

ENVIRONMENTAL ASSESSMENT

**SPRING MEADOW LAKE
RESIDENTIAL YARDS
ABANDONED MINE RECLAMATION PROJECT**

LEWIS & CLARK COUNTY, MONTANA



Prepared By:
Montana Department of Environmental Quality
Abandoned Mine Lands Program

July 2013

SECTION 1.0: PURPOSE AND NEED FOR ACTION

AGENCY NAME:

Montana Department of Environmental Quality
Abandoned Mine Lands Program

LOCATION:

2470 Country Club Avenue
Helena, Montana 59602
Lewis and Clark County

2466 Country Club Avenue
Helena, Montana 59602
Lewis and Clark County

2460 Country Club Avenue
Helena, Montana 59602
Lewis and Clark County

Section 23 Township 10N, Range 4W

Latitude: N46.612
Longitude: W112.071

TYPE AND PURPOSE OF ACTION:

The Spring Meadow Lake site is located on the northwestern edge of the city of Helena, Montana, in Lewis and Clark County. The Spring Meadow Lake site consists of Spring Meadow Lake State Park (Park) and Montana WILD/Montana Wildlife Center (MWC). In 1910, the Northwestern Metals Company operated an ore processing facility which deposited ore processing wastes in the MWC area. Northwestern Metals Company went bankrupt in 1915 and in 1916 the New York-Montana Metals Testing and Engineering Company took over the MWC property and operated another ore processing facility until 1920. Ore from Butte, Philipsburg, and local sources were processed at the facilities. From the early 1920s to the early 1960s, the Park and MWC property were used for various gravel mining operations which resulted in the creation of Spring Meadow Lake. In 1981, The State of Montana purchased the 42-acre gravel pit and an additional 4.1 acre parcel (Tetra Tech, 2010).

As a result of years of ore processing, the Park and MWC area were contaminated with high levels of heavy metals in soil and sediment that posed a threat to human health and the environment. In 2009, DEQ Abandoned Mine Lands Program performed reclamation activities at the Park and MWC area to reduce risks to visitors (Tetra Tech, 2010). While the 2009 Spring Meadow Lake Abandoned Mine Reclamation Project removed mine waste contamination inside the Park boundary, the cleanup did not involve reclamation of any areas outside the Park. In early 2013, DEQ received information that soils impacted with heavy metals, including arsenic, lead and manganese, might extend beyond the Park and MWC area onto adjacent residential properties. The residential properties adjacent to the Park and MWC area are the focus of this Environmental Assessment.

DEQ tasked Trihydro with performing a surface soil and domestic groundwater sampling investigation in the Spring Meadow Lake residential area; the objective of the sampling investigation was to determine the presence of metals in surface soil and groundwater which may potentially be associated with the Spring Meadow Lake site. Work conducted for this investigation was prescribed in the February 12, 2013 Sampling and Analysis Plan Surface Soil and Domestic Water Well Sampling (SAP) for the study area (Trihydro, 2013a). The results of the investigation were documented in the April 16, 2013 Spring Meadow Lake Residential Area Investigation report (Trihydro, 2013b). The results of the investigation indicated that three residential properties were impacted by arsenic, lead, and manganese in the surface soil at concentrations in excess of established action levels; these three properties were therefore designated for reclamation of impacted soil at each. The investigation also documented that contaminants in drinking water for these residences did not exceed the maximum contaminant level (MCLs),

The results of the investigation showed that concentrations of arsenic, lead, and manganese in surface soil at the three residential properties were similar to concentrations of the same metals measured at the Park and MWC area. The results of the residential yard sampling show that the concentrations of arsenic, lead and manganese are highly correlated with each other ; i.e. where one metal exhibits a high concentration, the concentrations of the other metals can be expected to be high also, and conversely, when one is low the other are expected to be low as well. The results of the correlation analysis also support the observations made in the 2006 Tetra Tech Reclamation Investigation (Tetra Tech, 2006) that “any potential reclamation or remediation efforts that clean up arsenic contaminated soils would also clean up areas contaminated by lead and manganese.” This relationship also reflects the belief stated in the Tetra Tech document that a primary source for the contamination is “mill-tailings waste product from the concentrating and processing of manganese ores,” performed by New York-Montana Testing and Engineering in 1916 and 1917. The presence of significant levels of manganese in the soils found in the residential yards across the street from Spring Meadow Lake shows a tie between the two areas as during the World War I era the ore mill located at the park processed manganese for the war effort. Manganese concentrations found in soils both in Spring Meadow Lake Park and in the residential yards across the street from the Park make the tie to ore processing as the source of the contamination.

Because of the apparent association between the contamination in surface soil at the three residential properties and the contamination found at the Park and MWC area, DEQ Abandoned Mine Land Program requested that Trihydro conduct further investigation at the three impacted properties in order to refine the estimate for potential removal action. The properties targeted in this study are located to the east of Spring Meadow Lake, and consist of three adjacent parcels and an associated easement area, comprising approximately one acre in total. There are homes and a number of outbuildings on each of the parcels, as shown on Figure 2-1 which presents an overhead view of the properties. Figure 2.1 shows the sampling locations and Figure 4.1 show the depth of contamination on each parcel. Table 4.1 shows the level of lead and arsenic found at each sample location.

SECTION 1.1 RECLAMATION ACTIONS

The Spring Meadow Lake Residential Yards Abandoned Mine Reclamation Project will consist of the following:

- Mobilization of equipment to residential yards for soil removal.
- Excavate contaminated soil to a depth of 24 inches, limit excavation near large mature trees.
- Dispose contaminated soil at licensed solid waste landfill.
- Backfill and place coversoil over excavated areas to match contour of land.
- Repair drives, fences and landscaping.
- Sod front lawns, back lots seeded and mulched.

SECTION 2: IMPACTS ON THE PHYSICAL ENVIRONMENT	
SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:</p> <p>Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?</p>	<p>Soils are residential yard soils contaminated with lead, arsenic and manganese above risk based screening level. Action level for arsenic is 49.6 mg./kg as determined by investigation into naturally occurring arsenic background levels in Helena valley. Lead action level is 400 mg/kg as determined by integrated exposure uptake biokenitic model (IEUBK). (Trihydro 2013c) Manganese co-occurs with lead and arsenic and will be removed incidental to removal of lead and arsenic contaminated soil. Table 4.1</p> <p>Consultation with Agency for Toxic Substances and Disease Registry indicates that soils at site exceed ATSDR’s acute oral minimum risk level for pre-school, elementary school aged and pica children. Consultations appendix</p>
<p>2. WATER QUALITY, QUANTITY AND DISTRIBUTION:</p> <p>Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>Area has shallow near surface groundwater.</p> <p>Residents are served by individual household groundwater wells. No lead or arsenic exceeding the MCL were found in these wells or in associated residential kitchen taps.</p> <p>Nearest Surface water is located across road at Spring Meadow Lake Park lake a groundwater fed gravel pit excavation used as a local boating, swimming, and fishing area.</p>
<p>3. AIR QUALITY:</p> <p>Will pollution or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>Yes.</p> <p>All projects utilizing heavy equipment will produce particulate; however, the current ambient air quality in Lewis and Clark County, Montana is fair. The project is not located in any special air quality zones regulated by the State of Montana. Slight amounts of dust may be produced by excavating the soil, as well as during periods of hauling, backfilling. Dust will be limited by small size of excavation and by small equipment sized to work in residential yards</p>

SECTION 2: IMPACTS ON THE PHYSICAL ENVIRONMENT

SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>4. VEGETATION COVER, QUALITY AND QUANTITY:</p> <p>Will vegetative communities be significantly impacted? Are any rare plants or cover types present?</p>	<p>No native plant communities will be disturbed by project. Project is to remove contaminated soils from landscaped yards with non-native plants. No rare plants or cover types will be disturbed.</p>
<p>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE HABITATS:</p> <p>Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>Project involves cleanup of contaminated soil from residential yards. No rare or important wildlife or habitat will be impacted.</p>
<p>6. UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES:</p> <p>Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?</p>	<p>Site involved cleanup of contaminated soil from residential yards. No rare or important wildlife or habitat will be impacted. Consultation letter to US Fish and Wildlife Service was sent; however no response was received to consultation indicating limited concern about project.</p> <p>Consultation with Montana Natural Heritage Program indicates that sensitive bird and bat species may be found in the area; however the habitat for these species is open conifer forest or riparian forest. Certain sensitive vascular plants may also be found in the general area; however these plant species would not occur in a landscaped residential area. Consultation appendix.</p>
<p>7. HISTORICAL AND ARCHEOLOGICAL SITES:</p> <p>Are any historical, archeological or paleontological resources present?</p>	<p>No eligible historical properties will be impacted by project. State Historic Preservation Office concurs with finding of no effect on historic properties. Consultation appendix.</p>
<p>8. AESTHETICS:</p> <p>Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?</p>	<p>Properties front Country Club Avenue and a line of mature trees shields the residences from this busy street. Houses blend into neighborhood, and are well maintained and landscaped. Aesthetic is of suburban homes on urban fringe across street from State Park.</p> <p>Contamination is not visible to site visitors. Reclamation will involve small scale excavation equipment which will have noise associated with it. Work hours will not require night time lighting.</p>
<p>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:</p> <p>Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?</p>	<p>No.</p> <p>Activities associated with the project include soil removal and replacement at three residential yards. Project activity will consist of excavating contaminated soil to a depth of 24 inches, hauling in fill material, placement and compaction of fill material, and revegetating the disturbed area with sod and residential landscaping. No project activity will use resources that are limited in the area. All equipment and supplies will be supplied by a local contractor. There are no activities nearby that will impact this project.</p>

SECTION 2: IMPACTS ON THE PHYSICAL ENVIRONMENT

SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:</p> <p>Are there other activities nearby that will affect the project?</p>	<p>No.</p> <p>There are no other known activities nearby that will affect the project.</p>

SECTION 3: IMPACTS ON THE HUMAN POPULATION

SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
<p>1. HUMAN HEALTH AND SAFETY:</p> <p>Will this project add to health and safety risks in the area?</p>	<p>No. Project will <u>remove existing health and safety risks</u> from project area. Consultation with Agency for Toxic Substances and Disease Registry indicates that removal of soil impacted by lead and arsenic mine waste, if completed, will be protective of pre-school and elementary school age children who may reside in these residences. Lewis and Clark County Health Department has stated concerns about potential health impacts to residents from metal levels in soils of properties to be cleaned up by project.</p>
<p>2. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:</p> <p>Will the project add to or alter these activities?</p>	<p>No.</p> <p>Project involves cleanup of residential yards.</p>
<p>3. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:</p> <p>Will the project create move or eliminate jobs? If so, estimated number.</p>	<p>No.</p> <p>This project will have a positive impact on the local economy owing to the use of a local contractor.</p>
<p>4. LOCAL AND STATE TAX BASE AND TAX REVENUES:</p> <p>Will the project create or eliminate tax revenue?</p>	<p>No.</p> <p>This project will have no effect on the tax base or revenues.</p>
<p>5. DEMAND FOR GOVERNMENT SERVICES:</p> <p>Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?</p>	<p>No.</p> <p>The project is scheduled to occur over 30 day period. Lots sizes limit the scale and number of pieces of equipment that can access site. Construction activity is expected to be similar to typical residential construction activity. Given the size and scope of the reclamation project, no additional government services are anticipated and no undue burdens will be placed upon government services. Government services will consist of DEQ abandoned mine program personnel who will be responsible for administering and funding the project from federal</p>

SECTION 3: IMPACTS ON THE HUMAN POPULATION

SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT

RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
	abandoned mine reclamation grant.
<p>6. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:</p> <p>Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?</p>	<p>No.</p> <p>Reclamation activities associated with the project area will comply with all Federal, State, regional, and local land use plans, programs, and policies. Given the size and scope of the project, it is not anticipated that there will be any zoning or management plans in effect. Project area is zoned residential by City of Helena.</p>
<p>7. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:</p> <p>Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?</p>	<p>No.</p> <p>Project area is private land residential area. Spring Meadow Lake State Park is across Country Club Avenue from project area but project area affords no access or egress to Park.</p>
<p>8. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:</p> <p>Will the project add to the population and require additional housing?</p>	<p>No.</p> <p>This project will not add to the population or require additional housing. Reclamation work will be completed by contractors living near the project area.</p>
<p>9. SOCIAL STRUCTURES AND MORES:</p> <p>Is some disruption of native or traditional lifestyles or communities possible?</p>	<p>No.</p> <p>The project will not disrupt native or traditional lifestyles.</p>
<p>10. CULTURAL UNIQUENESS AND DIVERSITY:</p> <p>Will the action cause a shift in some unique quality of the area?</p>	<p>No.</p> <p>The projects will not cause any shifts in unique qualities of the areas. Three residential lots will retain residential qualities.</p>
<p>11. PRIVATE PROPERTY IMPACTS:</p> <p>Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants, of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no</p>	<p>No.</p> <p>The actions have been approved by the landowner. The landowners have signed a Notice and Consent for Entry form giving DEQ AML, their agents, and/or contractor(s) permission to access the property.</p>

SECTION 3: IMPACTS ON THE HUMAN POPULATION	
SPRING MEADOW LAKE RESIDENTIAL YARDS ABANDONED MINE RECLAMATION PROJECT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
further analysis is required.	
12. ENVIRONMENTAL JUSTICE: Will the actions have disproportionate effect on any demographic population with regard to either income level or minority status?	No. DEQ AML has prioritized the project in accordance with its statutory mandates and has also determined from United States Government Census figures that there is no disproportionate effect on any demographic population with regard to either income level or minority status. No consideration regarding the selection of this project was made in relation to income or race.
13. PUBLIC PARTICIPATION Will the public be given an opportunity to participate in comments and the design process?	No. Lewis and Clark County Commissioners have expressed concern about residential contamination and have expressed support for cleanup as have County Health Department officials. Landowners of affected property support the cleanup. This EA will be available for review and public comment on the DEQ AML website: http://deq.mt.gov/AbandonedMines/CurrentProjects.mcp .

