Log of Boring No. BRC-SB-10-B **BMI Site - Hydrogeologic Characterization**



Drilling Method: Rotary Sonic **Drilling Equipment:** Rotary Sonic Drilling Contractor: Prosonic Corporation Driller: Gerald Sealey

Borehole Total Depth: 330 ft bgs **Borehole Diameter:** 8.5 in Boring Location: Location 10 (Well ID: MCF-10B) Depth to Water (ft. bgs): 19 ft bgs ∇

Sample Type: Split spoon

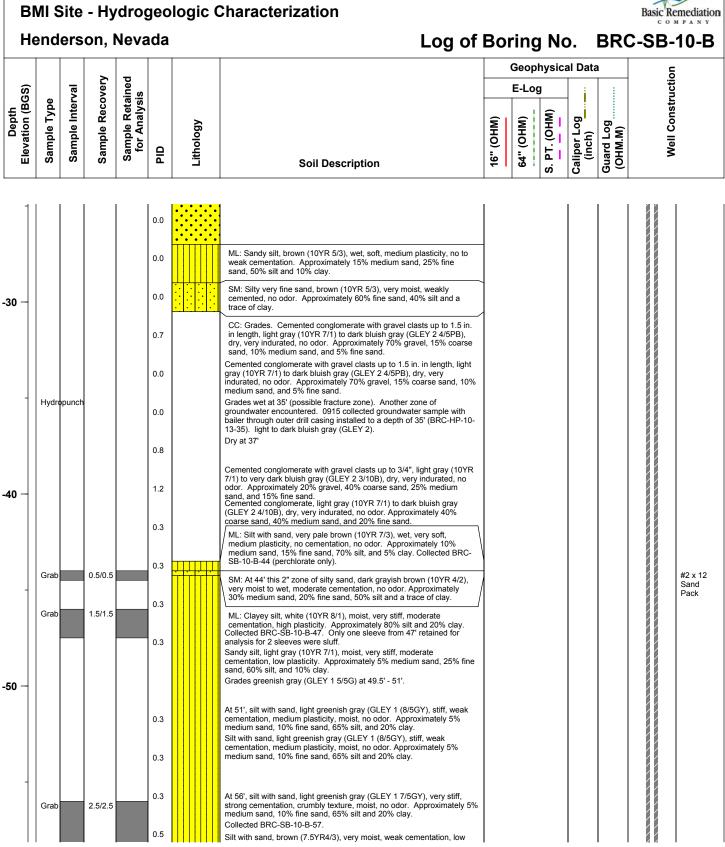
Monitoring Well Construction Sample Interval Varies Screen Slot Size: Type of Surface Seal: Bentonite Grout 0.010 in Logged By: David Bean Blank Casing Type/Size: 4" Sch 80 PVC Top of Screen (ft. bgs): 84 ft bgs Date Started: 6/8/04 Screen Type/Size: 4" Sch 80 PVC Bottom of Screen (ft. bgs): 104 ft bgs **Date Completed:** Transition Sand Type: Type of Sand Pack: #2 x 12 N/A **Geophysical Data** Well Construction Sample Retained for Analysis Sample Recovery Depth Elevation (BGS) E-Log Sample Interval Sample Type Caliper Log (inch) РТ. (ОНМ) Guard Log (OHM.M) 64" (OHM) 16" (OHM) Lithology DID Soil Description *i*

