APPENDIX C: Wetland Resources

C-1. Baseline Wetland Delineation and Waterbody Survey

Appendices

C1-A. Line Item of Wetlands and Streams, Black Butte Project
C1-B. Vascular Plant Species Recorded at Wetland and Upland Inventory Sites
C1-C. Wetland Determination Data Forms
C1-D. Photos of Wetland and Upland Survey Plots
C1-Map-1. Wetland Delineation and Waterbody Survey

BASELINE WETLAND DELINEATION AND WATERBODY SURVEY
BLACK BUTTE COPPER PROJECT
MEAGHER COUNTY, MONTANA

Prepared for:

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TABLE OF CONTENTS

Page

FIGURE

TABLE

APPENDICES

MAP

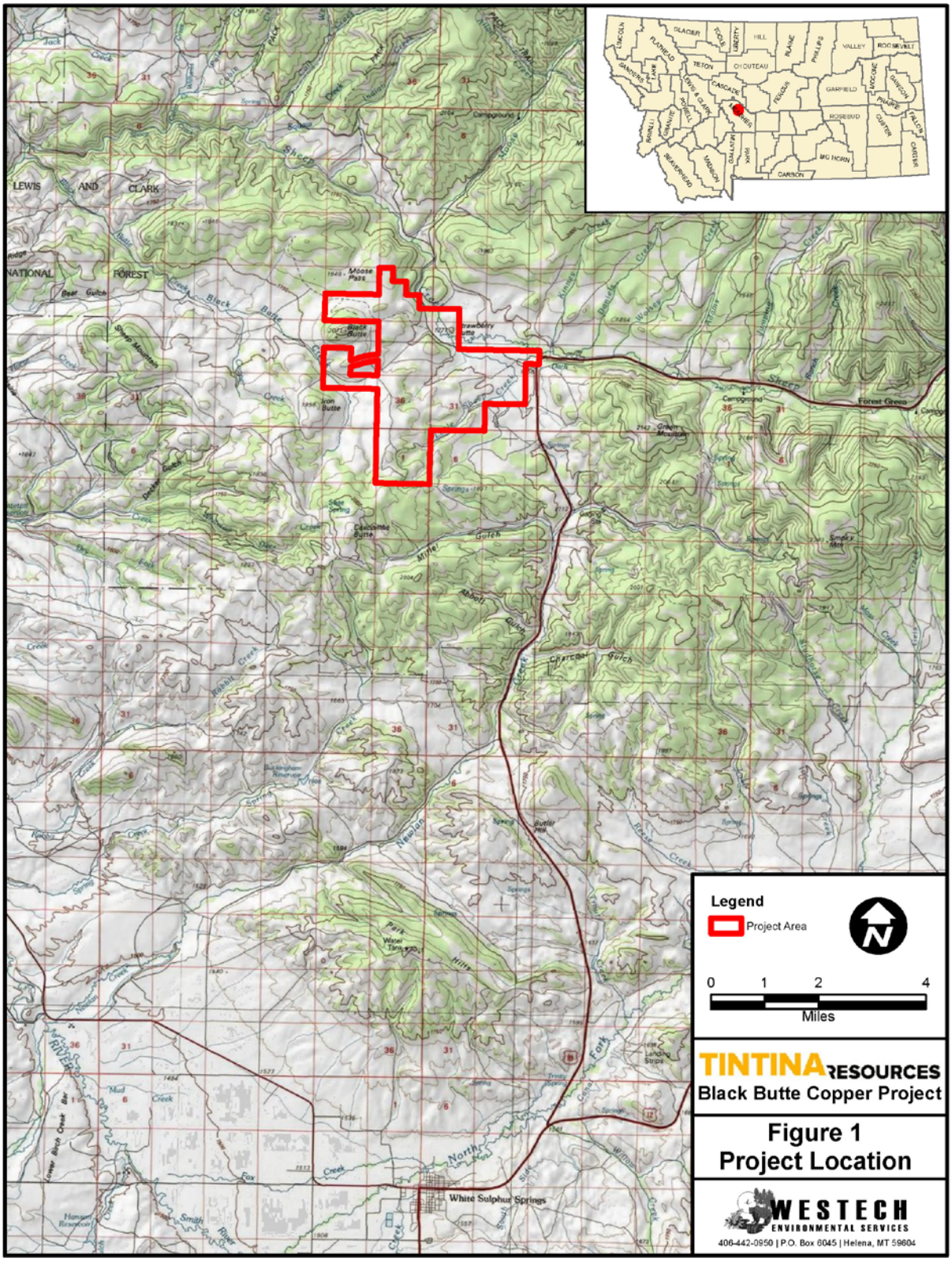
1.0 INTRODUCTION

Tintina Resources, Inc. intends to develop the Black Butte Copper Project (Project), a copper mine approximately 16 miles north of White Sulphur Springs, Montana in Meagher County. WESTECH Environmental Services, Inc. (WESTECH) delineated wetlands and surveyed waterbodies within the Project area to facilitate environmental review and permitting. Specifically, this inventory will be used to help prepare a 404 Application to the U.S. Army Corps of Engineers (USACE), including functional assessments and mitigation planning. The wetland delineation presented in this report and map will be reviewed by USACE, who will then provide jurisdictional determinations of Waters of the U.S. (WUS). Some of the wetlands discussed in this report may not be jurisdictional.

The Project area is shown on Figure 1, including all or portions of Sections 23-26 and 35-36 of T12N R6E; Sections 19, 29, 30, 31, and 32 of T12N R7E; and Section 1 of T11N R6E. The study area climate is continental, having cold winters and warm summers with a growing season extending from mid-May to late-September in most years (USDA 2014).

The wetland delineation and waterbody survey was conducted over 10 days between August 14 and September 4, 2014. Field delineation was completed by John Beaver, Ken Scow, Lisa Larsen, and Dean Culwell assisted by Dan Culwell, Dave Hagen, Drake Barton, and Dr. Steve Cooper,. Primary wetland investigators on each crew had a minimum of 20 years' experience delineating wetlands.

Data analysis and report preparation were conducted by John Beaver, Ken Scow, Jessica Allewalt, and Nancy Scow, with GIS analysis and graphic support by Dan Culwell.


Legend
Project Area
0 1 2 4
Miles
TINTINA RESOURCES
Black Butte Copper Project
Figure 1
Project Location
WESTECH
ENVIRONMENTAL SERVICES
406-442-0950 | P.O. Box 6045 | Helena, MT 59604
1/9/2015 | Location.mxd | 1:150,000
LEWIS AND CLARK
NATIONAL FOREST
White Sulphur Springs

2.0 METHODS

Wetlands were identified and delineated using the routine on-site approach described in the 1987 U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* (Environmental Laboratory 1987) and the final *Regional Supplement to the Corps of Engineers Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010) termed Regional Supplement in this report. Wetlands were classified according to the Cowardin classification system (Cowardin *et al*. 1979). Non-wetland waterbodies, such as streams, were classified according to flow regime (perennial, seasonal, etc.) and substrate (e.g., unconsolidated bottom, rock bottom, etc.) according to the Cowardin system (Cowardin *et al*. 1979).

Background and supplementary sources of data for the delineation were obtained from various environmental baseline studies conducted for the Project and publicy available data. Background Project specific data, including hydrology, wetlands, and soils data, are contained in the *Amendment to Exploration License 00710 Tintina Alaska Exploration, Inc. Exploration Decline for Underground Drilling and Bulk Sampling Black Butte Copper Project, Meagher County, Montana* (Tintina 2013). Publicly available resources included high-resolution aerial photographs (true color and IR), USGS topographic maps, National Wetland Inventory (NWI) mapping, and Natural Resource Conservation Service (NRCS) soils mapping.

Data from the sources cited above were used to assist in determining areas to be field-surveyed. All areas with potential wetlands or waterbodies were observed via pedestrian survey. Wetland and upland plots were sampled to identify wetland boundaries. In several cases, paired plots were used to distinguish mesic, non-wetland (i.e., upland sites) from wetlands. Once a boundary was determined, additional wetland plots were often completed to further characterize wetland vegetation, hydrology, and soils within an area. Numerous wetland plots were recorded in large, complex wetlands.

Wetland data were recorded on USACE wetland determination field forms (Appendix C), which serve as worksheets for determining the presence/absence of wetland hydrology, hydric soils, and hydrophytic vegetation. Supplementary wetlands determination data were recorded in field maps and notebooks. A total of 45 wetland plots and 50 upland plots (with 2 upland subplots for additional soil investigation) were completed. Photographs of each plot are included in Appendix D.

Once reliable indicators of a wetland boundary were determined from the upland and wetland plots, wetland boundaries were walked and mapped using sub-meter GPS units. Mapped wetlands and waterbodies were assigned unique labels based on ordinal stream names and were characterized according to the Cowardin classification system (Cowardin *et al.* 1979).

Wetland hydrology indicators, hydric soils indicators, and hydrophytic vegetation are used in combination to determine whether an area meets USACE criteria for wetlands (Enviornmental Laboratory 1987; USACE 2010). The next 4 sections discuss how the 3 wetland components were assessed in the field and how they were integrated to delineate wetlands. The fifth section discusses methods for identifying non-wetland waterbodies.

2.1 Wetland Hydrology

The presence of wetland hydrology is inferred from hydrologic indicators of repeated, extended episodes of inundation or soil saturation (e.g., surface water, saturation, oxidized rhizospheres along living roots, drainage patterns, geomorphic position, and frost-heave hummocks) (USACE 2010). The Project's baseline hydrologic investigation (Tintina 2013) informed the Wetland/WUS delineation and indicated drainages and other areas where wetland hydrology may be present within the Project boundary. Field investigations included walking all areas that were determined to potentially support wetlands and noting the presence and extent of hydrologic indicators. In particular, shallow pits (at least 18 inches deep) excavated for hydric soil investigations at wetland plots and adjacent upland sites were also used to determine presence and depth to a shallow water table, depth to soil saturation, or oxidized rhizospheres along living roots.

2.2 Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (USDA Soil Conservation Service 1991). Generally, hydric soils are saturated, flooded, or ponded for one week or more during the period when soil temperatures are above biologic zero (41 degrees Fahrenheit or 5 degrees Celsius), as defined in USDA Soil Conservation Service (1975). These soils typically support hydrophytic vegetation and exhibit distinctive characteristics (e.g. redox features, gleying, histic epipedons) that result from repeated, extended periods of saturation; these characteristics tend to persist in the soils during both wet and dry periods. A recent compilation of hydric soils indicators is included in USDA Natural Resources Conservation Service (2005, 2006). Region-specific indicators are discussed in USACE (2010). As with wetland hydrology, supplemental resources (aerial imagery, NWI data, NRCS soils mapping, etc.) were reviewed to determine if hydric soils might be present.

Shallow pits at least 18 inches deep were dug at each wetland or upland plot to typify soils and determine if hydric indicators were present. Soil horizons and characteristics were described and any hydric soil indicators present were recorded according to criteria noted in the Regional Supplement (USACE 2010). In some cases, numerous pits were dug at a single wetland site if the wetland boundary was difficult to identify.

2.3 Hydrophytic Vegetation

The USACE wetlands delineation methodology uses a plant community approach to determine whether a site has hydrophytic vegetation, dominated by species that require or can tolerate prolonged inundation or soil saturation during the growing season (Environmental Laboratory 1987; USACE 2010). The USACE, in cooperation with the US Fish and Wildlife Service (USFWS), NRCS, and the Environmental Protection Agency (EPA), developed the "National Wetland Plant List", in which vascular plant species are assigned a wetland indicator status based on frequency of occurrence in wetlands (Lichvar 2012). Final status was determined by a National Panel and ten Regional Panels. The major indicator status

categories include obligate wetland species (OBL), facultative wetland species (FACW), facultative species (FAC), facultative upland species (FACU) and upland species (UPL), as briefly explained below:

Wetland Indicator Status	Definition*
Obligate Wetland (OBL)	Almost always occur in wetlands
Facultative Wetland (FACW)	Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC)	Occur in wetlands or non-wetlands
Facultative Upland (FACU)	Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL)	Almost never occur in wetlands

**More complete definitions are given by Lichvar et al. (2012).*

The facultative categories include species that occur in both wetlands and non-wetlands to varying degrees. Any species not on the list is presumed to be an upland species. The National List is composed of ten region-specific subsets of the list; the Western Mountain, Valleys, and Coast Region list (Lichvar 2012) was used for the Project.

Vascular plant species were tallied on plots (typically 0.01-acre circular plots) at each sampling site by structural stratum (tree, sapling/shrub, herb, or woody vine). USACE formulas were used to determine dominant species in each stratum based on ocular estimates of percent cover for each species. An area has hydrophytic vegetation when more than 50 percent of the dominant species across all strata are OBL, FACW, and/or FAC species (the dominance test). In addition to the dominance test, a prevalence index was calculated for each sample site; this test is based on all species recorded, not just dominant species. Visual observations of other hydrophytic vegetation indicators such as plant morphological adaptations to prolonged wet conditions and presence of wetland non-vascular plants were also incorporated into hydrophytic vegetation determinations. A species list of plants encountered on wetland and upland inventory plots, as well as incidental species within the area, is included as Appendix B. Taxonomic nomenclature follows Lesica (2012).

2.4 Integration of Wetland Components

Generally, indicators of all three wetland components must be present for an area to be considered a wetland. The 1987 USACE manual states:

> "Except in certain situations defined in this manual, evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

Wetland determinations were made using methods and guidance in the 1987 USACE manual (Environmental Laboratory 1987) and the Regional Supplement (USACE 2010).

2.5 Waterbodies

Waterbodies (often termed "streams" by the USACE even if flowing water is not present) were searched for using guidance from the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and EPA 2007) in conjunction with the definition of OHWM in §33 CFR 328.3(e) which states:

> "The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Surveyors mapped non-wetland waterbodies using sub-meter GPS, or drew the waterbody onto high-quality aerial imagery where the feature was large enough to accurately map on a photo. Each waterbody was classified according to hydrologic regime (perennial, seasonal, intermittent, and ephemeral) and substrate per Cowardin *et al.* (1979).

3.0 RESULTS

3.1 Results by Wetland Component

The following discussion provides an overview for each of the three wetland components inventoried throughout the Project. A line list of wetlands and waterbodies by Cowardin type along with wetland acreage or stream length (feet) is provided in Appendix A according to standard USACE format. This list is organized by the Project-specific stream or tributary watershed (termed Local Waterway in Appendix A per USACE terminology) within which the wetland or stream occurs. Appendix B provides a species list compiled from all wetland and upland sample plots as well as incidental species observed during the survey. Wetland hydrology, hydric soils, and hydrophytic vegetation for each plot are shown on the wetland determination forms in Appendix C. Representative photographs from each plot (wetland or upland) are included in Appendix D. The locations of each wetland and upland plot, individual wetlands, and individual stream segments are shown on the Wetland Delineation and Waterbody Survey Map (3 sheets).

3.1.1 Wetland Hydrology

Wetland hydrology indicators within the Project are found adjacent to waterbodies, in subirrigated meadows, and at numerous springs and seeps. Flowing surface water was recorded in Sheep Creek, Little Sheep Creek, and Black Butte Creek and in many of the tributaries to these streams; flow volumes were typically lower in the tributaries than in the streams themselves. Standing surface water was noted at most wetlands throughout the Project, although in very limited quantities at many sites. Most wetlands also exhibited saturated soil within the wetland boundary. In many areas, particularly the large wetland complexes surrounding Sheep Creek and Little Sheep Creek, there appearred to be substantial intermixing between water that originates within the streams (either surface or subsurface) and groundwater discharge. This intermixing is common in headwaters areas (USACE 2014). Appendix A lists what surveyors qualitatively estimated to be the primary source of water for each wetland.

Some wetlands did not have any surface or subsurface water, or saturated soils. In these instances, wetland hydrology was inferred from secondary indicators. Important secondary indicators included frost-heave hummocks, geomorphic position, and drainage patterns. It should be noted that wetland field forms may not record surface water or saturation at the wetland plot as these plots were placed closer to the wetland margin in order to find the boundary between uplands and wetlands. Thus, wetland plots are not necessarily indicative of the wettest portion of a wetland site. Wetland hydrology indicators were often the key component in identifying wetland boundaries as most margins between wetlands and uplands contained FAC plant species that met the hydrophytic criteria for wetlands.

A summary of wetland primary and secondary indicators is provided below in Table 3.1-1.

Table 3.1-1. Summary (Count) Primary and Secondary Hydrology Indicators – Black Butte Project

Primary Hydrology Indicators										
Surface Water (A1)	High Water Table (A2)	Saturation (A3)	Water Marks (B1)	Drift Deposits (B3)	Surface Soil Cracks (B6)	Inundation Visible on Aerial Imagery (B7)	Hydrogen Sulfide Odor (C1)	Oxidized Rhizospheres along Living Roots (C3)	Presence of Reduced Iron (C4)	Other (Explain in Remarks)
11	11	25	3	2	1	2	2	2	2	1

Secondary Hydrology Indicators				
Drainage Patterns (B10)	Saturation Visible on Aerial Imagery (C9)	Geomorphic Position (D2)	FAC-Neutral Test (D5)	Frost-Heave Hummocks (D7)
7	6	36	1	18

3.1.2 Hydric Soils

Hydric soils were found within the subirrigated zone around Sheep Creek, Little Sheep Creek, Black Butte Creek, the various tributaries to these waterbodies, and springs and seeps. In most of these locations the soils were finely textured clays and clay-loams. A few areas with high organic accumulation indicative of peat or muck were identified, primarily in the Little Sheep Creek wet meadow and at a quaking fen on a spring-fed tributary to Sheep Creek. Sandy soils were recorded in the Sheep Creek willow-dominated floodplain.

Large wetlands occur in areas of hydric soils within the Mooseflat-Foxgulch-Redfish complex soil unit or the Mannixlee, rarely-flooded-Clunton, frequently flooded-Meadowcreek complex soil unit (USDA 2014a). Large wetlands within the Little Sheep Creek wet meadow occur within the Bischoff-Monaberg complex which is mapped as predominately nonhydric (USDA 2014a). However, these wetlands clearly occurred on hydric soils indicating that either the USDA soils mapping unit was inaccurately drawn or that the wetland occurred within the hydric portion of the soil unit.

Five sites with substantial organic matter accumulation were recorded in the Project. Soil at plot LST1-W2 is fibric peat 12.5 inches thick, soil at SC-W5 is a sapric peat 12.5 inches thick, soil at SCT3-W1 is a sapric peat approximately 10 inches thick, soil at plot LS-W7 is sapric muck greater than 18 inches thick, and soil at plot SCT1-W1 is fibric peat greater than 20 inches thick. Soil from plot LST1-W2 was collected and sent to Energy Laboratories in Helena, Montana for physical analysis. Organic matter in this sample was 42.5 percent which is above the 35 percent threshold that qualifies the soil as a Histic epipedon. It is assumed that the other four organic soils would have over 35 percent organic matter as well. In addition, the soils at LS-W7 and SCT1-W1 have organic matter greater than 16 inches thick indicating that these soils are Histosols, i.e., organic matter soils that form in areas of continual saturation from groundwater or other sources. Soils at plots LS-W8, LS-W9, LS-W11, LST2-W1, and LST2-W2 also contained some organic matter but less than 8 inches thick, the minimum for a histic epipedon.

Histosols and histic epidedons are a key indicator of fens, a relatively rare wetland type in Montana.

Hydric soil indicators that were encountered during the delineation are listed below in Table 3.1-2.

Table 3.1-2. Summary (Count) of Hydric Soil Indicators – Black Butte Project

Histosol (A1)	Histic Epipedon (A2)	Hydrogen Sulfide (A4)	Depleted Below Dark Surface (A11)	Thick Dark Surface (A12)	Sandy Mucky Mineral (S1)	Sandy Redox (S5)	Stripped Matrix (S6)	Loamy Mucky Mineral (F1)	Depleted Matrix (F3)	Redox Dark Surface (F6)
2	8	2	12	19	1	1	0	2	13	3

3.1.3 Hydrophytic Vegetation

Hydrophytic vegetation within the Project area was divided almost equally between shrub wetlands (Palustrine Scrub-Shrub or PSS) and herbaceous wetlands (Palustrine Emergent or PEM). Forested wetlands (Palustrine Forested or PFO) accounted for a limited amount of total wetland area. Small, unvegetated potholes or ponds (Palustrine Unconsolidated Bottom or PUB) occurred in very limited areas. This last type is essentially an unvegetated wetland type as hydrophytic vegetation only occurs around the pothole or pond fringe. Table 3.1-3 lists the acreage of each wetland type according to its Cowardin classification as well as the percentage of each type within the Project area.

Table 3.1-3. Wetland Acreage and Percent by Cowardin Type – Black Butte Project

Cowardin Type[1]	**Acres**	**Percent of Total Wetlands within Project Area**
Palutrine Emergent (Herbaceous wetland)	152.61	46.41
Palustrine Scrub-Shrub (Willow dominated)	90.84	27.63
Palustrine Scrub-Shrub (Shrubby cinquefoil dominated)	82.84	25.20
Palustrine Forested (Englemann spruce dominated)	1.86	0.57
Palustrine Unconsolidated Bottom (Excavated pond)	0.46	0.14
Palustrine Unconsolidated Bottom (Natural depression)	0.15	0.05
TOTAL	**328.76**	**100.00**

[1] Cowardin *et al.* (1979)

Herbaceous wetlands within the Project area are typically dominated by beaked sedge (*Carex utriculata*), Nebraska sedge (*Carex nebrascensis*), clustered field-sedge (*Carex praegracilis*), Baltic rush (*Juncus balticus*), tufted hairgrass (*Deschampsia caespitosa*), redtop (*Agrostis stolonifera*), Kentucky bluegrass (*Poa pratensis*), and fowl bluegrass (*Poa palustris*). Redtop, Kentucky bluegrass, and fowl bluegrass are more prevalent near the transition between wetland and mesic meadow, while the sedges and tufted hairgrass are more prevalent within the wetland interior. Baltic rush occurs near the wetland transition and within the wetland interior.

Shrub-dominated wetlands are comprised of two basic types: willow (*Salix sp*.) or shrubby cinquefoil (*Dasiphora fruticosa*). Within the willow-dominated wetlands, common willow species are Bebb willow (*Salix bebbiana*), blueberry willow (*Salix boothii*), and Drummond willow (*Salix drummondiana*). A complete list of willow species identified on the Project is provided in Appendix B. The understory within the willow-dominated type typically includes beaked sedge, Nebraska sedge, Baltic rush, woolly sedge (*Carex pellita*), bluejoint reedgrass (*Calamagrostis Canadensis*), and tufted hairgrass as well as Kentucky bluegrass and fowl bluegrass. Shrub wetlands dominated by shrubby cinquefoil typically have an understory similar to that within the willow-dominated wetlands but usually with higher amounts of Baltic rush, Kentucky bluegrass, and fowl bluegrass, and lower amounts of OBL or FACW sedges. Shrubby cinquefoil wetlands usually occur in the drier portions of a wetland while willow-dominated wetlands usually occur in the wetter portions of a wetland.

One small forested wetland was delineated on the Project. An Englemann spruce (*Picea engelmannii*) wetland (see W-SCT5-05 and 06) occurs at the base of a slope and along a small tributary to Little Sheep Creek. This wetland is a narrow stringer along the tributary with an overstory of Englemann spruce and an understory dominated by soft-leaved sedge (*Carex disperma*) and western twinflower (*Linnaea borealis*). Western twinflower is particularly common near the margin between wetland and upland.

As previously noted, hydrophytic vegetation is sparse at the Palustrine Unconsolidated Bottom depressional and excavated wetlands. Nebraska sedge typically forms a ring between the unvegetated bottom and surrounding upland vegetation at the natural depressions within the northwestern portion of the Project area (see W-BBT-11 for general location of these depressions). Typical herbaceous wetland vegetation, as previously described, surrounds the excavated pond (see W-LST5-02 for location of this pond).

3.2 Waterbodies

Several waterbodies (often termed 'streams' by the USACE even if perennially-flowing water is not present) occur within the Project boundary. Sheep Creek is the largest stream, by flow volume, within the Project while Little Sheep Creek is the longest stream within the Project. Very little stream length of Black Butte Creek occurs within the Project. Several tributaries to these streams occur within the Project. Most waterbodies within the Project area have an unconsolidated bottom with at least 25 percent streambed cover of particles smaller than stones and vegetative cover less than 30 percent. Sheep Creek has the highest amount of rock cover, but most stones are cobbles and gravels, not bedrock or boulders, placing this stream within the unconsolidated bottom type similar to most other waterbodies within the Project area. A single stream was classified as a rock bottom type. Stream segment S-BBT1-03 has a channel bed of large boulders or bedrock, water within this stream is often not

visible at the surface but could be heard running below the boulders. The lower portion of this drainage contains large cobbles but flowing water has moved subsurface and there is no clear hydrologic connection between the springs and stream channel in this area with Black Butte Creek.

3.3 Potential Waters of the U.S. (WUS)

Waters of the U.S. (WUS), as defined in 33 CFR Part 328, encompass all major streams and their tributary streams, ponds, and adjacent wetlands. Wetlands are a regulatory subset of WUS that require additional investigation, delineation, and avoidance/mitigation measures to comply with Section 404(b)(1) of the Clean Water Act. All WUS are regulated under Section 404 of the Clean Water Act if there is a "significant nexus" between a WUS and a traditional navigable water (TNW). WUS without a significant nexus are determined to be "isolated" and not "jurisdictional", and are not subject to regulation under Section 404 although they may be regulated under other federal or state regulations. The USACE determines if WUS are jurisdictional, typically following a site visit with the Project team.

The TNW nearest the Project is the Smith River, into which Sheep Creek flows. Both Little Sheep Creek and Black Butte Creek flow into Sheep Creek. Sheep Creek, Little Sheep Creek, and Black Butte Creek are relatively permanent waters (RPW) as are several of the tributaries to these streams. The hydrologic and ecologic connection between RPW and TNW are key considerations for the USACE when determining jurisidiction. Based on these factors, it is reasonable to assume that most of the wetlands within the Project area will be deemed jurisdictional by the USACE, with the possible exception of isolated spring and seeps where there is no more than an "insubstantial or speculative effect on the chemical, physical, and/or biological integrity of TNWs" (USACE 2007). The majority of these potetentially isolated springs and seeps occur in the northwestern corner of the Project. Appendix A provides a preliminary assessment of wetland and stream "water type" according to USACE terminology of RPW, non-RPW, etc. This assessment is meant to facilitate USACE review.

4.0 SUMMARY

A wetland delineaton and waterbody survey of the Black Butte Copper Project area identified extensive wetlands within the Project boundary. The largest wetlands occur within the subirrigated herbaceous meadows and willow- or shrubby cinquefoil-dominated wetlands surrounding Sheep Creek and Little Sheep Creek. Upland areas within these sites are highly mesic and the boundary between wetland and upland is often indistinct. Surveyors estimated that approximately 5 percent of the area within these wetlands is upland. Very small pockets of wetland also occur within the uplands at these sites, but were estimated to account for less than 1 percent of upland area and were too small or indistinct to delineate.

The majority of the remaining wetlands in tributaries to Sheep Creek and Little Sheep Creek, as well as the wetlands surrounding Black Butte Creek, are a mosaic of shrub and herbaceous vegetation types. The hydrology at most of these wetlands appears to be primarily groundwater driven. Small streams are present but are themselves a function of local springs and did not appear to have enough water within them to support the relatively large wetlands surrounding them. Based on observations during the delineation, it appeared that very few of the wetlands within the Project were specifically dependent on streamflow hydrology.

Overall, approximately half of the wetlands within the Project are dominated by various species of willow or shrubby cinquefoil. Wetlands dominated by sedges as well as native and non-native grasses comprise the majority of the remaining wetlands within the Project. One, small forested wetland dominated by Englemann spruce was delineated as were a series of small, depressional wetlands with minimal vegetation, and an excavated pond.

Wetlands with fen characteristics were recorded within 3 wetlands on the Project, W-SCT1-02, W-LS-11, and W-LST1-06. Water samples would have to be analyzed to determine if the water at these sites is chemically consistent with fen characteristics, but soil and vegetation characteristics suggest that these sites are likely fens or contain components that are fens. Fens are a relatively rare wetland type in Montana and can result in a high wetland functional rating. A wetland functional assessment report using the Montana Department of Transportation Wetland Functional Assessment Method (Berglund and McEldowney 2008) is provided under separate cover.

Table 4.0-1 summarizes wetland acreage within the Project; Table 4.0-2 summarizes stream length (feet) within the Project. Acreages and lengths are summarized by the local watershed within which the wetland or stream occurs. These watersheds are named and organized for the purpose of identifying and locating individual wetlands and stream segments within the Project area, and equate to the USACE terminology of “Local Waterways” in Appendix A. With the exception of Black Butte Creek and Sheep Creek, these watersheds do not relate to larger order watersheds.

