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Butte Priority Soils Operable Unit (BPSOU) Unreclaimed Sites Draft Final Field Sampling Plan (FSP) Package #7: UR-01, UR-02, UR-03, UR-04, UR-15, and UR-17

Mike McAnulty

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September 14, 2021

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Butte Priority Soils Operable Unit (BPSOU) Unreclaimed Sites Draft Final Field Sampling Plan (FSP) Package #7: UR-01, UR-02, UR-03, UR-04, UR-15, and UR-17

Dear Agency Representatives:

As described in Appendix D, Attachment C to the 2020 Consent Decree, areas listed as Unreclaimed Solid Media Sites within Butte Priority Soils Operable Unit (BPSOU) may have potentially been impacted by historic mining and therefore may pose a threat to human health, contribute metals-impacted sediments to existing or planned wet weather control features, or contribute to the degradation of surface water quality. There are a total of 39 unclaimed sites, multiple sites will be organized in a package for approval.

Field sampling plan (FSP) package #7 (FSP Package #7) includes Unreclaimed (UR) Sites UR-01, UR-02, UR-03, UR-04, UR-15, and UR-17. Site evaluations will be performed using means and methods provided in the Atlantic Richfield Company Final Unreclaimed Sites Quality Assurance Project Plan (QAPP) published October 12, 2018, which was prepared in accordance with U.S. Environmental Protection Agency (EPA) guidance documents EPA QA/R-5 and EPA QA/G-5 for QAPP development. The QAPP was updated in 2021 (referred to herein as UR Sites QAPP) as a component of the BPSOU Solid Media Management Project Plan. Results from site evaluations will be used to prepare site declarations and assist with determination of site remediation requirements. Site evaluations will begin in the third quarter 2021 and are anticipated to be completed 2022, or as site access allows. Site declarations for sites sampled in 2021 are anticipated to be provided for Agency review and approval by the end of 2021. Declarations of sites sampled after 2021 will be provided as soon as feasible. Remedial action will be performed following Agency approval of pertinent site-specific remedial action work plans.



A preliminary list of FSP packages, provided below, will be updated to record the status and progress related to FSP package submittals.

Package	Sites	Submittal Date	Approval Date
1	UR-23, 31, 32, and 39	May 19, 2021	June 8, 2021
2	UR-24, 26, and 40	June 30, 2021	August 27, 2021
3	UR-06, 07, 20, 22, 35, and 36	July 2, 2021	August 27, 2021
4	UR-16 and 21	August 20, 2021	August 30, 2021
5	UR-12, 13, 33, and 38	August 23, 2021	August 30, 2021
6	UR-05, 27, 28, 29, 30, and 34	September 14, 2021	TBD
7	UR-01, 02, 03, 04, 15, and 17	September 14, 2021	TBD

The crosswalk list provided below references where pertinent field sample collection and documentation elements are discussed.

Element	Reference Location	
	FSP	UR Sites QAPP
Title page and approval authority.		Page i
Introduction and appropriate Agency-approved UR Sites QAPP reference.	X	
Goals and objectives of sampling.		Section 2.4, 3.2
Proposed schedule for field work.	X	
Site figure including sampling locations, number, and depth of samples to be collected, and sample field identification.	X	Section 3.2.1
Field activity methods and procedures, standard operating procedures.		Section 3.2, Table 4
Sample labeling and shipping.		Section 3.2.5, Appendix C
Sample analysis, specifying X-ray fluorescence (XRF) vs. laboratory analysis and laboratory name.		Section 3.3
Figure showing the site and/or area represented by a sample, sample ID, and aliquot locations for composite samples.	X	

Soil sampling is proposed for FSP Package #7 at 6 UR Sites located in the uptown area of Butte, Montana, south of Walkerville. The results of the soil sampling will be used to support the site declaration and potential future remediation requirements for each site. This FSP is consistent with Section 3.0 Data Acquisition protocol described in the UR Sites QAPP. These 6 UR Sites vary from 0.3 acres to 12.8. Sites UR-01, 02, 03, and 15 are located along the northern outskirts of Butte and are vacant lots that appear to have motor vehicle travel across various parts of the sites. Sites UR-4 and 17 are located near residential housing. Each site is discussed separately below. The

attachments at the end of this document include figures for each site showing the proposed soil sampling locations.

Site: UR-01 Between Ryan Rd. and Alice St.

Background

Site UR-01 is approximately 9.2 acres and is located north of Walkerville and just north of the Alice Pit. Site UR-01 is bounded on the south by North Alice Street and on the north by Ryan Road (Figure 1). Ownership of Site UR-01 includes Atlantic Richfield Company and Ferry Lane Limited.

