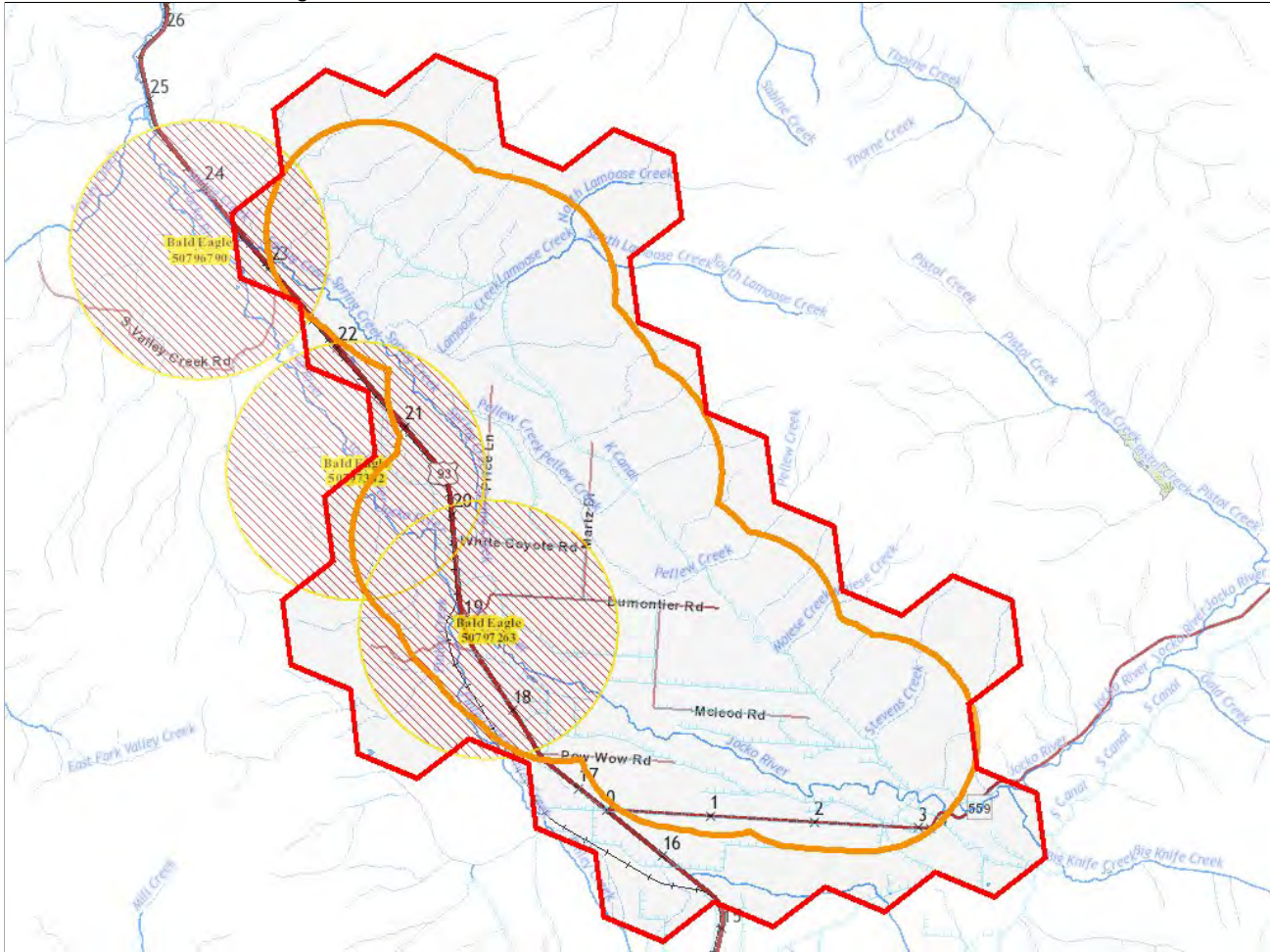
Latitude 47.11012 Longitude -113.86068
47.28214 -114.27009



Montana SOC Occurrences Report

SOC Occurrences for Birds = Bald Eagle

Report generated 6/10/2022 8:27:12 AM



Birds - Bald Eagle (*Haliaeetus leucocephalus*) SO Count: 3 Obs Count: 30 Earliest Obs: 2000 Recent Obs: 2020

Special Status Species
Native Species
Global Rank: G5
State Rank: S4

Agency Status
USFWS: BGPEPA; MBTA
USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)
BLM: SENSITIVE
FWP SWAP:
PIF: 2

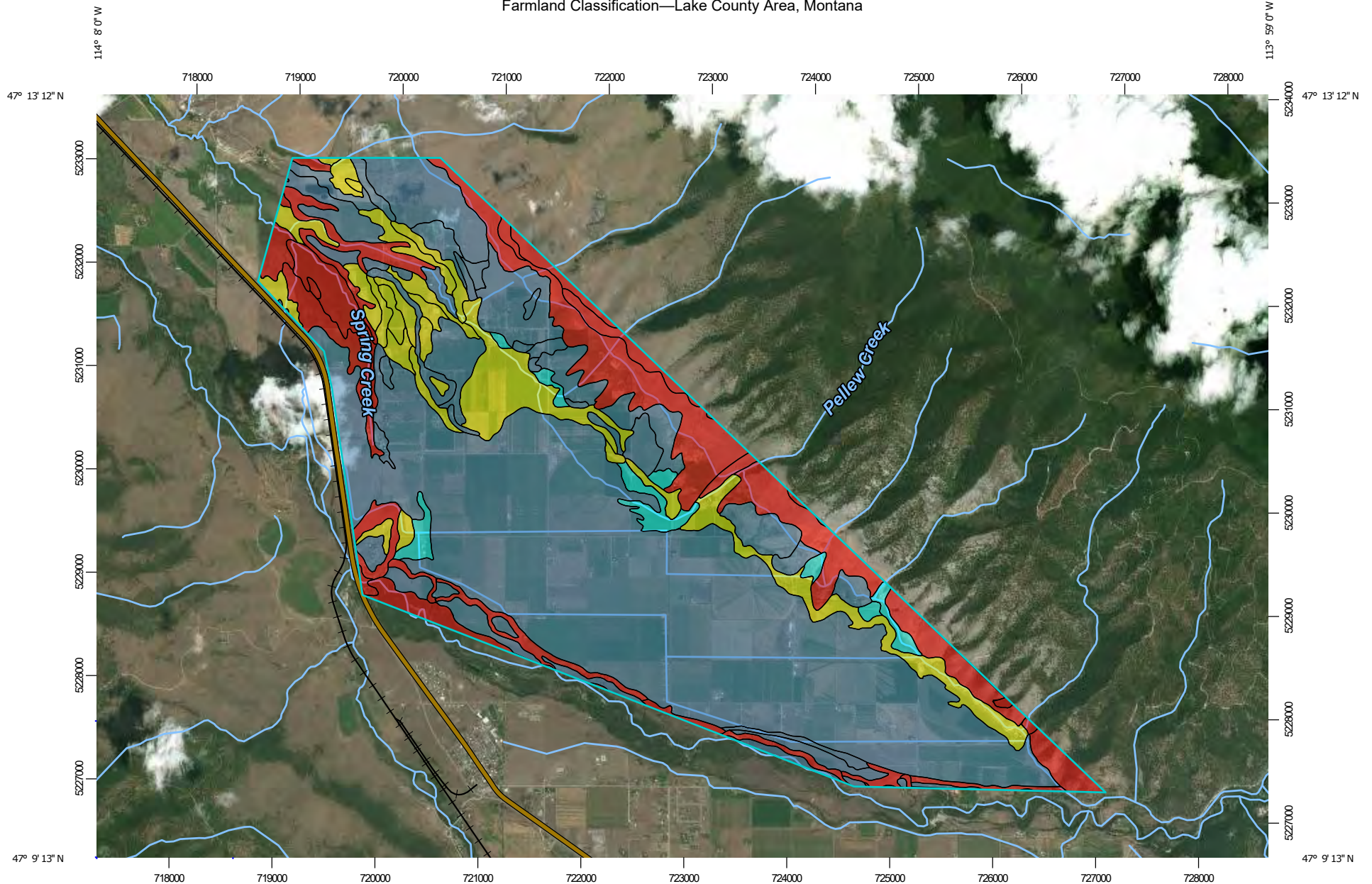
Delineation Criteria
Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for reneating and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Last Updated
Jan 27, 2022

