KIRKLAND MINING COMPANY
NOTICE FOR EXPLORATION ACTIVITIES

Submitted to:
U.S. Department of the Interior
Bureau of Land Management
Hassayampa Field Office
21605 North 7th Avenue
Phoenix, AZ 85027-2929

Prepared for:
Kirkland Mining Company
3200 Fourth Avenue, Suite 101A
San Diego, CA 92103

Prepared by:
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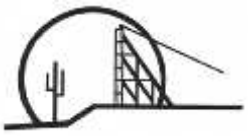

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1.0 INTRODUCTION

Mining & Environmental Consultants, Inc. was commissioned by the Kirkland Mining Company (KMC) to prepare this Notice for exploration activities on its Capital lode claims. Proposed work would include the removal of less than 1000 tons of material from an existing stockpile and an existing quarry, plus the drilling of seven core holes, all on its Capital claims. The stockpile contains approximately 48,000 tons of material characterized as screened Class N High Quality Natural Pozzolan (HQP). The quarry, on Capital Six, contains broken HQP. The core holes would be drilled on KMC's Capital Two, Six, Seven and Eight claims. The Capital claims are located in Section 28, Township 13 North, Range 4 West, G&SRB&M near Kirkland, Arizona, as shown in Figures 1 and 2.

KMC proposes to provide this material free of charge to potential customers for testing as supplementary cementitious admixtures for the cement industry. KMC's contractor would excavate and load the HQP into potential customers' trucks for transport to customers' testing facilities.

The site has been disturbed by mining activities since the early 1900s. A stockpile of screened fines from a previous mining operation that remains covers approximately 2.6 acres of the Capital Seven claim.

In 2014, Arizona State University (ASU) performed a study to analyze the potential use of the KMC material as an alternative, natural replacement for coal Class F fly ash, metakaolin, and other supplementary cementitious materials used in Portland cement[1]. The study tested the KMC material against Class F fly ash and metakaolin for hydration, compressive strength, pore refinement, and durability characteristics, and determined that KMC's raw material meets specifications for HQP per American Society for Testing and Materials (ASTM) Standard C618, based on chemical and physical characteristics[2]

It was found that KMC's HQP material reacts chemically with water at ordinary temperature to form compounds possessing cementitious properties that offer increased strength and durability, and can be used to provide unique solutions for green concrete admixture applications in buildings and structures. ASU has also determined that the KMC's HQP has properties that offer the potential to be effective in reducing global CO_2 emissions by replacing a percentage of Portland cement and other cementitious materials with HQP.

[1] Barzin Mobasher, Ph.D. P.E., et. al. Feasibility of Volcanic Ash from Kirkland Mine as a Natural Pozzolan. Tempe: ASU Ira A. Fulton School of Engineering, 2015, 29 pgs.

2.0 OPERATOR INFORMATION

Operator and owner of the claims:

Kirkland Mining Company (KMC)
3200 Fourth Avenue, Suite 101A
San Diego, CA 92103

Point of contact:

Kirkland Mining Company
Areta Zouvas, President
3200 Fourth Avenue, Suite 101A
San Diego, CA 92103
(619) 688-3939
areta@kirklandmining.com

Taxpayer identification number: [redacted]

Location of claims where disturbance would occur:

Claim Name	BLM Serial Number
Capital Two	AMC 428989
Capital Three	AMC 428990
Capital Six	AMC 428993
Capital Seven	AMC 428994
Capital Eight	AMC 428995

3.0 ACTIVITY DESCRIPTION

The operation would consist of sampling and core drilling, as discussed below. Figure 3 is a site plan showing the proposed access road, sampling sites and drill sites.

3.1 Stockpile Sampling

KMC's earthmoving contractor would excavate and load bulk samples from the existing stockpile into potential customers' trucks. The trucks would carry the samples to customers' testing facilities. KMC anticipates providing 50 to 200 ton samples to several different companies for testing.

Samples would be taken from a location on the side of the stockpile by a front-end loader. If vegetation is present, the loader would remove the surface layer and vegetation and set it aside to be used during reclamation. KMC would keep a log to record the number and capacity of loaded trucks to keep track of the tonnage removed.

