

WETLAND DELINEATION REPORT

Parcels #784434, 954945, 954946, 954947, 951674
Kittitas County, Washington

Prepared for:

Levi Venn
3324 53rd St SE | Auburn, WA 98902
levivenn@yahoo.com | 253-569-0917

Prepared by:

GG Environmental
Geoffrey T. Gray, M.A. PWS #3162
151 Poulin Rd. Selah, WA 98942
(509) 426-5645

June 3, 2021



GG Environmental

WETLANDS • FISH • WILDLIFE

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Summary

On May 21, 2021, Geoffrey Gray (GG Environmental) completed a wetland and stream investigation within the boundaries of parcels 784434, 954945, 954946, 954947, and 951674 (study area), totaling 71.29 acres (ac), in unincorporated Kittitas County, Washington.

The study area (property) lies upon an alluvial fan between Wilson and Naneum Creeks, land upon which local farmers and ranchers have intentionally irrigated since at least 1954. The property has been managed as grazeland for beef cattle and horses since 1986. Irrigation water arrives via two unlined KRD canals, from which water is diverted across the property (flood irrigation) via a complex network of irrigation ditches, irrigations wales, weirs, and check dams that collectively deliver water, via gravity flow, onto otherwise dry land.

Two soil map units are mapped within the study area, including Brickmill gravelly ashy loam and Nack-Opnish complex, neither of which is listed as a hydric (wetland) soil.

Thirteen locations were investigated across the property to document any variance in the hydrologic regime (irrigation practices), vegetation, and soils. The locations were strategically positioned to gather data from the wettest irrigation swale bottoms to the driest alluvial rock formations.

Because irrigation water supports hydrophytic vegetation, most locations exhibited both wetland hydrology and vegetation, but lacked wetland soils. All three requisite wetland indicators were documented in only one location, where their presence is demonstrably, and exclusively, supported by intentional irrigation practices. No evidence was observed of “natural” wetlands, supported exclusively, or in part, by natural hydrology. Alternatively, all wetland indicators observed onsite can be explained by intentional, agricultural irrigation practices.

According to the Kittitas County Critical Areas Ordinance (CAO), Section 17A.02.310, *wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, agricultural fields or areas of agricultural activities that exhibit wetland characteristics due to the introduction or influence of irrigation waters to those fields, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities. The introduction or influence of irrigation waters to agricultural fields or areas of agricultural activities which cause those areas to exhibit wetland characteristics, even though the areas were non-wetland sites prior to the introduction or influence of irrigation waters, is defined in this section.*

This definition is taken from the statutory definition at RCW 36.70A.030(17). This statutory definition of wetlands specifically exempts a number of intentionally created wetlands, including but not limited to those related to irrigation systems. Due to the inherent design of most irrigation systems, such systems are reasonably and foreseeably expected to result in some leakage or seepage. Such seepage or leakage is a normal result of utilization of irrigation systems and is deemed for purposes of this chapter to be an artificial wetland intentionally created from a non-wetland site, and therefore such areas do not constitute wetlands.

Per county code, no county-regulated wetlands are present within the study area.

No river, stream, or creek was identified within 200 feet of the study area limits.

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Table of Contents

1.	Introduction	1
2.	Location.....	1
3.	Methods	2
3.1.	Background Research.....	2
3.2.	Field Investigation.....	3
3.3.	Geospatial Documentation.....	5
3.4.	Wetland Delineation, Rating, and Regulatory Jurisdiction.....	5
4.	Existing Conditions	5
4.1.	Land Management.....	5
4.2.	Irrigation Practices.....	5
4.3.	Soils.....	7
4.4.	Plants	7
4.5.	Streams.....	8
4.6.	Landscape.....	8
4.7.	Precipitation and Hydrology.....	8
4.8.	Growing Season	8
5.	Findings	9
5.1.	Wetland Delineation Results	9
5.2.	Species and Habitats of Interest in the Vicinity.....	10
6.	Limitations.....	11
7.	Consultant Qualifications	11
8.	References	12

Figures

Figure 1. Study Area Location.....	1
Figure 2. Wetland and Stream Delineation Results.....	4
Figure 3. Irrigation Infrastructure	6

Tables

Table 1. Data Collected by Location (refer to Figure 2).....	3
Table 2. Sensitive species and habitats mapped in the vicinity	10
Table 3. WDFW priority habitats and species listed near the study area.....	10

Appendices

Appendix A. Background Information.....	16
Appendix A-1. USFWS NWI and Kittitas County Wetlands.....	18
Appendix A-2. NRCS Soil Survey Map	19
Appendix A-3. Floodplain and Shorelines	20
Appendix A-4. 1954 Historic Aerial Image.....	21
Appendix B. Precipitation Analysis	22
Appendix C. Wetland Delineation Data Forms.....	24
Appendix D. Photos	26
Appendix E. Large-format Delineation Map.....	28

Acronyms and Abbreviations

AgACIS	Agricultural Applied Climate Information System
CAO	Critical Areas Ordinance (Kittitas County)
Corps	United States Army Corps of Engineers
Cowardin	Cowardin Classification System
DNR	Washington State Department of Natural Resources
DPS	Distinct Population Segment
Ecology	Washington State Department of Ecology
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HGM	Hydrogeomorphic (Wetland Classification)
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
PEM	Palustrine Emergent
PHS	Priority Habitats and Species
PWS	Professional Wetland Scientist
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDFW	Washington State Department of Fish and Wildlife
WETS	Climate Analysis for Wetlands Tables
WGS84	World Geodetic System 1984
KCC	Kittitas County Code

1. Introduction

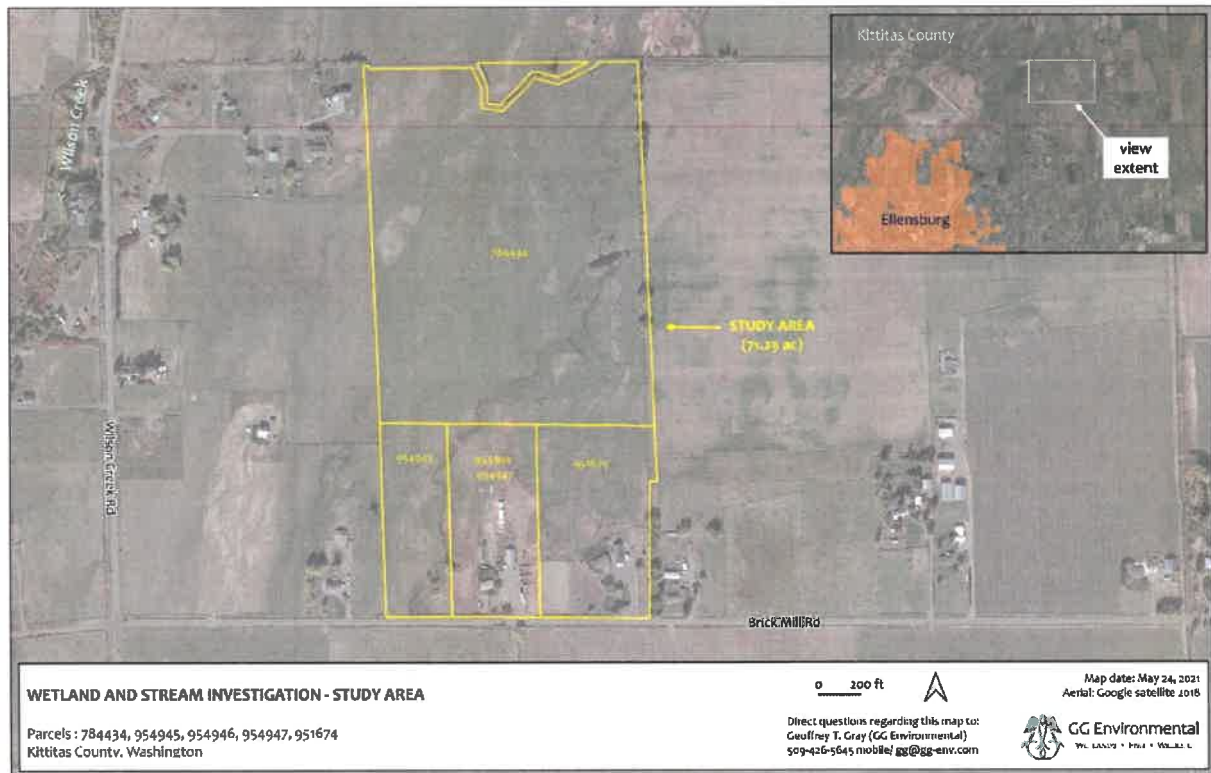
GG Environmental (Geoffrey Gray, PWS #3162) was retained by Levi Venn (client) to complete a wetland and stream investigation within Kittitas County tax parcels 784434, 954945, 954946, 954947, and 951674 (study area), totaling 71.29 acres (ac). The property has been owned by Mr. Don Akehurst since 1986.

2. Location

The study area is located north of Brick Mill Road, east of Wilson Creek Road and west of Naneum Road, in unincorporated Kittitas County, Washington (Figure 1).

Ranging in elevation from approximately 1,825 to 1,868 feet in elevation, topography is gently sloped toward the south, as the parcels lie upon an alluvial fan between Wilson and Naneum Creeks. The study area falls within the NW ¼ of Section 20, Township 18 North, Range 19 East. The northeast corner of the property is located at latitude 47°02'38.3"N and longitude 120°29'34.2"W (WGS84).

Figure 1. Study Area Location



Parcels #784434, 954945, 954946, 954947, 951674
Kittitas County, Washington
Wetland and Stream Report
GG Environmental (Geoffrey Gray M.A. PWS #3162)

June 3, 2021

The study area occurs within USDA Land Resource Region B and USDA Major Land Resource Area 8 (Columbia Plateau) (NRCS 2006), Water Resource Inventory Area 39 (Upper Yakima), and the Naneum Creek-Wilson Creek subwatershed (12th Hydrologic Unit Code 170300010408).