SO ID	Acres	Obs Count	Earliest Obs	Recent Obs
SO ID: 50796790	3,105	17	2003	2020
SO ID: 50797263	3,105	10	2010	2020
SO ID: 50797362	3,105	3	2000	2002

Citation for this report:
Montana SOC Occurrences Report
SOC Occurrences for Birds = Bald Eagle
Within Lat/Long: (47.11012,-113.86068) to (47.28214,-114.27009)
Natural Heritage Map Viewer. Montana Natural Heritage Program.
Retrieved on June 10, 2022, from https://mtnhp.org/MapViewer/SORReport.aspx

Farmland Classification—Lake County Area, Montana




Map Scale: 1:52,000 if printed on A landscape (11" x 8.5") sheet.
0 500 1000 2000 3000 Meters
0 2500 5000 10000 15000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84











MAP LEGEND








Area of Interest (AOI)






 Area of Interest (AOI)








Soils



Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season









-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of statewide importance, if drained
-  Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated

-  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated and drained
-  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
-  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60




































-  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough
-  Farmland of statewide importance, if thawed
-  Farmland of local importance
-  Farmland of local importance, if irrigated

-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Farmland Classification—Lake County Area, Montana

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	Soil Rating Points			Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Prime farmland if drained		Farmland of statewide importance
	Farmland of statewide importance, if drained		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated				Farmland of local importance		Prime farmland if irrigated and drained		Farmland of statewide importance, if irrigated
					Farmland of local importance, if irrigated		Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		

Farmland Classification—Lake County Area, Montana

<p> Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if irrigated and drained</p> <p> Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer</p> <p> Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60</p>	<p> Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium</p> <p> Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season</p> <p> Farmland of statewide importance, if warm enough</p> <p> Farmland of statewide importance, if thawed</p> <p> Farmland of local importance</p> <p> Farmland of local importance, if irrigated</p>	<p> Farmland of unique importance</p> <p> Not rated or not available</p> <p>Water Features</p> <p> Streams and Canals</p> <p>Transportation</p> <p> Rails</p> <p> Interstate Highways</p> <p> US Routes</p> <p> Major Roads</p> <p> Local Roads</p> <p>Background</p> <p> Aerial Photography</p>	<p>The soil surveys that comprise your AOI were mapped at 1:20,000.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</p> <p>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.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Lake County Area, Montana Survey Area Data: Version 23, Sep 2, 2021</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Aug 30, 2012—Nov 2, 2016</p> <p>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.</p>
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Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6	Belton silt loam, 8 to 15 percent slopes	Farmland of local importance	156.4	2.9%
9	Belton-Kerl silt loams, 4 to 8 percent slopes	Farmland of local importance	54.0	1.0%
15	Bigarm-Hogsby-Rock outcrop complex, 30 to 60 percent slopes	Not prime farmland	43.7	0.8%
17	Bohnly silt loam, 0 to 2 percent slopes	Not prime farmland	36.1	0.7%
19	Borochemists, 0 to 1 percent slopes	Not prime farmland	81.2	1.5%
22	Colake silt loam, 0 to 1 percent slopes	Not prime farmland	3.4	0.1%
23	Colake silt loam, drained, 0 to 1 percent slopes	Prime farmland if irrigated	17.8	0.3%
39	Dryfork silt loam, 0 to 4 percent slopes	Farmland of local importance	70.2	1.3%
60	Flott gravelly loam, 30 to 60 percent slopes	Not prime farmland	3.4	0.1%
61	Flott very gravelly loam, dry, 30 to 60 percent slopes	Not prime farmland	3.2	0.1%
63	Gird silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	11.6	0.2%
67	Gird-Vincom silt loams, 8 to 15 percent slopes	Farmland of local importance	93.0	1.7%
72	Hogsby-Rock outcrop complex, 15 to 45 percent slopes	Not prime farmland	28.2	0.5%
81	Jocko gravelly loam, 0 to 4 percent slopes	Farmland of local importance	2,698.6	50.3%
82	Jocko gravelly loam, 4 to 15 percent slopes	Farmland of local importance	246.8	4.6%
84	Kerl loam, 2 to 4 percent slopes	Prime farmland if irrigated	16.5	0.3%
93	Lamoose loam, 0 to 2 percent slopes	Not prime farmland	123.4	2.3%
101	McCullum fine sandy loam, 0 to 2 percent slopes	Prime farmland if irrigated	59.0	1.1%
102	McCullum fine sandy loam, 2 to 4 percent slopes	Prime farmland if irrigated	29.1	0.5%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
104	McCollum fine sandy loam, gravelly substratum, 0 to 2 percent slopes	Prime farmland if irrigated	118.0	2.2%
122	Niarada gravelly loam, 8 to 15 percent slopes	Farmland of local importance	18.4	0.3%
123	Niarada gravelly loam, cool, 15 to 30 percent slopes	Not prime farmland	466.1	8.7%
124	Niarada gravelly loam, cool, 30 to 60 percent slopes	Not prime farmland	241.4	4.5%
125	Niarada-Kerl complex, 8 to 15 percent slopes	Farmland of local importance	125.0	2.3%
126	Ninepipe silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	357.3	6.7%
155	Sacheen loamy fine sand, 0 to 8 percent slopes	Prime farmland if irrigated	3.1	0.1%
160	Selow silty clay loam, 0 to 2 percent slopes	Farmland of local importance	28.2	0.5%
165	Truscreek silt loam, 0 to 2 percent slopes	Prime farmland if irrigated	16.3	0.3%
170	Vincom silt loam, 15 to 60 percent slopes	Not prime farmland	78.4	1.5%
174	Walstead gravelly loam, 0 to 2 percent slopes	Farmland of statewide importance	26.0	0.5%
175	Walstead gravelly loam, 2 to 4 percent slopes	Farmland of statewide importance	81.9	1.5%
176	Walstead gravelly loam, 4 to 15 percent slopes	Farmland of statewide importance	20.5	0.4%
188	Xerofluvents, 0 to 2 percent slopes	Not prime farmland	5.8	0.1%
Totals for Area of Interest			5,364.4	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Appendix C

Correspondence

- IDT Request for Comment Letter/Email
- CSKT – Casey Ryan – Hydrogeologist Letter
- CSKT – Cody Goklish – Water Resources Monitoring Letter
- USACE Approved Jurisdictional Determination
- USFWS BA Concurrence Letter
- CSKT THPO – Kathryn McDonald
- NWO-2021-01508-MT IP Fully Executed Permit

