CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
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STAFF REPORT

CRITICAL AREA REVIEW 2 PERMIT

Project No.:	CAO24-004
Description:	A request for a Critical Area Review 2 Permit for the demolition of an existing garage and construction of a new garage with a second story accessory dwelling unit (ADU) located on a site containing geologically hazardous areas.
Applicant / Owner:	Siyao Wang / Buping Wang and Wanqui Yang
Site Address:	6450 E Mercer Way, Mercer Island, WA 98040; Identified by King County Assessor tax parcel number 3024059004.
Zoning District:	Single Family Residential (R-15)
Staff Contact:	Grace Manahan, Code Compliance Planner
Exhibits:	1. Development Application, received by the City of Mercer Island on February 25, 2024 2. Development Plan Set, dated June 13, 2024 and received June 13, 2024 3. Project Narrative, received February 25, 2024 4. Concurrent Review Request Form, dated February 25, 2024 and received February 25, 2024 5. Critical Areas Notice on Title, recorded May 23, 2024 under King County Recorder's Number 20240523000820 6. Hazard Report, generated by the City of Mercer Island on August 16, 2024 7. Determination of Complete Application, dated March 14, 2024 8. Notice of Application, dated March 18, 2024 9. City of Mercer Island Review Letters 9.1. Review Letter 1, dated April 30, 2024 9.2. Review Letter 2, dated June 21, 2024 10. Applicant Response to City of Mercer Island Review Letters. 10.1. Applicant Response to Review Letter 1, dated June 13, 2024 10.2. Applicant Response to Review Letter 2, dated June 27, 2024 11. Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering, dated October 5, 2023 and received February 25, 2024 12. Minimum risk letter prepared by Merit Engineering, dated June 9, 2024 and received June 13, 2024

13. Revised minimum risk letter prepared by Merit Engineering, dated June 26, 2024 and received June 27, 2024.
14. Notice of Decision, dated August 26, 2024

INTRODUCTION

I. Project Description

The applicant has requested approval of a Critical Area Review 2 Permit for the demolition of an existing garage and construction of a new garage with a second story ADU located on a site containing geologically hazardous areas.

The proposal consists of the following components:

1. A request to demolish an existing garage and construction of a new garage with a second story ADU within geologically hazardous areas subject to the standards of Mercer Island City Code (MICC) 19.07.160, Geologically hazardous areas.

II. Site Description and Context

1. The proposed activity is to occur at 6450 E Mercer Way, Mercer Island, WA 98040. The site is designated Single Family Residential (zoned R-15). Adjacent properties are within the R-15 zone and contain residential uses. The subject site contains potential landslide, erosion, and seismic geologically hazardous areas (**Exhibit 6**).

Findings of Fact & Conclusions of Law

III. Application Procedure

1. The application for a Critical Area Review 2 Permit was received by the City of Mercer Island on February 25, 2024. The application was determined to be complete on March 14, 2024 (**Exhibit 7**).
2. Under MICC 19.15.030, Table A, applications for Critical Area Review 2 Permits must undergo Type III review. Type III reviews require notice of application (discussed below). A notice of decision is issued once the project review is complete.
3. The City of Mercer Island provided public notice of application for this Critical Area Review 2 Permit, as set forth in MICC 19.15.090 (**Exhibit 8**). The comment period for the public notice period lasted for 30 days, from March 18, 2024 to April 17, 2024. The following methods were used for the public notice of application:
    1) A mailing sent to neighboring property owners within 300 feet of the subject parcel.
    2) A sign posted on the subject parcel.
    3) A posting in the City of Mercer Island's weekly permit bulletin.

IV. State Environmental Policy Act (SEPA)

The proposal is categorically exempt from SEPA pursuant to WAC 197-11-800(1)(b)(ii).

V. Consistency with the Critical Areas Code and Land Development Code

1. MICC 19.07.070 lists requirements for disclosure and notice on title. The applicant shall disclose to the city the presence of critical areas on the development proposal site and any mapped or identifiable critical areas within the distance equal to the largest potential required buffer applicable to the development proposal on the development proposal site.

a. The owner of any property containing critical areas and/or buffers on which a development proposal is submitted, except a public right-of-way or the site of a permanent public facility, shall file a notice approved by the city with the records and elections division of King County. The notice shall inform the public of the presence of critical areas, buffers and/or mitigation sites on the property, of the application of the city's critical areas code to the property and that limitations on actions in or affecting such critical areas and/or buffers may exist. The notice shall run with the land in perpetuity.

b. The applicant shall submit proof to the city that the notice has been recorded prior to approval of a development proposal for the property or, in the case of subdivisions, short subdivisions, and binding site plans, at or before recording of the final subdivision, short subdivision, or binding site plan.