Table 4.0-1. Summary of Wetland Acreage by Cowardin Type and Project Watershed – Black Butte Project

Project Watershed[1]	Cowardin Type[2]					Total by Project Watershed
	Palustrine Emergent	Palustrine Shrub (Willow)	Palustrine Shrub (Shrubby Cinquefoil)	Palustrine Forested	Palustrine Unconsolidated Bottom	
Black Butte Creek	10.69	7.86	1.61	0.00	0.00	20.16
Black Butte Creek Total	**10.69**	**7.86**	**1.61**	**0.00**	**0.00**	**20.16**
Black Butte Creek Tributary 1	2.06	0.00	0.00	0.00	0.14	2.20
Black Butte Creek Tributary 2	0.02	0.00	0.00	0.00	0.00	0.02
Black Butte Creek Tributary 3	0.71	0.15	0.00	0.00	0.00	0.86
Black Butte Creek Tributaries Total	**2.79**	**0.15**	**0.00**	**0.00**	**0.14**	**3.08**
Little Sheep Creek	51.03	5.16	62.95	0.00	0.09	119.23
Little Sheep Creek Total	**51.03**	**5.16**	**62.95**	**0.00**	**0.09**	**119.23**
Little Sheep Creek Tributary 1	8.57	3.33	3.13	0.00	0.00	15.03
Little Sheep Creek Tributary 2	4.12	3.59	5.33	0.00	0.00	13.04
Little Sheep Creek Tributary 3	0.00	0.00	0.35	0.00	0.00	0.35
Little Sheep Creek Tributary 4	1.27	0.00	0.00	0.00	0.00	1.27
Little Sheep Creek Tributary 5	10.62	0.47	0.00	0.00	0.38	11.47
Little Sheep Creek Tributary 7	0.01	0.00	0.00	0.00	0.00	0.01
Little Sheep Creek Tributaries Total	**24.59**	**7.39**	**8.81**	**0.00**	**0.38**	**41.17**
Sheep Creek	52.77	53.87	0.00	0.00	0.00	106.64
Sheep Creek Total	**52.77**	**53.87**	**0.00**	**0.00**	**0.00**	**106.64**
Sheep Creek Tributary 1	4.32	0.81	1.87	0.00	0.00	7.00
Sheep Creek Tributary 2	0.94	0.00	3.51	0.00	0.00	4.45
Sheep Creek Tributary 3	1.17	1.04	0.94	0.00	0.00	3.15
Sheep Creek Tributary 4	0.93	0.00	0.00	0.00	0.00	0.93
Sheep Creek Tributary 5	3.38	14.56	3.15	1.86	0.00	22.95
Sheep Creek Tributaries Total	**10.74**	**16.41**	**9.47**	**1.86**	**0.00**	**38.48**
Project Total	**152.61**	**90.84**	**82.84**	**1.86**	**0.61**	**328.76**

[1] Project watersheds are the specific, in many cases very small, watersheds within the Project area. With the exception of Sheep Creek and Black Butte Creek these watersheds do not correspond to larger order watersheds. In some cases, (e.g., Little Sheep Creek Tributary 6) a tributary is not listed in sequential order indicating that there were no wetlands, only streams, within that tributary.

[2] See Cowardin *et al.* (1979) for further discussion. Note that emergent wetlands are dominated by herbaceous species such as sedges and grasses. Unconsolidated bottom wetlands are those with a mud/silt bottom with limited vegetation.

Table 4.0-2. Summary of Stream Length (feet) by Cowardin Type and Project Watershed – Black Butte Project

Project Watershed[1]	Cowardin Type[2]					Total by Project Watershed
	R3UB	R3RB	R3SB	R3AB	R4SB	
Black Butte Creek	3,256	0	0	0	0	3,256
Black Butte Creek Total	**3,256**	**0**	**0**	**0**	**0**	**3,256**
Black Butte Creek Tributary 1	0	3,226	0	0	852	4,078
Black Butte Creek Tributaries Total	**0**	**3,226**	**0**	**0**	**852**	**4,078**
Little Sheep Creek	29,606	0	0	0	0	29,606
Little Sheep Creek Total	**29,606**	**0**	**0**	**0**	**0**	**29,606**
Little Sheep Creek Tributary 1	4,862	0	0	0	2,903	7,765
Little Sheep Creek Tributary 2	713	0	0	0	0	713
Little Sheep Creek Tributary 4	0	0	0	0	2,307	2,307
Little Sheep Creek Tributary 5	1,215	0	0	0	0	1,215
Little Sheep Creek Tributary 6	709	0	0	0	0	709
Little Sheep Creek Tributary 7	0	0	0	0	1,373	1,373
Little Sheep Creek Tributaries Total	**7,499**	**0**	**0**	**0**	**6,583**	**14,082**
Sheep Creek	6,663	0	0	0	0	6,663
Sheep Creek Total	**6,663**	**0**	**0**	**0**	**0**	**6,663**
Sheep Creek Overflow	0	0	0	0	9,446	9,446
Sheep Creek Overflow Total	**0**	**0**	**0**	**0**	**9,446**	**9,446**
Sheep Creek Overflow Tributaries	710	0	0	0	0	710
Sheep Creek Overflow Trib. Total	**710**	**0**	**0**	**0**	**0**	**710**
Sheep Creek Tributary 1	3,699	0	0	401	0	4,100
Sheep Creek Tributary 2	889	0	0	0	0	889
Sheep Creek Tributary 5	11,451	0	0	0	2,150	13,601
Sheep Creek Tributaries Total	**16,039**	**0**	**0**	**401**	**2,150**	**18,590**
Project Total	**63,773**	**3,226**	**0**	**401**	**19,031**	**86,431**

[1] Project watersheds are the specific, in many cases very small, watersheds within the Project area. With the exception of Sheep Creek and Black Butte Creek these watersheds do not correspond to larger order watersheds. In some cases, (e.g., Little Sheep Creek Tributary 3) a tributary is not listed in sequential order indicating that there were no streams, only wetlands, within that tributary.

[2] See Cowardin *et al.* (1979) for further discussion. Note: R = Riverine; 3 = Upper Perennial; 4 = Intermittent; UB = Unconsolidated Bottom; RB = Rock Bottom; SB = Streambed; and AB = Aquatic Bed.

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Appendix A

Line Item of Wetlands and Streams, Black Butte Project

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
W-BB-01	PSS1E	Riverine	Area	0.39	Acre	RPWWD	46.76774	-110.94902	Black Butte Creek
W-BB-02	PEM1E	Slope	Area	0.96	Acre	RPWWD	46.76772	-110.94856	Black Butte Creek
W-BB-03	PSS1E	Slope	Area	0.50	Acre	RPWWD	46.76755	-110.94825	Black Butte Creek
W-BB-04	PEM1B	Slope	Area	0.28	Acre	RPWWD	46.76703	-110.94877	Black Butte Creek
W-BB-05	PSS1E	Riverine	Area	6.86	Acre	RPWWD	46.76514	-110.94522	Black Butte Creek
W-BB-06	PSS6B	Slope	Area	0.50	Acre	RPWWD	46.76655	-110.94825	Black Butte Creek
W-BB-07	PSS6B	Slope	Area	0.48	Acre	RPWWD	46.76572	-110.94659	Black Butte Creek
W-BB-08	PSS6B	Slope	Area	0.63	Acre	RPWWD	46.76525	-110.94470	Black Butte Creek
W-BB-09	PEM1B	Slope	Area	0.22	Acre	RPWWD	46.76498	-110.94460	Black Butte Creek
W-BB-10	PEM1B	Slope	Area	9.23	Acre	RPWWD	46.76344	-110.94093	Black Butte Creek
W-BB-11	PSS1E	Slope	Area	0.12	Acre	RPWWD	46.76294	-110.94186	Black Butte Creek
W-BBT1-01	PEM1E	Riverine	Area	0.52	Acre	RPWWD	46.78753	-110.94199	Black Butte Creek tributary
W-BBT1-02	PEM1E	Riverine	Area	1.03	Acre	RPWWD	46.78733	-110.93646	Black Butte Creek tributary
W-BBT1-03	PEM1E	Slope	Area	0.25	Acre	RPWWN	46.78783	-110.93708	Black Butte Creek tributary
W-BBT1-04	PEM1B	Slope	Area	0.03	Acre	RPWWN	46.78725	-110.93410	Black Butte Creek tributary
W-BBT1-05	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.78736	-110.93418	Black Butte Creek tributary
W-BBT1-06	PEM1B	Slope	Area	0.06	Acre	RPWWN	46.78669	-110.93380	Black Butte Creek tributary
W-BBT1-07	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.78652	-110.93350	Black Butte Creek tributary
W-BBT1-08	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78646	-110.93340	Black Butte Creek tributary
W-BBT1-09	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78659	-110.93328	Black Butte Creek tributary
W-BBT1-10	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78635	-110.93326	Black Butte Creek tributary
W-BBT1-11	PUB3A	Depressional	Area	0.04	Acre	RPWWN	46.78611	-110.93285	Black Butte Creek tributary
W-BBT1-12	PUB3A	Depressional	Area	0.02	Acre	RPWWN	46.78585	-110.93254	Black Butte Creek tributary
W-BBT1-13	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.78564	-110.93223	Black Butte Creek tributary
W-BBT1-14	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.78553	-110.93216	Black Butte Creek tributary
W-BBT1-15	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78527	-110.93166	Black Butte Creek tributary
W-BBT1-16	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.78490	-110.93130	Black Butte Creek tributary
W-BBT1-17	PEM1B	Slope	Area	0.11	Acre	RPWWN	46.78468	-110.93097	Black Butte Creek tributary
W-BBT1-18	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78696	-110.93262	Black Butte Creek tributary
W-BBT1-19	PUB3A	Depressional	Area	0.01	Acre	RPWWN	46.78637	-110.93239	Black Butte Creek tributary
W-BBT1-20	PUB3A	Depressional	Area	0.01	Acre	RPWWN	46.78661	-110.93221	Black Butte Creek tributary
W-BBT1-21	PUB3A	Depressional	Area	0.00	Acre	RPWWN	46.78666	-110.93214	Black Butte Creek tributary
W-BBT1-22	PUB3A	Depressional	Area	0.00	Acre	RPWWN	46.78649	-110.93202	Black Butte Creek tributary
W-BBT1-23	PUB3A	Depressional	Area	0.00	Acre	RPWWN	46.78643	-110.93139	Black Butte Creek tributary
W-BBT1-24	PEM1B	Slope	Area	0.00	Acre	RPWWN	46.78657	-110.93143	Black Butte Creek tributary
W-BBT1-25	PUB3A	Depressional	Area	0.02	Acre	RPWWN	46.78656	-110.93128	Black Butte Creek tributary
W-BBT1-26	PUB3A	Depressional	Area	0.01	Acre	RPWWN	46.78680	-110.93086	Black Butte Creek tributary
W-BBT1-27	PUB3A	Depressional	Area	0.03	Acre	ISOLATE	46.78793	-110.93097	Black Butte Creek tributary
W-BBT1-28	PUB3A	Depressional	Area	0.01	Acre	ISOLATE	46.78898	-110.92633	Black Butte Creek tributary

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
W-BBT2-01	PEM1K	Slope	Area	0.02	Acre	ISOLATE	46.75207	-110.92740	Black Butte Creek tributary
W-BBT3-01	PSS1B	Slope	Area	0.11	Acre	NRPWW	46.74184	-110.92787	Black Butte Creek tributary
W-BBT3-02	PEM1B	Slope	Area	0.67	Acre	NRPWW	46.74157	-110.92689	Black Butte Creek tributary
W-BBT3-03	PSS1B	Slope	Area	0.04	Acre	NRPWW	46.74112	-110.92560	Black Butte Creek tributary
W-BBT3-04	PEM1A	Slope	Area	0.04	Acre	NRPWW	46.74078	-110.92394	Black Butte Creek tributary
W-LS-01	PSS1B	Riverine	Area	0.58	Acre	RPWWD	46.77480	-110.89803	Little Sheep Creek
W-LS-02	PSS1E	Riverine	Area	4.23	Acre	RPWWD	46.77337	-110.89577	Little Sheep Creek
W-LS-03	PEM1E	Riverine	Area	0.48	Acre	RPWWD	46.77210	-110.89268	Little Sheep Creek
W-LS-04	PUB3A	Slope	Area	0.01	Acre	RPWWN	46.77166	-110.88813	Little Sheep Creek
W-LS-05	PEM1E	Slope	Area	18.05	Acre	RPWWD	46.77092	-110.88239	Little Sheep Creek
W-LS-06	PUB3Ax	Slope	Area	0.08	Acre	RPWWN	46.77311	-110.88371	Little Sheep Creek
W-LS-07	PSS6B	Slope	Area	0.71	Acre	RPWWD	46.77108	-110.88349	Little Sheep Creek
W-LS-08	PSS6B	Slope	Area	1.26	Acre	RPWWD	46.77054	-110.88288	Little Sheep Creek
W-LS-09	PSS6B	Slope	Area	0.91	Acre	RPWWD	46.77042	-110.88067	Little Sheep Creek
W-LS-10	PSS6B	Slope	Area	0.22	Acre	RPWWD	46.76991	-110.88112	Little Sheep Creek
W-LS-11	PEM1E	Slope	Area	22.96	Acre	RPWWD	46.76379	-110.87466	Little Sheep Creek
W-LS-12	PSS6B	Slope	Area	0.58	Acre	RPWWD	46.76603	-110.87334	Little Sheep Creek
W-LS-13	PEM1B	Slope	Area	0.54	Acre	RPWWD	46.76659	-110.87157	Little Sheep Creek
W-LS-14	PSS6B	Slope	Area	3.77	Acre	RPWWD	46.76586	-110.87172	Little Sheep Creek
W-LS-15	PSS6B	Slope	Area	1.61	Acre	RPWWD	46.76534	-110.87293	Little Sheep Creek
W-LS-16	PSS6B	Slope	Area	12.21	Acre	RPWWD	46.76337	-110.87490	Little Sheep Creek
W-LS-17	PSS6B	Slope	Area	5.13	Acre	RPWWD	46.76243	-110.87662	Little Sheep Creek
W-LS-18	PSS6B	Slope	Area	34.25	Acre	RPWWD	46.76043	-110.88304	Little Sheep Creek
W-LS-19	PSS1E	Riverine	Area	0.35	Acre	RPWWD	46.76161	-110.87879	Little Sheep Creek
W-LS-20	PEM1E	Riverine	Area	0.52	Acre	RPWWD	46.76123	-110.87967	Little Sheep Creek
W-LS-21	PEM1Eh	Riverine	Area	3.80	Acre	RPWWD	46.75715	-110.89164	Little Sheep Creek
W-LS-22	PSS6B	Riverine	Area	2.32	Acre	RPWWD	46.75503	-110.89410	Little Sheep Creek
W-LS-23	PEM1B	Riverine	Area	2.94	Acre	RPWWD	46.75289	-110.89675	Little Sheep Creek
W-LS-24	PEM1B	Riverine	Area	1.76	Acre	RPWWD	46.74216	-110.90900	Little Sheep Creek
W-LST1-01	PEM1B	Slope	Area	0.05	Acre	ISOLATE	46.77113	-110.90083	Little Sheep Creek tributary
W-LST1-02	PSS6B	Riverine	Area	0.42	Acre	RPWWD	46.77051	-110.89357	Little Sheep Creek tributary
W-LST1-03	PSS1B	Riverine	Area	0.72	Acre	RPWWD	46.77050	-110.89356	Little Sheep Creek tributary
W-LST1-04	PSS6B	Riverine	Area	0.26	Acre	RPWWD	46.77054	-110.89367	Little Sheep Creek tributary
W-LST1-05	PSS6B	Riverine	Area	1.43	Acre	RPWWD	46.76947	-110.89557	Little Sheep Creek tributary
W-LST1-06	PEM1B	Riverine	Area	4.55	Acre	RPWWD	46.76761	-110.90073	Little Sheep Creek tributary
W-LST1-07	PSS1B	Slope	Area	0.03	Acre	RPWWN	46.76611	-110.90178	Little Sheep Creek tributary
W-LST1-08	PSS1B	Slope	Area	2.58	Acre	RPWWD	46.76612	-110.90418	Little Sheep Creek tributary
W-LST1-09	PEM1B	Slope	Area	3.26	Acre	RPWWD	46.76493	-110.90677	Little Sheep Creek tributary

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
W-LST1-10	PSS6B	Slope	Area	0.46	Acre	RPWWD	46.76503	-110.90590	Little Sheep Creek tributary
W-LST1-11	PSS6B	Slope	Area	0.56	Acre	RPWWD	46.76452	-110.90712	Little Sheep Creek tributary
W-LST1-12	PEM1B	Slope	Area	0.16	Acre	NRPWW	46.76437	-110.91502	Little Sheep Creek tributary
W-LST1-13	PEM1B	Slope	Area	0.27	Acre	NRPWW	46.76340	-110.91434	Little Sheep Creek tributary
W-LST1-14	PEM1B	Slope	Area	0.05	Acre	NRPWW	46.76255	-110.91087	Little Sheep Creek tributary
W-LST1-15	PEM1A	Slope	Area	0.02	Acre	NRPWW	46.76095	-110.91289	Little Sheep Creek tributary
W-LST1-16	PEM1A	Slope	Area	0.14	Acre	NRPWW	46.75986	-110.91460	Little Sheep Creek tributary
W-LST1-17	PEM1A	Slope	Area	0.07	Acre	NRPWW	46.75854	-110.91807	Little Sheep Creek tributary
W-LST2-01	PEM1E	Slope	Area	0.91	Acre	RPWWD	46.76753	-110.87552	Little Sheep Creek tributary
W-LST2-02	PSS6B	Slope	Area	0.63	Acre	RPWWD	46.76734	-110.87491	Little Sheep Creek tributary
W-LST2-03	PEM1A	Slope	Area	0.00	Acre	RPWWN	46.76638	-110.87655	Little Sheep Creek tributary
W-LST2-04	PEM1A	Slope	Area	0.00	Acre	RPWWN	46.76632	-110.87679	Little Sheep Creek tributary
W-LST2-05	PEM1B	Slope	Area	0.60	Acre	RPWWN	46.76595	-110.88054	Little Sheep Creek tributary
W-LST2-06	PSS6B	Slope	Area	4.11	Acre	RPWWN	46.76437	-110.88650	Little Sheep Creek tributary
W-LST2-07	PEM1E	Slope	Area	0.60	Acre	RPWWN	46.76538	-110.88391	Little Sheep Creek tributary
W-LST2-08	PEM1B	Slope	Area	0.44	Acre	RPWWN	46.76439	-110.88644	Little Sheep Creek tributary
W-LST2-09	PEM1B	Slope	Area	0.58	Acre	RPWWN	46.76357	-110.88890	Little Sheep Creek tributary
W-LST2-10	PSS1B	Slope	Area	3.13	Acre	RPWWN	46.76236	-110.89236	Little Sheep Creek tributary
W-LST2-11	PSS6B	Slope	Area	0.59	Acre	RPWWN	46.76263	-110.89208	Little Sheep Creek tributary
W-LST2-12	PEM1B	Slope	Area	0.49	Acre	RPWWN	46.76215	-110.89460	Little Sheep Creek tributary
W-LST2-13	PEM1B	Slope	Area	0.30	Acre	RPWWN	46.76166	-110.89769	Little Sheep Creek tributary
W-LST2-14	PSS1B	Slope	Area	0.47	Acre	RPWWN	46.76146	-110.89973	Little Sheep Creek tributary
W-LST2-15	PEM1B	Slope	Area	0.18	Acre	RPWWN	46.76107	-110.90120	Little Sheep Creek tributary
W-LST3-01	PSS6A	Slope	Area	0.15	Acre	RPWWN	46.75550	-110.89556	Little Sheep Creek tributary
W-LST3-02	PSS6B	Slope	Area	0.20	Acre	RPWWN	46.75441	-110.89994	Little Sheep Creek tributary
W-LST4-01	PEM1B	Riverine	Area	0.67	Acre	NRPWW	46.74696	-110.90949	Little Sheep Creek tributary
W-LST4-02	PEM1B	Riverine	Area	0.39	Acre	NRPWW	46.74883	-110.90982	Little Sheep Creek tributary
W-LST4-03	PEM1A	Riverine	Area	0.02	Acre	NRPWW	46.74939	-110.91436	Little Sheep Creek tributary
W-LST4-04	PEM1A	Riverine	Area	0.01	Acre	NRPWW	46.74941	-110.91527	Little Sheep Creek tributary
W-LST4-05	PEM1A	Riverine	Area	0.19	Acre	NRPWW	46.74979	-110.91764	Little Sheep Creek tributary
W-LST5-01	PEM1B	Slope	Area	10.62	Acre	RPWWD	46.77292	-110.88971	Little Sheep Creek tributary
W-LST5-02	PUB3/1Gx	Slope	Area	0.38	Acre	RPWWD	46.77314	-110.89084	Little Sheep Creek tributary
W-LST5-03	PSS1B	Slope	Area	0.47	Acre	RPWWD	46.77347	-110.89031	Little Sheep Creek tributary
W-LST7-1	PEM1B	Slope	Area	0.01	Acre	RPWWN	46.76098	-110.87373	Little Sheep Creek tributary
W-SC-01	PSS1C	Riverine	Area	0.08	Acre	RPWWD	46.78796	-110.91234	Sheep Creek
W-SC-02	PSS1C	Riverine	Area	0.14	Acre	RPWWD	46.78786	-110.91248	Sheep Creek
W-SC-03	PSS1E	Slope	Area	14.29	Acre	RPWWD	46.78321	-110.90752	Sheep Creek
W-SC-04	PSS1E	Riverine	Area	0.04	Acre	RPWWD	46.78451	-110.90645	Sheep Creek

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
W-SC-05	PSS1E	Riverine	Area	0.04	Acre	RPWWD	46.78444	-110.90610	Sheep Creek
W-SC-06	PSS1E	Slope	Area	14.14	Acre	RPWWD	46.78285	-110.90383	Sheep Creek
W-SC-07	PEM1E	Slope	Area	0.40	Acre	RPWWD	46.78390	-110.90405	Sheep Creek
W-SC-08	PEM1B	Slope	Area	1.08	Acre	RPWWD	46.78212	-110.90627	Sheep Creek
W-SC-09	PEM1B	Riverine	Area	0.36	Acre	RPWWD	46.78168	-110.90551	Sheep Creek
W-SC-10	PSS1E	Riverine	Area	0.08	Acre	RPWWD	46.78096	-110.90361	Sheep Creek
W-SC-11	PEM1B	Riverine	Area	6.46	Acre	RPWWD	46.77929	-110.90371	Sheep Creek
W-SC-12	PEM1B	Riverine	Area	1.99	Acre	RPWWD	46.78001	-110.90245	Sheep Creek
W-SC-13	PSS1E	Riverine	Area	0.30	Acre	RPWWD	46.78034	-110.90203	Sheep Creek
W-SC-14	PSS1E	Riverine	Area	0.11	Acre	RPWWD	46.78005	-110.90164	Sheep Creek
W-SC-15	PSS1B	Riverine	Area	7.01	Acre	RPWWD	46.77917	-110.90375	Sheep Creek
W-SC-16	PEM1B	Slope	Area	30.06	Acre	RPWWD	46.77840	-110.90508	Sheep Creek
W-SC-17	PSS1B	Riverine	Area	0.23	Acre	RPWWD	46.77853	-110.90665	Sheep Creek
W-SC-18	PEM1B	Riverine	Area	0.17	Acre	RPWWD	46.77816	-110.90463	Sheep Creek
W-SC-19	PEM1B	Riverine	Area	0.24	Acre	RPWWD	46.77829	-110.90344	Sheep Creek
W-SC-20	PEM1B	Riverine	Area	0.50	Acre	RPWWD	46.77857	-110.90218	Sheep Creek
W-SC-21	PEM1B	Riverine	Area	0.99	Acre	RPWWD	46.77764	-110.90125	Sheep Creek
W-SC-22	PEM1B	Riverine	Area	0.20	Acre	RPWWD	46.77871	-110.90108	Sheep Creek
W-SC-23	PSS1E	Riverine	Area	0.10	Acre	RPWWD	46.77773	-110.90040	Sheep Creek
W-SC-24	PEM1B	Riverine	Area	0.15	Acre	RPWWD	46.77733	-110.90084	Sheep Creek
W-SC-25	PSS1E	Riverine	Area	0.74	Acre	RPWWD	46.77711	-110.89998	Sheep Creek
W-SC-26	PEM1B	Riverine	Area	0.74	Acre	RPWWD	46.77814	-110.90032	Sheep Creek
W-SC-27	PSS1B	Slope	Area	0.50	Acre	RPWWD	46.77566	-110.90306	Sheep Creek
W-SC-28	PSS1B	Slope	Area	0.07	Acre	RPWWN	46.77553	-110.90331	Sheep Creek
W-SC-29	PSS1E	Riverine	Area	7.11	Acre	RPWWD	46.77663	-110.89824	Sheep Creek
W-SC-30	PSS1E	Slope	Area	0.63	Acre	RPWWD	46.77763	-110.89786	Sheep Creek
W-SC-31	PEM1B	Riverine	Area	4.57	Acre	RPWWD	46.77568	-110.89898	Sheep Creek
W-SC-32	PSS1E	Riverine	Area	0.39	Acre	RPWWD	46.77698	-110.89688	Sheep Creek
W-SC-33	PEM1B	Slope	Area	1.40	Acre	RPWWD	46.77549	-110.89662	Sheep Creek
W-SC-34	PSS1B	Riverine	Area	1.69	Acre	RPWWD	46.77328	-110.86874	Sheep Creek
W-SC-35	PEM1E	Slope	Area	2.02	Acre	RPWWD	46.77311	-110.86744	Sheep Creek
W-SC-36	PSS1E	Slope	Area	0.38	Acre	RPWWD	46.77358	-110.86774	Sheep Creek
W-SC-37	PSS1E	Slope	Area	5.44	Acre	RPWWD	46.77307	-110.86590	Sheep Creek
W-SC-38	PEM1E	Slope	Area	0.37	Acre	RPWWD	46.77320	-110.86656	Sheep Creek
W-SC-39	PEM1E	Slope	Area	0.49	Acre	RPWWD	46.77268	-110.86575	Sheep Creek
W-SC-40	PEM1E	Slope	Area	0.19	Acre	RPWWD	46.77234	-110.86529	Sheep Creek
W-SC-41	PEM1E	Riverine	Area	0.06	Acre	RPWWD	46.77371	-110.86477	Sheep Creek
W-SC-42	PSS1E	Riverine	Area	0.38	Acre	RPWWD	46.77333	-110.86509	Sheep Creek

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
W-SC-43	PEM1E	Riverine	Area	0.32	Acre	RPWWD	46.77326	-110.86518	Sheep Creek
W-SCT1-01	PSS6B	Slope	Area	0.29	Acre	RPWWD	46.78374	-110.90152	Sheep Creek tributary
W-SCT1-02	PEM1E	Slope	Area	0.32	Acre	RPWWD	46.78387	-110.90080	Sheep Creek tributary
W-SCT1-03	PSS6B	Slope	Area	0.54	Acre	RPWWD	46.78401	-110.89991	Sheep Creek tributary
W-SCT1-04	PSS6B	Slope	Area	0.39	Acre	RPWWD	46.78408	-110.89886	Sheep Creek tributary
W-SCT1-05	PSS1B	Slope	Area	0.81	Acre	RPWWD	46.78415	-110.89828	Sheep Creek tributary
W-SCT1-06	PEM1B	Slope	Area	4.00	Acre	RPWWD	46.78420	-110.89955	Sheep Creek tributary
W-SCT1-07	PSS6B	Slope	Area	0.66	Acre	RPWWD	46.78443	-110.89732	Sheep Creek tributary
W-SCT2-01	PSS6E	Slope	Area	3.51	Acre	RPWWD	46.77783	-110.89691	Sheep Creek tributary
W-SCT2-02	PEM1B	Slope	Area	0.94	Acre	RPWWD	46.77909	-110.89653	Sheep Creek tributary
W-SCT3-01	PSS6B	Slope	Area	0.94	Acre	NRPWW	46.77355	-110.87238	Sheep Creek tributary
W-SCT3-02	PEM1B	Slope	Area	0.42	Acre	NRPWW	46.77351	-110.87158	Sheep Creek tributary
W-SCT3-03	PSS1B	Slope	Area	1.04	Acre	NRPWW	46.77299	-110.87073	Sheep Creek tributary
W-SCT3-04	PEM1B	Slope	Area	0.30	Acre	NRPWW	46.77361	-110.87068	Sheep Creek tributary
W-SCT3-05	PEM1B	Slope	Area	0.46	Acre	NRPWW	46.77112	-110.86930	Sheep Creek tributary
W-SCT4-01	PEM1B	Slope	Area	0.89	Acre	ISOLATE	46.78796	-110.91890	Sheep Creek tributary
W-SCT4-02	PEM1B	Slope	Area	0.03	Acre	ISOLATE	46.78825	-110.92006	Sheep Creek tributary
W-SCT4-03	PEM1B	Slope	Area	0.00	Acre	ISOLATE	46.78830	-110.92029	Sheep Creek tributary
W-SCT5-01	PEM1B	Riverine	Area	0.35	Acre	RPWWD	46.77842	-110.90893	Sheep Creek tributary
W-SCT5-02	PSS1B	Riverine	Area	0.24	Acre	NRPWW	46.77931	-110.91263	Sheep Creek tributary
W-SCT5-03	PEM1B	Riverine	Area	0.22	Acre	NRPWW	46.77889	-110.91147	Sheep Creek tributary
W-SCT5-04	PEM1B	Riverine	Area	0.66	Acre	RPWWD	46.78130	-110.91649	Sheep Creek tributary
W-SCT5-05	PFO4B	Riverine	Area	0.08	Acre	RPWWD	46.78228	-110.91740	Sheep Creek tributary
W-SCT5-06	PFO4B	Slope	Area	1.78	Acre	RPWWD	46.78230	-110.92006	Sheep Creek tributary
W-SCT5-07	PEM1B	Slope	Area	1.13	Acre	RPWWD	46.78161	-110.92370	Sheep Creek tributary
W-SCT5-08	PEM1B	Slope	Area	0.02	Acre	NRPWW	46.78066	-110.92785	Sheep Creek tributary
W-SCT5-09	PEM1B	Slope	Area	0.58	Acre	NRPWW	46.78099	-110.92969	Sheep Creek tributary
W-SCT5-10	PEM1B	Slope	Area	0.03	Acre	NRPWW	46.78156	-110.92942	Sheep Creek tributary
W-SCT5-11	PSS1C	Slope	Area	8.29	Acre	RPWWD	46.77665	-110.91434	Sheep Creek tributary
W-SCT5-12	PSS1C	Slope	Area	6.03	Acre	RPWWD	46.77166	-110.91958	Sheep Creek tributary
W-SCT5-13	PSS6C	Slope	Area	3.15	Acre	RPWWD	46.77113	-110.91905	Sheep Creek tributary
W-SCT5-14	PEM1C	Slope	Area	0.40	Acre	RPWWD	46.77080	-110.92129	Sheep Creek tributary
S-BB-01	R3UB3/1	Riverine	Length	403	Foot	RPW	46.76775	-110.94879	Black Butte Creek
S-BB-02	R3UB3/1	Riverine	Length	2852	Foot	RPW	46.76510	-110.94500	Black Butte Creek
S-BBT1-01	R4SB2	Riverine	Length	223	Foot	NRPW	46.78658	-110.94873	Black Butte Creek tributary
S-BBT1-02	R4SB2	Riverine	Length	629	Foot	NRPW	46.78692	-110.94713	Black Butte Creek tributary
S-BBT1-03	R3RB2	Riverine	Length	3226	Foot	RPW	46.78763	-110.93999	Black Butte Creek tributary
S-LS-01	R3UB3	Riverine	Length	1887	Foot	RPW	46.77559	-110.89849	Little Sheep Creek

