March 7, 2022



KIRKLAND HEIGHTS APARTMENTS – BUILDING 8 Owner: King County Housing Authority (KCHA)

Addendum No. 1

ARCHITECT: SMR Architects

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated 01/31/2022 with amendments and additions noted below.

Addendum items are included in the Bid Set drawings and are clouded and marked with an A1 delta.

Note:

1) As of the issuance of Addenda 1, no permits for construction have been issued by The City of Kirkland.

2) PSE has not issued their final construction drawings for the utility undergrounding.

Documents included in this Addenda:

- Kirkland Heights Apartments Bid Set Addendum 1 03/04/2022.pdf
- Pre-Bid Questions 03/04/2022.pdf
- Invitation to Bid.pdf
- Geotechnical Investigation 03/01/2022.pdf

CHANGES TO THE PROJECT MANUAL

Revised Sections have been noted. Text changes with replaced or revised Sections are noted: Additions are <u>underlined</u>. Deletions are lined through.

REPLACE: Replace the following Sections in their entirety:

- 02 32 00 Geotechnical Investigations

REVISE: Revise the following Specifications as noted herein:

- Invitation to Bid, BIDS ARE DUE as follows:

Time: <u>11:59 P.M.</u> <u>2:00 P.M.</u>

Submittal Process: * Bids may be sent to Nate Kraus via mail, hand delivery, or by email to nathank@kcha.org. If dropping off a hard copy bid to the KCHA office, please call Nate Kraus at (206) 693-6452. Prospective bidders can either call and make an appointment or call upon arrival.

SMR Architects 117 South Main Street, #400 Seattle, WA 98104

www.smrarchitects.com

PH: 206.623.1104 FX: 206.623.5285

- 11 31 00 Appliances, Item 2.2 as follows:

A. Owner-Provided and Contractor-Installed, N.I.C.:

- 1. ADA Oven/Range: GE # JBS45DFWW JBS460DMWW Unit DC
- 3. Refrigerator/Freezer: GE # GTE16DTHWW GTE16DTNRWW Units
- 4. ADA Washing Machine: GE # GFW148SSMWW Unit C
 - a. Front loading.
 - b. Energy Star labeled.
 - c. ADA compliant.
- 5. ADA Dryer: GE # GFD14ESSNWW Unit C
 - a. Front loading.
 - b. Energy Star labeled.
 - c. ADA compliant.
 - d. Long vent.
- 6. Washer/Dyer Stack: GE # GUD27EESNWW Units
 - a. Energy Star labeled.
 - b. Long vent.

CHANGES TO THE DRAWINGS

G001

- 1. Sheet index had been updated as follows:
 - G003, W1.0, W1.1, W1.2, A540, A620 added
 - A020, A030, A250 removed
- 2. Existing and overall parking number increased to reflect existing nonconforming gravel parking.

G002

- 1. Note 13 added to General Notes.
- 2. Deferred Submittals added to sheet.

G003

1. Sheet added

G030

1. Drawing 2 updated to include additional dimensions for clarification

G032

1. Legend, occupant load calculations, and Drawing 1 updated to clarify the separation required between dwelling units and utility rooms

C0.0

1. Revised sheet index

C1.0

1. Extend asphalt pavement demolition in parking lot and demolish dumpster pad.

C2.0

- 1. Revised water/fire system callouts to refer to new drawing W1.1.
- 2. Revised routing of FDC line.
- 3. Added storm drainage pipe material callouts.

C2.2

- 1. Revised footprints and areas of amended soils, roof area, PGIS, and walkways in the plan and the legend.
- 2. Added reference to City of Kirkland standard plan CK-E.12 regarding soil amendment.

C2.3

- 1. Revised footprints and areas of amended soils, roof area, PGIS, and walkways in the plan and the legend.
- 2. Added reference to City of Kirkland standard plan CK-E.12 regarding soil amendment.

C3.0

- 1. Added concrete pavement to the legend.
- 2. Added new ADA accessible route to the trash enclosure and replaced the dumpster pad and surrounding pavement.
- 3. Reconfigured ADA parking and landscape islands.
- 4. Added concrete pad at RPBA (ref. W1.1).

C4.2

- 1. Added concrete pavement detail.
- 2. Revised callout for ADA Access Aisle width to match the current plan.

