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**FUNCTIONAL ASSESSMENT REPORT
BLACK BUTTE COPPER PROJECT
MEAGHER COUNTY, MONTANA**

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1.0 INTRODUCTION

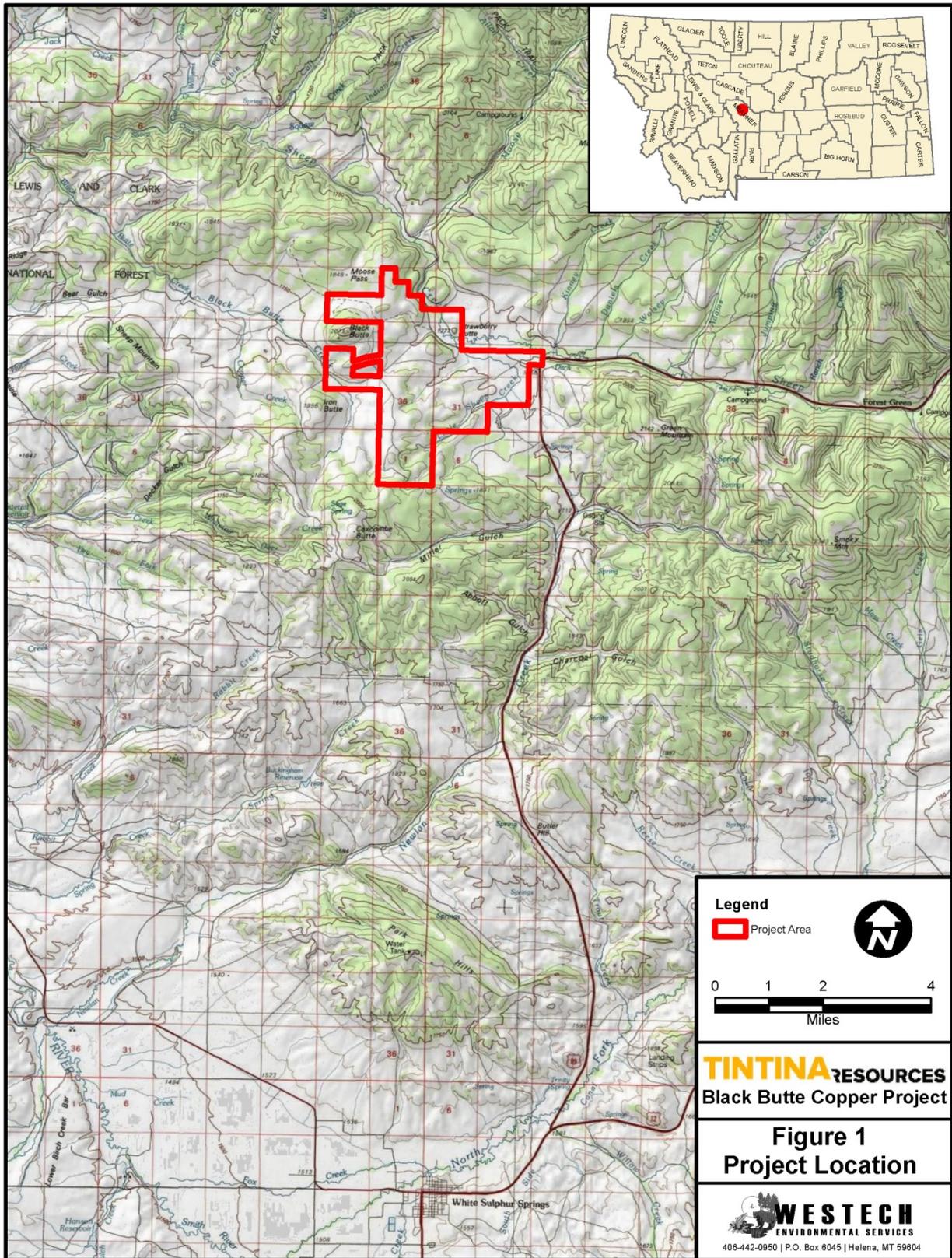
Tintina Resources, Inc. intends to develop the Black Butte Copper Project (Project), a copper mine approximately 16 miles north of White Sulphur Springs, Montana in Meagher County (Figure 1). WESTECH Environmental Services, Inc. (WESTECH) delineated wetlands and surveyed waterbodies within the Project area in August and September, 2014 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). The *Baseline Wetland Delineation and Waterbody Survey Black Butte Copper Project Meagher County, Montana* (WESTECH 2015) is provided under separate cover.

This report presents the results of functional assessments (FAs) for wetlands delineated within the Project area. FAs were conducted using the Montana Department of Transportation (MDT) Montana Wetland Assessment Method (MWAM). MDT's method provides relative ratings of each wetland or group of wetlands for up to 12 wetland functions and values:

- Habitat for federally listed or proposed threatened or endangered (T&E) species
- Habitat for Montana Natural Heritage Program (MTNHP) S1, S2, or S3 Species of Concern
- General wildlife habitat
- General fish habitat
- Flood attenuation
- Surface water storage
- Sediment/nutrient/toxicant retention/removal
- Sediment/shoreline stabilization
- Production export/terrestrial and aquatic food chain support
- Groundwater discharge/recharge
- Uniqueness
- Recreation/education potential

MDT and Montana Fish, Wildlife and Parks (FWP) first developed this wetland evaluation method in 1989 and have revised it several times based on field-testing at several hundred wetlands (Berglund and McEldowney 2008). MWAM is widely used in Montana and elsewhere. In a 2004 evaluation of state- and tribe-developed wetland functional assessment methodologies, EPA found MWAM was one of seven systems (of forty evaluated) that met all of EPA's criteria for consideration as a model for development of functional assessment methods (Fennessy *et al.* 2004).

Wetlands delineated by WESTECH in 2014 within the Project area were evaluated for wetland functions and values. Some wetlands evaluated in this assessment may not be jurisdictional under the current USACE regulatory program. The USACE will determine wetland jurisdictional status during the agency's review of the wetland delineation report (WESTECH 2015).



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2.0 METHODS

The most recently available version of the MDT MWAM data form and guidance was used (Berglund and McEldowney 2008; on-line at: http://www.mdt.mt.gov/other/environmental/external/wetlands/2008_wetland_assessment/2008_mwam_manual.pdf). Major data sources for the Black Butte wetland FAs include:

- Baseline wetland and waterbody inventory for the Black Butte Copper Project (WESTECH 2015);
- Baseline fish and wildlife resources inventory for the Black Butte Copper Project (Stagliano and Farmer on-going);
- Background hydrology and wetland mapping for the Black Butte Copper Project (Tintina 2013);
- MTNHP plant and animal species of concern report (MTNHP 2014); and
- MTNHP list of ecological communities for Montana (MTNHP 2002).

Assessment areas (AAs) were based on WESTECH's 2014 wetland delineations of the Project area. In the baseline delineation survey (WESTECH 2015) wetlands and waterbodies were assigned unique labels based on the drainage basins in which they occur, as shown below:

- BB: Black Butte Creek mainstem;
- BBT: Black Butte Creek tributaries;
- LSC: Little Sheep Creek mainstem and floodplain;
- LSCT: Little Sheep Creek tributaries;
- SC: Sheep Creek mainstem and floodplain; and
- SCT: Sheep Creek tributaries.

Each AA consist of ecologically similar wetlands that are hydrologically connected or adjacent to one another. In some cases, large, contiguous wetlands were divided to better represent the qualities within a specific wetland reach. For example, in the Little Sheep Creek watershed, wetlands were parceled into three groups for assessment purposes:

1. the large, primary wet meadow surrounding Little Sheep Creek;
2. the smaller, more restricted wet meadow in the upper portion of Little Sheep Creek; and
3. the headwaters of Little Sheep Creek and the associated small, intermittent drainages.

MWAM guidance states that for small streams (less than 150 feet bankfull width) and small ponds (less than 20 acres) with associated wetlands, the open water channel or pond should be included in the AA (Berglund and McEldowney 2008). All streams in the Project are less than 150 feet wide and no ponds were observed, although one excavated pit less than 20 acres occurs at the lower end of Little Sheep Creek. Consequently, open water channels and ponds were included in AAs.

AAs and the wetlands comprising them are listed in Table 2.0-1 and shown on the Wetland Delineation and Waterbody Survey Assessment Area Map (3 sheets). Note that the AA boundaries shown on the map are to help the reader locate the AAs. The boundaries are generally drawn and do not include areas outside the Project boundary, nor is it intended that the upland area within AA boundary is exactly equivalent to the upland area associated with the wetlands that were assessed. Also note that the delineated acres within the Project may not correspond to the “total wetland size” or the “Assessment Area” acreage as defined by the MWAM method. The MWAM guidance specifies that wetlands extending beyond a project boundary should be included in the assessment for ½ mile beyond the boundary, until the wetland ends, or until there is a major change in hydrology. Wetland assessments along Black Butte Creek and Sheep Creek were extended beyond Project boundaries per this guidance. Areas beyond Project boundaries were typically not accessible to wetland surveyors; assessments of these areas were based on aerial photo interpretation and extrapolation of data and observations from within the Project’s boundaries. This difference in acreage is described in more detail under **Wetland and AA acreages (8. and 9.)** following Table 2.0-1.

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|---|-----------------------------|--|
| Black Butte Creek Assessment Area | | |
| W-BB-01 | PSS1E | 0.39 |
| W-BB-02 | PEM1E | 0.96 |
| W-BB-03 | PSS1E | 0.50 |
| W-BB-04 | PEM1B | 0.28 |
| W-BB-05 | PSS1E | 6.86 |
| W-BB-06 | PSS6B | 0.50 |
| W-BB-07 | PSS6B | 0.48 |
| W-BB-08 | PSS6B | 0.63 |
| W-BB-09 | PEM1B | 0.22 |
| W-BB-10 | PEM1B | 9.23 |
| W-BB-11 | PSS1E | 0.12 |
| Black Butte Creek Total Delineated Acres | | 20.17 |
| Little Sheep Creek Tributary 1 Assessment Area | | |
| W-LST1-01 | PEM1B | 0.05 |
| W-LST1-02 | PSS6B | 0.37 |
| W-LST1-03 | PSS1B | 0.71 |
| W-LST1-04 | PSS6B | 0.26 |
| W-LST1-05 | PSS6B | 1.43 |
| W-LST1-06 | PEM1B | 4.55 |
| W-LST1-07 | PSS1B | 0.03 |
| W-LST1-08 | PSS1B | 2.58 |
| W-LST1-09 | PEM1B | 2.19 |
| W-LST1-10 | PSS6B | 0.46 |
| W-LST1-11 | PSS6B | 0.56 |
| Little Sheep Creek Tributary 1 Total Delineated Acres | | 13.19 |
| Little Sheep Creek Tributary 1 Minor Drainages Assessment Area | | |
| W-LST1-09 | PEM1B | 1.08 |
| W-LST1-12 | PEM1B | 0.16 |
| W-LST1-13 | PEM1B | 0.27 |

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|---|-----------------------------|--|
| W-LST1-14 | PEM1B | 0.05 |
| W-LST1-15 | PEM1A | 0.02 |
| W-LST1-16 | PEM1A | 0.14 |
| W-LST1-17 | PEM1A | 0.07 |
| <i>Little Sheep Creek Tributary 1 Minor Drainages Total Delineated Acres</i> | | 1.79 |
| Little Sheep Creek Tributary 2 Assessment Area | | |
| W-LST2-05 | PEM1B | 0.60 |
| W-LST2-06 | PSS6B | 4.11 |
| W-LST2-07 | PEM1E | 0.60 |
| W-LST2-08 | PEM1B | 0.44 |
| W-LST2-09 | PEM1B | 0.58 |
| W-LST2-10 | PSS1B | 3.13 |
| W-LST2-11 | PSS6B | 0.59 |
| W-LST2-12 | PEM1B | 0.49 |
| W-LST2-13 | PEM1B | 0.30 |
| W-LST2-14 | PSS1B | 0.47 |
| W-LST2-15 | PEM1B | 0.18 |
| <i>Little Sheep Creek Tributary 2</i> | | 11.49 |
| Little Sheep Creek Upper Wet Meadow Assessment Area | | |
| W-LS-18 | PSS6B | 1.45 |
| W-LS-21 | PEM1Eh | 3.80 |
| W-LS-22 | PSS6B | 2.32 |
| W-LS-23 | PEM1B | 2.94 |
| W-LST3-01 | PSS6A | 0.15 |
| W-LST3-02 | PSS6B | 0.20 |
| <i>Little Sheep Creek Upper Wet Meadow Total Delineated Acres</i> | | 10.86 |
| Little Sheep Creek Wet Meadow Assessment Area | | |
| W-LS-11 | PEM1E | 21.13 |
| W-LS-12 | PSS6B | 0.58 |
| W-LS-13 | PEM1B | 0.54 |
| W-LS-14 | PSS6B | 3.77 |
| W-LS-15 | PSS6B | 1.61 |
| W-LS-16 | PSS6B | 12.21 |
| W-LS-17 | PSS6B | 5.13 |
| W-LS-18 | PSS6B | 32.80 |
| W-LS-19 | PSS1E | 0.35 |
| W-LS-20 | PEM1E | 0.52 |
| W-LS-21 | PEM1Eh | 0.00 |
| W-LST7-1 | PEM1B | 0.01 |
| <i>Little Sheep Creek Wet Meadow Total Delineated Acres</i> | | 78.65 |
| Little Sheep Creek Wetland / Upland Mosaic Assessment Area | | |
| W-LS-02 | PSS1E | 4.23 |

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|---|-----------------------------|--|
| W-LS-03 | PEM1E | 0.48 |
| W-LS-04 | PUB3A | 0.01 |
| W-LS-05 | PEM1E | 18.05 |
| W-LS-06 | PUB3Ax | 0.08 |
| W-LS-07 | PSS6B | 0.71 |
| W-LS-08 | PSS6B | 1.26 |
| W-LS-09 | PSS6B | 0.91 |
| W-LS-10 | PSS6B | 0.22 |
| W-LS-11 | PEM1E | 1.83 |
| W-LST1-02 | PSS6B | 0.06 |
| W-LST1-03 | PSS1B | 0.01 |
| W-LST2-01 | PEM1E | 0.91 |
| W-LST2-02 | PSS6B | 0.63 |
| W-LST2-03 | PEM1A | 0.00 |
| W-LST2-04 | PEM1A | 0.00 |
| W-LST5-01 | PEM1B | 10.62 |
| W-LST5-02 | PUB3/1Gx | 0.38 |
| W-LST5-03 | PSS1B | 0.47 |
| <i>Little Sheep Creek Wetland / Upland Mosaic Total Delineated Acres</i> | | 40.86 |
| Northwest Springs and Depressions Assessment Area | | |
| W-BBT1-01 | PEM1E | 0.52 |
| W-BBT1-02 | PEM1E | 1.03 |
| W-BBT1-03 | PEM1E | 0.25 |
| W-BBT1-04 | PEM1B | 0.03 |
| W-BBT1-05 | PEM1B | 0.01 |
| W-BBT1-06 | PEM1B | 0.06 |
| W-BBT1-07 | PEM1B | 0.01 |
| W-BBT1-08 | PEM1B | 0.00 |
| W-BBT1-09 | PEM1B | 0.00 |
| W-BBT1-10 | PEM1B | 0.00 |
| W-BBT1-11 | PUB3A | 0.04 |
| W-BBT1-12 | PUB3A | 0.02 |
| W-BBT1-13 | PEM1B | 0.01 |
| W-BBT1-14 | PEM1B | 0.01 |
| W-BBT1-15 | PEM1B | 0.00 |
| W-BBT1-16 | PEM1B | 0.01 |
| W-BBT1-17 | PEM1B | 0.11 |
| W-BBT1-18 | PEM1B | 0.00 |
| W-BBT1-19 | PUB3A | 0.01 |
| W-BBT1-20 | PUB3A | 0.01 |
| W-BBT1-21 | PUB3A | 0.00 |
| W-BBT1-22 | PUB3A | 0.00 |
| W-BBT1-23 | PUB3A | 0.00 |
| W-BBT1-24 | PEM1B | 0.00 |

