BURKE CREEK/RABE MEADOWS STREAM RESTORATION PROJECT
DOUGLAS COUNTY, NEVADA
WETLAND DELINEATION
AND
WATERS OF THE U.S. INVENTORY

Prepared for:
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1.0 INTRODUCTION

1.1 PURPOSE

On behalf of Nevada Tahoe Conservation District (NTCD), a routine, on-site wetland delineation was conducted in spring 2012 by Wood Rodgers, Inc. to assess the location and extent of Waters of the United States, including wetlands that may be present within the project area to determine the USACE permitting requirements for proposed activities.

This Wetland Delineation and Waters of the United States (U.S.) Inventory report presents the results of the 2011-2012 field investigation for these resources for the Burke Creek/Rabe Meadows Restoration Project, located in Stateline, Nevada, on the east shore of Lake Tahoe (Figure 1). The report identifies potential jurisdictional wetlands and waters of the U.S. within the project area.

All Figures referenced in this report are contained in Appendix A.

1.2 SURVEY AREA

The proposed project (Figure 2) is located in Stateline, Nevada, in portions of Sections 22 and 23, Township 13 North Range 18 East South Lake Tahoe (1982), U.S. Geological Survey 7.5-minute topographic quadrangle. The project area consists of approximately 12 acres located in proximity to Burke Creek, east and west of U.S. Highway 50, and just north of the intersection of Kahle Drive with U.S. Highway 50. Access to the west portion of Burke Creek is gained by turning west on Kahle Drive, and parking in the defined parking lot. Access to the east portion of Burke Creek is gained by turning east on Kahle Drive and parking to the north in the adjacent commercial development parking area. The project area slopes from east to west, with Burke Creek draining to Lake Tahoe.

Stateline inclusive of the project area has been subjected to human–induced influences, which have resulted in changes to hydrologic and vegetative attributes. Influences are associated with timber extraction dating back to the Comstock era, and accelerated residential and commercial development from the 20th century to the present that altered the historic alignment of Burke Creek. Vegetation within the project area is distributed along an elevational gradient reflecting current area hydrology and soils. The surrounding uplands are characterized by second growth Jeffrey pine (*Pinus jeffreyi*) forest, while the riparian corridor is dominated by quaking aspen (*Populus tremuloides*), willow species (*Salix* spp.) and mountain alder (*Alnus incana* ssp. *tenuifolia*). Potential wetlands are found as freshwater emergent, herbaceous wetlands and forested/shrub wetlands adjacent to Burke Creek, or within roadside ditches.

1.3 APPLICANT CONTACT INFORMATION

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2.0 DEFINITIONS

2.1 WETLANDS

As used in this report, the term "wetlands " has a regulatory definition as defined in Chapter 33, Part 328, Section 7(b) of the Code of Federal Regulations (33 CFR 328, 7(b)). The term "wetlands" means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marches, bogs and similar areas." Note that the frequency and duration of saturation may vary by geographical region, and is largely dependent upon local climatic conditions.

The USACE *Corps of Engineers Wetlands Delineation Manual* (1987) describes delineating wetlands as a three-parameter approach. An area cannot be considered a jurisdictional wetland if one of these three parameters (hydric soil, wetland vegetation, and wetland hydrology) cannot be documented.

2.2 WATERS OF THE UNITED STATES

Additionally, waters of the U. S. (WOUS) are defined in Chapter 33, Part 328, Section 3 of the Code of Federal Regulations, (33 CFR 328, 3) and include all non-tidal waters that are currently, or were used in the past, or may be susceptible to interstate commerce; all interstate waters including wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce; and all impoundments of waters otherwise defined as WOUS under this definition.

The limits of jurisdiction in non-tidal waters are defined according to 33 CFR Part 328, Section 4 (33 CFR 328, 4). In the absence of adjacent wetlands, jurisdiction extends to the ordinary high water mark; when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands; and when the WOUS consists only of wetlands, the jurisdiction extends to the limit of the wetland.

Criteria used to determine whether a drainage constitutes a WOUS include presence of a defined bed (a linear bed in a topographic depression which would transport surface water from a watershed), presence of defined banks (near vertical or steep-sided banks formed by erosion from flowing water), and evidence of an ordinary high water mark (some indicator(s) that the drainage is subject to surface water flows on an average annual basis; such indicators include a scoured bed, shelving, an absence of terrestrial vegetation [particularly perennial], and recent alluvial or litter deposition).

3.0 METHODOLOGY

3.1 PRE-FIELD DATA REVIEW

Prior to the field investigation, aerial photographs, and topographic map tools were reviewed for indications of open water, springs, and ephemeral, intermittent and perennial drainages. The *Soil Survey of the Tahoe Basin Area, California and Nevada* (USDA, NCSS 2007) was reviewed before visiting the site.

The project area boundary was superimposed on to the corresponding digital National Wetland Inventory (NWI) shape files (Figure 3). Given that wetland identification criteria differ between the United States Fish and Wildlife Service (USFWS) and the USACE, and because most NWI wetlands have not been field verified and are mainly air photograph interpretation, wetlands shown on the NWI map may not be under the jurisdiction of the USACE. Similarly, jurisdictional wetlands often are not included on these maps. Consequently, wetlands abundance based on NWI maps cannot be assumed to be an accurate assessment of jurisdictional wetlands.

A review of the *Minimum Standards for Acceptance of Preliminary Wetland Delineations*, as prepared by the USACE (2001), was also completed to insure the field investigation and subsequent reporting would meet all appropriate guidelines and criteria.

This delineation was completed in accordance with the methodology outlined in the USACE *Corps of Engineers Wetlands Delineation Manual*, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (*Version 2.0*) (USACE 2010). The data forms provided in the later document were used to compile wetland data during the investigation as applicable to the Sierra Nevada Mountains (MLRA 22A).

While there is no formal field method for the identification and inventory of WOUS, the field survey and delineation verified the presence of defined bed and bank, along with evidence that the drainage experiences surface flows on an average annual basis, and the potential for interstate connectivity.

3.2 WETLAND DELINEATION

The site was initially visited in December 2011, with subsequent consultation with Natural Resources Conservation Service (NRCS) (Loftis 2012) indicating that maximum hydrology was probable at the site from mid April through mid May, 2012. Therefore the site was visited May 8-10, 2012 by a Wood Rodgers botanist/environmental scientist, and a preliminary wetlands delineation conducted to identify potential jurisdictional wetlands present within the project area boundaries. Representative locations in potential wetland vegetation types within the project area were examined for wetland characteristics. Based on this examination, sample sites were established in each potentially hydrophytic (wetland) vegetation community in the area. Sites in adjacent upland (non-hydrophytic) communities were also examined to further delineate the wetland areas. The presence or absence of jurisdictional wetland resources within the project area was documented by 22 sample sites.

3.2.1 Hydric Soils

Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that are "…saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation" (USACE 1987). Hydric soils usually include all histosols except Folists; soils in the Aquic suborders, Aquic subgroups, Albolls suborder, Salorthids great group, or Pell great groups of Vertisols that are somewhat poorly drained, poorly drained, or very poorly drained; soils that are ponded for long or very long duration during the growing season; or soils that are frequently flooded for a long duration or a very long duration during the growing season (USACE 1987).

Hydric soils are generally characterized by the accumulation or loss of iron, manganese, sulfur, or carbon compounds. Hydric soils were interpreted through the guidance contained in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* and *Field Indicator of Hydric Soils in the United States* (NRCS 1999). Hydric soils applicable to the MLRA 22A exhibit mineral layer(s) above the indicators that have a dominant chroma of 2 or less, or the layer(s) with a dominant chroma of more than 2 is less than 6 inches thick. Hydric soil indicators include the following:

Histosol (A1) – Soil classifies as a Histosol (except Folists) and must meet all requirements contained in *Soil Taxonomy* (NRCS 1999).

Histic Epipedon (A2) – A histic epipedon is present underlain by mineral soil material with a chroma of 2 or less, and must meet all requirements contained in *Soil Taxonomy*.

Black Histic (A3) – A layer of peat, mucky peat, or muck 8 inches or more thick starting within the upper 6 inches of the soil surface having a hue 10YR or yellower and a value 3 or less and chroma of 1 or less; and is underlain by mineral soil material with chroma of 2 or less.

Hydrogen Sulfide (A4) – A hydrogen sulfide odor is present within 12 inches of the soil surface.

Depleted Below Dark Surface (A11) – A layer with a depleted or gleyed matrix that has 60% or more chroma of 2 or less, starting within 12 inches of the soil surface that has a minimum thickness of either (a) 6 inches or (b) 2 inches if the 2 inches consists of fragmental soil material. Loamy/clayey layer(s) above the depleted or gleyed matrix must have a value of 3 or less, and chroma of 2 or less. Any sandy material above the depleted or gleyed matrix must have a value of 3 or less, and chroma of 1 or less, and at least 70% of the visible soil particles when viewed with a 10-15 power hand lens must be covered, coated or similarly masked with organic material.

Thick Dark Surface (A12) – A layer at least 6 inches thick with a depleted or gleyed matrix that has 60% or more chroma of 2 or less starting below 12 inches of the surface. The layer(s) above the depleted or gleyed matrix have a value 2.5 or less and chroma of 1 or less to a depth of at least 12 inches and a value of 3 or less and chroma of 1 or less in any remaining layers above the depleted or gleyed matrix. Any

sandy material above the depleted or gleyed matrix must have at least 70% of the visible soil particles when viewed with a 10-15 power hand lens, covered, coated or similarly masked with organic material.

Sandy Mucky Mineral (S1) – A layer of mucky, modified sandy soil material 2 inches or more thick starting within 6 inches of the soil surface.

Sandy Gleyed Matrix (S4) – A gleyed matrix that occupies 60% or more of a layer within 6 inches of the soil surface.

Sandy Redox (S5) – A layer starting within 6 inches of the soil surface that is at least 4 inches thick, and has a matrix with 60% or more chroma of 2 or less with 2% or more distinct or prominent redox concentrations occurring as soft masses and/or pore linings.

Stripped Matrix (S6) - A layer starting within 6 inches of the soil surface in which iron/manganese oxides and/or organic matter have been stripped from the matrix and the primary base color of soil material has been exposed. The stripped areas and/or translocated oxides and/or organic matter form a faint, diffuse splotchy pattern of two or more colors. The stripped zones are 10% or more of the volume; they are rounded, and typically 0.5 to 1 inch in diameter.

Loamy Mucky Mineral (F1) – A layer of mucky modified loamy or clayey soil material 4 inches or more thick starting within 6 inches of the soil surface.

Loamy Gleyed Matrix (F2) – A gleyed matrix that occupies 60% or more of a layer starting within 12 inches of the soil surface.

Depleted Matrix (F3) – A layer that has a depleted matrix with 60% or more chroma of 2 or less and that has a minimum thickness of either: (a) 2 inches if the 2 inches is entirely within the upper 6 inches of the soil, or (b) 6 inches and starts within 10 inches of the soil surface.
Redox Dark Surface (F6) – A layer that is at least 4 inches thick, is entirely within the upper 12 inches of the mineral soil and has either: (a) matrix value of 3 or less and chroma of 1 or less and 2% or more distinct or prominent redox concentrations occurring as soft masses or pore linings; or (b) matrix value of 3 or less and chroma of 2 or less and 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

Depleted Dark Surface (F7) – Redox depletions with a value of 5 or more and chroma of 2 or less, in a layer at least 4 inches thick, is entirely within the upper 12 inches of the mineral soil, and has either; (a) a matrix value 3 or less and chroma of 1 or less and 10% or more redox depletions; or (b) a matrix value of 3 or less and chroma of 2 or less and 20% or more redox depletions.

Redox Depressions (F8) – In closed depressions that are subject to ponding, 5% or more distinct or prominent redox concentrations occurring as soft masses or pore linings in a layer that is 2 inches or more thick and is entirely within the upper 6 inches of the soil.

Soil test pits for the 2011-2012 field investigation were excavated to a minimum depth of 20 inches when possible.

3.2.2 Wetland Vegetation

Wetland or hydrophytic vegetation is defined as any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water. The delineation methodology contained in both the 1987 *Wetlands Delineation Manual* and the 2010 *Western Mountains, Valleys and Coast Region* supplement requires that, in most cases more than 50 percent of the dominant vegetation on a potential wetland site must include plants that meet the wetland plant definition in order for the site to be delineated as a jurisdictional wetland (USACE 1987 and USACE 2010).

Vegetation within the project area was visually surveyed in the vicinity of each of the sample site soil/groundwater observation holes to estimate percent absolute aerial cover of all species present in each stratum, or vegetative layer, and to characterize the vegetation communities as required by the USACE (USACE 1987 and USACE 2010). Percentages of vegetation cover were averaged for each sample site location. Plant species not identifiable in the field were collected and identified using *The Jepson Manual: Vascular Plants of California* (Baldwin et al 2012).

The wetland indicator status for each observed plant species according to the 2012 *National Wetland Plant List* (Lichvar and Kartesz 2009) was recorded to aid in making the jurisdictional wetland determinations. The exception to this was use of the 1988 *National List of Vascular Plant Species That Occur in Wetlands* wetland indicator status for quaking aspen (*Populus tremuloides*) as this species was observed at the ordinary high water mark in conjunction with a hydrophytic, herbaceous understory. In accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region*, the wetland indicator status modifiers were not used. According to Reed (1988), and Lichvar and Kartesz (2009), the wetland indicator categories include:

- Obligate Wetland (OBL) which occur almost always (estimated probability >99%) under natural conditions in wetlands;
- Facultative Wetland (FACW) which usually occur in wetlands (estimated probability 67-99%), but occasionally found in non-wetlands;
- Facultative (FAC) are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%);
- Facultative Upland (FACU) usually occur in non-wetlands (estimated probability 67-99%), but occasionally found in wetlands (estimated probability 1-33%);
- Upland (UPL) occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the Region specified; and
- No Indicator (NI) have insufficient information available to determine an indicator status.