Breanne Cline

From: Christine A. Pearcy
Sent: Thursday, April 21, 2022 10:16 AM
To: Breanne Cline
Subject: FW: CKST Irrigation - Jocko Canals RMB Project - Compact Year 1 Task
Attachments: IDT Letter CSKT.pdf

 **Christine A. Pearcy**
Environmental Scientist, Morrison-Maierle
+14069226846 direct | +14065816543 mobile

From: Jace Smith <jace.smith@cskt.org>
Sent: Monday, July 12, 2021 3:56 PM
To: Les Evarts <les.evarts@cskt.org>; Barry Hansen <Barry.Hansen@cskt.org>; Craig Barfoot <Craig.Barfoot@cskt.org>; Whisper Means <whisper.means@cskt.org>; Willie Keenan <Willie.Keenan@cskt.org>; Tabitha Espinoza <Tabitha.Espinoza@cskt.org>; Mary Price <Mary.Price@cskt.org>; Art Soukkala <Art.Soukkala@cskt.org>; Rusty Sydnor <Rusty.Sydnor@cskt.org>; Chauncey Means <Chauncey.Means@cskt.org>; Evan Smith <Evan.Smith@cskt.org>; Frank Acevedo <Frank.Acevedo@cskt.org>; Randall Ashley <Randall.Ashley@cskt.org>; Peter Gillard <peter.gillard@cskt.org>; Mark Couture <Mark.Couture@cskt.org>; Michael Durglo <Michael.Durglo@cskt.org>; Kathryn R. McDonald <Kathryn.McDonald@cskt.org>; Tony Incashola Jr <tony.incashola.jr@cskt.org>; Vernon Finley <Vernon.Finley@cskt.org>; Tony Incashola sr <tony.incashola.sr@cskt.org>; Thompson Smith <Thompson.Smith@cskt.org>; Nelson, Lawrence <lawrence.nelson@bia.gov>; shana.radford@bia.gov; Sauer, Timothy <Timothy.Sauer@bia.gov>; Teegarden, Travis <Travis.Teegarden@bia.gov>; jacilyn.snyder@bia.gov; cheryl.finley <cheryl.finley@bia.gov>
Cc: Richard Janssen <Richard.Janssen@cskt.org>; Seth Makepeace <Seth.Makepeace@cskt.org>; Casey Ryan <Casey.Ryan@cskt.org>; Christine A. Pearcy <cpearcy@m-m.net>; Molly R. Davidson <mdavidson@m-m.net>
Subject: CKST Irrigation - Jocko Canals RMB Project - Compact Year 1 Task

This message originated from an **External Source**. Please use proper judgment and caution when opening attachments, clicking links, or responding to this email.

Hello all,

We are working on the Jocko Canals Rehab, Modernization and Betterment Project as part of the Compact Implementation Year 1 Tasks. CSKT Hydrology is actively doing seepage work in the canals and Irrigation Infrastructure has engaged Morrison-Maierle to initiate Master Planning, Permitting, and Design work. We are reaching out to your Program for coordination in preparation on NEPA (National Environmental Policy Act). The attached letter and maps will outline the Project and request inputs and submission date of August 16th, 2021. Please reach out with any questions.

Thanks for your attention and assistance in getting this Compact Yr 1 Project underway!

-Jace

Jace W. Smith
Irrigation Infrastructure Program Manager
Confederated Salish & Kootenai Tribes
Natural Resources Department
O: 406.676.2600 x6210

C: 406.490.2838

jace.smith@cskt.org



A People of Vision

Re: Jocko Area Canal Conversion Project National Environmental Policy Act Coordination

To Whom It May Concern:

The Bureau of Indian Affairs (BIA) and the Confederated Salish and Kootenai Tribes (CSKT) are working in conjunction with support from Morrison-Maierle, Inc. to prepare NEPA documentation for the Jocko Area Canal Conversion Project (Jocko Canal Project). This request is submitted in accordance with the requirements for initial National Environmental Policy Act (NEPA) coordination and your input is being sought because of your subject matter expertise.

The proposed project is on the Flathead Indian Irrigation Project located in Flathead Indian Reservation. NEPA compliance is required for the BIA and informal consultation with the CSKT is required to streamline NEPA compliance. The portion of the Jocko Canal Project area that is currently targeted for these projects is located north of the Jocko River from the K Canal in the east to US Route 93 in the west in Lake County, Montana. A topographic and aerial map of the project area are enclosed.

CSKT has identified an opportunity to improve their water resources through the implementation of infrastructure modifications located in the Jocko Unit of the Flathead Indian Irrigation Project (FIIP). This area of the system has been identified for rehabilitation, betterment, and modernization as it relates to water delivery efficiencies. The current focus of rehabilitation and betterment efforts is to improve irrigation conveyance canals either by lining canals or replacing the canals with pipelines. The new conveyances installed may follow the existing alignments, may follow new alignments, or, most likely, will include a combination of new and existing alignments. Construction efforts will not impact FIIP system operations.

At this time, we are soliciting general comments on the proposed project in order for BIA to complete the Categorical Exclusion Exception Review (CEER) Checklist and to evaluate environmental impacts for the proposed project. In coordination with the BIA, Regional NEPA coordinator has provided that the proposed project may qualify for a Categorical Exclusion Exception Review (CEER) under 516 Department Manual (DM) Chapter 10.5(A) - *Operation, Maintenance, and Replacement of Existing Facilities*. If new alignments are identified, the proposed project will likely require an Environmental Assessment (EA) as determined by the BIA.

A written response from you will complete a requirement for BIA for informal consultation for environmental documentation of the project. Any response on these matters may result in further coordination to mitigate potential effects of the proposed project activities. In addition, please inform us of any other projects that you are aware of within Jocko Canal Project Area vicinity, as that will be helpful for us when evaluating potential cumulative impacts.

Please contact **Christine Percy** before August 16, 2021 with any comments you have on the aforementioned proposed project activities.

Please send your written response to the following physical address or email:

Christine Percy, Environmental Scientist
Morrison-Maierle, Inc.
P.O. Box 1113
Bozeman, MT 59771

cpearcy@m-m.net

If you have any questions pertaining to the information provided, please do not hesitate to contact Christine at (406) 922-6846.

