Board of Adjustment Staff Report

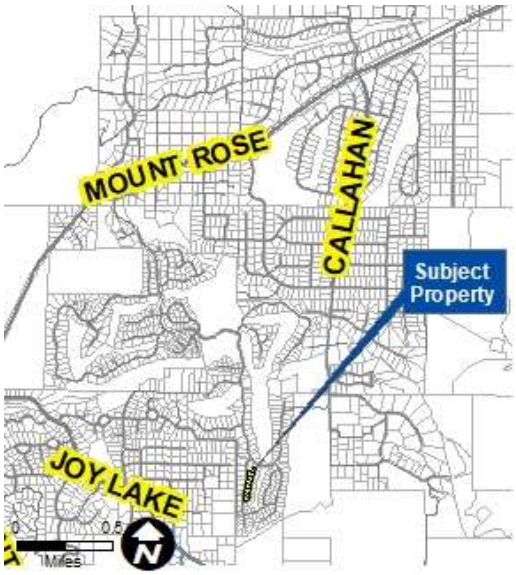
Meeting Date: April 7, 2022 **Agenda Item: 8A**

SPECIAL USE PERMIT CASE NUMBER:	WSUP22-0004 (Latour Excavation)
BRIEF SUMMARY OF REQUEST:	A grading permit for eight residential lots.
STAFF PLANNER:	Julee Olander, Planner Phone Number: 775.328.3627 Email: jolander@washoecounty.gov

CASE DESCRIPTION

For hearing, discussion, and possible action to approve a special use permit to approve major grading of 9,150 cubic yards of cut material and 4,260 cubic yards of fill material with a net of 4,890 cubic yards to be exported and to disturb 122,204 SF (2.80 acres), for grading of eight new homes sites in the Montreux subdivision.

Applicant/Property Owner:	Ladera Ventures II, LLC.
Location:	8 lots on Latour Wy.
APN:	148-333-01, 02 & 03, 148-322-01, 02, 03, 04, & 08
Parcel Size:	0.287 to 0.510 acres
Master Plan:	Suburban Residential (SR)
Regulatory Zone:	Low Density Suburban (LDS)
Area Plan:	Forest
Development Code:	Authorized in Articles 438, Grading and 810, Special Use Permits
Commission District:	2 – Commissioner Lucey



Vicinity Map

STAFF RECOMMENDATION

APPROVE | **APPROVE WITH CONDITIONS** | **DENY**

POSSIBLE MOTION

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Board of Adjustment approve with conditions Special Use Permit Case Number WSUP22-0004 for Ladera Ventures II, LLC., with the conditions included as Exhibit A to this matter, having made all five findings in accordance with Washoe County Code Section 110.810.30

(Motion with Findings on Page 7)

Staff Report Contents

Exhibits Contents

Special Use Permit

The purpose of a special use permit is to allow a method of review to identify any potential harmful impacts on adjacent properties or surrounding areas for uses that may be appropriate within a regulatory zone; and to provide for a procedure whereby such uses might be permitted by further restricting or conditioning them to mitigate or eliminate possible adverse impacts. If the Board of Adjustment grants an approval of the special use permit, that approval is subject to conditions of approval. Conditions of approval are requirements that need to be completed during different stages of the proposed project. Those stages are typically:

- Prior to permit issuance (i.e., a grading permit, a building permit, etc.)
- Prior to obtaining a final inspection and/or a certificate of occupancy on a structure
- Prior to the issuance of a business license or other permits/licenses
- Some conditions of approval are referred to as "operational conditions." These conditions must be continually complied with for the life of the business or project.

The conditions of approval for Special Use Permit Case Number WSUP22-0004 are attached to this staff report and will be included with the action order.

The subject property is designated as Low Density Suburban (LDS). The proposed grading is permitted with a special use permit per WCC 110.438.35. The applicant is seeking approval of this SUP from the Board of Adjustment.

Site Plan

Area of Disturbance

Project Evaluation

The applicant is requesting a special use permit for major grading to prepare 8 lots for a new single-family development. These lots are located within the Montreux development, which is an approved residential subdivision. The proposed grading exceeds the major grading requirements for volume per 110.438.35(a)(1), Grading on slopes less than or flatter than 15%. The applicant is proposing to disturb 122,204 SF (2.80 acres) and cut 9,150 CY of material and fill 4,260 CY with a net of 4,890 CY to be exported from the site.

The applicant indicates that the grading is needed to be completed before the construction of rockery retaining wall, which will be up to 7-feet high and will cross property lines. The wall will be constructed along the backside of the properties adjacent to Margaux Road. The applicant will also be grading the 8 residential pads to prepare the sites for foundations on each lot. The foundations will be constructed after the retaining wall has been completed.

Reviewing Agencies

The following agencies/individuals received a copy of the project application for review and evaluation.

Agency	Sent to Review	Responded	Provided Conditions	Contact
Washoe County Engineering	☒	☒	☒	Robert Wimer, rwimer@washoecounty.gov
WCHD – Air Quality	☒	☒	☐	Genine Rosa, grosa@washoercounty.us
WCHD – Environment Health	☒	☒	☐	James English, jenglish@washocounty.gov
Washoe County Water Management	☒	☒	☐	Timber Weiss, tweiss@washoecounty.gov
RTC Washoe	☒	☐	☐	
Washoe Storey Conservation District	☒	☐	☐	Jim Shaffer, shafferjam51@gmail.com

All conditions required by the contacted agencies can be found in Exhibit A, Conditions of Approval.

Staff Comment on Required Findings

WCC Section 110.810.30, Article 810, *Special Use Permits*, requires that all of the following findings be made to the satisfaction of the Washoe County Board of Adjustment before granting approval of the request. Staff has completed an analysis of the special use permit application and has determined that the proposal is in compliance with the required findings as follows.

(a) Consistency. That the proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the Forest Area Plan.

Staff Comment: Staff has reviewed the Master Plan and the Forest Area Plan and the project is consistent with these plans.

(b) Improvements. That adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven.

Staff Comment: The applicant is proposing to grade 8 residential lots to prepare the lots for further development. All required utilities and improvements have been planned on and will be a part of future permitting.

(c) Site Suitability. That the site is physically suitable grading and for the intensity of such a development.

Staff Comment: The applicant is proposing to grade 8 residential lots to prepare the lots for further development. These lots are within Montreux, which is an approved residential subdivision. The proposed grading will make the parcels suitable for the planned development of residential houses.

(d) Issuance Not Detrimental. That issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area.

Staff Comment: The applicant is proposing to grade 8 residential lots to prepare the lots for further development, which will not be detrimental to the area. These lots are within Montreux, which is an approved residential subdivision. The grading will prepare the lots to be developed with residential house as the zoning allows.

(e) Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

Staff Comment: There is no military installation within the area of required notice for this special use permit; therefore, the project will have no effect on a military installation.

Recommendation

After a thorough analysis and review, Special Use Permit Case Number WSUP22-0004 is being recommended for approval with conditions. Staff offers the following motion for the Board's consideration.

Motion

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Board of Adjustment approve with conditions Special Use Permit Case Number WSUP22-0004 for Ladera Ventures II, LLC., with the conditions included as Exhibit A to this matter, having made all five findings in accordance with Washoe County Code Section 110.810.30:

(a) Consistency. That the proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the Forest Area Plan;

(b) Improvements. That adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;

(c) Site Suitability. That the site is physically suitable for grading and for the intensity of such a development;

(d) Issuance Not Detrimental. That issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area;

(e) Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

Appeal Process

Board of Adjustment action will be effective 10 calendar days after the written decision is filed with the Secretary to the Board of Adjustment and mailed to the applicant, unless the action is appealed to the Washoe County Board of County Commissioners, in which case the outcome of the appeal shall be determined by the Washoe County Board of County Commissioners. Any appeal must be filed in writing with the Planning and Building Division within 10 calendar days from the date the written decision is filed with the Secretary to the Board of Adjustment and mailed to the applicant.

Applicant/Owner:	Ladera Ventures II, LLC. Brittany.Weygandt@laderaventures.com
Representatives:	LakeCrest Builders INC. leslie@lakecrestbuilders.com

Conditions of Approval

Special Use Permit Case Number WSUP22-0004

The project approved under Special Use Permit Case Number WSUP22-0004 shall be carried out in accordance with the conditions of approval granted by the Board of Adjustment on April 7, 2022. Conditions of approval are requirements placed on a permit or development by each reviewing agency. These conditions of approval may require submittal of documents, applications, fees, inspections, amendments to plans, and more. These conditions do not relieve the applicant of the obligation to obtain any other approvals and licenses from relevant authorities required under any other act.

Unless otherwise specified, all conditions related to the approval of this special use permit shall be met or financial assurance must be provided to satisfy the conditions of approval prior to issuance of a grading or building permit. The agency responsible for determining compliance with a specific condition shall determine whether the condition must be fully completed or whether the applicant shall be offered the option of providing financial assurance. All agreements, easements, or other documentation required by these conditions shall have a copy filed with the County Engineer and the Planning and Building Division.

Compliance with the conditions of approval related to this special use permit is the responsibility of the applicant, his/her successor in interest, and all owners, assignees, and occupants of the property and their successors in interest. Failure to comply with any of the conditions imposed in the approval of the special use permit may result in the institution of revocation procedures.

Washoe County reserves the right to review and revise the conditions of approval related to this Special Use Permit should it be determined that a subsequent license or permit issued by Washoe County violates the intent of this approval.

For the purpose of conditions imposed by Washoe County, “may” is permissive and “shall” or “must” is mandatory.

Conditions of approval are usually complied with at different stages of the proposed project. Those stages are typically:

- Prior to permit issuance (i.e., grading permits, building permits, etc.).
- Prior to obtaining a final inspection and/or a certificate of occupancy.
- Prior to the issuance of a business license or other permits/licenses.
- Some “ conditions of approval” are referred to as “operational conditions.” These conditions must be continually complied with for the life of the project or business.

The Washoe County Commission oversees many of the reviewing agencies/departments with the exception of the following agencies.

- **The DISTRICT BOARD OF HEALTH, through the Washoe County Health District, has jurisdiction over all public health matters in the Health District. Any conditions set by the Health District must be appealed to the District Board of Health.**

FOLLOWING ARE CONDITIONS OF APPROVAL REQUIRED BY THE REVIEWING AGENCIES. EACH CONDITION MUST BE MET TO THE SATISFACTION OF THE ISSUING AGENCY.

Washoe County Planning and Building Division

1. The following conditions are requirements of Planning and Building, which shall be responsible for determining compliance with these conditions.
   Contact Name – Julee Olander, Planner, 775.328.3627, jolander@washoecounty.gov

   a. The applicant shall attach a copy of the action order approving this project to all permits and applications (including building permits) applied for as part of this special use permit.

   b. The applicant shall demonstrate substantial conformance to the plans approved as part of this special use permit. The Planning and Building Division shall determine compliance with this condition.

   c. The applicant shall submit construction plans, with all information necessary for comprehensive review by Washoe County, and initial building permits shall be issued within two years from the date of approval by Washoe County. The applicant shall complete construction within the time specified by the building permits. Compliance with this condition shall be determined by the Planning and Building Division.

   d. A note shall be placed on all construction drawings and grading plans stating:

   NOTE

   Should any cairn or grave of a Native American be discovered during site development, work shall temporarily be halted at the specific site and the Sheriff's Office as well as the State Historic Preservation Office of the Department of Conservation and Natural Resources shall be immediately notified per NRS 383.170.

   e. Construction work hours will be limited to 7am to 7pm Monday to Saturday.

   f. Any imported earthen materials shall be "certified weed free" in order to prevent the spread of noxious weeds within the county.

   g. The grading on site shall be in compliance with applicable best management practices to minimize erosion.

   h. The following **Operational Conditions** shall be required for the life of the business:

      i. This special use permit shall remain in effect until or unless it is revoked or is inactive for one year.

      ii. Failure to comply with any of the conditions of approval shall render this approval out of conformance and subject to revocation.

      iii. The applicant and any successors shall direct any potential purchaser/operator of the site and/or the administrative permit to meet with Planning and Building to review conditions of approval prior to the final sale of the site and/or the administrative permit. Any subsequent purchaser/operator of the site and/or the administrative permit shall notify Planning and Building of the name, address, telephone number, and contact person of the new purchaser/operator within 30 days of the final sale.

Washoe County Engineering and Capital Projects

2. The following conditions are requirements of the Engineering Division, which shall be responsible for determining compliance with these conditions.

   Contact Name – Robert Wimer, P.E, 775.328-2059, rwimer@washoecounty.gov

   a. A complete set of construction improvement drawings, including an on-site grading plan, shall be submitted when applying for a building/grading permit. Grading shall comply with best management practices (BMP's) and shall include detailed plans for grading, site drainage, erosion control (including BMP locations and installation details), slope stabilization, and mosquito abatement. Placement or removal of any excavated materials shall be indicated on the grading plan. Silts shall be controlled on-site and not allowed onto adjacent property.

   b. For construction areas larger than 1 acre, the developer shall obtain from the Nevada Division of Environmental Protection a Stormwater Discharge Permit or Waiver for construction and submit a copy to the Engineering Division prior to issuance of a grading permit.

   c. The developer shall complete and submit the Construction Permit Submittal Checklist and pay the Construction Stormwater Inspection Fee prior to obtaining a grading permit. The County Engineer shall determine compliance with this condition.

   d. Applicant shall indicate on the plans where exported materials will be taken and a grading permit shall be obtained for the import site.

   e. Exported materials shall not be sold without the proper business license.

   f. A grading bond of $2,000/acre of disturbed area shall be provided to the Engineering Division prior to any grading.

   g. Cross-sections indicating cuts and fills shall be submitted when applying for a grading permit. Estimated total volumes shall be indicated.

   h. All disturbed areas left undeveloped for more than 30 days shall be treated with a dust palliative. Disturbed areas left undeveloped for more than 45 days shall be revegetated. Methods and seed mix must be approved by the County Engineer with technical assistance from the Washoe-Storey Conservation District. The applicant shall submit a revegetation plan to the Washoe-Storey Conservation District for review.

   DRAINAGE (COUNTY CODE 110.416, 110.420, and 110.421)

   Contact Information: Robert Wimer, P.E, 775.328-2059, rwimer@washoecounty.gov

   a. The following note shall be added to the construction drawings; "All properties, regardless if they are located within or outside of a FEMA designated flood zone, may be subject to flooding. The property owner is required to maintain all drainage easements and natural drainages and not perform or allow unpermitted and unapproved modifications to the property that may have detrimental impacts to surrounding properties."

Washoe County Health District- Air Quality

3. The following conditions are requirements of the Health District, which shall be responsible for determining compliance with these conditions.

   Contact Name - Genine Rosa, Environmental Engineer II, 775.784.7204, grosa@washoecounty.gov

a. Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com. Link to application: Dust Control Permit Application

*** End of Conditions ***

WASHOE COUNTY
COMMUNITY SERVICES DEPARTMENT
Engineering and Capital Projects

1001 EAST 9TH STREET
RENO, NEVADA 89512
PHONE (775) 328-3600
FAX (775) 328.3699

Date: February 28, 2022

To: Julee Olander, Planner

From: Robert Wimer, P.E., Licensed Engineer

Re: Special Use Permit for ***Latour Excavation WSUP22-0004***
APN 148-333-01, 02 & 03, 148-322-01, 02, 03, 04, & 08

GENERAL PROJECT DISCUSSION

Washoe County Engineering staff has reviewed the above referenced application. The Special Use Permit is for the grading of eight new homes and is located on approximately 3.2 acres on the west side of Latour Way off of Bordeaux Way. The Engineering and Capital Projects Division recommends approval with the following comments and conditions of approval which supplement applicable County Code and are based upon our review of the site and the application prepared by LakeCrest Builders, Inc. The County Engineer shall determine compliance with the following conditions of approval.

For questions related to sections below, please see the contact name provided.

GENERAL CONDITIONS

Contact Information: Robert Wimer, P.E. (775) 328-2059

1. A complete set of construction improvement drawings, including an on-site grading plan, shall be submitted when applying for a building/grading permit. Grading shall comply with best management practices (BMP's) and shall include detailed plans for grading, site drainage, erosion control (including BMP locations and installation details), slope stabilization, and mosquito abatement. Placement or removal of any excavated materials shall be indicated on the grading plan. Silts shall be controlled on-site and not allowed onto adjacent property.
2. For construction areas larger than 1 acre, the developer shall obtain from the Nevada Division of Environmental Protection a Stormwater Discharge Permit or Waiver for construction and submit a copy to the Engineering Division prior to issuance of a grading permit.
3. The developer shall complete and submit the Construction Permit Submittal Checklist and pay the Construction Stormwater Inspection Fee prior to obtaining a grading permit. The County Engineer shall determine compliance with this condition.
4. Applicant shall indicate on the plans where exported materials will be taken and a grading permit shall be obtained for the import site.
5. Exported materials shall not be sold without the proper business license.

6. A grading bond of $2,000/acre of disturbed area shall be provided to the Engineering Division prior to any grading.
7. Cross-sections indicating cuts and fills shall be submitted when applying for a grading permit. Estimated total volumes shall be indicated.
8. All disturbed areas left undeveloped for more than 30 days shall be treated with a dust palliative. Disturbed areas left undeveloped for more than 45 days shall be revegetated. Methods and seed mix must be approved by the County Engineer with technical assistance from the Washoe-Storey Conservation District. The applicant shall submit a revegetation plan to the Washoe-Storey Conservation District for review.

DRAINAGE (COUNTY CODE 110.416, 110.420, and 110.421)
Contact Information: Robert Wimer, P.E. (775) 328-2059

1. The following note shall be added to the construction drawings; "All properties, regardless if they are located within or outside of a FEMA designated flood zone, may be subject to flooding. The property owner is required to maintain all drainage easements and natural drainages and not perform or allow unpermitted and unapproved modifications to the property that may have detrimental impacts to surrounding properties."

TRAFFIC AND ROADWAY (COUNTY CODE 110.436)
Contact Information: Mitch Fink,P.E. (775) 328-2050

1. There are no traffic related comments.

UTILITIES (County Code 422 & Sewer Ordinance)
Contact Information: Tim Simpson, P.E. (775) 954-4648

1. There are no utility related comments.

WASHOE COUNTY
HEALTH DISTRICT
ENHANCING QUALITY OF LIFE

March 1, 2022

Washoe County Community Services
Planning and Development Division

RE: Latour Excavation; 148-333-01, 02, 03 148-322-01
Special Use Permit; WSUP22-0004

Dear Washoe County Staff:

The following conditions are requirements of the Washoe County Health District, Environmental Health Division, which shall be responsible for determining compliance with these conditions.

Contact Name, James English, jenglish@washoecounty.us

a) Condition #1: WCHD has no issues with this application as submitted.

If you have any questions or would like clarification regarding the foregoing, please contact James English, EHS Supervisor at jenglish@washoecounty.us regarding all Health District comments.

Sincerely,

James English, REHS, CP-FS
EHS Supervisor
Environmental Health Services
Washoe County Health District

Washoe-Storey Conservation District

Bret Tyler Chairmen
Jim Shaffer Treasurer
Cathy Canfield Storey app
Jean Herman Washoe app

1365 Corpotate Blvd.
RenoNV 89502
775 857-8500 ext. 131
nevadaconservation.com

February 25, 2022

Washoe County Community Services Department

C/O Julee Olander, Planner

1001 E Ninth Street, Bldg. A

Reno, NV 89512

R: WSUP22- 0004 Latour Excavation

Dear Julee,

In reviewing the special use permit for grading for eight new homes, the Conservation District has the following comments.

The District will require review of the vegetation plan that includes a seed mix based on the soil, contingency water plan, fertilizer plan, erosion control structures and a monitoring plan with updates provided to the Conservation District after the growing season (October 31) for a three-year period.

To prevent the spread of noxious weeds in the export of 4,800 cubic yards of material, the applicant develops an onsite weeds management plan to ensure weed seeds do not impact other areas.

With 174 Ponderosa and Jeffrey pines removed, to mitigate this loss a minimum 1.5 to 1 ratio planting of the same tree variety.

With rockery walls proposed, the District will require the voids in the face of the rockery walls entire height filled with smaller rock to prevent the undermining by small animals.

In the geotechnical investigation if the applicant constructs post tension slab one can avoid mold and insect issues from standing water with raised foundations.