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
S-LS-02	R3UB3	Riverine	Length	631	Foot	RPW	46.77420	-110.89712	Little Sheep Creek
S-LS-03	R3UB3	Riverine	Length	1826	Foot	RPW	46.77253	-110.89387	Little Sheep Creek
S-LS-04	R3UB3	Riverine	Length	8109	Foot	RPW	46.77085	-110.88323	Little Sheep Creek
S-LS-05	R3UB3	Riverine	Length	13710	Foot	RPW	46.76068	-110.88220	Little Sheep Creek
S-LS-06	R3UB1/3	Riverine	Length	3443	Foot	RPW	46.74337	-110.90766	Little Sheep Creek
S-LST1-01	R3UB3	Riverine	Length	4862	Foot	RPW	46.76901	-110.89714	Little Sheep Creek tributary
S-LST1-02	R4SB5	Riverine	Length	98	Foot	NRPW	46.76482	-110.90722	Little Sheep Creek tributary
S-LST1-03	R4SB5	Riverine	Length	420	Foot	NRPW	46.76315	-110.91058	Little Sheep Creek tributary
S-LST1-04	R4SB5	Riverine	Length	1102	Foot	NRPW	46.76144	-110.91223	Little Sheep Creek tributary
S-LST1-05	R4SB5	Riverine	Length	588	Foot	NRPW	46.75790	-110.91986	Little Sheep Creek tributary
S-LST1-06	R4SB5	Riverine	Length	357	Foot	NRPW	46.76382	-110.91338	Little Sheep Creek tributary
S-LST1-07	R4SB5	Riverine	Length	339	Foot	NRPW	46.76416	-110.91383	Little Sheep Creek tributary
S-LST2-01	R3UB3	Riverine	Length	44	Foot	RPW	46.76216	-110.89520	Little Sheep Creek tributary
S-LST2-02	R3UB3	Riverine	Length	669	Foot	RPW	46.76136	-110.90085	Little Sheep Creek tributary
S-LST4-01	R4SB5	Riverine	Length	911	Foot	NRPW	46.74718	-110.90797	Little Sheep Creek tributary
S-LST4-02	R4SB3	Riverine	Length	271	Foot	NRPW	46.74791	-110.90870	Little Sheep Creek tributary
S-LST4-03	R4SB3	Riverine	Length	770	Foot	NRPW	46.74925	-110.91279	Little Sheep Creek tributary
S-LST4-04	R4SB3	Riverine	Length	279	Foot	NRPW	46.74957	-110.91597	Little Sheep Creek tributary
S-LST4-05	R4SB3	Riverine	Length	76	Foot	NRPW	46.74959	-110.91904	Little Sheep Creek tributary
S-LST5-01	R3UB1	Riverine	Length	12	Foot	RPW	46.77400	-110.89633	Little Sheep Creek tributary
S-LST5-02	R3UB1	Riverine	Length	1203	Foot	RPW	46.77311	-110.89305	Little Sheep Creek tributary
S-LST6-01	R3UB3	Riverine	Length	709	Foot	RPW	46.77054	-110.88237	Little Sheep Creek tributary
S-LST7-01	R4SB5	Riverine	Length	1373	Foot	NRPW	46.76088	-110.87334	Little Sheep Creek tributary
S-SC-01	R3UB1	Riverine	Length	230	Foot	RPW	46.78793	-110.91240	Sheep Creek
S-SC-02	R3UB1	Riverine	Length	6130	Foot	RPW	46.78009	-110.90164	Sheep Creek
S-SC-03	R3UB1	Riverine	Length	72	Foot	RPW	46.77374	-110.86857	Sheep Creek
S-SC-04	R3UB1	Riverine	Length	109	Foot	RPW	46.77371	-110.86803	Sheep Creek
S-SC-05	R3UB1	Riverine	Length	122	Foot	RPW	46.77363	-110.86489	Sheep Creek
S-SCO-01	R4SB5/3	Riverine	Length	645	Foot	NRPW	46.78261	-110.90421	Sheep Creek overflow
S-SCO-02	R4SB5/3	Riverine	Length	179	Foot	NRPW	46.78315	-110.90386	Sheep Creek overflow
S-SCO-03	R4SB5/3	Riverine	Length	226	Foot	NRPW	46.78172	-110.90468	Sheep Creek overflow
S-SCO-04	R4SB5/3	Riverine	Length	957	Foot	NRPW	46.78141	-110.90349	Sheep Creek overflow
S-SCO-05	R4SB5/3	Riverine	Length	435	Foot	NRPW	46.78198	-110.90359	Sheep Creek overflow
S-SCO-06	R4SB7/5	Riverine	Length	3514	Foot	NRPW	46.77837	-110.90312	Sheep Creek overflow
S-SCO-07	R4SB5/3	Riverine	Length	177	Foot	NRPW	46.78103	-110.90355	Sheep Creek overflow
S-SCO-08	R4SB7/5	Riverine	Length	1049	Foot	NRPW	46.77962	-110.90309	Sheep Creek overflow
S-SCO-09	R4SB5/3	Riverine	Length	405	Foot	NRPW	46.77702	-110.89824	Sheep Creek overflow
S-SCO-10	R4SB5/3	Riverine	Length	645	Foot	NRPW	46.77626	-110.89736	Sheep Creek overflow

Waters ID	Cowardin Code	HGM Code	Measurement Type	Quantity	Units	Prelimary Waters Types	Latitude	Longitude	Local Waterway
S-SCO-11	R4SB5/3	Riverine	Length	78	Foot	NRPW	46.77374	-110.86720	Sheep Creek overflow
S-SCO-12	R4SB5/3	Riverine	Length	834	Foot	NRPW	46.77323	-110.86581	Sheep Creek overflow
S-SCO-13	R4SB5/3	Riverine	Length	302	Foot	NRPW	46.77247	-110.86517	Sheep Creek overflow
S-SCOT-01	R3UB3	Riverine	Length	568	Foot	RPW	46.77313	-110.86766	Sheep Creek tributary
S-SCOT-02	R3UB3	Riverine	Length	142	Foot	RPW	46.77305	-110.86792	Sheep Creek tributary
S-SCT1-01	R3UB1	Riverine	Length	3100	Foot	RPW	46.78400	-110.90148	Sheep Creek tributary
S-SCT1-02	R3UB3	Riverine	Length	599	Foot	RPW	46.78330	-110.90486	Sheep Creek tributary
S-SCT1-03	R3AB3	Riverine	Length	221	Foot	RPW	46.78398	-110.90208	Sheep Creek tributary
S-SCT1-04	R3AB3	Riverine	Length	180	Foot	RPW	46.78404	-110.89937	Sheep Creek tributary
S-SCT2-01	R3UB3	Riverine	Length	889	Foot	RPW	46.77807	-110.89753	Sheep Creek tributary
S-SCT5-01	R3UB3	Riverine	Length	2766	Foot	RPW	46.78118	-110.90793	Sheep Creek tributary
S-SCT5-02	R3UB3	Riverine	Length	597	Foot	RPW	46.78399	-110.90799	Sheep Creek tributary
S-SCT5-03	R3UB3	Riverine	Length	836	Foot	RPW	46.78335	-110.90710	Sheep Creek tributary
S-SCT5-04	R3UB3	Riverine	Length	199	Foot	RPW	46.78381	-110.90684	Sheep Creek tributary
S-SCT5-05	R3UB3	Riverine	Length	145	Foot	RPW	46.77820	-110.90758	Sheep Creek tributary
S-SCT5-06	R3UB3	Riverine	Length	3701	Foot	RPW	46.77592	-110.91332	Sheep Creek tributary
S-SCT5-07	R3UB3	Riverine	Length	430	Foot	RPW	46.77260	-110.91876	Sheep Creek tributary
S-SCT5-08	R4SB7	Riverine	Length	632	Foot	NRPW	46.77868	-110.91050	Sheep Creek tributary
S-SCT5-09	R4SB7	Riverine	Length	1210	Foot	NRPW	46.77914	-110.91196	Sheep Creek tributary
S-SCT5-10	R3UB3	Riverine	Length	2776	Foot	RPW	46.78219	-110.91724	Sheep Creek tributary
S-SCT5-11	R4SB7	Riverine	Length	174	Foot	NRPW	46.78116	-110.92632	Sheep Creek tributary
S-SCT5-12	R4SB7	Riverine	Length	134	Foot	NRPW	46.78083	-110.92749	Sheep Creek tributary

NOTES:	HGM Code - Designation indicates the qualitative estimated primary water source for the wetland per USACE 2014a. In many cases both riverine and slope (i.e., groundwater) likely contribute to wetland hydrology.	
	Waters Types - These codes are consistent with those provided by the USACE for quantifying wetland and stream locations for jurisidictional determination. The designations are preliminary in that they have not been reviewed and approved by the USACE.	
	RPW -	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs (Traditional Navigable Waters). Indirectly means that the water could be a tributary to another water that flows into a TNW.
	NRPW -	Non-RPWs that flow directly or indirectly into TNWs.
	RPWWD -	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs. Wetlands are considered "abutting" if there is no upland, berm, dike, or similar feature between a wetland and a RPW (USACE 2007).
	RPWWN -	Wetlands adjacent to but not directly abutting RPWs tha tflow directly or indirectly into TNWs. Note that "adjacency" requires a determination of whether a "significant nexus" exists between the the wetland and the TNW (USACE 2007).
	NRPWW -	Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs. The same determination of adjacency as noted above applies.
	ISOLATE -	Isolated (interstate or intrastate) waters, including isolated wetlands. This designation is preliminary pending USACE review and concurrence.

Appendix B

Vascular Plant Species Recorded at Wetland and Upland Inventory Sites, Black Butte Project

Appendix B
List of Vascular Plant Species Identified for the Black Butte Wetlands Inventory
Meagher County, Montana, 2014.

Binomial	Code	WMVC	Common Name
NATIVE PERENNIAL GRAMINOIDS (Cool Season)			
Agropyron smithii (Elymus smithii, Pascopyrum smithii*)	Agr smi	FACU	Western wheatgrass
Agropyron spicatum (Elymus spicatus, Pseudoroegneria spicata)	Agr spi		Bluebunch wheatgrass
Agropyron trachycaulum (Agropyron caninum, Elymus trachycaulus*)	Agr tra	FAC	Slender wheatgrass
Agrostis scabra*	Agr sca	FAC	Rough bentgrass
Anthoxanthum hirtum* (Hierochloe odorata)	Ant hir	FACW	Northern sweetgrass
Bromus carinatus (Bromus marginatus)	Bro car		Mountain brome
Bromus ciliatus*	Bro cil	FAC	Fringed brome
Bromus pumpellianus (Bromus inermis var. pumpellianus)	Bro pum		Pumpelly's brome
Calamagrostis canadensis*	Cal can	FACW	Bluejoint reedgrass
Calamagrostis stricta* (Calamagrostis inexpansa, Calamagrostis neglecta)	Cal str	FACW	Northern reedgrass
Carex aquatilis*	Car aqu	OBL	Water sedge
Carex atherodes*	Car ath	OBL	Slough sedge
Carex athrostachya*	Car ato	FACW	Slender-beaked sedge
Carex aurea*	Car aur	FACW	Golden sedge
Carex disperma*	Car dis	FACW	Soft-leaved sedge
Carex interior*	Car int	OBL	Inland sedge
Carex microptera*	Car mic	FACU	Small-winged sedge
Carex multicostata	Car mul		Manyrib sedge
Carex nebrascensis*	Car neb	OBL	Nebraska sedge
Carex obtusata	Car obt		Blunt sedge
Carex pachystachya*	Car pac	FAC	Chamisso sedge
Carex pellita* (Carex lanuginosa)	Car pel	OBL	Woolly sedge
Carex praegracilis*	Car pra	FACW	Clustered field sedge
Carex praticola*	Car prt	FACW	Meadow sedge
Carex scirpoidea*	Car sci	FAC	Northern single-spike sedge
Carex simulata*	Car sim	OBL	Short-beaked sedge
Carex utriculata* (Carex rostrata)	Car utr	OBL	Southern beaked sedge
Danthonia californica*	Dan cal	FAC	California danthonia
Danthonia intermedia*	Dan int	FACU	Timber oatgrass
Deschampsia cespitosa	Des ces		Tufted hairgrass
Eleocharis palustris* (Eleocharis erythropoda, Eleocharis macrostachya)	Ele pal	OBL	Common spikesedge
Festuca campestris (Festuca scabrella, Festuca altaica*)	Fes cam		Rough fescue
Festuca idahoensis*	Fes ida	FACU	Idaho fescue
Festuca rubra*	Fes rub	FAC	Red fescue
Glyceria grandis*	Gly gra	OBL	American mannagrass
Glyceria striata*	Gly str	OBL	Fowl mannagrass
Hordeum jubatum*	Hor jub	FAC	Foxtail barley
Juncus balticus*	Jun bal	FACW	Baltic rush
Juncus confusus*	Jun con	FAC	Colorado rush
Juncus longistylis*	Jun lon	FACW	Longstyle rush
Juncus nodosus*	Jun nod	OBL	Jointed rush
Koeleria macrantha (Koeleria cristata, Koeleria pyramidata)	Koe mac		Prairie junegrass
Phalaris arundinacea*	Pha aru	FACW	Reed canarygrass
Poa secunda* (Poa canbyi, Poa gracillima, Poa juncifolia, Poa nevadensis, Poa sandbergii, Poa scabrella)	Poa sec	FACU	Sandberg's bluegrass
Scirpus microcarpus*	Sci mic	OBL	Panicled bulrush
Stipa occidentalis (Achnatherum occidentale)	Sti occ		Western needlegrass
Stipa richardsonii (Achnatherum richardsonii*)	Sti ric	UPL	Richardson's needlegrass
NATIVE PERENNIAL GRAMINOIDS (Warm Season)			
Muhlenbergia richardsonis*	Muh ric	FAC	Mat muhly
INTRODUCED PERENNIAL GRAMINOIDS			
Agrostis stolonifera* (Agrostis alba)	Agr sto	FAC	Redtop
Alopecurus arundinaceus*	Alo aru	FAC	Creeping meadow foxtail

Appendix B
List of Vascular Plant Species Identified for the Black Butte Wetlands Inventory
Meagher County, Montana, 2014.

Binomial	Code	WMVC	Common Name
Alopecurus pratensis*	Alo pra	FAC	Meadow foxtail
Bromus inermis*	Bro ine	FAC	Smooth brome
Dactylis glomerata*	Dac glo	FACU	Orchard-grass
Phleum pratense*	Phl pra	FAC	Common timothy
Poa palustris*	Poa pal	FAC	Fowl bluegrass
Poa pratensis*	Poa pra	FAC	Kentucky bluegrass
Schedonorus arundinaceus* (Festuca arundinacea)	Sch aru	FAC	Tall fescue
Schedonorus pratensis* (Festuca pratensis)	Sch pra	FACU	Meadow fescue
NATIVE ANNUAL GRAMINOIDS			
Juncus bufonius*	Jun buf	FACW	Toad rush
NATIVE PERENNIAL FORBS AND SUBSHRUBS			
Achillea millefolium*	Ach mil	FACU	Common yarrow
Actaea rubra*	Act rub	FACU	Red baneberry
Agoseris glauca*	Ago gla	FAC	Prairie agoseris
Allium brevistylum	All bre		Short-style onion
Allium geyeri*	All gey	FACU	Geyer's onion
Anemone multifida	Ane mul		Ball anemone
Antennaria microphylla	Ant mic		Littleleaf pussytoes
Arnica chamissonis*	Arn cha	FACW	Meadow arnica
Arnica fulgens*	Arn ful	UPL	Orange arnica
Artemisia ludoviciana*	Art lud	FACU	Cudweed sagewort
Astragalus agrestis* (Astragalus dasyglottis)	Ast agr	FACW	Field milkvetch
Astragalus alpinus*	Ast alp	FACU	Alpine milkvetch
Campanula rotundifolia*	Cam rot	FACU	Roundleaf harebell
Canadanthus modestus* (Aster modestus)	Can mod	FACW	Few-flowered aster
Cardamine breweri*	Car brw	FACW	Brewer's bittercress
Castilleja miniata*	Cas min	FACW	Scarlet paintbrush
Cerastium arvense*	Cer arv	FACU	Field chickweed
Cicuta maculata*	Cic mac	OBL	Spotted water-hemlock
Cirsium longistylum	Cir lon		Long-styled thistle
Cirsium scariosum*	Cir sca	FAC	Elk thistle
Clematis hirsutissima	Cle hir		Vaseflower clematis
Crepis runcinata*	Cre run	FACU	Meadow hawksbeard
Dodecatheon pulchellum*	Dod pul	FACW	Few-flowered shooting star
Epilobium ciliatum* (Epilobium glandulosum)	Epi cil	FACW	Common willow-herb
Erigeron caespitosus	Eri cae		Tufted fleabane
Erigeron subtrinervis	Eri sub		Three nerve fleabane
Eriogonum umbellatum	Eri umb		Sulfur buckwheat
Fragaria virginiana*	Fra vir	FACU	Virginia strawberry
Galium boreale*	Gal bor	FACU	Northern bedstraw
Galium trifidum*	Gal trf	FACW	Small bedstraw
Gentiana affinis*	Gen aff	FACU	Pleated gentian
Geranium richardsonii*	Ger ric	FAC	White geranium
Geranium viscosissimum*	Ger vis	FACU	Sticky geranium
Geum aleppicum*	Geu ale	FACW	Yellow avens
Geum macrophyllum*	Geu mac	FAC	Large leaf avens
Geum rivale*	Geu riv	FACW	Water avens
Geum triflorum*	Geu tri	FACU	Prairiesmoke
Heracleum lanatum (Heracleum maximum*, Heracleum sphondylium)	Her lan	FAC	Cow parsnip
Hippuris vulgaris*	Hip vul	OBL	Common mare's tail
Iris missouriensis*	Iri mis	FACW	Rocky Mountain iris
Ligusticum filicinum	Lig fil		Fernleaf licorice-root
Linnaea borealis*	Lin bor	FACU	Western twinflower

Appendix B
List of Vascular Plant Species Identified for the Black Butte Wetlands Inventory
Meagher County, Montana, 2014.

Binomial	Code	WMVC	Common Name
Linum lewisii (Linum perenne)	Lin lew		Blue flax
Lupinus sericeus	Lup ser		Silky lupine
Mentha arvensis*	Men arv	FACW	Field mint
Mimulus guttatus*	Mim gut	OBL	Common monkey-flower
Moehringia lateriflora* (Arenaria lateriflora)	Moe lat	FAC	Bluntleaf sandwort
Orthilia secunda* (Pyrola secunda)	Ort sec	FACU	One-sided wintergreen
Osmorhiza chilensis (Osmorhiza berteroi*)	Osm chi	FACU	Mountain sweetroot
Oxytropis deflexa*	Oxy def	FACU	Pendent-pod locoweed
Oxytropis splendens*	Oxy spl	FAC	Showy locoweed
Parnassia palustris*	Par pal	OBL	Northern grass-of-parnassus
Pedicularis groenlandica*	Ped gro	OBL	Elephanthead
Perideridia montana (Perideridia gairdneri*)	Per mon	FAC	Gairdner's yampa
Petasites frigidus* (Petasites sagittatus)	Pet fri	FACW	Arrowleaf coltsfoot
Platanthera hyperborea (Habenaria hyperborea, Platanthera aquilonis*)	Pla hyp	FACW	Northern green bog-orchid
Polemonium pulcherrimum	Pol pul		Showy polemonium
Polygonum amphibium (Persicaria amphibia*)	Pol amp	OBL	Water ladysthumb
Potamogeton filiformis (Stuckenia filiformis*)	Pot fil	OBL	Slenderleaf pondweed
Potamogeton foliosus*	Pot fol	OBL	Leafy pondweed
Potentilla anserina*	Pot ans	OBL	Common silverweed
Potentilla gracilis*	Pot gra	FAC	Slender cinquefoil
Prunella vulgaris*	Pru vul	FACU	Self-heal
Pyrola asarifolia*	Pyr asa	FACU	Pink wintergreen
Pyrrocoma integrifolia (Haplopappus integrifolius)	Pyr int		Entire-leaved goldenweed
Ranunculus acriformis*	Ran aci	FACW	Sharp buttercup
Ranunculus aquatilis* (Ranunculus longirostris, Ranunculus subrigidus)	Ran aqu	OBL	Hairleaf water buttercup
Ranunculus inamoenus*	Ran ina	FACW	Graceful buttercup
Ranunculus macounii*	Ran mac	OBL	Macoun's buttercup
Rumex occidentalis*	Rum occ	FACW	Western dock
Rumex salicifolius*	Rum sal	FACW	Willow dock
Senecio pauperculus (Packera paupercula*)	Sen pap	FACW	Balsam groundsel
Senecio sphaerocephalus*	Sen sph	FACW	Mountain-marsh butterweed
Sisyrinchium idahoense*	Sis ida	FACW	Idaho blue-eyed grass
Smilacina stellata (Maianthemum stellatum*)	Smi ste	FAC	Starry false solomon's seal
Solidago canadensis var. salebrosa (Solidago lepida*)	Sol canl	FAC	Canada goldenrod
Solidago missouriensis	Sol mis		Missouri goldenrod
Spiranthes romanzoffiana*	Spi rom	FACW	Hooded ladies-tresses
Stachys palustris*	Sta pal		Swamp hedge-nettle
Stellaria longifolia*	Ste log	FACW	Longleaved starwort
Symphyotrichum ascendens* (Aster chilensis)	Sym asc	FACU	Long-leaved aster
Symphyotrichum boreale* (Aster junciformis)	Sym bor	OBL	Rush aster
Symphyotrichum campestre (Aster campestris)	Sym cam		Meadow aster
Symphyotrichum foliaceum* (Aster foliaceus)	Sym fol	FACU	Leafy aster
Symphyotrichum lanceolatum* var. hesperium (Aster hesperius)	Sym hes	OBL	Lance-leaved aster
Symphyotrichum subspicatum* (Aster subspicatus)	Sym sub	FACW	Douglas' aster
Thalictrum venulosum*	Tha ven	FAC	Veiny meadowrue
Trifolium longipes*	Tri lon	FAC	Long-stalked clover
Valeriana dioica*	Val dio	FACW	Northern valerian
Valeriana edulis*	Val edu	FAC	Edible valerian
Veronica americana*	Ver ame	OBL	American speedwell
Vicia americana*	Vic ame	FAC	American vetch
Viola adunca*	Vio adu	FAC	Early blue violet
Viola canadensis*	Vio can	FACU	Canada violet
Viola nephrophylla*	Vio nep	FACW	Northern bog violet
Zigadenus elegans (Anticlea elegans*)	Zig ele	FACU	Mountain death-camas
Zizia aptera*	Ziz apt	FAC	Heart-leaved alexanders

Appendix B
List of Vascular Plant Species Identified for the Black Butte Wetlands Inventory
Meagher County, Montana, 2014.

Binomial	Code	WMVC	Common Name
INTRODUCED PERENNIAL FORBS			
Cerastium fontanum* (Cerastium vulgatum)	Cer fon	FACU	Common chickweed
Cirsium arvense*	Cir arv	FAC	Canada thistle
Knautia arvensis	Kna arv		Field scabious
Leucanthemum vulgare* (Chrysanthemum leucanthemum)	Leu vul	FACU	Oxeye daisy
Lotus corniculatus*	Lot cor	FAC	Birdsfoot trefoil
Plantago major*	Pla maj	FAC	Common plantain
Rumex crispus*	Rum cri	FAC	Curl dock
Silene latifolia (Lychnis alba)	Sil lat		White campion
Sonchus arvensis* (Sonchus uliginosus)	Son arv	FACU	Field sow-thistle
Taraxacum officinale*	Tar off	FACU	Common dandelion
Trifolium hybridum*	Tri hyb	FAC	Alsike clover
Trifolium pratense*	Tri pra	FACU	Red clover
Trifolium repens*	Tri rep	FAC	White Dutch clover
FERNS AND ALLIES			
Equisetum arvense*	Equ arv	FAC	Common horsetail
Equisetum laevigatum*	Equ lae	FACW	Smooth horsetail
NATIVE ANNUAL/BIENNIAL FORBS			
Androsace septentrionalis*	And sep	FACU	Northern fairy-candelabra
Artemisia biennis*	Art bie	FACW	Biennial wormwood
Chenopodium glaucum*	Che gla	FAC	Oak-leaved goosefoot
Collomia linearis*	Col lin	FACU	Narrow-leaf collomia
Corydalis aurea	Cor aur		Golden corydalis
Erysimum cheiranthoides*	Ery che	FACU	Treacle mustard
Gentianella amarella*	Gen ama	FACW	Northern gentian
Madia glomerata*	Mad glo	FACU	Cluster tarweed
Orthocarpus luteus*	Ort lut	FACU	Yellow owl clover
Plagiobothrys scouleri*	Pla sco	FACW	Scouler's popcorn-flower
Potentilla norvegica*	Pot nor	FAC	Norwegian cinquefoil
Rhinanthus crista-galli (Rhinanthus minor*)	Rhi cri	FACU	Yellow rattle
Rorippa palustris* (Rorippa islandica)	Ror pal	OBL	Marsh yellowcress
INTRODUCED ANNUAL/BIENNIAL FORBS			
Carduus nutans*	Car nut	UPL	Musk thistle
Carum carvi*	Car car	FACU	Caraway
Cirsium vulgare*	Cir vul	FACU	Bull thistle
Cynoglossum officinale*	Cyn off	FACU	Common hound's-tongue
Medicago lupulina*	Med lup	FACU	Black medick
Polygonum aviculare* (Polygonum arenastrum)	Pol avi	FAC	Prostrate knotweed
Thlaspi arvense*	Thl arv	UPL	Fanweed
Tragopogon dubius	Tra dub		Common salsify
NATIVE SHRUBS AND VINES			
Artemisia tridentata	Art tri		Big sagebrush
Betula glandulosa*	Bet gla	OBL	Bog birch
Dasiphora fruticosa* (Potentilla fruticosa)	Das fru	FAC	Shrubby cinquefoil
Juniperus communis*	Jun com	UPL	Common juniper
Ribes inerme*	Rib ine	FAC	Whitestem gooseberry
Ribes setosum (Ribes oxyacanthoides*)	Rib set	FACW	Bristly gooseberry
Rosa acicularis*	Ros aci	FACU	Prickly rose
Rosa woodsii*	Ros woo	FACU	Wood's rose
Salix bebbiana*	Sal beb	FACW	Bebb willow
Salix boothii* (Salix myrtillifolia)	Sal boo	FACW	Blueberry willow

Appendix B
List of Vascular Plant Species Identified for the Black Butte Wetlands Inventory
Meagher County, Montana, 2014.

Binomial	Code	WMVC	Common Name
Salix brachycarpa*	Sal bra	FACW	Short-fruited willow
Salix candida*	Sal can	OBL	Hoary willow
Salix drummondiana*	Sal dru	FACW	Drummond willow
Salix eriocephala var. mackenzieana (Salix rigida var. mackenzieana, Salix prolixa*)	Sal erim	OBL	Mackenzie willow
Salix geyeriana*	Sal gey	FACW	Geyer willow
Salix planifolia* (Salix phylicifolia)	Sal pla	OBL	Planeleaf willow
Salix pseudomonticola* (Salix monticola)	Sal pse	FACW	Mountain willow
Shepherdia canadensis*	She can	UPL	Canada buffaloberry
Symphoricarpos occidentalis*	Sym occ	FAC	Western snowberry
NATIVE TREES			
Juniperus scopulorum	Jun sco		Rocky Mountain juniper
Picea engelmannii*	Pic eng	FAC	Engelmann spruce
Pinus contorta*	Pin con	FAC	Lodgepole pine
Populus tremuloides*	Pop tre	FACU	Quaking aspen
Pseudotsuga menziesii*	Pse men	FACU	Douglas-fir

Scientific nomenclature follows Lesica (2012). The more recent, most commonly used synonyms, partial synonyms/combinations, and misapplied names are given in parentheses. These, as well as common names, are taken from a variety of sources including:

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*An asterisk indicates nomenclature appearing on the National Wetland Plant List (Lichvar 2012, updated 2014). Taxa with no asterisk do not appear on the NWPL, and are to be considered "Upland" species in the context of wetland inventories; additionally, the 2014 NWPL rates wetland plants at only the species level and does not distinguish among infraspecific taxa in assigning wetland ratings.

