Submitted here within are the results of Lumos and Associates, Inc. (Lumos) soils/hydrology scoping report for the proposed Boulder Bay Resort in Crystal Bay, Nevada (Plate 1). The site is composed of Placer County APN 090-305-016 and Washoe County APNs 123-052-02, 03, 04; 123-053-02, 04; 123-054-01, 123-071-04, 34, 35, 36 and 37. Specifically, the site is bound to the east by State Route 28, to the north by residential properties, to the west by State Line Road and to the south by Crystal Drive (Plate 2).

In August of 2008 Lumos utilized a rubber tired backhoe and a truck mounted drill rig with hollow stem and air rotary drilling capabilities to examine subsurface soil conditions. Within the project site six (6) test pits were excavated to a maximum depth of twelve (12) feet below ground surface (bgs) and nine (9) borings were advanced to a maximum depth of fifty five (55) feet bgs. Excavation locations are shown on Plate 2. Subsurface materials were continuously logged and visually classified in the field by our Field Technician in accordance with the Unified Soil Classification System (USCS). Representative soils samples were collected at various intervals shown on the logs (Appendix A). All test pits and borings were backfilled with excavated material.

Additionally, In June of 2008, Gasch and Associates performed a surface refraction microtremor seismic shear-wave investigation, report and results are included in Appendix B.
Subsurface materials generally consisted of layers of light olive brown (2.5Y 5/4) to brownish yellow (10YR 6/8) fill, which is loose to moderately dense silty sand to sandy silt with gravel and cobbles; native layers of brown (2.5YR 5/4) to very dark grayish brown (10YR 3/2) silty sand/sandy silt with gravel and cobbles over light yellowish brown (2.5YR 6/2) to brownish yellow (10YR 6/6) decomposed and weathered granodiorite bedrock.

No groundwater or evidence of seasonal groundwater was encountered during our field investigation. It is our opinion, based on observations of borings and test pits that seasonal groundwater will not be encountered in the proposed excavations.

If you have any questions or require additional information, please contact the undersigned at (530) 899-9503.

David A. Sullivan, MBA, PE
Location Principal
Lumos and Associates, Inc.

Chad Borean
Engineering Technician
Lumos and Associates, Inc.
**LOG OF EXPLORATORY BORING**

### BORING No. B-1

**Logged By:** C. Borean  
**Date Logged:** 8-19-2008  
**Drill Type:** Mobile Drill B-47

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Bag Sample</td>
<td>Asphalt Concrete</td>
</tr>
<tr>
<td>0.0</td>
<td>California Sampler</td>
<td>Topsoil - Silty Sand, reddish brown, 5YR 4/3, slightly moist, very loose, organics.</td>
</tr>
<tr>
<td>5.0</td>
<td>Bag Sample</td>
<td>Silty Sand (decomposed granite), yellowish red, 10YR 5/6, slightly moist, medium dense.</td>
</tr>
<tr>
<td>7.5</td>
<td>Bag Sample</td>
<td>Silty Sand (weathered granite), brown, 7.5YR 5/4, slightly moist, very dense.</td>
</tr>
<tr>
<td>10.0</td>
<td>Bag Sample</td>
<td>Light yellowish brown, 2.5Y 6/3, switch to air rotary drilling.</td>
</tr>
<tr>
<td>15.0</td>
<td>Bag Sample</td>
<td>1.75 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>17.0</td>
<td>Bag Sample</td>
<td>2.25 minutes for 5 foot advancement</td>
</tr>
<tr>
<td>22.0</td>
<td>Bag Sample</td>
<td>2.75 minutes for 5 foot advancement.</td>
</tr>
</tbody>
</table>

- **Total Depth:** 25 feet  
- **Water Depth:** No groundwater encountered  
- **Ground Elev.:** Not Surveyed

**Note:**  
- Boring terminated at 25 feet.  
- Boring backfilled with drill cuttings and tamped at the surface.  

**Lumos & Associates, Inc.**  
3259 Esplanade, Suite 102  
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530-899-9503  
Fax: 530-899-9649  
www.lumosengineering.com  