Staff Analysis: A Critical Areas Notice on Title was recorded with the King County Recorder's Office on May 23, 2024 (**Exhibit 5**); therefore, this requirement is met.

2. MICC 19.07.090 describes the purpose and procedures by which the city will review and authorize development and verify consistency with this chapter.

   a. Critical Area Review 2. The purpose of a critical area review 2 is to review critical area studies and mitigation plans in support of proposed buffer averaging and reduction of wetland and watercourse buffers.

   b. Review timing and sequence.

      A. When development and/or activity within a wetland, watercourse, fish and wildlife habitat conservation area or buffer associated with these critical area types is proposed, a critical area review 2 is required to be reviewed and approved prior to construction authorization.

      B. When development and/or activity is proposed on a site containing only geologically hazardous areas, an application has the option of either:

         i. Applying for a critical area review 2 in advance of construction permits, using the procedures required for a Type III land use review; or

         ii. Requesting consolidation of the review of geologically hazardous areas together with construction permit review.

      C. When development and/or activity is proposed on a site containing geologically hazardous areas and on or more of the critical area types listed in subsection (B)(2)(a) of this section or the associated buffer of one of those critical areas, a critical area review 2 reviewing all critical areas is required to be reviewed and approved prior to construction authorization, using the procedures required for a Type III land use review.

   Staff Analysis: The applicant submitted a Concurrent Review Request Form (**Exhibit 4**) requesting consolidated review of the Critical Area Review 2 and associated building permit application; therefore, the application is consistent with the review timing and sequence requirements.

3. MICC 19.07.100 lists requirements for mitigation sequencing. An applicant for a development proposal or activity shall implement the following sequential measures, listed below in order of preference, to avoid, minimize, and mitigate impacts to environmentally critical areas and associated buffers. Applicants shall document how each measure has been addressed before considering and incorporating the next measure in the sequence:

a. Avoiding the impact altogether by not taking a certain action or parts of an action. The applicant shall consider reasonable, affirmative steps and make best efforts to avoid critical area impacts. However, avoidance shall not be construed to mean mandatory withdrawal or denial of the development proposal or activity if the proposal or activity is an allowed, permitted, or conditional use in this title. In determining the extent to which the proposal should be redesigned to avoid the impact, the code official may consider the purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal and identified changes to the proposal. Development proposals should seek to avoid, minimize and mitigate overall impacts based on the functions and values of all of the relevant critical areas and based on the recommendations of a critical area study. If impacts cannot be avoided through redesign, use of a setback deviation pursuant to section 19.06.110(C), or because of site conditions or project requirements, the applicant shall then proceed with the sequence of steps in subsections B through E of this section;

b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, using a setback deviation pursuant to section 19.06.110(C), using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;

c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or

f. Monitoring the impact and taking appropriate corrective measures to maintain the integrity of compensating measures.

Staff Analysis: The applicant provided a Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**) which addresses mitigation sequencing for the proposed development. The entire development site is encumbered by potential slide, seismic and erosion geologically hazardous areas (**Exhibit 6**), therefore; avoiding the impact altogether is not possible. The applicant proposes to minimize the impact by proposing work in the same location as the existing garage to minimize impacts and designing the project to provide substantial improvement for seismic hazard protection. Temporary erosion control measures will be implemented during site work. The project also includes the restoration of the affected environment through the proposed landscaping plan, which includes the landscaping of all disturbed areas outside the proposed building footprint (**Exhibit 2, Sheet A1.06**).

4. MICC 19.07.110 lists requirements for a critical area study. A critical area study is required when a development proposal will result in an alteration to one or more critical area buffers or when required to determine the potential impact to a critical area. The critical area study may be waived or modified if the applicant demonstrates that the development proposal will not have an impact on the critical area or its buffer in a manner contrary to the purposes and requirements of this chapter.

   Staff Analysis: The applicant submitted a Geotechnical Engineering Study and Critical Area Study, prepared by Merit Engineering. (**Exhibit 11**); therefore, this requirement is met for the alteration to one or more critical areas.

5. MICC 19.07.160 lists standards for development on sites containing geologically hazardous areas.

A. Geologically hazardous areas are lands that are susceptible to erosion, landslides, seismic events, or other factors as identified by WAC 365-190-120. These areas may not be suited for development activities because they may pose a threat to public health and safety. Areas susceptible to one or more of the following types of hazards shall be designated as geologically hazardous areas: landslide hazard areas, seismic hazard areas, and erosion hazard areas.