3.2.3 Wetland Hydrology

Wetland hydrology is the driving force behind wetland formation. The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soil saturated to the surface at some time during the growing season (USACE 1987). During the field investigation,

several primary and secondary indicators for these characteristics were used to determine wetland hydrology as follows:

- Surface water (A1)
- High water table (A2)
- Saturation (A3)
- Water marks (B1)
- Sediment deposits (B2) (nonriverine)
- Drift deposits (B3) (nonriverine)
- Algal mat or crust (B4)
- Iron deposits (B5)
- Surface soil cracks (B6)
- Inundation visible on aerial imagery (B7)
- Sparsely vegetated concave surface (B8)
- Water-stained leaves (B9)
- Salt crust (B11)
- Aquatic invertebrates (B13)
- Hydrogen sulfide odor (C1)
- Oxidized rhizospheres along living roots (C3)
- Presence of reduced iron (C4)
- Recent iron reduction in tilled soils (C6)
- Drainage patterns (B10)
- Dry-season water table (C2)
- Saturation visible on aerial imagery (C9)
- Geomorphic position (D2)
- Shallow acquitard (D3)
- FAC-neutral test (D5)
- Frost-heave hummocks (D7)

3.3 WATERS OF THE U.S.

As discussed in Section 2.2, the presence of defined bed and banks, along with some evidence that the drainage experiences surface water flows on an average annual basis, are considered indicative of WOUS. Drainages within the project area were examined for these characteristics. The width of the bed and height of the bank were recorded within a representative sample of each reach, thereby documenting the extent of potential jurisdictional WOUS present in the drainages. Additionally, a connection with interstate commerce was determined where applicable. Total linear feet of waters of the U.S. can then be extrapolated to the entire reach.

4.0 RESULTS

4.1 WETLAND DELINEATION

A total of 22 sample sites were investigated to characterize potential wetlands within the project area. Sample sites were located adjacent to streams and open water, and in topographic lows as well as paired upland sites. A data form was completed for each sample site to assist with determining whether the site may be a jurisdictional wetland. Data forms summarizing information collected in the field are presented in Appendix B.

Figure 2 illustrates sample site locations and boundaries of potential jurisdictional wetlands within the project area. Appendix C presents photographs for each sample site location, while Table 1 provides a summary of the vegetation, soils and hydrology characteristics recorded at each sample site location.

4.1.1 Soils

Soils within the project area have been mapped by the NRCS. However, the project area and vicinity has been altered by development of commercial and residential properties and historic timber extraction. Therefore, it is not certain that these soil map units reflect current soil attributes.

As shown in Figure 4, soil map units identified as occurring at sample point locations within the project area include:

- Map Unit Symbol 7041: Tahoe complex, 0 to 2 percent slopes

The Tahoe silt loam component is 55 percent of this map unit and is found on floodplains and valley flats with slopes of 0-2 percent, generally occurring at elevations of 6,215 to 7,970 feet. Parent material consists of alluvium derived from granitic and volcanic rocks. Depth to a restrictive feature is > 59 inches. Depth to water table varies seasonally from 0 to 49 inches. This soil is very poorly drained, with an available high water capacity of 9.2 inches. Soil is occasionally flooded. Soil texture from 0 to 3 inches is moderately decomposed plant material; at 3 to 15 inches soil texture is mucky silt loam; at 15 to 20 inches soil texture is gravelly coarse sand; at 20 to 30 inches soil texture is mucky silt loam; at 30 to 49 inches soil texture is loam; and at 49 to 59 inches soil texture is loamy sand. **This soil meets hydric criteria.**

The Tahoe silt loam wet component is 25 percent of this map unit and is found on floodplains and valley flats with slopes of 0-2 percent, generally occurring at elevations of 6,215 to 7,970 feet. Parent material consists of alluvium derived from granitic and volcanic rocks. Depth to a restrictive feature is > 46 inches. Depth to water table varies seasonally from 0 to 40 inches. This soil is very poorly drained, with an available moderate water capacity of 5.5 inches. Soil is frequently flooded. Soil texture from 0 to 10 inches is mucky silt loam; at 10 to 27 inches soil texture is loam; at 27 to 32 inches soil texture is loamy fine sand; and at 32 to 46 inches soil texture is fine sand. **This soil meets hydric criteria.**

The Marla component is 10 percent of this map unit, and is found on outwash terraces and valley flats with slopes of 0-5 percent, generally occurring at an elevation of 6,215 to 6,495 feet. Parent material consists of alluvium derived from granodiorite. Depth to a restrictive feature is > 68 inches. Depth to water table varies seasonally from 12 to 79 inches. This soil is poorly drained, with an available moderate water capacity of 6.8 inches. Soil is rarely flooded. Soil texture from 0 to 3 inches is slightly decomposed plant material; at 3 to 47 inches soil texture is loamy coarse sand; at 47 to 59 inches soil texture is clay loam; and at 59 to 68 inches soil texture is stratified sandy loam to fine sandy loam. **This soil component meets hydric criteria.**

The Tahoe gravelly component is 5 percent of this map unit, found on floodplains and valley flats with slopes of 0-5 percent, generally occurring at an elevation of 6,215 to 7,725 feet. Parent material consists of alluvium derived from granitic and volcanic rocks. Depth to restrictive feature is > 46 inches. Depth to water table varies seasonally from 0 to 49 inches. This soil is poorly drained, with an available moderate water capacity of 5.5 inches. Soil is occasionally flooded. Soil texture from 0 to 10 inches is mucky gravelly silt loam; at 10 to 27 inches soil texture is gravelly loam; at 27 to 32 inches soil texture is gravelly loamy fine sand; and at 32 to 46 inches soil texture is gravelly fine sand. **This soil component meets hydric criteria.**

The Watah component is 5 percent of this map unit, found on fens, floodplains and valley flats with slopes of 0-2 percent, generally occurring at an elevation of 6,215 to 9,415 feet. Parent material consists

of organic material over alluvium. Depth to a restrictive feature is > 63 inches. Depth to water table varies seasonally from 0 to 40 inches. This soil is very poorly drained, with an available moderate water capacity of 5.8 inches. Soil is frequently flooded. Soil texture from 0 to 3 inches is peat; at 3 to 8 inches soil texture is mucky peat; at 8 to 15 inches soil texture is mucky gravelly coarse sandy loam; and at 15 to 63 inches soil texture is very gravelly loamy coarse sand. **This soil component meets hydric criteria.**

- Map Unit Symbol 7411: Cagwin-Rock outcrop complex, 5 to 15 percent slopes, extremely stony

The Cagwin component is 50 percent of this map unit and is found on hillslopes and mountain slopes with slopes of 5-15 percent, generally occurring at an elevation of 6,230 to 8,200 feet. Parent material consists of colluvium over grus derived from granodiorite. Depth to a restrictive feature is 20-39 inches consisting of paralithic bedrock. Depth to water table is >39 inches. This soil is somewhat excessively drained, with an available very low water capacity of 2.1 inches. Soil is not flooded. Soil texture from 0 to 1 inch is slightly decomposed plant material; at 1 to 13 inches soil texture is gravelly loamy coarse sand; at 13 to 27 inches soil texture is gravelly coarse sand; and at 27 to 37 inches soil texture is soft bedrock. **This soil does not meet hydric criteria.**

The Rock outcrop, granitic component is 20 percent of this map unit, and is found on mountains with slopes of 5-15 percent, generally occurring at an elevation of 6,970 to 9,890 feet. Parent material consists of granite. Depth to a restrictive feature is at the soil surface consisting of lithic bedrock. Depth to the water table is not noted. **This soil component does not meet hydric criteria.**

The Cassenai gravelly loamy coarse sand component is 10 percent of this map unit, found on hillslopes and mountain slopes with slopes of 5-15 percent, generally occurring at an elevation of 6,230 to 7,920 feet. Parent material consists of colluvium derived from granodiorite. Depth to restrictive feature is > 79 inches. Depth to water table is > 79 inches. This soil is somewhat excessively drained, with an available low water capacity of 4.4 inches. Soil is not flooded Soil texture from 0 to 1 inch is slightly decomposed plant material; and at 1 to 79 inches soil texture is gravelly loamy coarse sand. **This soil does not meet hydric criteria.**

The Toem component is 10 percent of this map unit, found on hillslopes and mountain slopes with slopes of 9-30 percent, generally occurring at an elevation of 6,230 to 8,265 feet. Parent material consists of colluvium and/or residuum weathered from granodiorite. Depth to restrictive feature is 10-20 inches consisting of paralithic bedrock. Depth to water table is > 32 inches. This soil is excessively drained, with an available very low water capacity of 1.4 inches. Soil is not flooded. Soil texture from 0 to 1 inch is slightly decomposed plant material; at 1 to 18 inches soil texture is very gravelly coarse sand; and at 18 to 32 inches soil texture is soft bedrock. **This soil does not meet hydric criteria.**

Very minor soil components include 5 percent Dagget very gravelly loamy coarse sand (**soil does not meet hydric criteria**), 2 percent Temo (**soil does not meet hydric criteria**), 2 percent Witefels (**soil does not meet hydric criteria**), and 1 percent Marla (**soil meets hydric criteria**).

- Map Unit Symbol 9011: Oxyaquic Cryothents-Aquic Xerothents-Tahoe complex, 0-15 percent slopes

The Oxyaquic Cryorthents component is 30 percent of this map unit, found on drainageways with slopes of 0-15 percent, generally occurring at an elevation of 6,220 to 7,790 feet. Parent material consists of alluvium and/or colluvium derived from mixed sources. Depth to restrictive feature is > 80 inches. Depth to water table is 20-39 inches. This soil is somewhat poorly drained, with an available low water capacity of 2.5 inches. Soil is frequently flooded. Soil texture at soil surface is moderately decomposed plant material; at 0 to 20 inches soil texture is gravelly loamy coarse sand; at 20 to 32 inches soil texture is very gravelly loamy coarse sand; at 32 to 52 inches soil texture is very gravelly coarse sand; and at 52 to 112 inches soil texture is coarse sand. **This soil meets hydric criteria.**

The Aquic xerothents component is 28 percent of this map unit, found on drainageways with slopes of 0-15 percent, generally occurring at an elevation of 6,220 to 7,790 feet. Parent material consists of alluvium and/or colluvium derived from mixed sources. Depth to restrictive feature is > 80 inches. Depth to water table is 20-39 inches. This soil is poorly drained, with an available moderate water capacity of 6.5 inches. Soil is frequently flooded. Soil texture at soil surface is moderately decomposed plant material; at 0 to 1 inch soil texture is highly decomposed plant material; at 1 to 9 inches soil texture is sandy loam; at 9 to 14 inches soil texture is coarse sandy loam; at 14 to 29 inches soil texture is sandy loam; at 29 to 41 inches soil texture is gravelly sandy loam; at 41 to 45 inches soil texture is loamy coarse sand; and at 45 to 59 inches soil texture is sandy loam. **This soil meets hydric criteria.**

The Tahoe gravelly component is 15 percent of this map unit, found on floodplains and valley flats with slopes of 0-5 percent, generally occurring at an elevation of 6,220 to 7,790 feet. Parent material consists of alluvium derived from granitic and volcanic rock. Depth to restrictive feature is > 80 inches. Depth to a high water table is 0-12 inches. This soil is poorly drained, with an available low water capacity of 5.5 inches. Soil is occasionally flooded. Soil texture at 0 to 10 inches is mucky gravelly silt loam; at 10 to 27 inches soil texture is gravelly loam; at 27 to 32 inches soil texture is gravelly loamy fine sand; and at 32 to 46 inches soil texture is gravelly fine sand. **This soil meets hydric criteria.**

The Watah component is 10 percent of this map unit, found on fens, floodplains and valley flats with slopes of 0-2 percent, generally occurring at an elevation of 6,215 to 9,415 feet. Parent material consists of organic material over alluvium. Depth to a restrictive feature is > 63 inches. Depth to water table varies seasonally from 0 to 40 inches. This soil is very poorly drained, with an available moderate water capacity of 5.8 inches. Soil is frequently flooded. Soil texture from 0 to 3 inches is peat; at 3 to 8 inches soil texture is mucky peat; at 8 to 15 inches soil texture is mucky gravelly coarse sandy loam; and at 15 to 63 inches soil texture is very gravelly loamy coarse sand. **This soil component meets hydric criteria.**

The Bidart mucky silt loam component is 10 percent of this map unit, found on floodplains and valley flats with slopes of 0-2 percent, generally occurring at an elevation of 6,985 to 9,265 feet. Parent material consists of alluvium derived from mixed sources. Depth to a restrictive feature is > 59 inches. Depth to water table varies seasonally from 0 to 49 inches. This soil is very poorly drained, with an available high water capacity of 9 inches. Soil is occasionaly flooded. Soil texture from 0 to 3 inches is moderately decomposed plant material; at 3 to 9 inches soil texture is mucky silt loam; at 9 to 16 inches soil texture is silt loam; at 16 to 17 inches soil texture is extremely gravelly coarse sand; at 17 to 39 inches soil texture

is very fine sandy loam; and at 39 to 59 inches soil texture is sandy loam. **This soil component meets hydric criteria.**

Additional minor components vary and may include 5 percent Marla (**soil meets hydric criteria**); and 2 percent Riverwash (**soil meets hydric criteria**) soils.

4.1.2 Vegetation

The project area is located at the east shore of Lake Tahoe at the foot of the Carson Range, a spur of the Sierra Nevada Mountains, in the High Sierra Nevada Floristic Province (Hickman 1993). Elevations range from 6,283 to 6,383 feet above mean sea level (AMSL). The project area has been altered by human-induced impacts, including timber harvest, and residential/commercial development, and supports conifer dominated uplands, emergent and forested/shrub wetlands, and ruderale vegetation.

4.1.2.1 Upland Communities

Coniferous Forest - Jeffrey Pine

The project area is surrounded by Jeffrey pine dominated forests, with some white fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*) and ponderosa pine (*P. ponderosa*) additional overstory associates. The shrub understory varies from sparse to solid stands within the forest, and is represented by snowbrush (*Ceonothus velutinus*), whitethorn (*C. cordulatus*), greenleaf manzanita (*Arctostaphlos patula*), mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), and rubber rabbitbrush (*Ericameria nauseosa*) shrubs. Occasional ground cover is provided by squawcarpet (*Ceonothus prostratus*) and bitter dogbane (*Apocynum androsaemifolium*), while common herbaceous species present in the understory include seeded wheatgrasses, California brome (*Bromus carinatus*) and bluegrasses (*Poa spp*). A few flowering natives observed include silver lupine (*Lupinus argenteus* var. *heteranthus*) and wooly mule's ears (*Wyethia mollis*).