Thank you for providing us the opportunity to review the project that may have impacts on our natural resources and any questions call us (775) 750 8272.

Sincerely,

Jim Shaffer

WASHOE COUNTY
COMMUNITY SERVICES
INTEGRITY COMMUNICATION SERVICE

Reno, Nevada 89520-0027
Phone: (775) 328-3600
Fax: (775) 328-3699

February 22, 2022

TO: Julee Olander, Planner, CSD, Planning & Development Division

FROM: Timber Weiss, Licensed Engineer, CSD

SUBJECT: Special Use Permit Case Number WSUP22-0004 (Latour Excavation)

Project description:

The applicant is proposing to approve grading of 9,150 cubic yards (CY) of cut material for eight new homes in the Montreux subdivision.

Location: Latour Way, Montreux Subdivision. Assessor's Parcel Numbers: 148-333-01, 02 & 03, 148-322-01, 02, 03, 04, & 08.

The Community Services Department (CSD) recommends approval of this project with the following Water Rights comments and/or conditions:

Comments:

Recommend approval of this permit.

The only anticipated water demand would be for dust control. It is assumed that water trucks would be used to meet this demand. These parcels are located within TMWA's service area. Discuss potential water use requirements with their new construction division.

Conditions:

There are no conditions of approval as for water rights and water resources.

From: Rosa, Genine
To: Olander, Julee
Subject: RE: WSUP22-0004 Latour grading
Date: Wednesday, March 2, 2022 2:21:02 PM
Attachments: image007.png
image008.png
image009.png
image010.png
image011.png

Comments below:

Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com.
Link to application: Dust Control Permit Application

Feel free to contact me with any questions.

Thank you,

Genine
Environmental Engineer II
O: (775) 784-7204

www.OurCleanAir.com | Subscribe to get Air Quality Updates!

WASHOE COUNTY HEALTH DISTRICT
ENHANCING QUALITY OF LIFE
Public Health

Please take our customer satisfaction survey by clicking here

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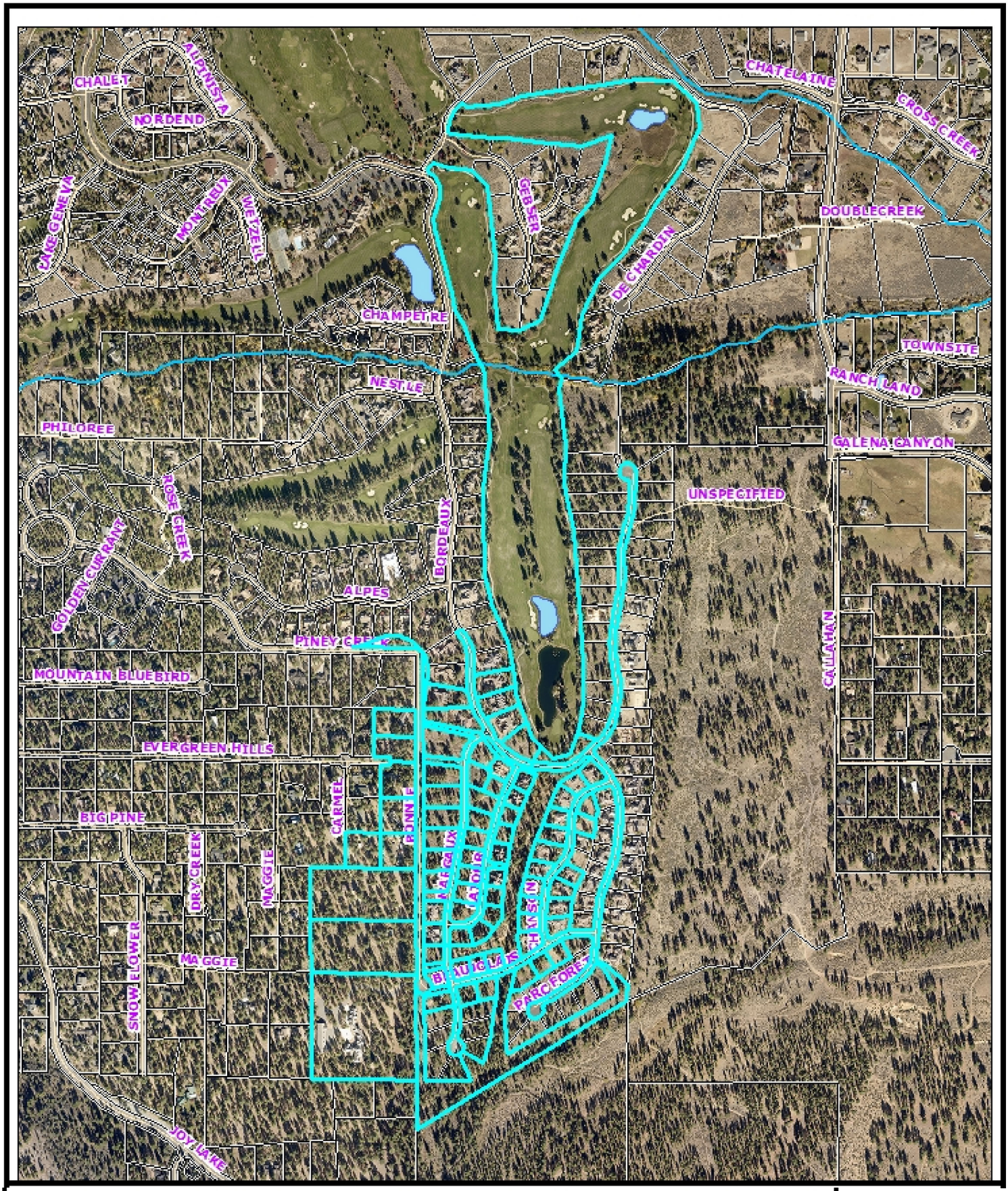
From: Olander, Julee <JOlander@washoecounty.gov>
Sent: Wednesday, March 2, 2022 1:41 PM
To: Rosa, Genine <GRosa@washoecounty.gov>
Subject: WSUP22-0004 Latour grading

Do you have comments for this permit?

Please tell us how we did by taking a quick survey

Julee Olander
Planner, Planning & Building Division | Community Services Department
jolander@washoecounty.gov | Direct Line: 775.328.3627
My working hours: Monday-Friday 8:00 am to 4:30 pm
Visit us first online: www.washoecounty.gov/csd
Planning Division: 775.328.6100 | Planning@washoecounty.gov
CSD Office Hours: Monday-Friday 8:00am to 4:00pm
1001 East Ninth Street, Reno, NV 89512



WSUP22-0004 Latour Grading

Noticing map - 500 feet from parcels

0 250 500 750

Feet

Date: 2/11/2022

Community Services Department

WASHOE COUNTY NEVADA

1001 E Ninth St
Reno, Nevada 89512 (775) 328-3600

WSUP22-0004
EXHIBIT C

Community Services Department

Planning and Building

SPECIAL USE PERMIT FOR GRADING

(see page 9)

APPLICATION

Community Services Department
Planning and Building
1001 E. Ninth St., Bldg. A
Reno, NV 89512-2845

Telephone: 775.328.6100

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information	**Staff Assigned Case No.:**
Project Name: Latour Excavation	
Project Description: Grading for 8 new homes.	
Project Address: Latour Way Reno NV 89511	
Project Area (acres or square feet): 3.33 Acres	
Project Location (with point of reference to major cross streets **AND** area locator): Bordeaux Dr. Reno NV 89511	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
148-333-01 & 148-333-02	0.451 & 0.430	148-322-02 & 148-322-03	0.401 & 0.454
148-333-03 & 148-322-01	0.408 & 0.389	148-322-04 & 148-322-08	0.510 & 0.287

Indicate any previous Washoe County approvals associated with this application:
Case No.(s). N/A

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Ladera Ventures II LLC		Name: LakeCrest Builders INC	
Address: 16475 Bordeaux Drive Reno NV		Address: 16475 Bordeaux Drive Reno NV	
	Zip: 89511		Zip: 89511
Phone: 775.849.9444	Fax:	Phone: 775.849.9690	Fax: 775.849.31[illegible]
Email: Brittany.Weygandt@laderaventures.com		Email: leslie@lakecrestbuilders.com	
Cell: N/A	Other:	Cell: N/A	Other:
Contact Person: Brittany Weygandt		Contact Person: Leslie Ayala	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name:		Name:	
Address:		Address:	
	Zip:		Zip:
Phone:	Fax:	Phone:	Fax:
Email:		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person:	

For Office Use Only

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

Property Owner Affidavit

Applicant Name: James Pickett

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, James Pickett
(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 Building.

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

Assessor Parcel Number(s): 148-322-08; 148-322-04; 148-322-03; 148-322-02; 148-322-01; 148-333-03; 148-333-02; 148-333-01

Printed Name James Pickett

Signed

Address 6475 Bordeaux Dr

Reno NV 89511

Subscribed and sworn to before me this 25th day of January, 2022.

Lorene DeVito
Notary Public in and for said county and state

My commission expires: December 2, 2022

(Notary Stamp)

LORENE DEVITO
Notary Public - State of Nevada
Appointment Recorded in Storey County
No: 10-3481-16 - Expires Dec. 02, 2022

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

- ☐ Owner
- ☐ Corporate Officer/Partner (Provide copy of record 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

Special Use Permit Application
for Grading
Supplemental Information

(All required information may be separately attached)

1. What is the purpose of the grading?

Prep for new residential homes.

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

9,150 CY (CUT)

3. How many square feet of surface of the property are you disturbing?

122,204 SF (2.80 AC)

4. How many cubic yards of material are you exporting or importing? If none, how are you managing to balance the work on-site?

4,890 CY (CUT) "Exporting"

5. Is it possible to develop your property without surpassing the grading thresholds requiring a Special Use Permit? (Explain fully your answer.)

No, because these lots will have rock walls cross property lines which requires all lots to be graded at the same time. There are 8 lots total, each lot separately doesn't surpass any thresholds. ALL roadways and utilities are existing and will NOT be changed.

6. Has any portion of the grading shown on the plan been done previously? (If yes, explain the circumstances, the year the work was done, and who completed the work.)

No

7. Have you shown all areas on your site plan that are proposed to be disturbed by grading? (If no, explain your answer.)

Yes, all areas are shown.

8. Can the disturbed area be seen from off-site? If yes, from which directions and which properties or roadways?

No, unless you're standing directly in front of the property.

9. Could neighboring properties also be served by the proposed access/grading requested (i.e. if you are creating a driveway, would it be used for access to additional neighboring properties)?

No. All surrounding roadways are already in place.

10. 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?

Rockery retaining walls per attached plan. Lots will be finished with full landscaping and proper drainage to prevent erosion.

11. Are you planning any berms?

Yes	No X	If yes, how tall is the berm at its highest?

12. If your property slopes and you are leveling a pad for a building, are retaining walls going to be required? If so, how high will the walls be and what is their construction (i.e. rockery, concrete, timber, manufactured block)?

Rockery retaining walls are required, see attached wall details for more info.

13. What are you proposing for visual mitigation of the work?

Fully landscaped new homes.

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

Yes, Ponderosa & Jeffrey Pines, approx. 174 existing trees to be removed. See plans for sizing.

15. 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?

Lots will be FULLY landscaped at finish

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

Hand watering during construction using existing Washoe County water meters.

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

Yes and yes

18. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that may prohibit the requested grading?

Yes	No X	If yes, please attach a copy.

NORTECH
GEOTECHNICAL/CIVIL CONSULTANTS, LTD. 300 Western Road, #3, Reno, NV 89506 • (775) 852-7475 FAX (775) 852-7488

February 2, 2022
2405-03C

Lake Crest Builders
16475 Bordeaux Drive
Reno, Nevada 89511

Geotechnical Investigation
Proposed Residential Development
Lots 404 through 515
Reno, Nevada

Introduction

This report presents the results of our geotechnical investigation for the proposed new residential Parc Foret lots subdivision unit to be located between Latour Way and Margaux in the Montreux Community, designated as Lots 404 through 515. We have not yet received the building plans for this project but we understand that this project involves construction of new one or two story residential units. We anticipate that the buildings will be constructed of wood framing and utilize joist supported foundations.

Our scope of work was to con a subsurface investigation with testing and analysis to deter-mine site conditions and the engineering properties of the underlying soils and any rock as well as to provide recommendations for slope stability and retaining wall design. We are to provide conclusions and recommendations concerning geologic hazards and seismic design, site prepara-tion and grading, design criteria for foundations and retaining walls, including estimates of settle-ment and support of interior and exterior flat-work. Recommendations for structural fill and drain-age are also presented.

Site, Soil and Rock Conditions

The development will be located on Parc Foret lots that are located between Latour Way and Margaux Road in the Montreux Community. The two building zones showing Test Pits 1 through 5 and Test Pits 6 and 7 indicated on the Site and Exploration Plan, Pate 1, are presently under residential construction. They are presented to reveal previous investigation work conducted in the subject properties vicinity. The vegetation on the lots consists of medium sized brush, weeds and grasses, with trees, tree stumps and boulders. No free ground water was encountered. For on-site soil conditions, we logged a large approximately 8 foot deep excavation cut on one northern lot along Margaux Road. See discussion below.

We logged the cut profile as a pseudo test pit and compared it with the plan indicated Test Pits 6 and 7, the nearest pits to the subject lots. The on-site pit log is vary similar to the previous profiles.- The materials encountered in the cut were logged and a representative sample was obtained for laboratory classification and direct shear testing. The site plan with the approximate locations of the previous test pits is shown on Plate 1 and a log of the pseudo Test Pit A is presented on Plate 2. The soils are classified in accordance with the Unified Soil Classification System, which is described on Plate 3. Laboratory classification and direct shear test results are shown on Plates (Figures) 4 and 5.

Geologic and Flooding Considerations

The site is located north of Mount Rose Highway in Washoe County. The present topography of the site appears to be derived from a geologic unit known as Older Alluvium and Alluvial Fan Deposits (NVQToa;0) as well as Felsic Phaneritic Intrusive Rocks (NVTJfi;0). (Crafford, A.E.J., 2007, Geologic Map of Nevada: U.S. Geological Survey Data Series 249, 1 CD-ROM, 46 p., 1 plate; Scale 1:250,000.)

A known fault of late Quaternary age (within the last 15,000 years) lies within 50 feet of the proposed development, it runs roughly from north to south and is considered part of the Mount Rose Fault Zone. The faults in the area were mapped by earlier studies performed by Black Eagle Consulting as well as by the U.S. Geological Survey. The approximate trace of the fault is shown on Plate 1 in yellow. Nortech recommends a minimum building setback of 50 feet from the fault zone. Due to the proximity to an active fault, seismic design criteria values are higher than average for the Reno area.

There is a regional potential for moderate to large magnitude earthquakes in the mid and western portions of Nevada. Washoe County currently requires the use of the site characterization criteria found in the 2018 International Residential Code (IRC) for design. The 2018 IRC directly references the ASCE 7-16. The seismic design criteria is found in code and the USGS website. The IRC requires that the Site Class be determined by soil and rock parameters described per ASCE 7-16, Chapter 11, Section 11.4.3:"Site Class" and Chapter 20, Section 20.1: "Site Classification", the Site Class defaults to "D" without confirming soil and rock data to a depth of 100 feet below the ground surface. We have shear wave velocity data from a previous site study very near the subject lots which would be representative of the new unit. The data is presented on Plate 6 (Vs30 Shear Wave Velocity). The maximum considered earthquake ground motion spectral accelerations for short periods and for one second periods are given on figures in the International Building Code (IBC) code. Using the site latitude and longitude as input, the USGS website provides accurate site specific acceleration values along with the respective site coefficients and design spectral response acceleration parameters in their Design Maps Summary Report. Only the Design Spec-tral Response Acceleration for Short Periods, SD_s is needed for design. The Residential Seismic Design Category is also given in the IRC. Based on this research, the site specific seismic design criteria for the subject property is presented below:

TABLE 1 - 2018 IRC SEISMIC DESIGN CRITERIA	
Spectral Response at Short Periods, S_S (USGS)	2.090
Spectral Response at 1-Second Period, S1 (USGS)	0.742
Site Class (USGS)	D
Site Coefficient F_a (USGS)	1.000
Site Coefficient Fv (USGS)	1.700
Design Spectral Response Acceleration, Short Periods, $SD_S = 2/3 \times F_a \times S_S$ (USGS)	1.393
Residential Seismic Design Category (IRC Table R301.2.2.1.1.)	E
Peak Ground Acceleration (PGA)	0.906

Site Coefficient F_v (mapped risk targeted maximum considered earthquake (MCER) spectral response acceleration parameter at 1-second period) value is determined by table 11.4.2 from ASCE 7-16 according to site class, this is done in lieu of performing a site hazard analysis. The Site Class used is D, "Stiff Soil".

The Federal Emergency Management Agency (FEMA) Study Flood Boundary and Floodway Map (Map Number 32031C3327G, March 16, 2009) indicates that the subject property is located in Zone X. The Zone X designation describes those areas outside the 0.2 % Annual Chance Flood-plain.

Conclusions

Based upon the results of our current and previous investigations, we conclude that, from a geotechnical engineering standpoint, we believe that in general, conventional site grading techniques, building foundations and floor slab construction can be used for the development. The residential structures and flatwork can be supported on firm compacted native soil, and/or the structural fill placed. The exterior foundation excavations will be at least 24 inches deep below lowest exterior grade. Some new fill may be needed for pad leveling. Native sand excavation material can be used as fill if needed and as available, but screening will be required to remove any oversize rock. Material can also be imported. All fill should be approved by the geotechnical engineer and be placed and compacted as recommended in subsequent sections of this report.

We anticipate that for the shallow foundations designed and constructed in accordance with our recommendations, the post construction differential settlement will be on the order of ½ to 3/4 inch. Any post construction differential settlement for footings bearing entirely on large boulders and/or bedrock would be negligible.

An evaluation of the slope stability based on the existing slope geometry and for terraced walls has been designed as required for permitting. We recommend that the walls nearest to the roadway be located at least 15 feet away for the curb line, mainly for safety concerns. The stability analysis was performed using the Stablpro computer software program developed by Ensoft Inc. The Bishop Method of analysis, widely accepted in the industry, was used to calculate the factor of safety against failure for the embankment slopes. The wall designs and the results of the analyses are submitted under separate cover.

Recommendations

Initially, areas to be developed should be cleared of any surface vegetation and any debris. These materials should be removed from the site. All stripped and any excavated soil surfaces not designated to be removed should be moisture conditioned and compacted to at least 90 percent relative compaction (per ASTM D1557) prior to any fill placement or installation of structural components.

Only select structural materials should be used for fill and backfill as needed. Structural materials imported to the site should be free of organic and other deleterious matter, have low to negligible expansion potential and conform in general to the following requirements:

Sieve Size	Percent Passing (by dry weight)
6 inch	100
3/4 Inch	70 - 100
No. 4	50 - 100
No. 200	10 - 35

Liquid Limit = 35 maximum
Plasticity Index = 15 maximum

We anticipate that generally based on laboratory testing, the on-site, the sand and gravel materials generated by any new excavation will be suitable for use as structural fill as available, but screening will be needed. All existing and imported fill materials should be approved by the geotechnical engineer prior to use. All structural fill and backfill should be spread in 8- to 10-inch, moisture conditioned, loose lifts and compacted to at least 90 percent relative compaction.

Conventional spread foundations should be supported entirely on native soils and/or new and reused structural fill. To provide confinement and for adequate frost protection, building perimeter and any other exterior footings should bottom at least 24 inches below lowest adjacent exterior grade. Footings supported as above, on fill can be designed to impose dead plus long-term live load bearing pressures of no greater than 2,500 pounds per square foot (psf). This allowable bearing pressure can be increased by one-third for consideration of all live loads including wind or seismic.

Prior to installation of reinforcing steel, all bearing surfaces should be observed by the geotechnical engineer to ensure satisfactory support is being achieved and that there are no objectionable materials present. Any loose material should be removed from the footing trenches prior to pouring concrete.