3. Methods

An overview of the methods employed to delineate wetlands and streams in the study area is presented in this section.

3.1. Background Research

Prior to conducting fieldwork, available data for the study area, including information on soils, topography, vegetation, precipitation, wetlands, streams, sensitive species and habitats, historic aerial imagery, and the county code was researched:

Wetlands

- National Wetlands Inventory (NWI) (USFWS 2021a). (**Appendix A-1**);
- Kittitas County wetland GIS data (Kittitas County 2021a). (**Appendix A-1**);
- Wetlands and Plants of High Conservation Value (DNR 2021a, DNR 2021b);
- Natural Resources Conservation Service soil survey data (NRCS 2021a). (**Appendix A-2**);
- Agricultural Applied Climate Information System climate data (NRCS 2021b). (**Appendix B**);
- Historic aerial photography: 1954 (CWU 2021) (**Appendix A-4**) and 1993-2018 (Google 2021);
- Light Detection and Ranging (LIDAR) data for 2011 (DNR 2021c); and
- Kittitas County Critical Areas Ordinance (CAO) (Kittitas County 2021b).

Streams

- Kittitas County floodplain and shorelines data (Kittitas County 2021a) (**Appendix A-3**);
- Kittitas County (DNR)' stream type (Kittitas County 2021a);
- USGS topographic maps (USGS 2021);
- USGS National Hydrography Dataset (USGS 2019); and
- Kittitas County CAO (Kittitas County 2021b).

Sensitive Species and Habitats

- Federal and state-listed threatened, endangered, or candidate species (USFWS 2021b, WDFW 2019)
- Designated critical habitats (USFWS 2021c, NOAA 2021a).
- Priority Habitats and Species (PHS) (WDFW 2021).

3.2. Field Investigation

Fieldwork was completed on May 21, 2021 by GG Environmental (Geoffrey Gray, PWS #3162), accompanied by Don Akehurst, Greg Akehurst, and Jason Greene. The study area was traversed by vehicle and on foot. The majority of the cattle pasture had not been irrigated during the preceding week, but a small amount of irrigation water was still being released into the main irrigation swale, starting at the northeast corner of the property.

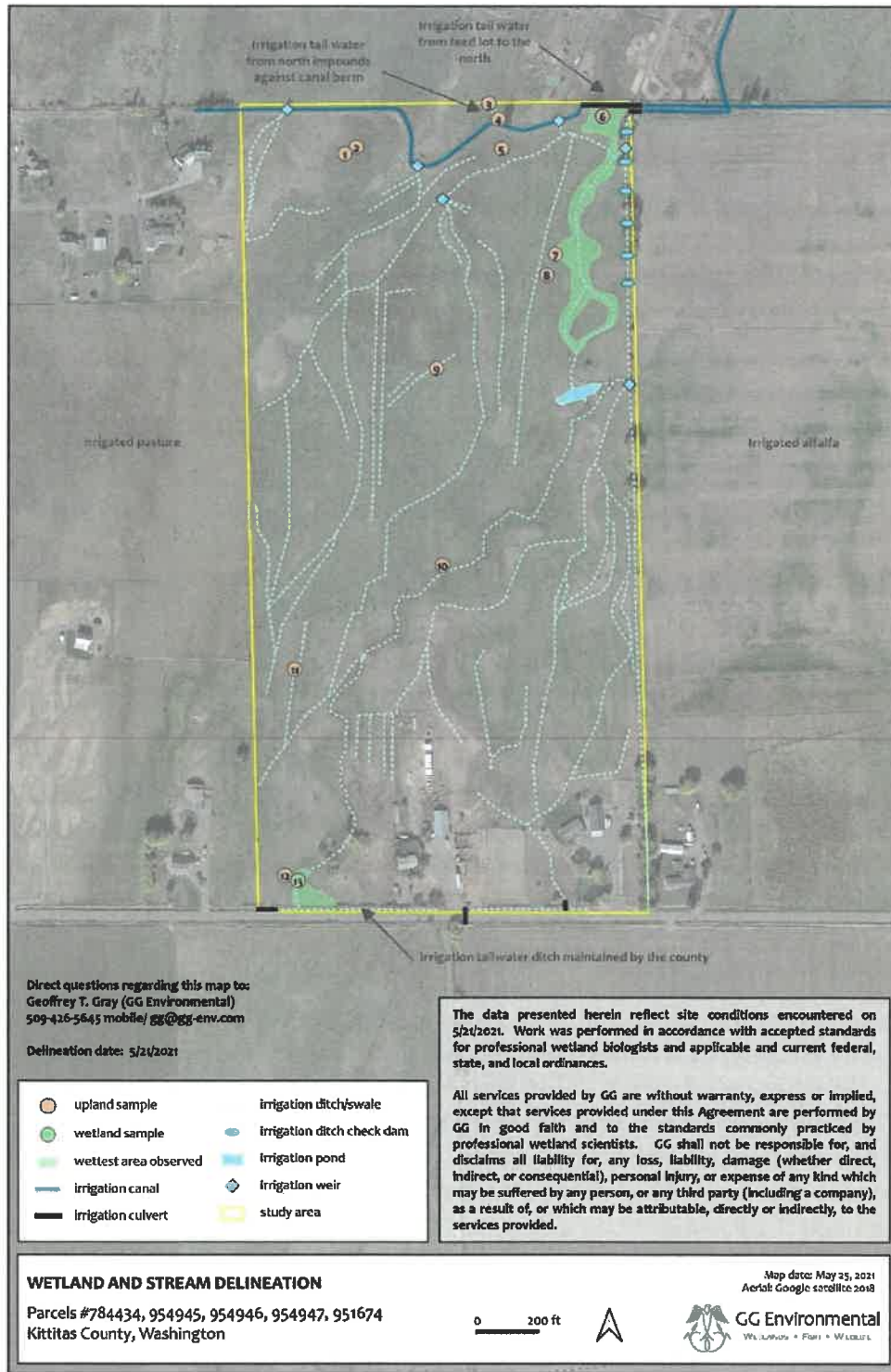
Thirteen locations were investigated to determine the presence or absence of the three requisite wetland indicators (water, plants, and soils) (Table 1, Figure 2). These locations were of a number, and intentionally spaced, to adequately describe the variability of the site, from the wettest irrigation ditch/swale bottoms to the driest alluvial rock formations.

Under the direction of Geoffrey Gray, Don Akehurst mechanically excavated 13 test pits with a backhoe. The target depth was at least 16 inches, but impenetrable rock was encountered in several locations, limiting the excavation depth.

Table 1. Data Collected by Location (refer to Figure 2)

ID	Veg ¹	Sat	ORC	Matrix	Rdx	Tex	Notes	Call
1	yes	no	no	10YR 3/2	no	SL	Elevated rock sill	Upland
2	yes	no	no	10YR 3/1	no	SL	Broad irrigation swale	Upland
3	yes	yes	yes	10YR 3/1	no	SL	Flat area near former tailwater	Upland
4	yes	no	no	10Y 3/1	Gley (relict)	S	Depression with former tailwater	Upland
5	yes	yes	yes	10YR 3/1	no	SL	Flat area adjacent to unlined canal	Upland
6	yes	no	yes	10YR 3/1	no	SL	Broad swale with tailwater, adjacent to unlined canal	Upland
7	yes	yes	yes	10YR 3/1	no	LS	Edge of wetted irrigation swale	Upland
8	yes	no	yes	10YR 3/1	no	LS	Elevated area next to irrigation swale	Upland
9	yes	no	no	10YR 3/2	no	LS	Elevated rocky formation	Upland
10	yes	no	no	10YR 4/2	no	LS	Flat irrigated area	Upland
11	yes	no	no	10YR 4/2	no	LS	Bottom of small irrigation swale	Upland
12	yes	no	no	10YR 4/2	no	sand	Near formerly backwatered irrigation swale	Upland
13	yes	yes	yes	10YR 3/1	yes	LS	In formerly backwatered irrigation swale	Wetland
Key to column headers: ID (location number); Veg (hydrophytic vegetation dominant); Sat (saturated soil in upper 12"); ORC (oxidized root channels in upper 12"); Matrix (dominant Munsell soil color); Rdx (redoximorphic soil features in upper 12"); Tex (dominant soil texture: sand [S], sandy loam [SL], loamy sand [LS]); Call (wetland determination).								
¹ Pasture grasses were dominant at all locations, but unidentifiable due to grazing. Since all pasture grasses were inferred to be at least FAC (facultative), the wetland plant indicator was met at all locations. It is important to note that this inference may be overly conservative.								

Figure 2. Wetland and Stream Delineation Results



Parcels #784434, 954945, 954946, 954947, 951674
 Kittitas County, Washington
 Wetland and Stream Report
 GG Environmental (Geoffrey Gray M.A. PWS #3162)

June 3, 2021

3.3. Geospatial Documentation

Features were geospatially surveyed with a Motorola G7 mobile phone, running the Mapit Spatial GIS application paired via Bluetooth® with a Juniper Systems Geode™ Multi-Global Navigation Satellite System (Multi-GNSS) receiver capable of sub-meter horizontal accuracy.

3.4. Wetland Delineation, Rating, and Regulatory Jurisdiction

Wetlands were delineated using routine methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Corps 2008). Plants were identified by scientific name and wetland indicator status per Corps (2018).

Wetlands were rated per the *Washington State Wetland Rating System for Eastern Washington – 2014 Update* (Hruby 2014) and classified following the U.S. Fish and Wildlife Service (USFWS) *Cowardin Classification System* (Cowardin et al. 1979) and *Hydrogeomorphic Classification System* (HGM) by Brinson (1993).

Any wetlands or streams observed within the study area are regulated as Critical Areas under the Kittitas County Code (KCC) Chapter 17A because the study area lies beyond 200 feet of a Shoreline stream and outside the 100-year FEMA floodplain (Kittitas County 2021b, **Appendix A-3**).

