Brown and Caldwell

Carson City, Nevada

BORING LOG

Project Name: Yerington Second Step Hydrogeologic Framework Assessment **Project Number:** 132025

Soil Boring: [X] Monitoring Well: [ ] Piezometer: [ ] **Boring/Well Number:** B/W-26D **Sheet** 1 **of** 9

Boring Location: Just outside of the mine site on the southwest side.	**Northing:** **Easting:**
Drilling Contractor: Boart Longyear **Driller:** C. Hillman	**Top of PVC Elevation:** feet amsl **Ground Surface Elevation:** feet amsl
Drilling Equipment: GP24-300RS **Borehole Diameter:** 6-inches	**Date Started:** 2/3/08 **Date Finished:** 2/6/08
Drilling Method: Sonic **Drilling Fluid:** Water	**Completed Depth:** 150 fbgs **Water Depth:** fbmp
Sampling Method: Core Barrel	WELL CONSTRUCTION
Well Seal: Bentonite and Cement	**Type and Diameter of Well Casing:** NA
Logged By: T. Ta	**Slot Size:** 0.010 inch **Filter Material:** #10-20 Silica Sand

Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SC	**Clayey Sand with Gravel (0 - 2.5)** Moist, firm, no odor. Primarily coarse to fine sand with ~25% gravel to 75 mm and ~35% silt and clay. The sand and gravel are angular. The fines have low plasticity with medium toughness, and have a dark brown color.					Description of drilled cuttings based on ASTM Method D-2488 (the visual-manual procedure), grain-size determinations and nomenclature based on the Unified Soil Classification System.
		GM	**Silty Gravel with Sand (2.5 - 10)** Dry, very soft, no odor. Primarily gravel to 40 mm with ~40% medium to fine grained sand and ~15% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					Horizontal Survey data is expressed in the Nevada State Plane system, Nevada West zone, in feet. Sharp contacts indicated by solid lines, gradational contacts indicated by dashed line. All depths are below land surface unless stated otherwise. WELL DESIGN for B/W-26D: PVC Stickup: feet. Cement - Bentonite Grout: NA feet Bentonite Chips: NA feet No. 60 Silica Sand: NA feet #10-20 Silica Sand Filter Pack: NA feet 2-inch Nominal Schedule 80 PVC 0.010 Slotted Screen: NA feet Native Collapse: NA feet Additional Bentonite Fill: NA feet Number of wells at this location: 0 Screen intervals for paired wells are labeled at the installed depths.
5								
10		SM	**Silty Sand with Gravel (10 - 12.5)** Moist, very soft, no odor. Primarily medium to fine sand with ~25% gravel to 30 mm and ~35% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					
		SM	**Silty Sand (12.5 - 15)** Moist, very soft, no odor. Primarily medium to fine sand with ~10% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					

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		SM	**Silty Sand with Gravel (15 - 17.5)** Moist, soft, no odor. Primarily medium to fine sand with ~30% gravel to 40 mm and ~25% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (17.5 - 20)** Moist, soft, no odor. Primarily medium to fine sand with ~15% gravel to 20 mm and ~35% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					
20		SM	**Silty Sand with Gravel (20 - 22.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~35% gravel to 50 mm and ~25% silt and clay. The sand and gravel are angular. The fines are non-plastic with low toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (22.5 - 25)** Moist, soft, no odor. Primarily coarse to fine sand with ~35% gravel to 50 mm and ~30% silt and clay. The sand and gravel are angular. The fines have low plasticity and toughness, and have a brown color.					
25		SM	**Silty Sand with Gravel (25 - 27.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~20% gravel to 20 mm and ~40% silt and clay. The sand and gravel are angular. The fines have low plasticity and toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (27.5 - 30)** Moist, soft, no odor. Primarily medium to fine sand with ~20% gravel to 50 mm and ~20% silt and clay. The sand and gravel are angular. The fines have low plasticity and toughness, and have a brown color.					
30		SM	**Silty Sand with Gravel (30 - 37.5)** Moist, soft, no odor. Primarily medium to fine sand with ~20% gravel to 30 mm and ~20% silt and clay. The sand and gravel are angular. The fines have low plasticity and toughness, and have a brown color.					

