



A Waters of the United States Report for

Wasatch County School District Proposed High School Site
Heber, Wasatch County, Utah

Submitted to
United States Army Corps of Engineers
533 West 2600 South, Suite 150
Bountiful, Utah 84010

Submitted by
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August 2, 2019

Abstract

The Wasatch County School District is evaluating potential high school sites in Wasatch County. In July 2019, the School District contracted with CRS Engineers (CRS) to provide environmental analyses of a potential site located in Heber City. On July 11, 2019, CRS performed a delineation of wetland resources in the survey area. CRS identified 0.02 acres of emergent marsh, 0.33 acres of wet meadow, and 0.38 acres of open water within the survey area. Open water within the survey area was flowing in the defined bed and bank of Lake Creek, Spring Creek, and the Spring Creek and Sagebrush Canal. CRS recommends that these waters of the United States be considered jurisdictional due to their connection to Provo River, a jurisdictional water.

<i>Wetland Delineation Results</i>	
Type	Area (acres)
Emergent Marsh	0.02
Wet Meadow	0.33
Open Water	0.38
<i>Totals</i>	<i>0.73</i>

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1.0 Introduction

The Wasatch County School District is evaluating potential high school sites in Wasatch County. In July 2019, the School District contracted with CRS Engineers (CRS) to provide environmental analyses of a potential site located in Heber City. On July 11, 2019, CRS performed a waters of the United States (WOTUS) wetland delineation of the area (see Figure 1).



Figure 1: View of the survey area, facing west.

1.1 Project Setting

The survey area measures approximately 63 acres and is located in Heber City, Utah on public and privately owned land located in Section 31, Township 3 South, Range 5 East. Land within the survey area is flat, sloping slightly from north to south with elevations ranging from 5,558–5,545 feet (1,690–1,694 meters) above sea level (see Figures 2–3). Soils within the survey area have been disturbed by residential development, transportation, grazing, and agricultural use.

1.2 Directions to Site

From the United States Army Corps of Engineers (USACE) office in Bountiful, Utah (533 West 2600 South, #150), get on Interstate 15 (I-15) southbound in Bountiful for 0.8 miles. Follow I-15 South, I-80 East and US-189/US-40 East to UT-113 West/West 100 South in Heber City. After 51 miles, continue on UT-113 West/West 100 South. The survey area is located north of UT-113 and west of 600 West (see Figure 2).

1.3 Scope of the Waters of the United States Delineation

The objectives of this investigation were to (1) document existing site conditions, (2) delineate and map potential water of the United States locations, and (3) provide the USACE with

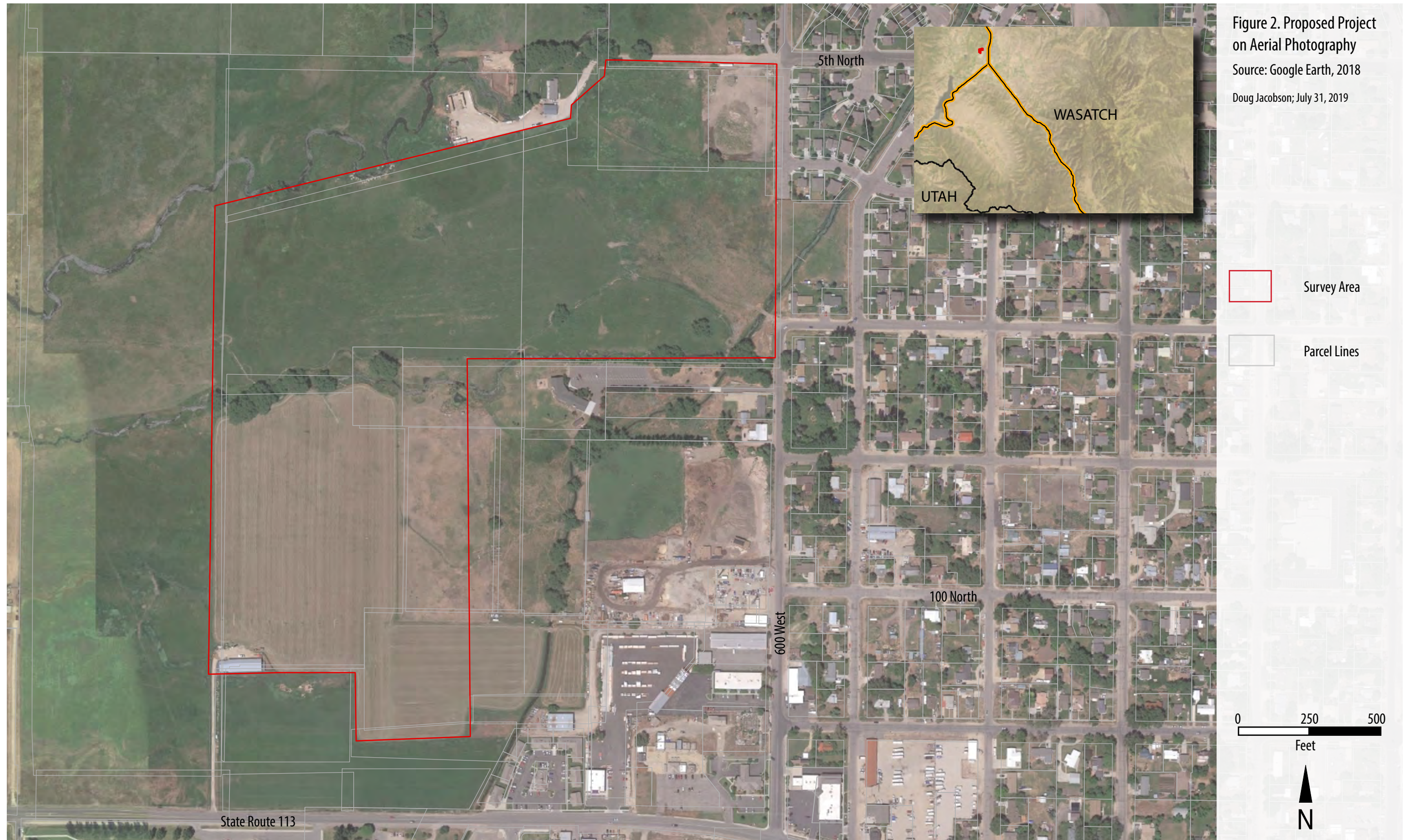


Figure 2. Proposed Project
on Aerial Photography
Source: Google Earth, 2018
Doug Jacobson; July 31, 2019