4. Existing Conditions

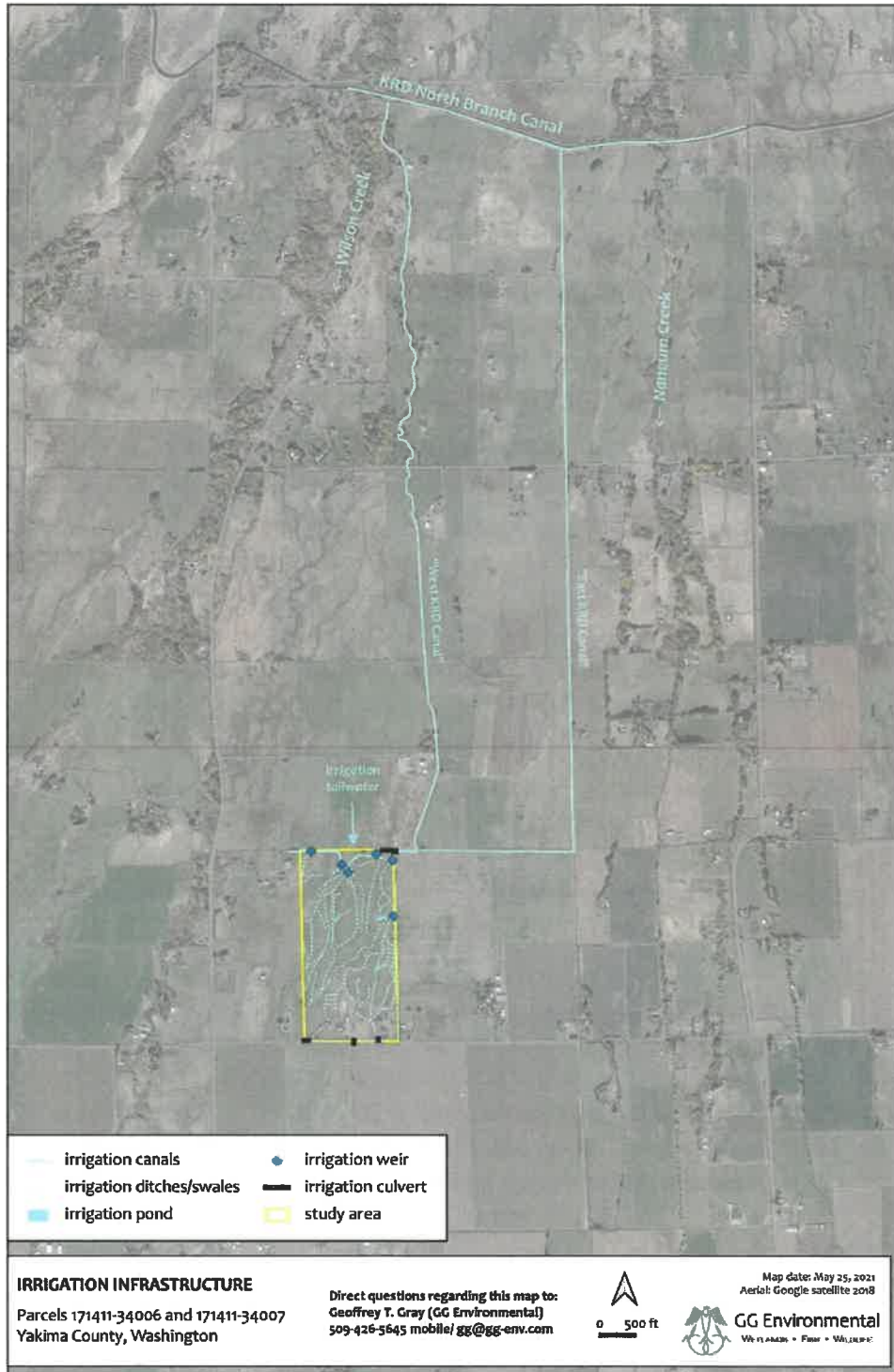
4.1. Land Management

The property owner, Don Akehurst, has managed the property as cattle and horse pasture since 1986. He has not leveled the land as have the surrounding landowners, nor has he ever plowed the earth. As such, topography within the study area is slightly undulating with swales coursing between elevated alluvial rock formations.

4.2. Irrigation Practices

The study area lies upon an alluvial fan between Wilson and Naneum Creeks, upon which, according to historic aerial imagery, local farmers and ranchers have diverted flow to flood-irrigate the alluvial plain since at least 1954 (CWU 2021). For at least the past 67 years, water has been delivered to the study area from the north via two irrigation ditches. The west ditch receives diverted water from Wilson Creek, while the east ditch receives water from the KRD North Branch Canal (**Figure 3**). This water is then diverted across the property via a complex network of irrigation ditches, irrigation swales, weirs, and check dams, infrastructure that is constantly maintained and managed to collectively distribute water, via gravity flow, onto otherwise dry land.

Figure 3. Irrigation Infrastructure



4.3. Soils

The soil surface is extremely compacted by cattle, except where wetted irrigation ditches and swales are utilized by cattle as mud wallows. According to the Akehursts, the soils of the property are porous and dry out very quickly. The lowest topographic areas only remain moist for a couple days after irrigation stops. No groundwater springs or areas with naturally-saturated soils (high groundwater) are present. An excavated pond is filled with irrigation water during the growing season, but once irrigation stops, the pond dries out completely. Without the introduction of irrigation water, the entire property is xeric.

The study area includes two soil map units (NRCS 2021a), comprised of (1) the Nack-Opnish complex, 0 to 2 percent slopes, on the east and west sides of the study area, and (2) Brickmill gravelly ashy loam, 0 to 2 percent slopes down the center, from north to south. Both soils are associated with alluvial fans and are comprised alluvium with volcanic ash at/near the surface.

The Nack-Opnish complex ranges from somewhat poorly drained (Nack) to moderately well drained (Opnish). Depth to the uppermost limit of the irrigation-induced water table is 12 to 40 inches.

The typical Nack soil profile is gravelly ashy loam (0-6"), clay loam (6-15"), and extremely gravelly sandy clay (15-60"). Soil colors are 10YR 3/2 moist (0-15") and 10YR 3/3 moist (15-39"). Few, fine, distinct redoximorphic concentrations (5YR 5/8) are observed past 15 inches. This soil unit does not flood or pond and is not listed as a hydric soil. The Nack soil series is used for irrigated crop production and livestock grazing. Native vegetation is greasewood and saltgrass. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown.

The typical Opnish soil profile is ashy loam (0-8"), ashy clay loam (8-13"), clay loam (13-26"), and extremely gravelly clay loam (26-60"). This soil unit does not flood or pond and is not listed as a hydric soil. Soil colors are 10YR 2/2 moist (0-13"), and 10YR 3/1 moist (13-19"). Redoximorphic features (stains) are not observed until 47 inches. The Opnish soil series is used for irrigated crop production and livestock grazing. Native vegetation is greasewood and saltgrass. When irrigated, hay, oats, wheat, corn, potatoes, and peas are among the crops grown.

Brickmill gravelly ashy loam is somewhat poorly drained with a water table ranging from 28 to 38 inches. The typical soil profile is gravelly ashy loam (0-12"), very gravelly ashy sandy loam (12-28"), extremely gravelly sandy loam (28-49"), and extremely gravelly loamy coarse sand (49-60"). This soil unit does not flood or pond and is not listed as a hydric soil. Soil colors are 10YR 2/2 moist (0-12"), and 10YR 4/3 moist (12-28"). Many large, prominent, redoximorphic concentrations (5YR 4/6) are observed past 28 inches. The Brickmill soil series is used for pasture, limited cropland, and wildlife habitat. Native vegetation is bluebunch wheatgrass, Sandberg bluegrass, and big sagebrush.

4.4. Plants

The study area has been heavily grazed for many decades, yet, according to Don Akehurst, it has not been plowed or reseeded since 1986. Vegetation was cropped close to the soil surface, making plant identification difficult. Unidentified pasture grasses were dominant throughout the study area,

interspersed with Baltic rush (*Juncus balticus*) and intermittent patches of Rock Mountain iris (*Iris missouriensis*). Both rush and iris are commonly associated with wetlands, but their distribution across the property included elevated terrain that lacked hydric soil indicators. This strongly suggests their distribution and persistence is dependent on artificial hydrology supported by intentional irrigation practices. The wettest portions of irrigation ditch/swale bottoms are lined with pasture grasses well, but are interspersed with wetland-associated plants, including Baltic rush, yellow-flag iris (a Kittitas County Class C noxious weed) (Kittitas County 2020), and sedge.

4.5. Streams

The study area lies approximately 1,200 feet east of Wilson Creek and approximately 3,600 feet west of Naneum Creek. An irrigation ditch that parallels the eastern boundary of the study area is referred to by locals as “Lyle Creek.” However, no evidence of a mapped creek in this location was uncovered. Both the USGS topographic map (USGS 2021), and USGS National Hydrography Dataset (USGS 2019), show a mapped ditch in this location. The ditch is linear, is obviously excavated, and according to Don Akehurst, is only wetted during the irrigation season. For the above reasons, the ditch is not considered to be a stream and is referenced as an irrigation ditch in this report.

4.6. Landscape

Adjacent properties are managed for agriculture, including leveled and irrigated pasture to the west, and leveled and irrigated alfalfa to the east.

The property to the north is not only leveled and irrigated for pasture and hay production, but it is also managed as a livestock feed lot. The property is flood irrigated, and tailwater flows south into the study area where it either impounds against the KRD canal berm or adds to irrigation water released at the study area’s northeast corner.

Land use within one kilometer of the study area is entirely under agricultural management, primarily for pasture and hay production (Google 2021).

4.7. Precipitation and Hydrology

Chapter 19 of the Engineering Field Handbook (NRCS 2015) was referenced in determining if precipitation that fell within three months of the site visits was within the normal range (30-year average).

Drier than normal climatic conditions prevailed the three months prior to the May 21 field visit (**Appendix B**). However, due to the geomorphic character of the vicinity, combined with local irrigation practices, the relative contribution of precipitation toward soil moisture is negligible.