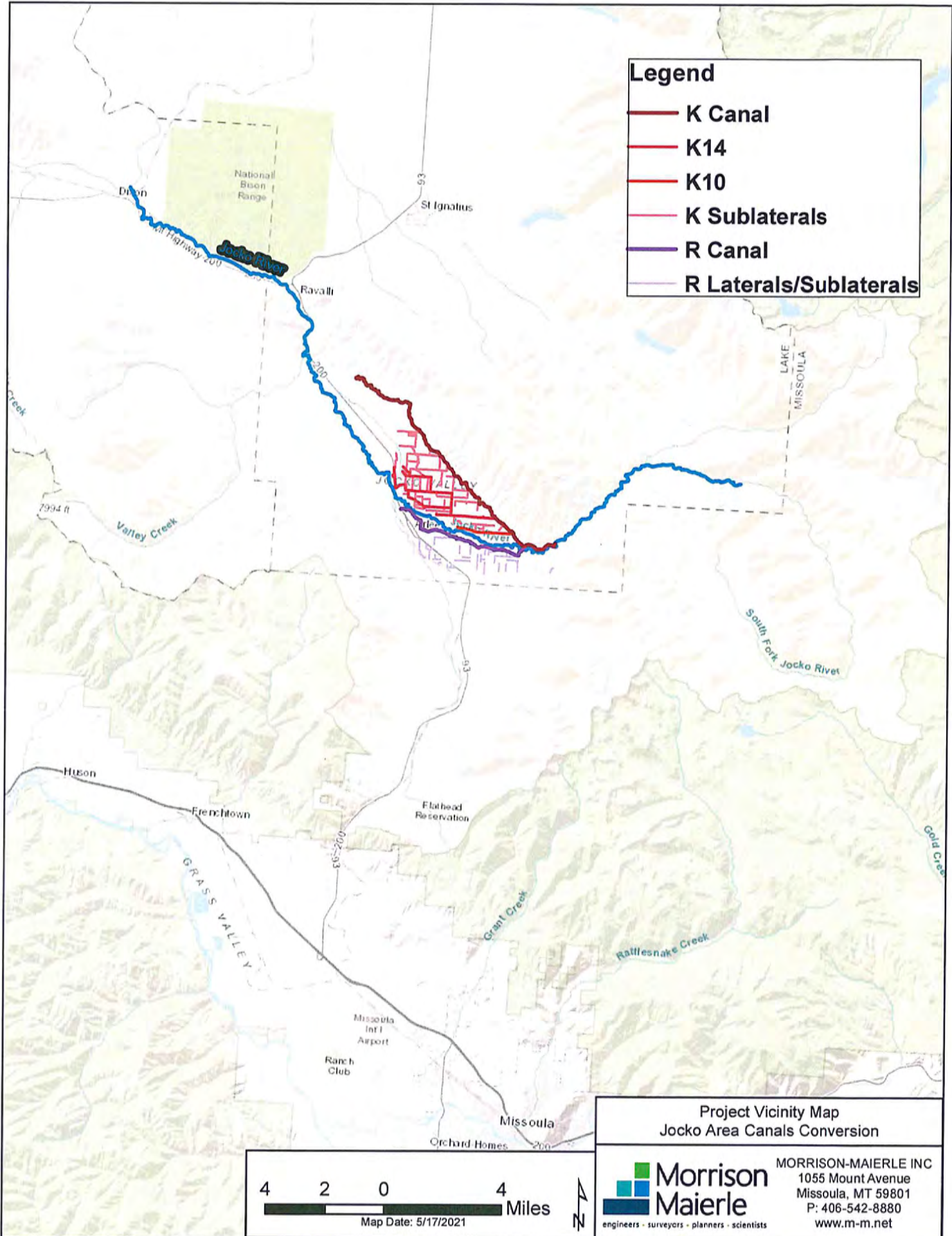
Sincerely,



Jace Smith
Irrigation Infrastructure Program Manager
Confederated Salish and Kootenai Tribes

Enclosures

CC: Christine Pearcy, Morrison-Maierle, Inc.
Jacilyn Snyder, BIA NEPA Coordinator



Legend

- K Canal
- K14
- K10
- K Sublaterals
- R Canal
- R Laterals/Sublaterals

Project Vicinity Map
Jocko Area Canals Conversion









**Morrison
Maierle**
engineers - surveyors - planners - scientists

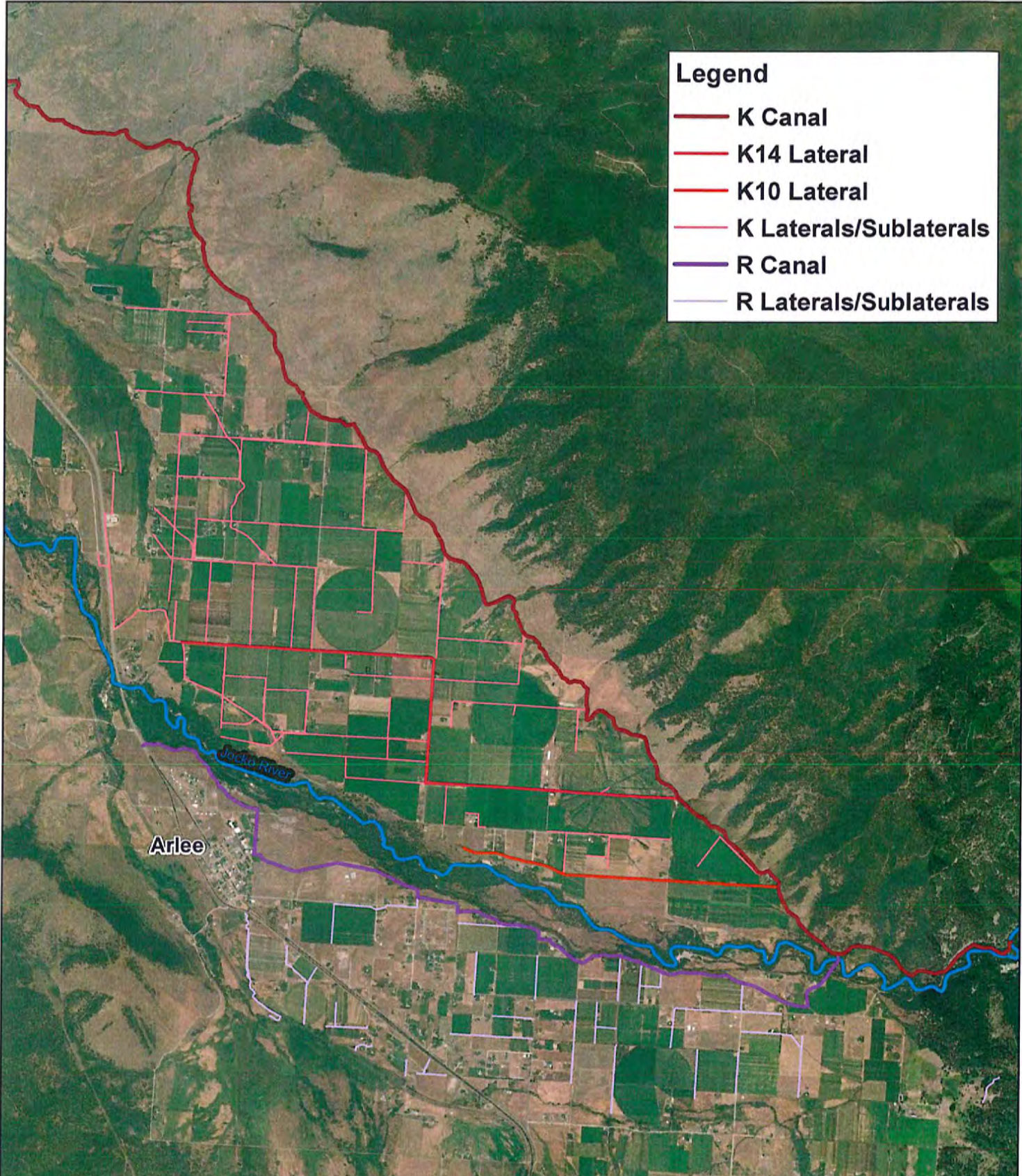
MORRISON-MAIERLE INC
 1055 Mount Avenue
 Missoula, MT 59801
 P: 406-542-8880
 www.m-m.net

4 2 0 4 Miles

Map Date: 5/17/2021

Legend

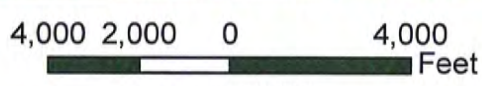
-  K Canal
-  K14 Lateral
-  K10 Lateral
-  K Laterals/Sublaterals
-  R Canal
-  R Laterals/Sublaterals



Arlee

Jocko River

Existing Canal Configuration
Jocko Area Canals Conversion

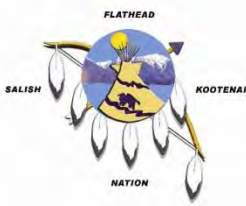


Map Date: 5/18/2021



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THE CONFEDERATED SALISH & KOOTENAI TRIBES

WATER MANAGEMENT PROGRAM

MEMORANDUM

To: Jace Smith, Irrigation Infrastructure Program Manager
From: Casey Ryan, Hydrologist, Natural Resources Department
Date: August 17, 2021
Re: Jocko Area Canal Conversion Project - National Environmental Policy Act Coordination

Background

The CSKT Irrigation Infrastructure Program is soliciting general comments on the proposed Jocko Area Canal Conversion Project in order for BIA to complete the Categorical Exclusion Exception Review (CEER) Checklist and to evaluate environmental impacts for the proposed project. This memo represents a scoping-level review of the water resources in the planning area and potential impacts of the proposed actions.