| • | | | | | | | |
|-------|------|---------|-----|---------------|--|--|---|
| 0 | Grab | 1.5/1.5 | 0.0 | ••••• | SW: Open surface at grade. | | Locking monument |
| | | | 0.0 | | Collected BRC-SB-10-B-0. | | well box |
| | | | 0.0 | | SW: Well graded sand with gravel and cobbles up to approximately 5" in length. Pale brown (10YR 6/3), dry, loose, no odor. Gravel and cobbles are subrounded. Approximately 35% gravel, 20% coarse sand, 20% medium sand, 20% fine sand, and 5% slit. | | with concrete apron and ballards |
| - | | | 0.0 | | GP: Grades. Poorly graded gravel with sand and cobbles up to | | Cement Bentonite Grout |
| | Grab | 1.5/1.5 | 0.0 | | approximately 3" in length . Pale brown (10YR 6/3), dry, loose, no odor, gravels and cobbles are volcanic subrounded. Approximately 60% gravel, 10% coarse sand, 15% medium sand, and 15% fine sand. Collected BRC-SB-10-B-7 | | |
| -10 - | | | 0.0 | | SP: Grades. Poorly graded sand. Dark grayish brown (10YR 4/2), dry, loose, no odor. Approximately 30% coarse sand, 55% medium sand, and 15% fine sand. | | 4" Blank PVC Riser Pipe |
| | | | 0.0 | · · · · · · · | | | |
| - | | | 0.0 | | GP: Grades. Poorly graded gravel with sand, brown (10YR 4/3), slightly moist, loose, no odor, gravel is subrounded. Approximately 65% gravel, 10% coarse sand, 20% medium sand, and 5% fine sand. | | |
| | Grab | 2.5/2.5 | 0.0 | | | | |
| | | | 0.0 | | SP: Grades. Poorly graded sand with gravel, very dark gravish brown (10YR 3/2), moist, loose, no odor. Approximately 20% gravel, 20% coarse sand, 30% medium sand, and 30% fine sand. Collected BRC-SB-10-B-17. Remaining sleeves collected from 16'-17' interval. | | |
| -20 | Grab | 0.5/0.5 | 0.0 | | Poorly graded sand with gravel, dark gravish brown (10YR 4/2), water saturated, loose, no odor. Approximately 20% gravel, 25% coarse sand, 30% medium sand, 20% fine sand, and 5% silt. Collected BRC-SB-10-B-19 (perchlorate only). | | |
| | | | 0.0 | | Poorly graded sand with gravel, dark gravish brown (10YR 4/2), water saturated, loose, no odor. Gravel is rounded to subrounded. Approximately 45% gravel, 30% coarse sand, 20% medium sand, and 5% fine sand. | | |
| | | | 0.0 | | | | |

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3850360 Project No. MWH

Log of Boring: BRC-SB-10-B

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BMI Site - Hydrogeologic Characterization Basic Remediation Henderson, Nevada Log of Boring No. BRC-SB-10-B **Geophysical Data** Well Construction Sample Retained for Analysis Sample Recovery E-Log Elevation (BGS) Sample Interval Sample Type Depth (MHO) Caliper Log (MHO) (MHO) Lithology Guard Log (M.MHO) (inch) РТ. 뎹 .0 . . . Soil Description *i* plasticity, medium stiff, no odor. Approximately 5% medium sand, 10% fine sand, 65% silt and 20% clay SM: Silty sand, brown (7.5YR 4/4), very moist, weak to no 0.7 -60 cementation, no odor. Approximately 60% fine sand, 40% silt and a trace of clay. At 61', 4" zone of silty sand, brown (7.5 YR4/4), wet, weak to no cementation, no odor. Approximately 80% fine sand, 20% silt and a 0.6 trace of clay. ML: Sandy silt (sand is very fine) strong brown (7.5YR 4/6), soft, no plasticity, weak cementation, moist, no odor. Approximately 40% fine sand and 60% silt with a trace of clay. 0.4 Grab 0.5/0.5 SP-SM: Poorly graded sand with silt, dark brown (7.5YR 3/3), wet, no cementation, no odor. Approximately 30% medium sand, 60% fine 0.6 sand, 10% silt with a trace of clay. Collected BRC-SB-10-B-64.5. ML: Sandy silt, brown (7.5YR 5/4), moist, medium stiff, low plasticity, weak cementation, no odor. Approximately 5% medium sand, 25% fine sand, 60% silt and 10% clay 0.3 Sandy silt, brown (7.5YR 5/4), moist, very stiff, low plasticity, moderate cementation, no odor. Approximately 15% medium sand, 25% fine sand, 60% silt and a trace of clay. 0.3 -70 0.3 Cement Backfill Sandy silt, brown (7.5YR 5/4), moist, very stiff, low plasticity, moderate cementation, no odor. Approximately 15% medium sand, 25% fine 0.3 sand, 60% silt and a trace of clay. 0.3 Sandy silt, strong brown (7.5YR 4/6), moist, low plasticity, stiff, weak cementation. Approximately 30% fine sand, 60% silt and 10% clay. Collected BRC-SB-10-B-77. Grab 2.5/2.5 Clayey silt, pinkish white (7.5 YR 8/2), moist, very stiff, low plasticity, 0.2 moderate to strong cementation, no odor. Approximately 75% silt and 25% clay. Bentonite 80' - 80.5, silt with sand, strong brown (7.5YR 4/6), moist, very stiff, low seal plasticity, moderate cementation, no odor. Approximately 20% fine 0.3 sand, 60% silt and 10% clay. -80 ML: 80.5'-81.25', clayey silt, light greenish gray, GLEY 2 (7/5GY). Approximately 25% silt and 75% clay. 0.5/0.5 Grab 0.2 SP: 81.25'-81.5', Poorly graded sand, dark yellowish brown (10YR 4/4), wet, loose, no odor. Approximately 30% medium sand, 70% #2 x 12 fine sand and a trace of silt. Collected BRC-SB-10-B-81.5. Sand Pack ML: 81.5'-87', sandy silt, strong brown, moist, low plasticity medium stiff, weak cementation. Approximately 30% fine sand, 55% silt, and 15% clay. Split spoon sample had moist silt as above. 0.1 At 85', 3" zone as above except pale brown (10YR 6/3). 02 At 86', same 3" zone as 85'. At 87', sandy silt (sand is very fine), brown (7.5YR 5/4), moist, low plasticity, medium stiff, weak cementation, no odor. Approximately 40% 0.2 fine sand, 40% silt and 20% clay. 0.2 -90 4" 0.010 Slot PVC screen