Resistance to lateral loads can be obtained from passive earth pressures and soil friction. We recommend the following design criteria:

Passive Earth Resistance - 300 pounds per cubic foot (pcf), equivalent fluid

Soil Friction Factor - 0.35

We recommend that any unrestrained (cantilever) or restrained retaining walls be designed to resist the active or "at rest" pressures imposed by soils with equivalent fluid unit weights of 35 or 55 pcf, respectively. Wall backdrains, with a four inch diameter collector pipe (at the base of the wall), should be installed along the retaining walls to collect any seepage that may accumulate and discharge it to planned outlet points or drainage areas. The gravel (drain rock) should extend to within 12 inches of the final grade and should be covered with a fabric inter-layer. Native soils should be placed on the top of the drain rock and fabric. All walls should be backfilled with structural material as design pressure calculations are based on the use of on-site or imported granular soils.

For seismic design pressures on retaining walls greater than 4 feet in height, use:

Resultant Seismic Force , $= 0.375*K_h*Y*H^2$

Seismic design Coefficient (K_h), $= Sd_s/2.5$

Total Soil Unit Weight (Y) = 120 pcf

The pressure distribution is inverted semi-triangular (with the maximum pressure at the top of the wall) and the resultant acts at 0.6 X H above the wall base. The 0.6 reference is from the RetainPro manual.

Interior floor slabs can be supported on firm, approved compacted fill. Floor slabs should be underlain by at least six inches of free draining crushed rock base or aggregate base. Exterior concrete flatwork such as driveways, curbs, sidewalks and patios supported on firm, native soils or structural fill should be underlain by at least six inches of aggregate base. Aggregate base material used in these interior and exterior areas should be compacted to at least 95 percent relative compaction. To provide uniform slab section support, all subgrade sur-faces (upper six inches) should be scarified, moisture conditioned, and compacted to at least 90 percent relative compaction. The resulting subgrade and base surfaces should be smooth, firm and non-yielding.

If a vapor barrier is to be used, we recommend Stego-Wrap or equal. It should be installed with proper procedures and care so as not to expose the concrete slabs to a potential for curling.

Concrete mix proportions and construction techniques, including the addition of water and improper curing, can adversely affect the finished quality of the concrete and result in cracking and spalling of the slabs and other flatwork. We recommend that all placement and curing be performed in accordance with procedures outlined by the American Concrete Institute (ACI). Special consideration should be given to concrete placed and cured during hot or cold weather conditions. Proper control joints and reinforcing should be provided where applicable to minimize any cracking resulting from shrinkage.

Backfilling around building walls needed to attain final grade in non structural areas should be moisture conditioned, placed in 12 inch maximum thickness lifts, and be compacted to at least 85 percent minimum relative compaction. Field density testing of the backfill operations should be performed to ensure compaction is being achieved.

The ground surface around the structure should be permanently sloped to drain away from the building so that water is not allowed to pond against perimeter walls. The finish grading around the structure should be in accordance with current building code requirements. Finish grading should be verified by the Civil Engineer.

In addition to adequate surface drainage, a system of roof gutters and downspouts is recommended to collect roof drainage and direct it away from the walls and foundations. Foundation drainage is also recommended. Drains along foundations should be graded to drain to a collection point, with a pipe provided to daylight to an exterior discharge area.

There has been an increase in ground water rising to, and seeping out of concrete floor slab and/or collecting in crawl spaces in many mountain communities. Many project design plans show that the drain pipe and rock (or Mira-drain type systems) around the exterior foundation is to be located on the top of the footing. We strongly recommended that the drains be installed along the side of the footing and be placed at the foundation grade. These drains along foundations should be graded to drain to a collection point, with a pipe provided to daylight to an exterior discharge area. Details for the various foundation and wall systems are presented on the attached Plate 11.

Site drainage should also be designed to restrict infiltration from entering any flatwork sections. Periodic crack sealing and surface sealing should be implemented to increase service life of the concrete slabs and any pavements. Upon occupancy and/or any sale of the individual residence, the Builder, the design and project managing Architect and Civil Engineer, and Nortech will have no control over any alteration of the respective site grades and drainage conveyance. Therefore, it is the responsibility of the current, and any future property owners, to maintain proper surface and subsurface drainage on this lot.

Additional Geotechnical Engineering and Inspection Services

The conclusions and recommendations presented in this report are based on the results of current field exploration and our understanding of the proposed construction. This report has been prepared in accordance with current, generally accepted, geotechnical engineering standards of practice for the limited scope of work authorized. It is believed that the soil and rock information compiled presents an accurate representation of the subsurface conditions and variations to be expected within the areas studied. However, there is a possibility that conditions other than those found in this investigation exist on-site. In the event that unanticipated conditions are encountered during construction, we should be given budget allowances to evaluate the condition(s) and make timely new recommendations or modify our existing report to satisfy the project needs.

We should provide on-site observations, together with field and laboratory testing during site preparation and grading, excavation and foundation installation. These observations and tests would allow us to verify that the soil conditions are as anticipated and that the Contractor's work is in conformance with this report and the approved plans and specifications.

In addition, Nortech can provide any and all IBC Special Inspection services such as masonry, concrete, steel (welding, bolting, dry pack, etc.), fireproofing and any other construction or installations requiring such services. We have ICC certified inspectors on staff and would be pleased to submit a proposal for any inspection services prior to construction.

We trust this provides the information needed; however, if you have any questions regarding this report, please contact our office.

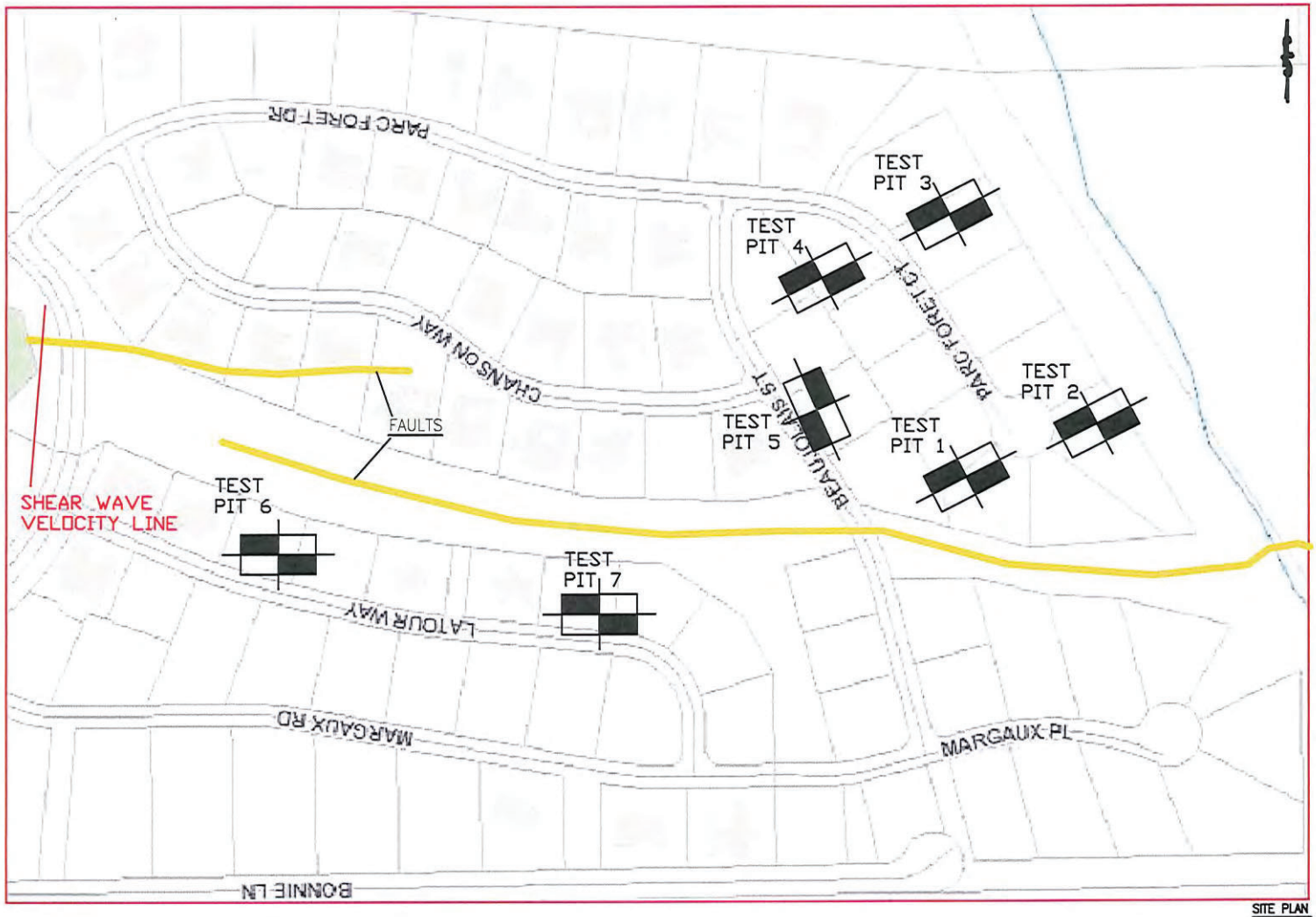
Yours very truly,

NORTECH Geotechnical/Civil Consultants, Ltd.

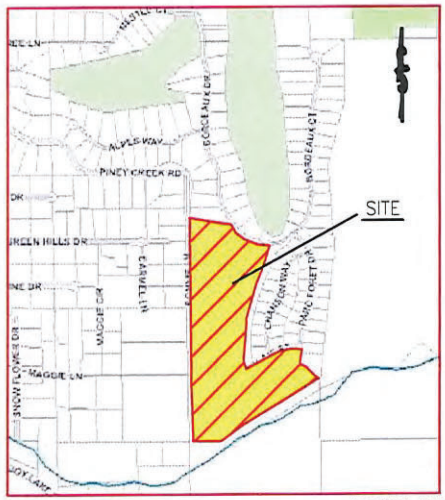
Nicholas S. Vestbie
Civil Engineer - 5173

CRW/llm

Enclosures:
Plate 1: Site and Exploration Plan
Plate 2: Logs of Pseudo Test Pit A
Plate 3: Unified Soil Classification Chart
Figure 4: Particle Size Distribution Report
Figure 5: Direct Shear Test Report
Plate 6: Vs30 Shear Wave Velocity
Plate 7: Foundation Drain Details



SITE PLAN
(n.t.s.)



LOCATION MAP
(n.t.s.)

REFERENCE

SITE PLAN SUPPLIED BY: WASHOE COUNTY

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Job No. 2405-03C
Appr. /NSV
Date 01/19/22

SITE AND EXPLORATION PLAN

PARC FORET SUBDIVISION
WASHOE COUNTY, NEVADA

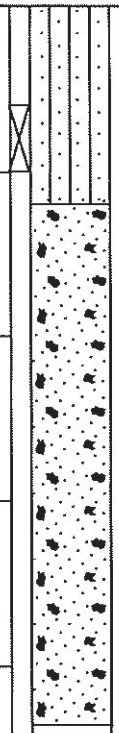
PLATE
1

WSUP22-0004
EXHIBIT D

Laboratory Tests (and other info.)	DRIVING RESISTANCE BLOWS/FT.	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE

Test Pit No.: Pseudo Test Pit A
Equipment: Hand Sample
Elevation: N/A
Date: 01/08/22

*SIEVE ANALYSIS and DIRECT SHEAR TESTS (See Figures 4 and 5)



BROWN SAND (SP-SM)
With silt, gravel and roots, moist, medium dense, cobbles 6" size

LIGHT BROWN SANDY GRAVEL (GP)
Moist, medium dense, cobbles and boulders to 2' size

No Free Water Encountered

TEST PIT LOCATION:
LATITUDE: 39.351796
LONGITUDE: -119.823564
Estimated Error: 5 to 6' radius from mid point

NORTECH
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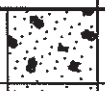
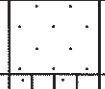
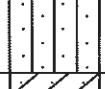
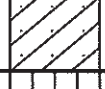
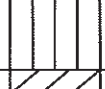
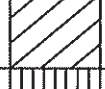
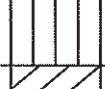
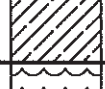
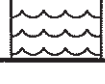
Job # 2408-03C
Appr. JW /nsv
Date: 01/14/22

LOG OF PSEUDO TEST PIT A

PARC FORET 8 LOT UNIT
LATOUR WAY AND MARGAUX ROAD
WASHOE, NEVADA

PLATE 2

WSUP22-0004
EXHIBIT D

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN # 200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL–SAND MIXTURES
			GP		POORLY GRADED GRAVELS, GRAVEL–SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL–SAND–SILT MIXTURES
			GC		CLAYEY GRAVELS, POORLY GRADEO GRAVEL–SAND–CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SP		POORLY GRADED SANDS, GRAVELLY SANDS
			SW		WELL GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND–SILT MIXTURES
			SC		CLAYEY SANDS, POORLY GRADED SAND–CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN # 200 SIEVE)	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAY LIQUID LIMIT GREATER THAN 50		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OR HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT AND OTHER HIGHLY ORGANIC SOILS

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GEOTECHNICAL/CIVIL CONSULTANTS, LTD.

Job # 2408-03C
Appr. /nsv
Date: 01/14/22

UNIFIED SOIL CLASSIFICATION CHART

PARC FORET 8 LOT UNIT
LATOUR WAY AND MARGAUX ROAD
WASHOE, NEVADA

PLATE 3

WSUP22-0004
EXHIBIT D

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.7	9.0	8.2	24.5	31.8	9.8	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	83.3		
.75	83.3		
.5	82.1		
.375	80.1		
#4	74.3		
#8	67.7		
#10	66.1		
#16	59.7		
#30	48.2		
#40	41.6		
#50	33.4		
#100	18.6		
#200	9.8		

* (no specification provided)

Soil Description

Brown poorly graded sand with silt and gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 30.7019 D_{85}= 27.0780 D_{60}= 1.2090
D_{50}= 0.6619 D_{30}= 0.2588 D_{15}= 0.1173
D_{10}= 0.0761 C_u= 15.90 C_c= 0.73

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

Source of Sample: Psuedo Test Pit A **Depth:** 1'-2'
Sample Number: 414

Date: 1/14/22

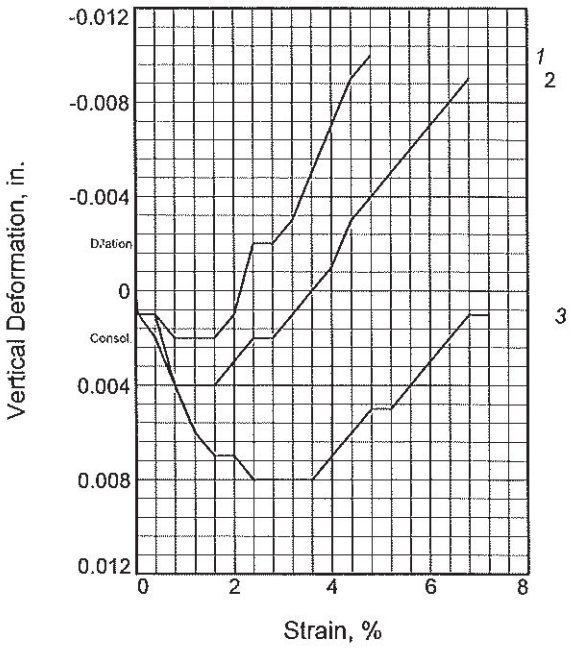
NORTECH
GEOTECHNICAL/CIVIL CONSULTANTS, LTD.

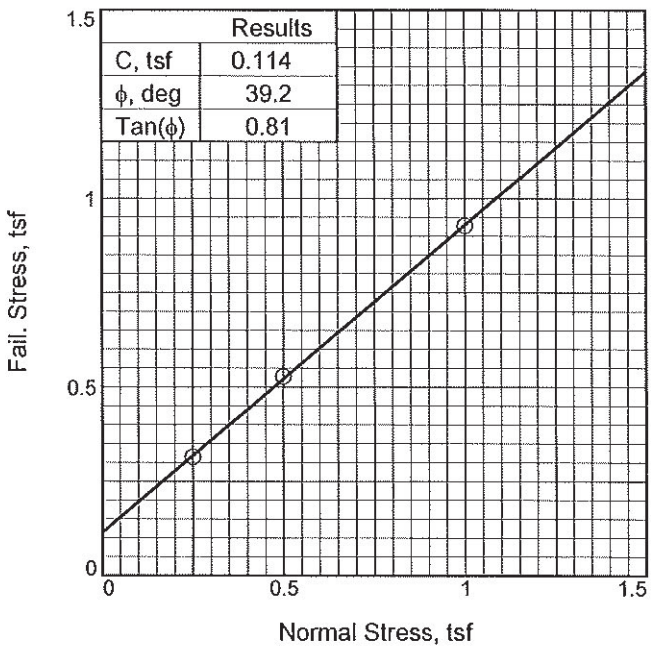
Client: Lakecrest Builders, Inc.
Project: Parc foret

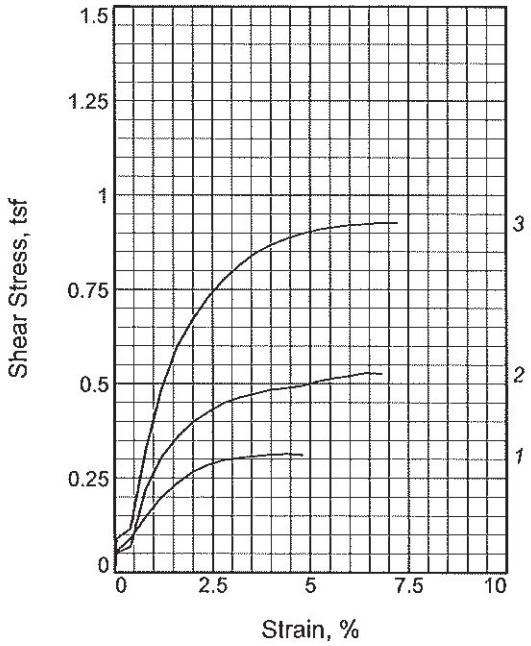
Project No: 2408-03C **Figure** 4

Tested By: Casey Mull **Checked By:** CM

WSUP22-0004
EXHIBIT D







Sample No.		1	2	3
Initial	Water Content, %	9.9	9.9	9.9
	Dry Density, pcf	110.0	110.0	110.0
	Saturation, %	59.3	59.3	59.3
	Void Ratio	0.4191	0.4191	0.4191
	Diameter, in.	2.50	2.50	2.50
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	9.9	9.7	9.9
	Dry Density, pcf	110.6	112.0	114.0
	Saturation, %	60.0	61.7	66.7
	Void Ratio	0.4106	0.3936	0.3694
	Diameter, in.	2.50	2.50	2.50
	Height, in.	0.99	0.98	0.96
Normal Stress, tsf		0.250	0.500	1.000
Fail. Stress, tsf		0.314	0.528	0.927
Strain, %		4.4	6.4	6.8
Ult. Stress, tsf				
Strain, %				
Strain rate, in./min.		0.030	0.030	0.030

Sample Type: Bulk
Description: Brown poorly graded sand with silt and gravel
LL= NV **PI=** NP
Specific Gravity= 2.5
Remarks:

Client: Lakecrest Builders, Inc.