4.8. Growing Season

According to Climate Analysis for Wetlands Tables (WETS) (NRCS 2021b), the growing season (28 °F or greater) at the nearest AgACIS station (Ellensburg) demonstrates a 70 percent probability of occurring between April 16 and October 14 (181 days) and 50 percent between April 20 and October 10 (173 days). Fieldwork was completed during the growing season.

5. Findings

5.1. Wetland Delineation Results

Thirteen locations were investigated across the property to document any variance in the hydrologic regime (irrigation practices), vegetation, and soils. The locations were strategically positioned to gather data from the wettest irrigation swale bottoms to the driest alluvial rock formations.

Because irrigation water supports hydrophytic vegetation, most locations exhibited both wetland hydrology and vegetation (hydrophytic vegetation was inferred), but lacked wetland soils. All three requisite indicators were documented in a single location (location 13), where they are demonstrably, and exclusively, supported by intentional irrigation practices.

No evidence of wetlands supported exclusively, or in part, by natural hydrology was observed. Alternatively, the presence of all wetland indicators observed, throughout the study area, can be reasonably explained by the history of intentional irrigation practices.

According to the Kittitas County Critical Areas Ordinance (CAO), Section 17A.02.310 (Kittitas County 2021b), **wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, agricultural fields or areas of agricultural activities that exhibit wetland characteristics due to the introduction or influence of irrigation waters to those fields, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities.** The introduction or influence of irrigation waters to agricultural fields or areas of agricultural activities which cause those areas to exhibit wetland characteristics, even though the areas were non-wetland sites prior to the introduction or influence of irrigation waters, is defined in this section. This definition is taken from the statutory definition at RCW 36.70A.030(17). This statutory definition of wetlands **specifically exempts a number of intentionally created wetlands, including but not limited to those related to irrigation systems.** Due to the inherent design of most irrigation systems, such systems are reasonably and foreseeably expected to result in some leakage or seepage. **Such seepage or leakage is a normal result of utilization of irrigation systems and is deemed for purposes of this chapter to be an artificial wetland intentionally created from a non-wetland site, and therefore such areas do not constitute wetlands.**

Per county code, the wet area in which location 13 exhibited all three requisite wetland indicators is not regulated as a wetland. As such, no county-regulated wetlands were observed within the study area.

Wetland delineation data forms are included in **Appendix C**. Representative photos of the study area are included in **Appendix D**. A large-format map of delineation results is included in **Appendix E**.

5.2. Species and Habitats of Interest in the Vicinity

Sensitive species and habitat lists are maintained by the United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and Washington Department of Fish and Wildlife (WDFW). These lists were queried for the project vicinity,² the results for which are summarized in **Tables 2 and 3**.

Table 2. Sensitive species and habitats mapped in the vicinity

Common Name	Scientific Name	Federal Status ^a	State Status ^b
Canada lynx	<i>Lynx canadensis</i>	Threatened	Endangered
Gray wolf	<i>Canus lupus</i>	Delisted ³	Endangered
yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened	Endangered
bull trout	<i>Salvelinus confluentus</i>	Threatened	Candidate
MCR DPS ^c steelhead	<i>Oncorhynchus mykiss</i>	Threatened	Candidate

^a USFWS (2021b), NOAA (2021b), ^c WDFW (2020), ^d Distinct Population Segment

Table 3. WDFW priority habitats and species listed near the study area.

Fish	Mammal	Birds	Reptile	Habitats
none	none	none	none	Freshwater emergent wetland/riverine

^a WDFW (2021)

² Results are for general reference only within the query zone, and do not conclusively determine that a particular species or habitat is present.

³ The USFWS delisted the gray wolf in the lower 48 states on 11/3/2020 (85 FR 69778 69895).

6. Limitations

The data presented herein reflect site conditions encountered on May 21, 2021. Work was performed in accordance with accepted standards for professional wetland biologists and applicable and current federal, state, and local ordinances.

Although the report is accurate and complete to the best of available scientific knowledge, it should be considered a preliminary determination, with no warranty, express or implied, until it has been reviewed, and approved in writing, by appropriate jurisdictional authorities.

7. Consultant Qualifications

Geoffrey Gray is a professional biologist and wetland scientist whose 24-year career has provided him with a unique breadth of experience that can readily assist you in moving your project forward.

Investing eight years in higher education, he earned a Bachelor's Degree in Business Management and a Master's degree in Biology from California State University at Fresno.

Geoffrey has earned 12.4 credit hours of certified professional wetland training, including completion of the 38-hour *Army Corps of Engineers (Corps) Wetland Delineation and Management Training Program*, as well as *Corps Advanced Wetland Delineation*, *Corps Delineation Manual Regional Supplements*, *Washington State Department of Ecology (Ecology) 2014 Wetland Rating System*, *Ecology Credit-Debit Method for Estimating Mitigation Needs*, *Ecology Selecting Wetland Mitigation Sites Using a Watershed Approach*, and multiple courses in wetland plant identification.

Continuously employed as a wetland, fish, and wildlife biologist since 1997, while serving tenures in field research, a large environmental consulting firm, state agencies in both California and Washington, and as an independent environmental consultant, Geoff's resume includes over 16 years of full-time duty as a wetland biologist, with experience ranging from the unique vernal pool wetland habitats of California's Central Valley to the diverse wetlands of Eastern Washington State, stretching from the Cascade crest to Idaho. Spanning his career, Geoff has performed over 85 wetland delineations and has managed 40 wetland mitigation/riparian restoration sites. As a fish and wildlife biologist, he has evaluated over 620 projects for compliance under the Endangered Species Act, including over 120 federal consultations.

Geoff founded GG Environmental in 2015, and has since served a diverse palette of clients including habitat restoration groups, private landowners, commercial businesses, and local governments who need assistance in overcoming the challenges of Critical Areas/Shorelines permitting and Endangered Species Act consultation.

A professional-level GPS/GIS user for over 20 years, Geoff employs cutting-edge GPS technology in the field and is proficient in GIS mapping with ArcGIS and QGIS.

Certified as a Professional Wetland Scientist by the Society of Wetland Scientists, Geoff's work is performed to the highest standards and is fully insured (StarStone #R80561190AEM).

Parcels #784434, 954945, 954946, 954947, 951674
Kittitas County, Washington
Wetland and Stream Report
GG Environmental (Geoffrey Gray M.A. PWS #3162)

June 3, 2021

11

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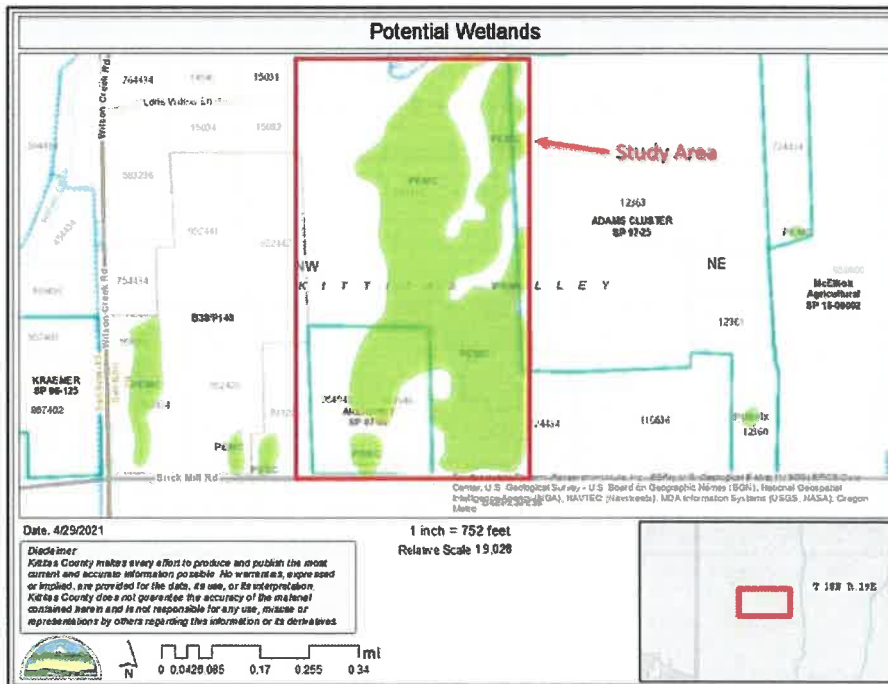
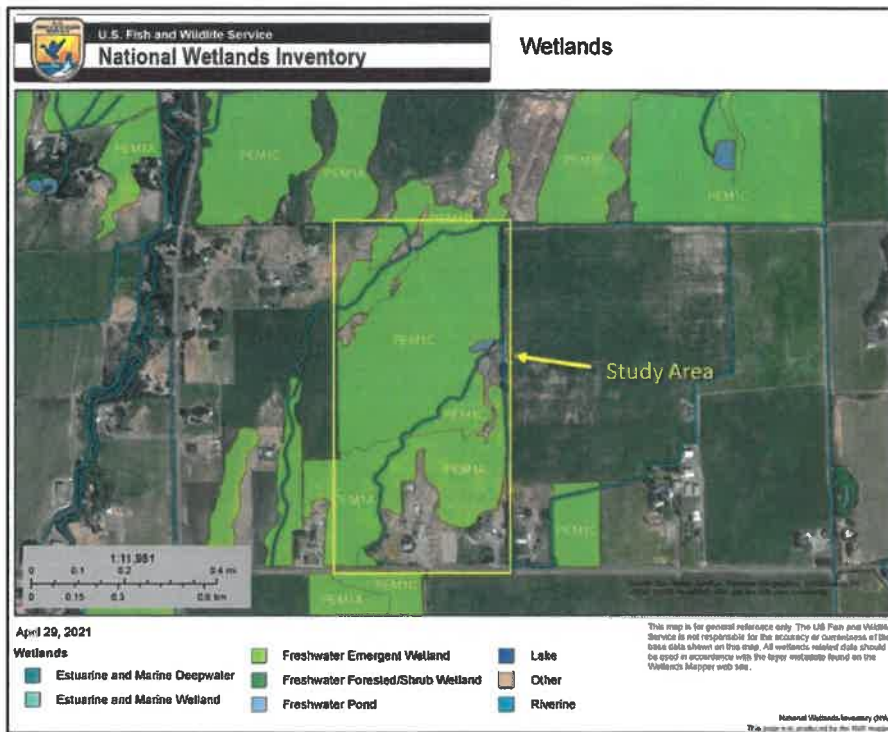
Appendix A. Background Information