**Boulder Bay**  
**Job Number:** 7139.000  
**Date:** September 2008
**LOG OF EXPLORATORY BORING**

**BOARING No. B-2**

**Logged By:** C. Borean  
**Date Logged:** 8-19-2008  
**Drill Type:** Mobile Drill B-47  
**Total Depth:** 19.5 feet  
**Water Depth:** No groundwater encountered  
**Ground Elev.:** Not Surveyed

---

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Moisture Content, %</th>
<th>Dry Unit Weight, pcf</th>
<th>Liquid Limit, %</th>
<th>Plasticity Index, %</th>
<th>CBR</th>
<th>Other Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Bag Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>B-47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>SPT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Asphalt Concrete.**

Silty Sand, dark gray, slightly moist, loose.  
Silty Sand (weathered granite), brownish yellow, 10YR 6/6, slightly moist, very dense.

Switch to air rotary drilling.

Light brownish gray, 2.5Y 6/2.

Grayish brown, 2.5Y 5/2. 2 minutes for 5 feet advancement.

Light yellowish brown, 2.5Y 6/3.

Light brownish gray, 2.5Y 6/2. 3 minutes for 5 feet advancement.

Granite, gray, 2.5Y 5/1, very hard. Practical refusal, 52 minutes for 2 feet advancement.

Boring terminated at 19.5 feet.  
Boring backfilled with drill cuttings and tamped at the surface.

---

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www.lumosengineering.com  

**Job Number:** 7139.000  
**Date:** September 2008
<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td></td>
<td>Modified California</td>
<td>Silty Sand with Clay and Gravel, brown, 7.5YR 5/4, dry to slightly moist, medium dense.</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Standard Split Spoon (SPT)</td>
<td>Silty Sand with Gravel, Cobbles and Boulders, Brown, 7.5YR 5/4, slightly moist, medium dense.</td>
</tr>
<tr>
<td>4.5</td>
<td></td>
<td>California Sampler</td>
<td>Auger refusal on boulder, switch to air rotary drilling.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Static Water Table</td>
<td>Sandy Silt with Gravel, very dark grayish brown, 10YR 3/2, slightly moist, very dense.</td>
</tr>
<tr>
<td>18.5</td>
<td></td>
<td></td>
<td>Silty Sand (weathered granite), light yellowish brown, 2.5Y 6/3, very dense. Switch to air rotary drilling.</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td>Light brownish gray, 2.5Y 6/2, 2.75 minutes for 5 foot advancement.</td>
</tr>
</tbody>
</table>
## LOG OF EXPLORATORY BORING

**Boring No. B-3 (CONT'D)**

**Logged By:** C. Borean  
**Date Logged:** 8-15-2008

**Drill Type:** Mobile Drill B-47  
**Total Depth:** 55 feet  
**Water Depth:** No groundwater encountered  
**Ground Elev.:** Not Surveyed

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Boring terminated at 55 feet. Boring backfilled with drill cuttings and tamped at the surface.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>2.75</td>
<td></td>
<td></td>
<td>2.75 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>32.5</td>
<td></td>
<td></td>
<td>Light yellowish brown, 2.5Y 6/3. 4 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>40.0</td>
<td></td>
<td></td>
<td>Light brownish gray, 2.5Y 6/2. 5.5 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>45.0</td>
<td></td>
<td></td>
<td>Grayish brown, 2.5Y 5/2.</td>
</tr>
<tr>
<td>50.0</td>
<td></td>
<td></td>
<td>Light brownish gray, 2.5Y 6/2. 5 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>55.0</td>
<td></td>
<td></td>
<td>Grayish brown, 2.5Y 5/2.</td>
</tr>
<tr>
<td>60.0</td>
<td></td>
<td></td>
<td>Light brownish gray, 2.5Y 6/2. 6.25 minutes for 5 foot advancement.</td>
</tr>
</tbody>
</table>
Asphalt concrete.

Silty Sand, light yellowish brown 2.5Y 6/4, slightly moist, medium dense.