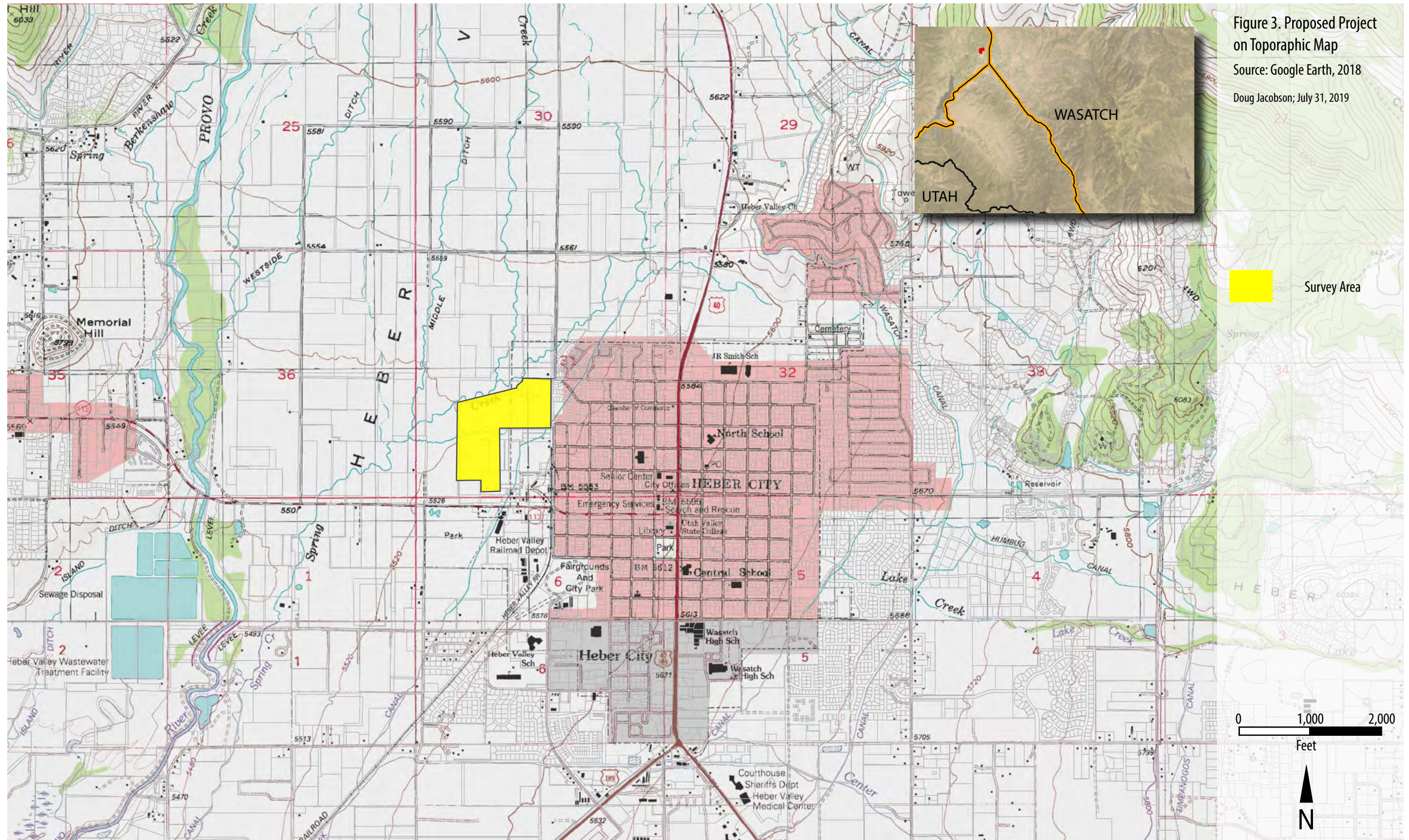


Figure 3. Proposed Project
on Topographic Map
Source: Google Earth, 2018
Doug Jacobson; July 31, 2019

Survey Area

information to make a preliminary jurisdictional determination regarding waters of the United States. Ultimately the USACE holds the responsibility for all jurisdictional determinations.

Tasks completed by CRS include the following:

- Review of existing topographic and aerial photo data;
- Review of published soil and National Wetland Inventory (NWI) data;
- Site inspections to sample and document soil, hydrological conditions, and plant community composition;
- Delineation/verification of general site conditions; and
- Review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM).

2.0 Methods

CRS conducted a wetland delineation of the survey area. Sampling points were excavated and wetland boundaries were surveyed (see Appendix A: Site Maps). Each area was investigated to determine the presence of wetlands and was evaluated according to the three-parameter approach (vegetation, soil, and hydrology) specified in the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Regions (Version 2.0)* where possible. Soil samples were taken on each side of the wetland boundary. Following sampling, boundaries of wetland area were recorded with global positioning system (GPS) software. Wetland boundaries were not delineated to their full extent. CRS confined its delineation to the limits of the survey area.

2.1 Soils

Where possible, soil samples were excavated to a depth of 18 inches for a 1- to 2-foot profile that was taken from the side (see Appendix B: Site Photographs). The profile was examined to determine soil texture, color, and hydric soil conditions (hystosols, hystic epipedon, etc.). Texture for each soil horizon was determined following a hand analysis field technique. A moistened ball of soil was spread by gently pushing the soil out between the thumb and forefinger and squeezing it upward into a ribbon. Ribbon sizes less than 1 inch indicate sandy soils. Ribbons between 1 and 2 inches indicate soils with medium textures. Ribbons greater than 2 inches indicate clayey soils.

Soil color was determined by moistening the sample and comparing it to the Kollmorgen Instruments Munsell Soil Color Chart. Samples meeting the criteria for hydric soils as contained within the 1987 USACE manual and the 2008 regional supplement were considered hydric. Soil samples from these areas were evaluated based on each distinct horizon encountered.

Each soil sample was evaluated and compared with soil conditions described in the soil survey for the property (see Appendix C: Custom Soil Report). These indicators were reviewed to better understand the general characteristics of soil types and were compared with the samples evaluated in the field. Soil horizons, texture and color were noted at each sampling location (see Appendix D: Wetland Determination Data Forms).

2.2 Hydrology

The presence or absence of hydrologic indicators (e.g., standing water, alluvial deposits, root zone oxidation, drainage patterns, etc.) was noted. The presence of any changes in the vicinity that may have altered local hydrology (e.g., irrigation canals, drainage ditches, excavation, earth-moving activities, etc.) was also investigated.

2.3 Vegetation

The plant community within a 6-foot radius of each sampling point was observed. The relative occurrence and coverage of each species was estimated visually. Vegetation type and percentage of relative coverage were observed for four different vegetation strata: (1) tree (a woody plant greater than 3 inches in diameter at breast height [DBH], regardless of height), (2) sampling/shrub (woody plants less than 3 inches in DBH but greater than 3.2 feet in height), and (4) woody vine (a layer of vegetation in forested plant communities that consists of woody vines).

Dominant plant species were determined by identifying “the most abundant species that individually or collectively account for more than 50 percent total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total” (USACE, 2008). If more than 50 percent of the dominant plant species had an indicator status of obligate, facultative wetland, or facultative, the sampling area met the wetland vegetation parameter in accordance with the USACE’s 50/20 Rule. Plant identification was determined using the field manual *Weeds of the West* (Whitson, et al., 2004) and professional judgment. The wetland indicator status of plant species was determined using the *Arid West 2016 Regional Wetland Plant List* (Lichvar et al., 2016) and the *National Wetland Plant List: 2016 Wetland Ratings* (Lichvar et al., 2016b).

2.4 Site Infrastructure and Mapping

Photographs of the survey area and other areas representative of the conditions within the survey area were taken to provide a photographic record and to help characterize the waters of the United States found within the survey area (see Appendix B: Site Photographs). Sample point locations, open water, and wetland boundaries were mapped with GPS. GPS points were brought into a geographic information system (GIS) where water resource boundaries were created and overlaid on aerial photography to create a water resources map (see Appendix A: Site Maps).

3.0 General Site Conditions

The survey area is located in Heber City, Utah, near residential homes on land that is either grazed, farmed, or unutilized. Vegetation within the area included typical wetland vegetation (within wetland areas) and upland vegetation such as alfalfa, cottonwood trees, cheatgrass, crabgrass, thistle, and mountain rush. The delineation results are based on a site visit conducted on July 11, 2019. Temperatures on July 11 ranged from a high of 94 degrees Fahrenheit (F) to a low of 51 degrees F. Observed temperatures were considered average with historic April averages. According to the National Oceanic and Atmospheric Administration (NOAA), average precipitation in the month of June was 0.94 inches (NOAA, 2019). For the purposes of this delineation, hydrologic conditions were considered normal.