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|---|-----------------------------|--|
| W-BBT1-25 | PUB3A | 0.02 |
| W-BBT1-26 | PUB3A | 0.01 |
| W-BBT1-27 | PUB3A | 0.03 |
| W-BBT1-28 | PUB3A | 0.01 |
| W-SCT4-01 | PEM1B | 0.89 |
| W-SCT4-02 | PEM1B | 0.03 |
| W-SCT4-03 | PEM1B | 0.00 |
| Northwest Springs and Depressions Total Delineated Acres | | 3.12 |
| Sheep Creek Spring Tributary Assessment Area | | |
| W-SC-06 | PSS1E | 2.71 |
| W-SCT1-01 | PSS6B | 0.29 |
| W-SCT1-02 | PEM1E | 0.32 |
| W-SCT1-03 | PSS6B | 0.54 |
| W-SCT1-04 | PSS6B | 0.39 |
| W-SCT1-05 | PSS1B | 0.81 |
| W-SCT1-06 | PEM1B | 4.00 |
| W-SCT1-07 | PSS6B | 0.66 |
| Sheep Creek Spring Tributary Total Delineated Acres | | 9.72 |
| Sheep Creek Tributary 1 Assessment Area | | |
| W-SCT5-01 | PEM1B | 0.07 |
| W-SCT5-02 | PSS1B | 0.24 |
| W-SCT5-03 | PEM1B | 0.09 |
| W-SCT5-04 | PEM1B | 0.66 |
| W-SCT5-05 | PFO4B | 0.08 |
| W-SCT5-06 | PFO4B | 1.78 |
| W-SCT5-07 | PEM1B | 1.13 |
| W-SCT5-08 | PEM1B | 0.02 |
| W-SCT5-09 | PEM1B | 0.58 |
| W-SCT5-10 | PEM1B | 0.03 |
| Sheep Creek Tributary 1 Total Delineated Acres | | 4.68 |
| Sheep Creek Tributary 2 Assessment Area | | |
| W-SCT5-01 | PEM1B | 0.28 |
| W-SCT5-03 | PEM1B | 0.13 |
| W-SCT5-11 | PSS1C | 8.29 |
| W-SCT5-12 | PSS1C | 6.03 |
| W-SCT5-13 | PSS6C | 3.15 |
| W-SCT5-14 | PEM1C | 0.40 |
| Sheep Creek Tributary 2 Total Delineated Acres | | 18.28 |
| Sheep Creek Wet Meadow Assessment Area | | |
| W-LS-01 | PSS1B | 0.58 |
| W-SC-01 | PSS1C | 0.08 |
| W-SC-02 | PSS1C | 0.14 |
| W-SC-03 | PSS1E | 14.29 |
| W-SC-04 | PSS1E | 0.04 |

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|--|-----------------------------|--|
| W-SC-05 | PSS1E | 0.04 |
| W-SC-06 | PSS1E | 11.44 |
| W-SC-07 | PEM1E | 0.40 |
| W-SC-08 | PEM1B | 1.08 |
| W-SC-09 | PEM1B | 0.36 |
| W-SC-10 | PSS1E | 0.08 |
| W-SC-11 | PEM1B | 6.46 |
| W-SC-12 | PEM1B | 1.99 |
| W-SC-13 | PSS1E | 0.30 |
| W-SC-14 | PSS1E | 0.11 |
| W-SC-15 | PSS1B | 7.01 |
| W-SC-16 | PEM1B | 30.06 |
| W-SC-17 | PSS1B | 0.23 |
| W-SC-18 | PEM1B | 0.17 |
| W-SC-19 | PEM1B | 0.24 |
| W-SC-20 | PEM1B | 0.50 |
| W-SC-21 | PEM1B | 0.99 |
| W-SC-22 | PEM1B | 0.20 |
| W-SC-23 | PSS1E | 0.10 |
| W-SC-24 | PEM1B | 0.15 |
| W-SC-25 | PSS1E | 0.74 |
| W-SC-26 | PEM1B | 0.74 |
| W-SC-27 | PSS1B | 0.50 |
| W-SC-28 | PSS1B | 0.07 |
| W-SC-29 | PSS1E | 7.11 |
| W-SC-30 | PSS1E | 0.63 |
| W-SC-31 | PEM1B | 4.57 |
| W-SC-32 | PSS1E | 0.39 |
| W-SC-33 | PEM1B | 1.40 |
| W-SCT2-01 | PSS6E | 3.51 |
| W-SCT2-02 | PEM1B | 0.68 |
| <i>Sheep Creek Wet Meadow Total Delineated Acres</i> | | 97.38 |
| Southwest Minor Drainages Assessment Area | | |
| W-BBT2-01 | PEM1K | 0.02 |
| W-BBT3-01 | PSS1B | 0.11 |
| W-BBT3-02 | PEM1B | 0.67 |
| W-BBT3-03 | PSS1B | 0.04 |
| W-BBT3-04 | PEM1A | 0.04 |
| W-LS-24 | PEM1B | 1.76 |
| W-LST4-01 | PEM1B | 0.67 |
| W-LST4-02 | PEM1B | 0.39 |
| W-LST4-03 | PEM1A | 0.02 |
| W-LST4-04 | PEM1A | 0.01 |
| W-LST4-05 | PEM1A | 0.19 |
| <i>Southwest Minor Drainages Total Delineated Acres</i> | | 3.92 |

Table 2.0-1 Wetlands within Assessment Area – Black Butte Project

| Wetland ID | Cowardin Class ¹ | Delineated Acres within Project ² |
|--|-----------------------------|--|
| Upper Sheep Creek Shrub Wetlands Assessment Area | | |
| W-SC-34 | PSS1B | 1.69 |
| W-SC-35 | PEM1E | 2.02 |
| W-SC-36 | PSS1E | 0.38 |
| W-SC-37 | PSS1E | 5.44 |
| W-SC-38 | PEM1E | 0.37 |
| W-SC-39 | PEM1E | 0.49 |
| W-SC-40 | PEM1E | 0.19 |
| W-SC-41 | PEM1E | 0.06 |
| W-SC-42 | PSS1E | 0.38 |
| W-SC-43 | PEM1E | 0.32 |
| W-SCT3-01 | PSS6B | 0.94 |
| W-SCT3-02 | PEM1B | 0.42 |
| W-SCT3-03 | PSS1B | 1.04 |
| W-SCT3-04 | PEM1B | 0.30 |
| W-SCT3-05 | PEM1B | 0.46 |
| Upper Sheep Creek Shrub Wetlands Total Delineated Acres | | 14.5 |

¹ Cowardin Class Codes (Cowardin *et al.* 1979). System: P = Palustrine (i.e., not lake, marine, estuarine, or tidal). Class: EM = Emergent (i.e., herbaceous wetland); SS = Scrub-Shrub (i.e., shrub-dominated wetland); FO = Forested (i.e., forested wetland); UB = Unconsolidated Bottom (i.e., mud and/or small stones). Subclass: PEM1 = persistent emergent vegetation such as sedges or grasses. PSS1 = scrub-shrub wetland dominated by willows. PSS6 = scrub-shrub wetland dominated by shrubby cinquefoil. PFO4 = needle-leaved evergreen. Water regime modifiers: A = Temporarily Flooded, B = Saturated, C = Seasonally Flooded, E = Seasonally Flooded/Saturated, G = Intermittently Exposed. Special modifiers: x = Excavated; h = Diked/impounded.

² Delineated acres are those wetland acres that were delineated within the Assessment Area and within the Project boundary during the baseline wetland delineation (WESTECH 2015). Note that in many cases these acres will not correspond to the “total wetland size” or the “Assessment Area” acres per the MWAM method as this method estimates the total wetland size, which is often outside a project, and the Assessment Area size, which may include ½ mile up and downstream of a project.

Following is a discussion of evaluation methods used for certain sections of the MWAM FA data form. Sections of the data form not discussed below were deemed self-explanatory based on descriptions within the form. The section name and number corresponds to the relevant section of the data form.

Wetland and AA acreages (8. and 9.)

During WESTECH’s 2014 wetlands inventory, wetland boundaries were mapped in the field using GPS and acreages were calculated in ArcMap (WESTECH 2015). The actual wetland acreage within the Project area is known based on this mapping effort. However, the FA also requires an estimate of the acreage of the “entire wetland” as well as the AA, both of which may be much larger than the portion of a wetland within the Project. As some of the wetlands within the Project area extend along Sheep Creek or Black Butte Creek for many miles outside the Project boundary, the acreage of the entire wetland was estimated based on aerial photography. Note that because the “total wetland size” may extend well beyond the Project boundary, and that the AA may extend up to ½ mile upstream and downstream from a Project (Berglund and McEldowney 2008) these sizes are often not the same as the size of the

wetlands within the Project. The estimated total wetland size as well as the size of the wetlands (acres) within each AA is depicted on the FA forms. Each AA within the Project is labeled on Map 1.

Habitat for federally listed or proposed threatened or endangered (T&E) plants or animals (14A.)

Based on wildlife inventories, MTNHP data requests, and a review of the U.S. Fish and Wildlife Service's (Service) Information, Planning, and Conservation System (IPaC) there are four species that are listed, proposed, or candidates for listing under the Endangered Species Act (ESA) that could occur in Meagher County: greater sage-grouse (*Centrocercus urophasianus*), Sprague's pipit (*Anthus spragueii*), whitebark pine (*Pinus albicaulis*), and Canada lynx (*Lynx canadensis*). Greater sage-grouse is a sagebrush obligate species. There is substantial sagebrush in the uplands within the Project area; however, there is no record of sage-grouse and Project wildlife surveys indicate that the species is unlikely to occur at the site (MTNHP 2014 and Farmer personal communication). Sprague's pipit is a small grassland-songbird species that breeds and nests primarily within shortgrass prairie although the species may also occur in alkaline meadows and wet meadows (NaturServe 2014). Although there are extensive wet meadows in the Project, there is no record of the species (MTNHP 2014) and local wildlife surveys have determined that it is unlikely Sprague's pipit utilizes the area (Farmer personal communication). Whitebark pine is a high elevation species that occurs on thin, rocky, cold soils at or near timberline (Flora of North America 1993). The Project area is below the elevation range of this species. Canada lynx is a wide-ranging species that typically occupies boreal or subalpine forests in the western United States and Canada as well as boreal/hardwood forests in the eastern United States and Canada; snowshoe hares are a key prey source for the species and suitable habitat with low hare populations typically do not support Canada lynx (USFWS 2015). Extensive subalpine forests are not present within the Project area and it is unlikely that Canada lynx utilize habitat within the Project (Farmer personal communication). Based on a lack of suitable habitat and/or a lack of MTNHP records of a species within the Project, as well as professional opinion, none of the assessed wetlands were considered usable habitat for federal T&E species for purposes of the FA.

Habitat for plants or animals rated S1, S2, or S3 by the Montana Natural Heritage Program (14B.)

Lists of plant and animal species of concern with documented or potential occurrences within the Project area were developed by obtaining MTNHP Element Occurrence records of Species of Concern in the Project area (MTNHP 2015). The compiled lists were cross-referenced with species of concern data from ongoing wildlife inventories and the wetland delineation (WESTECH 2015). MWAM methodology considers only listed, not potential, MTNHP species of concern. MTNHP S1, S2, or S3 animal species of concern documented or suspected in wetlands within the project area are listed in Table 2.0-2.

Table 2.0-2. MTNHP Animal Species of Concern Documented or Suspected in the Black Butte Copper Project Area Based on MTNHP (2015) Data

| Species | MTNHP Rank | Status / location within Project Area |
|---|------------|--|
| AMPHIBIANS | | |
| Western toad (<i>Anaxyrus boreas</i>) | S2 | Documented more than 2 miles upstream of Project within Sheep Creek drainage. Possibly occurring within Project area in larger wet meadows. Based on these data, western toad was rated as Suspected within AAs with larger wet meadows. |
| MAMMALS | | |
| Wolverine (<i>Gulo gulo</i>) | S3 | Potentially occurring throughout upper elevations of Meagher County. Although wolverines range widely, primary habitat is likely "large, mountainous, and essentially roadless areas." (Groves 1988). There are no local records of wolverine within the Project area and the species is unlikely to be present. |
| BIRDS | | |
| Cassin's finch (<i>Haemorhous cassinii</i>) | S3 | Documented in MTNHP database at large willow wetland complex within Sheep Creek Tributary 2. As riparian areas are not primary habitat for this species (Montana Field Guide 2015a), the AA encompassing this MTNHP record was rated as Secondary habitat for Cassin's finch. |
| Clark's nutcracker (<i>Nucifraga columbiana</i>) | S3 | Documented in MTNHP database at large willow wetland complex within Sheep Creek Tributary 2 and observed in Project area, although not within wetlands. As riparian areas are not primary habitat for this species (Montana Field Guide 2015b), the AA encompassing this MTNHP record was rated as Secondary habitat for Clark's nutcracker |
| Great Grey Owl (<i>Strix nebulosa</i>) | S3 | Observed within tributaries to Little Sheep Creek in the Southwest Minor Drainage AA. Since the small wetlands within the AA where the great grey owl was observed are relatively limited and support very few trees these areas were rated as Secondary habitat with respect to the species. |
| Long-billed curlew (<i>Numenius americanus</i>) | S3B | Documented in MTNHP database at large willow wetland complex within Sheep Creek Tributary 2. Similar to Cassin's finch and Clark's nutcracker, willow-dominated wetlands are not primary habitat for long-billed curlew (Montana Field Guide 2015c). The AA encompassing this MTNHP record was rated as Secondary habitat for the species. |
| FISH | | |
| Westslope cutthroat trout (<i>Oncorhynchus clarkii lewisi</i>) | S2 | Documented in MTNHP database within Sheep Creek and Black Butte Creek. Project fishery surveys have determined that westslope cutthroat are not present within the reach of Sheep Creek near the Project. Based on these data, westslope cutthroat were only considered to be present within Black Butte Creek as there were no data indicating otherwise. |

Sources: MTNHP 2015, Pat Farmer, pers. comm., Dave Stagliano, pers. comm.