Site UR-01 is vacant land with well-established vegetation and several bare areas including windrows of dumped material. The dumped material is covered with established weeds and grasses. Erosion rill starting from the middle of the site running northwest into the drainage ditch appears to have iron staining and impacted soils. There are residences within 200 feet of UR-01 in several directions. Site UR-01 is in the Beef Straight Gulch drainage basin.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the record for one previous soil sample near Site UR-01. The approximate sample location is shown on Figure 1 with the results provided in Table 1 below. None of the results listed exceed the BPSOU action levels. The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 1: Previous Sampling Results from
BPSOU Soil Sampling
(units are milligrams per kilograms)**

	Sample Station ID
COC	WD-029
Arsenic	25 J
Cadmium	5
Copper	103
Lead	33
Zinc	152
Sample Date	6/18/87

COC: contaminant of concern.

Site: UR-02 E. Scrap H Point Rd. Near Moose Dump

Background

Site UR-02 is approximately 12.8 acres and is located east of Scrap H Point Road in Walkerville near Moose Dump (BRES No. 12). Site UR-02 is bounded by a 4-strand barbed wire fence on the west along Scrap H Point Road (Figure 2). Site UR-02 is located on property owned by Atlantic Richfield Company and Ferry Lane Limited.

Site UR-02 is vacant land with several bare areas and heavily impacted with mining waste including debris and garbage dumps. The Moose Ditch (AB-D-S001) riprap-lined drainage channel is located between the barbed fence and Scrap H point.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the records for previous soil samples near Site UR-02. The approximate sample locations are shown on Figure 2 with the results provided in Table 2 below. Results above BPSOU action levels are highlighted in Table 2. The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 2: Previous Sampling Results from BPSOU
Soil Sampling
(units are milligrams per kilograms)**

	Sample Station ID	
COC	WD-075	WD-076
Arsenic	128	108
Cadmium	42	36
Copper	314	360
Lead	2,210	3,200
Zinc	10,000	7,220
Sample Date	6/9/1987	6/9/1987

COC: contaminant of concern.

Site: UR-03 S. of Dewey Point Rd. and Rising Star Rd. near Surprise Dump

Background

Site UR-03 is approximately 0.3 acres and is located in the northwest part of Walkerville. The site is southwest of the intersection of Rising Star Road and Harrison Street (or Dewey Point Road) (Figure 3). The majority of Site UR-03 is owned by Atlantic Richfield Company. A small portion in the south part of Site UR-03 is owned by Brian Thompson.

Site UR-03 is vacant land and almost the entire site consists of several lobes of waste rock dumps. The site is mostly bare ground. On top of the piles there are approximately 3-foot diameter sink holes or small excavation activity. A residential area in Walkerville is located about 400 feet to the southeast of UR-03. Site UR-03 is in the Beef Straight Gulch drainage basin.

Previous Sampling Efforts

There is no record of previous soil sampling at Site UR-03 nor in its vicinity.

Site: UR-04 NW Corner of Center St. and Idaho St.

Background

Site UR-04 is approximately 0.9 acres. It is located slightly south of Walkerville and just northwest of the intersection of North Idaho and Center Streets (Figure 4), on the east side of the Missoula Gulch drainage. Site UR-04 consists of a poorly vegetated, southwest facing slope that is immediately southwest of the former Missoula Mine yard. An especially steep area in the middle of the site appears to consist of mine waste, based on yellow color and clayey texture of the soil. The south lobe of site UR-04 has better vegetation than the rest of the site, but there are still bare areas and a dump area that may contain waste rock.

Site UR-04 is owned by Ferry Lane Limited. Site UR-04 is vacant land in a largely open-space area. There are several residences about 150 feet south of Site UR-04 along Missoula Avenue. Site UR-04 is in the Missoula Gulch drainage basin.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the record for previous soil samples within or near Site UR-04. The approximate sample locations are shown on Figure 4 with the results provided in Table 3 below. Some of the results listed show exceedances of BPSOU action levels for lead and zinc (highlighted in yellow). The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

Table 3: Previous Sampling Results Near Site UR-04
(units are in milligrams per kilogram)

COC	Sample Station ID					
	08-05	08-04	08-03	08-06	WD-018	WD-019
Arsenic	33	35	44	73	67 J	63 J
Cadmium	4	6	2	6	14 J	13 J
Copper	324	258	122	157	146	128
Lead	651	1,320	771	1,820	2,080	430
Zinc	1,210	1,780	979	2,260	3,190	2,720
Date	4/18/1994	4/18/1994	4/18/1994	4/18/1994	6/16/1987	6/16/1987

COC: contaminant of concern.

