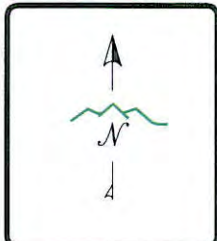
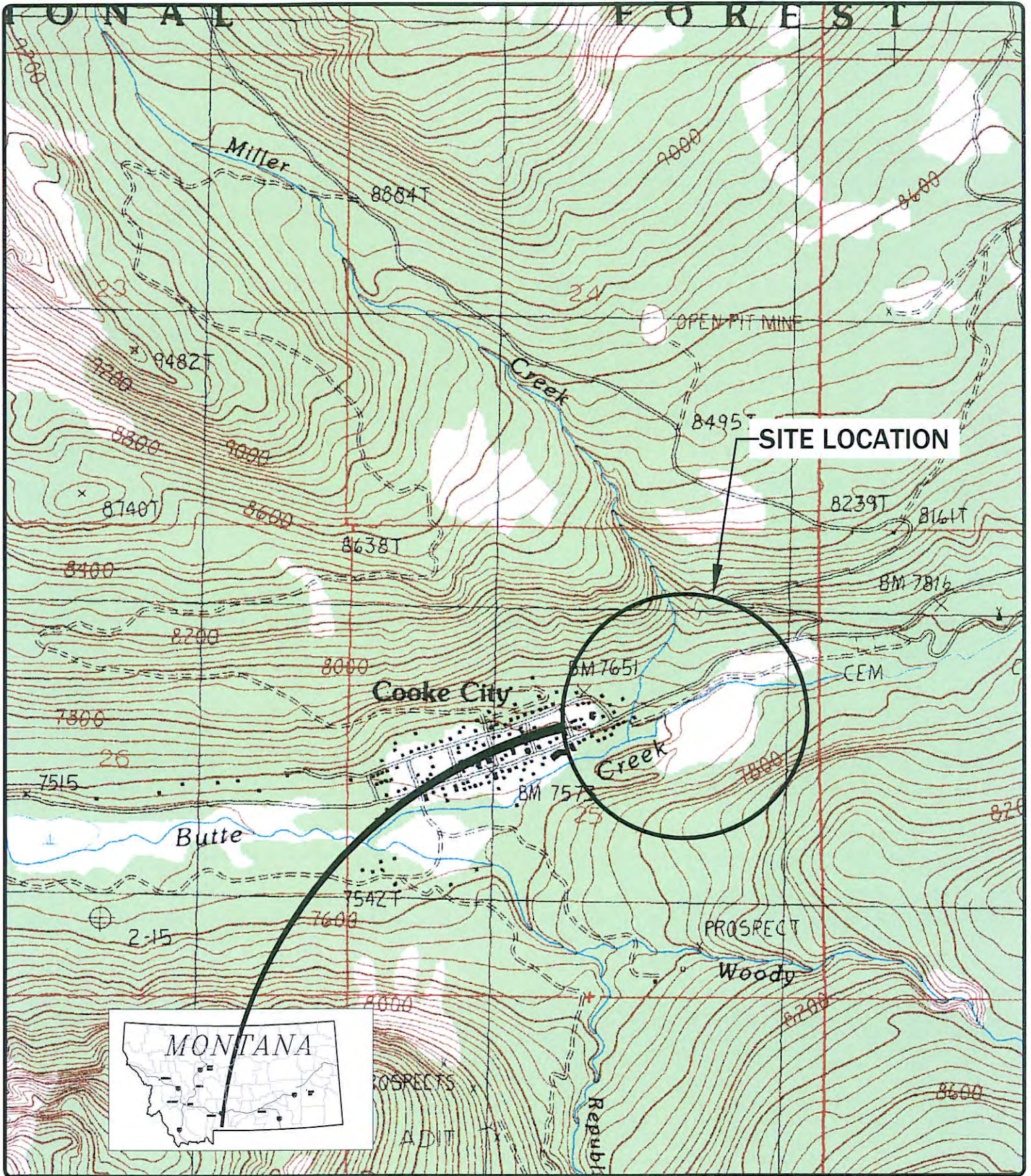


FIGURES



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83
 UNITS: FEET
 SOURCE: COOKE CITY, MT-WY 7.5 QUADRANGLE

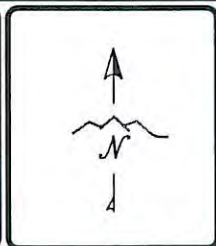
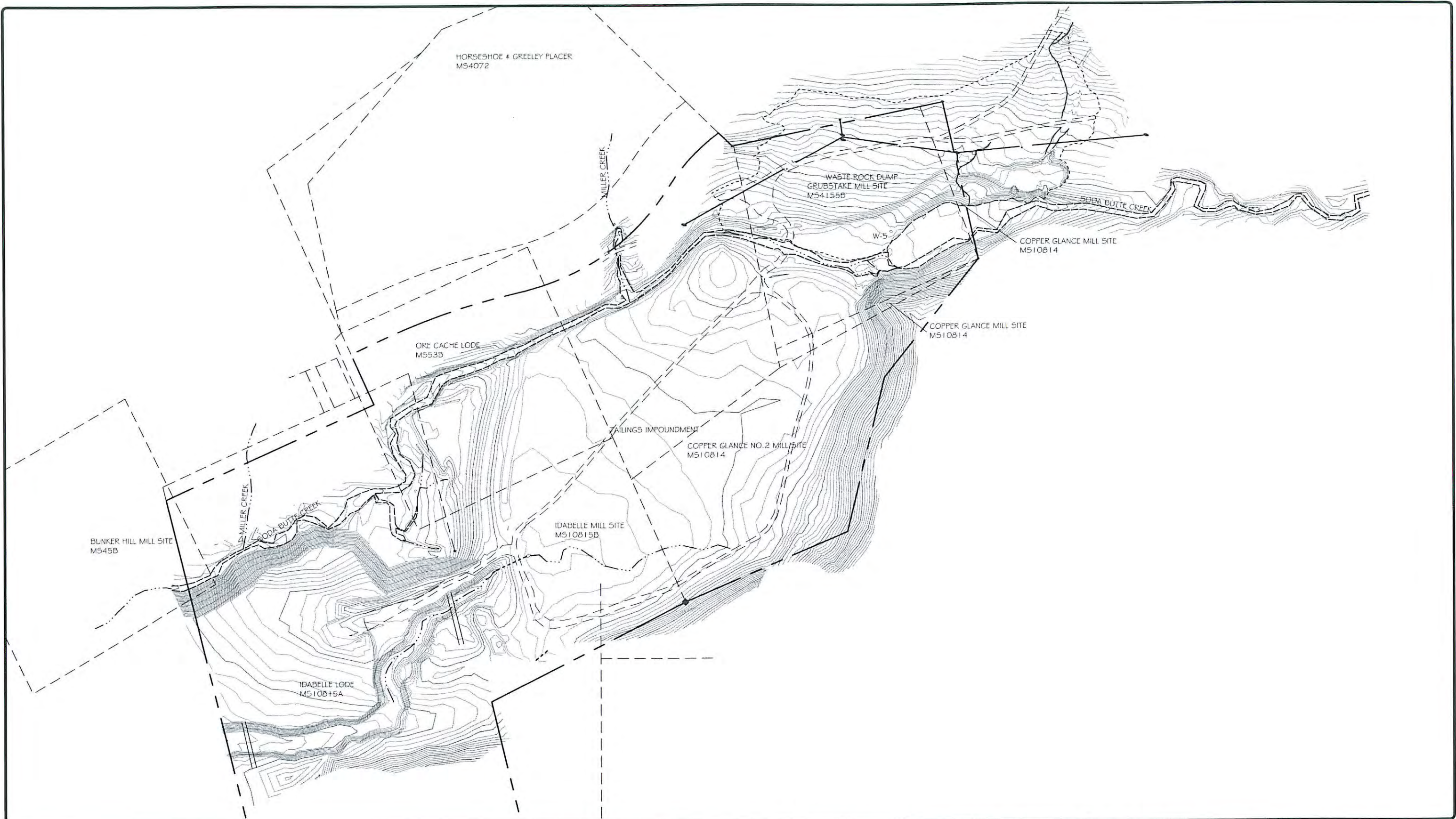
SCALE IN FEET
 0 750 1500

FIGURE 1 **SITE LOCATION MAP**

PIONEER
 TECHNICAL SERVICES, INC.

Butte, Helena, Anaconda

DATE: 4/15/09



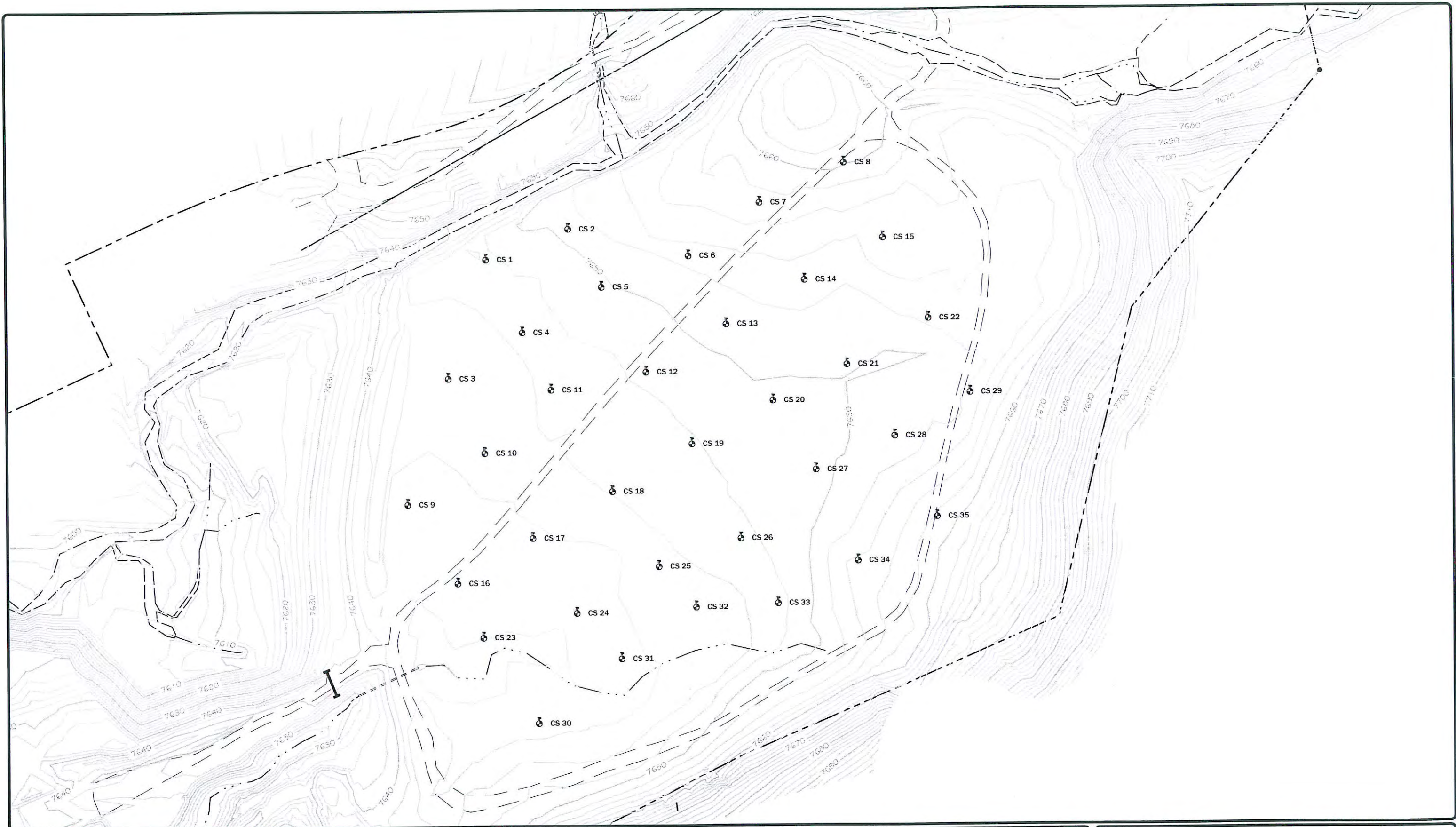
PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE: PIONEER

SCALE IN FEET
 0 100 200

FIGURE 2
SITE MAP

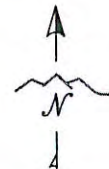
PIONEER
 TECHNICAL SERVICES, INC.
 Butte, Helena, Anaconda

DATE: 4/15/09



LEGEND

CS 4 COVER SOIL TEST PIT LOCATIONS



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE: PIONEER

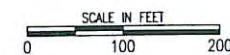
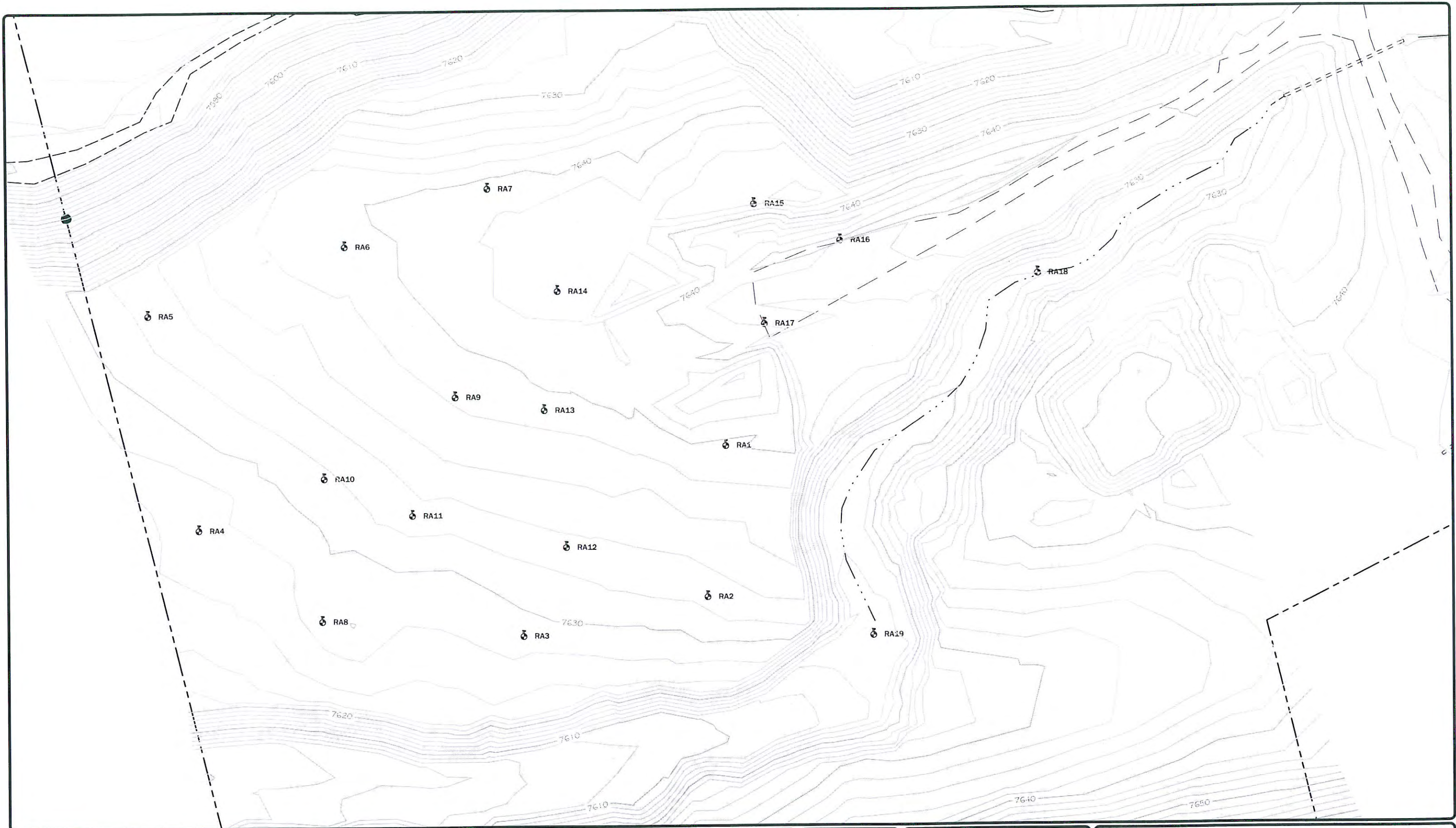