One MTNHP plant species of concern, long-styled thistle (*Cirsium longistylum*, S2S3), was found within the Project area during the wetland delineation. Although the recorded specimens were only located in mesic (non-wetland) habitats, much of the wet meadow habitat surrounding Sheep Creek and Little Sheep Creek is a mosaic of wetland and mesic meadow. Consequently, it is possible that the species occurs within a wetland boundary somewhere in these two AAs. Habitat within the Sheep Creek and Little Sheep Creek AAs was rated as Primary, Documented habitat for long-styled thistle.

General wildlife habitat rating (14C.)

All sites were rated as having moderate wildlife usage, based on wildlife inventories (Pat Farmer pers. comm.) and field notes from WESTECH biologists during field surveys.

General fish habitat rating (14D.)

Information on fish species and use for Sheep Creek and Little Sheep Creek was obtained from Dave Stagliano based on surveys he directed in 2014 within these drainages. Fish habitat, including hiding, resting, and escape cover as well as water regime (permanent, seasonal, temporary) was based on observations during the wetland delineation as well as input from Mr. Stagliano.

Flood attenuation (14E.)

Per MWAM guidance, only wetlands with bed-bank morphology subject to in-channel or overbank flow were evaluated for this function.

Groundwater discharge/recharge (14J.)

All AA within the Project area contained some evidence of groundwater discharge and/or recharge. Numerous groundwater expressions, from small seeps to large springs, were observed during wetland delineation efforts.

Sediment/Shoreline Stabilization (14H.)

Similar to Flood Attenuation, only wetlands with bed-bank morphology that are subject to wave action via flowing water were evaluated for this function.

Uniqueness (14K.)

MTNHP maintains a list of Montana ecological communities (plant associations) with a rarity ranking system similar to that for individual species (MTNHP 2002) WESTECH wetland delineation field forms were consulted to determine if any AAs contain S1 or S2 plant communities, a factor in the uniqueness rating. No S1 or S2 plant communities were documented.

Rocky Mountain Subalpine-Montane Fens (fens) are relatively unusual wetlands within the Rocky Mountain ecosystem. Fens “are confined to specific environments defined by groundwater discharge, soil chemistry, and peat accumulation” (Montana Field Guide 2015d). A key indicator of fens is the presence of organic soils such as Histisols or Histic epipedons in combination with water chemistry and often, particular plant communities. Three areas with thick organic soils were recorded during the wetland delineation. Wetland W-SCT1-02 has organic soil thicker than 20 inches and was saturated to the surface. Two springs occur within the wetland and discharge water. Soils are soft and somewhat

“quaking” to walk on. Dominant vegetation is Nebraska sedge (*Carex nebrascensis*) and short-beaked sedge (*Carex simulata*). Organic soil thicker than 16 inches (the minimum for a Histosol) also occurs within wetland W-LS-11, which is dominated by beaked sedge (*Carex utriculata*). Soils within wetlands W-LST1-06 and W-SC-16 also contained organic soils although less than 16 inches thick. Wetland W-LST1-06 occurs within a beaked sedge/Bebb’s willow (*Salix bebbiana*) community while soils at wetland W-SC-16 were recorded on a plot that is a beaked sedge and creeping foxtail (*Alopecurus arundinaceus*) inclusion within a larger wet meadow that is hayed annually. Although water chemistry would have to be recorded to help confirm if fens are present at any of these sites, based on organic soil accumulation and floristic composition the two wetlands, W-SCT1-02 and W-LS-11 were rated as containing fens.

Recreation/Education Potential (14L.)

With two exceptions (Sheep Creek Wet Meadow AA and Upper Sheep Creek Shrub Wetlands AA) none of the AAs were rated as known recreation sites. All of the land within the project area is private, and while hunting occurs on the Project, it is unlikely that any hunting is focused directly on the wetlands themselves. Sheep Creek supports guided recreational fishing and was rated as a known recreational site. None of the AAs were rated for Education Potential because any such potential is speculative.

Function and value summary and overall rating for wetland/site.

Each site’s overall rating is derived by summing functional points from the functions assessed and dividing by total possible points to determine the percent of possible score achieved (Berglund and McEldowney 2008). Based on the rating the AA is assigned to one of four categories:

- Category I: exceptionally high quality wetlands, generally rare to uncommon in the state or important from a regulatory standpoint; includes any AA that is documented primary habitat for a federally listed T&E species
- Category II: more common wetlands than Category I; provide habitat for rare species and/or provide high-quality fish or wildlife habitat, and/or have high values for other wetland functions
- Category III: more common and generally less diverse wetlands than Categories I and II
- Category IV: generally small, isolated wetlands that lack vegetative diversity, provide little wildlife habitat, and are often anthropogenically disturbed.

In addition to the ratings, the evaluator indicates with an asterisk the four functions perceived as most prominent for the site, considering not only site-specific conditions but also adjacent land uses and the larger landscape setting.

3.0 RESULTS AND DISCUSSION

A total of 14 AA were rated. Appendix A contains the completed assessments for each AA the general locations of which are shown on the Wetland Delineation and Waterbody Survey Assessment Area Map (3 sheets). Photographs at each wetland plot are provided in Baseline Wetland Delineation and Waterbody Survey, Appendix D (WESTECH 2015) and generally illustrate conditions within each AA.

Table 3.0-1 summarizes the number of AA within each category.

Table 3.0-1. MWAM Wetland Rating by Assessment Area – Black Butte Project

| Assessment Area | Category Rating Number ¹ |
|--|-------------------------------------|
| Black Butte Creek Wetlands | II |
| Little Sheep Creek Wet Meadow | I |
| Little Sheep Creek Upper Wet Meadow | II |
| Little Sheep Creek Wetland/Upland Mosaic | II |
| Little Sheep Creek Tributary 1 | II |
| Little Sheep Creek Tributary 1 Minor Drainages | III |
| Little Sheep Creek Tributary 2 | III |
| Sheep Creek Wet Meadow | II |
| Sheep Creek Tributary 1 | III |
| Sheep Creek Tributary 2 | III |
| Sheep Creek Spring Tributary | I |
| Upper Sheep Creek Shrub Wetlands | II |
| Northwest Springs and Depressions | III |
| Southwest Minor Drainages | III |

¹ Category Rating Number per Montana Wetland Assessment Method (MWAM) (Berglund and McEldowney 2008). Categories are rated I to IV, with I the highest and IV the lowest.

Two AAs were rated Category I, Little Sheep Creek Wet Meadow and Sheep Creek Spring Tributary. Both of these AAs likely contain fens (wetlands W-LS-11 and W-SCT1-02 respectively), resulting in a high rating for Uniqueness. Both AAs also have high ratings for General Fish Habitat and Groundwater Discharge/Recharge, and contained documented or suspected habitat for MT Natural Heritage Program Species.

Six AAs were rated Category II. Important attributes of these AAs included: Groundwater Discharge/Recharge, Sediment/Nutrient/Toxicant Removal, Habitat for MT Natural Heritage Program Species, Sediment/Shoreline Stabilization, and in the case of AAs containing Sheep Creek, Recreational/Educational Potential due to the Sheep Creek fishery. The primary difference between Category I and II AAs is the probable fens within the Category I wetlands resulting in a higher total rating. One other AA, Little Sheep Creek Tributary 1, also may contain small fens within the overall wetlands but rated lower on other functions, primarily related to fish or rare species habitat, and thus scored a Category II.

Six AAs were rated Category III. These AAs differ from Category I and II AAs primarily in the extent of wetlands within the AA (Little Sheep Creek Tributary 1 Minor Drainages AA, Sheep Creek Tributary 1 AA, Northwest Springs and Depressions AA, and Southwest Minor Drainages AA), the lack of connection to other wetlands (Little Sheep Creek Tributary 2 and Northwest Springs and Depressions), and the general lack of consistent water or other habitat features. In general, the Category III wetlands appear to fit the concept of that category well: they are common types of wetlands in the region, are not notably diverse, and generally do not provide high-quality wildlife or fish habitat, yet they clearly provide greater functional values than a Category IV wetland. Two exceptions are the Little Sheep Creek Tributary 2 AA and the Sheep Creek Tributary 2 AA. Both of these AAs contain well-developed willow and herbaceous wetlands, numerous springs and seeps, and documented or suspected habitat for MT Natural Heritage Program Species. Both AAs scored a 61 percent, near the criterion of 65 percent to rate as a Category II wetland. The Little Sheep Creek Tributary 2 AA rated lower due to lack of connection to other wetlands as the water from this AA goes subsurface resulting in an upland barrier between this AA and the remainder of the Little Sheep Creek AAs. Consequently, this AA did not receive a score for General Fish Habitat or Flood Attenuation, and a low score for Export/Food Chain Support. The Sheep Creek Tributary 2 AA likewise did not receive a score for these functions as the stream is very minor and does not result in flooding or shoreline stabilization. Further, the stream is isolated from Sheep Creek by at least 2 culverts preventing fish passage into this AA.

In summary, a wetland delineation of the Project area was completed by WESTECH in August and September, 2014. Based on those data, as well as data from publicly-available sources and Project-specific surveys, wetlands within the Project were grouped into AA based on similar ecologic and hydrologic indicators. Each AA was rated according to the MWAM method for 12 wetland functions. A total of 14 AAs were rated. Two AAs rated Category I, the highest rating, while 6 AAs rated Category II and 6 AAs rated Category III. Wetland mitigation, should it be required on the Project, is higher in terms of mitigated acres and/or dollars for impacts within higher category wetlands. Avoiding impacts within Category I and II wetlands should result in lower mitigation requirements than impacts within Category III wetlands.

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Appendix A

MDT Montana Wetland Assessment Forms, Black Butte Project

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/18/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Black Butte Creek Wetlands
 6. **Wetland Location(s):** i. **Legal:** T12N, R06E, SW 1/4 of Sec 26; T12N, R06E, NW 1/4 Sec 35
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 100 acres (estimated)
b. Purpose of Evaluation: 9. **Assessment area (AA):** 35 acres (estimated)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| S | EM | NA | TE | 51 |
| R | SS | NA | SI | 47 |
| R | UB | NA | PP | 2 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 ABUNDANT

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Moderate to heavy livestock grazing evident in and around AA.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Minor amounts of musk thistle. Non-native upland grasses are common adjacent to AA.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Rangeland.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Mix of scrub-shrub and emergent wetlands.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations within AA.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Western toad (S);
 Secondary habitat (**list species**) Westslope cutthroat trout (S);
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): MTNHP Element Occurrence request and suspected habitat for species known to occur in area based on suitable habitat and records of species in Project area. Based on conversation with Dave Stagliano, westslope cutthroat might not be present in this reach despite EO record, hence Suspected, Secondary habitat.

14C. General Wildlife Habitat Rating:

i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) Class cover distribution (all vegetated classes) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | | | | | |
|------------------------------|---------------------------------------|--|------------|--|----------|--|-----|--|
| | Exceptional | | High | | Moderate | | Low | |
| Substantial | 1E | | .9H | | .8H | | .7M | |
| Moderate | .9H | | .7M | | .5M | | .3L | |
| Minimal | .6M | | .4M | | .2L | | .1L | |

Comments: Black Butte Creek as well as seeps/springs create surface water on at least 10% of AA.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Discussion with Dave Stagliano, fishery biologist on project. Note that FWP Tier 1 rating is suspect as westslope cutthroat unlikely per D. Stagliano.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: 1.0E Comments:

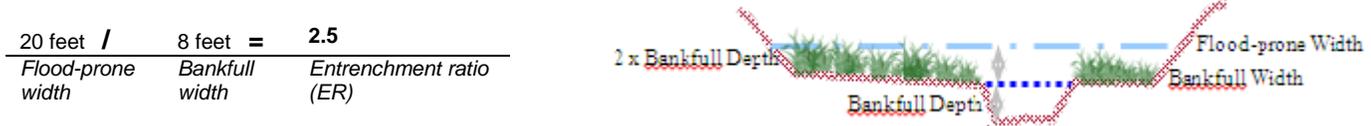
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 - 2.2 | | Entrenched ER = 1.0 - 1.4 | | |
|----------------------------------|---------------|---------------|--|--|------------------------------|---------------|---------------|
| C stream type | D stream type | E stream type | B stream type | | A stream type | F stream type | G stream type |
| | | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Flooding occurs primarily within the braided areas as opposed to an overall, overbank flooding. Beaver ponds downstream of project somewhat restrict the creek outlet and contribute to attenuation.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Ponding not within the project boundary, small beaver ponds occur downstream of project boundary but within AA.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor sediment and nutrient delivery from cattle use. Outlet somewhat restricted by beaver ponds which attenuate flows.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark ___ **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Primarily Salix bebbiana, Carex utriculata and Carex lasiocarpa.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **X** If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** Again, fish habitat rating likely inflated due to MTNHP record of westslope cutthroat which is suspect.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous spring/seeps occur within the project area portion of the AA as well as up and downstream of the project portion.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|--|--------|----------|---|--------|------------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Wetland type is relatively common, no fens or bogs.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Unlikely that hunting focuses on, or depends on, wetlands within the AA.

| General Site Notes |
|---|
| Willow-dominated wetland adjacent to Black Butte Creek with spring/seep wetlands upslope of the creek that create emergent wet meadows. Possible habitat for westslope cutthroat trout based on suspect MTNHP record. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Black Butte Creek Wetlands

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.7 | 1 | 24.50 | |
| C. General Wildlife Habitat | M | 0.7 | 1 | 24.50 | |
| D. General Fish Habitat | E | 1.0 | 1.0 | 35.00 | |
| E. Flood Attenuation | H | 1.0 | 1.0 | 35.00 | * |
| F. Short and Long Term Surface Water Storage | M | 0.4 | 1.0 | 14.00 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 1.0 | 1.0 | 35.00 | * |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 35.00 | * |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 35.00 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 35.00 | * |
| K. Uniqueness | L | 0.2 | 1 | 7.00 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 8.00 | 11.0 | 280.00 | |
| Percent of Possible Score | | | 73% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/31/14 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Wet Meadow
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, Section 32; T12N, R7E, Eastern half Section 31
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 125 acres (estimated)
 b. **Purpose of Evaluation:** 9. **Assessment area (AA):** 79 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | UB | NA | PP | 1 |
| S | SS | NA | SI | 71 |
| S | EM | NA | PP | 28 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 RARE

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Only disturbance is low to moderate cattle grazing.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle and Canada thistle are present in limited areas. Non-native grasses such as timothy are common in mesic transition zones.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Large wet meadow/mesic meadow complex.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Primarily beaked sedge and shrubby cinquefoil with very few, scattered willows.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Cirsium longistylum (S); Western toad (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Cirsium longistylum occurs in mesic transition area surrounding the AA and likely also occurs within AA if a more thorough search were completed. Western toad suspected based on MTNHP records nearby on Sheep Creek.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Class cover distribution (all vegetated classes) | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Duration of surface water in ≥ 10% of AA | | | | | | | | | | | | | | | | | | | | |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | |
|------------------------------|---------------------------------------|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Surface water primarily from springs, not Little Sheep Creek.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Fishery survey completed by Dave Stagliano

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii.a**.

iii. Final Score and Rating: 0.8H **Comments:** No documented spawning per Dave Stagliano in this reach of Little Sheep Creek.