3.1 Soils

Eleven soil sampling points were excavated and evaluated for hydric soil conditions (see Appendix A: Site Maps and Appendix D: Wetland Determination Data Forms). Hydric soils were found in the survey area, confirming information obtained in the custom soil report (described below). Soil samples were taken within an area where facultative wetland plant species were growing.

The soil survey was generated using the United States Department of Agricultural (USDA) Web Soil Survey tool (2019). The soil survey identified six soil types and open water within the survey area. Soils identified are listed in Table 1.

Table 1. Soil types within the survey area.

Soil Name	Acres in Survey Area	Percent of Survey Area	Hydric Rating
Center Creek Loam	24.7	38.5%	Hydric
Crooked Creek clay loam, 1 to 3 percent slopes	26.6	41.3%	Hydric
Holmes gravelly loam	0.7	1.2%	Not Hydric
Kovich loam, channeled	6.3	9.8%	Hydric
Kovich loam, moderately deep water table	4.4	6.9%	Hydric
Logan silty clay, cold variant	1.5	2.4%	

3.2 Hydrology

Wetland hydrology and open water located within the survey area is comprised of irrigation water (Sagebrush and Spring Creek Canal) and creek water (Lake Creek and Spring Creek) that stems from Provo River. Provo River connects to Utah Lake and is considered a jurisdictional, navigable water of the United States. Because of their connection to navigable waters, it is recommended that all open water and wetland resources within the survey area be considered jurisdictional. Wetlands in the area are connected hydrologically to Lake Creek and Spring Creek.

3.3 Vegetation

The survey area is located in the Wasatch and Uinta Mountain ecoregion, specifically the unforested Mountain Valley ecoregion (EPA, 2018). The unforested Mountain Valleys ecoregion contains terraces, flood plains, alluvial fans, and hills. It is affected by cold temperatures and has a short growing season. Irrigated cropland, irrigated pastureland, and rangeland are common. Vegetation identified within the survey area is included in Table 2.

Table 2. Vegetation identified within the survey area.

Common Name	Scientific Name	Wetland Indicator Status ^a
Mountain rush	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	FACW
Sandbar willow	<i>Salix exigua</i>	FACW
Bull thistle	<i>Cirsium vulgare</i>	FAC
Cocklebur	<i>Xanthium strumarium</i>	FAC

Common Name	Scientific Name	Wetland Indicator Status ^a
Fuller’s teasel	<i>Dipsacus fullonum</i>	FAC
Kentucky bluegrass	<i>Poa pratensis</i>	FAC
Quackgrass	<i>Elymus repens</i>	FAC
Russian olive	<i>Elaeagnus angustifolia</i>	FAC
Saltgrass	<i>Distichlis spicata</i>	FAC
Western wheatgrass	<i>Pascopyrum smithii</i>	FAC
Dandelion	<i>Taraxacum officinale</i>	FACU
Red clover	<i>Trifolium pratense</i>	FACU
Russian thistle	<i>Salsola tragus</i>	FACU
Alfalfa	<i>Medicago sativa</i>	UPL
Cheatgrass	<i>Bromus tectorum</i>	UPL
Crabgrass	<i>Digitaria sanguinalis</i>	UPL
Fremont cottonwood	<i>Populus fremontii</i>	UPL
Queen Anne’s lace	<i>Daucus carota</i>	UPL
Whitetop	<i>Lepidium draba</i>	UPL

^aOBL = obligate wetland species; FACW = Facultative wetland species, FAC = facultative species, FACU = facultative upland species; UPL = upland species

4.0 National Wetland Inventory (NWI)

One wetland type was identified as freshwater emergent wetland (or PEM1C) using the NWI database (USFWS, 2019). While generally inaccurate, mapped NWI wetlands were relatively close in location to those that were delineated in the field. NWI wetlands were larger than what was observed in the field (see Appendix A: Site Maps).

5.0 FEMA Flood Insurance Map

The Federal Emergency Management Agency (FEMA) has established flood zones used to determine the relative risk of flooding to life and property. These zones are used to generate a Flood Insurance Rate Map (FIRM) (see Appendix A: Site Maps). Based on information obtained from the fema.gov website, the survey area is located in flood maps 49051C0118E. Portions of the survey area are located within Zones A and X. A description of these zones can be found in Table 3.

Table 3. Definitions of FEMA flood zone designations (FEMA, 2018b).

Zone	Description
A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
X (unshaded)	The area determined to be outside the 500-year flood and protected by levee from 100-year flood.

6.0 Signed Letters

According to the *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* published by the USACE in January 2016, a signed statement from the property owner(s) allowing USACE personnel to enter the property and to collect samples during normal business hours is required. If the property is land-locked, the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel (USACE, 2016). Because the property is not land locked, no signed letters were obtained.

7.0 Conclusion: Presence of Waters of the United States

The delineation performed in July 2019 recorded a total of 0.73 acres waters of the United States. Emergent marsh comprised 0.02 acres; wet meadow comprised 0.33 acres; open water comprised 0.38 acres (see Table 4). CRS recommends that the delineated waters be considered jurisdictional waters of the United States due to their connection to Provo River.

Table 4. Wetland delineation results within the survey area.

Type	Area (acres)
Emergent Marsh	0.02
Wet Meadow	0.33
Open Water	0.38
Totals	0.73

7.1 Emergent Marsh

CRS recorded 0.02 acres of emergent marsh in the survey area. These wetland areas were dominated by Baltic rush, bulrush, and spike rush. The wetland classification was supported by hydric soil indicators and hydrology (see Appendix D: Wetland Determination Data forms).

7.2 Wet Meadow

CRS recorded 0.33 acres of wet meadow in the survey area. These wetland areas were dominated by Baltic rush, white clover, horsetail, and Timothy grass. The wetland classification was supported by hydric soil indicators and hydrology (see Appendix D: Wetland Determination Data forms).

7.2 Open Water

CRS recorded 0.38 acres (or 2,087 linear feet) of open water within the survey area. This water is confined to the defined bed and bank of Lake Creek, Spring Creek, and Sagebrush and Spring Creek Canal. Water levels within the creek beds and irrigation canal fluctuate throughout the year. Water was present during the survey in July.

8.0 Sources Cited

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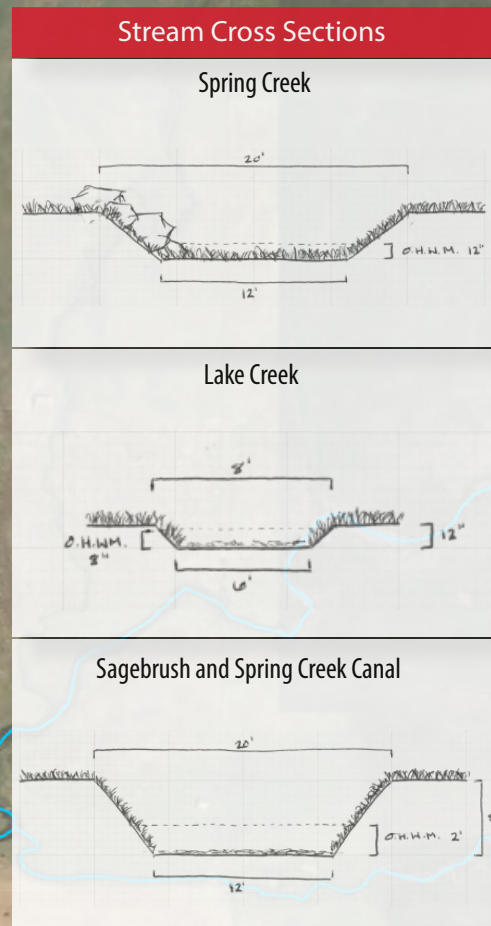
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Woods, A.J., D.A. Lammers, S.A. Bryce, J.M. Omernik, R.L Denton, M. Domeier and J.A. Comstock (2001). *Ecoregions of Utah* (color poster with map, descriptive text, summary tables, and photographs). Reston, VA: U.S. Geological Survey.