Silty Sand (weathered granite), light yellowish brown, 2.5Y 6/4, sightly moist, medium dense. Switch to air rotary drilling.

Light olive brown, 2.5Y 5/3.

Light yellowish brown, 2.5Y 6/3. 2 minutes for 5 foot advancement.

1.5 minutes for 5 foot advancement.

Light olive brown, 2.5Y 5/3.

Light yellowish brown, 2.5Y 6/3. 3.25 minutes for 5 foot advancement.

3 minutes for 5 foot advancement.
### Sheet 2 of 2

**BORING No. B-4 (CONT'D)**

<table>
<thead>
<tr>
<th>Logged By:</th>
<th>C. Borean</th>
<th>Total Depth:</th>
<th>35 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Logged:</td>
<td>8-19-2008</td>
<td>Water Depth:</td>
<td>No groundwater encountered</td>
</tr>
<tr>
<td>Drill Type:</td>
<td>Mobile Drill B-47</td>
<td>Ground Elev.:</td>
<td>Not Surveyed</td>
</tr>
</tbody>
</table>

#### Soil Description

- **2.5 minutes for 5 foot advancement.**
  - Light olive brown, 2.5Y 5/3.
- **Light yellowish brown, 2.5Y 6/3. 3.5 minutes for 5 foot advancement.**
  - Boring terminated at 35 feet.
  - Boring backfilled with drill cuttings and tamped at the surface.

---

**Graphical Log:**

- **Sample Type:**
  - Shelby Tube
  - Split Spoon (SPT)
  - Modified California
  - Bag Sample
  - Static Water Table

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Sample Type</th>
<th>Moisture Content, %</th>
<th>Dry Unit Weight, pcf</th>
<th>Liquid Limit, %</th>
<th>Plasticity Index, %</th>
<th>Gravel, %</th>
<th>Sand, %</th>
<th>Fines, %</th>
<th>CBR</th>
<th>CBR</th>
<th>Other Tests (See Legend)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Other Information:**

- **LUMOS LOG 7139000.GPJ  US_LAB.GDT  9/11/08**
- **PLATE**
- **Job Number: 7139.000**
- **Date: September 2008**

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Boulder Bay

LOG OF EXPLORATORY BORING

PLATE A-4.2
**LOG OF EXPLORATORY BORING**

**BORING No. B-5**

**Logged By:** C. Borean  
**Date Logged:** 8-14-2008

**Drill Type:** Mobile Drill B-47

**Total Depth:** 55 feet  
**Water Depth:** No groundwater encountered  
**Ground Elev.:** Not Surveyed

---

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphical Log</th>
<th>Sample Type</th>
<th>Borehole Log</th>
<th>Moisture Content, %</th>
<th>Dry Unit Weight, pcf</th>
<th>Liquid Limit, %</th>
<th>Plastic Index, %</th>
<th>Moisture of Index, %</th>
<th>Blows/Foot (See Legend)</th>
<th>Other Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td></td>
<td>Modified</td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td></td>
<td>Standard</td>
<td></td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0</td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.0</td>
<td></td>
<td></td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Asphalt concrete.

Undocumented Fill - Silty Sand with Gravel, light olive brown, 2.5Y 5/4, slightly moist, loose.

Silty Sand (weathered granite), light olive brown, 2.5Y 5/4, slightly moist, medium dense.

Light yellowish brown, 2.5Y 6/4, very dense.

Light yellowish brown, 2.5Y 6/3, very dense. @ 10' switch to air rotary drilling.

Light olive brown, 2.5Y 5/3.

Light yellowish brown, 2.5Y 6/3.

Light gray, 2.5Y 7/1.

Light yellowish brown, 2.5Y 6/3.

Pale yellow, 2.5Y 7/3.