Access to the stockpile would be via an existing road located on a right-of-way belonging to KMC and KMC's claims as shown in Figure 3. The existing road is located in Sections 28 and 29, Township 13 North, Range 4 West and intersects Iron Springs Road adjacent to a one acre parcel of private land owned by KMC (county parcel no. 205-25-034D) and continues eastward on the right-of-way to the boundary of the BLM land. The road then continues onto BLM land, entering the Capital Seven lode claim and continuing another approximately 1,000 feet to the stockpile where the samples would be excavated.

The access road (private and BLM) would be graded to provide truck access to the stockpile. The graded roadway would be kept to a maximum of 20 feet. Only one grading requiring less than one day is anticipated, unless heavy rainfall makes a subsequent grading necessary.

3.2 Quarry Sampling

The old quarry on Capital Six claim would be reached from the access road by a short existing branch, about 300 feet in length. This road would also be graded for truck access. An excavator would pull material from the quarry floor and walls to obtain samples of HQP. Samples would be loaded on potential customers' trucks. As with the stockpile, KMC would keep a log to record the number and capacity of loaded trucks to keep track of the tonnage removed. The amount of material removed from both locations together would be less than 1000 tons.

3.3 Core Drilling

A *Notice of Intent to Drill and Abandon an Exploration/Specialty Well* would be filed with the Arizona Department of Water Resources for drill holes. Drilling would not commence until a drilling card has been issued to the driller.

Core drilling would be done at the locations along existing roads and tracks as shown in Figure 3. Only rough grading would be needed on 2500 feet of 15 foot wide drill roads.

Drill holes would be drilled vertically to the depth of the water table or shallower as directed by the geologist. HQ bits (approx. 4" hole size) would be used. Hole depth is expected vary from 50 to 150 feet (average about 75 feet). Either a track- or truck-mounted drill (as available) would be used.

Drill sites are essentially level. Vegetation would be pushed off by a dozer, if required. Any soil encountered would be pushed to the side for use in reclamation. Pad size would be approximately 2500 square feet (50 x 50 feet or a variation thereof). A small pit for water recycling and collecting the cuttings would be excavated on the pad, if possible. If the pad is located on rock outcrop, the water and cuttings would be captured in a tank located on the pad. The contents of the tank would be pumped into a water truck and disposed of on the stockpile.

The water truck would provide water to the drill as needed. Water would be obtained from KMC's well on its private parcel. A pipe/service truck may also be needed. A crew truck would be used to transport the drill crew and drilling supplies. A geologist's truck would be used by the geologist for personal transportation and to move drill core to an off-site storage shed.

3.4 Measures to Prevent Unnecessary or Undue Degradation

<u>Stockpile and quarry sampling</u>.

- KMC would use an existing road for access to the stockpile and quarry with grading as needed for truck traffic. Road width would be limited to 20 feet.
- Sampling would be done on the stockpile and in the quarry in areas selected to minimize disturbance of vegetation.
- The loader would be inspected each day and any leaks of oil or other fluids noted would be repaired before operation.
- The speed limit for all vehicles would be 5 miles per hour to minimize noise and dust.

<u>Core drilling</u>.

- KMC would use the same access road as for stockpile sampling; existing roads and tracks from the stockpile to the drill sites would be rough graded only as necessary for drill traffic. Road width would be limited to 15 feet.
- The drill and other mobile equipment would be inspected each day and any leaks of oil or other fluids noted would be repaired before operation.

- Dill pads would be kept to a minimum size consistent with safe and efficient operation.
- Dust from drilling would be controlled by water or drill-mounted dust collectors.
- Drill water and cuttings would be contained in shallow pits located on the drill pads or collected in a tank and disposed of on the stockpile.

3.5 Equipment to be Used

The equipment listed below is adequate for the operation but the operator may substitute equivalent equipment, depending on availability.

- Grader, Cat 120
- Front-end loader, Cat 938 (3 cu. yd.)
- Excavator, Cat 320 (2 cu. yd.)
- Dozer, Cat D6
- Core drill, truck or track mounted
- Pipe/service truck
- Water truck, 1500 gallon
- 2 - pick-up trucks

3.6 Schedule of Activities

Stockpile and quarry sampling would be scheduled to begin within 30 days of the approval of this Notice and is expected to be complete within 180 days thereafter. Core drilling would be scheduled within this same time period. Actual drilling time is anticipated to be 10 to 14 days, including move-in and move-out. Reclamation would be complete within one week of the completion of sampling and drilling.