WOTUS Report: Appendix A

Site Maps

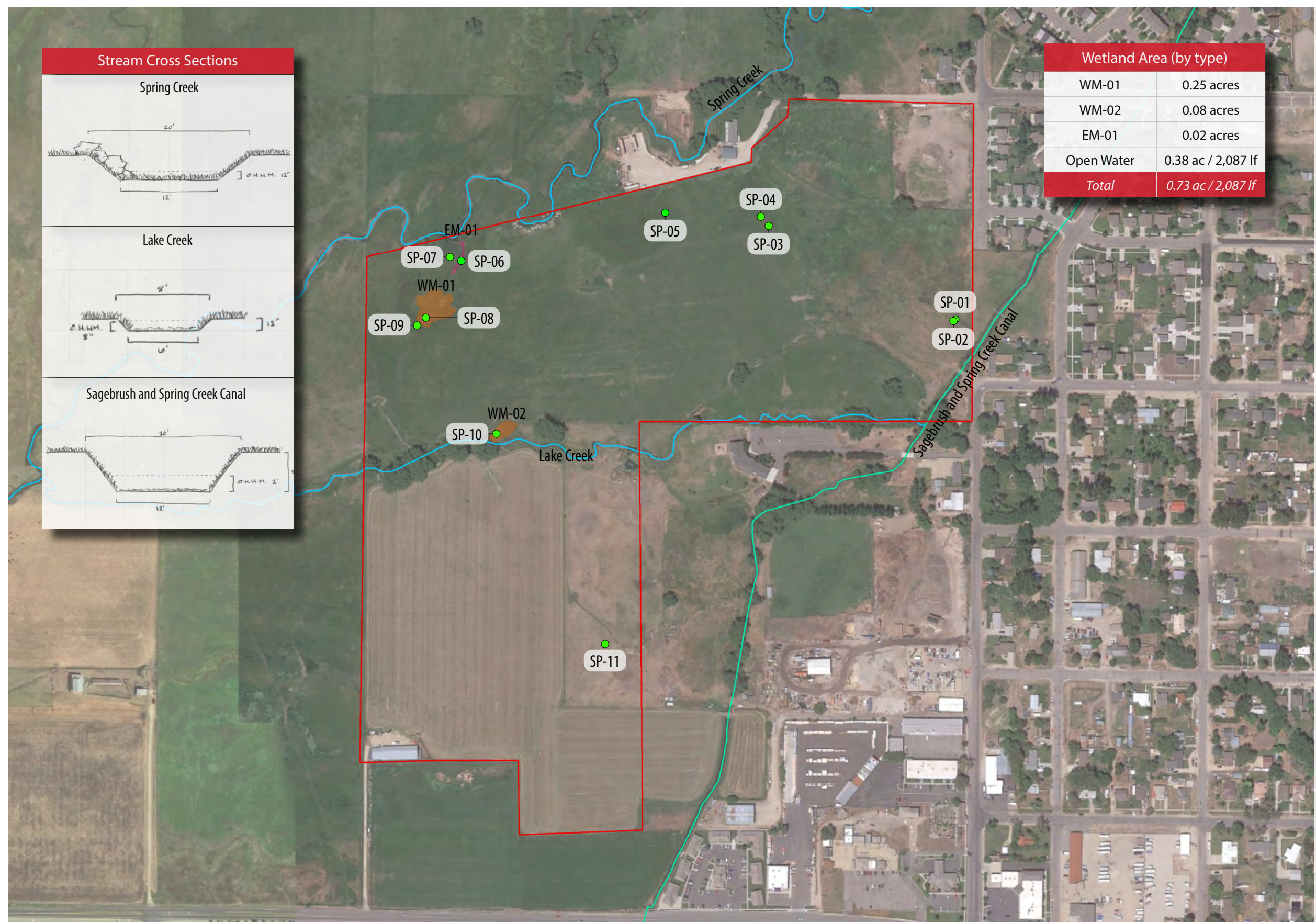
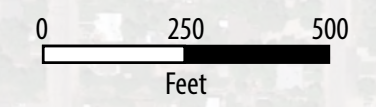


Wetland Area (by type)	
WM-01	0.25 acres
WM-02	0.08 acres
EM-01	0.02 acres
Open Water	0.38 ac / 2,087 lf
Total	0.73 ac / 2,087 lf

Figure A1: Proposed Heber High School Site Wetland Resources Map

Source: Google Earth, 2018
 Doug Jacobson, Chuck Easton,
 July 16, 2019

- Survey Area
- Stream
- Canal
- Wet Meadow (WM)
- Emergent Marsh (EM)
- Sampling Point (SP)