FIGURE 3 EXISTING COVER SOIL INVESTIGATION SOIL BORING LOCATIONS



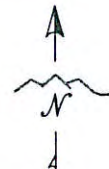
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DATE: 4/15/09



LEGEND

⊕ RA12 2008 TEST PIT LOCATIONS



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE: PIONEER

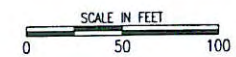
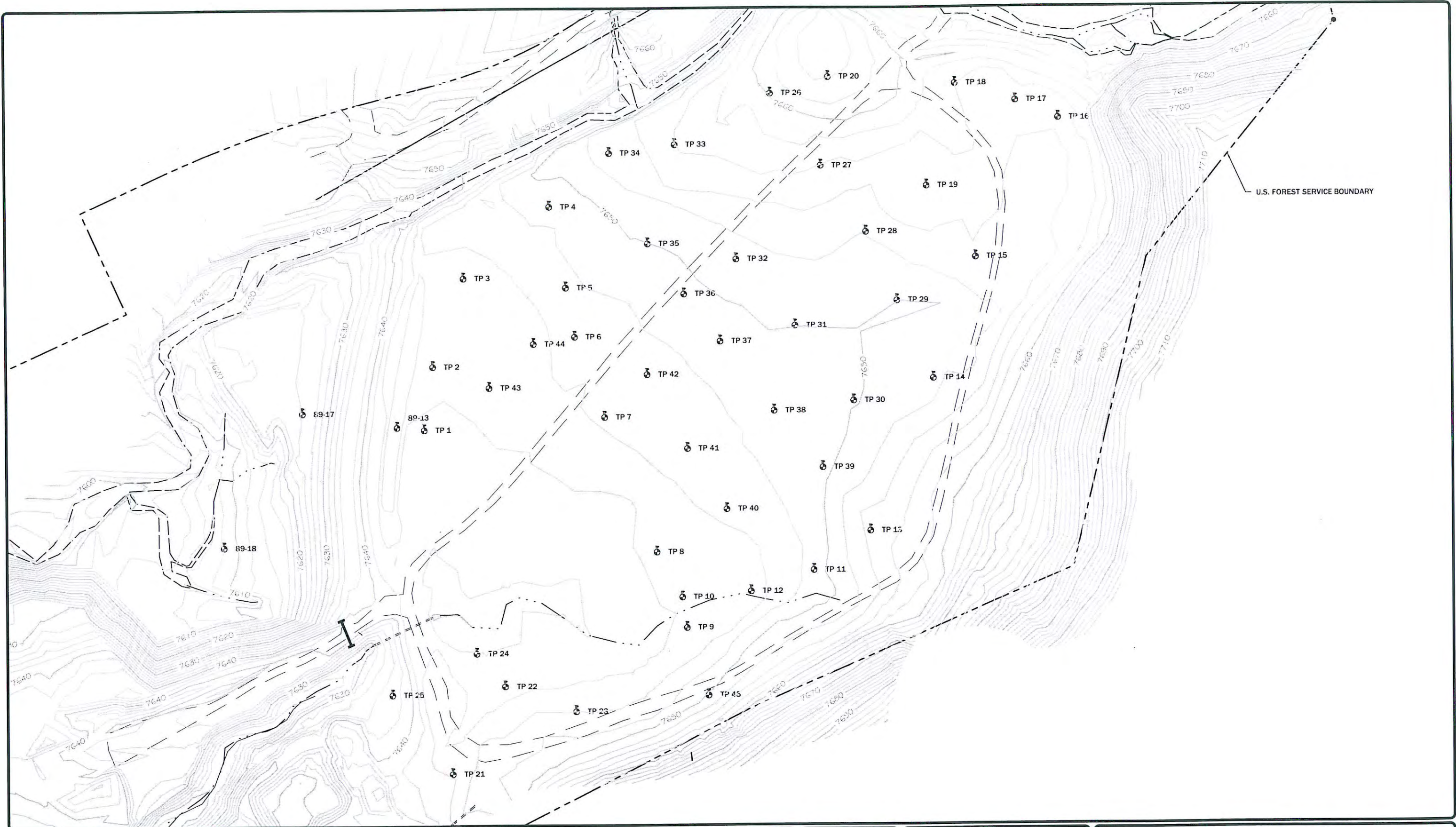


FIGURE 4 REPOSITORY INVESTIGATION TEST PIT LOCATIONS



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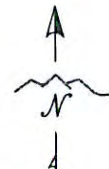
DATE: 4/15/09



U.S. FOREST SERVICE BOUNDARY

LEGEND

⊗ TP 16 2008 TEST PIT LOCATIONS



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE: PIONEER

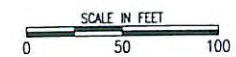
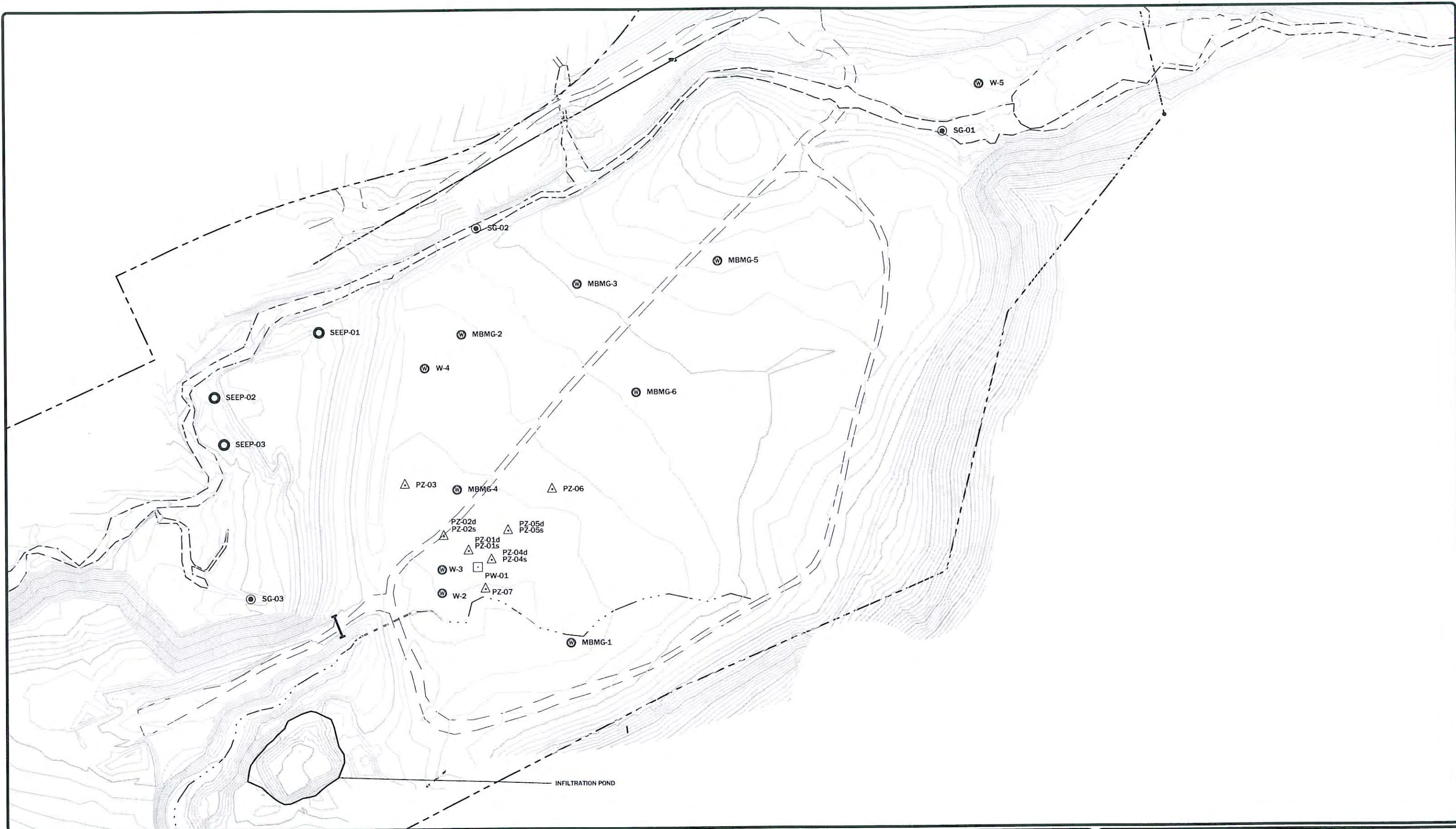


FIGURE 5 SOURCE AREA INVESTIGATION TEST PIT LOCATIONS



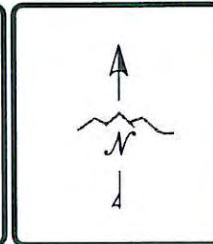
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DATE: 4/15/09



LEGEND

- EXISTING WELL
- PUMPING WELL
- PIEZOMETER
- STAFF GAGE
- SEEP



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE: PIONEER

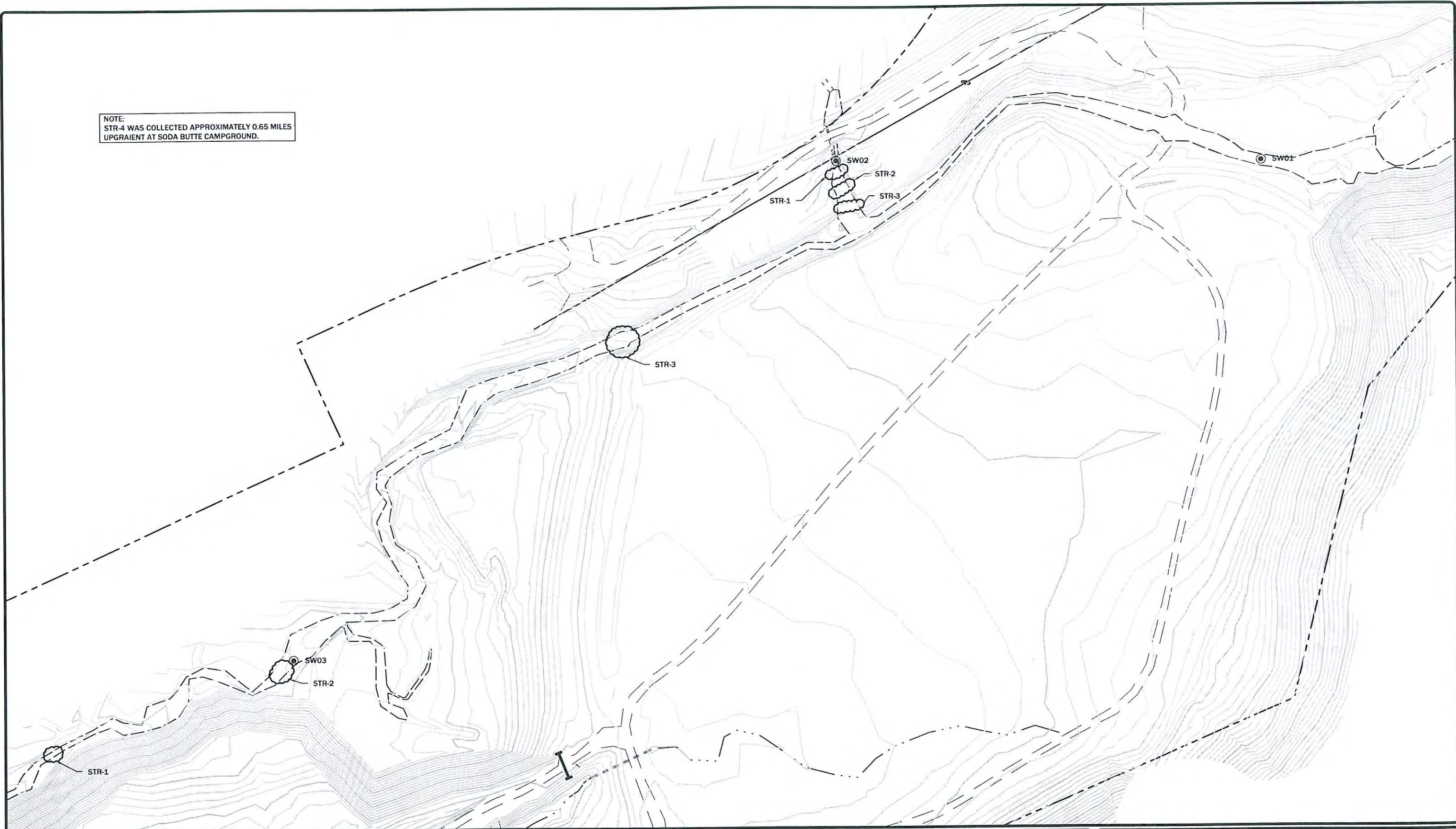
SCALE IN FEET

FIGURE 6 GROUNDWATER INVESTIGATION
 EXISTING WELLS, PIEZOMETER
 AND PUMPING WELL
 LOCATIONS

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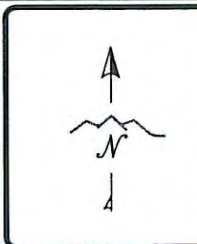
DATE: 4/15/09

NOTE:
STR-4 WAS COLLECTED APPROXIMATELY 0.65 MILES
UPGRAIENT AT SODA BUTTE CAMPGROUND.



