Boulder Bay

Community Services Department
Planning and Development
TENTATIVE SUBDIVISION MAP APPLICATION

ORIGINAL

Community Services Department
Planning and Development
1001 E. Ninth St., Bldg A
Reno, NV 89520

Telephone: 775.328.3600

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Development staff at 775.328.3600.

Project Information	**Staff Assigned Case No.:** TM16-004
Project Name: Boulder Bay Resort - Phase 1 Building A	
Project Description: Phase 1 of this project involves construction of 18 whole ownership condominiums divided into 3 separate towers constructed over a parking garage. The building will be subdivided into 18 airspace condominiums plus interior and exterior common area.	
Project Address: Nevada SR 28 - No address assigned.	
Project Area (acres or square feet): 2.8 Acres	
Project Location (with point of reference to major cross streets **AND** area locator): Crystal Bay - West of Nevada SR 28 and north of reservoir Rd.	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No(s):	Parcel Acreage:
123-071-04	2.77		

Section(s)/Township/Range: T16N - R18E - SEC 19

Indicate any previous Washoe County approvals associated with this application:
Case No.(s). 15-2410 and 15-2785

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Big Water Investments LLC		Name: Lumos & Associates Inc.	
Address: P.O. Box 6622		Address: P.O. Box 3570 - 225 Kingsbury Gr. St A	
Incline Village Nv	Zip: 89450	Stateline, NV	Zip: 89449
Phone: 775.831.2369	Fax: 775.831.2369	Phone: 775.588.6490	Fax: 775.588.6479
Email: rwittenberg@intlsupplyco.com		Email: bmcrae@LumosInc.com	
Cell: 775.560.9527	Other:	Cell: 775.230.4338	Other:
Contact Person: Roger Wittenberg		Contact Person: Brian McRae	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Brian Helm		Name:	
Address: 1401 33rd ave s		Address:	
Seattle, WA	Zip: 98144		Zip:
Phone: 775.313.6903	Fax: NA	Phone:	Fax:
Email: helmbd@gmail.com		Email:	
Cell: 775.313.6903	Other:	Cell:	Other:
Contact Person: Brian Helm		Contact Person:	

For Office Use Only

Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Tentative Subdivision Map Application
Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to tentative subdivision maps may be found in Article 608, Tentative Subdivision Maps.

1. What is the location (address or distance and direction from nearest intersection)?

The project is located at the northwest corner of Nevada SR 28 and Reservoir Rd. in Crystal Bay, NV. The property, APN: 123-071-034 is not assigned an address currently.

2. What is the subdivision name (proposed name must not duplicate the name of any existing subdivision)?

Boulder Bay Resort - Phase 1 Building A

3. Density and lot design:

a. Acreage of project site	2.77 Ac
b. Total number of lots	18 plus common area
c. Dwelling units per acre	6.5
d. Minimum and maximum area of proposed lots	2,230 SF to 2,630 +/-
e. Minimum width of proposed lots	35 ft
f. Average lot size	2,500 SF +/-

4. Utilities:

a. Sewer Service	Incline Village General Improvement District
b. Electrical Service	Nevada Enerygy
c. Telephone Service	AT&T
d. LPG or Natural Gas Service	Southwest Gas
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	Charter Cable
g. Water Service	Incline Village General Improvement District

5. For common open space subdivisions (Article 408), please answer the following:

   a. Acreage of common open space:

   2.5 Ac

   b. Development constraints within common open space (slope, wetlands, faults, springs, ridgelines):

   Topography is generally steep with slopes in excess of 20% in several areas. No wetlands, faults, springs, or ridgelines

   c. Range of lot sizes (include minimum and maximum lot size):

   2,230 SF to 2,630 +/-

   d. Average lot size:

   2,500 SF

   e. Proposed yard setbacks if different from standard:

   Airspace condominium development so individual yard setbacks do not apply. MDS zoned setbacks are 20 ft front and rear, and 8 ft for side yard setback. Mapping will indicated these setbacks for the overall project boundary.

   f. Justification for setback reduction or increase, if requested:

   No reduction requested

   g. Identify all proposed non-residential uses:

   Amenities include two patios, one with hot tub and BBQ area, interior common areas with elevators, reception area, fitness area, locker room, restrooms, mail area, and parking garage.

h. Improvements proposed for the common open space:

Pedestrian walkways, common patio areas, hot tub, fire pit/place, and BBQ picnic area.

i. Describe or show on the tentative map any public or private trail systems within common open space of the development:

After boundary line adjustment, property will be adjacent to proposed Sierra Park and trail system.

j. Describe the connectivity of the proposed trail system with existing trails or open space adjacent to or near the property:

On site pedestrian walkway will connect to Sierra Park

k. If there are ridgelines on the property, how are they protected from development?

No ridgelines on property

l. Will fencing be allowed on lot lines or restricted? If so, how?

No - the only fencing proposed will surround the hot tub and BBQ area.

m. Identify the party responsible for maintenance of the common open space:

Home owners association to be established in the future.

6. Is the project adjacent to public lands or impacted by "Presumed Public Roads" as shown on the adopted April 27, 1999 Presumed Public Roads (see Washoe County Engineering website at http://www.washoecounty.us/pubworks/engineering.htm). If so, how is access to those features provided?

Not applicable

7. Is the parcel within the Truckee Meadows Service Area?

☐ Yes	☑ No

8. Is the parcel within the Cooperative Planning Area as defined by the Regional Plan?

☑ Yes	☐ No	If yes, within what city? Crystal Bay - Incline Village

9. Will a special use permit be required for utility improvement? If so, what special use permits are required and are they submitted with the application package?

No special use permit is required for utility improvements. A special use grading permit is being submitted along with this application.

10. Has an archeological survey been reviewed and approved by SHPO on the property? If yes, what were the findings?

Yes. Archeological survey was conducted on 11/20/08 in consultation with the NV State Historic Preservation Office as part of the Boulder Bay TRPA EIS. Detail is included in Section 4.7 Cultural & Historical Resources. According to the survey, no unique archaeological features are known to be located within the project area. Therefore, there are no known impacts associated with the project. No immediate Native American concerns regarding the project area were identified. No unique paleontological resources or geologic features are located within the project area. Therefore, there are no impacts associated with any alternative. SEE EIS 4.7

11. Indicate the type and quantity of water rights the application has or proposes to have available:

a. Permit #		acre-feet per year	
b. Certificate #		acre-feet per year	
c. Surface Claim #		acre-feet per year	
d. Other #		acre-feet per year	

e. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

12. Describe the aspects of the tentative subdivision that contribute to energy conservation:

Building A will include energy conservation measures that will seek to decrease energy use by more than 50% per guest. In addition, the buildings will include high efficiency insulation, windows, appliances and building materials. NV Energy foresees no problems in serving the site (personal communication, Tim Hutton, 2009).

13. Is the subject property in an area identified by Planning and Development as potentially containing rare or endangered plants and/or animals, critical breeding habitat, migration routes or winter range? If so, please list the species and describe what mitigation measures will be taken to prevent adverse impacts to the species:

Reviewed as part of the Boulder Bay TRPA EIS. There are no known occurrences in the project area for NNPS at risk species a. Surveys for potential NNPS at-risk plant species were performed in the project area by Western Botanical Services on June 23, 2009. No sensitive plant species (including NNPS species) were observed on the project site. No active nests were detected during the 2009 nesting season. The project area is not located in any wildlife migration or travel corridors. No stream environment zones are within the project area and therefore no species that are associated with these habitats or travel corridors will be impacted. Therefore, no impact will occur to wildlife migration travel corridors.

14. If private roads are proposed, will the community be gated? If so, is a public trail system easement provided through the subdivision?

Private roads are not proposed with this phase of development. Building A will be accessed by private driveway.

15. Is the subject property located adjacent to an existing residential subdivision? If so, describe how the tentative map complies with each additional adopted policy and code requirement of Article 434, Regional Development Standards within Cooperative Planning Areas and all of Washoe County, in particular, grading within 50 and 200 feet of the adjacent developed properties under 5 acres and parcel matching criteria:

Located across SR 28 form Stillwater Cove, which is a similar condominium development. Across Wassou Rd. is Crystal Bay subdivision. This is an SFR subdivision. Proposed Tentative Map is consistent with the North Stateline Community Plan. It meets structure height limitations for 21 du/ac = 70 ft; setback limitations of 20/5/20; landscaping is provided; and screening is provided by landscaping and topography - proposed development is 50 feet lower than than closest lot in Crystal Bay Subdivision.

16. Are there any applicable policies of the adopted area plan in which the project is located that require compliance? If so, which policies and how does the project comply?

The project is located within the North Stateline Community Plan Area Casino Core. Compliance with this Plan Area was evaluated as part of the Boulder Bay TRPA EIS; Section 4.1 Land Use. The EIS determined that the uses proposed in (Project) are consistent with NSCP and Plan Area land use direction for the project area, and with Code Subsection 18.2.A

17. Are there any applicable area plan modifiers in the Development Code in which the project is located that require compliance? If so, which modifiers and how does the project comply?

None

18. Will the project be completed in one phase or is phasing planned? If so, please provide that phasing plan:

This proposed development is the first phase of a potentially larger resort project. Although this project was permitted by the TRPA as part of the overall resort project, it is distinct in ownership and should be considered its own phase. Future buildout of the resort project would as well be it's own distinct project.

19. Is the project subject to Article 424, Hillside Development? If yes, please address all requirements of the Hillside Ordinance in a separate set of attachments and maps.

☑ Yes	☐ No	If yes, include a separate set of attachments and maps.

20. Is the project subject to Article 418, Significant Hydrologic Resources? If yes, please address Special Review Considerations within Section 110.418.30 in a separate attachment.

☐ Yes	☑ No	If yes, include separate attachments.

Grading

Please complete the following additional questions if the project anticipates grading that involves: (1) Disturbed area exceeding twenty-five thousand (25,000) square feet not covered by streets, buildings and landscaping; (2) More than one thousand (1,000) cubic yards of earth to be imported and placed as fill in a special flood hazard area; (3) More than five thousand (5,000) cubic yards of earth to be imported and placed as fill; (4) More than one thousand (1,000) cubic yards to be excavated, whether or not the earth will be exported from the property; or (5) If a permanent earthen structure will be established over four and one-half (4.5) feet high:

21. How many cubic yards of material are you proposing to excavate on site?

18,000 +/-

22. How many cubic yards of material are you exporting or importing? If exporting of material is anticipated, where will the material be sent? If the disposal site is within unincorporated Washoe County, what measures will be taken for erosion control and revegetation at the site? If none, how are you balancing the work on-site?

A total of approximately 12,700 yds of soil will be excavated for the construction of the building, driveway areas, and stormwater facilities. Excavated material will be used as fill on site to backfill behind the terraced retaining wall to the west of Building A. Erosion control measures will include landscaping, terraced retaining walls for slope stabilization, revegetation, mulch groundcover, and installation of TRPA approved BMPs.

23. Can the disturbed area be seen from off-site? If yes, from which directions, and which properties or roadways? What measures will be taken to mitigate their impacts?

From SR 28, the upper portion of the building will be visible. Ground disturbance will not be visible from SR 28 except for the driveway entrance off of the highway. This entrance will be landscaped per Washoe County and TRPA standards. The majority of this property is already disturbed and scarred from earthmoving activities. The portions of the site that are visible from Wassou Rd and Reservoir Dr. include these previously disturbed and barren areas that will be improved by this development.

24. What is the slope (Horizontal:Vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

Cut areas include excavation for underground stormwater facilities, the building parking garage, and the building driveway. Except for the driveway, cut slopes are not proposed. At the driveway, cutslopes will be excavated at 3:1 and landscaped. Fill areas include backfill against the building to the west and behind the terraced retaining wall. One small area of fill at the southwest corner of the building will be graded at 3:1 and landscaped. All other fill slopes will be graded flatter than 3:1 and landscaped. Revegetation areas will receive temporary irrigation until plant establishment.

25. Are you planning any berms and, if so, how tall is the berm at its highest? How will it be stabilized and/or revegetated?

There is an existing berm on site between SR 28 and the proposed building. this berm currently has stable vegetation. Additional landscaping and small retaining wall will be added in distinct areas where disturbance for the pedestrian path is required.

26. Are retaining walls going to be required? If so, how high will the walls be, will there be multiple walls with intervening terracing, and what is the wall construction (i.e. rockery, concrete, timber, manufactured block)? How will the visual impacts be mitigated?

Small retaining walls (4' tall or shorter) are required adjacent to the pedestrian path. These retaining walls will be constructed of stamped cast in place concrete, stacked CMU, stacked rock. To the west of Building A a terraced retaining wall system consisting of 4 - 10 ft walls with 10 ft terraces will be constructed. This wall system will likely be constructed by geosynthetic reinforced earth with natural rock facing. Visual impacts will be mitigated by use of natural materials and by improving an already scarred cut slope that has deteriorating rock slope protection on it.

27. Will the grading proposed require removal of any trees? If so, what species, how many, and of what size?

The TRPA threshold diameter for identifying trees to be removed is 14" dbh. For this project, one 15" dbh pine and one 18" dbh pine will be removed. The remaining trees to be removed are less than the TRPA 14" dbh threshold.

28. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

BOTANICAL NAME COMMON NAME QUANTITY

Elymus glaucus (Stan 5000)Blue Wildrye (Stanislaus 5000 or30 PLS
high elevation collection)

Bromus carinatus (Mokelumne)Mokelumne or El Dorado Brome30 PLS
(or other high elevation collection)

29. How are you providing temporary irrigation to the disturbed area?

Yes, as needed. Landscape irrigation will be provided in all other areas.

30. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

Landscape and revegetation plans have been reviewed by the TRPA and their suggestions have been incorporated.

Tahoe Basin

Please complete the following additional questions if the project is within the Tahoe Basin:

31. Who is the Tahoe Regional Planning Agency (TRPA) project planner and what is his/her TRPA extension?

Tiffany Good, Senior Planner - TRPA Planning Department
(775) 589-5283

32. Is the project within a Community Plan (CP) area?

☑ Yes	☐ No	If yes, which CP? North Stateline Community Plan

33. State how you are addressing the goals and policies of the Community Plan for each of the following sections:

a. Land Use:

Section 4.1 Boulder Bay TRPA EIS. Specifically as it relates to Building A single family condominium residences; Condominium units may be more attractive to many families than standard studio hotel rooms because they offer kitchens, family gathering areas, and more privacy. NSCP Goal 1.1 states "create a more complete, family oriented destination resort area". This goal will be met by providing a variety of housing accommodations in the project. The multi-family residential use is consistent with the purpose of the community plan (Finding 3) and is consistent with the existing adjacent land uses. See Section 4.1 for more

b. Transportation:

Section 4.8 Boulder Bay TRPA EIS. Building A will generate less than 10 new PM peak hour trips. NSCP Standards encourage a reduction in the visual predominance of parking lots and asphalt, which is accommodated by the parking structures that will be constructed for Building A. No adverse impacts to LOS at interesections were found.

c. Conservation:

Building A will include energy conservation measures that will seek to decrease energy use by more than 50% per guest. In addition, the buildings will include high efficiency insulation, windows, appliances and building materials. NV Energy foresees no problems in serving the site (personal communication, Tim Hutton, 2009).

d. Recreation:

Project is providing in building ammenities for owners including hot tub and entertaining/outdoor cooking area. Owners Lounge, fitness area and locker room; Adjacent to the building the project proponent is building a new 4.7 acre passive public park.

e. Public Services:

Section 4-12 Boulder Bay TRPA EIS. Law Enforcement: The Washoe County Sheriff's Department does not foresee any impact to their services as a result of increased numbers of guests at the resort; Fire Supression: he Fire District stated that the Project will not adversely impact their facilities, staffing levels or response times (personal communication, NLTFPD, 2009). The existing ladder truck and other existing response vehicles are sufficient to serve the proposed structures. According to IVGID,there is sufficient capacity at the wastewater treatment facility in Incline Village to serve this Project. SEE Section 4-12 for

34. Identify where the development rights for the proposed project will come from:

13 ERU were purchased and transfered to the Boulder Bay project area from 13 different sending parcels in Eldorado County. 5 units are TAU from an SEZ sending parcel in Eldorado County. The units were converted from TAU to ERU through the TRPA Environmental Incentive program. Transfer and conversion of development rights were approved by TRPA as part of the Boulder Bay project application

35. Will this project remove or replace existing housing?

☐ Yes	☑ No	If yes, how many units?

36. How many residential allocations will the developer request from Washoe County?

18

37. Describe how the landscape plans conform to the Incline Village General Improvement District landscaping requirements:

The landscape plan will be consistent with the requirements of Chapter 36 of the TRPA Code of Ordinances, including the specification for sizing and species of plants. All proposed shrubs, perennials, and trees will be native or adaptive native plants to the Tahoe Basin as outlined in Table 1 of the TRPA Home Landscaping Guide. Therefore these plants will require very little fertilizer long term to sustain their health.

Request to Reserve New Street Name(s)

The Applicant is responsible for all sign costs.

Applicant Information

Name: Big Water Investments LLC

Address: P.O. Box 6622

Phone : _____ Fax: _____

☐ Private Citizen ☐ Agency/Organization

Street Name Requests

(No more than 14 letters or 15 if there is an "i" in the name. Attach extra sheet if necessary.)

Private driveway only - no street name req	

If final recordation has not occurred within one (1) year, it is necessary to submit a written request for extension to the coordinator prior to the expiration date of the original

Location

Project Name: _____

☐ Reno ☐ Sparks ☐ Washoe County

Parcel Numbers: _____

☐ Subdivision ☐ Parcelization ☐ Private Street

Please attach maps, petitions and supplementary information.

Approved: _____ Date: _____

Regional Street Naming Coordinator

Except where noted

Denied: _____ Date: _____

Regional Street Naming Coordinator

Washoe County Geographic Information Services

Post Office Box 11130 - 1001 E. Ninth Street

Reno, NV 89520-0027

Phone: (775) 328-2325 - Fax: (775) 328-6133

Property Owner Affidavit

Applicant Name: Roger A WiTTenberg/Boulder Bay LLC

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, Roger A WiTTenberg,
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Development.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 123-071-34, 123-071-35, 123-071-36, 123-071-37

Printed Name Roger A WiTTenberg

Signed [signature]

Address PO Box 6622

Incline Village, NV 89450

Subscribed and sworn to before me this 12th day of May, 2016.

[signature]
Notary Public in and for said county and state

(Notary Stamp)
HELEN FLORES
Notary Public
State of Nevada
Appt. No. 06-103687-3
My Appt. Expires Mar. 1, 2019

My commission expires: Mar 1, 2019

*Owner refers to the following: (Please mark appropriate box.)

- ☒ Owner
- ☐ Corporate Officer/Partner (Provide copy of recorded document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Search Results | Change of Address | Print this Page

Washoe County Parcel Information

Parcel ID	Status	Last Update
12307134	Active	5/13/2016 2:10:51 AM

Current Owner:
BIG WATER INVESTMENTS LLC

PO BOX 6622
INCLINE VILLAGE, NV 89450

SITUS:
0 STATE ROUTE 28
INCL NV

Taxing District
5200

Geo CD:

Legal Description

SubdivisionName _UNSPECIFIED Lot 1 Township 16 Range 18

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2015	$6,640.64	$6,640.64	$0.00	$0.00	$0.00
2014	$6,457.36	$6,973.95	$0.00	$0.00	$0.00
2013	$6,448.72	$8,306.22	$0.00	$0.00	$0.00
2012	$6,232.10	$8,650.54	$0.00	$0.00	$0.00
2011	$5,886.14	$6,771.07	$0.00	$0.00	$0.00
				Total	$0.00

Important Payment Information

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay Online

No payment due for this account.

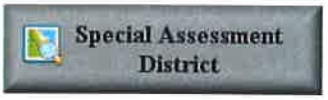
$0.00

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845



INCLINE VILLAGE
GENERAL IMPROVEMENT DISTRICT
1220 Sweetwater Road
Incline Village, NV 89451

CONDITIONAL WILL SERVE LETTER
Dedication to IVGID Required

April 8, 2008

Boulder Bay LLC
P.O. Box 307
Crystal Bay NV, 89451

RE: Boulder Bay Project – Tahoe Biltmore Redevelopment
Crystal Bay, *APNs 123-052-02, 123-052-03, 123-052-04, 123-053-02, 123-053-04 123-054-01,123-071-04, 123-071-34, 123-071-35, 123-071-36, 123-071-37*

Dear Mr. GilanFarr:

This letter serves to notify you that the subject development is within the jurisdictional boundaries of the Incline Village General Improvement District *(IVGID, or District)*, and that the District will serve the proposed project with water and sewer service and solid waste removal subject to the project's final utility plans meeting design, material, and installation requirements of the District, and subject to the assignment of water rights to IVGID in accordance with IVGID's Water Rights Dedication Procedures. In addition:

(1) Water rights associated with this property, if any, shall be assigned to the District.
(2) All requirements shall be met regarding STANDARD SPECIFICATIONS FOR IVGID's WATER, SEWER, AND PRIVATE COMMUNAL UTILITY SYSTEMS.
(3) Meters and control manholes shall be placed off the property as approved by IVGID.
(4) Cost for additional water storage or delivery capacity shall be borne by Applicant.
(5) Separately owned parcels shall not be served by the same service connection.
(6) All taxes and assessments on the parcel are current and shall remain current.

The Applicant for the subject project plans to redevelop the Tahoe Biltmore and related properties into a world-class destination resort community on 13.5 acres and will provide the following service and amenities; 217 hotel rooms and suites, 149 fractional ownership condominiums, 21 whole ownership condominiums, 34 on-site workforce housing units, 30,000 sf of dining and retail, 20,000 sf of health and wellness center, 12,500 sf of convention and meeting space, and 10,000 sf of gaming.

A Water Rights Calculation Worksheet has not been completed for this project at this time. This project will be required to assign additional water rights to the District to serve the proposed development as a condition of issuance of a Final Will Serve Letter and project approval. This is in accordance with IVGID's Water Management Plan and Policies and is contingent upon existing permitted water rights and sewer capacities, including any action brought against the District contesting such permitted rights or capacities. The parcels listed above have been previously analyzed for historical water use and APN 123-052-04 has an allotment of 40.20 acre-feet and APN 123-053-04 has an allotment on 0.19 acre-feet. The 40.39 AF will be applied to this development reducing the total amount required to be dedicated.

The Applicant agrees to hold IVGID harmless from any costs, damages, or expenses incurred by the Applicant in the event IVGID fails to be able to supply water or sewer connections, or for any delays to the Applicant's project schedule caused by IVGID's review and approval procedures. In the event additional water service demand is required by future change in service requests, additional water rights issues shall be addressed at that time.

Very truly yours,

Joseph J Pomroy, P.E.
Director of Public Works

c: *APN file*
Will Serve file
T. Buxton

LAW OFFICES OF
THOMAS J. HALL
ATTORNEY AND COUNSELOR AT LAW
305 SOUTH ARLINGTON AVENUE
POST OFFICE BOX 3948
RENO, NEVADA 89505

THOMAS J. HALL

TELEPHONE
(775) 348-7011
FAX (775) 348-7211
E-MAIL: tjhlaw@eschelon.com

January 7, 2010

Lewis S. Feldman
Feldman, Shaw & McLaughlin, LLP
182 U.S. Highway 50
Zephyr Cove, Nevada 89448

RE: Purchase of Surface Water Rights

Dear Lewis:

This will advise that our client, as Seller, holds valid surface water rights in excess of 30.0 acre-feet ("AFA"), appurtenant to Lake Tahoe, Douglas County, Nevada, which it is willing to sell to Boulder Bay, LLC, as Purchaser, under terms and conditions to be negotiated in the future and included in a Purchase Agreement.

Similar water rights have been transferred to the Incline Village General Improvement District and I see no problems in making a successful and satisfactory transfer once the Purchase Agreement has been entered into and the appropriate Application has been made to the Nevada Division of Water Resources.

If you have any questions or wish to discuss this matter further, please feel free to contact our office.

Best regards.

Sincerely,

Thomas J. Hall, Esq.

TJH:mh

LUMOS
& ASSOCIATES

May 14, 2016

Boulder Bay Building A
Tentative Map Application
Requirement #5 Mailing Labels

There are no mobile home parks with in 500 ft of this development so this requirement does not apply.

Brian McRae P.E.
Project Engineer

LUMOS
& ASSOCIATES

May 14, 2016

Washoe County Community Services Department
1001 E. 9th Street
Reno, NV 89512

RE: Boulder Bay Building A
Tentative Map Submittal
Requirement #8 - Traffic Impact Report

To whom it may concern,

This letter provides justification for not needing a Traffic Impact Report for the Boulder Bay Building A development.

A traffic impact analysis was completed for the Boulder Bay Resort as part of the environmental impact statement for the project. Review of this document reveals that less than 10 peak hour trips are generated by this portion of the development. This portion of the development is now separate from the larger development, and has its own distinct ownership. With these few trip generations, this development does not trigger the need for a Traffic Impact Report.

Thank you

Sincerely

Brian McRae P.E.
Project Engineer

Boulder Bay Building A
Tentative Map Submittal
May 16, 2016

Common Open Space Requirements

A. Location Map: Figure 1 provides a location map for the project.

B. Land Use: Zoning is established as MDS, however as adopted in the NEVADA North Stateline Community Plan, this CP replaces TRPA Plan Area Statement, 032 North Stateline, and Washoe County regulatory zones.

   The plan contains special policies. All projects implemented under the community plan will be responsible for implementation of the special policies. The plan also establishes allocations of additional development (i.e., commercial floor area, tourist accommodation units and residential bonus units). The TRPA Code of Ordinances specifies the expiration dates of all allocations of development.

C. Existing Structures: There are no existing structures on site. Site was previously developed, however, those structures were demolished over two decades ago, and the site has sat vacant. The site has a flattened area in the center of the property and large over-steepened cut slopes along the western property line. The site is mostly previously disturbed.

D. Existing Vegetaion: Trees located on site consist of Jeffery Pins and some Fir Trees. Most of the trees on site are below the TRPA diameter breast height of 14". there are no known rare or endangered plant species on site.

E. Prevailing Winds: Prevailing winds are from the southwest.

F. Topography: Refer to Exhibit 2 herein. The site consists of 2.77 acres in the Crystal Bay area that has previously been mass graded. These grading activities have modified what was once a gentle to moderately sloped parcel and changed it to a parcel that is over-steepened along the western property line and flatter slopes in the eastern three quarters of the parcel. Some smaller manmade mounds exist that are left over from these grading activities. There are no ridgelines, canyons, or ravines within the development area.

G. Soil: According to the Geologic Map of the Lake Tahoe Basin, California and Nevada, by George J. Saucito, the site is generally underlain by Cretaceous-aged granitic rocks

comprised of undivided fine to course-grained granite and granodiorite. The granitic rock is exposed in outcrops near the site. The rock is highly weathered. From the USDA Web Soil Survey, the site is composed of soil map units 7152 and 7422. 7152 is Jorge series, very cobbly fine sandy loam, 15% to 30 % slopes, rubbly. 7422 is Cassenai gravelly loamy course sand 15% to 30% slopes. The geotechnical report that was completed for the this site lists the existence of uncontrolled fill on site, but other than that, no highly compressible or potentially expansive soil conditions were encountered during subsurface exploration.

H. Natural Drainageways: There are no visible surface hydrologic conditions on site include. There are no natural drainage courses, or perennial streams.

I. Wetlands and Water Bodies: There are no floodplains, wetlands, or ponding areas.

J. Flood Hazards: There are no flood hazards on site.

K. Siesmic Hazards: A geotechnical report was conducted for the project. The referenced report indicates several potentially active faults near the project site, including the North Tahoe Fault (active, approximately 2,500' east), the west Tahoe/Dollar Point Fault (active, approximately 6.5 miles northwest), a group of unnamed faults southwest of Truckee (active and potentially active, approximately 8.2 mile west/northwest), the Dog Valley Fault (active, approximately, 15.5 mile northwest), and the Genoa Fault (active, approximately 11 miles southeast). No faults are mapped crossing or trending towards the site, therefore the potential for surface rupture is low.

   Secondary hazards such as liquefaction are considered low.

L. Avalanche Hazards: The geotechnical report conducted for this project stated that no landslides, debris flows, or rockfall hazards were observed in the site area. Due to the relative strength of the soil/rock underlying the site, the potential for slope instability is considered low.

M. Sensitive Habitat or Migration Routes: No areas on site have been classified as suitable habitat for rare or endangered wildlife species.

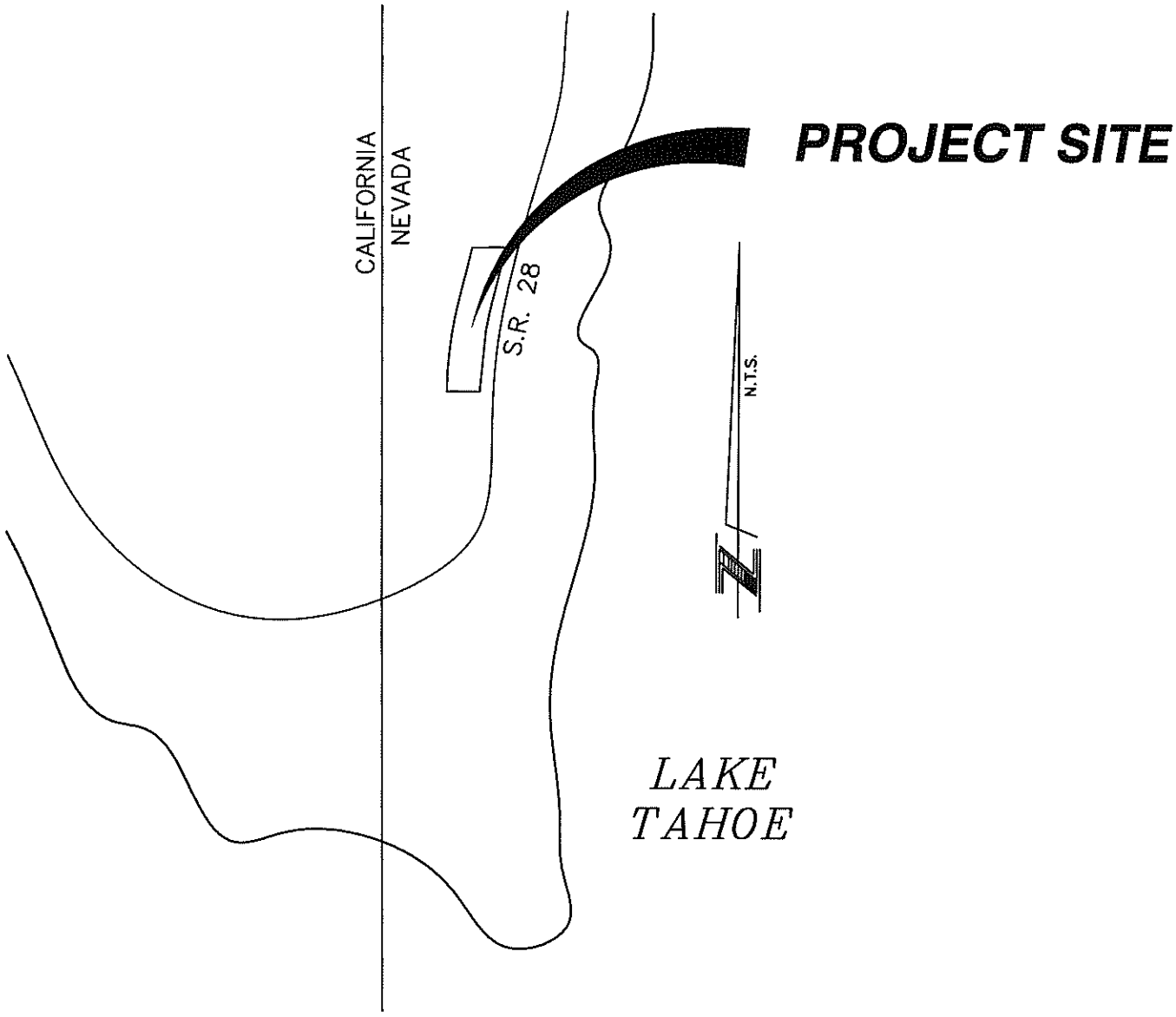
N. Significant Views: Refer to Exhibit 3 - Cross section view of the site from Wassou Rd to State Route 28. Wassou Rd and the property above is located at a higher elevation than the development. the roofline of the development is not anticipated to obstruct any views. Further, there are no developed or developable properties above this site.

O. Easements: The site currently has no easements that pose a constraint to development.

P. Utilities: Refer to utility plan. There are currently utility stubouts located on site including water, sewer, gas and electric. The development however proposes to extend an Incline Village GID waterline from Lakeview Rd. in order to receive domestic water service at a higher pressure.

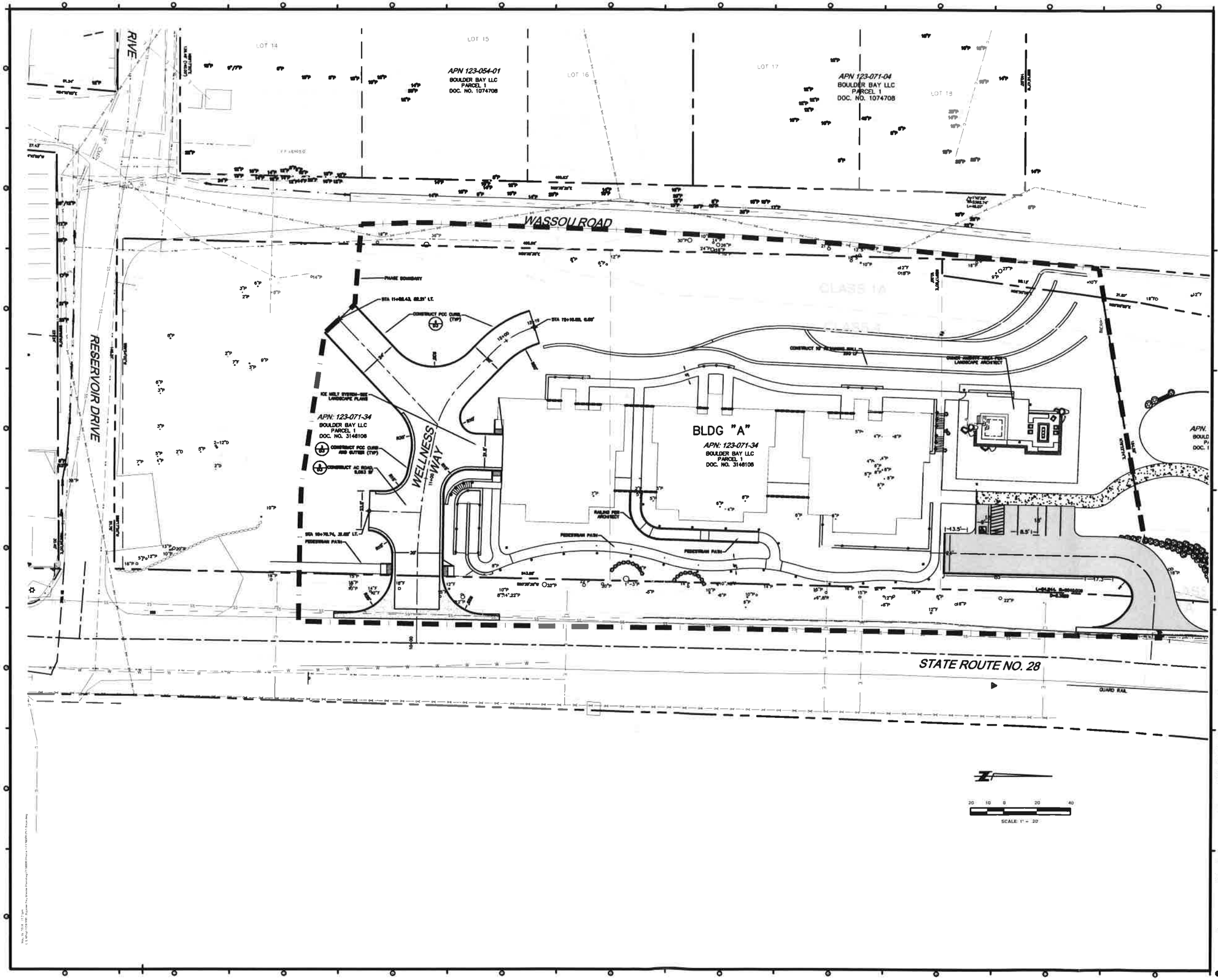
Q. Appropriate Access Points. Refer to site plan. Access for the site is proposed off State Route 28. The Developer is currently seeking an NDOT Encroachment permit for this access point. A fire department turn around area is provided. The access driveway is short enough that a secondary access point is not requirred.

R. Other Information: Additional information will be provided on request.



VICINITY MAP

BOULDER BAY BUILDING A
FIGURE 1



LUMOS

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14383

ISSUE DATE: MARCH 24 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: REVIEWED:

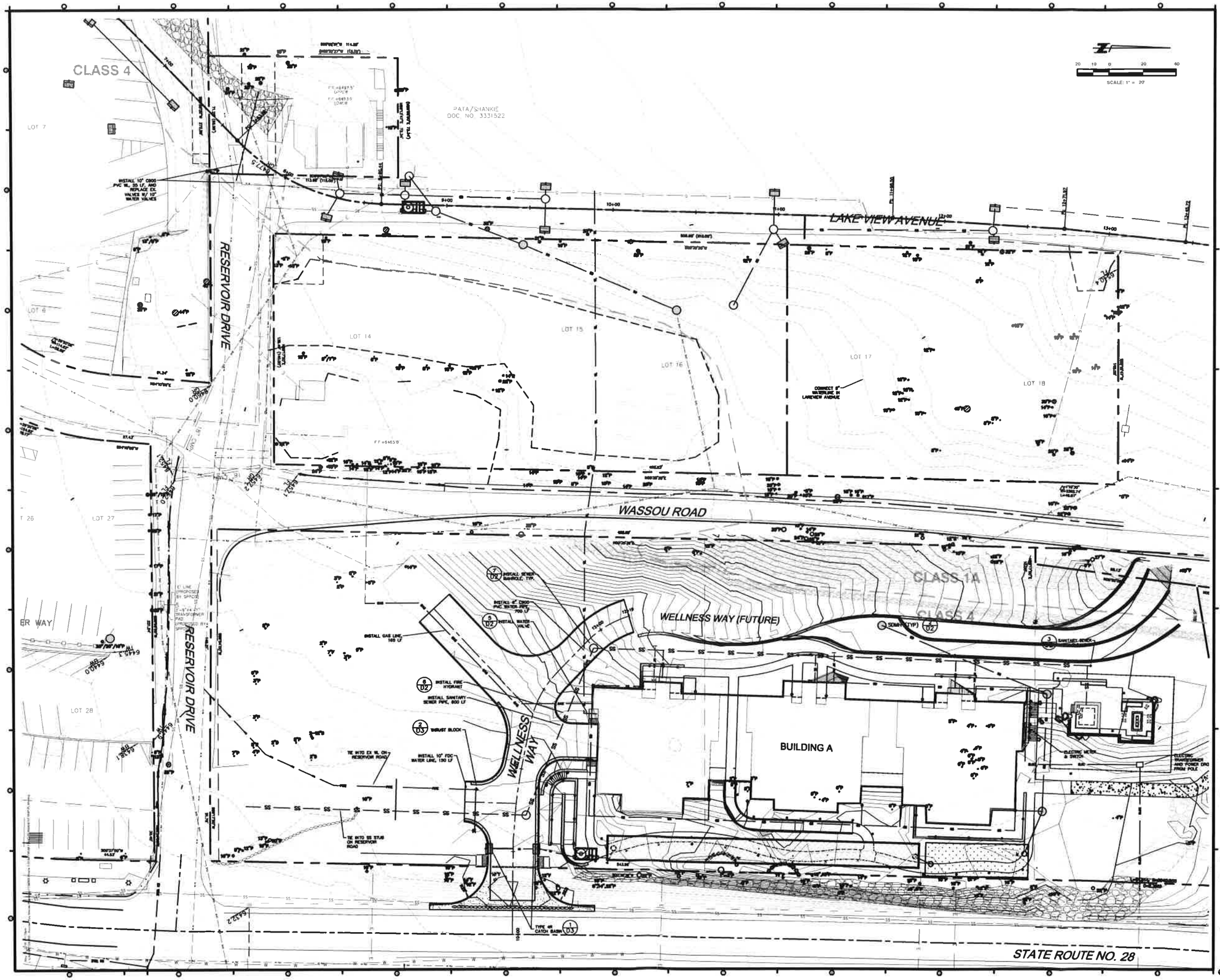
SUP
GRADING

PROJECT NUMBER: 1136.003

SITE PLAN

SHEET NUMBER

C2



LUMOS

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER – STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/11
CIVIL
No. 14393

ISSUE DATE MAY 13 2011

REVISIONS

#	DATE	DESCRIPTION

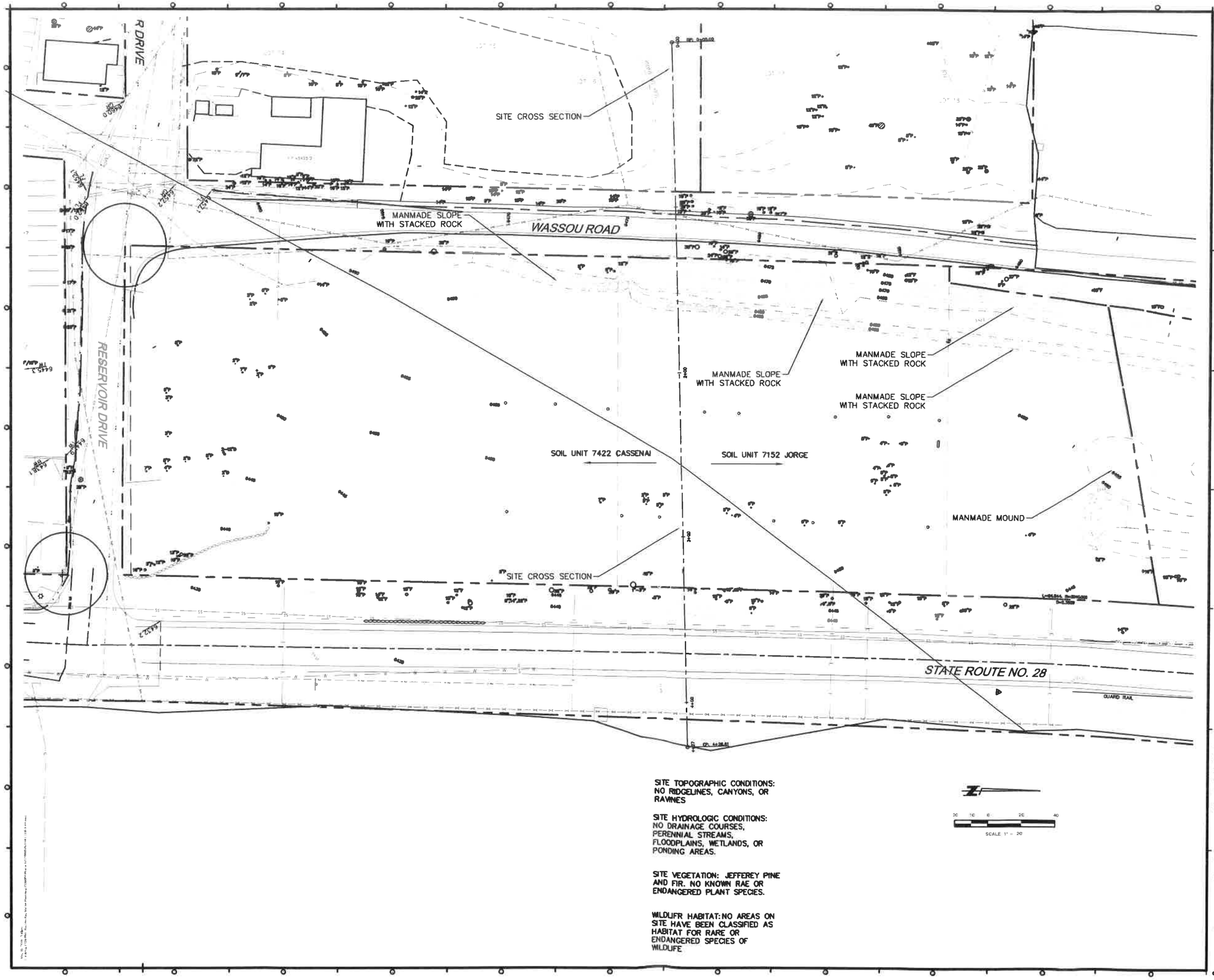
DRAWN _____ REVIEWED _____

PROJECT NUMBER 7105.02

UTILITY PLAN

SHEET NUMBER

C4



SITE TOPOGRAPHIC CONDITIONS: NO RIDGELINES, CANYONS, OR RAVINES

SITE HYDROLOGIC CONDITIONS: NO DRAINAGE COURSES, PERENNIAL STREAMS, FLOODPLAINS, WETLANDS, OR PONDING AREAS.

SITE VEGETATION: JEFFEREY PINE AND FIR. NO KNOWN RAE OR ENDANGERED PLANT SPECIES.

WILDLIFR HABITAT: NO AREAS ON SITE HAVE BEEN CLASSIFIED AS HABITAT FOR RARE OR ENDANGERED SPECIES OF WILDLIFE

SCALE 1" = 20

LUMOS & ASSOCIATES

BOULDER BAY BLDG A

Boulder Bay, LLC.