Staff Analysis: The subject site contains landslide, seismic, and erosion hazard areas (**Exhibit 6**).

B. Alteration within geologically hazardous areas or associated buffers is required to meet the standards in this section, unless the scope of work is exempt pursuant to section 19.07.120, exemptions, or a critical area review 1 approval has been obtained pursuant to section 19.07.090(A).

1. When an alteration within a landslide hazard area, seismic hazard area or buffer associated with those hazards is proposed, the applicant must submit a critical area study concluding that the proposal can effectively mitigate risks of the hazard. The study shall recommend appropriate design and development measures to mitigate such hazards. The code official may waive the requirement for a critical area study and the requirements of subsections (B)(2) and (B)(3) of this section when he or she determines that the proposed development is minor in nature and will not increase the risk of landslide, erosion, or harm from seismic activity, or that the development site does not meet the definition of a geologically hazardous area.

   Staff Analysis: The Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**), found that, provided the recommendations presented in the report and addendum are followed during project design and construction, the proposal would not result in adverse impacts to critical areas on the site or neighboring properties.

2. Alteration of landslide hazard areas and seismic hazard areas and associated buffers may occur if the critical area study documents find that the proposed alteration:

   a. Will not adversely impact other critical areas;

   b. Will not adversely impact the subject property or adjacent properties;

   c. Will mitigate impacts to the geologically hazardous area consistent with best available science to the maximum extent reasonably possible such that the site is determined to be safe; and

   d. Includes the landscaping of all disturbed areas outside of building footprints and installation of hardscape prior to final inspection.

   Staff Analysis: The Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**), states that provided the recommendations in the report are followed, the planned development will not adversely impact the stability of the neighboring properties or result in a need for increased critical area buffers on those adjacent properties. The proposed development includes a landscaping plan that includes the landscaping of all disturbed areas outside of the building footprints and installation of hardscape, required prior to final inspection (**Exhibit 2, Sheet A1.06**).

3. Alteration of landslide hazard areas, seismic hazard areas and associated buffers may occur if the conditions listed in subsection (B)(2) of this section are satisfied and the geotechnical professional provides a statement of risk matching one of the following:

    a. An evaluation of site-specific subsurface conditions demonstrates that the proposed development is not located in a landslide hazard area or seismic hazard area;

    b. The landslide hazard area or seismic hazard area will be modified or the development has been designed so that the risk to the site and adjacent property is eliminated or mitigated such that the site is determined to be safe;

    c. Construction practices are proposed for the alteration that would render the development as safe as if it were not located in a geologically hazardous area and do not adversely impact adjacent properties; or

    d. The development is so minor as not to pose a threat to the public health, safety and welfare.

    Staff Analysis: The minimum risk letter prepared by Merit Engineering (**Exhibit 13**) includes the following statement of risk, matching statement (a) above:

    "Based on our site-specific subsurface evaluation the proposed development is not within a landslide hazard area or seismic hazard area"

C. Development is allowed within landslide hazard areas and associated buffers, when the following standards are met:

1. A critical area study shall be required for any alteration of a landslide hazard area or associated buffer;

2. Buffers shall be applied as follows. When more than one condition applies to a site, the largest buffer shall be applied:

    a. Buffer widths shall be equal to the height of a steep slope, but not more than 75 feet, and applied to the top and toe of slopes;

    b. Shallow landslide hazard areas shall have minimum 25-foot buffers applied in all directions; and

    c. Deep-seated landslide hazard areas shall have 75-foot buffers applied in all directions.

Staff Analysis: The applicant submitted a Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**) for the alteration of the landslide hazard area. The subject property is entirely encumbered by a potential landslide hazard area; therefore, buffers cannot be applied from the edge of the landslide hazard area.

D. When development is proposed within a seismic hazard area:

1. A critical area study shall be required and shall include an evaluation by a qualified professional for seismic engineering and design, a determination of the magnitude of seismic settling that could occur during a seismic event, and a demonstration that the risk associated with the proposed alteration is within acceptable limits or that appropriate construction methods are provided to mitigate the risk of seismic settlement such that there will be no significant impact to life, health, safety, and property.

2. Seismic hazard areas shall be identified by a qualified professional who references and interprets information in the U.S. Geological Survey Active Faults Database, performs on-site evaluations, or applies other techniques according to best available science.

3. When development is proposed on a site with an active fault, the follow provisions shall apply:

   a. A 50-foot minimum buffer shall be applied from latest Quaternary, Holocene, or historical fault rupture traces as identified by the United States Geological Survey or Washington Geological Survey map databases or by site investigations by licensed geologic professionals with specialized knowledge of fault trenching studies; or

   b. Mitigation sequencing shall be incorporated into the development proposal as recommended based on geotechnical analysis by a qualified professional to prevent increased risk of harm to life and/or property.