A. PERSONS, ORGANIZATIONS AND AGENCIES CONTACTED

Michelle Watters, MD, PhD, MPH
 Medical Officer
 Division of Community Health Investigations
 Agency for Toxic Substances and Disease Registry
 Department of Health and Human Services

Melanie Reynolds, MPH
 Health Officer
 Lewis and Clark County Health Department

Commissioners Andy Hunthausen and Michael A, Murray
 Lewis and Clark County Commission

Kathryn Ore
 Compliance Officer
 State Historic Preservation Office

R. Mark Wilson, Field Supervisor
 Montana Field Office
 USFWS Ecological Services

Martin Miller
 Montana Natural Heritage Program

B. REPORTS, PUBLICATIONS AND PREVIOUS WORK CITED IN ASSESSMENT

Tetra Tech (2006) Spring Meadow Lake Park Abandoned Mined Land Reclamation Project, Reclamation Investigation and Expanded Engineering Evaluation and Cost Analysis.

Tetra Tech (2010) Construction Report for Spring Meadow Abandoned Mine Land Reclamation Project.

Trihydro (2013a) Sampling and Analysis Plan - Spring Meadow Lake Residential Area.

Trihydro (2013b) Spring Meadow Lake Residential Area Investigation.

Trihydro (2013c) Design Phase Report – Soil Reclamation, Spring Meadow Lake Residential Areas.

B. PREPARERS AND REVIEWERS

Montana Department of Environmental Quality
Abandoned Mine Lands Program
1100 N. Last Chance Gulch
P.O. Box 200901
Helena, MT. 59620

Pebbles Clark, Project Manager
Date:

Reviewed by:

Montana Department of Environmental Quality
Abandoned Mine Lands Bureau
1100 N. Last Chance Gulch
P.O. Box 200901
Helena, MT. 59620

John Koerth, AML Program Supervisor
Date:

FIGURES

1-1 Properties Designated for Reclamation

2-1 Soil Sampling Grid

4-1 Depth of Impacted Soils

TABLES

4-1 Soil Sample and Laboratory Results

Consultations Appendix:

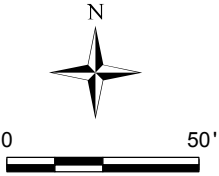
- **Agency for Toxic Substances and Disease Registry**
 - **Lewis and Clark County Health Department**
 - **Lewis and Clark County Commission**
 - **US Fish and Wildlife Service**
 - **Montana Natural Heritage Program**
 - **Montana State Historic Preservation Office**
 - **Environmental Justice Documentation**



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

EXPLANATION

- RECLAMATION AREA
- LAND OWNERSHIP PARCELS



Trihydro
CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 1-1

PROPERTIES DESIGNATED FOR RECLAMATION

SPRING MEADOW LAKE RESIDENTIAL AREAS
DESIGN PHASE
HELENA, MONTANA

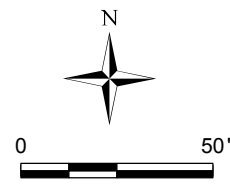
Drawn By: PH | Checked By: JG | Scale: 1" = 50' | Date: 6/27/13 | File: MDEQ_Properties_Figure1-1.mxd



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

EXPLANATION

- PROPOSED SAMPLING LOCATION
- SOIL SAMPLING GRID



Trihydro
CORPORATION
1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 2-1
SOIL SAMPLING GRID AND CONCEPTUAL SAMPLING LOCATIONS
SPRING MEADOW LAKE RESIDENTIAL AREAS DESIGN PHASE
HELENA, MONTANA

Drawn By: PH	Checked By: JG	Scale: 1" = 50'	Date: 6/28/13	File: MDEQ_SoilSamples_Figure2-1.mxd
--------------	----------------	-----------------	---------------	--------------------------------------

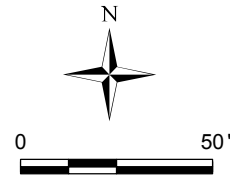


Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

EXPLANATION

DEPTH OF IMPACT

- NO IMPACT
- 1 FOOT
- 2 FOOT
- 3 FOOT
- 4 FOOT
- 5 FOOT AND GREATER



Trihydro
CORPORATION

1252 Commerce Drive
Laramie, WY 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 4-1

DEPTH OF IMPACT

**SPRING MEADOW LAKE RESIDENTIAL AREAS
DESIGN PHASE
HELENA, MONTANA**

Drawn By: PH | Checked By: JG | Scale: 1" = 50' | Date: 6/28/13 | File: MDEQ_SoilImpactsCont_Figure4-1.mxd

TABLE 4.1 SOIL SAMPLE XRF AND LABORATORY RESULTS
 SPRING MEADOW LAKE RESIDENTIAL AREAS DESIGN PHASE, HELENA, MONTANA

SAMPLE ID	DATE SAMPLED	PROPERT Y IDENTIFIE R	SAMPL E NUMBER	SAMPL E		Units	ARSENIC					LEAD				
				START DEPTH	E END DEPTH		SSL=19.6		RSL=49.6 ¹			SSL=140		RSL=400		
							XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT	XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT
C-SMLRY-26-0-12	5/29/2013	C	26	0	12	ppm	342.81	50	YES	--	--	108.04	60	YES	--	--
C-SMLRY-26-12-24	5/29/2013	C	26	12	24	ppm	659.3	50	YES	--	--	349.9	60	YES	--	--
C-SMLRY-26-24-36	5/29/2013	C	26	24	36	ppm	1756.32	50	YES	--	--	1316.38	60	YES	--	--
C-SMLRY-26-36-48	5/29/2013	C	26	36	48	ppm	269.03	50	YES	--	--	255.03	60	YES	--	--
C-SMLRY-27-0-12	5/29/2013	C	27	0	12	ppm	1148.12	50	YES	1120	YES	988.95	60	YES	1030	YES
C-SMLRY-27-12-24	5/29/2013	C	27	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-28-0-12	5/29/2013	C	28	0	12	ppm	173.37	50	YES	--	--	193.47	60	YES	--	--
C-SMLRY-28-12-24	5/29/2013	C	28	12	24	ppm	1160.27	50	YES	--	--	871.1	60	YES	--	--
C-SMLRY-28-24-36	5/29/2013	C	28	24	36	ppm	98.09	50	YES	--	--	60	60	NO	--	--
C-SMLRY-28-36-48	5/29/2013	C	28	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-29-0-12	5/30/2013	C	29	0	12	ppm	683.16	50	YES	--	--	578.37	60	YES	--	--
C-SMLRY-29-12-24	5/30/2013	C	29	12	24	ppm	247.18	50	YES	171	YES	265.82	60	YES	134	YES
C-SMLRY-29-24-36	5/30/2013	C	29	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-29-36-48	5/30/2013	C	29	36	48	ppm	50	50	NO	--	--	93.4	60	YES	--	--
C-SMLRY-30-0-12	5/30/2013	C	30	0	12	ppm	1083.72	50	YES	--	--	678	60	YES	--	--
C-SMLRY-30-12-24	5/30/2013	C	30	12	24	ppm	783.45	50	YES	455	YES	660.39	60	YES	776	YES
C-SMLRY-30-24-36	5/30/2013	C	30	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-30-36-48	5/30/2013	C	30	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-31-0-12	5/30/2013	C	31	0	12	ppm	1604.06	50	YES	--	--	1846.22	60	YES	--	--
C-SMLRY-31-12-24	5/30/2013	C	31	12	24	ppm	1980.22	50	YES	--	--	1544.14	60	YES	--	--
C-SMLRY-31-24-36	5/30/2013	C	31	24	36	ppm	63.02	50	YES	--	--	60	60	NO	--	--
C-SMLRY-31-36-48	5/30/2013	C	31	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-32-0-12	5/30/2013	C	32	0	12	ppm	504.56	50	YES	--	--	453.62	60	YES	--	--
C-SMLRY-32-12-24	5/30/2013	C	32	12	24	ppm	943.22	50	YES	528	YES	670.06	60	YES	429	YES
C-SMLRY-32-24-36	5/30/2013	C	32	24	36	ppm	54.16	50	YES	--	--	60	60	NO	--	--
C-SMLRY-32-36-48	5/30/2013	C	32	36	48	ppm	83.32	50	YES	--	--	60	60	NO	--	--
C-SMLRY-32-36-48*	5/30/2013	C	32	36	48	ppm	86	50	YES	--	--	60	60	NO	--	--
C-SMLRY-32-48-60	5/30/2013	C	32	48	60	ppm	157.46	50	YES	--	--	99.57	60	YES	--	--
C-SMLRY-33-0-12	5/30/2013	C	33	0	12	ppm	456.91	50	YES	--	--	1154.7	60	YES	--	--
C-SMLRY-33-24-36	5/30/2013	C	33	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-34-0-12	5/30/2013	C	34	0	12	ppm	178.31	50	YES	161	YES	270.14	60	YES	159	YES
C-SMLRY-34-12-24	5/30/2013	C	34	12	24	ppm	543.48	50	YES	--	--	404.92	60	YES	--	--
C-SMLRY-34-24-36	5/30/2013	C	34	24	36	ppm	180.27	50	YES	--	--	183.62	60	YES	--	--
C-SMLRY-34-36-48	5/30/2013	C	34	36	48	ppm	76.86	50	YES	--	--	71.73	60	YES	--	--
C-SMLRY-35-0-12	5/30/2013	C	35	0	12	ppm	933.67	50	YES	780	YES	800.05	60	YES	887	YES
C-SMLRY-35-0-12*	5/31/2013	C	35	0	12	ppm	933.67	50	YES	1080	YES	800.05	60	YES	1020	YES
C-SMLRY-35-12-24	5/30/2013	C	35	12	24	ppm	576.33	50	YES	--	--	477.96	60	YES	--	--
C-SMLRY-35-24-36	5/30/2013	C	35	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
C-SMLRY-35-36-48	5/30/2013	C	35	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-39-0-12	5/28/2013	D	39	0	12	ppm	471.68	50	YES	1290	YES	398.39	60	YES	1070	YES
D-SMLRY-39-12-24	5/28/2013	D	39	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-40-0-12	5/28/2013	D	40	0	12	ppm	111.66	50	YES	--	--	167.89	60	YES	--	--
D-SMLRY-40-12-24	5/28/2013	D	40	12	24	ppm	235.62	50	YES	--	--	312.03	60	YES	--	--
D-SMLRY-40-24-36	5/28/2013	D	40	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-40-36-48	5/28/2013	D	40	36	48	ppm	57.35	50	YES	--	--	60	60	NO	--	--
D-SMLRY-40-48-60	5/30/2013	D	40	48	60	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-40-60-72	5/30/2013	D	40	60	72	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-41-0-12	5/28/2013	D	41	0	12	ppm	692.6	50	YES	957	YES	1040.75	60	YES	1040	YES
D-SMLRY-41-12-24	5/28/2013	D	41	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-42-0-12	5/28/2013	D	42	0	12	ppm	50	50	NO	--	--	205.66	60	YES	--	--
D-SMLRY-42-12-24	5/28/2013	D	42	12	24	ppm	50	50	NO	--	--	86.03	60	YES	--	--
D-SMLRY-42-24-36	5/28/2013	D	42	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-42-36-48	5/28/2013	D	42	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-43-0-12	5/28/2013	D	43	0	12	ppm	50	50	NO	--	--	271.38	60	YES	--	--