Appendix A includes the following sub-appendices:

- A-1 USFWS NWI and Kittitas County Wetlands Maps
- A-2 NRCS Soil Survey Map
- A-3 Kittitas County Floodplain and Shorelines Map
- A-4 1954 Historic Aerial Image



Appendix A-1. USFWS NWI and Kittitas County Wetlands



Parcels #784434, 954945, 954946, 954947, 951674
Kittitas County, Washington
Wetland and Stream Report
GG Environmental (Geoffrey Gray M.A. PWS #3162)

June 3, 2021

18

Appendix A-2. NRCS Soil Survey Map

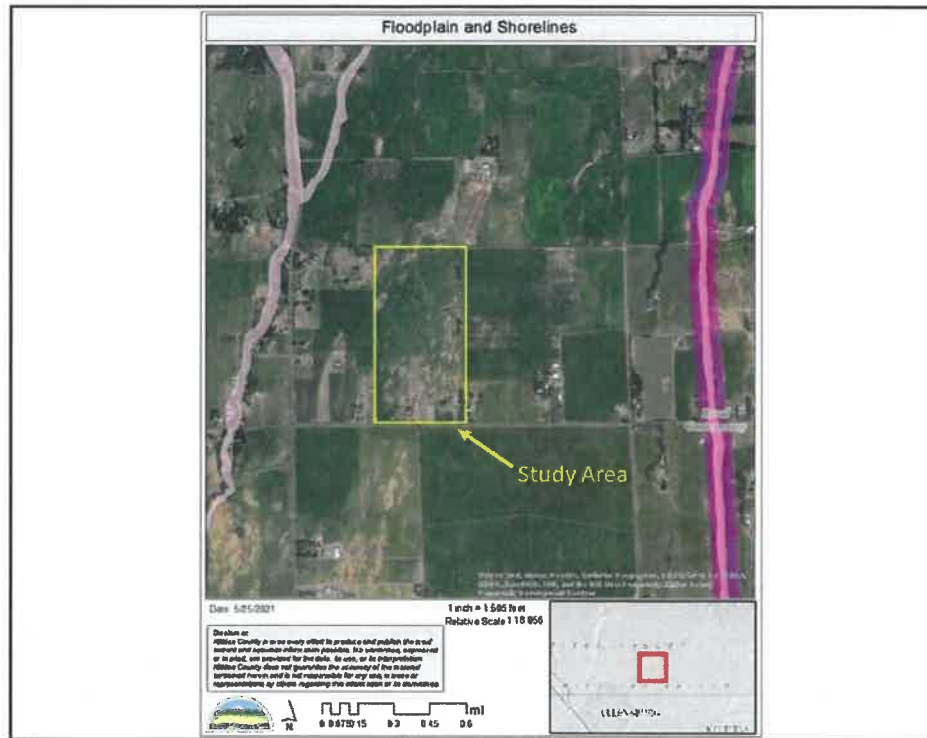


Soil Map—Kittitas County Area, Washington

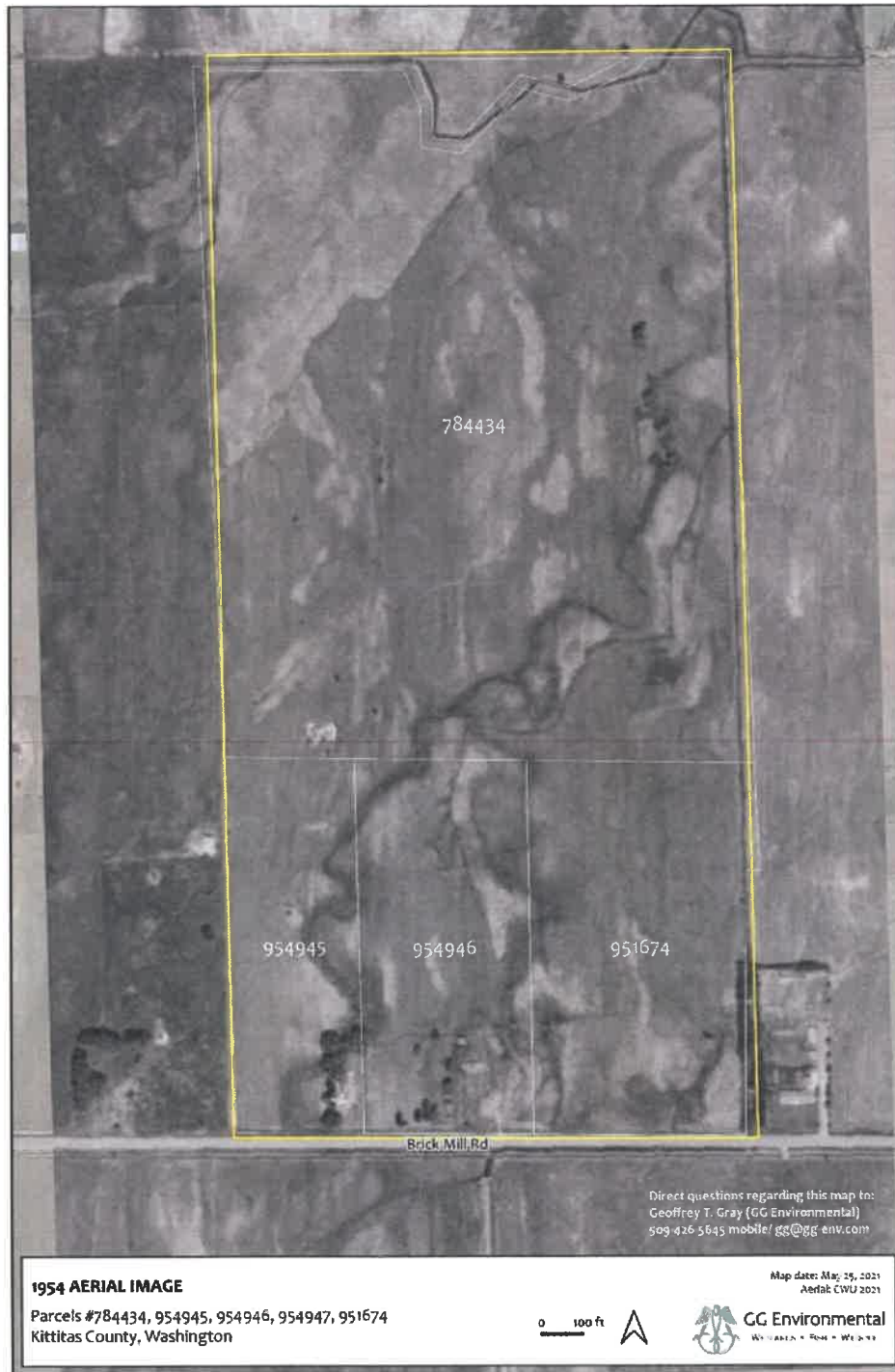
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
590	Brickmill-Nanum complex, 0 to 5 percent slopes	2.6	1.0%
601	Brickmill gravelly ashy loam, 0 to 2 percent slopes	107.8	41.4%
795	Nack-Opnish complex, 0 to 2 percent slopes	149.8	57.6%
Totals for Area of Interest		260.3	100.0%

Appendix A-3. Floodplain and Shorelines



Appendix A-4. 1954 Historic Aerial Image



Parcels #784434, 954945, 954946, 954947, 951674
Kittitas County, Washington
Wetland and Stream Report
GG Environmental (Geoffrey Gray M.A. PWS #3162)

June 3, 2021

21

Appendix B. Precipitation Analysis

Precipitation analysis per NRCS (2015). All data were obtained from the AgACIS weather station⁴ at Ellensburg.

Drier than normal climatic conditions prevailed the previous three months prior to May 21, 2021 fieldwork.

	Month	Long-term rainfall records ¹ (inches)			Total Rainfall Obs. ²	Condition dry, wet, normal ³	Condition Value	Month weight value ⁴	Product of previous two columns
		3 yrs. in 10 less than	Average	3 yrs. in 10 more than					
1 st prior month	Apr	0.35	0.59	0.71	0.11	Dry	1	3	3
2 nd prior month	Mar	0.36	0.76	0.93	0.06	Dry	1	2	2
3 rd prior month	Feb	0.59	0.91	1.10	0.60	Normal	2	1	2
Sum								7⁵	

¹ WETS table (NRCS 2021d); ² Accumulated Daily Precipitation (NRCS 2021d); ³ WETS table "30% more than and 30% less than values are referenced to compare recorded rainfall to statistically-normal precipitation; ⁴ Value: Dry = 1; Normal = 2; Wet = 3; ⁵ 6-9: drier than normal, 10-14: normal, 15-18: wetter than normal.

Date (2021)	Precipitation Total (inches)
May 21 (fieldwork)	0.06 (fell after fieldwork completed)
May 20	0.04
May 11-19	0

⁴ (NRCS 2021d). AgACIS station: Ellensburg, Kittitas County (FIPS 53037).