LEGEND

- SURFACE WATER SAMPLE LOCATIONS
- STREAM REFERENCE REACHES



PROJECTION: TRANSVERSE MERCATOR
 ZONE: MONTANA
 DATUM: MSP NAD83 NAVD88
 UNITS: FEET
 SOURCE:

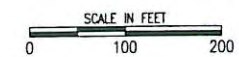
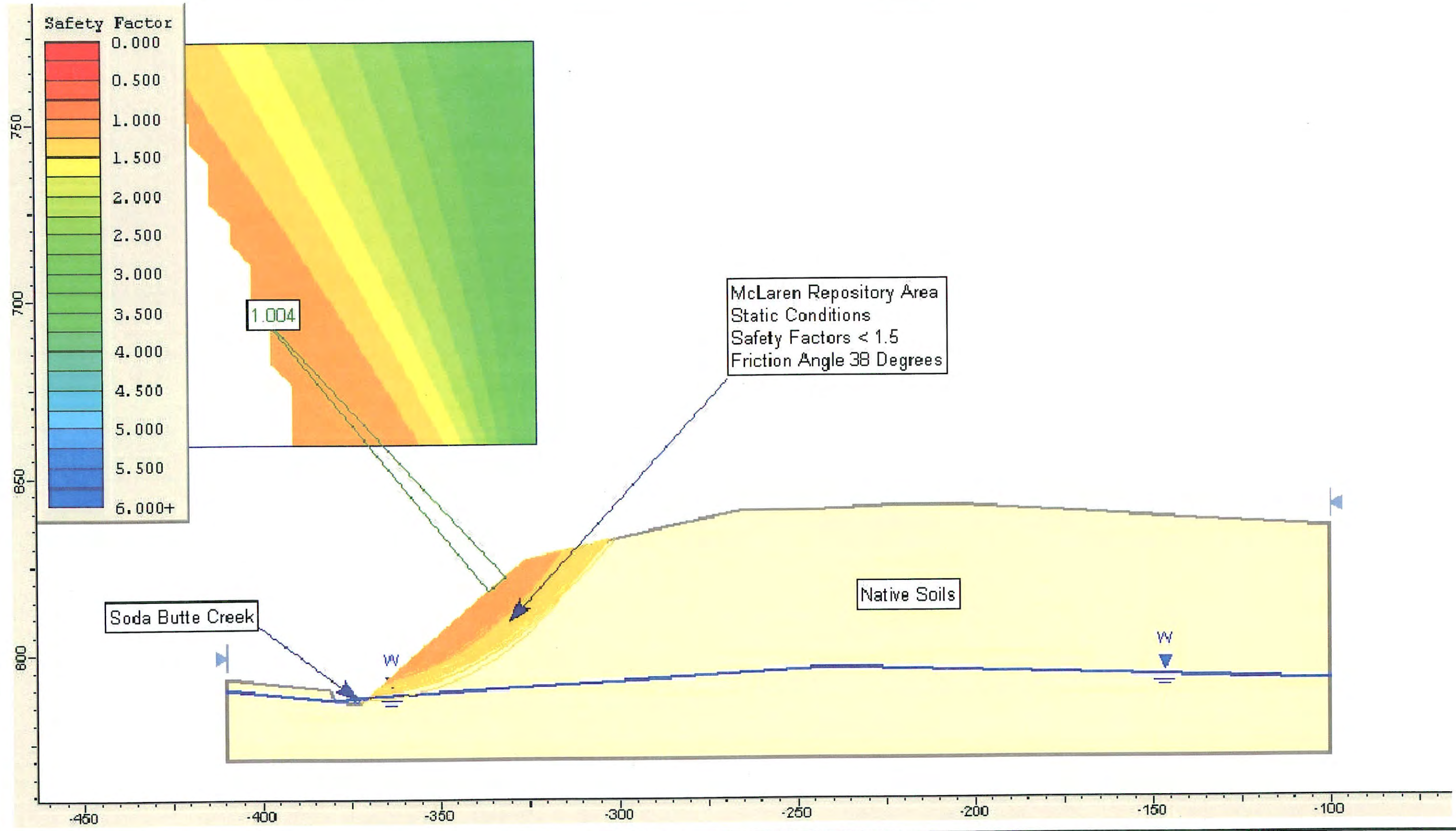


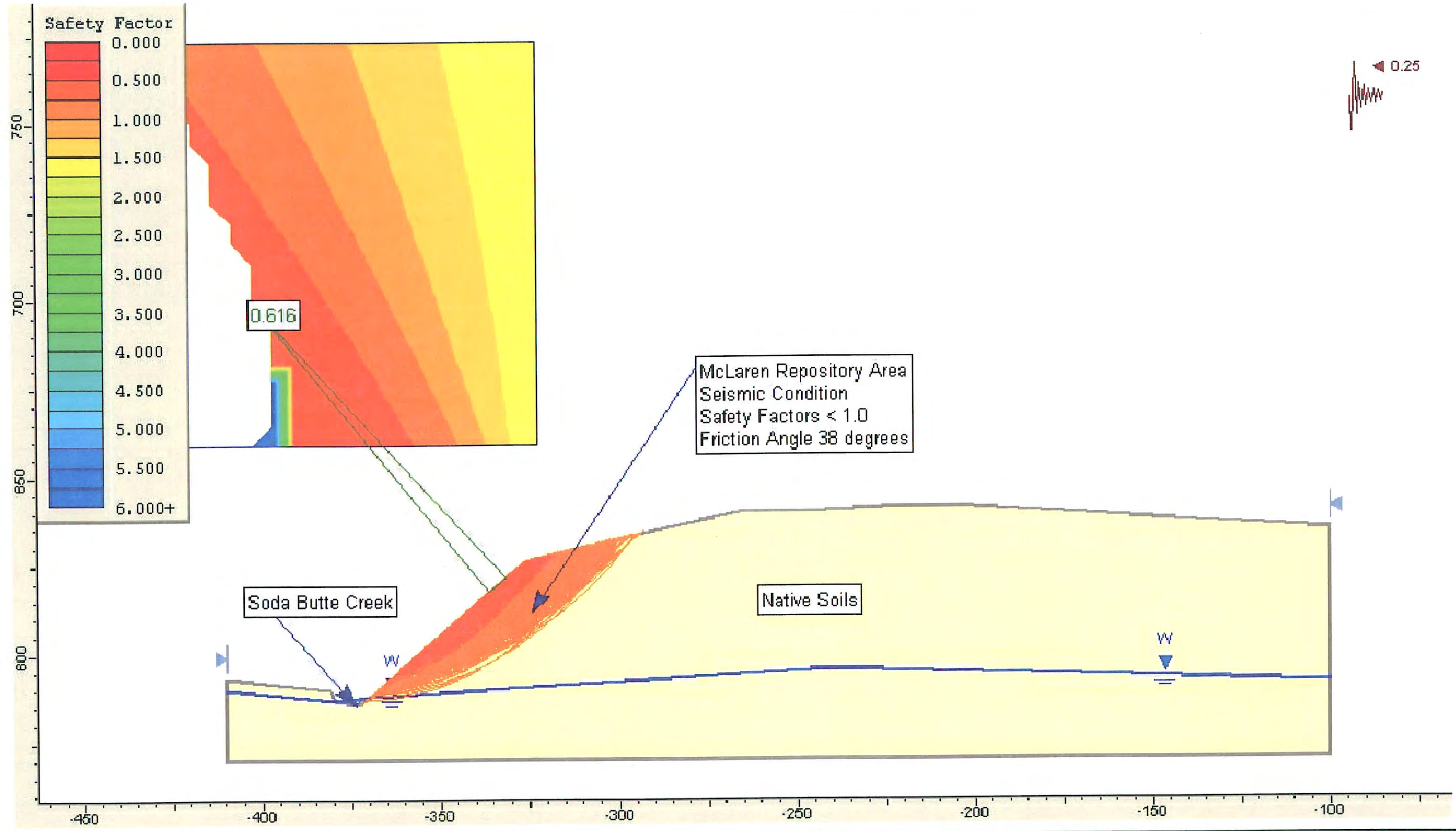
FIGURE 7 SURFACE WATER INVESTIGATION AND STREAM REFERENCE LOCATIONS



Butte, Helena, Anaconda

DATE: 4/15/09





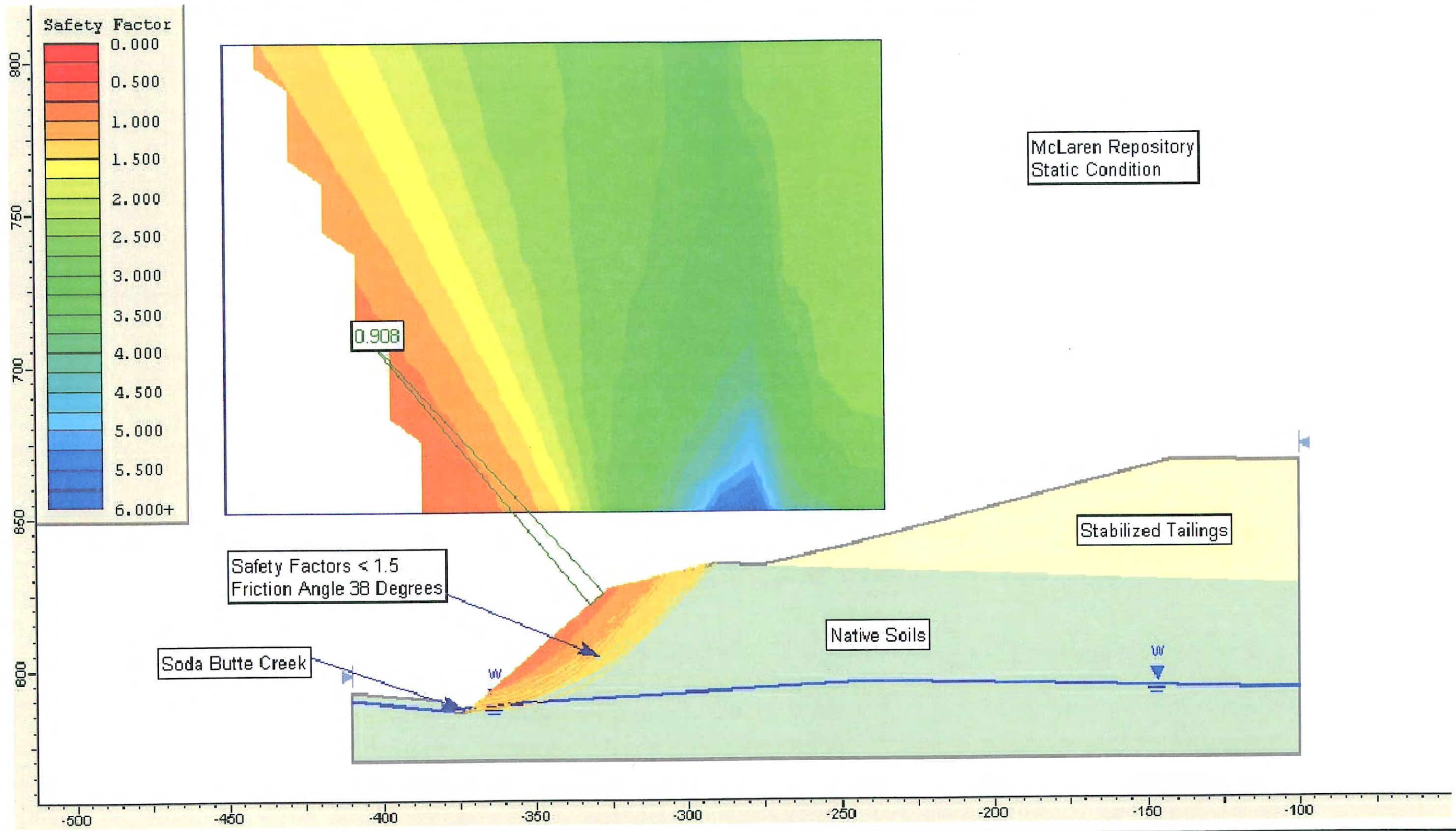
PROJECTION: _____
 ZONE: _____
 DATUM: _____
 UNITS: _____
 SOURCE: PIONEER

SCALE IN FEET
 0 N.T.S.

FIGURE 9 STABILITY ANALYSIS
 REPOSITORY LOCATION
 WITHOUT FILL
 (SEISMIC)

PIONEER
 TECHNICAL SERVICES, INC.
 Butte, Helena, Anaconda

DATE: 4/15/09



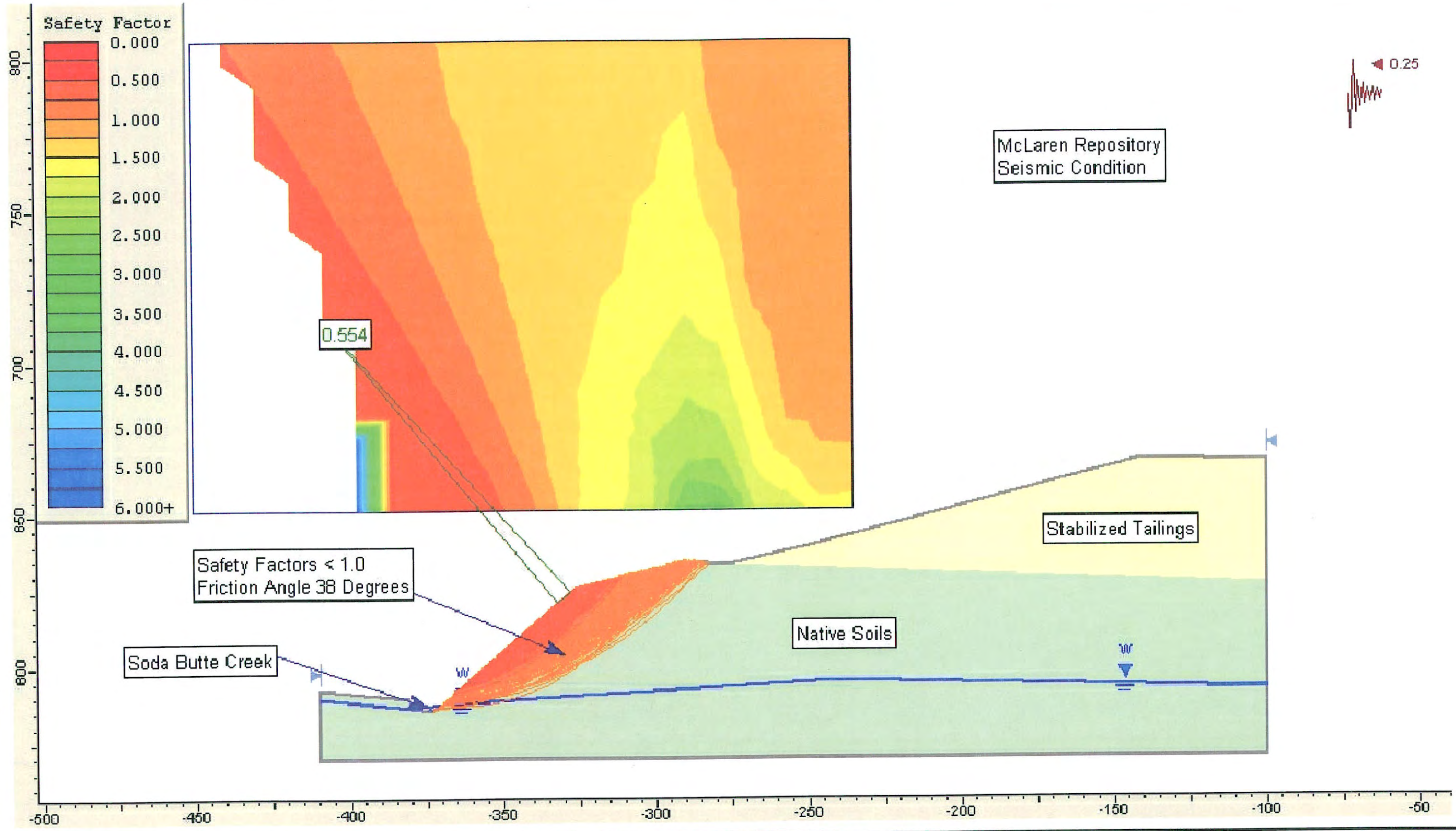
PROJECTION: _____
 ZONE: _____
 DATUM: _____
 UNITS: _____
 SOURCE: PIONEER

SCALE IN FEET
 0 N.T.S.