TABLE 4.1 SOIL SAMPLE XRF AND LABORATORY RESULTS
 SPRING MEADOW LAKE RESIDENTIAL AREAS DESIGN PHASE, HELENA, MONTANA

SAMPLE ID	DATE SAMPLED	PROPERT Y IDENTIFIE R	SAMPL E NUMBER	SAMPL E		Units	ARSENIC					LEAD				
				START DEPTH	E END DEPTH		SSL=19.6		RSL=49.6 ¹			SSL=140		RSL=400		
							XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT	XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT
D-SMLRY-43-12-24	5/28/2013	D	43	12	24	ppm	138.34	50	YES	--	--	283.94	60	YES	--	--
D-SMLRY-43-24-36	5/28/2013	D	43	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-43-36-48	5/28/2013	D	43	36	48	ppm	68.59	50	YES	--	--	60	60	NO	--	--
D-SMLRY-43-48-60	5/30/2013	D	43	48	60	ppm	50	50	NO	--	--	109.01	60	YES	--	--
D-SMLRY-45-0-12	5/28/2013	D	45	0	12	ppm	103.18	50	YES	--	--	79.12	60	YES	--	--
D-SMLRY-45-12-24	5/28/2013	D	45	12	24	ppm	59.16	50	YES	--	--	60	60	NO	--	--
D-SMLRY-45-24-36	5/30/2013	D	45	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-45-36-48	5/30/2013	D	45	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-46-0-12	5/28/2013	D	46	0	12	ppm	239.26	50	YES	87.3	YES	286.57	60	YES	110	YES
D-SMLRY-46-12-24	5/28/2013	D	46	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-47-0-12	5/28/2013	D	47	0	12	ppm	101.11	50	YES	75.4	YES	175.89	60	YES	105	YES
D-SMLRY-47-12-24	5/28/2013	D	47	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-48-0-12	5/28/2013	D	48	0	12	ppm	521.42	50	YES	212	YES	1037.38	60	YES	512	YES
D-SMLRY-48-12-24	5/28/2013	D	48	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-54-0-12	5/28/2013	D	54	0	12	ppm	50	50	NO	--	--	70.88	60	YES	--	--
D-SMLRY-54-12-24	5/28/2013	D	54	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-55-0-12	5/28/2013	D	55	0	12	ppm	101.07	50	YES	--	--	60	60	NO	--	--
D-SMLRY-55-12-24	5/28/2013	D	55	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-56-0-12	5/28/2013	D	56	0	12	ppm	128.72	50	YES	142	YES	148.75	60	YES	156	YES
D-SMLRY-56-12-24	5/28/2013	D	56	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-57-0-12	5/28/2013	D	57	0	12	ppm	87.44	50	YES	--	--	60	60	NO	--	--
D-SMLRY-57-12-24	5/28/2013	D	57	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-58-0-12	5/28/2013	D	58	0	12	ppm	133.15	50	YES	161	YES	179.26	60	YES	188	YES
D-SMLRY-58-0-12*	5/29/2013	D	58	0	12	ppm	133.15	50	YES	165	YES	179.26	60	YES	188	YES
D-SMLRY-58-12-24	5/28/2013	D	58	12	24	ppm	70.02	50	YES	--	--	60	60	NO	--	--
D-SMLRY-58-24-36	5/30/2013	D	58	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
D-SMLRY-58-36-48	5/30/2013	D	58	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-10-0-12	5/29/2013	E	10	0	12	ppm	6495.01	50	YES	5030	YES	2419.28	60	YES	3250	YES
E-SMLRY-10-12-24	5/29/2013	E	10	12	24	ppm	57.14	50	YES	--	--	60	60	NO	--	--
E-SMLRY-10-24-36	5/29/2013	E	10	24	36	ppm	381.02	50	YES	--	--	171.22	60	YES	--	--
E-SMLRY-11-0-12	5/29/2013	E	11	0	12	ppm	167.53	50	YES	237	YES	129.72	60	YES	218	YES
E-SMLRY-13-0-12	5/29/2013	E	13	0	12	ppm	129.52	50	YES	--	--	60	60	NO	--	--
E-SMLRY-13-12-24	5/29/2013	E	13	12	24	ppm	251.35	50	YES	--	--	60	60	NO	--	--
E-SMLRY-13-24-36	5/29/2013	E	13	24	36	ppm	81.98	50	YES	--	--	60	60	NO	--	--
E-SMLRY-14-0-12	5/29/2013	E	14	0	12	ppm	2426.22	50	YES	3370	YES	1569.34	60	YES	2320	YES
E-SMLRY-14-12-24	5/29/2013	E	14	12	24	ppm	50	50	NO	--	--	79.55	60	YES	--	--
E-SMLRY-15-0-12	5/29/2013	E	15	0	12	ppm	78.8	50	YES	--	--	94.96	60	YES	--	--
E-SMLRY-15-12-24	5/29/2013	E	15	12	24	ppm	322.96	50	YES	230	YES	274.41	60	YES	235	YES
E-SMLRY-16-0-12	5/29/2013	E	16	0	12	ppm	305.62	50	YES	--	--	81.97	60	YES	--	--
E-SMLRY-16-12-24	5/29/2013	E	16	12	24	ppm	102.25	50	YES	--	--	60	60	NO	--	--
E-SMLRY-16-24-36	5/29/2013	E	16	24	36	ppm	109.87	50	YES	75.7	YES	88.33	60	YES	40.9	YES
E-SMLRY-16-36-48	5/29/2013	E	16	36	48	ppm	50	50	NO	--	--	115.25	60	YES	--	--
E-SMLRY-17-0-12	5/29/2013	E	17	0	12	ppm	4117.96	50	YES	2690	YES	2199.18	60	YES	2290	YES
E-SMLRY-17-12-24	5/29/2013	E	17	12	24	ppm	226.86	50	YES	--	--	988.06	60	YES	--	--
E-SMLRY-17-24-36	5/29/2013	E	17	24	36	ppm	132.7	50	YES	965	YES	151.52	60	YES	736	YES
E-SMLRY-17-36-48	5/29/2013	E	17	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-18-0-12	5/29/2013	E	18	0	12	ppm	152.28	50	YES	--	--	130.66	60	YES	--	--
E-SMLRY-18-12-24	5/29/2013	E	18	12	24	ppm	263.52	50	YES	--	--	95.44	60	YES	--	--
E-SMLRY-18-24-36	5/29/2013	E	18	24	36	ppm	50	50	NO	--	--	108.16	60	YES	--	--
E-SMLRY-18-36-48	5/29/2013	E	18	36	48	ppm	325.63	50	YES	--	--	236.4	60	YES	--	--
E-SMLRY-19-0-12	5/29/2013	E	19	0	12	ppm	79.27	50	YES	--	--	60	60	NO	--	--
E-SMLRY-19-12-24	5/29/2013	E	19	12	24	ppm	396	50	YES	1200	YES	794.93	60	YES	875	YES
E-SMLRY-19-24-36	5/29/2013	E	19	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-20-0-12	5/29/2013	E	20	0	12	ppm	50	50	NO	--	--	60	60	NO	--	--

TABLE 4.1 SOIL SAMPLE XRF AND LABORATORY RESULTS
 SPRING MEADOW LAKE RESIDENTIAL AREAS DESIGN PHASE, HELENA, MONTANA

SAMPLE ID	DATE SAMPLED	PROPERT Y IDENTIFIE R	SAMPL E NUMBER	SAMPL E		Units	ARSENIC					LEAD				
				START DEPTH	END DEPTH		SSL=19.6		RSL=49.6 ¹			SSL=140		RSL=400		
							XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT	XRF RESULT	XRF LIMIT	XRF DETECT	LAB RESULT	LAB DETECT
E-SMLRY-20-12-24	5/29/2013	E	20	12	24	ppm	1190.32	50	YES	--	--	1445.54	60	YES	--	--
E-SMLRY-20-24-36	5/29/2013	E	20	24	36	ppm	50	50	NO	33.6	YES	60	60	NO	29.6	YES
E-SMLRY-20-36-48	5/29/2013	E	20	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-21-0-12	5/29/2013	E	21	0	12	ppm	216.5	50	YES	252	YES	120.48	60	YES	181	YES
E-SMLRY-21-0-12*	5/29/2013	E	21	0	12	ppm	216.5	50	YES	253	YES	120.48	60	YES	196	YES
E-SMLRY-21-12-24	5/29/2013	E	21	12	24	ppm	267.76	50	YES	440	YES	228.29	60	YES	246	YES
E-SMLRY-21-24-36	5/29/2013	E	21	24	36	ppm	301.23	50	YES	--	--	164.16	60	YES	--	--
E-SMLRY-21-36-48	5/29/2013	E	21	36	48	ppm	50	50	NO	--	--	109.63	60	YES	--	--
E-SMLRY-22-0-12	5/29/2013	E	22	0	12	ppm	558.53	50	YES	--	--	268.63	60	YES	--	--
E-SMLRY-22-12-24	5/29/2013	E	22	12	24	ppm	50	50	NO	--	--	73.74	60	YES	--	--
E-SMLRY-23-0-12	5/29/2013	E	23	0	12	ppm	5055.88	50	YES	2240	YES	2441.74	60	YES	1450	YES
E-SMLRY-23-12-24	5/29/2013	E	23	12	24	ppm	90.31	50	YES	--	--	60	60	NO	--	--
E-SMLRY-23-24-36	5/30/2013	E	23	24	36	ppm	79.52	50	YES	--	--	60	60	NO	--	--
E-SMLRY-23-36-48	5/30/2013	E	23	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-24-0-12	5/29/2013	E	24	0	12	ppm	169.93	50	YES	--	--	60	60	NO	--	--
E-SMLRY-24-12-24	5/29/2013	E	24	12	24	ppm	561.37	50	YES	--	--	308.39	60	YES	--	--
E-SMLRY-24-24-36	5/29/2013	E	24	24	36	ppm	77.42	50	YES	--	--	60	60	NO	--	--
E-SMLRY-24-36-48	5/29/2013	E	24	36	48	ppm	81.01	50	YES	--	--	60	60	NO	--	--
E-SMLRY-24-48-60	5/30/2013	E	24	48	60	ppm	77.66	50	YES	--	--	60	60	NO	--	--
E-SMLRY-24-60-72	5/30/2013	E	24	60	72	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-25-0-12	5/29/2013	E	25	0	12	ppm	50	50	NO	--	--	82.57	60	YES	--	--
E-SMLRY-25-12-24	5/29/2013	E	25	12	24	ppm	690.54	50	YES	1060	YES	1431.63	60	YES	1620	YES
E-SMLRY-25-12-24*	5/29/2013	E	25	12	24	ppm	690.54	50	YES	1270	YES	1431.63	60	YES	2420	YES
E-SMLRY-25-24-36	5/29/2013	E	25	24	36	ppm	93.72	50	YES	111	YES	74.94	60	YES	122	YES
E-SMLRY-25-36-48	5/29/2013	E	25	36	48	ppm	50	50	NO	--	--	60	60	NO	--	--
E-SMLRY-7-0-12	5/29/2013	E	7	0	12	ppm	130.17	50	YES	246	YES	209.13	60	YES	446	YES
E-SMLRY-8-0-12	5/29/2013	E	8	0	12	ppm	50	50	NO	--	--	126.27	60	YES	--	--
E-SMLRY-8-12-24	5/29/2013	E	8	12	24	ppm	69.28	50	YES	--	--	60	60	NO	--	--
E-SMLRY-9-0-12	5/29/2013	E	9	0	12	ppm	1126.75	50	YES	772	YES	825.8	60	YES	573	YES
E-SMLRY-9-12-24	5/29/2013	E	9	12	24	ppm	63.5	50	YES	--	--	60	60	NO	--	--
Z-SMLRY-1-0-12	5/28/2013	Z	1	0	12	ppm	50	50	NO	--	--	174.05	60	YES	--	--
Z-SMLRY-1-12-24	5/28/2013	Z	1	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
Z-SMLRY-2-0-12	5/28/2013	Z	2	0	12	ppm	104.83	50	YES	--	--	142.81	60	YES	--	--
Z-SMLRY-2-12-24	5/28/2013	Z	2	12	24	ppm	147.21	50	YES	--	--	194.52	60	YES	--	--
Z-SMLRY-2-24-36	5/28/2013	Z	2	24	36	ppm	122.86	50	YES	--	--	60	60	NO	--	--
Z-SMLRY-3-0-12	5/28/2013	Z	3	0	12	ppm	136.64	50	YES	105	YES	295.11	60	YES	273	YES
Z-SMLRY-3-12-24	5/28/2013	Z	3	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
Z-SMLRY-4-0-12	5/28/2013	Z	4	0	12	ppm	50	50	NO	--	--	60	60	NO	--	--
Z-SMLRY-4-12-24	5/28/2013	Z	4	12	24	ppm	50	50	NO	--	--	60	60	NO	--	--
Z-SMLRY-5-0-12	5/28/2013	Z	5	0	12	ppm	50	50	NO	--	--	113.37	60	YES	--	--
Z-SMLRY-5-12-24	5/28/2013	Z	5	12	24	ppm	89.55	50	YES	--	--	60	60	NO	--	--
Z-SMLRY-5-24-36	5/28/2013	Z	5	24	36	ppm	50	50	NO	--	--	60	60	NO	--	--