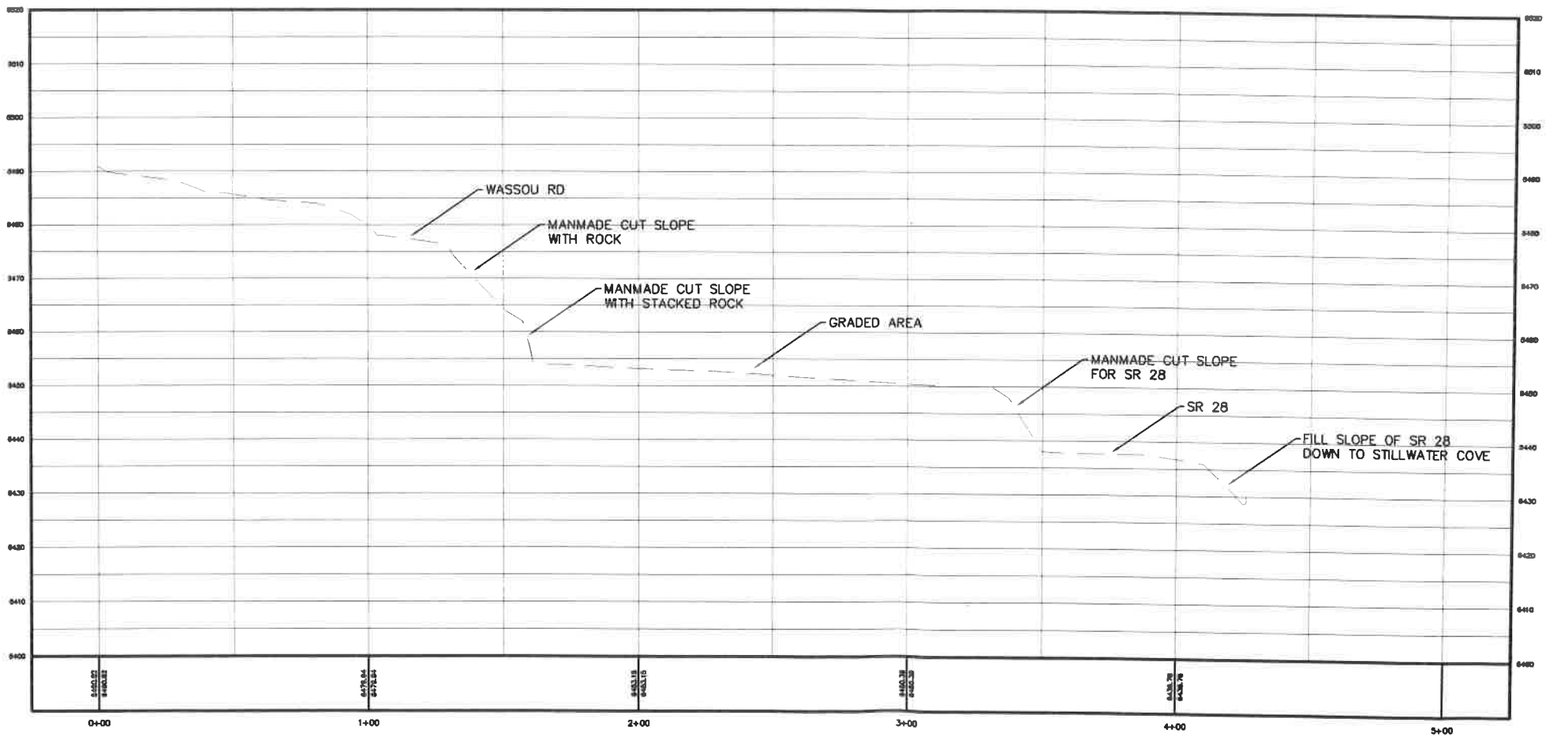
CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER - STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393

TOPOGRAPHIC CONDITIONS

EXH 2

XSCT – STA:-0+25 TO STA:5+25



CROSS SECTION OF DEVELOPMENT AREA SHOWS STEEPNESS OF MANMADE CUT SLOPES

LUMOS & ASSOCIATES

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER – STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14383

ISSUE DATE MAY 15 2017

REVISIONS

#	DATE	DESCRIPTION

DRAWN _____ REVIEWED _____

PROJECT NUMBER 7136.003

TOPOGRAPHIC CONDITIONS

SHEET NUMBER

EXH 3

Boulder Bay Building A
Tentative Map Submittal
May 16, 2016

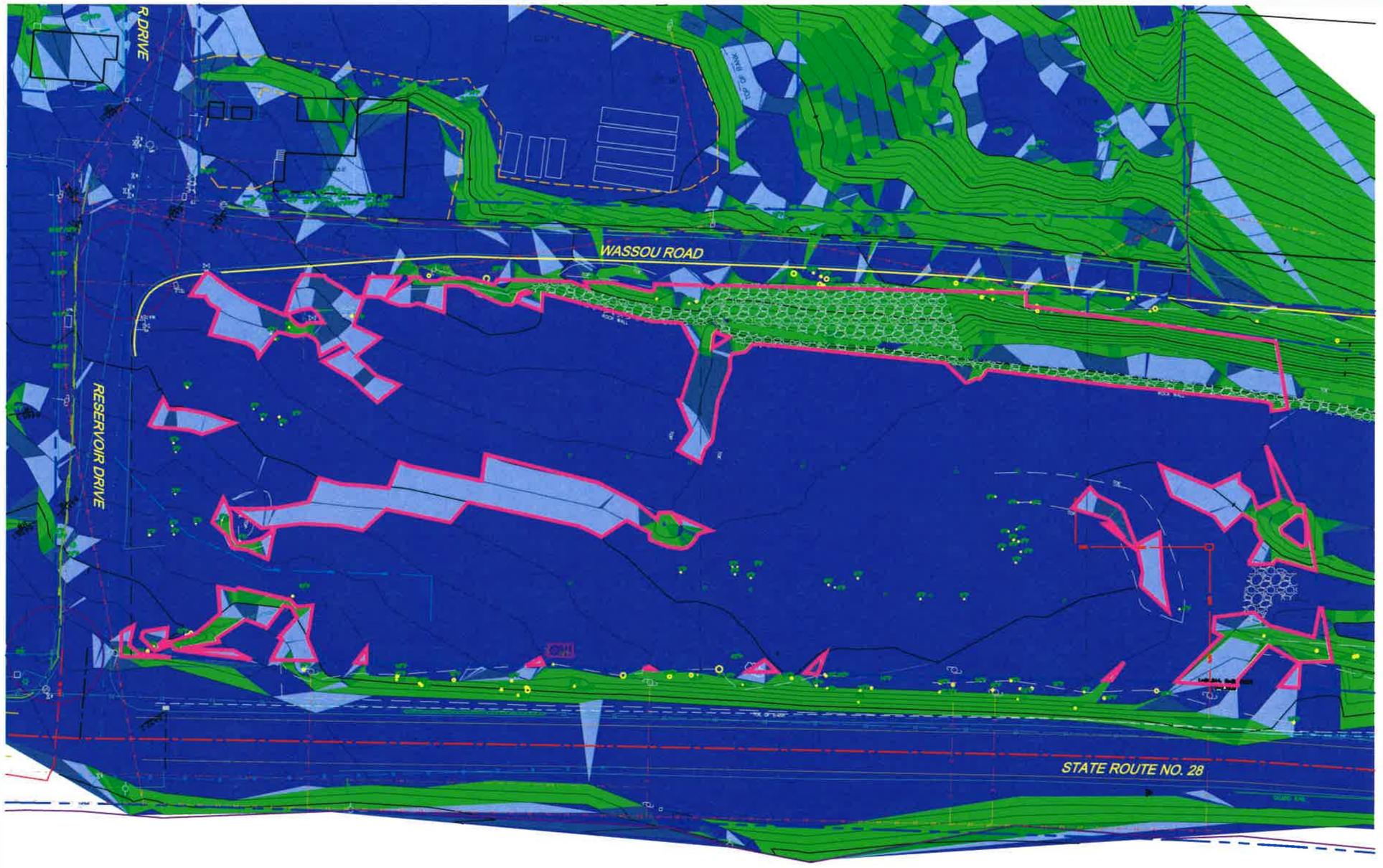
Hillside Development Requirements

The following statements and exhibits address requirements of Washoe County Development Code - Division 4 Development Standards - Section 110.424.15 Application Requirements.

A Site Analysis

1. **Major topographic conditions:** Refer to Exhibit 2 herein. The site consists of 2.77 acres in the Crystal Bay area that has previously been mass graded. These grading activities have modified what was once a gentle to moderately sloped parcel and changed it to a parcel that is over-steepened along the western property line and flatter slopes in the eastern three quarters of the parcel. Some smaller manmade mounds exist that are left over from these grading activities. There are no ridgelines, canyons, or ravines within the development area.
2. **Preliminary Geologic Conditions:** Refer to Exhibit 2 herein. The man modified, over-steepened slopes mentioned in item 1 above, do pose a concern for slope stability. Much of the area of these slopes have been protected by stacked rock/boulder retaining walls, but there is no information available to determine if these wall were engineered. Some areas of these walls are showing signs of disrepair. The proposed development seeks to stabilize these areas with terraced retaining walls. There are no other faults, rock outcroppings, or slide areas on site.
3. **Preliminary Soil Conditions:** According to the Geologic Map of the Lake Tahoe Basin, California and Nevada, by George J. Saucito, the site is generally underlain by Cretaceous-aged granitic rocks comprised of undivided fine to course-grained granite and granodiorite. The granitic rock is exposed in outcrops near the site. The rock is highly weathered. From the USDA Web Soil Survey, the site is composed of soil map units 7152 and 7422. 7152 is Jorge series, very cobbly fine sandy loam, 15% to 30 % slopes, rubbly. 7422 is Cassenai gravelly loamy course sand 15% to 30% slopes. The geotechnical report that was completed for the this site lists the existence of uncontrolled fill on site, but other than that, no highly compressible or potentially expansive soil conditions were encountered during subsurface exploaration.
4. **Significant Surface Hydrologic Conditions:** There are no visible surface hydrologic conditions on site include. There are no natural drainage courses, perrenial streams, floodplains, wetlands, or ponding areas.

5. **Vegetation:** Refer to Exhibit 2. Trees located on site consist of Jeffery Pins and some Fir Trees. Most of the trees on site are below the TRPA diameter breast height of 14". there are no known rare or endangered plant species on site.
6. **Habitat:** No areas on site have been classified as suitable habitat for rare or endangered wildlife species.
7. **Viewshed Analysis:** Refer to Exhibit 3 - Cross section view of the site from Wassou Rd to State Route 28. Wassou Rd and the property above is located at a higher elevation than the development. the roofline of the development is not anticipated to obstruct any views. Further, there are no developed or developable properties above this site.
8. **Development Response to the Hillside:** This development will be located on area disturbed by previous grading activities. It will not further disturb hillside areas. In the area of the site that was over-steepened by previous grading activities, these slopes will be stabilized by a retaining wall system.
9. **Slope Analysis:** Refer to Exhibit 1, Slope analysis. 22% of area on site contains slopes steeper than 15%. Because this site had previous grading activities occur, it is impossible to determine what the naturally occurring slopes on site were.



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	15.00%	332620.37	
2	15.00%	20.00%	49696.33	
3	20.00%	25.00%	26611.10	
4	25.00%	30.00%	19466.78	
5	30.00%	275561.83%	141429.75	

HILLSIDE AREA CALCULATIONS

PARCEL AREA = 120,661 SF
AREA > 15% = 26,667 SF
PERCENT > 15% = 22%

20 10 0 20 40
SCALE: 1" = 20'

LUMOS & ASSOCIATES
275 Kingsbury Grade, Suite A
P.O. Box 3573
Stateline, NV 89449
Tel. (775) 588-5600
Fax (775) 588-5473
www.lumosassociates.com

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/12
CIVIL
No. 14363

ISSUE DATE MAY 13, 2014

REVISIONS

#	DATE	DESCRIPTION

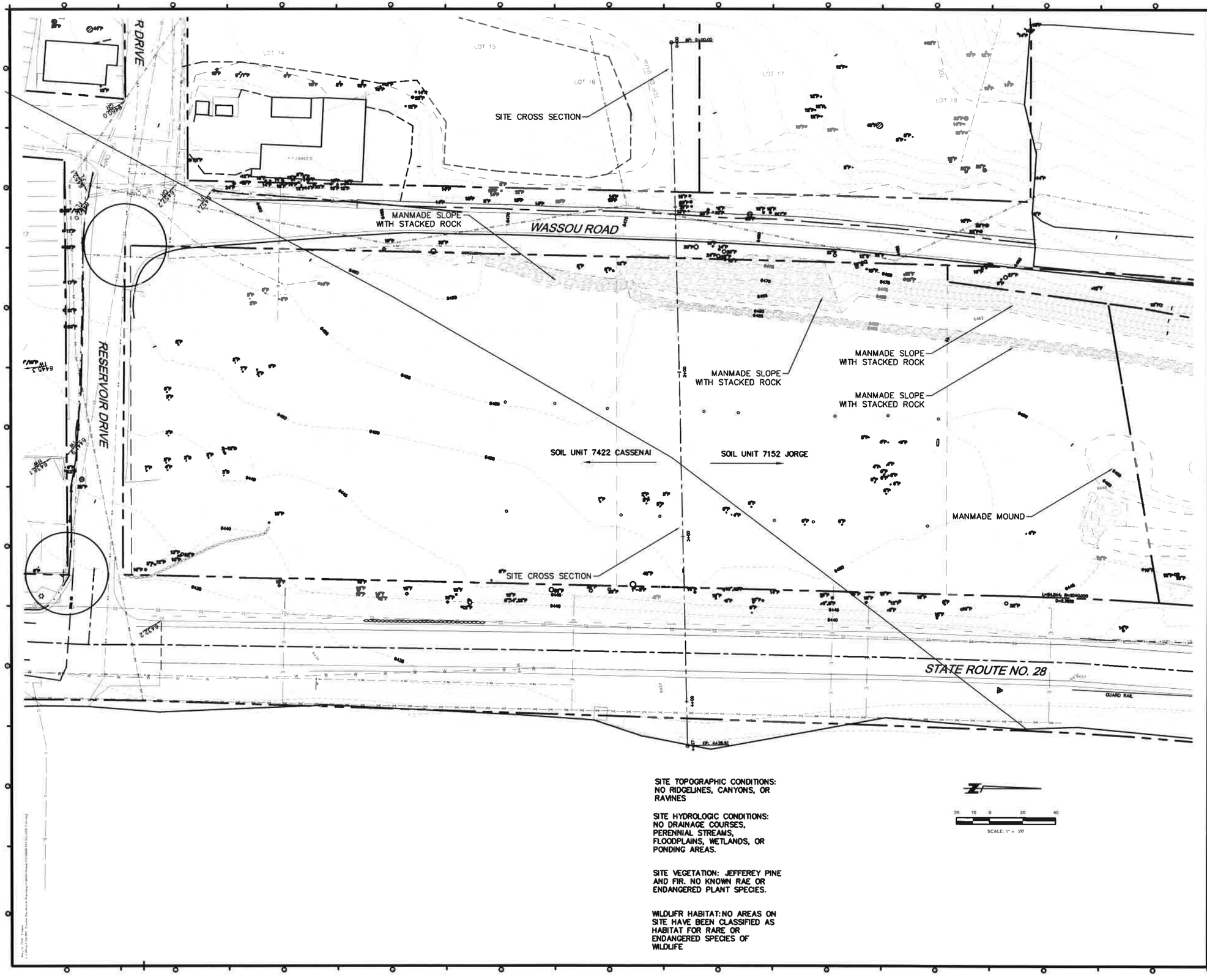
DRAWN: REVIEWED:

PROJECT NUMBER 7136.09

HILLSIDE EXHIBIT

SHEET NUMBER

EXH 1



SITE TOPOGRAPHIC CONDITIONS: NO RIDGELINES, CANYONS, OR RAVINES

SITE HYDROLOGIC CONDITIONS: NO DRAINAGE COURSES, PERENNIAL STREAMS, FLOODPLAINS, WETLANDS, OR PONDING AREAS.

SITE VEGETATION: JEFFEREY PINE AND FIR. NO KNOWN RAE OR ENDANGERED PLANT SPECIES.

WILDLIFR HABITAT: NO AREAS ON SITE HAVE BEEN CLASSIFIED AS HABITAT FOR RARE OR ENDANGERED SPECIES OF WILDLIFE

LUMOS & ASSOCIATES

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER - STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393

ISSUE DATE: MAY 12, 2015

REVISIONS

#	DATE	DESCRIPTION

DRAWN _____ REVIEWED _____

PROJECT NUMBER: 7139.03

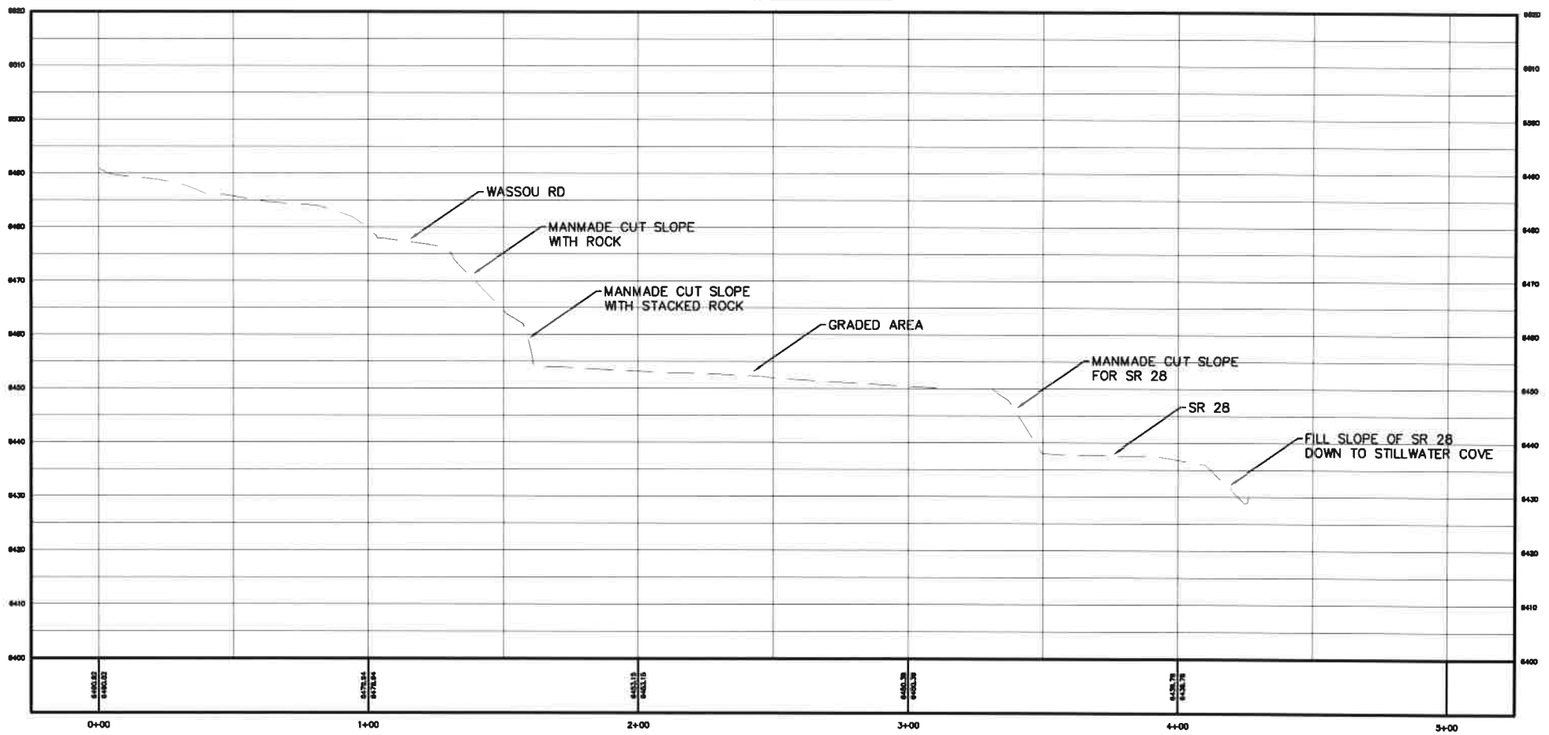
TOPOGRAPHIC CONDITIONS

SHEET NUMBER

EXH 2

LUMOS & ASSOCIATES
225 KING SBURY GRADE SUITE A
P O BOX 3670
STATELINE NV 89449
TEL (775) 588-9880
FAX (775) 588-9479
WWW.LUMOSASSOCIATES.COM

XSCT – STA:-0+25 TO STA:5+25



20 10 0 20 40
SCALE: 1" = 20'

CROSS SECTION OF DEVELOPMENT AREA SHOWS STEEPNESS OF MANMADE CUT SLOPES

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER – STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14993

ISSUE DATE MAY 13, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN _____ REVIEWED _____

PROJECT NUMBER 7178.003

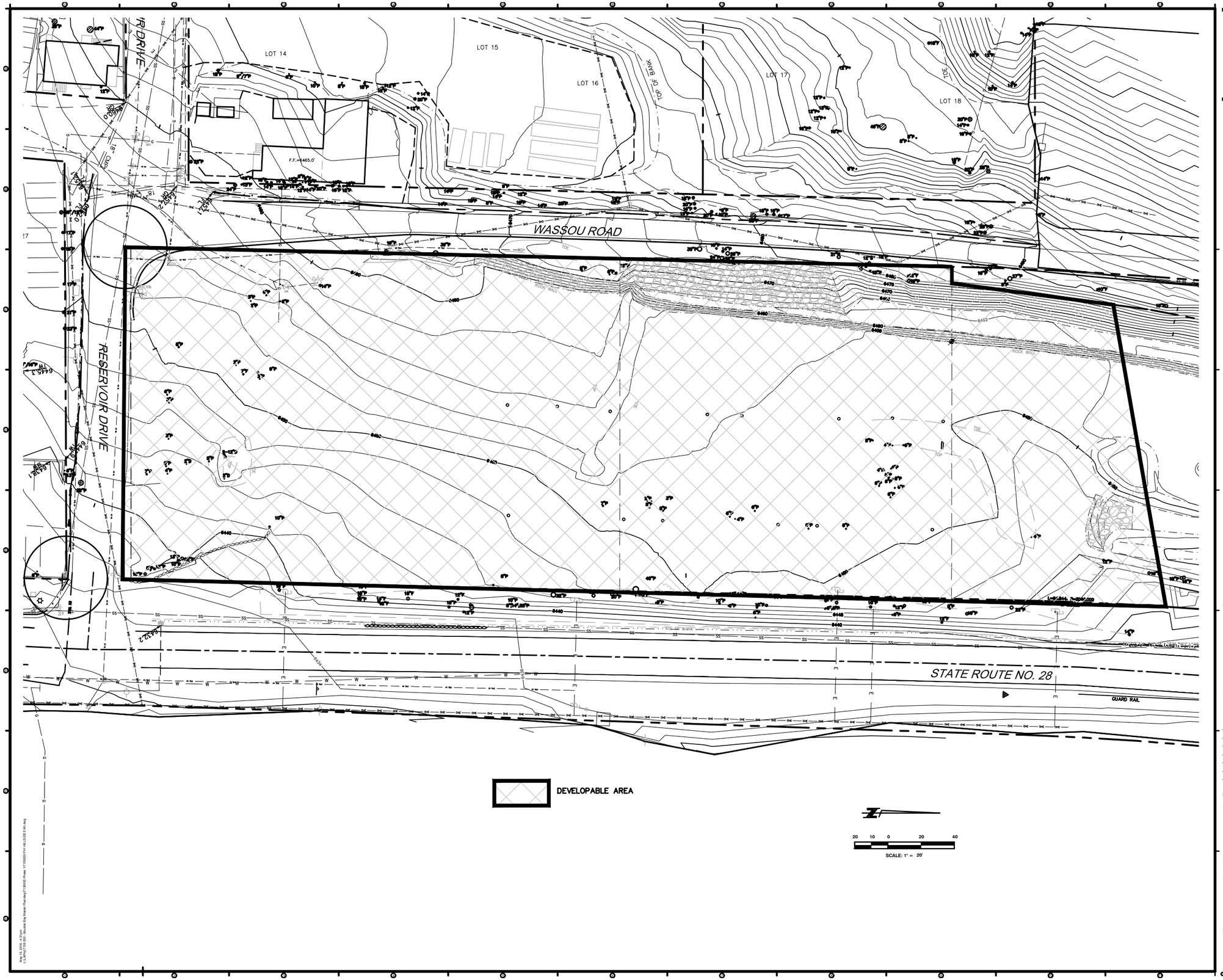
TOPOGRAPHIC CONDITIONS

SHEET NUMBER

EXH 3

B Developable Area Map

Exhibit 4 shows the developable area for the site. Pursuant to Section 110.424.20(b) developable area shall not include areas with slopes greater than 30%, areas of landslide potential, areas with underlying faults, habitat areas for endangered species, or significant ravines or drainageways. With the exception of slope areas exceeding 30%, which are manmade, none of these conditions exist on site. Because the oversteepened slopes are manmade, these are considered developable in order to stabilize their condition and provide future access. For these reasons, the entire parcel is considered developable.



LUMOS & ASSOCIATES
225 KINGSBURY GRADE, SUITE A
P.O. BOX 3570
STATELINE, NV 89449
TEL (775) 588-6490
FAX (775) 588-6479
WWW.LUMOSENGINEERING.COM

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393
STATE OF NEVADA

ISSUE DATE: MAY 13, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: _____ REVIEWED: _____

PROJECT NUMBER: 7139.003

DEVELOPABLE AREA

SHEET NUMBER

EXH 4

May 13, 2016 - 4:31pm
L:\Active Projects\Boulder Bay Master Plan\dwg\7139000\Phase II\7139000PH II-ALLSITE EXH.dwg

C Constraint and Mitigation Analysis

Because the Developable Area Map does not limit the developable area, there are no constraints to mitigate. That said, the proposed building placement is within the flatter, previously graded area on site and the setback for the building is set per TRPA requirements for visual impact and it exceeds Washoe County Standards.

D Washoe County Master Plan Amendment

The project does not require a Washoe County Master Plan Amendment:

Zoning is established as MDS, however as adopted in the NEVADA North Stateline Community Plan, this CP replaces TRPA Plan Area Statement, 032 North Stateline, and Washoe County regulatory zones.

The plan contains special policies. All projects implemented under the community plan will be responsible for implementation of the special policies. The plan also establishes allocations of additional development (i.e., commercial floor area, tourist accommodation units and residential bonus units). The TRPA Code of Ordinances specifies the expiration dates of all allocations of development.

E Detailed Contour Analysis:

Contours for this project are set at 1 foot intervals with 5 foot major contours.

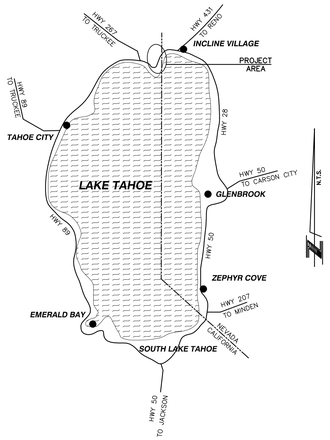
2 working days Call before you Dig.
1-800-227-2600
AVOID CUTTING UNDERGROUND UTILITIES

BOULDER BAY

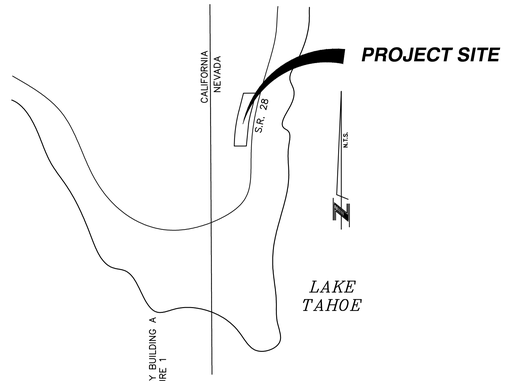
PHASE 1 - BUILDING A

SPECIAL USE PERMIT FOR GRADING

APN: 123-071-34
MAY 2016



LOCATION MAP



VICINITY MAP

CIVIL ENGINEER:

LUMOS & ASSOCIATES

225 KINGSBURY GRADE, SUITE A
P.O. BOX 3570
STATELINE, NEVADA 89449
PH: (775) 588-6490
FAX: (775) 588-6479

ENGINEER'S STATEMENT

THESE PLANS WERE DEVELOPED IN CONFORMANCE WITH WASHOE COUNTY DEVELOPMENT CODE. THEY COMPLY WITH ALL APPLICABLE PROVISIONS OF SAID CODE.

APPLICANT:

BIG WATER INVESTMENTS
P.O. BOX 6622
INCLINE VILLAGE, NV 89451
PH.: (775) 832-4900

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS PROJECT IS THE CALIFORNIA – NEVADA STATE LINE FROM MILEPOST 186 TO MILEPOST 191, TAKEN AS NORTH 00°58'13" WEST.

BASIS OF ELEVATIONS

NAVD 88
PROJECT BENCHMARK = NEVADA DEPARTMENT OF TRANSPORTATION MONUMENT 925001 A, HAVING AN ELEVATION OF 6393.89'.

APPROVED BY:

_____
WASHOE COUNTY *DATE*

_____
TAHOE REGIONAL PLANNING AGENCY *DATE*

SHEET INDEX

May 18, 2016 - 1:41am
L:\LAProj\7139.000 - Boulder Bay Master Plan\Dwg\7139000 Phase 1\7139000 Ph1 Base.dwg

LUMOS & ASSOCIATES
225 KINGSBURY GRADE, SUITE A
P.O. BOX 3570
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TEL (775) 588-6490
FAX (775) 588-6479
WWW.LUMOSENGINEERING.COM

BOULDER BAY BLDG A
Boulder Bay, LLC.
CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER – STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393

ISSUE DATE: MARCH 24, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: _____ REVIEWED: _____

TENTATIVE MAP

PROJECT NUMBER: 7139.003

TITLE SHEET

SHEET NUMBER
C0

ABBREVIATIONS

AC	ASPHALT CONCRETE
ACP	ASBESTOS CEMENT PIPE
AGG	AGGREGATE
BC	BEGIN CURVE (HORIZONTAL)
BOW	BACK OF WALK
BF, BOF	BOTTOM OF FOOTING
BV	BUTTERFLY VALVE
BVC	BEGIN VERTICAL CURVE
BW	BOTH WAYS
CB	CATCH BASIN
cfs	CUBIC FEET PER SECOND
C&G	CURB AND GUTTER
℄	CENTER LINE
CL	CLASS
CMP	CORRUGATED METAL PIPE
COMP	COMPACTION
CONC	CONCRETE
CONTR	CONTRACTOR
CP	CONCRETE PAD
CTV	CABLE TELEVISION
DI	DROP INLET
DIA	DIAMETER
DWY	DRIVEWAY
E	EAST
EA	EACH
EC	END CURVE (HORIZONTAL)
ELL	ELBOW
ELEC	ELECTRICAL
ELEV	ELEVATION
EVC	END VERTICAL CURVE
EX, (E)	EXISTING
EXT	EXTERIOR
FCA	FLANGE COUPLING ADAPTER
FE	FINISH ELEVATION
FES	FLARED END SECTION
FF	FINISH FLOOR
FFC	FRONT FACE OF CURB
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FLG	FLANGE
fps	FEET PER SECOND
FTG	FOOTING
G	GAS
GALV	GALVANIZED
GB	GRADE BREAK
GDW	GRAVEL DRIVEWAY
GD	GROUND
GV	GATE VALVE
H	HANDICAPPED
HGL	HYDRAULIC GRADE LINE
HORIZ	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INT	INTERSECTION
IRR	IRRIGATION
LAT	LATERAL
LF	LINEAR FEET
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MDD	MAXIMUM DRY DENSITY
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MMD	MAXIMUM MARSHALL DENSITY
MUTCD	MANUAL FOR TRAFFIC CONTROL DEVICES
N	NORTH
NAP	NOT A PART
NIP	NOT IN PROJECT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
(P)	PROPOSED
PCC	PORTLAND CEMENT CONCRETE
PG	PAD GRADE
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION VERTICAL CURVE
PL	PROPERTY LINE
POCC	POINT OF COMPOUND CURVATURE
POT	POINT OF TANGENCY
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRVC	POINT OF REVERSE CURVE VERTICAL CURVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
Q 5	5 YEAR PEAK FLOW
Q 100	100 YEAR PEAK FLOW
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REF	REFERENCE
RET	CURB RETURN
RP	RADIUS POINT
RT	RIGHT
R/W, ROW	RIGHT-OF-WAY
S=	SLOPE
S	SOUTH
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SL	STREET LIGHT
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEAN OUT
SSMH	SANITARY SEWER MANHOLE
SSPWC	STANDARD SPEC. FOR PUBLIC WORKS CONSTRUCTION
STA	STATION
SW	SIDEWALK
TELE	TELEPHONE
TBO	TEMPORARY BLOW OFF VALVE
TC	TOP OF CURB
TG	TO GRADE
TOB	TOP OF BERM
TF, TOF	TOP OF FOOTING
TW, TOW	TOP OF WALL
TS	TRAFFIC SIGNAL
TSCB	TRAFFIC CONTROL SIGNAL BOX
TR	TOP OF RAIL
TRANS	TRANSITION
UG/P	UNDER GROUND POWER
UNO	UNLESS NOTED OTHERWISE
Vs	VELOCITY AT 5 YEAR PEAK
VC	VERTICAL CURVE
VEL	VELOCITY
VERT	VERTICAL
VG	VALLEY GUTTER
W	WEST
W/G	WATER AND GAS
WL	WATER LINE
WM	WATER METER
WS	WATER SURFACE
WV	WATER VALVE
WWF	WELDED WIRE FABRIC

GENERAL NOTES:

1. ALL STORM DRAIN AND ASSOCIATED IMPROVEMENTS SHALL BE ACCOMPLISHED UNDER THE APPROVAL, INSPECTION, AND TO THE SATISFACTION OF WASHOE COUNTY. IMPROVEMENT CONSTRUCTION SHALL COMPLY WITH THESE PLANS AND THE LATEST EDITION OF NDOT STANDARD PLANS. ALL REFERENCE TO THE "STANDARD SPECIFICATIONS" SHALL MEAN THE STATE OF NEVADA, DEPARTMENT OF TRANSPORTATION (NDOT) STANDARD SPECIFICATIONS, LATEST EDITION. CONSTRUCTION NOT SPECIFIED ON THESE PLANS SHALL CONFORM TO SECTIONS OF THE STANDARD SPECIFICATIONS NOT DISCUSSED IN THE GENERAL NOTES. THE CONTRACT SPECIAL PROVISIONS SHALL SUPERSEDE THOSE OF THE STANDARD SPECIFICATIONS WHERE DISCREPANCIES EXIST.
2. CONSTRUCTION HOURS SHALL BE WEEKDAYS BETWEEN 8:00AM AND 6:30 PM UNLESS PRIOR APPROVAL IS RECEIVED BY THE OWNER.
3. THE CONTRACTOR ACKNOWLEDGES THAT HE/SHE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, PARTICULARLY THESE BEARING UPON AVAILABILITY OF TRANSPORTATION, DISPOSAL, HANDLING, AND STORAGE OF MATERIALS, AVAILABILITY OF LABOR, WATER, ELECTRIC POWER, ROADS, AND UNCERTAINTIES OF WEATHER, CREEK STAGES, OR SIMILAR PHYSICAL CONDITIONS AT THE SITE, THE CONFORMATION AND CONDITIONS OF THE GROUND, THE CHARACTER OF EQUIPMENT AND FACILITIES NEEDED, PRIMARILY TO AND DURING THE PROSECUTION OF THE WORK OR THE COST THEREOF AS SHOWN ON THESE DRAWINGS.
4. EXISTING UTILITIES ARE INDICATED ON THE PLANS WHERE SUCH UTILITIES ARE KNOWN. THE LOCATION AND EXTENT OF SUCH UTILITIES ARE APPROXIMATIONS ONLY. NO GUARANTEE IS MADE AS TO THE ACCURACY OF SUCH INFORMATION, AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, PROTECT, AND MAINTAIN ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THE PLAN. CONTRACTOR SHALL NOTIFY, 48 HOURS PRIOR TO AND EXCAVATION WORK, THE FOLLOWING UNDERGROUND UTILITY SERVICE: UNDERGROUND SERVICES ASSOCIATION 1-800-642-2444.
5. AT NO TIME SHALL THE CONTRACTOR UNDERTAKE TO CLOSE OFF ANY UTILITY OR OPEN VALVES OR TAKE ANY OTHER ACTION WHICH WOULD AFFECT THE OPERATION OF THE EXISTING SYSTEM EXCEPT AS SPECIFICALLY REQUIRED BY THE PLANS, AND AFTER APPROVAL IS GRANTED BY THE RESPECTIVE UTILITY COMPANY. FORTY EIGHT HOURS ADVANCED APPROVAL BY THE UTILITY IS REQUIRED PRIOR TO INTERRUPTION OF THE EXISTING SYSTEM. THE INTERRUPTION OF SERVICE TO ALL ACTIVE WATER SERVICES, INCLUDING FIRE HYDRANTS, SHALL BE KEPT TO A MINIMUM TIME PERIOD. IF SERVICE TO BUILDINGS IS TO BE OFF FOR MORE THAN FOUR (4) HOURS, THE CONTRACTOR MUST ADVISE NTPUD OR IVGID ACCORDINGLY.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL THE EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION.
7. ELEVATIONS NOTED ON PLANS FOR PIPE INVERTS, TOP OF GRATES OR RIMS, CUTS, ETC. ARE BASED UPON THE TOPOGRAPHIC INFORMATION SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY ALL NECESSARY SURFACE ELEVATIONS AND NOTIFY THE OWNER AND ENGINEER BEFORE BREAKING GROUND, AND PRIOR TO INSTALLATION OF ANY FACILITIES. THE ENGINEER SHALL BE CONTACTED IN THE EVENT THE ELEVATIONS ARE INCORRECT SO THAT PROPER ADJUSTMENTS CAN BE MADE PRIOR TO INSTALLATION OF FACILITIES.
8. THE CONTRACTOR SHALL PROVIDE, PLACE, AND MAINTAIN ALL LIGHTS, SIGNS, BARRICADES, FLAG PERSONS, PILOT CAR, OR OTHER DEVICES NECESSARY TO CONTROL TRAFFIC THROUGH THE CONSTRUCTION AREA FOR PUBLIC SAFETY IN ACCORDANCE WITH CHAPTER 5 OF THE STATE TRAFFIC MANUAL, "MANUAL OF TRAFFIC CONTROLS." AT NO TIME WILL OBSTRUCTIONS BE LEFT IN THE ROADWAY DURING NIGHT HOURS.
9. THE CONTRACTOR AGREES TO ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. CONTRACTOR FURTHER AGREES THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS IN ACCORDANCE WITH THE PROVISIONS OUTLINED BY THE PROJECT CONTROL AND THE STANDARD SPECIFICATIONS.
10. THE CONTRACTOR SHALL USE ONLY DESIGNATED SPECIFIC SITES FOR STORAGE OF EQUIPMENT AND MATERIALS AND OBTAIN APPROVAL FROM THE RESPECTIVE JURISDICTION, PLACER COUNTY, WASHOE COUNTY, IVGID, NTPUD, AND/OR TRPA. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF ALL EQUIPMENT AND MATERIALS.
11. AT ALL TIMES DURING CONSTRUCTION, ADEQUATE TEMPORARY EROSION CONTROLS SHALL BE IN PLACE AS SHOWN ON THE PLANS. THE EROSION CONTROL SHALL BE IN ACCORDANCE WITH THE TRPA "HANDBOOK OF BEST MANAGEMENT PRACTICES." THE CONTRACTOR SHALL CONTACT TRPA AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK FOR A PRE-GRADING INSPECTION OF THE INSTALLED TEMPORARY EROSION CONTROL AND BMPS.
12. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM PREVENTATIVE DUST CONTROL MEASURES TO ENSURE THAT DUST RESULTING FROM THE CONTRACTORS PERFORMANCE OF THE CONSTRUCTION IS CONTROLLED IN CONFORMANCE WITH THE PROVISIONS OF SECTION 7, "LEGAL RELATIONS AND RESPONSIBILITY," OF THE STANDARD SPECIFICATIONS AND ORDINANCES. A DUST CONTROL PERMIT MAY BE REQUIRED BY THE RESPECTIVE JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROCURE SAID DUST CONTROL PERMIT.
13. ALL AREAS DISTURBED AS A RESULT OF THE WORK SHALL BE REVEGETATED IN ACCORDANCE WITH THE TRPA "HANDBOOK OF BEST MANAGEMENT PRACTICES."
14. THERE SHALL BE NO GRADING OR LAND DISTURBANCE PERFORMED WITH RESPECT TO THE PROJECT BETWEEN OCTOBER 15 AND MAY 1 UNLESS PROPER APPROVALS ARE OBTAINED FROM TRPA, AS PROVIDED IN THE LIMITED EXCEPTION DESCRIBED IN SUBSECTION 4.2.A OF THE TRPA CODE OF ORDINANCE.
15. TEMPORARY CONSTRUCTION FENCING SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT IN AREAS DELINEATED ON THE PLANS. THE TEMPORARY FENCING WILL BE REQUIRED TO PREVENT CHILDREN AND PETS FROM ENTERING THE CONSTRUCTION AREA, TO CREATE A VISUAL BARRIER OF THE CONSTRUCTION ACTIVITIES FROM THE ADJACENT RESIDENCE AND YARDS, AND TO PROTECT VEGETATION FROM CONSTRUCTION EQUIPMENT. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE FENCING CONFORMING TO THESE REQUIREMENTS, OR AS DIRECTED BY THE ENGINEER.
16. ALL EXCAVATED MATERIAL SHALL BE STOCKPILED ON AN APPROVED SITE, AND APPROVED MATERIAL MAY BE RETURNED FOR USE AS BACKFILL OR FILL.
17. THE CONTRACTOR SHALL PROCURE AT HIS OR HER OWN EXPENSE ALL THE PERMITS, LICENSES, INSURANCE POLICIES, ETC. NOT ALREADY OBTAINED BY THE CITY AS MAY BE NECESSARY TO COMPLY WITH FEDERAL AND STATE LAWS ASSOCIATED WITH THE PERFORMANCE OF THE WORK.
18. ALL WORK TO IVGID UTILITIES SHALL CONFORM TO IVGID REQUIREMENTS AND SPECIFICATIONS. ALL WORK TO BE COMPLETED UNDER IVGID SUPERVISION. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF WORK AND SCHEDULE WITH IVGID AND SHALL PROVIDE A MINIMUM OF SEVEN (7) DAYS NOTICE PRIOR TO START OF WORK.
19. AS PART OF THIS WORK, THE CONTRACTOR IS TO VERY CAREFULLY PROTECT ALL EXISTING IMPROVEMENTS, VEGETATION, TREES AND OTHER FACILITIES WHICH ARE WITHIN THE PROJECT AREA BUT OUTSIDE THE SCOPE OF THIS PROJECT. WHERE THE REMOVAL OF ANY SUCH FEATURES ARE IN QUESTION, THE CONTRACTOR SHALL PROTECT THAT AREA UNTIL A DECISION CAN BE MADE BY THE ENGINEER. WHERE THE POSSIBILITY OF DAMAGE TO ANY TREE OR VEGETATION THAT IS DESIGNATED TO REMAIN ON SITE EXISTS, THE CONTRACTOR SHALL ERECT A TEMPORARY FENCE OR BARRIER TO PROTECT THE TREE OR VEGETATION (SEE DETAILS). IF ANY TREES ARE SCARRED DURING CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INVESTIGATION TO DETERMINE EXTENT OF DAMAGE AND RECOMMENDED REMEDIAL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMEDIAL MEASURES.
20. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE REVEGETATED BY THE CONTRACTOR.
21. SOIL AND CONSTRUCTION MATERIAL SHALL NOT BE TRACKED OFF THE CONSTRUCTION SITE. GRADING OPERATIONS SHALL CEASE IN THE EVENT THAT A DANGER OF VIOLATING THIS CONDITION EXISTS. THE SITE SHALL BE CLEANED UP AND ROAD RIGHT-OF-WAY SWEPT CLEAN WHEN NECESSARY. THE PROJECT SHALL BE TREATED AS NECESSARY TO PREVENT OFF-SITE MIGRATION AND ACCUMULATION OF DIRT, SOIL OR OTHER MATERIALS WHICH CAN SUBSEQUENTLY BE ENTRAINED IN AMBIENT AIR. CONTRACTOR SHALL PROVIDE PERIODIC WATERING TO CONTROL AIRBORNE PARTICLES. TRACKING CONTROL MEASURES SHALL BE IN PLACE AT ALL TIMES AT ALL LOCATIONS OF GRADING.
22. DURING CONSTRUCTION, ENVIRONMENTAL PROTECTION DEVICES SUCH AS ADEQUATE EROSION CONTROL DEVICES, DUST CONTROL AND VEGETATION PROTECTION BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR.
23. REHABILITATION AND CLEANUP OF THE SITE FOLLOWING CONSTRUCTION MUST INCLUDE REMOVAL OF ALL CONSTRUCTION WASTE AND DEBRIS.
24. LOOSE SOIL MOUNDS OR SURFACES SHALL BE PROTECTED FROM WIND OR WATER EROSION BY BEING APPROPRIATELY COVERED WHEN CONSTRUCTION IS NOT IN ACTIVE PROGRESS OR WHEN REQUIRED BY THE ENGINEER.
25. CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED IN GOOD CONDITION AND IN PROPER TUNE IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND NOT ALLOWED TO IDLE FOR LONG PERIODS OF TIME. ALL WHEELED AND TRACK CONSTRUCTION EQUIPMENT SUCH AS BACKHOES, EXCAVATORS, TRUCKS, TRACTORS, COMPACTOR ROLLERS, ETC. SHALL BE STEAM CLEANED TO REMOVE ALL DIRT, WEEDS AND GREASE BEFORE ARRIVAL AT THE PROJECT SITE. IF EQUIPMENT IS TO BE BROUGHT INTO THE TAHOE BASIN, STEAM CLEANING MUST OCCUR OUTSIDE THE TAHOE BASIN.
26. NO OPEN BURNING OF DEBRIS SHALL OCCUR WITHIN THE PROJECT LIMITS, DURING AND AFTER CONSTRUCTION.
27. ADEQUATE MUFFLERS AND ENCLOSURES FOR POWERED EQUIPMENT ARE REQUIRED.
28. INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF SIGNIFICANT EROSION AND SILTATION FROM ENTERING THE STORM DRAIN SYSTEM, NATURAL DRAINAGE COURSES, AND/OR INTRUDING UPON ADJACENT ROADWAYS AND PROPERTIES. EROSION CONTROL MEASURES SHOWN ON THESE PLANS ARE INTENDED AS A GUIDE. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DETERMINED IN THE FIELD AND AS APPROVED BY THE ENGINEER. THIS RESPONSIBILITY SHALL APPLY THROUGHOUT THE COURSE OF CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BECOME STABILIZED AND SHALL NOT BE LIMITED TO WET WEATHER PERIODS. THE CONTRACTOR IS RESPONSIBLE FOR SWPPP UPDATES.
29. THE CONTRACTOR SHALL COMPARE ALL PLANS FOR CONFORMANCE AS TO THE LAYOUT OF FEATURES AND DIMENSIONS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. IF DISCREPANCIES BETWEEN THE PLANS AND THE SPECIFICATIONS OCCUR, THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE WORK.
30. IF ANY UNKNOWN SUBSURFACE STRUCTURE OR CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION, IT SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND MAINTAINING SAFE CLEARANCES FROM OVERHEAD ELECTRICAL LINES AT ALL TIMES, AND WHERE HAZARDOUS CONDITIONS EXIST, FOR TAKING THE NECESSARY PRECAUTIONS AGAINST INJURY AND DAMAGE.
32. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE AT ALL TIMES INCLUDING SAFETY OF PERSONS AND PROPERTY, AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS. THE ENGINEER'S JOB SITE REVIEW DOES NOT INCLUDE THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
33. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF OUTSIDE THE TAHOE BASIN OR AT A SITE APPROVED BY TRPA.
34. ONLY EQUIPMENT OF A SIZE AND TYPE THAT, UNDER PREVAILING SITE CONDITIONS, AND CONSIDERING THE NATURE OF THE WORK TO BE PERFORMED AND WILL DO THE LEAST AMOUNT OF DAMAGE TO THE ENVIRONMENT, SHALL BE USED.
35. THE CONTRACTOR SHALL OBTAIN AND HAVE AVAILABLE COPIES OF APPLICABLE GOVERNING AGENCY STANDARDS AT THE JOB SITE DURING THE RELATED CONSTRUCTION OPERATIONS.
36. ASPHALT PAVEMENT AND BASE THICKNESS ARE SHOWN ON THE PLANS. IN PLACE COMPACTED THICKNESS THEREOF SHALL BE WITHIN THE FOLLOWING TOLERANCES:
    AGGREGATE BASE COURSE: ½" PLUS OR MINUS
    ASPHALT COURSE: ⅜" PLUS OR MINUS
37. SURFACE SMOOTHNESS OF ASPHALT SHALL NOT BE ACCEPTABLE IF EXCEEDING ¼" USING A 10' STRAIGHT EDGE.
38. ALL ASPHALT CONCRETE SURFACES SHALL BE SAWCUT INSIDE THE EDGE OF PAVEMENT TO A NEAT, STRAIGHT LINE AND REMOVED, AS SHOWN ON THE PLANS. THE EXPOSED PAVEMENT TIE-IN EDGES SHALL BE METICULOUSLY CLEANED OF ALL LOOSE MATERIAL AND THEN TREATED WITH BITUMINOUS EMULSION PRIOR TO PAVING. THE EXPOSED BASE MATERIALS SHALL BE GRADED AND RECOMPACTED PRIOR TO PAVING.
39. MANUFACTURER'S MATERIAL AND WEIGHT TICKETS SHALL BE FURNISHED TO THE ENGINEER.
40. CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING A PRE-CONSTRUCTION JOB SITE CONFERENCE WITH GOVERNING AGENCIES, ALL UTILITY COMPANIES, AND OWNER'S REPRESENTATIVES PRIOR TO COMMENCING WORK. THIS MEETING WILL VERIFY SCHEDULES, METHODS, AND MATERIALS TO BE USED IN CONSTRUCTION OF THE PROJECT.
41. CONTRACTOR SHALL MAINTAIN IN A SAFE PLACE AT THE SITE ONE RECORD COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, CHANGE ORDERS, WORK CHANGE DIRECTIVES, FIELD ORDERS, AND WRITTEN INTERPRETATIONS AND CLARIFICATIONS IN GOOD ORDER AND ANNOTATED TO SHOW CHANGES MADE DURING CONSTRUCTION
42. CONTRACTOR SHALL MAINTAIN A NEAT FULL SIZE MARKUP COPY OF AS-BUILTS.
43. ALL RAMPS AND PEDESTRIAN WALKWAY SLOPES SHALL MEET ADA STANDARDS.