W1.0

1. Sheet added

W1.1

1. Sheet added

W1.2

1. Sheet added

D001

1. Extent of site work updated to match civil drawings.

D450

1. Extent of demolition updated to match new unit layout.

D451

1. Extent of demolition updated to match new unit layout.

D452

1. Extent of demolition updated to match new unit layout.

A001

- 1. Assumed property line and associated dimensions added to site plan.
- 2. Extent of site work updated to match civil drawings.
- 3. Accessible route extended to trash area.
- 4. Parking layout updated.
- 5. Existing nonconforming gravel parking updated to show parking spaces.

A010

- 1. Assumed property line added.
- 2. Extent of site work updated to match civil drawings

A101

- 1. Knoxbox locations added to plans.
- 2. Room labels added at utility rooms.
- 3. Concrete landings added at utility room doors.
- 4. Detail callouts added.
- 5. Units updated to accommodate addition of washers and dryers.

A102

- 1. Detail callouts added.
- 2. Units updated to accommodate addition of washers and dryers.
- 3. Landings revised.

A103

- 1. Detail callouts added.
- 2. Units updated to accommodate addition of washers and dryers.
- 3. Landings revised.

A104

- 1. Code language revised.
- 2. Section 1202.2.2 added to legend.

A150

- 1. Legend revised.
- 2. RCP updated to match mechanical.

A151

- 1. Legend revised.
- 2. RCP updated to match mechanical.

A152

- 1. Legend revised.
- 2. RCP updated to match mechanical.

A200

- 1. Proposed and maximum building height per Kirkland Zoning Code added.
- 2. Vent shrouds update to match mechanical.

A201

- 1. Proposed and maximum building height per Kirkland Zoning Code added.
- 2. Vent shrouds updated to match mechanical.

A202

- 1. Proposed and maximum building height per Kirkland Zoning Code added.
- 2. Window and door locations updated to match new unit layout in Drawings 1 and 2.
- 3. Vent shrouds updated to match mechanical.

A301

1. Stair landing and supports revised.

A320

- 1. Landings revised in Drawing 1.
- 2. Guardrail detail added at Drawing 3.

A450.A

- 1. Elevation notes, RCP notes, and RCP legend removed for clarification.
- 2. Unit rearranged to accommodate in-unit washers and dryers.
- 3. Deck detail callout added.

A450.B

- 1. Legend revised.
- 2. RCP updated to reflect new unit arrangement.
- 3. Drawing 2 removed.

A450.C

1. Elevations updated to reflect new unit arrangement.

A451.A

- 1. Elevation notes, RCP notes, and RCP legend removed for clarification.
- 2. Unit rearranged to accommodate in-unit washers and dryers.

A451.B

- 1. Legend revised.
- 2. RCP updated to reflect new unit arrangement.

A451.C

- 1. Elevations updated to reflect new unit arrangement.
- 2. Grab bars added.

A452.A

- 1. Elevation notes, RCP notes, and RCP legend removed for clarification.
- 2. Washer/dryer stack added to storage room.
- 3. Water heater moved to accommodate washer/dryer stack.

A452.B

- 1. Legend revised.
- 2. RCP updated to reflect new unit arrangement.

A452.C

- 1. Unit plan notes and RCP notes removed for clarification.
- 2. Sink and cabinets rearranged to allow side approach at bathroom.
- 3. Kitchen and bathrooms revised.
- 4. Annotations revised for clarity.

A500

1. Wall type 83 revised to partition.

A520

- 2. Detail callouts added to Drawings 1 through 4.
- 3. Drawing 6 added.

A525

1. Landings revised at Drawing 2.

A526

- 1. Landings revised at Drawing 2.
- 1. Drawing 13 Intermittent rigid insulation added, curb height revised, SAM annotation revised for clarification.
- 2. Drawing 14 SAM added at rough opening.
- 1. Detail 10 venting removed, standing seam added, flashing revised.

A527

1. Special inspection note added to Detail 1.

A531

1. Detail 5 added.

A600

- 1. Door schedule revised.
- 2. Door types D & E added.

A620

1. Finish schedule revised.

S100

- 1. Revised design wind speed.
- 2. Updated soils report reference.
- 3. Revised concrete strength to 3,000 psi.
- 4. Revised welding notes to include WABO qualifications.