14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

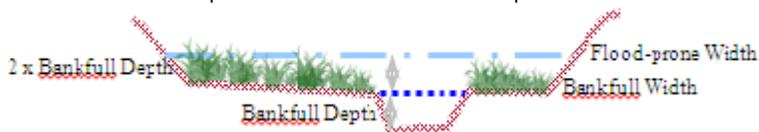
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{15}{6} = 2.5$$

Flood-prone width Bankfull width Entrenchment ratio (ER)



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | | Entrenched ER = 1.0 – 1.4 | | |
|----------------------------------|---------------|---------------|--|--|--|------------------------------|---------------|---------------|
| C stream type | D stream type | E stream type | B stream type | | | A stream type | F stream type | G stream type |
| | | | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Suspect that although Little Sheep Creek likely floods during runoff, flooding is minimal and water is relatively constant due to springs and seeps.

14F. **Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Water is perennial within Little Sheep Creek but is a very small component of the wetland. There are some other areas within the AA, such as springs, where surface water appears to be perennial.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor nutrient input from cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Somewhat misleading as the stream channel is so small relative to the wetland extent.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

| | |
|---|--|
| <p>i. Discharge Indicators</p> <p><u> X </u> The AA is a slope wetland</p> <p><u> X </u> Springs or seeps are known or observed</p> <p><u> </u> Vegetation growing during dormant season/drought</p> <p><u> X </u> Wetland occurs at the toe of a natural slope</p> <p><u> X </u> Seeps are present at the wetland edge</p> <p><u> </u> AA permanently flooded during drought periods</p> <p><u> </u> Wetland contains an outlet, but no inlet</p> <p><u> X </u> Shallow water table and the site is saturated to the surface</p> <p><u> </u> Other:</p> | <p>ii. Recharge Indicators</p> <p><u> X </u> Permeable substrate present without underlying impeding layer</p> <p><u> </u> Wetland contains inlet but no outlet</p> <p><u> </u> Stream is a known 'losing' stream; discharge volume decreases</p> <p><u> </u> Other:</p> |
|---|--|

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs and seeps.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|--|--------|----------|---|--------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Some PEM within AA have organic, sapric peat soils greater than 15 inches thick. Although water chemistry was not sampled, suspect that small fens occur as a mosaic within the wetland.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting or other recreation would not focus, or depend on, the wetlands.

General Site Notes

Large herbaceous/shrub mosaic wetland with what are likely small fens dominated by *Carex utriculata* interspersed where organic soils are greater than 15 inches thick. Numerous springs and seeps within AA.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Wet Meadow

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.7 | 1 | 55.30 | * |
| C. General Wildlife Habitat | M | 0.7 | 1 | 55.30 | |
| D. General Fish Habitat | H | 0.8 | 1.0 | 63.20 | |
| E. Flood Attenuation | H | 1.0 | 1.0 | 79.00 | |
| F. Short and Long Term Surface Water Storage | H | 1.0 | 1.0 | 79.00 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 71.10 | * |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 79.00 | |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 79.00 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 79.00 | * |
| K. Uniqueness | H | 0.9 | 1 | 71.10 | * |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 9.00 | 11.0 | 711.00 | |
| Percent of Possible Score | | | 82% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #:
 3. **Evaluation Date:** 12/31/14 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Upper Wet Meadow
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, SW 1/4 Section 31;
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** **8. Wetland size:** 125 acres (estimated)
b. Purpose of Evaluation: **9. Assessment area (AA):** 11 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | UB | NA | PP | 1 |
| S | SS | NA | SI | 37 |
| S | EM | NA | SI | 62 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Minor to moderate cattle grazing.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk and bull thistle are common on wetland margins. Timothy and other non-native grasses common in mesic areas.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Herbaceous/shrub wetland complex along Little Sheep Creek but less extensive than large wet meadow downstream and does not appear to contain any fens.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Primarily beaked sedge and shrubby cinquefoil with very scattered willows.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Cirsium longistylum (S); Western toad (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Suspect that Cirsium longistylum occurs within AA as this species was found in similar environments on the project. Also suspect that western toad occurs within AA as it was found in similar habitat on Sheep Creek per MTNHP records.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | |
|-------------------------------------|--|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Permanent water in >10% of AA from seeps and springs, this water is not "open water" but is available to wildlife.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Fish survey completed by Dave Stagliano.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: 0.8H **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

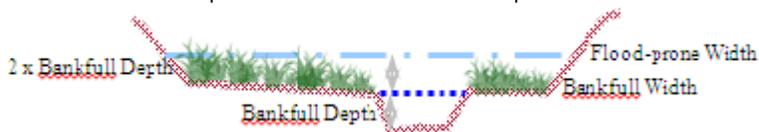
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|------------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{10 \text{ feet } / \text{ Flood-prone width}}{4 = \text{ Bankfull width}} = \frac{2.5}{\text{ Entrenchment ratio (ER)}}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Although it is likely that the creek floods, extensive out-of-bank flow is unlikely.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Surface water is permanent within Little Sheep Creek and also behind old beaver dams.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor input from cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Rates high due to criteria, but in reality the stream is a minor component of the AA.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **X** If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs and seeps.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Although organic soils are present, they are quite a bit less than 15 inches thick.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting or other recreation would not focus, or depend on, the wetlands within the AA.

| General Site Notes |
|--|
| Relatively undisturbed wetland complex at upper end of Little Sheep Creek. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Upper Wet Meadow

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|--|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.7 | 1 | 7.70 | * |
| C. General Wildlife Habitat | M | 0.7 | 1 | 7.70 | |
| D. General Fish Habitat | H | 0.8 | 1.0 | 8.80 | |
| E. Flood Attenuation | H | 0.8 | 1.0 | 8.80 | |
| F. Short and Long Term Surface Water Storage | H | 0.8 | 1.0 | 8.80 | * |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 9.90 | * |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 11.00 | |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 11.00 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 11.00 | * |
| K. Uniqueness | L | 0.3 | 1 | 3.30 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 8.00 | 11.0 | 88.00 | |
| Percent of Possible Score | | | 73% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/30/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Wetland/Upland Mosaic
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, SE 1/4 Section 30; T12N, R7E, SW 1/4 Section 29
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 100 acres (estimated)
 b. **Purpose of Evaluation:** 9. **Assessment area (AA):** 41 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | UB | NA | PP | 3 |
| S | EM | NA | SI | 76 |
| S | SS | NA | SI | 20 |
| D | UB | E | PP | 1 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 ABUNDANT

12. **General condition of AA:**
 i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Cattle grazing in some areas. Small gravel road with two culverts has been constructed through wetland. Small excavated area now with standing water/pond.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Substantial musk and Canada thistle populations in adjacent uplands and within portions of wetland.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Wetland/upland mosaic with boundary between wetland and mesic meadow very indistinct in places. Little Sheep Creek flows through AA but majority of wetlands are from surrounding seeps and springs.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Primary emergent with some shrubby cinquefoil and willow shrub wetlands.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Long-styled thistle (D);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Documented in mesic habitat near a wetland within this AA, likely also occurs within a wetland boundary.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | |
|-------------------------------------|--|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Surface water is primarily from water within springs and seeps, not necessarily "open water" but available for wildlife.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Fish survey completed by Dave Stagliano.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in **i** above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? X If yes, add 0.1 to the adjusted score in **i** or **ii**.

iii. Final Score and Rating: 0.9H **Comments:** Documented spawning habitat per Dave Stagliano.

14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|------------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{15 \text{ feet / Flood-prone width}}{6 \text{ feet / Bankfull width}} = \frac{2.5}{1} = 2.5 \text{ Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|--|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | | A stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Probably minimal flooding within this area as it is mostly spring fed.

14F. **Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: See previous comments.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor input from cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Little Sheep Creek banks are typically very stable within AA.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs and seeps within this AA.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|--------|------------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: No evidence of a fen within this AA.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Unlikely that Little Sheep Creek is used for public or private fishing.

General Site Notes

Wetland boundaries abut mesic areas, the wetland/upland boundaries are often indistinct. Surveyors estimated that approximately 5 % of the area within the delineated wetland was upland. Very small pockets of wetland also occur within the uplands but were estimated to account for less than 1 % of upland area.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Wetland/Upland Mosaic

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | H | 0.9 | 1 | 36.90 | * |
| C. General Wildlife Habitat | M | 0.7 | 1 | 28.70 | |
| D. General Fish Habitat | H | 0.9 | 1.0 | 36.90 | * |
| E. Flood Attenuation | H | 0.8 | 1.0 | 32.80 | |
| F. Short and Long Term Surface Water Storage | M | 0.4 | 1.0 | 16.40 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 36.90 | * |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 41.00 | |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 41.00 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 41.00 | * |
| K. Uniqueness | L | 0.2 | 1 | 8.20 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 7.80 | 11.0 | 319.80 | |
| Percent of Possible Score | | | 71% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
 Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
 Score of 1 functional point for Uniqueness; **or**
 Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
 Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**
 Score of .9 or 1 functional point for General Fish Habitat; **or**
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
 Score of .9 functional point for Uniqueness; **or**
 Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
 "Low" rating for Uniqueness; **and**
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/31/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Tributary 1
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, Southern 1/2 Section 30; T12N, R7E, NW 1/4 Section 31
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 13 acres (measured)
 b. **Purpose of Evaluation:** 9. **Assessment area (AA):** 13 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | UB | NA | PP | 1 |
| S | EM | NA | SI | 51 |
| S | SS | NA | SI | 48 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. **General condition of AA:**
 i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Minor cattle grazing.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle is very dense at lower end of AA. Musk thistle and bull thistle are scattered adjacent to wetlands throughout remainder of AA. Non-native grasses, such as Kentucky bluegrass, are common.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Mosaic of herbaceous, shrubby cinquefoil, and willow wetlands, similar to Little Sheep Creek Tributary 2 but this tributary connects to Little Sheep Creek.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Only two classes but shrub component divided between shrubby cinquefoil and willow.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented observations or records of T&E.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Western toad (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Potential habitat for western toad based on nearby MTNHP record.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) Class cover distribution (all vegetated classes) | High | | | | | | | | Moderate | | | | | | | | Low | | | | | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|-----|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | | | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | |
|------------------------------|---------------------------------------|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Shrub component divided between cinquefoil and willows, but Cowardin classes are Even.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Dave Stagliano

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in **i** above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in **i** or **ii**.

iii. Final Score and Rating: 0.5M **Comments:** Non-game fish, such as Rocky Mountain sculpin, likely. Possibly limited use by rainbow or brook trout.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{8 \text{ feet}}{\text{Flood-prone width}} / \frac{5 \text{ feet}}{\text{Bankfull width}} = \frac{1.6}{\text{Entrenchment ratio (ER)}}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | Entrenched ER = 1.0 – 1.4 | | |
|----------------------------------|---------------|---------------|--|------------------------------|---------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Unlikely this small stream floods very much.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Minimal storage due to flooding, most open water is from seeps and springs.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor input from cattle. Ponding is very minimal but likely present in the spring.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Highly stable bank but stream is so small that stabilization is a minor factor.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|------------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.9H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs and seeps.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|------------|----------|--|--------|----------|---|--------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Organic peat soils were documented at 12.5 inches thick within one soil pit. Surveyors suspected that small fens occur within the wetland AA.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting or other recreation would not depend on, or focus on, the wetlands within the AA.

| General Site Notes |
|---|
| Mosaic of herbaceous and shrub wetlands with probable small fens. Groundwater is primary hydrology, not the stream channel. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Tributary 1

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.7 | 1 | 9.10 | |
| C. General Wildlife Habitat | M | 0.7 | 1 | 9.10 | |
| D. General Fish Habitat | M | 0.5 | 1.0 | 6.50 | |
| E. Flood Attenuation | M | 0.6 | 1.0 | 7.80 | |
| F. Short and Long Term Surface Water Storage | L | 0.3 | 1.0 | 3.90 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 11.70 | * |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 13.00 | |
| I. Production Export/Food Chain Support | H | 0.9 | 1 | 11.70 | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 13.00 | * |
| K. Uniqueness | H | 0.8 | 1 | 10.40 | * |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 7.40 | 11.0 | 96.20 | |
| Percent of Possible Score | | | 67% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/31/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Tributary 1 Minor Drainages

6. **Wetland Location(s):** i. **Legal:** T12N, R6E, NW 1/4 Section 36;
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 15 acres (measured)

b. Purpose of Evaluation:

1. Wetlands potentially affected by MDT project
2. Mitigation wetlands; pre-construction
3. Mitigation wetlands; post-construction
4. Other: Ecological evaluation

9. **Assessment area (AA):** 1.8 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | EM | NA | SI | 90 |
| R | EM | NA | TE | 3 |
| S | EM | NA | SI | 7 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)

HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);

Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)

Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)

Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Wetlands and surrounding uplands relatively heavily grazed. Past logging evident.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Substantial populations of musk thistle within drainages.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Small drainages with associated seep wetlands.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Not a monoculture but very similar vegetation in this AA.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented observations or records.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Unlikely this is habitat for and S species.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| <i>Structural diversity (see #13)</i> | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|----------|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | | | | | | | | | | | | | | | | | | | | |
| <i>Duration of surface water in ≥ 10% of AA</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | | | | | |
|-------------------------------------|--|--|------|--|------------|--|-----|--|
| | Exceptional | | High | | Moderate | | Low | |
| Substantial | 1E | | .9H | | .8H | | .7M | |
| Moderate | .9H | | .7M | | .5M | | .3L | |
| Minimal | .6M | | .4M | | .2L | | .1L | |

Comments: Typical of upper drainages in this area. Surface water present but probably <10% of area.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: NA **Comments:** Water is too inconsistent to support fish.

14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:** No real flooding, too high in the drainage.

14F. **Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: All water flows through.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Nutrient input from cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: No real shoreline to speak of, intermittent channels.