Site: UR-15 S of Ryan Rd and W of 4th St.

Background

Site UR-15 is approximately 3.8 acres and is located north of Walkerville and south of Ryan Road. The east end of Site UR-15 is at the southwest intersection of Ryan Road and Fourth Street (Figure 5). The site extends about 1,000 feet to the west of the intersection and is totally on the south side of Ryan Road. The site consists mostly of waste rock dumps that are bare. Beef Straight Creek forms part of the south border of Site UR-15 and also cuts through a portion of it. Ownership of Site UR-15 includes Ferry Lane Limited, Butte-Silver Bow, Atlantic Richfield Company, and Joseph and Diane Mullaney.

Site UR-15 is vacant land that has poor vegetation. The nearest residences are about 600 feet to the north and to the south. Site UR-15 is in the Beef Straight Gulch drainage basin.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the records for previous soil samples within or near Site UR-15. The approximate sample locations are shown on Figure 5 with the results listed in Table 4 below. Some of the results listed show exceedances of the BPSOU action levels for lead and zinc (highlighted in yellow). The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 4: Previous Sampling Results from BPSOU Soil Sampling
(units are milligrams per kilograms)**

COC	Sample Station ID	
	DR-002	FSUA-117
Arsenic	120 J	27
Cadmium	4	NA
Copper	125	217
Lead	131	2,680
Zinc	386	2,680
Sample Date	7/8/87	6/21/96

COC: contaminant of concern. NA: not analyzed.

Site: UR-17 Upper Missoula Gulch – Surrounding Areas

Background

Site UR-17 is approximately 5.0 acres and is located in the upper reaches of the Missoula Gulch drainage on the south side of Walkerville (Figure 6) and consists of two non-contiguous UR areas to be evaluated. The site occupies a south-facing slope between a residential part of Walkerville and the bottom of Missoula Gulch. Ownership of Site UR-17 includes Atlantic Richfield Company, Butte-Silver Bow, Ferry Lane Limited, Randy and Greg O’Leary, Kimberly Kelly-Miller, William Kelly and associated parties, and Tom and Leann Loggins.

Areas comprising Site UR-17 are vacant land near residential areas with relatively good vegetation throughout the southwest section. There is an access road from 4th Street that contains a small gully and apparent impacted soils. The northeast section of the site has large bare areas with high manganese and iron staining. There are cars on top of the steep slopes that appear to have oil leaks running down the slope. Scrap metal and glass are found through the section with variants of soil colors and erosion. Site UR-17 is in the Missoula Gulch drainage basin.

Previous Sampling Efforts

Data obtained from the Geocortex web-based database at <https://eis2.woodardcurran.com/Html5Viewer/index.html?viewer=BPButte.BPSOU> contain the records for previous soil samples within Site UR-17. The approximate sample locations are shown on Figure 6 with the results listed in Table 5 below. Some of the results listed show exceedances of the BPSOU action levels for lead and zinc (highlighted in yellow). The BPSOU action levels are listed in Tables 1 and 2 of the UR Sites QAPP.

**Table 5: Previous Sampling Results from BPSOU Soil Sampling
(units are milligrams per kilograms)**

	Sample Station ID	
COC	08-01	038WA05-0
Arsenic	150	34
Cadmium	3	6
Copper	270	106
Lead	441	1,025
Zinc	461	1,840
Sample Date	4/18/94	11/10/94

COC: contaminant of concern.

Unreclaimed Sites Quality Assurance Project Plan

All field work and soil analysis will be completed in accordance with the UR Sites QAPP. The QAPP will be reviewed annually and updated as needed on Agency review and approval. Soil sampling will be conducted at the 6 UR Sites at depth intervals of 6 to 12 inches, 2 to 6 inches, and 0 to 2 inches. Sampling will take place in that order from the deepest interval (6 to 12 inches) to the shallowest interval (0 to 2 inches). Proposed sample locations for each site are shown on Figures 1 through 6.

Sampling Procedure

All sampling procedures are to be followed according to the UR Sites QAPP, which describes the activities necessary to conduct soil sampling and characterization activities on UR Sites within BPSOU. It also describes the quality assurance/quality control policies and procedures to be used during collection and analysis. Implementation of this fieldwork will likely commence in the spring of 2021, assuming that access has been obtained for all subject parcels.

If you have questions or comments, please do not hesitate to call me at (907) 355-3914.