Shrubland-Mountain Big Sagebrush, Rubber Rabbitbrush

Shrubland occurs on the margins of the coniferous forest, and as stands adjacent to and within the Dry Meadow vegetation type. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and rubber rabbitbrush (*Ericameria nauseosa*) are the dominant shrubs with herbaceous cover sparse to absent. When present, the herbaceous component consists of dry meadow species as described below.

Dry Meadow

Dry Meadow is adjacent to the wet meadow vegetation type and also present on elevated slopes. Typical graminoids include cheatgrass (*Bromus tectorum*), California brome, other brome species (*Bromus* spp.), wheatgrasses (*Elymus* spp.) and bluegrasses (*Poa* spp.). Common herbs observed include tumble mustard (*Sisymbrium altissimum*), tall annual willowherb (*Epilobium brachycarpum*), aster (S*ymphyotrichum* sp.), and prickly lettuce (*Lactuca serriola*).

Ruderale

Disturbed soils on road shoulders host opportunistic and for the most part annual plant species that take advantage of little competition, as well as native colonizers. Commonly observed grasses include bulbous

bluegrass (*Poa bulbosa*) and cheatgrass (*Bromus tectorum*). Flowering plants include white sweetclover (*Melilotus albus*), tall annual willowherb, curlycup gumweed (*Grindelia squarrosa*), pepperweeds (*Lepidium virginicum* and *L. perfoliatum*), prickly lettuce (*Lactuca serriola*), lambsquarters (*Chenopodium album*), yard knotweed (*Polygonum aviculare*), and tumble mustard (*Sisymbrium altissimum*).

4.1.2.2 Wetland Communities

Forested Shrub Wetlands

Forested shrub wetlands are found adjacent to Burke Creek with overstory tree cover variously provided by black cottonwood (*Populus trichocarpa*), quaking aspen, mountain alder (*Alnus incana* ssp. *tenuifolia*), Scouler's and Pacific willow (*Salix scouleriana* and *S. lasiandra* ssp. *lasiandra*). Dense to sparse shrub cover is provided by Lemmon's and arroyo willow (*S. lemmonii* and *S. lasiolepis*), redosier dogwood (*Cornus sericea* ssp. *sericea*) and Sierra current (*Ribes nevadense*). The herbaceous understory varies from completely absent to evident. When present it consists of mesic graminoids and forbs as described below for herbaceous wetlands.

Herbaceous Wetlands

Herbaceous dominated wetlands are found adjacent to Burke Creek at the ordinary high water mark, and in some roadside ditches. Typical saturated wetland vegetation includes patches of smallfruit bulrush (*Scirpus microcarpus*), bigleaf and Nebraska sedge (*Carex amplifolia* and *C. nebrascensis*), three-stamen rush (*Juncus ensifolius*), tall mannagrass (*Glyceria elata*), and big leaf avens (*Geum macrophyllum*). Baltic rush (*J. balticus* ssp. *ater*), creeping wildrye (*Leymus triticoides*), and horsetails (*Equisetum hymale* and *E. arvense*) tend to be more prevalent in seasonally drying wetlands. Bull thistle (*Cirsium vulgare*), a Group 2 Lake Tahoe Priority Invasive Weed, was found in such an environment.

A list of plant species encountered throughout the project area is contained in Appendix D.

4.1.3 Hydrology

The project area is located within the Lake Tahoe Basin, with Burke Creek, a perennial stream draining westwards to Lake Tahoe. According to the United States Geological Service (USGS), the project area is located within the Burke Creek sub basin (66) of Lake Tahoe, California and Nevada (Catalogue Unit 16050101), of the Truckee River Basin, California and Nevada (Accounting Unit 160501), of the greater Central Lahontan Basin (Subregion1605), within the Great Basin (Region 16).

4.2 POTENTIAL JURISDICTIONAL WETLANDS

4.2.1 Wetland Sample Sites

Based on the required wetlands parameters previously described, three potential wetland areas were delineated within the project area boundaries, and are depicted as Wetlands A and B, and Feature 1 on Figure 2. Figure 2 also presents sample site locations.

Two of the potential jurisdictional wetlands were found as herbaceous emergent wetlands and forested/shrub wetlands adjacent to Burke Creek, and one emergent/forested/shrub wetland was found

within a roadside ditch. Table 1 presents a summary of vegetation, hydrology, and soils characteristics found at all sample sites within the project area. Areas meeting the required criteria for jurisdictional wetland are described below.

Wetland A

Wetland A consisted of emergent and forested shrub wetland adjacent to Burke Creek west of US Highway 50 and contains Burke Creek (WOUS 1). This wetland was delineated by sample points RB-2, RB-4, RB-7, RB-8, RB-12 and RB-14. Dominant, hydrophytic vegetation consists variously of smallfruit bulrush, Nebraska sedge, bentgrasses (*Agrostis stolonifera* and *A exerata*), aster (*Symphyotrichum* sp.), big leaf avens, hairy willowherb (*Epilobium ciliatum*), and rushes providing herbaceous components. Overstory tree and shrub cover was variously contributed by quaking aspen, black cottonwood, mountain alder, Lemmon's willow, and Wood's rose (*Rosa woodsii* ssp. *ultramontana*). Observed wetland hydrology primary indicators included saturation from 0-8 inches, water table from 0-12 inches, drift deposits and oxidized rhizospheres that provided support for wetland hydrology findings. The predominant hydric soil indicator was depleted below dark surface, with depleted matrix, redox dark surface, black histic and thick dark surface also observed. Adjacent uplands consisted of dry meadow vegetation as described in section 4.1.2.1. Within the Cowardin wetland classification system, Wetland A would be described as a combination of palustrine emergent and forested/shrub wetlands, and would be considered a jurisdictional resource. See Table 1 for the sample point summaries associated with these wetlands.

Wetland B

Wetland B consisted of emergent and forested/shrub wetland adjacent to Burke Creek east of US Highway 50 and contains Burke Creek (WOUS 1). This wetland was delineated by sample points RB-15, RB-17, RB-19, and RB-21. Dominant, hydrophytic vegetation consists variously of smallfruit bulrush, big-leaf sedge, tall mannagrass (*Glyceria elata*), and additional sedges providing herbaceous components. Overstory tree and shrub cover was variously contributed by quaking aspen, mountain alder, Scouler's and Pacific willow. Observed wetland hydrology primary indicators included saturation from 0-3 inches, water table from 0-6 inches, drift deposits and oxidized rhizospheres that provided support for wetland hydrology findings. The predominant hydric soil indicator was depleted below dark surface, with sandy redox, and loamy mucky mineral also observed. Adjacent uplands consisted of open Jeffrey pine forest as described in section 4.1.2.1. Within the Cowardin wetland classification system, Wetland B would be described as a combination of palustrine emergent and forested/shrub wetlands, and would be considered a jurisdictional resource. See Table 1 for sample point summaries associated with these wetlands.

4.2.2 Other Wetland Features Investigated

Feature 1

Feature 1 occurred within a manmade channel constructed for the temporary relocation of Burke Creek for constriction of the airport/development. It currently receives stormwater that are conveyed through the stormwater system along Kahle drive to the Kahle Basin. This wetland feature was delineated by sample point RB-3. Dominant, hydrophytic vegetation consisted of Lemmon's and arroyo willow in the shrub overstory, with Baltic rushes, sedge, and spike bentgrass characterizing the herbaceous layer. The primary wetland hydrology indicator was saturation at 7 inches, with two secondary indicators,

geomorphic position and drainage patterns, provided support for the wetland hydrology finding. The soil profile consisted of well drained sands and cobble that prohibit organic concentrations, with hydrophytic vegetation and wetland hydrology assuming hydric soils. The 44 foot long ditch collects runoff from US Highway 50 and perhaps overflows from Burke Creek. Through a series of culverts and piping, flow is conveyed across Kahle Drive to a detention basin, and then back to Burke Creek prior to its terminus at Lake Tahoe. Within the Cowardin wetland classification system, Feature 1 would be described as a palustrine scrub-shrub wetland with an emergent wetland understory, and may be considered a jurisdictional resource as there is connectivity to Lake Tahoe via Burke Creek. See Table 1 for the sample point summary associated with this feature.

Table 1. Summary of Vegetation, Hydrology, and Soils Characteristics Found at Sample Sites Within the Project Area, May 2012

Sample Site Number	Dominant Plant Species % Absolute Cover	Region 0 Indicator Status	Wetland Hydrology Indicators	Depth Inches	Hydric Soil Indicators	Potential Wetlands
RB-1	Elymus hispidus (30%)	UPL	None	> 20	Depleted below dark surface	Upland
RB -2	Populus trichocarpa (10%) Salix lemmonii (55%) Scirpus microcarpus (60%)	FAC FACW OBL	Saturation Drift deposits Oxidized rhizospheres	8	Depleted below dark surface Thick dark surface	Wetland A
RB -3	Salix lemmonii (15%) Salix lasiolepis (25%) Juncus balticus ssp. ater (10%) Carex sp. (20%) Agrostis exerata (15%)	FACW FACW FACW FACW-OBL FACW	Saturation Water table	7 15	Wetland hydrology and hydrophytic vegetation imply hydric soils in historic, disturbed channel	Feature 1
RB -4	Rosa woodsii (5%) Epilobium ciliatum (15%) Hordeum brachyantherum (15%) Juncus ensifolius (10%)	UPL FACW FACW FACW	Saturation Water table	3.5 8	Depleted below dark surface	Wetland A
RB -5	Elymus hispidus (45%)	UPL	None	>20	None	Upland
RB -6	Festuca idahoensis (305%) Achillea millefolium (15%) Symphyotrichum sp. (15%)	FACU FACU FAC-FACU	None	>16	Depleted below dark surface	Upland

Sample Site Number	Dominant Plant Species % Absolute Cover	Region 0 Indicator Status	Wetland Hydrology Indicators	Depth Inches	Hydric Soil Indicators	Potential Wetlands
RB -7	Salix lemmonii (35%) Carex nebrascensis (15%) Carex sp. (15%)	FACW OBL FAC-OBL	Saturation Water table	2.5 6	Depleted below dark surface Depleted matrix	Wetland A
RB -8	Symphyotrichum sp. (20%) Agrostis stolonifera (15%) Alnus incana ssp. tenuifolia (25%)	FAC-FACU FAC FACW	Saturation Water table	3 11	Depleted matrix	Wetland A
RB -9	Elymus hispidus (30%)	UPL	None	>20	None	Upland
RB -10	Festuca sp. (20%) Bromus carinatus (15%) Elymus hispidus (10%)	FACU UPL UPL	None	>20	None	Upland
RB -11	Elymus hispidus (30%)	UPL	None	>20	None	Upland
RB -12	Juncus ensifolius (15%) Epilobium ciliatum (10%) Typha sp. (10%)	FACW FACW OBL	Surface water Saturation	0 6	Redox dark surface	Wetland A
RB -13	Epilobium ciliatum (25%) Poa bulbosa (15%) Festuca sp. (10%)	FACW UPL FACU	None	>20	Depleted below dark surface	Upland
RB -14	Scirpus microcarpus (30%) Carex sp. (10%)	OBL OBL-FACW	Saturation Water table Oxidized rhizospheres Geomorphic position Fac-neutral test	3 12	Black Histic	Wetland A
RB -15	Scirpus microcarpus (50%)	OBL	Saturation Water table	0 6	Depleted below dark surface Sandy redox	Wetland B

Sample Site Number	Dominant Plant Species % Absolute Cover	Region 0 Indicator Status	Wetland Hydrology Indicators	Depth Inches	Hydric Soil Indicators	Potential Wetlands
			Geomorphic position Fac-neutral test			
RB -16	Pinus jeffreyi (70%) Populus tremuloides (15%) Poa pratensis (5%) Elymus hispidus (5%) Poa bulbosa (5%)	UPL FAC FAC UPL UPL	None	>20	None	Upland
RB -17	Alnus incana (20%) ssp. tenuifolia Salix scouleriana (10%) Alnus incana (10%) ssp. tenuifolia Scirpus microcarpus (10%) Carex sp. (10%)	FACW FAC FACW OBL FACW- OBL	Saturation Sediment deposits Geomorphic position	2	Depleted below dark surface	Wetland B
RB -18	Salix scouleriana (50%)	FAC	None		None	Upland
RB -19	Populus tremuloides (25%) Glyceria elata (10%) Carex sp. (5%) Carex deweyana (5%) ssp. leptopoda	FAC FACW FACW FAC	Saturation Water table Drift deposits Algal mats Iron deposits Water stained leaves	0 >10	Depleted below dark surface Loamy mucky mineral	Wetland B
RB -20	Populus tremuloides (40%) Populus tremuloides (5%) Poa pratensis (20%)	FAC FAC FAC	None	>19	None	Upland

Sample Site Number	Dominant Plant Species % Absolute Cover	Region 0 Indicator Status	Wetland Hydrology Indicators	Depth Inches	Hydric Soil Indicators	Potential Wetlands
RB -21	Populus tremuloides (30%) Populus tremuloides (10%) Carex amplifolia (20%)	FAC FAC OBL	Saturation Water table Sediment deposits Geomorphic position	3 6	Depleted below dark surface Loamy mucky mineral	Wetland B
RB -22	Pinus jeffreyi (10%) Ceanothus cordulatus (10%) Arctostaphylos patula (10%)	UPL UPL UPL	None		None	Upland

4.2.3 Waters of the U.S.

One perennial WOUS and one other feature were identified as occurring within the project area as illustrated on Figure 2 and are described below. Appendix B contains a data form for each watercourse, while Appendix C contains photographs of these resources.

WOUS 1

Burke Creek is a perennial stream that drains west to Lake Tahoe, an interstate navigable water. The defined channel drains from the east end of the project area under US Highway 50 via a culvert, to the west end of the project area. It then continues to flow through Rabe Meadow and outlets at Lake Tahoe. The total length of WOUS 1 is approximately 2178 linear feet within the project area, and has an average width of 24 inches. Where Wetland A and Wetland B occur, they encompass WOUS 1 within the project area. WOUS 1 is presumed to be a jurisdictional resource.