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|------------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **X** If yes, add 0.1 to the score in ii above.

iv. **Final Score and Rating: 0.8H** **Comments:** Probable that surface water is present year round in limited amounts.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

- | | |
|--|---|
| <p>i. Discharge Indicators</p> <p><input checked="" type="checkbox"/> The AA is a slope wetland</p> <p><input checked="" type="checkbox"/> Springs or seeps are known or observed</p> <p><input type="checkbox"/> Vegetation growing during dormant season/drought</p> <p><input type="checkbox"/> Wetland occurs at the toe of a natural slope</p> <p><input checked="" type="checkbox"/> Seeps are present at the wetland edge</p> <p><input type="checkbox"/> AA permanently flooded during drought periods</p> <p><input type="checkbox"/> Wetland contains an outlet, but no inlet</p> <p><input type="checkbox"/> Shallow water table and the site is saturated to the surface</p> <p><input type="checkbox"/> Other:</p> | <p>ii. Recharge Indicators</p> <p><input type="checkbox"/> Permeable substrate present without underlying impeding layer</p> <p><input type="checkbox"/> Wetland contains inlet but no outlet</p> <p><input type="checkbox"/> Stream is a known 'losing' stream; discharge volume decreases</p> <p><input type="checkbox"/> Other:</p> |
|--|---|

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Very small portion of AA with permanent saturation.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Typical of minor headwaters.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: No reason to believe any recreation would focus on the wetlands within AA.

| General Site Notes |
|--|
| Minimal wetlands present, minimal surface water and saturation. Relatively high disturbance from cattle use. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Tributary 1 Minor Drainages

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | L | 0.0 | 1 | 0.00 | |
| C. General Wildlife Habitat | M | 0.5 | 1 | 0.90 | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | M | 0.7 | 1.0 | 1.26 | * |
| H. Sediment/Shoreline Stabilization | NA | | | | |
| I. Production Export/Food Chain Support | H | 0.8 | 1 | 1.44 | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 1.80 | * |
| K. Uniqueness | L | 0.2 | 1 | 0.36 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 3.20 | 7.0 | 5.76 | |
| Percent of Possible Score | | | 46% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/31/14 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Little Sheep Creek Tributary 2
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, NW 1/4 Section 32; T12N, R7E, NE 1/4 Section 31
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 13 acres (measured)
b. Purpose of Evaluation: 9. **Assessment area (AA):** 13 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| S | SS | NA | SI | 64 |
| S | EM | NA | SI | 34 |
| S | EM | NA | PP | 2 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Minor to moderate grazing by cattle.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle common in adjacent uplands. Non-native grasses such as timothy and Kentucky bluegrass common.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Two areas of wetland that are created by springs. Water goes subsurface before connecting to Little Sheep Creek wet meadow.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Although only two classes, somewhat more diverse than other AA as there is about equal cover of shrubby cinquefoil (36% of AA), willow (28% of AA), and herbaceous wetlands (32% of AA). Consequently, will rate habitat as Even within wildlife habitat section.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Western toad (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Possible habitat for western toad based on MTNHP record on Sheep Creek.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| <i>Structural diversity (see #13)</i> | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | | | | | | | | | | | | | | | | | | | | |
| <i>Duration of surface water in ≥ 10% of AA</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | | | | | |
|-------------------------------------|--|--|------------|--|----------|--|-----|--|
| | Exceptional | | High | | Moderate | | Low | |
| Substantial | 1E | | .9H | | .8H | | .7M | |
| Moderate | .9H | | .7M | | .5M | | .3L | |
| Minimal | .6M | | .4M | | .2L | | .1L | |

Comments: Habitat is even among shrubby cinquefoil, willow, and herbaceous vegetation but not among Cowardin types. Water present in >10% of AA but not flowing or standing, however it is available for wildlife per the criteria.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|--|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

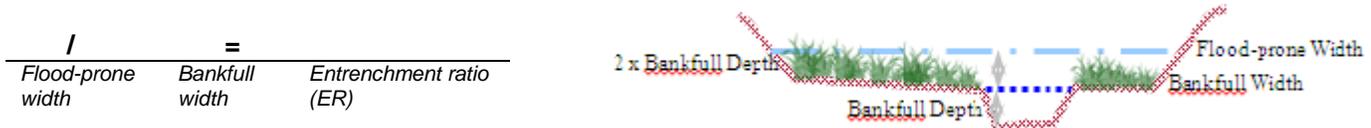
iii. Final Score and Rating: NA Comments:

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:**

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|------------|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Some minor ponding from springs occurs and was observed during field survey work.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor input from cattle. No outlet as water goes subsurface prior to Little Sheep Creek wet meadow.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark X **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: No stream or shoreline present. Some braided/hummucky channels from spring flow but does not fit the intent of this variable.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|------------|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.6M **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs and seeps.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: No soil pits with >15 inches of organic matter where observed.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting or other recreation would not focus, or depend on, the wetlands within this AA.

General Site Notes

Series of seeps and springs that form well-developed shrub and emergent wetlands. Water goes subsurface prior to reach Little Sheep Creek and this AA is separated by uplands from wetlands within the Little Sheep Creek AAs. High Category III wetland.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Little Sheep Creek Tributary 2

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.7 | 1 | 9.10 | * |
| C. General Wildlife Habitat | M | 0.7 | 1 | 9.10 | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | M | 0.6 | 1.0 | 7.80 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 1.0 | 1.0 | 13.00 | * |
| H. Sediment/Shoreline Stabilization | NA | | | | |
| I. Production Export/Food Chain Support | M | 0.6 | 1 | 7.80 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 13.00 | * |
| K. Uniqueness | L | 0.3 | 1 | 3.90 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 4.90 | 8.0 | 63.70 | |
| Percent of Possible Score | | | 61% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/30/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Sheep Creek Wet Meadow
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, NW 1/4 Section 30; T12N, R7E, SW 1/4 Section 19
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 200 acres (estimated)
 b. **Purpose of Evaluation:** 9. **Assessment area (AA):** 160 acres (estimated)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | SS | NA | PP | 30 |
| S | SS | NA | SI | 19 |
| S | EM | NA | SI | 51 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): The emergent wetland portion of the AA is cut for hay. A gravel road bisects the eastern end of the wetland and crosses Sheep Creek, but otherwise there is very little disturbance within the willow and shrubby cinquefoil portion of wetland in the AA.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle, substantial non-native grasses such as timothy within portions of the wetland.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Large wetland complex adjacent to Sheep Creek. Substantial willow component. Most of herbaceous vegetation is cut for hay annually. The boundary between wetland and mesic meadow is often very subtle and difficult to discern.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Well-developed willow wetland along Sheep Creek.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented observations or records of T&E.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Long-styled thistle (D); Western toad (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Long-styled thistle (*Cirsium longistylum*) was documented during the wetland delineation within the mesic borders of the Sheep Creek and Little Sheep Creek wet meadows. It is likely that the species occurs within these wetlands as well. Western toad is known from about 2 miles upstream along Sheep Creek.

14C. General Wildlife Habitat Rating:

i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) Class cover distribution (all vegetated classes) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | | | | | |
|------------------------------|---------------------------------------|--|------------|--|----------|--|-----|--|
| | Exceptional | | High | | Moderate | | Low | |
| Substantial | 1E | | .9H | | .8H | | .7M | |
| Moderate | .9H | | .7M | | .5M | | .3L | |
| Minimal | .6M | | .4M | | .2L | | .1L | |

Comments: Water primarily within Sheep Creek but also in seeps and springs in the wet meadow.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Fish survey results from Dave Stagliano, note that westslope cutthroat trout is noted in Sheep Creek by the MTNHP but was determined to be absent by Mr. Stagliano.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? X If yes, add 0.1 to the adjusted score in i or *ia*.

iii. Final Score and Rating: 0.9H **Comments:** Good coldwater fishery and habitat.

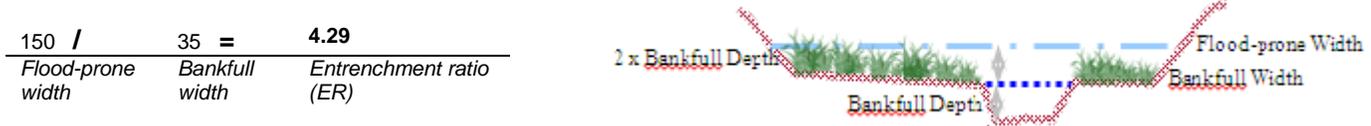
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|------------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



$$\frac{150}{35} = 4.29$$

Flood-prone width Bankfull width Entrenchment ratio (ER)

| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Sheep Creek likely floods into oxbows and back channels annually. Other water is from springs and seeps.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Duration of surface water at wetlands within the AA | | | | | | | | | |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Several oxbows and low points would retain flood waters.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Input from cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark ___ **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Most vegetation along the shoreline is willow or sedge dominated.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** Although the meadow is hayed annually, there is likely >75% of the AA circumference that is not.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Several springs at foot of slope in addition to water from Sheep Creek.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|--|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: No fens were observed within the portion of the AA that is within the Project. It is possible, but speculative, that fens occur in the wetlands east of the Project boundary.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) X (if 'Yes' continue with the evaluation; if 'No' then mark **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; X Consumptive rec.; X Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|------------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Sheep Creek is fished by an outfitter and clients.

General Site Notes

Large wetland complex adjacent to Sheep Creek. Water source is the creek as well as numerous springs/seeps. The boundary between the wetland and mesic meadow in this AA is often subtle and difficult to discern. Surveyors estimated that up to 5% of the area within the Sheep Creek Wet Meadow AA was upland inclusion, and that about 1% of the upland area contained wetlands that were too small to map.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Sheep Creek Wet Meadow

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | H | 0.9 | 1 | 144.00 | |
| C. General Wildlife Habitat | M | 0.7 | 1 | 112.00 | |
| D. General Fish Habitat | H | 0.9 | 1.0 | 144.00 | * |
| E. Flood Attenuation | H | 0.8 | 1.0 | 128.00 | |
| F. Short and Long Term Surface Water Storage | H | 1.0 | 1.0 | 160.00 | * |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 144.00 | |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 160.00 | * |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 160.00 | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 160.00 | |
| K. Uniqueness | L | 0.3 | 1 | 48.00 | |
| L. Recreation/Education Potential (bonus points) | M | 0.10 | NA | 16.00 | |
| Totals: | | 8.60 | 11.0 | 1376.00 | |
| Percent of Possible Score | | | 78% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/30/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Sheep Creek Tributary 1
 6. **Wetland Location(s):** i. **Legal:** T12N, R6E, Southern 1/2 Section 24; T12N, R6E, Southeast 1/4 Section 23
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 4.7 acres (measured)
b. Purpose of Evaluation: 9. **Assessment area (AA):** 4.7 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | EM | NA | PP | 45 |
| S | EM | NA | PP | 10 |
| R | FO | NA | PP | 40 |
| R | SS | NA | PP | 5 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Moderate grazing.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle common in area.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Small, spring-fed wetlands primarily along narrow channel but also includes seep/spring at uphill water source. Surrounding upland is forested or rangeland.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Combination of Engelmann spruce and Bebb's willow wetland with emergent components at spring heads.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations of T&E species.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Records of S3 species are within tributary south of this site. Although S species could be present, any use is entirely speculative.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Class cover distribution (all vegetated classes) | | | | | | | | | | | | | | | | | | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | | | | | | | | | | | | | |
|------------------------------|---------------------------------------|--|--|--|------------|--|--|--|----------|--|--|--|-----|--|--|--|
| | Exceptional | | | | High | | | | Moderate | | | | Low | | | |
| Substantial | 1E | | | | .9H | | | | .8H | | | | .7M | | | |
| Moderate | .9H | | | | .7M | | | | .5M | | | | .3L | | | |
| Minimal | .6M | | | | .4M | | | | .2L | | | | .1L | | | |

Comments: Typical of general wildlife habitat in area. Forested wetland not substantially different from surrounding creeks and upland forest.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: NA **Comments:** Highly unlikely fish are within this small creek.

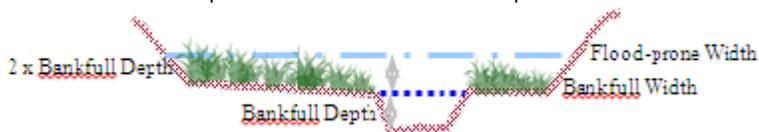
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:** Spring flow likely constant. Flooding unlikely.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Duration of surface water at wetlands within the AA | | | | | | | | | |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: See previous comment.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Source of nutrients is cattle.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark X **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Stream flow is too minor to be applicable to this function.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|------------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.9H Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

- | | |
|---|---|
| <p>i. Discharge Indicators</p> <p><input checked="" type="checkbox"/> The AA is a slope wetland</p> <p><input checked="" type="checkbox"/> Springs or seeps are known or observed</p> <p><input type="checkbox"/> Vegetation growing during dormant season/drought</p> <p><input checked="" type="checkbox"/> Wetland occurs at the toe of a natural slope</p> <p><input checked="" type="checkbox"/> Seeps are present at the wetland edge</p> <p><input type="checkbox"/> AA permanently flooded during drought periods</p> <p><input type="checkbox"/> Wetland contains an outlet, but no inlet</p> <p><input type="checkbox"/> Shallow water table and the site is saturated to the surface</p> <p><input type="checkbox"/> Other:</p> | <p>ii. Recharge Indicators</p> <p><input type="checkbox"/> Permeable substrate present without underlying impeding layer</p> <p><input type="checkbox"/> Wetland contains inlet but no outlet</p> <p><input type="checkbox"/> Stream is a known 'losing' stream; discharge volume decreases</p> <p><input type="checkbox"/> Other:</p> |
|---|---|

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Relatively large spring at head of drainage and several smaller seeps.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|------------|----------|---|--------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Age of Engelmann spruce is estimated to be less than 80 years old. Does not fit the concept of a mature, forested wetland.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting is not focused on, or dependent on, wetlands within the AA.