Sincerely,



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

Attachments:

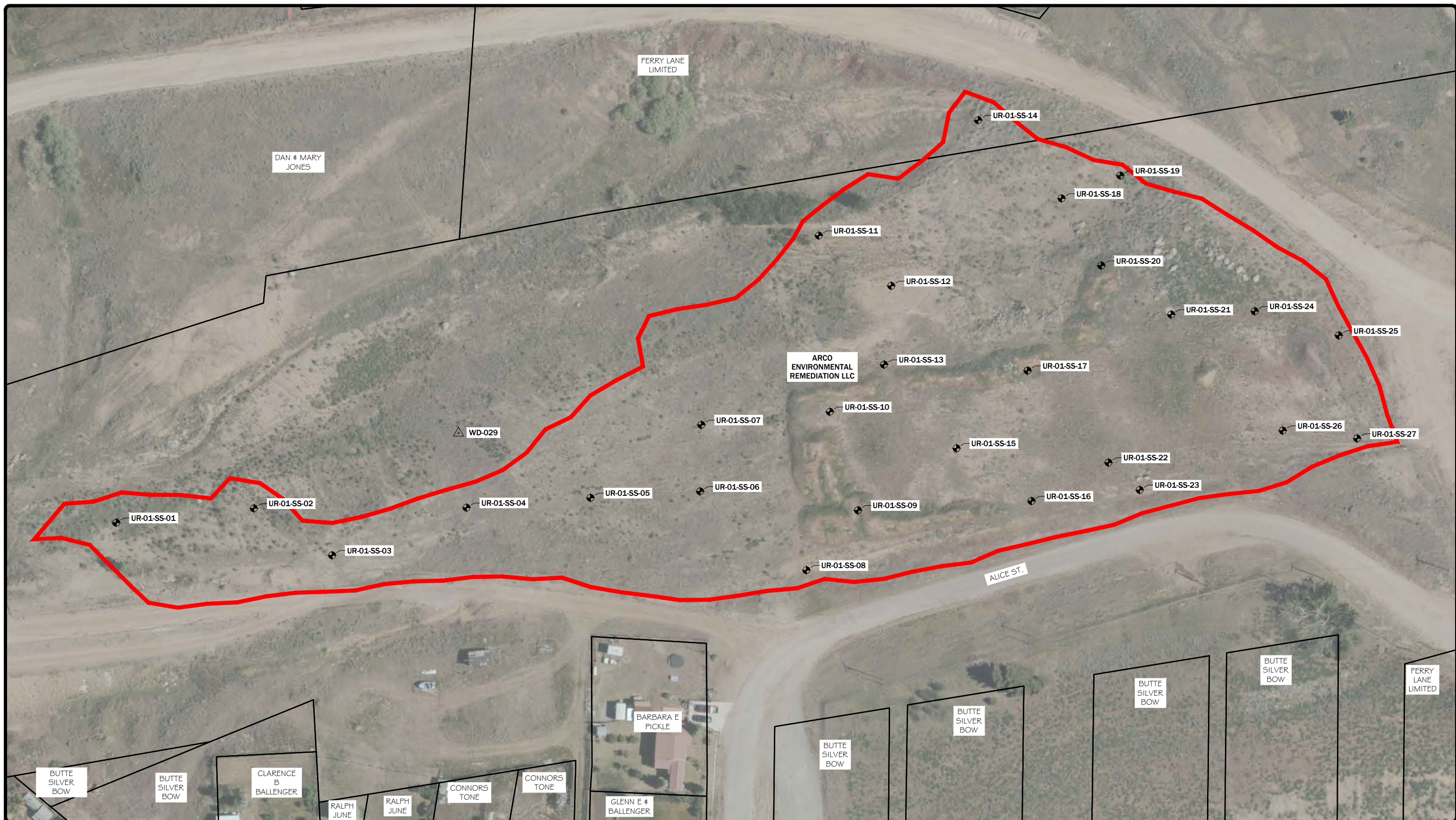
- Figure 1 Unreclaimed Site UR-01 Previous and Proposed Sample Locations
- Figure 2 Unreclaimed Site UR-02 Proposed Sample Locations
- Figure 3 Unreclaimed Site UR-03 Previous and Proposed Sample Locations
- Figure 4 Unreclaimed Site UR-04 Previous and Proposed Sample Locations
- Figure 5 Unreclaimed Site UR-15 Previous and Proposed Sample Locations
- Figure 6 Unreclaimed Site UR-17 Previous and Proposed Sample Locations

Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Mike Mc Anulty / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email

