Brandt Design Group

66 Bell Street, Unit #1 Seattle, WA 98121 206.239.0850

November 17, 2022

Gareth Reece
Senior Plans Examiner
City of Mercer Island Community Planning and Development

RE: Permit 2109-150 SUB2 Correction Comment Responses
Site Address: 9611 SE 72nd Street

Dear Mr. Reece,

We received your correction comments dated 05/14/22, responses are provided below. Please also reference the updated drawing that have been uploaded to the MIePlan FTP Site.

Non-Structural:

1. We do not find any notes on the drawings addressing the interconnection of smoke alarms and carbon monoxide alarms as required in IRC R314.4 and R315.5. Provide notes on the drawings addressing the interconnectivity requirement.

   Response: Notes regarding interconnectivity requirement have been added to Sheet G000.

2. Adhered masonry veneer is required to have the following clearances per IRC R703.12.1: 4" minimum above the earth, 2" minimum above paved areas, and 1/2" minimum above exterior walking surfaces which are supported by the same foundation that supports the exterior wall. Please show these clearances on the drawings.

   Response: Stone veneer has been eliminated from the project scope, all drawings have been updated.

Energy and Ventilation:

1. Energy Credit Option 2.2 has been selected per WSEC Table R406.3 for Air Leakage Control and Efficient Ventilation. This requires the tested air leakage rate in WSEC 402.4.1.2 to be reduced to 2.0 air changes per hour maximum at 50 Pascals. The parameters added to Sheet G001 are for R-2 Occupancies, which does not apply. Please revise your notes.

   Response: This note has been revised.

Geotechnical:

1. A statement of risk is required by MICC 19.07.160 (B)(3) for projects in mapped geologically hazardous areas. For this scope of work, recommendations should be appropriate to allow your geotechnical professional to provide statement (c). Please have your geotechnical professional review the project, confirm that it conforms to recommendations, and provide the appropriate statement.

   Response: Per coordination with Michele Lorilla and a SUB 2 correction comment received by her to cover this, statement of risk will be provided once all reviews are completed and prior to permit issuance. Her comment follows, "When there are no additional review comments, we can notify the applicant so that PanGeo can conduct their final plan review and provide the statement of risk required in MICC 19.07.160.B.3."

2. Submit a letter from the geotechnical engineer that indicates that the final plans have been reviewed and that the plans are consistent with the recommendations of the geotechnical report.

   Response: The resubmitted documents have been coordinated with the submitted addendum and have been reviewed by the geotechnical engineer. Per coordination with Michele Lorilla and Norine Allerdice a letter will be provided once all reviews are completed and prior to permit issuance, see above.

3. Pages 3 & 4 of the January 6, 2022, PanGeo addendum letter provides specific requirements for weepholes and drainage strips at concrete walls cast against permanent soldier pile walls. We find weepholes added to Details 7 & 8/S3.3, but we do not find drainage strips. The geotechnical engineer should clarify what drainage strips means so that this can be incorporated into the design.

   Response: The notes regarding drainage strips required have been revised. The geotechnical engineer has clarified that all wall drainage not addressed by free-draining backfill shall be specified as Miradrain 6000 or equivalent, which is referenced in their geotechnical report dated September 7, 2021, page 9.

Structural: General

1. Please be aware that we received supplemental structural calculations dated April 19, 2022, that only contained retaining wall calculations. Comments have been repeated where we were referred to other revised calculations that we did not receive, particularly relating to the revised lateral design.

   Response: Please see calculations provided.

2. The Structural Notes, Sheet S1.1, indicate that 5 psf was used for (future) photovoltaic panels on the roof; however, page 2 (of 117) of the original calculations shows that only 4 psf was used in the design. Updated calculations were not received.

   Response: Please see attached calculations provided.

3. The Mercer Island Cover Sheet and Structural Notes should coordinate with the parameters for this project. Where updates are needed to the MI Cover Sheet, you indicated this was done; however, we did not receive an updated MI Cover Sheet. We have repeated the outstanding items below:

   a. Prefabricated connector plate wood roof trusses need to be checked off on the MI Cover Sheet as a deferred submittal.
   b. Verification of soil bearing, verify fill material and compaction, as well as pile placement (auger cast/driven pile) all need to be checked off under Soils/Geotechnical on the MI Cover Sheet.
   c. Epoxy and screw anchors are noted as requiring special inspection in the Structural Notes; this should be indicated on the MI Cover Sheet as well.
   d. Except at shoring, the Structural Notes indicate that special inspection is not required for concrete yet it is specified on the MI Cover Sheet. Clarify intent.
   e. The Quality Assurance notes on Sheet SH1.1 indicate driven deep foundations; however, cast-in-place deep foundation are used for the auger cast soldier piles per IBC 1705.8. Update the MI Cover Sheet accordingly..

   Response: The updated coversheet was submitted, we have submitted it once again with the repeated noted revisions below – it is titled '9611 SE 72ND ST_01_SINGLE FAMILY PLAN COVERSHEET.pdf'. Please reach out to me via email if you are not seeing this file in the resubmittal portal: kate@brandtdesigninc.com

   a. This has been updated on the MI coversheet.
   b. This has been updated on the MI coversheet.
   c. This has been updated on the MI coversheet.
   d. Special inspection is not required for concrete. Per general note 16, all concrete elements are designed for 2500 psi.
   e. Please refer to revised general notes on SH1.1 for revised Quality Assurance notes to include auger cast solider piles.

Structural: Shoring

4. Page 3 of the January 6, 2022, PanGeo addendum letter indicates that 2 or 3 soldier piles should be added to the south side of the excavation for the garage. We do not find this incorporated into the design; see Sheet SH2.1.