S200

- 1. Added section cuts for details at outdoor closet foundations.
- 2. Revised shear walls along grids 8.2 & 8.4 with new openings.
- 3. Revised detail cuts at stairs & exterior walkway on Level 2 Plan.
- 4. Revised floor plans to include in-unit washers and dryers.

S201

- 1. Revised detail cuts at stairs & exterior walkway on Level 3 Plan.
- 2. Revised floor plan to include in-unit washers and dryers on Level 3.

S300

- 1. Added detail 15/S300.
- 2. Added detail 18/S300.

S401

- 1. Revised detail 2/S401 to add H1 ties & additional blocking.
- 2. Added details 17 and 20 showing framing at stair/walkways.

S500

1. Revised welded stud size and spacing in Detail 14.

P002

1. Added laundry box to schedule(s).

P100

1. Revised foundation plan piping to reflect new architectural layout and addition of laundry closets.

P101

1. Revised plumbing layout to reflect new architectural layout and addition of laundry closets.

P102

1. Revised plumbing layout to reflect new architectural layout and addition of laundry closets.

P201

1. Revised plumbing layout to reflect new architectural layout and addition of laundry closets.

P202

1. Revised plumbing layout to reflect new architectural layout and addition of laundry closets.

P203

1. Revised plumbing layout to reflect new architectural layout and addition of laundry closets.

P204

- 1. Revised waste riser diagrams to reflect new architectural layout and addition of laundry closets.
- 2. Added Laundry Box Detail.

P302

1. Revised incoming water service Detail 4.

M002

- 1. Diffuser & Grille Schedule: Revised supply register to more cost-effective grille.
- 2. Added LEF for Laundry closets.

M101

1. Revised enlarged unit plan note for Unit C.

M102

1. Revised enlarged unit plan note for Unit K.

M201

- 1. Revised entire sheet to reflect new architectural revisions with laundry closets.
- 2. Added dryer exhaust ducts and wall terminations.
- 3. Added laundry exhaust fans and duct routing to exterior wall terminations.

E001

1. Added Scope Narrative.

E003

- 1. Clarified main disconnect for house service.
- 2. Clarified conduit requirement for PV Ready.
- 3. Clarified multiple notes.

E004

1. Updated Panel Schedules.

E005

1. Updated Lighting Fixture Schedule.

E101

- 1. Added 120V receptacle for heat trace.
- 2. Clarified multiple notes.

E102

1. Revised scope narrative for clarity.

E201/E202

1. Added second EM lighting inverter due to code requirements for single EM sources.

E301

- 1. Updated all enlarged unit plans with reconfigured device layout.
- 2. Added connections for Washers and Dryers in all units.
- 3. Added connection to Laundry Exhaust Fan.
- 4. Added an additional enlarged unit plan.

*** End of Addendum ***

INVITATION TO BID

King County Housing Authority (KCHA) will accept bids from qualified general contractors to furnish labor, materials and necessary equipment to perform the following:

SCOPE OF WORK: Work includes, but is not limited to, the renovation of and addition to Building 8; site and utility work; building envelope improvements consisting of a ventilated rainscreen system, firestopping, insulation board, weather resistive barrier, fiber cement board siding, and vinyl windows; roofing, decks and stairways; asbestos abatement; replacement of all interior fixtures and finishes including, cabinets, countertops, flooring, painting, GWB, plumbing, HVAC, and electrical; and other tasks as described in the bid documents.

PROJECT MANUAL DISTRIBUTION:

Address:	King County Housing Authority, 600 Andover Park, Seattle, WA 98						98188		
Distribution:	* Documents	are	available	for	download	on	KCHA's	website	at
	http://www.kcha.org/business/construction/open/								

PRE-BID CONFERENCE:

Date and Time:	Meeting 1: February 10, 2022 at 2:00 P.M.
	Meeting 2: February 17, 2022 at 2:00 P.M.
Jobsite Address:	Kirkland Heights Apartments, 13321 NE 133rd St, Kirkland, WA 98034.
In Addition:	Contractors are strongly encouraged to attend the Pre-Bid Conference. Failure
	to attend the Conference will not relieve the Contractor of any responsibility for
	information provided at that time.
For Questions:	Questions pertaining to the bid are to be sent via email to <u>nathank@kcha.org</u> no
	later than seven (7) calendar days prior to bid due date. All responses shall be in
	the form of Addenda.
Posting:	Addenda will be posted on KCHA's website.
BIDS ARE DUE:	
Time:	2:00 P.M.
Date:	March 11, 2022
Address:	King County Housing Authority
	600 Andover Park West, Seattle, WA 98188
Submittal Process:	* Bids may be sent to Nate Kraus via mail, hand delivery, or by email to
	nathank@kcha.org. If dropping off a hard copy bid to the KCHA office, please
	call Nate Kraus at (206) 693-6452. Prospective bidders can either call and make
	an appointment or call upon arrival.
Process:	All Bids must be received by KCHA no later than the above due date and time. No Bids
	will be accepted after that date and time.
BID GUARANTEE:	
Amount:	Five (5%) Percent of the Total bid must accompany Each Bid
Payable to:	King County Housing Authority

PERFORMANCE AND PAYMENT BONDS: As a condition of award Performance and Payment bonds for 100% of the Contract Award Amount shall be furnished for the Work.

KCHA is an Equal Employment Opportunity Employer and strongly encourages minority-owned and womenowned businesses, socially and economically disadvantaged businesses, and small businesses to submit bids or to participate as subcontractors and suppliers on KCHA Contracts.

KCHA reserves the right to reject any or all bids or to waive any informality in the bidding. No bid shall be withdrawn for a period of 60 calendar days subsequent to the opening of the bids without the written consent of KCHA.

CONTACT PERSON: Nate Kraus at NathanK@kcha.org





KIRKLAND HEIGHTS APARTMENTS – BUILDING 8 Owner: King County Housing Authority (KCHA)

Pre-Bid Questions

QUESTION 1

Do you provide a percent for down payment prior to starting the project? Do you provide payment based on project completion?

ANSWER: Payment terms can be found in Part 4 of the General Conditions included in the Project manual.

QUESTION 2

Is the listed bid due time of 11:59 PM correct?

ANSWER: Bids will be due March 11th at 2:00 PM. See updated Invitation to Bid for more information.

QUESTION 3

While going through the project document pages, we found the following:

1) Specs Volume 1 is missing pages 3-5 of the "Bid Form & Bidder Information". However, they are included in the separate document.

- 2) Specs Volume 1 is missing Section 023200 (but not it's attachment).
- 3) Specs Volume 1 pages 238 is cut-off.
- 4) Sections 210500 & 211313 are duplicated in the Specs Volume 2.
- 5) The plans are missing Sheet A250 according to the Index.

ANSWER: Changes are as follows:

1) Bid Form pages 3-5 are included in the addendum

2) There is no Section 023200 cover sheet, just the attachments. The specifications will be left as-is.

- 3) SMR did not find page 238 to be cut off. The specification will be left as-is.
- 4) Duplicate sections deleted from specifications.
- 5) Drawing Sheet A250 removed from the Sheet Index.

QUESTION 4

SMR Architects 117 South Main Street, #400 Seattle, WA 98104 The bid documents refer to a "Bid Form", but I am unable to locate on the KCHA website. Can you provide the form or advise where I can find it?

ANSWER: The Bid Form is available in the Project Manual as well as on the project page on the KCHA website as an individual PDF.

www.smrarchitects.com

QUESTION 5

Could I get the contact information for the utility providers, including PSE and all low voltage providers?

ANSWER: Contacts are as follows:

PUGET SOUND ENERGY Abdulrehman Kamel Engineering Specialist 1320 SE 32nd St. Bellevue, WA 98005 <u>Abdulrehman.kamel@pse.com</u> (425) 748-6382

COMCAST David Baxter Account Representative 14870 NE 95th St. Redmond, WA 98052 <u>David baxter@comcast.com</u> (425) 951-0038

ZIPLY FIBER David Collins Network Engineer David.collins@ziply.com (425) 263-4020

J5 INFRASTRUCTURE Rick Matula OSP Field Survey <u>Rmatula@j5ip.com</u> (360) 608-7100

QUESTION 6

How will the base bid and the add/alternate scope be evaluated?

ANSWER: All bids must include a base bid for renovating the existing building per bid documents and an add/alternate option to add a third floor with four additional units to match the existing floor layouts as shown in the bid documents. The add/alternate bids will be evaluated first to determine if adequate funding is available. If adequate funding is not available, the base bids will then be evaluated separately. If funding is available, the combined bids for base plus add/alternate will be evaluated.

QUESTION 7

Are we replacing the hot water tanks?