LEGEND

EXISTING		PROPOSED
4174	CONTOUR LINE	4174
+ 4163.1	GROUND ELEVATION	+ 4163.1
	TREE	
	ROCK	
	EDGE OF PAVEMENT / AC PAVING	
	TO BE REMOVED	
	CURB & GUTTER	
	CONCRETE	
	UTILITY POLE	
	LIGHT	
	GUY WIRE	
ET	ELECTRIC TRANSFORMER	ET
EV	ELECTRIC VAULT	EV
EP	ELECTRIC PANEL	EP
EC	ELECTRIC CABINET	EC
EB	ELECTRIC BOX	EB
EM	ELECTRIC METER	EM
EG	ELECTRIC GENERATOR	EG
E	ELECTRIC MANHOLE	E
AC	AIR CONDITIONER	AC
	ELECTRIC OUTLET	
	BOLLARD	
	STORM DRAIN MANHOLE	
	CATCH BASIN	
WV	WATER VALVE	
ICV	IRRIGATION CONTROL VALVE	
WM	WATER METER	
WS	WATER SPIGOT / HOSE BIB	WS
W	WATER MANHOLE	W
WV	WATER VAULT	WV
GV	GAS VALVE	GV
GM	GAS METER	
	FIRE HYDRANT	
T	TELEPHONE MANHOLE	T
TB	TELEPHONE BOX	TB
TV	TELEPHONE VAULT	TV
S	SEWER MANHOLE	S
SSCO	SEWER CLEANOUT	SSCO
	SURVEY MONUMENT	
	CONTROL POINT	
	BARRICADE	
	SIGN	
	RETAINING WALL	
	FENCE	
	GRADE BREAK	
	FLOW LINE	
	SOIL TEST PIT	
	DETAIL CALLOUT	

FOUND SECTION CORNER AS NOTED

FOUND 5/8" REBAR AND CAP "PLS 14413" – UNLESS OTHERWISE NOTED

SET 5/8" REBAR AND CAP "PLS 17616" – UNLESS OTHERWISE NOTED

LUMOS & ASSOCIATES
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STATELINE, NV 89449
TEL (775) 588-6490
FAX (775) 588-6479
WWW.LUMOSENGINEERING.COM

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

ISSUE DATE: MARCH 24, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: _____ REVIEWED: _____

TENTATIVE MAP

PROJECT NUMBER: 7139.003

NOTES ABBREV LEGEND

SHEET NUMBER

C1

May 16, 2016 1:39pm
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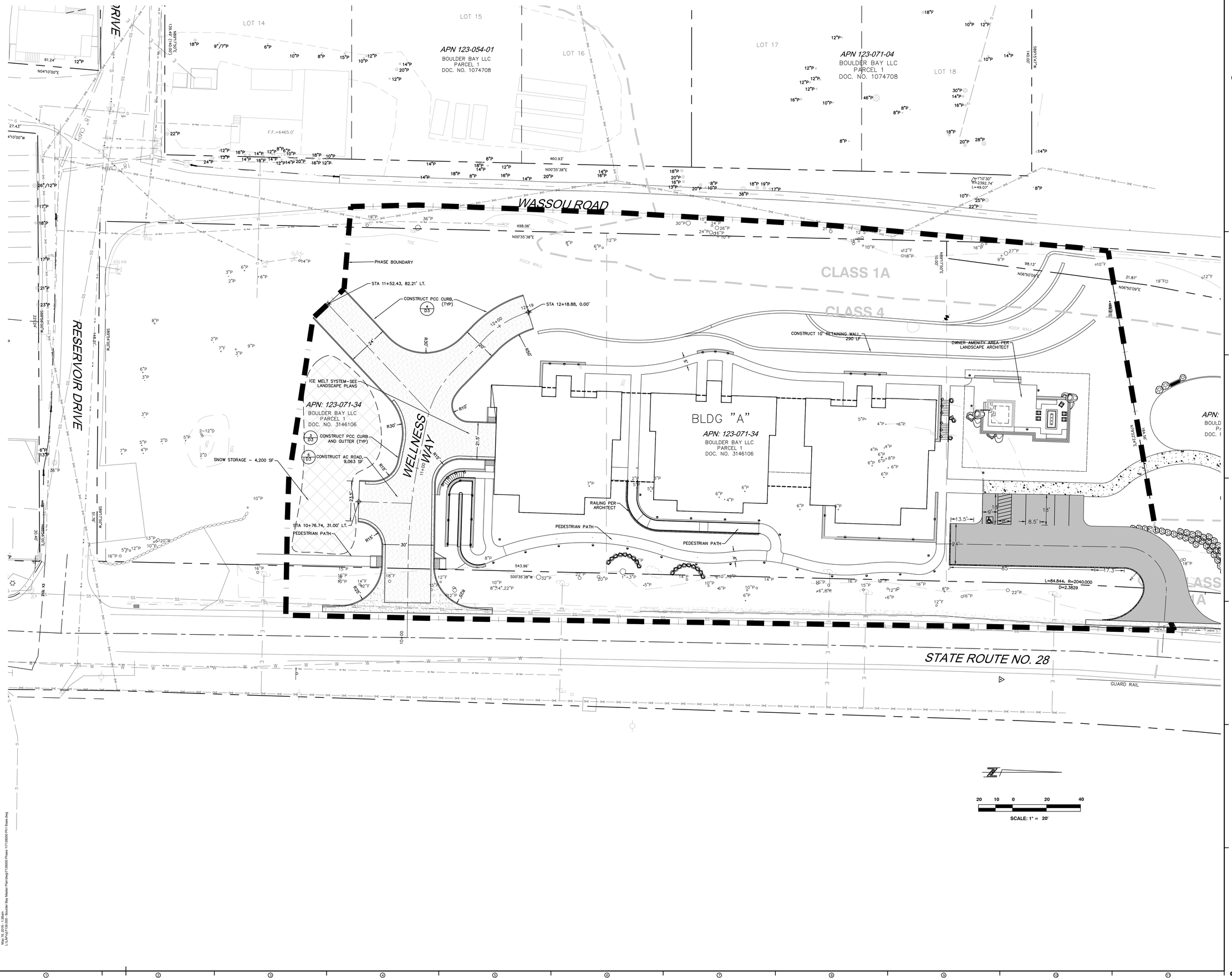

ISSUE DATE: MARCH 24, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: _____ REVIEWED: _____

TENTATIVE MAP

PROJECT NUMBER: 7139.003

SITE PLAN

SHEET NUMBER

C2

May 16, 2016 - 1:38pm
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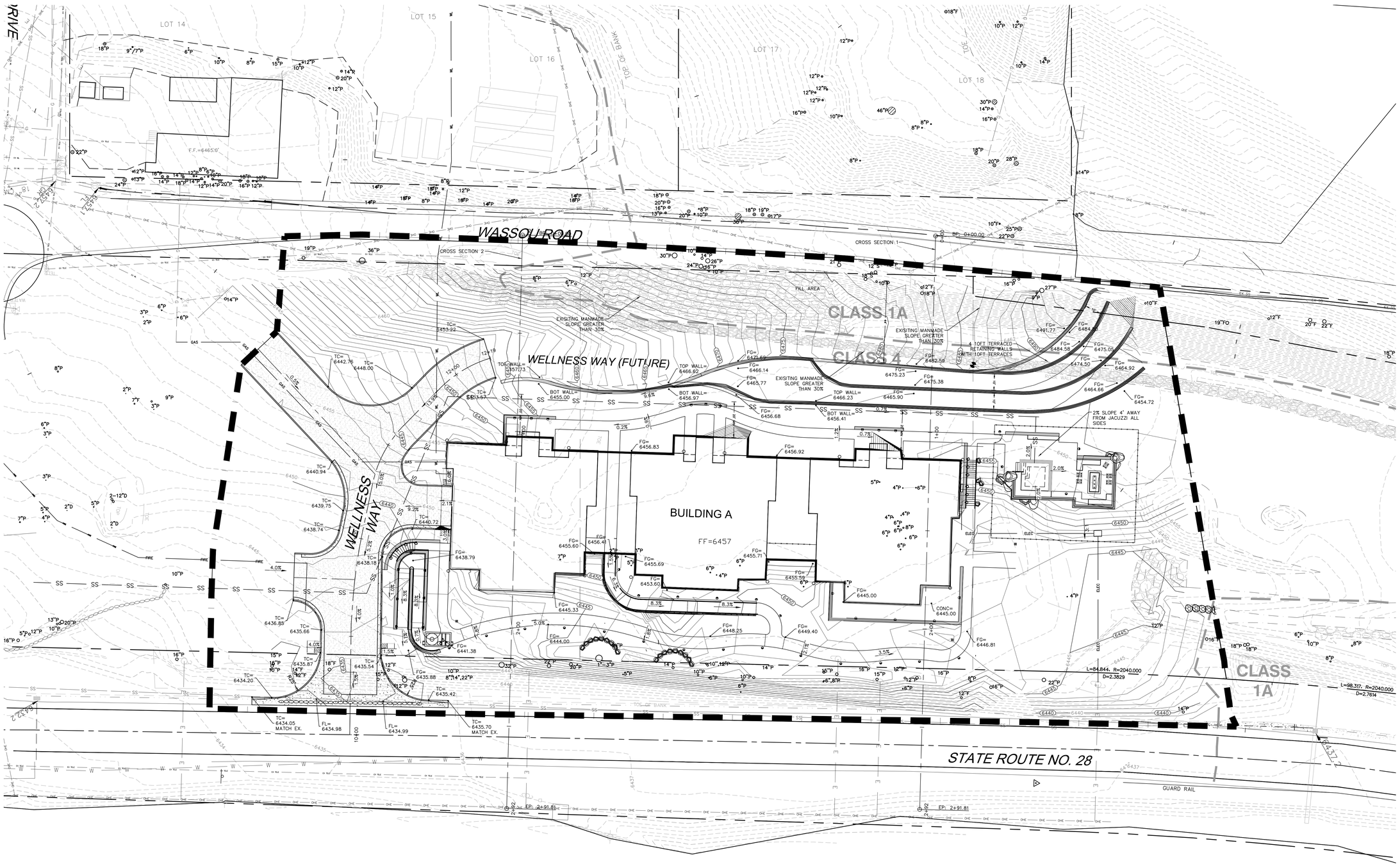

NOTES:
1. THERE ARE NO NATURAL DRAINAGE COURSES OR PERENNIAL STREAMS ON SITE.
2. NO EXPORT OF EXCAVATED MATERIAL IS ANTICIPATED
3. FILL AREAS AT THE WEST SIDE OF SITE ARE FILLING PREVIOUSLY CUT SLOPED AREAS. SETBACKS FOR FILL ARE THEREFORE NOT REQUIRED
4. NO WETLANDS OR FLOODPLAINS EXIST WITHIN THE SITE
5. NO SIGNIFICANT HYDROLOGIC RESOURCES EXIST ON SITE PURSUANT TO ARTICLE 418 OF THE WASHOE COUNTY DEVELOPMENT CODE.

GRADING QUANTITIES (CU. YDS.)

CUT	FILL	NET CUT
12,600	12,600	0

20 10 0 20 40

SCALE: 1" = 20'

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BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393

ISSUE DATE: MAY 13, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: REVIEWED:

PROJECT NUMBER: 7139.003

GRADING PLAN

SHEET NUMBER
C3

May 16, 2016 - 1:34am
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SCALE: 1" = 20'

BOULDER BAY BLDG A

Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393
PROFESSIONAL ENGINEER — STATE OF NEVADA

ISSUE DATE: MAY 13, 2016

REVISIONS

#	DATE	DESCRIPTION

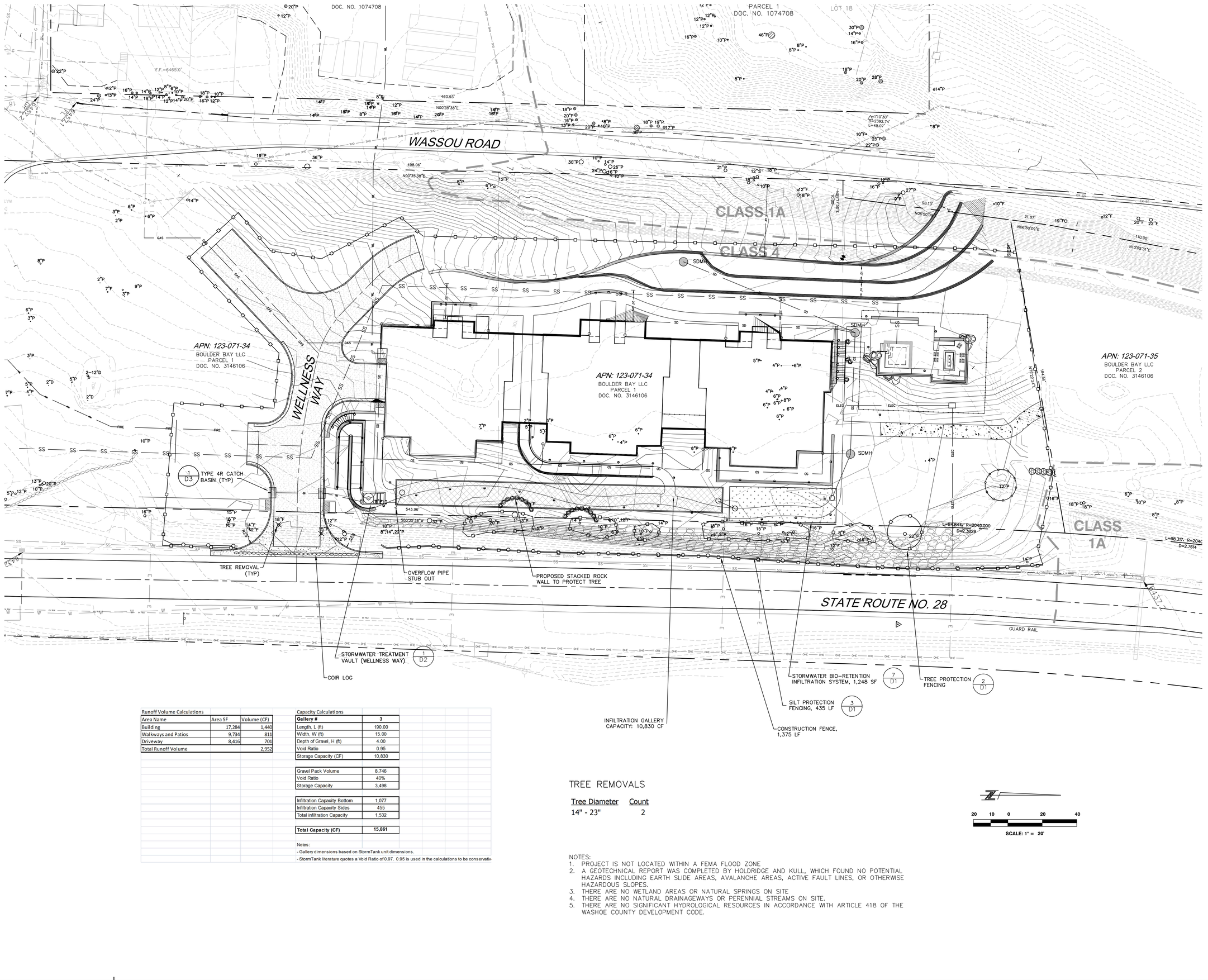
DRAWN: REVIEWED:

PROJECT NUMBER: 7139.003

UTILITY PLAN

SHEET NUMBER

C4



Runoff Volume Calculations		
Area Name	Area SF	Volume (CF)
Building	17,284	1,440
Walkways and Patios	9,734	811
Driveway	8,416	701
Total Runoff Volume		2,952

Capacity Calculations	
Gallery #	**3**
Length, L (ft)	190.00
Width, W (ft)	15.00
Depth of Gravel, H (ft)	4.00
Void Ratio	0.95
Storage Capacity (CF)	10,830
Gravel Pack Volume	8,746
Void Ratio	40%
Storage Capacity	3,498
Infiltration Capacity Bottom	1,077
Infiltration Capacity Sides	455
Total infiltration Capacity	1,532
Total Capacity (CF)	**15,861**

Notes:
- Gallery dimensions based on StormTank unit dimensions.
- StormTank literature quotes a Void Ratio of 0.97. 0.95 is used in the calculations to be conservativ

TREE REMOVALS

Tree Diameter	Count
14" - 23"	2

NOTES:
1. PROJECT IS NOT LOCATED WITHIN A FEMA FLOOD ZONE
2. A GEOTECHNICAL REPORT WAS COMPLETED BY HOLDRIDGE AND KULL, WHICH FOUND NO POTENTIAL HAZARDS INCLUDING EARTH SLIDE AREAS, AVALANCHE AREAS, ACTIVE FAULT LINES, OR OTHERWISE HAZARDOUS SLOPES.
3. THERE ARE NO WETLAND AREAS OR NATURAL SPRINGS ON SITE
4. THERE ARE NO NATURAL DRAINAGEWAYS OR PERENNIAL STREAMS ON SITE.
5. THERE ARE NO SIGNIFICANT HYDROLOGICAL RESOURCES IN ACCORDANCE WITH ARTICLE 418 OF THE WASHOE COUNTY DEVELOPMENT CODE.

20 10 0 20 40
SCALE: 1" = 20'

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REVISIONS

#	DATE	DESCRIPTION

DRAWN: REVIEWED:

PROJECT NUMBER: 7139.003

TEMPORARY AND PERMANENT BMP PLAN

SHEET NUMBER

C5

May 16, 2016 - 7:31am
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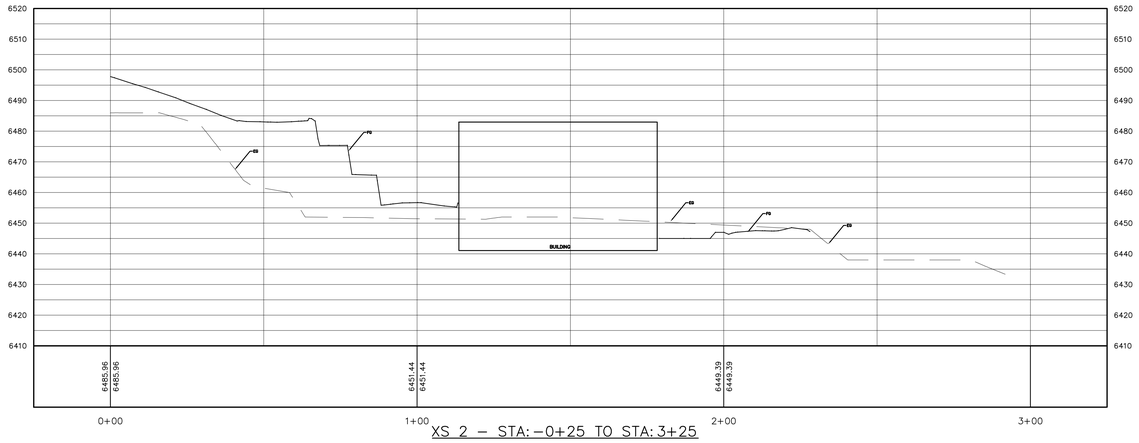
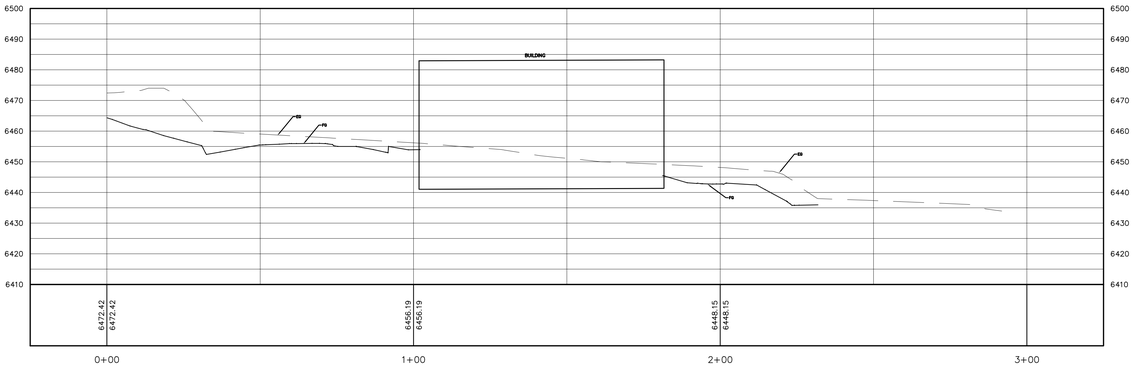
XS 1 – STA: –0+25 TO STA: 3+25



XS 2 – STA: –0+25 TO STA: 3+25



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SCALE: 1" = 20'

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Boulder Bay, LLC.

CRYSTAL BAY, NEVADA

PROFESSIONAL ENGINEER – STATE OF NEVADA
BRIAN E. McRAE
Exp. 12/31/17
CIVIL
No. 14393

ISSUE DATE: MAY 13, 2016

REVISIONS

#	DATE	DESCRIPTION

DRAWN: _____ REVIEWED: _____

PROJECT NUMBER: 7139.003

CROSS SECTIONS
GRADING

SHEET NUMBER

C6

GREEN ACRES SUBDIVISION (UNOFFICIAL)

MATT GREEN SUBDIVISION (UNOFFICIAL)

POR. OF THE SOUTH ½ OF SEC. 19
T16N - R18E

PORTION OF LOT 4

123-071-25
23541 sf

PAR. 4
RS 4509

123-071-30
23332 sf

123-071-37
2.49 ac.

123-071-32
5.231 ac.

123-071-26
14814 sf

123-071-29
14369 sf

123-071-27
14241 sf

123-071-28
14171 sf

123-071-05
14014 sf

123-071-04
18 28034 sf

123-071-31
35184 sf

PAR. 3
RS 4509
123-071-36
17511 sf

PAR. 2
RS 4509
123-071-35
19625 sf

PAR. 1
RS 4509

123-071-34
2.77 ac.

071

VIEW AVENUE
LAKE VIEW AVENUE
TUSCARORA ROAD
WASSOU ROAD
NORTHLAKE DRIVE
NORTHLAKE CIRCLE
LAKE TAHOE
LINE
MEANDER
GOVERNMENT
U.S.
CALIFORNIA
ROUTE 28
STATE
RESERVOIR ROAD
WASSOU ROAD
TATE LINE RD.
CALNEVA DR

Assessor's Map Number

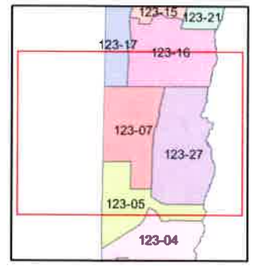
123-07

STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
Joshua G. Wilson, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231

Feet
0 50 100 150 200

1 inch = 200 feet



created by: EMG 9/30/2014

last updated:

area previously shown on map(s)

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

OWNER'S CERTIFICATE

THIS IS TO CERTIFY THAT THE UNDERSIGNED, BIG WATER INVESTMENTS, LLC, IS THE OWNER OF THE TRACT OF LAND REPRESENTED ON THIS PLAT AND HAS CONSENTED TO THE PREPARATION AND RECORDATION OF THIS PLAT AND THAT THE SAME IS EXECUTED IN COMPLIANCE WITH AND SUBJECT TO THE PROVISIONS OF N.R.S. CHAPTER 278, AND THAT THE EASEMENTS AS SHOWN FOR ACCESS, UTILITY, AND DRAINAGE ARE HEREBY GRANTED.

BIG WATER INVESTMENTS, LLC _____ DATE
BY:
TITLE:

STATE OF _____ }
COUNTY OF _____ } S.S.

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON _____

BY _____ AS _____ OF
BIG WATER INVESTMENTS, LLC, PERSONALLY APPEARED BEFORE ME, A NOTARY PUBLIC, WHO ACKNOWLEDGED THAT THEY EXECUTED THE ABOVE INSTRUMENT.

_____
NOTARY PUBLIC
(MY COMMISSION EXPIRES _____)

UTILITY COMPANY'S CERTIFICATE

THE UTILITY EASEMENTS SHOWN ON THIS PLAT HAVE BEEN CHECKED, ACCEPTED AND APPROVED BY THE UNDERSIGNED CABLE TV, PUBLIC UTILITY COMPANIES, AND INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT.

NV ENERGY _____ DATE
BY:
TITLE:

NEVADA BELL d/b/a AT&T NEVADA _____ DATE
BY:
TITLE:

CHARTER COMMUNICATIONS _____ DATE
BY:
TITLE:

INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT _____ DATE
BY:
TITLE:

TITLE COMPANY CERTIFICATE

THE UNDERSIGNED HEREBY CERTIFIES THAT THIS PLAT HAS BEEN EXAMINED AND THAT BIG WATER INVESTMENTS, LLC, OWNER OF RECORD AN INTEREST IN THE LAND DELINEATED HEREON AND THAT THEY ARE THE ONLY OWNER OF THE RECORD OF SAID LAND; THAT NO ONE HOLDS OF RECORD A SECURITY INTEREST IN THE LANDS EXCEPT AS SHOWN BELOW; THAT THERE ARE NO LIENS OF RECORD AGAINST THE LAND DELINEATED HEREON, OR ANY PART THEREOF FOR DELINQUENT STATE, COUNTY, MUNICIPAL, FEDERAL, OR LOCAL TAXES OR ASSESSMENTS COLLECTED AS TAXES OR SPECIAL ASSESSMENTS, AND THAT A GUARANTEE DATED, _____, 2016, FOR THE BENEFIT FOR THE COUNTY OF WASHOE, STATE OF NEVADA, HAS BEEN ISSUED WITH REGARD TO ALL OF THE ABOVE.

FIRST AMERICAN TITLE INSURANCE COMPANY

_____
BY:
TITLE:

SECURITY INTEREST HOLDERS CERTIFICATE

THIS IS TO CERTIFY THAT THE UNDERSIGNED, _____, CONSENTS TO THE PREPARATION AND RECORDATION OF THIS PLAT.

----LENDER NAME-----

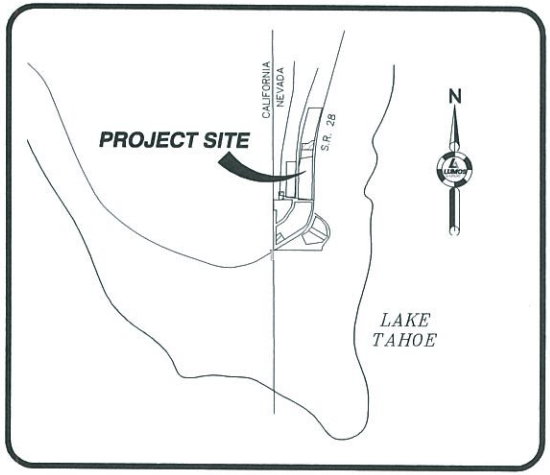
_____
BY:
TITLE:

STATE OF _____ }
COUNTY OF _____ } S.S.

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON _____

BY _____ AS _____ OF _____
PERSONALLY APPEARED BEFORE ME, A NOTARY PUBLIC, WHO ACKNOWLEDGED THAT THEY EXECUTED THE ABOVE INSTRUMENT.

_____
NOTARY PUBLIC
(MY COMMISSION EXPIRES _____)



VICINITY MAP

NOT TO SCALE

TAX CERTIFICATE

THE UNDERSIGNED HEREBY CERTIFIES THAT ALL PROPERTY TAXES ON THE LAND SHOWN HEREON FOR THE FISCAL YEAR HAVE BEEN PAID AND THAT THE FULL AMOUNT OF ANY DEFERRED PROPERTY TAXES FOR THE CONVERSATION OF THE PROPERTY FROM AGRICULTURAL USE HAS BEEN PAID PURSUANT TO N.R.S. 361A.265.

A.P.N. 123-071-35 & 35

WASHOE COUNTY TREASURER

BY: _____ DATE: _____
NAME:

DEPUTY TREASURER

DIVISION OF WATER RESOURCES CERTIFICATE

THIS MAP IS HEREBY APPROVED BY THE DIVISION OF WATER RESOURCES.

BY: _____ DATE

DIVISION OF WATER RESOURCES

DISTRICT BOARD OF HEALTH CERTIFICATE

THIS MAP IS HEREBY APPROVED BY THE WASHOE COUNTY DISTRICT BOARD OF HEALTH.

BY: _____ DATE

DISTRICT BOARD OF HEALTH

SITE INFORMATION:

A.P.N.'s 123-071-34 &
123-071-35
STATE ROUTE 28
CRYSTAL BAY, NEVADA

PROPERTY OWNER

BRIAN HELM
(775) 313-6903
BIG WATER INVESTMENTS, LLC
P.O. BOX 6622
INCLINE VILLAGE, NV 89450

ZONING AND LAND USE:

EXISTING AND PROPOSED ZONING AND MASTER PLAN USE:

ZONING - (MDS) MEDIUM DENSITY SUBURBAN
LAND USE - NORTH STATELINE COMMUNITY PLAN

SURVEYOR'S CERTIFICATE

I, GREGORY S. PHILLIPS, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, AS AGENT FOR LUMOS AND ASSOCIATES, INC., CERTIFY THAT:

1) THIS PLAT REPRESENTS THE RESULTS OF A SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION AT THE INSTANCE OF BIG WATER INVESTMENTS, LLC.

2) THE LANDS SURVEYED LIE WITHIN THE S 1/2 OF SECTION 19, T.16 N., R.18 E., M.D.M., AND THE SURVEY WAS COMPLETED ON _____, 2016.

3) THIS PLAT COMPLIES WITH THE APPLICABLE STATE STATUTES AND ANY LOCAL ORDINANCES IN EFFECT ON THE DATE THAT THE GOVERNING BODY GAVE ITS FINAL APPROVAL.

4) THE MONUMENTS DEPICTED ON THE PLAT ARE OF THE CHARTER SHOWN, OCCUPY THE POSITIONS INDICATED AND ARE OF SUFFICIENT NUMBER AND DURABILITY.

GREGORY S. PHILLIPS, P.L.S.
NEVADA CERTIFICATE No. 17616

PROFESSIONAL LAND SURVEYOR
GREGORY S. PHILLIPS
No. 17616
Exp. 12/31/17
STATE OF NEVADA

05/13/16

REFERENCES

(R1) A PRELIMINARY TITLE REPORT PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY, DATED MAY 10, 2016, ORDER No.121-2504068.

(R2) RECORD OF SURVEY SUPPORTING A BOUNDARY LINE ADJUSTMENT FOR SIERRA PARK, LLC, ROS MAP No. 4509.

OFFICIAL RECORDS OF THE COUNTY OF WASHOE, STATE OF NEVADA, EXCLUDING R1

COUNTY SURVEYOR'S CERTIFICATE

I CERTIFY THAT I HAVE EXAMINED THIS PLAT CONSISTING OF FOUR SHEETS AND THAT ALL ACTS AND ORDINANCES APPLICABLE HAVE BEEN COMPLIED WITH AND THAT I AM SATISFIED THAT THE MAP IS TECHNICALLY CORRECT. NO ADDITIONAL MONUMENTS ARE REQUIRED.

BY: _____ DATE

MICHAEL E. GUMP, P.L.S. 13927
WASHOE COUNTY SURVEYOR

TAHOE REGIONAL PLANNING AGENCY

THIS MAP IS HEREBY APPROVED BY THE TAHOE REGIONAL PLANNING AGENCY.

BY: _____ DATE

TAHOE REGIONAL PLANNING AGENCY

SHEET 1 OF 3

FILED No. _____

FEE: _____

FILE FOR RECORD AT THE REQUEST OF LUMOS & ASSOCIATES, INC.

ON THIS _____ DAY OF _____

2016, AT _____ MINUTES PAST _____

O'CLOCK ____.M., OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.

LAWRENCE R. BURTNESS
COUNTY RECORDER

BY: _____
DEPUTY

TENTATIVE MAP
BOULDER BAY BUILDING A
A CONDOMINIUM SUBDIVISION

BEING A MERGER AND RESUBDIVISION OF PARCELS 1 & 2 OF DOCUMENT #4446494, SHOWN ON ROS 4509

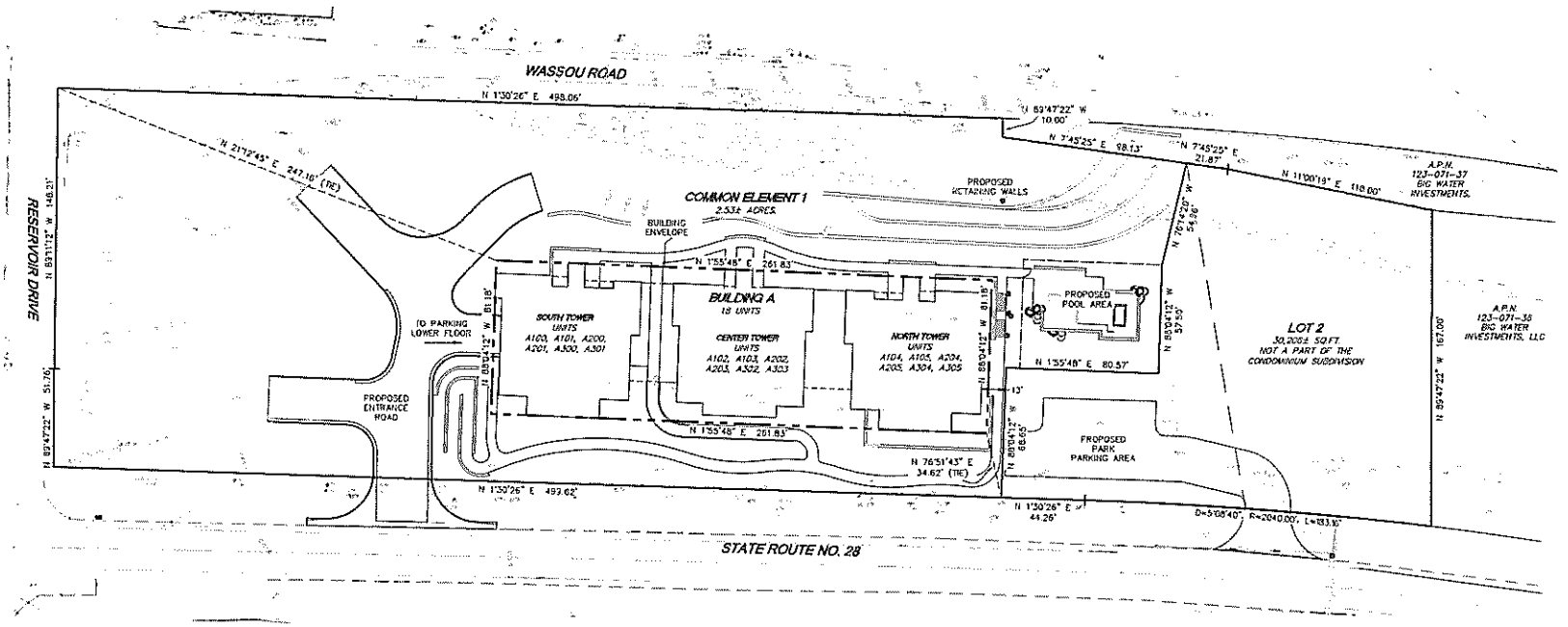
SITUATE WITHIN A PORTION OF THE S 1/2 OF SECTION 19 TOWNSHIP 16 NORTH, RANGE 18 EAST, M.D.M.

WASHOE COUNTY STATE OF NEVADA

LUMOS & ASSOCIATES
1800 E. COLLEGE PKWY
CARSON CITY, NEVADA 89706
TEL (775) 883-7677
FAX (775) 883-7114

Drawn By : GSP
Job No. : 7139.003
Drawing No.: 7139003 TM.dwg

ORIGINAL



NOTES

1) SUBJECT PROPERTY LIES WITHIN ZONE X PER FEMA FIRM MAP NO. 32031C3400G REVISED MARCH 16, 2009.

2) ZONING DISTRICT IS (MDS) MEDIUM DENSITY SUBURBAN.

3) SUBJECT PROPERTY LIES WITHIN THE NORTH STATELINE COMMUNITY PLAN.

4) EXISTING TOPOGRAPHY WAS PROVIDED BY OWNER AND NOT PREPARED BY LUMOS AND ASSOCIATES, INC.

5) PROPOSED BUILDING ELEVATIONS AND INFORMATION WAS PROVIDED BY OZ ARCHITECTURE OF DENVER COLORADO.

6) SEE UTILITY, SITE, GRADING, AND LANDSCAPE PLANS SUBMITTED WITH THIS MAP FOR PROPOSED IMPROVEMENTS.

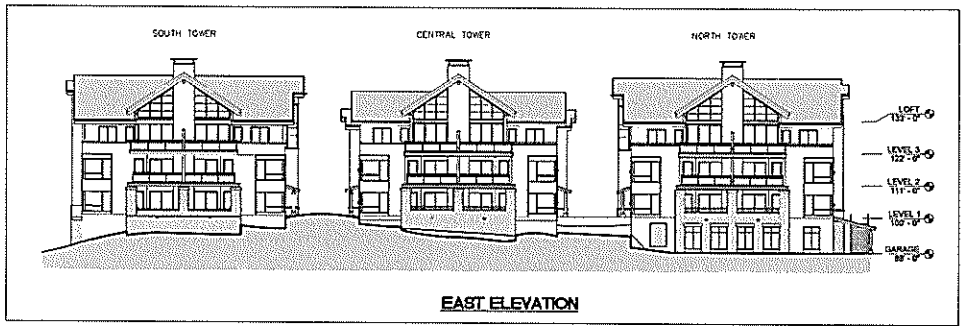
AREA

COMMON ELEMENT 1 = 2.53± ACRES
LOT 2 = 30,206± SQ. FT.

TOTAL LAND AREA = 3.22± ACRES

18 CONDOMINIUM UNITS OF VARYING SIZE
SEE APPROXIMATE SIZE ON SHEET 3 OF 3

GRAPHIC SCALE
SCALE IN FEET
20' 0 20' 40'



EAST ELEVATION

BASIS OF BEARINGS

THE BASIS OF BEARING FOR THIS SURVEY IS BASED ON THE NEVADA COORDINATE SYSTEM OF 1983, WEST ZONE, NAD 83/94. DISTANCES SHOWN ARE GROUND DISTANCES USING A PROJECT COMBINED GRID TO GROUND SCALE FACTOR OF 1.000197939, PER RECORD OF SURVEY NO. 4509.

TENTATIVE MAP
BOULDER BAY BUILDING A
A CONDOMINIUM SUBDIVISION

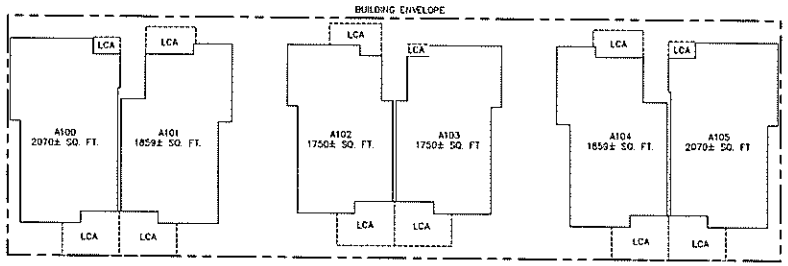
BEING A MERGER AND RESUBDIVISION OF PARCELS 1 & 2 OF DOCUMENT #4446494, SHOWN ON ROS 4509

SITUATE WITHIN A PORTION OF THE S 1/2 OF SECTION 19 TOWNSHIP 16 NORTH, RANGE 18 EAST, M.D.M.

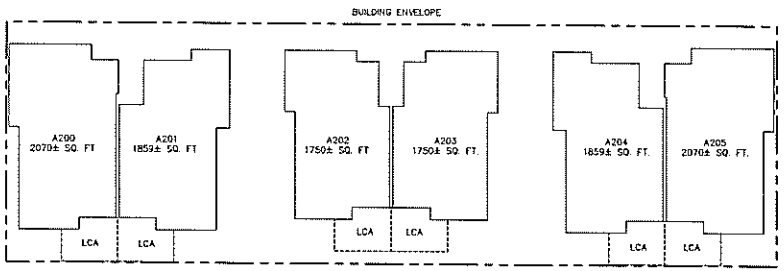
WASHOE COUNTY STATE OF NEVADA

LUMOS & ASSOCIATES
1600 E. COLLEGE PKWY
CARSON CITY, NEVADA 89706
TEL (775) 883-7077
FAX (775) 883-7114

Drawn By . GSP
Job No. . 7139.003
Drawing No.: 7139003 TM.dwg

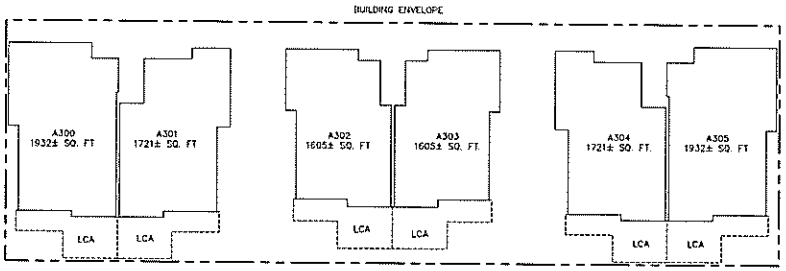


LEVEL 1

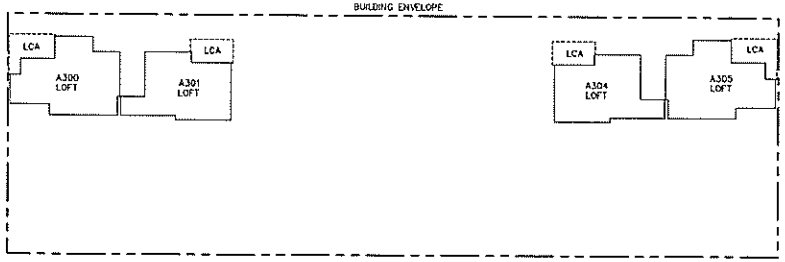


LEVEL 2

18 TOTAL UNITS



LEVEL 3



LOFT

NOTES CONTINUED

7) LOTTED AREA SHOWN HEREON COMPRISES DIMENSIONS TO FRONT FACE OF STUD BASED ON ARCHITECTURAL PLANS PREPARED BY OZ ARCHITECTURE. THE PHYSICAL BOUNDARIES OF EACH LOT SHALL INCLUDE ALL INTERNAL LIVING SPACE, AS STATED IN N.R.S. 116. THE BUILDING STRUCTURES THEMSELVES AND THE GROUND BENEATH SAID BUILDINGS ARE TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION, BEING A PORTION OF THE COMMON ELEMENT

8) ALL OF THE LOWER INCLUDING BUT NOT LIMITED TO PARKING GARAGE, OWNER'S LOUNGE, FITNESS CENTER AND MECHANICAL AREAS ARE PORTION OF THE COMMON ELEMENT

9) ALL PUBLIC UTILITY EASEMENT INCLUDE CABLE TELEVISION.