Staff Analysis: The Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**) finds that the very dense till soil on the property will support the development and have a low potential of seismic liquefaction; therefore, no further measures are needed to mitigate the mapped seismic hazard.

E. When development is proposed within an erosion hazard area:

1. All development proposals shall demonstrate compliance with chapter 15.09, storm water management program.

2. No development or activity within an erosion hazard area may create a net increase in geological instability on or off site.

Staff Analysis: The development proposal was approved by Ruji Ding, Senior Development Engineer, who reviewed the development proposal for compliance with chapter 15.09. The Geotechnical Engineering Study and Critical Area Study prepared by Merit Engineering (**Exhibit 11**) finds that excavation and construction of the planned construction can be accomplished without adverse erosion impacts to the site and surrounding properties by exercising care and being proactive with the maintenance and potential upgrading of the erosion control system through the entire construction process.

CONDITIONS OF APPROVAL

1. The project proposal shall be in substantial conformance with **Exhibit 2** and all applicable development standards contained within Chapter 19.07 Mercer Island City Code (MICC).
2. The applicant is responsible for documenting any required changes in the project proposal due to conditions imposed by any applicable local, state and federal government agencies.
3. Construction or substantial progress toward construction of a development for which a permit has been granted must be undertaken within three years after the approval of the permit or the permit shall terminate. The code official shall determine if substantial progress has been made.
4. Landscaping of all disturbed areas outside of building footprints and installation of hardscape is required prior to final inspection of the associated building permit.

DEVELOPMENT REGULATION COMPLIANCE – DISCLOSURE

1. The applicant is responsible for obtaining any required permits or approvals from the appropriate Local, State, and Federal Agencies.
2. All required permits must be obtained prior to the commencement of construction.

DECISION

Based upon the above noted Findings of Fact and Conclusions of Law, Critical Area Review 2 Permit application CAO24-004, as depicted in **Exhibit 2**, is hereby **APPROVED**. This decision is final, unless appealed in writing consistent with adopted appeal procedures, MICC 19.15.130(A), and all other applicable appeal regulations.

Approved this 26th day of August, 2024

Grace Manahan

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Grace Manahan
Code Compliance Planner
Community Planning & Development
City of Mercer Island

WANG & YANG ADU

6450 E MERCER WAY

MERCER ISLAND, WA 98040

GENERAL NOTES

GENERAL:

THESE DRAWINGS ARE THE PROPERTY OF THE ARCHITECT AND MAY BE REPRODUCED ONLY WITH THE WRITTEN PERMISSION OF THE ARCHITECT. AUTHORIZED REPRODUCTIONS MUST BEAR THE NAME OF THE ARCHITECT. THESE DRAWINGS ARE FULLY PROTECTED BY FEDERAL AND STATE COPYRIGHT LAWS. ANY INFRINGEMENT WILL BE VIGOROUSLY PROSECUTED.

ALL CONSTRUCTION SHALL CONFORM TO THE *2018 INTERNATIONAL RESIDENTIAL CODE (IRC)* AS AMENDED BY THE STATE OF WASHINGTON AND BE IN ACCORDANCE WITH WASHINGTON STATE LAWS, REGULATIONS AND VARIOUS CODES IMPOSED BY LOCAL AUTHORITIES.

DO NOT SCALE DRAWINGS OR DETAILS - USE GIVEN DIMENSIONS. CHECK DETAILS FOR LOCATION OF ALL ITEMS NOT DIMENSIONED ON THE PLANS. DIMENSIONS ON THE PLANS ARE TO FACE OF FRAMING OR CENTERLINE OF COLUMNS UNLESS NOTED OTHERWISE.

DOOR AND CASED OPENINGS WITHOUT DIMENSIONS ARE TO BE 4" FROM FACE OF ADJACENT WALL OR CENTERED BETWEEN WALLS, UNLESS NOTED OTHERWISE.

VERIFY FIELD CONDITIONS PRIOR TO COMMENCEMENT OF EACH PORTION OF THE WORK.

THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF THE WORK AS DESCRIBED IN THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT FOR RESOLUTION OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSIBILITY:

CONTRACTOR TO VERIFY ALL DIMENSIONS AND STRUCTURAL MEMBER SIZES PRIOR TO CONSTRUCTION. CONTRACTOR TO INFORM ARCHITECT OF ANY DISCREPANCIES IN THE DRAWINGS OR FROM THE CODES.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER / ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

ALL STRUCTURAL SYSTEMS SUCH AS WOOD TRUSSES WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

CONTRACTOR TO COORDINATE FRAMING LAYOUT WITH ELECTRICAL AND MECHANICAL PLAN.