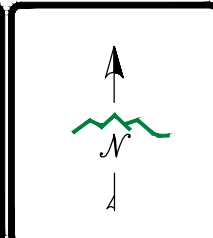
Irene Montero / Atlantic Richfield - email
David A. Gratson / Environmental Standards / email
Mave Gasaway / DGS - email
John Davis / PRR - email
Joe Vranka / EPA - email
David Shanight / CDM - email
Curt Coover / CDM - email
James Freeman / DOJ - email
John Sither / DOJ - email
Jenny Chambers / DEQ - email
Dave Bowers / DEQ - email
Carolina Balliew / DEQ - email
Matthew Dorrington / DEQ - email
Jim Ford / NRDP - email
Ray Vinkey / NRDP - email
Harley Harris / NRDP - email
Katherine Hausrath / NRDP - email
Meranda Flugge / NRDP - email
Ted Duaine / MBMG - email
Gary Icopini / MBMG - email
Becky Summerville / MR - email
Kristen Stevens / UP - email
Robert Bylsma / UP - email
John Gilmour / Kelley Drye - email
Leo Berry / BNSF - email
Robert Lowry / BNSF - email
Brooke Kuhl / BNSF – email
Mark Engdahl / BNSF - email
Jeremie Maehr / Kennedy Jenks - email
Annika Silverman / Kennedy Jenks - email
Matthew Mavrinac / RARUS - email
Harrison Roughton / RARUS - email
Brad Gordon / RARUS - email
Mark Neary / BSB - email