4.2.4 Other Features Investigated

One additional topographic feature was investigated that appears to be non-jurisdictional in nature, as it is a constructed, rocklined ditch built to capture surface runoff from the adjacent ballpark (Appendix E). This feature is illustrated on Figure 2.

Feature 2

Feature 2 was a constructed, partially rocklined ditch designed to capture surface runoff. The stormwater conveyance was located east of US Highway 50 on the south side of Burke Creek. The 163 foot long ditch drains directly to Burke Creek. While there was a surface water connection to Burke Creek (WOUS 1), this feature is manmade and thus considered to be a non-jurisdictional resource.

5.0 SUMMARY OF RESULTS

The 2012 field survey identified potential waters of the United States that included wetlands within the proposed Burke Creek/Rabe Meadows Stream Restoration Project area. These included Wetlands A and B, (includes WOUS 1 as this WOUS supports these wetlands), that were documented as having the three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Furthermore, these wetlands had surface hydrology connectivity to other jurisdictional resources.

Additional features investigated within the proposed Burke Creek/Rabe Meadows Stream Restoration Project area included two manmade conveyance features, one of which supports wetland vegetation. These features while having surface hydrology connectivity to Burke Creek, are manmade, currently serve as stormwater conveyance features and thus proposed as not jurisdictional.

The field survey also documented one potential WOUS within the proposed Burke Creek/Rabe Meadows Complex Project. One perennial watercourse was identified within the project area, with a nexus to a navigable water – Lake Tahoe.

Table 2 presents potential jurisdictional resources within the project area. These resources require verification by the USACE.

Table 2. Summary of Potential Jurisdictional Resources

Potential Jurisdictional Wetlands and WOUS	**Acres**
Wetland A (WOUS 1)	1.96
Wetland B (WOUS 1)	0.61
Total Acres	2.57

WOUS 1 (Burke Creek)	
Total Linear Feet	2178

6.0 REFERENCES

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APPENDIX A

Figures

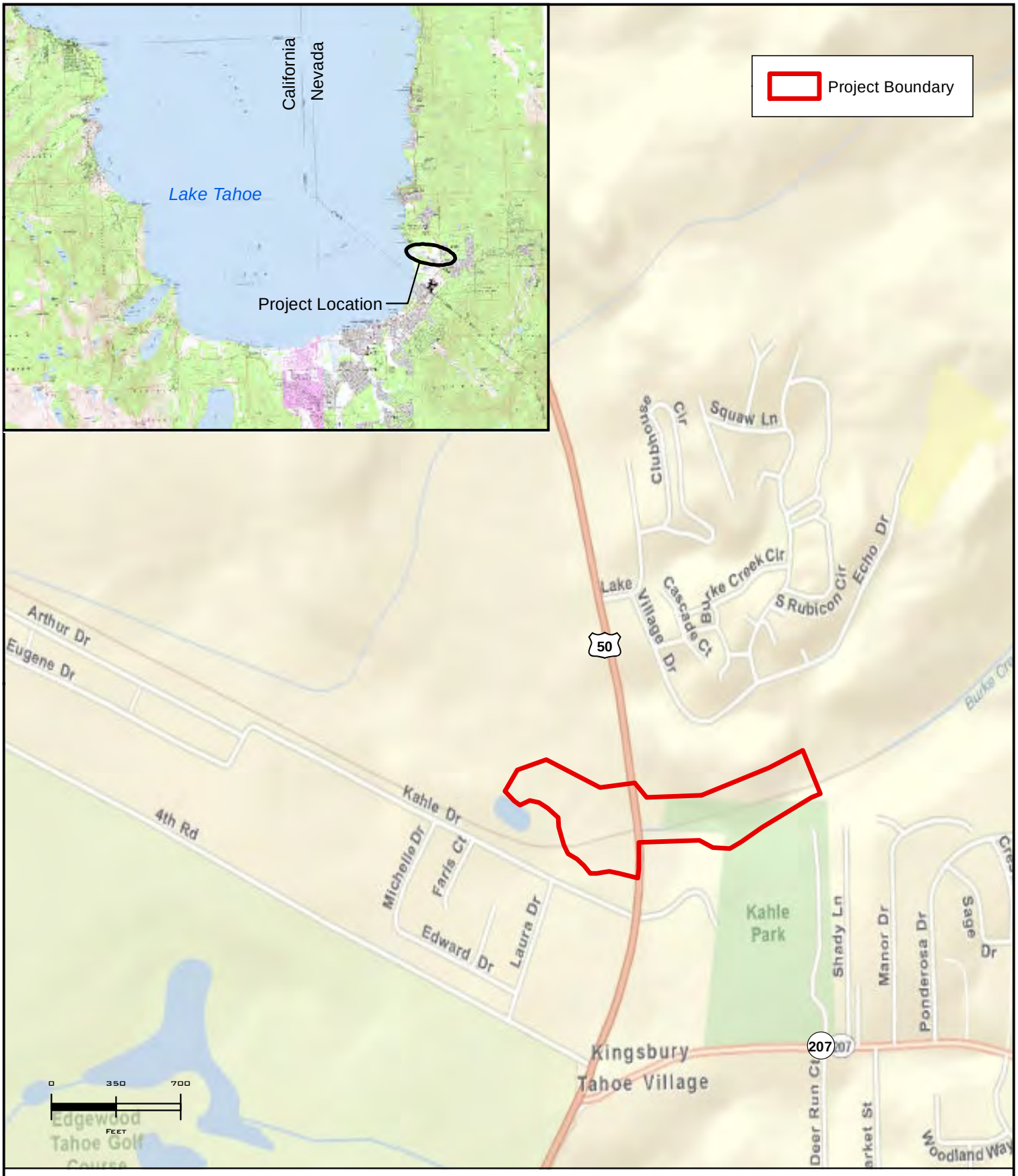

FIGURE 1: VICINITY MAP
BURKE CREEK-RABE MEADOWS
STREAM RESTORATION
WETLANDS DELINEATION
DOUGLAS COUNTY, NV
JULY, 2012

NOTES:
BACKGROUND: ESRI

Nevada Tahoe Conservation District

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS
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Reno, NV 89511 Fax: 775.823.4068

FIGURE 2-1: POTENTIAL JURISDICTIONAL RESOURCES

BURKE CREEK-RABE MEADOWS
STREAM RESTORATION
WETLANDS DELINEATION
DOUGLAS COUNTY, NV
JULY, 2012

NORTH

0 50 100
FEET

NOTES:
AERIAL: DOUGLAS COUNTY 2007
TOPOGRAPHY: SURVEY & LIDAR FROM OPEN TOPOGRAPHY

RB-9
RB-8
RB-6
RB-7
RB-10
RB-11
RB-12
RB-13
RB-5
RB-4
RB-14
RB-2
RB-1
RB-3
Wetland A
Irwin Drive
Kahle Drive
Laura Drive
Lake Tahoe Boulevard (US 50)

- Sample Point
- Matchline
- Existing Flowline
- Feature 1
- Feature 2
- Wetland
- Project Boundary
- 1' Index Contour
- 1' Intermediate Contour
- Existing Culvert
- Existing Edge Of Pavement

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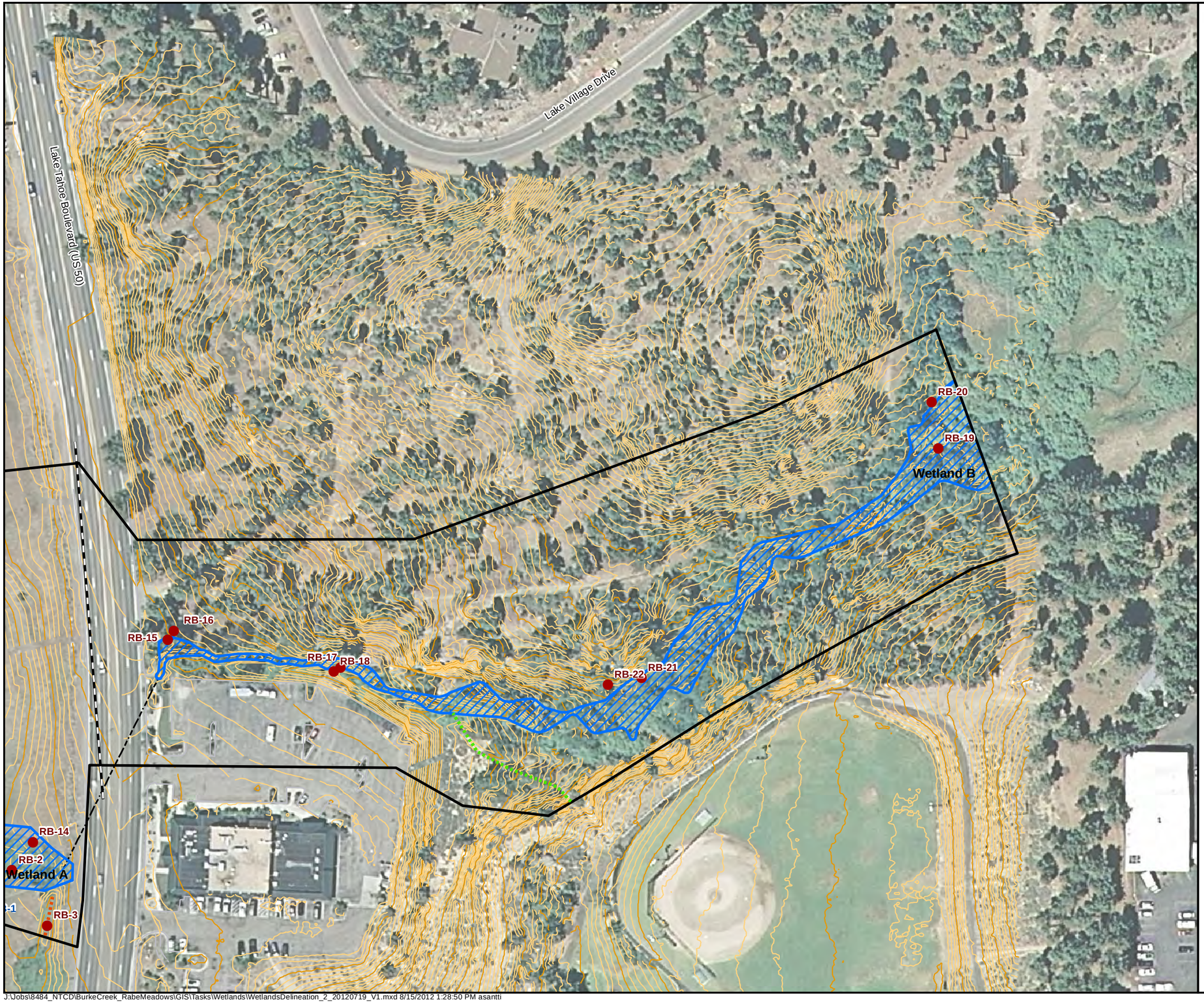
FIGURE 2-2: POTENTIAL JURISDICTIONAL RESOURCES

BURKE CREEK-RABE MEADOWS
STREAM RESTORATION
WETLANDS DELINEATION
DOUGLAS COUNTY, NV
JULY, 2012



NORTH

0 50 100
FEET

NOTES:
AERIAL: DOUGLAS COUNTY 2007
TOPOGRAPHY: SURVEY & LIDAR FROM OPEN TOPOGRAPHY

- Sample Point
- Matchline
- Feature 1
- Feature 2
- Wetland
- Project Boundary
- 1' Index Contour
- 1' Intermediate Contour
- Existing Culvert
- Existing Edge Of Pavement

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J:\Jobs\8484_NTCD\BurkeCreek_RabeMeadows\GIS\Tasks\Wetlands\WetlandsDelineation_2_20120719_V1.mxd 8/15/2012 1:28:50 PM asantti

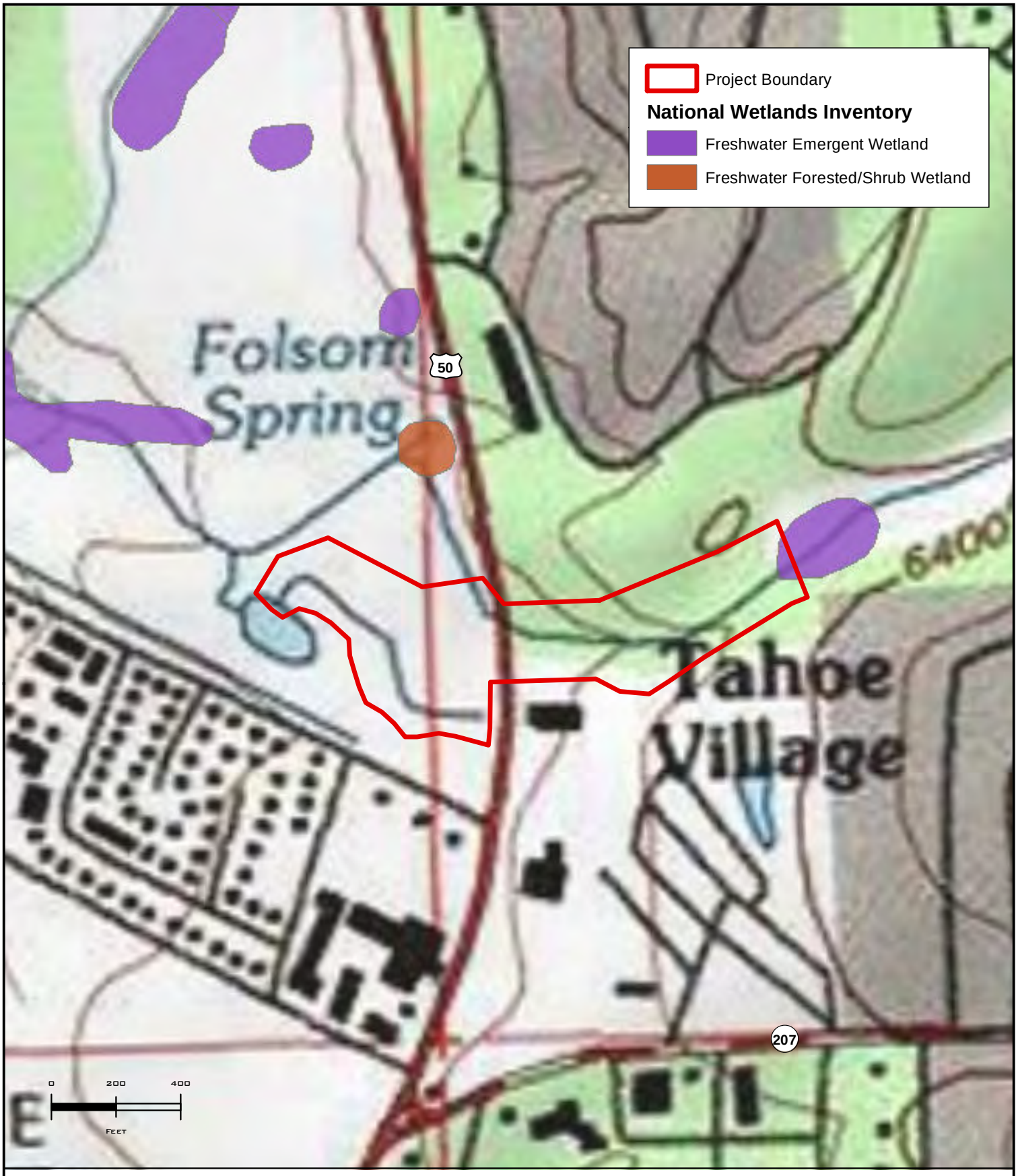

FIGURE 3: NATIONAL WETLANDS INVENTORY
BURKE CREEK-RABE MEADOWS
STREAM RESTORATION
WETLANDS DELINEATION
DOUGLAS COUNTY, NV
JULY, 2012