Appendix C

Wetland Determination Data Forms

BLACK BUTTE COPPER

Wetland Plots

WETLAND DETERMINATION DATA FORMS

Western Mountains, Valleys, and Coast Region

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BB-W1

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S35, T12N, R6E

Landform: floodplain | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7663285 | Long: -110.9473456 | Datum: WGS84

Soil Map Unit Name: 501B Manixlee-Crunton-Meadowcreek | NWI classification: PSS

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: Stream flowing through wetland. Photographs: SC 915-918

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix eriocephala var. mackenzieana*	32	x	OBL
2. *Salix geyeriana*	23	x	FACW
3. *Salix bebbiana*	3		FACW
4. *Dasiphora fruticosa*	1		FAC
5.			
	59	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	54	x	OBL
2. *Calamagrostis canadensis*	18	x	FACW
3. *Juncus balticus*	14		FACW
4. *Agrostis stolonifera*	9		FAC
5. *Mentha arvensis*	8		FACW
6. *Geum macrophyllum*	4		FAC
7. *Poa pratensis*	3		FAC
8. *Deschampsia cespitosa*	2		FACW
9. *Poa palustris*	1		FAC
10. *Senecio sphaerocephalus*	1		FACW
11. *Symphyotrichum subspicatum*	0.5		FACW
	114.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

	Total % Cover of:		Multiply by:
OBL Species	86	x 1 =	86
FACW Species	69.5	x 2 =	139
FAC Species	18	x 3 =	54
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	173.5 (A)		279 (B)

Prevalence Index (B/A) = 1.61

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: BB-W1

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
0-9	10YR 2/2	85	5YR 5/8	15	C	PL	CL	considerable OM
9-20	10YR 2/2	75	5YR 4/8	25	CS	PL	SL	

[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: Gravel

Depth (inches): 16

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil horizons differ in texture primarily. Soil moist, not saturated. Upper horizon meets indicator F6. Also meets indicators A11 and F3 with exception of soil hue is darker than required for depleted matrix. Soil type is a Mollisol, which has a dark A horizon. Soil complex is described by NRCS as "partially hydric", and given presence of hydrophytic vegetation and wetland hydrology, the soil is considered hydric.

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: Stream is just off the plot, approximately 2-3'. Stream is 2-3' lower than plot location as well.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BB-W2

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S35, T12N, R6E

Landform: floodplain | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7636142 | Long: -110.9400571 | Datum: WGS84

Soil Map Unit Name: 501B Manixlee-Crunton-Meadowcreek | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Photographs: SC 907-910 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Agrostis stolonifera*	45	x	FAC
2. *Carex pellita*	35	x	OBL
3. *Phleum pratense*	20		FAC
4. *Potentilla gracilis*	8		FAC
5. *Symphyotrichum foliaceum*	5		FACU
6. *Deschampsia cespitosa*	4		FACW
7. *Muhlenbergia richardsonis*	2		FAC
8. *Equisetum laevigatum*	1		FACW
9. *Mentha arvensis*	1		FACW
10. *Poa secunda*	1		FACU
11. *Carex praegracilis*	0.5		FACW
	123	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	35	x 1 =	35
FACW Species	7	x 2 =	14
FAC Species	75	x 3 =	225
FACU Species	6	x 4 =	24
UPL Species		x 5 =	
Column Totals:	123 (A)		298 (B)

Prevalence Index (B/A) = 2.42

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: BB-W2

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
0-3	10YR 2/1	100					CL	saturated at surface
3-16	10YR 2/1	65	7.5YR 6/8	35	RM	M	CL	restrictive layer at 16"

[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: Gravel

Depth (inches): 16

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Could squeeze water out of the 0-3" horizon. Would meet both indicator A11 and F3 with exception of soil hue is darker than required for depleted matrix. Soil type is a Mollisol, which has a dark A horizon. Soil complex is described by NRCS as "partially hydric", and given presence of hydrophytic vegetation and wetland hydrology, the soil is considered hydric.

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): 0-3

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BBT3-W1
Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S01, T11N, R6E
Landform: drainage | Local relief (concave, convex, none): concave | Slope (%): 1-2
Subregion (LRR): E | Lat: 46.7417488 | Long: -110.9270198 | Datum: WGS84
Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Flowing water from fenced seep above. Photographs: SC 926-929

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	1		FACW
2. *Dasiphora fruticosa*	0.5		FAC
3.			
4.			
5.			
	1.5	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	30	x	OBL
2. *Carex nebrascensis*	18	x	OBL
3. *Deschampsia cespitosa*	12		FACW
4. *Phleum pratense*	11		FAC
5. *Agrostis stolonifera*	6		FAC
6. *Poa pratensis*	4		FAC
7. *Epilobium ciliatum*	2		FACW
8. *Juncus balticus*	2		FACW
9. *Symphyotrichum foliaceum*	2		FACU
10. *Galium trifidum*	0.5		FACW
11. *Viola nephrophylla*	0.5		FACW
	88	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 15

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	48	x 1 =	48
FACW Species	18	x 2 =	36
FAC Species	21.5	x 3 =	64.5
FACU Species	2	x 4 =	8
UPL Species		x 5 =	
Column Totals:	89.5 (A)		156.5 (B)

Prevalence Index (B/A) = 1.75

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: Grazed and trampled by livestock - hummocks, Disturbed.

SOIL

Project/Site: Black Butte Copper Sampling Point: BBT3-W1

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	7.5YR 2.5/1	100					SiL	
6-16	7.5YR 2.5/2	60	5YR 7/2	40	CS	M	SL	more coarse sands

[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: Gravel

Depth (inches): 16

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Soils are hummocky from livestock trampling. Saturated to surface. Meets both indicator A11 and F3 with exception of soil hue is darker than required for depleted matrix. Soil type is a Mollisol, which has thick, dark A horizon. Given saturation to the surface late in the season, redox features, hydrophytic vegetation and wetland hydrology, the soil is considered hydric.

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): 2

Water Table Present? Yes ☑ No ☐ 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: Flowing water, saturated soils.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W1

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S30, T12N, R7E

Landform: bottom (hydraulic mine pit) | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): E | Lat: 46.7730982 | Long: -110.8902758 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Hydraulic mine area; plot is in pit area. Photographs: KS 1503-1506 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	9	x	FACW
2. *Salix boothii*	3	x	FACW
3.			
4.			
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	68	x	OBL
2. *Carex nebrascensis*	52	x	OBL
3. *Juncus balticus*	18		FACW
4. *Deschampsia cespitosa*	4		FACW
5. *Epilobium ciliatum*	4		FACW
6. *Poa pratensis*	3		FAC
7. *Poa palustris*	1		FAC
8. *Rumex occidentalis*	1		FACW
9.			
10.			
11.			
	151	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	120	x 1 =	120
FACW Species	39	x 2 =	78
FAC Species	4	x 3 =	12
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	163 (A)		210 (B)

Prevalence Index (B/A) = 1.29

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W1

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
0-7.5	7.5YR 2.5/1	100					Sandy muck	Sapric
7.5-16	7.5YR 4/1	100					Sandy muck	Sapric

[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): 0

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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: Hydraulic mine area (pit).

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W2

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S30, T12N, R7E

Landform: higher terrace | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): E | Lat: 46.7730478 | Long: -110.8899944 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Hydraulic mine area. Should be wetland, but disturbed by hydraulic mining. Hydric soil assumed. Photographs: KS 1503-1506 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Juncus balticus*	58	x	FACW
2. *Carex praegracilis*	35	x	FACW
3. *Agrostis stolonifera*	18		FAC
4. *Deschampsia cespitosa*	18		FACW
5. *Potentilla gracilis*	14		FAC
6. *Phleum pratense*	10		FAC
7. *Poa palustris*	8		FAC
8. *Poa pratensis*	3		FAC
9. *Symphyotrichum subspicatum*	3		FACW
10. *Eleocharis palustris*	2		OBL
11.			
	169	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	2	x 1 =	2
FACW Species	114	x 2 =	228
FAC Species	53	x 3 =	159
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	169 (A)		389 (B)

Prevalence Index (B/A) = 2.30

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: See photos, esp. 1508 to E shows this type to be very extensive in the area on higher and even lower terraces. Narrower bottom is Salix or Car utr/Cane. See photo 1507 to N - upl starts at Dasiphora fruticosa and then Car nut (for Car nut composition, see plot LS-U1), then road.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W2

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
0-16	10YR 3/1	10					SCL	coarse gravels present

[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: Problematic; hydraulic mining residue. Hydrophytic vegetation present; soils previously disturbed by mining. Assume hydric soil to support wetland vegetation, possibly meets indicator A12 at greater depth.

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: Capillary action? See above - problematic, but distinctly hydrophytic.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W3

Investigator(s): K.Scow, D. Barton | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.7719288 | Long: -110.8888864 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Stream side of very meandering creek. Photographs: KS1471-1474 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	76	x	OBL
2. *Mentha arvensis*	20	x	FACW
3. *Poa pratensis*	16	x	FAC
4. *Symphyotrichum foliaceum*	14		FACU
5. *Glyceria striata*	6		OBL
6. *Agrostis stolonifera*	5		FAC
7. *Phleum pratense*	5		FAC
8. *Potamogeton filiformis*	5		OBL
9. *Stachys palustris*	5		FACW
10. *Cirsium arvense*	4		FAC
11. *Deschampsia cespitosa*	4		FACW
	193	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	96	x 1 =	96
FACW Species	35.5	x 2 =	71
FAC Species	40	x 3 =	120
FACU Species	21	x 4 =	84
UPL Species	0.5	x 5 =	2.5
Column Totals:	193 (A)		373.5 (B)

Prevalence Index (B/A) = 1.94

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W3

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
0-16	10YR 2/2	95	7.5YR 5/5	5	C	M	SiC	

[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: Meets both indicators A11 and F3 except that soil hue is darker than required for depleted matrix. Believe this is due to soil type (Mollisol), which has naturally thick, dark A horizon. Area meets other wetland indicators of hydrology and hydrophytic

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W4
Investigator(s): K.Scow, D. Barton | Section, Township, Range: S29, T12N, R7E
Landform: bottom | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): E | Lat: 46.7713605 | Long: -110.8822551 | Datum: WGS84
Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes** ☑	**No** ☐
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Vegetation community altered by historic grazing. Adjacent creek wetland is unmistakable. Photographs: KS 1440-1443 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	1		FAC
2.			
3.			
4.			
5.			
	1	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	55	x	FAC
2. *Potentilla anserina*	42	x	OBL
3. *Poa pratensis*	25		FAC
4. *Agrostis stolonifera*	15		FAC
5. *Carex praegracilis*	10		FACW
6. *Potentilla gracilis*	5		FAC
7. *Juncus balticus*	4		FACW
8. *Symphyotrichum foliaceum*	4		FACU
9. *Taraxacum officinale*	3		FACU
10. *Alopecurus pratensis*	1		FAC
11. *Sonchus arvensis*	0.5		FACU
	164.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	42	x 1 =	42
FACW Species	14	x 2 =	28
FAC Species	102	x 3 =	306
FACU Species	7.5	x 4 =	30
UPL Species		x 5 =	
Column Totals:	165.5 (A)		406 (B)

Prevalence Index (B/A) = 2.45

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: Marginal WL - problematic due to alteration of vegetation composition by historic grazing. Adjacent creek is unmistakable WL (no plot).

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W4

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
0-16	10YR 2/1	100					SiC	

[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: Possible soil meets indicator A12 at depth; soil type is Mollisol and has dark, thick A horizon. Assumed hydric given hydrophytic vegetation and wetland hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W5

Investigator(s): K.Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: bottom | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.7702865 | Long: -110.8792189 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	
Hydric Soil Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Photographs: KS 1431-1434

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	4		FAC
2.			
3.			
4.			
5.			
	4	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex nebrascensis*	38	x	OBL
2. *Carex utriculata*	28	x	OBL
3. *Juncus balticus*	26	x	FACW
4. *Poa pratensis*	20		FAC
5. *Potentilla anserina*	18		OBL
6. *Deschampsia cespitosa*	10		FACW
7. *Stachys palustris*	8		FACW
8. *Mentha arvensis*	4		FACW
9. *Potentilla gracilis*	4		FAC
10. *Agrostis stolonifera*	3		FAC
11. *Poa palustris*	2		FAC
	162	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	85	x 1 =	85
FACW Species	48	x 2 =	96
FAC Species	33	x 3 =	99
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	166 (A)		280 (B)

Prevalence Index (B/A) = 1.69

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W5

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
0-16	10YR 2/2	93	5YR	58	C	M	SiC	

[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: Meets both indicators A11 and F3 except that soil hue is darker than required for depleted matrix. Believe this is due to soil type (Mollisol), which has naturally thick, dark A horizon. Area meets other wetland indicators of hydrology and hydrophytic

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W6

Investigator(s): K.Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: bottom | Local relief (concave, convex, none): concave | Slope (%): 0-4

Subregion (LRR): E | Lat: 46.7687510341 | Long: -110.874429316 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	12	x	FAC
2.			
3.			
4.			
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	45	x	OBL
2. *Poa pratensis*	18	x	FAC
3. *Potentilla anserina*	16	x	OBL
4. *Potentilla gracilis*	14		FAC
5. *Cirsium arvense*	12		FAC
6. *Stachys palustris*	10		FACW
7. *Juncus balticus*	7		FACW
8. *Geum macrophyllum*	4		FAC
9. *Polygonum amphibium*	4		OBL
10. *Carex nebrascensis*	3		OBL
11. *Mentha arvensis*	3		FACW
	146.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	68	x 1 =	68
FACW Species	22	x 2 =	44
FAC Species	68	x 3 =	204
FACU Species		x 4 =	
UPL Species	0.5	x 5 =	2.5
Column Totals:	158.5 (A)		318.5 (B)

Prevalence Index (B/A) = 2.01

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W6

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
0-16	10YR 2.2	90	5YR 5/8	10	RM	M	SCL	

[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: Meets both indicators A11 and F3 except that soil hue is darker than required for depleted matrix. Believe this is due to soil type (Mollisol), which has naturally thick, dark A horizon. Area meets other wetland indicators of hydrology and hydrophytic

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: Water table at ~28" judging by water level in adjacent creek.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-25-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W7

Investigator(s): D. Barton, K. Scow, J. Beaver, D.Culwell, D. Hagen | Section, Township, Range: S32, T12N, R7E

Landform: broad swale | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7658145 | Long: -110.873265 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Photographs: JB 2412-2415

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	2		FAC
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	70	x	OBL
2. *Calamagrostis stricta*	2		FACW
3. *Carex nebrascensis*	1		OBL
4. *Juncus balticus*	1		FACW
5. *Rumex occidentalis*	0.5		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	74.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	71	x 1 =	71
FACW Species	3.5	x 2 =	7
FAC Species	2	x 3 =	6
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	76.5 (A)		84 (B)

Prevalence Index (B/A) = 1.10

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W7

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
0-16	10YR 3/1	100					OM	sapric

[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.):

- [x] 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 [x] **No** [ ]

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] 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 [x] No [ ] Depth (inches): 0

Water Table Present? Yes [x] No [ ] Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes [x] No [ ] Depth (inches): 0

Wetland Hydrology Present? Yes [x] **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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-25-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W8

Investigator(s): D. Barton, K. Scow, J. Beaver, D.Culwell, D. Hagen | Section, Township, Range: S32, T12N, R7E

Landform: broad swale | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR): E | Lat: 46.765643 | Long: -110.872891 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PSS

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: Photographs: JB 2416-2419 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	35	x	FAC
2.			
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Juncus balticus*	65	x	FACW
2. *Poa pratensis*	45	x	FAC
3. *Valeriana edulis*	6		FAC
4. *Symphyotrichum subspicatum*	4		FACW
5. *Agropyron trachycaulum*	3		FAC
6. *Deschampsia cespitosa*	3		FACW
7. *Calamagrostis stricta*	1		FACW
8. *Achillea millefolium*	0.5		FACU
9. *Potentilla gracilis*	0.5		FAC
10.			
11.			
	128	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	73	x 2 =	146
FAC Species	89.5	x 3 =	268.5
FACU Species	0.5	x 4 =	2
UPL Species		x 5 =	
Column Totals:	163	(A)	416.5 (B)

Prevalence Index (B/A) = 2.56

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W8

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
0-8.5	10YR 2/1	100					C	
8.5-16	10YR 4/1	100					C	

[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 soil is hydric and meets indicator A12 at greater depth. Plot is located in soil type described by NRCS as "partially hydric"; also a Mollisol, which has thick, dark A horizon. Given soil type, hydrophytic vegetation, and hydrology, soil is considered hydric.

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: Damp in upper 8".

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-25-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W9

Investigator(s): J. Beaver, K. Scow, D. Barton | Section, Township, Range: S32, T12N, R7E

Landform: broad swale | Local relief (concave, convex, none): none | Slope (%): 4

Subregion (LRR): E | Lat: 46.7646017 | Long: -110.8741751 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PSS

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: Photographs: JB 2422-2425

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	45	x	FAC
2.			
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	65	x	FAC
2. *Thalictrum venulosum*	16		FAC
3. *Juncus balticus*	15		FACW
4. *Symphyotrichum subspicatum*	14		FACW
5. *Potentilla gracilis*	5		FAC
6. *Deschampsia cespitosa*	4		FACW
7. *Festuca rubra*	1		FAC
8. *Galium boreale*	1		FACU
9. *Geum rivale*	1		FACW
10. *Juncus longistylis*	0.5		FACW
11.			
	122.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	34.5	x 2 =	69
FAC Species	132	x 3 =	396
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	167.5	(A)	469 (B)

Prevalence Index (B/A) = 2.80

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W9

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
0-16	10YR 2/1	98	7.5YR 5/6	2	Type...	Loc...	OM	

[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: High organic matter, but not enough to be histosol. Soil is too dark to meet depleted matrix indicator, but this is likely due to soil type (Mollisol). Hydrogen sulfide odor noted.

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): 18

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W10
Investigator(s): J. Beaver | Section, Township, Range: S31, T12N, R7E
Landform: floodplain | Local relief (concave, convex, none): none | Slope (%): 2
Subregion (LRR): E | Lat: 46.7588727 | Long: -110.8875595 | Datum: WGS84
Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PSS
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: Within 20' of wetland edge. Photographs: JB 2442-2445 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	45	x	FAC
2. *Salix bebbiana*	6		FACW
3. *Salix geyeriana*	1		FACW
4.			
5.			
	52	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	50	x	OBL
2. *Geum rivale*	20	x	FACW
3. *Poa pratensis*	10		FAC
4. *Agrostis stolonifera*	4		FAC
5. *Deschampsia cespitosa*	3		FACW
6. *Juncus balticus*	3		FACW
7. *Phleum pratense*	3		FAC
8. *Carex praegracilis*	2		FACW
9. *Galium boreale*	1		FACU
10. *Smilacina stellata*	1		FAC
11. *Solidago canadensis var. salebrosa*	1		FAC
	98	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	50	x 1 =	50
FACW Species	35	x 2 =	70
FAC Species	64	x 3 =	192
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	150 (A)		316 (B)

Prevalence Index (B/A) = 2.11

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: gets wetter approaching creek

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W10

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
0-6.5	10YR 2/1	100					C	
6.5-16	10YR 4/1	95	10YR 5/3	5	C	M	C	

[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): _____

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: Water is present approximately 40 ft north of the plot.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W11

Investigator(s): J. Beaver, D. Culwell | Section, Township, Range: S31, T12N, R7E

Landform: floodplain | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): E | Lat: 46.7576702 | Long: -110.8912749 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Site is upslope of an old beaver pond. Wet meadow on CARUTR/SALBOO. Surrounding wetland is DASFRU dominated. Photographs: JB 2586-2589

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix boothii*	8	x	FACW
2. *Dasiphora fruticosa*	1		FAC
3. *Salix bebbiana*	1		FACW
4. *Juniperus scopulorum*	0.5		(UPL)
5.			
	10.5	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	70	x	OBL
2. *Juncus balticus*	10		FACW
3. *Geum macrophyllum*	9		FAC
4. *Petasites frigidus*	6		FACW
5. *Viola nephrophylla*	4		FACW
6. *Glyceria striata*	3		OBL
7. *Deschampsia cespitosa*	2		FACW
8. *Mentha arvensis*	1		FACW
9. *Bromus ciliatus*	0.5		FAC
10. *Rumex occidentalis*	0.5		FACW
11.			
	106	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	73	x 1 =	73
FACW Species	32.5	x 2 =	65
FAC Species	10.5	x 3 =	31.5
FACU Species		x 4 =	
UPL Species	0.5	x 5 =	2.5
Column Totals:	116.5 (A)		172 (B)

Prevalence Index (B/A) = 1.48

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: High moss cover (~75%). Typical of wettest part of wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W11

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	2.5Y 2.5/1	100					OM	highly organic
5-18	10YR 2/1	100					SiCL	

[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: 0-5" highly organic - very dark below.

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): 2

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

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: Saturated to surface, running water 15 ft to the south.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W12

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S25, T12N, R6E

Landform: floodplain | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7561905 | Long: -110.8926899 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	
Hydric Soil Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Some cattle grazing evident. Small stream approx 2' wide by 8" deep on edge of plot. Photographs: JB 2465-2468

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	8	x	FAC
2. *Salix bebbiana*	3	x	FACW
3. *Juniperus scopulorum*	0.5		(UPL)
4. *Salix boothii*	0.5		FACW
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	65	x	OBL
2. *Agrostis stolonifera*	20		FAC
3. *Poa palustris*	15		FAC
4. *Geum rivale*	5		FACW
5. *Mentha arvensis*	5		FACW
6. *Carex nebrascensis*	2		OBL
7. *Symphyotrichum ascendens*	1		FACU
8.			
9.			
10.			
11.			
	113	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	67	x 1 =	67
FACW Species	13.5	x 2 =	27
FAC Species	43	x 3 =	129
FACU Species	1	x 4 =	4
UPL Species	0.5	x 5 =	2.5
Column Totals:	125 (A)		229.5 (B)

Prevalence Index (B/A) = 1.84

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: Vegetation grazed ±30-40% utilization.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W12

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
0-7.5	10YR 2/1	100					CL	
7.5-16	10YR 3/1	92	10YR 4/6	8	C	M	CL	

[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: Meets indicators A11 and F3 except soil is darker than required for depleted matrix. Soil type is Mollisol, which has naturally thick, dark A horizon. Presence of hydrophytic vegetation and wetland hydrology, as well as redox features within 12"; soil is considered hydric.

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): 8

Water Table Present? Yes ☑ No ☐ Depth (inches): 20

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 16

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Stream

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W13

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S1, T11N, R6E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 3-4

Subregion (LRR): E | Lat: 46.7427204 | Long: -110.9071197 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Terrace 25-30' above flowing stream (heavily grazed) and well developed hydrophytic vegetation. However, plot located in area meeting all three criteria, and includes approx 65' from slope break to slope break. Photographs: SC 947-950

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Trifolium repens*	40	x	FAC
2. *Agrostis stolonifera*	24	x	FAC
3. *Phleum pratense*	21		FAC
4. *Poa pratensis*	16		FAC
5. *Juncus balticus*	6		FACW
6. *Achillea millefolium*	5		FACU
7. *Carex utriculata*	4		OBL
8. *Taraxacum officinale*	4		FACU
9.			
10.			
11.			
	120	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	4	x 1 =	4
FACW Species	6	x 2 =	12
FAC Species	101	x 3 =	303
FACU Species	9	x 4 =	36
UPL Species		x 5 =	
Column Totals:	120 (A)		355 (B)

Prevalence Index (B/A) = 2.96

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: Heavily grazed (esp. Car utr - no heads), densley vegetated. Located adjacent to well developed hydrophytic vegetation near stream.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W13

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
0-18	7.5YR 2.5/1	80	7.5YR 4/6	20	C	M	SCL	high coarse fragments (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:

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: Wetland extends ~65' from base of slope to base of slope. This plot located in what appears to be more mesic portion, however, it meets wetland criteria

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-W14

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S1, T11N, R6E

Landform: drainage | Local relief (concave, convex, none): concave | Slope (%): 2-3

Subregion (LRR): E | Lat: 46.7404415845 | Long: -110.910062508 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Flowing stream; 10' wetland fringe from spring/seeps above. Photographs: SC 941-944

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Deschampsia cespitosa*	22	x	FACW
2. *Poa pratensis*	18	x	FAC
3. *Trifolium repens*	18	x	FAC
4. *Agrostis stolonifera*	15		FAC
5. *Epilobium ciliatum*	12		FACW
6. *Poa palustris*	6		FAC
7. *Juncus balticus*	4		FACW
8. *Calamagrostis canadensis*	2		FACW
9. *Carex microptera*	2		FACU
10. *Hordeum jubatum*	2		FAC
11. *Agropyron trachycaulum*	1		FAC
	103.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 18

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	0.5	x 1 =	0.5
FACW Species	40	x 2 =	80
FAC Species	61	x 3 =	183
FACU Species	2	x 4 =	8
UPL Species		x 5 =	
Column Totals:	103.5 (A)		271.5 (B)

Prevalence Index (B/A) = 2.62

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-W14

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
0-14	10YR 2/1	100					CL	coarse fragments

[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: coarse fragments >2"

Depth (inches): 14

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: No saturation in pit. Soil type is a Mollisol, which has thick, dark A horizon; possible soil meets indicator A12 below restrictive layer. Presence of hydrophytic vegetation and wetland hydrology; presume soil to be hydric.

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): adjacent 1-2 ft

Water Table Present? Yes ☐ No ☑ Depth (inches): not in pit

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): not in pit

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Pit is 2 feet from flowing water.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-W1

Investigator(s): J. Beaver, D. Culwell | Section, Township, Range: S30, T12N, R7E

Landform: slope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): E | Lat: 46.7711823375 | Long: -110.900890178 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Interesting keyhole shaped seep on slope. Old wetland that is drying up; was likely bigger in past. No above ground connection to wetland below. Photographs: JB 2591-2597

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	8	x	FAC
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	45	x	FAC
2. *Carex pellita*	35	x	OBL
3. *Phleum pratense*	6		FAC
4. *Agrostis stolonifera*	4		FAC
5. *Alopecurus pratensis*	4		FAC
6. *Poa palustris*	4		FAC
7. *Deschampsia cespitosa*	3		FACW
8. *Carex microptera*	2		FACU
9. *Stachys palustris*	2		FACW
10. *Hordeum jubatum*	1		FAC
11. *Geum macrophyllum*	0.5		FAC
	107	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	35	x 1 =	35
FACW Species	5.5	x 2 =	11
FAC Species	72.5	x 3 =	217.5
FACU Species	2	x 4 =	8
UPL Species		x 5 =	
Column Totals:	115 (A)		271.5 (B)

Prevalence Index (B/A) = 2.36

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-W1

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
0-2.5	10YR 2/1	100					OM	
2.5-9	10YR 2/1	100					C	
9-14.5	2.5Y 3/1	100					C	
14.5-16	2.5Y 5/4	95	7.5YR 5/8	5	C	M	C	

[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: Heavy clay below organic matter. Dug two additional soil pits to west, but no redox. Soil chroma is high for depleted matrix, but redox concentrations present, as well as hydrophytic vegetation and wetland hydrology.

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: Although only meets secondary hydrology indicators, speculate wetland hydrology based on hydrophytic vegetation and soils.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-W2
Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S30, T12N, R7E
Landform: swale | Local relief (concave, convex, none): none | Slope (%): 2
Subregion (LRR): E | Lat: 46.7674507 | Long: -110.9014878 | Datum: WGS84
Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Interesting SALBEB/CARUTR c.t. Several dead SALBEB, but many young shrubs. Photographs: JB 2551-2554; 2555 of soil

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	15	x	FACW
2. *Dasiphora fruticosa*	4		FAC
3. *Salix geyeriana*	2		FACW
4. *Salix boothii*	1		FACW
5. *Juniperus communis*	0.5		UPL
	22.5	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	60	x	OBL
2. *Juncus balticus*	12		FACW
3. *Carex nebrascensis*	8		OBL
4. *Petasites frigidus*	4		FACW
5. *Viola nephrophylla*	3		FACW
6. *Poa pratensis*	2		FAC
7. *Geum rivale*	1		FACW
8. *Symphyotrichum foliaceum*	1		FACU
9.			
10.			
11.			
	91	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	68	x 1 =	68
FACW Species	38	x 2 =	76
FAC Species	6	x 3 =	18
FACU Species	1	x 4 =	4
UPL Species	0.5	x 5 =	2.5
Column Totals:	113.5 (A)		168.5 (B)

Prevalence Index (B/A) = 1.48

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-W2

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
0-12.5	10YR 3/1	100					OM	peat; increased fibers
12.5-18	10YR 4/1	100					SiCL	

[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): 1

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Surface water present in stream. 3" deep. Stream is about 2-3' wide and 2-4' deep.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-W3

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7650011 | Long: -110.9059995 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PSS

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: Upper edge of wetland above creek. Salix more common downstream, although many are dead. Photographs: JB 2538-2541

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	28	x	FAC
2.			
3.			
4.			
5.			
	28	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Agrostis stolonifera*	30	x	FAC
2. *Poa pratensis*	28	x	FAC
3. *Carex nebrascensis*	25	x	OBL
4. *Juncus balticus*	8		FACW
5. *Trifolium pratense*	3		FACU
6. *Carex utriculata*	2		OBL
7. *Potentilla gracilis*	2		FAC
8. *Taraxacum officinale*	2		FACU
9. *Phleum pratense*	1		FAC
10. *Symphyotrichum campestre*	1		(UPL)
11.			
	102	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	27	x 1 =	27
FACW Species	8	x 2 =	16
FAC Species	89	x 3 =	267
FACU Species	5	x 4 =	20
UPL Species	1	x 5 =	5
Column Totals:	130 (A)		335 (B)

Prevalence Index (B/A) = 2.58

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-W3

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
0-8	10YR 2/1	100					SC	
8-18	10YR 2/1	100					grav. SC	much higher coarse fragments

[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: Dark soil profile without depleted or gleyed matrix. Likely meets indicator A12 at greater depth. Redox features could be masked by saturation below 11". Presence of hydrophytic vegetation and wetland hydrology; soil is considered hydric.