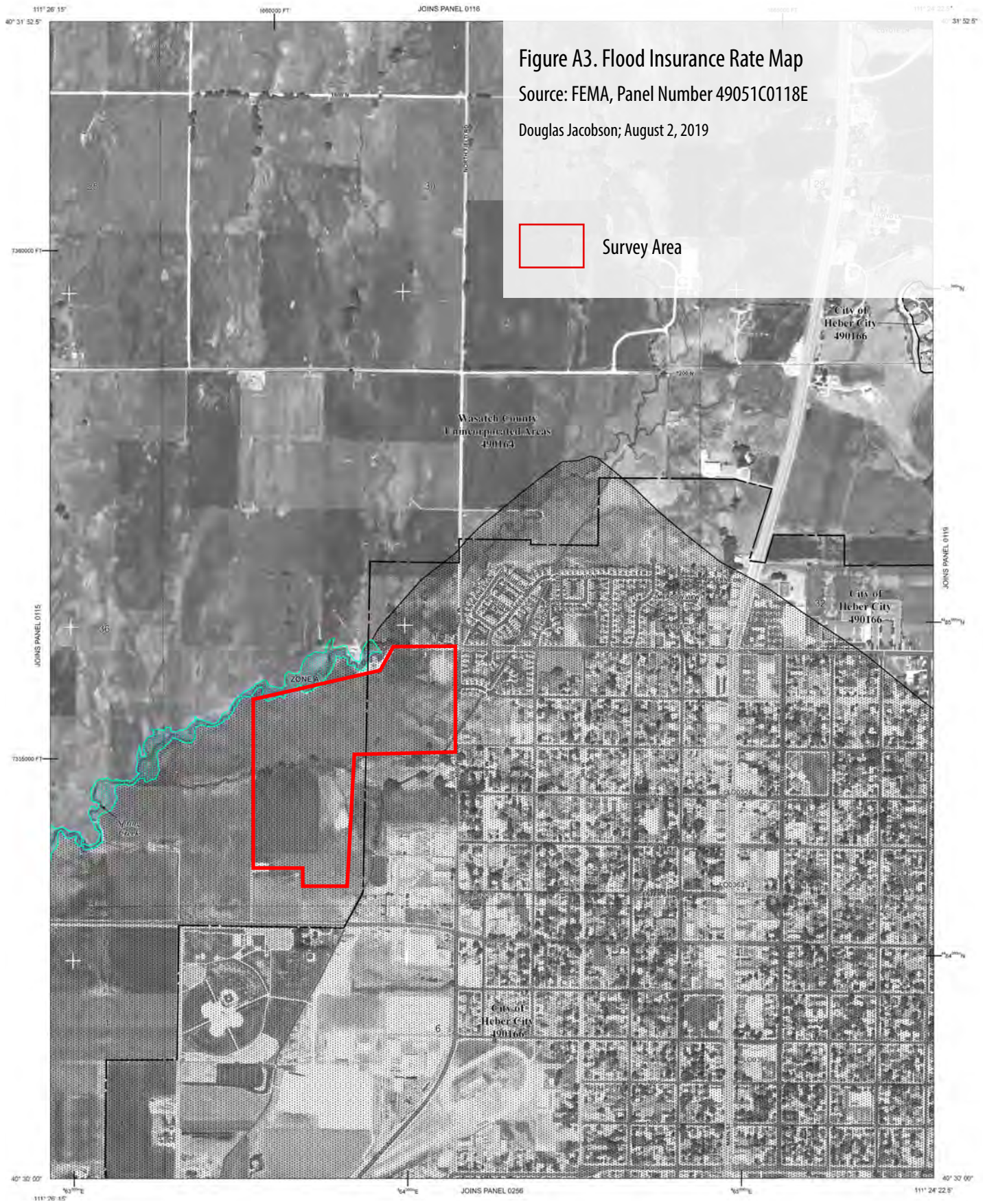


Figure A3. Flood Insurance Rate Map

Source: FEMA, Panel Number 49051C0118E

Douglas Jacobson; August 2, 2019

Survey Area

Wasatch County
Unincorporated Areas
490164

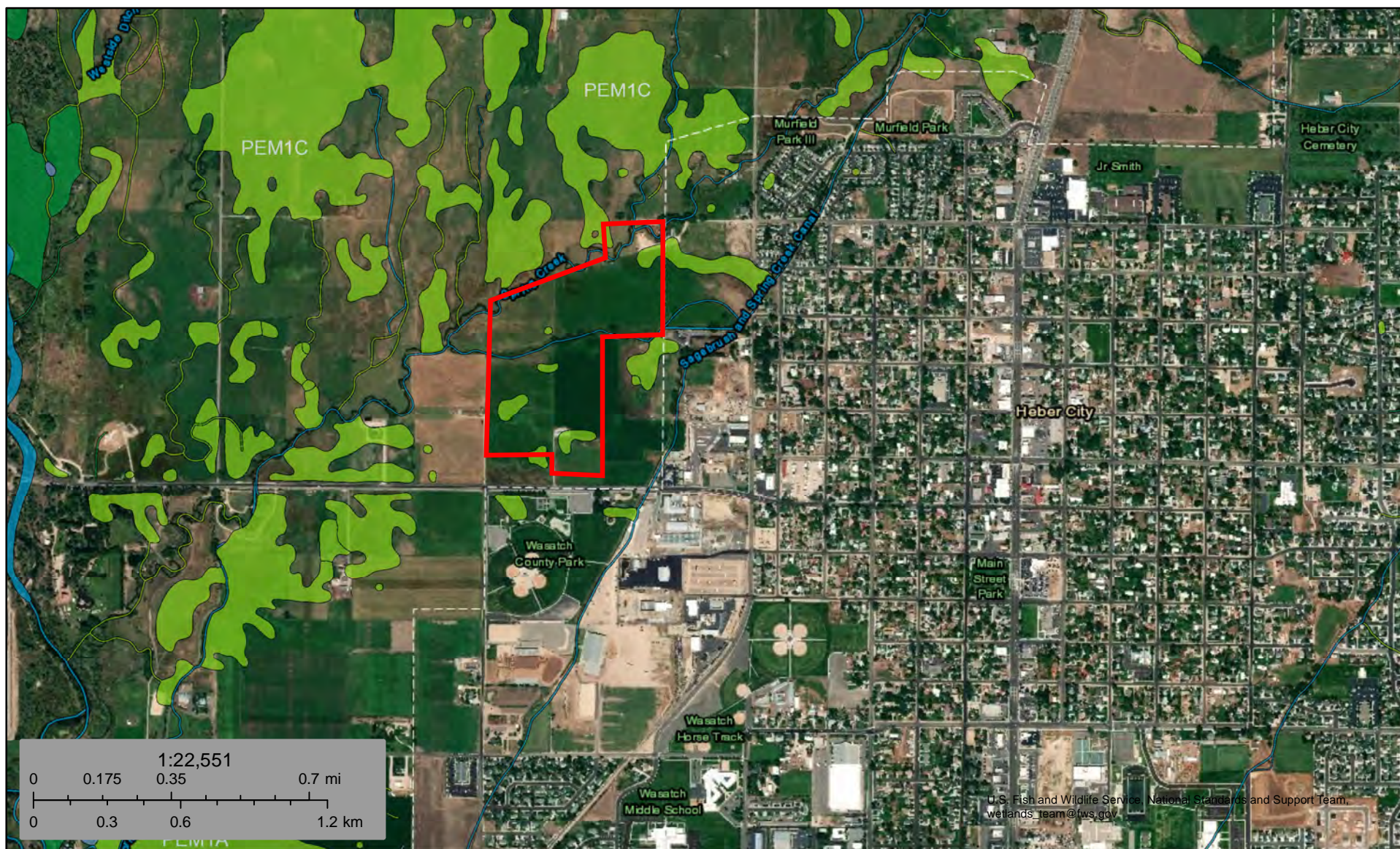
City of
Heber City
490166

City of
Heber City
490166

City of
Heber City
490166








Figure A4:
NWI Wetland Inventory






August 2, 2019

Wetlands

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond

-  Lake
-  Other
-  Riverine

 Survey Area

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



WOTUS Report: Appendix B

Site Photographs



Photo 1. View of the survey area near Lake Creek.



Photo 2. View of the grazed and open land within of the survey area.



Photo 3. Residential home near Sagebrush and Spring Creek Canal.



Photo 4. Overview of grazing area with sparse cottonwood trees near Lake Creek in background.



Photo 5. Soil sample (S-06).



Photo 6. Soil sample (S-08).