NOTES:
BACKGROUND: ESRI

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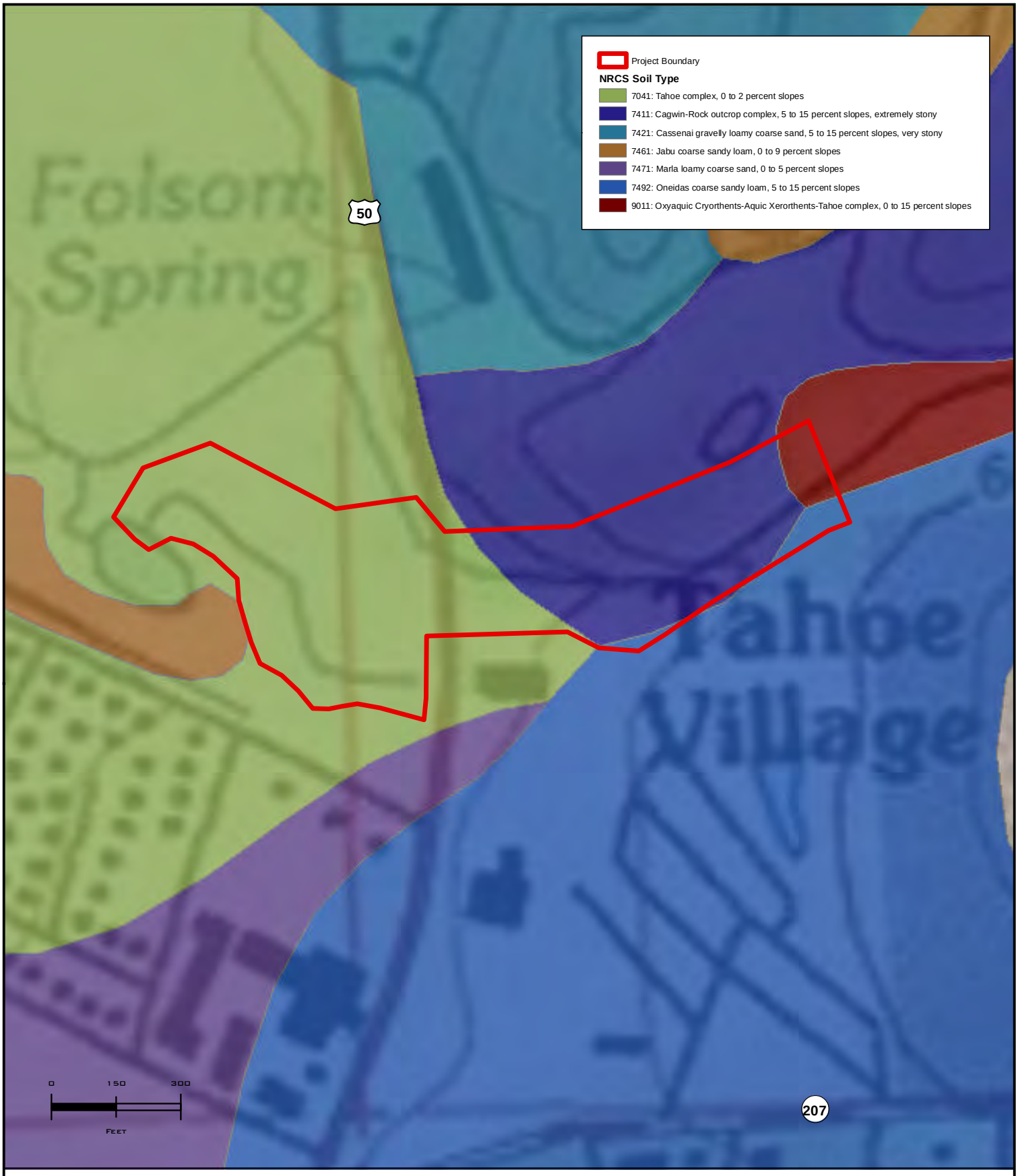

FIGURE 4: PROJECT AREA SOILS

BURKE CREEK-RABE MEADOWS
STREAM RESTORATION
WETLANDS DELINEATION
DOUGLAS COUNTY, NV
JULY, 2012

NOTES:
BACKGROUND: ESRI

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APPENDIX B

Site Investigation Wetland and WOUS Data Forms

Observer: J. Picciani			**Project Number:**			**Field Measurements (inches)**		
Date: 5/9/2012			**Project Name:** Bullet Creek Rabe Meadows Stream Restoration			**Length**	**Depth**	**Width**
GPS: NAD83 Zone 11S			**Sample Number:** WOUS 1					
Ordinary High Water Mark Indicators for Perennial Waters of the United States			**Ephemeral Drainage Indicators for Waters of the United States**			0 ft.	36	24
						~~114~~ ~~15 ft.~~	36	36
Line Impressed on Bank?	(Yes)	No	Defined Bed & Bank?	Yes	No	~~116~~ ~~30 ft.~~	24	36
Shelving?	(Yes)	No	Ordinary High Water Mark?	Yes	No	~~117~~ ~~45 ft.~~	48	36
Change in Soil Character?	(Yes)	No	Shelving?	Yes	No	~~118~~ ~~60 ft.~~	72	36
Destruction of Vegetation?	(Yes)	No	Vegetation Break?	Yes	No	~~120~~ ~~75 ft.~~	72	36
Litter and/or Debris Present?	Yes	No	Scoured Bed?	Yes	No	~~121~~ ~~90 ft.~~	72	36
(Photo points and field diagram below)			Association with feature related to interstate commerce?	Yes	No	105 ft.		

photo ↓ upstream from culvert at Off - Hwy 50 - E of US50

photo ↓ downstream @ 30ft - bend in creek upstream alignment

creek quite incised, some herbaceous wetlands each side of creek near Hwy 50

0ft = US50 culvert

wp 114 36"w - wetland 18" each side of stream

wp 116 36"w - wetland 24" "

wp 117 36"w - wetland 12"w N side; 24"w S side

wp 118 36"w - wetland 24"w each side of stream

wp 120 36"w - same

wp 121 36"w - end herbaceous component, Salix scouleriana, Populus trenuloides 48" wide each side of stream

perennial stream flows west under US50, discharges into Lake Tahoe, an interstate WOUS

5/10/2012

wp 125-129 channel incised 4-6' top of bank

wp 129 west to US50 most woody veg rooted @ OHWM

7/11/2012

wp 141-161 - wetland boundary S side of stream; wp 162-178, 179-200 } N side of creek

depth = from top of bank to water surface

Observer: J. Picciani			**Project Number:**			**Field Measurements (inches)**		
Date: 5/9/2012			**Project Name:** Burke Creek Rabe Meadows stream Restration					
GPS: NAD83 Zone 11S			**Sample Number:** WOUS 1			**Length**	**Depth**	**Width**
Ordinary High Water Mark Indicators for Perennial Waters of the United States			**Ephemeral Drainage Indicators for Waters of the United States**			**0 ft.**	6	48
						3 ~~15~~ ft.	4	24
Line Impressed on Bank?	Yes	(No)	Defined Bed & Bank?	Yes	No	~~20~~ ~~30~~ ft.		24
Shelving?	(Yes)	No	Ordinary High Water Mark?	Yes	No	125 ~~45~~ ft.		24
Change in Soil Character?	(Yes)	No	Shelving?	Yes	No	145 ~~60~~ ft.		30
Destruction of Vegetation?	(Yes)	No	Vegetation Break?	Yes	No	**75 ft.**		
Litter and/or Debris Present?	Yes	(No)	Scoured Bed?	Yes	No	**90 ft.**		
(Photo points and field diagram below)			Association with feature related to interstate commerce?	Yes	No	**105 ft.**		

west of US 50

0 ft @ US 50 culvert w/in willow overstory

3 ft - w/in willow overstory

125 ft - channel becomes braided - 2 main channels each 24" w

145 ft - back to one main channel

perennial stream flows west, discharging into Lake Tahoe, 2 WOUS

Observer: J. Picciani			**Project Number:**			**Field Measurements (inches)**		
Date: 12/06/2011			**Project Name:** Burke Creek Rabe Meadows Stream Restoration					
GPS: NAD 83 Zone 11S			**Sample Number:** Feature 1			**Length**	**Depth**	**Width**
Ordinary High Water Mark Indicators for Perennial Waters of the United States			**Ephemeral Drainage Indicators for Waters of the United States**			wp ~~5~~ 0 ft.	48	24
						wp ~~6~~ 15 ft.	36	48
Line Impressed on Bank?	Yes	No	Defined Bed & Bank?	(Yes)	No	wp ~~7~~ 30 ft.	36	60
Shelving?	Yes	No	Ordinary High Water Mark?	Yes	(No)	45 ft.		
Change in Soil Character?	Yes	No	Shelving?	Yes	(No)	60 ft.		
Destruction of Vegetation?	Yes	No	Vegetation Break?	Yes	(No)	75 ft.		
Litter and/or Debris Present?	Yes	No	Scoured Bed?	Yes	(No)	90 ft.		
(Photo points and field diagram below)			Association with feature related to interstate commerce?	(Yes)	No	105 ft.		

constructed stormwater conveyance adjacent to west side of US 50 Essentially a vegetated swale supporting wetland vegetation.
Receives runoff from highway, piped water from east side of US 50 and perhaps overflow from Burke Creek just north of swale end.
@ Oft wp #5 - N side of Kahle Dr. this is S end-at 24" culvet, partially silted in. This goes under Kahle Dr eventually to retention/detention basin, then back under Kahle Dr to end up in Burke Creek. (Photo VS) (not in project)
@ wp #6 piped water currently flowing into this conveyance (photo VE)
@ wp #7 - end of conveyance just south of Burke Creek - photo V N

Note: sample point RB-3, 5/112 in this swale/ conveyance documents vegetation

$\bar{x}$ width = 4.5' = 54"

Observer: J. Picciani			**Project Number:**				**Field Measurements (inches)**			
Date: 5/9/2012			**Project Name:** Burke Creek Lake Meadows Stream Restoration							
GPS: NAD83 UTMS Zone 11S			**Sample Number:** Feature 2				**Length**	**Depth**	**Width**	
Ordinary High Water Mark Indicators for Perennial Waters of the United States			**Ephemeral Drainage Indicators for Waters of the United States**				**0 ft.**		36	
							15 ft.		36	
Line Impressed on Bank?	Yes	No	Defined Bed & Bank?	(Yes)	No		**30 ft.**		48	
Shelving?	Yes	No	Ordinary High Water Mark?	Yes	(No)		**45 ft.**		36	
Change in Soil Character?	Yes	No	Shelving?	Yes	(No)		**60 ft.**		36	
Destruction of Vegetation?	Yes	No	Vegetation Break?	Yes	(No)		**75 ft.**			
Litter and/or Debris Present?	Yes	No	Scoured Bed?	Yes	(No)		**90 ft.**			
(Photo points and field diagram below)			Association with feature related to interstate commerce?	(Yes)	No		**105 ft.**			

constructed.
rock lined stormwater conveyance - flow from ball field in park flows northwest down hillside into rock-lined channel parallel to constructed berm above parking lot, then to Burke Creek.
Flows observed in 2011 spring by M. Pook, NTCA. This May visit dry, with mountain sagebrush growing w/in rocks.
waypoints 18 to 21 show flowline to project boundary collected 5/9/2012.
Additional waypoints 138, 139 collected 7/11/2012 to show connection to Burke Creek. This conveys stormwater runoff directly to Burke Creek, a WOUS, as Burke Creek empties into Lake Tahoe.