Light yellow brown, 2.5Y 6/3.  6.25 minutes for 5 foot advancement.
<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Bag Sample</td>
<td>Light brownish gray, 2.5Y 6/2. 7 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>5</td>
<td>Modified California</td>
<td>Light yellowish brown, 2.5Y 6/3.</td>
</tr>
<tr>
<td>35</td>
<td>Bag Sample</td>
<td>Light olive brown, 2.5Y 5/4. 6 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>40</td>
<td>Bag Sample</td>
<td>Light olive brown, 2.5Y 5/3. 8 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>45</td>
<td>Standard Split Spoon (SPT)</td>
<td>Light brownish gray, 2.5Y 6/2. 11 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>50</td>
<td>California Sampler</td>
<td>Granite, light olive brown, 2.5Y 5/3, very hard. 11 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>55</td>
<td>California Sampler</td>
<td>Light yellow brown, 2.5Y 6/3.</td>
</tr>
</tbody>
</table>

Boring terminated at 55 feet. Boring backfilled with drill cuttings and tamped at the surface.
**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Type</th>
<th>Sample Type</th>
<th>Boring No. B-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No recovery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>No recovery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Undocumented Fill - Sandy Silt with Gravel and Cobbles, dark brown, 7.5YR 5/3 to very dark brown, 7.5YR 2/5, dry, moderately dense, sample to cobble.</td>
<td></td>
<td>50+</td>
</tr>
<tr>
<td>15</td>
<td>Dark yellowish brown, 10YR 3/6, slightly moist, medium dense.</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>20</td>
<td>Yellowish brown, 10YR 5/8,</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>25</td>
<td>Sandy Silt (weathered granite), light brownish gray, 2.5Y 6/2, slightly moist, dense.</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>Light olive brown, 2.5Y 5/4, very dense.</td>
<td></td>
<td>50+</td>
</tr>
<tr>
<td>35</td>
<td>No recovery.</td>
<td></td>
<td>50+</td>
</tr>
<tr>
<td>40</td>
<td>Light olive brown, 2.5Y 5/3.</td>
<td></td>
<td>50+</td>
</tr>
<tr>
<td>45</td>
<td>No recovery.</td>
<td></td>
<td>50+</td>
</tr>
</tbody>
</table>

**Other Tests (See Legend):**

- Moisture Content, %
- Dry Unit Weight, pcf
- Liquid Limit, %
- Plastic Index, %
- Gravel, %
- Sand, %
- Fines, %
- CBR

**Log of Exploratory Boring**

- Job Number: 7139.000
- Date: September 2008
- Boring No. B-6

- Total Depth: 45 feet
- Water Depth: No groundwater encountered
- Ground Elevation: Not Surveyed

**Undocumented Fill - Sandy Silt with Gravel and Cobbles, dark brown, 7.5YR 5/3 to very dark brown, 7.5YR 2/5, dry, moderately dense, sample to cobble.**

- Undocumented Fill - Sandy Silt with Gravel and Cobbles, dark brown, 7.5YR 5/3 to very dark brown, 7.5YR 2/5, dry, moderately dense, sample to cobble.
<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Sample Type</th>
<th>SOIL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>No recovery.</td>
</tr>
</tbody>
</table>
| 45           |                         | Boring terminated at 45 feet.  
|              |                         | Boring backfilled with drill cuttings and tamped at the surface. |

**Boring No. B-6 (CONT'D)**

Logged By: C. Borean  
Date Logged: 8-12-2008  
Drill Type: Mobile Drill B-47

Total Depth: 45 feet  
Water Depth: No groundwater encountered  
Ground Elev.: Not Surveyed

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Sample Type</th>
<th>SOIL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>50+</td>
<td></td>
<td>Olive, 5Y 4/4.</td>
</tr>
<tr>
<td>50+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- **Olive, 5Y 4/4.**
- **No recovery.**
- Boring terminated at 45 feet.  
- Boring backfilled with drill cuttings and tamped at the surface.
**LOG OF EXPLORATORY BORING**