WOTUS Report: Appendix C

Custom Soil Report



United States
Department of
Agriculture

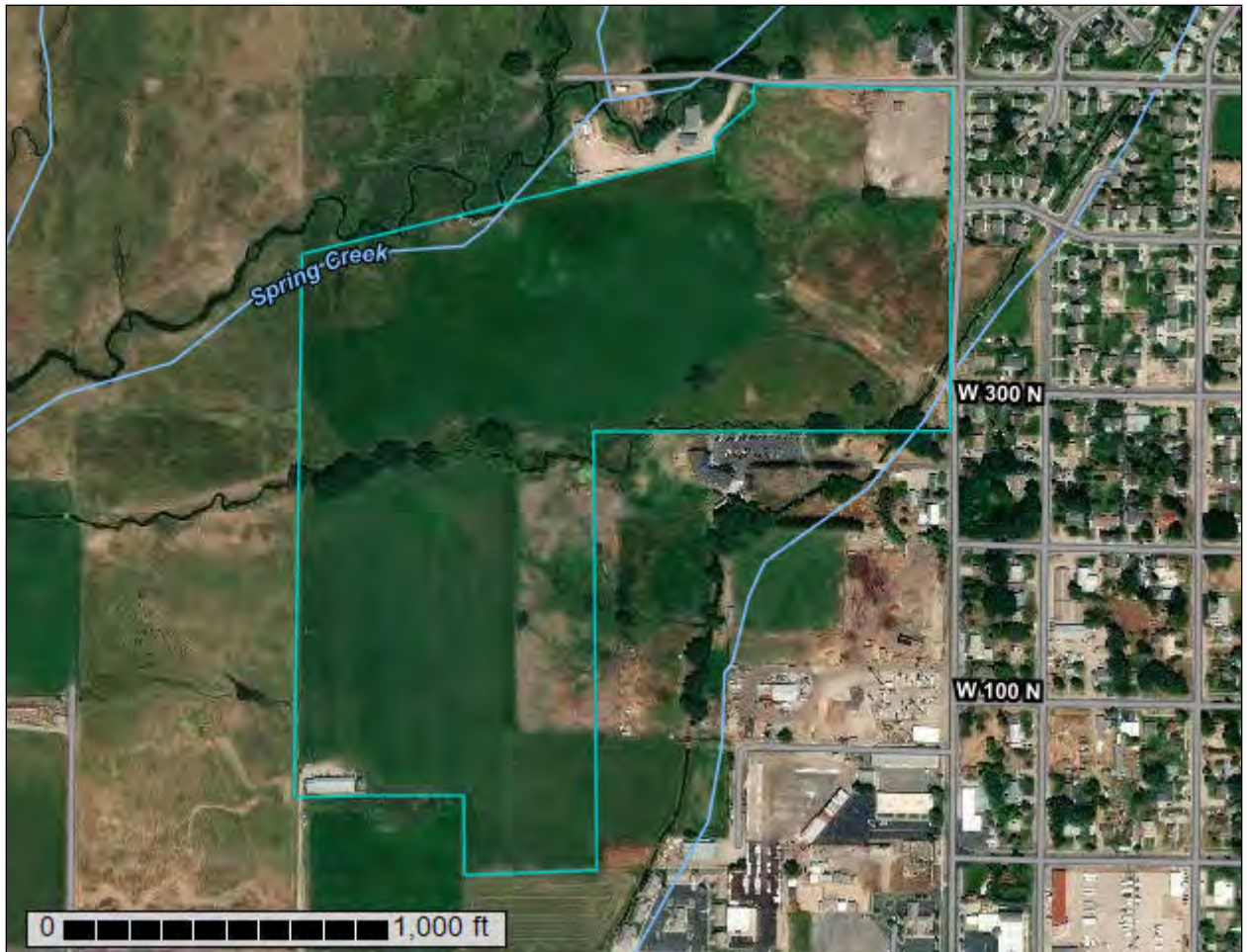
NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Heber Valley Area, Utah - Parts of Wasatch and Utah Counties

Heber High School



Preface

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

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

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

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

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

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

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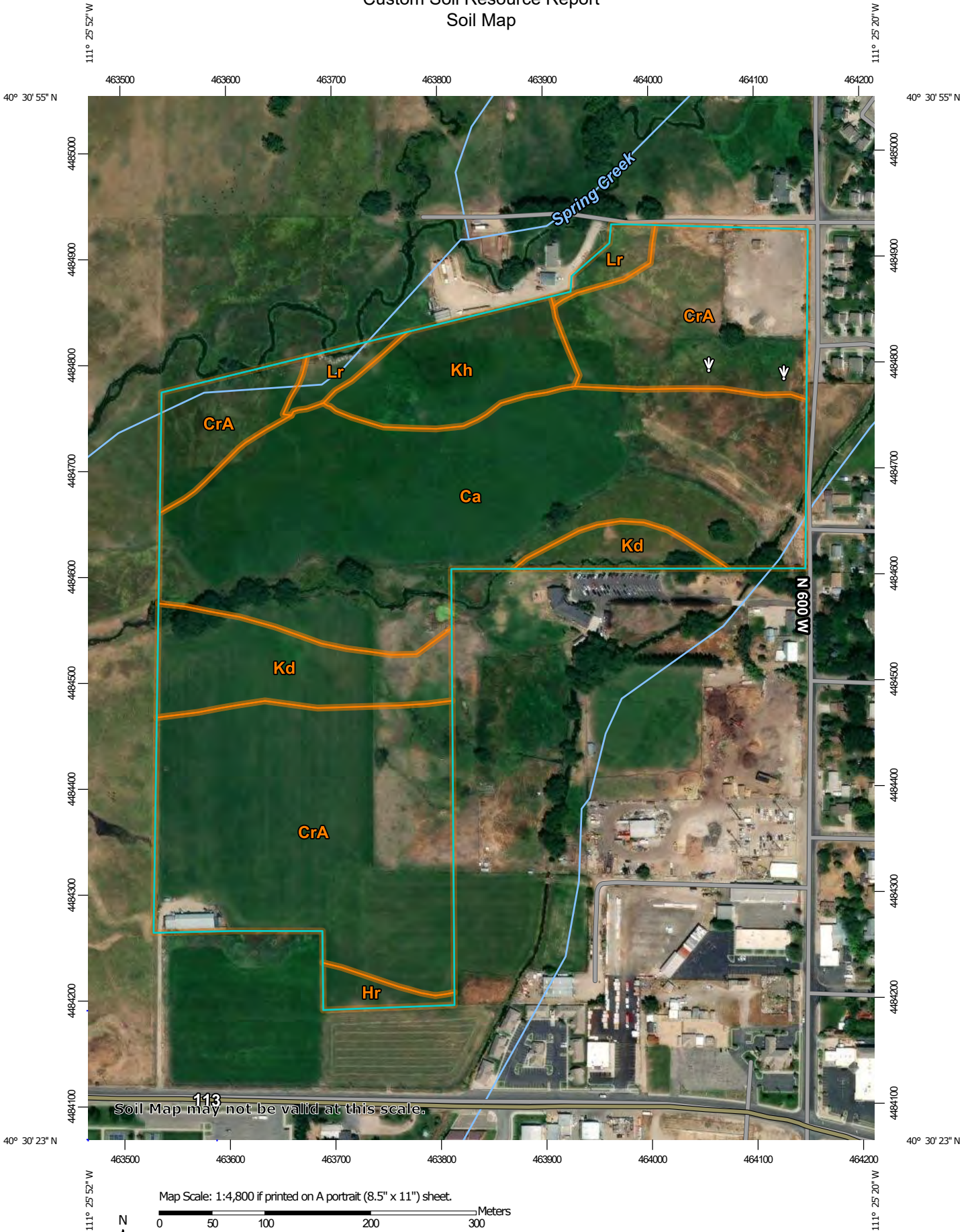
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Hr—Holmes gravelly loam.....	13
Kd—Kovich loam, channeled.....	14
Kh—Kovich loam, moderately deep water table.....	15
Lr—Logan silty clay, cold variant.....	16

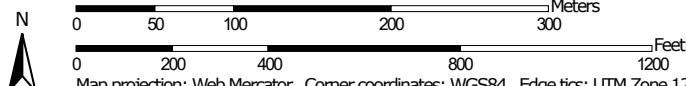
Soil Map

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

Custom Soil Resource Report Soil Map



Map Scale: 1:4,800 if printed on A portrait (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Heber Valley Area, Utah - Parts of Wasatch and Utah Counties
 Survey Area Data: Version 9, Sep 11, 2018