FIGURE 10 STABILITY ANALYSIS
 REPOSITORY LOCATION
 WITH FILL
 (STATIC)

PIONEER
 TECHNICAL SERVICES, INC.
 Butte, Helena, Anaconda

DATE: 4/15/09



PROJECTION: _____
 ZONE: _____
 DATUM: _____
 UNITS: _____
 SOURCE: PIONEER

SCALE IN FEET
 0 N.T.S.

FIGURE 11 STABILITY ANALYSIS
 REPOSITORY LOCATION
 WITH FILL
 (SEISMIC)

PIONEER
 TECHNICAL SERVICES, INC.
 Butte, Helena, Anaconda

DATE: 4/15/09

TABLES

TABLE 1
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description
Repository/Borrow Area			
	RA-01	0.0 to 0.6 0.6 to 5.5 5.5 to 8.0 8.0 to 13.2 13.2 to 19.0 19.0	Dark brown silty loam with well developed roots - 100% veg. Medium brown sandy silt with some roots - no rocks Medium gray brown coarse sand/gravel - 1-2% rocks <2" Silty sand with gravels and rocks - rock size increases with depth Medium brown silt - very few rocks and looks damp Total depth - Encountered rounded cobbles
	RA-02	0.0 to 0.6 0.6 to 2.7 2.7 to 6.0 6.0 to 7.8 7.8 to 15.7 15.7 to 20.5 20.5	Dark brown silty sandy loam with roots - 100% veg Medium brown sandy silt - some roots throughout Gray brown sand, no roots - 1% rock <4", upper layer has more rocks Coarser sand with larger gravel and cobbles approx 50% rocks <4" Medium brown silty sand to sandy silt at bottom - approx. 1% rocks <12" Medium brown fairly dense damp silt with cobbles <24" - 20-30% rocks Total Depth
	RA-03	0.0 to 0.25 0.25 to 2.0 2.0 to 3.4 3.4 to 5.7 5.7 to 12.3 12.3 to 21.0 21.0	Dark brown silty sandy loam with roots and few rocks - 100% veg Medium brown slightly sandy silt with some roots and very few rocks Medium brown sandy silt with approx 20% cobbles <6" - slightly damp Damp gray brown silt with a little clay - 10-20% gravel and cobbles <6" Moist medium gray brown silty sand to silt with approx 10% gravel and cobbles <4" Medium gray brown silty clayey silt - dense, moist layer with no rocks Total Depth
	RA-04	0.0 to 0.167 0.167 to 7.6 7.6 to 13.3 13.3 to 20.5 20.5	Dark brown sandy silty loam with lots of roots Dry red brown slightly sandy silt - 20-30% rock <6" Damp gray brown clayey silt with approx 10% cobbles and gravel <6" Damp to moist sandy silt - 1-5% cobbles and gravel <6" Total Depth
	RA-05	0.0 to 0.4 0.4 to 3.6 3.6 to 20.8 20.8	Dark brown silty sand with lots of roots - 100% veg Red brown sandy silt with roots throughout - 5% cobbles <4" Gray brown silty sand with some cobbles and rocks Total Depth
	RA-06	0.0 to 0.25 0.25 to 3.75 3.75 to 5.5 5.5 to 9.0 9.0 to 19.0 19.0	Dark brown loamy sandy silt with lots of organic matter Red brown silty sand with a very small amount of gravel Medium fine grained sand with gravel and cobbles <6" Fine grained sands with gravel and cobbles <12" - 20-30% rock Damp medium grained sand with approx. 10-20% cobbles <8" Total Depth
	RA-07	0.0 to 0.25 0.25 to 3.6 3.6 to 7.6 7.6 to 9.0 9.0 to 20.0 20.0	Dark brown silty sandy loam with lots of organic matter - 100% veg Red brown silty sand with roots and very few rocks Damp medium brown silty fine grained sand with a little clay in areas - no rocks Gray brown medium to coarse sand with 10% gravels and cobbles <4" Damp brown fine to medium silty sand with some silt clay in places - 30-40% cobbles <8" Total Depth
	RA-08	0.0 to 0.3 0.3 to 5.2 5.2 to 7.7 7.7 to 11.5 11.5 to 19.0 19.0	Dark brown sandy silty loam with organic matter - 100% veg Dry red brown silty sand with roots throughout - 1-5% rock <3" Gray brown fine grained silty sand with some clay in areas - 1-5% rock <3" Medium brown medium grained silty sand with 40% rock <6" Medium brown medium grained silty sand with 20% cobbles <8" Total Depth
	RA-09	0.0 to 0.3 0.3 to 4.3 4.3 to 6.5 6.5 to 8.1 8.1 to 19.0 19.0	Dark brown sandy silty loam with lots of organic matter - 100% veg Red brown silty sand with roots and a small amount of gravel Damp coarse sand with approx 1% gravel and cobbles <5" Damp gray brown coarse sand with approx 10-20% gravel/cobbles <4" Medium brown damp coarse silty sand with approx 60-70% cobbles <4" with some rocks Total Depth
	RA-10	0.0 to 0.4 0.4 to 3.0 3.0 to 5.5 5.5 to 18.5 18.5	Dark brown silty sandy loam with organic matter - 100% veg Dry red brown sandy silt with 10-20% gravel/cobbles <4" Red brown silty sand with 10-20% cobbles <8" Damp to moist silty sand with cobbles <8" - 70-80% rock Total Depth
	RA-11	0.0 to 0.6 0.6 to 5.5 5.5 to 9.7 9.7 to 14.9 14.9 to 20.0 20.0	Damp dark brown silty sand with organics Red brown sandy silt with a little gravel and roots throughout Damp gray brown silty sand with some layers of clayey silt - rock-gravel layer about 1" thick Gray brown damp silty sand with some layers of silty clay - <1% cobbles/gravels <8" Medium gray brown silty sand with small layers of sandy silt Total Depth
	RA-12	0.0 to 0.7 0.7 to 2.3 2.3 to 4.8 4.8 to 8.0 8.0 to 20.8 20.8	Dark brown to red brown silty sandy loam with lots of organic matter - 100% veg Dry red brown sandy silt with 10% cobbles <8" - roots throughout Damp gray brown dense silty fine grained sand - 10% cobbles <8" Gray brown fine grained silty sand - 10% gravel/cobbles <4" Damp medium brown fine to medium grained silty sand - 10% cobbles <12" Total Depth

TABLE 1
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description	
	RA-13	0.0 to 0.9 0.9 to 3.5 3.5 to 4.65 4.65 to 8.1 8.1 to 12.25 12.25 to 20.9 20.9	Dry dark brown sandy silty loam with roots - 100% veg Slightly damp red brown silty sand with roots throughout Layer of 50-60% cobbles and gravel <4" at the base of red brown soil Medium to coarse gray brown sand with no roots - <5% rocks Moist medium brown medium grained silty sand with 30-40% cobbles and rocks <36" Moist silty sand with 40-50% gravel and rocks <6" Total Depth	
	RA-14	0.0 to 0.7 0.7 to 4.0 4.0 to 7.0 7.0 to 11.4 11.4 to 14.3 14.3	Dark brown silty sandy loam with lots of organics - 100% veg Slightly damp red brown silty sand with roots and no rocks Gray brown fine grained silty sand with layers of silty sand and some clay - no roots Damp coarse gray brown with some cobbles and gravel towards bottom of layer Wet coarse grained red brown sand with gravels and cobbles - <1% rocks <36" - 30-40% rocks <18" Total Depth	
	RA-15	0.0 to 0.5 0.5 to 4.6 4.6 to 7.0 7.0 to 11.1 11.1 to 17.5 17.5	Dark brown silty sandy loam with lots of organics - 100% veg Red brown slightly damp sandy silt to silty sand - lots of roots and no rocks Slightly damp medium gray brown fine grained silty sand with some clumps of clayey sand - no rocks and few roots Medium brown to gray brown coarse sand - no rocks and slightly damp Damp medium brown coarse silty sand - 30-40% gravel and cobbles <6" Total Depth	
	RA-16	0.0 to 0.95 0.95 to 4.8 4.8 to 7.8 7.8 to 9.9 9.9 to 11.7 11.7 to 14.0 14.0	Dark brown silty sandy loam - 70-80% veg Very dry red brown sandy silt with no rocks and lots of roots Layered zone - major layers of silty fine grained sand, small layers of lighter slightly clayey sandy silt and layers of gravel Damp medium gray brown medium-grained sand Damp medium gray brown coarser silty sand with no rocks Damp medium gray brown coarse silty sand with approx. 10-20% gravel/cobbles <4" Total Depth - Began to hit larger rocks	
	RA-17	0.0 to 0.7 0.7 to 2.1 2.1 to 12.8 12.8 to 16.85 16.85	Red brown silty sand with few roots - 70% veg Very dry tan fine grained silty sand - no rocks and few roots Coarse grained medium brown silty sand - 30-40% gravel/cobbles <10" Coarse medium brown/gray brown silty sand - 30-40% cobbles/gravel <6" Total Depth	
	RA-18	0.0 to 0.7 0.7 to 1.0 1.0 to 1.7 1.7 to 2.7 2.7 to 4.5 4.5 to 11.0 11.0	Very loose and dry red brown silty sand with approx. 40-50% cobbles <6" - Iron stained rocks on surface Dark brown soil with roots Medium brown/gray brown coarse sand with 30-40% gravel and cobbles <6" Same as above except Fe stained rocks present in north end of test pit - layer of orange silty sand Coarse sand with approx. 70-80% gravel/cobbles <6" - south end of TP contains large boulders Gray brown coarse sand with 30-40% cobbles <12" and 70-80% gravels Total Depth	
	RA-19	0.0 to 0.5 0.5 to 0.8 0.8 to 2.5 2.5 to 4.2 4.2 to 5.5 5.5 to 6.0 6.0 to 8.4 8.4 to 13.0 13.0 to 18.7 18.7	Medium brown silty sand with roots - 50-60% veg on surface Slightly damp tan orange fine grained sandy silt with roots and no rocks Orange sand to sandy loam with 50-60% cobbles <4" Medium brown coarse silty sand with 40-50% cobbles <4" and <1% cobbles <10" Red brown to medium brown coarse sand with orange stained cobbles - 30-40% cobbles <8" - some layers of brighter orange Medium brown to tan silty fine grained sand with no rocks Layer of medium brown/gray brown fine grained sand with cobbles Layer of darker sand with no large rocks - damp to moist Fine grained silty sand with few rocks - damp to moist Total Depth	
	Tailings Area			
		TP-01	0.0 to 0.4 0.4 to 2.4 2.4 to 3.0 3.0 to 8.6 8.6 to 23.0 23.0	Dark brown sandy silty loam with roots - 100% veg on surface Medium brown sandy silt with gravels and cobbles <6" Orange and gray silty sand - no rocks Medium gray with some thin layers of orange modeling clay Wet to saturated dark gray sandy silt with no rocks - groundwater entering test pit at 14.9 ft
TP-02		0.0 to 0.4 0.4 to 6.8 6.8 to 7.3 7.3 to 14.0 14.0 to 18.0 18.0	Dark brown sandy silt with roots Medium brown sandy silt - 1-2% gravel/cobbles <8" Layer of orange and red clayey sand Dark gray silty sand - wet Saturated dark gray sandy silt to silty clay Total Depth - large boulders <36"	
TP-03		0.0 to 0.3 0.3 to 3.3 3.3 to 5.0 5.0 to 7.1 7.1 to 9.5 9.5 to 15.8 15.8	Dark brown sandy loam with roots - 100% veg on surface Dray medium brown loose sandy silt with gravels/cobbles <8" Damp yellow and orange clayey silt layers with gray clay layers Dark gray modeling clay Wet gray silty sand Dark gray silty sand and dark gray clayey silty - groundwater entering test pit at 15.5 ft Total depth	
TP-04		0.0 to 0.65 0.65 to 3.55 3.55 to 8.85 8.85 to 13.6 13.6 to 14.5 14.5	Dark brown to medium brown silty sandy loam with roots - 80% veg on surface Medium brown silty fine grained sand - 5% cobbles/gravels <6" Damp yellow-tan and gray silty fine grained sand - no rocks Dark gray silty sand with no rocks - damp to moist Bright orange coarse silty sand with boulders <18" Total Depth	
TP-05		0.0 to 0.8 0.8 to 2.6 2.6 to 4.0 4.0 to 7.0 7.0 to 15.0 15.0	Dark brown silty sandy loam with rocks <3" - 80% veg on surface Damp light brown silty sand with <5% cobbles <6" Damp light yellow silty clay with some sandy layers - gray clayey silty sand towards bottom Dark gray brown silty sand with <1% rock <6" - moist Moist to wet dark gray silty sand to sandy silt - wet red-brown silty sand at bottom Total Depth	