Project: Parc foret

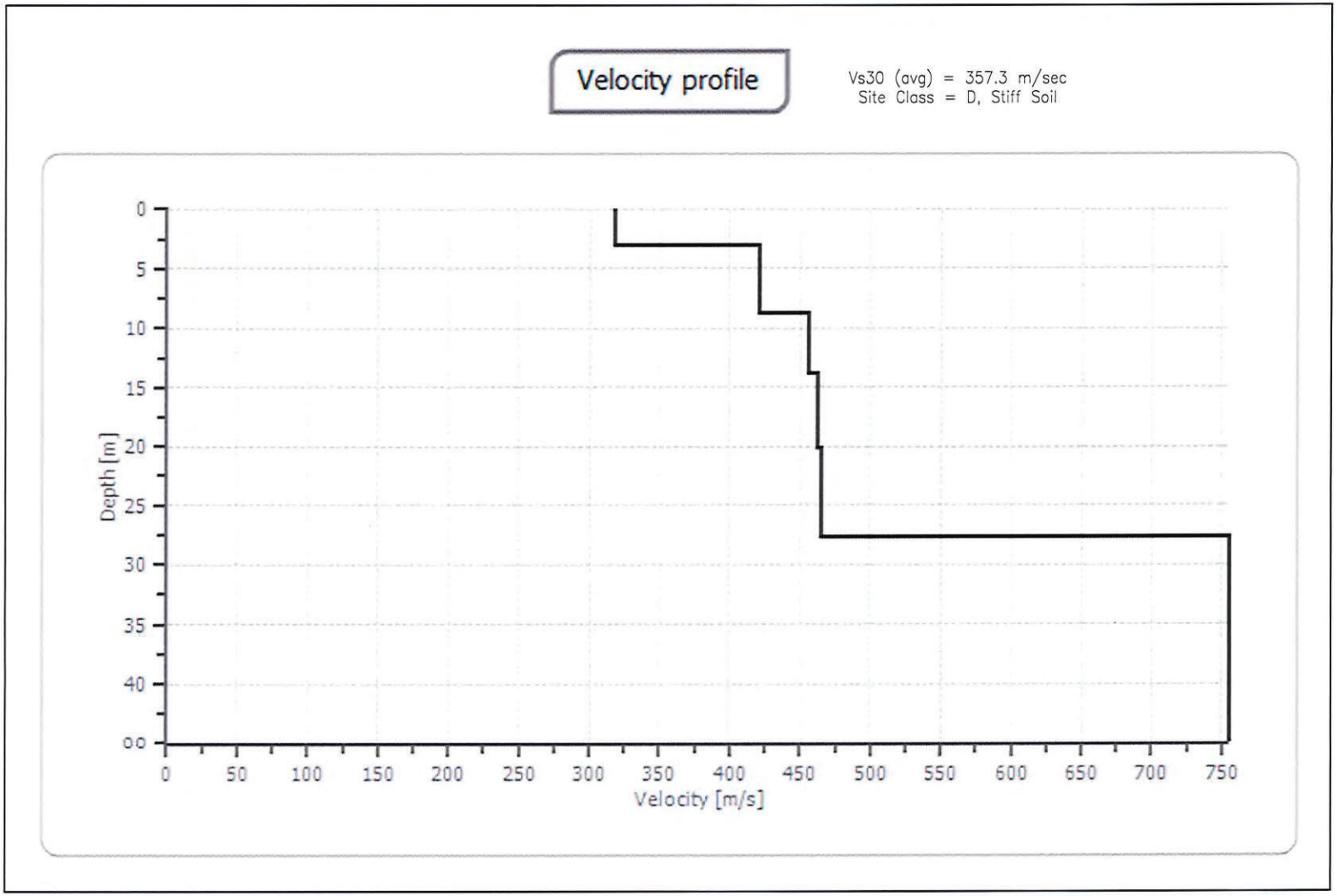
Source of Sample: Psuedo Test Pit A **Depth:** 1'-2'
Sample Number: 414
Proj. No.: 2408-03C **Date Sampled:** 1/14/22

NORTECH
GEOTECHNICAL/CIVIL CONSULTANTS, LTD.

Figure 5

Tested By: Casey Mull **Checked By:** CM

WSUP22-0004
EXHIBIT D



REFERENCE:
EASYMASW SOFTWARE FOR SHEAR WAVE ANALYSIS

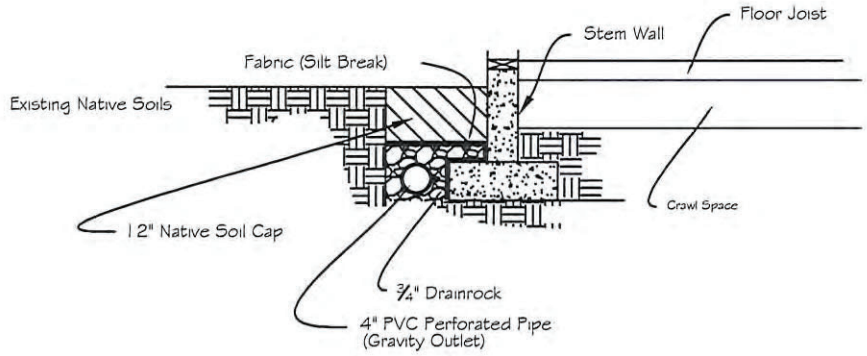
NORTECH
GEOTECHNICAL/CIVIL CONSULTANTS, LTD.

Job No. 24081-40N
Appr. /nsv
Date 10/07/21

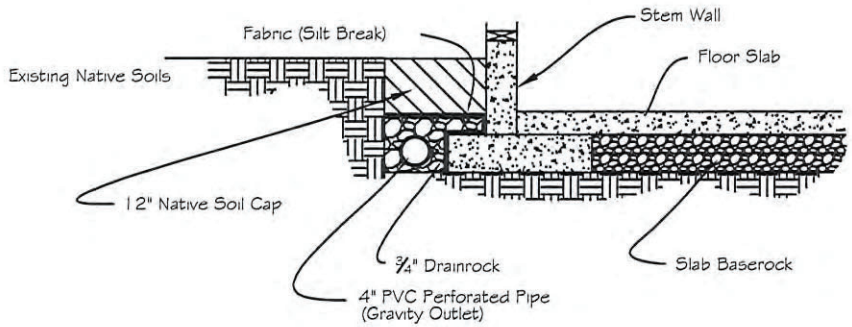
Vs30 SHEAR WAVE ANALYSIS

BISCAY RESIDENCE
20562 BORDEAUX DRIVE
WASHOE COUNTY, NEVADA

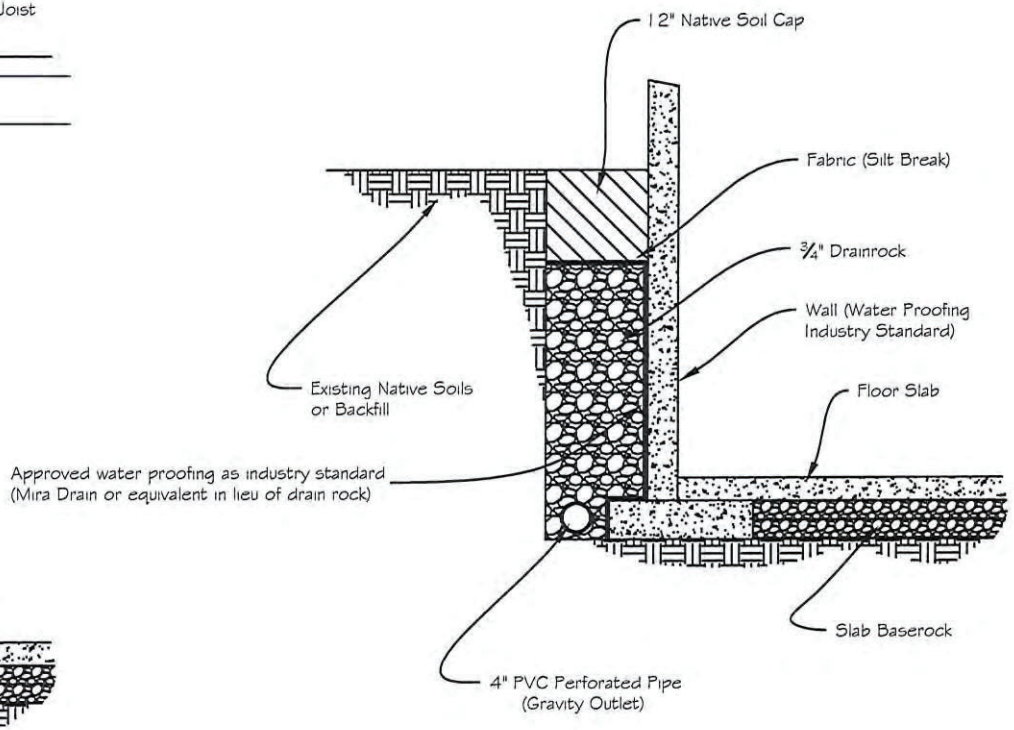
PLATE
6



FOUNDATION – CRAWL SPACE SYSTEM



FOUNDATION – FLOOR SLAB SYSTEM



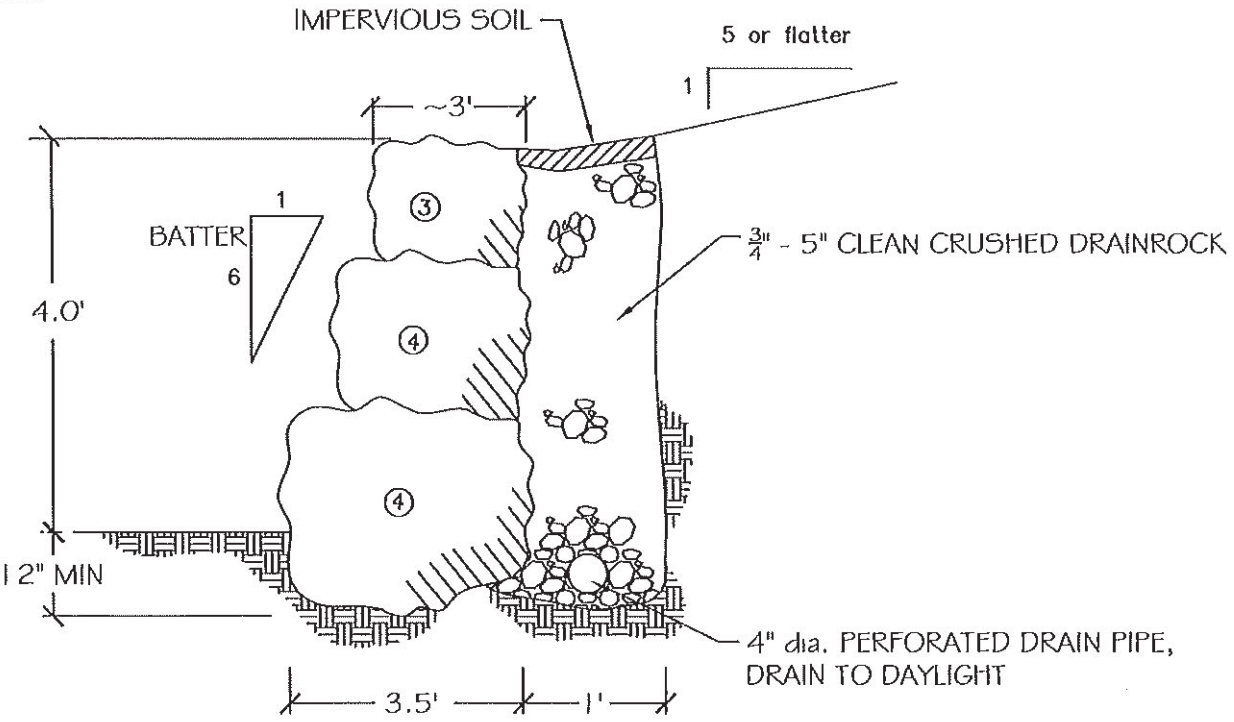
FOUNDATION – RETAINING WALL SYSTEM

NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD	Job No. 2408-03C Appr. /NSV Date 01/14/22	**FOUNDATION DRAIN DETAILS** PARC FORET 8 LOT UNIT LATOUR WAY AND MARGAUX ROAD WASHOE, NEVADA	PLATE 7

RETAINING WALL DETAIL

ROCK SIZES	APPROX. WGT.(lbs)	APPROX. DIA.(in)
①	50–200	12–18
②	200–700	18–28
③	700–2000	28–36
④	2000–4000	36–48
⑤	4000–6000	48–54
⑥	6000–8000	54–60

PROFESSIONAL ENGINEER – STATE OF NEVADA
CHARLES REMINGTON WALKER
Exp: 6/30/2022
CIVIL
No. 027725



NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD.	Job # 2408-02C Appr. NSV Date: 01/19/22	4.0' ROCK RETAINING WALL LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET WASHOE COUNTY, NEVADA	PLATE A

WSUP22-0004
EXHIBIT D

GENERAL NOTES

1. SURVEY PROVIDED BY OTHERS. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND VERTICAL/HORIZONTAL DATUM PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR TO COORDINATE WITH THE SURVEYOR OF RECORD.
2. CONSTRUCTION LAYOUT (ALL ACTUAL LINES AND GRADES) SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF NEVADA, BASED ON COORDINATES, DIMENSIONS, BEARINGS, AND ELEVATIONS, AS SHOWN, ON THE PLANS.
3. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE HORIZONTAL AND VERTICAL POSITION PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
4. WHEN DIMENSIONS AND COORDINATE LOCATIONS ARE REPRESENTED - DIMENSIONS SHALL HOLD OVER COORDINATE LOCATION. NOTIFY THE CIVIL ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCIES.
5. BUILDING SETBACK DIMENSIONS FROM PROPERTY LINES SHALL HOLD OVER ALL OTHER CALLOUTS. PROPERTY LINES AND ASSOCIATED BUILDING SETBACKS SHALL BE VERIFIED PRIOR TO CONSTRUCTION LAYOUT.
6. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED SURVEYOR.
7. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF WASHOE COUNTY.
8. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
9. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.
10. THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS/HER CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
11. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.
12. PROPER AND SAFE TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH WASHOE COUNTY BY THE CONTRACTOR THROUGHOUT CONSTRUCTION.
13. CONTRACTOR SHALL PREVENT SEDIMENTS AND SEDIMENT LADEN WATER FROM ENTERING THE STORM DRAINAGE SYSTEM OR PUBLIC RIGHT-OF-WAY.
14. ALL CONSTRICTION MATERIALS SHALL BE NEW AND CONFORM TO WASHOE COUNTY STANDARDS AND CODE. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION.
15. CONCRETE FOR CURBS, SIDEWALK AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,300 PSI AT 28 DAYS UNLESS OTHERWISE SPECIFIED BY WASHOE COUNTY OR GEOTECHNICAL ENGINEER OF RECORD.

WINTERIZATION NOTES

1. WINTERIZATION IS REQUIRED ON ALL CONSTRUCTION SITE WHICH ARE INACTIVE DURING THE WINTER MONTHS.
2. ALL TEMPORARY EROSION CONTROL AND BMP FEATURES SHALL BE REPAIRED AND FUNCTIONING PROPERLY PRIOR TO WINTER SHUTDOWN.
3. TEMPORARY VEGETATION PROTECTION FENCING SHALL BE IN PLACE AND/OR INSPECTED.
4. DISTURBED AREAS SHALL BE STABILIZED (SEE EROSION CONTROL NOTES FOR MORE INFO).
5. ON-SITE CONSTRUCTION SLASH AND DEBRIS SHALL BE CLEANED UP AND REMOVED FROM THE SITE.
6. PERMANENT BMPS SHALL BE INSTALLED WHERE POSSIBLE PER PLAN.
7. ALL FILL MATERIAL RETAINED FOR FUTURE BACKFILL MUST BE PROTECTED BY SEDIMENT BARRIERS AND BE COVERED WITH PLASTIC OR OTHER IMPERVIOUS MATERIAL.
8. ANY EXCESS EXCAVATED EARTHEN MATERIALS SHALL BE REMOVED FROM SITE IN ACCORDANCE WITH COUNTY GUIDELINES.

CONSTRUCTION NOTES

GENERAL

1. SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 OR IN ACCORDANCE WITH WASHOE COUNTY SPECIFICATIONS. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS, TREES, AND OTHER SITE ELEMENTS WITHIN THE SITE AREA IDENTIFIED IN THE PLANS.
2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTORS PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.
3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND STORED AT THE PROJECT SITE AS DIRECTED BY THE OWNER.
4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER BY THE CONTRACTOR.
5. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.

UTILITIES

1. ADJUST ALL INCIDENTAL STRUCTURES, MANHOLES, VALVE BOXES, CATCH BASINS, FRAMES AND COVERS, ETC. TO FINISHED GRADE.
2. CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.
3. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE INSTALLATION OF OR ADJUSTMENT TO GAS, ELECTRICAL, POWER AND TELEPHONE SERVICE.
4. BEFORE BACKFILLING ANY SUBGRADE UTILITY IMPROVEMENTS CONTRACTOR SHALL SURVEY AND RECORD MEASUREMENTS OF EXACT LOCATION AND DEPTH AND SUBMIT TO OWNER.
5. ALL UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH WASHOE COUNTY, TMWA AND THE APPROPRIATE UTILITY PROVIDER COMPANY STANDARDS.
6. PROVIDE A MINIMUM OF TWELVE INCHES VERTICAL CLEARANCE BETWEEN ADJACENT UTILITY PIPES AT UTILITY CROSSING UNLESS OTHERWISE NOTED ON THE PLANS OR BY AGENCY REGULATIONS.
7. USE H-20 RATED UTILITY BOXES AND LIDS IN PAVED AREAS OR AS REQUIRED BY WASHOE COUNTY, TMWA OR APPROPRIATE UTILITY COMPANY FOR TRAFFIC RATING.
8. IF UNDERGROUND UTILITIES (W, SD, SS, GAS, ELEC, TELE, IRRIG, ETC) ARE DISCOVERED BY NOT SHOWN ON THESE PLANS, NOTIFY THE ENGINEER BEFORE PROCEEDING IF MODIFICATIONS ARE NECESSARY.
9. REFER TO WASHOE COUNTY STANDARDS FOR ADDITIONAL PIPE TRENCHING AND BEDDING INSTALLATION PROCEDURES.
10. ALL EXCAVATIONS FOR UTILITY INSTALLATION SHALL BE ADEQUATELY GUARDED WITH BARRIERS AND LIGHTS SO AS TO PROTECT THE PUBLIC FROM HAZARD. STREETS, SIDEWALKS, PARKWAYS AND OTHER PROPERTY DISTURBED IN THE COURSE OF THIS WORK SHALL BE RESTORED IN A MANNER SATISFACTORY TO THE OWNER.

RECORD DRAWINGS NOTE

1. ALL INFORMATION SHOWN ON THESE PLANS HAS BEEN PREPARED BY, OR UNDER DIRECTION OF, THE ENGINEER OR RECORD. ADJUSTMENTS MADE IN THE FIELD DURING CONSTRUCTION ARE INCLUDED HEREIN AND ARE BASED UPON FIELD OBSERVATIONS MADE UNDER THE DIRECTIONS OF OR BY THE ENGINEER OF RECORD AND/OR INFORMATION RECEIVED FROM THE PROJECT OWNER, PROJECT CONTRACTORS AND PUBLIC AGENCIES WHEN THE ENGINEER IS ADVISED IN WRITING OF SUCH CHANGE. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, CHANGES TO THESE PLANS NOT AUTHORIZED BY THE ENGINEER. THE ENGINEER HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY RESULT FROM ERRONEOUS INFORMATION PROVIDED BY OTHERS.

WASHOE COUNTY NOTES

1. THE CONTRACTOR SHALL CALL THE WASHOE COUNTY ENGINEERING DIVISION FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CALL TWENTY-FOUR (24) HOURS PRIOR TO REQUIRED INSPECTIONS AND TESTING. THE REQUIRED INSPECTIONS AND TESTING ARE LISTED ON THE INSPECTION RECORD ISSUED WITH EACH PERMIT. THE CONTRACTOR MUST HAVE THE PERMIT NUMBER AND THE DESCRIPTION LISTED ON THE INSPECTION RECORD TO SCHEDULE REQUIRED INSPECTIONS AND TESTING.
2. ALL WORK SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION AS ADOPTED BY WASHOE COUNTY.
3. DETAILS NOT SHOWN ON THESE DRAWINGS SHALL BE AS CONTAINED IN THE BOOK OF STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS ADOPTED BY WASHOE COUNTY.
4. ALL LAND CLEARING OR FILLING OF LAND IS SUBJECT TO THE REGULATIONS OF THE NEVADA DEPARTMENT OF ENVIRONMENTAL PROTECTION. ANY LAND CLEARING OR FILLING OF LAND OF ONE (1) ACRE OR MORE WILL REQUIRE A PERMIT FROM THE NEVADA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
5. ALL WATERLINE, AND RISERS SHALL BE DISINFECTED IN ACCORDANCE WITH STATE HEALTH DEPARTMENT REQUIREMENTS AND AWWA C601 PRIOR TO ACCEPTANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTING ALL REQUIRED SAMPLES AND THE COST OF ANALYSIS AT A NEVADA APPROVED LABORATORY.
6. PRIOR TO THE RELEASE OF ANY FINANCIAL ASSURANCES FOR PRIVATE IMPROVEMENTS, A LETTER, STAMPED AND SIGNED BY A LICENSED ENGINEER, SHALL BE SUBMITTED TO WASHOE COUNTY ENGINEERING CERTIFYING THAT THE PRIVATE IMPROVEMENTS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS.
7. CONTRACTOR TO VERIFY SEWER/WATER UTILITY CONNECTIONS WITH WASHOE COUNTY AND TMWA. INSTALL ALL UTILITIES IN AN APPROVED TRENCH AND IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
8. ALL PARCELS WITHIN ANY APPROVED SUBDIVISION SHALL REQUIRE THAT A NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR SUBMIT A CERTIFICATION LETTER TO THE BUILDING OFFICIAL PRIOR TO THE SCHEDULING OF INSPECTIONS FOR THE FOLLOWING:
   - 8.1. NEVEDA REGISTERED CIVIL ENGINEER TO CERTIFY:
     - 8.1.1. SOILS INVESTIGATION REPORT INDICATING SOILS CLASSIFICATION AND DESIGN PRIOR TO THE FOUNDATION INSPECTION.
     - 8.1.2. ELEVATION, GRADING AND DRAINAGE CERTIFICATION PER THE APPROVED CONSTRUCTION PLANS PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
   - 8.2. NEVADA REGISTERED CIVIL ENGINEER OR A NEVADA REGISTERED LAND SURVEYOR TO CERTIFY:
     - 8.2.1. FOUNDATION ELEVATION AND BUILDING SETBACK CERTIFICATION AS PER THE APPROVED PLOT PLAN PRIOR TO THE FOUNDATION INSPECTION.