**BOREE No. B-7**

**Total Depth:** 55 feet  
**Water Depth:** No groundwater encountered  
**Ground Elev.:** Not Surveyed

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Type</th>
<th>Sample Type</th>
<th>Soil Description</th>
<th>Moisture Content, %</th>
<th>Dry Unit Weight, pcf</th>
<th>Liquid Limit, %</th>
<th>Plastic Index, %</th>
<th>CBR</th>
<th>Other Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Modified California</td>
<td>Bag Sample</td>
<td>Undocumented Fill - Silty Sand, very pale brown, 10YR 7/3, faint motteling ~20% yellow, 10YR 7/6, dry, dense.</td>
<td>35</td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Standard Split Spoon (SPT)</td>
<td>Shelby Tube</td>
<td>Undocumented Fill - Sandy silt, very pale brown, 10YR 8/2, dry, medium dense.</td>
<td>17</td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Light olive brown 2.5Y 5/6, slightly moist, dense.</td>
<td>32</td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>Silty Sand (weathered granite), light yellow brown, 2.5Y 6/4, slightly moist, very dense.</td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>Pale olive yellow, 2.5Y 6/6.</td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>Pale olive, 5Y 6/4</td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td>Olive, 5Y 5/4.</td>
<td></td>
<td>50+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Depth in Feet | Graphic Log Sample Type | Soil Description | Boring Terminated at 55 feet.  
Boring backfilled with drill cuttings and tamped at the surface. |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td></td>
<td>No recovery.</td>
<td>50+</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>No recovery.</td>
<td>50+</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>No recovery.</td>
<td>50+</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>No recovery.</td>
<td>50+</td>
</tr>
</tbody>
</table>
| 55           |                         | Boring terminated at 55 feet.  
Boring backfilled with drill cuttings and tamped at the surface. | 55, 0  60+ |
## LOG OF EXPLORATORY BORING

**Boring No. B-8**

- **Total Depth:** 40 feet
- **Water Depth:** No groundwater encountered
- **Ground Elev.:** Not Surveyed

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>Undocumented Fill - Silty Sand, brownish yellow, 10YR 6/8, slightly moist, medium dense.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Modified California</td>
<td>Silty Sand (decomposed granite), light yellow brown, 2.5Y 6/4, slightly moist, medium dense.</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Olive yellow, 2.5Y 6/6, medium dense.</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Sildy Sand (weathered granite), uellowish brown, 2.5Y 6/4, very dense. Switch to air rotary drilling.</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>Light olive brown, 2.5Y 5/3</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>2 minutes for 5 foot advancement. Light brownish gray, 2.5Y 6/2.</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>Pale yellow, 2.5Y 7/3. 3.25 minutes for 5 foot advancement. Light yellowish brown, 2.5Y 6/3.</td>
</tr>
</tbody>
</table>

**Other Tests:**
- **Blows/Foot:**
  - 4.0
- ** content, %:**
  - 19
- **Liquid Limit, %:**
  - 15
  - 22
- **Plasticity Index, %:**
  - 27
  - 12.5
- **CBR:**
  - 50+
  - 50+
**LOG OF EXPLORATORY BORING**

**BOARING No. B-8 (CONT'D)**

- **Logged By:** C. Borean
- **Date Logged:** 8-18-2008
- **Drill Type:** Mobile Drill B-47
- **Total Depth:** 40 feet
- **Water Depth:** No groundwater encountered
- **Ground Elev.:** Not Surveyed

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td></td>
<td></td>
<td>Boring terminated at 40 feet. Boring backfilled with drill cuttings and tamped at the surface.</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td>Light olive brown, 2.5Y 5/3.</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td>Light olive brown 2.5Y 4/3. 5.5 minutes for 5 foot advancement.</td>
</tr>
</tbody>
</table>

- **Mobile Drill B-47**
- **Shelby Tube**
- **Split Spoon (SPT)**
- **California Sampler**
- **Static Water Table**

---

**SOIL DESCRIPTION**

- **B:l:**
- **M:**
- **S:**

---

**Legend:**

- Standard Split Spoon (SPT)
- California Sampler
- Static Water Table

---

**Job Number:** 7139.000  
**Date:** September 2008

---

**Contact:**

Lumos & Associates, Inc.  
3259 Esplanade, Suite 102  
Chico, CA 95973  
530-899-9503  
Fax: 530-899-9649  
www.lumosengineering.com
**LOG OF EXPLORATORY BORING**