TABLE I
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description
	TP-06	0.0 to 2.35 2.35 to 4.7 4.7 to 7.0 7.0 to 8.4 8.4 to 10.4 10.4 to 13.1 13.1	Bright orange silty sand to sandy silt with some clay - 10% cobbles <6" (appears to be a mix of cover soil and tailings) Yellow brown silty sand with layers of gray silty sand - 1-5% cobbles <6" Yellow brown silty sandy loam with thin gray clay layers - 1-2% rocks <12" Yellow brown silty sand with gray silty clay layers - orange stained rocks Dark gray silty sand with 10-20% silty clay - <10% cobbles <12" Wet dark brown clayey sand with approx. 30-40% cobbles/gravels <18" Total Depth - natural ground
	TP-07	0.0 to 0.6 0.6 to 2.7 2.7 to 4.5 4.5 to 6.4 6.4 to 9.1 9.1 to 20.0 20.0	Dark brown silty sandy loam with roots - 60-70% veg on surface Dry, loose silty sand with approx. 20% gravels and cobbles <6" Layered zone of yellow clayey sand and gray silty clay - no rocks Damp lighter gray silty sand with some clay Layers of orange brown sand, orange sand, and gray sand - no rocks - damp gray sandy silt and gray clayey sand Moist to wet dark gray silty sand with some layers of silty clay and orange staining - no rocks Total Depth
	TP-08	0.0 to 0.5 0.5 to 2.5 2.5 to 2.7 2.7 to 4.2 4.2 to 6.2 6.2 to 21.0 21.0	Dark brown silty sandy loam with roots and some rocks <3" - 90-100% veg on surface Dry, loose tan silty sand - <10% cobbles/gravels <3" Damp gold clayey silty sand - no rock Moist layer of gold silty clayey sand and gray silty clay - no rocks Brown gray silty clay with layers of gray sandy clay - no rocks Medium gray silty sand with some clayey silt layers - towards bottom wet red brown silty clay Total Depth - hit rock
	TP-09	0.0 to 10.0 10.0	Mostly med brown sand with gravels and cobbles with a thin layer of gray tailings - groundwater entering at 9 ft Total Depth
	TP-10	0.0 to 7.0 7.0 to 10.0 10.0	Cover soil Gray tailings composed of both sand with pyrite and clay Total Depth - small amount of water seeping in
	TP-11	0.0 to 4.0 4.0 to 9.4 9.4 to 13.5 13.5	Placed cover soil Tailings - top of wood debris Tailings - bottom of wood debris Total Depth
	TP-12	0.0 to 0.5 0.5 to 8.0 8.0 to 21.0 21.0	Dark brown silty sand with roots - 100% veg on surface Damp to wet silty sand with approx. <5% gravels/cobbles <6" Wet dark gray clay and dark gray sand with some orange staining in clay - black rocks Total Depth - groundwater entering
	TP-13	0.0 to 1.5 1.5 to 7.9 7.9 to 11.9 11.9 to 14.7 14.7 to 18.5 18.5	Light tan loose silty sand - 60-70% veg on surface Zone of tan sandy silt with some areas of orange clayey sand - cobbles <3" Zone of wet brown sand with gravel Zone of gray clay Layers of black clayey silt with lots of roots and dark brown sand with gravel and cobbles Total Depth - groundwater entering at 14.0 ft
	TP-14	0.0 to 1.0 1.0 to 2.4 2.4 to 6.4 6.4 to 10.1 9.5 10.1 to 15.2 15.2 to 19.0 19.0	Dark brown silty sandy loam with roots - 90% veg on surface Light brown silty sand with 10% cobbles <6" Slightly darker brown silty sand with dark cobbles Mixed zone of brown sand and dark gray/brown sand with some clay Layer of black silty clayey sand with branches and organics Dark gray black sand with gravel Brown sand with some clay - 40-50% cobbles >10" - groundwater entering at 15.2 ft Total depth
	TP-15	0.0 to 0.6 0.6 to 3.2 3.2 to 6.3 6.3 to 7.7 7.7 to 15.5 15.5 to 18.0 18.0	Dark brown silty sand with some gravel - 60% veg on surface Light brown silty sand with some roots - 10% cobbles <4" Medium brown sandy clayey silt with some orange and red staining Dark black silty clayey sand with organics Brown sand with gravel and cobbles with some layers of gray-yellow silty clay - wet at bottom Red brown silty sand with approx 50-60% cobbles <8" - saturated at bottom Total depth - groundwater entering test pit at 16.6 ft
	TP-16	0.0 to 0.8 0.8 to 3.3 3.3 to 6.0 6.0 to 9.6	Dark brown to medium brown silty sand with 5% gravels/cobbles <4" - 30-40% veg on surface Medium brown sandy silt - 20-30% cobbles/gravel <6" Slightly darker brown sandy silt - 20-30% gravel/cobbles <6% Dark brown silty sand - 10-20% cobbles <6"
	TP-17	0.0 to 0.6 0.6 to 4.0 4.0 to 7.0 7.0 to 10.4 10.4 to 19.8 19.8	Dark brown silty sand with some gravel - 20-30% veg on surface Medium brown silty sand with <1% cobbles Slightly darker silty sand - 10% cobbles <6" Orange-yellow and gray layered clayey silt with no rocks - moist to damp Wet to saturated dark brown silty coarse sand - 60-70% cobbles/gravels <24" Total Depth
	TP-18	0.0 to 0.6 0.6 to 3.6 3.6 to 7.3 7.3 to 9.5 9.5 to 21.3 21.3	Dark brown silty sand with some gravels and cobbles - 20-30% veg on surface Medium brown sandy silt with <5% cobbles <4" Slightly darker sandy silt - 10-20% gravel/cobbles <6" Wet golden brown sand with slightly orange/yellow stained rocks - 10% cobbles Wet medium brown sandy silt - 30-50% cobbles <24" Total Depth
	TP-19	0.0 to 0.7 0.7 to 2.9 3.9 to 4.1 4.1 to 7.8 7.8 to 10.8 10.8 to 17.4 17.4	Medium brown sandy silt with 10% cobbles <4" - 40-50% veg on surface Medium brown silty sand - 10% cobbles/gravel <6" Layer of red brown clayey sand with some gravel Dark gray sand with some cobbles and pebbles - pockets of orange staining Dark gray sand with no rocks Layer of orange/red brown clayey sand - followed by damp to wet medium brown sandy silt with 20-30% cobbles <12" Total Depth

TABLE 1
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description
	TP-20	0.0 to 3.2 3.2 to 8.35 8.35 to 10.65 10.65 to 14.85 14.85 to 17.4 17.4	Red brown silty sand with some clay and yellow staining - 10-20% cobbles <12" Dark gray brown silty sand with some cobbles - moist Slightly lighter gray silty sand with some clay - no cobbles Mixed zone of brown sand and gray sand - 20-40% cobbles <12" Moist brown sand - 20-30% cobbles <6" Total Depth
	TP-21	0.0 to 0.5 0.5 to 4.5 4.5 to 8.6 8.6	Dark brown silty sandy loam with roots - 89-90% veg on surface Damp medium brown silty medium grained sand with <10% cobbles <12" Medium tan sandy silt with approx. <1% rocks Total Depth
	TP-22	0.0 to 0.4 0.4 to 3.2 3.2 to 9.8 9.8 to 15.2 15.2	Darker brown silty sand with 10% veg on surface - firepit on surface Medium brown/gray brown coarse sand with no rocks Dry gray brown silty clayey silt - no rocks Coarse sand with no rocks - groundwater entering test pit at 14.5 ft Total Depth
	TP-23	0.0 to 0.2 0.2 to 6.6 6.6 to 14.6 14.6	Dark brown humus - 10% veg on surface Medium grained medium brown sand Medium brown slightly clayey silt - no rocks Total Depth
	TP-24	0.0 to 0.5 0.5 to 3.3 3.3 to 6.4 6.4 to 15.1 15.1	Dark brown silty sandy loam with roots - 50-60% gravel Medium brown fine grained silty sand with more silt with depth - 5% cobbles <6" Orange then gray coarse sand with gravel - along west end evidence of rotted wood Medium brown silty sand with some gravels and cobbles - groundwater entering test pit at 14.5 ft (particularly on east side) Total Depth
	TP-25	0.0 to 0.5 0.5 to 1.8 1.8 to 2.8 2.8 to 5.0 5.0 to 6.4 6.4 to 9.6 9.6 to 10.6 10.6	Dark brown sandy silty loam - 100% veg on surface Dry tan sandy silt - some gravels but no rocks Yellow then orange silty sand - rocks only located in west half of test pit Coarse to medium grained sand with approx. <1% cobbles/gravels <6" Damp medium brown sandy silt - no rocks Medium brown fine grained silty sand - no rocks Coarse sand with no rocks - groundwater entering in test pit Total Depth
	TP-26	0.0 to 3.7 3.7 to 7.0 7.0 to 8.2 8.2 to 10.3 10.3 to 13.1 13.1	Red tan sandy silt with roots throughout - cobbles <18" Layer of gray silty sand then layer of orange brown/yellow sand then layer of gray silty sand Layer of gray with thin bands of brown sandy silt Mixed zone of brown sand and gray sand Wet Medium brown silty sand with some rocks - 40-50% cobbles/gravels <8" Total Depth
	TP-27	0.0 to 0.4 0.4 to 2.7 2.7 to 3.2 3.2 to 5.9 5.9 to 16.0 16.0 to 16.1 16.1	Dark brown silty loam with roots - 100% veg on surface Light brown to tan sandy silt - 40-50% gravel and cobbles <4" Damp yellow and orange layered clayey sand - no rocks Damp gray silty sand with pyrite and layers of damp yellow brown silty sand Gray silty sand with pyrite and layers of brown clayey silt and brown clayey sand - few rocks Red brown clayey sand with cobbles <6" Total depth
	TP-28	0.0 to 0.2 0.2 to 2.7 2.7 to 6.2 6.2 to 18.0 18.0 to 18.5 18.5	Dark brown silty sandy loam with roots and some orange silt on surface - 30-40% veg on surface Dry, loose medium tan sandy silt - <5% gravel/cobbles <4" Fairly loose, damp gray silty sand with some layers of orange and yellow - no rocks Moist dark gray silty sand - groundwater entering test pit at 18.0 Dark brown saturated sand with cobbles and some clay Total Depth - native ground
	TP-29	0.0 to 0.3 0.3 to 2.0 2.0 to 6.2 6.2 to 10.4 10.4 to 18.0 18.0	Dark brown sandy silty loam Medium brown silty sand with approx. 10% cobbles Top is layers of orange/yellow gray silty sand - bottom has some orange silty clay and gray sand Gray modeling clay - looks wet Dark brown gray silty sand and clayey sand - no rocks Total Depth
	TP-30	0.0 to 2.0 2.0 to 7.0 7.0 to 11.0 11.0 to 22.0 22.0	Dark brown silty sand with roots - 100% veg on surface Damp to moist medium brown silty sand - 10-20% cobbles <6" Wet gray sandy silt with a 1 ft layer of orange clayey silt Medium brown with orange clayey silt to silty clay - wet but no running water Total Depth - saturated gray brown silty clay (natural ground)
	TP-31	0.0 to 0.9 0.9 to 3.7 3.7 to 9.5 9.5 to 18.5 18.5	Dark brown silty sand with roots and cobbles <3" - 70% veg cover on surface Brown silty sand with 10% cobbles <6" Layer of yellow silty clayey silt and gray sandy silt - moist Brown gray silty clay with some sandy silt - wet throughout Total Depth
	TP-32	0.0 to 0.5 0.5 to 1.7 1.7 to 4.3 4.3 to 7.35 7.35 to 14.0 14.0 to 16.9 16.9	Dark brown silty sandy loam with roots - 60-70% veg on surface Tan sandy silt with <10% cobbles <4" Layer of orange sand then a layer of yellow silt and a layer of gray sandy silt - no rocks Gray sandy silt - no rocks Moist dark gray sandy silt with pyrite and a small amount of clayey silt Damp brown silty sand with some clay - 60-70% cobbles <6" Total Depth
	TP-33	0.0 to 0.5 0.5 to 5.5 5.5 to 11.0 11.0 to 13.0 13.0	Dark brown sandy silt with roots - 50-60% veg on surface Red brown sandy silt with 50-60% cobbles <18" and 5-10% large cobbles at 4.5' Dark gray sandy silt with no rock - at bottom tailings are wet and more of a gray/brown clayey silt Layer of red orange stained gravel and cobbles then a layer of brown sand with 30-40% gravel/cobbles <18" Total Depth

TABLE 1
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description
	TP-34	0.0 to 0.9 0.9 to 2.7 2.7 to 5.6 5.6 to 7.0 7.0 to 9.0 9.0	Dark brown silty sand with roots and cobbles <4" Light brown to tan silty sand - 30-40% cobbles <48" Yellow orange and gray sandy silt with silty clay Dark gray and golden brown sandy silt with pyrite - no rock Dark brown clayey sand with roots - 20-30% cobbles <24" Total Depth
	TP-35	0.0 to 0.5 0.5 to 2.5 2.5 to 5.0 5.0 to 8.2 8.2 to 12.3 12.3 to 15.0 15.0	Dark brown sandy silt with roots and gravel/cobbles <8" - 60-70% veg on surface Light brown/tan sandy silt with 10% cobbles <4" Layer of orange sand, then a layer of silty sand and then a layer of gray clayey silt - no rocks Dark gray with brown tinge sandy silt with layers of dark gray silty clay Dark gray sandy silt with layers of clayey silt - <1% cobbles <6" Moist dark brown clayey sand with 40-50% cobbles/gravel <18" Total Depth
	TP-36	0.0 to 0.4 0.4 to 2.2 2.2 to 5.5 5.5 to 10.0 10.0 to 18.0 18.0 to 19.0 19.0	Dark brown sandy silt with gravel and pebbles - 60-70% veg on surface Light brown/tan silty sand with <5% cobbles <4" Layer of orange sand/gravel, then a layer of orange and gray sandy clay, and then gray sandy silt with pyrite Dark gray sandy silt with pyrite and no rocks Orange brown clay with layer of dark gray sand - wet Orange brown sand with 70-80% cobbles <8" - saturated Total Depth
	TP-37	0.0 to 0.5 0.5 to 3.0 3.0 to 6.0 6.0 to 14.0 14.0 to 18.5 18.5 to 19.0 19.0	Dark brown silty sand with roots - 70-80% veg on surface Tan to light brown silty sand with no roots - <5% cobbles <4" Layer of orange gravel/sand, then a layer of yellow/gray silty clay, and a layer of gray sandy silt Damp gray sandy silt with pyrite - no rocks Brown silty clay with layer of gray silty sand with pyrite - groundwater seeping into test pit at 14' Saturated brown clayey sand with 60-70% cobbles <8" Total Depth
	TP-38	0.0 to 0.5 0.5 to 3.0 3.0 to 3.1 3.1 to 6.5 6.5 to 9.0 9.0 to 20.0 20.0	Dark brown sandy silt with roots - 90% veg on surface Light brown/tan sandy silt with <5% cobbles <6" Layer of orange gravel/sand Layers of damp orange/yellow silty clay, damp gray sandy silt with pyrite and damp gray clayey sand - no rocks Moist dark gray sandy silt with pyrite - groundwater entering test pit at 9.7 ft and 13.5 ft Layered gray silty clay and brown silty clay - bottom of test pit is all brown and gray wet clay Total Depth
	TP-39	0.0 to 0.4 0.4 to 5.9 5.9 to 9.0 9.0 to 19.5 19.5 to 19.7 19.7 to 20.0 20.0	Dark brown sandy silt with roots and well vegetated Tan to light brown sandy silt with <5% cobbles <4" Layers of orange sand, yellow/gray clayey silt and gray sandy silt with some clay Gray sandy silt with pyrite at approx. 11 ft layer of brown/gray clay Dark black/brown loam with grass and roots Brown clayey sand with gravel and cobbles Total Depth
	TP-40	0.0 to 0.6 0.6 to 3.0 3.0 to 7.0 7.0 to 20.0 20.0 to 20.5 20.5 to 21.0 21.0	Damp dark brown silty sand with roots - 90% veg on surface Medium brown silty sand with <5% cobbles <6" Layers of orange sand/gravel, yellow/orange and gray silty clays and clayey silts Wet dark gray silty clay with layers of dark gray sandy silt - groundwater entering at 15 ft Black sandy silty loam with roots - moist Brown gravel Total Depth
	TP-41	0.0 to 0.4 0.4 to 1.5 1.5 to 3.7 3.7 to 5.4 5.4 to 7.9 7.9 to 15.0 15.0 to 19.5 19.5	Dark brown silty sand with roots - 80-90% veg on surface Damp medium brown sandy silt with <1% cobbles <12" Slightly darker silty sand - more rocks Layers of orange sandy clay, yellow/gray clayey silt and medium gray sandy silt with pyrite - no roots Wet dark gray sandy silt with some layer of red brown sandy silt and lots of pyrite Layered dark gray clayey silt and sandy silt - groundwater entering test pit at 13.8 ft Brown clay Total Depth
	TP-42	0.0 to 0.7 0.7 to 2.3 2.3 to 3.5 3.5 to 5.8 5.8 to 10.0 10.0 to 11.3 11.3 to 17.0 17.0-17.3 17.3	Dark brown sandy silty loam with roots - 50-60% veg on surface Damp Medium brown sandy silt with 10% cobbles <12" Layers of orange sand/gravel, yellow/gray silty sand and orange sand Damp gray sandy clayey silt - no rocks Mixed zone of red brown and gray silty sand with pyrite Dark gray sandy silt with pyrite Dark gray and red brown silty clayey sand with 5% cobbles <18" Damp black sandy silt with roots and organics Total Depth
	TP-43	0.0 to 0.9 0.9 to 2.7 2.7 to 3.5 3.5 to 7.3 7.3 to 10.0 10.0 to 21.4 21.4	Dark brown silty sand with roots - 80-90% veg on surface Medium brown silty sand with <5% cobbles <12" Layers of orange sand, yellow/gray sandy silt with pyrite and yellow/gray clayey silt Medium gray sandy silt with pyrite Moist dark gray clayey sandy silt with pyrite Layers of gray and brown clay and gray sandy silt Total Depth
	TP-44	0.0 to 0.4 0.4 to 2.0 2.0 to 4.5 4.5 to 8.0 8.0 to 20.0 20.0	Dark brown silty sand with roots and gravel/cobbles <4" - 80-90% veg on surface Damp medium brown silty sand with 10% cobbles <6" Layers of orange clayey silt, light gray silty clay, gray silt and light gray sandy silt Layers of gray and red brown sandy silt Layers of gray clay, red brown clay, and gray sandy silt Total Depth
	TP-45	0.0 to 4.0 4.0 to 7.5 7.5 to 10.0 10.0	Silty sand with roots - 20-30% veg on surface Coarse sand with <5% cobbles <4" - groundwater entering test pit layered fine to medium grained sand - wet Total Depth