Notes: 1) area-specific background value
 * => Field Duplicate
 SSL= Soil Screening Level
 RSL= Regional Screening Level
 ppm=parts per million



Agency for Toxic Substances
and Disease Registry
Atlanta, GA 30333

March 19, 2013

Aimee Reynolds, Remedial Project Manager
Montana Department of Environmental Quality
Remediation Division, Site Response Section
1100 North Last Chance Gulch, P.O. Box 200901
Helena, MT 59620-0901

Dear Ms. Reynolds:

On behalf of the Agency for Toxic Substances and Disease Registry (ATSDR) Region 8 Montana Office, I have reviewed the Montana Department of Environmental Quality (MDEQ) soil sampling data from February 2013 for three residential properties located near the Spring Meadows Lake site in Helena, MT. ATSDR supports MDEQ's decision to reduce exposure to contaminated soils by removing soil from these three residential properties based on measurements of arsenic, lead, and manganese in the soil.

Previous ATSDR involvement at the Spring Meadows Lake site

In April 2006, ATSDR completed a Health Consultation, "*Arsenic and Lead Contamination in Soil, Surface Water, and Sediment, Spring Meadows Lake Site, Helena, Lewis and Clark Counties, Montana.*" The site had been used for mineral processing and sand and gravel mining and wastes included mine tailings and other mineral processing wastes were in the site boundary. One of the conclusions of the health consultation was that the concentrations of arsenic and lead found in the soil at Spring Meadows State Park (SMSP) and the Montana Wildlife Center (MWC) could pose a health hazard if ingested. The recommendation was that remediation or removal of contaminated soil at the site was needed to minimize exposures to arsenic and lead.

Average surface soil arsenic and lead concentrations at SMSP were 811 mg/kg and 665 mg/kg, respectively and at MWC were 5,554 mg/kg and 3,222 mg/kg, respectively. The estimated daily dose of arsenic to a pica child at SMSP ranged from 0.0186 to 0.2548 mg/kg/day for soil intake of 600 to 5,000 milligrams per day (about 1/8 to 1 teaspoon). These values exceeded the ATSDR acute oral arsenic minimal risk level (MRL) of 0.005 mg/kg/day and were above the acute arsenic lowest observed adverse effect level (LOAEL) of 0.05 mg/kg/day. Based on the average surface soil arsenic concentration at MWC, the estimated daily arsenic dose was much higher and exceeded ATSDR's acute oral MRL for pre-school, elementary school-aged, and pica children.

February 2013 soil data from three Spring Meadows Lake residential properties

MDEQ provided validated results for 12 composite yard, 5 drip line and 1 garden surface soil samples taken from three properties. Arsenic soil concentrations ranged from 36 to 1,390 mg/kg. All but one sample exceeded the EPA residential screening level (RSL) of 49.6 mg As/kg soil. Lead soil concentrations ranged from 71 to 1,120 mg/kg. Fifteen soil samples exceeded the EPA RSL of 140 mg Pb/kg soil and eleven exceeded EPA soil screening level (SSL) of 400 mg Pb/kg soil. All eighteen soil samples exceeded EPA RSL for manganese of 210 mg Mn/kg soil. The range of manganese in soil was 1,790 to 39,800 mg/kg.

Given the surface soil sample results for arsenic and lead at these three residential properties were similar to what was found at SMSP, it is reasonable to extend the conclusions and recommendations from the 2006 ATSDR Health Consultation to these properties. Thus, avoiding exposure to contaminants in these yards is recommended.

The 2006 Health Consultation did not address manganese in soil. ATSDR does not have an oral MRL for manganese. In 2001, the Institute of Medicine (IOM) established a tolerable upper intake limit (UL) for manganese (IOM 2001: <http://www.nap.edu/openbook.php?isbn=0309072794>). The UL for manganese is 2 mg/day for children 1 to 3 years, 3 mg/day for children 4 to 8 years, 6 mg/day for children 9 to 13, and 9 mg/kg for children 14 to 18 of age. Using the average soil surface concentration of manganese of 18,380 mg/kg for the 18 samples and given the median intake of manganese from the diet for a child 1 to 3 years old of 1.2 mg/day (IOM 2001), a pica child consuming just over 1,000 mg of soil (about ¼ teaspoon) would exceed the UL of manganese for a 1 to 3 year old child (see Table).

Soil Intake (mg)	Exposure Factor	Estimated mg Mn/day from soil
200	0.28	0.04
600	1	0.44
1,000	1	0.73
3,000	1	2.21
5,000	1	3.68

Formula used to estimate daily intake of Mn from soil: Mn concentration x soil intake x biological availability x exposure factor. Bioavailability factor assumed to be 4.0% based on EPA RSL for ingestion of non-dietary manganese. Exposure factor assumed to be 0.28 based on exposure frequency of 2 days/week for the general population, 1.0 for pica child.

Contaminants of concern

Arsenic and lead have historically been contaminants at many former mining sites including the Spring Meadows Lake site. As discussed in the 2006 Health Consultation,

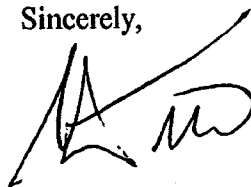
in addition to being a known human carcinogen, arsenic exposure can lead to neurological and dermatological effects. In children, lead exposure is associated with neurobehavioral deficits and hematological effects. Manganese is a required nutrient. However, oral exposure to high concentrations of manganese is associated with adverse neurological effects, including neurodevelopmental effects in children.

Summary

The evaluation of the soil data provided by MDEQ for the three residential properties revealed soil concentrations of arsenic, lead, and manganese that are a potential health concern to residents, especially young children. The MDEQ decision to seek funding to remove the contaminated soils from these properties is within the public health interest and ATSDR supports MDEQ's efforts to mitigate the residential soil contamination at the Spring Meadows Lake site.

If you need additional assistance, please contact me (312-353-2979; mwatters@cdc.gov) or Dan Strausbaugh (406-457-5007; dvs3@cdc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'Michelle Watters', is written over a horizontal line.

Michelle Watters, MD, PhD, MPH
Medical Officer
Division of Community Health Investigations
Agency for Toxic Substances and Disease Registry

cc: Dan Strausbaugh, ATSDR Region 8, Regional Director



LEWIS & CLARK CITY-COUNTY
Health Department

316 N Park Ave
Helena, MT 59623
406-447-8351
Fax: 406-447-8398

March 14, 2013

Aimee Reynolds
Remediation Division
Montana Department of Environmental Quality (DEQ)
1100 North Last Chance Gulch
Helena, MT 59620-0901

Re: Spring Meadow Residential Yard Cleanup

Dear Ms. Reynolds:

The Lewis and Clark City-County Health Department (LCCCHD) supports the Montana Department of Environmental Quality (DEQ) in its request for funding to cleanup residential yards adjacent to the Spring Meadow Lake Reclamation Project located in Helena, Montana.

The LCCCHD understands that DEQ's Abandoned Mine Section (AMS) is seeking approval from the U.S. Office of Surface Mining (OSM) to use OSM funds to cleanup three yards in the area. We are familiar with the Spring Meadow Lake Reclamation Project and the contaminants found at that site.

Our LCCCHD staff have reviewed the data from the residential yards adjacent to that site and note that surface soil samples from these yards have been found to contain arsenic as high as 1,390 mg/kg of arsenic, 39,800 mg/kg of manganese, and lead as high as 1,120 mg/kg. Screening levels based upon human health risks and native soil concentrations are 49.6 for arsenic, 1,800 for manganese and 400 mg/kg lead, well below soil contamination levels found at the site.

As we understand it, the MT DEQ staff is aware that the type of contamination found in these residential yards mirrors what was found at the Spring Meadow Lake Reclamation Project and it is likely that the source of contamination in the residential yards is the Spring Meadow Lake site.

The elevated metals concentrations in the residential yards represent a potential health risk to the residents living on these properties. Removal of the contaminated soils and replacement with clean soil and vegetation will alleviate these risks. Lewis and Clark County encourages OSM to approve funds for DEQ's AMS to conduct the cleanup necessary to protect public health.

Please contact me at 406-457-8910 if you wish to discuss our concerns.

Sincerely,

Melanie Reynolds, MPH
Health Officer
Lewis and Clark County

RECEIVED

MAR 19 2013

Dept. of Environmental Quality
Remediation Division

Cc: Kathy Moore, Environmental Services Administrator, LCCCHD

The mission of the Lewis and Clark City-County Health Department is to improve and protect the health of all Lewis and Clark County residents.



Lewis & Clark C O U N T Y



BOARD OF COUNTY COMMISSIONERS

Andy Hunthausen

Michael A. Murray

City County Building 316 North Park Avenue Helena, Montana 59623 Phone 406.447.8304 Fax 406.447.8370
Aimee Reynolds March 11, 2013
Remediation Division
Montana Department of Environmental Quality (DEQ)
1100 North Last Chance Gulch
Helena, MT 59620-0901

Re: Spring Meadow Residential Yard Cleanup

Dear Ms. Reynolds:

Lewis and Clark County is writing to support the Montana Department of Environmental Quality (DEQ) in its request for funding to cleanup residential yards adjacent to the Spring Meadow Lake Reclamation Project located in Helena, Montana.

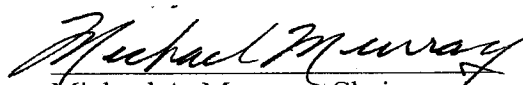
The County has been informed that DEQ's Abandoned Mine Section (AMS) is seeking approval from the U.S. Office of Surface Mining (OSM) to use OSM funds to cleanup at least three yards in the area. We are familiar with the Spring Meadow Lake Reclamation Project and the contaminants found at that site previously.

Our Health Department staff have reviewed the soil sampling data from residential yards adjacent to the Spring Meadow site and they have expressed their concerns about the surface soil samples from these yards containing arsenic as high as 1,390 mg/kg; manganese at 39,800 mg/kg; and lead as high as 1,120 mg/kg. Screening levels based upon human health risks and native soil concentrations are 49.6 for arsenic, 1,800 for manganese and 400 mg/kg lead, well below soil contamination levels found at the site.

We are aware that the type of contamination found in these residential yards mirrors what was found at the Spring Meadow Lake Reclamation Project and further investigation is warranted to determine the source of the contamination.

The elevated metals concentrations in the residential yards represent a potential health risk to the residents living on these properties. Removal of the contaminated soils and replacement with clean soil and vegetation will help alleviate these risks. Lewis and Clark County encourages OSM to approve funds for DEQ's AMS to conduct the cleanup necessary to protect public health.

Sincerely,


Michael A. Murray - Chair


Andy Hunthausen - Commissioner



"Healthy environment, healthy people"

**Montana Department of
ENVIRONMENTAL QUALITY**

**Steve Bullock, Governor
Tracy Stone-Manning, Director**

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

April 10, 2013

R. Mark Wilson, Field Supervisor
Montana Field Office
USFWS Ecological Services
585 Shepard Way
Helena, MT 59601

**RE: Proposed Abandoned Mine Reclamation Project
Spring Meadow Lake Residential Yards
Section 23, Township 10 North, Range 4 West, Lewis & Clark County, Montana
Request for Concurrence with Findings**

Dear Mr. Wilson:

As a condition of approval for Montana's Abandoned Mine Reclamation program by USDOJ – Office of Surface Mining, Montana is required to consult with the US Fish and Wildlife Service (USFWS) during project planning to ensure that proposed reclamation actions will have no impact on federally listed threatened or endangered species. (See Federal Register, Vol. 60, No. 138, pages 36998-37002).