Photos 46-48, 12/8/2011, also 7/11/2012 photo VS from creek confluence

located east of US highway 50.
$\bar{x}$ width = 38.4"
1786+ long

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region 5/8/2012

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 12/6/2011
Applicant/Owner: NTCD State: NV Sampling Point: RB-1
Investigator(s): J. Piccioni Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2-3
Subregion (LRR): MLRA 22A Lat: 4317858 N Long: 245690 E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% slope 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 ____ No ✓
Hydric Soil Present? Yes ✓ No ____
Wetland Hydrology Present? Yes ____ No ✓
Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:
WP#2 plot S of Burke Creek + N of Kahle Dr, just W of Hwy 50
11S 245690, 4317858

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 50x50')			
1. Elymus hispidus	30	✓	UPL
2. Symphyotrichum sp.	10		FAC-FACW
3. Lupinus grayi	5		UPL
4. Bromus tectorum	5		UPL
5. Lactuca serriola	T		FACU
6. Epilobium brachycarpum	T		UPL
7. moss	5		
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum 5			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
% Litter = 45% veg is dry, but standing moss collected #1
Elymus spp. rhizomatous - collected = Elytrigia intermedia ssp. intermedia for positive ID in seed lab
Elymus hispidus

SOIL

Sampling Point: RB-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-.5								Litter
.5-4	10YR 3/2	100					gravelly silty loam	
4-20	10YR 4/3	95	5YR 5/8	5	C	M	gravelly silty clay w/ prominent mottles	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: remnant soil relict of historic alignment

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

			12/6/2011	5/8/2012
Surface Water Present?	Yes ___	No ✓	Depth (inches): ___	
Water Table Present?	Yes ___	No ✓	Depth (inches): >20	>20
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): >20	>20

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks: this late in season not capturing maximum hydrology plot ≈ 75' S of Burke Creek on a slight rise revisited plot 5/8/2012 results indicate lack of wetland hydrology

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012 12/06/2011
Applicant/Owner: NTCD State: NV Sampling Point: RB-2
Investigator(s): J. Piccioni Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): MLRA 27A Lat: 4317674N Long: 245699E Datum: NAD 83
Soil Map Unit Name: Tahoe Complex 0-2% slopes 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 ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: plot on S side of Burke Creek, just west of Hwy 50 WP #3 11S

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 40'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus trichocarpa	10	✓	FAC
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 40'x30')			
1. Salix lemmonii	55	✓	FACW
*2. Populus tremuloides	15		FAC
3. Rosa woodsii	10		FACU
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 40'x30')			
1. Scirpus microcarpus	60	✓	OBL
2. Geum macrophyllum	10		FAC
3. Epilobium ciliatum	T		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 12/6/11 flowerheads still present on Scirpus, willow, aspen dormant, leaves fallen * = 1988 Ind Status for P. tremuloides + Geum macrophyllum

SOIL

Sampling Point: RB-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR2/1	100						silty loam
8-15	10YR2/1	70	7.5YR5/8	10	C	M		silty loam,
			2.5Y5/2	20	D	M		clayey sand
15-17	2.5Y5/2	100						gravelly clay
17-20	10YR2/1	100						loamy clay

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

@ 8-17 reduction/oxidation on sand grains + gravel

@ 8-15 prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches):	12/2011 / 5/8/2012
Water Table Present?	Yes ✓	No ___	Depth (inches):	20" / 20"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches):	18" / 8"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: hydric soils + vegetation as hydrophytic also assume wetland hydrology. At maximum hydrology this is probably wet @ surface, if not ~~inundated~~

revisited 5/8/2012

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

5/8/2012

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 12/06/2011

Applicant/Owner: NLD State: NV Sampling Point: RB-3

Investigator(s): J. Piccard Section, Township, Range:

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): MLRA 22A Lat: 4317656 N Long: 245712 E Datum: NAD83

Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: plot in roadside swale adjacent to west side of US50; and WP#4 just S of Burke Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5'X35')			
1. Salix lemmonii	15	✓	FACW
2. Salix lasiolepis	25	✓	FACW
3.			
4.			
5.			
	40 = Total Cover		
Herb Stratum (Plot size: 5'X35')			
1. Juncus balticus ssp. ater	10	✓	FACW
2. Carex sp.	20	✓	FACW-OBL
3. Agrostis exerata	15	✓	FACW
4. Bulbex crispus	T		FAC
5. Medilotus sp.	5		FACU
6. Epilobium brachycarpum	5		UPL
7. Epilobium ciliatum	T		FACW
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Litter = 30% * = 1988 Ind Status for J. balticus = J. arcticus 2012

Carex sp., not in flower, rhizo + bright green C. aquatilis?

SOIL

Sampling Point: RB-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-.5								litter
.5-8	10YR 2/2	100						silty sand
8-12	7.5YR 3/3	100					Coarse sand/cobble	
12-20	7.5YR 3/3	30	7.5YR 3/4	70	C	M	silty sand/cobble	oxidized patches

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ✓ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: constructed swale w/ barrier fabric @ 7" below this is river rock w/ soil - in old Burke Creek channel alignment, well drained nature of 8-20" prohibits organic concentrations or muck

wetland hydrology + vegetation indicators, prohibits hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

			12/2011	5/2012
Surface Water Present?	Yes ___	No ✓	Depth (inches): ___	
Water Table Present?	Yes ✓	No ___	Depth (inches): >20	15
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): >20	7

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: this time of year no surface connection to Burke Creek but in high flow years, Burke Creek could spill over to this conveyance; also captures US 50 runoff via footpath @ N end of swale, just S of Burke Creek

revisited 5/8/2012; note saturation below barrier fabric thus channel at one time the active Burke Creek see historical photo

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

5/8/2012

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 12/7/2011

Applicant/Owner: NTCD State: NV Sampling Point: RVB-4

Investigator(s): J. Picciani Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): MLRA 22A Lat: 4317707N Long: 0245618E Datum: NAD83

Soil Map Unit Name: Talloe Complex, 0-2% slopes 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 ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: plot located west of Burke Creek ~45' in wet meadow edge
Wp#12 Zone 11S (2011) wp 31 2012 245618 4317707

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 20'x30')			
1. Salix exigua	T		FACW
2. Rosa woodsii	5	✓	FAC
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 20'x30')			
1. Epilobium ciliatum	15	✓	FACW
2. Hordeum brachyantherum	5	✓	FACW
3. Juncus ensifolius	10	✓	FACW
4. Poa palustris	5		FAC
5. Agrostis exerata	5		FACW
6. Deschampsia cespitosa	5		FACW
7. Veronica sp.	5		OBL
8. Juncus sp.	5		FAC-OBL
9. Cirsium vulgare	T		FACU
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% ice = 25% 5
% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: plants in dormancy, some identifiable to species level, some collected to determine positive ID
1996 list

SOIL

Sampling Point: RB-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1.5								litter
1.5-4.5	10YR 3/2	100						fine sandy loam
4.5-12	10YR 3/2	75	7.5YR 5/8	3-5	C	M		gravelly Sandy Loam
			10YR 4/4	20	D	M		Sandy loam @ 4.5-12" prominent mottles

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Ice 12/2011

Depth (inches): 1"

Hydric Soil Present? Yes ✓ No ___

Remarks:

2011 ground frozen w/ 1" ice over surface given hydrophytic species + inundation, soils assumed hydric; revisited 2012 see above combination of depletions + mottles illustrated data reduction in soils

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No ___	Depth (inches): 1 (12/20/11) 9/2012
Water Table Present?	Yes ✓	No ___	Depth (inches): 8"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 3.5"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

2011 1" of ice over soil surface unable to penetrate frozen soil that supports hydrophytic vegetation 2012 visit see data

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-5
Investigator(s): J. Picciani, M. Pook Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 9
Subregion (LRR): MLRA 22A Lat: 4317710 N Long: 245612E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot ~20ft SW of RB-4
WP32 245612, 4317710

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 30'x30')			
1. Elymus hispidus	45	✓	UPL
2.			
3. Taraxacum officinale	5		FACU
4. Draba verna	T		UPL
5. Microsteris gracilis	T		FACU
6. Festuca idahoensis	5		FACU
7. Festuca sp. (annual) (aka Vulpia)	10		FACU
8.			
9.			
10.			
11.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 15 % moss = 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
grasses just greening up - old seed heads present
Taraxacum forming flowers % litter = 15%

SOIL

Sampling Point: RB-5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/3	95	5YR 3/4	2	C	M	loamy sand	distinct mottles
			5Y 4/2	2	D	M		
12-20	10YR 5/4	90	5Y 6/2	2	D	M	silty clay loam	
	10YR 4/3	5					loamy sand	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:
mottling in upper profile may indicate occasional flooding/ overflow from Burke Creek onto slope

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >20

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012

Applicant/Owner: NTCD State: NV Sampling Point: RB-6

Investigator(s): J. Picciani Section, Township, Range: ______

Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex Slope (%): 1-2

Subregion (LRR): MLRA 22A Lat: 4317792 N Long: 245552 E Datum: NAD 83

Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ___ No ✓	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks: plot on S toe of upland slope ≈ 30' from pond margin
wp33 245552, 4317792

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 10' x 50')			
1. Festuca idahoensis	30	✓	FACU
2. Achillea millefolium	15	✓	FACU
3. Symphyotrichum sp.	15	✓	FAC, FACU
4. Eriogonum umbellatum	T		UPL
5. Collinsia parviflora	T		UPL
6. Lathyrus sp.	10		UPL
7. Taraxacum officinale	T		FACU
8. Festuca sp. aka Vulpia sp	T		FACU
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: 10% litter 5% moss adj upland slope seeded w/ same species + Ericameria nauseosa
Aster + Lathyrus w/o flowers Elytrigia intermedia
assume Art tri vas
of Aster sp a wetland species

SOIL

Sampling Point: RB-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	100					loamy sand	
6-10	2.5Y 5/2	80	10YR 4/6	20	C	M	silty clay loam	prominent mottles
10-16	2.5Y 5/4	100					loamy coarse sand	
16-17	10YR 4/6	100					loamy clay	
17-20	10YR 5/1	100					loamy clay	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

@ 10-16 decomposed granite w/ pyrite in loam

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 14

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-7
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317786 N Long: 245545E Datum: NAD 83
Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks:
wp 34 245545, 4317786

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10X30)			
1. Salix lemmonii	35	✓	FACW
2. Salix exigua	10		FACW
3.			
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: 10X30)			
1. Carex nebrascensis	15	✓	OBL
2. *Juncus balticus ssp. ater	5		FACW
3. Carex sp	15	✓	FACW-OBL
4. Scirpus microcarpus	10		OBL
5. Agrostis stolonifera	10		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
Carex sp - rhizo assume wetland species
% litter = 20% moss 5% * = 1988 Ind Status = J. arcticus 2012

SOIL

Sampling Point: RB-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								O Layer
1-2.5	2.5Y3/2	100						Silty clay loam
2.5-6	2.5Y4/1	90	7.5YR3/4	10	C	M		Sandy clay loam w/prominent mottles

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2.5

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012

Applicant/Owner: NTCD State: NV Sampling Point: RB 8

Investigator(s): J. Piccioni ; M. Pook Section, Township, Range:

Landform (hillslope, terrace, etc.): low terrace adj to stream Local relief (concave, convex, none): none Slope (%): 2 %

Subregion (LRR): MLRA 22A Lat: 4317813 N Long: 245575 E Datum: NAD83

Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: WP # 77 Plot on north side of Burke Creek between stream and toe of slope. 245575, 4317813

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 x 25)			
1. Alnus incana ssp. tenuifolia	25	✓	FACW
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10 x 25)			
1. Symphyotrichum sp (Aster sp)	20	✓	FAC-FACW
2. ~~X~~ Juncus balticus ssp. ater	5		FACW
3. Agrostis stolonifera	15	✓	FAC
4. Achillea millifolium	5		FACU
5. Festuca idahoensis	T		FACU
6. Taraxacum officinale	T		FACU
7. poa pratensis	5		FAC
8. Carex nebrascensis	T		OBL
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 30% litter layer

Assume aster sp. is hydrophytic. * = 1988 Ind Status = J. arcticus 2012

SOIL

Sampling Point: RB-8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-.5								O layer
.5-8	2.5Y 4/2	93	10YR 4/6	7	C	M	Sandy clay	Sticky clay, wet
8-12	5Y 4/1	75	10YR 3/6	25	C	M	gravelly silty clay	gravel content

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

@ .5-8" prominent mottles

@ 8-12" prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 11"

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 3"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012

Applicant/Owner: NTCD State: NV Sampling Point: RB-9

Investigator(s): J. Picciani, M. Pook Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5

Subregion (LRR): MLRA 22A Lat: 4317818 N Long: 245582E Datum: NAD83

Soil Map Unit Name: Tahoe Complex, 0-2% Slopes 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 _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

WP 79 245582, 4317818

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Elymus hispidus	30	✓	UPL
2. epilobium brachycarpum	10		UPL
3. Symphyotrichum sp	T		FAC-FACW
4. Taraxacum officinale	T		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10%

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: 50% litter

SOIL

Sampling Point: RB-9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								Litter layer
1-18	7.5YR 3/3	100					Sandy loam	
18-20	10YR 4/4	93	5YR 4/6	5	C	M	loamy sand	
			7.5YR 2.5/2	2	D	M		

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): > 20"

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): > 20"

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/8/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-10
Investigator(s): J. Picciani, M. Pook Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): —
Subregion (LRR): MLRA 22A Lat: 4317768N Long: 245645E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% Slopes 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 ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot N of Burke creek ≈ 40'
WP81 245645, 4317768

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10X10)			
1. Festuca sp (Vulpia sp)	20	✓	FACU
2. Bromus Carinatus	25	✓	UPL
3. Montia linearis	T		FAC
*4. Juncus balticus ssp. ater	T		FACW
5. Draba verna	T		UPL
6. Elymus hispidus	10	✓	UPL
7. Epilobium brachycarpum	T		UPL
8. Lupinus sp.	T		UPL
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
Bromus sp. = B. carinatus
% Litter = 50 * - 1988 Ind Status = J. arcticus 2012

SOIL

Sampling Point: RB-10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					Sandy loam	
2-8	2.5Y 4/3	100					gravelly loamy sand	
8-20	2.5Y 4/3	93	5YR 3/4	7	C	M	gravelly loamy sand	distinct mottling

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >20

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: BCIRM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-77
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 6
Subregion (LRR): MLRA 22A Lat: 4317740N Long: 245648E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ____	No ✓	
Hydric Soil Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot NE of Burke Creek willows x 20ft
wp82 245648, 4317740

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'X10')			
1. Elymus hispidus	30	✓	UPL
2. Epilobium brachycarpum	10		UPL
3. Microsteris gracilis	T		FAC
4. Lupinus sp (annual)	T		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks: 35% Litter
15% moss

SOIL

Sampling Point: RB 11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5								litter
5-6	10YR 3/3	100					gravelly sandy clay loam	
6-20	10YR 3/4	95	5YR 5/2	5	D	M	coarse sand w/ gravel	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >20