TABLE 1
SOIL SAMPLING SUMMARY
September 8, to September 19, 2008

Source	Test Pit ID	Depth Interval (feet)	Description
Coversoil	CS-01	0 to 1.17 ft	Dark brown and tan silty sand
	CS-02	0 to 2.0 ft	No coversoil
	CS-03	0 to 1.0 ft	Dark brown silty sandy loam and tan sandy silt
	CS-04	0 to 1.0 ft	Dark brown and tan sandy silt
	CS-05	0 to 2.83 ft	Dark brown to light brown silty sand
	CS-06	0 to 2.0 ft	Dark brown and tan silty sand
	CS-07	0 to 0.33 ft	Brown sandy silt
	CS-08	0 to 1.17 ft	Brown sandy silt
	CS-09	0 to 1.42 ft	Dark brown and tan silty sand
	CS-10	0 to 1.17 ft	Dark brown sandy silt and tan silty sand
	CS-11	0 to 0.92 ft	Dark brown sandy silt and medium brown silt
	CS-12	0 to 1.58 ft	Dark brown sandy loam and brown silty sand
	CS-13	0 to 1.33 ft	Dark brown/tan silty sand
	CS-14	0 to 1.08 ft	Dark brown silty sand
	CS-15	0 to 2.58 ft	Brown silty sand
	CS-16	0 to 2.25 ft	Dark brown silty loam and light brown silty sand
	CS-17	0 to 1.17 ft	Brown silty sand
	CS-18	0 to 2.5 ft	Dark brown to light brown sandy loam
	CS-19	0	No recovery
	CS-20	0 to 1.75 ft	Dark brown silty sand
	CS-21	0 to 1.83 ft	Dark brown silty sand
	CS-22	0 to 1.83 ft	Brown silty sand
	CS-23	0 to 2.58 ft	Dark brown silty loam and light brown to dark brown silty sand
	CS-24	0 to 1.5 ft	Dark brown to light brown loam and dark brown clayey silt
	CS-25	0 to 2.83 ft	Yellow orange silty clayey sand
	CS-26	0 to 2.42 ft	Dark brown silty sand
	CS-27	0 to 3.0 ft	Brown silty sand
	CS-28	0 to 3.17 ft	Brown silty sand
	CS-29	0 to 5.08 ft	Brown silty sand
	CS-30	0 to 4.0 ft	Dark brown sandy loam and sandy silt
	CS-31	0 to 2.67 ft	Dark brown loamy silt and light brown silty sand
	CS-32	0 to 2.83 ft	Dark brown silty sand
	CS-33	0 to 3.0 ft	Dark brown sandy loam and brown silty sand
	CS-34	0 to 4.0 ft	No Recovery
	CS-35	0 to 3.08 ft	Brown silty sand

**TABLE 2
SOLID MEDIA DATA**

SAMPLE ID	SAMPLE DATE	SAMPLE DESCRIPTION	Al mg/kg	Sb mg/kg	As mg/kg	Ba mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Fe mg/kg	Pb mg/kg	Mn mg/kg	Hg mg/kg	Ni mg/kg	Ag mg/kg	Zn mg/kg	pH s.u.
Repository Investigation																	
McLaren-RA-01-C-090808	09/08/08	Composite Sample collected from C-Horizon (5.7' to bottom) from RA-03, 04, 05, 07, 08, 09, and 10	5760	<5	<5	87	<1	23	26	15,400	16	354	<1	19	<5	40	7.9
McLaren-RA-01-B-090808	09/08/08	Composite Sample collected from B-Horizon (4" to 5.7") from RA-03, 04, 05, 07, 08, 09, and 10	12,100	<5	<5	120	<1	31	26	20,500	22	348	<1	21	<5	44	7
McLaren-RA-01-A-090808	09/08/08	Composite Sample collected from A-Horizon (0 to 4") from RA-03, 04, 05, 07, 08, 09, and 10	8490	<5	8	82	<1	21	13	13,400	107	524	<1	12	<5	49	4.6
Alluvium Sediment																	
McLaren-AS-01-091108	09/11/08	Composite Sample from Test Pit-05 at approx. 15.0'	7050	<5	12	98	2	33	290	53,100	78	103	<1	18	<5	63	2.93
McLaren-AS-02-091108	09/11/08	Composite Sample from Test Pit-06 at approx. 13.1'	8720	<5	9	81	2	30	480	54,200	74	144	<1	22	<5	138	4.21
McLaren-AS-03-091108	09/11/08	Composite Sample from Test Pit-15 at approx. 18.0'	4790	<5	7	55	<1	22	121	24,500	28	143	<1	13	<5	45	7.55
McLaren-AS-04-091108	09/11/08	Composite Sample from Test Pit-19 at approx. 17.4'	7640	<5	10	87	2	26	467	54,900	53	128	<1	19	<5	87	4.15
McLaren-AS-05-091108	09/11/08	Composite Sample from Test Pit-26 at approx. 13.1'	11,700	<5	8	99	2	24	494	31,000	172	115	<1	19	<5	123	3.63
McLaren-AS-06-091108	09/11/08	Composite Sample from Test Pit-27 at approx. 16.1'	7740	<5	7	78	1	30	330	36,800	50	118	<1	24	<5	67	3.97
McLaren-AS-07-091108	09/11/08	Composite Sample from Test Pit-31 at approx. 18.5'	9310	<5	7	73	1	26	372	31,600	78	169	<1	27	<5	113	4.5
McLaren-AS-08-091208	09/12/08	Composite Sample from Test Pit-36 at approx. 19.0'	5520	<5	<5	39	<1	22	191	24,400	28	104	<1	15	<5	43	5.32
McLaren-AS-09-091208	09/12/08	Composite Sample from Test Pit-39 at approx. 19.0'	6720	<5	6	106	1	15	317	18,400	73	101	<1	24	<5	151	5.78
Cover Soil Investigation																	
McLaren-CS-01-A-091508	09/15/08	Composite Sample collected from CS-1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 (0' to 2.0')	5480	<5	<5	95	<1	20	44	14,500	15	283	<1	16	<5	36	7.7
McLaren-CS-02-A-091508	09/15/08	Composite Sample collected from CS-16, 17, 23, 24, 30, and 31 (0' to 4.0')	4980	<5	<5	78	<1	16	16	12,500	12	241	<1	13	<5	28	7.6
McLaren-CS-03-A-091508	09/15/08	Composite Sample collected from CS-18, 25, 26, 32, and 33 (0' to 3.0')	4460	<5	<5	71	<1	16	15	10,800	9	249	<1	12	<5	25	7.8
McLaren-CS-04-A-091508	09/15/08	Composite Sample collected from CS-12, 13, 14, 20, 21, and 27 (0' to 3.0')	5040	<5	<5	82	<1	18	18	13,100	10	280	<1	18	<5	31	7.9
McLaren-CS-05-A-091608	09/16/08	Composite Sample collected from CS-8, 15, 22, 28, 29, and 35 (0' to 3.17')	5040	<5	<5	88	<1	18	37	15,000	16	314	<1	15	<5	38	7.4

mg/Kg - milligrams per Kilogram

<x = Concentration below listed laboratory reporting limit

Sb - Antimony,	Fe - Iron	Zn - Zinc
As - Arsenic	Pb - Lead	
Ba - Barium	Mn - Manganese	
Be - Beryllium	Hg - Mercury	
Cd - Cadmium	Ni - Nickel	
Cr - Chromium	Se - Selenium	
Cu - Copper	Ag - Silver	

TABLE 3
ACID/BASE ACCOUNTING and SMP RESULTS

Sample No.	Sample Date	Sample Description	Total Sulfur %	Sulfur HCl Extract %	Sulfur HNO ₃ Extract %	Sulfur Residual %	Sulfur H ₂ O Extract %	Acid Potential tons/1000	Acid/Base Potential tons/1000	Neut. Potential tons/1000	SMP Lime Requirement tons/1000	ABA Lime Requirement tons/1000	Total Lime Requirement tons/1000
Repository Investigation													
McLaren-RA-01-C-090808	09/08/08	Composite Sample collected from C-Horizon (5.7' to bottom) from RA-03, 04, 05, 07, 08, 09, and 10	0.02	<0.01	<0.01	<0.01	<0.01	0	330	330	<1.0	1.17	0.0
McLaren-RA-01-B-090808	09/08/08	Composite Sample collected from B-Horizon (4" to 5.7') from RA-03, 04, 05, 07, 08, 09, and 10	0.01	<0.01	<0.01	<0.01	<0.01	0	27	27	<1.0	1.2	0.0
McLaren-RA-01-A-090808	09/08/08	Composite Sample collected from A-Horizon (0 to 4") from RA-03, 04, 05, 07, 08, 09, and 10	0.05	<0.01	0.02	0.01	<0.01	1.4	6	7.2	11.3	1.5	7.0
Cover Soil Investigation													
McLaren-CS-01-A-091508	09/15/08	Composite Sample collected from CS-1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 (0' to 2.0')	0.02	<0.01	0.02	<0.01	<0.01	0	290	290	<1.0	1.5	0.0
McLaren-CS-02-A-091508	09/15/08	Composite Sample collected from CS-16, 17, 23, 24, 30, and 31 (0' to 4.0')	0.02	<0.01	<0.01	<0.01	<0.01	0	340	340	<1.0	1.2	0.0
McLaren-CS-03-A-091508	09/15/08	Composite Sample collected from CS-18, 25, 26, 32, and 33 (0' to 3.0')	0.02	<0.01	<0.01	<0.01	<0.01	0	340	340	<1.0	1.2	0.0
McLaren-CS-04-A-091508	09/15/08	Composite Sample collected from CS-12, 13, 14, 20, 21, and 27 (0' to 3.0')	0.02	<0.01	0.01	<0.01	<0.01	0	320	320	<1.0	1.2	0.0
McLaren-CS-05-A-091608	09/16/08	Composite Sample collected from CS-8, 15, 22, 28, 29, and 35 (0' to 3.17')	0.11	<0.01	0.06	<0.01	0.04	2	300	300	<1.0	3.7	0.0

su - Standard units

HCl - Hydrochloric Acid

HNO₃ - Nitric Acid

H₂O - Water

SMP - Shoemaker, McLean, Pratt buffer

t/1000t = Tons of CaCO₃ equivalent per 1000 tons of material

Neut. Pot. = Neutralization Potential is used to assess the acid buffering capacity of the waste or soil.

A low concentration of basic species in the soil (NP) and a high concentration of Sulfur, this number will be negative indicating that the soil has a high acid generation potential and little buffering capacity.

NA = Not Available or Requested

The Acid Base Potential was calculated from non-sulfate sulfur.

<x = Concentration below listed laboratory reporting limit

**TABLE 4
SUPPLEMENTAL SAMPLING AGRONOMIC PROPERTIES**

SAMPLE ID	SAMPLE DATE	SAMPLE DESCRIPTION	Organic Matter (%)	RECOMMENDED FERTILIZER APPLICATION RATE			Soil pH	Cation Exchange Capacity (meq / 100g)	Sodium Adsorption Ratio (unitless)	Saturation Percentage (%)	Electrical Conductivity (mmhos/cm)	Field Capacity (1/3 Bar)	Wilting Point (15 Bar %)
				Nitrogen (lbs / ac)	Phosphate (P2O5) (lbs / ac)	Potash (K2O) (lbs / ac)							
Repository Investigation													
McLaren-RA-01-C-090808	09/08/08	Composite Sample collected from C-Horizon (5.7' to bottom) from RA-03, 04, 05, 07, 08, 09, and 10	0.31	30	50	60	7.9	8.26	0.15	19.3	0.31	17	3.2
McLaren-RA-01-B-090808	09/08/08	Composite Sample collected from B-Horizon (4" to 5.7') from RA-03, 04, 05, 07, 08, 09, and 10	0.66	30	50	60	7	19.0	0.14	26.3	0.51	23	6.7
McLaren-RA-01-A-090808	09/08/08	Composite Sample collected from A-Horizon (0 to 4") from RA-03, 04, 05, 07, 08, 09, and 10	27.5	30	50	60	4.6	35.1	0.09	135	0.58	54	24
Cover Soil Investigation													
McLaren-CS-01-A-091508	09/15/08	Composite Sample collected from CS-1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 (0' to 2.0')	0.74	30	50	60	7.7	9.36	0.18	22.1	1.00	10	3.6
McLaren-CS-02-A-091508	09/15/08	Composite Sample collected from CS-16, 17, 23, 24, 30, and 31 (0' to 4.0')	0.74	30	50	60	7.6	9.48	0.14	24.6	0.72	9.8	3.4
McLaren-CS-03-A-091508	09/15/08	Composite Sample collected from CS-18, 25, 26, 32, and 33 (0' to 3.0')	0.60	30	50	60	7.8	9.25	0.16	20.6	0.68	10	3.5
McLaren-CS-04-A-091508	09/15/08	Composite Sample collected from CS-12, 13, 14, 20, 21, and 27 (0' to 3.0')	0.50	30	50	60	7.9	8.08	0.29	20.1	0.61	9.4	3.2
McLaren-CS-05-A-091608	09/16/08	Composite Sample collected from CS-8, 15, 22, 28, 29, and 35 (0' to 3.17')	0.66	30	50	60	7.4	9.98	0.15	21.2	2.51	11	3.8

bar - barometric pressure
lbs/acre - pounds per acre
mS/cm - microSiemens per centimeter
meq/100g - milliequivalence per 100 grams
NR = Not Requested