3.7 Area to be Disturbed

Stockpile sampling. Access to the stockpile is via the access road, 1000 feet long by 20 feet wide on BLM land, for a disturbed area of 1000 x 20 = 20,000 square feet or 0.46 acres.

The HQP in the stockpile weighs about 2168 pounds (1.08 tons) per cubic yard. One thousand tons equals 1000/1.08 or 926 cubic yards. Sample excavations would average about two yards (six feet) deep. Surface disturbance for removal of 926 cubic yards would be 926/2 or 463 square yards. One acre = 4840 square yards, so the surface disturbance would be 463/4840 = 0.1 acres. This assumes that the entire 1000 tons would be taken from the stockpile.

Quarry sampling. Access to the quarry is via a branch of the access road, 300 feet long by 20 feet wide on BLM land, for a disturbed area of 300 x 20 = 6,000 square feet or 0.14 acres.

The material to be sampled would be pulled from the floor or walls of the quarry. This area is already disturbed and lacks vegetation. An area of about 0.1 acre might be disturbed in sampling.

Core drilling. KMC would drill up to seven core holes under this notice. Access would be along the access road to the stockpile, then along about 2500 feet (total) of existing roads or tracks that would be rough graded 15 feet wide to facilitate drill traffic, total disturbance 2500 x 15 = 37,500 sq. ft. or 0.86 acre. Each drill pad would be a maximum of 2500 sq. ft; the disturbed area would therefore be 2500 x 7 = 17,500 sq. ft. or 0.4 acre.

Total disturbed area.

Roads, 0.46 + 0.14 + 0.86 =	1.46 acres
Sample sites, 0.1 + 0.1 =	0.2 acre
Drill pads,	0.4 acre

Total	2.06 acres

4.0 RECLAMATION PLAN

General. The drilling and earthmoving contractors would remove their equipment from site. Any trash and debris would be removed and disposed of off-site. Any soil contaminated by oil leaks would be scooped into a drum and disposed of at a recycler or authorized disposal site.

Stockpile Sampling.

The access road on BLM land would be contoured by grading windrows back into the roadway and re-establishing natural drainage.

Areas from which samples have been removed would be flattened by the loader to reduce the slopes and leave them in a safe and stable condition, creating an appearance similar to the present surface of the stockpile. Any vegetation removed during the sampling process would be buried in the sampling holes.

Quarry Sampling. The access road branch would be contoured by grading windrows back into the roadway and re-establishing natural drainage. The surface area from which samples have been removed would be smoothed and levelled.

Core Drilling.

Core holes would be closed as specified in the Arizona Department of Water Resources *Well Abandonment Handbook (2008)*. Holes would be filled with neat cement or bentonite grout from bottom to top by tremie pipe. This work would be done immediately after drilling of the hole is complete.

Mud pits containing drill cuttings would be filled with native material excavated from the mud pit. Any excess native material would be spread on the drill pad. Where cuttings are collected in a tank due to the hard ground surface, the cuttings would be pumped into the water truck and buried on the fines stockpile.

Drill pads would be recontoured by dozer; any stockpiled soil would be spread over the disturbed area. Any minor improvements to the road to the drill sites would be recontoured or left, as directed by the BLM.

The reclamation cost estimate is $18,294, as shown in Appendix A, Reclamation Bond Calculation Spreadsheet.

SUBMITTED BY:
KIRKLAND MINING INC.