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Appendix C. Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 1
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): alluvial fan Local relief (concave, convex, none): convex Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'36.91"N Long: 120°29'29.36"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

Remarks:

Pit dug on elevated area next to irrigation swale. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20ft x 20ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:														
1. <u>none</u>				#N/A	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>100.0%</u> (A/B)														
2. _____																			
3. _____																			
4. _____																			
_____ = Total Cover																			
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)																			
1. <u>none</u>				#N/A	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>80</u></td> <td>x 3 = <u>240</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>300</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.000</u>	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>80</u>	x 3 = <u>240</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>100</u> (A)	<u>300</u> (B)
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>80</u>	x 3 = <u>240</u>																		
FACU species <u>10</u>	x 4 = <u>40</u>																		
UPL species <u>0</u>	x 5 = <u>0</u>																		
Column Totals: <u>100</u> (A)	<u>300</u> (B)																		
2. _____																			
3. _____																			
4. _____																			
5. _____																			
_____ = Total Cover																			
Herb Stratum (Plot size: <u>5ft x 5ft</u>)																			
1. <u>pasture grass</u>	80	Y	80.0	FAC	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
2. <u>Taraxacum officinale</u>	5	N	5.0	FACU															
3. <u>Iris missouriensis</u>	10	N	10.0	FACW															
4. <u>Cirsium arvense</u>	5	N	5.0	FACU															
5. _____																			
6. _____																			
7. _____																			
8. _____																			
100 = Total Cover																			
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)																			
1. <u>none</u>				#N/A	Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No														
2. _____																			
_____ = Total Cover																			
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>																	

Remarks:

Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR	3/2	100	none			Sandy Loam	very dry (colored while wet)
12							large cobble	shovel denial

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <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) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Vernal Pools (F9) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p>Indicators for Problematic Hydric Soils*:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) <p>*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____	<p>Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No</p>
------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

Remarks:
 Pit dug on rocky mound. Soil is highly permeable in the upper layers. Soils have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Other (Explain in Remarks)		<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>Field Observations:</p> Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ (includes capillary fringe)	<p>Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------

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

Remarks:
 Water is delivered to this elevated area is via cut ditches that redirect water, via gravity flow, from an up-gradient irrigation canal.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021

Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 2

Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): B Lat: 47° 2'37.13"N Long: 120°29'28.81"W Datum: WGS 84

Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

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

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

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

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

Remarks:
 Pit dug within a broad, irrigated depression down-gradient of an unlined irrigation canal. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season via maintained ditches, dikes, and swales to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20ft x 20ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
1. <u>none</u>				<u>#N/A</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____					Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Prevalence Index worksheet:
1. <u>none</u>				<u>#N/A</u>	Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u>
2. _____					FACW species <u>10</u> x 2 = <u>20</u>
3. _____					FAC species <u>90</u> x 3 = <u>270</u>
4. _____					FACU species <u>0</u> x 4 = <u>0</u>
5. _____					UPL species <u>0</u> x 5 = <u>0</u>
_____ = Total Cover					Column Totals: <u>100</u> (A) <u>290</u> (B)
_____ = Total Cover					Prevalence Index = B/A = <u>2.900</u>
Herb Stratum (Plot size: <u>5ft x 5ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>pasture grass</u>	<u>90</u>	<u>Y</u>	<u>90.0</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Juncus balticus</u>	<u>5</u>	<u>N</u>	<u>5.0</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0'
3. <u>Iris missouriensis</u>	<u>5</u>	<u>N</u>	<u>5.0</u>	<u>FACW</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____					
7. _____					
8. _____					
_____ = Total Cover					
<u>100</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Present?
1. <u>none</u>				<u>#N/A</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No
2. _____					
_____ = Total Cover					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹		
0-4	10YR	3/3	100	none			loam	very dense, thick sod layer
4-16	10YR	3/1	100	none			Sandy Loam	
16+							cobble	shovel denial

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|------------------------------------------------------------|-----------------------------------------------------|
| <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) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Pit dug in a broad swale/depression. No redox observed. Soil is highly permeable in the upper layers. Soils have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--------------------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thick Muck Surface (C7) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 14
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Water is delivered to this area is via cut ditches that redirect water, via gravity flow, from an up-gradient irrigation canal. Irrigation had been applied within the past week. Saturation depth is greater than 12". No oxidized root channels observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021

Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 3

Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0-2

Subregion (LRR): B Lat: 47° 2'38.56"N Long: 120°29'22.49"W Datum: WGS 84

Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

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

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

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

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
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Remarks:
 Pit dug just north of a depression in which flood irrigation water from beyond the property's north boundary flows south and impounds against an irrigation canal berm. The vicinity has been irrigated for many decades. Vegetation is grazed short. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20ft x 20ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:																
1. <u>none</u>				#N/A	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>100.0%</u> (A/B)																
2. _____																					
3. _____																					
4. _____																					
_____ = Total Cover					Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">Total % Cover of:</td> <td style="width:50%; text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>95</u></td> <td>x 3 = <u>285</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>295</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.950</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>95</u>	x 3 = <u>285</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)	<u>295</u> (B)	Prevalence Index = B/A = <u>2.950</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>5</u>	x 2 = <u>10</u>																				
FAC species <u>95</u>	x 3 = <u>285</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)	<u>295</u> (B)																				
Prevalence Index = B/A = <u>2.950</u>																					
_____ = Total Cover																					
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)																					
1. <u>none</u>				#N/A																	
2. _____																					
3. _____																					
4. _____																					
5. _____																					
_____ = Total Cover																					
Herb Stratum (Plot size: <u>5ft x 5ft</u>)																					
1. <u>pasture grass</u>	<u>95</u>	<u>Y</u>	<u>95.0</u>	<u>FAC</u>																	
2. <u>Juncus balticus</u>	<u>5</u>	<u>N</u>	<u>5.0</u>	<u>FACW</u>																	
3. _____																					
4. _____																					
5. _____																					
6. _____																					
7. _____																					
8. _____																					
_____ = Total Cover																					
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)																					
1. <u>none</u>				#N/A																	
2. _____																					
_____ = Total Cover																					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>																					
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																					
Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No																					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹		
0-4	10YR	3/3	100	none			sandy loam	very dense, thick sod layer
4-12+	10YR	3/1	100	none			sandy loam	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)	<p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____		

Hydric Soil Present? Yes No

Remarks:
 No redox observed. Soil is highly permeable in the upper layers. Soils have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)			<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)			<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)		
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<p>Field Observations:</p> Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): <u>12</u> (includes capillary fringe)	<p>Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 4
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): B Lat: 47° 2'38.20"N Long: 120°29'22.14"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
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Remarks:
 Pit dug in a depression in which irrigation tail water has historically impounded against an irrigation canal berm. However, due to a recent modification in irrigation water routing, the depression no longer collects water or exhibits wetland hydrology. The observed hydric soil indicator is considered to be relict. Vegetation is grazed short. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20ft x 20ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
1. <u>none</u>				<u>#N/A</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____					Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____					
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Prevalence Index worksheet:
1. <u>none</u>				<u>#N/A</u>	Total % Cover of: OBL species <u>20</u> x 1 = <u>20</u>
2. _____					FACW species <u>25</u> x 2 = <u>50</u>
3. _____					FAC species <u>50</u> x 3 = <u>150</u>
4. _____					FACU species <u>5</u> x 4 = <u>20</u>
5. _____					UPL species <u>0</u> x 5 = <u>0</u>
_____ = Total Cover					Column Totals: <u>100</u> (A) <u>240</u> (B)
_____ = Total Cover					Prevalence Index = B/A = <u>2.400</u>
Herb Stratum (Plot size: <u>5ft x 5ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>pasture grass</u>	<u>50</u>	<u>Y</u>	<u>50.0</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Juncus balticus</u>	<u>15</u>	<u>Y</u>	<u>15.0</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>Schoenoplectus acutus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>OBL</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Trifolium repens</u>	<u>5</u>	<u>N</u>	<u>5.0</u>	<u>FACU</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Iris missouriensis</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>FACW</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Scirpus microcarpus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>OBL</u>	
7. _____					
8. _____					
_____ = Total Cover					
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Hydrophytic Vegetation Present?
1. <u>none</u>				<u>#N/A</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹		
0-5	10YR	3/3	100	none			loamy sand	thick root layer/sod
5-10+	10Y	3/1	100	none			sand	hard packed

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR C)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR D)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR C)</p> <p><input type="checkbox"/> 2 cm Muck (A10) (LRR B)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No</p>

Remarks:
 Given the historic irrigation regime and pervious soils, the soil indicator is only present because the depression historically collected flood irrigation water from the north, combined with local saturation under the unlined canal. With tailwater removed, saturation under the canal is not alone sufficient to result in wetland hydrology in the adjacent depression, demonstrating that hydrology in the depression was an artificial condition.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1) (Nonriverine)</p> <p><input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)</p> <p><input type="checkbox"/> Drift Deposits (B3) (Nonriverine)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>		<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Biotic Crust (B12)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thick Muck Surface (C7)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____</p> <p>Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____</p> <p>Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No</p>	

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

Remarks:
 Due to a recent modification to the maintained irrigation delivery system, tailwater no longer reaches the depression. No saturation or standing water within the upper 12" was observed. The gley color observed is reckoned to be a relict feature. With tailwater removed, saturation under the canal is not alone sufficient to result in wetland hydrology in the adjacent depression, demonstrating that historic hydrology in the depression was an artificial condition.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 5
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): --- Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'37.08"N Long: 120°29'21.93"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
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Remarks:
 Pit dug within a broad, irrigated flat area, down-gradient from an irrigation canal. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>20ft x 20ft</u>)					Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. <u>none</u>				#N/A	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
3. _____					
4. _____					
				= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)					Prevalence Index worksheet:
1. <u>none</u>				#N/A	Total % Cover of: <u>0</u> Multiply by: <u>x 1 = 0</u>
2. _____					OBL species <u>0</u> x 1 = <u>0</u>
3. _____					FACW species <u>10</u> x 2 = <u>20</u>
4. _____					FAC species <u>90</u> x 3 = <u>270</u>
5. _____					FACU species <u>0</u> x 4 = <u>0</u>
				= Total Cover	UPL species <u>0</u> x 5 = <u>0</u>
					Column Totals: <u>100</u> (A) <u>290</u> (B)
					Prevalence Index = B/A = <u>2.900</u>
Herb Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Indicators:
1. <u>pasture grass</u>	<u>80</u>	<u>Y</u>	<u>80.0</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Juncus balticus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0'
3. <u>Plantago major</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____					
7. _____					
8. _____					
				= Total Cover	
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No
1. <u>none</u>				#N/A	
2. _____					
				= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>					
% Cover of Biotic Crust <u>0</u>					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹		
0-4	10YR	3/3	100	none			Sandy Loam	very dense, thick sod layer
4-18+	10YR	3/1	100	none			Sandy Loam	very sandy