Summary of Water Resources

The project is located with the Jocko River watershed within the southern portion of the Flathead Indian Reservation. The Jocko River is second largest perennial stream on the reservation and is a major tributary to the Flathead River. At its mouth the Jocko has an annual average discharge of 238 cubic feet per second. The Jocko River drains a watershed area of 246,263 acres, with approximately 5% of the drainage under irrigation. Major tributaries include Finley Creek, Valley Creek, Spring Creek, Pistol Creek, and the North, Middle, and South Forks of the Jocko River. In Salish, the Jocko River is called Nlqalq^w Sewlk^ws, which can be translated into English as Water of the Place of Large Diameter Trees. This watershed is of significant ecological and cultural importance for the Séliš, Qlispé, and Ksanka peoples.

The Jocko Valley is an intermontaine basin located approximately 20 miles north of Missoula and 10 miles south-southeast of St. Ignatius, Montana. The project area is primarily located on the central valley floor downstream of where the river emerges from the Jocko Canyon. The geology consists of Precambrian metasedimentary rocks of the Belt Supergroup. The Jocko Valley averages approximately 15 inches of precipitation annually, with larger amounts in the

surrounding mountains. The hydrograph of the Jocko River is snowmelt-dominated with peak discharge typically occurring at the end of June

The majority of the project occurs within the Jocko Valley – Outwash Hydrogeologic Unit. This is the primary aquifer unit in the Jocko Valley, and is heavily exploited as a source of domestic drinking water. Valley floor sediments include glacial outwash, reworked sands and gravels along the Jocko River, and Tertiary sediments at depth. The aquifer is unconfined, however in the vicinity of Arlee, a finer silt interval is reported at approximately 40 feet in depth and may create semi confined conditions. Total well depths and depth to ground water decrease relatively uniformly to the north, and the water table is at or near land surface in the north extent of the unit. Substantial volumes of ground water discharge to the Jocko River and valley floor wetlands, and ground water discharge forms Jocko Spring Creek. Well yields can be high and specific capacity values average around 20 gpm/ft (CSKT, 2020).

Groundwater recharge is driven by infiltration from snowmelt and rainfall, seepage from the Jocko River, lateral groundwater flow from the surrounding mountains, and infiltration from irrigation ditches. Groundwater hydraulic gradients are generally down valley to the northwest.

The natural hydrology of the Jocko Valley has been intensely modified over the past century, beginning with the construction of irrigation ditches in the late 1800s. Trans-basin diversions are present in the headwaters of the Jocko River watershed, including the diversion of approximately 9,000 acre-feet of water per year from the Placid Creek drainage into the Jocko River drainage. The Tabor Feeder Canal further redistributes 47,800 acre-feet of water per year out of the Jocko River drainage into Tabor Reservoir and the Mission Valley irrigation system. There are approximately 15,000 irrigated acres in the Jocko Valley, and withdrawals from the Jocko River at multiple points along its channel significantly alter the annual hydrograph. The geomorphology of the river has also been significantly altered through time, including the straightening of the river channel in the 1880s, the construction of thousands of feet of levees in the 1960s, as well as more recent river restoration efforts beginning in the early 2000s.

Potential Impacts to Water Resources

The CSKT Irrigation Infrastructure Program proposes infrastructure modifications within the project area in order to modernize and improve infrastructure as well as to improve water delivery efficiency. These improvements may be accomplished through either lining irrigation canals or by replacing canals with pipelines.

As in the case in many landscapes, groundwater and surface water resources are strongly connected in the Jocko River Watershed. Alteration of the seasonal pattern of groundwater infiltration from irrigation canal seepage could potentially affect both surface and groundwater resources.

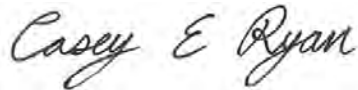
Groundwater levels in the planning area are highly sensitive to influence from canal leakage. A 1992 USGS seepage study within the planning area noted that water levels in monitoring wells responded rapidly to the introduction of water into the Jocko R Canal, with groundwater levels in a well adjacent to the canal increasing 12 feet four hours after introduction of water in the canal. During the same event a well 150 feet from the canal began rising 55 hours later (Slagle, 1992). Conversion of open canal into pipeline or lined canal would result in decreased groundwater infiltration within the canal network and decreased groundwater recharge within this area, likely lowering static groundwater levels within the project area proximity and downstream of the project area.

Lining or piping of the Jocko Valley Canal network could also affect Tribal water resources, including wetlands and springs. One such example is Jocko Spring Creek, a perennial stream

which originates as a groundwater discharge spring north of White Coyote Road in Arlee, MT. The annual hydrograph of Jocko Spring Creek is influenced by groundwater recharge from canal seepage losses, as indicated by flows which are generally greatest during the months of August and September and then rapidly peak and then decline after irrigation canals are turned off in mid-September. Other wetland resources have developed in the Jocko Valley as a direct result of historic canal seepage. Lining or piping of canals has the potential to cut off these water sources and may result in the discontinuation of groundwater contributions to these wetlands.

Canals within the planning area are generally open, unlined earthen ditches with gravel and cobble substrates. High rates of canal seepage loss are well documented, including a quantitative analysis by the USGS in the late 80s and early 90s (Slagle, 1992). Conversion of open unlined ditches to lined canal or pipeline would significantly reduce irrigation conveyance loss while increasing canal efficiency. The successful completion of rehabilitation and betterment projects such as this proposed project may result in significant water savings. These water savings from rehabilitation and betterment projects are recognized as “Reallocated Water” under the CSKT Water Compact and are intended to incrementally achieve FIIP Instream Flows as set forth under the Compact. This increase in instream flows would have beneficial effects for aquatic species, riparian plants, as well as the overall Jocko River ecosystem.

Respectfully,

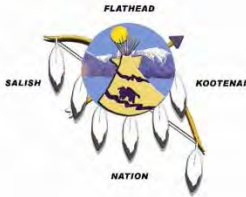
A handwritten signature in cursive script that reads "Casey E Ryan".

Casey Ryan, Hydrologist
Confederated Salish & Kootenai Tribes
Natural Resources Program

References

CSKT Water Resources Program. 2020. Summary of Groundwater Resources, Flathead Indian Reservation, Montana.

Slagle, Steven E. 1992. Irrigation-canal leakage in the Flathead Indian Reservation, northwestern Montana. US Geological Survey.