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-12
Investigator(s): J. Picciano Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope & floodplain Local relief (concave, convex, none): convex Slope (%): 2%
Subregion (LRR): MLRA 22A Lat: 4317731 N Long: 245647 E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: plot inundated by creek overflow N + E of Bunce Creek Alignment
WP83 245647, 4317731

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10X10)			
1. Juncus ensifolius	15	✓	FACW
2. Epilobium ciliatum	10	✓	FACW
3. Typha sp.	10	✓	OBL
4. *Juncus balticus ssp. alt	1		FACW
5. annual grass	5		?
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% ~~Bare Ground~~ water in Herb Stratum 45

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
annual grass 1-2" tall
15% litter
* = 1988 Ind Status = J. arcticus 2012 List

SOIL

Sampling Point: RB-12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								O layer
1-6	10YR3/2	80	5YR3/4	10	C	M	gravelly sandy clay loam	
			5Y5/2	10	D	M		
6-15	10YR3/4	70	5Y5/2	30	D	M	very cobbly sandy loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: 15

Depth (inches): cobble + rock

Hydric Soil Present? Yes ✓ No ___

Remarks:

maybe fill soils from historic urban development since removed. Hydric soils developing in place @ 1-6" prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0-6

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

6-15" soil moist, overland flow from creek supports hydrophytic veg

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

Project/Site: BC|RM Stream Restration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-13
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317736 N Long: 245677E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% Slopes 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 ____	No ✓	
Hydric Soil Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot N of Burke Creek ~ 100'
wp 84 245677 4317736

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 10'X10')			
1. Epilobium ciliatum	25	✓	FACW
2. Poa bulbosa	15	✓	UPL
3. Myosurus sp.	T		FAC-OBL
4. Montia linearis	T		FAC
5. Festuca sp. (Vulpia sp.)	10	✓	FACU
6. Taraxacum officinale	T		FACU
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% ~~Bare Ground~~ Litter in Herb Stratum 50

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 25	x 2 = 50
FAC species 0	x 3 = 0
FACU species 10	x 4 = 40
UPL species 15	x 5 = 75
Column Totals: 50 (A)	165 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
some clumps Poa bulbosa, a lot of grass seedlings emerging also Poa bulbosa

SOIL

Sampling Point: RB-13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-.5								litter
.5-7	10YR3/2	100					loamy sand	
7-12	10YR3/2	90	10YR4/6	10	C	M	sandy clay loam	
12-18	10YR4/3	95	7.5YR4/6	5	C	M	sandy clay loam	
18-20	10YR2/2	100					sandy clay loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

@ 7-12" prominent mottles

@ 12-18" prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No ✓ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >20

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-14
Investigator(s): J. Piccinini Section, Township, Range:
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317683 N Long: 245706E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% Slopes 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 ✓ No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____	
Wetland Hydrology Present?	Yes ✓ No ____	

Remarks: plot N side of Burke Creek ≈ 2 feet from flowing water
wp 167 in adjacent floodplain terrace @ OHWM
~~245706 4317683~~

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Scirpus microcarpus	30	✓	OBL
2. Carex sp.	10	✓	FACW-OBL
3. unknown forb	T		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% ~~Bare Ground~~ litter in Herb Stratum 60

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
forb just emerging, unidentifiable

SOIL

Sampling Point: RB-14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1								litter
2-4	10YR 3/1	100						greasy histic horizon
4-20	10YR 3/1	75	10YR 4/6	5	C	M	silty clay	
			2.5Y 4/1	20	D	M		

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ✓ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

② 2-4" oxidized rhizospheres

③ 4-20" prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 3

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: adjacent Bindee Creek water level ≈ 11-13" below grade of plot

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

Project/Site: BC|RM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-1S
Investigator(s): J. Piccinin Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317748 N Long: 245751 E Datum: NAD83
Soil Map Unit Name: Tahoe Complex, 0-2% slopes 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 ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: plot E of Hwy 50, north side of Buke Creek
WP109 245751, 4317748

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 3' x 15')			
1. Scirpus microcarpus	50	✓	OBL
2. *Juncus balticus ssp. ater	I		FACW
3. Elymus hispidus	I		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 50 litter

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
* = 1988 Ind Status: J. arcticus 2012 test

SOIL

Sampling Point: RB-15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								litter
1-5	5YR 2.5/1	100					silty clay loam	
5-9	2.5Y 3/2	90	7.5YR 4/6	10			sand	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: roots

Depth (inches): 9"

Hydric Soil Present? Yes ✓ No ___

Remarks:

1-5" greasy organics mixed in w/ loam

@ 5-9" prominent mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No 1 Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-16
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 20
Subregion (LRR): MLRA 22A Lat: 4317751 N Long: 245752 E Datum: NAD83
Soil Map Unit Name: Cagwin Rock outcrop complex 5-15% extremely stony 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 ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot top of bank N side of Tenkle Creek - N of RB-15
WP110 245752, 4317751

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10X4)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus jeffreyi	70	✓	UPL
2.			
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10X4)			
1. * Populus tremuloides	15	✓	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 10X4)			
1. Poa pratensis	5	✓	FAC
2. Elymus hispidus	5	✓	UPL
3. Poa bulbosa	5	✓	UPL
4. * Juncus balticus ssp. ater	T		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
% Litter = 65%
* = 1988 Wet Ind Status = J. arcticus 2012 list

SOIL

Sampling Point: RB-16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1							pine needle duff	
1-5	2.5Y 3/2	100					Sandy clay loam	
5-20	10YR 4/3	100					sandy loam	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): >20

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >20

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks: plot elevated 3ft above current water level

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

Project/Site: BC IRM Stream Restration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-L7
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317738 N Long: 245807 E Datum: NAD83
Soil Map Unit Name: Gaswin Rock outcrop complex, 5-15% slopes, extremely stony 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 ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: plot S side of creek 18" from channel + 6" elevated at OHWM
WP 112 245807, 4317738

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10X6)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus incana tenuifolia	20	✓	FACW
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix scouleriana	10	✓	FAC
2. Alnus incana tenuifolia	10	✓	FACW
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Scirpus microcarpus	10	✓	OBL
2. Carex sp	10	✓	FACW-OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
✓ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: % litter = 40
trees / shrubs just leafing out

SOIL

Sampling Point: RB-17

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y 3/2	90	7.5YR 4/6	10	C	M	loamy sand	
2-4	7.5YR 2.5/1	100					sandy loam	
4-6	2.5Y 2.5/1	100					loamy sand	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: roots, rocks

Depth (inches): 6

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: BC|RM Stream Restoration City/County: Douglas Sampling Date: 5/9/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-18
Investigator(s): J. Picciani Section, Township, Range:
Landform (hillslope, terrace, etc.): hillcrest Local relief (concave, convex, none): convex Slope (%):
Subregion (LRR): MLRA 22A Lat: 4317739 N Long: 245806 E Datum: NAD 83
Soil Map Unit Name: Cagwin-Rock outcrop complex, 5-15% slopes, extremely stony 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 ✓	No ____	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: plot on constructed berm S of Burke Creek
WP113 245806, 4317739

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 6 X 20)			
1. Salix scouleriana	50	✓	FAC
2.			
3.			
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
% Rock 25 no herbaceous or shrub layers present
% Litter 10

SOIL

Sampling Point: RB-18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: roots, rocks

Depth (inches): 1"

Hydric Soil Present? Yes ____ No ✓

Remarks: berm is constructed of fill that includes sporadic boulders

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks: berm elevated 3-6 ft above OHWM

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/10/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-19
Investigator(s): J. Piccinini Section, Township, Range:
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): —
Subregion (LRR): MLRA 22A Lat: 4317806 N Long: 246003 E Datum: NAD 83
Soil Map Unit Name: Oxyaquic Cryorthents-Humic Xerothents-Tahoe Complex 0-15% slopes NWI classification: Freshwater emergent wetland
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 ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: plot in flow line of west branch of creek
WP122 246003, 4317806

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 10'x20')			
*1. Populus tremuloides	25	✓	FAC
2. Salix lasiandra v. lasiandra	5		FACW
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10'x20')			
*1. Populus tremuloides	15	✓	FAC
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 10'x20')			
1. Carex sp. rhizo	5	✓	FACW-OBL
2. Agrostis stolonifera	T		FAC
3. Glyceria elata	10	✓	FACW
4. Epilobium ciliatum	T		FACW
5. Carex deweyana ssp.	5	✓	FAC
6. Pelopoda			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% ~~Bare Ground~~ Litter in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
✓ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
* Poptrem using 1988 Ind Status, more appropriate for this project than 2012 list
% algal mat = 20%

SOIL

Sampling Point: RB-19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5								algal mat
5-10	5YR 2.5/1	100					silty loam w/ organic grass & fuel	

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ✓ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: roots

Depth (inches): 10

Hydric Soil Present? Yes ✓ No ___

Remarks:

assume depletions > 10"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): >10

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/10/2012
Applicant/Owner: NTCD State: NV Sampling Point: RB-20
Investigator(s): J. Piciani Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 8%
Subregion (LRR): MLRA 22A Lat: 4317821 N Long: 246001 E Datum: NAD83
Soil Map Unit Name: Oxyaquic Cryorthents-Aquic Xerothents-Tahoe Complex 10-15% slopes NWI classification: Freshwater emergent wetland
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 ✓ No ____	
Hydric Soil Present?	Yes ____ No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks: plot w of RB-19 and E of granite outcrop, about 4-5' higher in elevation than RB-19
WP124 246001, 4317821

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10'x10')	Absolute % Cover	Dominant Species?	Indicator Status
*Populus tremuloides	40	✓	FAC
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10'x10')			
*Populus tremuloides	5		FAC
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 10'x10')			
1. Poa pratensis	20	✓	FAC
2. Lathyrus sp.	5		UPL
3. Hordeum (seeded)	5		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 50% Litter

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
*1988 Wet Ind Status

SOIL

Sampling Point: RB-20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								O Layer
1-11	10YR2/2	100					sandy clay loam	
11-19	10YR3/3	95	7.5YR3/4	5	C	M	silty clay loam w/ gravel	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

@ 11-19" faint mottles

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes _____ No ✓ Depth (inches): >19

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): >19

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

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

Project/Site: BC|RM Stream Restoration City/County: Douglas Sampling Date: 5/10/2012

Applicant/Owner: NTCD State: NV Sampling Point: RB-21

Investigator(s): J. Picciani Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%):

Subregion (LRR): MLRA 22A Lat: 4317733 N Long: 245906 E Datum: NAD83

Soil Map Unit Name: Cagwin-Rock outcrop complex 5-15% Slopes, extremely stony 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 ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: plot ~ 6' from flowing water at OHWM of Burke Creek (N side)
WP 130 245906, 4317733

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 6'x10')	Absolute % Cover	Dominant Species?	Indicator Status
*Populus tremuloides	30	✓	FAC
2.			
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
*Populus tremuloides	10	✓	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 6'x10')			
*1. Carex amplifolia	20	✓	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✓ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
*Poptrem using 1988 Wetland Status - more appropriate for this project

SOIL

Sampling Point: RB-21

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								litter
1-3	10YR 4/2 100						sand	
3-7	5YR 2.5/1						silty clay loam w/	greasy organic feel

[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.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ✓ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ✓ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ 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): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:
assume depleted > 7" given Low chroma 1-7"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ✓ No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 3

Wetland Hydrology Present? Yes ___ No ___

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

Remarks:
OHWM 4-6" elevated above flowing water

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

Project/Site: BC/RM Stream Restoration City/County: Douglas Sampling Date: 5/10/2012

Applicant/Owner: NTCD State: NV Sampling Point: RB3-22

Investigator(s): J. Piccianu Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 10

Subregion (LRR): MLRA 22A Lat: 4317731 N Long: 245894 E Datum: NAD83

Soil Map Unit Name: Cagwin-Rock outcrop complex, 5-15% slopes, extremely stony 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 _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: plot x 8' elevated above stream - on north side by granite outcrop
WP131 245894, 4317731

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x20)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus jeffreyi	10	✓	UPL
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10x20)			
1. Ceanothus cordulatus	10	✓	UPL
2. Arctostaphylos patula	10	✓	UPL
*Populus tremuloides	5		FAC
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10x20)			
1. Apocynum androsaemifolium	T		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	T = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Arc pat in flower, Apoc and just emerging *1988 Wet Ind Status
50% litter - duff + leaves, 25% rock

SOIL

Sampling Point: RB-22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								pine needle duff
2-6								humus
4-6	10YR2/2	100					silty	loam

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: rock

Depth (inches): 6

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): >6

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): >6

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks: plot ~ 8' elevated above stream

APPENDIX C

Photographs

May 8, 2012. Sample point RB-1. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-1. Overview NW of dry meadow upland south of Burke Creek.

May 8, 2012. Sample point RB-2. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-2. Overview W of mixed herbaceous /forested shrub wetland adjacent to Burke Creek.

May 8, 2012. Sample point RB-3. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-3. Overview of mixed herbaceous / shrub wetland in roadside swale.

May 8, 2012. Sample point RB-4. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-4. Overview N of herbaceous wetland adjacent to Burke Creek.

May 8, 2012. Sample point RB-5. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-5. Overview NE of dry meadow upland west of Burke Creek.

May 8, 2012. Sample point RB-6. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-6. Overview S of dry meadow upland between pond and Burke Creek.

May 8, 2012. Sample point RB-7. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-7. Overview S of herbaceous wetland adjacent to Burke Creek fed pond.

May 8, 2012. Sample point RB-8. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-8. Overview NW of herbaceous/shrub wetland adjacent to Burke Creek .

May 8, 2012. Sample point RB-9. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-9. Overview NE of dry meadow upland north of Burke Creek .

May 8, 2012. Sample point RB-10. Close up of groundwater observation hole.

May 8, 2012. Sample point RB-10. Overview SE of dry meadow upland north of Burke Creek .

May 9, 2012. Sample point RB-11. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-11. Overview SW of dry meadow upland north of Burke Creek .

May 9, 2012. Sample point RB-12. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-12. Overview S of herbaceous wetland north of Burke Creek .