Montana's Department of Environmental Quality Abandoned Mine Lands Program (DEQ AML) is evaluating reclamation of several residential yards located along Country Club Avenue in Helena, Montana (site). These residences are located within the vicinity of Spring Meadow Lake State Park which was reclaimed by DEQ AML in 2010. Recent sampling showed elevated levels of metals in soils at these residences. A metals concentration correlation analysis shows that the presence of metals in the residential soil may be associated with the Spring Meadow Lake site (**Attachment 1a and 1b**).

Proposed reclamation activities include 1) excavating and hauling contaminated soils to a licensed solid waste management facility, 2) backfilling the excavated area with clean imported cover soil, and 3) revegetating all disturbed areas. DEQ AML plans to complete reclamation during spring/fall 2013.

R. Mark Wilson, Field Supervisor
Montana Field Office
April 10, 2013
Page 2 of 2

DEQ AML has consulted with the Montana Natural Heritage Program and has evaluated the site for potential impacts to any threatened or endangered plant and animal species listed by the USFWS (**Attachment 2**). There are no threatened or endangered species that were reported within a one (1) mile radius of the site.

Based on consultation with the Montana Natural Heritage Program and DEQ AML staff evaluation of the site, DEQ AML has concluded that proposed reclamation actions are not likely to have any adverse effect on any federally listed threatened or endangered species or habitat necessary for their survival. DEQ AML is requesting that USFWS concur with this determination.

To protect human health, DEQ AML would like to keep moving on this project as quickly as possible. DEQ AML requests that USFWS review this determination and concur, in writing, with our findings. If USFWS is not able to concur, or has any disagreement with this determination, please notify me immediately at (406) 841-5028 or through email at popp@mt.gov.

Sincerely,



Pebbles Opp
Reclamation Specialist
Montana Department of Environmental Quality
Abandoned Mine Lands Program

Attachments: Attachment 1a and 1b: Site location maps
Attachment 2: Montana Natural Heritage Program Consultation



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.5354 • <http://mntnhp.org>

April 8, 2013

Pebbles Opp
MT DEQ
1100 N. Last Chance Gulch
Helena, Montana 59620

Dear Pebbles,

I am writing in response to your recent request regarding Montana Species of Concern in the vicinity of the Spring Meadow Lake Residential Yards project, in Section 23, T10N, R04W. I checked our databases for information in this general area and have enclosed 13 species occurrence reports for 6 animal species of concern, 4 species occurrence reports for 3 plant species of concern and a map depicting species of concern locations. Note that the maps are in Adobe GeoPDF format. With the appropriate Adobe Reader, it provides a convenient way to query and understand the information presented on the map.

Please keep in mind the following when using and interpreting the enclosed information and maps:

- (1) These materials are the result of a search of our database for species of concern that occur in an area defined by the requested township, range and section with an additional one-mile buffer surrounding the requested area. This is done to provide a more inclusive set of records and to capture records that may be immediately adjacent to the requested area. Please let us know if a buffer greater than 1 mile would be of use to your efforts. Reports are provided for the species of concern that are located in your requested area with a one-mile buffer. Species of concern outside of this buffered area may be depicted on the map due to the map extent, but are not selected for the SOC report.
- (2) On the map, polygons represent one or more source features as well as the locational uncertainty associated with the source features. A source feature is a point, line, or polygon that is the basic mapping unit of a Species Occurrence (SO) representation. The recorded location of the occurrence may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. Therefore, this inaccuracy is characterized as locational uncertainty, and is now incorporated in the representation of an SO. If you have a question concerning a specific SO, please do not hesitate to contact us.
- (3) This report may include sensitive data, and is not intended for general distribution, publication, or for use outside of your organization. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or biological communities.

- (4) The accompanying map(s) display land management status, which may differ from ownership. Features shown on this map do not imply public access to any lands.
- (5) Additional biological data for the search area(s) may be available from other sources. We suggest you contact the U.S. Fish and Wildlife Service for any additional information on threatened and endangered species (406-449-5225). For additional fisheries information in your area of interest, you may wish to contact Montana Fish, Wildlife, and Park's Montana Fisheries Information System (phone: 406-444-3373, or web site: <http://fwp.mt.gov/fishing/mFish/>).
- (6) Additional information on species habitat, ecology and management is available on our web site in the Plant, Animal, and ecological Systems Field Guides, which we encourage you to consult for valuable information. You can access these guides at <http://mtnhp.org>. General information on any species can be found by accessing the link to NatureServe Explorer.**

The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments. The information is intended for project screening only with respect to species of concern, and not as a determination of environmental impacts, which should be gained in consultation with appropriate agencies and authorities.

In order to help us improve our services to you, we invite you to take a simple survey. The survey is intended to gather some basic information on the value and quality of the information and services you recently received from the Montana Natural Heritage Program. The survey is short and should not take more than a few minutes to complete. All information will be kept confidential and will be used internally to improve the delivery of services and to help document the value of our services. Use this link to go to the survey: <http://www.surveymonkey.com/s/RYN8Y8L>.

I hope the enclosed information is helpful to you. Please feel free to contact me at (406) 444-3290 or via my e-mail address, below, should you have any questions or require additional information.

Sincerely,



Martin P. Miller
Montana Natural Heritage Program
martinm@mt.gov



Natural Resources Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Gymnorhinus cyanocephalus

[View Species in MT Data Table](#)

Common Name: Pinyon Jay

General Habitat: Open conifer forest

Description: Birds

Mapping Delineation:

Observations with evidence of breeding activity buffered by a minimum distance of 4,500 meters in order to be conservative about encompassing the home ranges reported for flocks and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

FWP CFWCS Tier: 2

MT PIF Code:

Species Occurrences

Species Occurrence Map Label: 10013017

First Observation Date: 1994-06-12

SO Number: 2

Last Observation Date: 1994-06-12

Acreage: 15,640

Nucifraga columbiana

[View Species in MT Data Table](#)

Common Name: Clark's Nutcracker

General Habitat: Conifer forest

Description: Birds

Mapping Delineation:

Observations with evidence of breeding activity buffered by a minimum distance of 1,000 meters in order to be conservative about encompassing the spring/summer breeding territories of family groups and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

FWP CFWCS Tier: 3

MT PIF Code: 3

Species Occurrences

Species Occurrence Map Label: 10014549

First Observation Date: 1994-06-09

SO Number: 14

Last Observation Date: 1994-06-09

Acreage: 2,232



Natural Resource Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Species Occurrences

Species Occurrence Map Label:	10014513		
First Observation Date:	1995-05-28	SO Number:	15
Last Observation Date:	1995-05-28	Acreage:	14,953

Species Occurrence Map Label:	10014565		
First Observation Date:	2000-05-15	SO Number:	69
Last Observation Date:	2001-05-14	Acreage:	31,636

Spizella breweri [View Species on MT Data Portal](#)

Common Name: Brewer's Sparrow

General Habitat: Sagebrush

Description: Birds

Mapping Delineation:

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3B
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management: SENSITIVE

FWP CFWCS Tier: 2

MT PIF Code: 2

Species Occurrences

Species Occurrence Map Label:	10003191		
First Observation Date:	2001-06-01	SO Number:	60,049
Last Observation Date:	2001-06-30	Acreage:	27,805

Haemorhous cassinii [View Species on MT Data Portal](#)

Common Name: Cassin's Finch

General Habitat: Drier conifer forest

Description: Birds

Mapping Delineation:

Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



Natural Resource Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3
 Global: G5

FWP CFWCS Tier: 3

MT PIF Code: 3

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

Species Occurrences

Species Occurrence Map Label:	10016548		
First Observation Date:	1991-02-16	SO Number:	25
Last Observation Date:	1995-06-30	Acreage:	1,977

Species Occurrence Map Label:	10016560		
First Observation Date:	1993-05-15	SO Number:	23
Last Observation Date:	1993-05-15	Acreage:	27,805

Species Occurrence Map Label:	10016551		
First Observation Date:	1993-06-22	SO Number:	21
Last Observation Date:	1993-06-22	Acreage:	32,633

Species Occurrence Map Label:	10016530		
First Observation Date:	1995-05-28	SO Number:	24
Last Observation Date:	1995-05-28	Acreage:	14,953

Species Occurrence Map Label:	10016573		
First Observation Date:	1998-06-01	SO Number:	128
Last Observation Date:	1998-06-30	Acreage:	7,422

Oncorhynchus clarkii lewisi

Oncorhynchus clarkii lewisi

Common Name: Westslope Cutthroat Trout

General Habitat: Mountain streams, rivers, lakes

Description: Fish

Mapping Delineation:

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.



Natural Resource Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S2
Global: G4T3

FWP CFWCS Tier: 1

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service: SENSITIVE

U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurrence Map Label: 10045908

First Observation Date:

SO Number:

Last Observation Date:

Acreage: 28

Lasiurus cinereus

View Species on MT Data Portal

Common Name: Hoary Bat

General Habitat: Riparian and forest

Description: Mammals

Mapping Delineation:

Mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric *Lasiurus borealis* and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

Species Occurrences

Species Occurrence Map Label: 10020505

First Observation Date: 1961-09-17

SO Number: 4,991

Last Observation Date: 1961-09-17

Acreage: 9,462

Species Occurrence Map Label: 10020506

First Observation Date: 2007-08-07

SO Number: 582,386

Last Observation Date: 2007-08-07

Acreage: 9,462



Natural Resource Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Atriplex truncata

[View Species in MT Field Guide](#)

Common Name: Wedge-leaf Saltbush

General Habitat: Wetland/Riparian

Description: Vascular Plants

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S2

Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management:

Species Occurrences

Species Occurrence Map Label: 15699

First Observation Date: 09/01/1899

Last Observation Date: 09/30/1899

SO Number: 3

SO Rank: H

Acreage: 49,683

Astragalus convallarius

[View Species in MT Field Guide](#)

Common Name: Lesser Rushy Milkvetch

General Habitat: Grasslands (Intermountain)

Description: Vascular Plants

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3

Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:

U.S. Forest Service:

U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurrence Map Label: 45023

First Observation Date: 05/01/1998

Last Observation Date: 08/31/1998

SO Number: 12

SO Rank: U

Acreage: 3,533

Species Occurrence Map Label: 18027

First Observation Date: 06/20/1992

Last Observation Date: 06/17/2004

SO Number: 53

SO Rank: A

Acreage: 84



Natural Resource Information System
 Montana State Library
 PO Box 201800
 Helena, MT 59620-1800
 (406)444-3008 mtnhp@mt.gov

Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:
 Monday, April 8, 2013

Cypripedium parviflorum

[View Species in Google Earth](#)

Common Name: Small Yellow Lady's-slipper
Description: Vascular Plants
Mapping Delineation:

General Habitat:

Species Status

[Click Status for Explanations](#)

Natural Heritage Ranks:

State: S3S4
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management:

Species Occurrences

Species Occurrence Map Label: 15770

First Observation Date: 06/04/1891
Last Observation Date: 06/04/1891

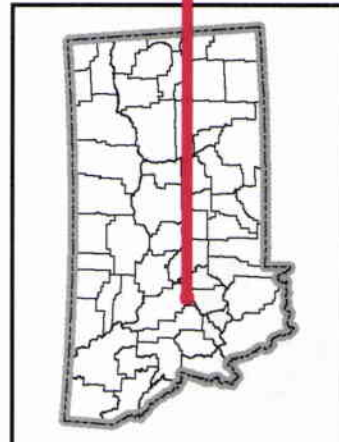
SO Number: 42
SO Rank: H

Acreeage: 49,683

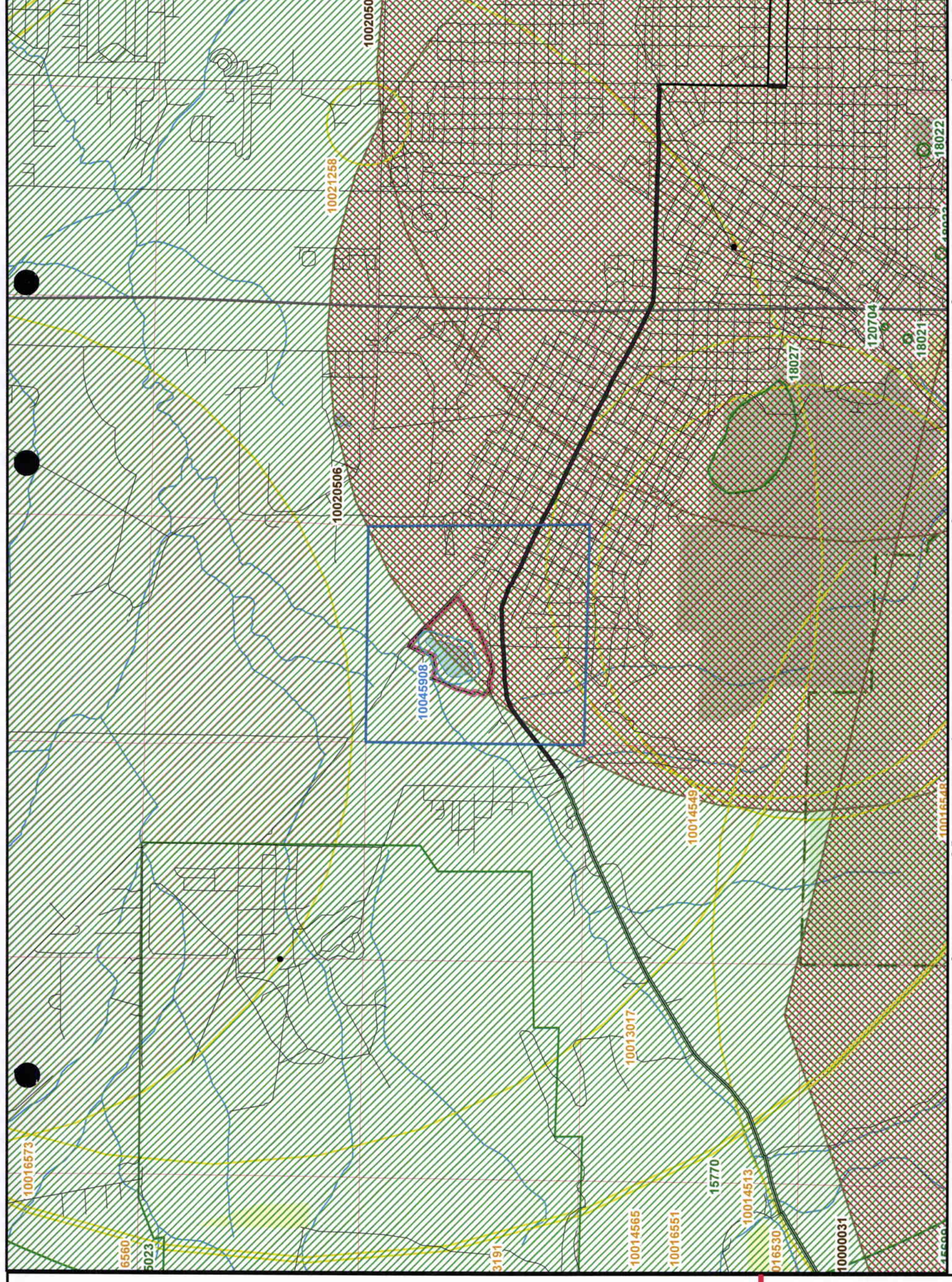
Montana Species of Concern Spring Meadow Lake Residential Yards

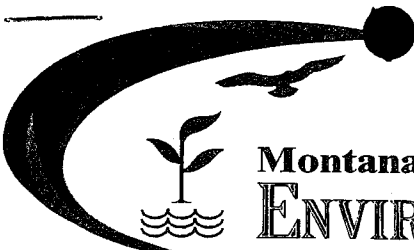
SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

- NonVascular Plants**
- Vascular Plants**
- Invertebrates**
- Amphibians**
- Fish**
- Reptiles**
- Birds**
- Mammals**
- Sites**
- Wetland Types**
- Lake**
- River**
- Freshwater Pond**
- Freshwater Emergent Wetland**
- Freshwater Scrub-Shrub Wetland**
- Freshwater Forested Wetland**
- Riparian Emergent**
- Riparian Scrub-Shrub**
- Riparian Forested**



Not all legend items may occur on the map.
Features shown on this map do not imply public access to any lands.
This map displays management status, which may vary from ownership.





Montana Department of ENVIRONMENTAL QUALITY

"Healthy environment, healthy people"

MAR 19 2013

RECEIVED BY: SHPO

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

March 18, 2013

Kathryn Ore
State Historic Preservation Office
1410 8th Avenue
PO Box 201202
Helena, MT 59620-1202

CONCUR
MONTANA SHPO
DATE 03/19/2013 SIGNED *[Signature]*

*Kathryn Ore
12/19/11
Spring Meadow
yards, Heavy
Metal
Contamination
Removal*

RE: SPRING MEADOW YARDS, HEAVY METAL CONTAMINATION REMOVAL.
SHPO Project#: 2013030808

Dear Ms. Ore:

Montana DEQ Abandoned Mine Program is planning to remove contaminated soils from residential yards on Country Club Avenue, Helena. This project will involve excavation and replacement of soil and sod from yards with lead and arsenic contamination that DEQ has determined exceeds safe levels for residential occupation. DEQ Abandoned Mine Program has concluded that this contamination exhibits the same properties as the waste from the ore processing mills that were formerly located in at the Stedman Foundry site, located in Spring Meadow Lake Park, across Country Club Avenue from the residences being discussed. DEQ Abandoned Mine Program has formerly prepared cultural resource investigations and inventory for the Spring Meadow Lake Reclamation Project [24LC1273, 24LC1268 and 24LC1972]. See attached 10/7/2008 consultation from DEQ with concur stamp from SHPO agreeing that soil removal and replacement project in Spring Meadow Lake Park would have no effect on historic properties.

Attached are photos and descriptions of the residential structures located at 2470, 2466 and 2460 Country Club Avenue. Dwellings on two of the properties are manufactured housing constructed less than 50 years ago. One property, 2470 Country Club is frame construction, constructed in 1951 with a large frame addition added in 1975.

No modifications are proposed for any of these residences, only excavation and replacement of residential yard soils. DEQ Abandoned Mine Program believes that this project will have no effect on historic properties and that given the limited nature of the work proposed that full cultural resource inventories and investigations are not warranted. DEQ Abandoned Mine Program requests the State Historic Preservation Officer's concurrence with our findings relative to this project. If you have any questions about this proposal please do not hesitate to contact me (406) 841-5026; email jkoerth@mt.gov.

Sincerely,

[Signature]
John Koerth
Abandoned Mine Program Manager

enclosures

RECEIVED

MAR 21 2013

Dept. of Environmental Quality
Remediation Division

File: DEQ/AMP-2013-2013031905



"Healthy environment, healthy people"

Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

March 18, 2013

Kathryn Ore
State Historic Preservation Office
1410 8th Avenue
PO Box 201202
Helena, MT 59620-1202

RE: SPRING MEADOW YARDS, HEAVY METAL CONTAMINATION REMOVAL.
SHPO Project#: 2013030808


Dear Ms. Ore:

Montana DEQ Abandoned Mine Program is planning to remove contaminated soils from residential yards on Country Club Avenue, Helena. This project will involve excavation and replacement of soil and sod from yards with lead and arsenic contamination that DEQ has determined exceeds safe levels for residential occupation. DEQ Abandoned Mine Program has concluded that this contamination exhibits the same properties as the waste from the ore processing mills that were formerly located in at the Stedman Foundry site, located in Spring Meadow Lake Park, across Country Club Avenue from the residences being discussed. DEQ Abandoned Mine Program has formerly prepared cultural resource investigations and inventory for the Spring Meadow Lake Reclamation Project [24LC1273, 24LC1268 and 24LC1972]. See attached 10/7/2008 consultation from DEQ with concur stamp from SHPO agreeing that soil removal and replacement project in Spring Meadow Lake Park would have no effect on historic properties.

Attached are photos and descriptions of the residential structures located at 2470, 2466 and 2460 Country Club Avenue. Dwellings on two of the properties are manufactured housing constructed less than 50 years ago. One property, 2470 Country Club is frame construction, constructed in 1951 with a large frame addition added in 1975.

No modifications are proposed for any of these residences, only excavation and replacement of residential yard soils. DEQ Abandoned Mine Program believes that this project will have no effect on historic properties and that given the limited nature of the work proposed that full cultural resource inventories and investigations are not warranted. DEQ Abandoned Mine Program requests the State Historic Preservation Officer's concurrence with our findings relative to this project. If you have any questions about this proposal please do not hesitate to contact me (406) 841-5026; email jkoerth@mt.gov.

Sincerely,


John Koerth
Abandoned Mine Program Manager

enclosures

4175'