   Response: Per email correspondence with Michele Lorilla on 05/11/22 we noted discrepancy between the 01/06/22 addendum and coordination that followed with the geotechnical and

structural engineers. We have confirmed with PanGeo that shoring is not required on the south side of the subject site. Please refer to the submitted addendum and site sections on Sheet A101 showing that a 1H:1V temporary cut slope can be achieved within the property boundary of the subject site. Michele Lorilla noted via email on 05/24/22 that this resolves the correction comment.

5. Pages 3 & 4 of the January 6, 2022, PanGeo addendum letter provides specific requirements for weepholes and drainage strips at concrete walls cast against permanent soldier pile walls. We find weepholes added to Details 7 & 8/S3.3, but we do not find drainage strips. The geotechnical engineer should clarify what drainage strips means as well.

   Response: The notes regarding drainage strips required have been revised. The geotechnical engineer has clarified that all wall drainage not addressed by free-draining backfill shall be specified as Miradrain 6000 or equivalent, which is referenced in their geotechnical report dated September 7, 2021, page 9.

6. The computer outputs for the piles (pages 90 – 155 of the original calculations) do not clearly indicate the design parameters used (input). Clarify and coordinate with Figure 7 of the geotechnical report. Additionally, the active pressure used for level backfill in Detail 3/SH4.1 is not consistent with the geotechnical recommendations. Updated calculations were not received.

   Response: Please see calculations provided.

7. It is unclear which piles, if any, considered sloped backfill as depicted in Detail 4/SH4.1. Indicate which piles considered this loading condition and demonstrate where loads are reflected in the calculations.

   Response: Please see calculations provided.

8. Special inspection of erection of precast concrete members for the shoring lagging is required per Item 10 of IBC Table 1705.3. Please update the MI Cover Sheet as well.

   Response: Please refer to SH1.1 for revised precast concrete inspection requirements

Structural: Lateral

9. Page 6 of the original calculations shows requirements for lateral forces along Grid 2 on the upper floor; however, the W2 shear wall shown on Sheet S2.3 and the HDU8 holdowns (now revised to HDU5 holdowns) on Sheet S2.2 do not meet the requirement of the original calculations. We did not receive updated calculations as referenced in your response letter.

Response: Please see calculations provided.

10. Page 6 of the original calculations shows requirements for lateral forces along Grid 3 on the upper floor. (2) CS16 holdown straps or equivalent are required. We now find HDU2 holdowns at the two 5'-6" shear wall segments between Grids A & B on Sheet S2.2; however, the total design has changed. We did not receive updated calculations as referenced in your response letter.

    Response: Please see calculations provided.

11. Page 6 of the calculations shows 7.86k of overturning force at the shear walls along Grid 5, Sheet S2.3. Justify capacity of CMST16 holdowns (now HDU4 Holdowns), Sheet S2.2, for this condition. We did not receive updated calculations as referenced in your response letter.

    Response: Please see calculations provided.

12. SDPWS 4.3.4 requires the shear capacity of shear walls with an aspect ratio greater than 2:1 to be multiplied by the Aspect Ratio Factor = 1.25 – 0.125h/bs. The maximum shear wall aspect ratio is limited to 3.5:1 for wood structural panels per SDPWS Table 4.3.4. Provide justification to show that short shear walls meet these code provisions as noted below. We did not receive updated calculations as referenced in your response letter, so our comment remains.
        a. At the upper floor shear walls on Sheet S2.3 and the main floor shear walls on Sheet S2.2 along Grid 5 there are 3' long shear walls with a height that exceeds the allowable aspect ratio.
        b. There are some short segments such as along Grid A at the upper floor shear walls, Sheet S2.3, that need to be evaluated.
        c. Evaluate the front garage walls.

    Response: Please see calculations provided. Page 11 addresses the lateral analysis of the garage walls.

13. Along the upper floor shear wall, Sheet S2.3, along Grid C, shears are collected along the floor diaphragm and transferred into the 2W2 shear walls. Address the following since we were not provided with updated drag strut calculations as noted in your response letter:
        a. Detail 11/S4.3 is cut where beam B2 is used as a drag strut. It appears B2 will be substituted for the rim. Please clarify detail to assure lateral load path.
        b. Straps are provided to collect shears along a 40'-length. Provide calculations justifying adequacy of the diaphragm and the straps for the forces along this reaction line.

    Response: Please see calculations provided.

14. There is a horizontal structural irregularity of re-entrant corners for this project per ASCE Table

12.3-1. Refer to Grids 3 & C. We do not find that the building was evaluated for this irregularity or details provided to address the design requirements. ASCE 12.3.3.4 requires design forces to be increased 25 percent for the following elements of the seismic force-resisting system: 1) connections of diaphragms to vertical elements and to collectors, and 2) collectors and their connections, including connections to vertical elements, of the seismic force-resisting system. We did not receive updated calculations as referenced in your response letter, so our comment remains.

Response: Please see calculations provided.

15. The north end of the shear wall along Grid 4 requires an HDU11 holdown per page 7 of the original calculations. Only an HDU5 (now an HDU8 Holdown) is called out on the Foundation Plan, Sheet S2.1. We did not receive updated calculations as referenced in your response letter so our comment remains.

    Response: Please see calculations provided.

16. Clarify how shears at the deck shown on the Main Floor Framing Plan, Sheet S2.2, are resolved. Evaluate shear transfer in Detail 9/S4.2 and 5/S4.3. You have indicated that the deck is now fully blocked and treated as a cantilevered diaphragm; however, we need to review your updated calculations.

    Response: Please see calculations provided.

Sincerely,

Kate Miller

Kate Miller, AIA
The Brandt Design Group