**TABLE 5
SUPPLEMENTAL SOIL SAMPLING PHYSICAL PROPERTIES**

SAMPLE ID	SAMPLE DATE	SAMPLE DESCRIPTION	USDA Texture	Rapid Hydrometer Percent Sand, Silt, Clay			Available Moisture (%)	Specific Gravity Unitless	Maximum Dry Density psf	Optimum Moisture %
				Sand %	Silt %	Clay %				
Cover Soil Investigation										
CS-01-A-091508	09/15/08	Composite Sample collected from CS-1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 (0' to 2.0')	Sandy Loam	66	27	7	3.60	2.741	NA	NA
CS-02-A-091508	09/15/08	Composite Sample collected from CS-16, 17, 23, 24, 30, and 31 (0' to 4.0')	Sandy Loam	63	32	5	7.10	2.748	NA	NA
CS-03-A-091508	09/15/08	Composite Sample collected from CS-18, 25, 26, 32, and 33 (0' to 3.0')	Sandy Loam	64	30	6	6.40	2.746	NA	NA
CS-04-A-091508	09/15/08	Composite Sample collected from CS-12, 13, 14, 20, 21, and 27 (0' to 3.0')	Sandy Loam	69	26	5	4.90	2.745	NA	NA
CS-05-A-091508	09/15/08	Composite Sample collected from CS-8, 15, 22, 28, 29, and 35 (0' to 3.17')	Sandy Loam	63	30	7	5.70	2.748	NA	NA
Repository Investigation										
RA-01-C-090808	09/08/08	Composite Sample collected from C-Horizon (5.7' to bottom) from RA-03, 04, 05, 07, 08, 09, and 10	Sandy Loam	59	34	7	34.80	2.740	NA	NA
RA-01-B-090808	09/08/08	Composite Sample collected from B-Horizon (4" to 5.7') from RA-03, 04, 05, 07, 08, 09, and 10	Sandy Loam	61	27	12	6.40	2.707	NA	NA
RA-01-A-090808	09/08/08	Composite Sample collected from A-Horizon (0 to 4") from RA-03, 04, 05, 07, 08, 09, and 10	Sandy Loam	53	33	14	8.10	2.270	NA	NA
Source Area Investigation										
McLaren-TP-01-A-091008	09/10/08	Composite Sample collected from TP-02, 03, 04, 05, 06, and 07 (2.6' to 9.5')	Loam	34.9	56.3	7.6	21.10	3.554	125.3	17
McLaren-TP-01-B-091008	09/10/08	Composite Sample collected from TP-02, 03, 04, 05, 06, and 07 (9.5' to 18.0')	Silt Loam	6.5	87.6	3.9	22.60	3.546	131.4	14.9
McLaren-TP-02-A-091108	09/11/08	Composite Sample collected from TP-08, 09, and 12 (2.5' to 10.0')	Loam	33.5	55.4	7.4	28.00	3.346	126.3	15.8
McLaren-TP-02-B-091108	09/11/08	Composite Sample collected from TP-08, 09, and 12 (10.0' to 21.0')	Silt Loam	16.5	66.9	16.2	31.00	3.319	121.2	17.4
McLaren-TP-03-A-091108	09/11/08	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0')	Sandy Loam	42.2	44.9	6.8	23.40	3.365	124.6	16.4
McLaren-TP-03B-091108	09/11/08	Composite Sample collected from TP--15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (14.0' to 22.0')	Silt Loam	18.7	63.3	16.3	35.80	3.280	116.9	19
McLaren-TP-04-091208	09/12/08	Composite Sample collected from TP- 43 and 44 (20' to 21')	Silty Clay Loam	1.2	71.2	27.5	49.30	3.257	104.8	25.3

psf - Pounds per Square Foot
NA - Not Analyzed

TABLE 6
SYNTHETIC PRECIPITATION LEACH PROCEDURE (SPLP)
METAL RESULTS (Pioneer 2008)

SAMPLE ID	SAMPLE DATE	SAMPLE DESCRIPTION	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Mn mg/L	Hg mg/L	Ni mg/L	Ag mg/L	Zn mg/L
Source Area Investigation																
PRE-LIME ADDITION																
McLaren-TP-01-A-091008	09/10/08	Composite Sample collected from TP-02, 03, 04, 05, 06, and 07 (2.6' to 9.5')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	0.02	<0.5	<0.5	<0.02	<0.5	<0.5	<1
McLaren-TP-01-B-091008	09/10/08	Composite Sample collected from TP-02, 03, 04, 05, 06, and 07 (9.5' to 18.0')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	<0.02	<0.5	2.4	<0.02	<0.5	<0.5	<1
McLaren-TP-02-A-091108	09/11/08	Composite Sample collected from TP-08, 09, and 12 (2.5' to 10.0')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	<0.02	<0.5	1.1	<0.02	<0.5	<0.5	<1
McLaren-TP-02-B-091108	09/11/08	Composite Sample collected from TP-08, 09, and 12 (10.0' to 21.0')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	<0.02	<0.5	0.6	<0.02	<0.5	<0.5	<1
McLaren-TP-03-A-091108	09/11/08	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	0.10	<0.5	<0.5	<0.02	<0.5	<0.5	<1
McLaren-TP-03B-091108	09/11/08	Composite Sample collected from TP--15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (14.0' to 22.0')	0.182	<0.001	<0.001	0.038	0.091	<0.001	0.065	24.5	<0.001	4.29	<0.001	0.022	<0.001	0.23
McLaren-TP-04-091208	09/12/08	Composite Sample collected from TP- 43 and 44 (20' to 21')	<5	<0.5	<0.5	<10	<0.1	<0.5	<0.5	<0.01	<0.5	<0.5	<0.02	<0.5	<0.5	<1
POST LIME ADDITION																
McLaren-TP-3A-3%-QL	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 3% Graymount Quick Lime	0.16	<0.001	0.002	0.015	<0.001	0.005	0.047	<0.01	<0.001	<0.001	<0.0010	0.001	<0.001	<0.02
McLaren-TP-3A-3%-LKD	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 3% Graymount LKD	0.015	0.001	0.003	0.017	<0.001	0.002	0.02	0.03	<0.001	0.001	<0.0010	<0.001	<0.001	<0.02
McLaren-TP-3A-5%-QL	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 5% Graymount Quick Lime	0.013	<0.001	0.001	0.027	<0.001	0.012	0.059	<0.01	<0.001	<0.001	<0.0010	0.001	<0.001	<0.02
McLaren-TP-3A-5%-LKD	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 5% Graymount LKD	0.01	<0.001	0.003	0.021	<0.001	0.004	0.037	<0.01	<0.001	<0.001	<0.0010	0.001	<0.001	<0.02
McLaren-TP-4A-3%-QL	01/29/09	Composite Sample collected from TP- 43 and 44 (20' to 21') Amended with 3% Graymount Quick Lime	0.17	<0.001	0.001	0.015	<0.010	0.002	0.027	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-4A-3%-LKD	01/29/09	Composite Sample collected from TP- 43 and 44 (20' to 21') Amended with 3% Graymount LKD	0.041	<0.001	0.002	0.016	<0.010	0.001	0.015	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-4A-5%-LKD	01/29/09	Composite Sample collected from TP- 43 and 44 (20' to 21') Amended with 5% Graymount LKD	0.051	<0.001	0.002	0.022	<0.010	0.002	0.012	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-4A-5%-QL	01/29/09	Composite Sample collected from TP- 43 and 44 (20' to 21') Amended with 5% Graymount Quick Lime	0.013	<0.001	0.002	0.022	<0.010	0.003	0.016	<0.01	<0.001	<0.001	0.003	0.002	<0.001	<0.02
McLaren-TP-4A-5%-WLPQL	01/29/09	Composite Sample collected from TP- 43 and 44 (20' to 21') Amended with 5% Wyoming Lime Producer Quick Lime	0.036	<0.001	0.001	0.02	<0.010	0.007	0.034	<0.01	0.001	<0.001	<0.0010	0.001	<0.001	<0.02
McLaren-TP-3B-3%-QL	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 3% Graymount Quick Lime	0.038	<0.001	0.002	0.04	<0.010	0.008	0.086	<0.01	0.004	<0.001	<0.0010	<0.001	<0.001	<0.02
McLaren-TP-3B-3%-LKD	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 3% Graymount LKD	0.39	<0.001	0.002	0.021	<0.010	0.002	0.038	<0.01	0.001	<0.001	<0.0010	<0.001	<0.001	<0.02
McLaren-TP-3B-5%-QL	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 5% Graymount Quick Lime	0.017	<0.001	0.002	0.08	<0.010	0.01	0.12	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-3B-5%-LKD	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 5% Graymount LKD	0.43	<0.001	0.002	0.024	<0.010	0.004	0.074	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-3B-7%-QL	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 7% Graymount Quick Lime	0.015	<0.001	0.002	0.091	<0.010	0.01	0.12	<0.01	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02
McLaren-TP-3B-7%-LKD	01/29/09	Composite Sample collected from TP-15, 19, 26, 27, 28, 29, 30, 31, 32, 36, 37 and 38 (1.7' to 14.0) Amended with 7% Graymount LKD	0.28	<0.001	0.002	0.035	<0.010	0.007	0.097	0.03	<0.001	<0.001	<0.0010	0.002	<0.001	<0.02

µg/L = micrograms per Liter
<x = Concentration below listed laboratory reporting limit
Sb - Antimony
As - Arsenic
Ba - Barium
Be - Beryllium
Cd - Cadmium
Cr - Chromium

Ag - Silver
Zn - Zinc
Fe - Iron
Pb - Lead
Mn - Manganese
Hg - Mercury
Ni - Nickel
Se - Selenium

TABLE 7
DISSOLVED METALS WATER QUALITY DATA

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE DESCRIPTION	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Cd mg/L	Ca mg/L	Cr mg/L	Cu mg/L	Fe mg/L	Pb mg/L	Mg mg/L	Mn mg/L	Hg mg/L	Ni mg/L	Ag mg/L	Zn mg/L
Surface Water Investigation																			
McLaren-SW-01-SG1-091908	09/19/08	8:45	Grab Sample taken at Staff Gauge 1	<0.1	-	-	-	-	44	-	0.05	<0.03	-	8	-	-	-	-	-
McLaren-SW-02-Miller-091908	09/19/08	9:00	Grab Sample taken at Culvert Outlet	<0.1	-	-	-	-	35	-	<0.01	<0.03	-	5	-	-	-	-	-
McLaren-SW-03-SBC-04-091908	09/19/08	9:30	Grab Sample taken Downgradient Surface Flow Stake Location	<0.1	-	-	-	-	50	-	<0.01	0.13	-	9	-	-	-	-	-
Groundwater Investigation																			
McLaren-MW-02-091808	09/18/08		Groundwater Sample taken at EPA well W-2	<0.1	<0.005	<0.005	<0.1	<0.001	420	<0.01	<0.01	48.2	<0.01	145	1.04	<0.001	<0.01	<0.005	<0.01
McLaren-W3-10-091808	09/18/08		Groundwater Sample taken at EPA well W-3	<0.1	<0.005	<0.005	0.1	<0.001	172	<0.01	<0.01	2.32	<0.01	60	0.47	<0.001	<0.01	<0.005	0.01
McLaren-MW-04-10-091808	09/18/08		Groundwater Sample taken at EPA well W-4	13.9	<0.005	<0.005	<0.1	0.006	406	<0.01	1.86	1490	<0.01	277	19.6	<0.001	0.24	<0.005	1.73
McLaren-MW-05-091808	09/18/08		Groundwater Sample taken at EPA well W-5	<0.1	<0.005	<0.005	<0.1	<0.001	51	<0.01	<0.01	<0.03	<0.01	9	<0.01	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-01S-091908	09/19/08	12:45	Groundwater Sample taken at Piezometer 1S (tailings aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	488	<0.01	<0.01	17.7	<0.01	400	0.71	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-01D-091908	09/19/08	10:00	Groundwater Sample taken at Piezometer 1D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	112	<0.01	<0.01	1.45	<0.01	26	2.37	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-02S-091808	09/18/08	15:40	Groundwater Sample taken at Piezometer 2S (tailings aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	461	<0.01	<0.01	5.43	<0.01	656	0.48	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-02D-091808	09/18/08	15:00	Groundwater Sample taken at Piezometer 2D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	116	<0.01	<0.01	3.16	<0.01	29	1.51	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-03D-091808	09/18/08	12:37	Groundwater Sample taken at Piezometer 3D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	312	<0.01	<0.01	437	<0.01	107	6.16	<0.001	0.03	<0.005	0.06
McLaren-PZ-04S-091808	09/18/08	18:45	Groundwater Sample taken at Piezometer 4S (tailings aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	364	<0.01	<0.01	24.9	<0.01	102	0.92	<0.001	<0.01	<0.005	0.01
McLaren-PZ-04D-091808	09/18/08	18:24	Groundwater Sample taken at Piezometer 4D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	106	<0.01	<0.01	0.49	<0.01	22	2.05	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-05S-091808	09/18/08	17:15	Groundwater Sample taken at Piezometer 5S (tailings aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	598	<0.01	<0.01	72.4	<0.01	85	1.84	<0.001	0.02	<0.005	0.02
McLaren-PZ-05D-091808	09/18/08	16:48	Groundwater Sample taken at Piezometer 5D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	154	<0.01	<0.01	39.9	<0.01	27	0.8	<0.001	<0.01	<0.005	0.01
McLaren-PZ-05D-T-091808	09/18/08	17:05	Groundwater Sample taken at Piezometer 5D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	155	<0.01	<0.01	39.7	<0.01	27	0.79	<0.001	<0.01	<0.005	0.09
McLaren-PZ-06D-091908	09/19/08	9:30	Groundwater Sample taken at Piezometer 6D (aluvium aquifer)	<0.1	<0.005	<0.005	<0.1	<0.001	103	<0.01	<0.01	85.8	<0.01	31	1.13	<0.001	<0.01	<0.005	0.02
McLaren-PZ-07D-091908	09/19/08	11:10	Groundwater Sample taken at Piezometer 7D (aluvium aquifer)	<0.1	<0.005	<0.005	0.20	<0.001	95	<0.01	<0.01	0.68	<0.01	17	2.1	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-08-091908	09/19/08	11:50	Groundwater Sample taken as blank.	<0.1	<0.005	<0.005	<0.1	<0.001	<1	<0.01	<0.01	<0.03	<0.01	<1	<0.01	<0.001	<0.01	<0.005	<0.01
McLaren-PZ-09-091908	09/19/08	12:30	Groundwater Sample taken as equipment contamination blank.	<0.1	<0.005	<0.005	<0.1	<0.001	<1	<0.01	<0.01	<0.03	<0.01	<1	<0.01	<0.001	<0.01	<0.005	<0.01
MT-PW01-092908	09/29/08	19:40	Groundwater Sample taken at start of pumping test.	<0.1	<0.005	<0.005	0.10	<0.001	112	<0.01	<0.01	0.35	<0.01	23	1.91	<0.001	<0.01	<0.005	<0.01
MT-PW01-100208	10/02/08	9:45	Groundwater Sample taken at end of pumping test.	<0.1	<0.005	<0.005	0.10	<0.001	110	<0.01	<0.01	0.38	<0.01	23	2	<0.001	<0.01	<0.005	<0.01
TP-24-WS	09/11/08	12:00	Take from Test Pit #24	NA	NA	NA	NA	NA	238	NA	NA	NA	NA	33	NA	NA	NA	NA	NA