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
<p>Restrictive Layer (if present): Type: _____ Depth (inches): _____</p>		<p>Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No</p>

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Remarks:
 Pit dug in a broad flat area down gradient from an irrigation canal. No redox observed. Soil is highly permeable in the upper layers. Soils have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:		Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No
Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Saturation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Depth (inches): 7 (includes capillary fringe)		

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

Remarks:
 According to the landowner, this location receives down-gradient, sub-surface moisture from the adjacent, unlined irrigation canal to the north. It also receives manual irrigation water. No saturation observed. Presence of oxidized root channels, but lack of redox, shows this area to be regularly wetted, but for insufficient time to develop hydric soil indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kititas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 6
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'38.14"N Long: 120°29'17.07"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
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Remarks:
 Pit dug within a broad, swale that receives irrigation tailwater from the adjacent animal feed lot to the north. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft x 20ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
1. <u>none</u>				#N/A	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>50.0%</u> (A/B)
2. _____					
3. _____					
4. _____					
_____ = Total Cover					Prevalence 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>80</u> x 3 = <u>240</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>3.200</u>
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)					
1. <u>none</u>				#N/A	
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover					
Herb Stratum (Plot size: 5ft x 5ft)					Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>pasture grass</u>	<u>80</u>	<u>Y</u>	<u>80.0</u>	<u>FAC</u>	
2. <u>Trifolium repens</u>	<u>20</u>	<u>Y</u>	<u>20.0</u>	<u>FACU</u>	
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover					
Woody Vine Stratum (Plot size: 5ft x 5ft)					
1. <u>none</u>				#N/A	
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					Hydrophytic Vegetation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation). No *J. balticus* observed.

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	3/3	100	none			Sandy Loam	very dense, thick sod layer
4-7	10YR	3/1	100	none			Sandy Loam	light ORC at 7 inches
7-18+	10YR	3/1	100	none			rock	small cobbles/gravels

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Pit dug in a broad swale. No redox observed. Soil is highly permeable in the upper layers. Soils have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thick Muck Surface (C7)
- Other (Explain in Remarks)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 18
 Saturation Present? Yes No Depth (inches): 16
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

According to the landowner, this location receives tailwater from the adjacent landowner to the north. Hyporheic flow moves quickly through the underlying gravel horizon, wetting the stratum above it, resulting in oxidized root channels at 7 inches. Presence of oxidized root channels, but lack of redox, shows this area to be regularly wetted in the upper 12 inches, but for insufficient time to develop hydric soil indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 7
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 0-2%
 Subregion (LRR): B Lat: 47° 2'33.64"N Long: 120°29'19.34"W Datum: WGS 84
 Soil Map Unit Name: Nack-Oprish Complex, 0-2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
Remarks: Dug at the edge of an actively wetted irrigation swale. Climatic conditions were drier than normal the previous three months.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status																																		
Tree Stratum (Plot size: <u>20ft x 20ft</u>)																																						
1. <u>none</u>				#N/A	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>100.0%</u> (A/B)																																	
2. _____																																						
3. _____																																						
4. _____																																						

= Total Cover					Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="text-align: center;">Total % Cover of:</td> <td style="width: 50%;"></td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;"><u>10</u></td> <td>x 1 =</td> <td style="text-align: center;"><u>10</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>20</u></td> <td>x 2 =</td> <td style="text-align: center;"><u>40</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>70</u></td> <td>x 3 =</td> <td style="text-align: center;"><u>210</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>0</u></td> <td>x 4 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 5 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>100</u></td> <td>(A)</td> <td style="text-align: center;"><u>260</u></td> </tr> <tr> <td colspan="4" style="text-align: right;">Prevalence Index = B/A =</td> <td style="text-align: center;"><u>2.600</u></td> </tr> </table>		Total % Cover of:		Multiply by:	OBL species	<u>10</u>	x 1 =	<u>10</u>	FACW species	<u>20</u>	x 2 =	<u>40</u>	FAC species	<u>70</u>	x 3 =	<u>210</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)	<u>260</u>	Prevalence Index = B/A =				<u>2.600</u>
	Total % Cover of:		Multiply by:																																			
OBL species	<u>10</u>	x 1 =	<u>10</u>																																			
FACW species	<u>20</u>	x 2 =	<u>40</u>																																			
FAC species	<u>70</u>	x 3 =	<u>210</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)	<u>260</u>																																			
Prevalence Index = B/A =				<u>2.600</u>																																		
2. _____																																						
3. _____																																						
4. _____																																						
5. _____																																						
= Total Cover																																						
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)																																						
1. <u>none</u>				#N/A																																		
2. _____																																						
3. _____																																						
4. _____																																						
5. _____																																						
= Total Cover																																						
Herb Stratum (Plot size: <u>5ft x 5ft</u>)																																						
1. <u>pasture grass</u>	<u>70</u>	<u>Y</u>	<u>70.0</u>	<u>FAC</u>																																		
2. <u>Juncus balticus</u>	<u>20</u>	<u>Y</u>	<u>20.0</u>	<u>FACW</u>																																		
3. <u>Scirpus microcarpus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>OBL</u>																																		
4. _____																																						
5. _____																																						
6. _____																																						
7. _____																																						
8. _____																																						
= Total Cover																																						
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)																																						
1. <u>none</u>				#N/A																																		
2. _____																																						
= Total Cover																																						
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>																																				

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 8
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'32.95"N Long: 120°29'19.76"W Datum: WGS 84
 Soil Map Unit Name: Nack-Opnish Complex, 0-2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
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Remarks:
 Pit dug on an elevated area next to large, broad irrigation swale. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status																																									
Tree Stratum (Plot size: 20ft x 20ft)																																													
1. <u>none</u>				<u>#N/A</u>	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>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																																								
2. _____																																													
3. _____																																													
4. _____																																													

= Total Cover																																													
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)																																													
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Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 9
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): mound Local relief (concave, convex, none): convex Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'30.80"N Long: 120°29'22.59"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

Remarks:
 Pit dug on an elevated rock sill. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20ft x 20ft</u>)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:														
1. <u>none</u>				<u>#N/A</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>100.0%</u> (A/B)														
2. _____																			
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Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)				<u>#N/A</u>	Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>10</u></td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species <u>90</u></td> <td>x 3 = <u>270</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>290</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>2.900</u>	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>90</u>	x 3 = <u>270</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)	<u>290</u> (B)
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Herb Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
1. <u>pasture grass</u>	<u>90</u>	<u>Y</u>	<u>90.0</u>	<u>FAC</u>															
2. <u>Juncus balticus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>FACW</u>															
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Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)				<u>#N/A</u>															
1. <u>none</u>																			
2. _____																			
_____ = Total Cover																			
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No														

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR	3/3	100	none			Loamy Sand	roots
2-4	10YR	4/2	100	none			rock	large cobble

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

²Location: PL=Pore Lining, M=Matrix.

Hydic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydic Soil Present? Yes No

Remarks:

Pit dug on rocky mound. Very dry and powdery. Soils on the property have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thick Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 10
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): -- Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'29.91"N Long: 120°29'25.02"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
Remarks: Pit dug in a broad, flat area. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:														
Tree Stratum (Plot size: <u>20ft x 20ft</u>)					Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</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>100.0%</u> (A/B)														
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Herb Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
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2. <u>Juncus balticus</u>	<u>2</u>	<u>N</u>	<u>2.0</u>	<u>FACW</u>															
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2. _____																			
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% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>																	

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 11
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'20.05"N Long: 120°29'31.68"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
Remarks: Pit dug in the bottom of a small irrigation swale. The property has been irrigated since at least 1954 and has been managed as beef cattle pasture since 1986. Vegetation is grazed short. Irrigation is applied weekly throughout the growing season. Irrigation ditches, dikes, and swales are maintained to distribute flood irrigation water throughout the property. Climatic conditions were drier than normal the previous three months.	

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status																	
Tree Stratum (Plot size: <u>20ft x 20ft</u>)																					
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= Total Cover																					
Herb Stratum (Plot size: <u>5ft x 5ft</u>)																					
1. <u>pasture grass</u>	<u>100</u>	<u>Y</u>	<u>100.0</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																					
3. _____																					
4. _____																					
5. _____																					
6. _____																					
7. _____																					
8. _____																					
= Total Cover																					
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)																					
1. <u>none</u>				<u>#N/A</u>																	
2. _____																					

= Total Cover																					
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>																			

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR	3/3	100	none			Loamy Sand	dense roots/sod
2-24	10YR	4/2	100	none			loamy sand	no redox

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Vernal Pools (F9)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
Soil is highly permeable in the upper layers. Soils on the property have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thick Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? Yes No Depth (inches): 18

Wetland Hydrology Present? Yes No

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

Remarks:
Saturation too deep to meet the hydrology indicator. No redox or oxidized root channels observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 12
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'13.25"N Long: 120°29'31.98"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	Is the Sampled Area within a Wetland? <input type="radio"/> Yes <input checked="" type="radio"/> No
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

Remarks:
 Pit dug in a flat area at the edge of slight depression that tends to impounded irrigation tailwater when the tailwater ditch along Brickmill Road is not maintained. The ditch was recently cleared to restore design flow and the depression no longer impounds water. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>20ft x 20ft</u>)					Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. <u>none</u>				<u>#N/A</u>	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
3. _____					
4. _____					
	= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)					Prevalence Index worksheet:
1. <u>none</u>				<u>#N/A</u>	Total % Cover of: _____ Multiply by: _____
2. _____					OBL species <u>0</u> x 1 = <u>0</u>
3. _____					FACW species <u>1</u> x 2 = <u>2</u>
4. _____					FAC species <u>99</u> x 3 = <u>297</u>
5. _____					FACU species <u>0</u> x 4 = <u>0</u>
	= Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
					Column Totals: <u>100</u> (A) <u>299</u> (B)
					Prevalence Index = B/A = <u>2.990</u>
Herb Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Indicators:
1. <u>pasture grass</u>	<u>99</u>	<u>Y</u>	<u>99.0</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Juncus balticus</u>	<u>1</u>	<u>N</u>	<u>1.0</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____					<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____					
7. _____					
8. _____					
	= Total Cover				
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No
1. <u>none</u>				<u>#N/A</u>	
2. _____					
	= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>					
% Cover of Biotic Crust <u>0</u>					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR	3/3	100	none				Loamy Sand	roots
1-16	10YR	4/2	100	none				sand	
16+								rock	cobble - shovel denial

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Thick Dark Surface (A12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Sandy Mucky Mineral (S1)			
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)			
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)					

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? <input type="radio"/> Yes <input checked="" type="radio"/> No
--------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------

Remarks:
Soil is highly permeable in the upper layers. Soils on the property have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thick Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Water Table Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ Saturation Present? <input type="radio"/> Yes <input checked="" type="radio"/> No Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: No oxidized root channels observed.		