10) A BLANKET EMERGENCY ACCESS EASEMENT AND PRIVATE ACCESS EASEMENT IS HEREBY GRANTED OVER THE COMMON ELEMENT PARCEL FOR THE BENEFIT OF THE LOTS SHOWN HEREON SAID BLANKET EMERGENCY ACCESS EASEMENT IS INCLUSIVE OF THE STAIRWAYS WHICH ACCESS THE UPPER FLOORS.

11) SEE DOCUMENT NUMBER _____ FOR COVENANTS, CONDITIONS AND RESTRICTS RECORDED _____ IN THE OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.

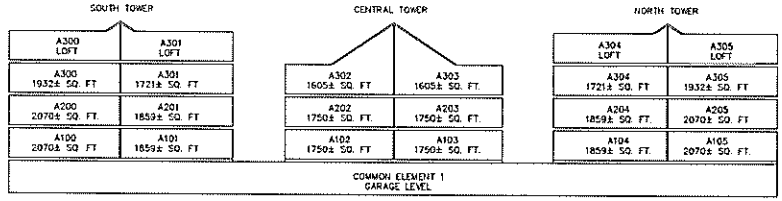
12) ALL ANGLE POINTS IN THE UNIT BOUNDARIES FROM RIGHT ANGLES.

13) A BLANKET PUBLIC UTILITY EASEMENT IS HEREBY GRANTED OVER AND ACROSS THE COMMON ELEMENT PARCELS TO THE INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT FOR THE PURPOSE OF ACCESSING AND MAINTAINING ALL EXISTING UTILITIES AND ANY AND ALL FUTURE WATER UTILITY INSTALLATIONS.

14) COMMON ELEMENTS, DRIVEWAY ACCESS AND STORM WATER MANAGEMENT SYSTEMS ARE PRIVATELY MAINTAINED AND PERPETUALLY FUNDED BY THE HOMEOWNERS ASSOCIATION.

15) A BLANKET RECIPROCAL PRIVATE ACCESS EASEMENT IS HEREBY GRANTED OVER AND ACROSS THE COMMON ELEMENT PARCELS FOR THE BENEFIT OF THE OWNERS OF THE LOTS SHOWN HEREIN.

16) LANDSCAPING WITHIN COMMON ELEMENT 1 SHALL BE PRIVATELY MAINTAINED AND PERPETUALLY FUNDED BY THE HOMEOWNERS ASSOCIATION.



PROFILE

GRAPHIC SCALE
SCALE IN FEET
20' 0 20' 40'

SHEET 3 OF 3

TENTATIVE MAP
BOULDER BAY BUILDING A
A CONDOMINIUM SUBDIVISION

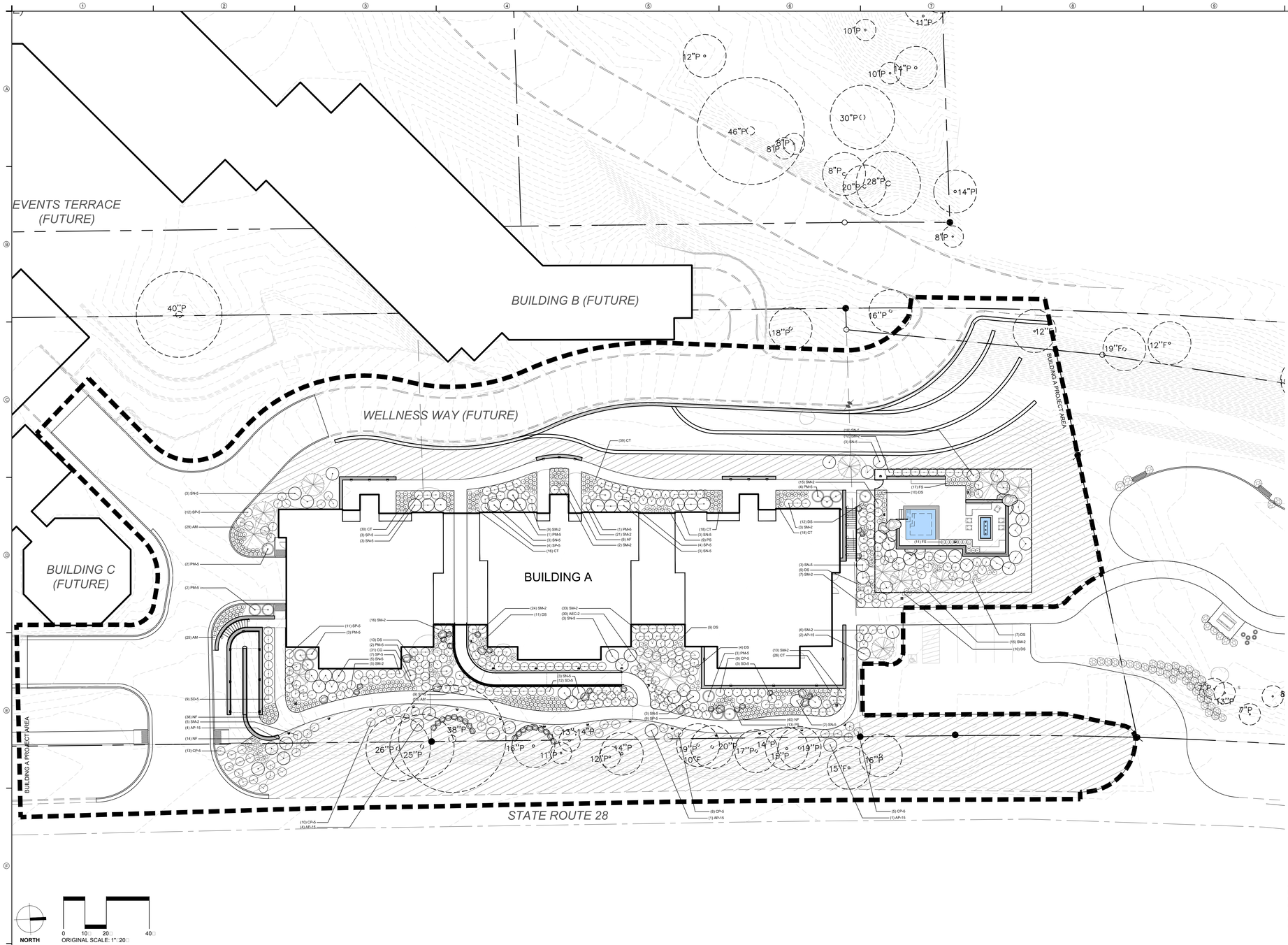
BEING A MERGER AND RESUBDIVISION OF PARCELS 1 & 2 OF DOCUMENT #4446494, SHOWN ON ROS 4509

SITUATE WITHIN A PORTION OF THE S 1/2 OF SECTION 19 TOWNSHIP 16 NORTH, RANGE 18 EAST, M.D.M.

WASHOE COUNTY, STATE OF NEVADA

LUMOS & ASSOCIATES
1650 E. COLLEGE PKWY
CARSON CITY, NEVADA 89706
TEL (775) 883-7577
FAX (775) 883-7114

Drawn By - GSP
Job No. : 7139.003
Drawing No. 7139003 TM.dwg



PLANT LEGEND

- Perennial
- Small Shrub
- Large Shrub
- Large Evergreen Shrub
- 8□Tall Conifer
- 12□Tall Conifer

PLANT LIST

ABBR.	BOTANICAL NAME	COMMON NAME	QTY.	SIZE
EVERGREEN TREES				
AC-8	*Abies concolor*	White Fir	□	8□Tall
CD-8	*Calocedrus decurrens*	Incense Cedar	□	8□Tall
PJ-8	*Pinus jeffreyi*	Jeffrey Pine	□	8□Tall
PJ-12	*Pinus jeffreyi*	Jeffrey Pine	□	12□Tall
DECIDUOUS & EVERGREEN SHRUBS				
AA-5	*Amelanchier alnifolia 'Regent'*	Serviceberry	□	5 Gal.
AEC-2	*Arctostaphylos 'Emerald Carpet'*	Carpet Manzanita	□	2 Gal.
AP-15	*Arctostaphylos patula*	Greenleaf Manzanita	□	15 Gal.
CP-5	*Ceanothus prostratus*	Squaw Carpet	□	5 Gal.
PM-5	*Pinus Mugo 'Pumilio'*	Mugo Pine	□	5 Gal.
RW-5	*Rosa woodsii 'Ultramontana'*	Woods Rose	□	5 Gal.
SD-5	*Spirea douglassii*	Douglas Spirea	□	5 Gal.
SM-2	*Symphoricarpus mollis*	Creeping Snowberry	□	2 Gal.
SN-5	*Spirea nipponica 'Snowmound'*	Snowmound Spirea	□	5 Gal.
SP-5	*Salix purpurea 'Nana'*	Dwarf Arctic Willow	□	5 Gal.
PERENNIALS				
AF	*Aquilegia formosa*	Western Columbine	□	6"X6" Pot
AM	*Achillea x 'Moonshine'*	Moonshine Yarrow	□	6"X6" Pot
CG	*Coreopsis grandiflora*	Moonbeam Coreopsis	□	6"X6" Pot
DS	*Dicentra specabilis*	Bleeding Heart	□	1 Gal.
FS	*Festuca 'Siskiyou Blue'*	Siskiyou Blue Fescue	□	1 Gal.
HA	*Heuchera x 'Amethyst Mist'*	Amethyst Mist Coral Bells	□	1 Gal.
LS	*Liastris spicata*	Gayfeather	□	1 Gal.
CT	*Cerastium tomentosum*	Snow in Summer	□	6"X6" Pot
NF	*Nepeta x faassenii*	Catmint	□	6"X6" Pot
PS	*Penstemon strictus*	Rocky Mountain Penstemon	□	6"X6" Pot
WM	*Wyethia mollis*	Woolley Mules Ear	□	1 Gal.
NATIVE REVEGETATION				
	Native restoration mix to be determined following consultation with restoration specialist		21,280 sqft	
BOULDERS				
	Large Boulders (4□4□4) □□ty.			
	Small Boulders (3□3□3) □□ty.			

LANDSCAPE PLANTING NOTES

1. Install stone conditions vary from what is shown on the plans, contact the Landscape Architect or direction as to how to proceed.

2. Exact locations of plant materials to be approved by the Landscape Architect in the field prior to installation. Landscape Architect reserves the right to adjust plants to exact location in field.

3. Verify plant counts and square footages; quantities are provided as Owner information only. Iquantities on plant list differ from graphics and actions, then graphics shall prevail.

4. Provide material hanging forms and sizes for plant materials within each space and side designated on the drawings.

5. Prune newly planted trees only as directed by Landscape Architect.

6. Align and equally space in all directions shrubs so designated per these notes and drawings.

7. Finish grades of shrub areas and lawns shall be 1 1/2 inches below adjacent paving or header. (Check mulch depth and seeded or sodded lawns).

8. Provide cutsheet or client approval of metal edging as divider between plant beds and lawn areas.

9. Cut and remove burlap from top 1/3 of ball.

10. All tree, shrub and ground cover plantings shall be top dressed with a 2" layer of fresh arch mulch unless specified otherwise by Landscape Architect.

11. The landscape plan shall be consistent with the requirements of Chapter 36 of the TRPA Code of Ordinances, including the specification or staking and species of plants. The use of fertilizer shall be kept to a minimum and applied in accordance with Section 60.1.8 of the TRPA Code of Ordinances.

12. All planted areas shall be mulched with 2" wood mulch.

REVEGETATION NOTES

1. All areas disturbed by construction activities shall be revegetated. Additional revegetation may be required beyond what is shown on plans.

2. A minimum of two inched (2") of topsoil shall be placed on all disturbed areas. Topsoil shall include all of the organic rich layer of soil immediately under the duff layer. Topsoil shall be stored with minimal handling and no compaction, and should not be mixed with spoil material.

3. Disturbed areas that are compacted or have been penetrated heavy shelble and equipment use shall be plowed with a ripper or other deep tillage implement where easible to a depth of 12". Soil may be loosened with a backhoe, cutter, equipped with cutting teeth (loosening is done such that lods remain and soil is not pulverized or inverted. Following soil loosening, all further equipment traffic shall be eliminated from the planting area.

4. Areas should be irrigated by a low- low irrigation system approximately once every three (3) weeks. The goal for all revegetated areas is to minimize irrigation needs and discontinue the need for irrigation after a maximum of three (3) growing seasons.

5. All areas disturbed as a result of this work shall be revegetated in accordance with TRPA's Handbook of BMSs.

IRRIGATION NOTE

A combination of native, drought resistant plant material and an efficient irrigation system is proposed for the project. An automatic controller with multiple junctions will be used to operate different pressure zones and moderate the rates of application of water on a zone by zone basis. Rain sensors will monitor for the operation of the system and shut to during natural rain events. Drip irrigators around trees, shrubs, and perennials will be used to eliminate evaporation loses. Drip irrigators will reduce overall water consumption in these areas by 50-70%. Uniform sprinklers, drip irrigation is practically unaffected by wind conditions, nor is it affected by solar angle conditions. Also, plant species has been grouped with similar water requirements on common zones to match precipitation heads and emitters. Lawn areas use low-volume, low angle sprinklers for irrigation.

FERTILIZER MANAGEMENT

1. Landscape maintenance and management shall be consistent with Chapter 12 of the TRPA Home Landscaping Guide or Lake Tahoe and Vicinity.

3. Use phosphorus free slow release fertilizer only or all perennial and shrub areas. Use phosphorus free fertilizer such as SummerSet 10-0-3 or approved equal at a rate 1/2 to 3/4 pounds per 1000 sq during each application.

4. For tree fertilization use "Jones Tree Stakes" or approved equal which are specially formulated to maintain good tree health. Fertilizer shall not be spread over existing vegetation or outside the limit of disturbance.

5. Fertilizer shall be applied two per year: one during early June or late May depending on weather when plants have come out of dormancy, and one late in late September or early October depending on weather, but before the first frost. Avoid using weed killer fertilizer combinations that can damage trees and shrubs.

6. All proposed shrubs, perennials, and trees are native or adaptable native plants to the Tahoe Basin as outlined in on Table 1 of the TRPA Home Landscaping Guide. There are these plants will require very little fertilizer long term to sustain their health. The plants will require regular fertilizer applications during the restablishment period (3 years).

DESIGNWORKSHOP
Landscape Architecture • Land Planning
Urban Design • Tourism Planning
Asheville • Aspen • Austin • Beijing • Chicago • Denver • Dubai • Houston • Lake Tahoe • Los Angeles

PO Box 5666
128 Market Street, Suite 3E
Stateline, NV 89449-5666
(775) 588-5929
Facsimile: (775) 588-1559

WWW.DESIGNWORKSHOP.COM

BOULDER BAY BLDG A
BOULDER BAY, LLC.
CRYSTAL BAY, NEVADA

ISSUE DATE: APRIL 22, 2016

REVISIONS

#	DATE	DESCRIPTION

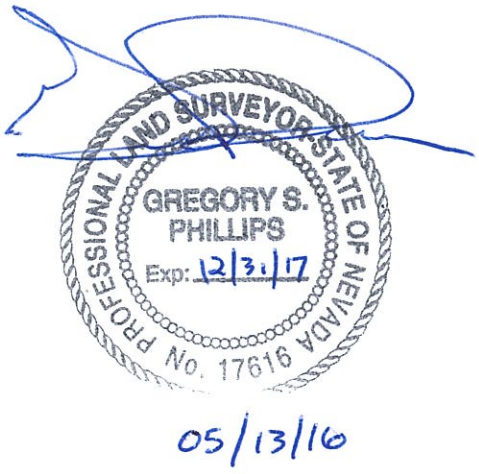
DRAWN: REVIEWED:

BOULDER BAY BLDG. A
DESIGN DEVELOPMENT

PROJECT NUMBER: 5489

LANDSCAPE PLAN
SHRUBS AND GROUNDCOVERS

SHEET NUMBER
L5.1



Parcel Map Check Report

Boulder Bay

Date: 5/13/2016 7:03:48 AM

Parcel Name: Parcel 2
Description:
Process segment order counterclockwise: False
Enable mapcheck across chord: False
"North:14,760,733.0109'" "East:2,222,788.1490'"

Segment# 1: Line
"Course: S1° 30' 26""W" Length: 44.26'
"North: 14,760,688.7662'" "East: 2,222,786.9848'"

Segment# 2: Line
"Course: N88° 04' 12""W" Length: 68.65'
"North: 14,760,691.0783'" "East: 2,222,718.3738'"

Segment# 3: Line
"Course: N1° 55' 48""E" Length: 80.57'
"North: 14,760,771.6025'" "East: 2,222,721.0873'"

Segment# 4: Line
"Course: N88° 04' 12""W" Length: 57.50'
"North: 14,760,773.5391'" "East: 2,222,663.6199'"

Segment# 5: Line
"Course: N76° 14' 20""W" Length: 54.96'
"North: 14,760,786.6126'" "East: 2,222,610.2374'"

Segment# 6: Line
"Course: N7° 45' 25""E" Length: 21.87'
"North: 14,760,808.2825'" "East: 2,222,613.1893'"

Segment# 7: Line
"Course: N11° 00' 19""E" Length: 110.00'
"North: 14,760,916.2596'" "East: 2,222,634.1882'"

Segment# 8: Line
"Course: S89° 47' 22""E" Length: 166.99'
"North: 14,760,915.6459'" "East: 2,222,801.1771'"

Segment# 9: Curve
Length: 183.16' "Radius: 2,040.00'"
"Delta: 5°08'40""" Tangent: 91.64'
Chord: 183.10' "Course: S4° 04' 46""W"
"Course In: S83° 20' 54""E" "Course Out: N88° 29' 34""W"
"RP North: 14,760,679.3468'" "East: 2,224,827.4453'"
"End North: 14,760,733.0049'" "East: 2,222,788.1511'"

Perimeter: 787.97' "Area: 30,205.85Sq.Ft."
Error Closure: 0.0064 "Course: S18° 43' 35""E"
Error North : -0.00606 East: 0.00205

"Precision 1: 123,118.75"

Parcel Name: Common Element 1
Description:

Process segment order counterclockwise: False
Enable mapcheck across chord: False
"North:14,760,189.2391'" "East:2,222,773.8413'"

Segment# 1: Line
"Course: N89° 47' 22""W" Length: 51.76'
"North: 14,760,189.4293'" "East: 2,222,722.0816'"

Segment# 2: Line
"Course: N89° 11' 12""W" Length: 148.21'
"North: 14,760,191.5331'" "East: 2,222,573.8865'"

Segment# 3: Line
"Course: N1° 30' 26""E" Length: 498.06'
"North: 14,760,689.4208'" "East: 2,222,586.9870'"

Segment# 4: Line
"Course: S89° 47' 22""E" Length: 10.00'
"North: 14,760,689.3841'" "East: 2,222,596.9869'"

Segment# 5: Line
"Course: N7° 45' 25""E" Length: 98.13'
"North: 14,760,786.6161'" "East: 2,222,610.2316'"

Segment# 6: Line
"Course: S76° 14' 20""E" Length: 54.96'
"North: 14,760,773.5426'" "East: 2,222,663.6140'"

Segment# 7: Line
"Course: S88° 04' 12""E" Length: 57.50'
"North: 14,760,771.6061'" "East: 2,222,721.0814'"

Segment# 8: Line
"Course: S1° 55' 48""W" Length: 80.57'
"North: 14,760,691.0818'" "East: 2,222,718.3680'"

Segment# 9: Line
"Course: S88° 04' 12""E" Length: 68.65'
"North: 14,760,688.7697'" "East: 2,222,786.9790'"

Segment# 10: Line
"Course: S1° 30' 26""W" Length: 199.70'
"North: 14,760,489.1388'" "East: 2,222,781.7263'"

Segment# 11: Line
"Course: S1° 30' 26""W" Length: 300.00'
"North: 14,760,189.2426'" "East: 2,222,773.8354'"

"Perimeter: 1,567.55'" "Area: 110,037.31Sq.Ft."
Error Closure: 0.0068 "Course: N58° 54' 52""W"
Error North : 0.00351 East: -0.00583

"Precision 1: 230,520.59"

GEOTECHNICAL ENGINEERING REPORT
for
BOULDER BAY
Crystal Bay/Washoe County, Nevada

Prepared for:
Boulder Bay, LLC
PO Box 307
Crystal Bay, Nevada

Prepared by:
Holdrege & Kull
10775 Pioneer Trail, Suite 213
Truckee, California 96161

Project No. 42118-01
May 10, 2016

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Project No. 42118-01
May 10, 2016

Boulder Bay, LLC
PO Box 307
Crystal Bay, Nevada, 89402

Attention: Brian Helm, Project Manager

Reference: ***Boulder Bay Project***
Crystal Bay, Washoe County, Nevada

Subject: ***Geotechnical Engineering Report***

This report presents the results of our geotechnical engineering investigation for the proposed spa and resort development to be constructed at 6 State Route 28 in the community of Crystal Bay, Washoe County, Nevada. Project plans were in the preliminary stages at the time this report was prepared; however the proposed project will involve construction of about eight multiple-story structures consisting of condominiums, hotel, gaming, dining, wellness, affordable housing, and a public park at the site. Appurtenant construction will likely include resort and spa pools, an events terrace, asphalt concrete paved interior roads, hard surface patios, and underground utilities.

Previous subsurface investigations conducted on the project site encountered weathered granitic rock at depths ranging from approximately 0.5 to 9 feet below the existing ground surface. The weathered granitic rock appears to be excavatable and should provide suitable support for the planned structures; however, depending on final site grades, rainfall, and/or irrigation practices, perched groundwater will likely seasonally develop above onsite near-surface rock and could cause adverse effects to the proposed structures. We have provided recommendations to reduce the potential adverse effects of perched groundwater in the following report.

Based on our subsurface explorations, it appears that up to 9 feet of undocumented fill of unknown lateral extent is located over much of the project site. Due to the potential for excessive settlement, the existing fill will not be suitable for support of structures. We have provided recommendations in the following report for removing and, if necessary, replacing the existing fill with compacted structural fill.

With the exception of the aforementioned issues, our professional opinion is that the site is suitable for the proposed development using conventional earthwork grading and foundation construction techniques. No highly compressible or potentially expansive soil conditions were encountered during our subsurface exploration. Specific recommendations regarding the geotechnical aspects of project design and construction are presented in the following report.

The findings presented in this report are based on our subsurface exploration, laboratory test results, review of previous reports, and experience in the project area. We recommend retaining our firm to provide construction monitoring services during earthwork and foundation excavation to observe subsurface conditions encountered with respect to our recommendations provided in this report. As plans develop, we should be consulted concerning the need for additional services.

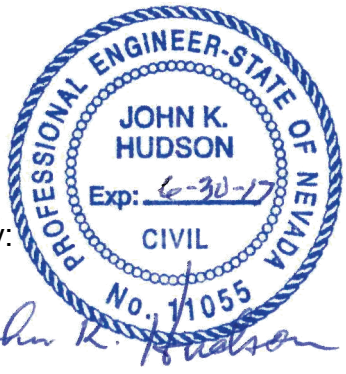
Please contact us if you have any questions regarding this report or if we can be of additional service.

Sincerely,
Holdrege & Kull

Prepared By:

Joseph E. McKinney, PGp, PG
Senior Geophysicist/Geologist

Reviewed By:



John K. Hudson, PE, CEG
Principal

Copies: 3 to Brian Helm

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APPENDICES

1. INTRODUCTION

This report presents the results of our geotechnical engineering investigation for the proposed Boulder Bay hotel/condominium/commercial development to be constructed at 6 Highway 28 in the community of Crystal Bay, Washoe County, Nevada. We performed our investigation in general accordance with our March 14, 2016 revised proposal for the project, authorized on March 21, 2016. A copy of the proposal is included as Appendix A of this report. For your review, Appendix B contains a document prepared by ASFE entitled *Important Information About Your Geotechnical Engineering Report.* This document summarizes the general limitations, responsibilities, and use of geotechnical engineering reports.

1.1 Purpose

The purpose of our investigation was to explore and evaluate the subsurface conditions at the project site, and to provide our geotechnical engineering recommendations for project design and construction.

Our findings are based on our subsurface exploration, laboratory test results, review of previous investigations performed by others, and our experience in the project area. We recommend retaining our firm to provide construction monitoring services during earthwork and foundation excavation to observe subsurface conditions encountered with respect to our recommendations.

1.2 Scope of Services

To prepare this report we performed the following scope of services:

- We performed a site reconnaissance, literature review, and subsurface exploration involving backhoe-excavated test pits.
- We logged the subsurface conditions encountered and collected bulk soil samples for classification and laboratory testing.
- We performed laboratory tests on selected soil samples obtained during our subsurface investigation to evaluate material properties.
- We reviewed previous site investigations performed by Lumos & Associates in 2008 and Kleinfelder in 2007.
- Based on our subsurface exploration and the results of our laboratory testing, we performed engineering analyses to develop geotechnical engineering recommendations for project design and construction.

1.3 Site Description

The project site consists of approximately 16+ acres of developed property in the community of Crystal Bay, Washoe County, Nevada. The site currently consists of the existing Tahoe Biltmore Lodge & Casino and appurtenant structures, access roads, and parking lots. Vegetation at the site consists of conifer trees, sparse brush, and landscaping.

Remnants of old rockery retaining walls and armored slopes are present in the north portion of the site. Also, evidence of undocumented fill and old structure foundation remnants were observed in the vicinity of the proposed Building A footprint. The area immediately northeast of Reservoir Road and between Wassou Road and State Route 28, encompassing the northeast portion of proposed Building C and the southwest portion of Building A was occupied by a casino most recently known as the "Club North Shore," and previously known as "Capy Rix's Gaming Hall." This structure and at least two more smaller structures to the north east are shown on older USGS topographic maps, and can be observed in old photographs displayed in the Tahoe Biltmore Lodge & Casino.

The approximate location of the site is shown on Figure 1, Site Location Map. A plan view of the project site and proposed improvements is shown on Figure 2, Test Pit and Boring Locations. The project site is bounded by State Route 28 to the east and south, Stateline Road and Lakeview Avenue to the west, a private residence to the northwest and undeveloped land to the northeast.

According to the 1992 edition of the Kings Beach California-Nevada 7.5-minute quadrangle map published by the United States Geological Survey (USGS); the subject site comprises a portion of Section 30, Township 16 north Range 18 east, and a portion of section 19, Township 16N Range 18E. Site elevations range from approximately 6,401 feet above mean sea level (MSL) near the south tip of the property near the intersection of SR 28 and Stateline Road to 6,544 feet MSL near the west property corner near the water tank. Surface water drainage consists of overland flow. The site generally slopes gently to moderately down from west to east.

1.4 Proposed Improvements

Information about the proposed project was obtained from our site visits, conversations with Brian Helm of Boulder Bay, LLC, Ken Brietkreuz and Andy White of OZ Architecture, and a site plan provided by Design Workshop.

The project, as presently proposed, will involve demolition of the existing Tahoe Biltmore hotel/casino and appurtenant structures, and phased construction of 8 or 9

structures on the approximately 16+ acre site. The proposed structures are listed as: hotel and wellness; hotel, meeting, and accessory; hotel and condominiums; hotel and gaming; hotel; and two retail, dining, and affordable housing units. Construction will begin with a condominium structure, designated as Building A and presently in the design phase. Building A will likely be constructed prior to demolition of the Tahoe Biltmore. We understand that the Building A structure will be multiple-story with a bottom-floor parking garage consisting of a concrete podium and type V wood-frame construction above. We also understand that the structures will be supported by conventional cast-in-place reinforced concrete spread foundations and retaining walls with slab-on-grade parking garage floors. Appurtenant construction will likely include resort and spa pools, an events terrace, asphalt concrete paved interior roads, hard surface patios, and underground utilities.

Structural loads are assumed to involve maximum wall and column loads OF about 6 kips per lineal foot and 120 kips, respectively. The Tahoe Regional Planning Agency (TRPA) Land Capability Program's staff has reviewed a Soils/Hydrologic Scoping Report Application dated July 22, 2008, and approved 12 excavations to depths of 5 to 49 feet below existing grades (beg). No detailed future building construction or grading plans were available for review.

2. LITERATURE REVIEW

We reviewed available geologic literature in our files and previous soils reports provided to us to evaluate geologic and anticipated subsurface conditions at the project site. The following reports were reviewed:

- Kleinfelder, 2007, *Soils/Hydrologic Scoping and Final Report, Proposed Commercial Development, 18 North Lake Tahoe Parcels,* dated February 5, 2007.
- Lumos & Associates, Inc., 2008, *Geotechnical Investigation Report for Boulder Bay, Crystal Bay, Nevada,* dated September, 2008.

2.1 Regional Geology

To help evaluate the geology of the site and surrounding area, we reviewed the following maps and reports:

- *Sedimentology and Pleistocene History of Lake Tahoe, California-Nevada,* by Norman John Hyne Jr., University of Southern California Ph.D. Thesis, 1969;

- *Geologic Map of the Chico Quadrangle, California*, by G.J. Saucedo and D.L. Wagner, California Division of Mines and Geology, 1992;

- *Geologic Map of the Lake Tahoe Basin, California and Nevada,* compiled by George J. Saucedo, California Geological Survey, 2005;

- *Geologic Map of the North Lake Tahoe-Donner Pass Region, Northern Sierra Nevada, California*, by Arthur Gibbs Sylvester et al., California Geological Survey, 2012;

- *Geologic Map of the Reno 1° by 2° Quadrangle, Nevada and California,* by R.C. Greene, J.H. Stewart, D.A. John, R.F. Hardyman, N.J. Silberling, and M.I. Sorensen, U.S. Geological Survey,1991.

- *Geology and Mineral Deposits of Washoe and Storey Counties, Nevada,* by Harold F. Bonham, Nevada Bureau of Mines and Geology, 1969.

The project site is located at the northern end of the Lake Tahoe Basin, near the eastern edge of the Sierra Nevada geomorphic province. The approximately 400-mile long Sierra Nevada province is a tectonic block tilted upward on the east. The steep eastern escarpment is characterized by high mountain ridges that tower above the valleys of the adjacent Basin and Range province toward the east. The western slopes are gentle in comparison, and dip westward at approximately 2 to 5 degrees until they disappear beneath the sediments of the Great Valley province.

The Lake Tahoe Basin was formed by the down-dropping of one of the westernmost Basin and Range blocks along the West and East Tahoe Faults. The uplifted blocks to the west and east of the present lake formed the Sierra Nevada and Carson Range, respectively.

Volcanism associated with Mount Pluto at the north end of the lake created a lava dam across the outlet of the Truckee River, which drains the lake. Repeated episodes of recent volcanism and glaciation followed throughout the area. Glacial ice dams repeatedly formed across the Truckee Canyon outlet creating elevated lake levels. Jöklhlaups (floods through breached ice dams) catastrophically lowered the lake levels back down to the lava-dam level. As the ice age ended, the retreating glaciers created the current landscape, with U-shaped valleys, glacial moraines and outwash, bays, sharp peaks, polished rock surfaces, and numerous lakes.

2.2 Site Geology

According to the *Geologic Map of the Lake Tahoe Basin, California and Nevada*, by George J. Saucedo, the site is generally underlain by Cretaceous-aged granitic rocks comprised of undivided fine- to coarse-grained granite and granodiorite. The granitic rock is exposed in outcrops near the site. The rock is highly weathered.

2.3 Regional Faulting

Similar to most of California and Nevada, the project is located in a potentially active seismic area. To evaluate the location of mapped faults relative to the project site, we reviewed the following maps:

- *Fault Activity Map of California;* by Charles W. Jennings and William A. Bryant, California Geological Survey, 2010.

- *Quaternary Faults in Nevada,* by Craig M. dePolo, Nevada Bureau of Mines and Geology, 2008.

- *Geological Map of the Lake Tahoe Basin, California and Nevada,* compiled by George J. Saucedo, California Geological Survey, 2005.

- *Geologic Map of the Chico Quadrangle, California,* by G.J. Saucedo and D.L. Wagner, California Division of Mines and Geology, 1992.

The potential risk of fault rupture is based on the concept of recency and recurrence. The more recently a particular fault has ruptured, the more likely it will rupture again. The California Geological Survey (2010) defines an “active fault” as one that has had surface displacement within the past 11,000 years (Holocene). Potentially active faults are defined as those that have ruptured between 11,000 and 1.6 million years before the present (Quaternary). The Nevada Bureau of Mines and Geology (NBMG) defines faults as historical (within the last 150 years), Pleistocene and Holocene (last 15,000 years), and Quaternary (130,000 to 1.8 million years before the present). Faults are generally considered inactive if there is no evidence of displacement during the Quaternary.

The referenced geologic maps show several active and potentially active faults located near the project site, including the North Tahoe Fault (active, approximately 2,500 feet east), the Incline Village Fault (active, approximately 2.1 miles east), the West Tahoe/Dollar Point Fault (active, approximately 5.5 miles west), the Polaris Fault (active, approximately 6.5 miles northwest), a group of unnamed faults southeast of Truckee (active and potentially active, approximately 8.2 miles west northwest), the Dog

Valley Fault (active, approximately 15.5 miles northwest) and the Genoa Fault (active, approximately 11 miles southeast). The Genoa Fault is capable of producing very large earthquakes. Earthquakes associated with these faults may cause strong ground shaking at the project site.

The potential hazard associated with earthquake faults involves surface rupture and strong ground motion. No faults are mapped as crossing or trending towards the site; therefore, the potential for surface rupture at the site is considered low. Earthquakes centered on regional faults in the area, such as the West Tahoe, North Tahoe, Incline Village, and Genoa Faults, would likely result in higher ground motion at the site than earthquakes centered on smaller faults that are mapped closer to the site.

2.4 Secondary Seismic Hazards

Secondary seismic hazards include liquefaction, lateral spreading, and seismically induced slope instability and rock fall. Liquefaction is a phenomenon where loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure buildup. Cyclic loading, such as an earthquake, typically causes the increase in pore water pressure and subsequent liquefaction. Based on the results of our and previous subsurface investigations, near-surface soil at the site consists of medium dense to very dense silty sand with cobbles and boulders overlying weathered granitic rock. This soil profile will have a low potential for liquefaction.

Lateral spreading is the lateral movement of soil resulting from liquefaction of subadjacent materials. Since we anticipate that there is a low potential for liquefaction of soil at the site, the potential for lateral spreading to occur is also considered low.

Slope instability includes landslides, debris flows, and rock fall. No landslides, debris flows or rock fall hazards were observed in the site area. Due to the relative strength of the soil/rock underlying the site, the potential for slope instability is considered low.

3. SUBSURFACE EXPLORATION

We performed our subsurface exploration to characterize typical subsurface conditions at the site.

3.1 Field Exploration

The subsurface conditions at the site were investigated on April 7, 2016 by excavating 4 exploratory test pits to depths ranging from 9 to 12 feet bgs. The test pits were

excavated with a Case 580 backhoe equipped with a 24-inch bucket. Test pit locations were selected based on locations of proposed improvements and site access.

An engineer from our firm logged the soil conditions exposed in the test pits, visually classified the soil, and collected bulk soil samples for laboratory testing. Soil samples were packaged and sealed in the field to reduce moisture loss and were returned to our laboratory for testing. Upon completion, the test pits were loosely backfilled with the excavated soil. The approximate locations of our test pits are shown on Figure 2, Test Pit and Boring Locations.

In addition to our test pits, nine boring and six test pit logs for the project site vicinity recorded by Lumos & Associates (L&A) in 2008, and seven boring logs recorded by Kleinfelder in 2007 were incorporated into our analysis. These additional logs are included with our test pit logs in Appendix C; the approximate locations are included on Figure 2.

As part of the L&A investigation in 2008, refraction microtremor (ReMi) data were acquired over 3 lines in the project area by Gasch & Associates of Rancho Cordova, California. Data from these 3 lines were incorporated into our analysis and are presented in Appendix E. Approximate line locations are shown on Figure 2.

3.2 Subsurface Soil Conditions

Near-surface soil encountered in our test pits consisted of approximately 6 inches of loose silty sand (SM) containing organic material (topsoil). Underlying the silty sand topsoil, our test pits encountered 2 to 5.5 feet of undocumented fill consisting of damp to wet, dense to very dense silty sand (SM), and, in Test Pit TP-2, silty gravel (GM), with varying amounts of cobbles and boulders. The silty gravel encountered in Test Pit TP-2 also contained concrete debris and an intact 6-inch-thick concrete slab. In test pit TP-4, native soil consisting of damp, dense silty sand (SM) was encountered at 3 feet bgs. We encountered completely weathered granitic rock consisting of damp, dense silty sand (SM) and poorly-graded sand with silt (SP-SM) in all our test pits at depths ranging from 2 to 5.5 feet bgs. More detailed descriptions of the subsurface conditions observed are presented in our Test Pit Logs in Appendix C.

Subsurface soils encountered during the L&A 2008 investigation consisted of silty sand and silty sand with gravel (SM), poorly graded sand with silt (SP-SM), and well-graded sand with silt and gravel (SW-SM) to depths ranging from about 0.5 to 55.5 feet bgs. Weathered granitic rock was encountered in all borings and test pits at depths ranging from approximately 0.5 to 9 feet bgs. Undocumented fill ranging in thickness from 1.5 to 9 feet was encountered in Borings B-5, B-6, B-7, B-8, and B-9 and in Test Pits TP-1, TP-3, TP-4, TP-5 and TP-6.

Soils encountered in the Kleinfelder 2007 borings were reported to consist of "a yellow brown (10YR 5/6) to a dark brown (7.5YR 3/3) clayey sand or poorly graded sand in the top three to four feet. These soils were underlain by decomposed granite varying in color range from strong brown (7.5YR 5/8) to dark yellowish brown (10YR 4/6). A surface layer of fill soil with a medium to dense relative density was encountered in borings (sic) B-7 to a depth of 12 feet bgs. The fill was underlain with a layer or (sic) cobbles and boulders, we assume to be the nearby rockery wall, before encountering the weathered granodiorite at approximately 15 feet below ground surface." It should be noted that neither H&K's nor L&A's laboratory tests identified any clayey soil in 11 Atterberg Limits tests performed on samples obtained across the project site.

The completely weathered granitic rock encountered in all borings and test pits is considered to behave more like a soil than rock in its engineering properties; as such, this unit is treated as a dense to very dense silty sand. Based on deep borings and the ReMi data, this soil transitions to harder rock at a depth range of approximately 15 to 25 feet bgs.

3.3 Groundwater Conditions

We did not observe groundwater during our subsurface exploration, and groundwater was observed in neither the L&A borings and test pits nor the Kleinfelder borings; however, fluctuations in soil moisture content and groundwater levels should be anticipated depending on precipitation, irrigation, runoff conditions and other factors. Based on our experience in the project area, seasonal saturation of near-surface soil should be anticipated, especially during and immediately after seasonal snowmelt.

During the subsurface investigations, completely weathered granitic rock was encountered at depths of approximately 0.5 to 9 feet bgs across the project site. Depending on final site grades, rainfall, irrigation practices, and other factors, perched groundwater may seasonally develop above onsite near-surface rock. Given the proposed deep cuts and moderate topography in the site area, seasonal saturation of near surface soil and perched groundwater on near-surface rock may result in significant groundwater flow through the face of cuts made for retaining walls or site grading. Perched groundwater may cause moisture intrusion into below-grade parking facilities or foundation crawl spaces or through concrete slab-on-grade floors, degradation of asphalt concrete pavements, and other adverse conditions. Mitigation measures such as gravel underdrains, trench drains, water barriers, or other methods may be required to intercept shallow groundwater or reduce potential adverse effects on project features. We recommend the project civil engineer in conjunction with the project geotechnical engineer review the subsurface information available within this report and revealed during site preparation in order to develop appropriate measures consistent with design considerations beyond the current scope of this study.

4. LABORATORY TESTING

We performed laboratory tests on bulk soil samples collected from our exploratory test pits to help evaluate their engineering properties. The following laboratory tests were performed:

- Atterberg Limits/Plasticity (ASTM Test Method D4318)
- Sieve Analysis (ASTM D422)

Sieve analysis and Atterberg Limits data typically resulted in USCS classifications of Poorly-Graded Sand with Silt (SP-SM) and Silty Sand (SM). Atterberg Index testing of the fines portion of a sample from Test Pit TP-4 at a depth of 4.5 feet bgs shows the fines to consist of non-plastic silt (ML). More specific soil classification and laboratory test data is included in Appendix D. Also included in Appendix D are the laboratory test results from the L&A 2008 investigation. USCS classification and Atterberg indices are summarized below.

Table 4.1 – Summary of Laboratory Test Results

Test Pit Number	Depth (feet)	USCS Classification	Liquid Limit	Plastic Limit
TP-1	7.0	Poorly-Graded Sand with Silt (SP-SM)	--	--
TP-3	3.0	Silty Sand (SM)	--	--
TP-4	4.5	Silty Sand (SM)	NP	NP

5. CONCLUSIONS

The following conclusions are based on ours and other's field observations, laboratory test results, and our experience in the project area.

1. Soil conditions encountered in the field investigations generally consisted of dense to very dense coarse-grained soil types of low plasticity overlying near-surface weathered granitic rock. The soil and rock should provide suitable foundation support for the proposed structures on conventional shallow spread foundations. No highly plastic, compressible, or potentially expansive soil was encountered.

2. Undocumented fill to depths of approximately 1.5 to 9 feet was observed over much of the project site. The lateral extent of this fill is unknown at this time. In addition, possible foundation remnants were observed within the proposed footprint of Building A. Due to the potential for excessive settlement, the fill will not be suitable for support of structures. Structures should be founded on underlying native soil or rock, or the existing fill can be removed and replaced

with compacted structural fill. Undocumented fill should be removed from structural areas during demolition and site grading.

3. The borings and test pits encountered weathered granitic rock across the project site. Depth to rock varied from 0.5 feet in the vicinity of L&A Boring B-2 to 9 feet in the vicinity of L&A Borings B-6 and B-7. Some areas of near surface rock may be encountered during excavations for utilities, parking lot and interior roadway grading, and/or foundations. A large track-mounted excavator equipped with a ripper tooth or hydraulic hammer may be required in some of these areas. A significant amount of boulders and over-sized material should be anticipated in on site excavations, particularly in the vicinity of Kleinfelder Boring B-7, which encountered an old rockery wall, and the southern portion of the Building C footprint. Old, partially buried rockery walls may be present elsewhere on the project site. With the exception of the organic surface soil, site soil is generally suitable for reuse as structural fill; however, processing to remove oversized and deleterious material will likely be necessary. Moisture content, dry density, and relative compaction of fill should be evaluated by our firm at regular intervals during fill placement.

4. Groundwater was not encountered during the subsurface explorations to the maximum depths explored; however, depending on final site grades, rainfall, and/or irrigation practices, perched groundwater may seasonally develop above onsite weathered rock and could collect in below-grade parking facilities and basement areas, cause moisture intrusion through concrete slabs-on-grade, cause degradation of asphalt concrete pavements, contribute to frost heave, and other adverse conditions. Consequently, positive surface water drainage, waterproofing and draining parking structure retaining walls will be important across the site to reduce the potential for the development of any of these conditions. We have provided recommendations to reduce the potential for these adverse effects in the “Recommendations” section of this report.

5. Site soil should provide adequate pavement support. However, seasonal saturation of near-surface soil should be considered in the design of pavement areas. Subdrains under pavement areas, cut-off curbs, and/or v-ditches along the side of roads should be considered to reduce saturation.

6. RECOMMENDATIONS

The following geotechnical engineering recommendations are based on our understanding of the project as currently proposed, our field observations, review of previous reports, results of our laboratory tests, engineering analysis, and our experience in the project area.

6.1 Grading

The following sections present our recommendations for site clearing and grubbing, preparation for and placement of fill material, temporary excavation and cut/fill slope grading, utility trench construction, construction dewatering, surface water drainage, plan review, and construction monitoring.

6.1.1 Clearing and Grubbing

It is possible that abandoned utility lines, septic tanks, cesspools, wells, rockery walls, and/or foundations may exist on site. Areas proposed for fill placement, road and driveway construction, and building areas should be cleared and grubbed of vegetation, trees, large roots, pavements, foundations, non-engineered fill, construction debris, abandoned underground utilities, and other deleterious materials. Existing wells should be abandoned in accordance with applicable regulatory requirements. Existing utility pipelines which extend beyond the limits of the proposed construction and will be abandoned in-place should be plugged with cement grout to prevent migration of soil and/or water. Existing vegetation, organic topsoil, and any debris should be stripped and hauled offsite or stockpiled outside the construction limits. Based on our subsurface exploration, we expect that 6 inches may be used as a reasonable estimate for average depth of stripping. Organic surface soil may be stockpiled for future use in landscape areas, but is not suitable for use as structural fill. We anticipate that the actual depth of stripping will vary across the site and may be greater in wooded areas. Areas disturbed during demolition and clearing should be properly backfilled and compacted as described below.

Man-made debris and backfill soil in our exploratory test pits or any other onsite excavations should be overexcavated to underlying, competent material and replaced with compacted structural fill. Grubbing may be required where concentrations of organic soil or tree roots are encountered during site grading.