µg/L - micrograms per Liter

CaCO₃/L = Calcium Carbonate per Liter

<x = Concentration below listed laboratory reporting limit

Al - Aluminum

Sb - Antimony

As - Arsenic

Ba - Barium

Be - Beryllium

Cd - Cadmium

Cr - Chromium

Cu - Copper

Fe - Iron

Pb - Lead

Mn - Manganese

Hg - Mercury

Ni - Nickel

Se - Selenium

Ag - Silver

Zn - Zinc

**TABLE 8
WET CHEMISTRY RESULTS & FIELD MEASUREMENTS**

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE DESCRIPTION	pH SU	TDS mg/L	Sulfate mg/L	TSS mg/L	SC umhos/cm	DO mg/L	Alkalinity mg/L CaCO ₃	Bicarbonate mg/L HCO ₃	Carbonate mg/L CO ₃	Field Redox mV	Hardness mg CaCO ₃ /L	Temp °C	Turbidity NTU	Flow Est. gpm
Groundwater Investigation																	
McLaren-MW-02-091808	09/18/08		Groundwater Sample taken at EPA well W-2	6.72	2460	1480	50	2730	2.04	288	351	<1	-321.7	1650	7.9	24.6	1.25
McLaren-W3-10-091808	09/18/08		Groundwater Sample taken at EPA well W-3	6.97	923	530	41	1180	1.6	132	162	<1	-286.9	678	5.9	56.2	
McLaren-MW-04-10-091808	09/18/08		Groundwater Sample taken at EPA well W-4	3.24	7760	4870	40	5800	2.11	*	*	*	4.08	2150	10.2	470	0.10
McLaren-MW-05-091808	09/18/08		Groundwater Sample taken at EPA well W-5	7.39	178	9	<10	313	4.93	149	182	<1	19.7	164	6	11.32	
McLaren-PZ-01S-091908	09/19/08	12:45	Groundwater Sample taken at Piezometer 1S (tailings aquifer)	6.8	4130	2700	827	4120	0.4	268	327	<1	-126.9	2860	9.4	232	
McLaren-PZ-01D-091908	09/19/08	10:00	Groundwater Sample taken at Piezometer 1D (aluvium aquifer)	6.8	469	125	13	757	0.33	269	328	<1	-172	385	7.4	1.14	
McLaren-PZ-02S-091808	09/18/08	15:40	Groundwater Sample taken at Piezometer 2S (tailings aquifer)	7.36	5630	3730	2780	5290	0.73	268	327	<1	-307.9	3850	6.5	5.46	
McLaren-PZ-02D-091808	09/18/08	15:00	Groundwater Sample taken at Piezometer 2D (aluvium aquifer)	6.97	489	166	192	741	0.65	233	284	<1	-306.3	408	8.1	4.15	
McLaren-PZ-03D-091808	09/18/08	12:37	Groundwater Sample taken at Piezometer 3D (aluvium aquifer)	6.1	2960	1930	71	2740	0.46	<1	<1	<1	-277.3	1220	7.6		0.10
McLaren-PZ-04S-091808	09/18/08	18:45	Groundwater Sample taken at Piezometer 4S (tailings aquifer)	6.95	2060	1170	81	2360	0.76	298	363	<1	-270.3	1330	5.8	15.8	
McLaren-PZ-04D-091808	09/18/08	18:24	Groundwater Sample taken at Piezometer 4D (aluvium aquifer)	7.11	409	97	<10	660	7.44	254	309	<1	-339	355	6	1.13	
McLaren-PZ-05S-091808	09/18/08	17:15	Groundwater Sample taken at Piezometer 5S (tailings aquifer)	6.65	2730	1590	94	2860	0.55	271	331	<1	-294.4	1840	6.9	22.8	
McLaren-PZ-05D-091808	09/18/08	16:48	Groundwater Sample taken at Piezometer 5D (aluvium aquifer)	7.46	618	249	55	900	0.44	227	277	<1	-320.7	497	6.1	2.29	
McLaren-PZ-05D-T-091808	09/18/08	17:05	Groundwater Sample taken at Piezometer 5D (aluvium aquifer)	7.46	629	250	46	887		226	276	<1		497			
McLaren-PZ-06D-091908	09/19/08	9:30	Groundwater Sample taken at Piezometer 6D (aluvium aquifer)	6.4	642	361	32	883	0.33	41	50	<1	-152.6	387	5.9	2.22	
McLaren-PZ-07D-091908	09/19/08	11:10	Groundwater Sample taken at Piezometer 7D (aluvium aquifer)	7.2	355	68	<10	568	0.22	236	288	<1	-193.1	308	6.9	1.86	0.10
McLaren-PZ-08-091908	09/19/08	11:50	Groundwater Sample taken as blank.		<10	<1	<10	4		1	1	<1		<1			
McLaren-PZ-09-091908	09/19/08	12:30	Groundwater Sample taken as equipment contamination blank.		<10	<1	<10	5		<1	1	<1		<1			
MT-PW01-092908	09/29/08	19:40	Groundwater Sample taken at start of pumping test.	7.7	416	120	19	666		260	320	<4		374			
MT-PW01-100208	10/02/08	9:45	Groundwater Sample taken at end of pumping test.	7.5	424	120	10	678		270	330	<4		368			
TP-24-WS	09/11/08	12:00	Take from Test Pit #24	5.4	1,580	1,200	12,500	2170		20							
Surface Water Investigation																	
McLaren-SW-01-SG1-091908	09/19/08	8:45	Grab Sample taken at Staff Gauge 1	8	142	7	<10	265		128	156	<1		141			
McLaren-SW-02-Miller-091908	09/19/08	9:00	Grab Sample taken at Culvert Outlet	7.8	123	35	<10	213		69	84	<1		107			
McLaren-SW-03-SBC-04-091908	09/19/08	9:30	Grab Sample taken Downgradient Surface Flow Stake Location	7.6	173	34	<10	306		120	146	<1		160			

* - unable to analyze for Alkalinity, Bicarbonate and Carbonate because sample pH was <4.5
 SU - standard units
 mg/L - milligrams per Liter
 NO₃/NO₂-N - Nitrate/Nitrite-N
 mV - milli-Volts
 DO - Dissolved Oxygen
 TDS - Total Dissolved Solids
 gpm - gallons per minute
 mg/L CaCO₃ - milligrams per Liter calcium carbonate
 SC - Specific Conductance
 mmhos/cm - millimhos per centimeter
 °C - Celsius
 NTU - Nephelometric Turbidity Unit

TABLE 9
TOTAL METALS WATER QUALITY

Sample ID	Sample Date	Time Sampled	Sample Description	Sb µg/L	Al µg/L	As µg/L	Ba µg/L	Cd µg/L	Cr µg/L	WQB-7 µg/L	Cu µg/L	Fe µg/L	Pb µg/L	Mn µg/L	Hg µg/L	Ni µg/L	Ag µg/L	Zn µg/L	Hardness mg CaCO ₃ /L	
Surface Water Investigation																				
McLaren-SW-01-SG1-091908	09/19/08	8:45	Grab Sample taken at Staff Gauge 1	<5	NA	<5	<100	<1	<10	<10	<10	<30	<10	<10	<1	<10	<5	<10	141	
McLaren-SW-02-Miller-091908	09/19/08	9:00	Grab Sample taken at Culvert Outlet	<5	NA	<5	<100	<1	<10	<10	<10	<30	<10	<10	<1	<10	<5	<10	107	
McLaren-SW-03-SBC-04-091908	09/19/08	9:30	Grab Sample taken Downgradient Surface Flow Stake Location	<5	NA	<5	<100	<1	<10	<10	<10	1630	<10	60	<1	<10	<5	<10	160	
Groundwater Investigation																				
McLaren-PZ-08-091908	09/19/08	11:50	Groundwater Sample taken as blank.	<5		<5	<100	<1	<10	<10	<10	<30	<10	<10	<1	<10	<5	<10	<1	
McLaren-PZ-09-091908	09/19/08	12:30	Groundwater Sample taken as equipment contamination blank.	<5		<5	<100	<1	<10	<10	<10	<30	<10	<10	<1	<10	<5	<10	<1	
MT-PW01-092908	09/29/08	19:40	Groundwater Sample taken at start of pumping test.	<5	400	<5	100	<1	<10	48.5	50.0	2120	<10	1880	<1	<10	<5	<10	374	
MT-PW01-100208	10/02/08	9:45	Groundwater Sample taken at end of pumping test.	<5	400	<5	100	<1	<10	47.8	40	1880	<10	2000	<1	<10	<5	<10	368	
TP-24-WS	09/11/08	12:00	Take from Test Pit #24	NA	139,100	157	1200	11	250	51.7	30,900	1,326,000	670	8,550	<1	NA	207	1,730	730	
MONTANA NUMERIC WATER QUALITY STANDARDS (WQB-7) (February 2006)																				
Aquatic Life Standard (Acute)				--		340	--	--	A	--	A	--	b	--	A	50	C	1.7	--	A
Human Health Standard (Surface Water)				5.6		10	2,000	5	100	1,300	300	b	15	50	C	0.05	100	100	2,000	

Sb-Antimony, As-Arsenic, Ba-Barium, Cd-Cadmium, Cr-Chromium, Cu-Copper, Fe-Iron
Pb-Lead, Mg-Magnesium, Mn-Manganese, Hg-Mercury, Ni-Nickel, Ag-Silver, Zn-Zinc
NA - Not Available
µg/L - micrograms per Liter
CaCO₃/L = Calcium Carbonate per Liter

<x = Concentration below listed laboratory reporting limit

A - Concentration value based on hardness. No sample shall exceed these concentrations after corrected for hardness.
b - The concentration of iron must not reach values that interfere with the uses specified in the surface and groundwater standards (17.30.601 et seq and 17.30.1001 et seq.)
The Secondary Maximum Contaminant Level of 300 micrograms per Liter which is based on aesthetic properties such as taste, odor, and staining may be considered as guidance to determine the levels that will interfere with the specified uses.
C - The concentration of manganese must not reach values that interfere with the uses specified in the surface and groundwater standards (17.30.601 et seq and 17.30.1001 et seq.).
The Secondary Maximum Contaminant Level of 50 micrograms per Liter which is based on aesthetic properties such as taste, odor, and staining may be considered as guidance to determine the levels that will interfere with the specified uses.

TABLE 10
LIME SOURCE SAMPLES -- CALCIUM OXIDE RESULTS

Sample ID	Sample Collection Date	Sample Description	Calcium Oxide (%)
Wyoming Lime Producers Quicklime	January 29, 2009	Quicklime	98.30
Graymount Quicklime	January 29, 2009	Quicklime	89.6
PLS Pulverized Lime Kiln Product	January 29, 2009	Pulverized Lime Kiln Product	88.40
PLS Lime Kiln Dust	January 29, 2009	Lime Kiln Dust	49.40
Graymount Lime Kiln Dust	January 29, 2009	Lime Kiln Dust	46.80

TABLE 11: Aquifer Parameters

Location	Completion	Parameters for the Alluvial Aquifer				Parameters for the Tailings Aquifer				Fit Quality (Poor, Average, Excellent)
		T (ft ² /day)	b (ft)	K (ft/day)	S (unitless)	T (ft ² /day)	b (ft)	K (ft/day)	S (unitless)	
PW-01*	Both	350	10.5	33	0.00068	0.46	16	0.029	N/A	poor
PZ-01D	Alluvial	351	10.5	33	0.000068	0.32	16	0.020	N/A	excellent
PZ-02D	Alluvial	1177	10.5	112	0.00064	0.04	16	0.0023	N/A	good
PZ-03	Alluvial	1303	10.5	124	0.0039	0.016	16	0.00101	N/A	good
PZ-04D	Alluvial	351	10.5	33	2.8E-06	0.04	16	0.0025	N/A	good
PZ-05D	Alluvial	910	10.5	87	0.000182		16		N/A	good
PZ-06	Alluvial	789	10.5	75	0.0061		16		N/A	good
PZ-07	Alluvial	301	10.5	29	9.5E-06		16		N/A	good
AVERAGE	Alluvial	740		66	0.00146	0.174		0.0065	N/A	
PZ-01S	Tailings	631	10.5	60	N/A	0.072	16	0.0045	0.120	good
PZ-02S	Tailings	1012	10.5	96	N/A	0.072	16	0.0045	0.0128	excellent
PZ-04S	Tailings	839	10.5	80	N/A		16		0.046	excellent
PZ-05S	Tailings	862	10.5	82	N/A	0.072	16	0.00451	0.0092	good
AVERAGE	Tailings	836		80		0.07		0.0045	0.047	
OVERALL AVERAGE		775		74	0.00146	0.090		0.0056	0.047	

* Due to the poor fit quality of the pumping well (PW-01), aquifer parameters from this location were not utilized in the overall average.

**TABLE 12
SODA BUTTE CREEK
PHYSICAL VARIABLES**

Reference Reach Location	Channel Width (ft)		Channel Depth (ft)			Channel Gradient %	Channel Pool Size (ft)			Stream Substrate (Inches)		Comments
	Low Flow	High Flow	Total Depth	Low Flow	High Flow		Length	Spacing	Depth	Coarse	Fines	
Soda Butte Creek												
STR-1	8	15	1.52	0.79	0.73	1.6%	5.5	12	0.75	18	3	Very little fines present (2" -)
STR-2	10	23.5	4.72	2.04	2.68	5.3%	5	10	1	36	3	Some fines present in high flow pools.
STR-3	5	18.7	2.56	0.59	1.97	8.1%	6	9	1	48	3	Some fines present along edges, intermixed with 6 inch to 8 inch cobbles.
STR-4	8	13.4	1.29	0.28	1.01	1.2%	3	15+	0.9	6	0.025	Lots of fines present gravels and silts.
Miller Creek												
STA-1	8	17.8	4	1.6	2.4	13.3%	2	4	1	48 to 36	6	No well defined high flow channel
STA-2	9.2	32.7	4.3	1.4	2.9	13.3%	2	4	1	48 to 36	6	No well defined low/high flow channel
STA-3	23.7	34.4	5.1	0.9	4.2	13.3%	2	4	1	48 to 36	6	No well defined low/high flow channel

STR - Stream Reach

ft - feet

% - percent

**Table 13
Excavation Volume Summary**

Material	Quantity Pre-Quick Lime Addition cubic yards	Weight Pre-Quick Lime Addition Tons	Required Quick Lime Addition * %	Required Quick Lime Tons	Quantity Post-Quick Lime Addition cubic yards	Estimated Shrink/Swell %	Total Quantity in Respository cubic yards	Total Quantity of Tailing by Wiegth Tons	Notes
Unsaturated tailings (Moisture content >30%)	124,305	261,786	3	7,854	134,335	1	135,678	225,294	Place in repository and/or haul this volume off site.
Saturated Tailings (Moisture content <30%)	35,872	76,999	5	3,850	40,789	1	41,197	67,851	Place in repository and/or haul this volume off site.
Waste Rock **	34,150	0	0	0	34,150	15	39,273	NA	Volume of Waste rock to be removed and placed in repository.
Alluvium Sediment****	15,000	0	0	0	15,000	15	17,250	NA	Alluvium Sediment will be placed in repository.
Embankment materials and soil west	37,000	69,930	3	2,098	39,679	15	45,631	NA	Place in repository
Soil located within 25 feet of South side of Soda ButteCreek	3,500	7,513	3	225	3,788	15	4,356	NA	Place in repository
Total	249,827			11,704	224,274		283,385	293,145	

Materials	Density LBs/cubic foot
Unsaturated Tailings (bank conditions)	156
Saturated Tailings (bank conditions)	159
Waste Rock (loose conditions)	140
Quick Lime	58
***Unsaturated Tailings (post lime addition)	123
***Saturated Tailings (post lime addition)	122

* - Quick Lime addition based on bank conditins of tailings

** - The waste rock materials will not require quick lime ammendment.

*** - Denisty based on 3 day cure time. This assumes materials will be in the stockpile for minimum of three days.

**** - Assumes that 1 foot of alluvium sediment will be removed as part of the tailings excavation.