- **BOURING No. B-9**
- **Logged By:** C. Borean
- **Date Logged:** 8-15-2008
- **Drill Type:** Mobile Drill B-47

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SOIL DESCRIPTION

- **Undocumented Fill - Sandy Silt with Gravel and Cobbles, brown, 7.5YR 4/4, dry to slightly moist, medium dense.**

- **Silty Sand (weathered granite), pale olive, 5Y 6/3-4, slightly moist, very dense.**

- **Olive yellow, 2.5Y 6/6.**

- **Olive, 5Y 5/3. 3 minutes for 5 foot advancement.**

- **Pale olive, 5Y 6/3.**

- **3 minutes for 5 foot advancement.**

---

**Lumos & Associates, Inc.**

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Chico, CA 95973
530-899-9503
Fax: 530-899-9649
www.lumosengineering.com

**Boulder Bay**

**LOG OF EXPLORATORY BORING**

**PLATE A-9.1**

**Job Number:** 7139.000
**Date:** September 2008
**BORING No. B-9 (CONT'D)**

- **Logged By:** C. Borean
- **Date Logged:** 8-15-2008
- **Drill Type:** Mobile Drill B-47
- **Total Depth:** 37.5 feet
- **Water Depth:** No groundwater encountered
- **Ground Elev.:** Not Surveyed

### Depth in Feet

<table>
<thead>
<tr>
<th>Depth</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>Shelby Tube</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>Modified California</td>
<td>5 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
<td>California Sampler</td>
<td>Granite, light gray, 5Y 7/2, very hard.</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
<td>Bag Sample</td>
<td>10 minutes for 5 foot advancement.</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
<td>Static Water Table</td>
<td>Practical refusal. 38 minutes for 2.5 foot advancement.</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
<td></td>
<td>Boring terminated at 37.5 feet.</td>
</tr>
<tr>
<td>37.5</td>
<td></td>
<td></td>
<td>Boring backfilled with drill cuttings and tamped at the surface.</td>
</tr>
</tbody>
</table>

### SOIL DESCRIPTION

- **Dry Unit Weight, pcf:**
- **Sample Type:**
- **Plasticity:**
- **Content, %:**
- **Other Tests (See Legend):**

---

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www.lumosengineering.com

**Boulder Bay**

**LOG OF EXPLORATORY BORING**

**PLATE A-9.2**

**Job Number:** 7139.000
**Date:** September 2008
**TEST PIT No. TP-1**

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log Type</th>
<th>Sample Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Percolation Test</td>
<td>Splitted</td>
<td>Undocumented Fill - Silty Sand with Gravel and Cobbles, dark brown, 10YR 3/3, slightly moist, loose.</td>
</tr>
<tr>
<td>2</td>
<td>California Sampler</td>
<td>Bulk Sample</td>
<td>Silty Sand with Gravel and Cobbles, dark yellowish brown, 10YR 4/4, slightly moist, medium dense.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Silty Sand with Gravel, common Cobbles, common Boulders, brownish yellow, 10YR 6/8, slightly moist, medium dense.</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>Practical refusal, difficult digging, boulders, unsafe hole.</td>
</tr>
</tbody>
</table>

Test pit terminated at 8 feet. Test Pits backfilled without compaction verification.
Logged By: C. Borean  
Date Logged: 8-13-2008  
Drill Type: CAT 416B

Total Depth: 6 feet  
Water Depth: No groundwater encountered  
Ground Elev.: Not Surveyed

SOIL DESCRIPTION

Asphalt concrete.

Silty Sand (decomposed granite), pale olive, 5Y 6/3, slightly moist, dense, difficult digging.

Test pit terminated at 6 feet. Test Pits backfilled without compaction verification.