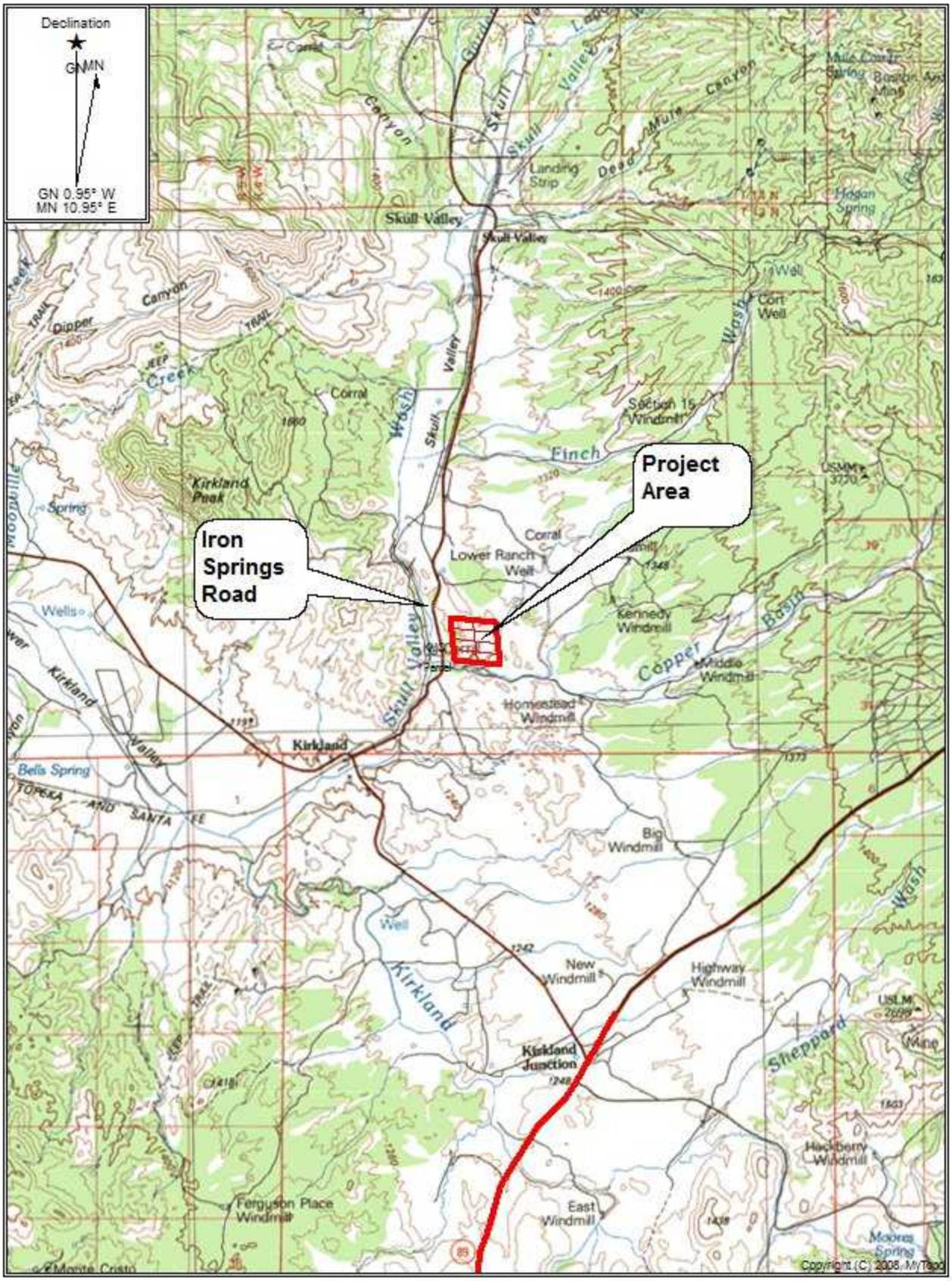
Areta Zouvas, President

PREPARED BY:
MINING & ENVIRONMENTAL CONSULTANTS, INC.

Fred B Brost

Fred B. Brost, P.E., President

Registered Professional Engineer (Mining) CERTIFICATE NO 11360 FREDRIC B. BROST Date Signed 8-11-15 ARIZONA U.S.A. Expires 3-31-17