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MWH

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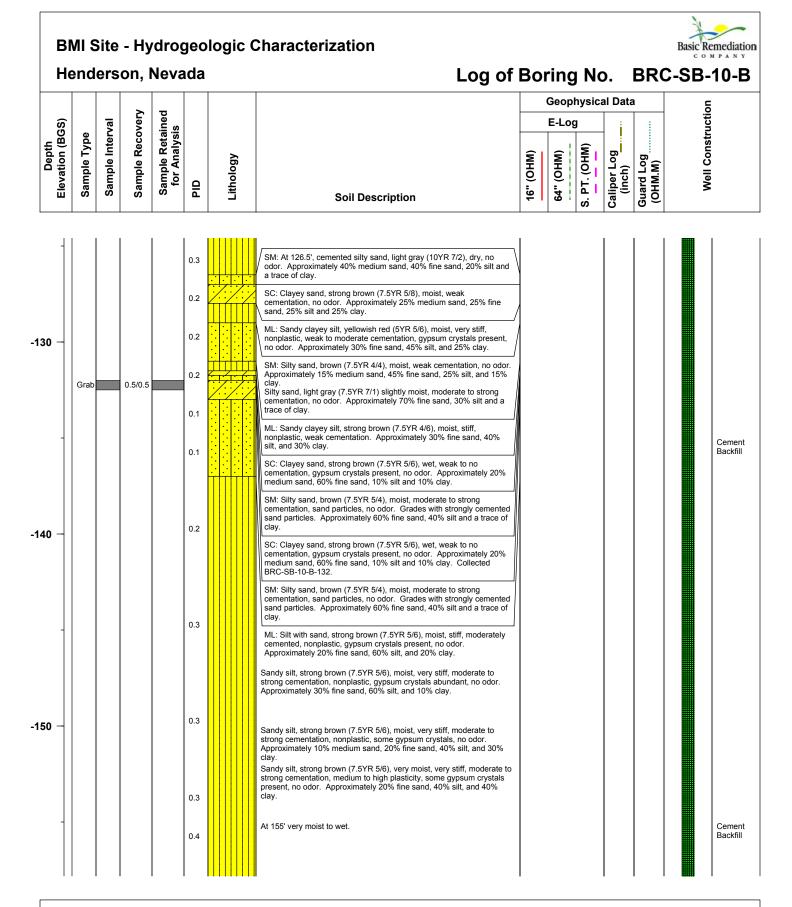
BMI Site - Hydrogeologic Characterization