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): >18

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 10.5

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Assumed water table based on saturation; sand/gravels are saturated.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-W4

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: swale/seep | Local relief (concave, convex, none): concave | Slope (%): 6

Subregion (LRR): E | Lat: 46.7644503922 | Long: -110.915350181 | Datum: WGS84

Soil Map Unit Name: 171E Surdal-Poin | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	
Hydric Soil Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks: Head of seep, flowing water. Goes to highly incised channel about 3' deep by 4' wide. Wetland vegetation in channel with flowing water. Photographs: JB 2530-2533, 2536-2537

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	5	x	FAC
2. *Rosa woodsii*	1		FACU
3. *Salix bebbiana*	1		FACW
4.			
5.			
	7	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	35	x	OBL
2. *Juncus balticus*	25	x	FACW
3. *Carex nebrascensis*	15		OBL
4. *Agrostis stolonifera*	8		FAC
5. *Geum macrophyllum*	5		FAC
6. *Poa palustris*	3		FAC
7. *Potentilla gracilis*	1		FAC
8.			
9.			
10.			
11.			
	92	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 3

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	50	x 1 =	50
FACW Species	26	x 2 =	52
FAC Species	22	x 3 =	66
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	99 (A)		172 (B)

Prevalence Index (B/A) = 1.74

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-W4

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
0-8.5	10YR 2/1	100					SC	
8.5-18	10YR 2/2	100					grav. S	little soil, mostly saturated sand & 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: Dark soil profile; may meet indicator A12 at depth (soil type is Mollisol). Redox concentrations for depleted matrix may have been masked by saturation. Given hydrophytic vegetation and wetland hydrology, assume soil is hydric.

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
Water Table Present?	Yes ☑	No ☐	Depth (inches):	22
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	9.5

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Headwaters of seep, similar type of seep to the south over the ridge. See photos JB2528-2829. Photo JB 2527 is a picture above that seep.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-W1

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S32, T12N, R7E

Landform: swale | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7654881 | Long: -110.8832202 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Very wet CARUTR swale. Photographs: JB 2479-2484

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	5	x	FACW
2. *Dasiphora fruticosa*	1		FAC
3.			
4.			
5.			
	6	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	80	x	OBL
2. *Carex nebrascensis*	10		OBL
3. *Carex praegracilis*	3		FACW
4. *Deschampsia cespitosa*	0.5		FACW
5. *Viola nephrophylla*	0.5		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	94	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	90	x 1 =	90
FACW Species	9	x 2 =	18
FAC Species	1	x 3 =	3
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	100 (A)		111 (B)

Prevalence Index (B/A) = 1.11

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-W1

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
0-4.5	10YR 2/1	100					OM	peat? increased root fiber
4.5-12	2.5Y 2.5/1	100					C	totally saturated

[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: Although OM is not 8 inches, saturation and low chroma in combination with OM and hydrophytic vegetation indicate this is a Histic Epipedon.

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): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-W2

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: terrace/toe slope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7619023 | Long: -110.8942241 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PSS

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: Some deceased shrubby cinquefoil, herbaceous vegetation heavily grazed, very wet at approx. 14" in soil pit. Wetland boundary indistinct. Shrub cover on plot not representative of surrounding PSS wetland type. Photographs: JB 2485-2488 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.1 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	3		FACU
2.			
3.			
4.			
	3	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	15	x	FAC
2. *Juniperus communis*	1		UPL
3. *Juniperus scopulorum*	1		(UPL)
4. *Salix bebbiana*	0.5		FACW
5.			
	17.5	= Total Cover	
Herb Stratum (Plot size: NA)			
1. *Agrostis stolonifera*	20	x	FAC
2. *Carex nebrascensis*	20	x	OBL
3. *Phleum pratense*	15	x	FAC
4. *Poa pratensis*	12		FAC
5. *Symphyotrichum subspicatum*	10		FACW
6. *Carex utriculata*	5		OBL
7. *Agropyron trachycaulum*	1		FAC
8. *Poa palustris*	1		FAC
9.			
10.			
11.			
	84	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	25	x 1 =	25
FACW Species	10.5	x 2 =	21
FAC Species	64	x 3 =	192
FACU Species	3	x 4 =	12
UPL Species	2	x 5 =	10
Column Totals:	104.5 (A)		260 (B)

Prevalence Index (B/A) = 2.49

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: Most Pop tre are dead/snags. Grazing 70-90%. Lots of snags and down timber.

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-W2

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
0-5	10YR 2/1	100					OM	sapric
5-12	2.5Y 3/1	100					C	
12-16	10YR 5/1	90	5YR 5/8	10	C	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: Although OM is not 8 inches, saturation and low chroma in combination with OM and hydrophytic vegetation indicate this is a Histic Epipedon.

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): 5.5

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: flowing water north of plot

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-W3

Investigator(s): J. Beaver, D. Culwell | Section, Township, Range: S31, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): E | Lat: 46.7613347 | Long: -110.9003275 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PSS

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: DASFRU c.t. near head of wet drainage. There is a spring approximately 200-300 feet updrainage. Upper margin of seep/spring wetland. Some grazing. Photographs: JB 2573-2576

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	27	x	FAC
2.			
3.			
4.			
5.			
	27	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Juncus balticus*	35	x	FACW
2. *Agrostis stolonifera*	30	x	FAC
3. *Phleum pratense*	15	x	FAC
4. *Poa palustris*	15	x	FAC
5. *Geum macrophyllum*	12		FAC
6. *Carex pellita*	10		OBL
7. *Potentilla gracilis*	5		FAC
8. *Symphyotrichum foliaceum*	5		FACU
9. *Carex microptera*	3		FACU
10. *Carex nebrascensis*	2		OBL
11.			
	132	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum <5

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	12	x 1 =	12
FACW Species	35	x 2 =	70
FAC Species	104	x 3 =	312
FACU Species	8	x 4 =	32
UPL Species		x 5 =	
Column Totals:	159 (A)		426 (B)

Prevalence Index (B/A) = 2.68

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: Shrub cover at plot below 30% but overall this wetland is a PSS.

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-W3

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	10YR 2/1	100					CL	no redox
5-10.5	10YR 2/2	95	7.5YR 5/8	5	C	M	SCL	
10.5-16	2.5Y 3/1	90	7.5YR 5/8	10	C	M	SCL	

[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: More mottled than typical for site; moist throughout.

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: No water or saturation to 18". Cattle hummocks.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST3-W1
Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E
Landform: swale | Local relief (concave, convex, none): concave | Slope (%): 3
Subregion (LRR): E | Lat: 46.7554647 | Long: -110.8956267 | Datum: WGS84
Soil Map Unit Name: Surdal-Poin-Libeg | NWI classification: PSS
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: As with LST3-W2, marginal wetland, but meets criteria. Photographs: JB 2459-2462

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	40	x	FAC
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Juncus balticus*	60	x	FACW
2. *Potentilla gracilis*	12		FAC
3. *Poa pratensis*	10		FAC
4. *Carex praegracilis*	8		FACW
5. *Phleum pratense*	5		FAC
6. *Poa palustris*	3		FAC
7. *Agrostis stolonifera*	2		FAC
8. *Fragaria virginiana*	1		FACU
9.			
10.			
11.			
	101	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	68	x 2 =	136
FAC Species	72	x 3 =	216
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	141 (A)		356 (B)

Prevalence Index (B/A) = 2.52

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST3-W1

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
0-16	10YR 2/1	100					SC	

[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: Soil is Mollisol with dark A horizon. May meet indicator A12 at depth. Assume hydric soil since hydrophytic vegetation and wetland hydrology present.

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: marginal

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST3-W2

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: swale | Local relief (concave, convex, none): concave | Slope (%): 4

Subregion (LRR): E | Lat: 46.7543256 | Long: -110.900238 | Datum: WGS84

Soil Map Unit Name: Surdal-Poin-Libeg | NWI classification: PSS

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: Marginal wetland, but meets criteria. Photographs: JB 2453-2456 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	35	x	FAC
2.			
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Juncus balticus*	35	x	FACW
2. *Poa palustris*	30	x	FAC
3. *Poa pratensis*	15		FAC
4. *Symphyotrichum foliaceum*	5		FACU
5. *Agropyron trachycaulum*	2		FAC
6. *Geum rivale*	2		FACW
7. *Potentilla gracilis*	1		FAC
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	37	x 2 =	74
FAC Species	83	x 3 =	249
FACU Species	5	x 4 =	20
UPL Species		x 5 =	
Column Totals:	125 (A)		343 (B)

Prevalence Index (B/A) = 2.74

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: marginal

SOIL

Project/Site: Black Butte Copper Sampling Point: LST3-W2

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
0-16	10YR 3/1	100					SC	

[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: Soil is a Mollisol with natural dark A horizon; may meet indicator A12 at greater depth. Marginal, but hydrophytic vegetation and wetland hydrology present. Assume hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (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: Marginal, but meets criteria.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST4-W1

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S01, T11N, R6E

Landform: old seep/headcut | Local relief (concave, convex, none): concave | Slope (%): 2-3

Subregion (LRR): E | Lat: 46.7493839 | Long: -110.9143345 | Datum: WGS84

Soil Map Unit Name: 1176E Kimpton-Zade | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Probable seep with localized moisture to support wetland. Located above incised drainage with wetland below. Marginal wetland; heacut above empties into wetland. Conservative estimate of wetlands in this drainage. Photographs: SC 976-979

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Agrostis stolonifera*	40	x	FAC
2. *Deschampsia cespitosa*	38	x	FACW
3. *Phleum pratense*	18		FAC
4. *Poa pratensis*	10		FAC
5. *Carex praegracilis*	6		FACW
6. *Juncus balticus*	5		FACW
7. *Hordeum jubatum*	4		FAC
8. *Potentilla gracilis*	3		FAC
9. *Rumex crispus*	1		FAC
10. *Symphyotrichum campestre*	1		(UPL)
11.			
	126	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2

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	49	x 2 =	98
FAC Species	76	x 3 =	228
FACU Species		x 4 =	
UPL Species	1	x 5 =	5
Column Totals:	126	(A)	331 (B)

Prevalence Index (B/A) = 2.63

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST4-W1

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
0-16	10YR 2/2	100					CL	few small coarse fragments

[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: Very uniform to depth. May meet indicator A12 at greater depth. Hydrophytic vegetation and hydrology present; assume soils are hydric.

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: Suspected seep/headcut at upper end of incised drainage (WUS) and wetland below. Holds water seasonally.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-14-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W1

Investigator(s): J. Beaver, K. Scow | Section, Township, Range: S24, T12N, R6E

Landform: floodplain, terrace | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7829798 | Long: -110.9078632 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Plot on wetland side of UPL/WL boundary, approximately 20 ft. Photographs: JB 2315-2318 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	52	x	FAC
2. *Juncus balticus*	36	x	FACW
3. *Trifolium hybridum*	26	x	FAC
4. *Taraxacum officinale*	24		FACU
5. *Geum rivale*	16		FACW
6. *Carex nebrascensis*	8		OBL
7. *Deschampsia cespitosa*	8		FACW
8. *Schedonorus pratensis*	8		FACU
9. *Carex praegracilis*	6		FACW
10. *Poa palustris*	6		FAC
11. *Potentilla gracilis*	6		FAC
	217	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	12	x 1 =	12
FACW Species	71	x 2 =	142
FAC Species	98	x 3 =	294
FACU Species	36	x 4 =	144
UPL Species		x 5 =	
Column Totals:	217 (A)		592 (B)

Prevalence Index (B/A) = 2.73

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: Wetter portion of meadow. This plot appears to be ~20' within wetland boundary.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W1

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 2/1	100					CL	increased fine roots
6-14.5	7.5YR 2/1	100					C	
14.5-16	2.5Y 5/2	100					C	

[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: Clay

Depth (inches): 14.5

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Almost a gley clay restrictive horizon, otherwise pretty homogeneous soil. May meet indicator A12 at greater depth. Plot is in soil type that is described by NRCS as "partially hydric". Soil meets color requirement for depleted matrix at 14.5-16", but no redox features observed.

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: Based on soils and veg., it seems reasonable the area is saturated at the root zone for 12.5% of growing season. High water table not observed in conjunction with saturation; possibly b/c of clay layer.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W2

Investigator(s): J. Beaver | Section, Township, Range: S19, T12N, R7E

Landform: floodplain/terrace | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7829643 | Long: -110.9049333 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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: Typical of dense Salix around Sheep Creek. Photographs: JB 164726-164708

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix eriocephala var. mackenzieana*	60	x	OBL
2. *Salix geyeriana*	25	x	FACW
3.			
4.			
5.			
	85	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	35	x	OBL
2. *Mentha arvensis*	8		FACW
3. *Poa palustris*	5		FAC
4. *Viola canadensis*	4		FACU
5. *Deschampsia cespitosa*	2		FACW
6. *Cirsium arvense*	1		FAC
7. *Geum macrophyllum*	1		FAC
8. *Anthoxanthum hirtum*	0.5		FACW
9. *Canadanthus modestus*	0.5		FACW
10. *Juncus nodosus*	0.5		OBL
11.			
	57.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	95.5	x 1 =	95.5
FACW Species	36	x 2 =	72
FAC Species	7	x 3 =	21
FACU Species	4	x 4 =	16
UPL Species		x 5 =	
Column Totals:	142.5 (A)		204.5 (B)

Prevalence Index (B/A) = 1.44

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: Dense Salix/Car utr stand.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W2

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
0-11	10YR 3/1	98	5YR 4/6	2	C	M	C	
11-12.5	10YR 2/1	100					OM	sapric
12.5-16	3/10Y	75	5YR 4/6	25	RM	M	CL	
16-20	4/N	90	5YR	10	C	M	S	

[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: Interesting thin layer of OM - relic horizon - below which is gleyed and reduced sand.

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): 13

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W3

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: bottom | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): E | Lat: 46.7807285 | Long: -110.9080948 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	65	x	FACW
2. *Salix geyeriana*	15		FACW
3. *Ribes setosum*	8		FACW
4. *Dasiphora fruticosa*	6		FAC
5. *Salix boothii*	5		FACW
	99	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	74	x	OBL
2. *Carex pellita*	28	x	OBL
3. *Geum macrophyllum*	4		FAC
4. *Poa palustris*	4		FAC
5. *Poa pratensis*	4		FAC
6. *Symphyotrichum boreale*	2		OBL
7. *Viola nephrophylla*	2		FACW
8.			
9.			
10.			
11.			
	118	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	104	x 1 =	104
FACW Species	95	x 2 =	190
FAC Species	18	x 3 =	54
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	217 (A)		348 (B)

Prevalence Index (B/A) = 1.60

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: a Salix terrace near Sheep Creek

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W3

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
0-21	2.5YR 2.5/1	100					L	high OM

[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: No rocks or gravel. Lots of organic material. Redox likely below 21 inches. Soil is molisol with hydrophytic vegetation.

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): 21

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: Site was wet earlier in the year, appears the surface has dried up a lot in the past couple of weeks. 1" of water in the pit after 20 min. Water appears when soil is pinched.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W4
Investigator(s): K.Scow, D. Barton | Section, Township, Range: S30, T12N, R7E
Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 0-1
Subregion (LRR): E | Lat: 46.7802341 | Long: -110.9024818 | Datum: WGS84
Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redchief | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Mowed hay field near creek. Photographs: no photographs

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	55	x	FAC
2. *Poa pratensis*	40	x	FAC
3. *Trifolium pratense*	40	x	FACU
4. *Carum carvi*	26		FACU
5. *Juncus balticus*	18		FACW
6. *Carex utriculata*	14		OBL
7. *Carex praegracilis*	8		FACW
8. *Trifolium hybridum*	8		FAC
9. *Taraxacum officinale*	5		FACU
10. *Symphyotrichum foliaceum*	3		FACU
11.			
	217	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:
Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	14	x 1 =	14
FACW Species	26	x 2 =	52
FAC Species	103	x 3 =	309
FACU Species	74	x 4 =	296
UPL Species		x 5 =	
Column Totals:	217 (A)		671 (B)

Prevalence Index (B/A) = 3.09

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: Vegetation meets the Dominance Test, but the Prevalence Index is slightly greater than 3.0. Site is a mosaic of wetland and mesic meadow. On balance this area appears to be wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W4

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
0-16	7.5YR 3/1	97	5YR 4/6	3	C	M	SiC	

[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: Meets both indicators A11 and F3 except that soil hue is darker than required for depleted matrix. Believe this is due to soil type (Mollisol), which has naturally thick, dark A horizon. Area meets other wetland indicators of hydrology and hydrophytic

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-14-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W5

Investigator(s): J. Beaver, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: floodplain swale | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): E | Lat: 46.7769518 | Long: -110.9041934 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Plot in unmowed portion of meadow as soil too soft. Swale extends to north (see aerial photo) to SC-U1. Photographs: JB 2329-2332

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Alopecurus arundinaceus*	70	x	FAC
2. *Carex utriculata*	58	x	OBL
3. *Carex praegracilis*	22		FACW
4. *Carex nebrascensis*	18		OBL
5. *Juncus balticus*	7		FACW
6. *Eleocharis palustris*	4		OBL
7. *Poa palustris*	4		FAC
8. *Mentha arvensis*	2		FACW
9. *Rhinanthus crista-galli*	2		FACU
10. *Trifolium hybridum*	2		FAC
11.			
	189	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	80	x 1 =	80
FACW Species	31	x 2 =	62
FAC Species	76	x 3 =	228
FACU Species	2	x 4 =	8
UPL Species		x 5 =	
Column Totals:	189 (A)		378 (B)

Prevalence Index (B/A) = 2.00

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W5

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
0-12.5	10YR 2/1	100					OM	<17% fibers (rubbed), greasy; also CL
12.5-16	2.5Y 2.5/1	80	7.5YR 4/6	20	C	M	C	

[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: Clay

Depth (inches): 12.5

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): previously

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): previously

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: High water table and saturation for 12.5% of growing season is assumed based on soils, veg, and damp soils on survey date.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W6

Investigator(s): K.Scow, D. Barton | Section, Township, Range: S25, T12N, R6E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.7766959 | Long: -110.9005538 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑**	**No ☐**
Hydric Soil Present?	Yes ☑	No ☐			
Wetland Hydrology Present?	Yes ☑	No ☐			

Remarks: Next to creek (dark signatures on aerial photo). Photographs: KS1459-1462 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	60	x	FAC
2. *Juncus balticus*	45	x	FACW
3. *Trifolium pratense*	40	x	FACU
4. *Rhinanthus crista-galli*	26		FACU
5. *Taraxacum officinale*	8		FACU
6. *Viola nephrophylla*	8		FACW
7. *Carex nebrascensis*	6		OBL
8. *Trifolium hybridum*	6		FAC
9. *Dactylis glomerata*	5		FACU
10. *Poa pratensis*	5		FAC
11. *Agrostis stolonifera*	4		FAC
	224.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	6	x 1 =	6
FACW Species	57	x 2 =	114
FAC Species	75	x 3 =	225
FACU Species	86.5	x 4 =	346
UPL Species		x 5 =	
Column Totals:	224.5 (A)		691 (B)

Prevalence Index (B/A) = 3.08

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: Vegetation meets the Dominance Test, but the Prevalence Index is slightly greater than 3.0. Site is a mosaic of wetland and mesic meadow. On balance this area appears to be wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W6

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	7.5YR 3/1	100					SiC	
12-16.5	10YR 4/2	97	5YR 5/8	3	C	M	SL	with redox

[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): _____

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W7

Investigator(s): K.Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 0-1

Subregion (LRR): E | Lat: 46.7763757 | Long: -110.8974223 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redchief | NWI classification: PSS

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: Sheep Creek. Photographs: KS 1448-1450 (N, S, W - no photo in E direction)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix boothii*	78	x	FACW
2. *Salix drummondiana*	22	x	FACW
3.			
4.			
5.			
	100	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	16	x	FAC
2. *Calamagrostis canadensis*	14	x	FACW
3. *Cirsium arvense*	14	x	FAC
4. *Carex utriculata*	8		OBL
5. *Poa palustris*	6		FAC
6. *Symphyotrichum subspicatum*	5		FACW
7. *Geum aleppicum*	4		FACW
8. *Canadanthus modestus*	3		FACW
9. *Arnica chamissonis*	2		FACW
10. *Phalaris arundinacea*	1		FACW
11. *Cicuta maculata*	0.5		OBL
	73.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	8.5	x 1 =	8.5
FACW Species	129	x 2 =	258
FAC Species	36	x 3 =	108
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	173.5 (A)		374.5 (B)

Prevalence Index (B/A) = 2.16

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: absolute cover of Salix = 95% (strat. = 100%)

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W7

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
0-8.5	10YR 3/2	100					SC	
8.5-16	10YR 3/2	95	10YR 5/8	5	C	M	SL	

[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: Meets indicators A11 and F3 except soil is too dark for depleted matrix. Soil type is Mollisol, with dark A horizon. NRCS describes soil unit as "partially hydric" (50% hydric) and occasionally flooded. Presence of redox features, hydrophytic vegetation, and wetland hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W8

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7734003 | Long: -110.872041 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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: Dasiphora fruticosa terrace wetland, hummocky. Photographs: KS 1515-1518 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	62	x	FAC
2.			
3.			
4.			
5.			
	62	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex praegracilis*	44	x	FACW
2. *Carex utriculata*	38	x	OBL
3. *Poa pratensis*	22		FAC
4. *Deschampsia cespitosa*	16		FACW
5. *Symphyotrichum subspicatum*	12		FACW
6. *Juncus balticus*	6		FACW
7. *Potentilla gracilis*	5		FAC
8. *Fragaria virginiana*	3		FACU
9. *Poa palustris*	3		FAC
10. *Bromus inermis*	2		FAC
11. *Festuca rubra*	2		FAC
	158	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	38	x 1 =	38
FACW Species	81	x 2 =	162
FAC Species	96	x 3 =	288
FACU Species	5	x 4 =	20
UPL Species		x 5 =	
Column Totals:	220 (A)		508 (B)

Prevalence Index (B/A) = 2.31

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W8

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
0-8.5	10YR 2/1	100					C	
8.5-16	10YR 4/1	100					C	

[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 soil is hydric and meets indicator A12 at greater depth. Plot is located in soil type described by NRCS as "partially hydric"; also a Mollisol, which has thick, dark A horizon. Given soil type, hydrophytic vegetation, and hydrology, soil is considered hydric.

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: Damp in upper 8".

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-W9

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: bottom | Local relief (concave, convex, none): concave | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.7732686585 | Long: -110.867344473 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PEM

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

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

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

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Photographs: KS 1531-1534 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix boothii*	50	x	FACW
2. *Salix bebbiana*	30	x	FACW
3. *Salix eriocephala var. mackenzieana*	4		OBL
4. *Dasiphora fruticosa*	2		FAC
5.			
	86	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	80	x	OBL
2. *Viola nephrophylla*	7		FACW
3. *Poa palustris*	6		FAC
4. *Geum rivale*	3		FACW
5. *Poa pratensis*	3		FAC
6. *Calamagrostis canadensis*	2		FACW
7. *Glyceria grandis*	2		OBL
8. *Cicuta maculata*	1		OBL
9. *Epilobium ciliatum*	1		FACW
10. *Phleum pratense*	1		FAC
11. *Rumex occidentalis*	1		FACW
	109	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 1

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	87	x 1 =	87
FACW Species	95	x 2 =	190
FAC Species	13	x 3 =	39
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	195 (A)		316 (B)

Prevalence Index (B/A) = 1.62

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: willow carr with Pic eng

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-W9

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
0-16	10YR 2/1	98	7.5YR 5/6	2	Type...	Loc...	OM	

[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: High organic matter, but not enough to be histosol. Soil is too dark to meet depleted matrix indicator, but this is likely due to soil type (Mollisol). Hydrogen sulfide odor noted.

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): 18

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT1-W1
Investigator(s): J. Beaver | Section, Township, Range: S19, T12N, R7E
Landform: terrace/spring | Local relief (concave, convex, none): none | Slope (%): 0-3
Subregion (LRR): E | Lat: 46.7838687804 | Long: -110.900704242 | Datum: WGS84
Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Site is a fen within a PSS complex. Other springs in area, but 2 springs well-up here to create organic matter fen. Somewhat spongy/quaking. Photographs: JB 151800-150854

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix geyeriana*	6	x	FACW
2. *Salix planifolia*	6	x	OBL
3.			
4.			
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 0.01)			
1. *Carex nebrascensis*	40	x	OBL
2. *Carex simulata*	38	x	OBL
3. *Viola nephrophylla*	5		FACW
4. *Poa palustris*	2		FAC
5. *Deschampsia cespitosa*	1		FACW
6. *Muhlenbergia richardsonis*	1		FAC
7. *Spiranthes romanzoffiana*	0.5		FACW
8.			
9.			
10.			
11.			
	87.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:
Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or, FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	84	x 1 =	84
FACW Species	12.5	x 2 =	25
FAC Species	3	x 3 =	9
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	99.5 (A)		118 (B)

Prevalence Index (B/A) = 1.19

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: Very high moss cover, depauperate species.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT1-W1

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 2/4	100					OM	peat; increased living roots & decomposed
12-20	10YR 3/1	100					OM	peat

[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.):

- [x] 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 [x] **No** [ ]

Remarks: Peat, very cool. Extends to 20".

HYDROLOGY

Wetland Hydrology Indicators:

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

- [x] Surface Water (A1)
- [x] High Water Table (A2)
- [x] 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)
- [x] 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)
- [x] 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 [x] No [ ] Depth (inches): 0.5

Water Table Present? Yes [x] No [ ] Depth (inches): 0-7

Saturation Present? (includes capillary fringe) Yes [x] No [ ] Depth (inches): 0

Wetland Hydrology Present? Yes [x] **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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT2-W1
Investigator(s): J. Beaver | Section, Township, Range: S30, T12N, R7E
Landform: floodplain/terrace | Local relief (concave, convex, none): none | Slope (%): 1
Subregion (LRR): E | Lat: 46.7786432 | Long: -110.8965125 | Datum: WGS84
Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS
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: Large DASPHO/CARUTR wet meadow adjacent to Sheep Creek. Photographs: JB 134205-134214

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	30	x	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex utriculata*	60	x	OBL
2. *Carex pellita*	18	x	OBL
3. *Deschampsia cespitosa*	8		FACW
4. *Geum macrophyllum*	1		FAC
5. *Mentha arvensis*	1		FACW
6. *Potentilla gracilis*	1		FAC
7. *Poa palustris*	0.5		FAC
8. *Thalictrum venulosum*	0.5		FAC
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2

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	78	x 1 = 78
FACW Species	9	x 2 = 18
FAC Species	33	x 3 = 99
FACU Species		x 4 =
UPL Species		x 5 =
Column Totals:	120 (A)	195 (B)

Prevalence Index (B/A) = 1.62

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: Typical of meadow portion this side of Sheep Creek.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT2-W1

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
0-10	10YR 2/1	100					SiCL	
10-16	10YR 2/1	100					C	

[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: Dark soil profile without depleted or gleyed matrix. Likely meets indicator A12 at greater depth. Soil unit (1110D, Mooseflat-Foxgulch-Redfish) is described as partially hydric (50% of unit is comprised of hydric soils) and occasionally flooded. Soils assumed hydric by presence of hydrophytic vegetation and wetland hydrology.