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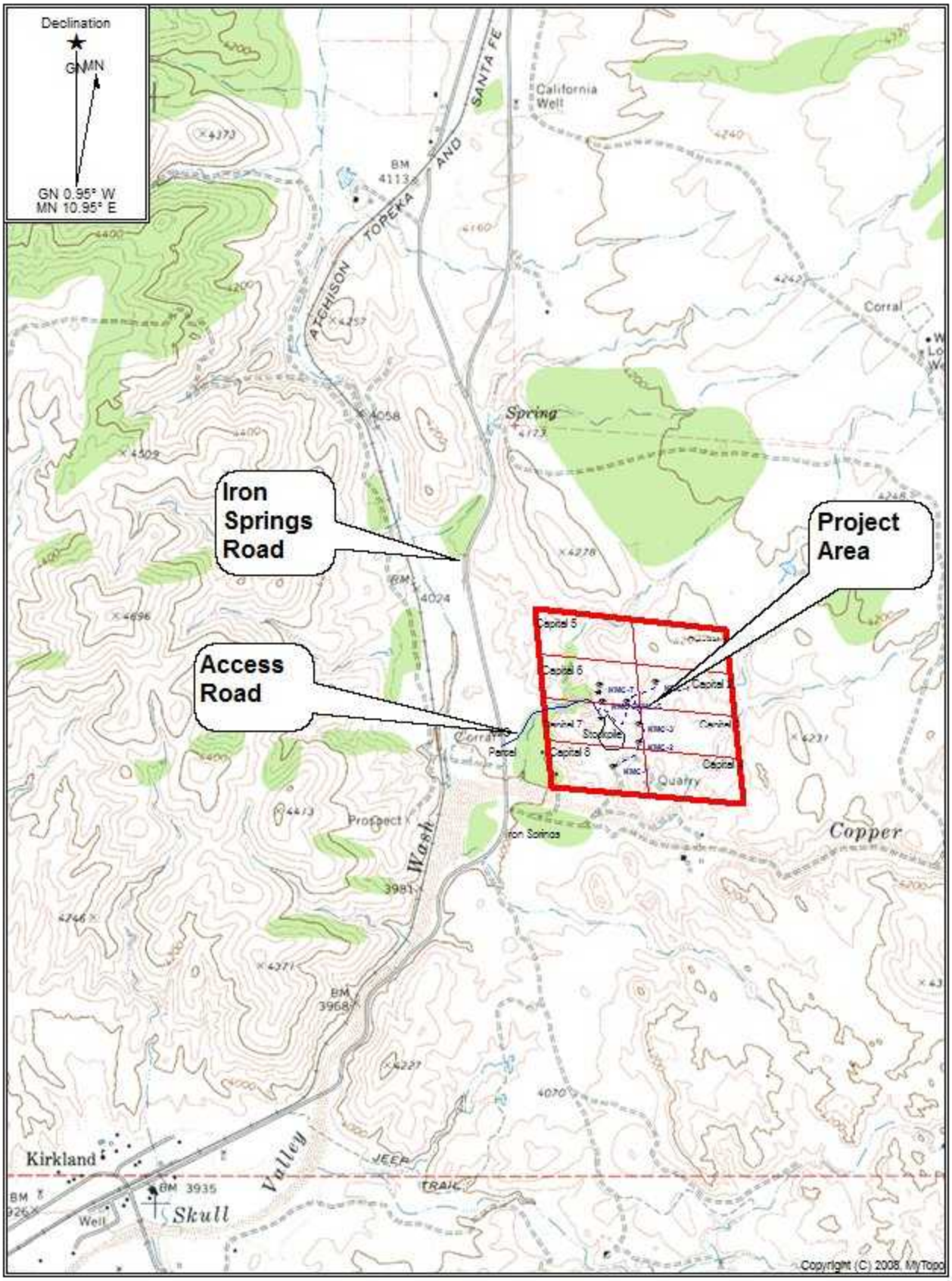
Feet