EROSION CONTROL & RE-VEGETATION NOTES

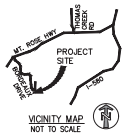
1. ALL EROSION CONTROL MEASURES AND RE-VEGETATION SHALL CONFORM TO THE WASHOE COUNTY AND THE TRUCKEE MEADOWS BMP HANDBOOK REQUIREMENTS AND STANDARDS.
2. EROSION AND SEDIMENT CONTROL MATERIALS SHALL BE CERTIFIED AS WEED-FREE.
3. THE USE OF STRAW OR HAY BALES AS AN EROSION CONTROL METHOD IS PROHIBITED.
4. TEMPORARY CONSTRUCTION FENCING. THE CONTRACTOR SHALL INSTALL A 4' TALL, BRIGHTLY COLORED (USUALLY YELLOW OR ORANGE), SYNTHETIC MESH MATERIAL FENCE (OR AN EQUIVALENT APPROVED) AT THE FOLLOWING LOCATIONS PRIOR TO ANY CONSTRUCTION EQUIPMENT BEING MOVED ON-SITE OR ANY CONSTRUCTION ACTIVITIES TAKING PLACE:
   - 4.1. ADJACENT TO ANY AND ALL WETLAND PRESERVATION EASEMENTS THAT ARE WITHIN 50' OF ANY PROPOSED CONSTRUCTION ACTIVITY;
   - 4.2. AROUND ANY AND ALL "SPECIAL PROTECTION" AREAS AS DISCUSSED IN THE PROJECT'S ENVIRONMENTAL REVIEW DOCUMENTS OR CONSTRUCTION PLANS.
   - 4.3. AROUND ALL WETLANDS AS DETERMINED AND/OR MARKED AND FLAGGED IN THE FIELD.
   - 4.4. ALTERNATIVELY, BLACK SILT FENCING WITH BRIGHTLY COLORED SIGNAGE INDICATING PROTECTION AREA MAY BE SUBSTITUTED.
5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DUST CONTROL PER STATE AND COUNTY STANDARD SPECIFICATIONS. ADEQUATE DUST CONTROL MEASURES SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
   - 5.1. CONSTRUCT MAJOR DUST-GENERATING ACTIVITIES WHEN WIND VELOCITIES ARE LOW.
   - 5.2. SPRINKLE WORK AREAS, CONSTRUCTION EQUIPMENT TRAVEL ROUTES, AND EQUIPMENT TO CONTROL DUST.
   - 5.3. PREVENT CONSTRUCTION VEHICLES FROM TRACKING MUD ONTO NEIGHBORING ROADS & HIGHWAYS.
   - 5.4. RESTRICT ALL TRUCKS & VEHICLES WITHIN CONSTRUCTION SITE TO A MAXIMUM SPEED OF 15 MPH.
6. WINTERIZATION, EROSION CONTROL MEASURES AND DETAILS AS SHOWN ON THIS PLAN ARE INTENDED AS A GUIDE AND ARE SUGGESTED MINIMUM METHODS OF CONTROLLING EROSION DURING CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES AS DICTATED BY FIELD CONDITIONS TO CONTROL EROSION AND SEDIMENTATION. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DETERMINED IN THE FIELD AND/OR AS DIRECTED BY THE ENGINEER OR INSPECTOR. 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.
7. IF INCLEMENT WEATHER IS FORECAST, CONTRACTOR SHALL TAKE NECESSARY STEPS TO PROTECT AREAS DISTURBED BY CONSTRUCTION FROM EROSION AND/OR SUBSEQUENT DISCHARGE OF EARTHEN MATERIALS FROM THE SITE.
8. STOCKPILES SHALL BE PROTECTED FROM EROSION. THIS MAY CONSIST OF PLACING BMP FENCING/ DIKES AROUND STOCKPILES AND/OR COVERING WITH PLASTIC.
9. ALL TEMPORARY EROSION CONTROL FEATURES SHALL BE INSPECTED DAILY AND PRIOR TO INCLEMENT WEATHER AND CORRECTIVE ACTION TAKEN AS NECESSARY TO INSURE PROPER FUNCTION.
10. THE AREA OF SOIL AND VEGETATION DISTURBANCE SHALL BE LIMITED TO WHAT IS REQUIRED FOR CONSTRUCTION PURPOSES. EXCEPT WHERE REQUIRED FOR ACCESS, THERE SHALL BE NO DISTURBANCE IN AREAS TO BE LEFT IN A NATURAL STATE. CONSTRUCTION TRAFFIC SHALL BE LIMITED TO AREAS TO BECOME PERMANENT CIRCULATION (E.G., ROADWAYS AND PARKING AREAS, ETC.)
11. DEWATERING, IF NECESSARY, SHALL BE COMPLETED IN A MANNER SO AS TO ELIMINATE THE DISCHARGE OF EARTHEN MATERIALS FROM THE SITE.
12. ALL BARREN AREAS DISTURBED BY CONSTRUCTION SHALL BE RE-VEGETATED IN ACCORDANCE WITH THE GOVERNING AGENCY REGULATIONS. APPLICATION OF A MULCH MAY ENHANCE VEGETATIVE ESTABLISHMENT.
13. INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES AND SWPPP COMPLIANCE ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF SIGNIFICANT EROSION AND SILTATION ENTERING THE STORM DRAIN SYSTEM, NATURAL DRAINAGE COURSES AND/OR INTRUDING UPON ADJACENT ROADWAYS AND PROPERTIES.
14. VEGETATION DISTURBANCES SHALL BE LIMITED TO THOSE AREAS IDENTIFIED ON THE CONSTRUCTION PLANS AND MAPS AS SLATED FOR DEVELOPMENT OR CONSTRUCTION STAGING.
15. NATIVE AND COMPATIBLE NON-NATIVE SPECIES, ESPECIALLY DROUGHT RESISTANT SPECIES, SHALL BE USED FOR RE-VEGETATION IN ACCORDANCE WITH COUNTY STANDARDS.

ABBREVIATIONS

AC	ASPHALT CONCRETE	MIN	MINIMUM
AD	AREA DRAIN	OF	OUTFALL
APPROX	APPROXIMATE	OVHOH	OVERHEAD
BLDG	BUILDING	P/L	PROPERTY LINE
BOW	BACK OF WALK	P.U.E	PUBLIC UTILITY EASEMENT
BS	BOTTOM OF STAIR	PVC	POLYVINYL CHLORIDE
BW	BOTTOM OF WALL	PVMT	PAVEMENT
CB	CATCH BASIN	R	RADIUS
CL	CENTERLINE	RD	ROOF DRAIN
CMP	CORRUGATED METAL PIPE	R.O.W	RIGHT-OF-WAY
CMU	CONCRETE MASONRY UNIT	S	SLOPE (FT/FT)
CO	CLEANOUT	SD	STORM DRAIN
CONC.	CONCRETE	SDMH	STORM DRAIN MANHOLE
CP	CONTROL POINT	SS	SANITARY SEWER
Δ	DELTA	SSMH	SANITARY SEWER MANHOLE
D/W	DRIVEWAY	ST	STREET
DIA, Ø	DIAMETER	STA	STATION
DIP	DUCTILE IRON PIPE	TC	TOP OF CURB
EXIST./EX	EXISTING	TD	TRENCH DRAIN
FF	FINISH FLOOR ELEVATION	TP	TOP OF PAVEMENT
FG	FINISH GRADE	TRANS.	TRANSFORMER
FH	FIRE HYDRANT	TS	TOP OF STAIR
FL	FLOWLINE	TW	TOP OF WALL
FND	FOUNDATION	TYP	TYPICAL
GB	GRADE BREAK	UG	UNDERGROUND
GL	GAS LINE	UGE	UNDERGROUND ELECTRIC
H	HEIGHT	UNO	UNLESS NOTED OTHERWISE
HP	HIGH POINT	W	WATER
IE	INVERT ELEVATION	WM	WATER METER
INV	INVERT	WV	WATER VALVE
MH	MANHOLE		

SHEET INDEX

Know what's below. Call before you dig.



REVISION	DATE	DESCRIPTION	BY

SCALE: NONE

OWNER:
PARC FORET INC.
16475 BORDEAUX DR.
RENO, NV 89511
775.398.2266

ENGINEER:
JD CIVIL ENGINEERING

JASON J. DHUY, Civil, No. 22701, Exp. 12-31-2022

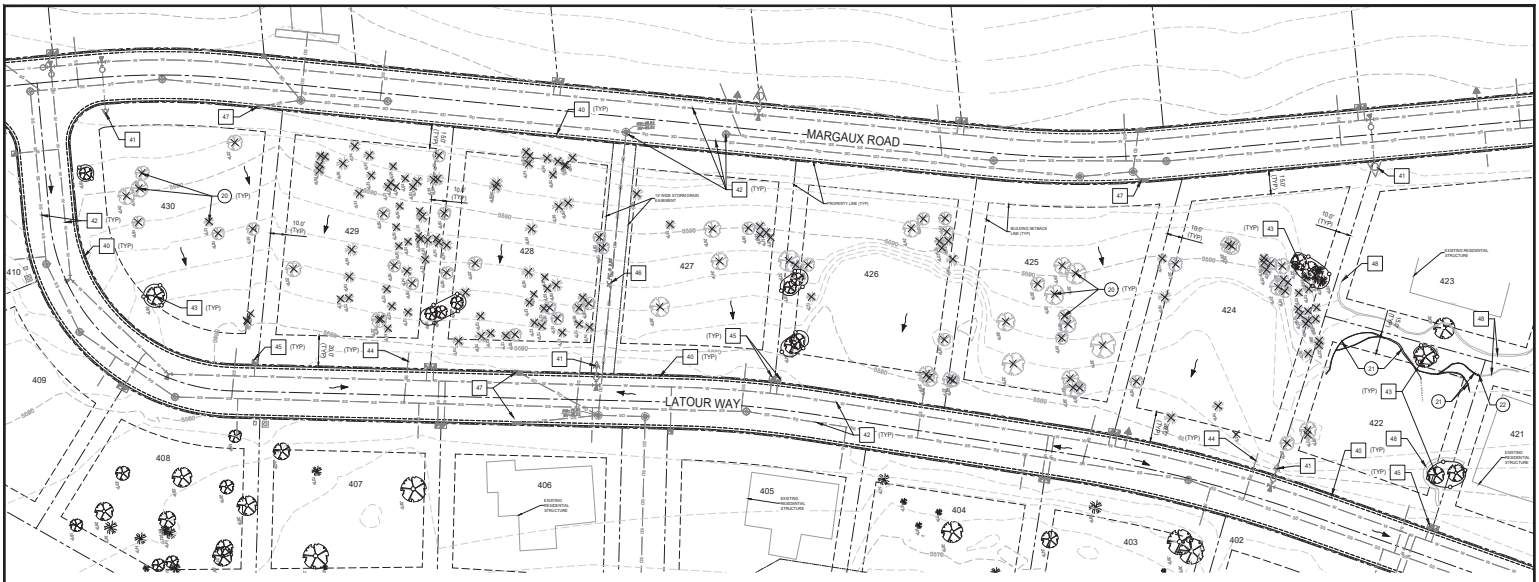
JOB No.:	2021.100
DESIGNED BY:	JD
DRAWN BY:	JD
CHECKED BY:	JD/JP
PLAN DATE:	FEB 08, 2022
TAB NAME:	NOTES

PROJECT
MONTREUX - PARC FORET
WASHOE COUNTY, NV
SPECIAL USE PERMIT FOR GRADING
LATOUR WAY - LOTS 422, 424 - 430
GENERAL CIVIL NOTES

SHEET NO.
C1.0

24x36 LATOURWAY GRADING SUP.dwg

WSUP22-0004
EXHIBIT D



SHEET LEGEND

- PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT
- SURFACE DRAINAGE FLOW DIRECTION
- EX. CONTOUR MINOR
- EX. CONTOUR MAJOR
- EX. CURB & GUTTER
- EX. WATERLINE
- EX. STORM PIPE
- EX. SANITARY SEWER LINE
- EX. TREE TO REMAIN & BE PROTECTED
- EX. TREE TO BE REMOVED (174 EX. TREES REMOVED)
- TREE PROTECTION FENCE. DETAIL 2/C4.0

(X) DEMOLITION KEY NOTES

20 REMOVE EXISTING TREE

21 REMOVE EXISTING RETAINING WALL. COORDINATE WITH PROPOSED ROCKERY WALL CONSTRUCTION.

22 CONTRACTOR TO COORDINATE TIE-IN OF PROPOSED ROCKERY WALL WITH EXISTING WALL.

[X] PROTECTION KEY NOTES

40 PROTECT CONCRETE CURB & GUTTER

41 PROTECT FIRE HYDRANT

42 PROTECT UNDERGROUND UTILITIES

43 PROTECT TREE. INSTALL TREE PROTECTION FENCE.

44 PROTECT SANITARY SEWER LATERAL STUB

45 PROTECT WATER METER

46 PROTECT 24" STORM DRAIN PIPE, MAINTAIN 36" MINIMUM COVER OVER PIPE (CONTRACTOR TO VERIFY LOCATION AND INVERTS PRIOR TO GRADING)

47 PROTECT STORM DRAIN INLET

48 PROTECT ROCK WALL

SHEET NOTES

1. SLOPES PROVIDED ON SLOPE ARROW ARE FOR REFERENCE ONLY.
2. EXISTING CONDITIONS SHOWN ON THIS PLAN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND GRADES PRIOR TO THE START OF CONSTRUCTION.
3. CONTRACTOR TO VERIFY ALL TREE LOCATIONS AND SIZES PRIOR TO DEMOLITION.
4. TEMPORARY CONSTRUCTION STORAGE/STAGING SHALL BE LIMITED WITHIN THE ON-SITE DISTURBED AREA.
5. REMOVE ALL SITE COMPONENTS AND RECYCLE COMPONENTS AS REQUIRED BY THE COUNTY.
6. THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGED OR REMOVED MONUMENTS.
7. PROTECT ALL ITEMS ON ADJACENT PROPERTIES AND IN THE RIGHT OF WAY. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED ITEMS TO ORIGINAL CONDITION.
8. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, AND OTHER FACILITIES IMMEDIATELY ADJACENT TO EXCAVATIONS FROM DAMAGES CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS.
9. CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN.

REVISION	DATE	DESCRIPTION	BY

SCALE 1 INCH = 30 FEET (30 0 30 60)

OWNER:
PARC FORET INC.
16475 BORDEAUX DR.
RENO, NV 89511
775.398.2266

ENGINEER:
JD CIVIL ENGINEERING

JASON J. DHUT — Exp. 10-31-2022 — CIVIL — No. 22701

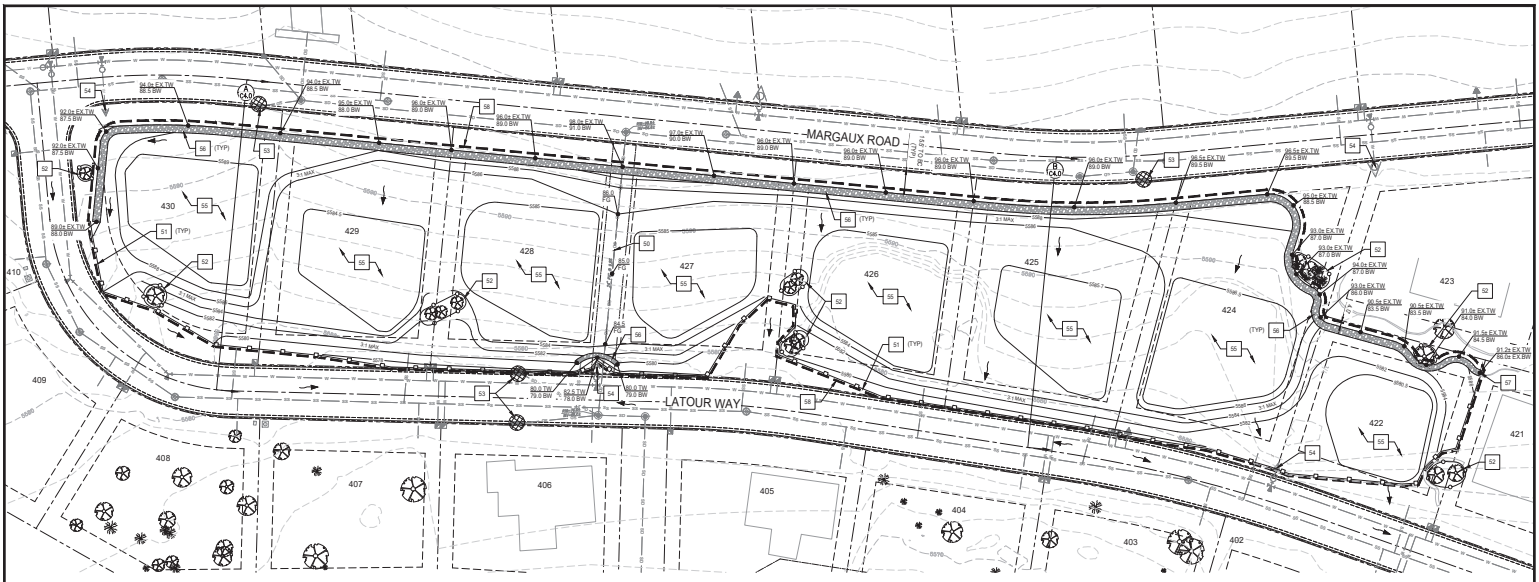
JOB No.:	2021.100
DESIGNED BY:	JD
DRAWN BY:	JD
CHECKED BY:	JD/JP
PLAN DATE:	FEB 06, 2022
TAB NAME:	EXC & DEMO

PROJECT
MONTREUX - PARC FORET
WASHOE COUNTY, NV
SPECIAL USE PERMIT FOR GRADING
LATOUR WAY - LOTS 422, 424 - 430
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NO.
C2.0

2x36 LATOURWAY-GRADING.SUP.dwg

WSUP22-0004
EXHIBIT D



EARTHWORK TABULATIONS

CUT	FILL	NET
9,150 CY	4,260 CY	4,890 CY (CUT)
7' MAX	7' MAX	

EARTHWORK NUMBERS ARE APPROXIMATE AND DO NOT INCLUDE UTILITY TRENCHING, STRIPPING, WALL FOUNDATIONS, SWELLING, SHRINKING OR LOSS FACTORS.

SHEET LEGEND

- PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT
- SURFACE DRAINAGE FLOW DIRECTION
- GRADE BREAK
- EX. CONTOUR MINOR
- EX. CONTOUR MAJOR
- PROPOSED CONTOUR
- CONVEYANCE SWALE
- APPROX. AREA OF DISTURBANCE/ LIMITS OF WORK
- SEDIMENT CONTROL FENCE. (SHOWN OFFSET FOR CLARITY).
- INLET PROTECTION
- TREE PROTECTION FENCE

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
X.X%	GRADING SLOPE AND DIRECTION (DOWNHILL)
	SPOT ELEVATION
XX.XX XX	DESCRIPTION LISTED BELOW. NO DESCRIPTION MEANS TP OR TG
BOS	BOTTOM OF SWALE
BW	BOTTOM OF WALL
EG	EXISTING GRADE
EX	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
G	GUTTER
HP	HIGH POINT
LP	LOW POINT
RIM	RIM OF STRUCTURE
TC	TOP OF CURB
TP	TOP OF PAVEMENT
TW	TOP WALL
XXX.Xs EX.	EXISTING GRADE (MATCH WHERE APPLICABLE)

GRADING KEY NOTES

50	CONTRACTOR TO VERIFY STORM PIPE LOCATION. MAINTAIN 36" MINIMUM COVER OVER EXISTING STORM PIPE
51	INSTALL SEDIMENT CONTROL FENCING. DETAIL 1/C4.0
52	INSTALL TREE PROTECTION FENCING. DETAIL 2/C4.0
53	INSTALL INLET PROTECTION. DETAIL R-113/C4.0
54	MAINTAIN EXISTING GRADING AROUND AND ACCESS TO EXISTING FIRE HYDRANT.
55	APPROXIMATE ROUGH GRADING FOR FUTURE HOUSE PAD. MAINTAIN POSITIVE DRAINAGE SLOPE TOWARDS LATOUR WAY.
56	CONSTRUCT ROCKERY RETAINING WALL. REFERENCE STRUCTURAL WALL DETAILS PROVIDED BY OTHERS FOR MORE INFORMATION.
57	CONTRACTOR TO COORDINATE TIE-IN OF PROPOSED ROCKERY WALL WITH EXISTING WALL.
58	APPROXIMATE AREA OF DISTURBANCE/LIMITS OF WORK. SHOWN OFFSET FOR CLARITY. (±2.80 ACRES TOTAL)

SHEET NOTES

1. SLOPES PROVIDED ON SLOPE ARROW ARE FOR REFERENCE ONLY.
2. ALL DIMENSIONS ARE TO FACE OF CURB OR FACE OF WALL.
3. PROPOSED GRADING SHOWN ON THIS PLAN IS FOR OVERALL MASS GRADING PURPOSES ONLY. DETAILED LOT GRADING SHALL BE PROVIDED WITH INDIVIDUAL PLOT PLANS UNDER SEPARATE BUILDING PERMITS.
4. EXISTING CONDITIONS SHOWN ON THIS PLAN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND GRADES PRIOR TO THE START OF CONSTRUCTION.
5. MINIMUM SLOPE OF 1% FOR DRAINAGE SWALES. MAXIMUM SLOPE OF 3:1 FOR SURFACE GRADING.
6. STRUCTURAL DESIGN AND DETAILS OF RETAINING WALLS TO BE DONE BY OTHERS.
7. CONTRACTOR TO COORDINATE WALL DESIGN AND FINAL CONSTRUCTION WITH PUBLIC UTILITY COMPANIES FOR ANY POSSIBLE CONFLICTS.
8. THIS PLAN IS INTENDED FOR GRADING AND CIVIL SITE PURPOSES.
9. REFERENCE OVERALL DEVELOPMENT PLAN, BY OTHERS, FOR REQUIRED STORMWATER MEASURES FOR THESE LOTS.
10. REFERENCE GEOTECHNICAL REPORT FOR GRADING, PAVING AND BACKFILL/CUT INFORMATION.
11. TEMPORARY CONSTRUCTION STORAGE SHALL BE LIMITED WITHIN THE ON-SITE DISTURBED AREA.
12. EXCESS MATERIAL SHALL BE PROPERLY HAULED OFF TO THE RILITE AGGREGATE COMPANY FACILITY AT 9208 WESTERN SKIES DRIVE, RENO, NV 89521.
13. ITEMS TO BE REMOVED ARE NOT SHOWN ON THIS PLAN SHEET FOR CLARITY. SEE SHEET C2.0 FOR DEMOLITION INFO.

REVISION	DATE	DESCRIPTION	BY

SCALE 1 INCH = 30 FEET (30 0 30 60)

OWNER:
PARC FORET INC.
16475 BORDEAUX DR.
RENO, NV 89511
775.398.2266

ENGINEER:
JD CIVIL ENGINEERING

JASON J. DHUY — Civil — No. 22701 — 10-31-2022

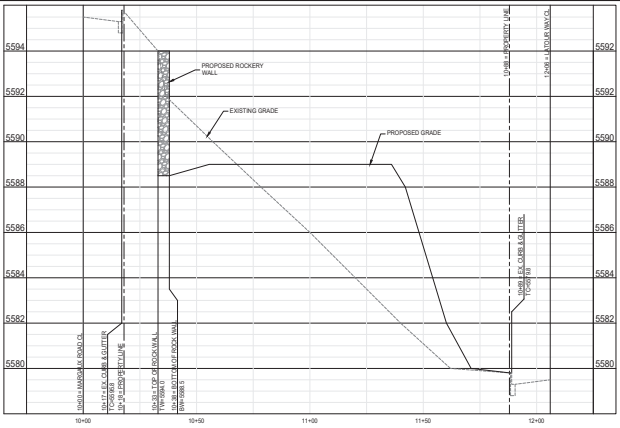
JOB No.:	2021.100
DESIGNED BY:	JD
DRAWN BY:	JD
CHECKED BY:	JD/JP
PLAN DATE:	FEB 08, 2022
TAB NAME:	GRADING

PROJECT:
MONTREUX - PARC FORET
WASHOE COUNTY, NV
SPECIAL USE PERMIT FOR GRADING
LATOUR WAY - LOTS 422, 424 - 430
OVERALL GRADING PLAN

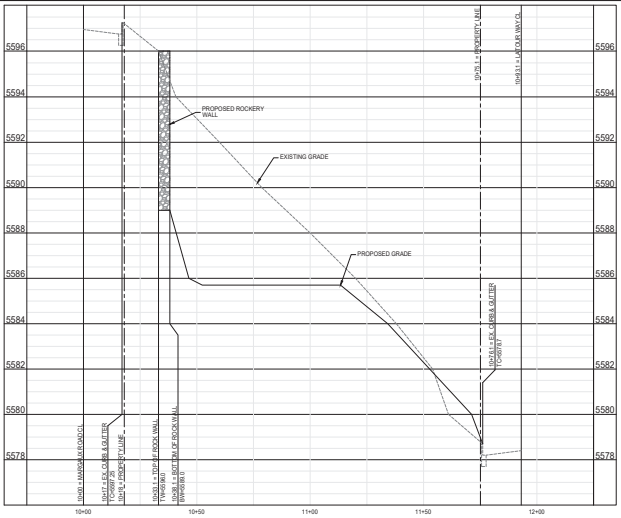
SHEET NO.: C3.0

2x36 LATOUR-WAY-GRADING.SUP.dwg

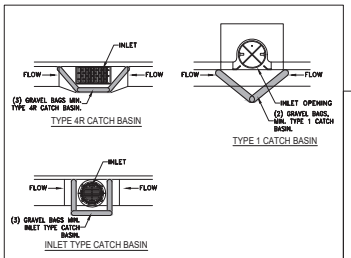
WSUP22-0004
EXHIBIT D



CROSS SECTION - A
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



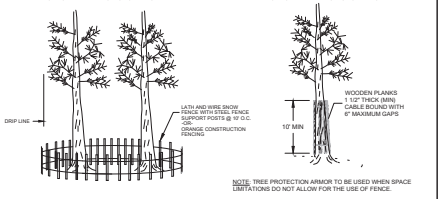
CROSS SECTION - B
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



NOTES:

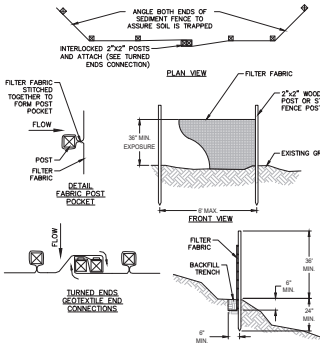
1. ALL STORM DRAIN INLET PROTECTION SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION. ALL SITE BMP PLACEMENT AND MAINTENANCE SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACTOR'S STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
2. THE CONTRACTOR SHALL INSPECT THE SITE DAILY, PRIOR TO FORECASTED WEATHER EVENTS AND WITHIN 24 HOURS OF ANY EVENT THAT CREATES RUNOFF AT THE SITE. DISTURBED OR BROKEN BAGS SHALL BE REPLACED. SEDIMENT AND DEBRIS SHALL BE REMOVED AND DISPOSED.
3. GRAVEL BAGS:
   - 3.1. BAGS SHALL BE WOVEN POLYPROPYLENE, POLYETHYLENE OR POLYAMITE FABRIC, MIN. WEIGHT 4oz/SY, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRA VIOLET STABILITY EXCEEDING 70%.
   - 3.2. EACH GRAVEL-FILLED BAG SHALL HAVE A MIN. LENGTH OF 30", MIN. WIDTH OF 8" AND MIN. THICKNESS OF 4".
   - 3.3. GRAVEL SHALL BE BETWEEN ¾" TO 1" IN DIAMETER AND CLEAN AND FREE FROM CLAY BALLS, ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.
4. AFTER CONSTRUCTION WHEN GRAVEL BAGS ARE REMOVED, ALL CONSTRUCTION MATERIAL, DEBRIS, SEDIMENT, ETC. SHALL BE REMOVED FROM INLET OR CATCH BASIN BY VACUUM TRUCK.

STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION	DRAWING No.
STORM DRAIN INLET PROTECTION	R-113
	APPROVED BY:JF DATE: 1/2013



NOTE: TREE PROTECTION ARMOR TO BE USED WHEN SPACE LIMITATIONS DO NOT ALLOW FOR THE USE OF FENCE.

2 TREE PROTECTION N.T.S.



NOTES:

1. THE FILTER FABRIC SHALL BE (36" MIN. WIDTH) PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST, OR OVERLAP 2"x2" POSTS AND ATTACH AS SHOWN ON DETAIL SHEET.
2. THE FILTER FABRIC FENCE SHALL BE INSTALLED TO FOLLOW THE CONTOURS WHERE FEASIBLE. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6-FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24-INCHES.
3. THE FILTER FABRIC SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6-INCHES. ALL EXCAVATED MATERIAL FROM FILTER FABRIC FENCE INSTALLATION, SHALL BE BACKFILLED AND COMPACTED, ALONG THE ENTIRE DISTURBED AREA.
4. STANDARD OR HEAVY DUTY FILTER FABRIC SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2"x2" POST INSTALLATION. STITCHED LOOPS WITH STAKES SHALL BE INSTALLED ON THE DOWN-HILL SIDE OF THE SLOPED AREA.
5. FILTER FABRIC FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UP-SLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED.
6. FILTER FABRIC FENCES SHALL BE INSPECTED BY CONTRACTOR IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

1 SEDIMENT CONTROL FENCE N.T.S.

REVISION	DATE	DESCRIPTION	BY

SCALE NONE

OWNER:
PARC FORET INC.
16475 BORDEAUX DR.
RENO, NV 89511
775.398.2266

ENGINEER:
JD CIVIL ENGINEERING

JASON J. DHUY
Exp. 12-31-2022
CIVIL
No. 22701

JOB No.:	2021.100
DESIGNED BY:	JD
DRAWN BY:	JD
CHECKED BY:	JD/JP
PLAN DATE:	FEB 08, 2022
TAB NAME:	DETAILS

PROJECT
MONTREUX - PARC FORET
WASHOE COUNTY, NV
SPECIAL USE PERMIT FOR GRADING
LATOUR WAY - LOTS 422, 424 - 430
DETAILS & SITE CROSS SECTIONS

SHEET NO.
C4.0

2+36 LATOUR WAY V GRADING.SUP.dwg

WSUP22-0004
EXHIBIT D

Gravity Retaining Wall

Project File: Parc foret walls.ec6

LIC# : KW-06014449, Build:20.22.1.12 NORTECH (c) ENERCALC INC 1983-2021

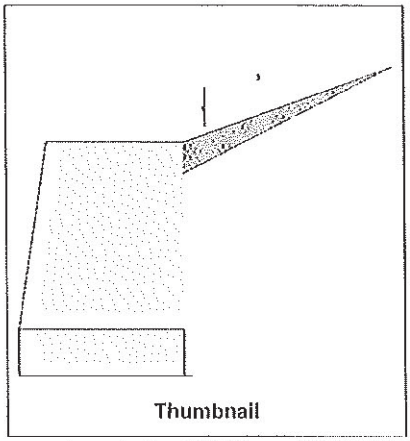
DESCRIPTION: 4 foot wall

Criteria

Retained Height	=	4.0 ft
Wall height above soil	=	ft
Slope Behind Wal	=	3
Height of Soil over Toe	=	in
Soil Density	=	108.0 pcf

Soil Data

Allow Soil Bearing	=	3,000.0 psf
Coulomb Soil Presure calculation		
Soil Friction Angle	=	32.0 deg
Active Pressure:Ka*Gamma	=	0.0 psf/ft
Passive Pressure:Kp*Gamma		0.0 psf/ft
Footing||Soil Frictior	=	0.40
Soil height to ignore for passive pressure	=	12 in



Thumbnail

Surcharge Loads

Surcharge Over Heel	=	psf
>>>Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	psf
Used for Sliding & Overturning		

Lateral Load Applied to Stem

Lateral Load	=	#/ft
...Height to Top	=	ft
...Height to Bottom	=	ft
Wind on Exposed Stem	=	psf

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3
Added seismic base force		508.86 lbs

<<----- Note! These are horizontal components

Earth Pressure Seismic Load

Design Kh	=	0.20 g
Kae for seismic earth pressure	=	0.6916
Ka for static earth pressure	=	0.3147
Difference: Kae - Ka	=	0.3769

Using Mononobe-Okabe / Seed-Whitman procedure

Design Summary

Total Bearing Load	=	2,675.43 lbs	
...resultant ecc.	=	8.499 in	
Resultant Exceeds Ftg. Width!			
Soil Pressure @ Toe	=	1,476.03 psf	NG
Soil Pressure @ Heel	=	0.0 psf	NG
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	2,066.44 psf	
ACI Factored @ Heel	=	0.0 psf	
Footing Shear @ Toe	=	0.0 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	82.158 psi	
Sliding Stability Ratio	=	1.146	Ratio < 1.!

Sliding Calcs (Vertical Component NOT Used)

Lateral Sliding Force	=	lbs
less 100% Passive Force	= -	0.0 lbs
less 100% Friction Force	= -	1,070.17 lbs
Added Force Req'd	=	0.0 lbs OK
....for 1.5 Stability	=	330.4 lbs NG

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Rubble masonry, mortar bonded Stem Analysis Data *(Unreinforced material)*

Wall Material Weight	=	150.0 pcf
Front Batter Distance	=	8.0 in
Thickness @ Top of Stem	=	38.0 in
Back Batter Distance	=	in
Fc : Max. Allow. Compression	=	100 psi
Fc : Max. Allow. Tension	=	10 psi

		@ Height #1	@ Height #2	@ Height #3
Height above Footing	=	4 ft	2 ft	0.0 ft
Wall Thick. @ Height	=	38.0 in	42.0 in	46.0 in
Section Modulus	=	2,888.0 in^3	3,528.0 in^3	4,232.0 in^3
Moment @ Height	=	0.0 ft-#	604.40 ft-#	2,332.46 ft-#
Vertical Load @ Height	=	0.0 lbs	1,000.0 lbs	2,100.0 lbs
Actual Unit Tension	=	0.0 psi	0.07165 psi	2.809 psi
Actual Unit Compression	=	0.0 psi	4.040 psi	10.418 psi
Shear @ Section	=	0.0 lbs	552.07 lbs	1,165.35 lbs
Actual Unit Shear	=	0.0 psi	0.0 psi	0.0 psi

Gravity Retaining Wall

Project File: Parc foret walls.ec6

DESCRIPTION: 4 foot wall

Footing Strengths & Dimensions

Toe Width	=	ft
Heel Width	=	333333333
Total Footing Width	=	3.833
Footing Thickness	=	12.0 in
Key Width	=	24 in
Key Depth	=	in
Key Distance from Toe	=	2 ft

f'c = 3000 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel
Factored Pressure	=	2,066.44	0.0 psf
Mu' : Upward	=	0.0	0.0 ft-#
Mu' : Downward	=	0.0	0.0 ft-#
Mu: Design	=	0	0 ft-#
Actual 1-Way Shear	=	*Beyond Toe	0.0 psi
Allow 1-Way Shear	=	43.818	43.818 psi

*Critical section for one-way shear falls beyond the end of the toe.

Toe Reinforcing = None Spec'd
Heel Reinforcing = None Spec'd
Key Reinforcing = # 7 @ 12.00 in

Other Acceptable Sizes & Spacings
Toe: phiMn = phi'5'lambda'sqrt(fc)'Sm
Heel: phiMn = phi'5'lambda'sqrt(fc)'Sm
Key: No key defined

Summary of Overturning & Resisting Forces & Moments

		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#			.....RESISTING..... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=				Soil Over Heel	=	0.0	3.833	0.0
Surcharge Over Toe	=	0.0	0.0	0.0	Sloped Soil Over Heel	=	.0000130	3.833	.0000480
Adjacent Footing Load	=	0.0	0.0	0.0	Surcharge Over Heel	=	0.0	0.0	0.0
Added Lateral Load	=	0.0	0.0	0.0	Adjacent Footing Load	=	0.0	0.0	0.0
Load @ Stem Above Soil	=	0.0	0.0	0.0	Axial Dead Load on Stem	=	0.0	0.0	0.0
Seismic Load	=	508.86	3.0	1,526.57	Soil Over Toe	=	0.0	0.0	0.0
Seismic Stem Self Wt	=		0.0		Surcharge Over Toe	=	0.0	0.0	0.0
Total	=	933.71	O.T.M. =	2,234.66	Stem Weight	=	2,100.25	2.078	4,364.85
					Earth above Sloping Stem	=	0.180	3.833	0.690
					Footing Weight	=	575.0	1.917	1,102.08
					Key Weight	=	0.0	3.0	0.0
					Vert. Component	=	0.0	0.0	0.0
					Total	=	2,675.43 lbs	R.M.=	5,467.62

Resisting/Overturning Ratio = 2.447

Vertical Loads used for Soil Pressure = 2,675.43 lbs

Vertical component of active pressure NOT used for soil pressure

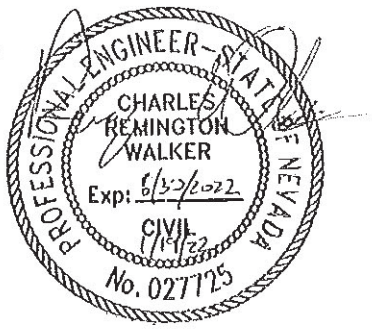
Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus p@50
Horizontal Defl @ Top of Wall (approximate only) 0.04@78

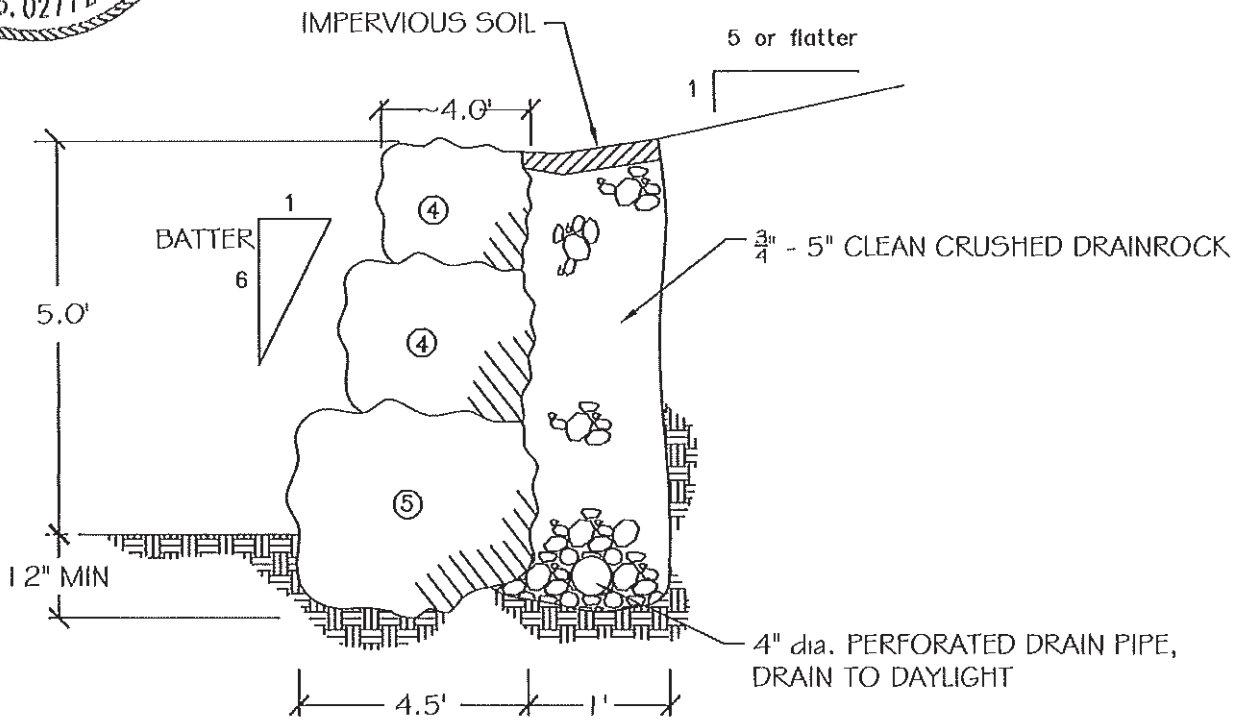
The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.