| | Henderson, Nevada | | | | | | | Log of | Bo | ring | g No | о. | BRC | S-SB- | -10-В |
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| | | | | | | | | | Geophysical Data | | | ı | Ę | 5 | |
| | 3S) | | val | very | lined | | | | | E-Lo | g | | | itoti | |
| | Depth Elevation (BGS) | Sample Type | Sample Interval | Sample Recovery | Sample Retained for Analysis | DID | Lithology | Soil Description | 16" (OHM) | 64" (OHM) | S. PT. (OHM) | Caliper Log (inch) | Guard Log (OHM.M) | Well Construction | |
| | | | | | | 0.1 | | 91.5' grades as above except less sand. Approximately 20% fine sand, 60% silt, and 20% clay. | | | | | | | |
| - -100 — | - | | | | | 0.1 | | Sandy silt, brown (7.5YR 5/3), moist, low plasticity, no to weak cementation, soft, no odor. Approximately 30% fine sand, 55% silt, and 15% clay. Collected BRC-SB-10-B-97. | | | | | | | |
| | | Grab Grab | | 2.0/2.0 0.5/0.5 | | 0.2 | | SP-SM: Top of 97'-107' sample run contained poorly graded sand with slit, strong brown (7.5'YR 5/6), water saturated, loose, no odor. Approximately 90% sand, 10% silt and a trace of clay. Collected BRC-SB-10-B-98. | | | | | | | |
| | 00 - | | | | | 0.5 | | ML: Sandy silt, brown (7.5YR5/4), moist, medium stiff, low plasticity, weak cementation , no odor. Approximately 40% fine sand, 50% silt, 10% clay. SP-SM: At 99.5', 3" zone of poorly graded sand with silt, strong brown (7.5YR 5/4), moist, loose, no odor. Approximately 90% fine sand, | | | | | | | |
| | - | | | | | 0.2 | | 10% silt with a trace of clay. ML: Sandy silt, brown (7.5YR 5/4) moist, medium stiff, low plasticity, weak cementation, no odor. Approximately 40% fine sand, 50% silt and 10% clay. Approximately 40% fine sand, 50% silt and 10% clay. Sandy silt, brown (7.5YR 5/4), moist, stiff, low plasticity, no to weak | | | | | | | Threaded PVC Well ชื่อลละ คิย Backfill |
| | | | | | | 0.2 | | cementation, medium stiff, no odor. Approximately 40% fine sand, 50% silt, and 10% clay. Sandy silt, brown (7.5YR 5/3), moist, stiff, low plasticity, no to weak cementation, abundant gypsum crystals up to 2.5° in length, no odor. | | | | | | | |
| -1 | 10 — | | | | | | | Sandy silt, brown (7.5YR 5/3), moist, stiff, low plasticity, no to weak cementation, abundant gypsum crystals up to 2.5" in length, no odor. Approximately 40% fine sand, 50% silt, and 10% clay. | | | | | | | |
| -120 - | _ | | | | | 0.4 | | Sandy silt, brown (7.5YR 4/4), moist, medium stiff, low plasticity, no to weak cementation, no odor. Approximately 10% medium sand, 25% fine sand, 30% silt, and 15% clay. Silt with sand, brown (7.5YR 5/4), very stiff, medium plasticity, weak to moderately cemented, moist, no odor, Approximately 20% fine sand, 60% silt, and 20% clay. | | | | | | | |
| | 20 - | | | | | 0.2 | | SM: Thin - 2" thick silty sand lense, brown (7.5YR4/4) moist, weak cementation, no odor. Approximately 30% medium sand, 30% fine sand, 30% silt and 10% clay. ML: Brown (7.5YR 4/4), moist, weak cementation, no odor. | | | | | | | |
| | | | | | | 0.1 | | 120.75-121. Silt with sand, yellowish red (5YR 4/6), moist, medium plasticity, weakly cemented, very stiff. Approximately 15% fine sand, 70% silt and 15% clay. Sandy silt, very dark gravish brown, 10YR 3/2, very stiff, nonplastic, weak cemenation, moist, no odor. Approximately 15% medium sand, 25% fine sand, 45% silt, and 15% clay. | | | | | | | |

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Log of Boring:

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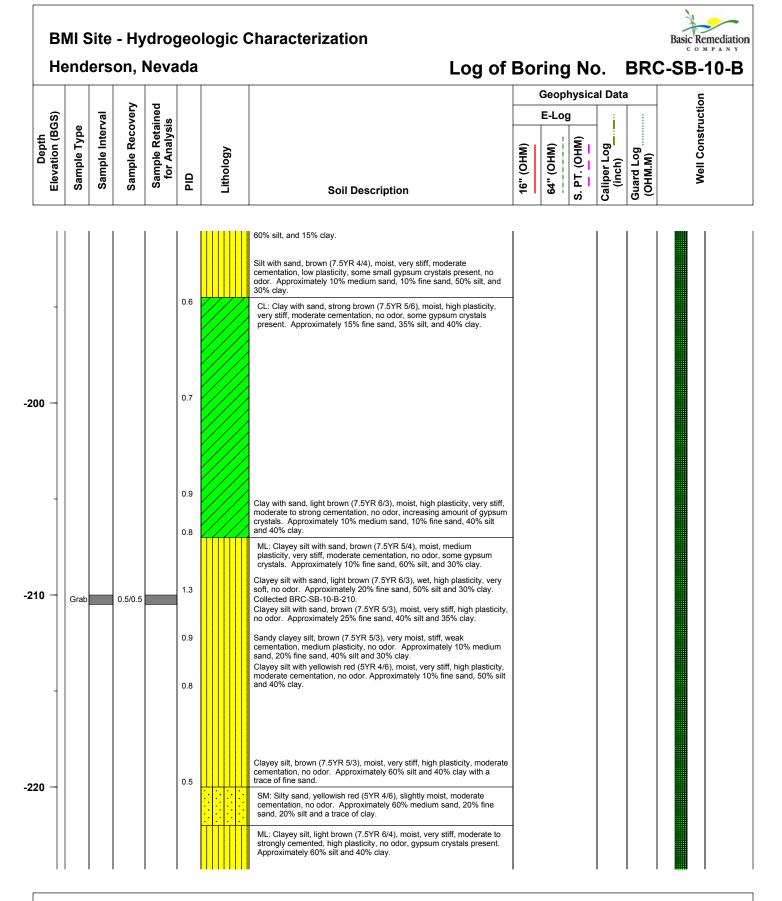
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| | BI | BMI Site - Hydrogeologic Characterization | | | | | | | | | Basic Remediation | | |
|-----|--------------------------|---|-----------------|-----------------|---------------------------------|-----|-----------|--|---------------------------------------|---|--------------------|--|--|
| | He | end | ers | on, | Neva | ida | | Log of Boring No. BRC-SB-10-B | | | | | |
| | s) | | (ery | | | | | | al Data | | | | |
| | Depth Elevation (BGS) | Type | Sample Interval | Sample Recovery | Sample Retained for Analysis | | ~ | | | 5 5 | Well Construction | | |
| | De levatic | Sample Type | ample | ample | ample for A | DID | Lithology | | 16" (OHM) 64" (OHM) S. PT. (OHM | Caliper Log (inch) - Guard Log (OHM.M) | Well C | | |
| | ш | S | 0 0 | S | 0 | • | בי | Soil Description | 64 | Gual (O | | | |
| -10 | 60 — | | | | | 0.2 | | Silt with sand, brown (7.5YR 4/4), moist, very stiff, low plasticity, weak cementation, some small gypsum crystals. Approximately 20% fine sand, 55% silt, and 25% clay. | | | | | |
| | | | | | | 0.3 | | At 164.25', this 1" lense of sandy silt, light gray (7.5YR 7/1), moist, very stiff, moderate cementation, no odor. Approximately 10% medium sand, 20% fine sand, 55% silt, and 15% clay. Clayey silt, brown (7.5YR 4/4), moist, very stiff, moderate cementation, low plasticity, no odor. Approximately 60% silt, 40% clay and a trace of fine sand. Clayey silt, brown (7.5YR 5/3), moist, very stiff, weak cementation, medium plasticity, no odor, small gypsum crystals present. Approximately 80% silt and 20% clay. | | | | | |
| -1 | 70 — | | | | | 0.6 | | Grades. Sandy silt, strong brown (7.5YR 5/6), moist, moderate cementation, nonplastic, very stiff, no odor, some gypsum crystals. Approximately 30% fine sand, 70% silt with a trace of clay. 174-174.5' increased sand content and strongly cemented, moist. | | | | | |
| | | | | | | 0.4 | | CL: Sandy clay, brown (7.5YR 4/4), moist, medium plasticity, stiff, moderate cementation, no odor, with some gypsum crystals. Approximately 40% fine sand, 30% silt, and 30% clay. | N | | | | |
| -18 | 30 — | | | | | 0.4 | | Silty sand, yellowish red (5YR 4/6), moist, weak cementation, no odor. Approximately 10% medium sand, 50% fine sand, 30% silt, and 10% clay. At 180', grades strong brown (7.5YR 4/6). ML: Sandy silt, yellowish red (5YR 4/6), moist, very stiff, moderate to strongly cemented, medium plasticity, no odor. Approximately 10% medium sand, 25% silt and 35% clay. | - | | | | |
| | _ | | | | | 0.5 | | Grades. Sandy silt, brown (7.5YR 4/3), sand is very fine, moist, stiff, weak cementation, low plasticity, no odor. Approximately 30% fine sand, 60% silt, and 10% clay. | | | Cement Backfill | | |
| -1 | 90 - | | | | | 0.6 | | Grades. Silt with sand, brown (7.5YR 4/4), moist, very stiff, low plasticity, weak to moderate cementation, no odor, some small gypsum crystals present. Approximately 10% medium sand, 15% fine sand, | | | | | |