ANSWER: Yes, all hot water tanks will be replaced.

QUESTION 8

Is the deadline still 120 calendar days or can that be extended based on the lag time to get some materials?

ANSWER: The 120-day deadline stands. If there are any delays caused by weather or material delays, they will be addressed through changes during construction.

QUESTION 9

Are there dishwashers going to be installed in the units?

ANSWER: No, dishwashers will not be installed in the units.

QUESTION 10

Other than the refrigerators and the ovens (minus the hood) are there any other items being provided by the owner agency?

ANSWER: Contractor to provide and install the kitchen hood. KCHA to provide and install the refrigerator, range, washer, and dryer.

QUESTION 11

Can we use David Bacon rates instead of standard prevailing wage rates?

ANSWER: Wage rates should be calculated per the specifications.

QUESTION 12

The specs indicate installation of CCTV. Is there already an existing system to be installed?

ANSWER: All new low voltage items are shown in the plans.

QUESTION 13

Could we change the concrete wheel stops out for compressed plastic?

ANSWER: No, compressed plastic wheel stops will not be accepted.

QUESTION 14

There is no mention of model/type for the interior ceiling mounted lights. Are they to be LED lights similar to other identified materials?

ANSWER: All electrical fixtures are listed in the Luminaire Schedule in the electrical drawings.

QUESTION 15

Is there an existing sprinkler system to tie into?

ANSWER: No, there is no existing sprinkler system.

QUESTION 16

The base bid is for the interior and exterior renovations for the existing two floors. Is the add/alternate bid for the third floor or for all three floors combined?

ANSWER: The base bid is the renovation of the two floors of the existing building. The alternate is to add the third floor.

QUESTION 17

In the specifications, there are only two unit price requests listed (framing at windows and framing at exterior sliding doors), however, on the bid form there are 6 unit prices listed.

ANSWER: There are only 2 unit cost items. The other lines can be left blank.

QUESTION 18

On the bid documents, there is no bid security form included for the bid bond. Could you please provide that?

ANSWER: Refer to the Bid Guarantee section on page 6 of the project manual.

BID GUARANTEE:

Amount: Five (5%) Percent of the total bid must accompany each bid Payable to: King County Housing Authority

You will have to provide this from your bonding entity, there is no form.



To:	Darrell Westlake	From:	Kevin J. Lamb, P.E.	A DECEMBER
Company:	King County Housing Authority	Date:	March 1, 2022	TE OF WASHIN
Address:	Capital Construction Department			
	600 Andover Park West			
	Seattle, WA 98188			A 29441
				MONAL ENO
cc:				- 03/01/2022
Project No.:	KCHA-38-01			
RE:	Geotechnical Engineering Services			
	Kirkland Heights Improvements			
	13310 NE 133rd Street			
	Kirkland, Washington			

INTRODUCTION

GeoDesign, Inc. is pleased to present this summary memorandum of our geotechnical engineering services to support the proposed additions and improvements to apartment buildings in the Kirkland Heights Apartment complex located in Kirkland, Washington. The approximate site location is shown on Figure 1.

The complex consists of approximately 25 buildings. Twenty of the buildings are two stories in height and consist of a stacked four-unit apartment configuration for a total of eight units per building: Buildings 1 through 8, 11 through 14, 16, 18, 20 through 22, 24, and 25, Figure 2. We understand that the feasibility of adding a third floor to each of the eight-unit apartment buildings is being considered. The remaining buildings are multi-story units (Buildings 9, 15, 17, 19, and 23) and improvements are limited to exterior and interior modifications that do not require structural changes.

Geotechnical information is required regarding the existing foundation capacity and the existing subgrade allowable bearing capacity to determine what improvements will be required to support adding a third floor to Buildings 1 through 8, 11 through 14, 16, 18, 20 through 22, 24, and 25.

PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to gather and review available subsurface information, evaluate subsurface conditions, and provide geotechnical conclusions and engineering recommendations regarding foundation support for each of the buildings where a third-floor addition is proposed. Our scope of services included site reconnaissance, exploratory test pits, and engineering analyses to develop the geotechnical conclusions and recommendations presented in this memorandum. Specifically, our scope included the following:



- Collected and reviewed readily available geotechnical and geologic data for the project area.
- Completed 41 shallow test pit explorations (3 at Building 1, and 2 at every other building) where a third-floor addition is proposed) to expose the subgrade at the base of the building foundation and evaluate conditions in order to recommend an allowable bearing pressure.
- Performed engineering analysis and evaluated data derived from the subsurface explorations to provide recommendations for allowable foundation bearing pressure.