General Site Notes

Water originates at relatively large spring then flows through very small willow section before turning into a fairly small channel. Channel continues along base of slope where several small seeps are present within the Engelmann spruce wetland. Channel then because very restricted with a minor emergent wetland component.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Sheep Creek Tributary 1

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | L | 0.0 | 1 | 0.00 | |
| C. General Wildlife Habitat | M | 0.7 | 1 | 3.29 | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | M | 0.7 | 1.0 | 3.29 | * |
| H. Sediment/Shoreline Stabilization | NA | | | | |
| I. Production Export/Food Chain Support | H | 0.9 | 1 | 4.23 | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 4.70 | * |
| K. Uniqueness | M | 0.5 | 1 | 2.35 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 3.80 | 7.0 | 17.86 | |
| Percent of Possible Score | | | 54% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- _____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- _____ Score of 1 functional point for Uniqueness; **or**
- _____ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- _____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- _____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- _____ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- _____ Score of .9 or 1 functional point for General Fish Habitat; **or**
- _____ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- _____ Score of .9 functional point for Uniqueness; **or**
- _____ Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- _____ "Low" rating for Uniqueness; **and**
- _____ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- _____ Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/30/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Sheep Creek Tributary 2
 6. **Wetland Location(s):** i. **Legal:** T12N, R6E, Section 25;
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 18.3 acres (measured)
b. Purpose of Evaluation: 9. **Assessment area (AA):** 18.3 acres (measured)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | SS | NA | SI | 5 |
| S | SS | NA | SI | 91 |
| S | EM | NA | SI | 4 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Moderate cattle use.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle is common in uplands.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Predominately palustrine scrub-shrub wetland that heads at a spring complex and then follows narrow drainage to Sheep Creek.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Combination of willow, shrubby cinquefoil, and emergent wetlands.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No records or observations of use by T&E.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**) Cassin's finch (D); Clarks' nutcracker (D); Long-billed curlew (D);
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): MTNHP records of Cassin's finch, long-billed curlew, and Clark's nutcracker in this area. As willow wetlands are not primary habitat for any of these species, all habitat was rated as Secondary, Documented.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Class cover distribution (all vegetated classes) | | | | | | | | | | | | | | | | | | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | |
|------------------------------|---------------------------------------|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Permanent water from springs and seeps estimated at greater than 10% although much of this would not be classified as "open water" but is available to wildlife.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|--|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| Thermal cover optimal / suboptimal | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: NA **Comments:** Highly unlikely that this tributary supports fish as it is extremely restricted by a corral and culvert at the downstream end.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

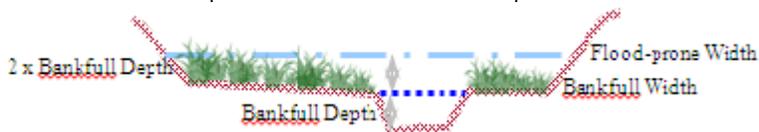
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | Entrenched ER = 1.0 – 1.4 | | |
|----------------------------------|---------------|---------------|--|------------------------------|---------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:** Water within this channel is not likely to flood as springs are probably relatively constant.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Duration of surface water at wetlands within the AA | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: See previous comment.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Moderate nutrient input by cattle. Outlet restricted by culvert and corral at road.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark X **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Water is constant within this stream and likely too minimal to result in measurable wave action on a shoreline.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|------------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.9H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Several relatively large springs within this AA.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Fens not suspected at this site.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting in the area would not depend, or focus, on the wetlands within the AA.

General Site Notes

Relatively large willow-dominated wetland/spring complex. Almost rates a Category II which is consistent with observations at the site.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Sheep Creek Tributary 2

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | M | 0.6 | 1 | 10.98 | * |
| C. General Wildlife Habitat | M | 0.7 | 1 | 12.81 | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.8 | 1.0 | 14.64 | * |
| H. Sediment/Shoreline Stabilization | NA | | | | |
| I. Production Export/Food Chain Support | H | 0.9 | 1 | 16.47 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 18.30 | * |
| K. Uniqueness | L | 0.3 | 1 | 5.49 | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 4.30 | 7.0 | 78.69 | |
| Percent of Possible Score | | | 61% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/30/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Sheep Creek Spring Tributary

6. **Wetland Location(s):** i. **Legal:** T12N, R7E, SW 1/4 Section 19;
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** 80 acres (estimated)
b. Purpose of Evaluation: 9. **Assessment area (AA):** 20 acres (estimated)

1. Wetlands potentially affected by MDT project
2. Mitigation wetlands; pre-construction
3. Mitigation wetlands; post-construction
4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| S | SS | NA | PP | 53 |
| S | EM | NA | PP | 44 |
| R | SS | NA | PP | 3 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 RARE

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Minimal cattle grazing.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** None in immediate vicinity.
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Shrub/herbaceous wetland complex. Appears to be fenced out of any use by cattle. Upland is mostly ungrazed rough fescue or non-native hay grasses, such as timothy.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Mature willow wetland complex with areas of emergent, herbaceous vegetation.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented records or observations.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Fen-associated species. (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): AA contains a quaking fen that likely contains S1 or S2 vascular or non-vascular plant species if a thorough survey were conducted.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

- ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Class cover distribution (all vegetated classes) | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Duration of surface water in ≥ 10% of AA | | | | | | | | | | | | | | | | | | | | |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | |
|------------------------------|---------------------------------------|------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Similar to other areas within project for wildlife habitat, although the shrub/herbaceous component is more even than is typical.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Dave Stagliano.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: 0.9H **Comments:** Although the creek that flows out of the AA to Sheep Creek is very small, it is spring-fed and likely provides excellent water quality (via temperature primarily) to Sheep Creek and may provide critical spawning habitat in the lower pools.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User’s Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | Entrenched ER = 1.0 – 1.4 | | |
|----------------------------------|---------------|---------------|--|------------------------------|---------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Flooding unlikely as springs appear to be constant.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Duration of surface water at wetlands within the AA | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: No evidence of flooding or ponding beyond what is present from spring flow.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Cattle appear to be fenced out of this wetland complex although they may be present further upstream within the AA.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Shoreline highly stable.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|---|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous springs with substantial flow immediately upon exiting the ground.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|---|---|--------|----------|--|--------|----------|--|--------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Estimated relative abundance (#11) | | | | | | | | | |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: This AA appears to contain a quaking fen (see wetland W-SCT1-02). Organic, saturated soils present that are more than 20 inches thick. Two springs present within site that saturate soil to the point where it is spongy or quaky to walk on. Relatively depauperate vegetation community but could contain rare species if a thorough search were completed, particularly mosses.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting is not dependent, or focused on, wetlands in this area.

| General Site Notes |
|--|
| Very interesting wetland complex. Numerous large springs discharge within the AA. Quaking fen present in approximate center of AA. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Sheep Creek Spring Tributary

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | H | 0.8 | 1 | 16.00 | |
| C. General Wildlife Habitat | H | 0.9 | 1 | 18.00 | |
| D. General Fish Habitat | H | 0.9 | 1.0 | 18.00 | * |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | M | 0.7 | 1.0 | 14.00 | |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 20.00 | |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 20.00 | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 20.00 | * |
| K. Uniqueness | H | 1.0 | 1 | 20.00 | * |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 7.30 | 9.0 | 146.00 | |
| Percent of Possible Score | | | 81% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: I

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #:
 3. **Evaluation Date:** 1/15/2015 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Upper Sheep Creek Shrub Wetlands
 6. **Wetland Location(s):** i. **Legal:** T12N, R7E, SW 1/4 of Sec 29;
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** **8. Wetland size:** 200 acres (estimated)
b. Purpose of Evaluation: **9. Assessment area (AA):** 50 acres (estimated)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| R | UB | NA | PP | 3 |
| R | SS | NA | PP | 10 |
| S | SS | NA | SI | 58 |
| S | EM | NA | SI | 29 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Minor cattle grazing on uplands and within seep wetlands.
 ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle and Canada thistle in limited quantities
 iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Segment of Sheep Creek within northeast corner of Project and separated by about 1 mile from Sheep Creek Wet Meadows. Primarily willow PSS wetland with some emergent, sedge-dominated wetland. Hillside spring and springs at toeslope adjacent to creek.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Willow complex (see wetland form) interspersed with emergent wetland community.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No documented or suspected use by T&E.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**) Western toad (S); Long-styled thistle (S);
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Western toad suspected based on nearby MTNHP record. Long-style thistle suspected in AA based on nearby observations during wetland delineation.

14C. General Wildlife Habitat Rating:

i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | |
|-------------------------------------|--|------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Moderate use similar to other areas in Project.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) X Warm Water (WW) Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA: Dave Stagliano fish survey work.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? If yes, reduce score in **i** above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? If yes, add 0.1 to the adjusted score in **i** or **ii**.

iii. Final Score and Rating: 0.9H **Comments:** Good fish habitat within Sheep Creek.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{35}{15} = 2.33$$

Flood-prone width Bankfull width Entrenchment ratio (ER)



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|--|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | | A stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Comments:** Unlikely that there is extensive flooding although groundwater may be higher in the spring and "flood" areas.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: See previous.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|-----|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Nutrient input from cattle use.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Primarily willows and sedges adjacent to Sheep Creek.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|---|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|----------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 1.0H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

| | |
|---|--|
| <p>i. Discharge Indicators</p> <p><u> X </u> The AA is a slope wetland</p> <p><u> X </u> Springs or seeps are known or observed</p> <p><u> </u> Vegetation growing during dormant season/drought</p> <p><u> X </u> Wetland occurs at the toe of a natural slope</p> <p><u> X </u> Seeps are present at the wetland edge</p> <p><u> </u> AA permanently flooded during drought periods</p> <p><u> </u> Wetland contains an outlet, but no inlet</p> <p><u> X </u> Shallow water table and the site is saturated to the surface</p> <p><u> </u> Other:</p> | <p>ii. Recharge Indicators</p> <p><u> X </u> Permeable substrate present without underlying impeding layer</p> <p><u> </u> Wetland contains inlet but no outlet</p> <p><u> </u> Stream is a known 'losing' stream; discharge volume decreases</p> <p><u> </u> Other:</p> |
|---|--|

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Numerous seeps and springs.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: No fens suspected within this AA.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) X (if 'Yes' continue with the evaluation; if 'No' then mark **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|------------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Guided fishing within Sheep Creek.

| General Site Notes |
|--|
| Segment of Sheep Creek within northeast corner of Project and separated by about 1 mile from Sheep Creek Wet Meadows. Primarily willow PSS wetland with some emergent, sedge-dominated wetland. Hillside spring and springs at toeslope adjacent to creek. |

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Upper Sheep Creek Shrub Wetlands

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | 0.00 | |
| B. MT Natural Heritage Program Species Habitat | H | 0.8 | 1 | 40.00 | |
| C. General Wildlife Habitat | H | 0.9 | 1 | 45.00 | * |
| D. General Fish Habitat | H | 0.9 | 1.0 | 45.00 | * |
| E. Flood Attenuation | H | 0.9 | 1.0 | 45.00 | |
| F. Short and Long Term Surface Water Storage | H | 0.8 | 1.0 | 40.00 | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.9 | 1.0 | 45.00 | |
| H. Sediment/Shoreline Stabilization | H | 1.0 | 1.0 | 50.00 | * |
| I. Production Export/Food Chain Support | H | 1.0 | 1 | 50.00 | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | 50.00 | * |
| K. Uniqueness | M | 0.4 | 1 | 20.00 | |
| L. Recreation/Education Potential (bonus points) | M | 0.10 | NA | 5.00 | |
| Totals: | | 8.70 | 11.0 | 435.00 | |
| Percent of Possible Score | | | 79% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
 Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
 Score of 1 functional point for Uniqueness; **or**
 Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
 Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**
 Score of .9 or 1 functional point for General Fish Habitat; **or**
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
 Score of .9 functional point for Uniqueness; **or**
 Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
 "Low" rating for Uniqueness; **and**
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: II

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/31/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Northwest springs and depressions
6. **Wetland Location(s):** i. **Legal:** T12N, R6E, Center of Section 23; T12N, R6E, Center of Section 24
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher
7. **a. Evaluating Agency:** 8. **Wetland size:** Min:0.01 acres, Max:1 acres, Avg:0.1 acres (measured)
b. Purpose of Evaluation: 9. **Assessment area (AA):** Min:0.01 acres, Max:1 acres, Avg:0.1 acres
1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| S | EM | NA | PP | 58 |
| S | EM | NA | SI | 38 |
| S | UB | NA | TE | 1 |
| R | RB | NA | PP | 3 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 COMMON

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Moderate amounts of cattle grazing in summer.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** No large weed infestations but non-native grasses (e.g., timothy) are common in surrounding uplands. Kentucky bluegrass and redtop common in wetlands.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Montane meadow with series of seeps and springs. Rocky channel collects water and travels downhill where water goes subsurface.

13. **Structural Diversity:** (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Some forested and shrub vegetation but much less than 30% within wetland.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| Functional Points and Rating | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No reason to suspect use by T&E species.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| Highest Habitat Level | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
|---|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| S1 Species: Functional Points and Rating | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: Functional Points and Rating | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): No reason to suspect use by MNHP species other than entirely incidental use which is too speculative to rate.

14C. General Wildlife Habitat Rating:

i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| Structural diversity (see #13) | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|--|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|--------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| Class cover distribution (all vegetated classes) | | | | | | | | | | | | | | | | | | | | |
| Duration of surface water in ≥ 10% of AA | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| Evidence of wildlife use (i) | Wildlife habitat features rating (ii) | | | |
|------------------------------|---------------------------------------|------------|----------|-----|
| | Exceptional | High | Moderate | Low |
| Substantial | 1E | .9H | .8H | .7M |
| Moderate | .9H | .7M | .5M | .3L |
| Minimal | .6M | .4M | .2L | .1L |

Comments: Likely use by elk, deer, small game, and migratory birds.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: NA **Comments:** No water connecting to fish-bearing stream.

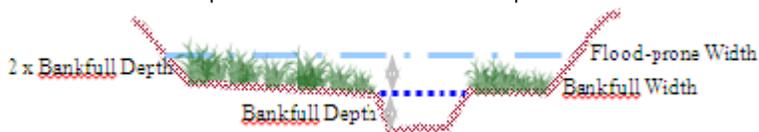
14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:** Site at top of drainage, unlikely there is flooding from runoff. Springs appear constant.

14F. **Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: See 14E.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Minor nutrient input from cattle. Rated as no outlet since wetlands and water dry up prior to meeting Black Butte Creek.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark X **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: No wave or meaningful flowing water motion.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|------------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. Final Score and Rating: 0.8H **Comments:** See previous comments.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps are known or observed
- Vegetation growing during dormant season/drought
- Wetland occurs at the toe of a natural slope
- Seeps are present at the wetland edge
- AA permanently flooded during drought periods
- Wetland contains an outlet, but no inlet
- Shallow water table and the site is saturated to the surface
- Other:

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other:

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Seeps and springs observed. Stream loses water prior to exiting project.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|--|--------|----------|--|------------|----------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Vegetation communities are common herbaceous types such as Carneb/Agrsto-Poapra or Junbal/Poapra.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: No quantifiable recreational use.