THE CONFEDERATED SALISH & KOOTENAI TRIBES

WATER RESOURCES PROGRAM

MEMORANDUM

To: Molly Davidson, Morrison-Maierle Inc.
From: Cody T. Goklish, Natural Resources Department
Date: March 24, 2022
Re: Jocko Canal Conversion Project, Water Resources

Proposed Action

As part of the Jocko Area Canal Conversion Project, The Confederated Salish and Kootenai Tribes (CSKT) selected certain sections of open-channel, earthen canals to be converted into pressure pipe in the Jocko K Canal system near Arlee, Montana. The goal of the project is to conserve water by eliminating seepage and reduced operational spills, enhance FIIP canal operational controls, and decrease operational costs.

Description of Water Resources Monitoring

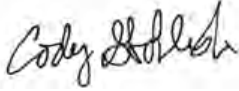
The CSKT Monitoring and Measurement Program has a robust network of gaging stations and groundwater monitoring wells that are operated by trained hydrographers who monitor sites following USGS standard operating procedures. Gaging stations are established upstream, downstream, and within Flathead Indian Irrigation Project (FIIP) canal systems to monitor and measure surface water flows. These measurement activities are conducted for multiple objectives, including to ensure compliance of instream flows and help inform irrigation water management. Each gaging station collects surface water stage (depth) in fifteen-minute increments, where telemetry send data inhouse, and is conformed to a rating table that computes its relative discharge.

There are five gaging stations within or adjacent to the proposed project area. These monitored bodies of water include the Jocko River and Jocko Spring Creek. Two gages on the Jocko K Canal measure canal conveyance during the FIIP irrigation season (April 15 to September 15). Several active groundwater monitoring wells are located in the vicinity of the project area, with well measurements collected quarterly.

Project Impacts on Surface and Groundwater Systems

In order to assess potential influences on the surface and groundwater systems from project activities, the CSKT Monitoring and Measurement Program will continue monitoring surface and groundwater resources within and adjacent to the project area. This includes surface flows at Spring Creek and Jocko River, the local groundwater network, and Jocko K Canal network. CSKT has the capabilities to conduct additional water measurement if deemed necessary to continue to monitor the effects of the project on local water resources.

Respectfully,



Cody T. Goklish, Hydrologist
Confederated Salish & Kootenai Tribes
Natural Resources Program



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
HELENA REGULATORY OFFICE
100 NEILL AVENUE
HELENA, MONTANA 59601

April 15, 2022

SUBJECT: Approved Jurisdictional Determination: Jocko Area Canal Conversion Project; USACE File Number **NWO-2021-01508-MTH**

Confederated Salish & Kootenai Tribes
Attn: Mr. Jace Smith, NRD Program Manager
301 Main Street
Polson, Montana 59860

Dear Mr. Smith:

We are responding to your request for an approved jurisdictional determination regarding the Jocko Area Canal Conversion project. The approximately 19.9-acres review area for the jurisdictional determination is centered at Latitude 47.188952°, Longitude -114.075667°, within Section 13, 14, 15, 23, 24, 25, and 36 Township 17 N, Range 20 W; Sections 6 and 30, Township 17 N, Range 19 W; Section 1 and 5, Township 16 N, Range 20 W; Section 7, 8, and 9, Township 16 N, Range 19 W; near Arlee on the Flathead Reservation, Lake County, Montana.

Based on available information, an off-site jurisdictional determination has been completed for the areas identified in your request and is enclosed for your information. The estimates of waters of the United States are depicted on the enclosed map titled, "NWO-2021-01508-MTH Review Area Map" (enclosed). Only the area inside the yellow polygon labeled "Investigation Area" on the Review Area Map was reviewed for this jurisdictional determination. Approximately 230 linear feet of stream, 0.31-acre of palustrine emergent wetland, and 59,675 linear feet of K-Canal are present within the review area. K-Canal is considered a relocated tributary of the Jocko River.

The 230 linear feet of stream and 59,675 linear feet of K-Canal are tributaries or relocated tributaries regulated under Section 404 of the Clean Water Act based on the application of the USACE's definition of waters of the United States. They are part of a tributary system to interstate waters and have an ordinary highwater mark.

The 0.31-acre of palustrine emergent wetlands identified as WET 1, WET 2, WET 3, and WET 4 are regulated under Section 404 of the Clean Water Act since they are adjacent wetlands or wetlands adjacent to but not directly abutting a relatively permanent waterway that flows directly or indirectly into traditionally navigable waters. This determination is based on the application of the USACE 1987 Wetland Delineation

Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation. The wetlands are waters of the United States and are part of a tributary system to interstate waters (33 CFR 328.3 (a)(7)). This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under USACE regulations at 33 CFR Part 331. A Notification of Appeal Process (NAP) and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the Northwestern Division Office, Regulatory Appeals Review Officer, Melinda Larsen at Melinda.M.Larsen@usace.army.mil. For any questions you may contact her at (503) 808-3888.

In order for an RFA to be accepted, USACE must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within **60 days** of the date of the NAP. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

This determination is valid for five (5) years from the date of this letter, unless new information warrants revision of the determination before the expiration date.

Please refer to identification number **NWO-2021-01508-MTH** in any correspondence concerning this project. If you have any questions, please contact Jerin Borrego by email at jerin.e.borrego@usace.army.mil, or by telephone at (406) 441-1364.

Sincerely,

Sage L. Joyce
Chief, Montana Regulatory Program

2 Enclosures:

1. NAP/RFA
2. Review Area Map

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at: <https://regulatory.ops.usace.army.mil/customer-service-survey/>. Paper copies of the survey are also available upon request for those without Internet access.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Montana Ecological Services Office
585 Shephard Way, Suite 1
Helena, Montana 59601



In Reply refer to:
File: M.01 BIA (I)
Project 2023-0047568

March 2, 2023

Kari Kingery
Wildlife Program Manager
Confederated Salish and Kootenai Tribes
P.O. Box 278
Pablo, Montana 59855

Shane Hendrickson, Superintendent
Flathead Agency, Bureau of Indian Affairs
P.O. Box 40
Pablo, MT 59855

Dear Ms. Kingery and Mr. Hendrickson:

This is in response to your January 31, 2023 letter requesting initiation of informal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Jocko Valley Service Area Improvements Project (project). We also received your biological assessment (BA) for the project, which determined the project *may affect, but is not likely to adversely affect* grizzly bear (*Ursus arctos horribilis*), bull trout (*Salvelinus confluentus*) or designated bull trout critical habitat. The BA also determined that the project is *not likely to jeopardize the continued existence* of North American Wolverine (*Gulo gulo*).

Grizzly Bear

The BA determined that the project may affect grizzly bears within the Northern Continental Divide Ecosystem (NCDE). The project will occur outside the NCDE Primary Conservation Area, and no resident bears have been documented in the action area. However, transient bears have been documented in the action area. Any transient bears that may occur in the action area may experience temporary disturbance due to an increase in human activity and machinery. However, we do not expect the project to result in permanent displacement of any grizzly bears within the action area. The project also includes several conservation measures to reduce the potential for human-grizzly bear conflicts, including requirements to properly store food or other attractants, and promptly clean up any spilled food or attractants. Further, the project requires prompt notification of any observations of grizzly bears, or animal carcasses in the vicinity of the

project. Since the project occurs in an area where only transient bears have been documented, will not result in permanent displacement of grizzly bears, and includes measures aimed at reducing conflicts, we anticipate that the effects of the project on grizzly bears will be insignificant or discountable.

Bull Trout and Bull Trout Critical Habitat

The action area for the proposed project is within the Jocko River watershed, which is within the Lake Pend Oreille bull trout core area. However, all construction activities will occur in upland areas and no disturbance or sediment transport to the Jocko River is anticipated. Additionally, the project includes general conservation measures aimed at reducing the likelihood that spilled or leaked hazardous materials could enter adjacent water conveyance structures.