RETAINING WALL DETAIL

ROCK SIZES	APPROX. WGT.(lbs)	APPROX. DIA.(in)
①	50–200	12–18
②	200–700	18–28
③	700–2000	28–36
④	2000–4000	36–48
⑤	4000–6000	48–54
⑥	6000–8000	54–60

PROFESSIONAL ENGINEER – STATE OF NEVADA
CHARLES REMINGTON WALKER
Exp: 6/30/2012
CIVIL
1/19/22
No. 027725



NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD.	Job # 2408-02C Appr. NSV Date: 01/19/22	5.0' ROCK RETAINING WALL LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET WASHOE COUNTY, NEVADA	PLATE B

WSUP22-0004
EXHIBIT D

Gravity Retaining Wall

Project File: Parc foret walls.ec6

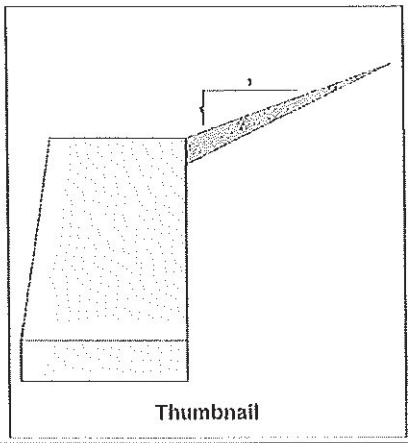
DESCRIPTION: 5 foot wall

Criteria

Retained Height	=	5.0 ft
Wall height above soil	=	ft
Slope Behind Wal	=	3
Height of Soil over Toe	=	in
Soil Density	=	108.0 pcf

Soil Data

Allow Soil Bearing	=	3,000.0 psf
Coulomb Soil Presure calculation	=	
Soil Friction Angle	=	32.0 deg
Active Pressure:Ka*Gamma	=	0.0 psf/ft
Passive Pressure:Kp*Gamma		0.0 psf/ft
Footing||Soil Friction	=	0.40
Soil height to ignore for passive pressure	=	12 in



Surcharge Loads

Surcharge Over Heel = psf
>>>Used To Resist Sliding & Overturning
Surcharge Over Toe = psf
Used for Sliding & Overturning

Lateral Load Applied to Stem

Lateral Load	=	#/ft
...Height to Top	=	ft
...Height to Bottom	=	ft
Wind on Exposed Stem	=	psf

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3
Added seismic base force		667.53 lbs

<<----- Note! These are horizontal components

Earth Pressure Seismic Load

Design Kh	=	0.20 g
Kae for seismic earth pressure	=	0.6916
Ka for static earth pressure	=	0.3483
Difference: Kae - Ka	=	0.3434

Using Mononobe-Okabe / Seed-Whitman procedure

Design Summary

Total Bearing Load	=	3,738.04 lbs	
...resultant ecc.	=	10.079 in	
Resultant Exceeds Ftg. Width!			
Soil Pressure @ Toe	=	1,767.28 psf	NG
Soil Pressure @ Heel	=	0.0 psf	NG
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	2,474.19 psf	
ACI Factored @ Heel	=	0.0 psf	
Footing Shear @ Toe	=	0.0 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	82.158 psi	
Sliding Stability Ratio	=	1.112	Ratio < 1.5
Sliding Calcs (Vertical Component NOT Used)			
Lateral Sliding Force	=	lbs	
less 100% Passive Force	= -	0.0 lbs	
less 100% Friction Force	= -	1,495.22 lbs	
Added Force Req'd	=	0.0 lbs	OK
....for 1.5 Stability	=	521.6 lbs	NG

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Rubble masonry, mortar bonded Stem Analysis Data *(Unreinforced material)*

Wall Material Weight	=	150.0 pcf
Front Batter Distance	=	10.0 in
Thickness @ Top of Stem	=	44.0 in
Back Batter Distance	=	in

Fc : Max. Allow. Compression	=	100 psi
Fc : Max. Allow. Tension	=	10 psi

		@ Height #1	@ Height #2	@ Height #3
Height above Footing	=	4 ft	2 ft	0.0 ft
Wall Thick. @ Height	=	46.0 in	50.0 in	54.0 in
Section Modulus	=	4,232.0 in^3	5,000.0 in^3	5,832.0 in^3
Moment @ Height	=	170.336 ft-#	1,521.32 ft-#	4,193.35 ft-#
Vertical Load @ Height	=	562.50 lbs	1,762.50 lbs	3,062.50 lbs
Actual Unit Tension	=	-0.5360 psi	0.7137 psi	3.902 psi
Actual Unit Compression	=	1.502 psi	6.589 psi	13.354 psi
Shear @ Section	=	297.30 lbs	965.63 lbs	1,732.28 lbs
Actual Unit Shear	=	0.0 psi	0.0 psi	0.0 psi

Gravity Retaining Wall

Project File: Parc foret walls.ec6

LIC# : KW-06014449, Build:20.22.1.12 NORTECH (c) ENERCALC INC 1983-2021

DESCRIPTION: 5 foot wall

Footing Strengths & Dimensions

Toe Width	=	ft
Heel Width	=	4.5
Total Footing Width	=	4.50
Footing Thickness	=	12.0 in
Key Width	=	24 in
Key Depth	=	in
Key Distance from Toe	=	2 ft

f'c = 3000 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel
Factored Pressure	=	2,474.19	0.0 psf
Mu' : Upward	=	0.0	0.0 ft-#
Mu' : Downward	=	0.0	0.0 ft-#
Mu: Design	=	0	0 ft-#
Actual 1-Way Shear	=	*Beyond Toe	0.0 psi
Allow 1-Way Shear	=	43.818	43.818 psi

*Critical section for one-way shear falls beyond the end of the toe.

Toe Reinforcing = None Spec'd
Heel Reinforcing = None Spec'd
Key Reinforcing = # 7 @ 12.00 in

Other Acceptable Sizes & Spacings
Toe: phiMn = phi'5'lambda'sqrt(fc)'Sm
Heel: phiMn = phi'5'lambda'sqrt(fc)'Sm
Key: No key defined

Summary of Overturning & Resisting Forces & Moments

		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=				Soil Over Heel	= 0.0	4.50	0.0
Surcharge Over Toe	=	0.0	0.0	0.0	Sloped Soil Over Heel	= .0000130	4.50	.0000560
Adjacent Footing Load	=	0.0	0.0	0.0	Surcharge Over Heel	= 0.0	0.0	0.0
Added Lateral Load	=	0.0	0.0	0.0	Adjacent Footing Load	= 0.0	0.0	0.0
Load @ Stem Above Soil	=	0.0	0.0	0.0	Axial Dead Load on Stem	= 0.0	0.0	0.0
Seismic Load	=	667.53	3.60	2,403.09	Soil Over Toe	= 0.0	0.0	0.0
Seismic Stem Self Wt	=		0.0		Surcharge Over Toe	= 0.0	0.0	0.0
Total	=	1,344.54	O.T.M. =	3,757.13	Stem Weight	= 3,062.81	2.451	7,508.35
					Earth above Sloping Stem	= 0.2250	4.50	1.013
					Footing Weight	= 675.0	2.250	1,518.75
					Key Weight	= 0.0	3.0	0.0
					Vert. Component	= 0.0	0.0	0.0
					Total	= 3,738.04 lbs	R.M.=	9,028.11

Resisting/Overturning Ratio = 2.403

Vertical Loads used for Soil Pressure = 3,738.04 lbs

Vertical component of active pressure NOT used for soil pressure

Tilt

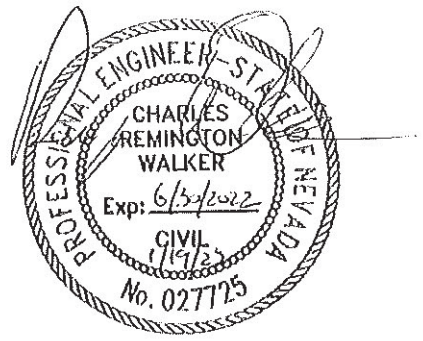
Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus pci50

Horizontal Defl @ Top of Wall (approximate only) 0.05in55

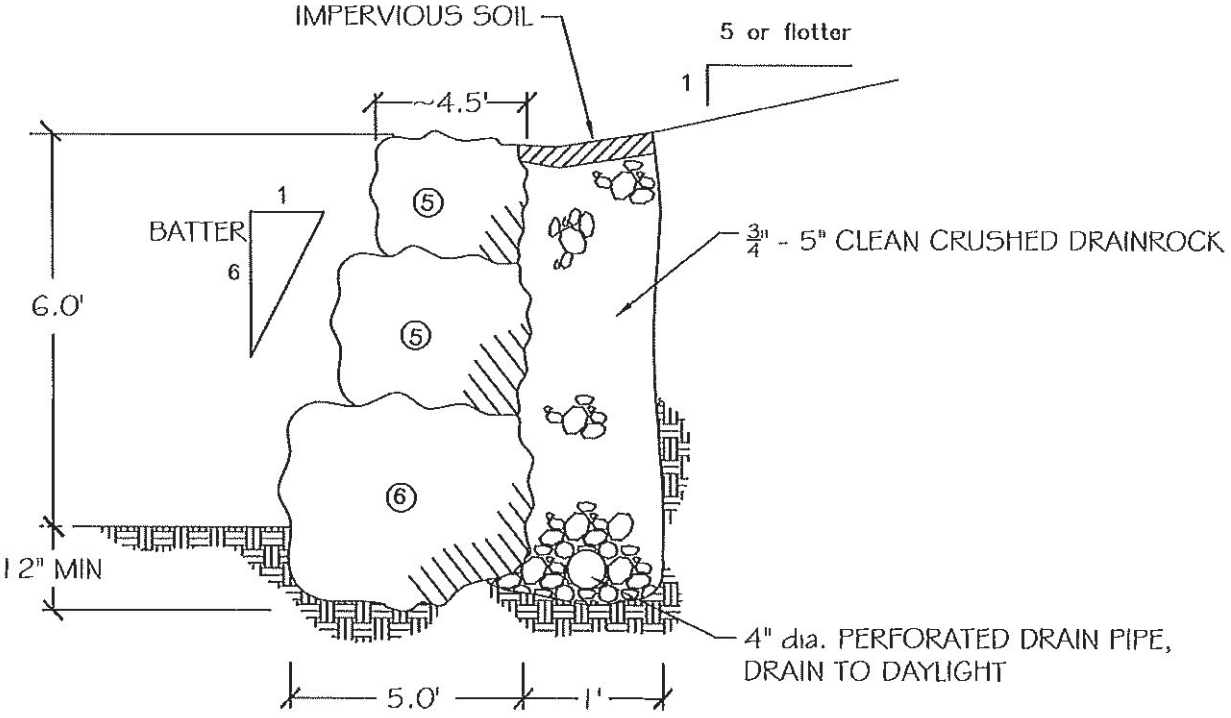
The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.



RETAINING WALL DETAIL

ROCK SIZES	APPROX. WGT.(lbs)	APPROX. DIA.(in)
①	50–200	12–18
②	200–700	18–28
③	700–2000	28–36
④	2000–4000	36–48
⑤	4000–6000	48–54
⑥	6000–8000	54–60

PROFESSIONAL ENGINEER / STATE OF NEVADA
CHARLES REMINGTON WALKER
Exp: 6/30/2022
CIVIL
1/19/22
No. 027725



NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD.	Job # 2408-02C Appr. NSV Date: 01/19/22	6.0' ROCK RETAINING WALL LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET WASHOE COUNTY, NEVADA	PLATE C

WSUP22-0004
EXHIBIT D

Gravity Retaining Wall

Project File: Parc foret walls.ec6

LIC# : KW-06014449, Build:20.22.1.12 NORTECH (c) ENERCALC INC 1983-2021

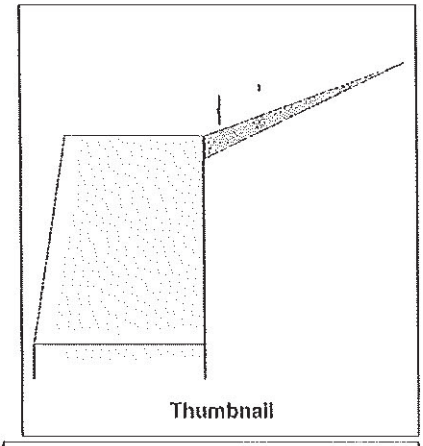
DESCRIPTION: 6 foot wall

Criteria

Retained Height	=	6.0 ft
Wall height above soil	=	ft
Slope Behind Wal	=	3
Height of Soil over Toe	=	in
Soil Density	=	108.0 pcf

Soil Data

Allow Soil Bearing	=	3,000.0 psf
Coulomb Soil Presure calculation	=	
Soil Friction Angle	=	32.0 deg
Active Pressure:Ka*Gamma	=	0.0 psf/ft
Passive Pressure:Kp*Gamma		0.0 psf/ft
Footing||Soil Frictior	=	0.40
Soil height to ignore for passive pressure	=	12.0 in



Surcharge Loads

Surcharge Over Heel = psf
>>>Used To Resist Sliding & Overturning
Surcharge Over Toe = psf
Used for Sliding & Overturning

Lateral Load Applied to Stem

Lateral Load	=	#/ft
...Height to Top	=	ft
...Height to Botton	=	ft
Wind on Exposed Stem	=	psf

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3
Added seismic base force		908.61 lbs

<<----- Note! These are horizontal components

Earth Pressure Seismic Load

Design Kh = 0.20 g

Using Mononobe-Okabe / Seed-Whitman procedure

Kae for seismic earth pressure	=	0.6916
Ka for static earth pressure	=	0.3482
Difference: Kae - Ka	=	0.3434

Design Summary

Total Bearing Load	=	5,150.65 lbs	
...resultant ecc.	=	11.450 in	
Resultant Exceeds Ftg. Width!			
Soil Pressure @ Toe	=	2,005.11 psf	NG
Soil Pressure @ Heel	=	0.0 psf	NG
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	2,807.15 psf	
ACI Factored @ Heel	=	0.0 psf	
Footing Shear @ Toe	=	0.0 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	82.158 psi	
Sliding Stability Ratio	=	1.126	Ratio < 1.!

Sliding Calcs (Vertical Component NOT Used)

Lateral Sliding Force	=	lbs	
less 100% Passive Force	= -	0.0 lbs	
less 100% Friction Force	= -	2,060.26 lbs	
Added Force Req'd	=	0.0 lbs	OK
....for 1.5 Stability	=	684.8 lbs	NG

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Rubble masonry, mortar bonded Stem Analysis Data *(Unreinforced material)*

Wall Material Weight = 150.0 pcf

Fc : Max. Allow. Compression = 100 psi
Fc : Max. Allow. Tension = 10 psi

Front Batter Distance = 12.0 in
Thickness @ Top of Stem = 52.0 in
Back Batter Distance = in

		@ Height #1	@ Height #2	@ Height #3
Height above Footing	=	4 ft	2 ft	0.0 ft
Wall Thick. @ Height	=	56.0 in	60.0 in	64.0 in
Section Modulus	=	6,272.0 in^3	7,200.0 in^3	8,192.0 in^3
Moment @ Height	=	792.69 ft-#	3,149.92 ft-#	7,040.42 ft-#
Vertical Load @ Height	=	1,350.0 lbs	2,800.0 lbs	4,350.0 lbs
Actual Unit Tension	=	-0.4923 psi	1.361 psi	4.649 psi
Actual Unit Compression	=	3.526 psi	9.139 psi	15.977 psi
Shear @ Soction	=	714.13 lbs	1,526.56 lbs	2,437.29 lbs
Actual Unit Shear	=	0.0 psi	0.0 psi	0.0 psi

Gravity Retaining Wall

Project File: Parc foret walls.ec6

LIC# : KW-06014449, Build:20.22.1.12 NORTECH (c) ENERCALC INC 1983-2021

DESCRIPTION: 6 foot wall

Footing Strengths & Dimensions

Toe Width	=	ft
Heel Width	=	333333333
Total Footing Width	=	5.333
Footing Thickness	=	12.0 in
Key Width	=	24 in
Key Depth	=	in
Key Distance from Toe	=	2 ft

f'c = 3000 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel
Factored Pressure	=	2,807.15	0.0 psf
Mu' : Upward	=	0.0	0.0 ft-#
Mu' : Downward	=	0.0	0.0 ft-#
Mu: Design	=	0	0 ft-#
Actual 1-Way Shear	=	*Beyond Toe	0.0 psi
Allow 1-Way Shear	=	43.818	43.818 psi

*Critical section for one-way shear falls beyond the end of the toe.

Toe Reinforcing = None Spec'd
Heel Reinforcing = None Spec'd
Key Reinforcing = # 7 @ 12.00 in

Other Acceptable Sizes & Spacings
Toe: phiMn = phi'5'lambda'sqrt(fc)'Sm
Heel: phiMn = phi'5'lambda'sqrt(fc)'Sm
Key: No key defined

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=				Soil Over Heel	= 0.0	5.333	0.0
Surcharge Over Toe	=	0.0	0.0	0.0	Sloped Soil Over Heel	= .0000130	5.333	.0000670
Adjacent Footing Load	=	0.0	0.0	0.0	Surcharge Over Heel	= 0.0	0.0	0.0
Added Lateral Load	=	0.0	0.0	0.0	Adjacent Footing Load	= 0.0	0.0	0.0
Load @ Stem Above Soil	=	0.0	0.0	0.0	Axial Dead Load on Stem	= 0.0	0.0	0.0
Seismic Load	=	900.61	4.20	3,816.16	Soil Over Toe	= 0.0	0.0	0.0
Seismic Stem Self Wt	=		0.0		Surcharge Over Toe	= 0.0	0.0	0.0
Total	=	1,830.07	O.T.M. =	5,966.24	Stem Weight	= 4,350.38	2.908	12,652.0
					Earth above Sloping Stem	= 0.270	5.333	1.440
Resisting/Overturning Ratio	=	2.478			Footing Weight	= 800.0	2.667	2,133.33
Vertical Loads used for Soil Pressure	=	5,150.65 lbs			Key Weight	= 0.0	3.0	0.0
					Vert. Component	= 0.0	0.0	0.0
					Total	= 5,150.65 lbs	R.M.=	14,786.8

Vertical component of active pressure NOT used for soil pressure

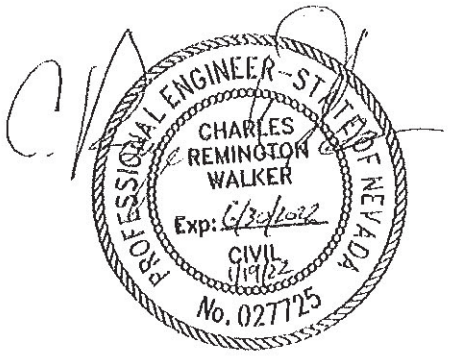
Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus p@50
Horizontal Defl @ Top of Wall (approximate only) 0.06@66

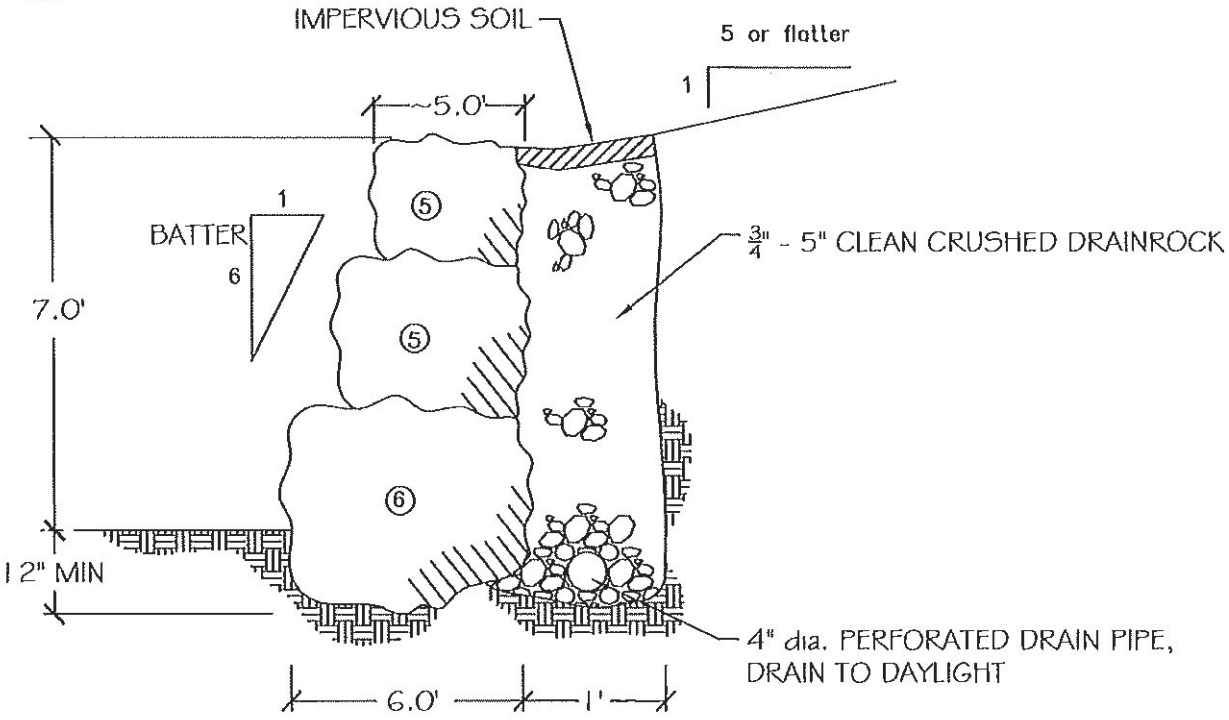
The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.