All existing fill should be removed in areas that will support foundation elements, earth retention structures, and concrete slabs-on-grade. Based on field observations the depth of existing fill ranges from 1.5 to 9 feet across the site. The existing fill should

either be replaced with compacted structural fill or improvements may be founded directly on properly prepared underlying native soil. The existing fill material will be suitable for re-use as engineered fill material provided any debris exceeding 8 inches maximum dimension and all organic or deleterious material are removed and disposed off-site. Preparation of the subgrade exposed by overexcavation and requirements for engineered fill should be in accordance with recommendations provided below.

Since the lateral extent of undocumented fill is unknown at this time, we recommend that a representative of Holdrege & Kull observe the existing fill during removal and grading operations to ensure that all has been removed from construction areas and, if necessary, provide additional recommendations at the time of construction.

All rocks greater than 8 inches in greatest dimension (oversized rock) should be removed from the top 12 inches of soil, if encountered. Oversized rock may be used in landscape areas, rock faced slopes, or removed from the site. Oversized rock should not be placed in fill without prior approval by the project geotechnical engineer.

6.1.2 Preparation for Fill Placement

Prior to fill placement, all areas of existing fill material, man-made debris, or backfill soil should be removed to expose non-expansive native soil as discussed in the previous section.

Where fill placement is planned, the near-surface soil should be scarified to a depth of about 12 inches below existing ground surface or to competent material and then uniformly moisture conditioned to within 2 percent of the ASTM D1557 optimum moisture content. Areas to receive fill should be compacted with appropriate compaction equipment to at least 90 percent of the maximum dry density per ASTM D1557, and proof rolled with a loaded, tandem-axle truck under the observation of a representative of Holdrege & Kull. Any areas that exhibit pumping or rutting should be overexcavated and replaced with compacted fill placed according to the recommendations below.

6.1.3 Fill Placement

Material used for fill construction should consist of uncontaminated, predominantly granular, non-expansive native soil or approved import soil. Engineered fill should consist of granular material, nearly free of organic debris, with liquid limit of less than 40, a plasticity index less than 15, 100 percent passing the 8-inch sieve, and less than 30 percent passing the No. 200 sieve. In general, the near-surface on-site soil and existing fill meet the recommendations stated above. The soil may be used for engineered fill. Moisture content, dry density, and relative compaction of fill should be evaluated by our firm at regular intervals during fill placement. Rock used in fill should

be broken into fragments no larger than 8 inches in diameter. Rocks larger than 8 inches are considered oversized material and should be stockpiled for offhaul, later use in rock faced slopes, or placement in landscape areas.

Imported fill material should be predominantly granular, non-expansive, and free of deleterious or organic material. Import material that is proposed for use onsite should be submitted to Holdrege & Kull for approval and laboratory analysis at least 72 hours prior to import.

If site grading is performed during periods of wet weather, near-surface site soil may be significantly above optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact fill materials to the recommended compaction criteria. Fill material may require drying to facilitate placement and compaction, particularly during or following the wet season or spring snowmelt. Suitable compaction results may be difficult to obtain without processing the soil (e.g., discing during favorable weather, covering stockpiles during periods of precipitation, etc.).

Fill should be uniformly moisture conditioned to within 2 percent of optimum moisture content and placed in maximum 8-inch thick, loose lifts (layers) prior to compacting. Fill should be compacted to at least of 90 percent of the maximum dry density per ASTM D1557. The upper 8 inches of fill in paved areas should be compacted to at least 95 percent of the maximum dry density per ASTM D1557. Moisture content, dry density, and relative compaction of fill should be evaluated by our firm at regular intervals during fill placement. The earthwork contractor should assist our representative by preparing test pads with the onsite earth moving equipment.

6.1.4 Cut/Fill Slope Grading

Permanent cut and fill slopes at the subject site should be stable at inclinations up to 2H:1V; however, we recommend re-vegetating or armoring all cut/fill slopes to reduce the potential for erosion. Steeper slopes may be possible at the site provided slopes are protected from excessive erosion using rock slope protection or similar slope reinforcement. Slopes steeper than 2H:1V should be evaluated on a case-by-case basis.

Fill should be placed in horizontal lifts to the lines and grades shown on the project plans. Slopes should be constructed by overbuilding the slope face and then cutting it back to the design slope gradient. Fill slopes should not be constructed or extended horizontally by placing soil on an existing slope face and/or compacted by track walking.

Equipment width keyways and benches should be provided where fill is placed on side-slopes with gradients steeper than 5H:1V. Benching must extend through loose surface

soil into suitable material, and be performed at intervals such that no loose soil is left beneath the fill. Holdrege & Kull should observe keyways and benches prior to fill placement.

The upper two to five feet of cut slopes should be rounded into the existing terrain above the slope to remove loose material and produce a contoured transition from cut face to natural ground. Scaling to remove unstable cobbles and boulders may be necessary. Fill slopes should be compacted as recommended for the placement of engineered fill. The upper 4 to 8 inches may be scarified to help promote revegetation.

6.1.5 Temporary Unconfined Excavations

Based on our understanding of the proposed project, temporary unconfined excavations will likely be necessary. The following criteria may be used for construction of temporary cut slopes adjacent to proposed structures.

Temporary Slope Inclination (Horizontal to Vertical)	Depth Below Ground Surface (feet)
0.5:1	0-10
Near-vertical	10-16

These temporary requirements may require modifications in the field during construction or where loose soil, groundwater seepage, or existing fill is encountered. The slope should be scaled of loose cobbles and boulders. Higher slopes should be covered with strong wire or fabric, firmly secured to prevent roll down of cobbles or other deleterious materials. The contractor is responsible for the safety of workers and should strictly observe federal and local OSHA requirements for excavation shoring and safety. Some raveling of temporary cut slopes should be anticipated. During wet weather, surface water runoff should be prevented from entering excavations. To reduce the likelihood of sloughing or failure, temporary cut slopes must not remain over the winter.

6.1.6 Underground Utility Trenches

We anticipate that the contractor will be able to excavate underground utility trenches using conventional earthmoving equipment across the site. Based on the excavation and boring conditions encountered during the field investigations, we anticipate that a track mounted excavator equipped with a ripper and possibly a hydraulic hammer may be required in weathered granitic rock below about 0.5 to 9 feet across the site. An excavator with a “thumb” attachment may increase ease of boulder removal at the site.

We expect that some caving and sloughing of utility trench sidewalls will occur. The California Occupational Safety and Health Administration (OSHA) requires all utility trenches deeper than 5 feet bgs be shored with bracing equipment or sloped back prior to entry.

Shallow subsurface seepage may be encountered in trench excavations, particularly if utility trenches are excavated during the spring or early summer. The earthwork contractor may need to employ dewatering methods as discussed in the *Construction Dewatering* section below to excavate, place and compact trench backfill materials.

Soil used as trench backfill should be non-expansive and should not contain rocks greater than 4 inches in maximum dimension. Trench backfill should consist of uniformly moisture conditioned soil and be placed in maximum 8-inch thick loose lifts prior to compacting. Unless otherwise specified by the applicable local utility district, pipe bedding and trench backfill should be compacted to at least 90 percent of the maximum dry density per ASTM D1557. Trench backfill placed within 8 inches of subgrade building and driveway areas should be compacted to a minimum relative compaction of 95 percent of the maximum dry density per ASTM D1557. The moisture content, density and relative compaction of fill should be tested by Holdrege & Kull at regular intervals during fill placement.

6.1.7 Construction Dewatering

During our subsurface exploration, we did not encounter groundwater seepage in our exploratory test pits. If grading is performed during or immediately following the wet season or spring snowmelt, seepage may be encountered during grading. We should observe those conditions and provide site specific subsurface drainage recommendations. The following recommendations are preliminary and are not based on a groundwater flow analysis.

We anticipate that dewatering of excavations can be performed by gravity or by constructing sumps to depths below the excavation and removing water with pumps. To maintain stability of the excavation when placing and compacting the trench backfill, groundwater levels should be drawn down a minimum of 2 feet below the lowest point of the excavation.

If seepage is encountered during trench excavation, it may be necessary to remove underlying saturated soil and replace it with free draining, open-graded crushed rock. Soil backfill may be placed after backfilling with drain rock to an elevation higher than encountered groundwater.

6.1.8 Surface Water Drainage

Based on our observations and past experience with geotechnical investigations in the project vicinity, there is a relatively high potential for seasonal saturation of near-surface soil and groundwater seepage into the foundation areas. In addition, near-surface weathered granitic rock was encountered in our test pits at depths of about 0.5 to 9 feet below existing site grade. Depending on final site grades, rainfall, irrigation practices, and other factors beyond the scope of this study, perched groundwater will likely seasonally develop above onsite weathered granitic rock. Near-surface groundwater may enter below-grade parking areas, basements, under-floor crawl spaces, migrate through concrete floor slabs, degrade asphalt concrete pavements, increase frost heave, and contribute to other adverse conditions.

Final elevations at the site should be planned so that drainage is directed away from all foundations and pavements. Ponding of surface water should not be allowed near pavements or structures. If physical obstructions or lot lines prohibit drainage away from buildings, a 5 percent slope should be constructed towards a drainage swale or other conveyance system that diverts water away from the foundation. Paved areas should be sloped away from structures a minimum of 2 percent and drainage gradients should be maintained to carry all surface water to a properly designed infiltration or detention basin.

Drains should be constructed on the upslope side of exterior foundations and should be placed along continuous interior wall foundations and in all crawl spaces and below-grade parking areas. Drains should extend to a properly designed infiltration gallery. Recommended subsurface drain locations can be provided at the time of construction and when foundation elevations are known. Due to the gentle topography of portions of the site, elevations of foundations, below grade parking areas, and crawl spaces should be carefully planned so that it is possible to install gravity-fed drains that daylight a minimum of 10 feet from structures.

All foundation and slab-on-grade concrete should have a water to cement ratio of 0.45 or less. Underslab or blanket drains should be considered in floor pavement areas to reduce moisture transmission through the floor and help maintain subgrade support.

We recommend that the finished elevation of the interior subgrade in below-grade parking areas and crawl spaces be higher than the lowest ground surface elevation of the project site (positive crawl space drainage). If the design of the structures is such that the below-grade parking areas and/or crawl spaces must be lower than the lowest point, sump drains should be installed in these areas. All vegetation and highly organic soil should be removed from crawl space areas. Adequate ventilation should be

provided in all crawl space areas to promote drying. The project architect and owner should consider the need for an automated mechanical ventilation system.

If open-graded gravel or other permeable material is used for underground utilities, the trench should slope away from the structure or the potential flow path should be plugged with a less permeable material at the exterior of the foundation. All utility pipes should have sealed joints.
Roof drip-lines should be protected from erosion with a gravel layer and riprap. Roof downspouts should be directed to a closed collector pipe that discharges flow to positive drainage. Backfill soil placed adjacent to building foundations should be placed and compacted such that water is not allowed to pond or infiltrate. Backfill should be free of deleterious material and placed and compacted in accordance with the above earthwork recommendations.

6.1.9 Plan Review and Construction Monitoring

Construction monitoring includes review of plans and specifications and observation of onsite activities during construction as described below. We should review final grading and foundation plans prior to construction to evaluate whether our recommendations have been implemented and to provide additional and/or modified recommendations, if necessary. We also recommend retaining our firm to provide construction monitoring and testing services during site grading, foundation, retaining wall, underground utility, and road construction to observe subsurface conditions with respect to our engineering recommendations.

6.2 Structural Improvement Design Criteria

The following sections provide design criteria for foundations, seismic design, slabs-on-grade, retaining walls, and pavement sections.

6.2.1 Foundations

Our opinion is that shallow spread foundations are suitable for support of the proposed structures. The following paragraphs discuss foundation design parameters and construction recommendations.

Exterior foundations should be embedded a minimum of 24 inches below the lowest adjacent exterior finish grade for frost protection and confinement. The bottom of interior footings should be at least 12 inches below lowest adjacent finish grade for confinement. Reinforcing steel requirements for foundations should be determined by the project structural engineer.

Foundations founded in competent, undisturbed native soil or properly compacted structural fill may be designed using an allowable bearing capacity of 4,000 psf for dead plus live loads. Foundations founded in weathered granitic rock may be designed using an allowable bearing capacity of 5,000 psf for dead plus live loads. Foundations founded in moderately weathered granitic rock may be designed using an allowable bearing capacity of 10,000 psf for dead plus live loads (based on the ReMi and deeper borehole data, the weathering decreases with depth). Allowable bearing pressures may be increased by 33 percent for transient loading such as wind or seismic loads.

Resistance to lateral loads (including transient loads) may be provided by frictional resistance between the bottom of concrete foundations and the underlying soil, and by passive soil pressure against the sides of foundations. Lateral resistance derived from passive earth pressure can be modeled as a triangular pressure distribution ranging from 0 psf at the ground surface to a maximum of 350d psf, where d equals the depth of the foundation in feet. A coefficient of friction of 0.45 may be used between poured-in-place concrete foundations and the underlying soil.

Total settlement of individual foundations will vary depending on the plan dimensions of the foundation and actual structural loading. Based on anticipated foundation dimensions and loads, we estimate that total post-construction settlement of footings designed and constructed in accordance with our recommendations will be on the order of ½-inch. Differential settlement between similarly loaded, adjacent footings is expected to be less than ¼ -inch, provided footings are founded on similar materials (e.g., all on engineered fill, native soil, or rock). Differential settlement between adjacent footings founded on dissimilar materials (e.g., one footing on soil and an adjacent footing on rock) may approach the maximum anticipated total settlement. Settlement of foundations is expected to occur rapidly and should be essentially complete shortly after initial application of loads.

Loose material remaining in footing excavations should be removed to expose firm, unyielding material or compacted to at least 90 percent relative compaction. Footing excavations should be moistened prior to placing concrete to reduce risk of problems caused by wicking of moisture from curing concrete. Holdrege & Kull should observe footing excavations prior to reinforcing steel and concrete placement.

6.2.2 Seismic Design Criteria

In accordance with the 2012 IBC, the seismic design criteria shown in the table below should be used for the project site. The values were obtained for the site using the online US Geological Survey U.S. Seismic Design Maps tool found at http://earthquake.usgs.gov/designmaps/us/application.php. Input values included the site's approximate latitude and longitude obtained from Google Earth, and the Site

Class. Site class selection was based on our literature review, our subsurface investigation, our experience in the area, and the site class definitions provided in Chapter 20 of ASCE 7-10.

2012 IBC Seismic Design Parameters		
Description	Value	Reference
Approximate Latitude/Longitude	39.2290^0N/120.0038^0W	Google Earth
Site Class	C	Table 20.3-1, ASCE 7-10
Mapped Short Period Spectral Response Acceleration Parameter	S_s = 1.664 g	Figure 1613.3.1(3), 2012 IBC
Mapped 1-Second Period Spectral Response Acceleration Parameter	S_1 = 0.572 g	Figure 1613.3.1(2), 2012 IBC
Short Period Site Coefficient	F_a = 1.000	Table1613.3.3(1), 2012 IBC
1-Second Period Site Coefficient	F_v = 1.300	Table 1613.3.3(2), 2012 IBC
Site Adjusted Short Period Spectral Response Acceleration Parameter	S_{MS} = 1.664 g	Equation 16-37, 2012 IBC
Site Adjusted 1-Second Period Spectral Response Acceleration Parameter	S_{M1} = 0.743 g	Equation 16-38, 2012 IBC
Design Short Period Spectral Response Acceleration Parameter	S_{DS} = 1.109 g	Equation 16-39, 2012 IBC
Design 1-Second Period Spectral Response Acceleration Parameter	S_{D1} = 0.495 g	Equation 16-40, 2012 IBC
Risk Category	II	Table 1604.5, 2012 IBC
Seismic Design Category	D	Tables1613.3.5 (1) & (2) 2012 IBC

6.2.3 Slab-on-Grade Construction

Concrete slabs-on-grade may be used in conjunction with perimeter concrete footings. Slabs-on-grade should be a minimum of 4 inches thick. If floor loads higher than 250 psf, intermittent live loads, or vehicle loads are anticipated, the project structural engineer should provide slab thickness and steel reinforcing requirements.

Prior to constructing concrete slabs, the upper 8 inches of slab subgrade should be scarified, uniformly moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 90 percent of the maximum dry density per ASTM D1557. Scarification and recompaction may not be required if floor slabs are placed directly on undisturbed compacted structural fill.

Slabs should be underlain by at least 4 inches of Class 2 aggregate base placed over the prepared subgrade. The aggregate base should be compacted to a minimum of 95 percent of the maximum dry density per ASTM D1557. If a subdrain is installed as described below, slabs may be constructed over the crushed gravel layer provided a moisture barrier will be placed over the gravel.

To reduce the potential for moisture intrusion, the project architect and/or owner should consider constructing a drain beneath concrete slabs on grade that will receive moisture-sensitive floor coverings, or in areas where groundwater is encountered during grading. Subdrains should consist of a minimum of 4-inches of clean crushed gravel placed over native subgrade leveled or sloped at 2 percent towards a 4-inch diameter perforated drain pipe. The drain pipe should be placed with perforations face down in a minimum 12 inch wide gravel filled trench. The depth of the trench may vary depending on cover requirements for the drain pipe and the slope required to drain water from beneath the slab to a properly constructed infiltration gallery or detention basin. A minimum of one pipe should be installed in each area of the slab surrounded by continuous perimeter foundation elements.

In slab-on-grade areas where moisture sensitive floor coverings are proposed, a vapor barrier (e.g. 15 mil Stego® Wrap) should be placed over the base course or gravel subdrain to reduce the migration of moisture vapor through the concrete slab. The Stego® Wrap should be installed in accordance with the manufacturer's instructions. Concrete should be placed directly on the vapor barrier. All slab concrete should have a water-cement ratio of 0.45 or less.

Regardless of the type of vapor barrier used, moisture can wick up through a concrete slab. Excessive moisture transmission through a slab can cause adhesion loss, warping, and peeling of resilient floor coverings, deterioration of adhesive, seam separation, formation of air pockets, mineral deposition beneath flooring, odor, and fungi growth. Slabs can be tested for water transmissivity in areas that are moisture sensitive. Commercial sealants, moisture retarding admixtures, fly ash, and a reduced water-to-cement ratio can be incorporated into the concrete to reduce slab permeability. To further reduce the chance of moisture transmission, a waterproofing consultant should be contacted.

Exterior slabs-on-grade such as sidewalks should be placed on a minimum 6-inch thick compacted aggregate base section to help reduce the potential for frost heave. Deleterious material should be removed from floor slab subgrades prior to concrete placement. For exterior slabs, the native soil should be ripped, moisture conditioned and recompacted to an 8-inch depth.

Concrete slabs impart a relatively small load on the subgrade (approximately 50 psf). Therefore, some vertical movement should be anticipated from possible expansion, freeze-thaw cycles, or differential loading.

6.2.4 Retaining Wall Design Criteria

Retaining walls should be designed to resist lateral earth pressures exerted by retained, compacted backfill plus additional lateral forces (i.e. surcharge loads) that will be applied to walls. The following active and passive pressures are for well drained walls retaining native soil. If import soil is used for fill or backfill, we should review our recommendations. Pressures exerted against retaining walls may be calculated by modeling soil as an equivalent fluid with unit weights presented in the following table.

Table 6.2.4.1 – Equivalent Fluid Unit Weights*

Loading Condition	Retained Cut or Compacted Fill (Level Backfill)	Retained Cut or Compacted Fill (Backfill Slopes up to 2:1, H:V)
Active Pressure (pcf)	35	55
Passive Pressure (pcf)	350	350
At-Rest Pressure (pcf)	50	65
Coefficient of Friction	0.45	0.45

* Equivalent fluid unit weights presented are ultimate values and do not include a factor of safety. Passive pressures provided assume footings are founded in competent native soil or compacted and tested fill.

The values presented in Table 6.2.4.1 assume that the retained soil will not exceed approximately 14 feet in height and that no surcharge loads (e.g., footings, vehicles) are anticipated within a horizontal distance of approximately 7 feet from the face of the wall. If additional surcharge loads are anticipated, we should review the proposed loading configuration to provide loading-specific design criteria. In addition, we can provide retaining wall and rockery wall design criteria for specific loading and backfill configurations, if requested.

The use of the tabulated active pressure unit weight requires that the wall design accommodate sufficient deflection for mobilization of the retained soil to occur. Typically, a wall yield of less than 0.1 percent of the wall height is sufficient to mobilize active conditions in granular soil. If the walls are rigid or restrained to prevent rotation, at-rest conditions should be used for design.

Additional lateral loading (ΔP_{ae}) on retaining structures due to seismic accelerations may be considered at the designer's option. The USGS Seismic Design Maps tool was used to establish seismic design parameters and provides an estimated peak ground acceleration (PGA) ***corresponding to the maximum considered earthquake (MCE_R) ground motion***.

For an earthquake producing a design peak ground acceleration (PGA) of 0.630g and a horizontal seismic coefficient (k_h) equal to one-half the PGA, and following the Mononobe-Okabe procedure to evaluate seismic loading on retaining walls, we recommend that the resulting additional lateral force applied to unrestrained (cantilevered) retaining structures with drained level backfill onsite be estimated as $\Delta P_{ae}=14H^2$ (pounds per foot), where H is the height of the wall in feet. The additional seismic force may be assumed to be applied at a height of H/3 above the base of the wall. This seismic loading is for routine walls with drained, level backfill conditions only; H&K should be consulted for values of seismic loading for more critical walls or walls with non-level or non-drained backfill conditions. The use of reduced factors of safety is often appropriate when reviewing overturning and sliding resistance during seismic events.

Compaction equipment should not be used directly adjacent to retaining walls unless the wall is designed or braced to resist the additional lateral forces. If surface loads are closer to the top of the retaining wall than one-half of its height, Holdrege & Kull should review the loads and loading configuration. We should also review details and plans for any proposed wall over 5 feet in height.

Retaining wall backfill should consist of granular material, nearly free of organic debris, with liquid limit of less than 40, a plasticity index less than 15, 100 percent passing the 8-inch sieve, and less than 35 percent passing the No. 200 sieve. Backfill should be uniformly moisture conditioned to within 2 percent of the ASTM D1557 optimum moisture content and compacted with appropriate compaction equipment to at least 90 percent of the maximum dry density per ASTM D1557. If the retaining wall backfill will support foundations, the backfill should be compacted to at least 95 percent of the maximum dry density per ASTM D1557. We should review and provide specific backfill criteria for all retaining walls over 10 feet in height. Utilities that run through retaining wall backfill should not pass through the wall or other rigid structures without allowance for vertical movement of at least one inch.

Retaining wall design criteria presented in Table 6.2.4.1 assume that retaining walls are well drained to reduce hydrostatic pressures. Drainage blankets consisting of graded rock drains and geosynthetic blankets should be installed to reduce hydrostatic pressures. Rock drains should consist of a minimum 18 inches of open-graded crushed rock, and placed directly behind the wall, wrapped in non-woven geotextile filter fabric

such as Mirafi 140N or approved equivalent. Drains should have a minimum 4-inch diameter, perforated drain pipe placed at the base of the wall, inside the drain rock, with perforations placed down. The pipe should be sloped so that water is directed away from the wall by gravity. A geosynthetic drainage blanket such as Enkadrain™ or equivalent should also be placed against the back of the wall. Backfill must be compacted carefully so that equipment or soil does not tear or crush the drainage blanket.

We recommend treating subsurface walls and slabs to resist moisture migration. Moisture retarding material should consist of sheet membrane rubberized asphalt, polymer-modified asphalt, butyl rubber, or other approved material capable of bridging nonstructural cracks, applied in accordance with the manufacturers recommendations. Extra attention should be paid to concrete cold joints between walls and footings. A manufactured water-stop or key should be placed at all cold joints. The project architect or contractor may wish to consult with a waterproofing expert regarding additional options for reducing moisture migration into living areas.

6.2.5 Pavement Design

Based on our experience in the Tahoe-Truckee area, environmental factors, such as freeze-thaw cycles and thermal cracking will usually govern the life of asphalt concrete (AC) pavements. Thermal cracking of asphalt pavement allows more water to enter the pavement section, which promotes deterioration and increases maintenance costs. In addition, snow removal activities on site will result in heavy traffic loads. For these reasons, we recommend a minimum parking area pavement section of 3 inches of AC on 6 inches of aggregate base (AB). Access drives and loading areas should consist of 4 inches of AC on 6 inches of AB.

We recommend that paving stones in non-traffic areas be supported by a minimum of 6 inches of Standard Specifications for Public Works Construction (SSPWC) Type 2, Class B aggregate base. For light traffic areas, the AB section should be increased to at least 8 inches. An underlying concrete slab is not necessary for light traffic and non-traffic areas. Prior to placing aggregate base, the subgrade should be prepared in accordance with the recommendations provided below.

Due to seasonal saturation of the underlying AB and freeze-thaw cycles, some vertical movement of paving stones over time should be anticipated. This movement can likely be reduced by constructing a drainage layer beneath paving stone pavements. The drainage layer should consist of 4 inches of compacted clean angular gravel. The gravel layer should contain a minimum 4-inch diameter perforated pipe, sloped to drain water from beneath the pavement towards an infiltration gallery. A minimum 4-ounce non-

woven filter fabric such as Mirafi 140N or approved equivalent should be placed between the compacted gravel subdrain and aggregate base layer.

The upper 6 inches of native soil should be compacted to at least of 95 percent of the maximum dry density per ASTM D1557 prior to placing aggregate baserock. Aggregate baserock should also be compacted to a minimum of 95 percent. Subgrade and AB dry density should be evaluated by Holdrege & Kull. In addition to field density tests, subgrade should be proof rolled under the observation of Holdrege & Kull prior to baserock placement.

To improve pavement performance and lifespan, we recommend promoting drainage of the pavement subgrade. Drainage can be accomplished through roadway layout and design, subdrains, or v-ditches. A representative of Holdrege & Kull should evaluate pavement subgrade at the time of construction and provide location-specific recommendations for subdrains and/or v-ditches. Typical subdrains consist of a minimum of 4-inches of clean, crushed, compacted, ¾-inch gravel. Pavement subgrade should be graded and prepared such that water drains from beneath pavement section and to a properly designed infiltration or detention basin. Subdrains may be used in conjunction with v-ditches located on one or both sides of the roadway. The v-ditches should be constructed to a depth greater than the proposed pavement and subdrain section. Ditches should be rock-lined or vegetated to help reduce erosion, and convey water to a properly designed infiltration or detention basin. If subgrade soil is relatively free draining, it may be possible to construct v-ditches in lieu of subdrains.

We recommend installing cut-off curbs where paved areas abut landscaped areas to reduce migration of irrigation water into subgrade soil or baserock, promoting asphalt failure. Cut-off curbs should be a minimum of 4-inches wide, and extend through the aggregate base a minimum of 4 inches into subgrade soil.

7. LIMITATIONS

Our professional services were performed consistent with the generally accepted geotechnical engineering principles and practices employed in the site area at the time the report was prepared. No warranty, express or implied, is intended.

Our services were performed consistent with our agreement with our client. We are not responsible for the impacts of changes in environmental standards, practices or regulations subsequent to performance of our services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report. This report is solely for the use of our client. Reliance on this report by a third party is at the risk of that party.

If changes are made to the nature or design of the project as described in this report, then our conclusions and recommendations presented in the report should be reviewed by Holdrege & Kull to review our conclusions and recommendations. Additional field work and laboratory tests may be required to revise our recommendations. Costs to review project changes, perform additional field work and laboratory testing necessary to modify our recommendations are beyond the scope of services provided for this report. Additional work will be performed only after receipt of an approved scope of services, budget, and written authorization to proceed.

Analyses, conclusions and recommendations presented in this report are based on site conditions as they existed at the time we performed our subsurface exploration. We assumed that subsurface soil conditions encountered at the location of our exploratory test pits are generally representative of subsurface conditions across the project site. Actual subsurface conditions at locations between and beyond our exploratory test pits may differ. If subsurface conditions encountered during construction are different than those described in this report, we should be notified so that we can review and modify our recommendations as needed.

The elevation or depth to groundwater and soil moisture conditions underlying the project site may differ with time and location. The project site map shows approximate exploratory test pit locations as determined by pacing distances from identifiable site features. Therefore, test pit locations should not be relied upon as being exact.

Our scope of services did not include evaluating the project site for the presence of hazardous materials or petroleum products. Although we did not observe evidence of hazardous materials or petroleum products at the time of our field investigation, project personnel should take necessary precautions should hazardous materials be encountered during construction.

The findings of this report are valid as of the present date. Changes in the conditions of the property can occur with the passage of time. These changes may be due to natural processes or works of man, at the project site or adjacent properties. In addition, changes in applicable or appropriate standards can occur, whether they result from legislation or broadening of knowledge. Therefore, the recommendations presented in this report should not be relied upon after a period of two years from the issue date without our review.

FIGURES

SOURCE: USGS KINGS BEACH, CA-NV, 7.5 MINUTE TOPOGRAPHIC MAP, 1992.

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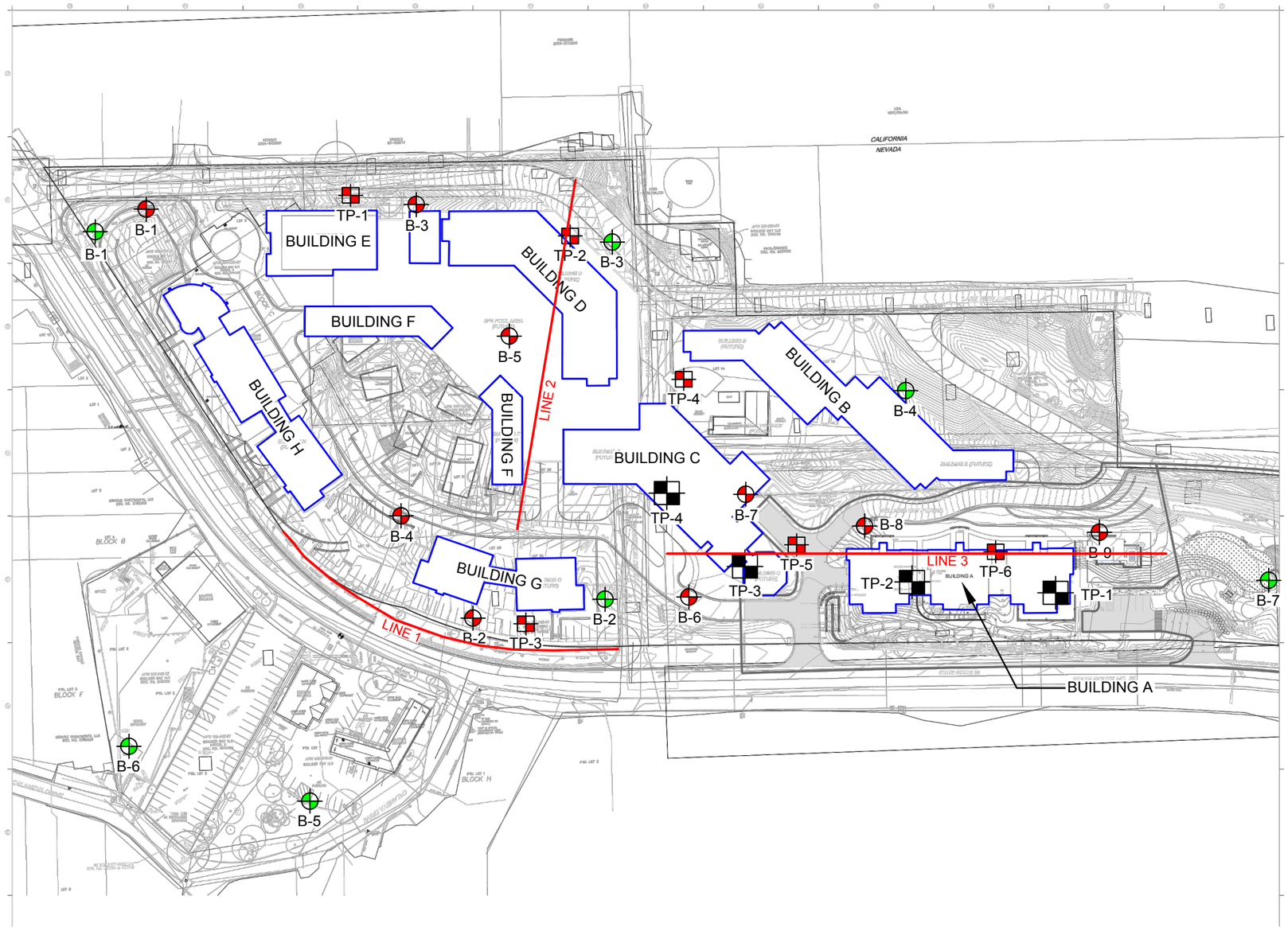
SITE LOCATION MAP
BOULDER BAY PROJECT
CRYSTAL BAY, WASHOE COUNTY, NEVADA

PROJECT NO.: 42118-01

DATE: APRIL, 2016

FIGURE NO.: 1



Holdrege & Kull

75 0 75 150

SCALE IN FEET

1" □ 150□

LEGEND:

- TP-2 — APPROXIMATE TEST PIT LOCATION (H□K 2016)
- B-1 — APPROXIMATE BORING LOCATION (LUMOS 2008)
- TP-2 — APPROXIMATE TEST PIT LOCATION (LUMOS 2008)
- B-1 — APPROXIMATE BORING LOCATION (KLEINFELDER 2007)
- PROPOSED STRUCTURE FOOTPRINT
- LINE 3 — APPROXIMATE REMI LINE LOCATION (GASCH □ ASSOCIATES 2008)

SOURCE: PRELIMINARY SITE PLAN, PREPARED BY DESIGN WORKSHOP, UNDATED

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TEST PIT AND BORING LOCATIONS
BOULDER BAY PROJECT
PROPOSED RESORT DEVELOPMENT
CRYSTAL BAY, WASHOE COUNTY, NEVADA

DRAWN BY: JEM	CHECKED BY: JKH
PROJECT NO.: 41993-10	
DATE: APRIL 2016	
FIGURE NO.: 2	

APPENDIX A **Proposal**

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Proposal No. PT16011-02
March 1, 2016 (Revised March 14, 2016)

Boulder Bay, LLC, c/o
Brian Helm, Project Manager
helmbd@gmail.com

Reference: ***Boulder Bay Project***
Northeast Corner of State Route 28 and Stateline Road
Crystal Bay, Washoe County, Nevada

Subject: ***Revised Proposal for Geotechnical Engineering Services***

This letter presents our revised proposal to prepare a geotechnical engineering report for the proposed Boulder Bay hotel/condominium/commercial development to be constructed at the site of the existing Tahoe Biltmore Hotel-Casino located on State Route 28 in the community of Crystal Bay, Washoe County, Nevada. The purpose of our services will be to explore and evaluate surface and subsurface conditions at the project site in order to prepare a geotechnical engineering report for project design and construction. Holdrege & Kull (H&K) will provide value engineering and site specific design recommendations to help reduce construction costs for your project. We have a reputation for responsive, innovative, yet practical approaches to geotechnical problems.

We will complete a subsurface investigation at the site, perform engineering analyses, review previous reports prepared for the project site, and prepare a geotechnical engineering report for project design. This revised proposal presents a brief summary of our understanding of the project, the scope of services we can provide, and an estimate of our fees.

PROJECT DESCRIPTION

This revised proposal is based on conversations and email correspondence with you, Ken Breitkreuz and Andy White with OZ Architecture, a review of documents provided by you and OZ Architecture, and our previous experience in the project area. Portions of the site are currently developed with an existing hotel/casino, and access is provided by State Route 28 to the east and southeast.

The project, as presently proposed, will involve demolition of the existing Tahoe Biltmore hotel/casino and appurtenant structures, and phased construction of 8 or 9 structures on the approximately 16+ acre site. The proposed structures are listed as: hotel and wellness; hotel, meeting, and accessory; hotel and condominiums; hotel and gaming; hotel; and two retail, dining, and affordable

housing units. Construction will begin with a condominium structure, designated as Building "A" and presently in the design phase. We understand that the Building "A" structure will be multiple-story with a bottom-floor parking garage consisting of a concrete podium and type V wood-frame construction above. We also understand that the structures will be supported by conventional cast-in-place reinforced concrete spread foundations and retaining walls with slab-on-grade parking garage floors. Structural loads were not available, and so were assumed for the purposes of this proposal. Estimated vertical structural loads are not expected to exceed approximately 100 kips at isolated columns and 6 kips per linear foot along continuous wall foundations for long-term loading conditions. Cuts for the parking garages will be on the order of 10 feet. With the exception of backfill behind the retaining walls, fills for building pad construction are not expected to exceed about 5 feet. Design of the remaining structures has not yet begun and no details were available. Appurtenant construction will include a 2-acre public park, a transit stop/center, bus bays, outdoor patios and entertainment areas, paved driveways and internal streets, hard-surface walkways and stairways, landscaping, and underground utilities.

We understand that the Tahoe Regional Planning Agency (TRPA) Land Capability Program's staff has reviewed a Soils/Hydrologic Scoping Report Application dated July 22, 2008, and approved 12 excavations to depths of 5 to 49 feet. Therefore, a soils/hydrologic scoping report is not required at this time.

ANTICIPATED CONDITIONS

In preparation of this proposal, we reviewed geologic maps and reports in our files regarding subsurface conditions in the project vicinity, as well as previous reports provided by you. Based on this information and our experience in the site area, we anticipate that subsurface soil conditions will consist of sand, gravel, cobbles and boulders underlain by relatively shallow granitic rock.

We do not anticipate groundwater within proposed foundation depths; however, it is possible that groundwater will be encountered at this site perched on top of shallow rock. We assume the site can be accessed with a truck-mounted drill rig and conventional vehicles.

SCOPE OF SERVICES

Review of Available Literature

Prior to our subsurface exploration, we will review regional geologic maps and reports in our files from other nearby sites, as well as previous reports prepared for the project site. Our field exploration locations will be selected based on site access, existing underground utilities, and the anticipated project layout.

Underground Utility Clearance and Permitting

We will mark the site for Underground Service Alert (USA) and contact this agency for underground utility clearance prior to our subsurface investigation. We request contact information for building maintenance/engineering personnel at the Tahoe Biltmore in order to obtain their assistance locating on-site underground utilities.

Field Exploration

We propose to explore the subsurface conditions at the site by excavating 4 to 5 test pits to depths up to approximately 12 feet below the existing ground surface or refusal, whichever is shallower. The test pits will be excavated using a track-mounted mini-excavator or rubber-tire backhoe and will be visually logged by our field representative who will obtain bulk soil samples for classification and laboratory testing. Upon completion, the test pits will be loosely backfilled with excavated soil.

Laboratory Testing

The purpose of laboratory testing is to evaluate the physical and engineering properties of the soil samples collected in the field. We anticipate the laboratory testing program will consist of tests for soil classification (gradations and plasticity) and expansion potential.

Analysis and Report

Based on the results of our field exploration and laboratory testing, we will provide our opinions and recommendations regarding the following:

- General soil and groundwater conditions at the project site, with emphasis on how the conditions are expected to affect the proposed construction;
- Discussion of special geotechnical engineering constraints such as existing fill, highly expansive or compressible soil, near-surface ground water, liquefaction potential, potential secondary seismic hazards, and/or near-surface rock;
- Recommendations for earthwork construction, including site preparation recommendations, a discussion of reuse of existing near surface soil as structural fill, and a discussion of remedial earthwork recommendations, if warranted;
- Recommendations for temporary excavations, construction dewatering, and trench backfill;
- Recommendations for permanent cut and fill slopes;
- Surface and subsurface drainage recommendations;
- Recommendations for conventional shallow spread foundation design including soil bearing values, minimum footing depth, resistance to lateral

loads and estimated settlements, and California Building Code site class and seismic coefficients for use in structural design;
- Lateral earth pressures and drainage recommendations for short retaining structures;
- Subgrade preparation for slab-on-grade concrete; and,
- Asphalt concrete and paving stone pavement recommendations.

We will present our opinions and recommendations in a written design-level report complete with logs of our test pits, laboratory test results, and a compilation, review, and results summary for the existing reports pertaining to this project.

SCHEDULE AND FEES

Subsurface exploration for the geotechnical engineering report can begin after May 1, 2016 when seasonal excavation restrictions are lifted by the California Regional Water Quality Board, Lahontan Region, and depending on the availability of excavation equipment. If weather, access, or site conditions restrict our field operations, we may need to revise our scope of services and fee estimate. We anticipate submitting our geotechnical engineering report within three to four weeks after completion of our subsurface exploration. If requested, we can provide preliminary verbal information with respect to our expected conclusions and recommendations prior to completion of our final report.

We can provide the geotechnical investigation, laboratory testing, and final design-level geotechnical engineering report described above for a lump sum fee of . This cost includes the excavation equipment and operator we plan to use for our subsurface exploration after May 1, 2016. Billing will be monthly on a percent complete basis. Services outside the established SCOPE OF SERVICES can be performed only with the prior written approval Boulder Bay, LLC, and will be billed on a time and materials basis using the fee schedule applicable at the time the services are provided. Any billings outside the established of SCOPE OF SERVICES must be clearly identified and separate from the billings within the established SCOPE OF SERVICES and require prior written approval by the Client. The absence of such identification and separation will automatically and permanently assign said billing to the SCOPE OF SERVICES .

In order to defray the initial mobilization costs of the excavation equipment, we are requesting a retainer in the amount of at the time of contract signing. The retainer will be applied to the final invoice.

LIMITATIONS

Prior to initiating our subsurface exploration, all site utilities and utility easements on the site must be accurately located in the field, on a scaled map, or both. This information must be made available to Holdrege & Kull by the client before beginning our subsurface exploration. If desired, H&K can arrange for utility clearance of each proposed boring location for an additional fee. Our fee is not adequate to compensate for both the performance of the services and the assumption of risk of damage to such structures. Holdrege & Kull will not accept responsibility for damage to existing utilities not accurately located in the manner described above. Services rendered by Holdrege & Kull to repair them will be billed at cost.

CLOSING

Holdrege & Kull will perform its services in a manner consistent with the standard of care and skill ordinarily exercised by members of the profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee, express or implied, is part of the services offered by this proposal.

Enclosed with this proposal is our firm's Agreement for Geotechnical Engineering Services. Please sign and return one copy of the attached Agreement for Geotechnical Engineering Services if this proposal meets your approval. This proposal is deemed to be incorporated into and made part of the Agreement for Geotechnical Engineering Services.

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have any questions or need additional information, please contact the undersigned.

Sincerely,
Holdrege & Kull

Joseph E. McKinney
Senior Geophysicist/Geologist

John K. Hudson, PE
Principal

Attachments: Agreement for Geotechnical Engineering Services

APPENDIX B **Important Information About Your Geotechnical Engineering Report**
(Included with permission of ASFE, Copyright 1998)

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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APPENDIX C **Test Pit Logs (H&K, 2016)**
Boring and Test Pit Logs (Lumos & Assoc., 2008)
Boring Logs (Kleinfelder, 2007)

TEST PIT NO. TP–1

PROJECT NO.	PROJECT NAME	APPROXIMATE ELEVATION	DATE	PAGE
42118–01	BOULDER BAY PROJECT	6449 FEET MSL	04/07/2016	1 OF 1

EXCAVATING METHOD	SAMPLING METHOD	GROUNDWATER ENCOUNTERED	CAVED
CASE 580 BACKHOE, 24" BUCKET	BULK	NO	NO

SAMPLE NO.	PERCENT PASSING #200 SIEVE	POCKET PENETRO–METER (TSF)	DEPTH (FT)	USCS	DESCRIPTIONS/REMARKS
			0	SM	~6 INCHES SILTY SAND (SM); BROWN; MOIST; LOOSE; ROOTS. (TOPSOIL)
			1	SM	SILTY SAND WITH GRAVEL (SM); VERY DARK GRAYISH BROWN; MOIST; DENSE; FINE GRAVEL; FINE TO MEDIUM SAND; ESTIMATE 40% FINES. (FILL)
			2		
1–1	––	––	3		– ASPHALT DEBRIS AT 3+ FEET.
			4		
			5	SM	SILTY SAND (SM); VERY DARK GRAYISH BROWN; WET; DENSE; MEDIUM SAND; ESTIMATE 40% FINES; WITH COBBLES AND ANGULAR BOULDERS TO 18–INCH DIAMETER. (FILL)
			6		
			7	SP–SM	POORLY GRADED SAND WITH SILT (SP–SM); YELLOWISH BROWN; DAMP; DENSE; FINE TO COARSE SAND; TRACE FINE GRAVEL; COMPLETELY WEATHERED GRANITIC ROCK.
1–2	10	––	8		
			9		– TEST PIT TERMINATED AT 9 FEET BGS ON YELLOWISH BROWN GRANITIC ROCK; COMPLETELY WEATHERED; FRIABLE. – NO GROUNDWATER ENCOUNTERED. – TEST PIT LOOSELY BACKFILLED WITH CUTTINGS.
			10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		

HOLDREGE & KULL

TEST PIT NO. TP–2

PROJECT NO.	PROJECT NAME	APPROXIMATE ELEVATION	DATE	PAGE
42118–01	BOULDER BAY PROJECT	6449 FEET MSL	04/07/2016	1 OF 1

EXCAVATING METHOD	SAMPLING METHOD	GROUNDWATER ENCOUNTERED	CAVED
CASE 580 BACKHOE, 24" BUCKET	BULK	NO	NO

SAMPLE NO.	PERCENT PASSING #200 SIEVE	POCKET PENETRO–METER (TSF)	DEPTH (FT)	USCS	DESCRIPTIONS/REMARKS
			0	SM	~6 INCHES SILTY SAND (SM); BROWN; MOIST; LOOSE; ROOTS. (TOPSOIL)
			1	SM	SILTY SAND (SM); BROWN; DAMP; DENSE TO VERY DENSE; FINE GRAVEL; FINE TO MEDIUM SAND; ESTIMATE 25% FINES. (FILL)
2–1	––	––	2		
			3		
			4	GM	SILTY GRAVEL (GM); DARK GRAYISH BROWN; DAMP; DENSE; FINE GRAVEL; MEDIUM SAND; ESTIMATE >12% FINES; CONCRETE DEBRIS; INTACT 6–INCH CONCRETE SLAB (?) AT 4.5 FEET. (FILL)
2–2	––	––			
			5		
			6	SM	SILTY SAND (SM); LIGHT YELLOWISH BROWN; DAMP; DENSE; FINE TO COARSE SAND; TRACE FINE GRAVEL; COMPLETELY WEATHERED GRANITIC ROCK.
			7		
			8		
			9		– TEST PIT TERMINATED AT 9 FEET ON GRANITIC ROCK; COMPLETELY WEATHERED; FRIABLE. – NO GROUNDWATER ENCOUNTERED. – TEST PIT LOOSELY BACKFILLED WITH CUTTINGS.
			10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		

HOLDREGE & KULL

TEST PIT NO. TP–3

PROJECT NO.	PROJECT NAME	APPROXIMATE ELEVATION	DATE	PAGE
42118–01	BOULDER BAY PROJECT	6446 FEET MSL	04/07/2016	1 OF 1

EXCAVATING METHOD	SAMPLING METHOD	GROUNDWATER ENCOUNTERED	CAVED
CASE 580 BACKHOE, 24" BUCKET	BULK	NO	NO

SAMPLE NO.	PERCENT PASSING #200 SIEVE	POCKET PENETRO–METER (TSF)	DEPTH (FT)	USCS	DESCRIPTIONS/REMARKS
			1	SM	~6 INCHES SILTY SAND (SM); BROWN; DAMP; LOOSE; ROOTS. (TOPSOIL)
3–1	––	––	2	SM	SILTY SAND (SM); BROWN; DAMP; DENSE; FINE GRAVEL; FINE TO MEDIUM SAND; ESTIMATE 25% FINES. (FILL)
			3	SM	SILTY SAND (SM); DARK YELLOWISH BROWN; DAMP; VERY DENSE; FINE GRAVEL; FINE TO MEDIUM SAND; ESTIMATE 25% FINES. (FILL)
3–2	17	––	4	SM	SILTY SAND (SM); DARK YELLOWISH BROWN; DAMP; DENSE; FINE TO MEDIUM SAND; TRACE FINE GRAVEL; COMPLETELY WEATHERED GRANITIC ROCK.
			12		– TEST PIT TERMINATED AT 12 FEET BGS ON GRANITIC ROCK; COMPLETELY WEATHERED; FRIABLE. – NO GROUNDWATER ENCOUNTERED. – TEST PIT LOOSELY BACKFILLED WITH CUTTINGS.