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Akehurst Short Plat City/County: Unincorporated/Kittitas Sampling Date: 5/21/2021
 Applicant/Owner: Levi Venn, STL Inc. | Raceway Utilities Inc. State: WA Sampling Point: 13
 Investigator(s): Geoffrey Gray (GG Environmental) Section, Township, Range: NW1/4 S20-T18N-R19E
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): B Lat: 47° 2'13.22"N Long: 120°29'31.63"W Datum: WGS 84
 Soil Map Unit Name: Brickmill gravelly ashy loam, 0 to 2 percent slopes NWI Classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soil Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampled Area within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

Remarks:
 Pit dug in a slight depression that tends to impounded irrigation tailwater when the tailwater ditch along Brick Mill Road is not maintained. The ditch was recently cleared to restore design flow and the depression no longer impounds water. The swale is used by cattle as a wallow, so the upper inches of the soil profile are trampled and mixed. Climatic conditions were drier than normal the previous three months.

VEGETATION – Use scientific names of plants.

Stratum	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>20ft x 20ft</u>)					Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. <u>none</u>				#N/A	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____					Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
3. _____					
4. _____					
	= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15ft x 15ft</u>)					Prevalence Index worksheet:
1. <u>none</u>				#N/A	Total % Cover of: _____ Multiply by: _____
2. _____					OBL species <u>10</u> x 1 = <u>10</u>
3. _____					FACW species <u>0</u> x 2 = <u>0</u>
4. _____					FAC species <u>90</u> x 3 = <u>270</u>
5. _____					FACU species <u>0</u> x 4 = <u>0</u>
	= Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
					Column Totals: <u>100</u> (A) <u>280</u> (B)
					Prevalence Index = B/A = <u>2.800</u>
Herb Stratum (Plot size: <u>5ft x 5ft</u>)					Hydrophytic Vegetation Indicators:
1. <u>pasture grass</u>	<u>90</u>	<u>Y</u>	<u>90.0</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Scirpus microcarpus</u>	<u>10</u>	<u>N</u>	<u>10.0</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0'
3. _____					<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____					
7. _____					
8. _____					
	<u>100</u> = Total Cover				Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No
Woody Vine Stratum (Plot size: <u>5ft x 5ft</u>)					
1. <u>none</u>				#N/A	
2. _____					
	= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>					
% Cover of Biotic Crust <u>0</u>					

Remarks:
 Vegetation is grazed short. Grass is not easily identifiable to species. Assumed all pasture grass species are FAC, to be conservative. FAC grasses are common on irrigated pasture (personal observation).

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-5	10YR	3/2	100	none				loam	root mass/trampled
5-12	10YR	3/1	100	2.5YR	4/6	5	C	PL&M	ped surfaces with iron formation
12+								rock	cobble - shovel denial

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|------------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) | <input checked="" 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) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Soils on the property have not been plowed since 1986, with thick root sod from 1-4" thick. Property is an alluvia fan, interspersed by linear, elevated rocky mounds, between which slight depressions/swales are utilized for irrigation water distribution.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thick Muck Surface (C7) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 12
 Saturation Present? Yes No Depth (inches): 10
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

Due to recent irrigation maintenance, the water table has dropped from pooled water to 12 inches in depth in only three days (pers. comm. with landowner). Under a regular irrigation maintenance regime, it is reasonable to infer that the wetland indicator would no longer be present.

Appendix D. Photos

Excavator-assisted soil sample.



Typical irrigation ditch.



Typical irrigation check dam.



Wet area at Location 13 – used as cattle wallow.



Typical soil colors – brown sod, underlain by a dark horizon (10YR 3/1)



Typical irrigation wiers.



Typical irrigated pasture.

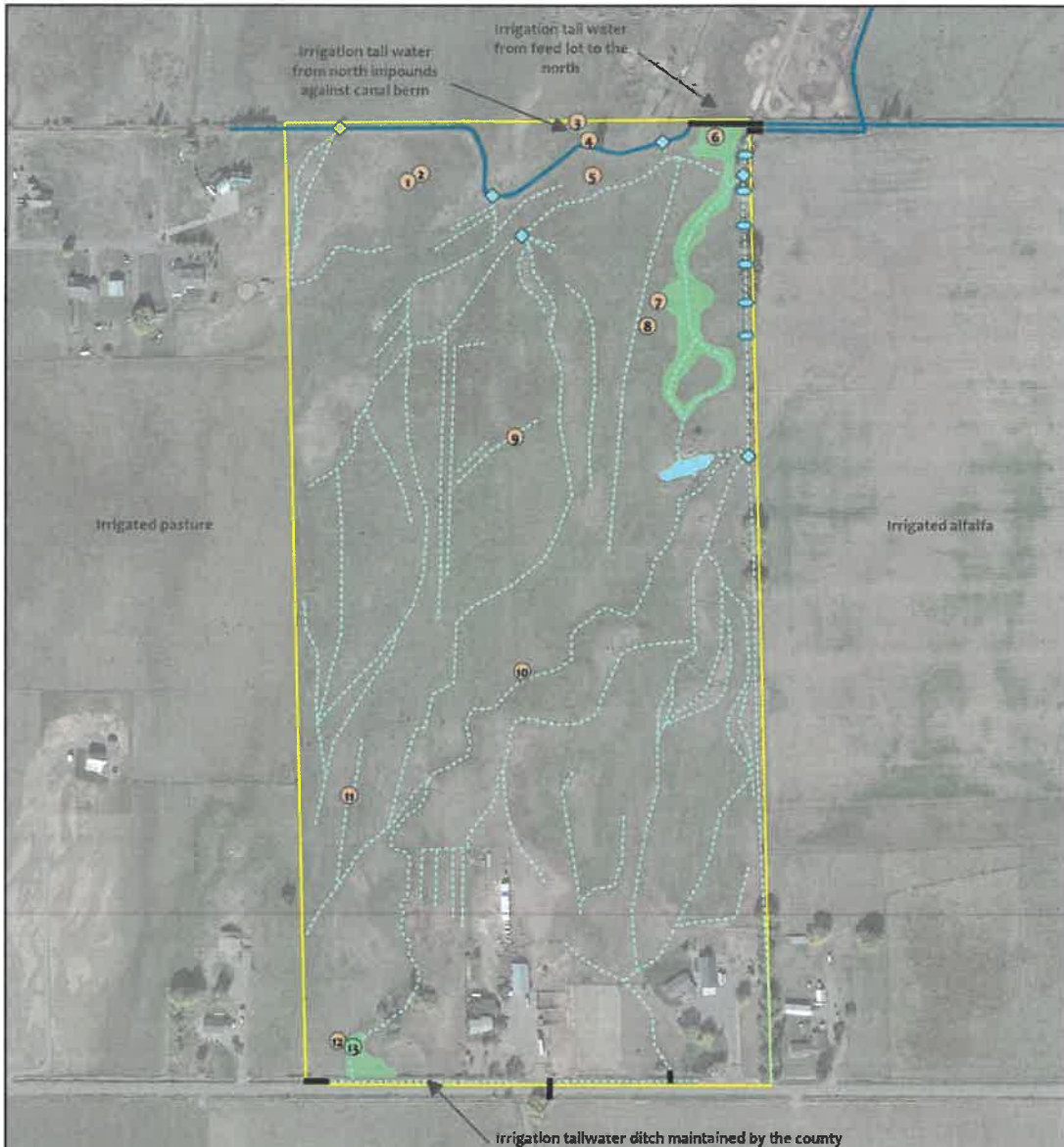


Dried-down irrigation ditch.



Appendix E. Large-format Delineation Map





Direct questions regarding this map to:
 Geoffrey T. Gray (GG Environmental)
 509-426-5645 mobile/ gg@gg-env.com

Delineation date: 5/21/2021

- | | |
|-----------------------|----------------------------|
| upland sample | irrigation ditch/swale |
| wetland sample | irrigation ditch check dam |
| wettest area observed | irrigation pond |
| irrigation canal | irrigation weir |
| irrigation culvert | study area |

The data presented herein reflect site conditions encountered on 5/21/2021. Work was performed in accordance with accepted standards for professional wetland biologists and applicable and current federal, state, and local ordinances.

All services provided by GG are without warranty, express or implied, except that services provided under this Agreement are performed by GG in good faith and to the standards commonly practiced by professional wetland scientists. GG shall not be responsible for, and disclaims all liability for, any loss, liability, damage (whether direct, indirect, or consequential), personal injury, or expense of any kind which may be suffered by any person, or any third party (including a company), as a result of, or which may be attributable, directly or indirectly, to the services provided.

WETLAND AND STREAM DELINEATION
 Parcels #784434, 954945, 954946, 954947, 951674
 Kittitas County, Washington

Map date: May 25, 2021
 Aerial: Google satellite 2018

0 200 ft

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