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): 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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT3-W1
Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, T12N, R7E
Landform: swale/spring/seep | Local relief (concave, convex, none): concave | Slope (%): 1-4
Subregion (LRR): E | Lat: 46.7713875796 | Long: -110.869551856 | Datum: WGS84
Soil Map Unit Name: 164D Hardhart-Farlin, stony-Checkerboard | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Neat wetland perched on hillslope. Photographs: KS 1523-1526 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	36	x	FACW
2. *Dasiphora fruticosa*	6		FAC
3.			
4.			
5.			
	42	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex nebrascensis*	86	x	OBL
2. *Carex simulata*	44	x	OBL
3. *Viola nephrophylla*	7		FACW
4. *Festuca rubra*	1		FAC
5. *Solidago canadensis var. salebrosa*	1		FAC
6. *Symphyotrichum subspicatum*	1		FACW
7. *Platanthera hyperborea*	0.5		FACW
8.			
9.			
10.			
11.			
	140.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	130	x 1 =	130
FACW Species	44.5	x 2 =	89
FAC Species	8	x 3 =	24
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	182.5 (A)		243 (B)

Prevalence Index (B/A) = 1.33

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT3-W1

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
0-10	10YR 2/2	100					OM	histic
10-16	10YR 2/2	100					SiL	loamy mucky mineral

[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): 7

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-05-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT4-W1
Investigator(s): J. Beaver | Section, Township, Range: S24, T12N, R6E
Landform: upper slope | Local relief (concave, convex, none): none | Slope (%): 3-25
Subregion (LRR): E | Lat: 46.7879381 | Long: -110.9194623 | Datum: WGS84
Soil Map Unit Name: 1142C Redchief stony | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☑** **No ☐**
Hydric Soil Present?	Yes ☑	No ☐		
Wetland Hydrology Present?	Yes ☑	No ☐		

Remarks: Long sidehill seep. Flowing water at top, then standing water, then saturation, then mesic as you go downhill. Photographs: JB 2610-12; 2614-17

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix boothii*	3		FACW
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex nebrascensis*	30	x	OBL
2. *Carex pellita*	20	x	OBL
3. *Phleum pratense*	15	x	FAC
4. *Poa palustris*	3		FAC
5. *Geum macrophyllum*	2		FAC
6. *Epilobium ciliatum*	1		FACW
7.			
8.			
9.			
10.			
11.			
	71	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20

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	50	x 1 =	50
FACW Species	4	x 2 =	8
FAC Species	20	x 3 =	60
FACU Species		x 4 =	
UPL Species		x 5 =	
Column Totals:	74 (A)		118 (B)

Prevalence Index (B/A) = 1.59

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: Bottom of seep is Agr sto/Car neb.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT4-W1

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
0-8.5	10YR 2/1	100					C	
8.5-11.5	2.5Y 5/1	70	7.5YR 5/8	30	RM	M	C	rejected by cobbles at 11.5

[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: Rocks

Depth (inches): 11.5

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Presume depleted matrix extends below 11.5 to meet 6" thickness criterion of indicator F3

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): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): 0

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: Dries out further downhill.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-W1
Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E
Landform: bottom | Local relief (concave, convex, none): concave | Slope (%): 5-8
Subregion (LRR): E | Lat: 46.7781354 | Long: -110.9096405 | Datum: WGS84
Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS
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: Historically disturbed - just upstream of corrals. Photographs: KS1403-1406 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	12	x	FACW
2. *Salix pseudomonticola*	8	x	FACW
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	54	x	FAC
2. *Bromus inermis*	22	x	FAC
3. *Carex nebrascensis*	16	x	OBL
4. *Solidago canadensis var. salebrosa*	16	x	FAC
5. *Heracleum lanatum*	14		FAC
6. *Carex utriculata*	8		OBL
7. *Phleum pratense*	8		FAC
8. *Symphyotrichum ascendens*	8		FACU
9. *Symphyotrichum subspicatum*	6		FACW
10. *Agrostis stolonifera*	5		FAC
11. *Taraxacum officinale*	4		FACU
	164	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:
Number of Dominant Species That Are OBL, FACW, or, FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or, FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	24	x 1 =	24
FACW Species	26	x 2 =	52
FAC Species	122	x 3 =	366
FACU Species	12	x 4 =	48
UPL Species		x 5 =	
Column Totals:	184 (A)		490 (B)

Prevalence Index (B/A) = 2.66

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-W1

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	10YR 3/1	100					SiL	fine and coarse roots, coarse sands
6-17	7.5 YR 3/1	100					SL	fine roots, coarse sands and gravels
17-18	10YR 2/2	100					SCL	cobbles

[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: Cobbles

Depth (inches): 18

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Soil black. Color changes throughout profile. Cobbles or boulders encountered at 17". May meet indicator A12 at depth. Plot is in soil type characterized as "partially hydric" by NRCS and also a Mollisol, with naturally thick, dark A horizon. Hydrophytic vegetation and wetland hydrology present, assume hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? (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: Adjacent stream channel is 6" to 18" across, approx 3" deep. No water in soil pit, however.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-W2

Investigator(s): L. Larsen, S. Cooper | Section, Township, Range: S24, T12N, R6E

Landform: terrace and toe slope | Local relief (concave, convex, none): none | Slope (%): 2-3

Subregion (LRR): E | Lat: 46.7825811 | Long: -110.918435 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: PFO

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: Picea wetland between toeslope and stream. Photographs: SC 987-990

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.1 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea engelmannii*	45	x	FAC
2.			
3.			
4.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Ribes setosum*	1		FACW
2. *Rosa acicularis*	0.5		FACU
3.			
4.			
5.			
	1.5	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex disperma*	50	x	FACW
2. *Linnaea borealis*	30	x	FACU
3. *Symphyotrichum subspicatum*	7		FACW
4. *Orthilia secunda*	5		FACU
5. *Carex microptera*	3		FACU
6. *Osmorhiza chilensis*	3		FACU
7. *Calamagrostis canadensis*	2		FACW
8. *Smilacina stellata*	2		FAC
9. *Geum macrophyllum*	1		FAC
10. *Glyceria striata*	1		OBL
11. *Crepis runcinata*	0.5		FACU
	105.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	1	x 1 =	1
FACW Species	60	x 2 =	120
FAC Species	48.5	x 3 =	145.5
FACU Species	42.5	x 4 =	170
UPL Species		x 5 =	
Column Totals:	152 (A)		436.5 (B)

Prevalence Index (B/A) = 2.87

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-W2

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
0-20	10YR 2/1	90	10R 3/4	10	C	PL	L	gravelly below 16"

[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: Meets indicators A11 and F3 with exception of soil hue is darker than required for depleted matrix. Dark A horizon the result of soil type (Mollisol). Given hydrophytic vegetation and hydrology, soil is considered hydric.

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): 14

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 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: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-W3

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: hillside brook | Local relief (concave, convex, none): concave | Slope (%): 6-7

Subregion (LRR): E | Lat: 46.7776722 | Long: -110.9149591 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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: Stream is 0.5-2.5 ft wide. Wetland boundary is approx size of veg plot (0.01 acre) on the N and S edges. No grazing at this location. Photographs: KS1393-1396 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Salix bebbiana*	34	x	FACW
2. *Dasiphora fruticosa*	8		FAC
3. *Juniperus communis*	5		UPL
4. *Rosa woodsii*	2		FACU
5. *Ribes setosum*	1		FACW
	50	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	58	x	FAC
2. *Carex utriculata*	38	x	OBL
3. *Phleum pratense*	36	x	FAC
4. *Carex nebrascensis*	26		OBL
5. *Trifolium hybridum*	18		FAC
6. *Symphyotrichum subspicatum*	16		FACW
7. *Taraxacum officinale*	8		FACU
8. *Glyceria striata*	7		OBL
9. *Agrostis stolonifera*	5		FAC
10. *Geranium viscosissimum*	4		FACU
11. *Juncus balticus*	4		FACW
	226	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	71	x 1 =	71
FACW Species	58	x 2 =	116
FAC Species	128	x 3 =	384
FACU Species	14	x 4 =	56
UPL Species	5	x 5 =	25
Column Totals:	276 (A)		652 (B)

Prevalence Index (B/A) = 2.36

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: unnamed tributary to Sheep Creek

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-W3

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	2.5Y 2.5/1	100					SiCL	fine to larger roots
5-16	2.5Y 2.5/1	100					SiCL	with small 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: Black soil. No large rocks at 16". Soils have uniform color throughout. May meet indicator A12 at depth. Plot is in soil type characterized as "partially hydric" by NRCS and also a Mollisol, with naturally thick, dark A horizon. Hydrophytic vegetation and wetland hydrology present, assume hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): creek

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

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 5

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: No water in pit. Water is flowing in the adjacent stream channel. Fine to coarse gravel in stream bed.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-W4

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: toe slope and bottom | Local relief (concave, convex, none): convex | Slope (%): 8-20

Subregion (LRR): E | Lat: 46.7744218 | Long: -110.9174913 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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: No grazing at this location. Photographs: KS1386-1389 (W, N, E, S)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Betula glandulosa*	22	x	OBL
2. *Dasiphora fruticosa*	11	x	FAC
3. *Salix bebbiana*	10	x	FACW
4. *Salix pseudomonticola*	8		FACW
5.			
	51	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex pellita*	36	x	OBL
2. *Carex utriculata*	28	x	OBL
3. *Agrostis stolonifera*	12	x	FAC
4. *Juncus balticus*	10		FACW
5. *Phleum pratense*	10		FAC
6. *Symphyotrichum foliaceum*	9		FACU
7. *Poa pratensis*	8		FAC
8. *Geranium richardsonii*	4		FAC
9. *Geum macrophyllum*	4		FAC
10. *Petasites frigidus*	4		FACW
11. *Taraxacum officinale*	4		FACU
	150	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	95	x 1 =	95
FACW Species	35	x 2 =	70
FAC Species	58	x 3 =	174
FACU Species	13	x 4 =	52
UPL Species		x 5 =	
Column Totals:	201 (A)		391 (B)

Prevalence Index (B/A) = 1.95

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: unnamed tributary to Sheep Creek

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-W4

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
0-9	5Y 2.5/1	100					SiCL	fine roots w/ some sand and 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: Boulder

Depth (inches): 9

Hydric Soil Present? Yes ☑ No ☐

Remarks: Black soil. Large boulders appear in pit at 9". There are boulders on the surface at this plot as well. Soils have coarse sand and gravel. Soil color uniform throughout. May meet indicator A12 at depth. Plot is in soil type characterized as "partially hydric" by NRCS and also a Mollisol, with naturally thick, dark A horizon. Hydrophytic vegetation and wetland hydrology present, assume hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): creek

Water Table Present? Yes ☐ No ☑ Depth (inches):

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: No water in pit after 20 minutes. Soil is moist throughout profile. Water running down small channels and in the cattle trails.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-16-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-W5

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: head of swale | Local relief (concave, convex, none): convex | Slope (%): 5-7

Subregion (LRR): E | Lat: 46.7709366 | Long: -110.9201268 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: PSS

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: Heavily grazed this summer. Photographs: KS1380-1383 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	17	x	FAC
2. *Salix bebbiana*	12	x	FACW
3. *Salix brachycarpa*	5		FACW
4. *Salix candida*	2		OBL
5.			
	36	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex pellita*	56	x	OBL
2. *Juncus balticus*	42	x	FACW
3. *Carex nebrascensis*	18	x	OBL
4. *Viola nephrophylla*	18	x	FACW
5. *Agrostis stolonifera*	16		FAC
6. *Juncus longistylis*	14		FACW
7. *Poa pratensis*	12		FAC
8. *Phleum pratense*	8		FAC
9. *Symphyotrichum subspicatum*	5		FACW
10. *Carex utriculata*	3		OBL
11. *Fragaria virginiana*	3		FACU
	203	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	79	x 1 =	79
FACW Species	100	x 2 =	200
FAC Species	55	x 3 =	165
FACU Species	5	x 4 =	20
UPL Species		x 5 =	
Column Totals:	239 (A)		464 (B)

Prevalence Index (B/A) = 1.94

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: unnamed tributary to Sheep Creek

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-W5

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
0-7	5YR 2.5/1	100					SiL	fine roots
7-11	5YR 2.5/1	100					SL	fine roots and coarse sand
11-15	5YR 2.5/1	100					SiCL	fine gravels

[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: Black soil. No redox observed to 15". May meet indicator A12 at depth, or saturation in 11-15 horizon masked redox. Plot is in soil type characterized as "partially hydric" by NRCS and also a Mollisol, with naturally thick, dark A horizon. Hydrophytic vegetation and wetland hydrology present, assume hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ☑ No ☐ Depth (inches): 15-18

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 15-18

Wetland Hydrology Present? Yes ☑ **No** ☐

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

Remarks: Saturated soil at 15". Six inches of water in the hole after 10-15 minutes. Assume water table is higher earlier in growing season.

BLACK BUTTE COPPER

Upland Plots

WETLAND DETERMINATION DATA FORMS

Western Mountains, Valleys, and Coast Region

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-14-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BB-U1

Investigator(s): J. Beaver, K. Scow | Section, Township, Range: S26, T12N, R6E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 3

Subregion (LRR): E | Lat: 46.7664691 | Long: -110.9470005 | Datum: WGS84

Soil Map Unit Name: 501B Manixlee-Clunton-Meadowcreek | NWI classification: UPL

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: Low terrace above creek. Mesic but not wetland. Photographs: JB 2334-2337; 2338 soil

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	26	x	FAC
2.			
3.			
4.			
5.			
	26	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	66	x	FAC
2. *Poa pratensis*	58	x	FAC
3. *Taraxacum officinale*	28		FACU
4. *Trifolium pratense*	14		FACU
5. *Danthonia californica*	10		FAC
6. *Potentilla gracilis*	10		FAC
7. *Fragaria virginiana*	8		FACU
8. *Iris missouriensis*	8		FACW
9. *Astragalus agrestis*	7		FACW
10. *Symphyotrichum foliaceum*	5		FACU
11. *Agrostis stolonifera*	4		FAC
	238	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	15	x 2 =	30
FAC Species	182	x 3 =	546
FACU Species	67	x 4 =	268
UPL Species		x 5 =	
Column Totals:	264 (A)		844 (B)

Prevalence Index (B/A) = 3.20

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: BB-U1

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
0-9.5	10YR 2/1	100					CL	
9.5-16	2.5Y 6/2	60	10YR 6/8	20	C	M	SC	
9.5-16	10YR 2/1	20						

[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 hydric soil as veg and hydrology not present. Photo JB2338

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BB-U2

Investigator(s): S. Cooper, L. Larsen | Section, Township, Range: S35,T12, R6E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 2-3

Subregion (LRR): E | Lat: 46.763669 | Long: -110.9398686 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Margin of wetland/upland. Photographs: SC 911-914 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	50	x	FAC
2. *Phleum pratense*	30	x	FAC
3. *Potentilla gracilis*	11		FAC
4. *Symphyotrichum foliaceum*	7		FACU
5. *Achillea millefolium*	3		FACU
6. *Galium boreale*	1		FACU
7. *Juncus balticus*	1		FACW
8. *Agropyron trachycaulum*	0.5		FAC
9.			
10.			
11.			
	103.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 1

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	1	x 2 =	2
FAC Species	91.5	x 3 =	274.5
FACU Species	11	x 4 =	44
UPL Species		x 5 =	
Column Totals:	103.5 (A)		320.5 (B)

Prevalence Index (B/A) = 3.10

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: BB-U2

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
0-16	10YR 2/2	100					CL	

[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: Dark soil profile to 16", lacking depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS mapping lists soil unit (1150C, Bischoff-Monaberg) as predominantly non-hydric (hydric soils comprise 15% of soil unit).

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: No hydrologic indicators.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: BBT3-U1

Investigator(s): S. Cooper, L. Larsen | Section, Township, Range: S01, T11N, R6E

Landform: terrace/floodplain | Local relief (concave, convex, none): concave | Slope (%): 4-5

Subregion (LRR): E | Lat: 46.7416545 | Long: -110.9270052 | Datum: WGS84

Soil Map Unit Name: 501B Mannixlee-Clunton-Meadowcreek | NWI classification: UPL

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: Photographs: SC922-925

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	43	x	FAC
2. *Phleum pratense*	41	x	FAC
3. *Potentilla gracilis*	3		FAC
4. *Symphyotrichum foliaceum*	2		FACU
5. *Achillea millefolium*	1		FACU
6. *Agropyron trachycaulum*	1		FAC
7. *Bromus inermis*	1		FAC
8. *Perideridia montana*	1		FAC
9.			
10.			
11.			
	93	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	90	x 3 =	270
FACU Species	3	x 4 =	12
UPL Species		x 5 =	
Column Totals:	93 (A)		282 (B)

Prevalence Index (B/A) = 3.03

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: On gentle (4-5%) slope above flowing drainage - mesic.

SOIL

Project/Site: Black Butte Copper Sampling Point: BBT3-U1

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
0-16	7.5YR 2.5/2	100					L	Higher coarse fragments (20-25%) 11-16"

[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: Dark soil profile to 16", lacking depleted or gleyed matrix. May meet indicator A12 at greater depth. NRCS mapping lists soil unit (501B Manixlee-Clunton-Meadowcreek) as partially hydric (hydric soils comprise 65% of soil unit).

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: Slope above flowing drainage (4-5%), so geomorphic position is marginal.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U1

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: ridge - hydraulic tailings | Local relief (concave, convex, none): undulating | Slope (%): 2-5

Subregion (LRR): E | Lat: 46.7722123 | Long: -110.8926498 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Musk thistle weed patch on hydraulic tailings, historically disturbed site. Photographs: KS 1499-1502 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	4		(UPL)
2.			
3.			
4.			
5.			
	4	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	86	x	FAC
2. *Carduus nutans*	84	x	UPL
3. *Cirsium arvense*	8		FAC
4. *Cynoglossum officinale*	1		FACU
5. *Silene latifolia*	1		(UPL)
6. *Achillea millefolium*	0.5		FACU
7.			
8.			
9.			
10.			
11.			
	180.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species	94	x 3 =	282
FACU Species	1.5	x 4 =	6
UPL Species	89	x 5 =	445
Column Totals:	184.5 (A)		733 (B)

Prevalence Index (B/A) = 3.97

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U1

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
0-16	7.5YR 4/1	100					SL	Coarse gravels

[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: Dark soil with approximate hue & chroma for depleted matrix, but lacking redox features. Might meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as predominantly non-hydric (hydric soils are 15% of map unit). Historic hydraulic mining area?

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U2

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): E | Lat: 46.7716348 | Long: -110.8888051 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photographs: KS 1467-1470 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	2		FAC
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	70	x	FAC
2. *Poa pratensis*	65	x	FAC
3. *Taraxacum officinale*	28		FACU
4. *Potentilla gracilis*	18		FAC
5. *Cirsium arvense*	14		FAC
6. *Solidago canadensis var. salebrosa*	12		FAC
7. *Juncus balticus*	10		FACW
8. *Fragaria virginiana*	8		FACU
9. *Zizia aptera*	1		FAC
10.			
11.			
	226	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	10	x 2 =	20
FAC Species	182	x 3 =	546
FACU Species	36	x 4 =	144
UPL Species		x 5 =	
Column Totals:	228 (A)		710 (B)

Prevalence Index (B/A) = 3.11

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U2

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
0-16	10YR 2/1	100					SiCL	

[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: Dark soil profile lacking depleted/gleyed matrix or redox features. Possibility for hydric soil at greater depth (indicator A12). Soil unit (1150C Bischoff-Monaberg) is caegorized as predominantly non-hydric (15% hydric soil component) by NRCS.

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: Micro-undulations in surface, but would not define as hummocks. No field observations of primary indicators of wetland hydrology.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U3

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): convex | Slope (%): 3-6

Subregion (LRR): E | Lat: 46.7716089 | Long: -110.886528 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photographs: KS 1511-1514 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	4		FAC
2.			
3.			
4.			
5.			
	4	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	72	x	FAC
2. *Poa secunda*	12		FACU
3. *Pyrrocoma integrifolia*	12		(UPL)
4. *Solidago missouriensis*	10		(UPL)
5. *Oxytropis splendens*	9		FAC
6. *Symphyotrichum ascendens*	6		FACU
7. *Agropyron smithii*	4		FACU
8. *Agropyron trachycaulum*	3		FAC
9. *Antennaria microphylla*	3		(UPL)
10. *Deschampsia cespitosa*	2		FACW
11. *Koeleria macrantha*	2		(UPL)
	138	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	2	x 2 =	4
FAC Species	88	x 3 =	264
FACU Species	24	x 4 =	96
UPL Species	28	x 5 =	140
Column Totals:	142 (A)		504 (B)

Prevalence Index (B/A) = 3.55

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U3

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
0-16	7.5YR 3/2	100					SiCL	

[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: Dark soil without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as predominantly non-hydric (hydric soils are 15% of map unit).

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: Plot is approximately 40' from the drainage bottom.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U4

Investigator(s): K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7719959 | Long: -110.8852916 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Hay meadow (composition severely altered) with wetland elements. Does not meet wetland hydrology. Photographs: KS 1444-1447 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	68	x	FAC
2. *Poa pratensis*	56	x	FAC
3. *Trifolium hybridum*	18		FAC
4. *Potentilla anserina*	12		OBL
5. *Schedonorus arundinaceus*	12		FAC
6. *Potentilla gracilis*	4		FAC
7. *Symphyotrichum subspicatum*	3		FACW
8. *Carex praegracilis*	2		FACW
9. *Juncus balticus*	2		FACW
10. *Trifolium pratense*	1		FACU
11.			
	178	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	12	x 1 =	12
FACW Species	7	x 2 =	14
FAC Species	158	x 3 =	474
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	178 (A)		504 (B)

Prevalence Index (B/A) = 2.83

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: Site is hay meadow - composition severely altered.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U4

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
0-16	10YR 2/1	100					SiCL	

[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): _____

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U5

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7707091 | Long: -110.8818339 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photograph: KS 1483-1486 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	42	x	FAC
2.			
3.			
4.			
5.			
	42	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	70	x	FAC
2. *Carex praegracilis*	20	x	FACW
3. *Cirsium arvense*	20	x	FAC
4. *Potentilla anserina*	18		OBL
5. *Zizia aptera*	16		FAC
6. *Phleum pratense*	10		FAC
7. *Antennaria microphylla*	4		(UPL)
8. *Potentilla gracilis*	3		FAC
9. *Symphyotrichum subspicatum*	3		FACW
10. *Juncus balticus*	2		FACW
11. *Taraxacum officinale*	2		FACU
	169	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 1

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	18	x 1 =	18
FACW Species	25	x 2 =	50
FAC Species	162	x 3 =	486
FACU Species	2	x 4 =	8
UPL Species	4	x 5 =	20
Column Totals:	211 (A)		582 (B)

Prevalence Index (B/A) = 2.76

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U5

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
0-16	10YR 2/1	100					CL	

[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): _____

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: Some micro-relief, but not hummocky; perhaps old remnant of previous wetland area.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U6

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: toe slope - terrace edge | Local relief (concave, convex, none): concave | Slope (%): 2-4

Subregion (LRR): E | Lat: 46.769897 | Long: -110.8810509 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photograph: KS 1435-1438; 1439 nearby spring (N)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	42	x	FAC
2.			
3.			
4.			
5.			
	42	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	38	x	FAC
2. *Potentilla gracilis*	22	x	FAC
3. *Symphyotrichum foliaceum*	20	x	FACU
4. *Carex praegracilis*	16	x	FACW
5. *Phleum pratense*	16	x	FAC
6. *Juncus balticus*	15		FACW
7. *Symphyotrichum subspicatum*	15		FACW
8. *Fragaria virginiana*	8		FACU
9. *Festuca rubra*	6		FAC
10. *Carex nebrascensis*	4		OBL
11. *Deschampsia cespitosa*	1		FACW
	162	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or, FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	4	x 1 =	4
FACW Species	47	x 2 =	94
FAC Species	124	x 3 =	372
FACU Species	28	x 4 =	112
UPL Species	1	x 5 =	5
Column Totals:	204 (A)		587 (B)

Prevalence Index (B/A) = 2.88

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U6

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
0-16	10YR 2/1	100					SiCL	

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit).

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: Saturation or water table not encountered in soil pit.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U7

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7704795 | Long: -110.8789263 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Next to meandering creek (Little Sheep). Photographs: KS 1427-1430

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	30	x	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	55	x	FAC
2. *Phleum pratense*	35	x	FAC
3. *Bromus inermis*	20		FAC
4. *Fragaria virginiana*	14		FACU
5. *Potentilla gracilis*	10		FAC
6. *Juncus balticus*	8		FACW
7. *Solidago canadensis var. salebrosa*	6		FAC
8. *Symphyotrichum campestre*	5		(UPL)
9. *Artemisia ludoviciana*	4		FACU
10. *Symphyotrichum ascendens*	4		FACU
11. *Danthonia intermedia*	3		FACU
	167.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	8	x 2 =	16
FAC Species	156	x 3 =	468
FACU Species	25	x 4 =	100
UPL Species	8.5	x 5 =	42.5
Column Totals:	197.5 (A)		626.5 (B)

Prevalence Index (B/A) = 3.17

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.
All these plots along Little Sheep Creek would have higher hydrophytic vegetation composition if not for the historically sustained heavy grazing.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U7

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
0-16	10YR 2/2	100						

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit).

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U8

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, 12N, R7E

Landform: terrace (old meander) | Local relief (concave, convex, none): concave | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7694943 | Long: -110.8789673 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Old meander. Photographs: KS 1479-1482 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	34	x	FAC
2.			
3.			
4.			
5.			
	34	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	50	x	FAC
2. *Carex praegracilis*	28	x	FACW
3. *Poa pratensis*	20	x	FAC
4. *Potentilla gracilis*	14		FAC
5. *Symphyotrichum subspicatum*	14		FACW
6. *Zizia aptera*	8		FAC
7. *Fragaria virginiana*	6		FACU
8. *Antennaria microphylla*	4		(UPL)
9. *Juncus balticus*	4		FACW
10. *Taraxacum officinale*	3		FACU
11. *Deschampsia cespitosa*	2		FACW
	158	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (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	48	x 2 =	96
FAC Species	128	x 3 =	384
FACU Species	11	x 4 =	44
UPL Species	5	x 5 =	25
Column Totals:	192 (A)		549 (B)

Prevalence Index (B/A) = 2.86

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U8

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
0-7	10YR 2/1	100					C	
7-16	10YR 2/1	100					CL	8-16" clay pockets 10YR 6/1

[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: Odd clay pockets (10YR 6/1) that break into a granular form.

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: Slight swale here, looks like old meander or overflow channel. Good *Carex pratensis*, but not frost-heaved.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U9

Investigator(s): J. Beaver, S. Cooper, K. Scow, D. Barton | Section, Township, Range: S29 T12N R7E

Landform: terrace/floodplain | Local relief (concave, convex, none): concave | Slope (%): 2-3

Subregion (LRR): E | Lat: 46.7688385 | Long: -110.8757944 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Site is mesic; however, was likely previously wetter. Doesn't ultimately meet wetland criteria. Photographs: KS1475-1478 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	10	x	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	46	x	FAC
2. *Poa pratensis*	20	x	FAC
3. *Potentilla gracilis*	13		FAC
4. *Carex praegracilis*	6		FACW
5. *Symphyotrichum campestre*	6		(UPL)
6. *Antennaria microphylla*	4		(UPL)
7. *Danthonia intermedia*	4		FACU
8. *Juncus balticus*	4		FACW
9. *Potentilla anserina*	4		OBL
10. *Fragaria virginiana*	3		FACU
11. *Artemisia ludoviciana*	2		FACU
	112	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	4	x 1 =	4
FACW Species	10	x 2 =	20
FAC Species	89	x 3 =	267
FACU Species	9	x 4 =	36
UPL Species	10	x 5 =	50
Column Totals:	122 (A)		377 (B)

Prevalence Index (B/A) = 3.09

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland. Typical high-mesic site that meets hydrophytic vegetation criteria.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U9

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
0-8	10YR 2/1	100					CL	with coarse fragments
8-16	10YR 2/1	100					CL	

[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: Typical of mesic sites in area.

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: Very subtle hummocks, possibly a vestige of previous wetter conditions.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U10

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S9, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7688784 | Long: -110.8743767 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photographs: KS 1423-1426

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	28	x	FAC
2. *Artemisia tridentata*	8	x	(UPL)
3.			
4.			
5.			
	36	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	55	x	FAC
2. *Lupinus sericeus*	16	x	(UPL)
3. *Potentilla gracilis*	10		FAC
4. *Artemisia ludoviciana*	8		FACU
5. *Antennaria microphylla*	6		(UPL)
6. *Stipa occidentalis*	5		(UPL)
7. *Anemone multifida*	4		(UPL)
8. *Phleum pratense*	3		FAC
9. *Agropyron trachycaulum*	2		FAC
10. *Fragaria virginiana*	2		FACU
11. *Schedonorus arundinaceus*	2		FAC
	117	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	1	x 2 =	2
FAC Species	101	x 3 =	303
FACU Species	10	x 4 =	40
UPL Species	41	x 5 =	205
Column Totals:	153 (A)		550 (B)

Prevalence Index (B/A) = 3.59

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U10

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
0-16	10YR 2/2	100					SiCL	

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit).

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: Plot at break between toe slope and high mesic terrace. Saturation or water table not encountered in soil pit. Wetland is narrow, bordering meandering creek bottom at lowest terrace segment.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U11

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: low terrace | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7686015 | Long: -110.874731 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Photographs: KS 1415-1418

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	28	x	FAC
2.			
3.			
4.			
5.			
	28	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	48	x	FAC
2. *Poa pratensis*	30	x	FAC
3. *Lupinus sericeus*	18		(UPL)
4. *Antennaria microphylla*	9		(UPL)
5. *Potentilla gracilis*	7		FAC
6. *Danthonia intermedia*	5		FACU
7. *Symphyotrichum campestre*	5		(UPL)
8. *Galium boreale*	4		FACU
9. *Achillea millefolium*	3		FACU
10. *Stipa occidentalis*	3		(UPL)
11. *Taraxacum officinale*	3		FACU
	136	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	114	x 3 =	342
FACU Species	15	x 4 =	60
UPL Species	35	x 5 =	175
Column Totals:	164 (A)		577 (B)

Prevalence Index (B/A) = 3.52

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U11

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
0-16	10YR 2/2	100					SiCL	

[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: Dark soil profile, but lacking depleted or gleyed matrix. Possible depleted matrix at greater depth (A12), although soil (1175C, Owenspring-Cheadle) is an upland mollisol occurring on 4-25 % slopes and described by NRCS as non-hydric.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U12

Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, 12N, R7E

Landform: | Local relief (concave, convex, none): none | Slope (%):

Subregion (LRR): E | Lat: 46.7675724 | Long: -110.874518 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photographs: KS 1491-1494 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	36	x	FAC
2.			
3.			
4.			
5.			
	36	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	66	x	FAC
2. *Poa pratensis*	48	x	FAC
3. *Taraxacum officinale*	25		FACU
4. *Antennaria microphylla*	12		(UPL)
5. *Potentilla gracilis*	5		FAC
6. *Solidago canadensis var. salebrosa*	5		FAC
7. *Danthonia intermedia*	4		FACU
8. *Galium boreale*	4		FACU
9. *Symphyotrichum ascendens*	4		FACU
10. *Fragaria virginiana*	3		FACU
11. *Agrostis scabra*	2		FAC
	185	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	163	x 3 =	489
FACU Species	41	x 4 =	164
UPL Species	17	x 5 =	85
Column Totals:	221 (A)		738 (B)

Prevalence Index (B/A) = 3.34

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U12

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
0-16	7.5YR 2.5/1	100					CL	

[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): _____

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: Micro-relief from shrubs/cattle activity, but no frost heaves.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014
Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U13
Investigator(s): K. Scow, D. Barton | Section, Township, Range: S29, 12N, R7E
Landform: terrace | Local relief (concave, convex, none): concave | Slope (%): 1-3
Subregion (LRR): E | Lat: 46.7673214 | Long: -110.8737865 | Datum: WGS84
Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL
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: Photographs: KS 1487-1490 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	38	x	FAC
2.			
3.			
4.			
5.			
	38	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	74	x	FAC
2. *Phleum pratense*	20	x	FAC
3. *Danthonia intermedia*	15		FACU
4. *Zizia aptera*	8		FAC
5. *Symphyotrichum campestre*	7		(UPL)
6. *Fragaria virginiana*	5		FACU
7. *Potentilla gracilis*	5		FAC
8. *Anemone multifida*	4		(UPL)
9. *Galium boreale*	4		FACU
10. *Antennaria microphylla*	3		(UPL)
11. *Taraxacum officinale*	2		FACU
	153.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	2	x 2 =	4
FAC Species	147	x 3 =	441
FACU Species	27.5	x 4 =	110
UPL Species	15	x 5 =	75
Column Totals:	191.5 (A)		630 (B)

Prevalence Index (B/A) = 3.29

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.
Cir lon probably crossed with Cir hoo

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U13

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
0-16	7.5YR 2.5/1	100					CL	

[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): _____

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: Some micro-relief but no solid frost heave indicators (high mesic *Dasiphora fruticosa*).