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3259 Esplanade, Suite 102  
Chico, CA  95973  
530-899-9503  
Fax: 530-899-9649  
www.lumosengineering.com
<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Percolation Test</th>
<th>Split Spoon</th>
<th>Ziplock Sample</th>
<th>California Sampler</th>
<th>Bulk Sample</th>
<th>Static Water Table</th>
<th>SPT (N)</th>
<th>Moisture Content, %</th>
<th>Dry Unit Weight,pcf</th>
<th>Liquid Limit, %</th>
<th>Plasticity Index, %</th>
<th>Sand, %</th>
<th>Gravel, %</th>
<th>Fines, %</th>
<th>(3&quot; - #4 Sieve)</th>
<th>(&lt; #200 Sieve)</th>
<th>R-Value</th>
<th>Expansion Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td>Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
<td>Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- **Asphalt concrete.**
- **Undocumented Fill - Silty Sand with trace Gravel, light yellowish brown, 2.5Y 6/4, slightly moist, medium dense.**
- **Silty Sand (weathered granite), pale yellow, 2.5Y 7/3, slightly moist, very dense, difficult digging.**

Test pit terminated at 2.6 feet.

Test Pits backfilled without compaction verification.
Undocumented Fill - Silty Sand/Sandy Silt with some Gravel and Cobbles, light yellowish brown, 10YR 6/4, dry to slightly moist, medium dense.

Silty Sand (decomposed granite), light yellowish brown, 2.5Y 6/4, slightly moist, moderately dense, difficult digging.

Test pit terminated at 9.5 feet.
Test Pits backfilled without compaction verification.
**LOG OF EXPLORATORY TEST PIT**

**TEST PIT No. TP-5**

Logged By: **C. Borean**
Date Logged: **8-13-2008**
Drill Type: **CAT 416B**

<table>
<thead>
<tr>
<th>Depth in Feet</th>
<th>Graphic Log</th>
<th>Sample Type</th>
<th>Percolation Test</th>
<th>Split Spoon</th>
<th>Ziplock Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

Undocumented Fill - Silty Sand with Gravel, some Cobbles, light yellowish brown, 10YR 6/4, slightly moist, loose to medium dense.

Silty Sand (decomposed granite), pale yellow, 5Y 7/4, slightly moist, dense.

---

Test pit terminated at 9.4 feet.
Test Pits backfilled without compaction verification.

---

**Boulder Bay**

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530-899-9503
Fax: 530-899-9649
www.lumosengineering.com

**Job Number:** 7139.000
**Date:** September 2008

---

**PLATE A-14**
Test pit terminated at 12 feet.
Test Pits backfilled without compaction verification.

### LOG OF EXPLORATORY TEST PIT

#### TEST PIT No. TP-6

- **Logged By:** C. Borean
- **Date Logged:** 8-13-2008
- **Drill Type:** CAT 416B
- **Total Depth:** 12 feet
- **Water Depth:** No groundwater encountered
- **Ground Elev.:** Not Surveyed

#### SOIL DESCRIPTION

- **Undocumented Fill - Silty Sand to Sandy Silt with Gravel and Cobbles, light yellowish brown, 10YR 6/4, slightly moist, loose to medium dense, lumber and metal debris throughout.**

- **Undocumented Fill - Sandy Silt to Silty Sand with Gravel and Cobbles, brown, 10YR 4/3, slightly moist, medium dense, metal debris.**

---

**Ground Elev.:** Not Surveyed
February 18, 2009

Ms. Heather Gustafson
Tahoe Regional Planning Agency
P.O. Box 5310
Stateline, NV 89449

Re: Boulder Bay

Dear Ms. Gustafson:

Please replace page 9 in our Geotechnical Investigation Reports numbered 7139.000 and dated September, 2008 reports with the following page. The following page 9 supercedes the previous page 9.

If you have any questions, please contact our office at (775) 883-7077.

Sincerely,

Mitch Burns, P.E.
Lumos and Associates, Inc.
Construction Services Engineer
4, 5, and 6 and the percolation test pit. The depth of the fill ranged from zero (0) feet to a minimum of 12 feet in test pit #6. Compaction tests performed on the fill indicate the fill was compacted to a lesser density than specified later in the report.