The proposed project is anticipated to improve water quality in the Jocko River by eliminating the need to divert excess flow overland into Jocko Springs Creek (a tributary to the Jocko River). The will reduce the delivery of sediment or any other ground surface contaminants from reaching Jocko Springs Creek, and ultimately the Jocko River. Further, the project is anticipated to increase conveyance efficiency relative to the existing system. This will result in less water diverted at the Jocko K Canal Diversion, meaning more water remains in the Jocko River. Because the project will not result in any sediment input or in channel disturbance, and will result in improved water quality and quantity in the Jocko River, we anticipate the effects of the project to be completely beneficial to bull trout and designated bull trout critical habitat.

Upon review, the Service concurs with the determination that the project *may affect, but is not likely to adversely affect* grizzly bear, bull trout or designated bull trout critical habitat. The Service's concurrence is based on the information and analyses provided in the BA, and information in our files. Therefore, pursuant to 50 C.F.R. § 402.13 (a), formal consultation on this species is not required.

North American Wolverine

Pursuant to the requirements of 7(a)(4) of the Endangered Species Act and 50 C.F.R. §402.10, the BA determined that the project will *not likely jeopardize the continued existence* of the proposed wolverine. The inclusion of the determination in your biological assessment creates a need under CFR §402.12(k) for the Service's concurrence with your determination. We reviewed your biological assessment, and we concur with your determination, and pursuant to language at 50 CFR §402.12(k), a conference is not required.

Conclusion

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded (not applicable in this case); (2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action. (50 CFR §402.16).

The Service appreciates your efforts to ensure the conservation of threatened and endangered species as part of our joint responsibility under the Endangered Species Act. If you have questions or comments related to this consultation, please contact Kevin Aceituno at kevin_aceituno@fws.gov or (406) 758-6871.

Sincerely,

for Adam Zerrenner
Office Supervisor

Kathryn "Katie" McDonald
Tribal Historic Preservation Officer
Tribal Preservation Department
Confederated Salish & Kootenai Tribes
kathryn.mcdonald@eskt.org
(406) 675-2700 ext. 1082

April 21st, 2022

Shana M. Radford
Superintendent, Flathead Agency
Pablo, Montana
406-675-2700 ext. 1301
shana.radford@bia.gov

RE: CSKT Jocko Canals Conversion

Thank you for granting the Confederated Salish and Kootenai Tribes (CSKT) Tribal Preservation Department (TPD) the opportunity to review all correspondence and continued consultation efforts for the CSKT Jocko Canals Conversion project. It has been sufficient and all needs have been met for CSKT TPD to identify priority zones for potential archaeological sites within or surrounding the project locations. Through consultation and cooperation with Morrison-Maierle, CSKT Natural Resources Department Division of Engineering & Water Resources, Salish Qelipse Culture Committee (SQCC), and Kootenai Culture Committee (KCC) it is determined with full support for this project to continue. The responsibilities of site protection are agreed and protocols have been thoroughly conducted and documented to ensure no site damages or significant effect to historic or cultural resources.

Please continue with the project as consulted and agreed. CSKT TPD is confident all efforts have been met and protocols will be upheld for the safety of the crews and the safety of any unanticipated sites. All scheduling for any ground disturbance work will be made between the contractor and CSKT THPO. CSKT TPD will have field technicians on-site during any/all ground disturbance work and protocols will be met for any unanticipated discovery.

Sincerely,



Kathryn McDonald

Kathryn "Katie" McDonald
Tribal Historic Preservation Officer
Tribal Preservation Department
Confederated Salish & Kootenai Tribes
kathryn.mcdonald@cskt.org
(406) 675-2700 ext. 1082

March 23rd, 2023

Shane Hendrickson, Superintendent
Flathead Agency, Bureau of Indian Affairs
P.O. Box 40
Pablo, Montana 59855

RE: Jocko Valley Service Area Improvements Project- Jocko K Canal North of the Jocko River

Thank you for granting the Confederated Salish and Kootenai Tribes (CSKT) Tribal Preservation Department (TPD) the opportunity to review all correspondence and continued consultation efforts for the Jocko Valley Service Area Improvements Project. It has been sufficient and all needs have been met for CSKT TPD to identify priority zones for potential archaeological sites within or surrounding the project locations. Through consultation and cooperation with Morrison-Maierle, CSKT Natural Resources Department Safety of Dams, Salish Qelispe Culture Committee (SQCC), and Kootenai Culture Committee (KCC) it is determined with full support for this project to continue. The responsibilities of site protection are agreed and protocols have been thoroughly conducted and documented to ensure no site damages or significant effect to historic or cultural resources.

Please continue with the project as consulted and agreed. CSKT TPD is confident all efforts have been met and protocols will be upheld for the safety of the crews and the safety of any unanticipated sites. All scheduling for any ground disturbance work will be made between the contractor and CSKT THPO. CSKT TPD will have field technicians on-site during any/all ground disturbance work and protocols will be met for any unanticipated discovery. CSKT TPD trained field technicians are responsible to be on-site to identify any possible cultural or historic materials. If in the event CSKT TPD trained field technicians are not on-site, Contractors are required to contact CSKT THPO if they have identified any cultural or historic material or any material unidentifiable during ground disturbance.

Sincerely,



Kathryn McDonald

DEPARTMENT OF THE ARMY PERMIT

Permittee: Confederated Salish & Kootenai Tribes (CSKT)
Attn: Mr. Jace Smith
Post Office Box 278
Pablo, Montana 59855

Folder Number: NWO-2021-01508-MT

Issuing Office: U.S. Army Corps of Engineers, Omaha District
Montana Regulatory Office

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers (USACE) having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below. A notice of appeal options is enclosed.

Project Description:

The applicant proposes to permanently impact a total of 5.2-acres (38,914 linear feet) of irrigation ditch using a total of 40,509 cubic yards of fill which includes 20,961 cubic yards of back fill, 19,547 cubic yards of bedding material, 38,914 linear feet of 3 to 48-inch HDPE pipeline buried to a minimum of three feet of cover from the top of the pipe. A total of 0.04 acre of palustrine emergent wetlands (Wetland 1 and 2) will be permanently impacted using a total of 298 cubic yards of fill material for the pipeline burial process. The project proposes to temporarily impact 0.15 acre of palustrine emergent wetland (Wetland 1 and 2) and 89 square feet (105 linear feet) of Lamoose Creek for construction access. Following construction completion, all temporary fill material will be removed and the temporarily impacted areas of Wetlands 1 and 2 as well and Lamoose Creek and restored to pre-construction elevations and conditions. Impacts are associated with conversion of the open irrigation ditch to buried pressurized irrigation pipes.

All work is to be completed in accordance with the attached drawings/plans entitled "Jocko Canal to Pipeline Project," dated October 6, 2022.

Project Location:

The project site is located within Sections 5, 6, 7, 8, and 9, Township 16 N, Range 19 W; Sections 1 and 2, Township 16 N, Range 20 W; Section 30 and 31, Township 17 N, Range 19 W; and Sections 14, 15, 23, 24, 25, 35, and 36, Township 17 N, Range 20 W; centered at Latitude, Longitude: 47.188834, -114.074874°, Arlee, Lake County,

Montana. The project is located in the Jocko River watershed including Jocko Irrigation Service Area, tributaries (Lamoose Creek and unnamed tributary 2), and adjacent wetlands (Wetlands 1, 2, 3, and 4).