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

Date(s) aerial images were photographed: Jun 14, 2016—Nov 8, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Center Creek loam	24.7	38.5%
CrA	Crooked Creek clay loam, 1 to 3 percent slopes	26.6	41.3%
Hr	Holmes gravelly loam	0.7	1.2%
Kd	Kovich loam, channeled	6.3	9.8%
Kh	Kovich loam, moderately deep water table	4.4	6.9%
Lr	Logan silty clay, cold variant	1.5	2.4%
Totals for Area of Interest		64.3	100.0%

Map Unit Descriptions

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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

Heber Valley Area, Utah - Parts of Wasatch and Utah Counties

Ca—Center Creek loam

Map Unit Setting

National map unit symbol: jxp1
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

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

Description of Center Creek

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave

Typical profile

A12 - 0 to 5 inches: loam
B1 - 5 to 12 inches: loam
B21t - 12 to 20 inches: loam
B22t - 20 to 33 inches: clay loam
B3 - 33 to 40 inches: very gravelly coarse sandy loam
C1 - 40 to 50 inches: very gravelly sandy loam
C2 - 50 to 60 inches: extremely gravelly coarse sandy loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: Semiwet Fresh Streambank (Narrowleaf Cottonwood)
(R047XA006UT)
Hydric soil rating: No

Minor Components

Poorly drained soils

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Other soils

Percent of map unit: 5 percent

CrA—Crooked Creek clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: jxp8
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Crooked creek and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crooked Creek

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave

Typical profile

A11, A12 - 0 to 12 inches: clay loam
C1 - 12 to 23 inches: clay loam
C2 - 23 to 33 inches: silty clay
C3 - 33 to 42 inches: clay loam
C4 - 42 to 50 inches: clay
C5 - 50 to 70 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches

Custom Soil Resource Report

Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)
Hydric soil rating: Yes

Minor Components

Peaty surface soils

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)
Hydric soil rating: Yes

Hr—Holmes gravelly loam

Map Unit Setting

National map unit symbol: jxqn
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Holmes

Setting

Landform: Stream terraces, alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, convex

Typical profile

Ap, A12 - 0 to 11 inches: gravelly loam
B2t - 11 to 21 inches: very gravelly loam
B3 - 21 to 28 inches: extremely gravelly coarse sandy loam
C - 28 to 60 inches: extremely gravelly loamy coarse sand

Custom Soil Resource Report

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: Mountain Stony Loam (Mountain Big Sagebrush) (R047XA461UT)
Hydric soil rating: No

Minor Components

Steed cold variant

Percent of map unit: 5 percent

Rasband

Percent of map unit: 5 percent

Center creek

Percent of map unit: 5 percent

Kd—Kovich loam, channeled

Map Unit Setting

National map unit symbol: jxqq
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Kovich

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave

Custom Soil Resource Report

Typical profile

A11, A12 - 0 to 11 inches: loam
A13, A14 - 11 to 29 inches: loam
2C1 - 29 to 41 inches: extremely cobbly sandy clay loam
2C2 - 41 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)
Hydric soil rating: Yes

Minor Components

Poorly drained soils

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cobbly surface soils

Percent of map unit: 5 percent

Kh—Kovich loam, moderately deep water table

Map Unit Setting

National map unit symbol: jxqr
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Farmland classification: Farmland of statewide importance

Map Unit Composition

Kovich and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kovich

Setting

Landform: Flood plains, stream terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Concave

Typical profile

A11, A12 - 0 to 11 inches: loam
A13, A14 - 11 to 29 inches: loam
2C1 - 29 to 41 inches: extremely cobbly sandy clay loam
2C2 - 41 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)
Hydric soil rating: No

Minor Components

Poorly drained soils

Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lr—Logan silty clay, cold variant

Map Unit Setting

National map unit symbol: jxr0
Mean annual precipitation: 16 to 22 inches
Mean annual air temperature: 40 to 45 degrees F
Frost-free period: 70 to 90 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Logan and similar soils: 90 percent

Minor components: 10 percent

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

Description of Logan

Setting

Landform: Flood plains, stream terraces

Landform position (three-dimensional): Tread, talf, dip

Down-slope shape: Linear

Across-slope shape: Concave

Typical profile

A11, A12 - 0 to 10 inches: silty clay

C1k - 10 to 16 inches: silty clay

C2k - 16 to 23 inches: loam

C3 - 23 to 29 inches: loam

C4 - 29 to 35 inches: gravelly loam

C5 - 35 to 44 inches: sandy loam

2C6 - 44 to 66 inches: very gravelly loamy sand

Properties and qualities

Slope: 1 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum in profile: 50 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: C/D

Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)

Hydric soil rating: Yes

Minor Components

Peaty surface soils

Percent of map unit: 5 percent

Landform: Depressions

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Concave

Ecological site: Interzonal Wet Fresh Meadow (Sedge) (R047XA008UT)

Hydric soil rating: Yes

Gravelly soils

Percent of map unit: 5 percent

Custom Soil Resource Report



WOTUS Report: Appendix D

Wetland Determination Data Forms

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-01
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512310 Long: -111.423369 Datum: UTM
 Soil Map Unit Name: Center Creek Loam NWI classification: N/A

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>20</u> x 2 = <u>40</u>
4. _____				FAC species <u>70</u> x 3 = <u>210</u>
5. _____				FACU species <u>10</u> x 4 = <u>40</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>2.90</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Dandelion (Taraxacum officinale)</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Grasses*</u>	<u>70</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)

SOIL

Sampling Point: SP-01

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"	10 YR 2/2	100						dense root zone
5-8"	10 YR 2/1	100						
8-12"	10 YR 2/1	85						
8-12"	10 YR 3/3	15						
12-18"	10 YR 2/1	75	10 YR 3/6	5			sandy/clay	
12-18"	10 YR 2/2	20						crumbly mineral

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

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:

Dug a 20" hole, let sit for 30 min.; no high water table.

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-02
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512296 Long: -111.423387 Datum: UTM
 Soil Map Unit Name: Center Creek Loam NWI classification: N/A

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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>0</u> x 2 = <u>0</u>
4. _____				FAC species <u>80</u> x 3 = <u>240</u>
5. _____				FACU species <u>5</u> x 4 = <u>20</u>
_____ = Total Cover				UPL species <u>15</u> x 5 = <u>75</u>
				Column Totals: <u>100</u> (A) <u>345</u> (B)
				Prevalence Index = B/A = <u>3.45</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Flixweed (Descurainia sophia)</u>	<u>15</u>	<u>Yes</u>	<u>UPL</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Dandelion (Taraxacum officinale)</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Grasses*</u>	<u>80</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input type="checkbox"/>
2. _____				No <input checked="" type="checkbox"/>
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-02

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		
0-3"	10 YR 2/2	100						
3-5"	10 YR 2/1	90	10 YR 6/6	10				
5-18"	10 YR 2/1	95	10-YR 5/8	5				

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

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:

Dug a 20" hole, let sit for 30 min.; no high water table.