Groundwater was not encountered in our exploratory borings or test pits at the time of our field investigation and is not expected to impact development of this site.
February 24, 2009

Brian Helm
PO Box 307
Crystal Bay, NV 89402

RE: SOIL HYDROLOGIC APPROVAL
BOULDER BAY LLC, BOULDER BAY CEP, WASHOE COUNTY, NV

APN    TRPA File #:  
123-052-03 LCAP2008-0295 
123-052-02 LCAP2008-0291 
123-052-04 LCAP2008-0297 
123-053-02 LCAP2008-0299 
123-053-04 LCAP2008-0301 
123-054-01 LCAP2008-0303 
123-071-04 LCAP2008-0304 
123-071-34 LCAP2008-0305 
123-071-35 LCAP2008-0306 
123-071-36 LCAP2008-0307 
123-071-37 LCAP2008-0308 
090-305-16 LCAP2008-0292 

Dear Mr. Helm,

The Tahoe Regional Planning Agency (TRPA) Land Capability Program’s staff has reviewed the Soils/Hydrologic Scoping Report Application dated July 22, 2008, made multiple site visits to the project area, and reviewed subsequent boring logs, seismic shear wave data and geotechnical analyses and recommendations. Based upon the aforementioned, TRPA staff approves the following excavation depths. These approvals are based upon the cross sections provided on February 11 and 24, 2009 (and located in the above-referenced TRPA files). The approvals are for the depths and approximate locations presented in these cross sections.

Please be aware that groundwater may be encountered during construction. A dewatering plan must be submitted and approved prior to commencement of the project. In the event that groundwater is intercepted, TRPA Land Capability staff and the TRPA Compliance inspector must be immediately notified and work must stop until further review by TRPA.

<table>
<thead>
<tr>
<th>APN</th>
<th>Depth(s) Requested in feet</th>
<th>Depth(s) approved in feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-052-03</td>
<td>3 - 7</td>
<td>7</td>
</tr>
<tr>
<td>123-052-02</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>123-052-04</td>
<td>3.5 - 29.7</td>
<td>30</td>
</tr>
<tr>
<td>123-053-02</td>
<td>33.8 - 3.5</td>
<td>35</td>
</tr>
<tr>
<td>123-053-04</td>
<td>5.66</td>
<td>6</td>
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<tr>
<td>123-054-01</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>123-071-04</td>
<td>20-Scp</td>
<td>20</td>
</tr>
<tr>
<td>123-071-34</td>
<td>24.78 - 44.4</td>
<td>44.5</td>
</tr>
<tr>
<td>123-071-35</td>
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</tr>
<tr>
<td>123-071-36</td>
<td>No depth requested</td>
<td>5</td>
</tr>
<tr>
<td>123-071-37</td>
<td>No depth requested</td>
<td>5</td>
</tr>
<tr>
<td>090-305-16</td>
<td>5.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Planning for the Protection of our Lake and Land
The TRPA has the following recommendations for the project:

1. Temporary Best Management Practices (BMPs) are to be installed and maintained prior to excavation and during all phases of the proposed project.

2. All excavated materials shall be hauled away from the site to a legally acceptable location. No fills or recontouring, other than backfill for the cut-retaining structures, shall be allowed.

3. Blasting of rocks should be kept to an absolute minimum to avoid damage to surrounding rocks and vegetation.

This letter only approves the depth of the excavation and does not represent approval for the project.

Pursuant to Rule 11.2 of the TRPA Rules of Procedure, this soils/hydrological approval may be appealed within twenty-one (21) days from the date of this correspondence. Thank you for your cooperation. Should you have any questions about these matters, please contact this office at (775) 589-5313.

Sincerely,

Heather Gustafson  
Interim Senior Planner / Land Capability Program Manager  
Environmental Review Services  
Tahoe Regional Planning Agency

C: Brian McRae, Lumos & Assoc., PO Box 3570, Stateline, NV 89449