



P. O. Box 8578, 140 E. Broadway, Suite 23, Jackson, Wyoming 83002; voice: (307) 733-4216 • fax: (307) 733-1245

March 29, 2016

Thomas Johnson
US Army Corps of Engineers
Wyoming Regulatory Office
2232 Dell Range Blvd., Suite 210
Cheyenne, Wyoming 82009-4942

Subject: Pre-Construction Notification –South Park Loop Pathway Connector Project

Dear Mr. Johnson:

Biota Research and Consulting, Inc. has been retained, through the prime project consultant Nelson Engineering, to obtain authorization for impacts to wetlands and other waters associated with the South Park Loop Pathway Connector project in Teton County, Wyoming. The proposed project is the final remaining pathway segment to be completed in the South Park Loop pathway network and will connect the south end of 3 Creek Ranch to the west end of Melody Ranch (Attachment 1-Exhibits 1 and 2). The pathway will have a 10-foot wide running surface and will be approximately 1.9 miles long. The proposed pathway alignment is located entirely within the South Park Loop Road right-of-way. The pathway segment will connect to the existing pathway on the south side of South Park Loop at Cortland Drive and head west. It will remain on the south side of the road for approximately 0.5 miles before crossing to the north side of South Park Loop. From this point the pathway will head west and north to just north of Grand Teton Circle, where it will cross to the west side of South Park Loop and tie back in to the existing pathway on the south end of 3 Creek Ranch.

A wetland delineation was performed by Asset Environmental within the southeastern portion of the project area in September 2013, and wetland delineation work within the remainder of the project area was completed by Alder Environmental in November 2015. Several areas within the project area met the definitional criteria for wetlands per the 1987 US Army Corps of Engineers (USACE) Manual and the 2010 USACE Regional Supplement for the Western Mountains, Valleys and Coast Region (Version 2.0). In addition, several irrigation ditches flow through the eastern portion of the project area. The Asset Environmental wetland delineation report is presented in Attachment 2, and supplemental wetland determination data forms, exhibits, and photographic documentation produced by Alder Environmental are presented in Attachment 3.

This letter serves as a pre-construction notification (PCN) for wetland and surface water impacts associated with construction of the South Park Loop Pathway Connector project. The general pathway design calls for a separation of 6 feet or more between the South Park Loop road surface and proposed pathway; however, at the wetland crossings, the pathway alignment has been designed per the AASHTO Design Guideline (i.e., a minimum distance of five feet from the edge of a paved road) to minimize impacts

to wetlands and other potential Waters of the U.S. as required by the Clean Water Act. To further minimize wetland disturbance, the shoulder has been narrowed to 2 feet with 2:1 side slopes at the wetland crossings. These design modifications will minimize lateral encroachment into the wetland areas and reduce wetland impacts; however, the project will result in 0.06 acres of impact to wetlands associated with irrigation ditches in the Wilson Ditch and Susannah Slough networks (Attachment 1-Exhibit 3).

The impacted wetlands appear to be supported by irrigation activities, but they are likely to be considered Waters of the U.S. due to a downstream nexus with the Snake River, a traditional navigable waterway. Proposed wetland and watercourse impacts listed in Table 1 and described below are necessary in order to achieve project goals and objectives.

Approximately 139 cubic yards of fill will be placed in wetlands to construct the pathway segment, resulting in 2,810 sq ft of wetland impact (Table 1; Attachment 1-Exhibits 3 and 4). In addition, it will be necessary to extend the existing culverts under South Park Loop for 8 irrigation ditch crossings, which will result in approximately 435 sq ft of impact to these ditches. Fill will be comprised of pit run, culverts, crushed aggregate, and asphalt (see typical section provided by Nelson Engineering presented in Attachment 1-Exhibit 5). Silt fence will be installed and best management practices will be utilized to prevent sediment from moving off site and protect water quality in adjacent waterbodies. Pathway construction will involve the use of heavy equipment, including an excavator, loader, drum roller, and haul trucks. All temporary impacts will be fully reclaimed and revegetated upon project completion.

Table 1. Summary of wetland impacts resulting from construction of the South Park Loop Pathway Connector Project, Teton County, Wyoming.

Wetland Impact Area	Wetland Impacts	
	Area (Sq Ft)	Fill (Cu Yds)
Impact Area #1	540	32
Impact Area #2	1,980	98
Impact Area #3	290	9
Total	2,810	139

Please review this information and determine if proposed activities can be authorized under Nationwide Permit 14. Original correspondence can be sent to Jackson Hole Community Pathways (c/o Mr. Brian Schilling, PO Box 3594, Jackson, WY, 83001), with copies sent to Biota and to Dave Dufault at Nelson Engineering (PO Box 1599, Jackson, WY 83001).

Sincerely,




Kent B. Werlin, PWS
Senior Wetland Scientist/Restoration Ecologist
kwerlin@biotaresearch.com

Xc: B. Schilling, Jackson Hole Community Pathways
D. Dufault, Nelson Engineering

Enclosures (3 Attachments)

ATTACHMENT 1-EXHIBITS

- 1) Location and topography of the South Park Loop Pathway Connector project area, Teton County, Wyoming.**
- 2) Site characteristics of the South Park Loop Pathway Connector project area, Teton County, Wyoming.**
- 3) Proposed wetland impact areas within the South Park Loop Pathway Connector project area, Teton County, Wyoming.**
- 4) Wetland impacts resulting from the construction of the South Park Loop Pathway Connector Project, Teton County, Wyoming. (Exhibit provided by Nelson Engineering).**
- 5) Typical Pathway Section, South Park Loop Pathway Connector Project, Teton County, Wyoming (Exhibit provided by Nelson Engineering).**

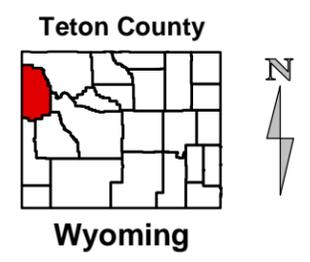
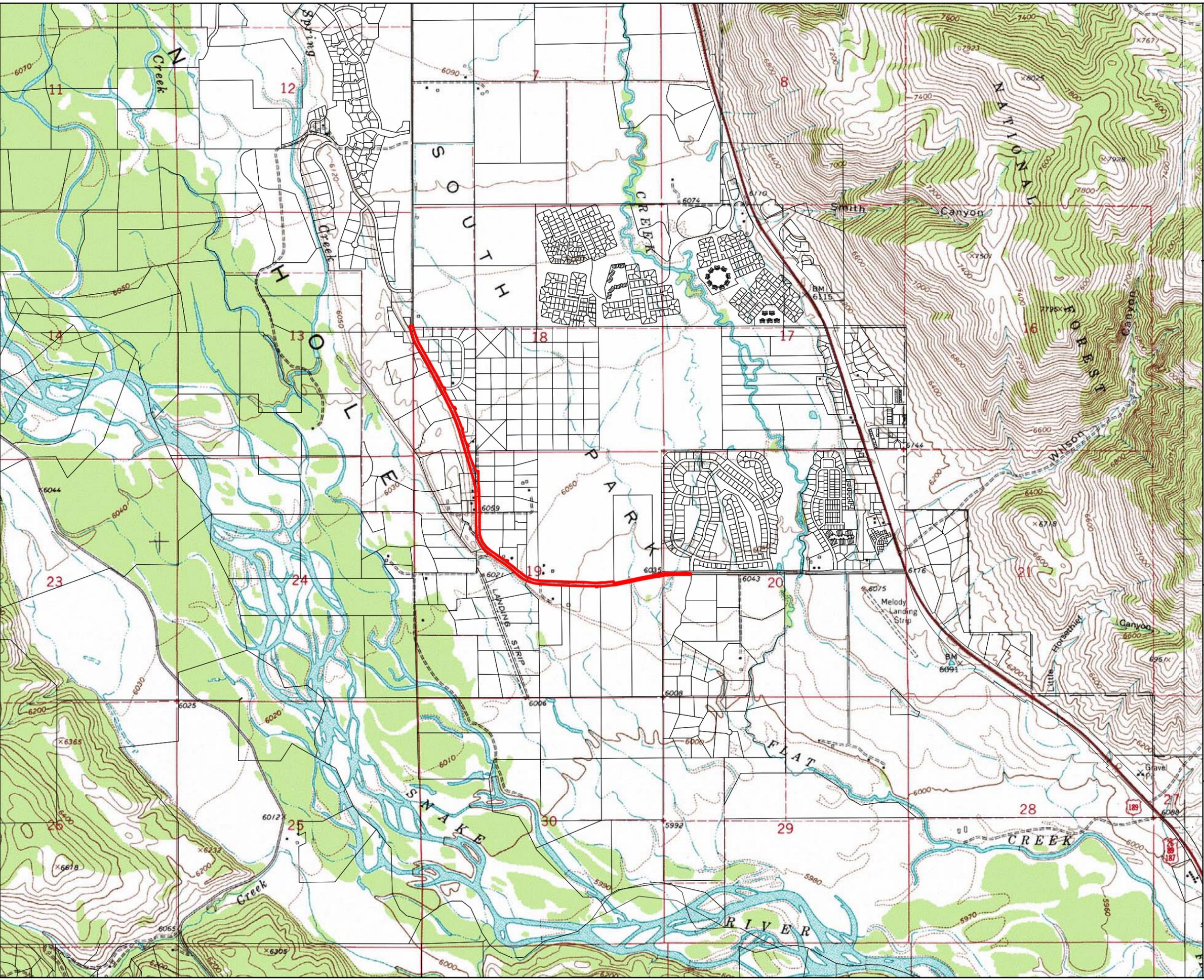
Exhibit 1
Location and topography of the South Park
Loop Pathway Connector project area,
Teton County, Wyoming.

March 29, 2016

Approximate Scale: 1 inch = 2,000 feet

Legend

-  Project Area
-  Platted Parcels



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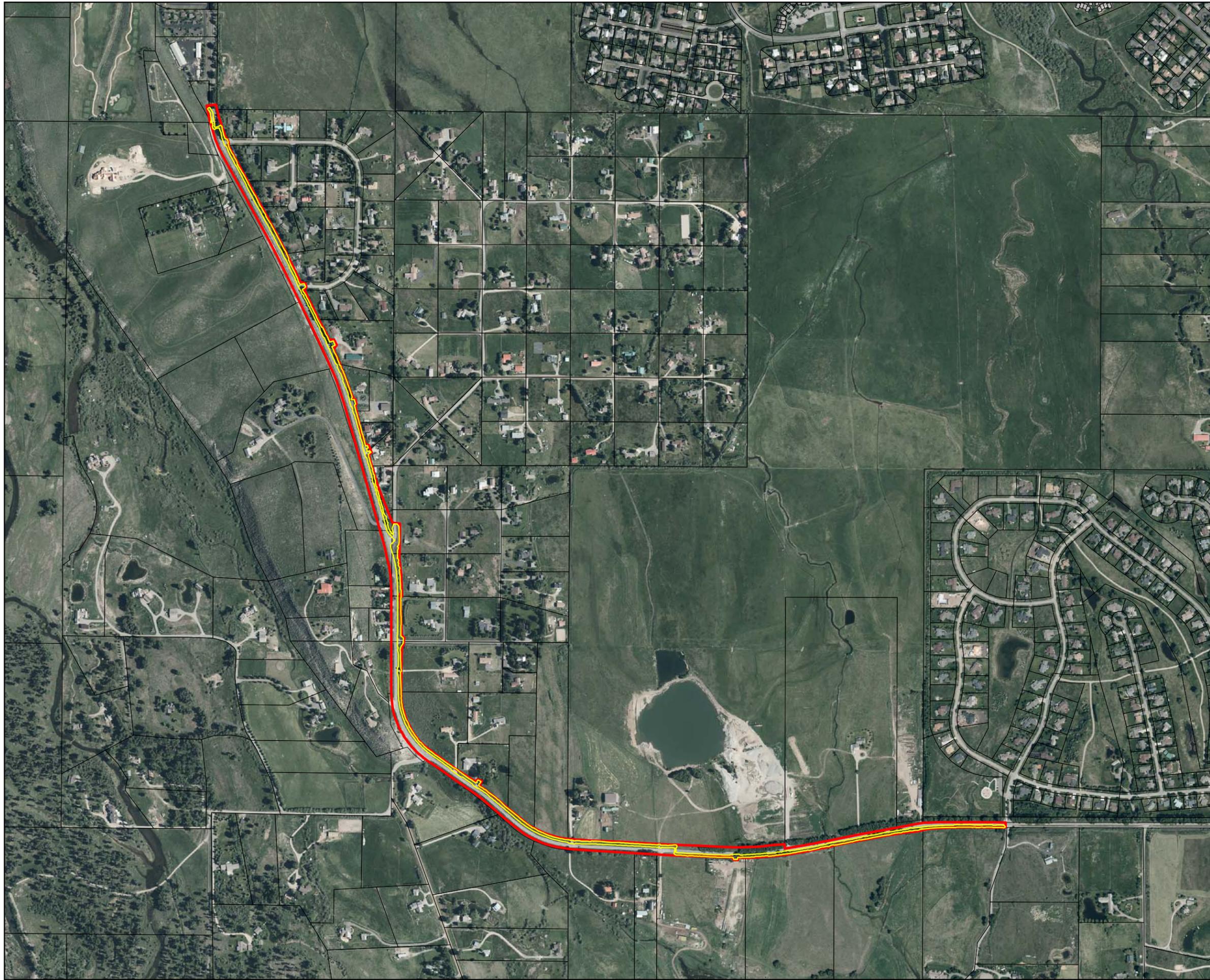


Exhibit 2
Site characteristics of the South Park
Loop Pathway Connector project area,
Teton County, Wyoming.

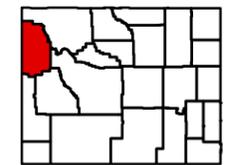
March 29, 2016

Approximate Scale: 1 inch = 700 feet

Legend

-  Project Area
-  Platted Parcels
-  Proposed Limits of Disturbance

Teton County



Wyoming

research & consulting inc.

Biota



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Exhibit 3
Proposed wetland impact areas within the South
Park Loop Pathway Connector project area,
Teton County, Wyoming.

March 29, 2016

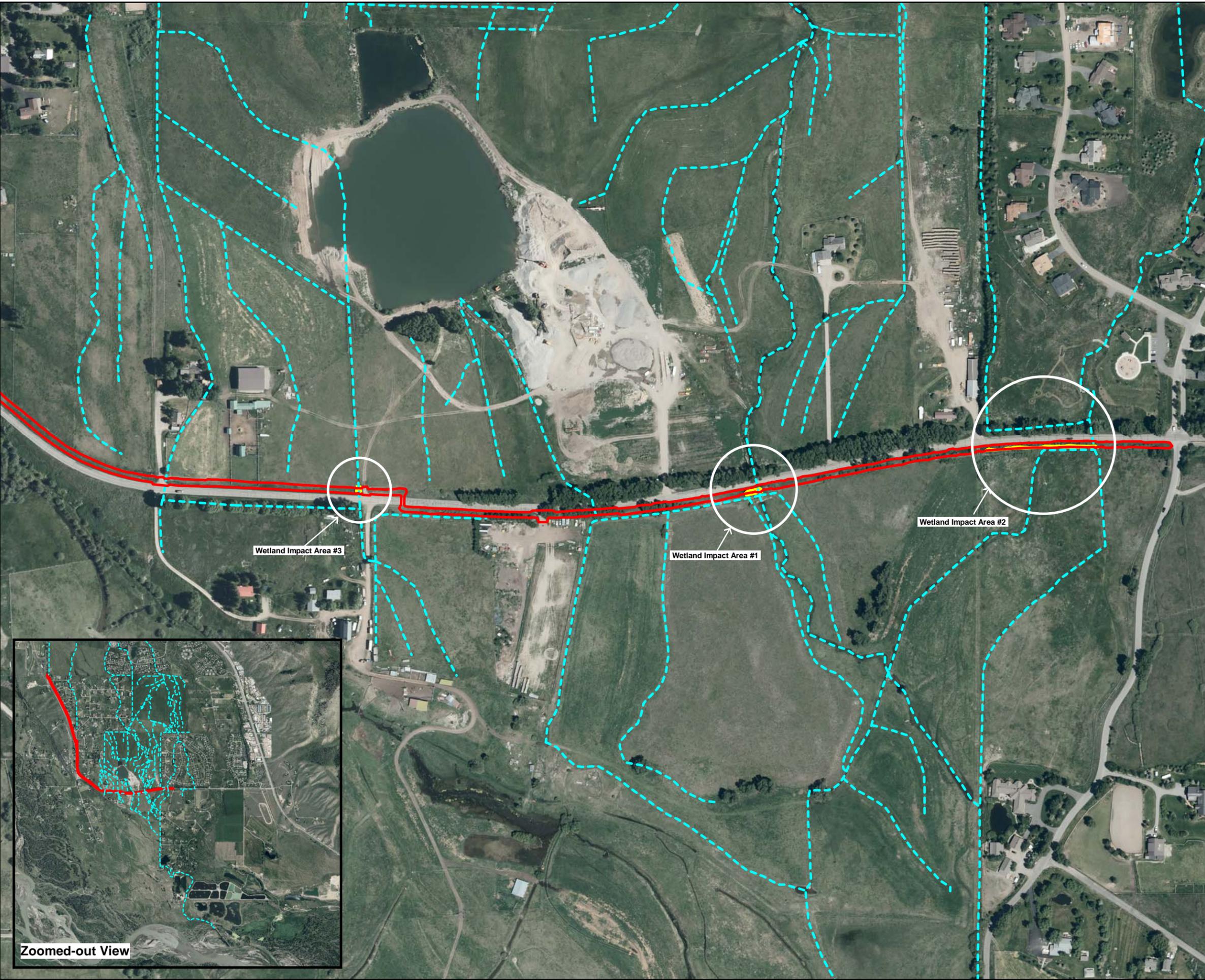
Approximate Scale: 1 inch = 300 feet

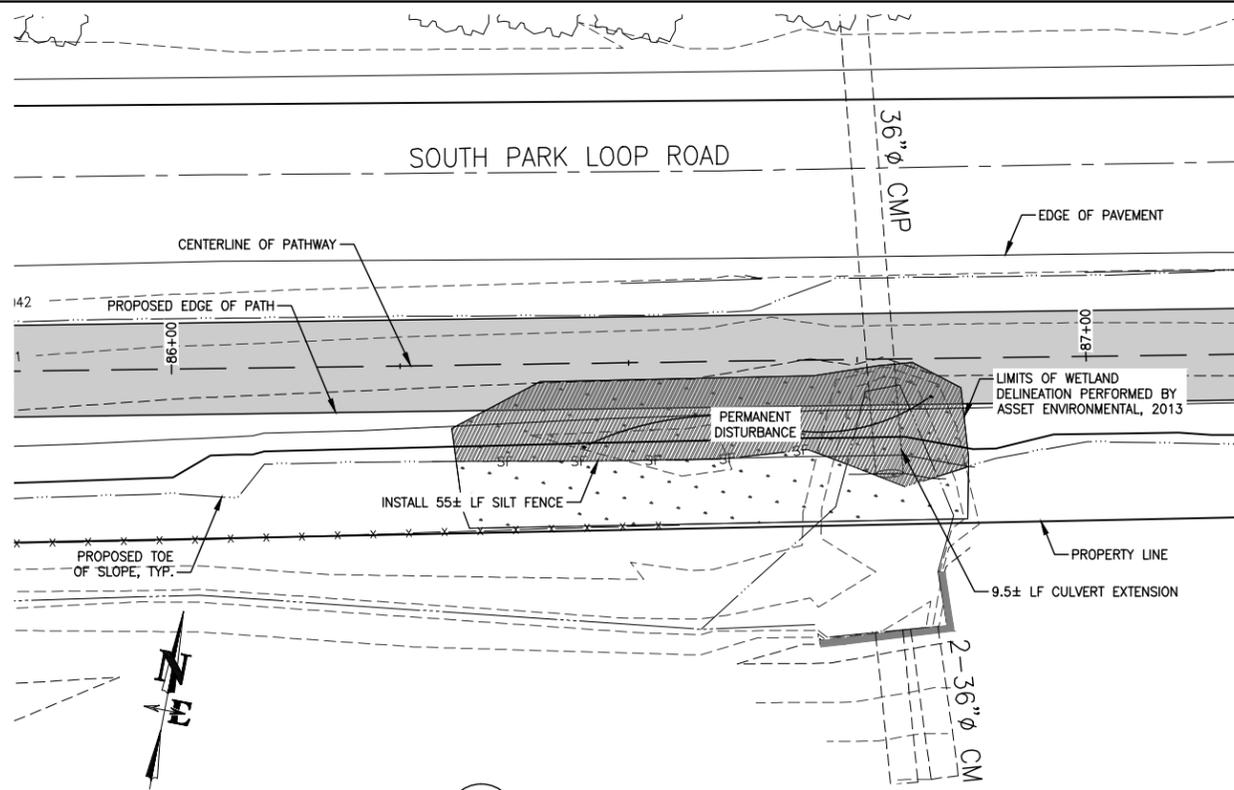
- Legend**
- Project Limits of Disturbance
 - Impacted Wetland
 - Irrigation Ditch

Impact Summary

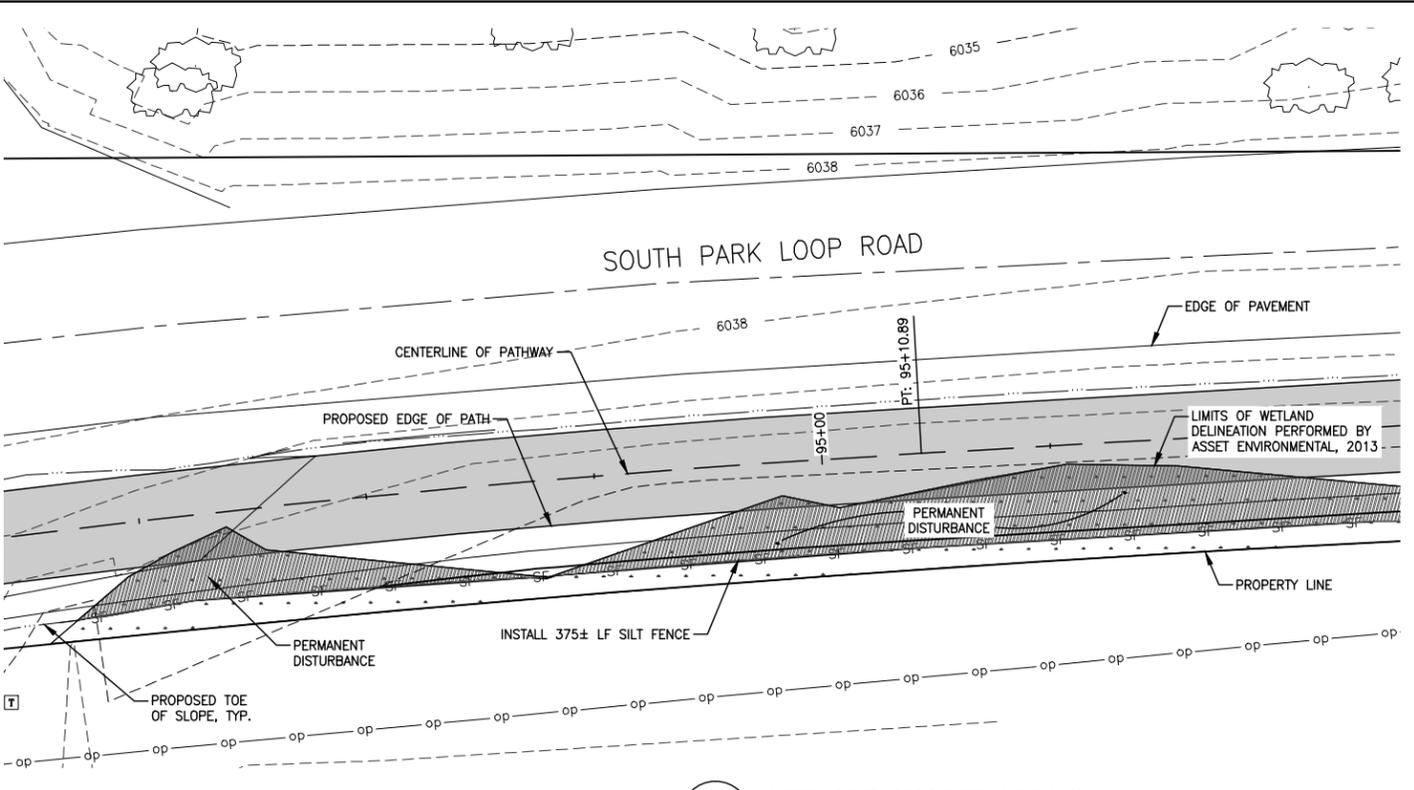
Wetland Impact Area #1 - 540 sf (32 cy of fill)
Wetland Impact Area #2 - 1,980 sf (98 cy of fill)
Wetland Impact Area #3 - 290 sf (9 cy of fill)

Total Wetland Impact - 2,810 sf (139 cy of fill)





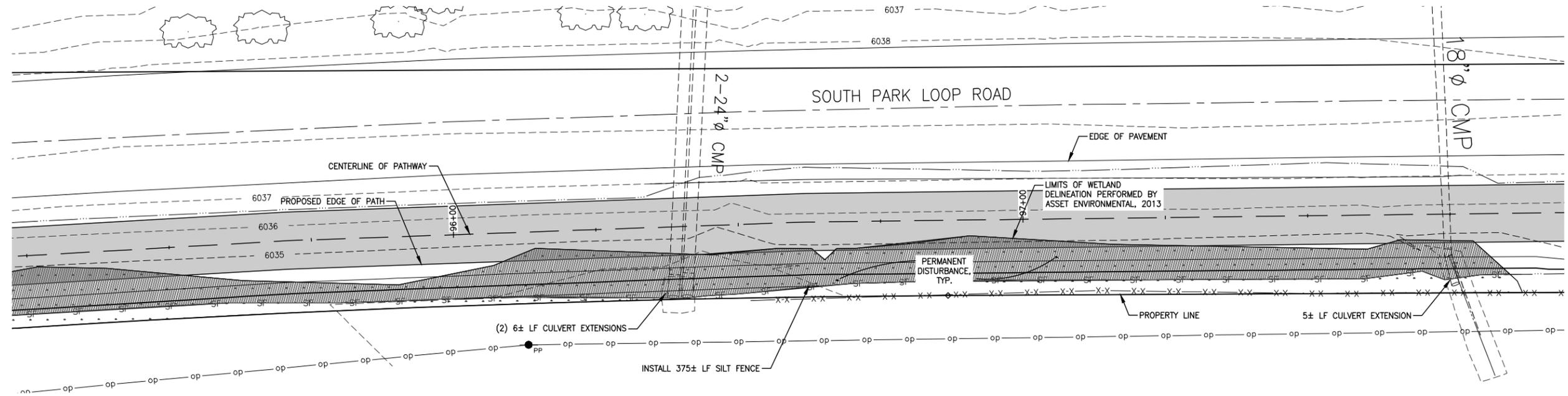
1 WETLAND IMPACT AREA 1
 EX Scale: 1"=20' (11x17)



2 WETLAND IMPACT AREA 2
 EX Scale: 1"=20' (11x17)

ESTIMATED QUANTITIES FOR PROPOSED PATHWAY WETLAND DISTURBANCE

AREA OF PERMANENT DISTURBANCE AREA 1	=	540	SQUARE FEET
VOLUME OF FILL AREA 1	=	32	CUBIC YARDS
LENGTH OF SILT FENCE AREA 1	=	55	LINEAR FEET
(1) 9.5'x36"Ø CMP CULVERT EXTENSION			
AREA OF PERMANENT DISTURBANCE AREA 2	=	1980	SQUARE FEET
VOLUME OF FILL AREA 2	=	98	CUBIC YARDS
LENGTH OF SILT FENCE AREA 2	=	375	LINEAR FEET
(2) 6'x24"Ø CMP CULVERT EXTENSIONS			
(1) 5'x18"Ø CMP CULVERT EXTENSION			

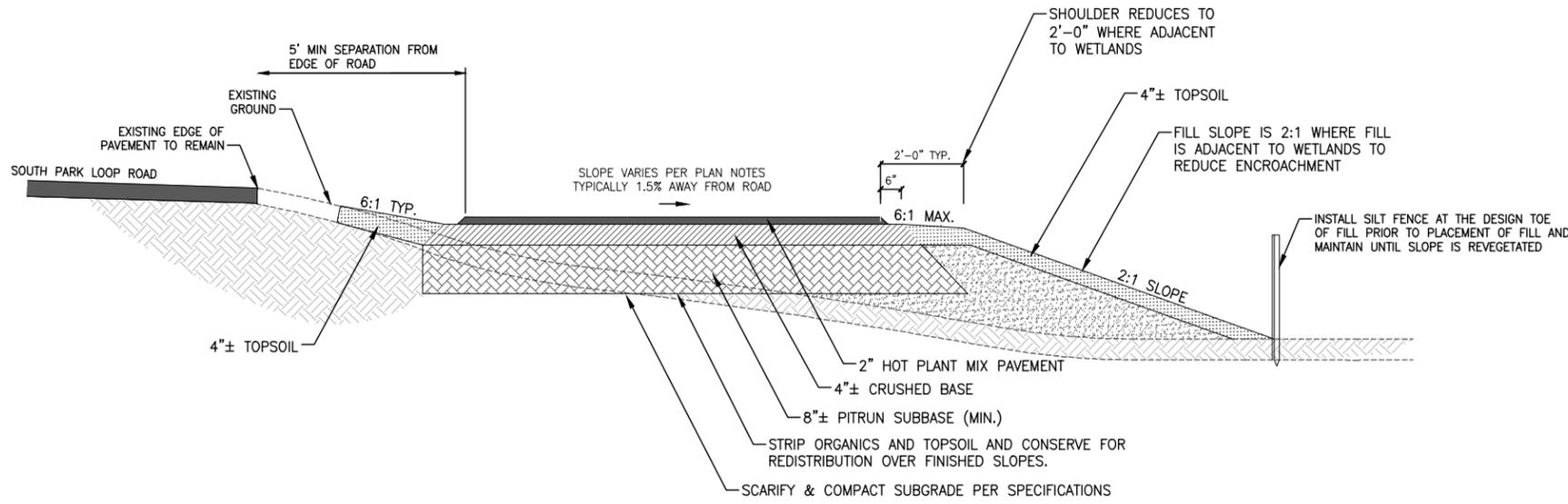


3 WETLAND IMPACT AREA 2 CONTINUED
 EX Scale: 1"=20' (11x17)

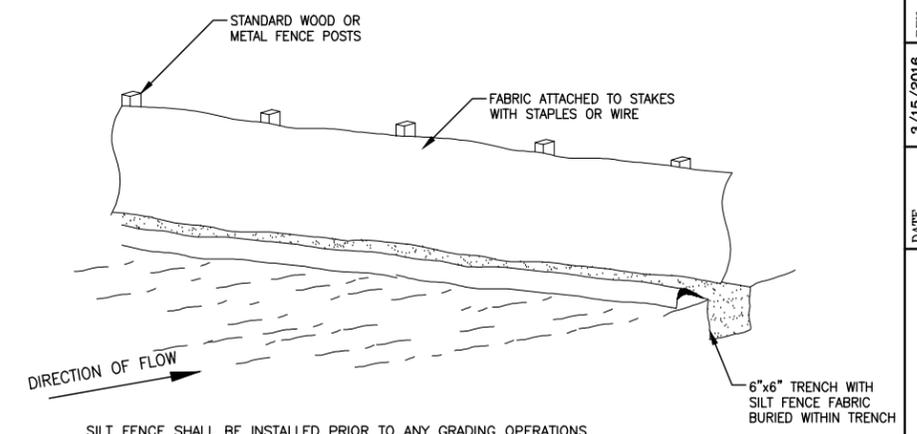
S:\p\p\BIB\057-02 Design - South Park Loop Pathway Connector\Drawings\Layout\Drawings\05 Pathway CL IS-80wg WETLAND CHITRY - Mar 15 2016 02:20:21 pm PLOTTED BY Lee DWG FIRM\151

DRAWING NO 1 OF 2	JOB NO 15-257-02	JOB TITLE SOUTH PARK LOOP CONNECTOR PATHWAY PROJECT TETON COUNTY, WY	DRAWING TITLE WETLAND ENCROACHMENT EXHIBIT	DATE 3/15/2016	SURVEYED	ENGINEERED	DRAWN	CHECKED	APPROVED
				REV.	NE	DD	AL	DD	DD

NELSON ENGINEERING
 P.O. BOX 1599, JACKSON WYOMING (307) 733-2087



1
EX PATHWAY SECTION: ADJACENT TO WETLAND



2
EX SILT FENCE DETAIL

S:\p\2015\257-02 Design - South Park Loop Pathway Connector\Drawings\DETAILS & SECTIONS.dwg (c)ETL&D SECTION2 - Nov 15 2016 08:55:55 pm PLOTED BY: Lee

DRAWING NO 2 OF 2	JOB NO 15-257-02	JOB TITLE SOUTH PARK LOOP CONNECTOR PATHWAY PROJECT TETON COUNTY, WY	DRAWING TITLE DETAILS	DATE	3/15/2016	REV.			
				SURVEYED	NE	ENGINEERED	NE	DRAWN	AL

NELSON ENGINEERING
P.O. BOX 1599, JACKSON WYOMING (307) 733-2087

ATTACHMENT 2
WETLAND DELINEATION REPORT (ASSET ENVIRONMENTAL)

**WETLAND DELINEATION REPORT
SOUTH PARK LOOP PATHWAY PROJECT
JACKSON, TETON COUNTY WYOMING**



Submitted To:

Town of Jackson / Teton County
P.O. Box 1687
Jackson, Wyoming 83001

Attention: Mr. Brian Schilling

Project No. AWY-1330

3 October 2013

By: Kathryn G Lane
Katie Lane
Senior Biologist

Reviewed By: Elizabeth Ann Patton
Elizabeth Ann Patton, P.G.
Manager, Investigative Services



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FIGURES

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APPENDICES

- Appendix A Glossary of Wetland Terminology
- Appendix B Wetland Delineation Field Data Forms
- Appendix C Selected Reference Data

1.0 PURPOSE AND ORGANIZATION OF REPORT

This report is prepared for the Town of Jackson and Teton County (TOJ/TC) to identify/delineate boundaries of wetlands in an area along the south side of South Park Loop Drive south of Jackson, Wyoming. This delineation report provides the required documentation for routine small area wetland boundary determinations in conformance with Section 404 of the Clean Water Act. This report presents the results of sampling activities at the referenced area. Please refer to Appendix A for definitions of commonly used wetland terminologies.

2.0 SITE INFORMATION AND LEGAL DESCRIPTION

The subject project area (according to TOJ/TC) measures approximately 3300 linear feet along the south side of South Park Loop Drive between the edge of the road and the right-of-way (ROW) line (as approximated by the existing fence line south of the road). The linear extent project area boundary is from the end of the existing bike pathway at Cortland Drive, west to the point where South Park Loop Drive begins to curve north approximately at the driveway accesses to the Lucas and Seherr-Thoss properties.

The project area is located west of Highway 26/89/191 and approximately 5 miles south of the town of Jackson, Wyoming, within Teton County. The project area setting is comprised of: a busy rural, paved, two-lane roadway which slopes outward and downward to private fences lined with cottonwood trees, willow trees and shrubs, sagebrush, and a variety of grasses. Irrigation ditches cross South Park Loop Drive in several places in the project area which support adjacent private pastureland and landscape businesses. Flat Creek flows north to south approximately 0.40 mile east of the project area and eventually discharges into the Snake River southeast of the project area. The Snake River flows north to south approximately 0.58 mile west of the project area. The project area is located in the 6th Principal Meridian as follows:

- North half of the southeast quarter of Section 19, Township 40 North, Range 116 West, and
- Northwest quarter of the southwest quarter of Section 20, Township 40 North, Range 116 West.

Figure 1 shows a topographic map of the project vicinity.

2.1 Project Description

A bike/pedestrian pathway was previously constructed along the south side of South Park Loop Drive and is intended to be extended with this project. The TOJ/TC plans to construct the remaining 3300 linear feet of pathway in 2014. This delineation and report are for aiding in determining if wetlands may exist in the project area which would be subject to mitigation under Teton County land development regulations or U.S. Army Corps of Engineers (USACE) permitting for federally funded linear transportation projects, as per wetland definitions in the appropriate Regional Supplement to 1987 USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and in compliance with Section 404 of the Federal Clean Water Act.

Due to the seasonally ponding nature of, and adjacent irrigation practices near the project area, Asset Environmental Services II, LLC (Asset) was consulted to delineate wetland boundaries within the project footprint.

2.2 Habitat Description

The project area is a linear transportation ROW south of a busy rural roadway and is relatively flat terrain with drainage depressions typical of roadway toeslope construction. There are several irrigation ditch/culvert crossings, some of which contained water at the time of field survey and were vegetated with predominantly facultative wetland species. The average elevation, based on local topographic maps, is approximately 6,036 feet above mean sea level (amsl). The primary vegetative habitat in the area is homogenous throughout and consists of mostly facultative willow/shrub and grassland habitat with some fringe upland vegetation such as sagebrush varieties. Willows (*Salix exigua*) and Cottonwood (*Populus augustifolia*) are the dominant shrub/tree species in the area. The understory is comprised predominantly of grasses, including species of bromes, wheatgrasses, canarygrass, and others.

3.0 WETLAND INVESTIGATION METHODS

3.1 Preliminary Investigation

Wetlands – Prior to fieldwork, potential wetlands were identified within the project area using National Wetlands Inventory (NWI) maps (Figure 2), aerial photography (Figures 5 and 6), and USGS 7.5 minute topographic maps.

NRCS Soil Survey and Aerial Photography – Aerial photographs (dated 1994 and 2006) were also examined to evaluate the area for potential wetlands (Figure 5 and 6, respectively).

Hydrology – Site-specific hydrologic data was collected during the field survey.

Vegetation – Site-specific vegetation data (e.g., dominant species) was recorded during the field survey.

3.2 On-site Wetland Determinations

Using standard delineation procedures described in the Regional Supplement to the 1987 Army Corps of Engineers Wetland Delineation Manual (USACE 1987): Western Mountains, Valleys and Coast Region (USACE 2010), Asset conducted a routine small area wetland delineation of the project area with an on-site inspection on 17 and 19 September 2013 (between rain storms typical for the time of year). See Figures 3 and 4 for a reference of sample point locations.

General site conditions were first observed and evaluated by walking the project area to identify plant communities and dominant plant species, and to identify wetland classification types. Then, a total of four (4) sample points were chosen and analyzed for wetland delineation/determination. These points were sampled using a hand soil auger and spade shovel to analyze soil profile samples down to 22 inches below ground surface (bgs) or depth of refusal, whichever was reached first. A wetland delineation data form was completed for each sample point (Appendix B).

The sample points were evaluated by examining and documenting three technical criteria. A combination of hydrophytic vegetation, hydrology, and hydric soil criteria defines

wetlands as described in the National Food Security Act Manual (Soil Conservation Service, 1994) and the USACE's Wetlands Delineation Manual Regional Supplement. Therefore, for an area to be considered a wetland, it must display each of the following: (a) dominant vegetation that is considered hydrophytic by accepted classification indicators, (b) indications of wetland hydrology (e.g. drainage patterns, saturation or inundation in the upper 12 inches of soil, etc.), and (c) soils that are considered hydric. A hydric soil is defined as a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the uppermost soil horizon that favor the growth and regeneration of hydrophytic vegetation. Hydrophytic vegetation includes plant species specially adapted for saturated and/or anaerobic conditions and have the ability to grow, compete, reproduce and thrive in anaerobic soil. The USACE and the U.S. Fish and Wildlife Service (USFWS) have assigned a wetland indicator status to many plant species based on the estimated probability of the species existing under wetland conditions. Plants are categorized as Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Species with an indicator status of OBL, FACW, or FAC are considered to be adaptive to saturated and/or anaerobic (i.e. wetland) conditions and are referred to as hydrophytic vegetation (refer to Table 1 in Appendix C for full indicator status definitions).

Plant communities and dominant plant species within each community were identified, via ocular estimation of percent cover, at each sample point and within representative sampling "plots", to determine the presence/absence of hydrophytic vegetation. Refer to the field data forms in Appendix B for sample plot size for each vegetation strata (e.g., tree, shrub, herb, etc). Plants were then classified by their wetland indicator status, utilizing the US Department of Agriculture, Natural Resources Conservation Service Plants Database regional indicator designation (USDA, NRCS 2009) and a prevalence cover percentage by indicator status was calculated for additional verification of dominance.

Sample points were then evaluated for wetland hydrology and hydric soil characteristics (e.g., mottling, gleying, and saturation). Wetland hydrology was evaluated by investigating geomorphic and hydrologic characteristics. The major soil horizons for the soils within this project area were evaluated for texture, variables of color (hue, value, and chroma according to the Munsell Soil Color Book, 2000), and other wetland soil indicators (such as oxidized root channels, organic streaking, etc.).

4.0 RESULTS

The following analysis is provided for further contact with USACE personnel but does not constitute the final assessment of the wetland delineation. Only the USACE can provide the final determination. Wetland delineation boundaries which were flagged by Asset, will be surveyed by a professional engineering firm and, as such, mapped by that firm. Please refer to engineering drawings for delineated wetland boundaries.

4.1 Preliminary Data Analysis

NWI – The NWI map (Figure 2) indicates that there is predominantly one wetland type within the project area. This wetland is classified as a freshwater emergent wetland type (Palustrine Emergent Seasonally Flooded [PEMC]). The wetland habitat classification system is included in Appendix C.

Aerial Photography – Aerial photography (dated 1994 and 2006) obtained from Google Earth, indicates that the project area is comprised mostly of range and pastureland habitat with increasing anthropomorphic disturbances and influences. See Figures 5 and 6.

4.2 Waters of the U.S.

Although there is not any named creek which flows through the project area, Flat Creek (a tributary to the Snake River) flows north to south just east of the project area. The Snake River, and its oxbow meanders, flow north to south just west of the project area. Several irrigation ditches connected to this river system are located within the project area. Both Flat Creek and the Snake River, as well as the irrigation ditches, were flowing at the time of the September 2013 survey.

4.3 Potential Wetlands

Four sample points were examined during the survey. A summary of each sample point is given below and the sites are identified in Figures 3 and 4. Photographs of each sample point are included in Section 6.0 and the wetland delineation forms for each sample point are included in Appendix B. All sample points were located south of South Park Loop Drive and north of the fence line (which designates the edge of the transportation ROW). Additionally, active irrigation ditch/culvert crossings with ponded and flowing water were thickly vegetated with predominantly facultative wetland species and, as such, their fringe edges appear to possibly qualify as wetland. See pictures P7 and P8 in Section 6.0 of this report.

Sample Point 1 (Plot ID #1)

This sample point was located on the east end of the project area approximately 252 feet west of Cortland Drive. This location was chosen to verify wetland status due to its proximity to adjacent road disturbance and pastureland. The dominant vegetation species at this sample point include: willow (*Salix exigua*) (FacW), cottonwood (*Populus augustifolia*) (FacW), smooth brome (*Bromus inermis*) (Fac), and canarygrass (*Phalaris arundinacea*) (FacW). Other non-dominant vegetation growing in this sample point area included roadside wheatgrasses (which did not have an indicator status listed for the region). While this sample point appeared to be dominated by hydrophytic vegetation species, the soil lacked hydric characteristics and wetland hydrology indicators were also absent at the time of survey. Due to the lack of primary wetland indicators, the habitat at this sample point does not appear to qualify as a wetland.

Sample Point 2 (Plot ID #2)

This sample point was located on the east end of the project area, approximately 133 feet west of Sample Point 1. This location was chosen to verify wetland status due to an increase in percent cover of potential hydrophytic vegetation. The dominant vegetation species at this sample point were similar to Sample Point 1 and include: willow (*Salix exigua*) (FacW), smooth brome (*Bromus inermis*) (Fac), canarygrass (*Phalaris arundinacea*) (FacW), and slender wheatgrass (*Elymus trachycaulus*) (Fac). Other non-dominant vegetation growing in this sample point area included roadside wheatgrasses (which did not have an indicator status listed for the region). This sample point is dominated by hydrophytic vegetation species. In addition, the soil exhibited hydric characteristics, mottling, and contained oxidized root channels. Due to the presence of hydrophytic vegetation, wetland soil, and hydrology, the habitat at this sample point does appear to qualify as a wetland.

Sample Point 3 (Plot ID #3)

This sample point was located towards the west end of the project area, approximately 1443 feet east of Sample Point 4. This location was chosen to verify wetland status due to its proximity to an adjacent irrigation ditch. The dominant vegetation species at this sample point included: willow (*Salix exigua*) (FacW), smooth brome (*Bromus inermis*) (Fac), canarygrass (*Phalaris arundinacea*) (FacW), and slender wheatgrass. Other non-dominant vegetation growing in this area included roadside wheatgrasses. This sample point is dominated by hydrophytic vegetation species. In addition, the soil contained aquatic invertebrates therefore aquatic conditions can be assumed. Due to the presence of dominant hydrophytic vegetation, wetland soil, and hydrology, the habitat at this sample point does appear to qualify as a wetland.

Sample Point 4 (Plot ID #4)

This sample point was located on the west end of the project area near its terminus. This location was chosen to verify wetland status as it contained slightly dissimilar vegetation and coverage. The area between this sample point east toward Sample Point 3 had significant disturbance influences from the road and adjacent land practices. The dominant vegetation species at this sample point included: cottonwood (*Populus angustifolia*) (FacW), smooth brome (*Bromus inermis*) (Fac), intermediate wheatgrass (*Thinopyrum intermedium*) (NI). Other non-dominant vegetation growing in this sample point area included roadside wheatgrasses. While this sample point is somewhat dominated by vegetation species which may exist under wetland conditions, the soil lacked both hydric characteristics and wetland hydrology. Due to the lack of primary wetland indicators, the habitat at this sample point does not appear to qualify as a wetland.

5.0 CONCLUSIONS

Portions of the project area identified would fall under the USACE jurisdiction as it maintains a surface hydrological connection (via irrigation drainages and pasturelands) to extensions of Flat Creek and the Snake River. Portions of this project area do appear to qualify as wetland under standard delineation procedures described in the 1987 Army Corps of Engineers Wetland Delineation Manual (USACE 1987) for a small area routine delineation. If impacts, including discharge of dredge or fill material into jurisdictional waters are proposed, a permit should be obtained from the USACE. If proposed impacts are less than 0.5 acre, authorization under a Nationwide Permit (NWP) would likely apply. If impacts are greater than 0.5 acre, an individual 404 permit may be necessary. State 401 water quality certification and appropriate soil erosion and sediment controls may apply regardless of direct wetland impacts. The amount of impact can be determined once the delineated areas are surveyed and mapped by a professional engineering company.

6.0 AREA PHOTOGRAPHS



P1. View of Sample Pit #1 facing south toward private fenceline/edge of ROW.



P2. View of Sample Pit #2 facing south-southwest toward fenceline/edge of ROW.



P3. View of Sample Pit #3 facing south-southeast toward fenceline/edge of ROW. Active, flowing, irrigation ditch located just on opposite side of fence.



P4. View of soil from Sample Pit #3. Note presence of aquatic invertebrates throughout.



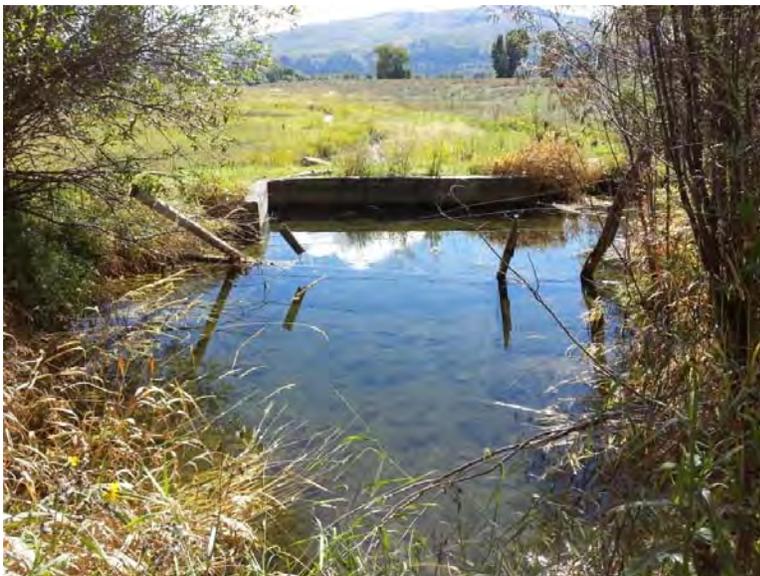
P5. View of Sample Pit #4 facing south.



P6. Another view of Sample Pit #4 facing west.



P7. View of western-most irrigation ditch/culvert crossing, facing south. Private drive off to the left hand side of the picture.



P8. View of another irrigation ditch/culvert crossing east of the crossing in picture #7.

7.0 LIMITATIONS

This report was prepared for the use of Town of Jackson and Teton County and their assigns exclusively. Our services were performed consistent with our agreement with our client. The conclusions provided by Asset are based solely on the information presented in this report. Opinions and recommendations contained in this report apply to conditions existing when our services were performed and are intended only for the use of our clients, unless a written release is obtained from Asset. Furthermore, we are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to the performance of our services. Asset also does not warrant the accuracy of information supplied by others nor the use of segregated portions of this report. The nature and extent of subsurface variations across the site may not be evident based on the information collected and presented herein. Environmental conditions may exist at the site that cannot be identified by visual observation.

8.0 REFERENCES

Munsell Color Book. 1998. Munsell Soil Color Charts. GretagMacbeth, New Windsor, New York.

USACE, 2010. U.S. Army Engineer Research and Development Center Technical Report 10-3. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

--- 1987. U.S. Army Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1, Vicksburg, MS.

USDA, NRCS. 2013. The PLANTS Database (<http://plants.usda.gov>, 30 September 2013). National Plant Data Team, Greensboro, NC 27401-4901 USA.

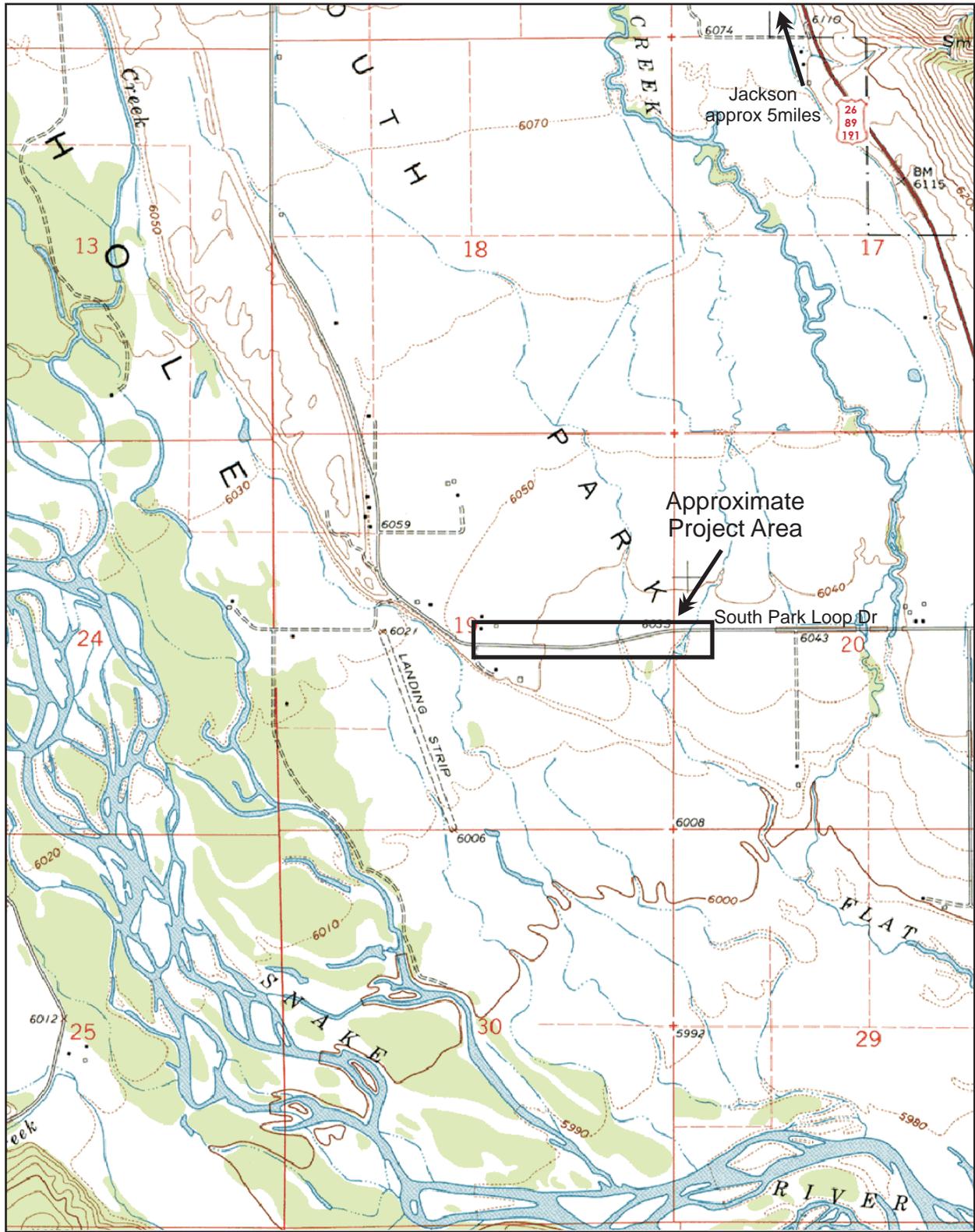
--- Soil Survey Staff. Official Soil Series Descriptions. Available online at <http://soils.usda.gov/technical/classification/osd/index.html> accessed 10 September 2013.

--- Farm Service Agency, 2006. Color aerial imagery via Google Earth.

--- National Water and Climate Center, WETS Station Data for Teton County, Wyoming.

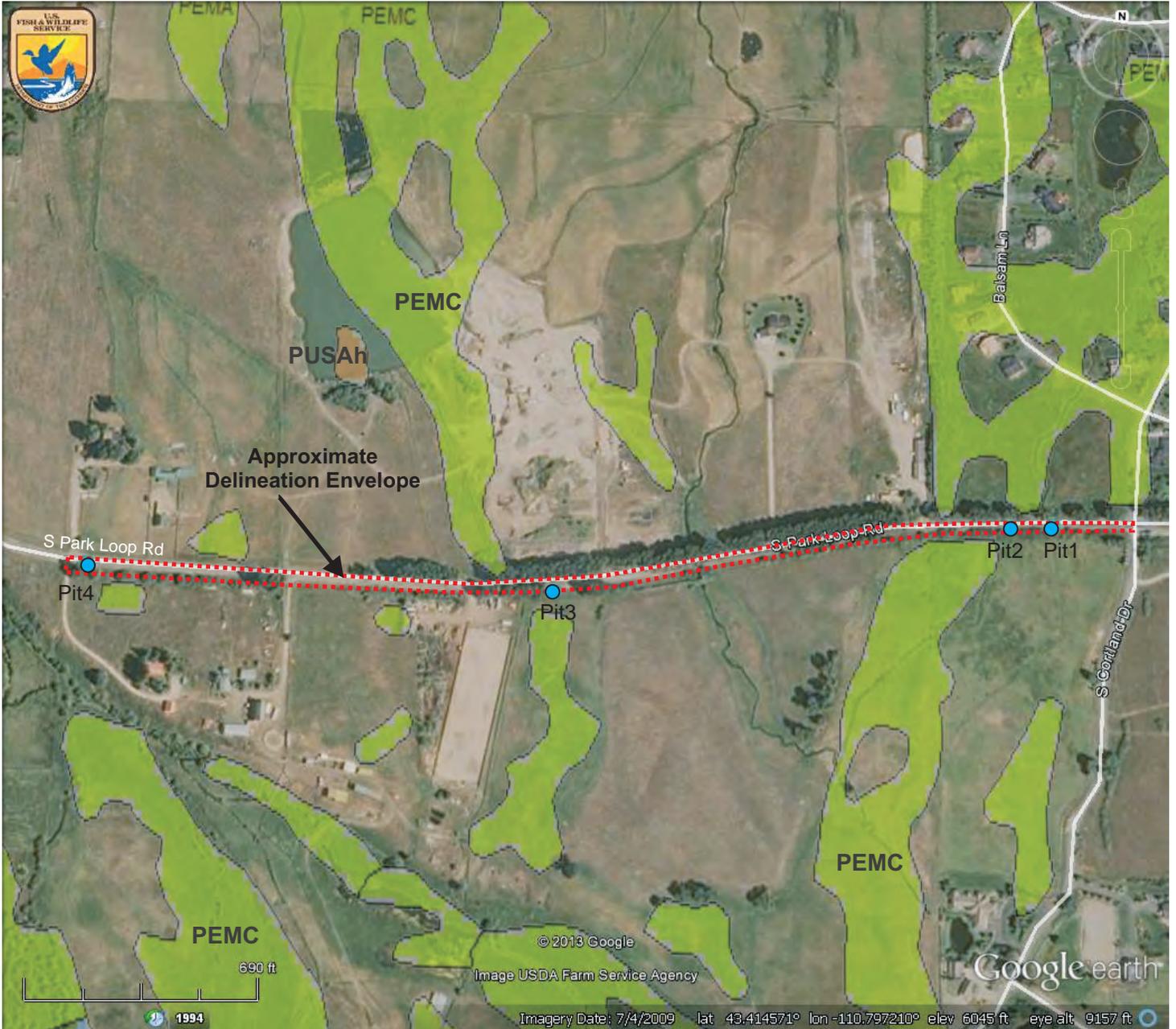
USGS, 1994. Black and white aerial imagery via Google Earth.

FIGURES



COPIED FROM USGS MAP:
 JACKSON, WYOMING
 DATED 1963

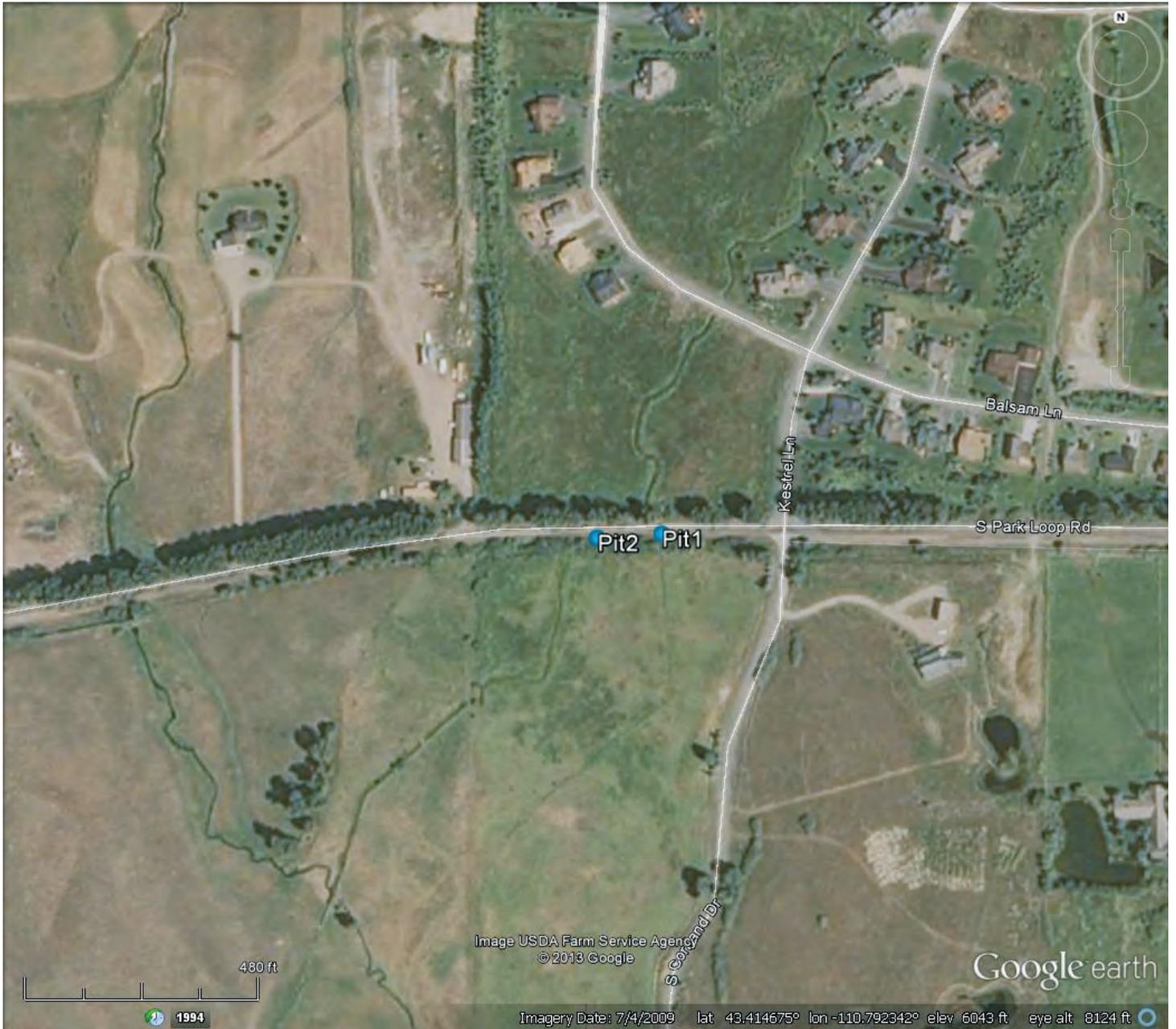




See Wetland Classification Codes in Appendix C of the Wetland Delineation Report for Wetland Types shown here.

COPIED FROM GOOGLE EARTH WITH THE FOLLOWING LAYERS:
 1. USFWS NATIONAL WETLAND INVENTORY DATA
 2. AERIAL IMAGERY (4 JULY 2009), USDA FARM SERVICE AGENCY





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AERIAL IMAGERY TAKEN 4 JULY 2009





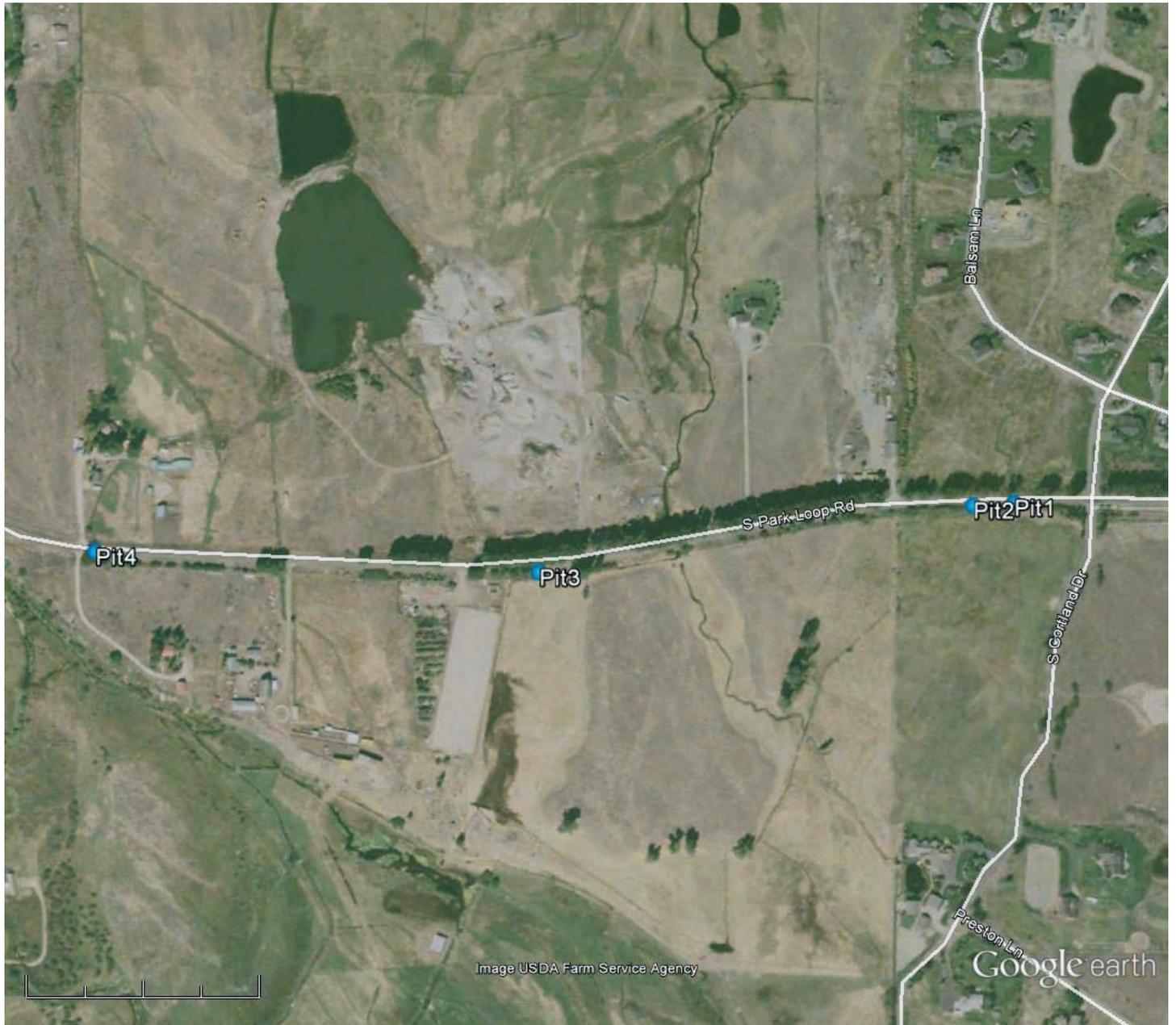
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APPENDIX A

GLOSSARY OF WETLAND TERMINOLOGY

GLOSSARY

Active water table: A condition in which the zone of soil saturation fluctuates, resulting in periodic anaerobic soil conditions. Soils with an active water table often contain bright mottles and matrix chromas of 2 or less.

Atypical situation: Areas in which one or more parameters (soil, hydrology, vegetation) have been sufficiently altered by recent human activities or natural to preclude the presence of wetland indicators.

Capillary fringe: A zone immediately above the water table (zero gauge pressure) in which water is drawn upward from the water table by capillary action.

Chroma: The relative saturation of a color; intensity if distinct hue as related to grayness; one of the three variables of color. Ranges from /0 (very grey) to /8 (true color).

Duration (inundation/soil saturation): The length of time during which water stands at or above the soil surface (inundation), or during which the soil is saturated; duration refers to a period during the growing season.

Flooded: A condition in which the soil surface is temporarily covered with flowing water from any source.

Gleyed: A soil condition resulting from prolonged soil saturation, which is manifested by the presence of bluish or greenish colors through the soil mass or in mottles among other colors. Gleying occurs under reducing soil conditions resulting from soil saturation, by which iron is reduced predominantly to the ferrous state.

Histic epipedon: An 8- to 16-inch-thick soil layer at or near the surface that is saturated for 30 or more consecutive days during the growing season in most years and contains a minimum of 20 percent organic matter when no clay is present or a minimum of 30 percent organic matter when 60 percent or more clay is present.

Hue: The primary or secondary color of the soil. A characteristic of color that denotes a color in relation to red, yellow, blue, and so forth; one of the three variables of color. Each color chart in the Munsell Color Book (1998) consists of a specific hue.

Hydric soil: A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the definition of hydric soils. Also, soils in which the hydrology has been artificially modified are considered to be hydric if the soil, in an unaltered state, was hydric (USDA, NRCS).

Hydrology: The science dealing with the properties, distribution, and circulation of water.

Hydrophytic Vegetation: Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats. Hydrophytic species, due to morphological, physiological, and reproductive adaptations, have the ability to grow, effectively compete, reproduce, and thrive in anaerobic

soil. The ACOE and the USFWS have assigned indicator status to many plant species based on the estimated probability of the species existing under wetland conditions. Plants are categorized as Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Species with an indicator status of OBL, FACW, or FAC are considered to be adaptive to saturated and/or anaerobic (i.e. wetland) conditions and are referred to as hydrophytic vegetation.

Inundation: A condition in which water from any source temporarily or permanently covers the surface of the land.

Mottles: Spots or blotches of different color or shades of color interspersed within the dominant color in a soil layer, usually resulting from the presence of periodic reducing soil conditions.

Poorly drained: Soils that are commonly wet at or near the surface during a sufficient part of the year such that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these conditions.

Reducing environment: An environment conducive to the removal of oxygen and chemical reduction of ions in the soil.

Routine wetland determination: A type of wetland determination in which office data or relatively simple, rapidly applied onsite methods are employed to determine whether or not an area is a wetland. Most wetland determinations are this type, which does not require the collection of quantitative data.

Soil: Unconsolidated mineral and organic material that supports, or is capable of supporting, plants, and which has recognizable properties due to the integrated effect of climate and living matter acting upon parent material, as conditioned by relief and time.

Soil horizon: A layer of soil or soil material approximately parallel to the land surface and differing from adjacent layers in physical, chemical, and biological properties or characteristics, such as color, texture, or structure.

Soil profile: A vertical section of a soil through all of its horizons and extending into the parent material.

Soil structure: The combination or arrangement of primary soil particles into secondary particles, units, or peds.

Soil texture: The relative proportion of the various sizes of particles in a soil.

Upland: Areas that do not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, or hydrologic characteristics associated with wetlands.

Value: A measure of darkness of the soil. The relative lightness or intensity of color approximately a function of the square root of the total amount of light reflected from a surface; one of the three variables of color. Ranges from 10/0 (pure white) to 5/0 (grey) to 0/0 (pure black).

Water table: The upper surface of groundwater or that level below which the soil is saturated with water.

Wetlands: Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support (and that under normal circumstances do support) a prevalence of vegetation typically adapted to life in saturated soil conditions.

Wetland boundary: The point on the ground at which a shift from wetlands to uplands or aquatic habits occurs.

Wetland soil: A soil that has characteristics developed in a reducing atmosphere, which exists when periods of prolonged soil saturation result in anaerobic conditions.

APPENDIX B

WETLAND DELINEATION DATA FORMS

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

Project Site: South Park Loop Pathway Project City/County: Jackson/Teton Sampling Date: 9/17/13
 Applicant/Owner: Teton County / Town of Jackson State: WY Sampling Point: #1
 Investigator(s): KGL, EAP Section, Township, Range: 20, T40N, R116W
 Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave Slope (%): 3-5
 Subregion (LRR): LRR E Lat: 43.414583 Long: -110.79175 Datum: NAD83
 Soil Map Unit Name: Newfork fine sandy loam NWI classification: Near PEMC
 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"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: Sample site is located at the toe slope of existing roadway disturbance adjacent to irrigated pasture. Road bed slopes to, or close to, fence. Nearby weather data suggest that this area had slightly higher than normal rainfall for the month of September.					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>Populus augustifolia</u>	<u>5</u>	<u>yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. <u>Salix exigua</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = <u>12.5</u> , 20% = <u>5</u>	<u>25</u>	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>65</u></td> <td>x2 = <u>130</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x3 = <u>75</u></td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>90</u> (A)</td> <td><u>205</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.28</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>65</u>	x2 = <u>130</u>	FAC species <u>25</u>	x3 = <u>75</u>	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: <u>90</u> (A)	<u>205</u> (B)	Prevalence Index = B/A = <u>2.28</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>65</u>	x2 = <u>130</u>																			
FAC species <u>25</u>	x3 = <u>75</u>																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: <u>90</u> (A)	<u>205</u> (B)																			
Prevalence Index = B/A = <u>2.28</u>																				
Sapling/Shrub Stratum (Plot size: <u>15 foot radius</u>)																				
1. <u>Salix exigua</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover																		
Herb Stratum (Plot size: <u>5 foot radius</u>)																				
1. <u>Phalaris arundinacea</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Bromus inermis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Elymus trachycaulus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>27.5</u> , 20% = <u>11</u>	<u>55</u>	= Total Cover																		
Woody Vine Stratum (Plot size: <u>30 foot radius</u>)																				
1. <u>none</u>	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u><5</u>																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Hydrophytic Vegetation Present?</td> <td style="width: 10%;">Yes</td> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%;"><input type="checkbox"/></td> </tr> </table>				Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>												
Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>																

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100	_____	_____	_____	_____	Sil	silty loam; gravelly
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
¹ Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 2 cm Muck (A10)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Matrix (F3)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<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)					
<input type="checkbox"/> _____			<input type="checkbox"/> _____					
Restrictive Layer (if present):						Hydric Soils Present?		
Type: <u>Large gravel/cobble</u>						Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Depth (inches): <u>12</u>								
Remarks: Soil did not show any hydric soil indicators. Problematic sampling due to compaction and influence of road material from adjacent road disturbance. Even though dominance of hydrophytic vegetation is present, aquic conditions cannot be assumed due to lack of wetland hydrology indicators.								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> High Water Table (A2)	(except MLRA 1, 2, 4A, and 4B)	(MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:		Wetland Hydrology Present?	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Toe slope/road drainageway at edge of busy rural road disturbance. Adjacent land is irrigated pasture with active grazing.			

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

Project Site: South Park Loop Pathway Project City/County: Jackson/Teton Sampling Date: 9/19/13
 Applicant/Owner: Teton County / Town of Jackson State: WY Sampling Point: #2
 Investigator(s): KGL Section, Township, Range: 20, T40N, R116W
 Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave Slope (%): 0-3
 Subregion (LRR): LRR E Lat: 43.414556 Long: -110.79225 Datum: NAD83
 Soil Map Unit Name: Newfork fine sandy loam NWI classification: Just N of PEMC
 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"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: Sample site is located at the toe slope of existing roadway disturbance adjacent to irrigated pasture. Road bed slopes to, or close to, fence. Nearby weather data suggest that this area had slightly higher than normal rainfall for the month of September.					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>75</u></td> <td>x2 = <u>150</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x3 = <u>75</u></td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>225</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.25</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>75</u>	x2 = <u>150</u>	FAC species <u>25</u>	x3 = <u>75</u>	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>225</u> (B)	Prevalence Index = B/A = <u>2.25</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>75</u>	x2 = <u>150</u>																			
FAC species <u>25</u>	x3 = <u>75</u>																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>225</u> (B)																			
Prevalence Index = B/A = <u>2.25</u>																				
<u>Sapling/Shrub Stratum (Plot size: 15 foot radius)</u>																				
1. <u>Salix exigua</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover																		
<u>Herb Stratum (Plot size: 5 foot radius)</u>																				
1. <u>Phalaris arundinacea</u>	<u>35</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Bromus inermis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Elymus trachycaulus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: 30 foot radius)</u>																				
1. <u>none</u>	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u><5</u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%;">Hydrophytic Vegetation Present?</td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 35%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> </tr> </table>				Hydrophytic Vegetation Present?	Yes	No				<input checked="" type="checkbox"/>	<input type="checkbox"/>									
Hydrophytic Vegetation Present?	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks:

SOIL

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		
0-7	10YR 2/2	100	_____	_____	_____	_____	Loam	organic, abundant roots
7-11	_____	_____	_____	_____	_____	_____	Rock	cobble, rocks, gravel
11-22	10YR 4/2	95	10YR 5/6	5	C	PL	Clay	slight mottling
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

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

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

Remarks: Aquic conditions assumed due to presence of hydrophytic vegetation and wetland hydrology indicators.

HYDROLOGY

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

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

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

Remarks: Oxidation only in minor amounts. Toe slope/road drainageway at edge of busy rural road disturbance. Adjacent land is irrigated pasture with active grazing. This sample point appears to be within a drainage/channel which has formed along a portion of the road - potentially influenced by nearby irrigation ditches and road culvert crossings.

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

Project Site: South Park Loop Pathway Project City/County: Jackson/Teton Sampling Date: 9/19/13
 Applicant/Owner: Teton County / Town of Jackson State: WY Sampling Point: #3
 Investigator(s): KGL Section, Township, Range: S19, T40N, R116W
 Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave Slope (%): 0-3
 Subregion (LRR): LRR E Lat: 43.413917 Long: -110.797556 Datum: NAD83
 Soil Map Unit Name: Tineman gravelly loam, wet NWI classification: Just N of PEMC
 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"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Remarks: Sample site is located at the toe slope of existing roadway disturbance adjacent to irrigated pasture. Road bed slopes to, or close to, fenceline. This sample point is located adjacent to an active irrigation channel and is approximately 0.86 miles east of Snake River meander channels. Nearby weather data suggest that this area had slightly higher than normal rainfall for the month of September.					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>75</u></td> <td>x2 = <u>150</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x3 = <u>75</u></td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: <u>100</u> (A)</td> <td><u>225</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.25</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>75</u>	x2 = <u>150</u>	FAC species <u>25</u>	x3 = <u>75</u>	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: <u>100</u> (A)	<u>225</u> (B)	Prevalence Index = B/A = <u>2.25</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>75</u>	x2 = <u>150</u>																			
FAC species <u>25</u>	x3 = <u>75</u>																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: <u>100</u> (A)	<u>225</u> (B)																			
Prevalence Index = B/A = <u>2.25</u>																				
<u>Sapling/Shrub Stratum (Plot size: 15 foot radius)</u>																				
1. <u>Salix exigua</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = <u>20</u> , 20% = <u>8</u>	<u>40</u>	= Total Cover																		
<u>Herb Stratum (Plot size: 5 foot radius)</u>																				
1. <u>Phalaris arundinacea</u>	<u>35</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Bromus inermis</u>	<u>20</u>	<u>yes</u>	<u>FAC</u>																	
3. <u>Elymus trachycaulus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
<u>Woody Vine Stratum (Plot size: 30 foot radius)</u>																				
1. <u>none</u>	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u><5</u>																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Hydrophytic Vegetation Present?</td> <td style="width: 10%;">Yes</td> <td style="width: 10%;">No</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> <td></td> <td></td> </tr> </table>				Hydrophytic Vegetation Present?	Yes	No					<input checked="" type="checkbox"/>	<input type="checkbox"/>								
Hydrophytic Vegetation Present?	Yes	No																		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		

Remarks: Vegetation species similar to those present at sample point #2.

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

Project Site: South Park Loop Pathway Project City/County: Jackson/Teton Sampling Date: 9/19/13
 Applicant/Owner: Teton County / Town of Jackson State: WY Sampling Point: #4
 Investigator(s): KGL Section, Township, Range: S19, T40N, R116W
 Landform (hillslope, terrace, etc.): toe slope Local relief (concave, convex, none): concave Slope (%): 3-5
 Subregion (LRR): LRR E Lat: 43.414056 Long: -110.802972 Datum: NAD83
 Soil Map Unit Name: Tineman gravelly loam, wet NWI classification: none
 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"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Remarks: Sample site is located near the western end of proposed project area at the toe slope of existing roadway disturbance adjacent to irrigated pasture. Road bed slopes to, or close to, fenceline. This sample point is located approximately 0.59 miles east of Snake River meander channels. Nearby weather data suggest that this area had slightly higher than normal rainfall for the month of September.					

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 foot radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. <u>Populus augustifolia</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
50% = <u>25</u> , 20% = <u>10</u>	<u>50</u>	= Total Cover																		
Sapling/Shrub Stratum (Plot size: 15 foot radius)				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species <u>50</u></td> <td>x2 = <u>100</u></td> </tr> <tr> <td>FAC species <u>45</u></td> <td>x3 = <u>135</u></td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species <u>15</u></td> <td>x5 = <u>75</u></td> </tr> <tr> <td>Column Totals: <u>110</u> (A)</td> <td><u>310</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.82</u></td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species <u>50</u>	x2 = <u>100</u>	FAC species <u>45</u>	x3 = <u>135</u>	FACU species _____	x4 = _____	UPL species <u>15</u>	x5 = <u>75</u>	Column Totals: <u>110</u> (A)	<u>310</u> (B)	Prevalence Index = B/A = <u>2.82</u>	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species <u>50</u>	x2 = <u>100</u>																			
FAC species <u>45</u>	x3 = <u>135</u>																			
FACU species _____	x4 = _____																			
UPL species <u>15</u>	x5 = <u>75</u>																			
Column Totals: <u>110</u> (A)	<u>310</u> (B)																			
Prevalence Index = B/A = <u>2.82</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
Herb Stratum (Plot size: 5 foot radius)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Bromus inermis</u>	<u>45</u>	<u>yes</u>	<u>FAC</u>																	
2. <u>Thinopyrum intermedium</u>	<u>15</u>	<u>yes</u>	<u>NL (UPL)</u>																	
3. <u>Elymus trachycaulus</u>	<u><5</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cover																		
Woody Vine Stratum (Plot size: 30 foot radius)				Hydrophytic Vegetation Present? <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 10%;">Yes</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 10%;">No</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> </table>		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>											
	Yes	<input checked="" type="checkbox"/>	No		<input type="checkbox"/>															
1. <u>none</u>	_____	_____	_____																	
2. _____	_____	_____	_____																	
50% = _____, 20% = _____	_____	= Total Cover																		
% Bare Ground in Herb Stratum <u><5</u>																				
Remarks:																				

APPENDIX C

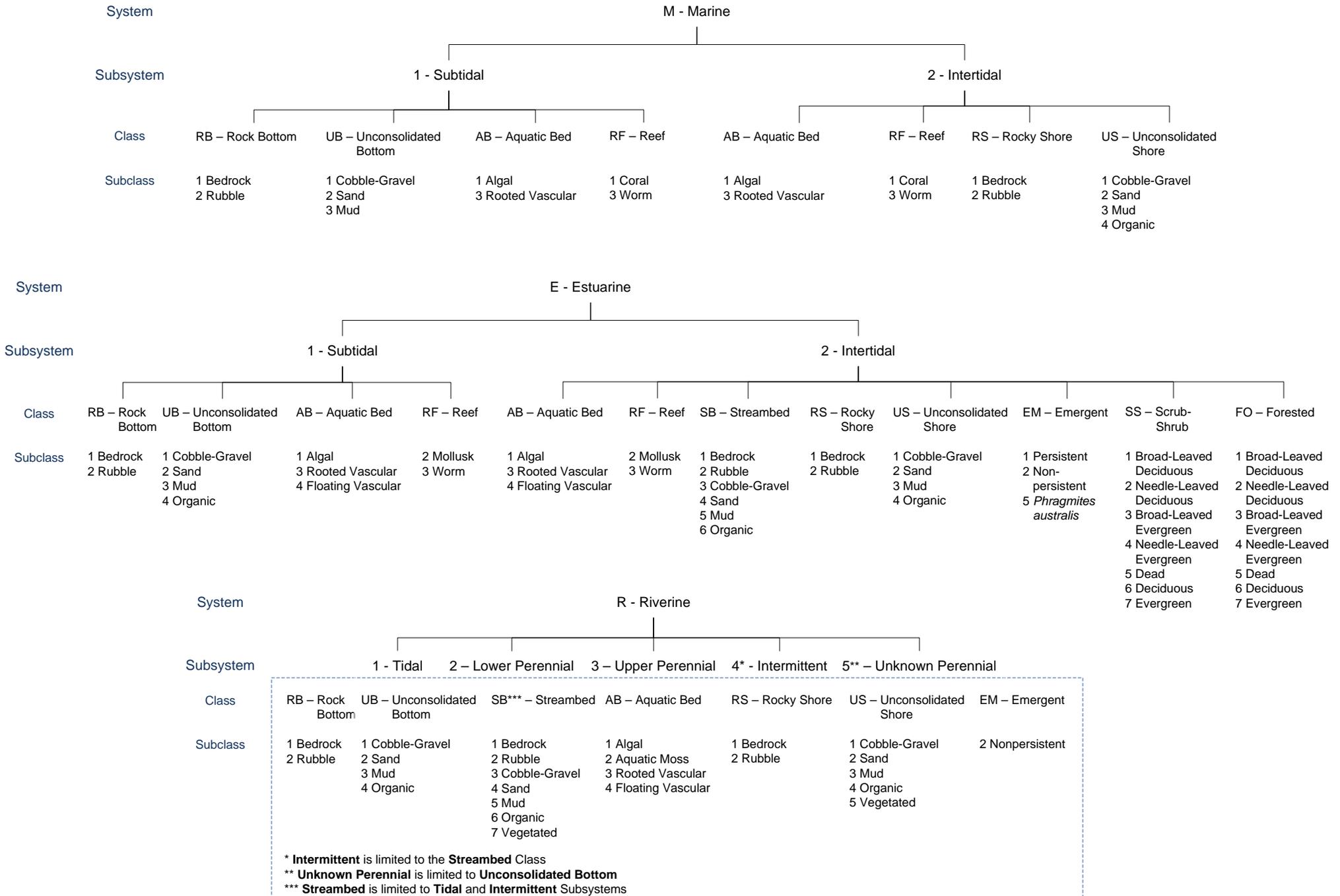
SELECTED REFERENCE DATA

- Table of Plant Indicator Status Categories C-1
- Wetland and Deepwater Habitats Classification System C-2
- WETS Station Climate Report C-4

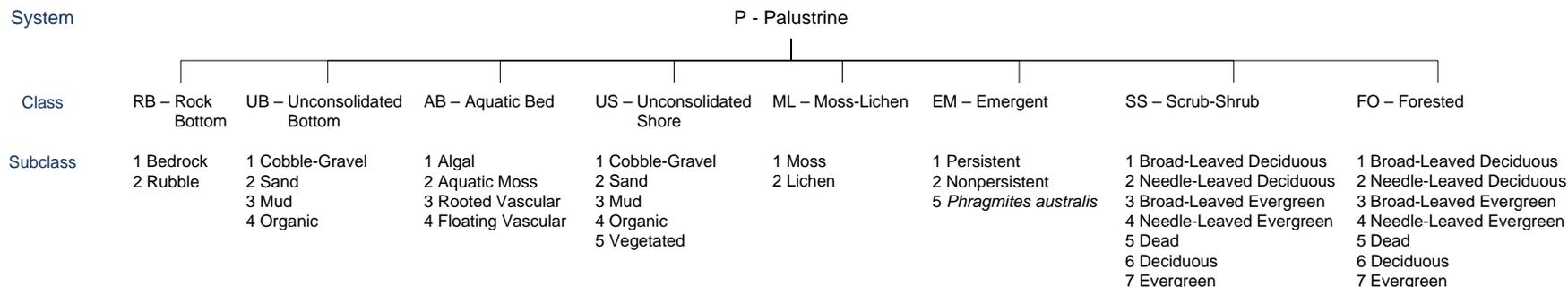
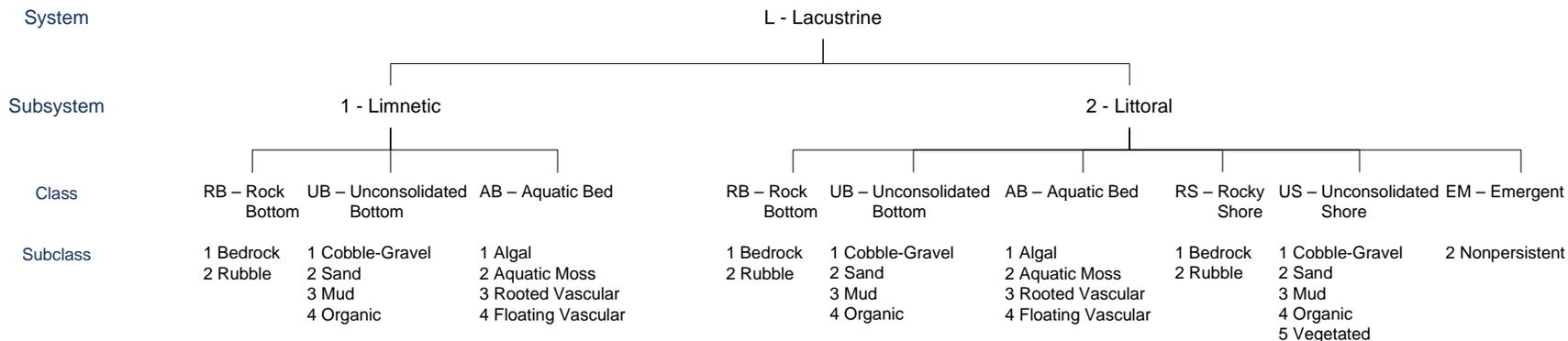
Table 1. Plant Indicator Status Categories	
Obligate Wetland Plants (OBL)	Plants that occur in wetlands, under natural conditions, approximately 99 percent of the time.
Facultative Wetland Plants (FACW)	Plants that occur in wetlands approximately 67-99 percent of the time.
Facultative (FAC)	Plants that are as likely to be found in wetlands as in non-wetlands; approximately 34 to 66 percent of the time in either.
Facultative Upland Plants (FACU)	Plants that occur in non-wetlands approximately 1 to 33 percent of the time.
Obligate Upland Plants (UPL)	Plants that occur in non-wetlands, under natural conditions, approximately 99 percent of the time.
No Indicator (NI)	Plant species that have not been given an indicator status, and assumed to be upland.

Source: National List of Plants that Occur in Wetlands: Northwest (Region 9), U.S. Fish and Wildlife Service Biological Report 88(26.9), (Revised 1993) 89 p.

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



MODIFIERS							
In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.							
Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	Saltwater Tidal	Freshwater Tidal		Coastal Halinity	Inland Salinity	pH Modifiers for all Fresh Water	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	I Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

WETS Station : JACKSON, WY4910

Creation Date: 09/10/2002

Latitude: 4329

Longitude: 11046

Elevation: 06230

State FIPS/County(FIPS): 56039

County Name: Teton

Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.)			Precipitation (Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have		avg	avg total snow fall
					less than	more than	# of days w/.1 or more	
January	28.3	5.0	16.7	1.36	0.79	1.66	4	20.3
February	33.2	8.1	20.7	0.95	0.53	1.16	4	13.4
March	42.8	17.5	30.2	1.21	0.64	1.47	4	7.8
April	53.1	24.4	38.8	1.16	0.61	1.42	4	2.4
May	63.0	30.8	46.9	2.26	1.56	2.69	7	0.8
June	73.4	37.0	55.2	1.63	1.02	1.97	5	0.2
July	81.9	40.9	61.4	1.31	0.75	1.62	4	0.0
August	80.8	39.2	60.0	1.33	0.85	1.60	4	0.0
September	71.1	31.3	51.2	1.33	0.56	1.61	4	0.1
October	58.4	23.4	40.9	1.25	0.71	1.55	4	1.0
November	39.5	15.6	27.5	1.65	0.85	2.02	5	11.0
December	28.3	5.9	17.1	1.56	0.83	1.91	6	17.4
Annual	-----	-----	-----	-----	12.13	18.24	--	-----
Average	54.5	23.3	38.9	-----	-----	-----	--	-----
Total	-----	-----	-----	17.00	-----	-----	55	74.5

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		

50 percent *	5/25 to 9/12 110 days	6/19 to 8/29 71 days	7/10 to 8/15 36 days
70 percent *	5/20 to 9/18 120 days	6/13 to 9/ 4 83 days	7/ 5 to 8/20 46 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

ATTACHMENT 3

**SUPPLEMENTAL WETLAND DELINEATION EXHIBITS, DATA FORMS,
AND PHOTOGRAPHIC DOCUMENTATION (ALDER ENVIRONMENTAL)**

**Jackson Hole
Community
Pathways**

**SOUTH PARK
PATHWAY
NORTH SIDE**

South Park Loop Road
Teton County, WY

FIGURE 1 OF 2:

**Wetlands &
Surface Waters
OVERVIEW**

November 11, 2015

Legend:

Property Boundary

Study Area

Physical Study Area

Visual Study Area

Sample Points

★ Upland

★ Wetland

Aquatic Resources

Ditch Flow Line

Ordinary High Water Mark

Delineated Wetlands

2015 Teton County Image

Wetland Delineation conducted
by Alder Environmental, LLC on
October 30, 2015

Wetland Boundary Collected
with Resource Grade GPS
(Estimated Under Tree Canopy)

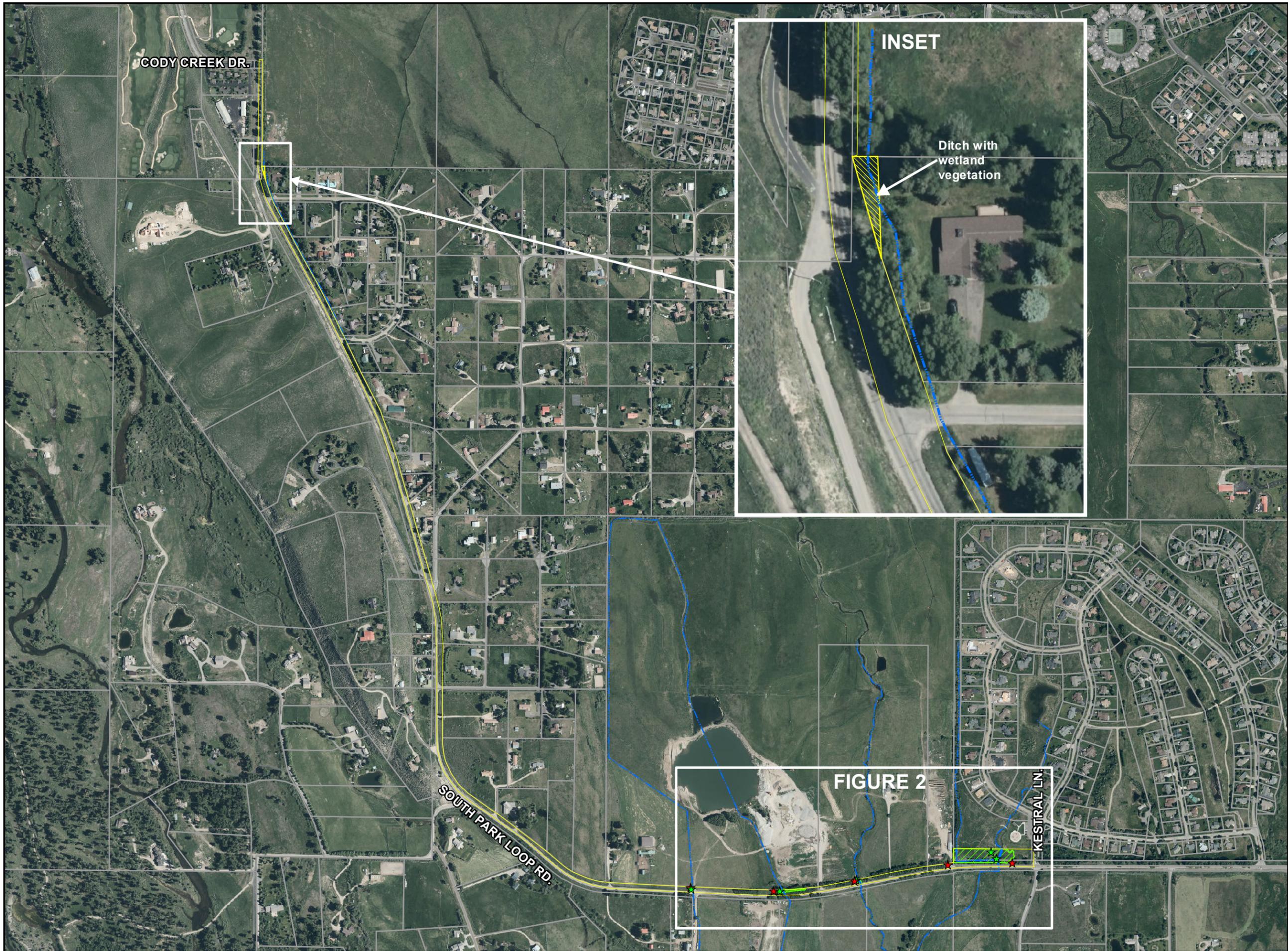
1 inch = 700 feet

0 700 Feet



ALDER ENVIRONMENTAL, LLC

Water • Wetlands • Ecological Consulting
P.O. Box 6519, Jackson, Wyoming 83002
(307) 733-5031 www.alderenvironmental.com



**Jackson Hole
Community
Pathways**

**SOUTH PARK
PATHWAY
NORTH SIDE**

South Park Loop Road
Teton County, WY

FIGURE 2 OF 2:

**Wetlands &
Surface Waters
SOUTH DETAIL**

November 11, 2015

Legend:

-  Property Boundary
-  Easement Boundary

Study Area

-  Physical Study Area
-  Visual Study Area

Sample Points

-  Upland
-  Wetland

Aquatic Resources

-  Ditch Flow Line
-  Ordinary High Water Mark
-  Delineated Wetlands

2015 Teton County Image

Wetland Delineation conducted
by Alder Environmental, LLC on
October 30, 2015

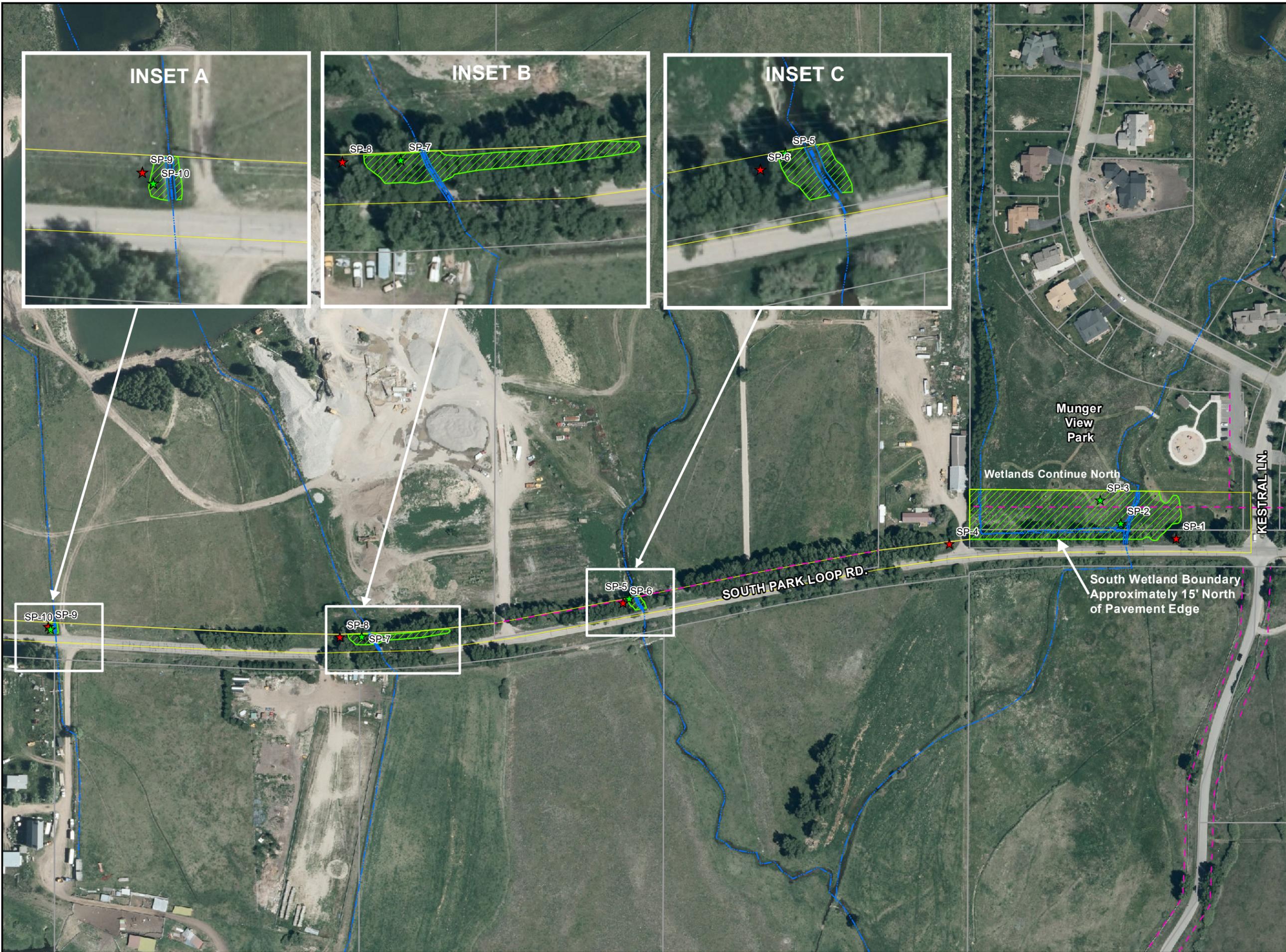
Wetland Boundary Collected
with Resource Grade GPS
(Estimated Under Tree Canopy)

1 inch = 200 feet



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

Project/Site: South Park Pathway - North Side City/County: Teton Sampling Date: 10/30/2015
 Applicant/Owner: Jackson Hole Community Pathways/Road R.O.W. State: WY Sampling Point: SP-9
 Investigator(s): Alder Environmental LLC. (Brian R. & Jona K.) Section, Township, Range: PT. Sec.19, TWP40N, RNG116W
 Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): Rocky Mountain Forests & Rangelands (LRR E) Lat: 43.41411160 Long: -110.80078590 Datum: WGS84
 Soil Map Unit Name: 61 NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
 Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
 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? <u>Yes</u> Hydric Soil Present? <u>No</u> Wetland Hydrology Present? <u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:	

VEGETATION – Use scientific names of plants.

Stratum (Plot size: __)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u>) 1. 2. 3. 4. <p align="right">Total Cover = <u>0</u></p>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u>) 1. 2. 3. 4. 5. <p align="right">Total Cover = <u>0</u></p>				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>70</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.86</u>
<u>Herb Stratum</u> (Plot size: <u>25</u>) 1. <u>Phalaris arundinacea</u> 2. <u>Bromus inermis</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. <p align="right">Total Cover = <u>70</u></p>	<u>10</u> <u>60</u>	<u>No</u> <u>Yes</u>	<u>FACW</u> <u>FAC</u>	Prevalence Index = B/A = <u>2.86</u> Hydrophytic Vegetation Indicators: ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 ¹ ___ 4 - Morphological Adaptions ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u>) 1. 2. <p align="right">Total Cover = <u>0</u></p>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? <u>Yes</u>
Remarks:				

SOIL

Sampling Point: SP-9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	10YR 3/2	0		0			Sandy Loam	20% gravels and cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> 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)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Restrictive Layer (if present): Type: Depth (inches): 0	Hydric Soil Present? No
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> (except MLRA 1,2,4A, and 4B) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1)(LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)(MLRA 1,2,4A,4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
Field Observations: Surface Water Present? <u>No</u> Depth (inches): Water Table Present? <u>No</u> Depth (inches): Saturation Present? <u>No</u> Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

Sample Point SP9



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

Project/Site: South Park Pathway - North Side City/County: Teton Sampling Date: 10/30/2015
 Applicant/Owner: Jackson Hole Community Pathways/Road R.O.W. State: WY Sampling Point: SP-10
 Investigator(s): Alder Environmental LLC. (Brian R. & Jona K.) Section, Township, Range: PT. Sec.19, TWP40N, RNG116W
 Landform (hillslope, terrace, etc.): Stream terrace Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): Rocky Mountain Forests & Rangelands (LRR E) Lat: 43.41409570 Long: -110.80076320 Datum: WGS84
 Soil Map Unit Name: 61 NWI classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
 Are Vegetation __, Soil __, or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes
 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? <u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Hydric Soil Present? <u>Yes</u>	
Wetland Hydrology Present? <u>Yes</u>	
Remarks: 2 feet from ditch waters edge	

VEGETATION – Use scientific names of plants.

Stratum (Plot size: __)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>Tree Stratum</u> (Plot size: <u>0</u>) 1. 2. 3. 4. Total Cover = <u>0</u>				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>60</u> x 1 = <u>60</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>140</u> (B) Prevalence Index = B/A = <u>1.40</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u>) 1. 2. 3. 4. 5. Total Cover = <u>0</u>				
<u>Herb Stratum</u> (Plot size: <u>0</u>) 1. <u>Phalaris arundinacea</u> 2. <u>Carex utriculata</u> 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover = <u>100</u>	<u>40</u> <u>60</u>	<u>Yes</u> <u>Yes</u>	<u>FACW</u> <u>OBL</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>0</u>) 1. 2. Total Cover = <u>0</u>				1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Indicators: ___ 1 –Rapid Test for Hydrophytic Vegetation <u>X</u> 2 – Dominance Test >50% <u>X</u> 3 - Prevalence Index is ≤ 3.0 ¹ <u>X</u> 4 - Morphological Adaptions ¹ (Provide supporting data in Remarks or on a separate sheet) ___ 5 – Wetland Non-Vascular Plants ¹ ___ Problematic Hydrophytic Vegetation ¹ (Explain)
% Bare Ground in Herb Stratum: <u>0</u>				

Remarks:

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		
<u>0-24</u>	<u>10YR 2/2</u>	<u>80</u>	<u>10YR5/6</u>	<u>10</u>	<u>C</u>	<u>PL</u>	<u>Sandy Clay Loam</u>	<u>cobbles start at 5 inches maybe slight redox conc</u>

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
Restrictive Layer (if present): Type: Depth (inches): <u>0</u>	Hydric Soil Present? <u>Yes</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (two or more required)
Primary Indicators (minimum of one required; check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9)(MLRA 1,2,4A,4B) <input type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6)(LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
Field Observations: Surface Water Present? <u>No</u> Water Table Present? <u>No</u> Saturation Present? <u>Yes</u> (includes capillary fringe)	Depth (inches): Depth (inches): Depth (inches): <u>8</u> Wetland Hydrology Present? <u>Yes</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Adjacent ditch water 1/2 bankfull level. Dry season.	
Remarks:	

Sample Point SP10