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35								
		SM	**Silty Sand with Gravel (37.5 - 40)** Moist, soft, no odor. Primarily coarse to fine sand with ~20% gravel to 20 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a brown color.					
40		SM	**Silty Sand with Gravel (40 - 42.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (42.5 - 45)** Moist, soft, no odor. Primarily coarse to fine sand with ~25% gravel to 30 mm and ~25% silt and clay. The sand and gravel are angular to subangular. The fines have low plasticity and toughness, and have a brown color.					
45		SM	**Silty Sand with Gravel (45 - 47.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~20% gravel to 30 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (47.5 - 52.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~20% gravel to 40 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
50		SM	**Silty Sand (52.5 - 55)**					

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			Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 20 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
55		SM	**Silty Sand (55 - 60)** Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 25 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
60		SM	**Silty Sand (60 - 65)** Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 15 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
65		SM	**Silty Sand (65 - 67.5)** Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 18 mm and ~35% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
70		SM	**Silty Sand (67.5 - 72.5)** Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 10 mm and ~35% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SM	**Silty Sand (72.5 - 75)** Moist, soft, no odor. Primarily medium to fine sand with ~10% gravel to 13 mm and ~30% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
75		SM	**Silty Sand (75 - 80)** Moist, soft, no odor. Primarily coarse to fine sand with ~10% gravel to 10 mm and ~25% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
80		SM	**Silty Sand (80 - 92.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~10% gravel to 15 mm and ~25% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
85								
90								

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
		SM	**Silty Sand with Gravel (92.5 - 95)** Moist, soft, no odor. Primarily coarse to fine sand with ~15% gravel to 20 mm and ~25% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
95		GM	**Silty Gravel with Sand (95 - 97.5)** Moist, soft, no odor. Primarily gravel to 35 mm with 35% fine to coarse grained sand and ~25% silt and clay. The sand and gravel are subangular. The fines have low plasticity and toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (97.5 - 105)** Moist, soft, no odor. Primarily coarse to medium sand with ~30% gravel to 25 mm and ~20% silt and clay. The sand and the gravel are subrounded. The fines have low plasticity and toughness, and have a brown color.					
100								
105		SM	**Silty Sand with Gravel (105 - 107.5)** Moist, soft, no odor. Primarily coarse to fine sand with ~25% gravel to 90 mm and ~25% silt and clay. The sand and the gravel are subrounded. The fines have low plasticity and toughness, and have a brown color.					
		SM	**Silty Sand with Gravel (107.5 - 115)** Moist, soft, no odor. Primarily coarse to fine sand with ~25% gravel to 25 mm and ~25% silt and clay. The sand and the gravel are subrounded. The fines have low plasticity and toughness, and have a brown color.					
110								

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
115		SM	**Silty Sand (115 - 117.5)** Moist, firm, no odor. Primarily coarse to fine sand with ~10% gravel to 10 mm and ~30% silt and clay. The sand and the gravel are subrounded. The fines have low plasticity and toughness, and have a brown color.					
120		SM	**Silty Sand (117.5 - 135)** Moist, firm, no odor. Primarily coarse to fine sand with ~10% gravel to 5 mm and ~30% silt and clay. The sand and the gravel are subrounded. The fines have low plasticity and toughness, and have a brown color.					
125								

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130								
135		SC	**Clayey Sand with Gravel (135 - 137.5)** Moist, firm, no odor. Primarily coarse to fine sand with ~15% gravel to 8 mm and ~30% silt and clay. The sand and the gravel are subrounded. The fines have medium plasticity and toughness, and have a brown color.					
		SC	**Clayey Sand with Gravel (137.5 - 140)** Moist, firm, no odor. Primarily medium to fine sand with ~15% gravel to 15 mm and ~25% silt and clay. The sand and the gravel are subrounded. The fines have medium plasticity and toughness, and have a brown color.					
140		SC	**Clayey Sand with Gravel (140 - 142.5)** Moist, firm, no odor. Primarily coarse to fine sand with ~25% gravel to 13 mm and ~40% silt and clay. The sand and the gravel are subrounded. The fines have medium plasticity and toughness, and have a brown color. Trace coarse gravel to cobbles encountered that are potentially bedrock.					
			Bedrock (142.5 - 150)					
145								

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Depth (ft)	Elevation (ft)	USCS Group Symbol	Material Description	Sample Name	Sample Location	Lithology	Well Construction	Remarks
150			Bottom of Borehole at 150 feet below ground surface.					