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Log of Boring: BRC-SB-10-B

BMI Site - Hydrogeologic Characterization Basic Remediation Henderson, Nevada Log of Boring No. BRC-SB-10-B **Geophysical Data** Well Construction Sample Retained for Analysis Sample Recovery E-Log Elevation (BGS) Sample Interval Sample Type Depth (MHO) Caliper Log (MHO) (MHO) Guard Log Lithology (M.MHO) (inch) Е. 뎹 <u>"9</u> . . . Soil Description *i* strong cementation, no odor. Approximately 10% medium sand, 25% fine sand, 45% silt, and 20% clay. 0.0 -260 Silt with sand, yellowish red (5YR 4/6), moist, very stiff, moderate to strong cementation, no odor. Approximately 10% medium sand, 15% fine sand, 55% silt, and 20% clay 0.1 Silt with sand, yellowish red (5YR 4/6), slightly moist, hard, strong cementation, no odor. Approximately 5% medium sand, 10% fine sand, 75% silt and 10% clay. 267'-268', clayey silt, brown (7.5YR 5/3), moist, very stiff, moderate cementation, no odor. Approximately 80% silt, 20% clay, and a trace of fine sand. CL: Sandy silty clay, yellowish red (5YR 4/6), moist, moderate cementation, high plasticity, very stiff, no odor. Approximately 10% medium sand, 20% fine sand, 35% silt and 35% clay. 0.4 -270 ML: Sandy clayey silt, brown (7.5YR 4/4), moist, moderate to strong cementation, high plasticity, very stiff, no odor. Approximately 10% medium sand, 20% fine sand, 40% silt, and 30% clay. 0.0 0.4 Sandy clayey silt, yellowish red (5YR 4/6), slightly moist, moderate to strong cementation, very stiff, no odor. Approximately 10% medium sand, 20% fine sand, 40% silt and 30% clay. -280 Cement Clayey silt, brown (7.5YR 5/3), moist, very stiff, moderate to strong cementation, no odor. Approximately 80% silt and 20% clay. Backfill 0.3 At 282.25', this 1" zone of silt with sand, light brown (7.5YR 6/4), slightly moist, hard, moderate to strong cementation, no odor. Approximately 10% medium sand, 15% fine sand, 55% silt and 20% clay. SM: Silty sand, yellowish red (5YR 4/6), dry, strong cementation, no odor, sand is mostly small gypsum crystals. Approximately 30% medium sand, 30% fine sand, 20% silt, and 20% clay. 0.2 0.4 ML: Sandy silt, gray (5YR 6/2), moist, nonplastic, soft, weak cementation. Approximately 40% fine sand, 50% silt, and 10% clay. Silt with sand, brown (7.5YR 5/3), moist, very stiff, strong cementation. -290 Approximately 10% medium sand, 10% fine sand, 60% silt, and 20% clay