General Site Notes

Series of springs and seeps from upper slope leading to rocky drainage on eastern half, and long, linear spring in western half. Although these two sides of the AA drain to different streams (Black Butte and Sheep Creek) the wetlands in this AA are more similar to each other than to the wetlands associated with either stream and were therefore combined.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Northwest springs and depressions

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | | |
| B. MT Natural Heritage Program Species Habitat | L | 0.0 | 1 | | |
| C. General Wildlife Habitat | M | 0.7 | 1 | | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | H | 0.8 | 1.0 | | * |
| H. Sediment/Shoreline Stabilization | NA | | | | |
| I. Production Export/Food Chain Support | H | 0.8 | 1 | | * |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | | * |
| K. Uniqueness | L | 0.3 | 1 | | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 3.60 | 7.0 | | |
| Percent of Possible Score | | | 51% | | |

Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)

- Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- Score of 1 functional point for Uniqueness; **or**
- Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** Tintina Resources - Black Butte 2. **MDT Project #:** Control #: 3. **Evaluation Date:** 12/18/2014 4. **Evaluator(s):** John Beaver 5. **Wetlands/Site #(s):** Southwest Minor Drainages
 6. **Wetland Location(s):** i. **Legal:** T11N, R06E, 01; T12N, R6E, SW 1/4 of Sec 36
 ii. **Approx. Stationing or Mileposts:**
 iii. **Watershed:** Watershed Name, County: Missouri-Sun-Smith, Meagher

7. **a. Evaluating Agency:** 8. **Wetland size:** Min:5 acres, Max:15 acres, Avg:10 acres (estimated)
b. Purpose of Evaluation: 9. **Assessment area (AA):** Min:0.01 ac, Max:1.76 ac, Avg:0.4 ac (est)
 1. Wetlands potentially affected by MDT project
 2. Mitigation wetlands; pre-construction
 3. Mitigation wetlands; post-construction
 4. Other: Ecological evaluation

10. Classification of Wetland and Aquatic Habitats in AA

| HGM Class (Brinson) | Class (Cowardin) | Modifier (Cowardin) | Water Regime | % of AA |
|---------------------|------------------|---------------------|--------------|---------|
| S | EM | NA | SI | 96 |
| S | SS | NA | SI | 3 |
| R | EM | NA | PP | 1 |
| | | | | |
| | | | | |

Abbreviations: (see manual for definitions)
HGM Classes: Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);
Cowardin Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)
Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)
Water Regimes: Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

11. **Estimated relative abundance:** (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
 ABUNDANT

12. General condition of AA:

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

| Conditions within AA | Predominant conditions adjacent to (within 500 feet of) AA | | |
|--|--|---|--|
| | Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%. | Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. |
| AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%. | low disturbance | low disturbance | moderate disturbance |
| AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is ≤30%. | moderate disturbance | moderate disturbance | high disturbance |
| AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%. | high disturbance | high disturbance | high disturbance |

Comments: (types of disturbance, intensity, season, etc.): Some cattle grazing evident throughout drainages both within and adjacent to wetlands. Past logging and associated roads present in upland forest surrounding wetland AA.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Musk thistle and Canada thistle present in area, particularly where disturbed by logging. Non-native upland herbaceous vegetation is common in mesic areas surrounding wetlands.

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:**

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 above)

| Existing # of "Cowardin" Vegetated Classes in AA | Initial Rating | Is current management preventing (passive) existence of additional vegetated classes? | | Modified Rating |
|--|----------------|---|------|-----------------|
| ≥3 (or 2 if 1 is forested) classes | H | NA | NA | NA |
| 2 (or 1 if forested) classes | M | NA | NA | NA |
| 1 class, but not a monoculture | M | ←NO | YES→ | L |
| 1 class, monoculture (1 species comprises ≥90% of total cover) | L | NA | NA | NA |

Comments: Small inclusion of scrub-shrub at spring head, and downstream of the Project boundaries, else this AA is an emergent system.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**)
 Incidental habitat (**list species**)
 No usable habitat S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|-------------------------------------|-------------|-------------|---------------|---------------|----------------|----------------|-----------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| <i>Functional Points and Rating</i> | 1H | .9H | .8M | .7M | .3L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc): No records or observations of documented use.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

- i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):
 Primary or critical habitat (**list species**)
 Secondary habitat (**list species**) Great gray owl (D);
 Incidental habitat (**list species**)
 No usable habitat

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

| | | | | | | | |
|--|-------------|-------------|---------------|---------------|----------------|----------------|------|
| <i>Highest Habitat Level</i> | doc/primary | sus/primary | doc/secondary | sus/secondary | doc/incidental | sus/incidental | None |
| S1 Species: <i>Functional Points and Rating</i> | 1H | .8H | .7M | .6M | .2L | .1L | 0L |
| S2 and S3 Species: <i>Functional Points and Rating</i> | .9H | .7M | .6M | .5M | .2L | .1L | 0L |

Sources for documented use (e.g. observations, records, etc.): Observed one juvenile great gray owl in drainage during wetland survey.

14C. General Wildlife Habitat Rating:

- i. **Evidence of overall wildlife use in the AA** (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

| <i>Structural diversity (see #13)</i> | High | | | | | | | | Moderate | | | | | | | | Low | | | |
|---|------|-----|-----|---|--------|-----|-----|---|----------|-----|-----|---|----------|-----|-----|---|------|-----|-----|---|
| | Even | | | | Uneven | | | | Even | | | | Uneven | | | | Even | | | |
| <i>Class cover distribution (all vegetated classes)</i> | | | | | | | | | | | | | | | | | | | | |
| <i>Duration of surface water in ≥ 10% of AA</i> | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A | P/P | S/I | T/E | A |
| Low disturbance at AA (see #12i) | E | E | E | H | E | E | H | H | E | H | H | M | E | H | M | M | E | H | M | M |
| Moderate disturbance at AA (see #12i) | H | H | H | H | H | H | H | M | H | H | M | M | H | M | M | L | H | M | L | L |
| High disturbance at AA (see #12i) | M | M | M | L | M | M | L | L | M | M | L | L | M | L | L | L | L | L | L | L |

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

| <i>Evidence of wildlife use (i)</i> | <i>Wildlife habitat features rating (ii)</i> | | | | | | | |
|-------------------------------------|--|--|------------|--|----------|--|-----|--|
| | Exceptional | | High | | Moderate | | Low | |
| Substantial | 1E | | .9H | | .8H | | .7M | |
| Moderate | .9H | | .7M | | .5M | | .3L | |
| Minimal | .6M | | .4M | | .2L | | .1L | |

Comments: Estimate that stream and springs together provide water in about 10% of AA.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark X **NA** and proceed to 14E.)

Type of Fishery: Cold Water (CW) _____ Warm Water (WW) _____ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

| Duration of surface water in AA | Permanent / Perennial | | | | | | Seasonal / Intermittent | | | | | | Temporary / Ephemeral | | | | | |
|---|-----------------------|-----|----------|-----|------|-----|-------------------------|-----|----------|-----|------|-----|-----------------------|-----|----------|-----|------|-----|
| | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | | Optimal | | Adequate | | Poor | |
| Aquatic hiding / resting / escape cover | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S | O | S |
| FWP Tier I fish species | 1E | .9H | .8H | .7M | .6M | .5M | .9H | .8H | .7M | .6M | .5M | .4M | .7M | .6M | .5M | .4M | .3L | .3L |
| FWP Tier II or Native Game fish species | .9H | .8H | .7M | .6M | .5M | .5M | .8H | .7M | .6M | .5M | .4M | .4M | .6M | .5M | .4M | .3L | .2L | .2L |
| FWP Tier III or Introduced Game fish | .8H | .7M | .6M | .5M | .5M | .4M | .7M | .6M | .5M | .4M | .4M | .3L | .5M | .4M | .3L | .2L | .2L | .1L |
| FWP Non-Game Tier IV or No fish species | .5M | .5M | .5M | .4M | .4M | .3L | .4M | .4M | .4M | .3L | .3L | .2L | .2L | .2L | .2L | .1L | .1L | .1L |

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? _____ If yes, reduce score in i above by 0.1.

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? _____ If yes, add 0.1 to the adjusted score in i or **ii**.

iii. Final Score and Rating: NA **Comments:**

14E. **Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark X **NA** and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Estimated or Calculated Entrenchment (Rosgen 1994, 1996) | Slightly entrenched - C, D, E stream types | | | Moderately entrenched - B stream type | | | Entrenched-A, F, G stream types | | |
|--|--|--------|------|---------------------------------------|--------|------|---------------------------------|--------|------|
| | 75% | 25-75% | <25% | 75% | 25-75% | <25% | 75% | 25-75% | <25% |
| AA contains no outlet or restricted outlet | 1H | .9H | .6M | .8H | .7M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .8H | .5M | .7M | .6M | .4M | .3L | .2L | .1L |

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

$$\frac{\text{Flood-prone width}}{\text{Bankfull width}} = \text{Entrenchment ratio (ER)}$$



| Slightly Entrenched ER = >2.2 | | | Moderately Entrenched ER = 1.41 – 2.2 | | Entrenched ER = 1.0 – 1.4 | |
|----------------------------------|---------------|---------------|--|---------------|------------------------------|---------------|
| C stream type | D stream type | E stream type | B stream type | A stream type | F stream type | G stream type |
| | | | | | | |

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? _____ **Comments:** Stream is too minor to create flooding.

14F. **Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark X **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

| Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding | >5 acre feet | | | 1.1 to 5 acre feet | | | ≤1 acre foot | | |
|---|--------------|-----|-----|--------------------|-----|-----|--------------|-----|-----|
| | P/P | S/I | T/E | P/P | S/I | T/E | P/P | S/I | T/E |
| Wetlands in AA flood or pond ≥ 5 out of 10 years | 1H | .9H | .8H | .8H | .6M | .5M | .4M | .3L | .2L |
| Wetlands in AA flood or pond < 5 out of 10 years | .9H | .8H | .7M | .7M | .5M | .4M | .3L | .2L | .1L |

Comments: Doubt there is any flooding or ponding.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark **NA** and proceed to 14H.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low])

| | | | | | | | | |
|---|--|------------|-------|-----|---|-----|-------|-----|
| Sediment, nutrient, and toxicant input levels within AA | AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | | Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present. | | | |
| | ≥ 70% | | < 70% | | ≥ 70% | | < 70% | |
| % cover of wetland vegetation in AA | Yes | No | Yes | No | Yes | No | Yes | No |
| Evidence of flooding / ponding in AA | | | | | | | | |
| AA contains no or restricted outlet | 1H | .8H | .7M | .5M | .5M | .4M | .3L | .2L |
| AA contains unrestricted outlet | .9H | .7M | .6M | .4M | .4M | .3L | .2L | .1L |

Comments: Possible nutrient input from cattle manure.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **NA** and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| | | | |
|---|---|-------------------------|-----------------------|
| % Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F). | Duration of surface water adjacent to rooted vegetation | | |
| | Permanent / Perennial | Seasonal / Intermittent | Temporary / Ephemeral |
| ≥ 65% | 1H | .9H | .7M |
| 35-64% | .7M | .6M | .5M |
| < 35% | .3L | .2L | .1L |

Comments: Primarily redbud, Kentucky bluegrass, and tufted hairgrass adjacent to water.

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

| General Fish Habitat Rating (14D.iii.) | General Wildlife Habitat Rating (14C.iii.) | | |
|--|--|----------|---|
| | E/H | M | L |
| E/H | H | H | M |
| M | H | M | M |
| L | M | M | L |
| N/A | H | M | L |

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

| A | Vegetated component >5 acres | | | | | | Vegetated component 1-5 acres | | | | | | Vegetated component <1 acre | | | | | |
|-------|------------------------------|-----|----------|-----|-----|-----|-------------------------------|-----|------------|-----|-----|-----|-----------------------------|-----|----------|-----|-----|-----|
| B | High | | Moderate | | Low | | High | | Moderate | | Low | | High | | Moderate | | Low | |
| C | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | No |
| P/P | 1H | .7M | .8H | .5M | .6M | .4M | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .6M | .6M | .4M | .3L | .2L |
| S/I | .9H | .6M | .7M | .4M | .5M | .3L | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .5M | .5M | .3L | .3L | .2L |
| T/E/A | .8H | .5M | .6M | .3L | .4M | .2L | .7M | .4M | .5M | .2L | .3L | .1L | .6M | .4M | .4M | .2L | .2L | .1L |

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? X If yes, add 0.1 to the score in ii above.

iv. **Final Score and Rating: 0.8H** **Comments:**

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

- | | |
|--|---|
| <p>i. Discharge Indicators</p> <p><input checked="" type="checkbox"/> The AA is a slope wetland</p> <p><input checked="" type="checkbox"/> Springs or seeps are known or observed</p> <p><input type="checkbox"/> Vegetation growing during dormant season/drought</p> <p><input checked="" type="checkbox"/> Wetland occurs at the toe of a natural slope</p> <p><input checked="" type="checkbox"/> Seeps are present at the wetland edge</p> <p><input type="checkbox"/> AA permanently flooded during drought periods</p> <p><input type="checkbox"/> Wetland contains an outlet, but no inlet</p> <p><input checked="" type="checkbox"/> Shallow water table and the site is saturated to the surface</p> <p><input type="checkbox"/> Other:</p> | <p>ii. Recharge Indicators</p> <p><input type="checkbox"/> Permeable substrate present without underlying impeding layer</p> <p><input type="checkbox"/> Wetland contains inlet but no outlet</p> <p><input type="checkbox"/> Stream is a known 'losing' stream; discharge volume decreases</p> <p><input type="checkbox"/> Other:</p> |
|--|---|

iii. **Rating** (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

| Criteria | Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM | | | |
|--|---|-----|-----|------|
| | P/P | S/I | T | None |
| Groundwater Discharge or Recharge | 1H | .7M | .4M | .1L |
| Insufficient Data/Information | N/A | | | |

Comments: Permanent water in several seeps/springs throughout AA.

14K. Uniqueness:

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

| Replacement potential | AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP | | | AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP | | | AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate | | |
|--|---|--------|----------|---|--------|----------|---|--------|------------|
| | rare | common | abundant | rare | common | abundant | rare | common | abundant |
| Low disturbance at AA (#12i) | 1H | .9H | .8H | .8H | .6M | .5M | .5M | .4M | .3L |
| Moderate disturbance at AA (#12i) | .9H | .8H | .7M | .7M | .5M | .4M | .4M | .3L | .2L |
| High disturbance at AA (#12i) | .8H | .7M | .6M | .6M | .4M | .3L | .3L | .2L | .1L |

Comments: Common emergent and scrub-shrub wetlands within drainages.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. **Is the AA a known or potential rec./ed. site:** (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. **Check categories that apply to the AA:** ___ Educational/scientific study; ___ Consumptive rec.; ___ Non-consumptive rec.; ___ Other

iii. **Rating** (use the matrix below to arrive at [circle] the functional points and rating)

| Known or Potential Recreation or Education Area | Known | Potential |
|---|-------|-----------|
| Public ownership or public easement with general public access (no permission required) | .2H | .15H |
| Private ownership with general public access (no permission required) | .15H | .1M |
| Private or public ownership without general public access, or requiring permission for public access | .1M | .05L |

Comments: Hunting within area would not depend, or focus on, the wetlands.

General Site Notes

Several small tributaries at upper end of Little Sheep Creek and Black Butte Creek. All are relatively similar to each other, but distinct from larger wetlands downstream in each respective drainage.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Southwest Minor Drainages

| Function & Value Variables | Rating | Actual Functional Points | Possible Functional Points | Functional Units: (Actual Points x Estimated AA Acreage) | Indicate the four most prominent functions with an asterisk (*) |
|--|--------|--------------------------|----------------------------|---|---|
| A. Listed/Proposed T&E Species Habitat | L | 0.0 | 1 | | |
| B. MT Natural Heritage Program Species Habitat | M | 0.6 | 1 | | |
| C. General Wildlife Habitat | M | 0.7 | 1 | | * |
| D. General Fish Habitat | NA | | | | |
| E. Flood Attenuation | NA | | | | |
| F. Short and Long Term Surface Water Storage | NA | | | | |
| G. Sediment/Nutrient/Toxicant Removal | M | 0.7 | 1.0 | | * |
| H. Sediment/Shoreline Stabilization | M | 0.7 | 1.0 | | * |
| I. Production Export/Food Chain Support | H | 0.8 | 1 | | |
| J. Groundwater Discharge/Recharge | H | 1.0 | 1.0 | | * |
| K. Uniqueness | L | 0.2 | 1 | | |
| L. Recreation/Education Potential (bonus points) | NA | | NA | | |
| Totals: | | 4.70 | 8.0 | | |
| Percent of Possible Score | | | 59% | | |

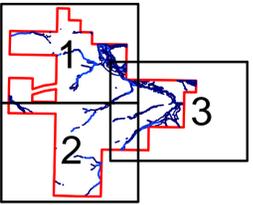
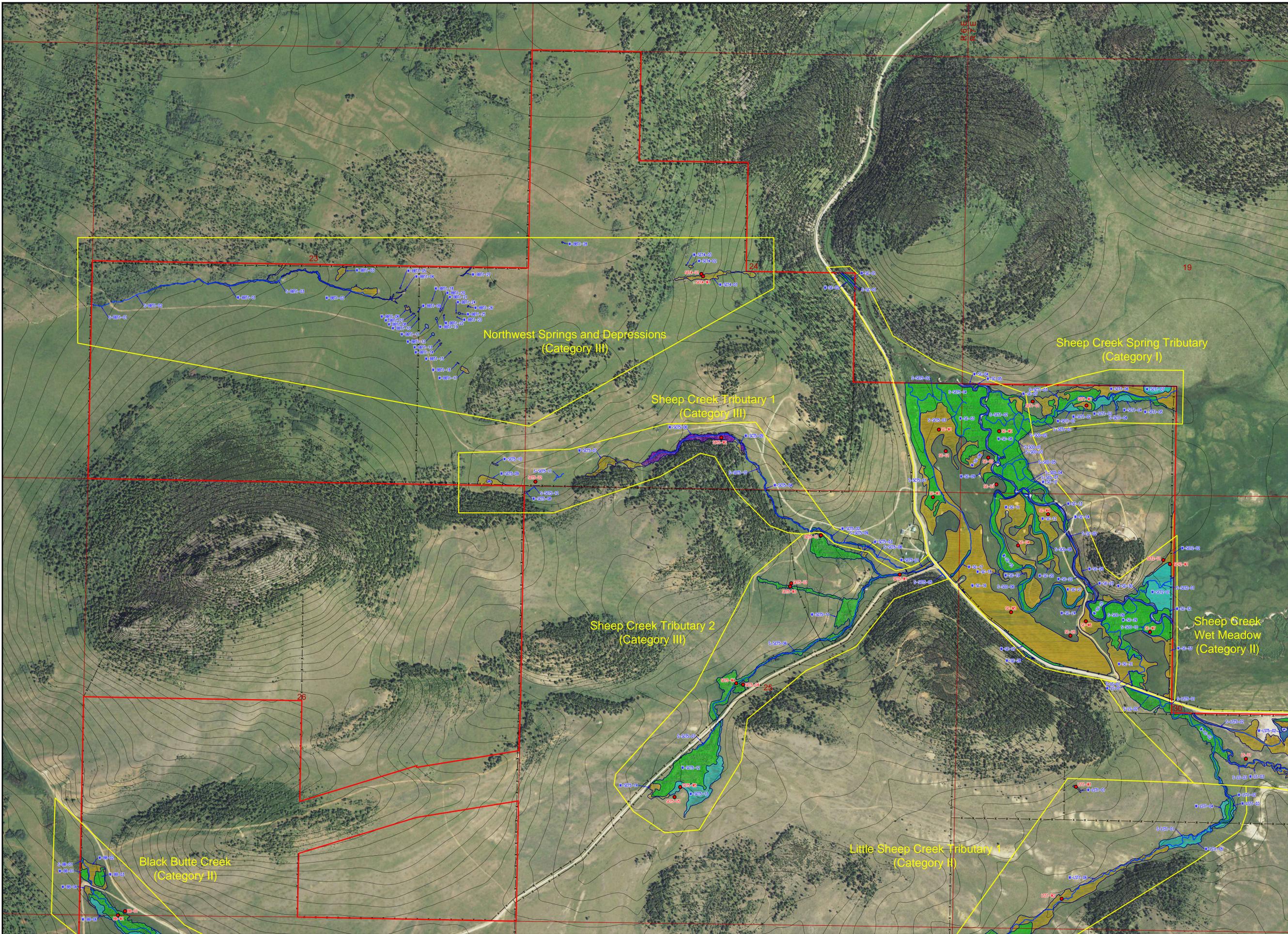
Category I Wetland: (must satisfy **one** of the following criteria; otherwise go to Category II)
 Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
 Score of 1 functional point for Uniqueness; **or**
 Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
 Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**
 Score of .9 or 1 functional point for General Fish Habitat; **or**
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
 Score of .9 functional point for Uniqueness; **or**
 Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
 "Low" rating for Uniqueness; **and**
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III



LEGEND

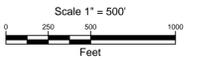
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- Fence
- Assessment Area
- Plot Location
- Stream
- Wetlands
 - Palustrine Emergent
 - Palustrine Forested
 - Palustrine Scrub-Shrub (Willow)
 - Palustrine Scrub-Shrub (Shrubby Cinquefoil)
 - Palustrine Unconsolidated Bottom

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

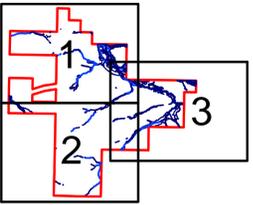
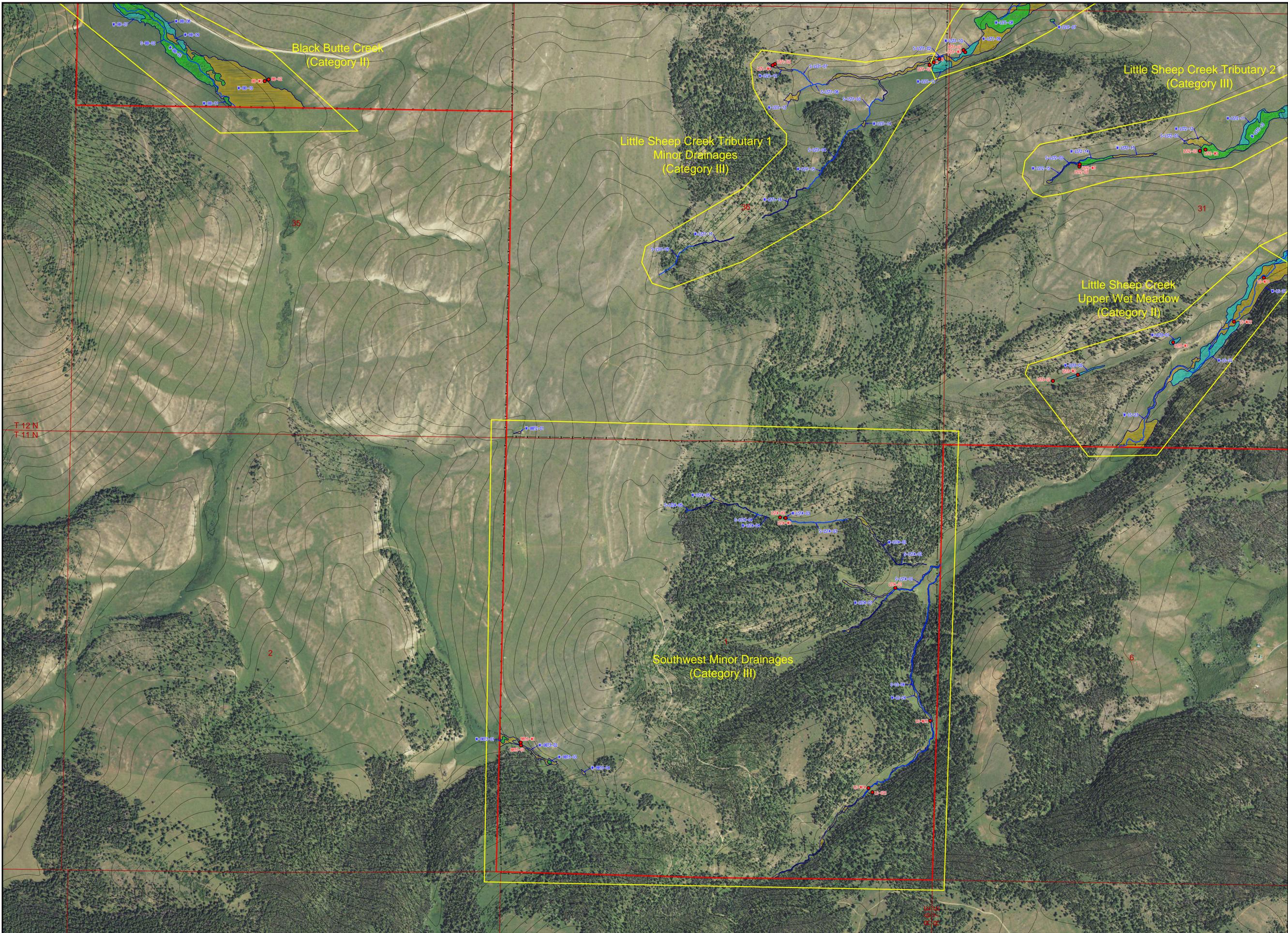
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Category Rating Number per Montana Wetland Assessment Method (MWAM) (Berglund and McElowney 2008). Categories are rated I to IV, with I the highest and IV the lowest.



TINTINA RESOURCES
 Black Butte Copper Project
 Wetland Delineation and Waterbody Survey
 Assessment Area Map

6513116 | B8C16_Wetlands_AA.dwg | 1/6,000



LEGEND

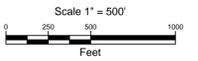
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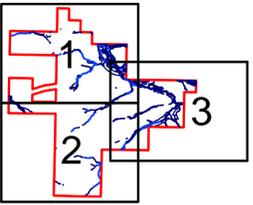
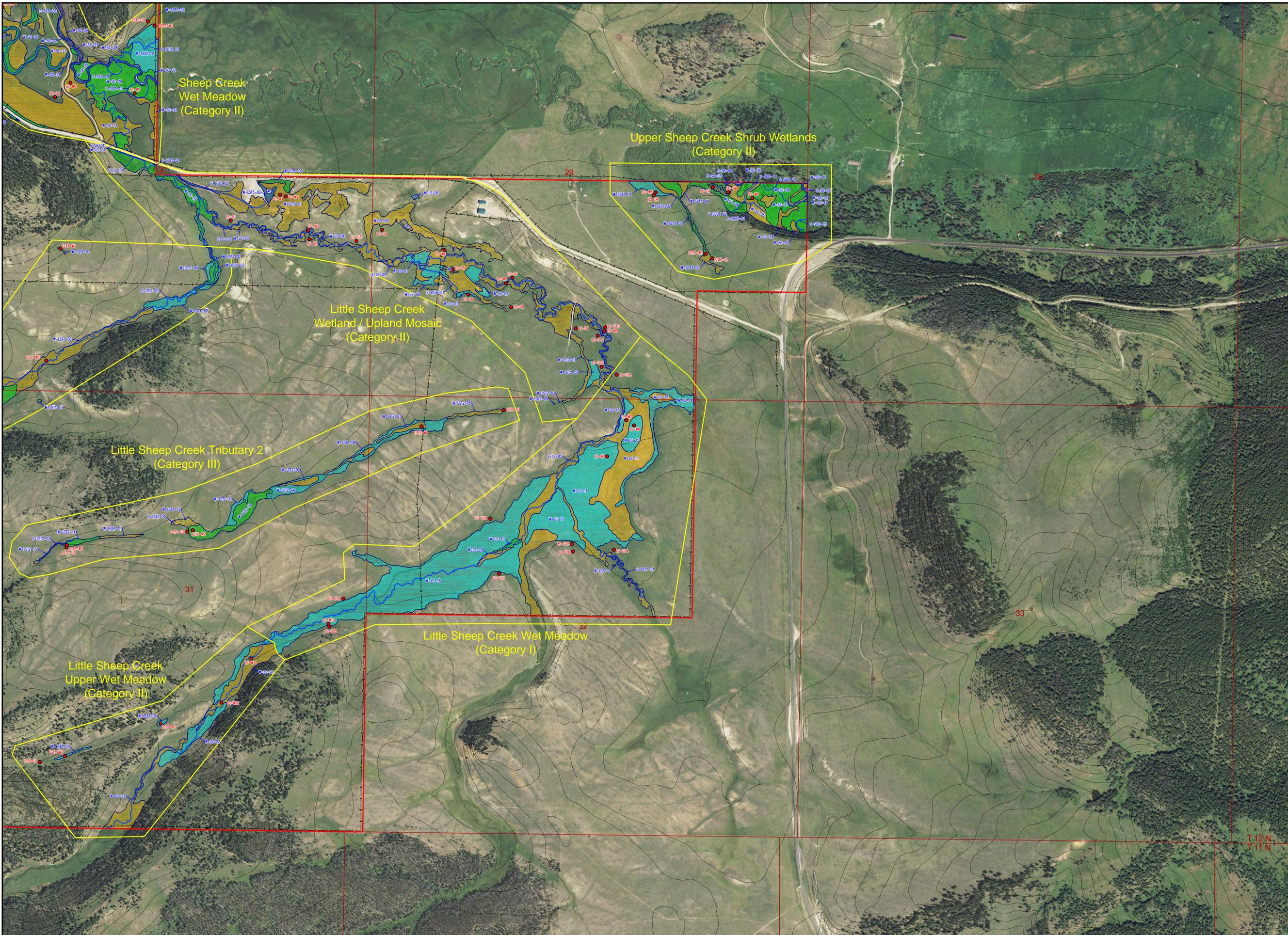
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TINTINA RESOURCES
Black Butte Copper Project
Wetland Delineation and Waterbody Survey Assessment Area Map

6/5/16 | B8C16_Wetlands_AA.dwg | 1:6,000



LEGEND

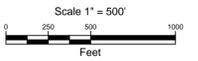
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Aerial: 2013 NAIP
Topo: 20' Generated from 1/2 second NED

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TINTINA RESOURCES
Black Butte Copper Project
Wetland Delineation and Waterbody Survey Assessment Area Map

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Appendix C2
Map 1
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