SITE CONDITIONS

The project site is located in the Totem Lake neighborhood, north of NE 132nd Street between 132nd Avenue NE and 136th Avenue NE. The site is irregular in shape and encompasses approximately 13.5 acres. It is bordered by NE 132nd Street on the south, by 136th Avenue NE and a PSE transmission line easement on the east, by residential properties to the north, and by a church and residential properties on the west, Figure 2. The site is bisected by NE 133rd St and 135th Ave NE that extend through the property.

SURFACE CONDITIONS

The site is located in the upland drift plain north of Totem Lake. The ground surface within the site area has a gradual slope to the south. The site is developed with 2-story apartment buildings separated by grass lawn areas and asphalt paved parking areas between the buildings.

The area was previously used for agricultural purposes up until construction of the existing complex in the early 1970s. The ground surface across the site slopes gradually south with a change in elevation of approximately 35 feet over a horizontal distance of 670 feet. Level pads for the building have been constructed on the slope through shallow cuts and embankment fills. The buildings are supported on grade with portland cement concrete floor slabs. All utilities are underground.

The site does not contain any areas that meet the City of Kirkland Zoning Code Chapter 85 definition of Geologically Hazardous Areas.

SUBSURFACE CONDITIONS

The site is within an urban area, and the near-surface soil includes fill and disturbed native material from past development activities. The surficial geology is mapped as Vashon-age lodgment glacial till (Washington State Department of Natural Resources, online Washington Geologic Information Portal, 2022). The glacial till is typically composed of a variable mixture of silty sand and gravel, with cobbles and boulders, that is very dense.

Subsurface conditions at the site were explored by excavating 41 small test pit excavations at locations shown on Figure 3 through 6. The test pits were excavated with a tracked excavator to depths up to 6 feet BGS. The test pits were located adjacent to the perimeter wall of the building.

Subsurface conditions encountered in the test pits generally consist of locally derived fill overlying glacial till. The fill consists of loose to medium dense silty sand with gravel, and cobbles. The glacial



till consists of dense to very dense silty sand with gravel and cobbles. The subsurface conditions encountered at the base of the foundations are summarized on Figures 3 to 6 next to the exploration location.

At Building 1, fill is present below the foundation and excavation B1-B3 was extended to a depth of 3 feet (18-inches below bottom of foundation) to expose dense glacial till.

At all other building locations, very dense glacial till is present at the base of the foundation.

It should be noted that the depth to the base of the foundation is variable at each building location. The depth to the bottom of the footing (BOF), as measured from the existing ground surface at the exploration location, is indicated at each exploration location on Figure 3 through 6. Additional information indicates the thickness of the footing (FD) and the distance that the foundation extends out from the stem wall (FS).

Groundwater was not encountered in any of the explorations.

CONCLUSIONS and RECOMMENDATIONS

The explorations indicate the buildings are supported on conventional shallow foundations with stem walls of varying height. Soil conditions encountered at each of the building are summarized below:

- **Building 1:** Foundations supporting Building 1, located on the west side of the complex, are supported on medium dense to dense fill material, that overlies very dense glacial till. Glacial till is present at depth of approximately 6.5 feet BGS.
- Buildings 2 through 8, 11 through 14, 16, 18, 20 through 22, 24, and 25: Foundations supporting these buildings are all supported on dense glacial till.

FOUNDATION SUPPORT - SHALLOW SPREAD FOOTINGS

The existing buildings are supported on shallow foundations bearing in the medium dense fill or on dense glacial till. Allowable foundation bearing pressure to evaluate the existing foundations or to design new foundations are provided below.

At Building 1, where the existing foundation is supported on medium dense to dense fill, we recommend an allowable bearing pressure of 3,000 psf.

At all other building locations, the existing foundations are supported on dense glacial till and we recommend an allowable bearing pressure of 5,000 psf.

These are net bearing pressures; the weight of the footing and overlying backfill can be ignored in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead



plus long-term live loads and may be increased by one-third for short-term loads, such as those resulting from wind or seismic forces.