RETAINING WALL DETAIL

ROCK SIZES	APPROX. WGT.(lbs)	APPROX. DIA.(in)
①	50–200	12–18
②	200–700	18–28
③	700–2000	28–36
④	2000–4000	36–48
⑤	4000–6000	48–54
⑥	6000–8000	54–60

PROFESSIONAL ENGINEER – STATE OF NEVADA
CHARLES REMINGTON WALKER
Exp: 6/30/2022
CIVIL
1/19/22
No. 027725



NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD.	Job # 2408-02C Appr. NSV Date: 01/19/22	7.0' ROCK RETAINING WALL LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET WASHOE COUNTY, NEVADA	PLATE D

WSUP22-0004
EXHIBIT D

Gravity Retaining Wall

Project File: Parc foret walls.ec6

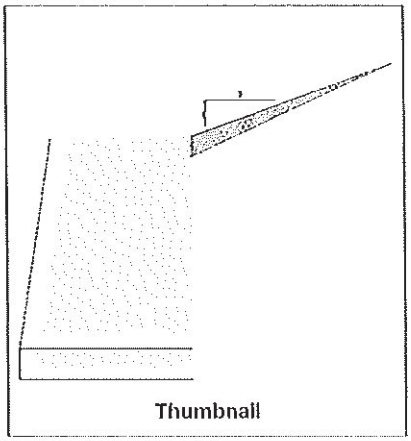
DESCRIPTION: 7 foot wall

Criteria

Retained Height	=	7.0 ft
Wall height above soil	=	ft
Slope Behind Wal	=	3
Height of Soil over Toe	=	in
Soil Density	=	108.0 pcf

Soil Data

Allow Soil Bearing	=	3,000.0 psf
Coulomb Soil Presure calculation		
Soil Friction Angle	=	32.0 deg
Active Pressure:Ka*Gamma	=	0.0 psf/ft
Passive Pressure:Kp*Gamma		0.0 psf/ft
Footing||Soil Friction	=	0.40
Soil height to ignore for passive pressure	=	12 in



Surcharge Loads

Surcharge Over Heel	=	psf
>>>Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	psf
Used for Sliding & Overturning		

Lateral Load Applied to Stem

Lateral Load	=	#/ft
...Height to Top	=	ft
...Height to Bottom	=	ft
Wind on Exposed Stem	=	psf

Adjacent Footing Load

Adjacent Footing Load	=	lbs
Footing Width	=	ft
Eccentricity	=	in
Wall to Ftg CL Dist	=	ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	ft
Poisson's Ratio	=	0.3
Added seismic base force		1,302.79 lbs

<<----- Note! These are horizontal components

Earth Pressure Seismic Load

Design Kh	=	0.2 g
Kae for seismic earth pressure	=	0.6916
Ka for static earth pressure	=	0.3147
Difference: Kae - Ka	=	0.3770

Using Mononobe-Okabe / Seed-Whitman procedure

Design Summary

Total Bearing Load	=	6,788.25 lbs	
...resultant ecc.	=	13.260 in	
Resultant Exceeds Ftg. Width!			
Soil Pressure @ Toe	=	2,287.48 psf	NG
Soil Pressure @ Heel	=	0.0 psf	NG
Allowable	=	psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	3,202.48 psf	
ACI Factored @ Heel	=	0.0 psf	
Footing Shear @ Toe	=	0.0 psi	OK
Footing Shear @ Heel	=	0.0 psi	OK
Allowable	=	82.158 psi	
Sliding Stability Ratio	=	1.136	Ratio < 1.!

Sliding Calcs (Vertical Component NOT Used)

Lateral Sliding Force	=	lbs
less 100% Passive Force	= -	0.0 lbs
less 100% Friction Force	= -	2,715.30 lbs
Added Force Req'd	=	0.0 lbs OK
....for 1.5 Stability	=	870.1 lbs NG

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.000
Seismic, E	1.000

Rubble masonry, mortar bonded Stem Analysis Data *(Unreinforced material)*

Wall Material Weight	=	150.0 pcf
Front Batter Distance	=	14.0 in
Thickness @ Top of Stem	=	60.0 in
Back Batter Distance	=	in

Fc : Max. Allow. Compression = 100 psi
Fc : Max. Allow. Tension = 10 psi

		@ Height #1	@ Height #2	@ Height #3
Height above Footing	=	4 ft	2 ft	0.0 ft
Wall Thick. @ Height	=	66.0 in	70.0 in	74.0 in
Section Modulus	=	8,712.0 in^3	9,800.0 in^3	10,952.0 in^3
Moment @ Height	=	2,180.23 ft-#	5,923.06 ft-#	11,348.3 ft-#
Vertical Load @ Height	=	2,362.50 lbs	4,062.50 lbs	5,862.50 lbs
Actual Unit Tension	=	0.02011 psi	2.416 psi	5.832 psi
Actual Unit Compression	=	5.986 psi	12.089 psi	19.036 psi
Shear @ Section	=	1,320.09 lbs	2,276.61 lbs	3,294.29 lbs
Actual Unit Shear	=	0.0 psi	0.0 psi	0.0 psi

Gravity Retaining Wall

Project File: Parc foret walls.ec6

DESCRIPTION: 7 foot wall

Footing Strengths & Dimensions

Toe Width	=	ft
Heel Width	=	366666666
Total Footing Width	=	6.167
Footing Thickness	=	12.0 in
Key Width	=	24 in
Key Depth	=	in
Key Distance from Toe	=	2 ft

f'c = 3000 psi Fy = 60000 psi
Footing Concrete Density = 150 pcf
Min. As % = 0.0018
Cover @ Top = 2 in @ Btm.= 3 in

Footing Design Results

		Toe	Heel
Factored Pressure	=	3,202.48	0.0 psf
Mu' : Upward	=	0.0	0.0 ft-#
Mu' : Downward	=	0.0	0.0 ft-#
Mu: Design	=	0	0 ft-#
Actual 1-Way Shear	=	*Beyond Toe	0.0 psi
Allow 1-Way Shear	=	43.818	43.818 psi

*Critical section for one-way shear falls beyond the end of the toe.

Toe Reinforcing = None Spec'd
Heel Reinforcing = None Spec'd
Key Reinforcing = # 7 @ 12.00 in

Othor Acceptable Sizes & Spacings
Toe: phiMn = phi'5'lambda'sqrt(fc)'Sm
Heel: phiMn = phi'5'lambda'sqrt(fc)'Sm
Key: No key defined

Summary of Overturning & Resisting Forces & Moments

		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#			.....RESISTING..... Force lbs	Distance ft	Moment ft-#
Heel Active Pressure	=				Soil Over Heel	=	0.0	6.167	0.0
Surcharge Over Toe	=	0.0	0.0	0.0	Sloped Soil Over Heel	=	.0000130	6.166	.0000770
Adjacent Footing Load	=	0.0	0.0	0.0	Surcharge Over Heel	=	0.0	0.0	0.0
Added Lateral Load	=	0.0	0.0	0.0	Adjacent Footing Load	=	0.0	0.0	0.0
Load @ Stem Above Soil	=	0.0	0.0	0.0	Axial Dead Load on Stem	=	0.0	0.0	0.0
Seismic Load	=	1,302.79	4.80	6,253.37	Soil Over Toe	=	0.0	0.0	0.0
Seismic Stem Self Wt	=		0.0		Surcharge Over Toe	=	0.0	0.0	0.0
Total	=	2,390.30	O.T.M.	9,153.40	Stem Weight	=	5,862.94	3.365	19,729.1
				=	Earth above Sloping Stem	=	0.3150	6.167	1.943
Resisting/Overturning Ratio			=	2.467	Footing Weight	=	925.0	3.083	2,852.08
Vertical Loads used for Soil Pressure			=	6,788.25 lbs	Key Weight	=	0.0	3.0	0.0
					Vert. Component	=	0.0	0.0	0.0
					Total	=	6,788.25 lbs	R.M.=	22,503.1

Vertical component of active pressure NOT used for soil pressure

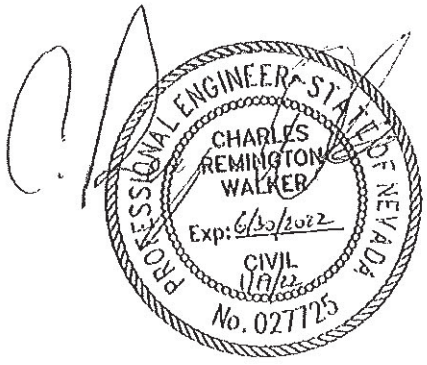
Tilt

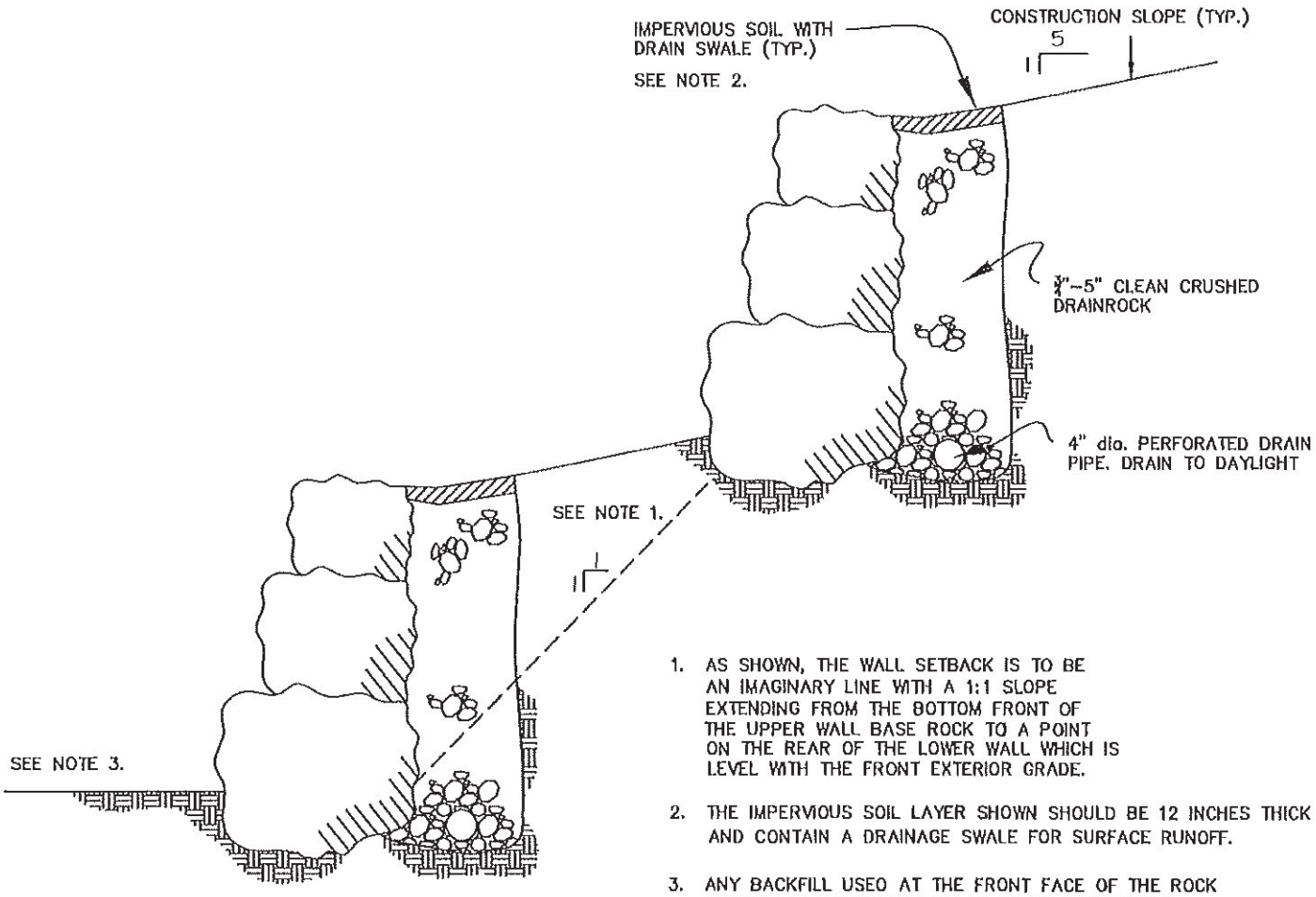
Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus p@50
Horizontal Defl @ Top of Wall (approximate only) 0.07@13

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.





1. AS SHOWN, THE WALL SETBACK IS TO BE AN IMAGINARY LINE WITH A 1:1 SLOPE EXTENDING FROM THE BOTTOM FRONT OF THE UPPER WALL BASE ROCK TO A POINT ON THE REAR OF THE LOWER WALL WHICH IS LEVEL WITH THE FRONT EXTERIOR GRADE.
2. THE IMPERVIOUS SOIL LAYER SHOWN SHOULD BE 12 INCHES THICK AND CONTAIN A DRAINAGE SWALE FOR SURFACE RUNOFF.
3. ANY BACKFILL USED AT THE FRONT FACE OF THE ROCK SHOULD BE COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION PER ASTM D1557. NATIVE SOILS IN EMBEDMENT ZONE SHOULD BE UNDISTURBED.

NORTECH
GEOTECHNICAL/CIVIL CONSULTANTS, LTD.

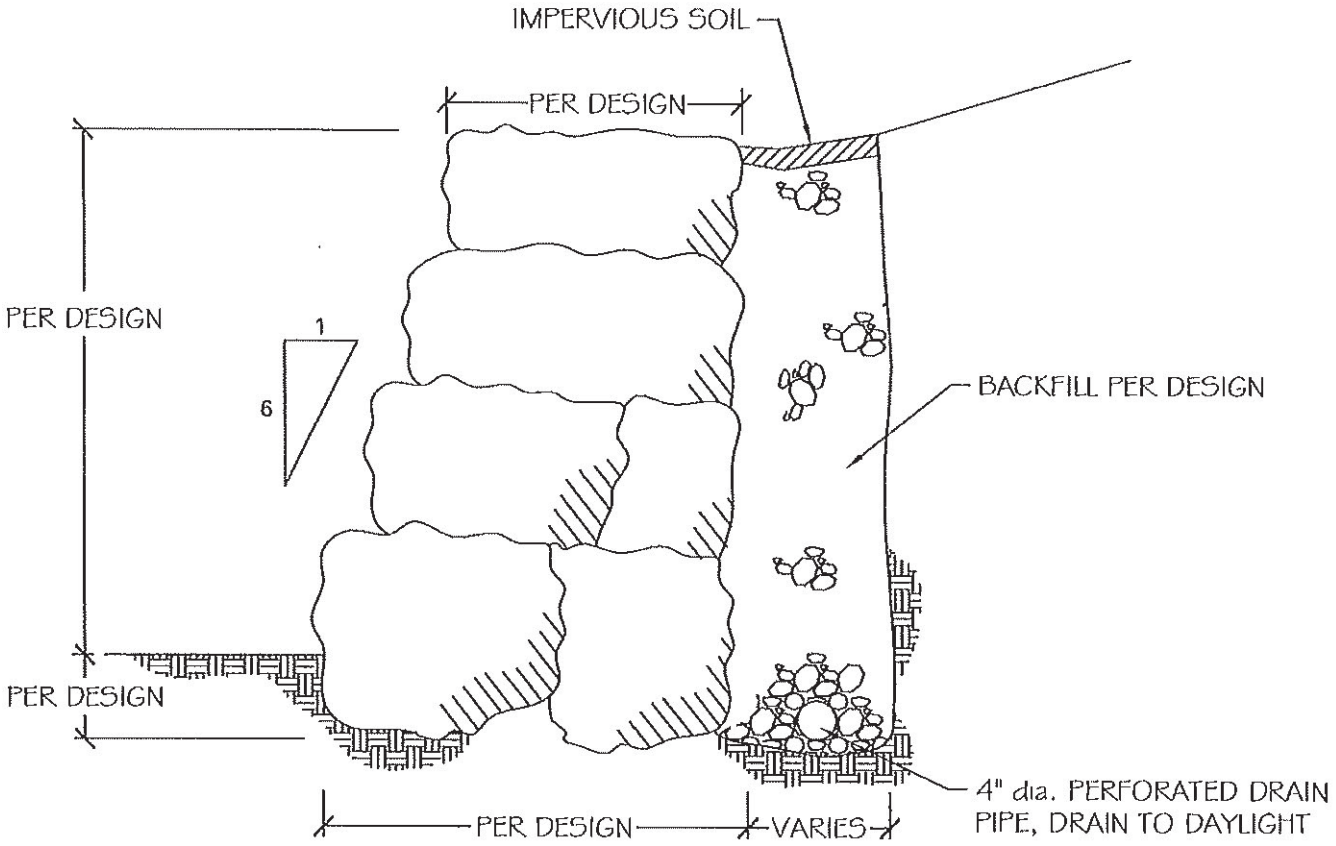
Job # 2408-02C
Appr. /nsv
Date: 01/19/22

TYPICAL ROCKWALL SETBACK

LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET
WASHOE COUNTY, NEVADA

PLATE
AA

RETAINING WALL DETAIL
OVERSIZE BOTTOM ROCK



NOTE:

WHEN BOTTOM ROCKS ARE LARGER THAN 3 TO 4 FEET IN WIDTH INTO THE WALL, TWO ROCKS WITH AN EQUIVALENT TOTAL WIDTH CAN BE SUBSTITUTED AS NEEDED. THE SMALLER OF THE TWO ROCKS IS TO BE PLACED BEHIND THE LARGER ROCK.

NORTECH GEOTECHNICAL/CIVIL CONSULTANTS, LTD.	Job # 2408-02C Appr. /NSV Date: 01/19/22	OVERSIZE ROCK DETAIL LOTS 404–515, LATOUR WAY, MARGAUX ROAD & BEAUJOLAIS STREET WASHOE COUNTY, NEVADA	PLATE E