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-25-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U14

Investigator(s): K. Scow, D. Barton, J. Beaver | Section, Township, Range: S32, T12N, R7E

Landform: broad swale | Local relief (concave, convex, none): none | Slope (%): 4

Subregion (LRR): E | Lat: 46.7615031 | Long: -110.8737664 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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 in transition zone between wetland and upland. Photographs: JB 2426-2429 (NESW)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	35	x	FAC
2.			
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	60	x	FAC
2. *Phleum pratense*	40	x	FAC
3. *Galium boreale*	8		FACU
4. *Juncus balticus*	5		FACW
5. *Antennaria microphylla*	4		(UPL)
6. *Symphyotrichum ascendens*	4		FACU
7. *Potentilla gracilis*	3		FAC
8. *Carex praegracilis*	2		FACW
9. *Festuca rubra*	2		FAC
10. *Symphyotrichum campestre*	2		(UPL)
11. *Carex scirpoidea*	1		FAC
	134	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	7.5	x 2 =	15
FAC Species	142	x 3 =	426
FACU Species	12.5	x 4 =	50
UPL Species	7	x 5 =	35
Column Totals:	169 (A)		526 (B)

Prevalence Index (B/A) = 3.11

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U14

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
0-16	10YR 3/1	100					C	

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as predominantly non-hydric (hydric soils are 15% of map unit).

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: Water table or saturation not encountered in soil pit. Only meets one secondary indicator of wetland hydrology.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-02-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U15

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): convex | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7616722 | Long: -110.8757961 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Photograph: KS 1495-1498 (N to W); photo KS1495 to north shows D. Barton at flag for DB-013, an intended upland plot but is in obvious wetland - Dasiphora fruticosa/Juncus balticus w/heavy frost-heaving - moved to upland site (marked by shovel in photo).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	55	x	FAC
2.			
3.			
4.			
5.			
	55	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	65	x	FAC
2. *Phleum pratense*	40	x	FAC
3. *Taraxacum officinale*	38	x	FACU
4. *Potentilla gracilis*	15		FAC
5. *Fragaria virginiana*	10		FACU
6. *Lupinus sericeus*	8		(UPL)
7. *Festuca rubra*	3		FAC
8. *Bromus inermis*	2		FAC
9. *Achillea millefolium*	1		FACU
10. *Agoseris glauca*	1		FAC
11. *Agropyron trachycaulum*	1		FAC
	185.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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	0.5	x 2 =	1
FAC Species	182	x 3 =	546
FACU Species	50	x 4 =	200
UPL Species	8	x 5 =	40
Column Totals:	240.5	(A)	787 (B)

Prevalence Index (B/A) = 3.27

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.
GPS site DB-013 in obvious wetland (no form, not done) moved 140 ft at 150 degrees to plot LS-U15 in upland, almost at Big Sagebrush edge (see GPS point); upland only because no frost-heaves.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U15

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
0-16	7.5YR 2.5/1	100					CL	

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as predominantly non-hydric (hydric soils are 15% of map unit).

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: No evidence of saturation or water table in soil pit. Plot at sagebrush edge and lacks frost heave hummocks.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-25-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U16

Investigator(s): D. Barton, K. Scow | Section, Township, Range:

Landform: toe slope | Local relief (concave, convex, none): convex | Slope (%): 7

Subregion (LRR): E | Lat: 46.7614196 | Long: -110.8757513 | Datum: WGS84

Soil Map Unit Name: | NWI classification: UPL

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: Photographs: KS1411-1414 (N,E,S,W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	35	x	(UPL)
2. *Rosa woodsii*	3		FACU
3.			
4.			
5.			
	38	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Carex obtusata*	18	x	(UPL)
2. *Antennaria microphylla*	15	x	(UPL)
3. *Poa pratensis*	14	x	FAC
4. *Festuca idahoensis*	12		FACU
5. *Danthonia intermedia*	12		FACU
6. *Potentilla gracilis*	5		FAC
7. *Eriogonum umbellatum*	4		(UPL)
8. *Juncus balticus*	3		FACW
9. *Lupinus sericeus*	3		(UPL)
10. *Agropyron spicatum*	2		(UPL)
11. *Geum triflorum*	2		FACU
	90	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	3	x 2 =	6
FAC Species	19	x 3 =	57
FACU Species	29	x 4 =	116
UPL Species	77	x 5 =	385
Column Totals:	128 (A)		564 (B)

Prevalence Index (B/A) = 4.41

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U16

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit since site failed on hydrophytic vegetatin and wetland hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U17

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S32, T12N, R7E

Landform: lower slope | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7606399 | Long: -110.8793242 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Typical of lower slope/wetland margin. Photographs: JB 2434-2437

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	45	x	FAC
2.			
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	45	x	FAC
2. *Poa pratensis*	35	x	FAC
3. *Festuca campestris*	12		(UPL)
4. *Potentilla gracilis*	8		FAC
5. *Fragaria virginiana*	4		FACU
6. *Agropyron trachycaulum*	3		FAC
7. *Antennaria microphylla*	3		(UPL)
8. *Taraxacum officinale*	2		FACU
9. *Danthonia intermedia*	1		FACU
10. *Deschampsia cespitosa*	0.5		FACW
11.			
	113.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	0.5	x 2 =	1
FAC Species	136	x 3 =	408
FACU Species	7	x 4 =	28
UPL Species	15	x 5 =	75
Column Totals:	158.5 (A)		512 (B)

Prevalence Index (B/A) = 3.23

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland. FAC veg w/ upland veg becoming more common and FACW dropping out.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U17

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
0-8	10YR 2/1	100					CL	
8-16	2.5Y 2.5/1	100					CL	

[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: Dark soil profile, but lacking depleted or gleyed matrix. Could meet indicator A12 at greater depth. Soil (1175C, Owenspring-Cheadle) is an upland mollisol occurring on 4-45 % slopes and described by NRCS as "non-hydric". Very similar soil as plot as LS-U18.

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: Just above wetland boundary. No primary wetland hydrology indicators.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U18

Investigator(s): J. Beaver | Section, Township, Range: S32, T12N, R7E

Landform: lower slope | Local relief (concave, convex, none): none | Slope (%): 4

Subregion (LRR): E | Lat: 46.7624605 | Long: -110.8797875 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Wetland below this plot has inclusions (<10%) of upland - complex. Photographs: JB 2430-2433 (N,E,S,W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	45	x	FAC
2.			
3.			
4.			
5.			
	45	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	50	x	FAC
2. *Poa pratensis*	20	x	FAC
3. *Potentilla gracilis*	12		FAC
4. *Fragaria virginiana*	4		FACU
5. *Agropyron trachycaulum*	3		FAC
6. *Astragalus canadensis*	3		FACW
7. *Galium boreale*	2		FACU
8. *Festuca campestris*	1		(UPL)
9. *Lupinus sericeus*	1		(UPL)
10.			
11.			
	96	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	130	x 3 =	390
FACU Species	6	x 4 =	24
UPL Species	5	x 5 =	25
Column Totals:	141 (A)		439 (B)

Prevalence Index (B/A) = 3.11

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U18

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
0-7.5	10YR 2/1	100					CL	
7.5-16	2.5Y 2.5/1	100					CL	

[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: Dark soil profile, but lacking depleted or gleyed matrix. Could meet indicator A12 at greater depth; however, soil (1175C, Owenspring-Cheadle) is an upland mollisol occurring on 4-45 % slopes and described by NRCS as "non-hydric".

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: Mesic boundary above wetland.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U19

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): none | Slope (%): 12

Subregion (LRR): E | Lat: 46.7597174 | Long: -110.8868521 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Immediately upslope of wetland boundary. Photographs: JB 2471-2474

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	25	x	(UPL)
2. *Dasiphora fruticosa*	15	x	FAC
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	40	x	FAC
2. *Symphyotrichum ascendens*	15	x	FACU
3. *Potentilla gracilis*	5		FAC
4. *Achillea millefolium*	3		FACU
5. *Lupinus sericeus*	3		(UPL)
6. *Taraxacum officinale*	3		FACU
7. *Danthonia intermedia*	2		FACU
8. *Juncus balticus*	2		FACW
9. *Galium boreale*	1		FACU
10. *Stipa occidentalis*	1		(UPL)
11.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	2	x 2 =	4
FAC Species	60	x 3 =	180
FACU Species	24	x 4 =	96
UPL Species	29	x 5 =	145
Column Totals:	115 (A)		425 (B)

Prevalence Index (B/A) = 3.70

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: Mesic edge of Big Sagebrush.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U19

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No soil pit as no hydrophytic vegetation or wetland hydrology. Presumed non-hydric.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U20

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): concave | Slope (%): 11

Subregion (LRR): E | Lat: 46.7587788 | Long: -110.8875142 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Boundary between wetland and upland becomes sharper as slope increases. Photographs: JB 2438-2441

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	30	x	FAC
2. *Artemisia tridentata*	8	x	(UPL)
3.			
4.			
5.			
	38	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	45	x	FAC
2. *Danthonia intermedia*	20	x	FACU
3. *Antennaria microphylla*	15		(UPL)
4. *Festuca campestris*	4		(UPL)
5. *Potentilla gracilis*	3		FAC
6. *Stipa occidentalis*	3		(UPL)
7. *Fragaria virginiana*	2		FACU
8. *Lupinus sericeus*	2		(UPL)
9. *Festuca idahoensis*	1		FACU
10.			
11.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 4

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species	78	x 3 =	234
FACU Species	23	x 4 =	92
UPL Species	32	x 5 =	160
Column Totals:	133 (A)		486 (B)

Prevalence Index (B/A) = 3.65

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U20

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as no hydrophytic vegetation or wetland hydrology, presumed non-hydric.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LS-U21

Investigator(s): S. Cooper, L. Larsen | Section, Township, Range: S01, T11N, R6E

Landform: bench | Local relief (concave, convex, none): concave | Slope (%): 3-4

Subregion (LRR): E | Lat: 46.7403061 | Long: -110.9098701 | Datum: WGS84

Soil Map Unit Name: 1176D Franconi-Kimpton | NWI classification: UPL

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: Photographs: SC937-940

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	1		(UPL)
2.			
3.			
4.			
5.			
	1	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	50	x	FAC
2. *Phleum pratense*	25	x	FAC
3. *Potentilla gracilis*	18		FAC
4. *Antennaria microphylla*	3		(UPL)
5. *Danthonia intermedia*	3		FACU
6. *Juncus confusus*	3		FAC
7. *Achillea millefolium*	2		FACU
8. *Agropyron trachycaulum*	1		FAC
9. *Perideridia montana*	1		FAC
10. *Schedonorus arundinaceus*	1		FAC
11. *Taraxacum officinale*	1		FACU
	108	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	99	x 3 =	297
FACU Species	6	x 4 =	24
UPL Species	4	x 5 =	20
Column Totals:	109 (A)		341 (B)

Prevalence Index (B/A) = 3.13

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland. Disturbed/grazed by livestock. Noxious weeds *Cynoglossum officinale*, *Cirsium arvense*.

SOIL

Project/Site: Black Butte Copper Sampling Point: LS-U21

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
0-11	10YR 2/2	100					SiL	
11-16	10YR 3/4	100					CL	with small gravels

[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: Horizon changes due to color and texture. Could meet indicator A12.

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: This is a bench above the drainage (immediately adjacent).

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-U1

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): E | Lat: 46.7650714 | Long: -110.9060836 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Just above wetland boundary. FAC plants, but no hydrology. Probably was wetter historically before creek was channelized by cattle. Photographs: JB 2534-2535

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	10	x	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Taraxacum officinale*	35	x	FACU
2. *Poa pratensis*	25	x	FAC
3. *Agrostis stolonifera*	20	x	FAC
4. *Trifolium repens*	8		FAC
5. *Juncus balticus*	5		FACW
6. *Poa palustris*	2		FAC
7. *Trifolium pratense*	2		FACU
8.			
9.			
10.			
11.			
	97	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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	5	x 2 =	10
FAC Species	65	x 3 =	195
FACU Species	37	x 4 =	148
UPL Species		x 5 =	
Column Totals:	107 (A)		353 (B)

Prevalence Index (B/A) = 3.30

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.
Grazed 90%+

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-U1

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
0-10	10YR 3/2	100					SiCL	
10-25	10YR 3/2	100					SCL	Increase in coarse fragments

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. Saturation encountered at base of soil pit. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit).

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): 25

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks: No hummocks and no saturation within 12 inches. Saturation at 25".

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-U2/A/B

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S36, T12N, R6E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7645533 | Long: -110.9077216 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Mesic, but not wetland, lacks hydrology indicators. Dug repeat soil pits at U2A & U2B for hydrology. No indicators at 24". Probably has dried out due to cattle and creek channelization. Photographs: JB 2511-2514

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	2		FAC
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Taraxacum officinale*	35	x	FACU
2. *Phleum pratense*	25	x	FAC
3. *Poa pratensis*	15		FAC
4. *Achillea millefolium*	8		FACU
5. *Carex microptera*	6		FACU
6. *Potentilla gracilis*	5		FAC
7. *Juncus balticus*	4		FACW
8. *Agrostis stolonifera*	2		FAC
9. *Carex pachystachya*	1		FAC
10.			
11.			
	101	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	4	x 2 =	8
FAC Species	50	x 3 =	150
FACU Species	49	x 4 =	196
UPL Species		x 5 =	
Column Totals:	103 (A)		354 (B)

Prevalence Index (B/A) = 3.44

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: Mesic at LST1-U2. More FACW presence and same Carex species at U2A & U2B, but still no hydrology. Vegetation also heavily grazed, but not significantly disturbed.

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-U2/A/B

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
0-20	10YR 3/1	100					SCL	

[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: Dark soil profile without depleted or gleyed matrix. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit). Deep, very consistent soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (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: On edge of hummocky soil likely from frost heave. Hummocks are more pronounced slighly downslope. Soil pits at U2A and U2B also without any hydrology indicators.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST1-U3

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S36, T12N, R6E

Landform: lower slope | Local relief (concave, convex, none): undulating | Slope (%): 18

Subregion (LRR): E | Lat: 46.7644918 | Long: -110.9152485 | Datum: WGS84

Soil Map Unit Name: Surdal-Poin | NWI classification: UPL

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: Upland, sagebrush. Photographs: JB 2534-2535

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	40	x	(UPL)
2. *Dasiphora fruticosa*	4		FAC
3.			
4.			
5.			
	44	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	35	x	FAC
2. *Stipa occidentalis*	5		(UPL)
3. *Cirsium arvense*	2		FAC
4. *Lupinus sericeus*	2		(UPL)
5. *Achillea millefolium*	1		FACU
6. *Geum triflorum*	1		FACU
7. *Potentilla gracilis*	1		FAC
8. *Campanula rotundifolia*	0.5		FACU
9. *Fragaria virginiana*	0.5		FACU
10.			
11.			
	48	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= 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: 2 (B)

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species	42	x 3 =	126
FACU Species	3	x 4 =	12
UPL Species	47	x 5 =	235
Column Totals:	92 (A)		373 (B)

Prevalence Index (B/A) = 4.05

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: heavily grazed

SOIL

Project/Site: Black Butte Copper Sampling Point: LST1-U3

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as no hydrophytic vegetation or hydrology. Presumed non-hydric.

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: Dry slope above seep.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-U1

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S32, T12N, R7E

Landform: swale | Local relief (concave, convex, none): none | Slope (%): 3

Subregion (LRR): E | Lat: 46.766079 | Long: -110.8792266 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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: Wetland phases out approx. 20 feet uphill. This plot location still mesic, then goes to POPR/AGSM type. Photographs: JB 2497-2500

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	8	x	FAC
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	55	x	FAC
2. *Taraxacum officinale*	18		FACU
3. *Agropyron smithii*	12		FACU
4. *Symphyotrichum campestre*	5		(UPL)
5. *Potentilla gracilis*	3		FAC
6. *Poa pratensis*	2		FAC
7.			
8.			
9.			
10.			
11.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	68	x 3 =	204
FACU Species	30	x 4 =	120
UPL Species	5	x 5 =	25
Column Totals:	103 (A)		349 (B)

Prevalence Index (B/A) = 3.39

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-U1

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
0-4	10YR 3/1	100					CL	
4-11.5	10YR 3/2	100					CL	
11.5-18	2.5Y 3/2	100					SCL	

[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: Dark soil profile without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1150C, Bischoff-Monaberg) as 'predominantly non-hydric' (hydric soils are 15% of map unit). No indicators of wetland

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: Wetland goes subsurface about 20' upslope of pit. Unclear why the change occurs; possibly because swale broadens out.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-U2

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: floodplain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7618518 | Long: -110.8944948 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Just above wetland boundary; was probably wetland in the past, but no longer. Photographs: JB 2489-2492

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	35	x	FAC
2.			
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	50	x	FAC
2. *Taraxacum officinale*	20	x	FACU
3. *Agrostis stolonifera*	10		FAC
4. *Phleum pratense*	10		FAC
5. *Symphyotrichum subspicatum*	8		FACW
6. *Carex praegracilis*	5		FACW
7. *Juncus balticus*	2		FACW
8.			
9.			
10.			
11.			
	105	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	15	x 2 =	30
FAC Species	105	x 3 =	315
FACU Species	20	x 4 =	80
UPL Species		x 5 =	
Column Totals:	140 (A)		425 (B)

Prevalence Index (B/A) = 3.04

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: grazing 70-90%; hydrophytic veg really more mesic/FAC

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-U2

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
0-7	10YR 2/1	100					CL	
7-16	10YR 3/1	100					C	

[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: Dark soil profile, but lacking depleted or gleyed matrix. Could meet indicator A12 at greater depth. Soil (1175C, Owenspring-Cheadle) is an upland mollisol occurring on 4-45 % slopes and described by NRCS as "non-hydric". May have historically been a hydric soil, but no water input now.

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: Historically was probably a wetland, but grazing appears to have channelized the spring, which has dried this out.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST2-U3

Investigator(s): J. Beaver, D. Culwell | Section, Township, Range: S31, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): concave | Slope (%): 7

Subregion (LRR): E | Lat: 46.7612628 | Long: -110.9003452 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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: Photographs: JB 2577-2580

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.1 acre)			
1. *Dasiphora fruticosa*	20	x	FAC
2. *Artemisia tridentata*	7	x	(UPL)
3. *Juniperus scopulorum*	1		(UPL)
4.			
5.			
	28	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Fragaria virginiana*	30	x	FACU
2. *Poa pratensis*	25	x	FAC
3. *Agrostis stolonifera*	15		FAC
4. *Juncus balticus*	12		FACW
5. *Taraxacum officinale*	8		FACU
6. *Antennaria microphylla*	5		(UPL)
7. *Danthonia intermedia*	4		FACU
8. *Potentilla gracilis*	4		FAC
9. *Festuca campestris*	1		(UPL)
10.			
11.			
	104	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 3

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	12	x 2 =	24
FAC Species	64	x 3 =	192
FACU Species	42	x 4 =	168
UPL Species	14	x 5 =	70
Column Totals:	132 (A)		454 (B)

Prevalence Index (B/A) = 3.44

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: vegetation mesic, not wetland

SOIL

Project/Site: Black Butte Copper Sampling Point: LST2-U3

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as no hydrology or hydrophytic vegetation.

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: No hydrology indicators.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-26-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST3-U1

Investigator(s): J. Beaver, D. Hagen | Section, Township, Range: S31, T12N, R7E

Landform: swale | Local relief (concave, convex, none): concave | Slope (%): 4

Subregion (LRR): E | Lat: 46.7541101 | Long: -110.9014439 | Datum: WGS84

Soil Map Unit Name: 171E Surdal-Poin-Libeg | NWI classification: UPL

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: Upland end of WL swale. Photographs: JB 2449-2452

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	15	x	(UPL)
2. *Dasiphora fruticosa*	1		FAC
3.			
4.			
5.			
	16	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	65	x	FAC
2. *Artemisia ludoviciana*	30	x	FACU
3. *Carduus nutans*	3		UPL
4. *Stipa occidentalis*	3		(UPL)
5. *Danthonia intermedia*	2		FACU
6. *Antennaria microphylla*	1		(UPL)
7. *Potentilla gracilis*	1		FAC
8. *Solidago missouriensis*	1		(UPL)
9. *Juncus balticus*	0.5		FACW
10.			
11.			
	106.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	0.5	x 2 =	1
FAC Species	67	x 3 =	201
FACU Species	32	x 4 =	128
UPL Species	23	x 5 =	115
Column Totals:	122.5	(A)	445 (B)

Prevalence Index (B/A) = 3.63

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: LST3-U1

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

[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: No soil pit as no hydrophytic vegetation or wetland hydrology. Presumed non-hydric.

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: No hydrology other than swale.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST4-U1

Investigator(s): S. Cooper, L. Larsen | Section, Township, Range: S1, T11N, R6E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): E | Lat: 46.7471229 | Long: -110.9089304 | Datum: WGS84

Soil Map Unit Name: 1150C Bischoff-Monaberg | NWI classification: UPL

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 on a terrace above flowing drainage/wetland and adjacent to ARTR community type. Mesic, but not wet. Photograph: SC 955-958

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	5	x	(UPL)
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	60	x	FAC
2. *Phleum pratense*	23	x	FAC
3. *Potentilla gracilis*	14		FAC
4. *Stipa occidentalis*	5		(UPL)
5. *Achillea millefolium*	3		FACU
6. *Symphyotrichum subspicatum*	2		FACW
7. *Cerastium arvense*	1		FACU
8. *Fragaria virginiana*	1		FACU
9.			
10.			
11.			
	109	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	2	x 2 =	4
FAC Species	97	x 3 =	291
FACU Species	5	x 4 =	20
UPL Species	10	x 5 =	50
Column Totals:	114 (A)		365 (B)

Prevalence Index (B/A) = 3.20

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: LST4-U1

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
0-16	10YR 2/2	100					SiL	Coarse fragments (5-10%)

[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: Homogeneous dark soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

Saturation Present? (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: Only meets one secondary hydrology indicator.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: LST4-U2

Investigator(s): S. Cooper, L. Larsen, D. Culwell | Section, Township, Range: S1, T11N, R6E

Landform: broad swale | Local relief (concave, convex, none): concave | Slope (%): 4-5

Subregion (LRR): E | Lat: 46.7494023 | Long: -110.9146027 | Datum: WGS84

Soil Map Unit Name: 1176E Kimpton-Zade | NWI classification: UPL

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: Broad swale located above old seep (wetland) below. Adjacent to Douglas fir forest and sagebrush slope to N. Photographs: SC 980-983

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	50	x	FAC
2. *Phleum pratense*	35	x	FAC
3. *Juncus balticus*	11		FACW
4. *Agrostis stolonifera*	10		FAC
5. *Achillea millefolium*	3		FACU
6. *Agropyron trachycaulum*	1		FAC
7. *Rumex crispus*	1		FAC
8.			
9.			
10.			
11.			
	111	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	11	x 2 =	22
FAC Species	97	x 3 =	291
FACU Species	3	x 4 =	12
UPL Species		x 5 =	
Column Totals:	111 (A)		325 (B)

Prevalence Index (B/A) = 2.93

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: Mesic

SOIL

Project/Site: Black Butte Copper Sampling Point: LST4-U2

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
0-10	10YR 2/2	100					SL	Coarse sand
10-16	10YR 2/2	100					SL	High coarse fragments (shale like)

[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: Soil has coarse sand and gravels at depth. No moisture.

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: Doesn't really meet geomorphic position.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-14-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U1

Investigator(s): J. Beaver, K. Scow | Section, Township, Range: S24, T12N, R6E

Landform: floodplain | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): E | Lat: 46.7822718 | Long: -110.9075097 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Site is highest point at this end of meadow. ALOPRA and JUNBAL more common to north and east as get closer to creek.
Photographs: JB 2308-2311 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	56	x	FAC
2. *Rhinanthus crista-galli*	36	x	FACU
3. *Poa pratensis*	34	x	FAC
4. *Trifolium pratense*	28		FACU
5. *Taraxacum officinale*	26		FACU
6. *Schedonorus pratensis*	18		FACU
7. *Cerastium fontanum*	12		FACU
8. *Potentilla gracilis*	8		FAC
9. *Carum carvi*	4		FACU
10. *Trifolium hybridum*	4		FAC
11. *Alopecurus arundinaceus*	2		FAC
	228	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species		x 2 =	
FAC Species	104	x 3 =	312
FACU Species	124	x 4 =	496
UPL Species		x 5 =	
Column Totals:	228 (A)		808 (B)

Prevalence Index (B/A) = 3.54

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.
Hay meadow, ditch immediately west of plot.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U1

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
0-5.5	2.5Y 3/2	100					CL	increased fine roots
5.5-16	2.5Y 2.5/1	100					C	

[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: Uniform soil horizons. Plot is in soil type that is described by NRCS as "partially hydric"; however, vegetation is marginally hydrophytic and lacking hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U2

Investigator(s): J. Beaver | Section, Township, Range: S19, T12N, R7E

Landform: terrace/floodplain | Local relief (concave, convex, none): none | Slope (%): <1

Subregion (LRR): E | Lat: 46.7820802 | Long: -110.9054365 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Mesic terrace above Sheep Creek. Photographs: JB 173724-173715

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	60	x	FAC
2. *Taraxacum officinale*	18		FACU
3. *Trifolium pratense*	12		FACU
4. *Phleum pratense*	8		FAC
5. *Galium boreale*	0.5		FACU
6. *Juncus balticus*	0.5		FACW
7.			
8.			
9.			
10.			
11.			
	99	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	0.5	x 2 =	1
FAC Species	68	x 3 =	204
FACU Species	30.5	x 4 =	122
UPL Species		x 5 =	
Column Totals:	99 (A)		327 (B)

Prevalence Index (B/A) = 3.30

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland. Area is hayed but soils are undisturbed. Really doesn't have hydrophytic species. Other parts of hay meadow are much wetter.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U2

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
0-12.5	10YR 3/2	100					CL	More towards clay
12.5-20	2.5Y 4/2	95	5YR 4/6	5	C	M	SC	

[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: Soil in between indicators A11 and A12. Soil unit is mapped as partially hydric by NRCS.

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: All redox below 12". Site is in terrace/floodplain but no other indicators of hydrology.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U3

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S19, T12N, R7E

Landform: low terrace | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): E | Lat: 46.7811914 | Long: -110.9050213 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Mowed and baled hay meadow. Photographs: KS 1451-1454 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	55	x	FAC
2. *Poa pratensis*	45	x	FAC
3. *Alopecurus pratensis*	14		FAC
4. *Taraxacum officinale*	10		FACU
5. *Carex nebrascensis*	8		OBL
6. *Symphyotrichum foliaceum*	4		FACU
7. *Trifolium hybridum*	4		FAC
8. *Geum macrophyllum*	3		FAC
9. *Carum carvi*	2		FACU
10. *Plantago major*	2		FAC
11. *Polygonum aviculare*	2		FAC
	150	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	8	x 1 =	8
FACW Species		x 2 =	
FAC Species	125	x 3 =	375
FACU Species	17	x 4 =	68
UPL Species		x 5 =	
Column Totals:	150 (A)		451 (B)

Prevalence Index (B/A) = 3.01

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: very central part of this round area terrace is high percent of Car neb 30 x 55' (slight depression)

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U3

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
0-9.5	10YR 3/2	100					SiCL	
9.5-16	10YR 3/2	100					LS	Gravels up to 3" (stream laid)

[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: Dark soil profile. Potentially hydric at greater depth (indicator A12). NRCS describes this soil unit (1110D Mooseflat-Foxgulch-Redfish) as "partially hydric", with 50% of the soil unit containing hydric soil components. Plot is on low terrace and lacks redox features in top 16".

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: Plot on low terrace in drainage. Saturation or water table not encountered in soil pit. No primary indicators of wetland hydrology.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U4

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): convex | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.779176 | Long: -110.9039151 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Mowed hay meadow. Photographs: KS1455-1458 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Bromus inermis*	65	x	FAC
2. *Poa pratensis*	40	x	FAC
3. *Trifolium hybridum*	28		FAC
4. *Trifolium pratense*	16		FACU
5. *Taraxacum officinale*	8		FACU
6. *Cirsium arvense*	4		FAC
7. *Symphyotrichum foliaceum*	3		FACU
8. *Carum carvi*	2		FACU
9. *Oxytropis splendens*	2		FAC
10. *Vicia americana*	2		FAC
11. *Astragalus alpinus*	1		FACU
	171	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	141	x 3 =	423
FACU Species	30	x 4 =	120
UPL Species		x 5 =	
Column Totals:	171 (A)		543 (B)

Prevalence Index (B/A) = 3.18

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U4

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
0-16	7.5YR 3/1	100					SiCL	

[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: Dark soil profile. Potentially hydric at greater depth (indicator A12). NRCS describes this soil unit (1110D Mooseflat-Foxgulch-Redfish) as "partially hydric", with 50% of the soil unit containing hydric soil components.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-27-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U5

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S30, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): none | Slope (%): 0-1

Subregion (LRR): E | Lat: 46.7762042 | Long: -110.9012878 | Datum: WGS84

Soil Map Unit Name: 23D Medicinelodge-Adel-Mooseflat | NWI classification: UPL

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: Photographs: KS 1463-1466 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Bromus inermis*	55	x	FAC
2. *Phleum pratense*	25	x	FAC
3. *Poa pratensis*	20	x	FAC
4. *Dactylis glomerata*	18		FACU
5. *Carex praegracilis*	12		FACW
6. *Rhinanthus crista-galli*	10		FACU
7. *Carum carvi*	6		FACU
8. *Symphyotrichum foliaceum*	5		FACU
9. *Juncus balticus*	3		FACW
10. *Trifolium hybridum*	3		FAC
11. *Trifolium pratense*	3		FACU
	164	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	2	x 1 =	2
FACW Species	15	x 2 =	30
FAC Species	103	x 3 =	309
FACU Species	44	x 4 =	176
UPL Species		x 5 =	
Column Totals:	164 (A)		517 (B)

Prevalence Index (B/A) = 3.15

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U5

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
0-12	10YR 2/2	100					C	
12-16	10YR 4/1	100					C	

[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: Dark soil profile lacking depleted/gleyed matrix or redox features. Possibility for hydric soil at greater depth (indicator A12). Soil unit (23D Medicinelodge-Adel-Mooseflat) is caegorized as predominantly non-hydric (15% hydric soil component) by NRCS.