KIRKLAND MINING CO.
FIGURE 1
LOCATION MAP
Sec. 28, T13N, R4W



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Feet

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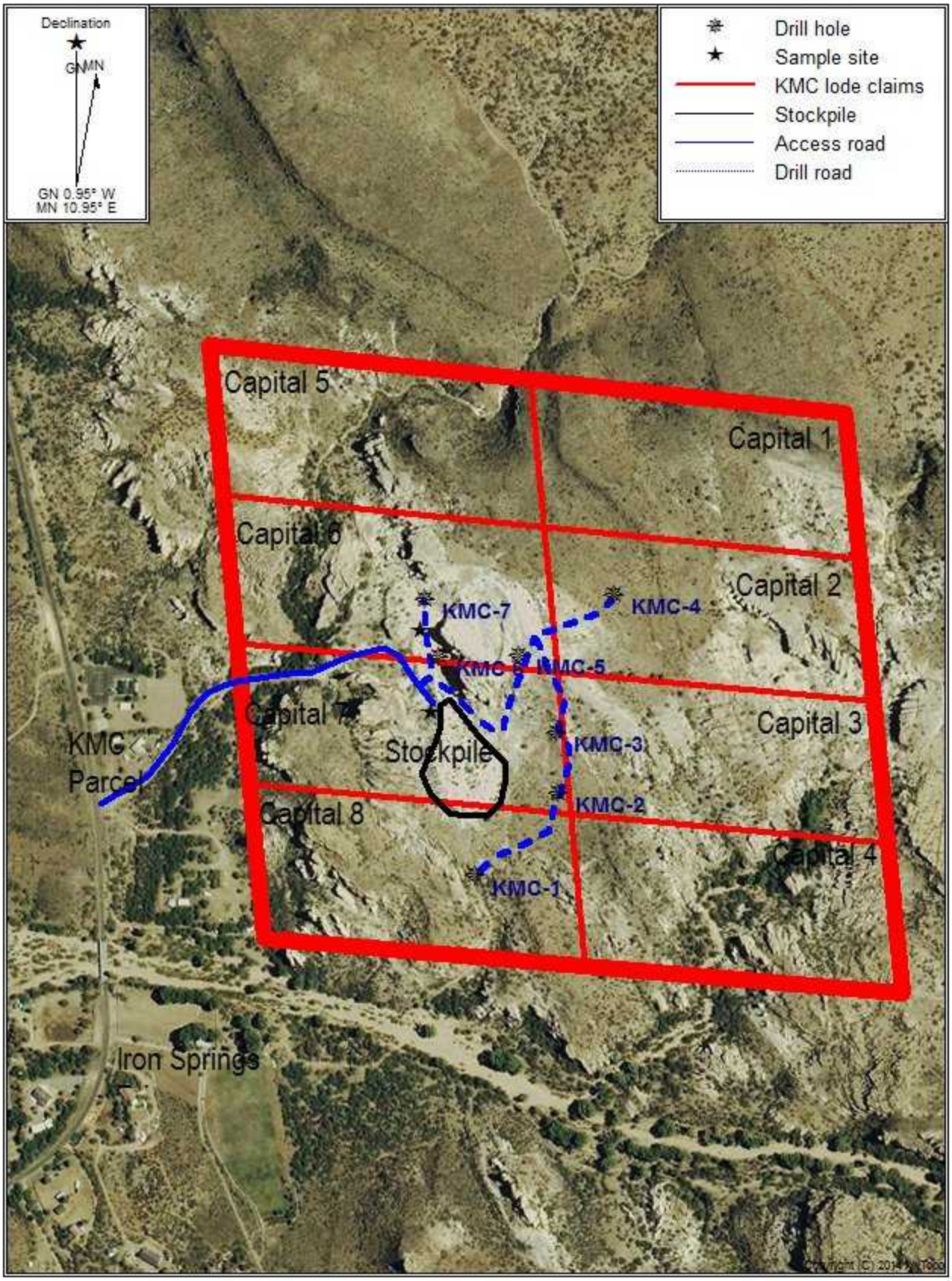
FIGURE 2
PROJECT AREA