Eric Hassler / BSB - email
Julia Crain / BSB - email
Chad Anderson / BSB - email
Brandon Warner / BSB – email
Abigail Peltomaa / BSB - email
Eileen Joyce / BSB – email
Sean Peterson/BSB – email
Gordon Hart / BSB – email
Jeremy Grotbo / BSB – email
Josh Vincent / WET - email
Craig Deeney / TREC - email
Scott Bradshaw / TREC - email

Brad Archibald / Pioneer - email
Pat Sampson / Pioneer - email
Mike Borduin / Pioneer - email
Joe McElroy / Pioneer – email
Andy Dare / Pioneer – email
Karen Helfrich / Pioneer - email
Leesla Jonart / Pioneer - email
Connie Logan/ Pioneer – email
Ian Magruder/ CTEC- email
CTEC of Butte – email
Scott Juskiewicz / Montana Tech – email

File: MiningSharePoint@bp.com - email
BPSOU SharePoint - upload



LEGEND:
 ● PROPOSED SOIL SAMPLE LOCATION
 ▲ PREVIOUS SOIL SAMPLE LOCATION
 UR-01 IS 5.44 ACRES



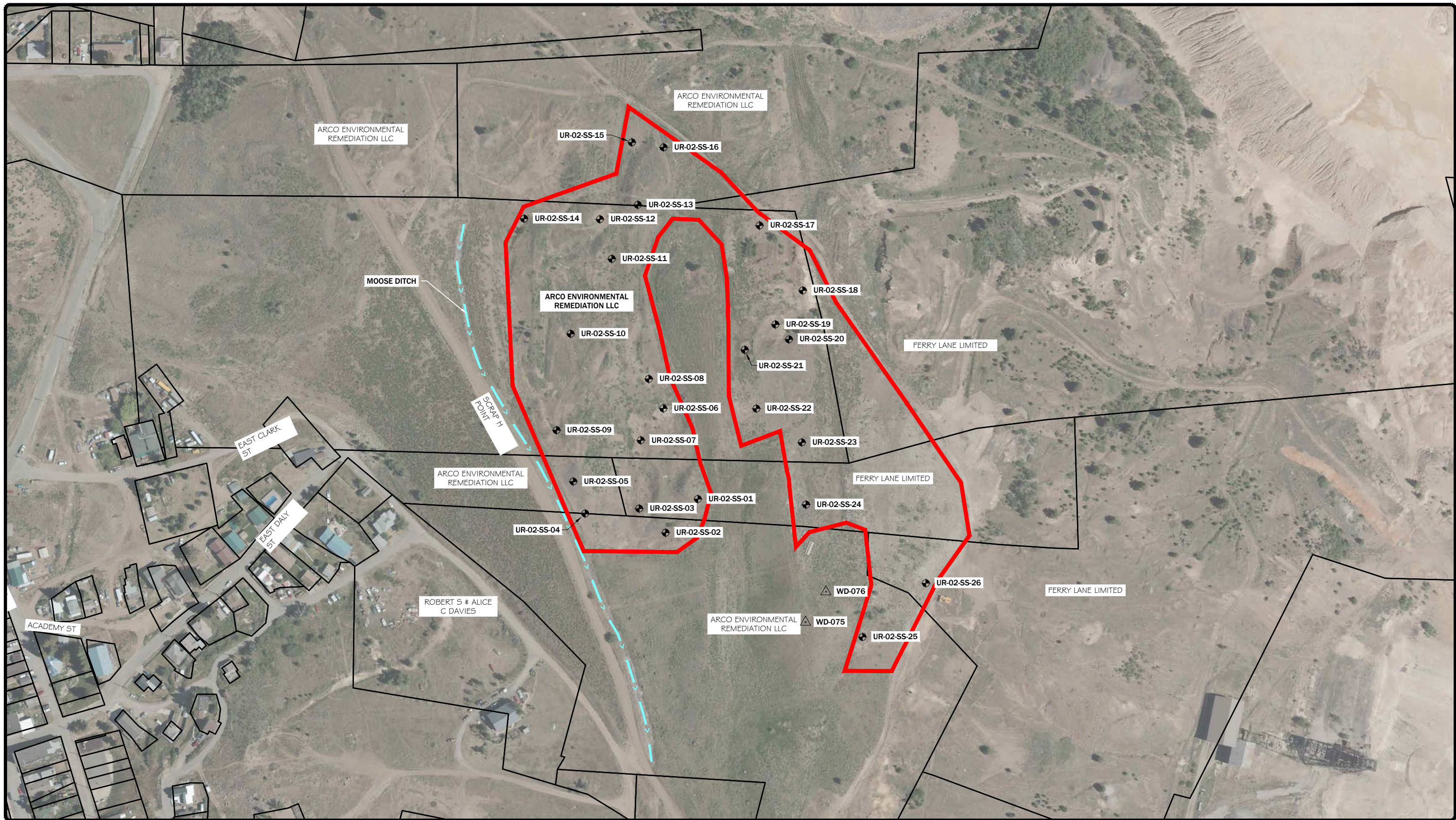
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SCALE IN FEET
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FIGURE 1 UNRECLAIMED SITE
 UR-01
 PROPOSED
 SAMPLE LOCATIONS