HOLDREGE & KULL

TEST PIT NO. TP–4

PROJECT NO.	PROJECT NAME	APPROXIMATE ELEVATION	DATE	PAGE
42118–01	BOULDER BAY PROJECT	6450 FEET MSL	04/07/2016	1 OF 1

EXCAVATING METHOD	SAMPLING METHOD	GROUNDWATER ENCOUNTERED	CAVED
CASE 580 BACKHOE, 24" BUCKET	BULK	NO	NO

SAMPLE NO.	PERCENT PASSING #200 SIEVE	POCKET PENETRO–METER (TSF)	DEPTH (FT)	USCS	DESCRIPTIONS/REMARKS
			1	SM	~6 INCHES SILTY SAND (SM); DARK BROWN; DAMP; LOOSE; ROOTS. (TOPSOIL)
			2	SM	SILTY SAND (SM); LIGHT BROWN; DAMP; DENSE; COARSE SAND; ESTIMATE 40% FINES. (FILL)
4–1	--	--	3	SM	SILTY SAND (SM); DARK YELLOWISH BROWN; DAMP; DENSE; MEDIUM SAND; ESTIMATE 40% FINES. (FILL) – COBBLES, ROUNDED TO SUB–ANGULAR; 3 TO 6 INCHES DIAMETER AT 3.75 FEET BGS. (FILL)
4–2	20	--	5	SM	SILTY SAND (SM); LIGHT BROWN; DAMP; DENSE; FINE TO MEDIUM SAND; ROOTS AT ~42 INCHES BGS.
			10	SM	SILTY SAND (SM); GRAYISH BROWN; DAMP; DENSE; FINE TO COARSE SAND; TRACE FINE GRAVEL; COMPLETELY WEATHERED GRANITIC ROCK.
			11		– TEST PIT TERMINATED AT 10.5 FEET BGS ON GRANITIC ROCK; COMPLETELY WEATHERED; FRIABLE. – NO GROUNDWATER ENCOUNTERED. – TEST PIT LOOSELY BACKFILLED WITH CUTTINGS.
			20		

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Sheet **1** of **1**

BORING No. B-1

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

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

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Asphalt Concrete 0.3										
			Topsoil - Silty Sand, reddish brown, 5YR 4/3, slightly moist, very loose, organics.	3									
			4.0										
5			Silty Sand (decomposed granite), yellowish red, 10YR 5/6, slightly moist, medium dense.	15									
			7.5										
			Silty Sand (weathered granite), brown, 7.5YR 5/4, slightly moist, very dense.	50+									
10			Light yellowish brown, 2.5Y 6/3, switch to air rotary drilling.	50+									
			1.75 minutes for 5 foot advancement.										
15													
			2.25 minutes for 5 foot advancement										
20													
			25.0										
25			2.75 minutes for 5 foot advancement.										

Boring terminated at 25 feet.
Boring backfilled with drill cuttings and tamped at the surface.

LUMOS LOG 7139000.GPJ US LAB.GDT 9/11/08

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

Boulder Bay

LOG OF EXPLORATORY BORING

Job Number: 7139.000 Date: September 2008

PLATE A-1

Sheet **1** of **1**

BORING 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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Asphalt Concrete. 0.3										
			Silty Sand, dark gray, slightly moist, loose. 0.5										
			Silty Sand (weathered granite), brownish yellow, 10YR 6/6, slightly moist, very dense.	50+									
5			Switch to air rotary drilling.	50+									
			Light brownish gray, 2.5Y 6/2.										
10			Grayish brown, 2.5Y 5/2. 2 minutes for 5 feet advancement.										
			Light yellowish brown, 2.5Y 6/3.										
15			Light brownish gray, 2.5Y 6/2. 3 minutes for 5 feet advancement.										
			17.5										
			Granite, gray, 2.5Y 5/1, very hard. Practical refusal, 52 minutes for 2 feet advancement.										
			19.5										

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

LUMOS LOG 7139000.GPJ US LAB.GDT 9/11/08

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Boulder Bay

LOG OF EXPLORATORY BORING

Job Number: 7139.000 Date: September 2008

PLATE A-2

Sheet **1** of **2**

BORING No. B-3

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Asphalt concrete. 0.3										
			Silty Sand with Clay and Gravel, brown, 7.5YR 5/4, dry to slightly moist, medium dense.	16									
			4.5										
5			Silty Sand with Gravel, Cobbles and Boulders, Brown, 7.5YR 5/4, slightly moist, medium dense.	21									
				22									
10			Auger refusal on boulder, switch to air rotary drilling.										
15			Sandy Silt with Gravel, very dark grayish brown, 10YR 3/2, slightly moist, very dense.	50+									
			18.5										
20			Silty Sand (weathered granite), light yellowish brown, 2.5Y 6/3, very dense. Switch to air rotary drilling.										
25			Light brownish gray, 2.5Y 6/2, 2.75 minutes for 5 foot advancement.										
30													

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LOG OF EXPLORATORY BORING

Job Number: 7139.000 Date: September 2008

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Sheet **2** of **2**

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			2 minutes for 5 foot advancement.										
35			2.75 minutes for 5 foot advancement.										
40			Light yellowish brown, 2.5Y 6/3. 4 minutes for 5 foot advancement.										
45			Light brownish gray, 2.5Y 6/2. 5.5 minutes for 5 foot advancement.										
			Grayish brown, 2.5Y 5/2										
50			Light brownish gray, 2.5Y 6/2. 5 minutes for 5 foot advancement.										
			Grayish brown, 2.5Y 5/2.										
55			Light brownish gray, 2.5Y 6/2. 6.25 minutes for 5 foot advancement. 55.0										

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

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LOG OF EXPLORATORY BORING

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PLATE
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Sheet **1** of **2**

BORING No. B-4

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

Total Depth: **35 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **Not Surveyed**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Asphalt concrete. 0.3										
			Silty Sand, light yellowish brown 2.5Y 6/4, slightly moist, medium dense.	20									
			4.0										
5			Silty Sand (weathered granite), light yellowish brown, 2.5Y 6/4, sightly moist, medium dense. Switch to air rotary drilling.	64									
			Light olive brown, 2.5Y 5/3.										
10			Light yellowish brown, 2.5Y 6/3. 2 minutes for 5 foot advancement.										
15			1.5 minutes for 5 foot advancement.										
			Light olive brown, 2.5Y 5/3.										
20			Light yellowish brown, 2.5Y 6/3. 3.25 minutes for 5 foot advancement.										
25			3 minutes for 5 foot advancement.										
30													

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PLATE A-4.1

Sheet **2** of **2**

BORING No. B-4 (CONT'D)

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

Total Depth: **35 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **Not Surveyed**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			2.5 minutes for 5 foot advancement.										
			Light olive brown, 2.5Y 5/3.										
35			Light yellowish brown, 2.5Y 6/3. 3.5 minutes for 5 foot advancement. 35.0										
			Boring terminated at 35 feet. Boring backfilled with drill cuttings and tamped at the surface.										

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PLATE

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Sheet **1** of **2**

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Asphalt concrete. 0.3										
			Undocumented Fill - Silty Sand with Gravel, light olive brown, 2.5Y 5/4, slightly moist, loose.	8									
			4.5										
5			Silty Sand (weathered granite), light olive brown, 2.5Y 5/4, slightly moist, medium dense.	25									
			Light yellowish brown, 2.5Y 6/4, very dense.	50+									
10			Light yellowish brown 2.5Y 6/3, very dense. @ 10' switch to air rotary drilling.	50+									
			Light olive brown, 2.5Y 5/3.										
15			Light yellowish brown, 2.5Y 6/3.										
			Light gray, 2.5Y 7/1.										
20			Light yellowish brown, 2.5Y 6/3.										
			Pale yellow, 2.5Y 7/3.										
25			Light yellow brown, 2.5Y 6/3. 6.25 minutes for 5 foot advancement.										
30													

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LOG OF EXPLORATORY BORING

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Sheet **2** of **2**

BORING No. B-5 (CONT'D)

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Light brownish gray, 2.5Y 6/2. 7 minutes for 5 foot advancement.										
			Light yellowish brown, 2.5Y 6/3.										
35			Light olive brown, 2.5Y 5/4. 6 minutes for 5 foot advancement.										
40			Light olive brown, 2.5Y 5/3. 8 minutes for 5 foot advancement.										
45			Light brownish gray, 2.5Y 6/2. 11 minutes for 5 foot advancement.										
50			Granite, light olive brown, 2.5Y 5/3, very hard. 11 minutes for 5 foot advancement.										
			Light yellow brown, 2.5Y 6/3.										
55			Light olive brown, 2.5Y 5/3. 22.5 minutes for 5 foot advancement. 55.0										

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

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LOG OF EXPLORATORY BORING

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PLATE
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Sheet **1** of **2**

BORING No. B-6

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			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.	50+									
5			Dark yellowish brown, 10YR 3/6, slightly moist, medium dense.	15									
			Yellowish brown, 10YR 5/8, 9.0	19									
			Sandy Silt (weathered granite), light brownish gray, 2.5Y 6/2, slightly moist, dense.	30									
10			Light olive brown, 2.5Y 5/4, very dense.	50+									
15				50+									
			No recovery.	50+									
20			Light olive brown, 2.5Y 5/3.	50+									
25			No recovery.	50+									
30													

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Sheet **2** of **2**

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
				50+									
35			Olive, 5Y 4/4.	50+									
40			No recovery.	50+									
45			45.0										

Boring terminated at 45 feet.
Boring backfilled with drill cuttings and tamped at the surface.

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LOG OF EXPLORATORY BORING

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PLATE

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Sheet **1** of **2**

BORING No. B-7

Logged By: **C. Borean**
Date Logged: **8-11-2008**
Drill Type: **Mobile Drill B-47**

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

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Undocumented Fill - Silty Sand, very pale brown, 10YR 7/3, faint motteling ~20% yellow, 10YR 7/6, dry, dense.	35									
5			5.0 Undocumented Fill - Sandy silt, very pale brown, 10YR 8/2, dry, medium dense.	17									
			Light olive brown 2.5Y 5/6, slightly moist, dense.	32									
			9.0 Silty Sand (weathered granite), light yellow brown, 2.5Y 6/4, slightly moist, very dense.	50+									
10			Pale olive yellow, 2.5Y 6/6.	50+									
15				50+									
			Pale olive, 5Y 6/4	50+									
20				50+									
25			Olive, 5Y 5/4.	50+									
30													

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LOG OF EXPLORATORY BORING

Job Number: 7139.000

Date: September 2008

PLATE

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Sheet **2** of **2**

BORING No. B-7 (CONT'D)

Logged By: **C. Borean**
Date Logged: **8-11-2008**
Drill Type: **Mobile Drill B-47**

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

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
35			No recovery.	50+									
40													
45			No recovery.	50+									
50													
55			No recovery. 55.0	50+									

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

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LOG OF EXPLORATORY BORING

Job Number: 7139.000
Date: September 2008

PLATE
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Sheet **1** of **2**

BORING No. B-8

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Undocumented Fill - Silty Sand, brownish yellow, 10YR 6/8, slightly moist, medium dense.	19									
			4.0										
5			Silty Sand (decomposed granite), light yellow brown, 2.5Y 6/4, slightly moist, medium dense.	15									
				22									
10			Olive yellow, 2.5Y 6/6, medium dense.	27									
			12.5										
			Sildy Sand (weathered granite), uellowish brown, 2.5Y 6/4, very dense.	50+									
15			Switch to air rotary drilling.	50+									
		N	Light olive brown, 2.5Y 5/3										
20		N	2 minutes for 5 foot advancement.										
		N	Light brownish gray, 2.5Y 6/2.										
25		N	Pale yellow, 2.5Y 7/3. 3.25 minutes for 5 foot advancement.										
		N	Light yellowish brown, 2.5Y 6/3.										
30													

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LOG OF EXPLORATORY BORING

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PLATE A-8.1

Sheet **2** of **2**

BORING 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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
		N	4.25 minutes for 5 foot advancement.										
		N											
35		N	6 minutes for 5 foot advancement.										
		N	Light olive brown, 2.5Y 5/3.										
40			Light olive brown 2.5Y 4/3. 5.5 minutes for 5 foot advancement. 40.0										
			Boring terminated at 40 feet. Boring backfilled with drill cuttings and tamped at the surface.										

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LOG OF EXPLORATORY BORING

Job Number: 7139.000

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PLATE

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Sheet **1** of **2**

BORING No. B-9

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			Undocumented Fill - Sandy Silt with Gravel and Cobbles, brown, 7.5YR 4/4, dry to slightly moist, medium dense.	37									
4.5			Silty Sand (weathered granite), pale olive, 5Y 6/3-4, slightly moist, very dense.	50+									
				50+									
10				50+									
			Olive yellow, 2.5Y 6/6.										
20			Olive, 5Y 5/3. 3 minutes for 5 foot advancement.										
			Pale olive, 5Y 6/3.										
25			3 minutes for 5 foot advancement.										
30													

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Job Number: 7139.000 Date: September 2008

PLATE A-9.1

Sheet **2** of **2**

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**

Shelby Tube | Standard Split Spoon (SPT) | California Sampler | Modified California | Bag Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	CBR	Other Tests (See Legend)
			5 minutes for 5 foot advancement.										
			32.5										
			Granite, light gray, 5Y 7/2, very hard.										
35			10 minutes for 5 foot advancement.										
			Practical refusal. 38 minutes for 2.5 foot advancement. 37.5										

Boring terminated at 37.5 feet.
Boring backfilled with drill cuttings and tamped at the surface.

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LOG OF EXPLORATORY BORING

Job Number: 7139.000 Date: September 2008

PLATE
A-9.2

TEST PIT No. TP-1

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

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
			Asphalt concrete										
1		N B	Undocumented Fill - Silty Sand with Gravel and Cobbles, dark brown, 10YR 3/3, slightly moist, loose.										
2		N	Silty Sand with Gravel and Cobbles, dark yellowish brown, 10YR 4/4, slightly moist, medium dense.										
3		N	Silty Sand with Gravel, common Cobbles, common Boulders, brownish yellow, 10YR 6/8, slightly moist, medium dense.										
4													
5													
6													
7													
8			Practical refusal, difficult digging, boulders, unsafe hole.										

Test pit terminated at 8 feet.
Test Pits backfilled without compaction verification

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LOG OF EXPLORATORY TEST PIT

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PLATE

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TEST PIT No. TP-2

Logged By:	**C. Borean**	Total Depth:	**6 feet**
Date Logged:	**8-13-2008**	Water Depth:	**No groundwater encountered**
Drill Type:	**CAT 416B**	Ground Elev.:	**Not Surveyed**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
			Asphalt concrete.										
1		B	Silty Sand (decomposed granite), pale olive, 5Y 6/3, slightly moist, dense, difficult digging.										
2													
3													
4													
5													
6													

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

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LOG OF EXPLORATORY TEST PIT

Job Number: 7139.000 Date: September 2008

PLATE A-11

TEST PIT No. TP-3

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

Total Depth: **2.6 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **Not Surveyed**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
			Asphalt concrete.										
1		Z	Undocumented Fill - Silty Sand with trace Gravel, light yellowish brown, 2.5Y 6/4, slightly moist, medium dense.										
2		Z	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

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Boulder Bay

LOG OF EXPLORATORY TEST PIT

Job Number: 7139.000
Date: September 2008

PLATE
A-12

TEST PIT No. TP-4

Logged By:	**C. Borean**	Total Depth:	**9.5 feet**
Date Logged:	**8-13-2008**	Water Depth:	**No groundwater encountered**
Drill Type:	**CAT 416B**	Ground Elev.:	**Not Surveyed**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
1		B	Undocumented Fill - Silty Sand/Sandy Silt with some Gravel and Cobbles, light yellowish brown, 10YR 6/4, dry to slightly moist, medium dense.										
2													
3													
4													
5		Z	Silty Sand (decomposed granite), light yellowish brown, 2.5Y 6/4, slightly moist, moderately dense, difficult digging.										
6													
7													
8													
9													

Test pit terminated at 9.5 feet.
Test Pits backfilled without compaction verification

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Boulder Bay

LOG OF EXPLORATORY TEST PIT

Job Number: 7139.000 Date: September 2008

PLATE

A-13

TEST PIT No. TP-5

Logged By:	**C. Borean**	Total Depth:	**9.4 feet**
Date Logged:	**8-13-2008**	Water Depth:	**No groundwater encountered**
Drill Type:	**CAT 416B**	Ground Elev.:	**Not Surveyed**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
1		B	Undocumented Fill - Silty Sand with Gravel, some Cobbles, light yellowish brown, 10YR 6/4, slightly moist, loose to medium dense.										
2													
3													
4													
5													
6		Z	Silty Sand (decomposed granite), pale yellow, 5Y 7/4, slightly moist, dense.										
7													
8													
9													

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

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LOG OF EXPLORATORY TEST PIT

Job Number: 7139.000 Date: September 2008

PLATE

A-14

TEST PIT No. TP-6

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

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Expansion Index
1			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.										
2		B											
3													
4			Undocumented Fill - Sandy Silt to Silty Sand with Gravel and Cobbles, brown, 10YR 4/3, slightly moist, medium dense, metal debris.										
5													
6													
7													
8		B											
9													
10													
11													
12			Test pit terminated at 12 feet. Test Pits backfilled without compaction verification										

LUMOS_TP_FULL_PAGE_7139000.GPJ_US_LAB.GDT 9/11/08

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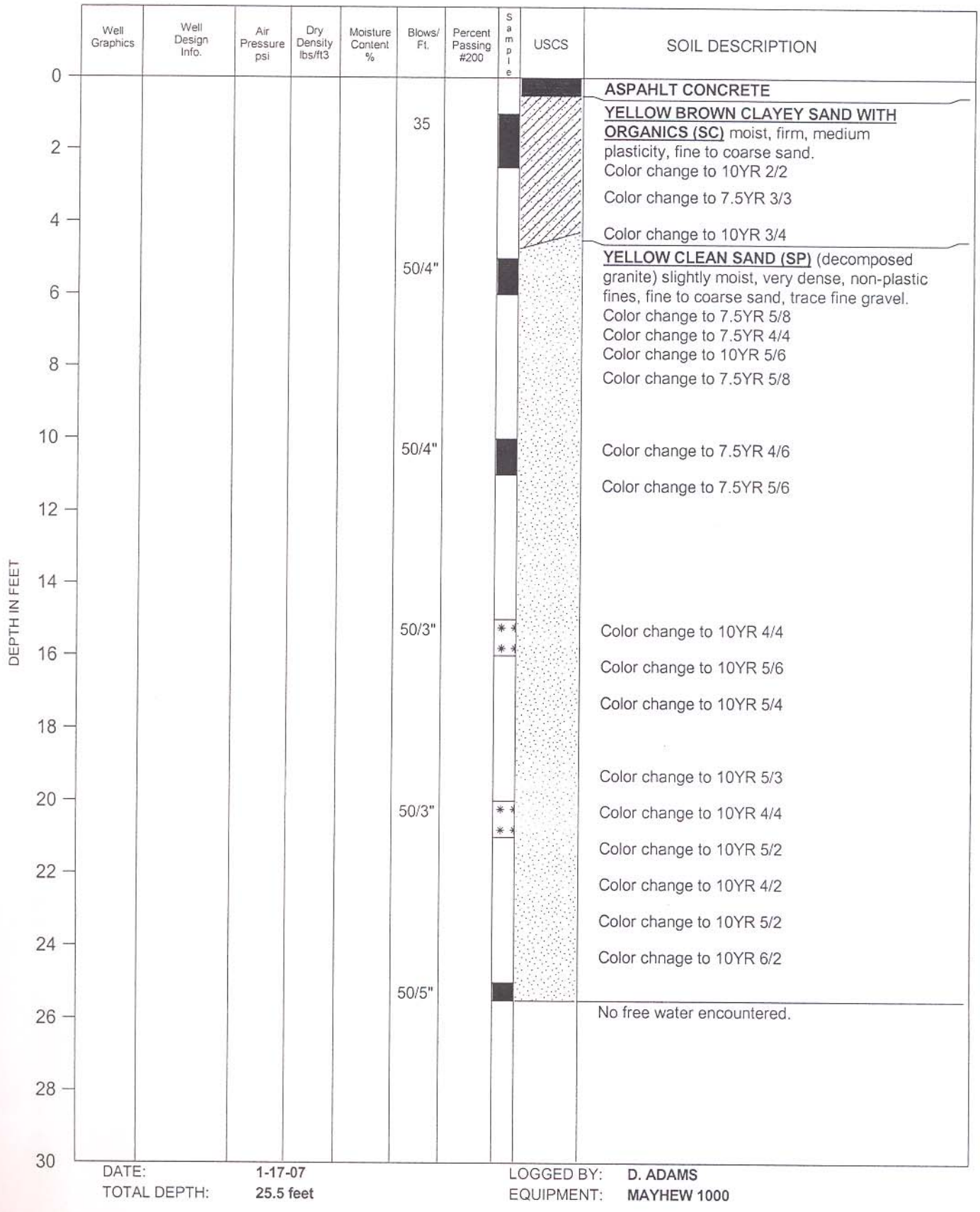
Boulder Bay

LOG OF EXPLORATORY TEST PIT

Job Number: 7139.000 Date: September 2008

PLATE

A-15



DATE: 1-17-07
TOTAL DEPTH: 25.5 feet
LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

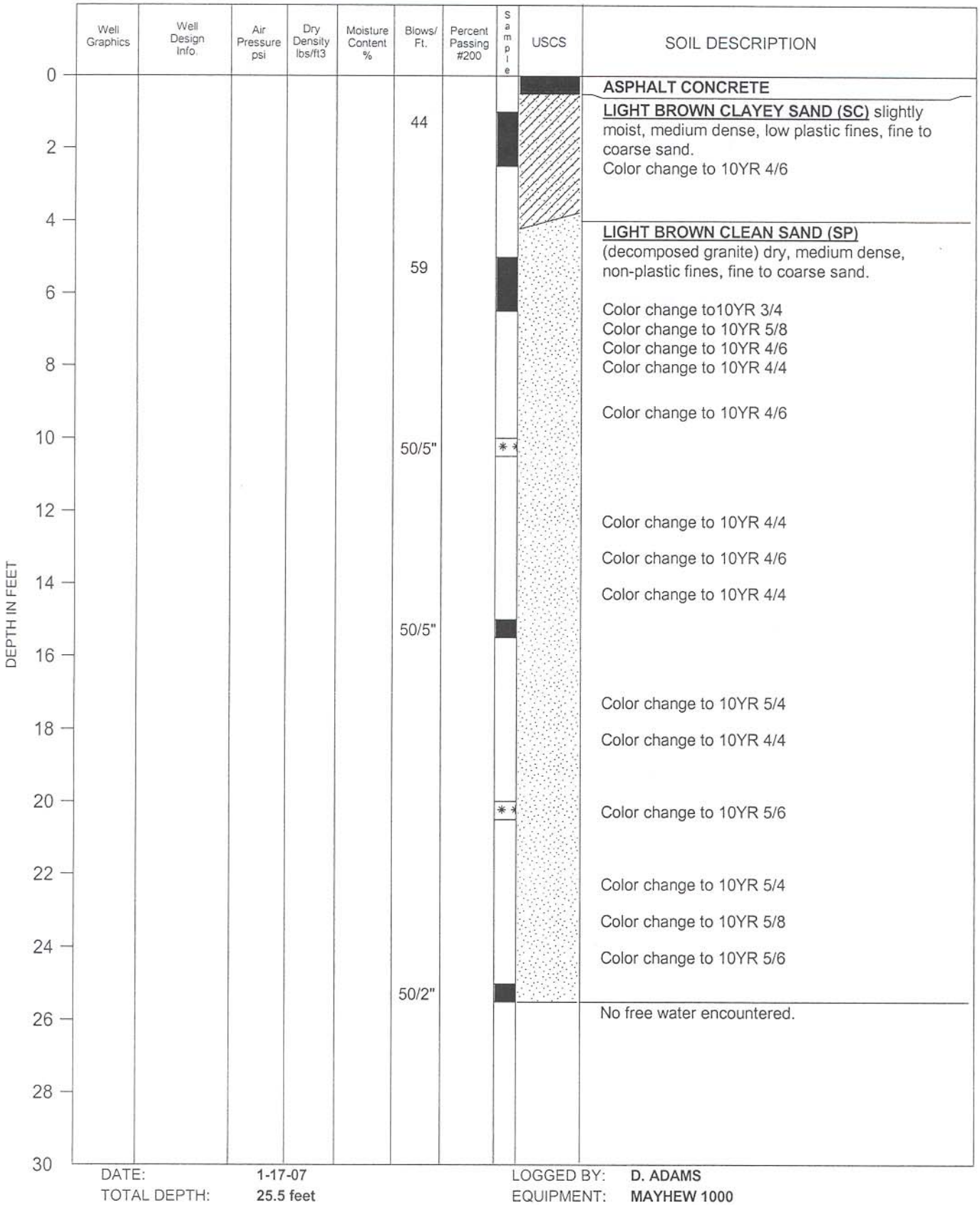
TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-1

PLATE

5



DATE: 1-17-07
TOTAL DEPTH: 25.5 feet
LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

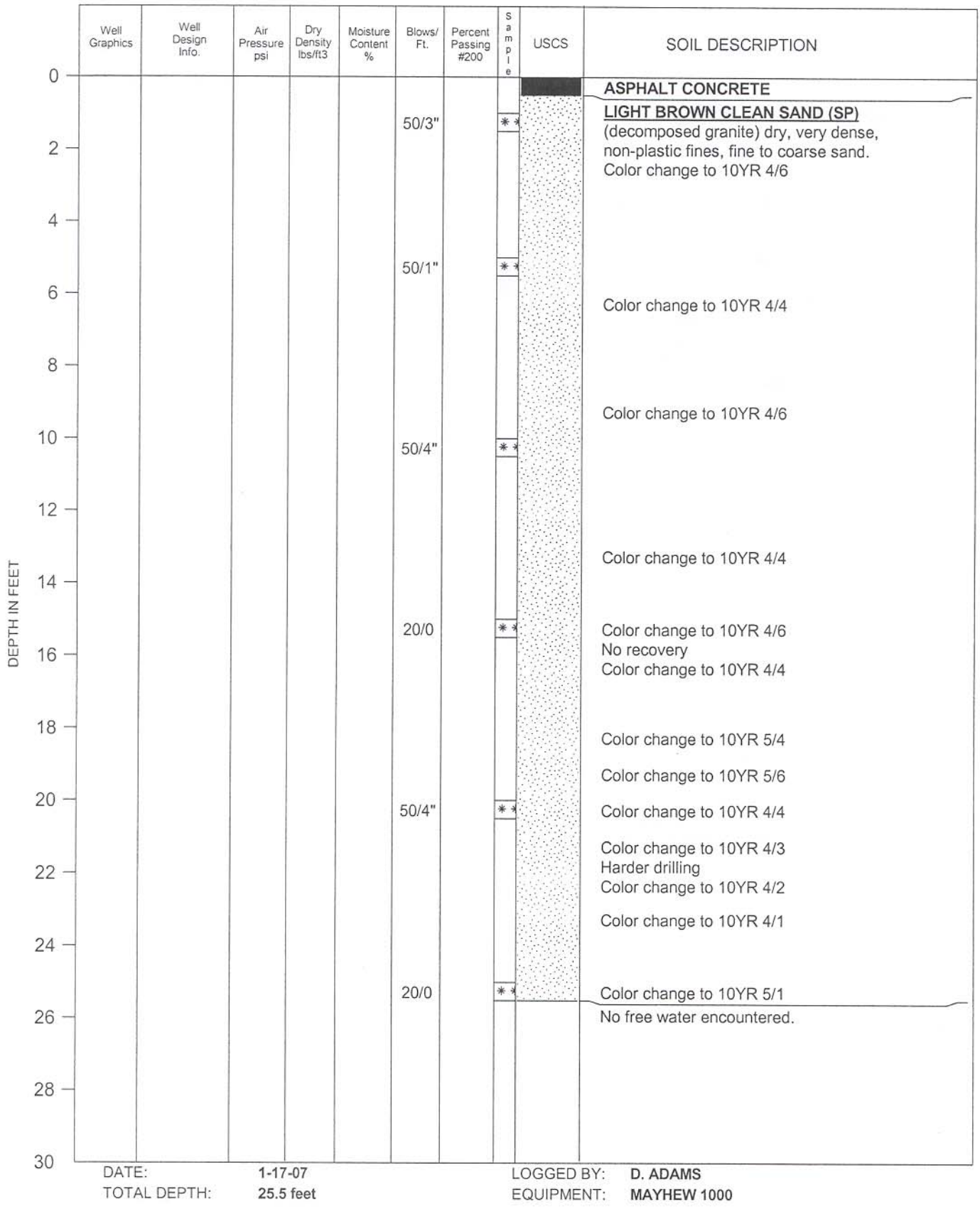
PROJECT NO. 79827.02

TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-2

PLATE 6



DATE: 1-17-07
TOTAL DEPTH: 25.5 feet

LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

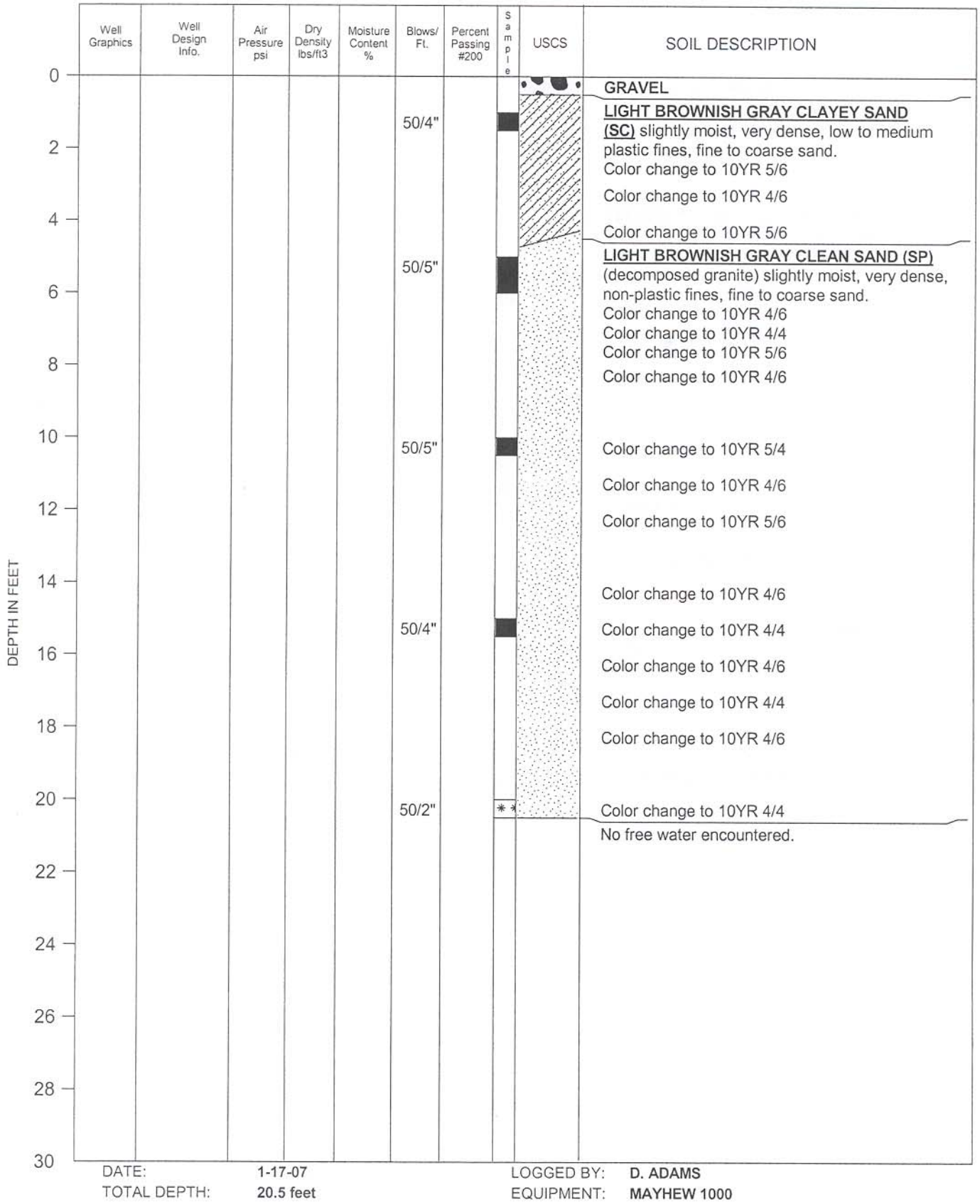
TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-3

PLATE

7



DATE: 1-17-07
TOTAL DEPTH: 20.5 feet
LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

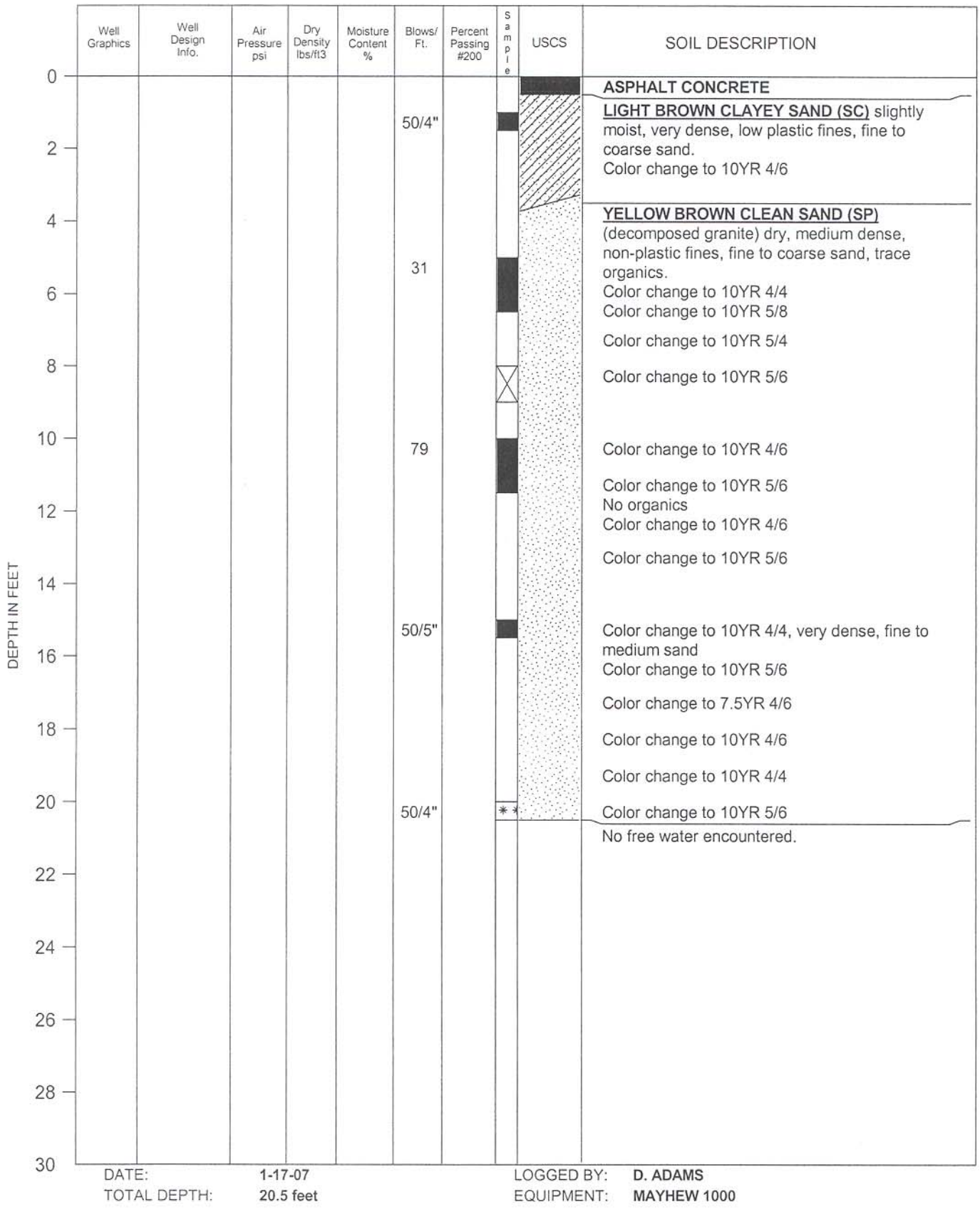
TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-4

PLATE

8



DATE: 1-17-07
TOTAL DEPTH: 20.5 feet

LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

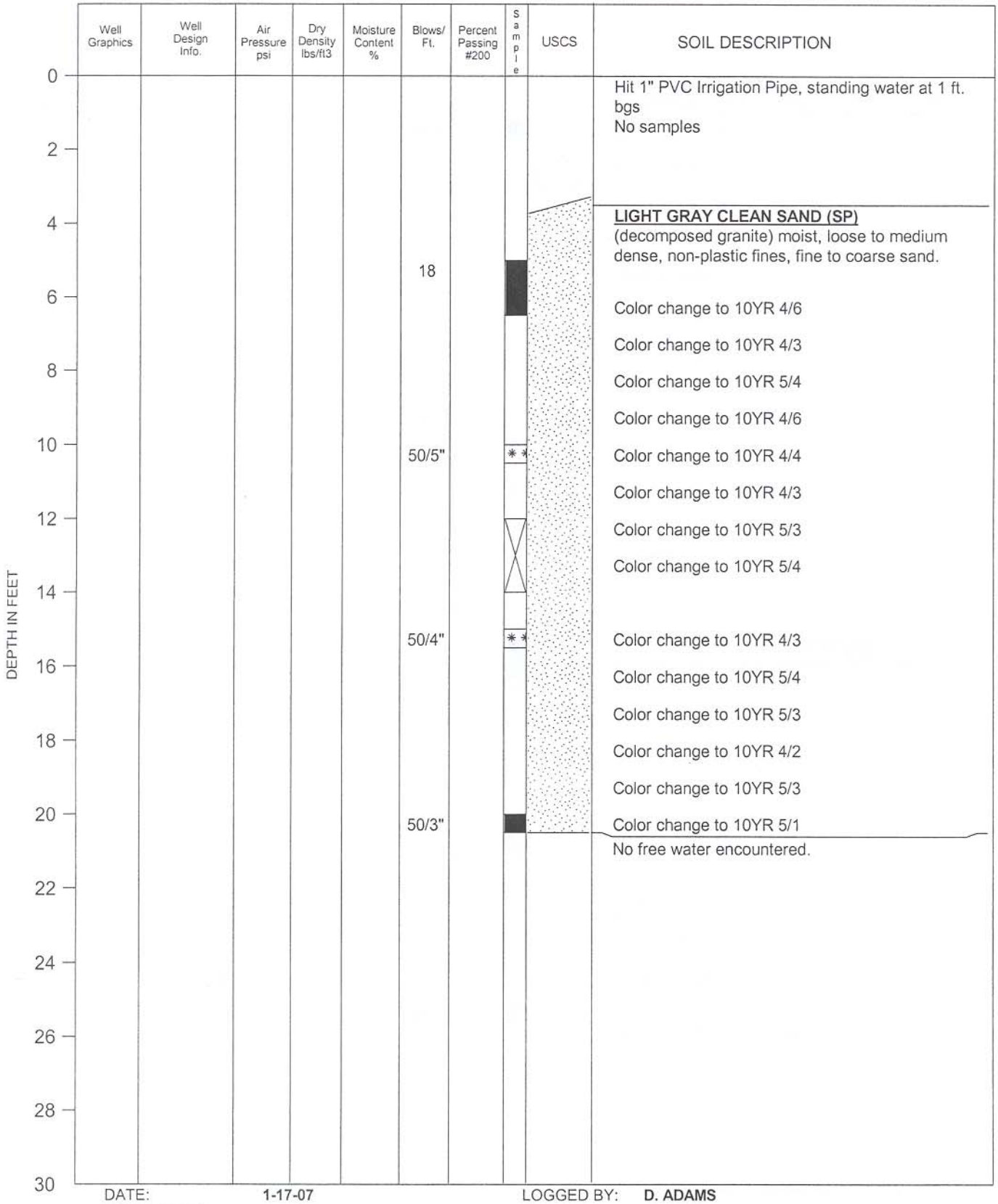
TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-5

PLATE

9



DATE: 1-17-07
TOTAL DEPTH: 20.5 feet

LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

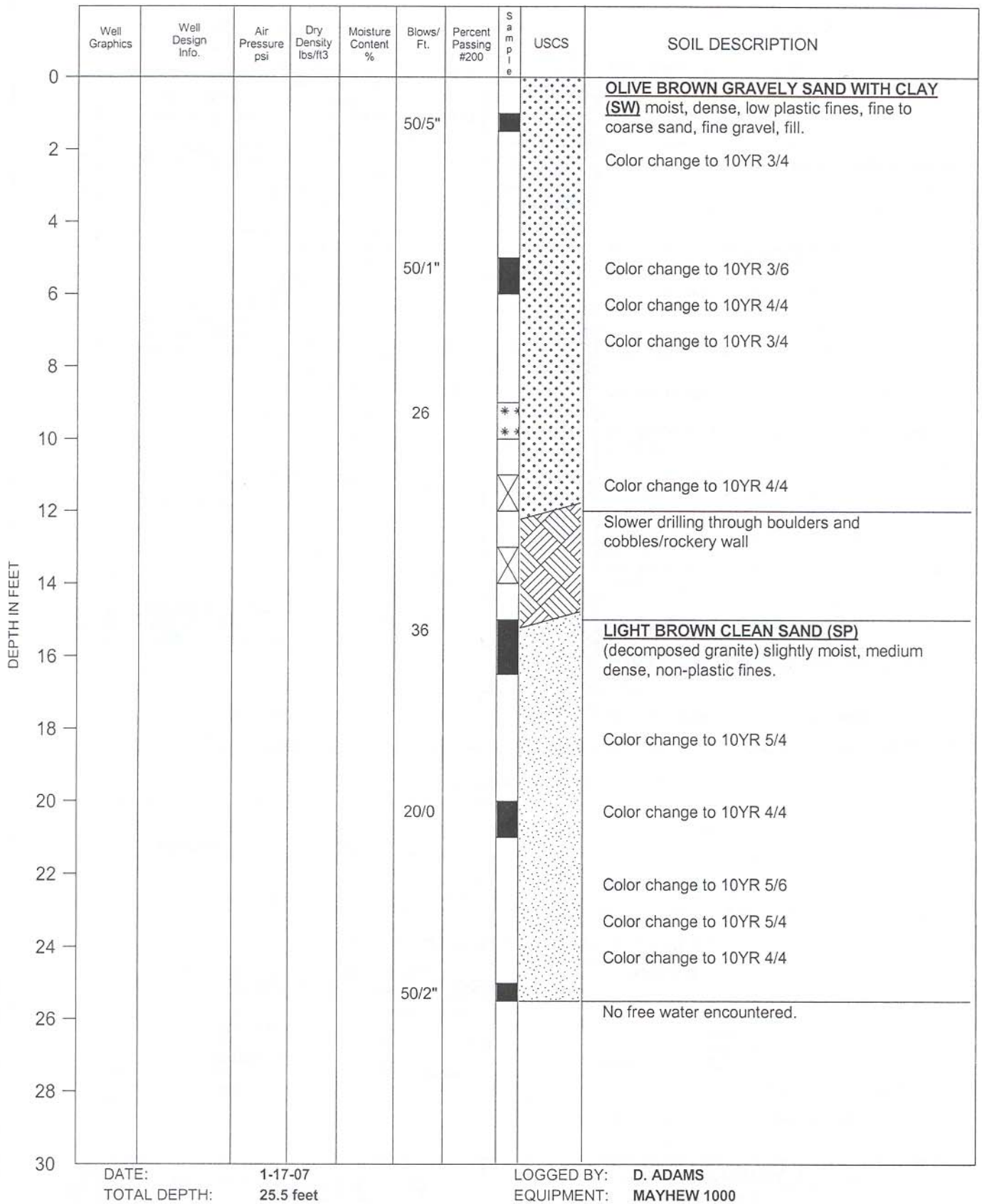
TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-6