418

419

GREEN

MEADOW

GAME

FAR GROUNDS PRESERVE

Golf Course

ATHLETIC FIELD

3919 T

3883 T

BM 3896

Contaminated YARDS

BM 3922

23

3937

3937

BM 3934

Creek

OLD RR

RR
TRAILER
PK

TRL PK

TRL

PK

GRADE

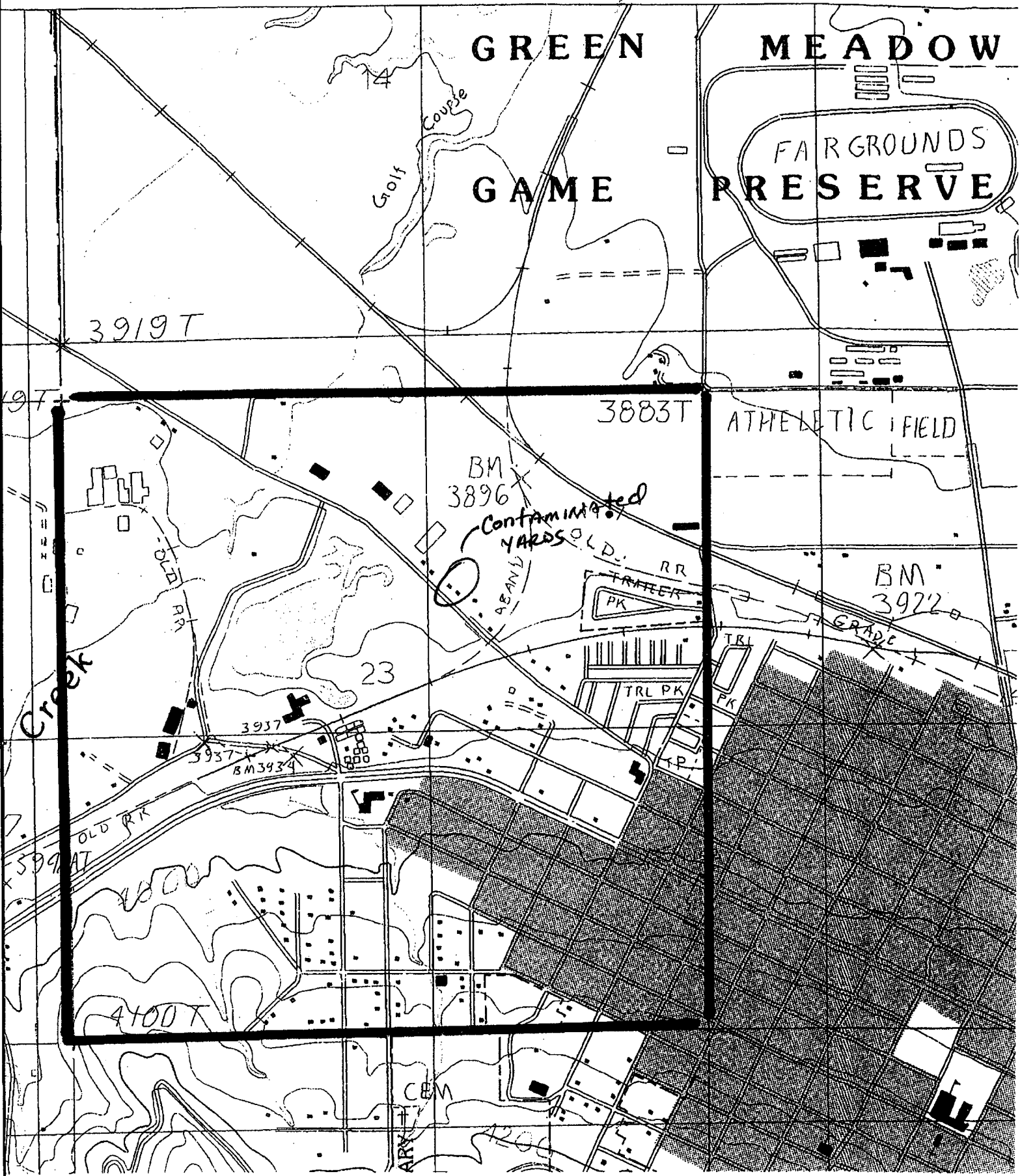
5997

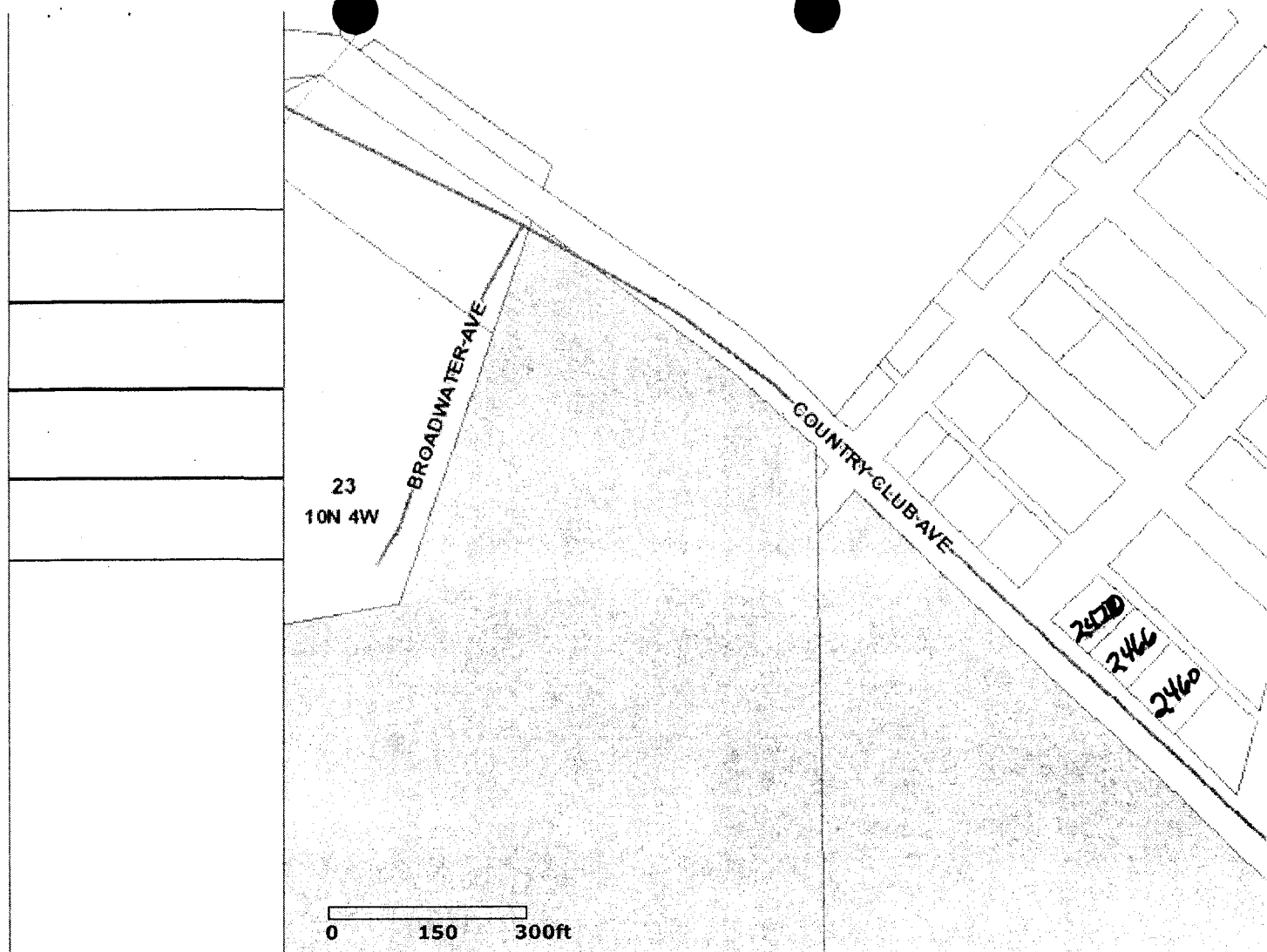
4800

4100 T

ARMY CEM

4200





2470, 2466, 2460 Country Club Ave
Residential yards contaminated
with lead and arsenic mine waste.

MONTANA DEQ

ABANDONED MINE PROGRAM: Federal Abandoned Mine Grant

PROPOSED ACTION: Contaminated yard removal; arsenic and lead contamination from adjacent ore mills located at former Stedman Foundry property at Spring Meadow Lake Park. No modification to structure proposed, soil removal in yard only.

ADDRESS: 2460 Country Club Avenue; Block 9, West Helena Townsite; Lot 9-10; S23 T10N R04W

DESCRIPTION: 14 X 66 Nasua single wide, placed 1977.



2460 Country Club Avenue, Helena

MONTANA DEQ

ABANDONED MINE PROGRAM: Federal Abandoned Mine Grant

PROPOSED ACTION: Contaminated yard removal; arsenic and lead contamination from adjacent ore mills located at former Stedman Foundry property at Spring Meadow Lake Park. No modification to structure proposed, soil removal in yard only.

ADDRESS: 2466 Country Club Avenue; Block 9, West Helena Townsite; Lot 11A; S23 T10N R04W

DESCRIPTION: Chief Ind 16 x 56 Single Wide, Placed 1996.



2466 Country Club Avenue, Helena

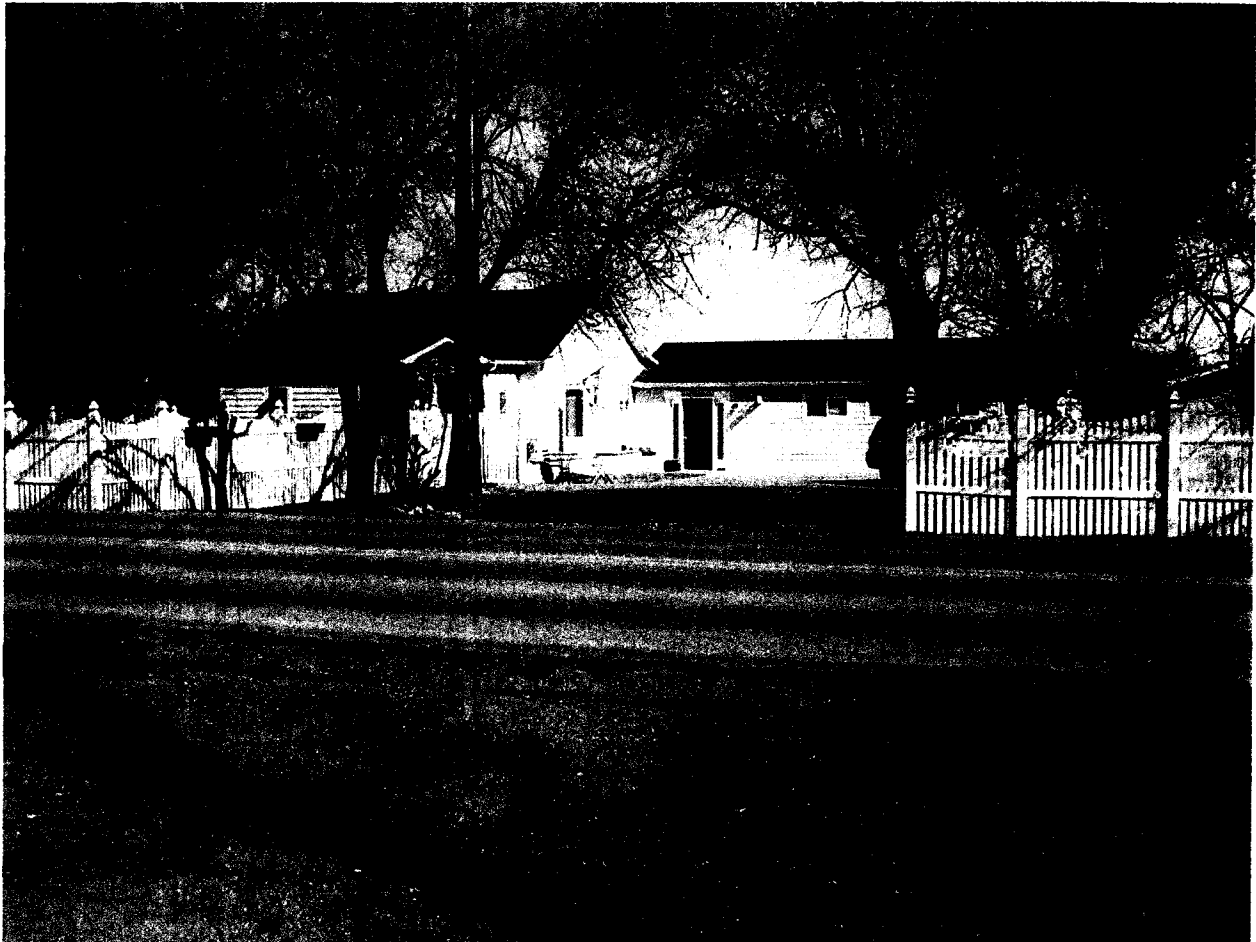
MONTANA DEQ

ABANDONED MINE PROGRAM: Federal Abandoned Mine Grant

PROPOSED ACTION: Contaminated yard removal; arsenic and lead contamination from adjacent ore mills located at former Stedman Foundry property at Spring Meadow Lake Park. No modification to structure proposed, soil removal in yard only.

ADDRESS: 2470 Country Club Avenue; Block 9, West Helena Townsite; Lot 13A; S23 T10N R04W

DESCRIPTION: Single family ranch, frame construction. Built 1951; modified 1975.



2470 Country Club Avenue, Helena

From: Murdo, Damon
Sent: Friday, March 08, 2013 12:16 PM
To: Koerth, John
Subject: RE: File Search

Big Sky. Big Land. Big History.
Montana
Historical Society

March 8, 2013

John Koerth
DEQ
PO Box 200901
Helena MT 59620

RE: SPRING MEADOW YARDS, HEAVY METAL CONTAMINATION REMOVAL. SHPO Project#: 2013030808

Dear Mr. Koerth:

I have conducted a cultural resource file search for the above-cited project located in Section 23, T10N R4W. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the area. I've attached a list of these sites and reports. If you would like any further information regarding these sites or reports you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. There are quite a few structures in this area that have already been listed on the National Register of Historic Places, including the Stedman Foundry. If any structures are to be altered and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made.

As long as there will be no disturbance or alteration to any structures over fifty years of age we feel that there is a low likelihood cultural properties will be impacted. We, therefore, feel that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project we would ask that our office be contacted and the site investigated.

If you have any further questions or comments you may contact me at (406) 444-7767 or by e-mail at dmurdo@mt.gov. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: DEQ/AMR/2013



Montana Department of ENVIRONMENTAL QUALITY

20 8100903
RECEIVED
OCT 09 2008

BY: SHPO
Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

October 7, 2008

Mr. Josef Warhank
Review and Compliance Officer
State Historic Preservation Office
Montana Historical Society
P.O. Box 201202
Helena, MT 59620-1202

CONCUR
MONTANA SHPO

DATE 21 Oct 08 SIGNED

Josef
DEQ/AMR
Spring Meadow
MINE WASTE
RECLAMATION
STEDMAN FOUNDRY

RE: Section 106 Review of the Spring Meadow Reclamation Project
Stedman Foundry (24LC1273); Listed on National Register of Historic Places

Dear Mr. Warhank,

The Department of Environmental Quality – Mine Waste Cleanup Bureau (DEQ) has identified a scope of work for removing lead and arsenic contaminated mine waste from Spring Meadow Lake State Park, located in Helena, Lewis and Clark County. This scope of work includes excavation of mine waste adjacent to the Stedman Foundry structure which is listed on the National Register of Historic Places. The mine waste was deposited on this property during a period when the facility was used for mineral processing after its use as Stedman Foundry. DEQ is proposing to remove lead and arsenic contaminated mine waste from excavations to be located adjacent to the Stedman Foundry structure and to dispose of this material off-site at an engineering mine waste repository located at the former Basin Creek Mine.

Attached is a map that shows the excavation areas and depths of excavation where contaminated mine waste is to be removed. Mine waste will be excavated from areas adjacent to the Stedman Foundry building, however, these excavations will not intrude on or impact this listed structure. The areas to be excavated currently are barren soils and gravels and the excavations will be filled with similar material once contaminated material is removed. No removals or modifications are planned or proposed for any structures as part of this project.