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: No saturation or water table encountered in soil pit.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U6

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: toe slope | Local relief (concave, convex, none): concave | Slope (%): 5-10

Subregion (LRR): E | Lat: 46.7733058 | Long: -110.8721294 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Dasiphora fruticosa toeslope - no frost heaves. Photographs: KS 1519-1522 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	50	x	FAC
2.			
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	45	x	FAC
2. *Deschampsia cespitosa*	18	x	FACW
3. *Potentilla gracilis*	18	x	FAC
4. *Poa pratensis*	16		FAC
5. *Carex pellita*	8		OBL
6. *Poa palustris*	8		FAC
7. *Symphyotrichum foliaceum*	7		FACU
8. *Agropyron trachycaulum*	4		FAC
9. *Danthonia intermedia*	4		FACU
10. *Stipa occidentalis*	4		(UPL)
11. *Fragaria virginiana*	3		FACU
	144	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species	8	x 1 =	8
FACW Species	23	x 2 =	46
FAC Species	145	x 3 =	435
FACU Species	14	x 4 =	56
UPL Species	4	x 5 =	20
Column Totals:	194 (A)		565 (B)

Prevalence Index (B/A) = 2.91

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: this plot is paired with wetland plot SC-W8 about 45' away

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U6

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
0-16	7.5YR 2.5/2	100					SCL	

[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: Dark soil without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1110D, Mooseflat-Foxgulch-Redfish) as partially hydric (hydric soils are 50% of map unit).

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: Marginal geomorphic position.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U7

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): convex | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.7736039 | Long: -110.8692715 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Upland plot paired with upland plot SC-U8. Lens-shaped non-wetland island. Photographs: KS 1539-1542 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.1 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea engelmannii*	38	x	FAC
2.			
3.			
4.			
	38	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	14	x	FAC
2.			
3.			
4.			
5.			
	14	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	52	x	FAC
2. *Poa pratensis*	20	x	FAC
3. *Taraxacum officinale*	12		FACU
4. *Achillea millefolium*	8		FACU
5. *Cirsium arvense*	8		FAC
6. *Lupinus sericeus*	8		(UPL)
7. *Festuca campestris*	7		(UPL)
8. *Cynoglossum officinale*	3		FACU
9. *Potentilla gracilis*	3		FAC
10. *Agropyron trachycaulum*	2		FAC
11. *Fragaria virginiana*	2		FACU
	133.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or, FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (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	2.5	x 2 =	5
FAC Species	138	x 3 =	414
FACU Species	29	x 4 =	116
UPL Species	16	x 5 =	80
Column Totals:	185.5 (A)		615 (B)

Prevalence Index (B/A) = 3.32

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U7

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
0-16	7.5YR 2.5/1	100					CL	

[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: Dark soil without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1110D, Mooseflat-Foxgulch-Redfish) as partially hydric (hydric soils are 50% of map unit).

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: Micro-relief (bumpy) due to extensive pocket gopher disturbance, not frost heaving on either this plot or SC-U8.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SC-U8

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: terrace | Local relief (concave, convex, none): convex | Slope (%): 0-2

Subregion (LRR): E | Lat: 46.7734532 | Long: -110.8685221 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Slight rise between main channel and overflow to north, non-wetland island. Photographs: KS 1535-1538 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	1		FAC
2.			
3.			
4.			
5.			
	1	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	78	x	FAC
2. *Phleum pratense*	48	x	FAC
3. *Cirsium arvense*	22		FAC
4. *Trifolium hybridum*	10		FAC
5. *Iris missouriensis*	9		FACW
6. *Achillea millefolium*	6		FACU
7. *Juncus balticus*	4		FACW
8. *Lupinus sericeus*	3		(UPL)
9. *Solidago canadensis var. salebrosa*	3		FAC
10. *Cynoglossum officinale*	2		FACU
11. *Taraxacum officinale*	2		FACU
	190	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

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	13	x 2 =	26
FAC Species	163	x 3 =	489
FACU Species	10	x 4 =	40
UPL Species	5	x 5 =	25
Column Totals:	191 (A)		580 (B)

Prevalence Index (B/A) = 3.04

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SC-U8

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
0-16	10YR 2/1	100					SiL	

[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: Dark soil without depleted or gleyed matrix. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (1110D, Mooseflat-Foxgulch-Redfish) as partially hydric (hydric soils are 50% of map unit). Very dry, weak structure.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT1-U1

Investigator(s): J. Beaver | Section, Township, Range: S19, T12N, R7E

Landform: lower slope | Local relief (concave, convex, none): convex | Slope (%): 1-4

Subregion (LRR): E | Lat: 46.7839724 | Long: -110.9033231 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Disturbed timothy/Canada thistle, mesic, not wetland. Photographs: JB 161134-161124

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	45	x	FAC
2. *Cirsium arvense*	20	x	FAC
3. *Juncus balticus*	6		FACW
4. *Poa pratensis*	3		FAC
5. *Solidago canadensis var. salebrosa*	2		FAC
6. *Fragaria virginiana*	1		FACU
7. *Geum macrophyllum*	0.5		FAC
8.			
9.			
10.			
11.			
	77.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	6	x 2 =	12
FAC Species	70.5	x 3 =	211.5
FACU Species	1	x 4 =	4
UPL Species		x 5 =	
Column Totals:	77.5 (A)		227.5 (B)

Prevalence Index (B/A) = 2.94

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: Vegetation is mesic, rather than hydrophytic.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT1-U1

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
0-12	2.5Y 3/2	100					CL	Shovel rejected at 12" due to rocks

[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: cobble/gravel

Depth (inches): 12"

Hydric Soil Present? Yes ☑ **No** ☐

Remarks: Soils are dark but do not really appear to be depleted. May be remnant of when spring was more active. Possibly meets indicator A12 at greater depth. NRCS maps soil unit (1110D Mooseflat-Foxgulch-Redfish) as partially hydric (50% hydric soil component).

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: No indicator of any sort of hydrology.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT2-U1

Investigator(s): J. Beaver | Section, Township, Range: S30, T12N, R7E

Landform: lower slope | Local relief (concave, convex, none): none | Slope (%): 8

Subregion (LRR): E | Lat: 46.7787782 | Long: -110.896835 | Datum: WGS84

Soil Map Unit Name: 170E Cheadle-Copenhaver-Marcetta | NWI classification: UPL

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: ARTR/STRI c.t.. Photographs: JB 140141-140150

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	15	x	(UPL)
2. *Dasiphora fruticosa*	1		FAC
3.			
4.			
5.			
	16	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Stipa richardsonii*	45	x	UPL
2. *Poa pratensis*	20	x	FAC
3. *Phleum pratense*	5		FAC
4. *Fragaria virginiana*	2		FACU
5. *Stipa occidentalis*	2		(UPL)
6. *Agropyron trachycaulum*	1		FAC
7. *Potentilla gracilis*	1		FAC
8. *Cirsium longistylum*	0.5		(UPL)
9. *Geum triflorum*	0.5		FACU
10. *Linum lewisii*	0.5		(UPL)
11.			
	77.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= 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: 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	28	x 3 =	84
FACU Species	2.5	x 4 =	10
UPL Species	63	x 5 =	315
Column Totals:	93.5 (A)		409 (B)

Prevalence Index (B/A) = 4.37

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: ungrazed

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT2-U1

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as no hydrophytic vegetation or hydrology. Soil unit (170E Cheadle-Copenhaver-Marcetta) is classified as non-hydric by NRCS (no hydric soil components).

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: Dry toe slope.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-03-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT3-U1

Investigator(s): D. Barton, K. Scow | Section, Township, Range: S29, T12N, R7E

Landform: bench | Local relief (concave, convex, none): undulating | Slope (%): 4

Subregion (LRR): E | Lat: 46.7712384 | Long: -110.8692419 | Datum: WGS84

Soil Map Unit Name: 664E Farlin-stony-Hardhart-Checkerboard | NWI classification: UPL

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: Paired plot with SCT3-W1. Photographs: KS 1527-1530 (N to W)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Symphyotrichum ascendens*	60	x	FACU
2. *Poa pratensis*	55	x	FAC
3. *Phleum pratense*	40		FAC
4. *Orthocarpus luteus*	16		FACU
5. *Carex praegracilis*	14		FACW
6. *Poa secunda*	14		FACU
7. *Agropyron trachycaulum*	10		FAC
8. *Artemisia ludoviciana*	7		FACU
9. *Achillea millefolium*	5		FACU
10.			
11.			
	221	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	14	x 2 =	28
FAC Species	105	x 3 =	315
FACU Species	102	x 4 =	408
UPL Species		x 5 =	
Column Totals:	221 (A)		751 (B)

Prevalence Index (B/A) = 3.40

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: tremendous stratification (grazed hard earlier in season)

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT3-U1

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
0-5	10YR 2/1	100					CL	Gravels present
5-16	10YR 4/1	100					Clay	Coarse gravels present, not loamy

[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: Dark soil, hue and chroma for depleted matrix from 5-16" but no redox features. Could meet indicator A12 at greater depth. NRCS soil mapping describes unit (164D, Hardhart-Farlin, stony-Checkerboard) as non-hydric (0% hydric soils). Several soil map units converge in this location; may be in different map unit.

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: Marginal geomorphic position, paired with plot SCT3-W1.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-05-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT4-U1

Investigator(s): J. Beaver | Section, Township, Range: S24, T12N, R6E

Landform: upper slope | Local relief (concave, convex, none): none | Slope (%): 15

Subregion (LRR): E | Lat: 46.7880127 | Long: -110.9195451 | Datum: WGS84

Soil Map Unit Name: 1142E Redchief-Duckcreek-Cheadle | NWI classification: UPL

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: Very typical of upland on this slope. Photographs: JB 2618-2621

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	55	x	FAC
2. *Geranium viscosissimum*	30	x	FACU
3. *Solidago canadensis var. salebrosa*	10		FAC
4. *Achillea millefolium*	8		FACU
5. *Bromus carinatus*	8		(UPL)
6. *Poa pratensis*	8		FAC
7. *Artemisia ludoviciana*	6		FACU
8. *Potentilla gracilis*	2		FAC
9. *Symphyotrichum subspicatum*	0.5		FACW
10.			
11.			
	127.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	0.5	x 2 =	1
FAC Species	75	x 3 =	225
FACU Species	44	x 4 =	176
UPL Species	8	x 5 =	40
Column Totals:	127.5 (A)		442 (B)

Prevalence Index (B/A) = 3.47

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: Facultative but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT4-U1

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No pit as no hydrology and no hydrophytic vegetation.

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: No hydrology indicators.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-U1

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: bottom/swale | Local relief (concave, convex, none): concave | Slope (%): 4-8

Subregion (LRR): E | Lat: 46.7793934 | Long: -110.913501 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: No grazing at this location. Photographs: KS1399-1402 (N to W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0.1 acre)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	48	x	FACU
2.			
3.			
4.			
	48	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Rosa woodsii*	44	x	FACU
2.			
3.			
4.			
5.			
	44	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	82	x	FAC
2. *Taraxacum officinale*	56	x	FACU
3. *Phleum pratense*	22		FAC
4. *Achillea millefolium*	8		FACU
5. *Geranium viscosissimum*	6		FACU
6. *Symphyotrichum subspicatum*	6		FACW
7. *Galium boreale*	4		FACU
8. *Potentilla gracilis*	4		FAC
9. *Bromus inermis*	2		FAC
10. *Fragaria virginiana*	2		FACU
11.			
	192	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or, FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	6	x 2 =	12
FAC Species	110	x 3 =	330
FACU Species	168	x 4 =	672
UPL Species		x 5 =	
Column Totals:	284 (A)		1014 (B)

Prevalence Index (B/A) = 3.57

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: unnamed tributary to Sheep Creek

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-U1

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
0-6	2.5Y 3/1	100					SiL	Roots of all sizes fine to coarse sand
6-13	2.5Y 2.5/1	100					SL	Fine roots, coarse sands and gravels
13-16	10YR 3/3	100					SL	Hard packed soil, no roots

[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): _____

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: Soils are dry. No water in pit.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 09-04-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-U2

Investigator(s): S. Cooper, L. Larsen, D. Culwell | Section, Township, Range: S24, T12N, R6E

Landform: toeslope, drainage | Local relief (concave, convex, none): concave | Slope (%): 4-6

Subregion (LRR): E | Lat: 46.7810051 | Long: -110.9274322 | Datum: WGS84

Soil Map Unit Name: 1175E Owenspring-Cheadle | NWI classification: UPL

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 occurs on mesic montane slope. Seep located upslope in meadow. Photographs: SC 991-994

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Phleum pratense*	35	x	FAC
2. *Carex praegracilis*	24	x	FACW
3. *Poa pratensis*	22	x	FAC
4. *Potentilla gracilis*	15		FAC
5. *Juncus balticus*	12		FACW
6. *Artemisia ludoviciana*	5		FACU
7. *Juncus confusus*	4		FAC
8. *Solidago canadensis var. salebrosa*	3		FAC
9. *Carex pellita*	2		OBL
10. *Perideridia montana*	2		FAC
11.			
	124	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0.5

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	2	x 1 =	2
FACW Species	36	x 2 =	72
FAC Species	81	x 3 =	243
FACU Species	5	x 4 =	20
UPL Species		x 5 =	
Column Totals:	124 (A)		337 (B)

Prevalence Index (B/A) = 2.72

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: Hummocky

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-U2

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
0-16	10YR 2/1	100					SiC	

[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: Soil type (1175E, Owenspring Cheadle) is described by NRCS as non-hydric.

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: Part of a mesic toeslope/drainage in open meadow.

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-U3

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: terrace | Local relief (concave, convex, none): convex | Slope (%): 1-2

Subregion (LRR): E | Lat: 46.777779 | Long: -110.9149068 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Upland plot above small creek. Photographs: KS1397 (E), 1398 (W)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Artemisia tridentata*	32	x	(UPL)
2. *Dasiphora fruticosa*	16	x	FAC
3.			
4.			
5.			
	48	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	46	x	FAC
2. *Phleum pratense*	42	x	FAC
3. *Antennaria microphylla*	14		(UPL)
4. *Artemisia ludoviciana*	9		FACU
5. *Symphyotrichum ascendens*	8		FACU
6. *Festuca idahoensis*	5		FACU
7. *Geranium viscosissimum*	5		FACU
8. *Stipa richardsonii*	4		UPL
9. *Potentilla gracilis*	3		FAC
10. *Anemone multifida*	1		(UPL)
11. *Erigeron subtrinervis*	1		(UPL)
	138.5	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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	107	x 3 =	321
FACU Species	27	x 4 =	108
UPL Species	52.5	x 5 =	262.5
Column Totals:	186.5 (A)		691.5 (B)

Prevalence Index (B/A) = 3.71

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-U3

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as marginal hydrophytic vegetation and no wetland hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-17-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-U4

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: hillside | Local relief (concave, convex, none): convex | Slope (%): 4-5

Subregion (LRR): E | Lat: 46.7743809 | Long: -110.9171606 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Upland plot.
Photograph: KS1390-1392 (S, N, E)

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: NA)			
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	10	x	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Poa pratensis*	65	x	FAC
2. *Phleum pratense*	40	x	FAC
3. *Symphyotrichum foliaceum*	16		FACU
4. *Potentilla gracilis*	14		FAC
5. *Achillea millefolium*	8		FACU
6. *Lupinus sericeus*	8		(UPL)
7. *Erigeron subtrinervis*	6		(UPL)
8. *Geranium viscosissimum*	5		FACU
9. *Cirsium arvense*	4		FAC
10. *Agropyron trachycaulum*	2		FAC
11.			
	168	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% 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: 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	135	x 3 =	405
FACU Species	29	x 4 =	116
UPL Species	14	x 5 =	70
Column Totals:	178 (A)		591 (B)

Prevalence Index (B/A) = 3.32

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: Vegetation meets the Dominance Test, indicating the site as hydrophytic. However, vegetation fails the Prevalence Index (PI). The PI and professional judgment indicate that vegetation is mesic but not wetland.

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-U4

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

[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: No soil pit as marginal hydrophytic vegetation and no wetland hydrology.

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:

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

Project/Site: Black Butte Copper | City/County: White Sulphur Springs/Meagher | Sampling Date: 08-16-2014

Applicant/Owner: Tintina Resources | State: MT | Sampling Point: SCT5-U5

Investigator(s): K. Scow, E. Darfler | Section, Township, Range: S25, T12N, R6E

Landform: head of swale | Local relief (concave, convex, none): convex | Slope (%): 7-8

Subregion (LRR): E | Lat: 46.7706003163 | Long: -110.920392805 | Datum: WGS84

Soil Map Unit Name: 1110D Mooseflat-Foxgulch-Redfish | NWI classification: UPL

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: Upland plot.
Photographs: KS1384 (N) and 1385 (S)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 0.01 acre)			
1. *Dasiphora fruticosa*	2		FAC
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 0.01 acre)			
1. *Taraxacum officinale*	80	x	FACU
2. *Phleum pratense*	45	x	FAC
3. *Poa pratensis*	40		FAC
4. *Juncus balticus*	15		FACW
5. *Potentilla gracilis*	12		FAC
6. *Agrostis stolonifera*	10		FAC
7. *Symphyotrichum campestre*	5		(UPL)
8. *Muhlenbergia richardsonis*	2		FAC
9. *Fragaria virginiana*	1		FACU
10. *Galium boreale*	1		FACU
11. *Juncus confusus*	1		FAC
	212	= Total Cover	
Woody Vine Stratum (Plot size: NA)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

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

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

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

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL Species		x 1 =	
FACW Species	15	x 2 =	30
FAC Species	112	x 3 =	336
FACU Species	82	x 4 =	328
UPL Species	5	x 5 =	25
Column Totals:	214 (A)		719 (B)

Prevalence Index (B/A) = 3.36

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:

SOIL

Project/Site: Black Butte Copper Sampling Point: SCT5-U5

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: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks: No soil pit as no hydrophytic vegetation or hydrology.

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: Upslope of wetland plot.

Appendix D

Photos of Wetland and Upland Survey Plots

August/September 2014

Photos of Wetland Survey Plots

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.

Plot: BB-W1

Plot: BB-W2

Plot: BBT3-W1

Plot: LS-W1

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.

Plot: LS-W2

Plot: LS-W3

Plot: LS-W4

Plot: LS-W5

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.

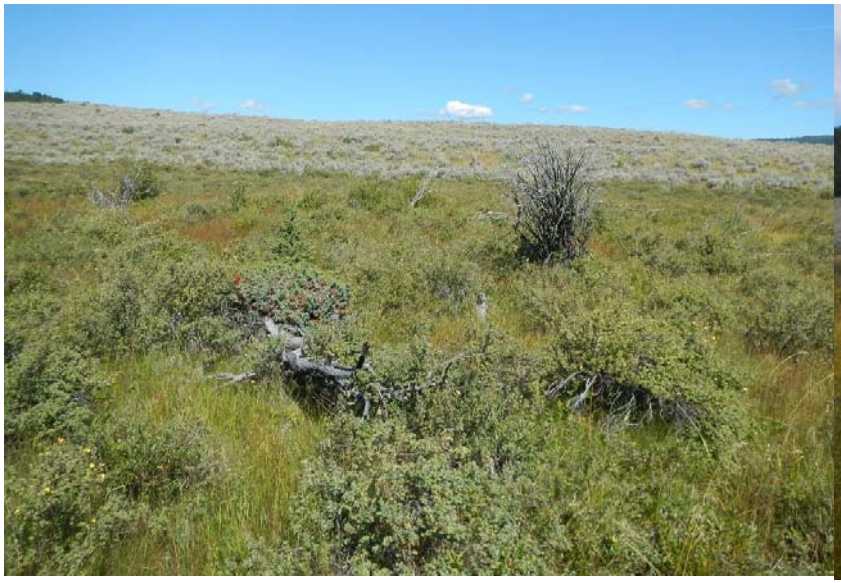
Plot: LS-W6

Plot: LS-W7

Plot: LS-W8

Plot: LS-W9

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.



Plot: LS-W10

Plot: LS-W11

Plot: LS-W12

Plot: LS-W13

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.

Plot: LS-W14

Plot: LST1-W1

Plot: LST1-W2

Plot: LST1-W3

Appendix D. Photos of Wetland and Upland Survey Plots, August/September 2014.

Plot: LST1-W4

Plot: LST2-W1

Plot: LST2-W2

Plot: LST2-W3

Plot: LST3-W1

Plot: LST3-W2

Plot: LST4-W1

Plot: SC-W1

Plot: SC-W2

Plot: SC-W3

No photo available

Plot: SC-W4

Plot: SC-W5

Plot: SC-W6

Plot: SC-W7

Plot: SC-W8

Plot: SC-W9

Plot: SCT1-W1

Plot: SCT2-W1

Plot: SCT3-W1

Plot: SCT4-W1

Plot: SCT5-W1

Plot: SCT5-W2

Plot: SCT5-W3

Plot: SCT5-W4

Plot: SCT5-W5

Photos of Upland Survey Plots

Plot: BB-U1

Plot: BB-U2

Plot: BBT3-U1

Plot: LS-U1

Plot: LS-U2

Plot: LS-U3

Plot: LS-U4

Plot: LS-U5

Plot: LS-U6

Plot: LS-U7

Plot: LS-U8

Plot: LS-U9

Plot: LS-U10

Plot: LS-U11

Plot: LS-U12

Plot: LS-U13

Plot: LS-U14

Plot: LS-U15

Plot: LS-U16

Plot: LS-U17

Plot: LS-U18

Plot: LS-U19

Plot: LS-U20

Plot: LS-U21

Plot: LST1-U1

Plot: LST1-U2

Plot: LST1-U2A

Plot: LST1-U2B

Plot: LST1-U3

Plot: LST2-U1

Plot: LST2-U2

Plot: LST2-U3

Plot: LST3-U1

Plot: LST4-U1

Plot: LST4-U2

Plot: SC-U1

Plot: SC-U2

Plot: SC-U3

Plot: SC-U4

Plot: SC-U5

SC-U6

Plot: SC-U7

Plot: SC-U8

Plot: SCT1-U1

SCT2-U1

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SCT4-U1

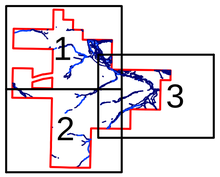
SCT5-U1

SCT5-U2

SCT5-U3

SCT5-U4

SCT5-U5



LEGEND

- Study Area Boundary
- Fence
- Plot Location
- Stream

Wetlands

- Palustrine Emergent
- Palustrine Forested
- Palustrine Scrub-Shrub (Willow)
- Palustrine Scrub-Shrub (Shrubby Cinquefoil)
- Palustrine Unconsolidated Bottom

ID Code
X-XX-##

S = Stream
W = Wetland

= Segment or Polygon Number

SC = Sheep Creek
SCO = Sheep Creek Overflow
SCT = Sheep Creek Tributary
LS = Little Sheep Creek
LST = Little Sheep Creek Tributary
BB = Black Butte Creek
BBT = Black Butte Creek Tributary

Aerial: 2013 NAIP
Topo: 20' Generated from ⅓ second NED

Scale 1" = 500'

0 250 500 1000
Feet

TINTINA RESOURCES

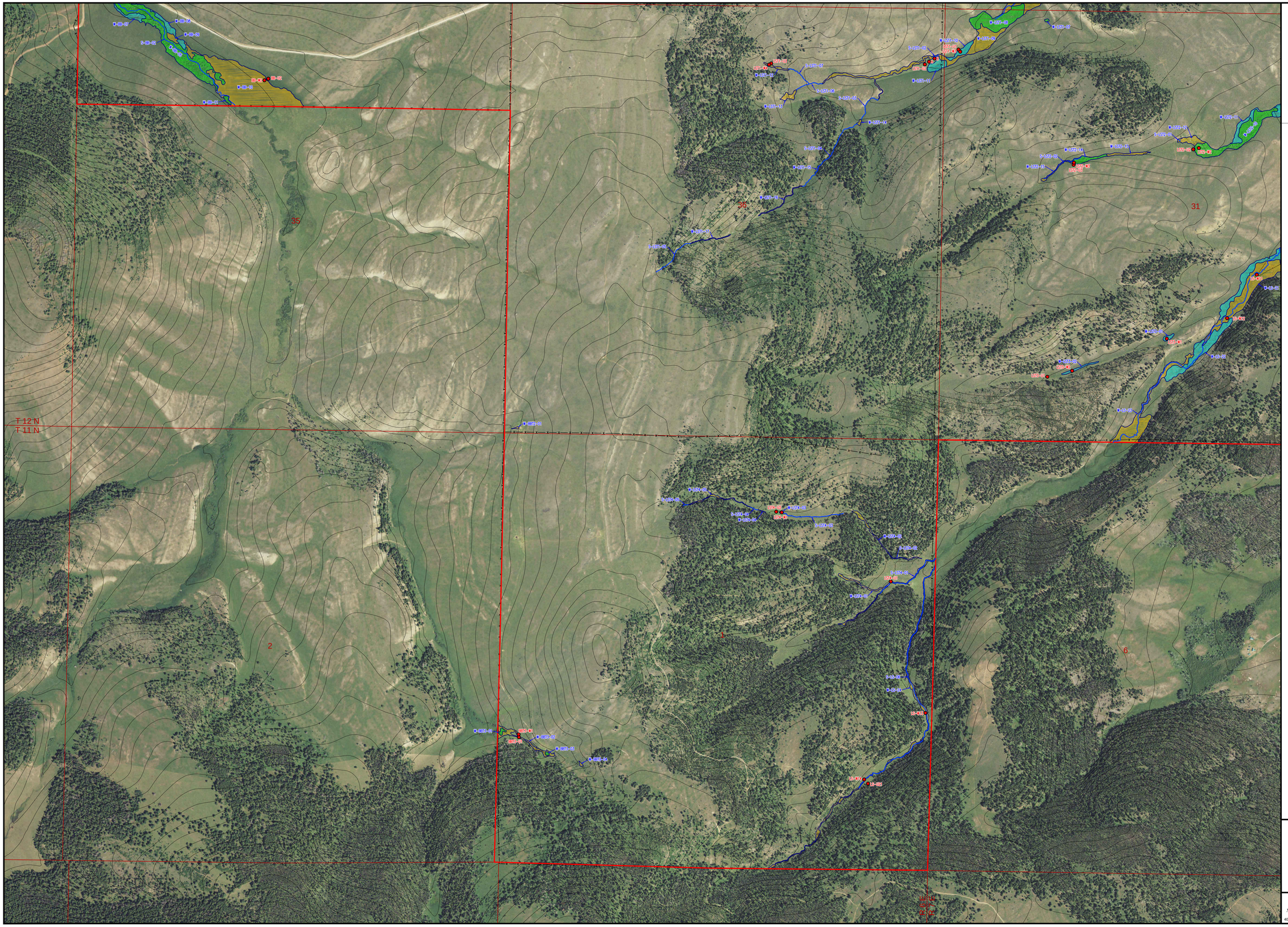
Black Butte Copper Project

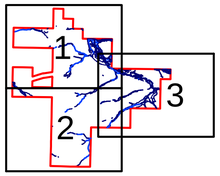
Wetland Delineation and Waterbody Survey

WESTECH ENVIRONMENTAL SERVICES
406-442-0950 | P.O. Box 6045 | Helena, MT 59604

Appendix C
Map 1
Sheet 1 of 3

05/19/16 | BBC19_Wetlands_Baseline.dwg | 1:6,000





LEGEND

- Study Area Boundary
- Fence
- Plot Location
- Stream

Wetlands

- Palustrine Emergent
- Palustrine Forested
- Palustrine Scrub-Shrub (Willow)
- Palustrine Scrub-Shrub (Shrubby Cinquefoil)
- Palustrine Unconsolidated Bottom

ID Code
X-XX-##

S = Stream
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= Segment or Polygon Number

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SCO = Sheep Creek Overflow
SCT = Sheep Creek Tributary
LS = Little Sheep Creek
LST = Little Sheep Creek Tributary
BB = Black Butte Creek
BBT = Black Butte Creek Tributary

Aerial: 2013 NAIP
Topo: 20' Generated from ⅓ second NED

N

Scale 1" = 500'

0 250 500 1000

Feet

TINTINA RESOURCES

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Wetland Delineation and Waterbody Survey

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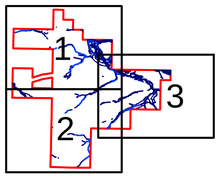
Appendix C
Map 1
Sheet 2 of 3

05/19/16 | BBC15b_Wetlands_Baseline.dwg | 1:6,000



LEGEND

- Study Area Boundary
- Fence
- Plot Location
- Stream

Wetlands

- Palustrine Emergent
- Palustrine Forested
- Palustrine Scrub-Shrub (Willow)
- Palustrine Scrub-Shrub (Shrubby Cinquefoil)
- Palustrine Unconsolidated Bottom

ID Code
X-XX-##

S = Stream
W = Wetland

= Segment or Polygon Number

SC = Sheep Creek
SCO = Sheep Creek Overflow
SCT = Sheep Creek Tributary
LS = Little Sheep Creek
LST = Little Sheep Creek Tributary
BB = Black Butte Creek
BBT = Black Butte Creek Tributary

Aerial: 2013 NAIP
Topo: 20' Generated from ⅓ second NED

N

Scale 1" = 500'

0 250 500 1000

Feet

T 12 N.
T 11 N

TINTINA RESOURCES

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Wetland Delineation and Waterbody Survey

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Appendix C
Map 1
Sheet 3 of 3

05/19/16 | BBC15_Wetlands_Baseline.dwg | 1:6,000