PLATE

10



DATE: 1-17-07
TOTAL DEPTH: 25.5 feet
LOGGED BY: D. ADAMS
EQUIPMENT: MAYHEW 1000

KLEINFELDER

PROJECT NO. 79827.02

TAHOE BILTMORE

CRYSTAL BAY, NEVADA

LOG OF B-7

PLATE 11

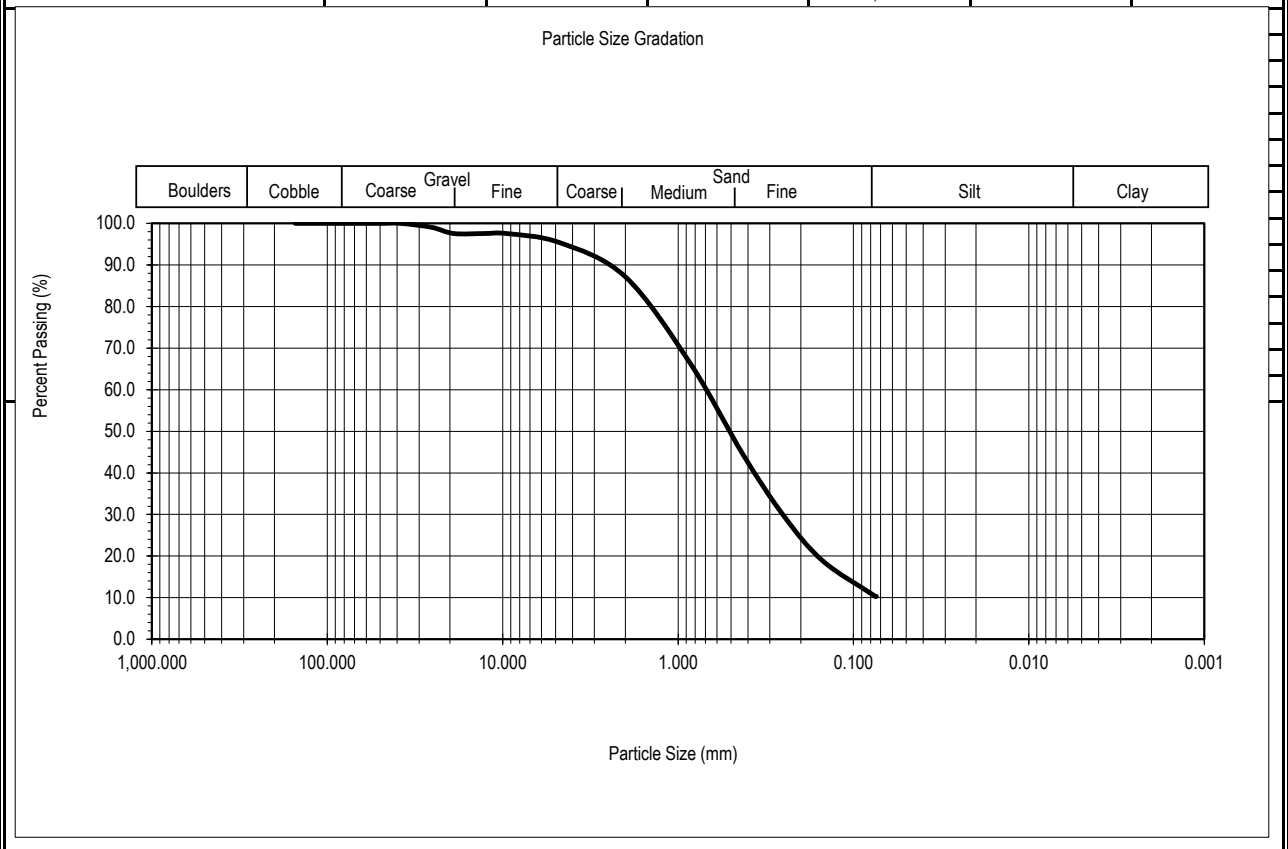
APPENDIX D **Laboratory Test Results**
(H&K 2016)
(Lumos & Assoc. 2008)

Particle Size Distribution

ASTM D422

Project No.:	**42118-01**	Project Name:	**Boulder Bay**	Date:	**4/7/2016**
Sample No.:	**1-2**	Boring/Trench:	**TP-1** Depth, (ft.): **7.0**	Tested By:	**SJS**
Description:	**Yellowish Brown (10YR 5/4) Poorly Graded Sand with Silt (SP-SM)**			Checked By:	**MLH**
Sample Location:	**0**			Lab. No.:	**15-16-063**

Sieve Size	Particle Diameter		Dry Weight on Sieve			Percent
	Inches	Millimeter	Retained On Sieve	Accumulated On Sieve	Passing Sieve	Passing
(U.S. Standard)	(in.)	(mm)	(gm)	(gm)	(gm)	(%)
6 Inch	6.0000	152.4	0.00	0.0	2,158.0	**100.0**
3 Inch	3.0000	76.2	0.00	0.0	2,158.0	**100.0**
2 Inch	2.0000	50.8	0.00	0.0	2,158.0	**100.0**
1.5 Inch	1.5000	38.1	0.00	0.0	2,158.0	**100.0**
1.0 Inch	1.0000	25.4	20.39	20.4	2,137.6	**99.1**
3/4 Inch	0.7500	19.1	32.16	52.6	2,105.4	**97.6**
1/2 Inch	0.5000	12.7	0.00	52.6	2,105.4	**97.6**
3/8 Inch	0.3750	9.5	0.00	52.6	2,105.4	**97.6**
#4	0.1870	4.7500	46.87	99.4	2,058.5	**95.4**
#10	0.0787	2.0000	177.42	276.8	1,881.1	**87.2**
#20	0.0335	0.8500	451.46	728.3	1,429.7	**66.3**
#40	0.0167	0.4250	473.40	1,201.7	956.3	**44.3**
#60	0.0098	0.2500	315.69	1,517.4	640.6	**29.7**
#100	0.0059	0.1500	233.32	1,750.7	407.3	**18.9**
#200	0.0030	0.0750	184.98	1,935.7	222.3	**10.3**



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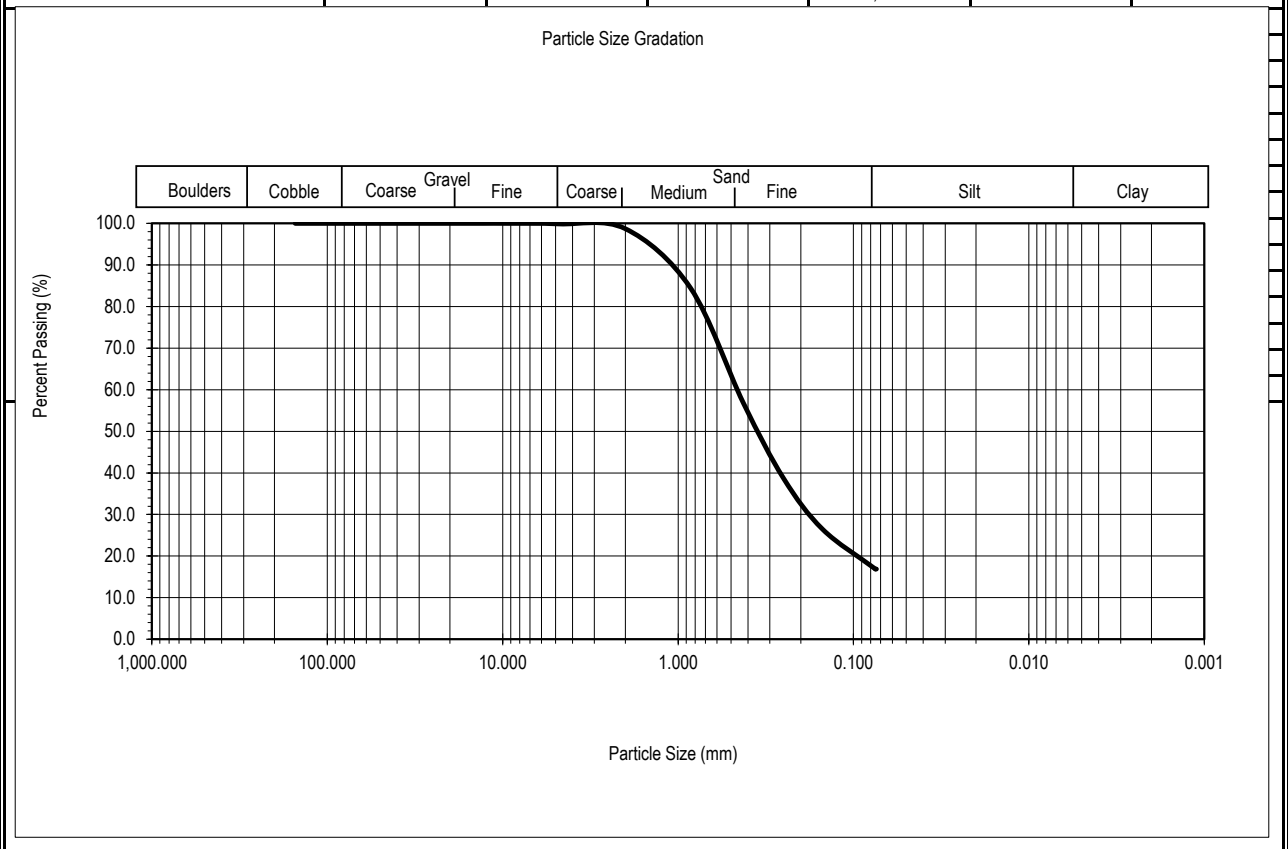
Particle Size Distribution

ASTM D422

Project No.:	**42118-01**	Project Name:	**Boulder Bay**	Date:	**4/7/2016**
Sample No.:	**3-2**	Boring/Trench:	**TP-3** Depth, (ft.): **3.0**	Tested By:	**SJS**
Description:	**Dark Yellowish Brown (10YR 4/4) Silty Sand (SM)**			Checked By:	**MLH**
Sample Location:	**0**			Lab. No.:	**15-16-063**

Sieve Size	Particle Diameter		Dry Weight on Sieve			Percent
	Inches	Millimeter	Retained On Sieve	Accumulated On Sieve	Passing Sieve	Passing
(U.S. Standard)	(in.)	(mm)	(gm)	(gm)	(gm)	(%)
6 Inch	6.0000	152.4	0.00	0.0	1,792.2	**100.0**
3 Inch	3.0000	76.2	0.00	0.0	1,792.2	**100.0**
2 Inch	2.0000	50.8	0.00	0.0	1,792.2	**100.0**
1.5 Inch	1.5000	38.1	0.00	0.0	1,792.2	**100.0**
1.0 Inch	1.0000	25.4	0.00	0.0	1,792.2	**100.0**
3/4 Inch	0.7500	19.1	0.00	0.0	1,792.2	**100.0**
1/2 Inch	0.5000	12.7	0.00	0.0	1,792.2	**100.0**
3/8 Inch	0.3750	9.5	0.00	0.0	1,792.2	**100.0**
#4	0.1870	4.7500	2.31	2.3	1,789.8	**99.9**
#10	0.0787	2.0000	20.60	22.9	1,769.2	**98.7**
#20	0.0335	0.8500	255.32	278.2	1,513.9	**84.5**
#40	0.0167	0.4250	495.20	773.4	1,018.7	**56.8**
#60	0.0098	0.2500	326.50	1,099.9	692.2	**38.6**
#100	0.0059	0.1500	218.33	1,318.3	473.9	**26.4**
#200	0.0030	0.0750	171.39	1,489.6	302.5	**16.9**



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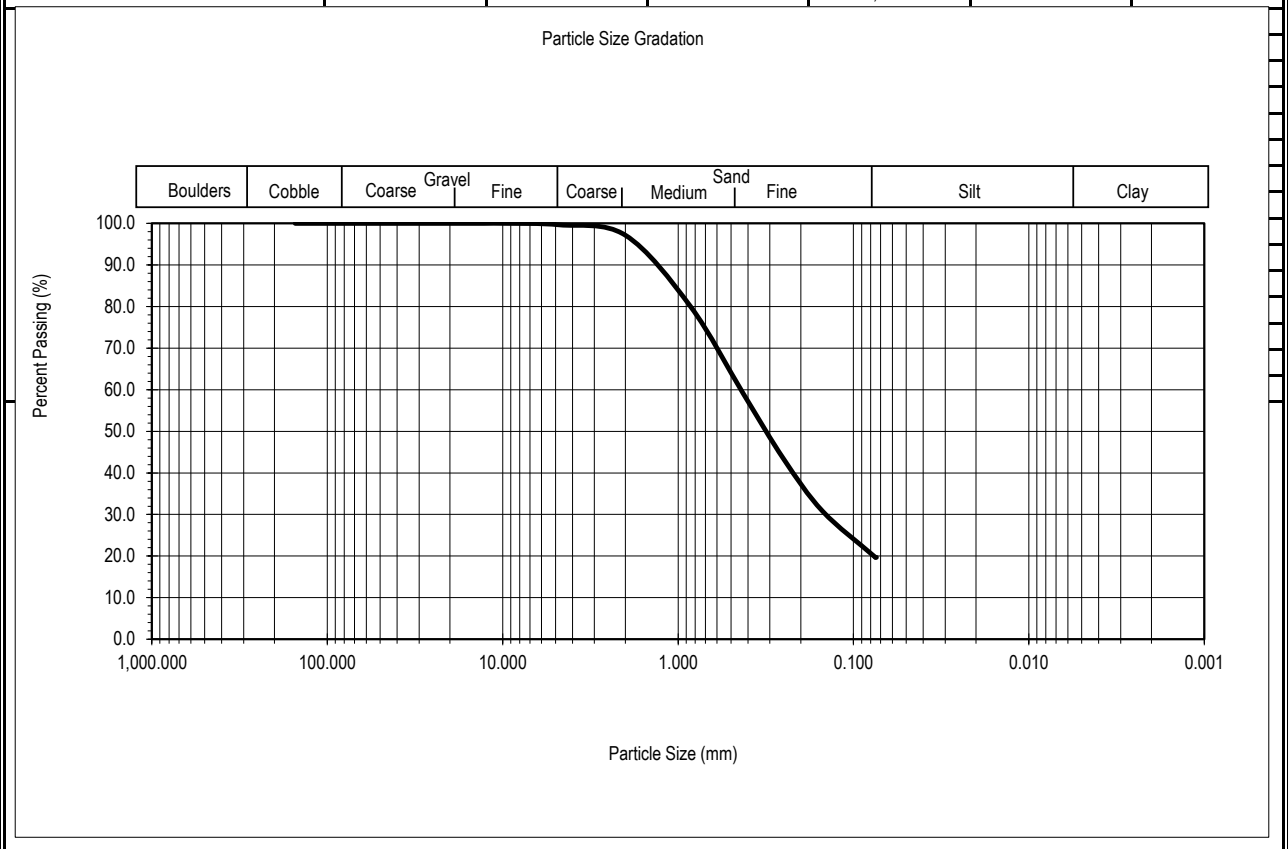
Particle Size Distribution

ASTM D422

Project No.:	**42118-01**	Project Name:	**Boulder Bay**	Date:	**4/7/2016**
Sample No.:	**4-2**	Boring/Trench:	**TP-4**	Depth, (ft.): **4.5**	Tested By: **SJS**
Description:	**Greyish Brown (10YR 5/2) Silty Sand (SM)**			Checked By:	**MLH**
Sample Location:	**0**			Lab. No.:	**15-16-063**

Sieve Size	Particle Diameter		Dry Weight on Sieve			Percent
	Inches	Millimeter	Retained On Sieve	Accumulated On Sieve	Passing Sieve	Passing
(U.S. Standard)	(in.)	(mm)	(gm)	(gm)	(gm)	(%)
6 Inch	6.0000	152.4	0.00	0.0	1,966.8	**100.0**
3 Inch	3.0000	76.2	0.00	0.0	1,966.8	**100.0**
2 Inch	2.0000	50.8	0.00	0.0	1,966.8	**100.0**
1.5 Inch	1.5000	38.1	0.00	0.0	1,966.8	**100.0**
1.0 Inch	1.0000	25.4	0.00	0.0	1,966.8	**100.0**
3/4 Inch	0.7500	19.1	0.00	0.0	1,966.8	**100.0**
1/2 Inch	0.5000	12.7	0.00	0.0	1,966.8	**100.0**
3/8 Inch	0.3750	9.5	0.00	0.0	1,966.8	**100.0**
#4	0.1870	4.7500	6.86	6.9	1,959.9	**99.7**
#10	0.0787	2.0000	48.88	55.7	1,911.0	**97.2**
#20	0.0335	0.8500	337.02	392.8	1,574.0	**80.0**
#40	0.0167	0.4250	412.48	805.2	1,161.5	**59.1**
#60	0.0098	0.2500	309.46	1,114.7	852.1	**43.3**
#100	0.0059	0.1500	246.83	1,361.5	605.2	**30.8**
#200	0.0030	0.0750	217.93	1,579.5	387.3	**19.7**



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CONSULTING ENGINEERS • GEOLOGISTS

Atterberg Indices

ASTM D4318

DSA File #:

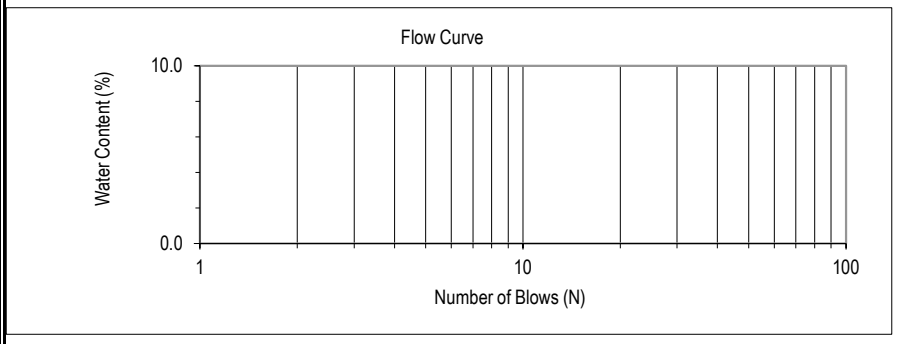
DSA Appl #:

Project No.:	**42118-01**	Project Name: **Boulder Bay**		Date:	**4/7/2016**
Sample No.:	**4-2**	Boring/Trench: **TP-4**	Depth, (ft.): **4.5**	Tested By:	**SJS**
Description:	**Greyish Brown (10YR 5/2) Silty Sand (SM)**			Checked By:	**MLH**
Sample Location:				Lab. No.:	**15-16-063**

Estimated % of Sample Retained on No. 40 Sieve: 3300% Sample Air Dried: yes

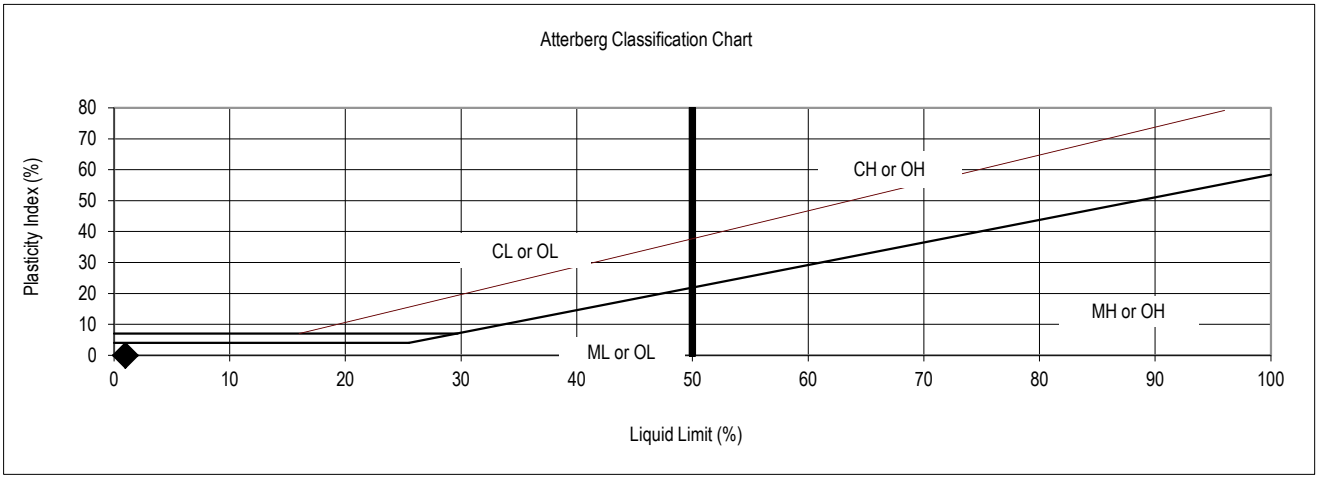
Test Method A or B: A

	LIQUID LIMIT:					PLASTIC LIMIT:		
Sample No.:	1	2	3	4	5	1	2	3
Pan ID:	LE	AT	LB			MBE	HK	
Wt. Pan (gr)	15.05	15.24	15.29			15.24	14.94	
Wt. Wet Soil + Pan (gr)								
Wt. Dry Soil + Pan (gr)								
Wt. Water (gr)	0.00	0.00	0.00			0.00	0.00	
Wt. Dry Soil (gr)	-15.05	-15.24	-15.29			-15.24	-14.94	
Water Content (%)	0.0	0.0	0.0			0.0	0.0	
Number of Blows, N								
				LIQUID LIMIT =	NP		PLASTIC LIMIT =	NP



Plasticity Index = NP

Group Symbol = ML



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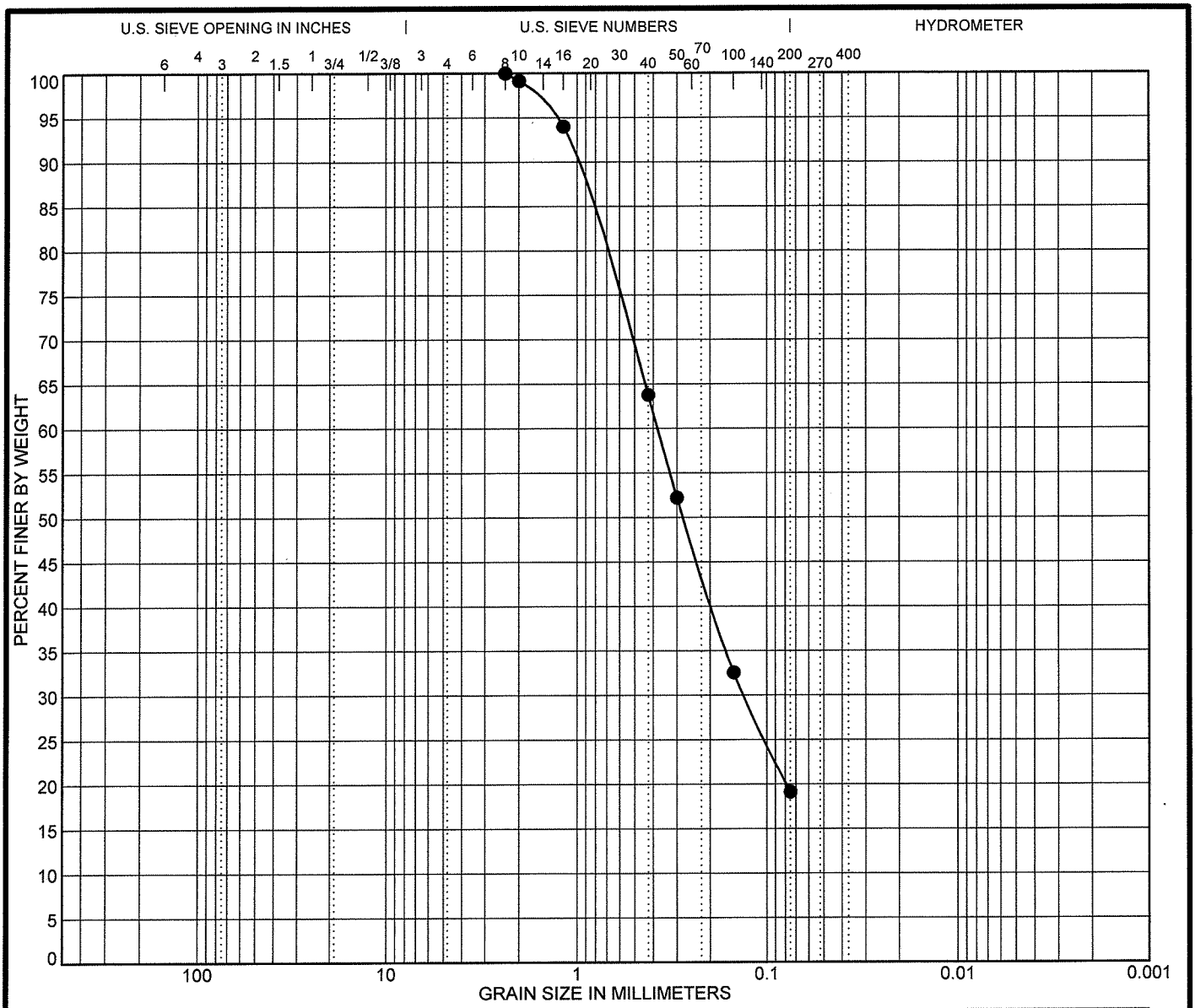


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08	LL	PL	PI	Cc	Cu
●	**BH-01**	Classification					
	Depth: 7.5	Silty SAND (SM)	NP	NP	NP		
	Sample Location	BH-1 at 7.5'					
	USCS	SM					
	AASHTO						

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-01**								
	Depth: 7.5	2.36	0.379	0.131		0.0	80.9	19.1	

Natural Moisture	%		**S.E.**		**Absorption %**		
R-Value			**Durability Index**		**Soundness**		
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**		

LUMOS & ASSOCIATES
Lumos & Associates, Inc
800 E. College Parkway
Carson City, Nevada 89706
775-883-7077
Fax: 775-883-7114

Boulder Bay

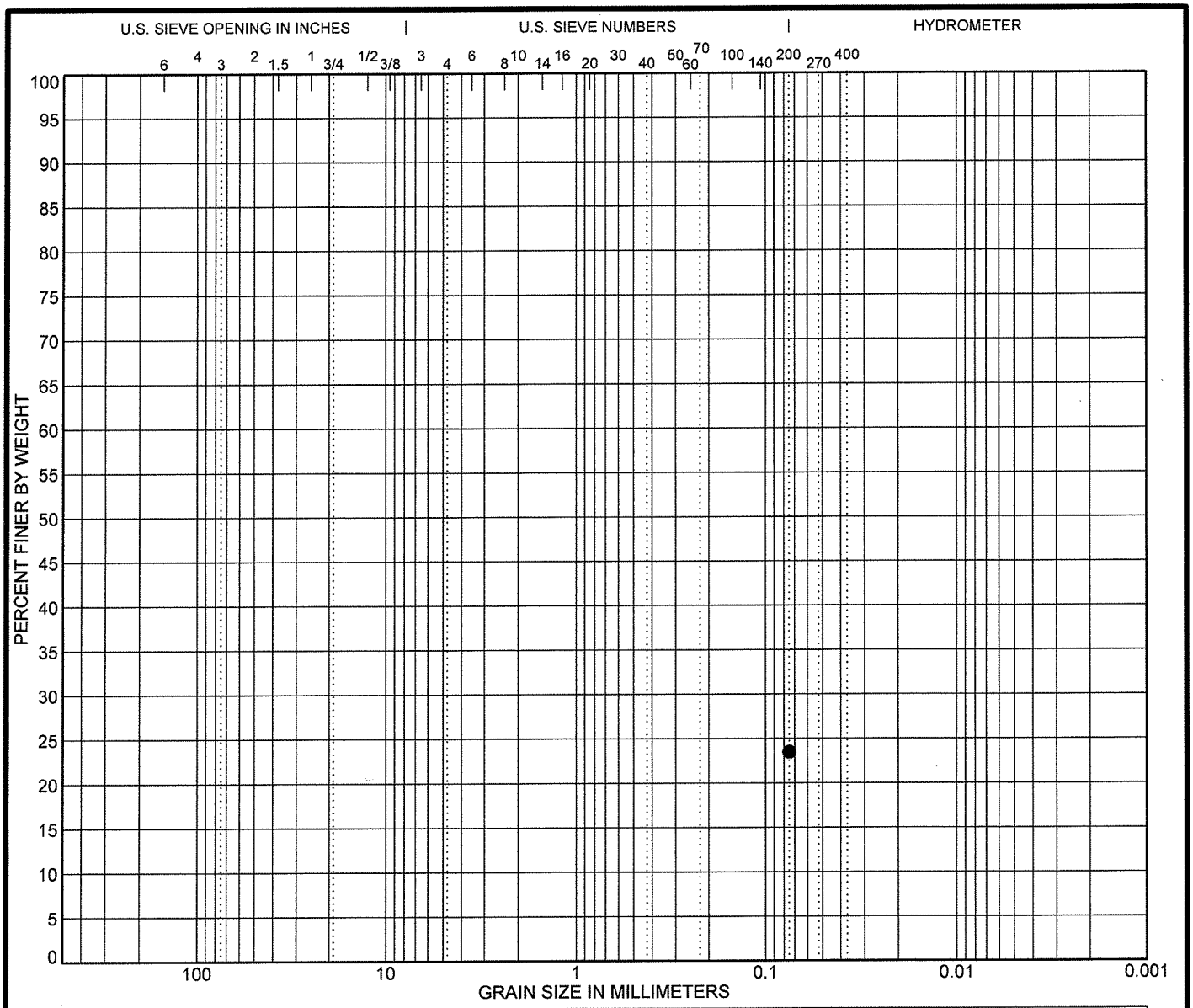
GRAIN SIZE DISTRIBUTION

Job Number: 7139.000 Date: September 2008

PLATE

B-1.1

LUMOS_GRAIN_SIZE_7139.000_BOULDER BAY.GPJ_US_LAB.GDT 9/16/08



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08							
●	**BH-03**	Classification				LL	PL	PI	Cc	Cu
	Depth 32.5	Silty SAND (SM)				NP	NP	NP		
	Sample Location	BH-3 at 32.5'								
	USCS	SM								
	AASHTO									

	Specimen Identification								
●	**BH-03**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
	Depth 32.5	0.075				0.0	0.0	23.5	

	Natural Moisture	%		**S.E.**		**Absorption %**	
	R-Value			**Durability Index**		**Soundness**	
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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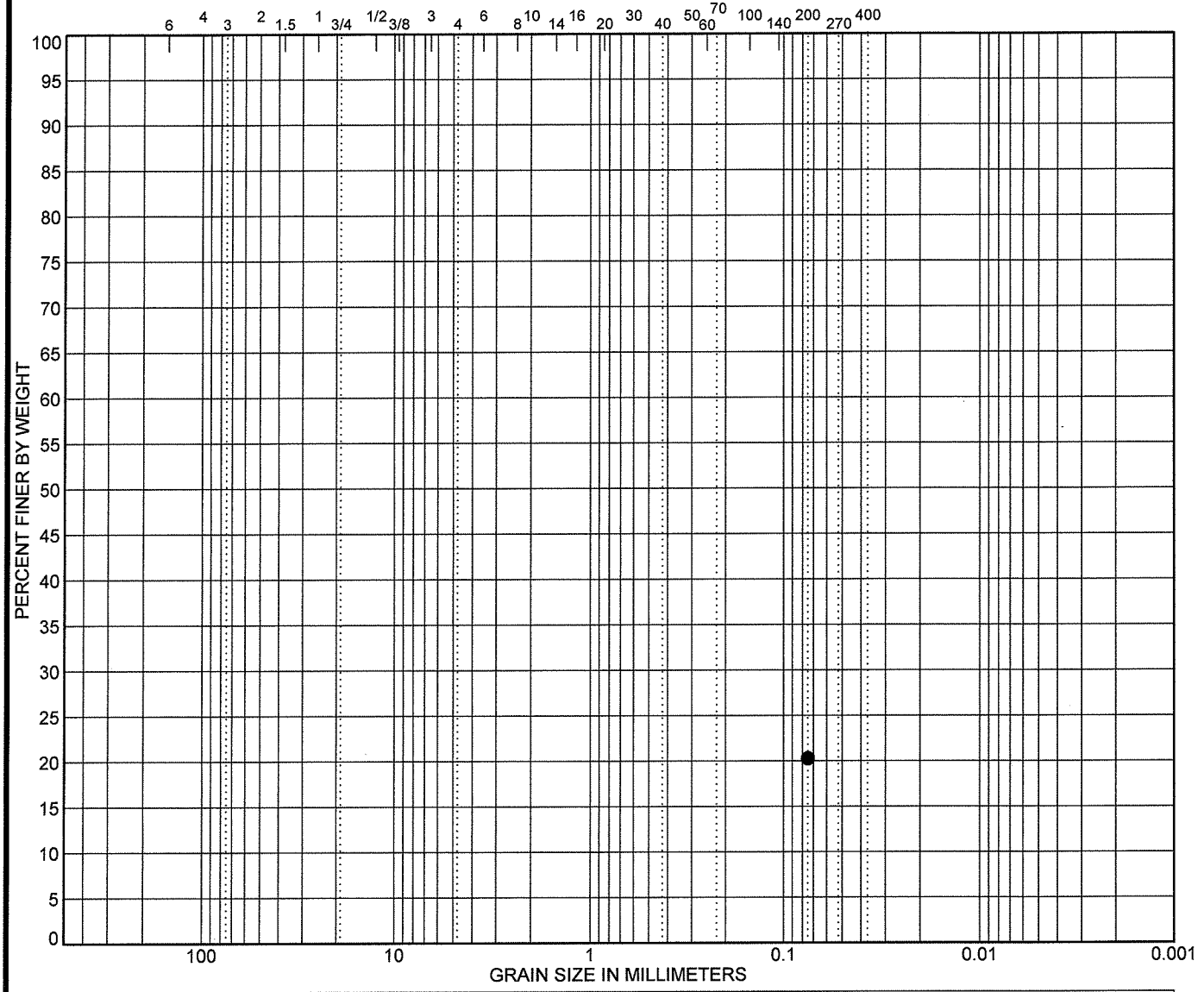
Boulder Bay

GRAIN SIZE DISTRIBUTION

Job Number: 7139.000 Date: September 2008

PLATE

B-1.2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 8-18-08								
● **BH-04**	Classification					LL	PL	PI	Cc	Cu
Depth: 5	Silty SAND (SM)					NP	NP	NP		
Sample Location	BH-4 at 5.0'									
USCS	SM									
AASHTO										

Specimen Identification								
● **BH-04**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
Depth: 5	0.075				0.0	0.0	20.3	

Natural Moisture	%	**S.E.**		**Absorption %**	
R-Value		**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%	**Specific Gravity**		**Direct Shear**	

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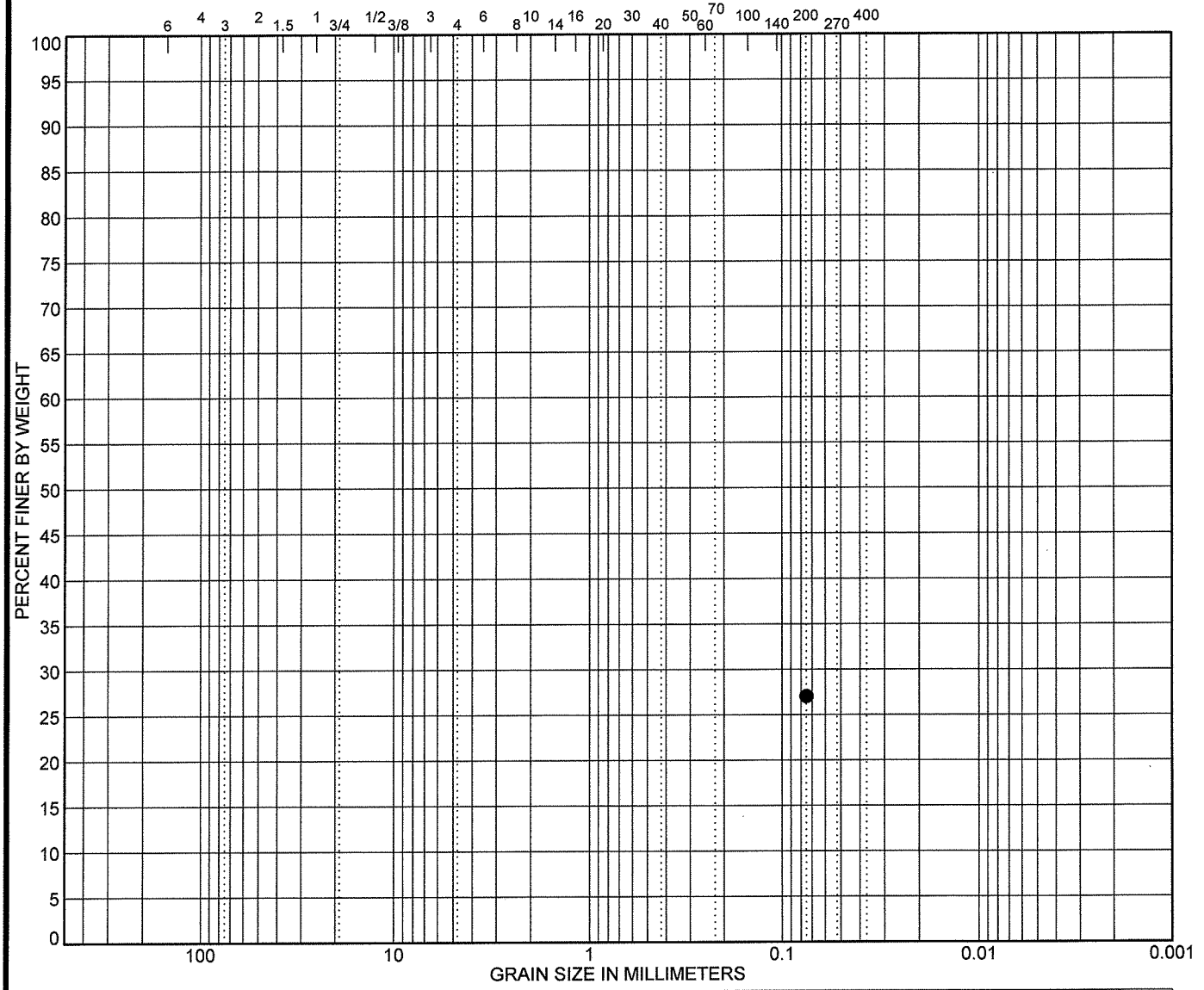
Job Number: 7139.000 Date: September 2008

PLATE

B-1.3

LUMOS GRAIN SIZE 7139.000 BOULDER BAY.GPJ US LAB.GDT 9/16/08



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08							
●	**BH-05**	Classification				LL	PL	PI	Cc	Cu
	Depth: 20	Silty SAND (SM)				NP	NP	NP		
	Sample Location	BH-5 at 20.0'								
	USCS	SM								
	AASHTO									

	Specimen Identification								
●	**BH-05**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
	Depth: 20	0.075				0.0	0.0	27.0	

	Natural Moisture	%		**S.E.**		**Absorption %**	
	R-Value			**Durability Index**		**Soundness**	
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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GRAIN SIZE DISTRIBUTION

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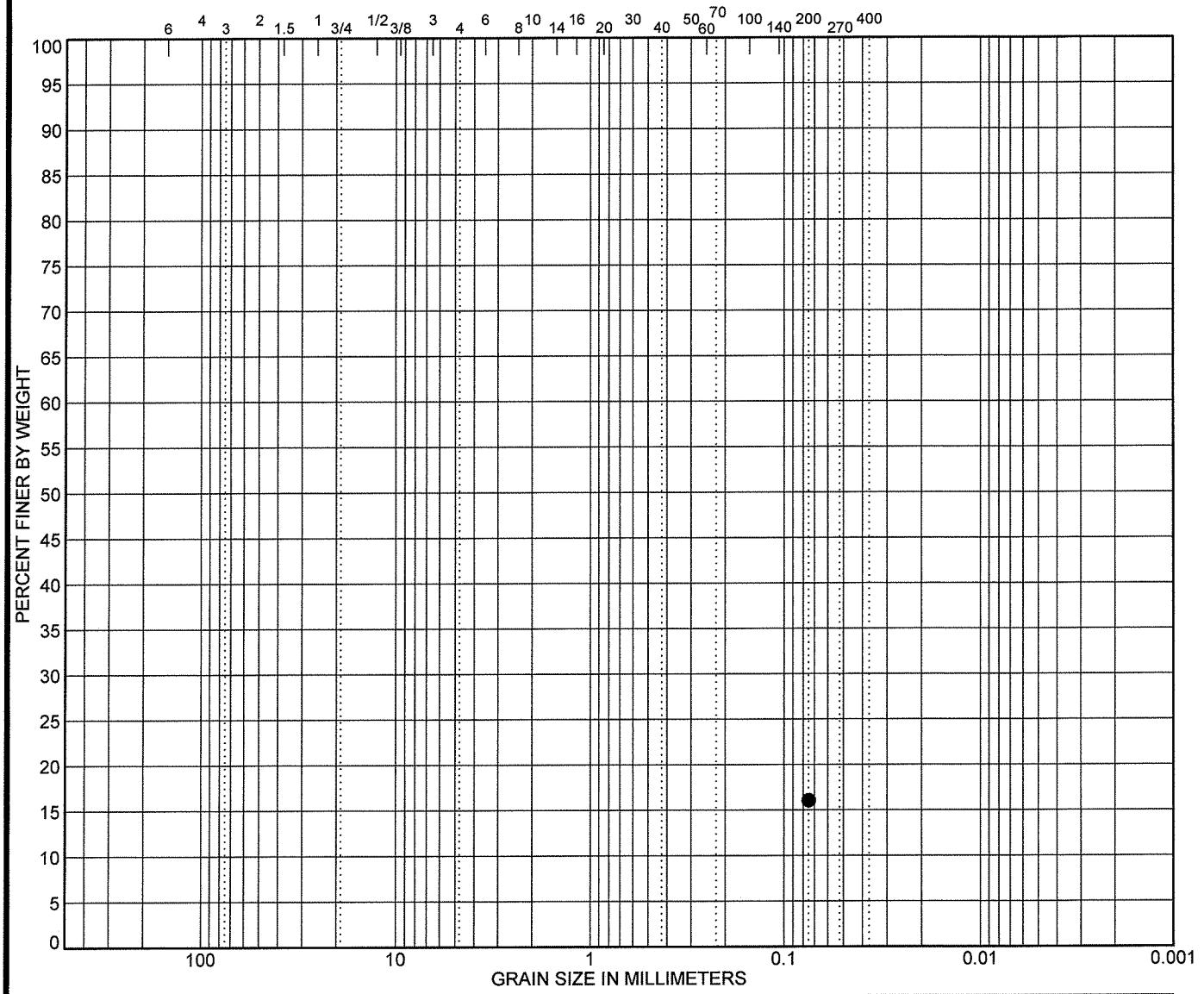
PLATE

B-1.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08					
●	**BH-06**	Classification	LL	PL	PI	Cc	Cu
	Depth: 10	Silty SAND (SM)	NP	NP	NP		
	Sample Location	BH-6 at 10.0'					
	USCS	SM					
	AASHTO						

	Specimen Identification								
●	**BH-06**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
	Depth: 10	0.075				0.0	0.0	16.1	

Natural Moisture	%		**S.E.**		**Absorption %**	
R-Value			**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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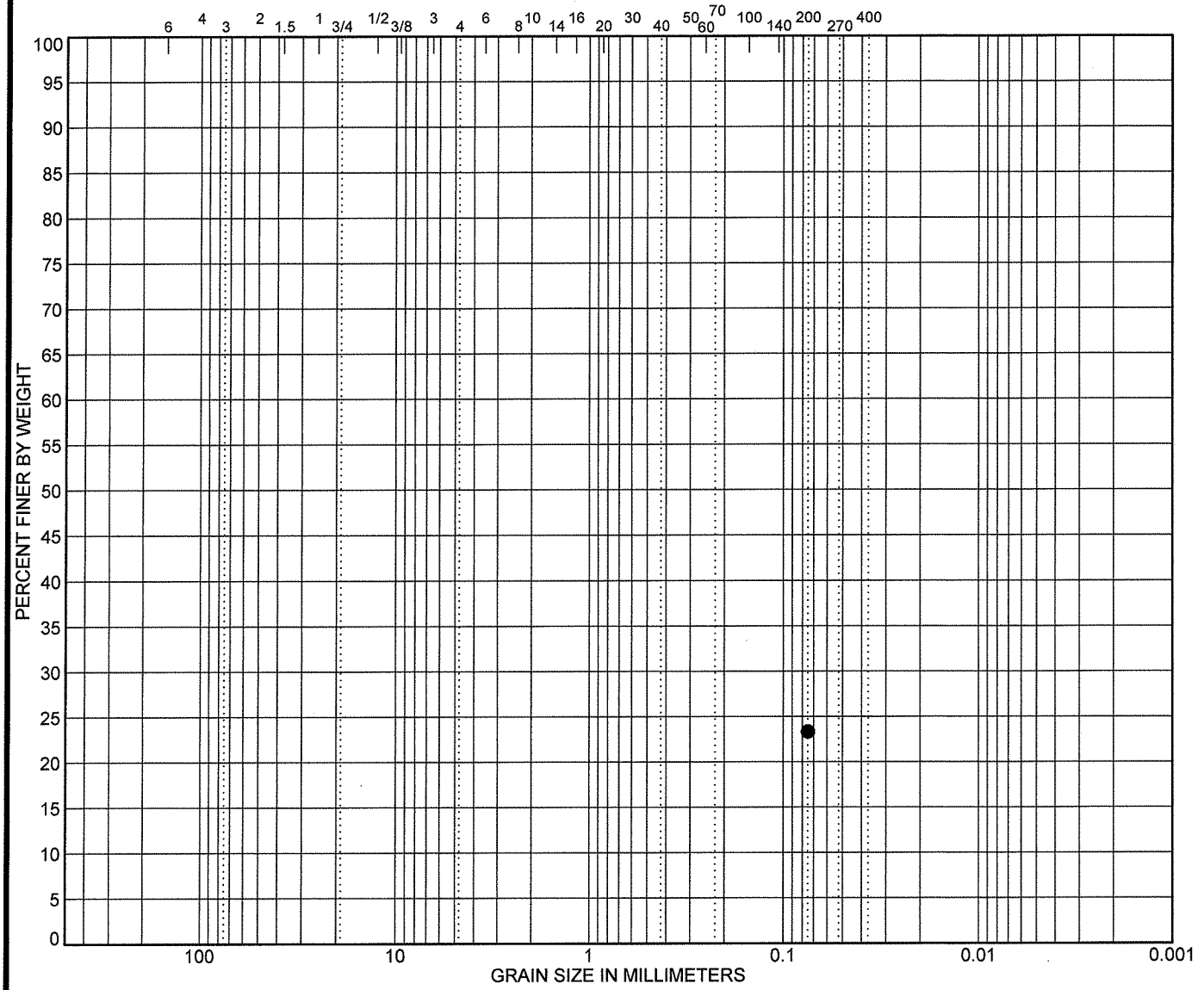
PLATE