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-03
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.513165 Long: -111.425593 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: PEM1Cx

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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>2</u> x 2 = <u>10</u>
4. _____				FAC species <u>93</u> x 3 = <u>279</u>
5. _____				FACU species <u>5</u> x 4 = <u>20</u>
_____ = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
				Column Totals: <u>100</u> (A) <u>309</u> (B)
				Prevalence Index = B/A = <u>3.09</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>White clover (Trifolium repens)</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Red clover (Trifolium pratense)</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Grasses*</u>	<u>90</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Balticrush (Juncus arcticus ssp. litoralis)</u>	<u>2</u>	<u>No</u>	<u>FACW</u>	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input type="checkbox"/>
2. _____				No <input checked="" type="checkbox"/>
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-03

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"	10 YR 2/1	100						
5-18"	10 YR 2/2	100						

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 5" _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-04
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.513250 Long: -111.425690 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: PEM1Cx

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>				
Remarks:						

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>40</u> x 2 = <u>80</u>
4. _____				FAC species <u>55</u> x 3 = <u>165</u>
5. _____				FACU species <u>0</u> x 4 = <u>0</u>
_____ = Total Cover				UPL species <u>5</u> x 5 = <u>25</u>
				Column Totals: <u>100</u> (A) <u>270</u> (B)
				Prevalence Index = B/A = <u>2.70</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>45</u>	<u>No</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>40</u>	<u>No</u>	<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>White clover (Trifolium repens)</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Rescuegrass (Bromus catharticus)</u>	<u>5</u>	<u>No</u>	<u>UPL</u>	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-04

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"	10 YR 2/2	100						
5-18"	10 YR 2/1	100						

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"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 16"

Wetland Hydrology Present? Yes No

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

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-05
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.513288 Long: -111.426826 Datum: UTM
 Soil Map Unit Name: Kovich loam NWI classification: PEM1Cx

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>40</u> x 2 = <u>80</u>
4. _____				FAC species <u>55</u> x 3 = <u>165</u>
5. _____				FACU species <u>0</u> x 4 = <u>0</u>
_____ = Total Cover				UPL species <u>5</u> x 5 = <u>25</u>
				Column Totals: <u>100</u> (A) <u>270</u> (B)
				Prevalence Index = B/A = <u>2.70</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>45</u>	<u>No</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>40</u>	<u>No</u>	<u>FACU</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>White clover (Trifolium repens)</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Rescuegrass (Bromus catharticus)</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-05

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"	10 YR 2/2	100						
5-18"	10 YR 2/1	100						

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

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:

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-06
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512850 Long: -111.429265 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: N/A

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>90</u> x 1 = <u>90</u>
3. _____				FACW species <u>5</u> x 2 = <u>10</u>
4. _____				FAC species <u>5</u> x 3 = <u>15</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>115</u> (B)
				Prevalence Index = B/A = <u>1.15</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Soft stem (Schoenoplectus tabernaemontani)</u>	<u>80</u>	<u>No</u>	<u>OBL</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Spike rush (Eleocharis palustris)</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-06

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		
0-18"	10 YR 2/1	100						

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 2" @ 20"
 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:

Dug a 20" hole, let sit for 30 min.; no high water table.

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-07
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512883 Long: -111.429397 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: N/A

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>50</u> x 2 = <u>100</u>
4. _____				FAC species <u>50</u> x 3 = <u>150</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>250</u> (B)
				Prevalence Index = B/A = <u>2.50</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>50</u>		<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>50</u>		<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-07

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		
0-18"	10 YR 2/1	100						

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hole dug to 24 inches, no evidence of depletion was observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

Field Observations:

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

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

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-08
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512332 Long: -111.429684 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: N/A

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>85</u> x 2 = <u>170</u>
4. _____				FAC species <u>15</u> x 3 = <u>45</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>215</u> (B)
				Prevalence Index = B/A = <u>2.15</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>10</u>		<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>85</u>		<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>White clover (Trifolium repens)</u>	<u>5</u>		<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-08

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		
0-13"	10 YR 2/1	100						peat
13-16"	10 YR 2/1	100						mucky peat
16-25"	10 YR 2/1	100						peat

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 checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): 2.5 @ 25"
 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 – Western Mountains, Valleys, and Coast Region

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-09
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.512260 Long: -111.429791 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: N/A

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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)	
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)	
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)	
4. _____				Prevalence Index worksheet:	
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)					
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____	
2. _____				OBL species <u>0</u> x 1 = <u>0</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>10</u> x 5 = <u>50</u>	
Herb Stratum (Plot size: _____)					
1. <u>Grasses*</u>	<u>90</u>		<u>FAC</u>	Column Totals: <u>100</u> (A) <u>320</u> (B)	
2. <u>Rescuegrass (Bromus catharticus)</u>	<u>10</u>		<u>UPL</u>	Prevalence Index = B/A = <u>3.20</u>	
3. _____				Hydrophytic Vegetation Indicators:	
4. _____					<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
5. _____					<input type="checkbox"/> 2 - Dominance Test is >50%
6. _____					<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
7. _____					<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8. _____					<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
9. _____					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
10. _____					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
11. _____					
_____ = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks:					

*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)

SOIL

Sampling Point: SP-09

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"	10 YR 3/3	100						high organic matter (peat like)
12-18"	10 YR 3/1	45	10 YR 5/8	10				sandy
12-18"	10 YR 3/3	45						

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.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- 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) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

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)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- 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)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

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 – Western Mountains, Valleys, and Coast Region

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-10
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.511272 Long: -111.428843 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: R4SBC

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?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>50</u> x 2 = <u>100</u>
4. _____				FAC species <u>50</u> x 3 = <u>150</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>250</u> (B)
				Prevalence Index = B/A = <u>2.5</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Grasses*</u>	<u>40</u>		<u>FAC</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>50</u>		<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Smooth horsetail (Equisetum laevigatum)</u>	<u>10</u>		<u>FACW</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
*Field has been grazed so grass identification is difficult. Grasses identified in the surrounding area include: Timothy grass (Phleum pratense) (FAC); quack grass (Elymus repens) (FAC); and Meadow foxtail (Alopecurus pratensis) (FAC)				

SOIL

Sampling Point: SP-10

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		
0-9"	10 YR 2/1	100						

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.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- 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) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Stones
Depth (inches): 9"

Hydric Soil Present? Yes No

Remarks:

Location of sampling point (along a stream) and vegetation identified on site lead to an assumption of hydrologic soil.

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)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- 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)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): 9"
 (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 – Western Mountains, Valleys, and Coast Region

Project/Site: Heber High School City/County: Heber/Wasatch Sampling Date: 7/11/19
 Applicant/Owner: Wasatch School District State: UT Sampling Point: SP-11
 Investigator(s): C. Easton/D. Jacobson Section, Township, Range: 31, 3 South, 5 East
 Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): Rocky Mountain Forests and Rangeland Lat: 40.509359 Long: -111.427553 Datum: UTM
 Soil Map Unit Name: Crooked Creek Clay Loam NWI classification: R4SBC

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?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>N/A</u>				Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. <u>N/A</u>				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>45</u> x 2 = <u>90</u>
4. _____				FAC species <u>0</u> x 3 = <u>0</u>
5. _____				FACU species <u>55</u> x 4 = <u>220</u>
_____ = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
				Column Totals: <u>100</u> (A) <u>310</u> (B)
				Prevalence Index = B/A = <u>3.1</u>
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators:
1. <u>Houndstongue (Cynoglossum officinale)</u>	<u>25</u>		<u>FACU</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Baltic rush (Juncus arcticus ssp. litoralis)</u>	<u>45</u>		<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Lambsquarters (Chenopodium album)</u>	<u>25</u>		<u>FACU</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
4. <u>Dandelion (Taraxacum officinale)</u>	<u>5</u>		<u>FACU</u>	<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹
6. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. _____				Yes <input type="checkbox"/>
2. _____				No <input checked="" type="checkbox"/>
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: SP-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		
0-18"	10 YR 3/2	100						

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) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) **(LRR A)**
- Frost-Heave Hummocks (D7)

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: