Winter 12-1-2021

Butte Silver Bow Snow Management Plan

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December 1, 2021

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RE: Butte Silver Bow Snow Management Plan

Agency Representatives:

The Butte-Silver Bow Snow Management Plan is being submitted on behalf of Atlantic Richfield and Butte-Silver Bow (BSB). Upon approval, the Final BSB Snow Management Plan will be included as an appendix to the Butte Priority Soils Operable Unit Solid Media Management Program Plan.

The report may be downloaded at the following link:

https://pioneertechnicalservices.sharepoint.com/:f:/s/submitted/EiNsfxrsGUhApmKb8cFcgDUBWHEAuFLCGejTch817vW_-w.

If you have any questions or comments, please call me at (907) 355-3914.

Sincerely,

Mike Mc Anulty
Liability Manager
Remediation Management Services Company
An affiliate of **Atlantic Richfield Company**

Eric Hassler, Director
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and Environmental Services
Butte-Silver Bow

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BPSOU SharePoint - upload

DRAFT

STREET & SNOW MANAGEMENT PLAN

FOR THE CITY-COUNTY OF BUTTE-SILVER BOW

PREPARED FOR:

US Environmental Protection Agency, Region 8

Butte Office

400 North Main Street, Room 339

Butte, MT 59701

December 2021

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1.0 INTRODUCTION

The Butte-Silver Bow (BSB) Public Works Department - Road Division is tasked with providing street and snow maintenance activities for specific primary and secondary routes within the City-County of Butte-Silver Bow. Typical street and snow management activities include:

- Street Sweeping;
- Street Flushing;
- Sand Application;
- Deicer Application;
- Sampling of Sand Sources;
- Snow Removal; and
- Snow Storage.

Pursuant to a requirement by the Environmental Protection Agency (EPA) as part of a 2011 Unilateral Administrative Order (UAO) on the responsible parties, BSB has prepared this Street/Snow Maintenance Plan. This plan focuses on activities that could result in potentially contaminated sediment being delivered to area receiving waters. This plan will be implemented by BSB to ensure that environmental impacts from street and snow maintenance activities are minimized and appropriate administrative and structural Best Management Practices (BMPs) are implemented. The following sections summarize BSB's activities and BMPs that are employed to minimize potential impacts to area receiving waters.

2.0 STREET/SNOW MANAGEMENT ACTIVITIES

2.1 Street Maintenance

Street maintenance activities occur throughout the year as a taxpayer-provided service to local residents not only to ensure safe travel on area streets, but also to reduce airborne dust and sediment transport to storm sewers and ultimately area receiving waters. The following sections summarize the BSB Road Division's street and snow maintenance activities.

2.1.1 Sweeping and Flushing

The BSB Road Division operates five (5) street sweepers throughout the City-County. Street sweeping occurs throughout the year on an as needed basis. Sweeping is conducted during dry winter periods and in the spring to remove accumulated traction sand before spring snowmelt and street flushing activities to minimize sediment loading to storm sewers. Street sweeping occurs during the summer and fall months on an as needed basis to reduce sediment, litter, and leaf loading to storm sewers as well as reduce small particulate dust generation. All BSB street sweepers use water to minimize dust generation during use, except during freezing conditions during the winter months.

Streets and gutters are flushed periodically to remove residual sand and debris not removed by the sweepers, and to reduce airborne dust generation after sweeping. Street flushing is only conducted

after streets are swept, in order to reduce the amount of debris that reaches storm water infrastructure. Sediment from street sweeping and storm inlet maintenance is collected and transported to the BSB landfill or mine waste repository, depending on where maintenance activities are being conducted.

2.1.2 Sand Source Sampling

BSB currently uses multiple sand sources for application to city streets. Sand stockpiles are located at the BSB Airport and BSB Crusher. BSB will sample the sand sources and provide analytical data in compliance with the Solid Media Plan as approved by EPA.

2.1.3 Street Deicing

The BSB Road Division applies street deicer (Magnesium Chloride) during winter freezing conditions where the nighttime low temperature is not below 20 degrees Fahrenheit. Colder temperatures reduce the effectiveness of the deicer. BSB applies deicer at the minimal effective application rate (25-gallons per lane-mile) to prevent excess loading of Magnesium Chloride to surface waters. The use of deicer reduces the volume of sand applied to streets; however, it has limited effectiveness on steep slopes and at colder temperatures.

2.1.4 Street Maintenance BMPs

To minimize environmental impacts to receiving surface waters, the BSB Road Division employs administrative and structural BMPs for street maintenance activities.

Administrative BMPs utilized by the Road Department are as follows:

- Routine sweeping during dry periods (summer and winter);
- Use of water during sweeping;
- Street sweeping prior to flushing;
- Regular cleaning of storm system drop inlets as prioritized by the BSB Storm Water Operation and Maintenance Plan;
- Periodic sampling of road sand sources; and
- Using minimum effective application rate of Magnesium Chloride deicer.

Other site-specific BMPs may be implemented by BSB staff if specific conditions warrant additional protection.

2.2 Snow Removal and Storage

The BSB Road Division routinely plows and removes snow from primary and secondary travel routes within the Butte urban limits. Typically, snow is plowed to center medians for later removal with snow removal equipment and haul trucks. Collected snow is hauled to the nearest designated snow storage area. For snow removal routes in more rural areas, snow is plowed to the edges of the street or borrow ditch and is not collected. The following sections describe BSB snow removal routes, snow storage areas and snow removal/storage BMPs.

2.2.1 Snow Removal Routes

Snow removal occurs along primary and secondary travel routes. Snow removal frequency is dependent on weather conditions and available manpower. Snowplow trucks clear the snow from the roadways by plowing snow to medians where the snow can be collected in haul trucks using snow removal machines. Haul trucks transport the snow to the nearest snow storage areas.

2.2.2 Snow Storage Areas

The Butte Silver-Bow Road Department utilizes six designated snow storage areas that are centrally located near snow removal routes:

- Area #1: Northeast Civic Parking Lot (Figure 1-1);
- Area #2: South of West Elementary (Figure 1-2);
- Area #3: Kelley Mine Yard (Figure 1-3);
- Area #4: George Street Near Chamber of Commerce (Figure 1-4);
- Area #5: Missoula Gulch Ball Fields (Figure 1-5) and
- Area #6: Madison Street (Figure 1-6).

Snow is stored at these areas throughout the winter months. Snow piles melt in the spring and remaining sediment will be removed and transported to the Mine Waste Repository.

Observation of the surrounding Superfund vegetation in the areas where removed snow is placed by BSBC will be done by the Respondents through the Butte Reclamation Evaluation System program, with appropriate oversight. When and if vegetation is adversely affected by the salt from the snow stockpile areas, BSBC will develop work plans per existing BSB protocol to address the adversely affected vegetation for review and approval by EPA and will implement those plans upon approval.

2.2.3 Snow Removal BMPs

Where practical, snow storage areas are selected where drainage that does not leave the site or discharge to storm water infrastructure. For locations that do discharge near existing storm water infrastructure, sites have been evaluated for structural BMPs to prevent sediment from directly entering receiving surface waters without treatment. Details on each snow storage location, the type/location of structural BMPs, and the final discharge points are shown on individual snow storage area maps (Figures 2-1 through 2-6) and summarized in **Table 2** below.

Table 1. Snow Removal Area BMPs and Discharge Points

Snow Removal Area	Existing BMPs	Final Discharge Point (Existing)	Proposed BMPs
Area #1: Northeast Civic Center Parking Lot	Flat impervious surface with long travel distance to storm water infrastructure.	Sheet flows to storm inlets on Civic Center Road that discharge to Anaconda Road storm main.	Parking lot will be replaced (NRDP). BSB will ensure that the new design will route storm water to new retention areas or the Warren Avenue HDD.
Area #2: South of West Elementary	On-site retention area Vegetative Buffer	Does not discharge off site as sheet flows to west and south toward newly constructed retention area	None
Area #3 Kelley Mine Yard	Vegetative Buffer Armored Slopes Superfund Structures	Discharges to Kelley Channel "B", Kelley Catch Basin or directly to Berkley Pit. Note: Kelley Channel "B" will be inspected after significant snowmelt events.	Inspect two drop inlets in snow area in Spring and confirm drainage location. Either or abandon or install BMPs to minimize sediment.
Area #4: George Street near Chamber of Commerce	On-site retention area Vegetative Buffer	Does not discharge off site	None
Area #5: Missoula Gulch Ball Fields	Relatively flat snow storage surface Vegetative Buffer	Snow storage is on relatively flat area west of the northern ball field. Runoff from snow melt will flow to north and west toward nearby storm water ditches as sheet flow through vegetative buffer.	Inspect nearby storm water ditches for evidence of sediment laden runoff from storage area. If necessary, earthen berms will be constructed to contain runoff and minimize sediment.
Area #6: Madison Street	Relatively flat snow storage surface Vegetative Buffer	Snow storage occurs south of Madison Street. Runoff from snow melt will flow to south toward nearby storm water inlets and ditches as sheet flow through vegetative buffer.	Inspect nearby storm water ditches and inlets for evidence of sediment laden runoff from storage area. If necessary, earthen berms will be constructed to contain runoff and minimize sediment.

As described in **Table 2**, only Area #1 (Northeast Civic Center Parking Lot) currently discharges directly into receiving waters without existing BMPs (berms, retention pond, vegetative buffer, etc.). As part of the NRDP Draft Conceptual Restoration Plan, the Civic Center parking lot will be removed and replaced during construction activities. BSB will ensure that the new parking lot design includes snow a storage location with adequate BMPs to treat snow melt. This may be achieved through the installation of retention areas or routing through the Warren Avenue HDD.

Snowmelt runoff from Area #3 (Kelley Mine Yard) discharges into Kelley Channel "B". BSB crews will inspect the condition of the channels and determine if sediment must be removed from the channel. This activity will be concurrent with inspection and maintenance activities identified in the Superfund Storm Water O&M Plan.

Snowmelt runoff from Area #5 (Missoula Gulch Ball Fields) discharges into Missoula Gulch storm water ditches. BSB crews will inspect the ditches and determine if sediment must be removed from the channels or if additional BMPs are necessary at the snow storage area. This activity will be concurrent with inspection and maintenance activities identified in the Superfund Storm Water O&M Plan.

Snowmelt runoff from Area #6 (South of Madison Street) discharges into inlets and ditches connected to the Warren Avenue storm water tunnel and TCRA ditches. BSB crews will inspect the inlets, manholes, and ditches to determine if sediment must be removed from the pipe and channels, or if additional BMPs are necessary at the snow storage area. This activity will be concurrent with inspection and maintenance activities identified in the Superfund Storm Water O&M Plan.

Area #6 is part of the Anderson Shaft site and will have additional remedy work completed as part of the Consent Decree. BSB will coordinate with EPA on the need for any permanent BMPs; however, it is anticipated that this storage area will be temporary.

Annual site inspections will be conducted each spring (post-snowmelt) to monitor the effectiveness of site BMBs and discharge points (if any). If necessary, additional BMPs will be developed and implemented to prevent sediment from entering the storm water system. During the annual inspection, BSB will also sample the snow pile remnants to verify the metal results prior to disposing of the snow pile remnant sediment in the repository.

3.0 COORDINATION AND TRAINING

BSB has implemented several additional control measures related to its municipal maintenance activities as required by its Municipal Separate Storm Sewer System (MS4) Permit with Montana DEQ. A major requirement of the MS4 program is the implementation of training programs for BSB employees. BSB Road Division employees receive annual training on several MS4 requirements, including the following topics: BMPs (installation and maintenance), Illicit Discharge Detection and Elimination (IDDE), Construction Site Storm Water Management, and internal BSB maintenance activities. Topics vary each

session and are specific to maintenance and construction activities that are frequently conducted by BSB employees. BSB Road Division staff also communicates with BSB Metro Sewer Maintenance staff on a regular basis in order to coordinate maintenance activities between the two divisions, as Metro Maintenance is responsible for cleaning of the storm water system.

4.0 CONTACT INFORMATION

Street and snow management activities are implemented by the Butte-Silver Bow Public Works – Road Division. Questions related to street and snow management activities can be directed to the following personnel:

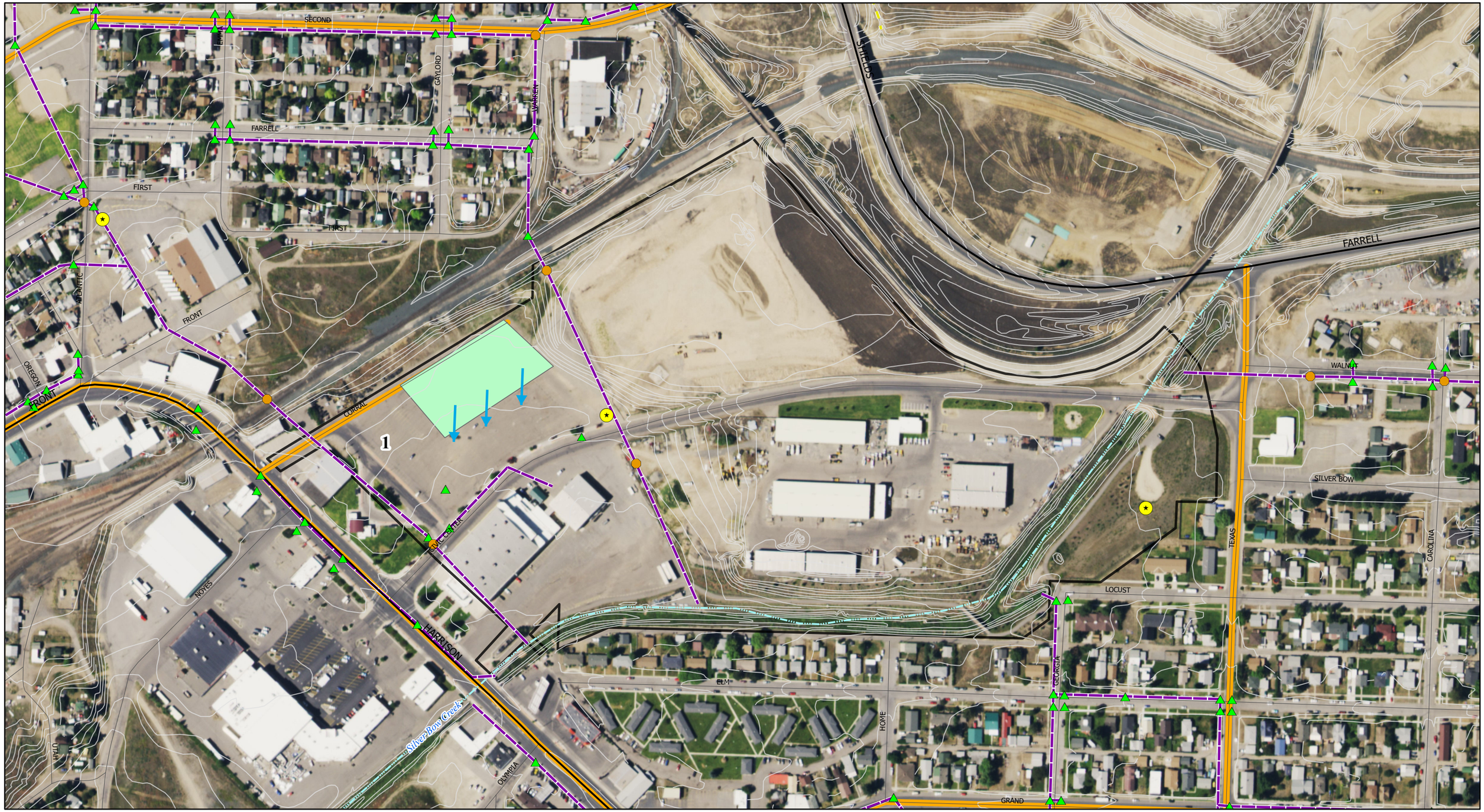
Public Works Director:	Mark Neary – 497-6519, mneary@bsb.mt.gov
Supervisor—Road Division:	Tom Loggins – 490-0053, tloggins@bsb.mt.gov

5.0 SUMMARY

Butte-Silver Bow is committed to the ultimate goal of minimizing sediment runoff from street and snow maintenance activities into area receiving waters. This Street and Snow Management Plan uses a combination of administrative and structural BMPs to accomplish this goal.

It is important to note that BSB's current sand sources have low levels of metals that are below EPA screening levels; as a result, runoff from snow storage locations should not be considered a primary source of metals contamination to surface water. However, the use of proper management and practices on its street and snow maintenance activities will minimize discharge of sediment to storm water infrastructure and area receiving waters.

Figures



Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Canal/Ditch
- Pipeline

- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N
W E
S

Miles

0 0.01 0.02 0.04 0.06 0.08 0.1

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #1

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-1

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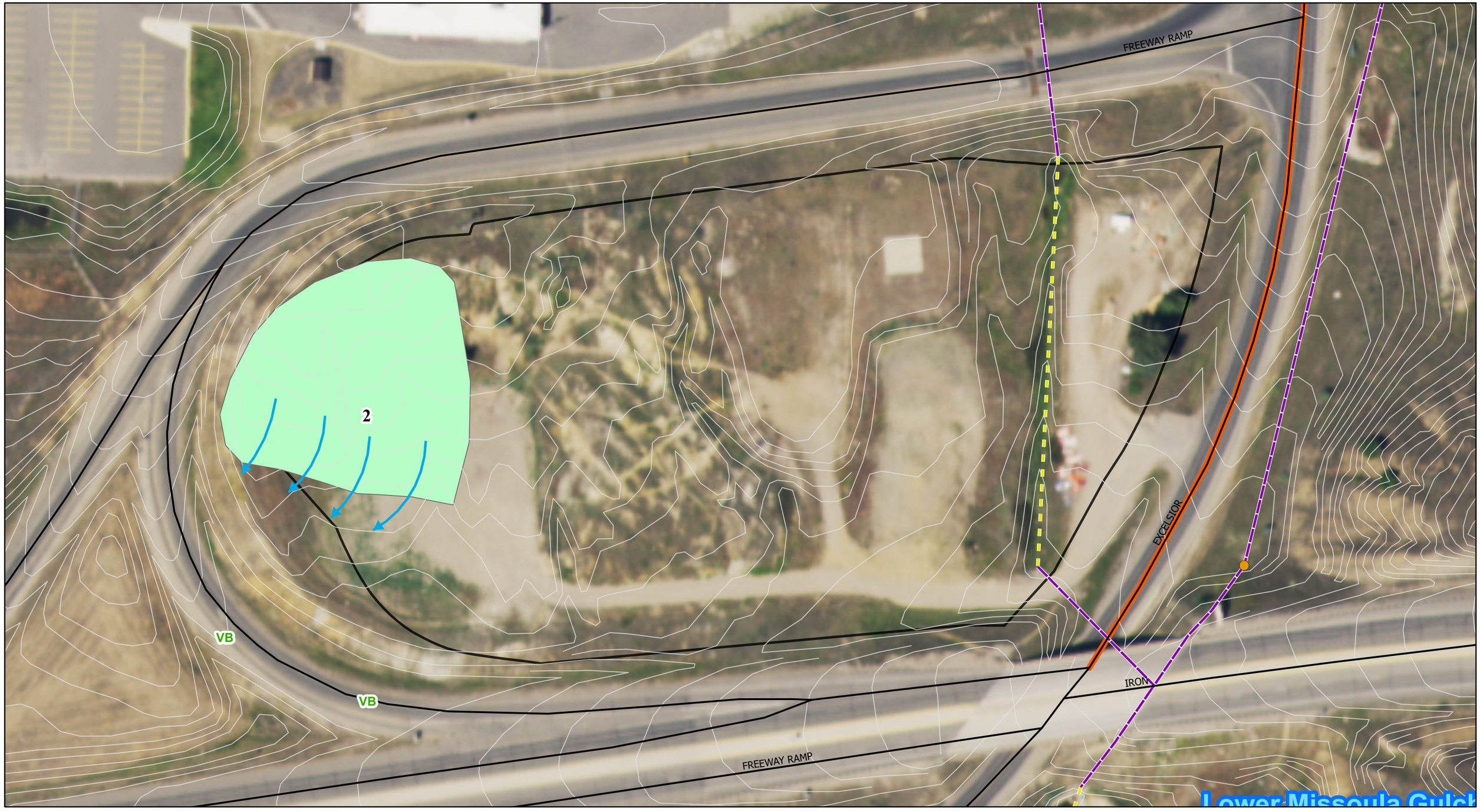

Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Canal/Ditch
- Pipeline
- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N W E S

Miles

0 0 0.01 0.01 0.02 0.03 0.04

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #2

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-2

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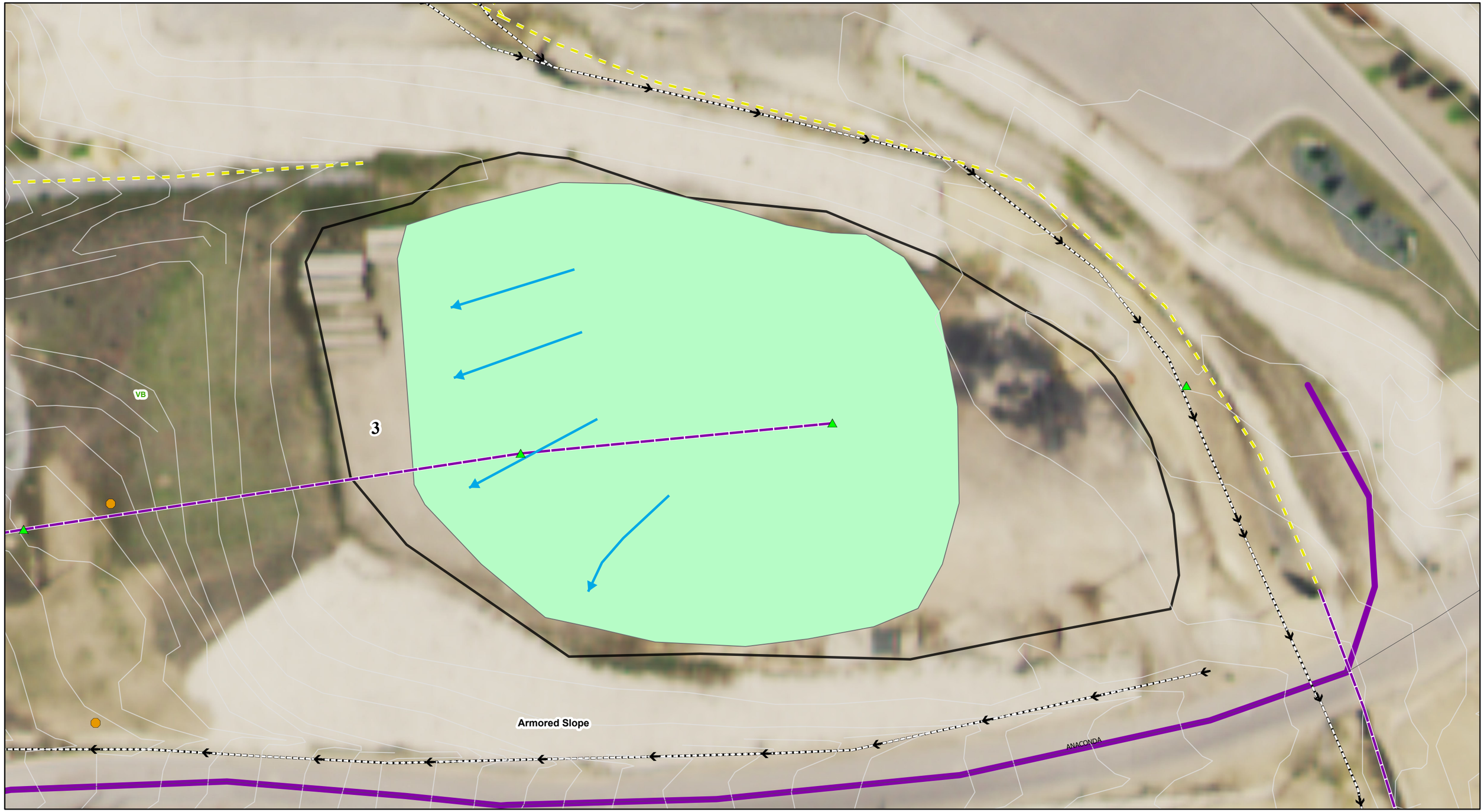

Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Canal/Ditch
- Pipeline
- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N
W E
S

Miles

0 0 0 0.01 0.01 0.02 0.02

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #3

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-3

Path: M:\Butte Silver Bow\BSBPWM11\Snow Storage\2021\Snow_management\Snow_management.aprx, Author: jleprowse

Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
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- Pipeline

- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N W E S

Miles

0 0.01 0.01 0.03 0.04 0.06 0.07

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #4

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-4

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Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

- Perennial Stream/River
- Intermittent Stream/River
- Canal/Ditch
- Pipeline
- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N W E S

Miles

0 0.01 0.01 0.03 0.04 0.06 0.07

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #5

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-5

Path: M:\Butte Silver Bow\BSBPWM11\Snow Storage\2021\Snow_management\Snow_management.aprx, Author: jleprowse

Legend

- HD's
- Manhole
- Inlet
- Flow Direction
- Storm Water Line
- Storm Water Ditch

National Hydrography Dataset

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- Intermittent Stream/River
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- Pipeline
- Superfund Storm Water Channels
- Snowarea

Snow Removal Route #

- 1
- 2
- 3
- 4
- BSB Snow Area
- Superfund Storm Water Catch Basins
- Drainage Basin

N
W E
S

Miles

0 0 0.01 0.02 0.03 0.04 0.04

Water & Environmental TECHNOLOGIES

STREET & SNOW MANAGEMENT PLAN

Snow Storage Area #6

Job#: BSBPWM96

Date: 4/13/2021

FIGURE 1-6

Path: M:\Butte Silver Bow\BSBPWM11\Snow Storage\2021\Snow_management\Snow_management.aprx, Author: jleprowse