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **May 1, 2028**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity, or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. You are responsible for all work authorized herein and ensuring all contractors and workers are made aware and adhere to the terms and conditions of this permit. You shall ensure a copy of the permit and associated drawings are available at the project site until all construction activities in waters of the U.S. authorized by this permit are completed.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- Section 404 of the Clean Water Act (33 U.S.C. 1344).
- Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, USACE will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.



NAME OF PERMITTEE

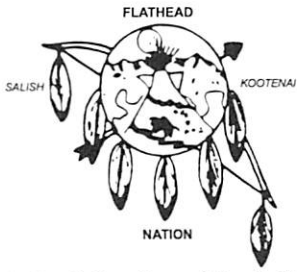
05/10/2023
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Mark R. Himes, P.E.
Colonel, Corps of Engineers
District Commander

6/5/23
(DATE)

BY: 
Sage L. Joyce
Chief, Montana Regulatory Program
(For the District Engineer)



A Confederation of the Salish,
Pend d' Oreille
and Kootenai Tribes

THE CONFEDERATED SALISH AND KOOTENAI TRIBES
OF THE FLATHEAD NATION
P.O. BOX 278
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A People of Vision

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Mike Dolson
Jennifer Finley

December 6, 2022

Ms. Christine Pearcy
Environmental Scientist, Morrison-Maierle
2880 Technology Blvd W,
Bozeman, MT 59718
Phone: 14069226846
Email: cpearcy@m-m.net

Dear Ms. Christine Pearcy,

The Confederated Salish and Kootenai Tribes' (CSKT) Natural Resources Department (NRD) received a request for a 401 Water Quality Certification for the proposed Jocko Irrigation Ditch to Pipeline Project Permit No. NWO-2021-01508-MT. The CSKT NRD has reviewed the request and approved to grant 401 Certification for the proposed Jocko Irrigation Ditch to Pipeline Project. The project proposes to permanently impact a total of 38,914 linear feet and 5.20-acres of irrigation ditch and 0.04 acre of palustrine emergent wetland. Additionally, the project will temporarily impact 0.15 acre of palustrine emergent wetland and 105 linear feet and 89 square feet of Lamoose Creek for temporary construction access. Impacts are associated with conversion of the open irrigation ditch to a buried pressurized irrigation pipe. The project site is located within Sections 5, 6, 7, 8, and 9, Township 16 N, Range 19 W; Sections 1 and 2, Township 16 N, Range 20 W; Section 30 and 31, Township 17 N, Range 19 W; and Sections 14, 15, 23, 24, 25, 35, and 36, Township 17 N, Range 20 W; centered at Latitude, Longitude: 47.188834, -114.074874°, Arlee, Lake County, Montana. The project is located in the Jocko River watershed including Jocko Irrigation Canal/Ditch, tributaries (Lamoose Creek and unnamed tributary 2), and adjacent wetlands (Wetlands 1, 2, 3, and 4).

The proposed project is located within the exterior boundaries of the Flathead Indian Reservation. CSKT NRD has reviewed the proposed project to determine its compliance with Tribal Water Quality standards. The Reservation waters that will potentially receive pollutant discharge from the project directly is labeled as unnamed tributary that drains to Jocko River. According to (CSKT) Tribal Water Quality Standards, the Jocko River is classified as a B-1 water body.

The following are the specific water quality standards for waters classified B-1.
Designated Uses:

Waters classified B-1 must be maintained suitable for drinking and culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; wildlife (birds, mammals, amphibians and reptiles); the growth and propagation of salmonid fishes and associated aquatic life; and agricultural and industrial water supply purposes.

Standards:

Tribal Standards are intended to protect and restore waters. No person may conduct activities that lead to exceedances of numeric or narrative water quality standards. The following are the specific water quality standards for waters classified B-1:

The geometric mean number of E-coli may not exceed 126 colony-forming units per 100 milliliters, and ten percent of the total samples may not exceed 252 colony-forming units per 100 milliliters during any 30 day period, and the geometric mean number or organisms in the fecal coliform group must not exceed 200 per 100 milliliters, and 10 percent of the total samples during any 30-day period are not to exceed 400 fecal coliforms per 100 milliliters.

Dissolved oxygen concentration must not be reduced below the applicable levels set forth in the Tribal Numeric Chart.

a) The geometric mean number of E-coli may not exceed 126 colony-forming units per 100 milliliters, and ten percent of the total samples may not exceed 252 colony-forming units per 100 milliliters during any 30 day period, and the geometric mean number or organisms in the fecal coliform group must not exceed 200 per 100 milliliters, and 10 percent of the total samples during any 30-day period are not to exceed 400 fecal coliforms per 100 milliliters.

b) Dissolved oxygen concentration must not be reduced below the applicable levels set forth in the Tribal Numeric Chart.

c) Induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range must be maintained without change. Natural pH above 7.0 must be maintained above 7.0.

- d) The maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units.
- e) Where naturally occurring water temperatures are in the range of 32°F to 66°F, a 1°F maximum temperature increase is allowed. Where naturally water temperatures are in the range of 66°F to 66.5°F, a 0.5°F maximum temperature increase is allowed. Where naturally occurring water temperatures are above 66.5°F, a 0.5°F maximum temperature increase is allowed. Where naturally occurring water temperatures are above 55°F, a 2°F maximum decrease is allowed. Where natural water temperatures are within the range of 32°F to 55°F, a 2°F maximum decrease is allowed.
- f) No increases are allowed above natural concentrations of sediment, contaminated sediment, settleable solids, oils, or floating solids that create or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, fish, or other wildlife.
- g) True color must not be increased more than five units above naturally occurring color.
- h) For waters classified B-1, concentrations of toxic or deleterious substances which would remain in the water after conventional water treatment may not exceed the maximum contaminant levels set forth in the U.S. EPA National Primary Drinking Water Regulations (40 CFR Part 141), the Tribal Numeric Chart, and the U.S. EPA National Secondary Drinking Water Regulations (40 CFR Part 143). Nor may concentrations of toxic or deleterious substances exceed Tribal Numeric Chart levels.

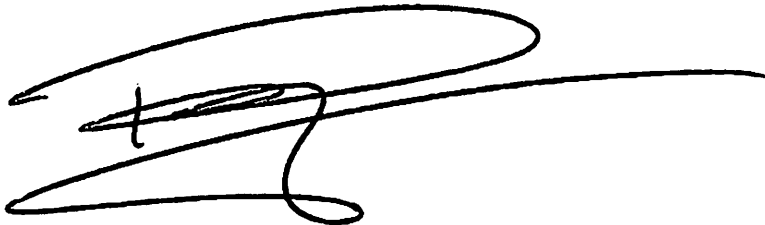
Written NOI's, SWPPP's and NOT's shall be mailed to:

Confederated Salish and Kootenai Tribes
Natural Resources Department
Department Head
301 Main St.
Polson, MT 59860

Permittees may also submit their SWPPP and NOT's to The Confederated Salish & Kootenai tribes Water Quality Regulatory Specialist at the email address evan.smith@cslt.org.

If you have any questions regarding the 401 Certification, please contact Evan Smith (406)-883-2888 extension 7203 or email at evan.smith@cslt.org.

Sincerely,

A handwritten signature in black ink, appearing to be 'Richard Janssen', written over a horizontal line.

Richard Janssen,
Department Head
Natural Resources

Cc: Willie Keenan, Division Manager
Chauncey Means, Water Quality Program
Frank Acevedo, Shoreline Office
John Harrison, Tribal Attorney