PIONEER
 TECHNICAL SERVICES, INC.
 1101 SOUTH MONTANA
 BUTTE, MONTANA 59701
 (406) 782-5177

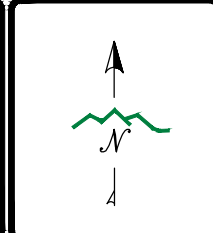
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LEGEND:

- PROPOSED SOIL SAMPLE LOCATION
- PREVIOUS SOIL SAMPLE LOCATION

UR-02 IS 12.80 ACRES



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COORD SYS/ZONE: MSP

DATUM: NAD 83

UNITS: FEET

SOURCE: PIONEER

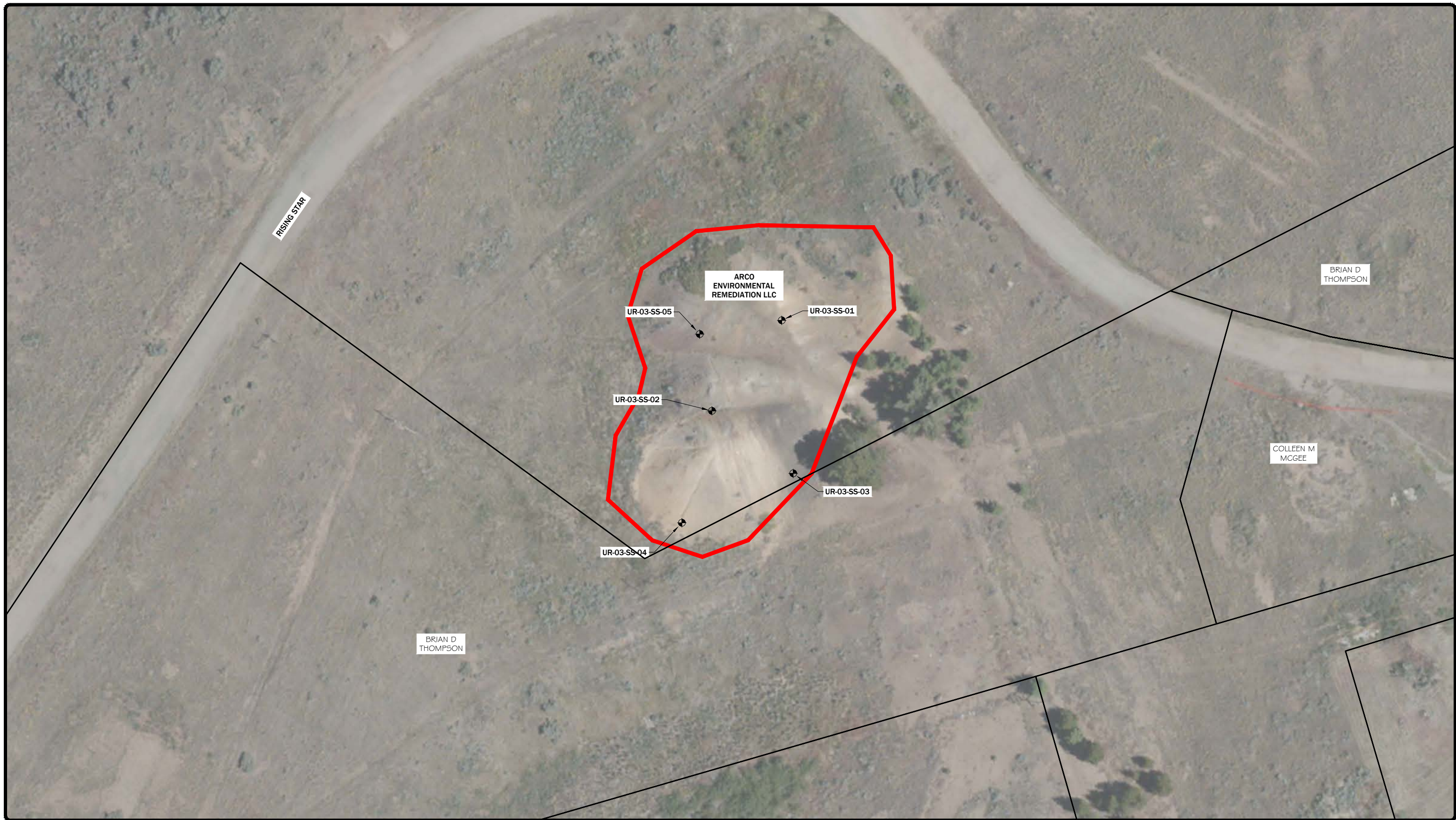
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FIGURE 2 UNRECLAIMED SITE
UR-02
PROPOSED
SAMPLE LOCATIONS

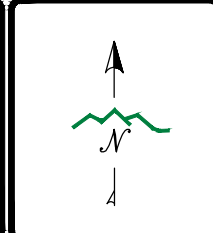
PIONEER
TECHNICAL SERVICES, INC.
1101 SOUTH MONTANA
BUTTE, MONTANA 59701
(406) 782-5177

DATE: 5/2021



LEGEND:

PROPOSED SOIL SAMPLE LOCATION
 UR-03 IS 0.30 ACRES



DISPLAYED AS: _____
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET

FIGURE 3 UNRECLAIMED SITE
UR-03
PROPOSED
SAMPLE LOCATIONS

PIONEER
 TECHNICAL SERVICES, INC.
 1101 SOUTH MONTANA
 BUTTE, MONTANA 59701
 (406) 782-5177

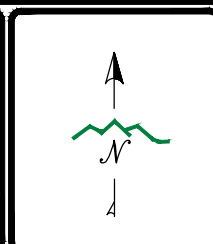
DATE: 5/2021



LEGEND:

- PROPOSED SOIL SAMPLE LOCATION
- PREVIOUS SOIL SAMPLE LOCATION

UR-04 IS 0.9 ACRES



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COORD SYS/ZONE: MSP

DATUM: NAD 83

UNITS: FEET

SOURCE: PIONEER

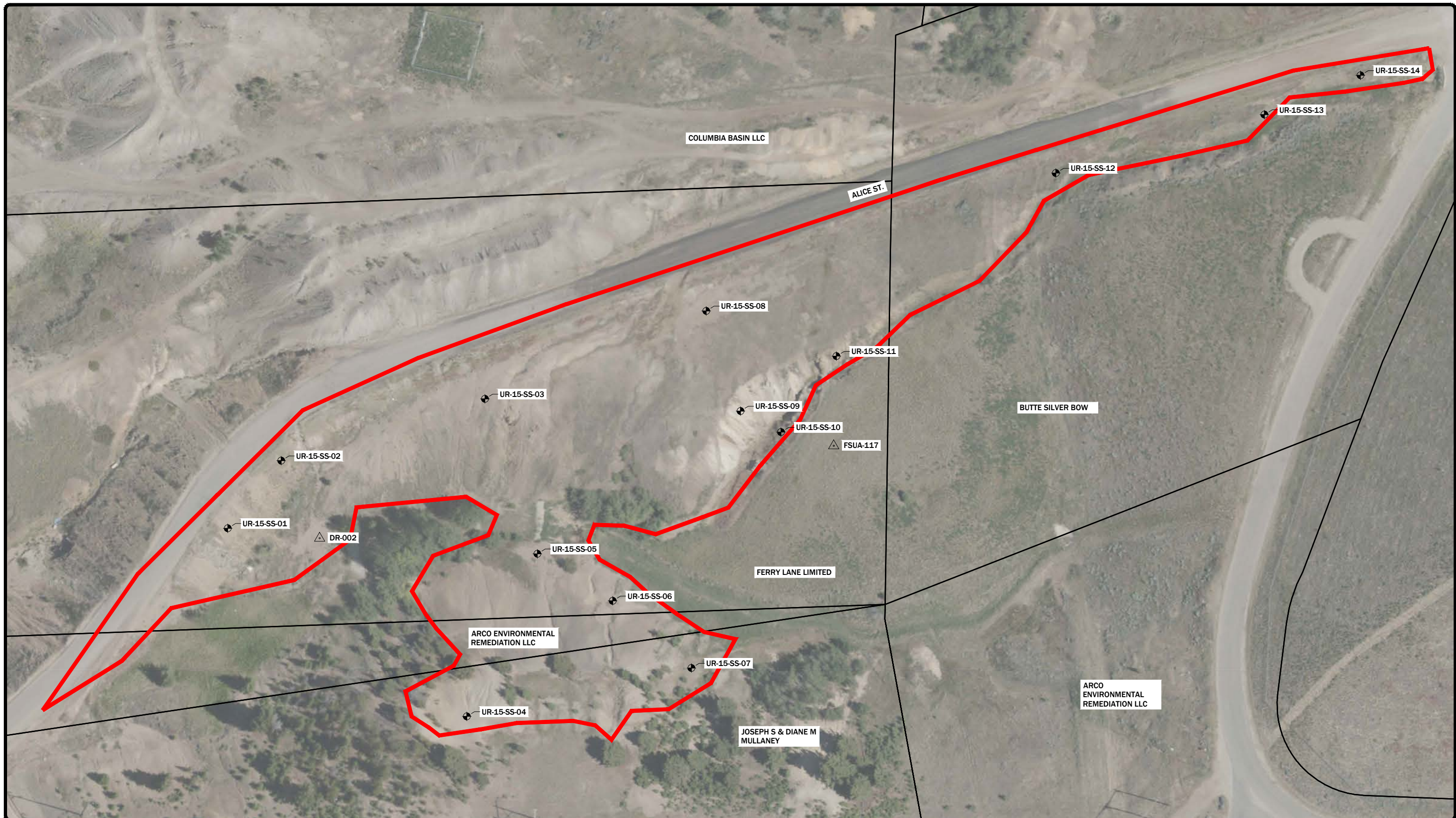
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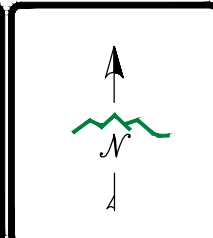
FIGURE 4 UNRECLAIMED SITE
UR-04
PROPOSED
SAMPLE LOCATIONS

PIONEER
TECHNICAL SERVICES, INC.
1101 SOUTH MONTANA
BUTTE, MONTANA 59701
(406) 782-5177

DATE: 10/2018



LEGEND:
 ● PROPOSED SOIL SAMPLE LOCATION
 ▲ PREVIOUS SOIL SAMPLE LOCATION
 UR-15 IS 3.82 ACRES



DISPLAYED AS:
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 SOURCE: PIONEER

SCALE IN FEET
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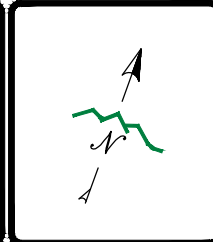
FIGURE 5 UNRECLAIMED SITE UR-15 PROPOSED SAMPLE LOCATIONS

PIONEER
 TECHNICAL SERVICES, INC.
 1101 SOUTH MONTANA
 BUTTE, MONTANA 59701
 (406) 782-5177

DATE: 5/2021



LEGEND:
 ● PROPOSED SOIL SAMPLE LOCATION
 ▲ PREVIOUS SOIL SAMPLE LOCATION
 UR-17 IS 3.60 ACRES



DISPLAYED AS:
 COORD SYS/ZONE: MSP
 DATUM: NAD 83
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 50 100

FIGURE 6 UNRECLAIMED SITE UR-17 PROPOSED SAMPLE LOCATIONS

PIONEER
 TECHNICAL SERVICES, INC.
 1101 SOUTH MONTANA
 BUTTE, MONTANA 59701
 (406) 782-5177

DATE: 5/2021