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Feet

KIRKLAND MINING CO.
FIGURE 3
SAMPLE AND DRILL HOLE SITES

APPENDIX A

BOND CALCULATION SPREADSHEET

	A	B	C	D	E	F	G	H
1	**RECLAMATION BOND CALCULATION SPREADSHEET - USER INPUT SHEET**							
2	Revised 1/27/15							
3	**NOTE: USE THIS SPREADSHEET ONLY IF YOUR TOTAL DISTURBANCE IS LESS THAN 20 ACRES AND AN AQUIFER**							
4	**PROTECTION PERMIT IS NOT REQUIRED.**							
5								
6	**USER INPUT AND RECLAMATION COST TOTAL**							
7	Please fill in the yellow cells relating to the areas to be disturbed during the operation.							
8	Use the units indicated - feet (ft), square feet (sf), inches (in), cubic yards (cu yd), etc.							
9	Identify structure construction type by placing an X in the appropriate cell (line 120-129).							
10	Leave cells that do not apply to your operation blank.							
11	Hover on cells with red in upper right corner to see note to user.							
12								
13	**Roads**	#1	Length (ft)	1300	Width (ft)	20		
14	(average lengths and widths)	#2	Length (ft)	2500	Width (ft)	15		
15		#3	Length (ft)		Width (ft)			
16								
17	**Road cuts**	#1	Length (ft)		Width (ft)		Depth of cut (ft)	
18	(ave. length, width and depth	#2	Length (ft)		Width (ft)		Depth of cut (ft)	
19	of cut at highwall)	#3	Length (ft)		Width (ft)		Depth of cut (ft)	
20	(Enter add'l cuts on Continuation page)							
21								
22	**Cleared areas**	#1	Length (ft)	93	Width (ft)	93		
23	(average lengths & widths)	#2	Length (ft)		Width (ft)			
24		#3	Length (ft)		Width (ft)			
25	(Enter add'l areas on Continuation page)							
26								
27	**Drill pads**	#1	Length (ft)	50	Width (ft)	50	Depth of cut (ft)	0.5
28	(average lengths, widths and	#2	Length (ft)	50	Width (ft)	50	Depth of cut (ft)	0.5
29	depth of cut)	#3	Length (ft)	50	Width (ft)	50	Depth of cut (ft)	0.5
30	(Enter add'l pads on Continuation page)							
31								
32	**Culverts**	#1	Length (ft)		Diameter (ft)		Ave. depth (ft)	
33	(average lengths, diameter	#2	Length (ft)		Diameter (ft)		Ave. depth (ft)	
34	and depth of burial)	#3	Length (ft)		Diameter (ft)		Ave. depth (ft)	
35								
36	**Waste dumps/spoil piles**	#1	Length (ft)		Width (ft)		Face height (ft)	
37	(average length, width and	#2	Length (ft)		Width (ft)		Face height (ft)	
38	height of top surface of dump)	#3	Length (ft)		Width (ft)		Face height (ft)	
39		#4	Length (ft)		Width (ft)		Face height (ft)	
40		#5	Length (ft)		Width (ft)		Face height (ft)	
41		#6	Length (ft)		Width (ft)		Face height (ft)	
42		#7	Length (ft)		Width (ft)		Face height (ft)	
43		#8	Length (ft)		Width (ft)		Face height (ft)	
44		#9	Length (ft)		Width (ft)		Face height (ft)	
45		#10	Length (ft)		Width (ft)		Face height (ft)	
46								
47	**Shafts**	#1	Length (ft)		Width (ft)		Depth (ft)	
48	(lengths and widths of shafts		Depth of water(ft)					
49	at collar, water depth from bottom)	#2	Length (ft)		Width (ft)		Depth (ft)	
50			Depth of water(ft)					
51		#3	Length (ft)		Width (ft)		Depth (ft)	
52			Depth of water(ft)					
53		#4	Length (ft)		Width (ft)		Depth (ft)	
54			Depth of water(ft)					
55		#5	Length (ft)		Width (ft)		Depth (ft)	
56			Depth of water(ft)					
57								
58	**Distance to source of HC fill**		Miles		Entry required for shafts with water			
59								
60	**Large Pits (Volume > 1000 cu. yd.)**	#1	Length (ft)		Width (ft)		Depth (ft)	
61	(Average lengths and widths	#2	Length (ft)		Width (ft)		Depth (ft)	
62	at surface) Generally deep, with	#3	Length (ft)		Width (ft)		Depth (ft)	
63	much excavated material removed	#4	Length (ft)		Width (ft)		Depth (ft)	
64	for processing or sale.	#5	Length (ft)		Width (ft)		Depth (ft)	
65								
66	**Small Pits (Volume <1000 cu. yd.)**	#1	Length (ft)		Width (ft)		Depth (ft)	
67	Typically shallow, most excavated	#2	Length (ft)		Width (ft)		Depth (ft)	
68	material available to refill pit.	#3	Length (ft)		Width (ft)		Depth (ft)	
69		#4	Length (ft)		Width (ft)		Depth (ft)	