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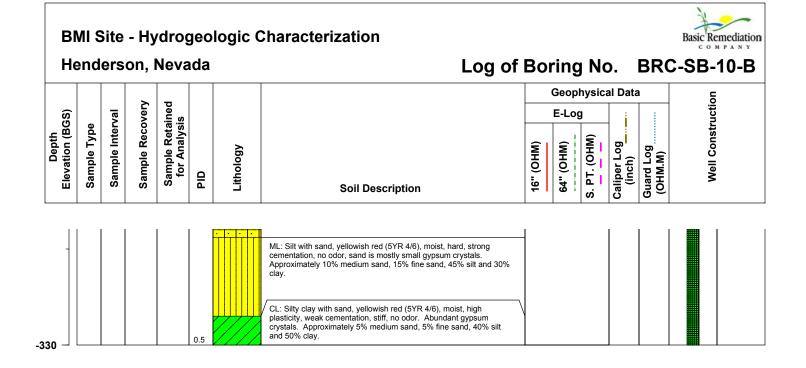
BMI Site - Hydrogeologic Characterization Basic Remediation Henderson, Nevada Log of Boring No. BRC-SB-10-B **Geophysical Data** Well Construction Sample Retained for Analysis Sample Recovery E-Log Elevation (BGS) Sample Interval Sample Type Depth (MHO) Caliper Log (inch) -(MHO) (MHO) Guard Log Lithology (M.MHO) РТ. 뎹 <u>"9</u> . . . Soil Description *i* 0.3 Silt with sand, brown (7.5YR 5/3), moist, very stiff, moderate to strongly cemented, no odor. Approximately 10% medium sand, 15% fine sand, 60% silt and 15% clay. 0.1 Silt with sand, yellowish red (5YR 4/6), moist, very stiff, moderate to strong cementation, no odor. Approximately 10% medium sand, 10% fine sand, 65% silt, and 15% clay. 04 Clayey silt, reddish gray (5YR 5/2), moist, very stiff, moderate to strong cementation, no odor. Approximately 70% silt and 30% clay with a trace of fine sand. Silt with sand as above. 0.3 -300 SM: At 301.5', thin 1" zone of silty sand, brown (7.5YR 5/2), moderate cementation, slightly moist, no odor. Approximately 10% medium sand, 50% fine sand, 40% silt with a trace of clay. ML: Sandy silt, reddish brown (5YR 4/4), moist, stiff, moderate cementation, no odor. Approximately 10% medium sand, 20% fine sand, 50% silt, and 20% clay. CL: Clay with sand, yellowish red (5YR 4/6), moist, very stiff 0.2 moderate to strong cementation, no odor. Approximately 20% fine sand, 35% silt, and 45% clay. ML: Silt with sand, brown (7.5YR 5/3), moist, stiff, moderate cementation, no odor. Abundant gypsum crystals. Approximately 25% fine sand, 55% silt and 20% clay. -310 SC: Clayey sand, strong brown (7.5YR 5/6), slightly moist, strong cementation, no odor, abundant gypsum crystals. Approximately 15% medium sand, 45% fine sand, 15% silt, and 25% clay. Cement Backfill ML: Silt with sand, yellowish red (5YR 4/6), moist, moderate cementation, hard, no odor, abundant gypsum crystals Approximately 15% fine sand, 45% silt, and 40% clay. 0.0 Sandy silt, yellowish red (5YR 4/6), very moist (almost wet), soft, medium plasticity, no odor, some gypsum crystals. Approximately 15% medium sand, 15% fine sand, 40% silt, and 30% clay. 0.0 Grab 0.5/0.5 Collected BRC-SB-10-B-316.5 CL: Clay with sand, yellowish brown (5YR 4/6), moist, very stiff, high plasticity, moderate cementation, no odor, some gypsum crystals Approximately 10% fine sand, 40% silt and 50% clay. 0.4 -320 ML: Silt with sand, yellowish brown (5YR 4/6), slightly moist, moderate cemenation, very stiff, no odor. Approximately; 10% fine sand, 60% silt and 30% clay. 0.2 SM: At 324', thin 4" zone of silty sand, white (7.5YR 8/1), to strong brown (7.5YR 5/6), dry, strong cementation, no odor. Approximately 20% medium sand, 40% fine sand, 30% silt and 10% clay.

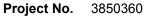


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MWH

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