During our previous consultation on this project we identified two other sites in addition to Stedman Foundry. These sites are 1) Western Clay Manufacturing Company Railroad Spur – 24LC1268; and 2) the Kessler Brewery Bottle Dump – 24LC1972. These two sites are located outside the project area for DEQ's mine waste removal work and DEQ will have no effect on those sites. Given that DEQ's work will consist of excavations and backfill only, and that our undertaking will not modify or disturb any structures at

RECEIVED

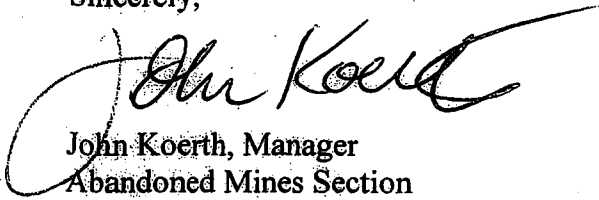
OCT 24 2008

Stedman Foundry - 24LC1273, we believe that the entire project should be considered as having no effect on any listed or eligible sites.

DEQ will also be consulting with the Helena/Lewis and Clark CLG and we will be requesting their concurrence with our finding that this project will have no effect on listed or eligible historic properties.

We request the State Historic Preservation Officer's concurrence with our findings of no effect on the listed Stedman Foundry property. If you have any questions, please do not hesitate to call me at 841-5026.

Sincerely,

A handwritten signature in black ink, appearing to read "John Koerth". The signature is fluid and cursive, with a large initial "J" and "K".

John Koerth, Manager
Abandoned Mines Section
Department of Environmental Quality

Copy: Paul M. Putz
Helena/Lewis and Clark County Historic Preservation Officer

Township:10 N Range: 4 W Section:23
SCHWAB DAVID C.

5 / 1 / 1986 HELENA SAND & GRAVEL

CRABS Document Number: LC 5 4548 Agency Document Number:

Township:10 N Range: 4 W Section:23
PASSMANN DORI

3 / 19 / 1999 SPRING MEADOW LAKE SEWER LINE AND ROAD PROJECT

CRABS Document Number: LC 6 22015 Agency Document Number:

Township:10 N Range: 4 W Section:23
AXLINE JON A.

2 / 26 / 2002 BRADY STREET/JOSLYN STREET - HELENA - LEWIS AND CLARK COUNTY, MONTANA

CRABS Document Number: LC 4 24428 Agency Document Number: CM5899(20)

Township:10 N Range: 4 W Section:23
AXLINE JON

9 / 9 / 2003 CULTURAL RESOURCE INVENTORY OF THE PEDESTRIAN TUNNEL, HELENA, IN LEWIS AND CLARK COUNTY MONTANA

CRABS Document Number: LC 4 26326 Agency Document Number: NH8-2(58)41

Township:10 N Range: 4 W Section:23
ROSSILLON MITZI AND MARY MCCORMICK

4 / 7 / 2005 CULTURAL RESOURCES INVENTORY OF SPRING MEADOW LAKE SITE, LEWIS AND CLARK COUNTY, MONTANA

CRABS Document Number: LC 6 27831 Agency Document Number:

Township:10 N Range: 4 W Section:23
FERGUSON DAVID

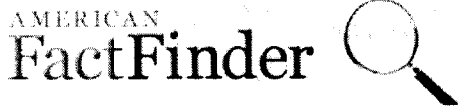
8 / 16 / 2005 CLASS III CULTURAL RESOURCE INVENTORY OF THE PROPOSED ARTISAN MAJOR SUBDIVISION, LEWIS AND CLARK COUNTY, MONTANA

CRABS Document Number: LC 6 28063 Agency Document Number:

Township:10 N Range: 4 W Section:23
WOOD GARVEY C.

11 / / 2007 WEST HELENA FAIRGROUNDS CELL TOWER

CRABS Document Number: LC 6 32523 Agency Document Number:



DP-1

Profile of General Population and Housing Characteristics: 2010

2010 Demographic Profile Data

NOTE: For more information on confidentiality protection, nonsampling error, and definitions, see <http://www.census.gov/prod/cen2010/doc/dpsf.pdf>.

Geography: Lewis and Clark County, Montana

Subject	Number	Percent
SEX AND AGE		
Total population	63,395	100.0
Under 5 years	3,948	6.2
5 to 9 years	3,990	6.3
10 to 14 years	4,010	6.3
15 to 19 years	4,134	6.5
20 to 24 years	3,847	6.1
25 to 29 years	3,863	6.1
30 to 34 years	3,697	5.8
35 to 39 years	3,537	5.6
40 to 44 years	3,881	6.1
45 to 49 years	4,902	7.7
50 to 54 years	5,278	8.3
55 to 59 years	5,246	8.3
60 to 64 years	4,305	6.8
65 to 69 years	2,983	4.7
70 to 74 years	1,960	3.1
75 to 79 years	1,402	2.2
80 to 84 years	1,145	1.8
85 years and over	1,267	2.0
Median age (years)	40.9	(X)
16 years and over	50,636	79.9
18 years and over	49,019	77.3
21 years and over	46,480	73.3
62 years and over	11,106	17.5
65 years and over	8,757	13.8
Male population		
Under 5 years	2,025	3.2
5 to 9 years	2,051	3.2
10 to 14 years	2,101	3.3
15 to 19 years	2,089	3.3
20 to 24 years	1,909	3.0
25 to 29 years	1,962	3.1
30 to 34 years	1,848	2.9
35 to 39 years	1,740	2.7
40 to 44 years	1,897	3.0
45 to 49 years	2,395	3.8
50 to 54 years	2,502	3.9
55 to 59 years	2,585	4.1
60 to 64 years	2,209	3.5
65 to 69 years	1,513	2.4
70 to 74 years	962	1.5

Subject	Number	Percent
75 to 79 years	624	1.0
80 to 84 years	464	0.7
85 years and over	424	0.7
Median age (years)	39.8	(X)
16 years and over	24,699	39.0
18 years and over	23,894	37.7
21 years and over	22,630	35.7
62 years and over	5,191	8.2
65 years and over	3,987	6.3
Female population	32,095	50.6
Under 5 years	1,923	3.0
5 to 9 years	1,939	3.1
10 to 14 years	1,909	3.0
15 to 19 years	2,045	3.2
20 to 24 years	1,938	3.1
25 to 29 years	1,901	3.0
30 to 34 years	1,849	2.9
35 to 39 years	1,797	2.8
40 to 44 years	1,984	3.1
45 to 49 years	2,507	4.0
50 to 54 years	2,776	4.4
55 to 59 years	2,661	4.2
60 to 64 years	2,096	3.3
65 to 69 years	1,470	2.3
70 to 74 years	998	1.6
75 to 79 years	778	1.2
80 to 84 years	681	1.1
85 years and over	843	1.3
Median age (years)	41.9	(X)
16 years and over	25,937	40.9
18 years and over	25,125	39.6
21 years and over	23,850	37.6
62 years and over	5,915	9.3
65 years and over	4,770	7.5
RACE		
Total population	63,395	100.0
One Race	61,843	97.6
White	59,605	94.0
Black or African American	217	0.3
American Indian and Alaska Native	1,335	2.1
Asian	354	0.6
Asian Indian	43	0.1
Chinese	68	0.1
Filipino	80	0.1
Japanese	45	0.1
Korean	59	0.1
Vietnamese	12	0.0
Other Asian [1]	47	0.1
Native Hawaiian and Other Pacific Islander	44	0.1
Native Hawaiian	14	0.0
Guamanian or Chamorro	8	0.0
Samoa	8	0.0
Other Pacific Islander [2]	14	0.0
Some Other Race	288	0.5

Subject	Number	Percent
Two or More Races	1,552	2.4
White; American Indian and Alaska Native [3]	914	1.4
White; Asian [3]	193	0.3
White; Black or African American [3]	166	0.3
White; Some Other Race [3]	127	0.2
Race alone or in combination with one or more other races: [4]		
White	61,098	96.4
Black or African American	424	0.7
American Indian and Alaska Native	2,319	3.7
Asian	614	1.0
Native Hawaiian and Other Pacific Islander	113	0.2
Some Other Race	458	0.7
HISPANIC OR LATINO		
Total population	63,395	100.0
Hispanic or Latino (of any race)	1,582	2.5
Mexican	1,031	1.6
Puerto Rican	68	0.1
Cuban	38	0.1
Other Hispanic or Latino [5]	445	0.7
Not Hispanic or Latino	61,813	97.5
HISPANIC OR LATINO AND RACE		
Total population	63,395	100.0
Hispanic or Latino	1,582	2.5
White alone	1,006	1.6
Black or African American alone	14	0.0
American Indian and Alaska Native alone	76	0.1
Asian alone	4	0.0
Native Hawaiian and Other Pacific Islander alone	1	0.0
Some Other Race alone	249	0.4
Two or More Races	232	0.4
Not Hispanic or Latino	61,813	97.5
White alone	58,599	92.4
Black or African American alone	203	0.3
American Indian and Alaska Native alone	1,259	2.0
Asian alone	350	0.6
Native Hawaiian and Other Pacific Islander alone	43	0.1
Some Other Race alone	39	0.1
Two or More Races	1,320	2.1
RELATIONSHIP		
Total population	63,395	100.0
In households	61,449	96.9
Householder	26,694	42.1
Spouse [6]	13,076	20.6
Child	16,174	25.5
Own child under 18 years	13,090	20.6
Other relatives	1,992	3.1
Under 18 years	832	1.3
65 years and over	311	0.5
Nonrelatives	3,513	5.5
Under 18 years	267	0.4
65 years and over	159	0.3
Unmarried partner	1,633	2.6
In group quarters	1,946	3.1
Institutionalized population	496	0.8
Male	251	0.4

Subject	Number	Percent
Female	245	0.4
Noninstitutionalized population	1,450	2.3
Male	657	1.0
Female	793	1.3
HOUSEHOLDS BY TYPE		
Total households	26,694	100.0
Family households (families) [7]	16,705	62.6
With own children under 18 years	7,094	26.6
Husband-wife family	13,076	49.0
With own children under 18 years	4,795	18.0
Male householder, no wife present	1,112	4.2
With own children under 18 years	679	2.5
Female householder, no husband present	2,517	9.4
With own children under 18 years	1,620	6.1
Nonfamily households [7]	9,989	37.4
Householder living alone	8,206	30.7
Male	3,838	14.4
65 years and over	886	3.3
Female	4,368	16.4
65 years and over	1,842	6.9
Households with individuals under 18 years	7,680	28.8
Households with individuals 65 years and over	6,300	23.6
Average household size	2.30	(X)
Average family size [7]	2.87	(X)
HOUSING OCCUPANCY		
Total housing units	30,180	100.0
Occupied housing units	26,694	88.4
Vacant housing units	3,486	11.6
For rent	370	1.2
Rented, not occupied	38	0.1
For sale only	279	0.9
Sold, not occupied	52	0.2
For seasonal, recreational, or occasional use	2,225	7.4
All other vacants	522	1.7
Homeowner vacancy rate (percent) [8]	1.5	(X)
Rental vacancy rate (percent) [9]	4.3	(X)
HOUSING TENURE		
Occupied housing units	26,694	100.0
Owner-occupied housing units	18,477	69.2
Population in owner-occupied housing units	44,594	(X)
Average household size of owner-occupied units	2.41	(X)
Renter-occupied housing units	8,217	30.8
Population in renter-occupied housing units	16,855	(X)
Average household size of renter-occupied units	2.05	(X)

X Not applicable.

[1] Other Asian alone, or two or more Asian categories.

[2] Other Pacific Islander alone, or two or more Native Hawaiian and Other Pacific Islander categories.

[3] One of the four most commonly reported multiple-race combinations nationwide in Census 2000.

[4] In combination with one or more of the other races listed. The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

[5] This category is composed of people whose origins are from the Dominican Republic, Spain, and Spanish-speaking Central or South

American countries. It also includes general origin responses such as "Latino" or "Hispanic."

[6] "Spouse" represents spouse of the householder. It does not reflect all spouses in a household. Responses of "same-sex spouse" were edited during processing to "unmarried partner."

[7] "Family households" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.

[8] The homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale." It is computed by dividing the total number of vacant units "for sale only" by the sum of owner-occupied units, vacant units that are "for sale only," and vacant units that have been sold but not yet occupied; and then multiplying by 100.

[9] The rental vacancy rate is the proportion of the rental inventory that is vacant "for rent." It is computed by dividing the total number of vacant units "for rent" by the sum of the renter-occupied units, vacant units that are "for rent," and vacant units that have been rented but not yet occupied; and then multiplying by 100.

Source: U.S. Census Bureau, 2010 Census.