B-1.5

LUMOS GRAIN SIZE 7139.000 BOULDER BAY.GPJ US LAB.GDT 9/16/08



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 8-18-08								
● **BH-07**	Classification					LL	PL	PI	Cc	Cu
Depth: 15	Silty SAND (SM)					NP	NP	NP		
Sample Location	BH-7 at 15.0'									
USCS	SM									
AASHTO										

Specimen Identification								
● **BH-07**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
Depth: 15	0.075				0.0	0.0	23.3	

Natural Moisture	%		**S.E.**		**Absorption %**		
R-Value			**Durability Index**		**Soundness**		
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**		

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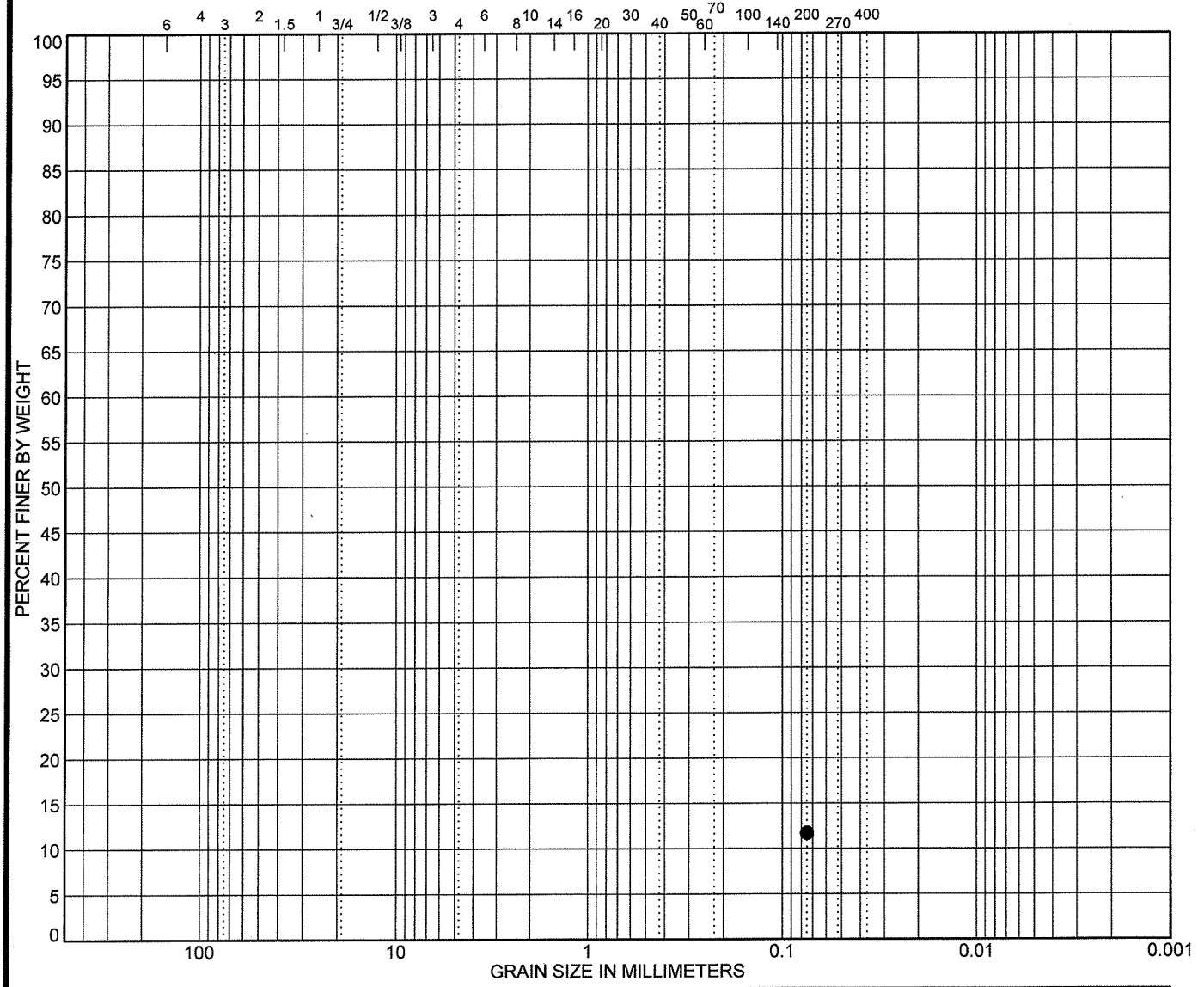
B-1.6



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08	LL	PL	PI	Cc	Cu
●	**BH-08**	Classification					
	Depth 37.5	Poorly Graded SAND with Silt (SP-SM)	NP	NP	NP		
	Sample Location	BH-8 at 37.5'					
	USCS	SP-SM					
	AASHTO						

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-08**								
	Depth 37.5	0.075				0.0	0.0	11.7	

	Natural Moisture	%		**S.E.**		**Absorption %**	
	R-Value			**Durability Index**		**Soundness**	
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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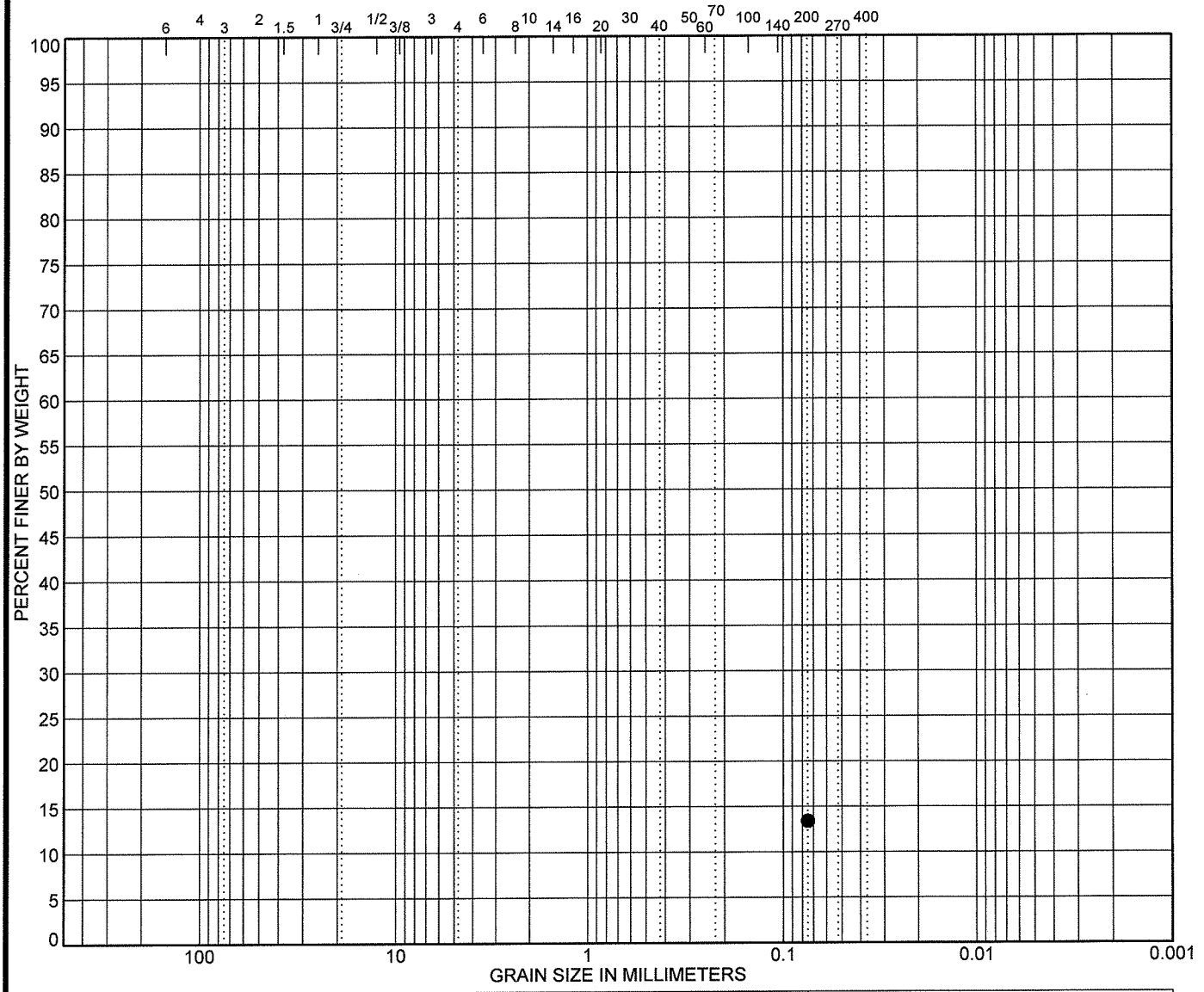
B-1.7

LUMOS GRAIN SIZE 7139.000 BOULDER BAY.GPJ US LAB.GDT 9/16/08



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08	LL	PL	PI	Cc	Cu
●	**BH-09**	Classification					
	Depth22.5	Silty SAND (SM)	NP	NP	NP		
	Sample Location	BH-9 at 22.5'					
	USCS	SM					
	AASHTO						

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH-09**								
	Depth22.5	0.075				0.0	0.0	13.4	

	Natural Moisture	%		**S.E.**		**Absorption %**	
	R-Value			**Durability Index**		**Soundness**	
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

LUMOS GRAIN SIZE 7139.000 BOULDER BAY.GPJ US_LAB.GDT 9/16/08

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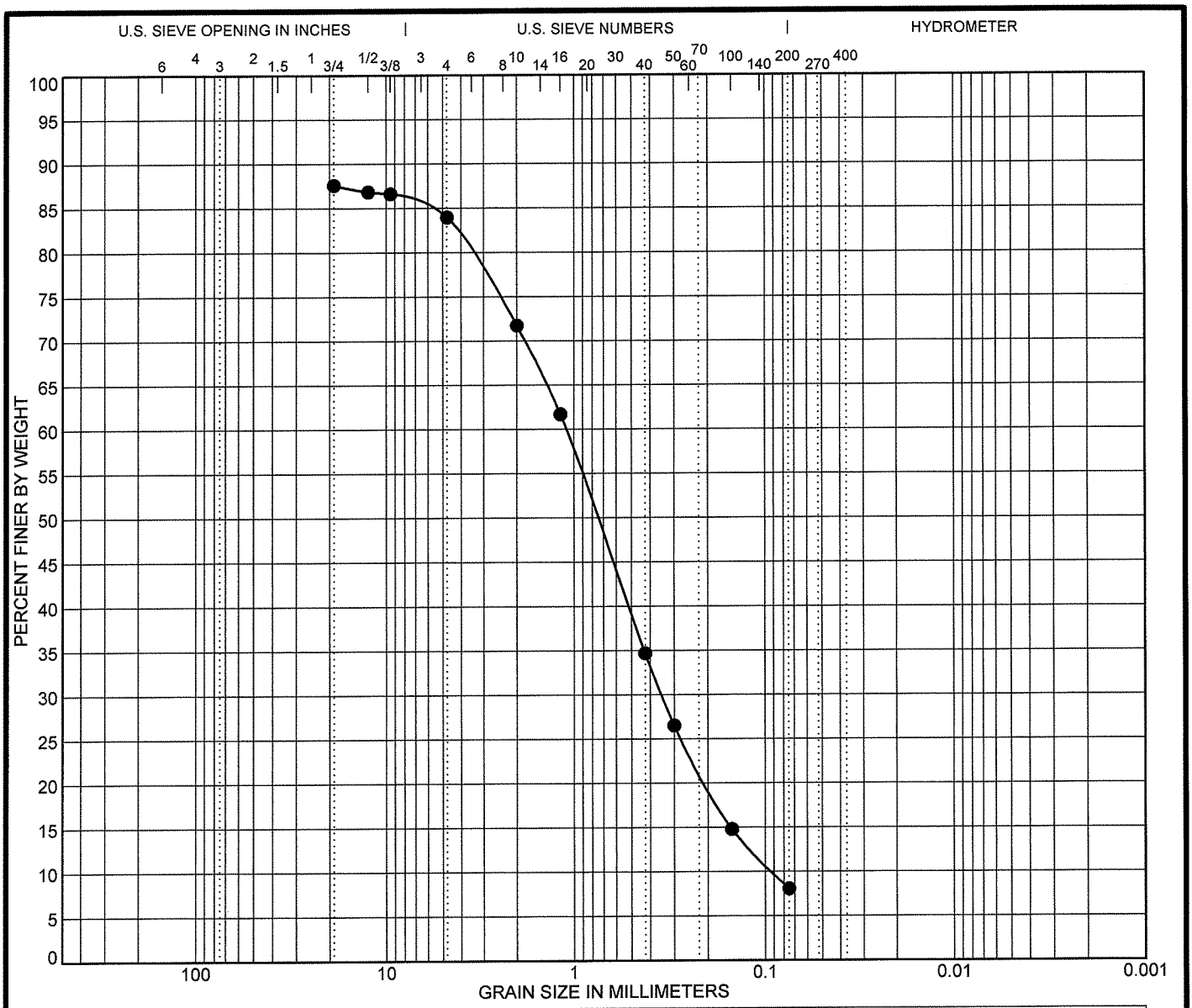
B-1.8



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 8-18-08	LL	PL	PI	Cc	Cu
●	**TP-03**	Classification					
	Depth: 1.4	Well-Graded SAND with Silt & Gravel (SW-SM)	NP	NP	NP	1.2	12.1
	Sample Location	TP-3 at 1.4'					
	USCS	SW-SM					
	AASHTO						

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-03**								
	Depth: 1.4	19	1.107	0.348	0.091	3.6	75.9	8.1	

	Natural Moisture	%		**S.E.**		**Absorption %**	
	R-Value			**Durability Index**		**Soundness**	
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

LUMOS GRAIN SIZE 7139.000 BOULDER BAY.GPJ US_LAB.GDT 9/16/08

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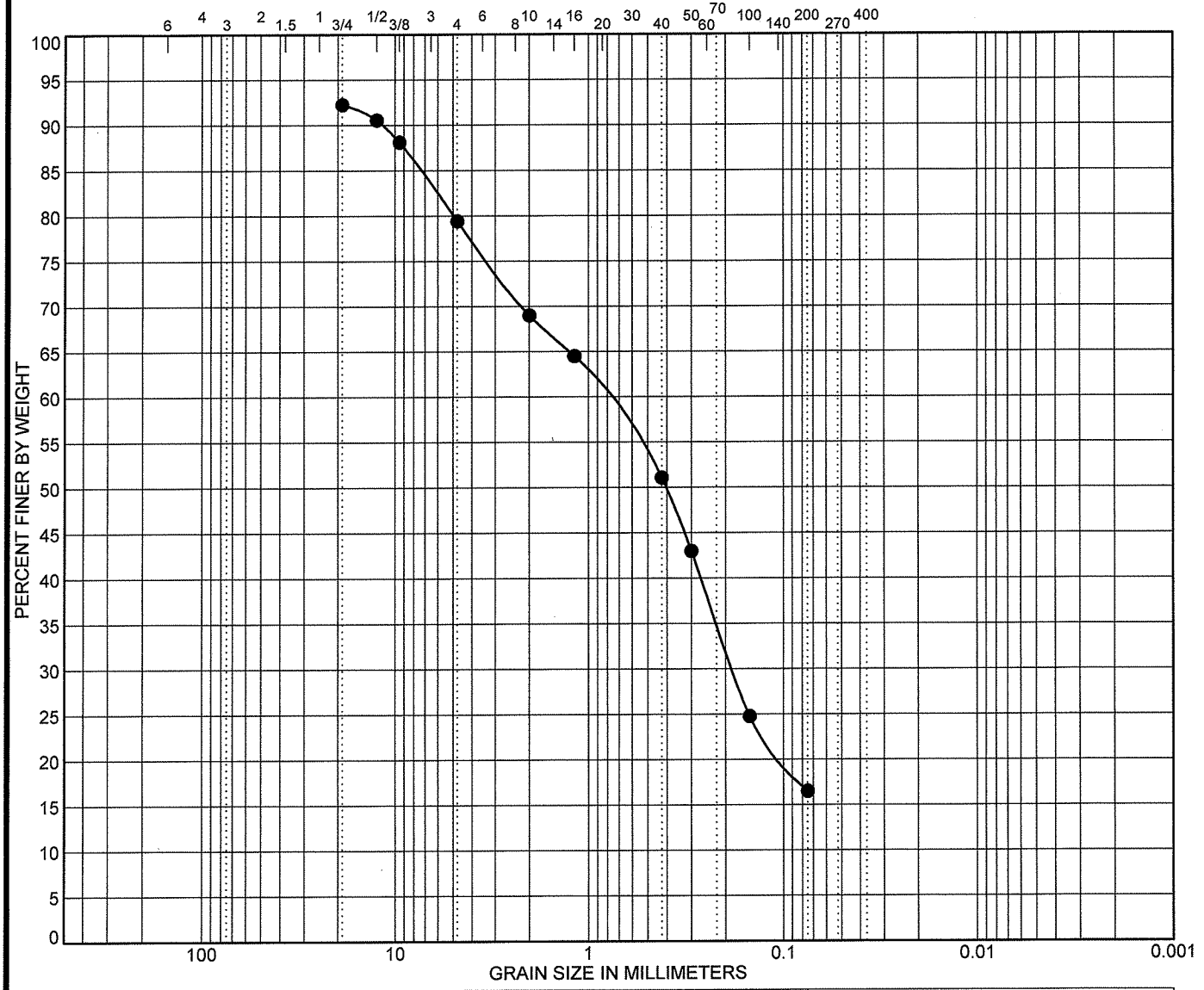
PLATE

B-1.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 8-18-08	LL	PL	PI	Cc	Cu
● **TP-04**	Classification					
Depth: 0	Silty SAND with Gravel (SM)	NP	NP	NP		
Sample Location	TP-4 at 0.0'					
USCS	SM					
AASHTO						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP-04**								
Depth: 0	19	0.838	0.183		12.8	62.9	16.5	

Natural Moisture	%		**S.E.**		**Absorption %**	
R-Value	64		**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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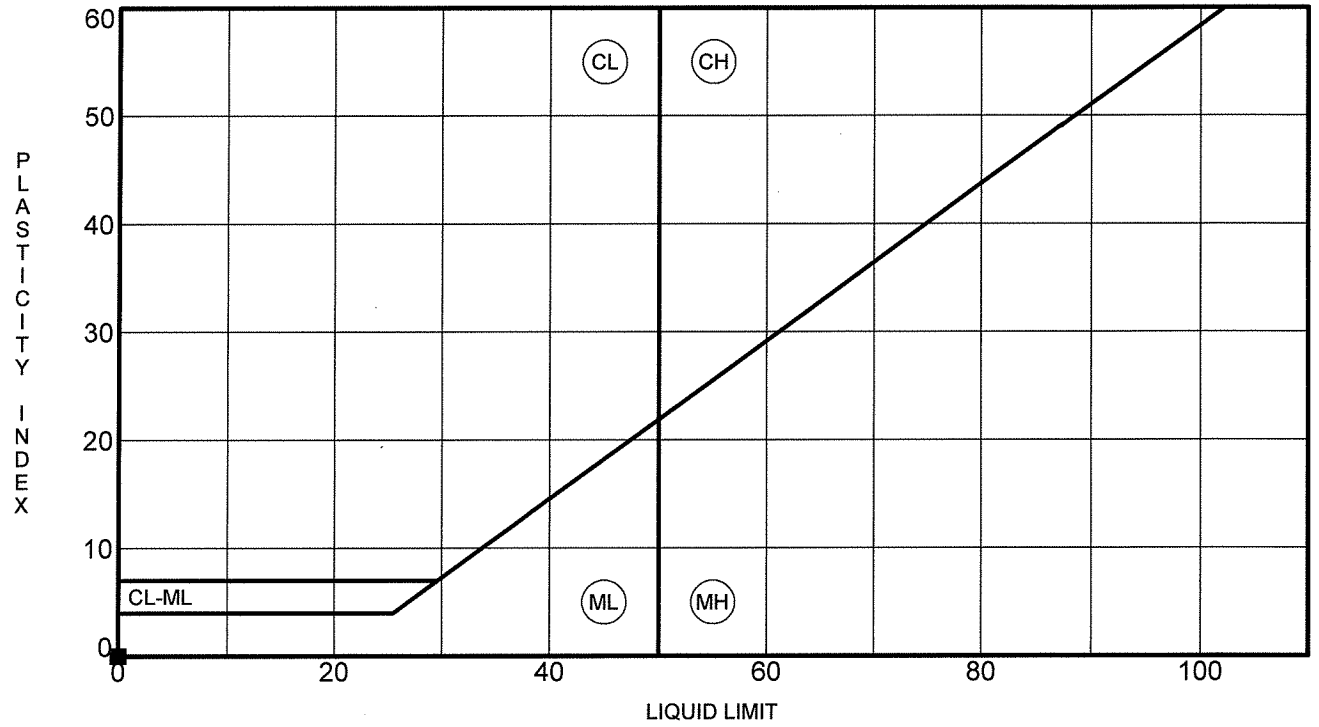
B-1.10

LUMOS_GRAIN_SIZE 7139.000 BOULDER BAY.GPJ US_LAB.GDT 9/16/08



Specimen Identification			LL	PL	PI	Fines	Classification
●	BH-01	7.5	NP	NP	NP	19	Silty SAND (SM)
⊠	BH-03	32.5	NP	NP	NP	24	Silty SAND (SM)
▲	BH-04	5.0	NP	NP	NP	20	Silty SAND (SM)
★	BH-05	20.0	NP	NP	NP	27	Silty SAND (SM)
⊙	BH-06	10.0	NP	NP	NP	16	Silty SAND (SM)
✿	BH-07	15.0	NP	NP	NP	23	Silty SAND (SM)
○	BH-08	37.5	NP	NP	NP	12	Poorly Graded SAND with Silt (SP-SM)
△	BH-09	22.5	NP	NP	NP	13	Silty SAND (SM)
⊗	TP-03	1.4	NP	NP	NP	8	Well-Graded SAND with Silt & Gravel (SW-SM)
⊕	TP-04	0.0	NP	NP	NP	17	Silty SAND with Gravel (SM)

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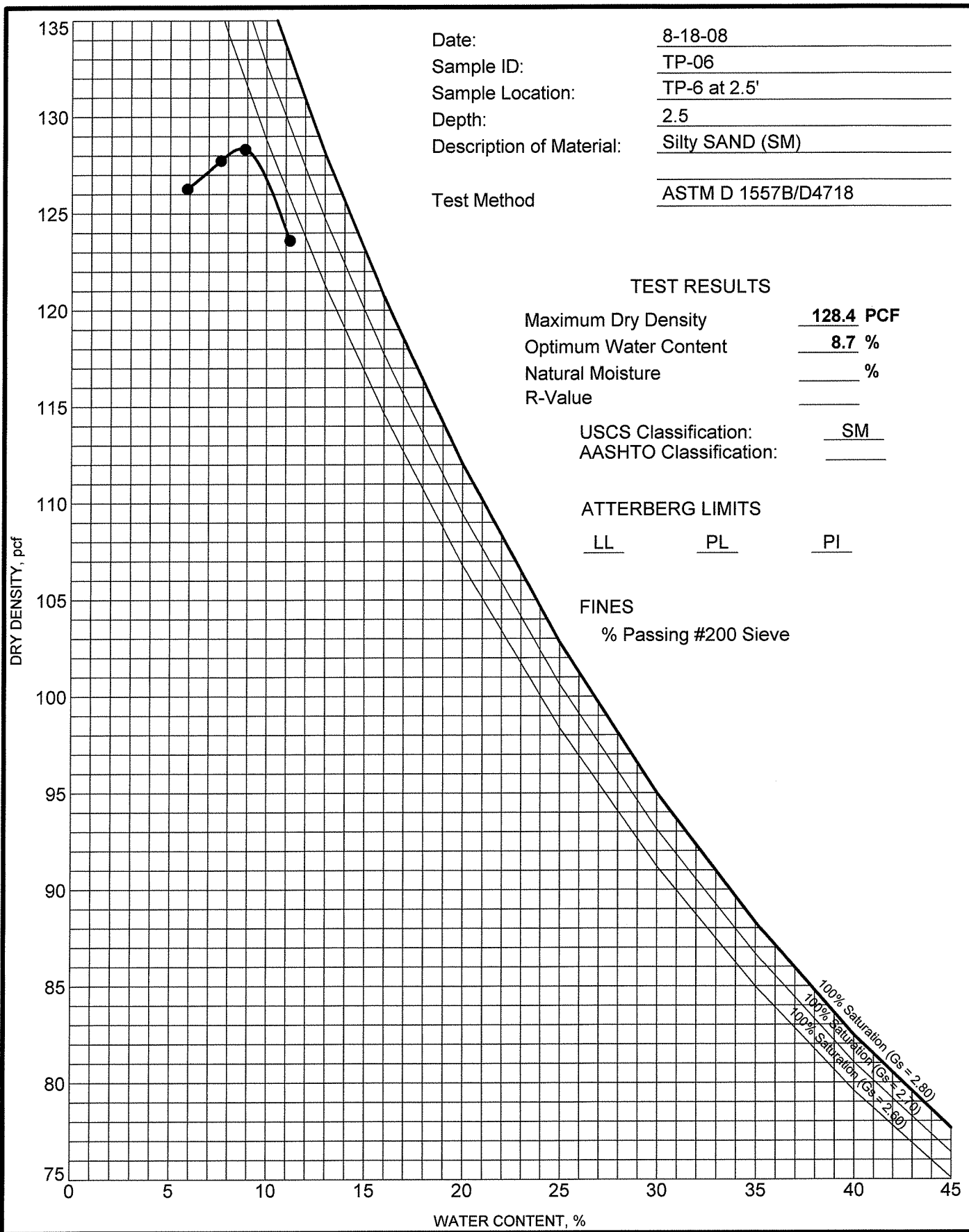
ATTERBERG LIMITS' RESULTS

Job Number: 7139.000 Date: September 2008

PLATE

B-2



Date: 8-18-08
Sample ID: TP-06
Sample Location: TP-6 at 2.5'
Depth: 2.5
Description of Material: Silty SAND (SM)

Test Method: ASTM D 1557B/D4718

TEST RESULTS

Maximum Dry Density	**128.4** PCF
Optimum Water Content	**8.7** %
Natural Moisture	____ %
R-Value	____
USCS Classification:	SM
AASHTO Classification:	____

ATTERBERG LIMITS

LL PL PI

FINES

% Passing #200 Sieve

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Boulder Bay

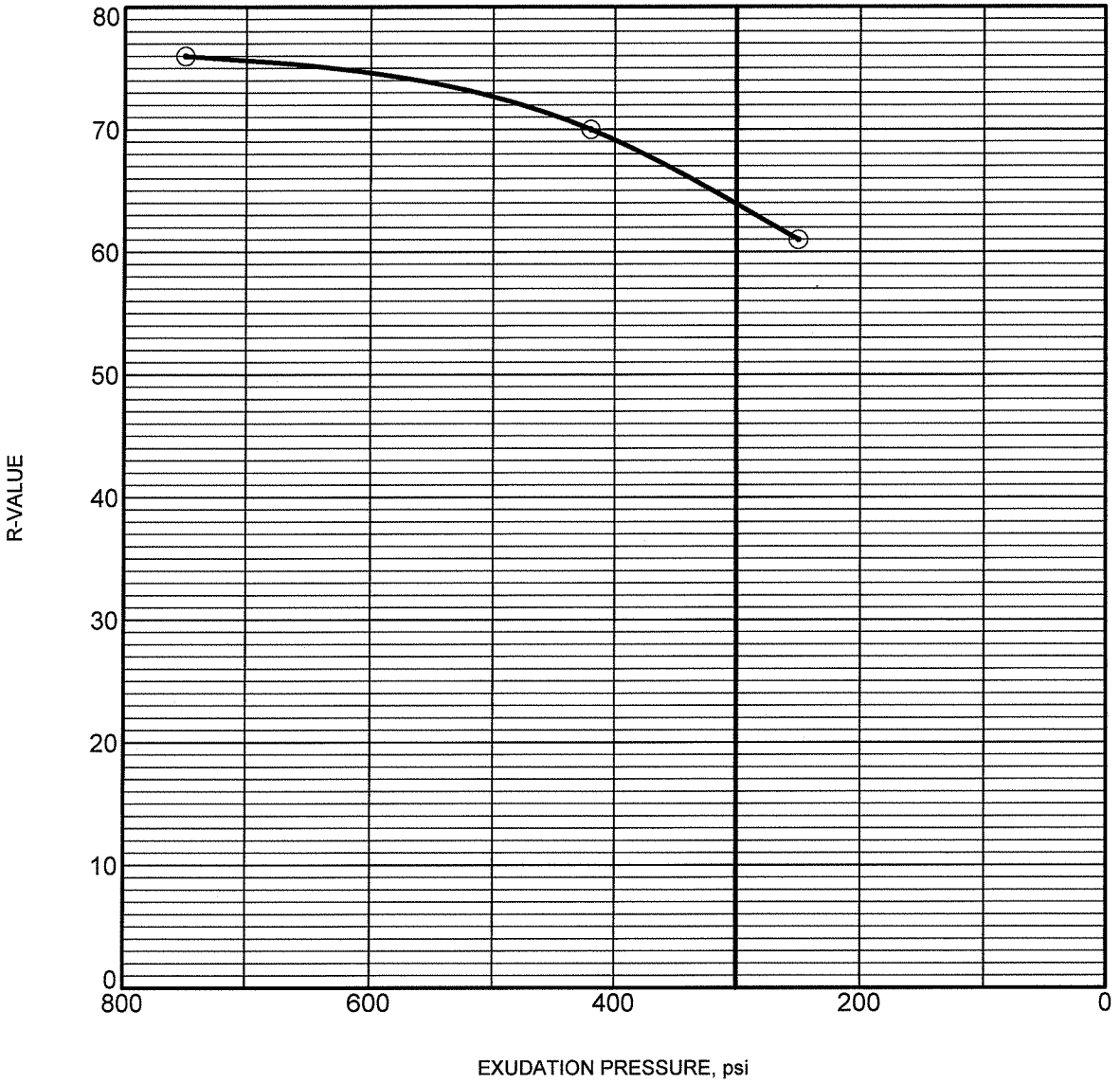
MOISTURE-DENSITY CURVE

Job Number: 7139.000 Date: September 2008

PLATE

B-3

LUMOS COMPACTION 7139.000 BOULDER BAY.GPJ US_LAB.GDT 9/16/08



Test Data

Specimen No.	Water Content (%)	Dry Density (pcf)	Expansion (psf)	Exudation (psi)	Test R-Value*
1	**9.0**		**0.3**	**750.0**	**76.0**
2	**9.8**		**0.0**	**250.0**	**61.0**
3	**9.5**		**0.0**	**420.0**	**70.0**

* Reported values have been corrected for sample height, where required.

Test Result

Specimen Identification		Classification	R-Value
TP-04	**0.0**	**Silty SAND with Gravel (SM)**	**64**

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RESISTANCE VALUE TEST

Job Number: 7139.000 Date: September 2008

PLATE

B-4

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ACT LAB NO:	15171(a)-2	**DATE:**	August 28, 2008
PROJECT NO:	7139.000	**P.O.:**	7159.000/TASKR/MTB
SUBMITTED BY:	Lumos & Associates	**LAB ID:**	
ANALYZED BY:	Kurt D. Ergun		

WATER SOLUBLE SALT ANALYSIS IN SOIL

1:5 (soil:water) Aqueous Extraction
AWWA 3500-Na D, AWWA 4500 E

SOIL SIEVE SIZE = -10 MESH

Sample No.	Location	Depth (feet)	Sodium (Percent)	Water Soluble Sulfate (SO_4) (Percent)	Total Available Water Soluble Sodium Sulfate (Na_2SO_4) (Percent)
	TP-3	0-1.4	<0.01	0.01	0.01

Kurt D. Ergun
LABORATORY DIRECTOR

Notes: The results for each constituent denote the percentage of that analyte, at a 1:5 (soil:water) extraction ratio, which is present in the soil. Sodium was determined by flame photometry, sulfate turbidimetrically, and sodium sulfate by calculation.

TOTAL P.02

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LABORATORY NO:	15171(a)-1	**DATE:**	August 28, 2008
SAMPLE:	Soil	**P.O.:**	7159.000/TASKR/MTB
MARKED:	7139.000	**LAB ID:**	
SUBMITTED BY:	Lumos & Associates	**SOIL SIEVE**	-10
ANALYZED BY:	Kurt D. Ergun		

REPORT OF DETERMINATION

BORING NUMBER	TP-3					
DEPTH (feet)	0-1.4					
pH VALUE	9.06					
RESISTIVITY (Ohm-cm)	23,000					

Kurt D. Ergun

LABORATORY DIRECTOR

NOTES:

1. The soil:water extract ratio was 1:5, the results are in mg/Kg in the soil.
2. The standard methods used for the determinations are AWWA 4500 H/ pH Value, and ASTM G 57/Resistivity.

APPENDIX E **ReMi Data (Gasch & Assoc. 2008)**

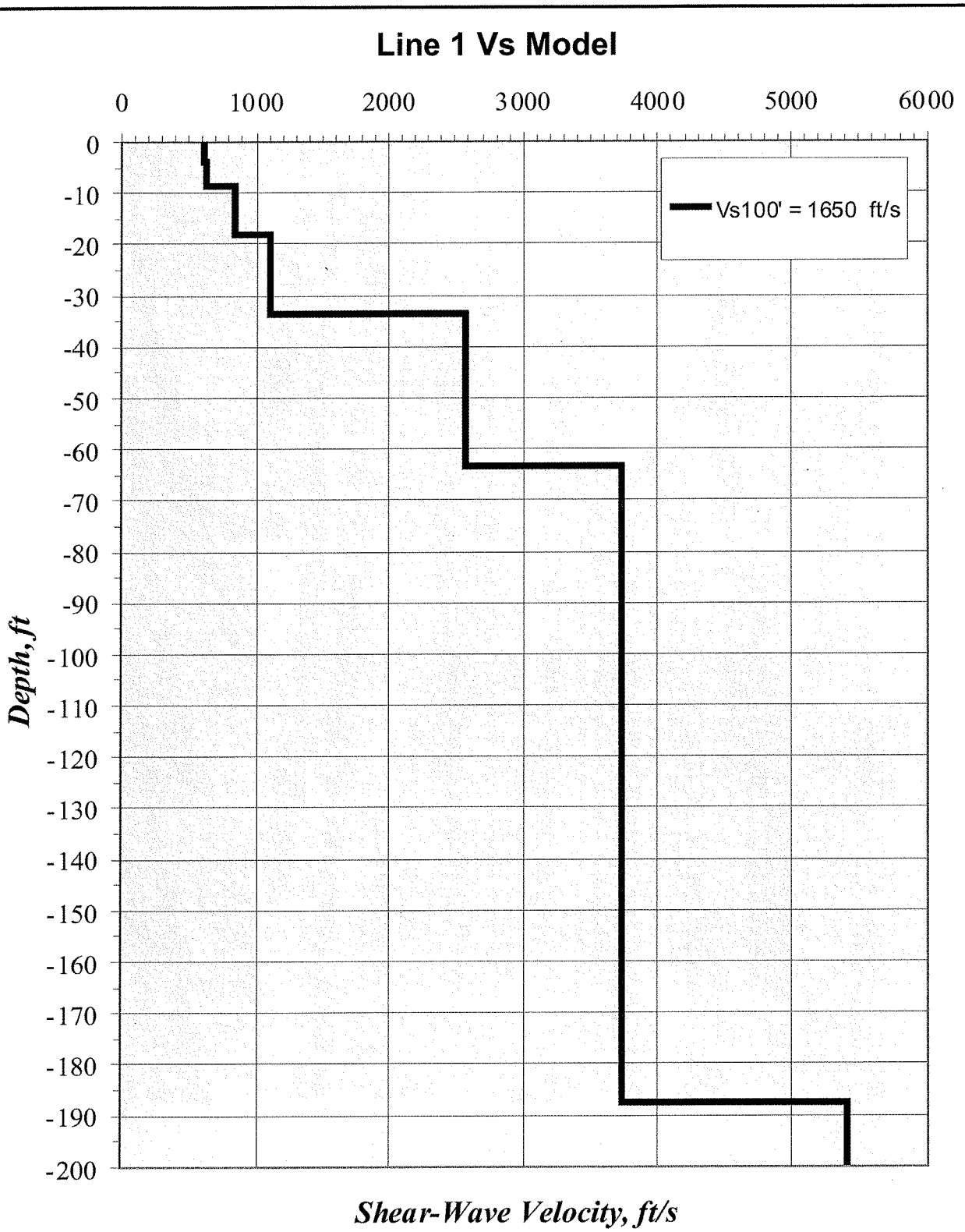

Figure 3

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Boulder Bay Site:
Shear Wave Investigation

Prepared forLumos & Associates, Inc.

Project Number: 2008-15.01 **Date:** June, 2008

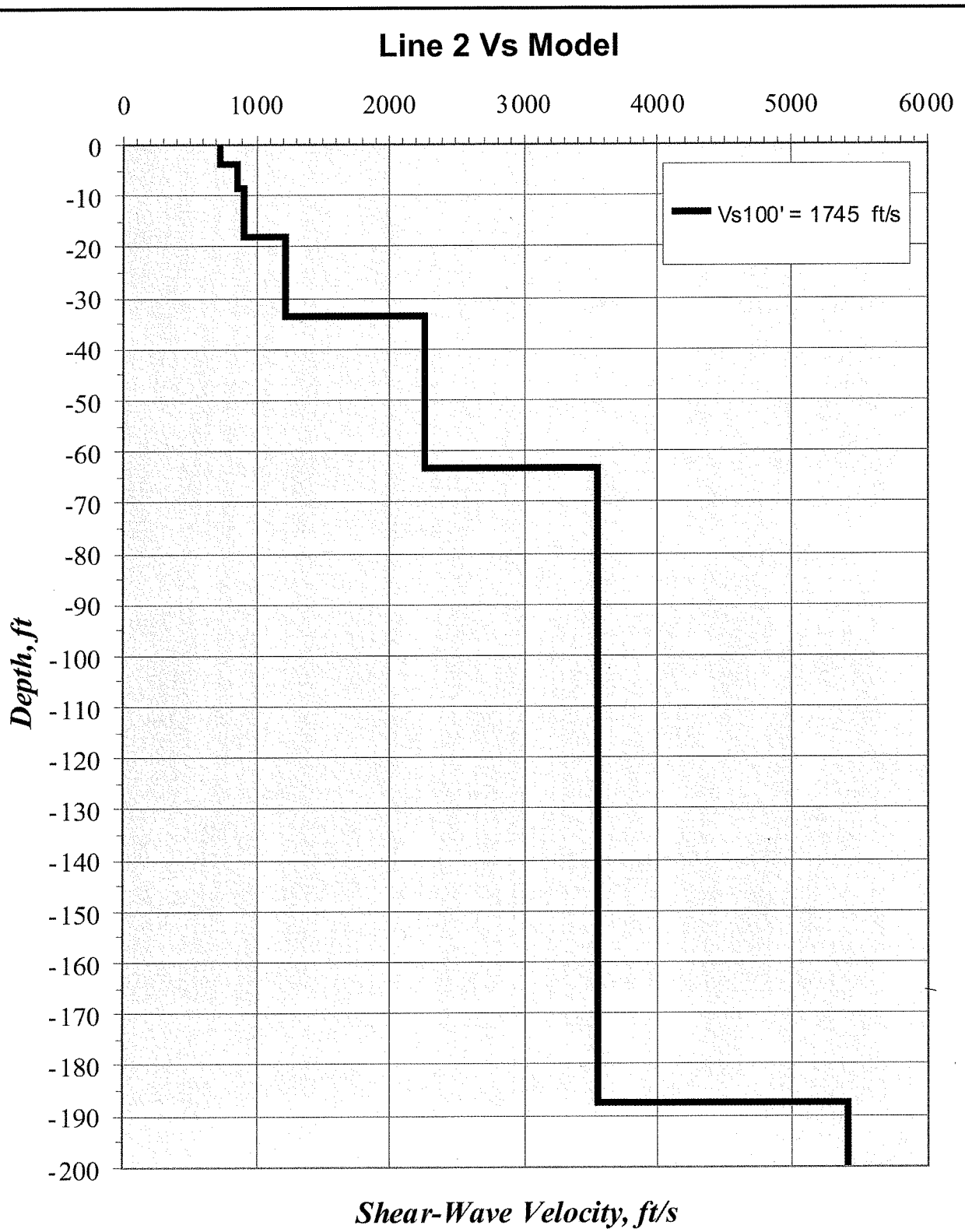

Figure 4

CONSULTANTS IN GEOPHYSICS AND GEOLOGY FOR THE ENGINEERING, GEOTECHNICAL ENVIRONMENTAL and LEGAL PROFESSIONS.
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Project Number: 2008-15.01 **Date:** June, 2008

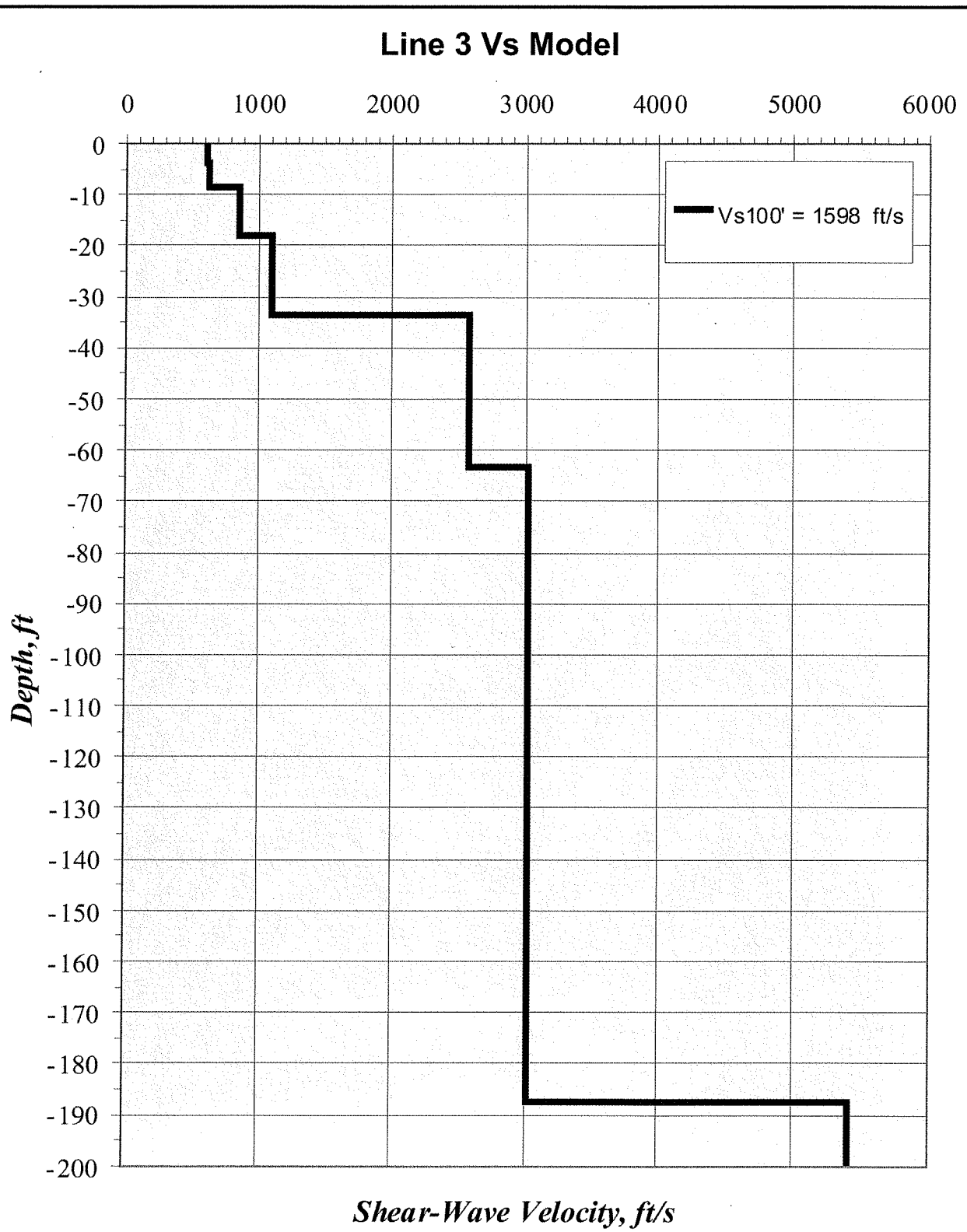

Figure 5

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