New continuous and/or isolated spread footings should be at least 18 and 24 inches wide, respectively. The bottom of exterior footings should be at least 18 inches below the adjacent exterior grade for frost heave protection, and interior footings should be at least 12 inches below the top of the slab.

Resistance to Sliding

Wind, earthquake, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral loads on footings can be resisted by passive earth pressure on the sides of the structure and by friction on the base of the footings. An allowable passive resistance may be calculated as a triangular equivalent fluid pressure distribution, using an equivalent fluid density of 300 pcf, provided the footings are cast directly against properly placed and compacted structural fill and the footing is above the groundwater table.

Adjacent floor slabs, pavement, or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance. For footings in contact with granular backfill, a coefficient of friction equal to 0.35 may be used. A safety factor of 1.5 has been applied to the recommended sliding friction and passive pressure.

Settlement

Based on our analysis, total post-construction static (consolidation-induced) settlement for new conventional and semi-rigid foundation systems should be less than $\frac{1}{2}$ inch, with differential settlement of up to $\frac{1}{4}$ inch.

SEISMIC DESIGN CRITERIA

Moderate to high levels of earthquake shaking should be anticipated during the design life of the buildings and they should be designed to resist earthquake loading in accordance with the appropriate code-based methodology described in ASCE 7-16. The recommended seismic design parameters are presented in Table 1.



Seismic Design Parameter	Short Period	1 Second Period		
MCE Spectral Acceleration	S _s = 1.267 g	S ₁ = 0.444 g		
Site Class	С			
Site Coefficient	F _a = 1.2	F _v = 1.5		
Adjusted Spectral Acceleration	S _{MS} = 1.52 g	S _{M1} = 0.666 g		
Design Spectral Response Acceleration Parameters	S _{DS} = 1.014 g	S _{D1} = 0.444 g		

Table 1. IBC Seismic Design Parameters (ASCE 7-16)

Based on our subsurface exploration, literature review, and experience, a summary of the seismic hazards in the area and their associated impact at the site are as follows:

- **Amplification:** Areas subject to amplification are typically soft soil overlying stiff soil or bedrock. Based on our explorations and available geologic maps, the site is underlain by glacially consolidated deposits. In our opinion, this material has a low potential for site amplification.
- Liquefaction/Settlement: Based on the results of our explorations, the site is underlain by dense glacial deposits; groundwater was not observed above the dense glacial deposits. In our opinion, the potential for liquefaction is low for the site.
- Lateral Spreading: Areas subject to lateral spreading are typically gently sloping or flat sites underlain by liquefiable sediments adjacent to an open face (such as riverbanks or bay fronts). Liquefied soil adjacent to open faces may "flow" in that direction, resulting in lateral displacement and surface cracking. There is no potential for the site to be affected by lateral spreading.
- Fault Surface Rupture: We did not find evidence of faults through the site or on maps of the area. We conclude that the potential for fault surface rupture at the site is low over the life of the structure.

• • •

We appreciate the opportunity to provide this information. Please contact us if you have questions or require further information.

ATTACHMENTS: Figure 1 – Vicinity Map Figure 2 – Site Plan Figure 3 through Figure 6 – Exploration Locations and Summary of Conditions



KJL:kt Attachments One copy submitted (via email only) Document ID: KCHA-38-01-030122-geom.docx © 2022 NV5 All rights reserved.



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ND: P BOF	BORING BOTTOM OF FOUNDATION MEASUREMENT. IT IS REFERENCED TO THE BOTTOM OF THE	IONS	FIGURE 4
FS FD	METAL SIDING ON THE BUILDING. BOTTOM OF THE SIDING WAS VARIES FROM 0 TO 12 INCHES ABOVE THE GROUND SURFACE. FOOTER STICKOUT FROM STEM WALL FOOTER DEPTH VERY DENSE GLACIAL TILL - ALLOWABLE BEARING PRESSURE 5,000 PSF	SITE PLAN - SUMMARY OF SUBSURFACE CONDIT	KIRKLAND HEIGHTS IMPROVEMENTS KIRKLAND, WA
		KCHA-38-01	FEBRUARY 2022
TE PLAN DPOGRA EPARED	0 40 80 (SCALE IN FEET) BASED ON IMAGE OF SHEET 3 BOUNDARY/ WHIC SURVEY DATED MARCH 19, 2021 O BY CORE DESIGN	NIVIE	



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