	A	B	C	D	E	F	G	H
70		#5	Length (ft)		Width (ft)		Depth (ft)	
71	(Enter add'l small pits on Continuation page)							
72								
73	**Highwalls**	#1	Length (ft)		Height (ft)		Blasting required?	
74	(average length and height)	#2	Length (ft)		Height (ft)		(Yes or No)	
75		#3	Length (ft)		Height (ft)			
76		#4	Length (ft)		Height (ft)			
77								
78	**Trenches**	#1	Length (ft)		Width (ft)		Depth (ft)	
79	(average lengths and widths	#2	Length (ft)		Width (ft)		Depth (ft)	
80	at surface)	#3	Length (ft)		Width (ft)		Depth (ft)	
81	Generally shallow excavations	#4	Length (ft)		Width (ft)		Depth (ft)	
82	with length much larger than	#5	Length (ft)		Width (ft)		Depth (ft)	
83	width. Excavated material is	#6	Length (ft)		Width (ft)		Depth (ft)	
84	generally available nearby for	#7	Length (ft)		Width (ft)		Depth (ft)	
85	refilling.	#8	Length (ft)		Width (ft)		Depth (ft)	
86		#9	Length (ft)		Width (ft)		Depth (ft)	
87		#10	Length (ft)		Width (ft)		Depth (ft)	
88	(Enter add'l trenches on Continuation page)							
89								
90	**Adits**		How many?					
91								
92	**Water or silt ponds**	#1	Length (ft)		Width (ft)		Depth (ft)	
93	(average lengths and widths	#2	Length (ft)		Width (ft)		Depth (ft)	
94	at surface)							
95								
96	**Tailings impoundment**		Length (ft)		Width (ft)		Face height (ft)	
97	(average length, width, face ht.)							
98								
99	**Water wells**		Total depth of					
100			all water wells (ft)					
101	**Drill holes ***		Total length of					
102			all drill holes (ft)	525				
103	**Concrete slabs**							
104	Unreinforced	#1	Length (ft)		Width (ft)		Thickness (in)	
105		#2	Length (ft)		Width (ft)		Thickness (in)	
106		#3	Length (ft)		Width (ft)		Thickness (in)	
107		#4	Length (ft)		Width (ft)		Thickness (in)	
108		#5	Length (ft)		Width (ft)		Thickness (in)	
109								
110	Reinforced	#1	Length (ft)		Width (ft)		Thickness (in)	
111		#2	Length (ft)		Width (ft)		Thickness (in)	
112		#3	Length (ft)		Width (ft)		Thickness (in)	
113		#4	Length (ft)		Width (ft)		Thickness (in)	
114		#5	Length (ft)		Width (ft)		Thickness (in)	
115								
116	**Concrete foundations**		Total (cu. yd.)					
117								
118	**Asphalt**		Total area (sf)		Thickness (in)			
119								
120	**Structures**	#1	Length (ft)		Width (ft)		Eave height (ft)	
121	Construction:		Steel?		Block?		Wood?	
122		#2	Length (ft)		Width (ft)		Eave height (ft)	
123	Construction:		Steel?		Block?		Wood?	
124		#3	Length (ft)		Width (ft)		Eave height (ft)	
125	Construction:		Steel?		Block?		Wood?	
126		#4	Length (ft)		Width (ft)		Eave height (ft)	
127	Construction:		Steel?		Block?		Wood?	
128		#5	Length (ft)		Width (ft)		Eave height (ft)	
129	Construction:		Steel?		Block?		Wood?	
130								
131	**Fences** (add length of all together)		Length (ft)		Wire strands		Post spacing (ft)	
132	**Metal gates** (don't count wire gates)		How many?					
133								
134	**Septic tanks**		How many?					
135								
136	**Trailers**		How many?					
137								
138	**Tanks, empty**	#1	Length/height (ft)		Diameter (ft)			
139	(Steel tanks, not drums)	#2	Length/height (ft)		Diameter (ft)			

	A	B	C	D	E	F	G	H
140		#3	Length/height (ft)		Diameter (ft)			
141		#4	Length/height (ft)		Diameter (ft)			
142		#5	Length/height (ft)		Diameter (ft)			
143		#6	Length/height (ft)		Diameter (ft)			
144								
145	**Tanks, with liquid**		Contents:					
146	(list number of each type)		Water or fuel		(Greater than 55 gal.)			
147			Chemicals		(Greater than 55 gal.)			
148								
149	**Tires**							
150	Off road		How many?					
151	Highway		How many?					
152								
153	**Chemical drums**		How many?					
154								
155	**Fuel/oil/lube drums**		How many?					
156								
157	**Explosives**		Lbs.					
158								
159	**Non-metal trash and scrap**		Cubic yards					
160								
161	**Recylable metal scrap**		Cubic yards		(Crushers, conveyors,screens, steel scrap, etc.)			
162								
163	**Mobile equipment & vehicles**		How many?		(Includes cars, trucks, dozers, etc.)			
164								
165	**Distance to landfill/recycler**		Miles	6	(Entry required)			
166								
167	**Distance to equipment rental**		Miles	3	(Entry required)			
168								
169	**HAZMAT site assessment, testing**				(Place an "x" in this box if testing is required)			
170								
171	**Your reclamation bond is:**		**$18,294**					