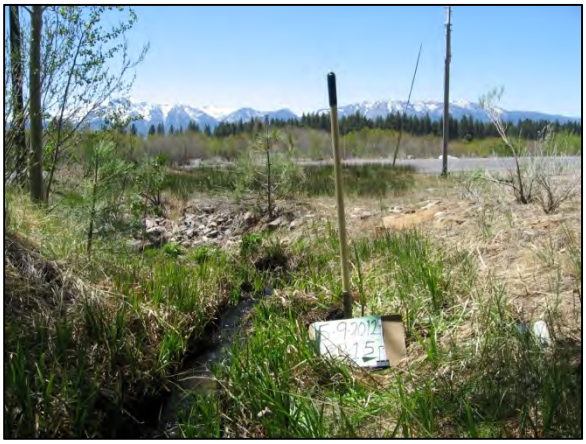
May 9, 2012. Sample point RB-13. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-13. Overview SE of dry meadow upland north of Burke Creek.

May 9, 2012. Sample point RB-14. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-14. Overview E of herbaceous/shrub wetland north side of Burke Creek.

May 9, 2012. Sample point RB-15. Close up of groundwater observation hole.



May 9, 2012. Sample point RB-15. Overview W of herbaceous wetland north side of Burke Creek.

May 9, 2012. Sample point RB-16. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-16. Overview W of understory of Jeffrey pine upland north side of Burke Creek.

May 9, 2012. Sample point RB-17. Close up of groundwater observation hole.

May 9, 2012. Sample point RB-17. Overview SW of herbaceous/forested/shrub wetland north side of Burke Creek.

May 9, 2012. Sample point RB-18. Overview E of plot on elevated berm, south side of Burke Creek. Rock refusal did not allow for a groundwater observation hole.

May 10, 2012. Sample point RB-19. Close up of groundwater observation hole.

May 10, 2012. Sample point RB-19. Overview S of herbaceous wetland with quaking aspen overstory.

May 10, 2012. Sample point RB-20. Close up of groundwater observation hole.

May 10, 2012. Sample point RB-20. Overview W of dry meadow upland with quaking aspen overstory.

May 10, 2012. Sample point RB-21. Close up of groundwater observation hole.

May 10, 2012. Sample point RB-21. Overview S of herbaceous wetland with quaking aspen overstory north side of Burke Creek.

May 10, 2012. Sample point RB-22. Close up of groundwater observation hole.

May 10, 2012. Sample point RB-22. Overview W of montane shrub upland, north side of Burke Creek.

May 9, 2012. WOUS 1, Burke Creek. View upstream (east) of west side US50 culvert.

May 9, 2012. WOUS 1, Burke Creek. View upstream (east) of US50, from bend by east side culvert.

May 9, 2012. WOUS 1, Burke Creek. View downstream (southwest) of US50 east side culvert.

May 9, 2012. Overview W of dry meadow adjacent to south side of Burke Creek west of US50.

May 9, 2012. Overview NW of dry meadow and herbaceous wetland up gradient from pond and adjacent to south side of Burke Creek west of US50.

May 9, 2012. Overview W of dry meadow adjacent to north side of Burke Creek just west of US50.

July 11, 2012. Feature 1. Overview S of vegetated stormwater conveyance west of US50.

December 6, 2011. Feature 1. View of storm water conveyance west of US50 accepting piped, flowing water.

December 8, 2011. Feature 2. View downstream of storm water conveyance east of US50.

December 8, 2011. Feature 2. View upstream of storm water conveyance east of US50.

July 11, 2012. Feature 2. View S (upstream) of storm water conveyance swale east of US50 confluence with Burke Creek.

APPENDIX D

Area Plant Species List

Rabe Meadows Burke Creek
Area Plant Species List
2012

Family	Scientific Name 2012**	Scientific Name 1993***	Common Name	Plant Communities				
				Jeffrey Pine	Woody Riparian	Wet Meadow	Ornamental	Ruderale
Amblystegiaceae*	*Amblystegium serpens*	*Amblystegium serpens*	amblystegium moss			X		
Apiaceae	*Heracleum maximum*	*Heracleum lanatum*	cow parsnip			X		
	Osmorhiza occidentalis	*Osmorhiza occidentalis*	sweet anise		X			
Apocynaceae	*Apocynum androsaemifolium*	*Apocynum androsaemifolium*	bitter dogbane	X				
Asteraceae	*Achillea millefolium*	*Achillea millefolium*	common yarrow				X	
	Ambrosia acantihicarpa	*Ambrosia acantihicarpa*	sand bursage					X
	Artemisia douglasiana	*Artemisia douglasiana*	mugwort		X			
	Artemesia tridentata ssp. vaseyana	*Artemesia tridentata ssp. vaseyana*	mountain sagebrush	X				
	Chrysothamnus viscidiflorus ssp. viscidiflorus	*Chrysothamnus viscidiflorus ssp. viscidiflorus*	Douglas' rabbitbrush	X				X
	Cirsium vulgare	*Cirsium vulgare*	bull thistle					X
	Ericameria nauseosa var. hololeuca	*Chrysothamnus nauseosus* ssp. *hololeucus*	rubber rabbitbrush	X				X
	Erigeron breweri	*Erigeron breweri*	Brewer's fleabane	X				
	Erigeron canadensis	*Conyza canadensis*	Canadian horseweed					X
	Grindelia squarrosa var. serrulata	*Grindelia squarrosa* var. *serrulata*	curlycup gumweed					X
	Lactuca serriola	*Lactuca serriola*	prickly lettuce					X
	Leucanthemum maximum	*Leucanthemum maximum*	Shasta daisy				X	
	Taraxacum officinale	*Taraxacum officinale*	common dandelion					X
	Tragopogon dubius	*Tragopogon dubius*	goatsbeard					X
Betulacaceae	*Alnus incana* ssp. *tenuifolia*	*Alnus incana* ssp. *tenuifolia*	mountain alder		X			
Boraginaceae	*Phacelia heterophylla ssp. virgata*	*Phacelia heterophylla ssp. virgata (Hydrophyllaceae*	varileaf phacelia	X				
Brachytheciaceae*	*Brachythecium frigidum*	*Brachythecium frigidum*	cold brachythecium moss			X		
Brassicaceae	*Boechera pinetorum*	*Arabis holboelii var. pinetorum*	woodland rockcress	X				
	Descurainia californica	*Descurainia californica*	Sierra tansymustard	X	X			
	Lepidium perfoliatum	*Lepidium perfoliatum*	clasping pepperweed					X
	Lepidium virginicum	*Lepidium virginicum*	Virginia pepperweed	X				
	Sisymbrium altissimum	*Sisymbrium altissimum*	tall tumble mustard					X
Chenopodiaceae	*Chenopodium album*	*Chenopodium album*	lamb's quarters					X
Cornaceae	*Cornus sericea*	*Cornus sericea*	American dogwood		X		X	
Cyperaceae	*Carex amplifolia*	*Carex amplifolia*	big-leaf sedge			X		
	Carex douglasii	*Carex douglasii*	Douglas' sedge	X				X
	Carex fracta	*Carex amplectens*	fragile-sheathed sedge	X				
	Carex illota	*Carex illota*	sheep sedge			X		
	Carex leptopoda	*Carex deweyana ssp. leptopoda*	short-scale sedge			X		
	Carex nebrascensis	*Carex nebrascensis*	Nebraska sedge			X		
	Carex pellita	*Carex lanuginosa*	woolly sedge			X		
	Carex rossii	*Carex rossii*	Ross' sedge	X				
	Scirpus microcarpus	*Scirpus microcarpus*	smallfruit bulrush			X		
Ericaceae	*Arctostaphylos patula*	*Arctostaphylos patula*	green-leaf manzanita	X				
	Pyrola asarifolia ssp. asarifolia	*Pyrola asarifolia ssp. asarifolia*	bog wintergreen		X	X		
	Sarcodes sanguinea	*Sarcodes sanguinea*	snow plant	X				
Equisetaceae	*Equisetum arvense*	*Equisetum arvense*	field horsetail		X	X		
Fabaceae	*Acmispon americanus* var. *americanus*	*Lotus purshianus* var. *purshianus*	Spanish clover				X	X
	Lupinus grayi	*Lupinus grayi*	Gray's lupine	X				
	Medicago lupulina	*Medicago lupulina*	black medic				X	
	Melilotus officinalis	*Melilotus officinalis*	yellow sweetclover					X
	Trifolium longipes ssp. atrorubens	*Trifolium longipes*	long-stalked clover		X			

Rabe Meadows Burke Creek
Area Plant Species List
2012

Family	Scientific Name 2012**	Scientific Name 1993***	Common Name	Plant Communities				
Grossulariaceae	*Ribes nevadense*	*Ribes nevadense*	Sierra currant		X			
Juncaceae	*Juncus balticus ssp. ater*	*Juncus balticus*	Baltic rush					X
Malvaceae	*Sidalcea oregana*	*Sidalcea oregana*	Oregon checkermallow			X		
Onagraceae	*Chamerion angustifolium ssp. circumvagum*	*Epilobium angustifolium ssp. circumvagum*	fireweed		X			
	Epilobium brachycarpum	*Epilobium brachycarpum*	tall annual willowherb					X
	Epilobium ciliatum	*Epilobium ciliatum*	hairy willowherb			X		
	Gaophytum diffusum	*Gaophytum diffusum*	spreading groundsmoke	X				X
Orchidaceae	*Platanthera dilatata var. leucostachys*	*Platanthera leucostachys*	bog orchid		X	X		
Orthotrichaceae*	*Orthotrichum laevigatum*	*Orthotrichum laevigatum*	orthotrichum moss	X				
Paeoniaceae	*Paeonia brownii*	*Paeonia brownii*	Brown's peony	X				
Pinaceae	*Abies concolor*	*Abies concolor*	white fir	X				
	Pinus jeffreyi	*Pinus jeffreyi*	Jeffrey pine	X				
Plantaginaceae	*Plantago major*	*Plantago major*	common plantain					X
Poaceae	*Agrostis stolonifera*	*Agrostis stolonifera*	creeping bentgrass			X		
	Bromus carinatus	*Bromus carinatus*	California brome	X				X
	Bromus tectorum	*Bromus tectorum*	cheatgrass	X				X
	Dactylis glomerata	*Dactylis glomerata*	orchard grass	X				
	Elymus elymoides	*Elymus elymoides*	squirreltail grass	X				
	Elymus lanceolatus ssp. *lanceolatus*	*Elymus lanceolatus* ssp. *lanceolatus*	thick spike wheat grass	X			X	X
	Elymus hispidus	*Elytrigia intermedia* ssp. *intermedia*	intermediate wheatgrass	X	X			
	Elymus trachycaulus ssp. *trachycaulus*	*Elymus trachycaulus ssp. trachycaulus*	slender wheatgrass	X				
	Festuca arundinacea	*Festuca arundinacea*	tall fescue	X			X	
	Festuca idahoensis	*Festuca idahoensis*	Idaho fescue	X				
	Glyceria elata	*Glyceria elata*	tall manna grass			X		
	Hordeum jubatum ssp. jubatum	*Hordeum jubatum*	foxtail barley				X	
	Phleum pratense	*Phleum pratense*	cultivated timothy	X				
	Poa secunda ssp. secunda	*Poa secunda ssp. secunda*	Sandberg bluegrass	X				X
	Poa bulbosa	*Poa bulbosa*	bulbous bluegrass					X
	Poa fendleriana ssp. longiligula	*Poa fendleriana ssp. longiligula*	muttongrass	X				
	Poa pratensis ssp. pratensis	*Poa pratensis ssp. pratensis*	Kentucky bluegrass		X		X	X
	Poa trivialis	*Poa trivialis*	rough bluegrass		X	X		
Polemoniaceae	*Leptosiphon nuttallii*	*Linanthus nuttallii*	Nuttall's desert trumpets	X				
Polygonaceae	*Polygonum aviculare*	*Polygonum arenastrum*	yard knotweed					X
	Rumex crispus	*Rumex crispus*	curly dock			X		
	Rumex salicifolius	*Rumex salicifolius*	willow dock			X		
Pottiaceae*	*Syntrichia princeps*	*Syntrichia princeps*	syntrichia moss	X				
Ranunculaceae	*Thalictrum fendleri*	*Thalictrum fendleri*	meadow rue		X			
Rhamnaceae	*Ceanothus cordulatus*	*Ceanothus cordulatus*	mountain whitethorn	X				
	Ceanothus prostratus var. prostratus	*Ceanothus prostratus*	prostrate ceanothus	X				
	Ceanothus velutinus	*Ceanothus velutinus*	snowbrush ceanthosus	X				
Rosaceae	*Geum macrophyllum*	*Geum macrophyllum*	big leaf avens			X		
	Purshia tridentata var. tridentata	*Purshia tridentata var. tridentata*	antelope bitterbrush	X				
	Rosa woodsii ssp. ultramontana	*Rosa woodsii var. ultramontana*	Wood's rose		X			
Rubiaceae	*Galium aparine*	*Galium aparine*	catchweed bedstraw		X			
	Kelloggia galiodes	*Kelloggia galiodes*	milk kelloggia	X				
Ruscaceae	*Maianthemum stellatum*	*Smilacina stellata (Liliaceae)*	false Solomon's seal		X	X		
Salicaceae	*Populus tremuloides*	*Populus tremuloides*	quaking aspen		X		X	

Rabe Meadows Burke Creek
Area Plant Species List
2012

Family	Scientific Name 2012**	Scientific Name 1993***	Common Name	Plant Communities				
	Salix exigua	*Salix exigua*	coyote willow		X			
	Salix lasiandra var. *lasiandra*	*Salix lucida* ssp. *lasiandra*	Pacific willow		X			
	Salix scouleriana	*Salix scouleriana*	Scouler's willow		X			
Scrophulariaceae	*Verbascum thapsus*	*Verbascum thapsus*	woolly mullein	X	X	X	X	X
Urticaceae	*Urtica dioica*	*Urtica dioica*	stinging nettle		X			

Note:

* Nomenclature for mosses independent of Jepson floras, identified by David Toren

**Nomenclature follows B. Baldwin et al. 2012. The Jepson Manual: Vascular Plants of California 2nd ed.

***Nomenclature follows J.C. Hickman,ed. 1993. The Jepson Manual: Higher Plants of California 1st ed.