SOILS:

UNLESS A SOILS REPORT BY A SOILS ENGINEER IS PROVIDED AND ATTACHED THIS OFFICE ASSUMES NO RESPONSIBILITY AS TO THE PHYSICAL CHARACTERISTICS OF THE SOIL. FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 2,000 PSF. ALL FOOTINGS SHALL BE CAST ON UNDISTURBED FIRM NATURAL SOIL OR COMPACTED SOIL OF 2,000 PSF BEARING CAPACITY AT LEAST 1'-6" BELOW LOWEST ADJACENT GRADE, FREE OF ORGANIC MATERIALS. FOOTING EXCAVATION SHALL BE FREE OF LOOSE SOILS, DEBRIS, AND FREE OF WATER AT ALL TIMES. THIS OFFICE TAKES NO RESPONSIBILITY IN VERIFYING THE ACCURACY OF ENGINEERING DATA SUPPLIED BY OTHERS.

CLEARING AND GRADING (T.E.S.C. MEASURES):

ALL CLEARING AND GRADING MUST BE IN ACCORDANCE WITH LOCAL JURISDICTION CLEARING AND GRADING EROSION CONTROL STANDARDS, DEVELOPMENT STANDARDS, LAND USE CODE, INTERNATIONAL RESIDENTIAL CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES AND STANDARDS. THE DESIGN ELEMENTS WITH THESE PLANS HAVE BEEN REVIEWED TO THESE REQUIREMENTS. ANY VARIANCE FROM THE ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.

A COPY OF THE APPROVED PLANS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.

ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE EFFECTED BY THE WORK.

FINAL SITE DRAINAGE MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM OF 6" WITHIN THE FIRST 10'. *Ref IRC R401.3*

CRAWL SPACE:

UNDER-FLOOR AREAS SHALL BE VENTED BY AN APPROVED MECHANICAL MEANS OR BY OPENINGS IN EXTERIOR FOUNDATION WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQ. FT. FOR EACH 150 SQ. FT. OF UNDER-FLOOR AREA. ONE OPENING SHALL BE WITHIN 3' OF EACH CORNER OF THE BUILDING. *Ref IRC R408.2*

CRAWL SPACE, UNOBSTRUCTED ACCESS, MINIMUM 18" x 24". *Ref IRC R408.4*

PROVIDE 18" MINIMUM CRAWL SPACE UNDER WOOD JOIST AND 12" MINIMUM CRAWL SPACE UNDER WOOD GIRDERS. *Ref IRC R317.1*

A GROUND COVER VAPOR BARRIER OF MIN. 6 MIL. (0.006") POLYETHYLENE (OR EQUIVALENT) SHALL BE INSTALLED IN ALL CRAWL SPACES, JOINTS LAPPED 12", EXTEND UP FOUNDATION WALL AND SECURE TO SILL PLATE WHEREVER PRACTICAL.

ALL WOOD IN CONTACT WITH CONCRETE, CMU OR WITHIN 8" OF SOILS SHALL BE PRESSURE TREATED WOOD. *Ref IRC R317.1*

GARAGES:

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. DOORS BETWEEN GARAGE AND DWELLING SHALL BE SOLID WOOD DOORS; MINIMUM 1 3/8" THICK WITH SELF CLOSING DEVICE. *Ref R302.5.1*

SEPARATION FROM DWELLING TO GARAGE, SHOP OR SIMILAR AREAS SHALL BE SEPARATED FROM RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT. *Ref IRC R302.6 & TABLE 302.6*

HEATING AND/OR COOLING EQUIPMENT LOCATED IN GARAGE SHALL BE INSTALLED WITH PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL. *Ref IRC G2408.2*

FIREPLACES:

FACTORY-BUILT FIREPLACES SHALL BE LISTED AND LABELED AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF THE LISTING. FACTORY-BUILT FIREPLACES SHALL BE TESTED IN ACCORDANCE WITH UL 127. *Ref IRC R1004.1*

MASONRY FIREPLACES, BARBECUES, SMOKE CHAMBERS AND FIREPLACE CHIMNEYS SHALL BE CONSTRUCTED OF MASONRY OR REINFORCED CONCRETE. FOUNDATIONS SHALL BE MIN. 12" THICK AND EXTEND MIN. 6" BEYOND MASONRY. FIREBOX WALLS MIN. 10" THICK EXCEPT MIN. 8" THICK WHERE A FIREBRICK LINING IS USED. COMBUSTIBLE MATERIALS SHALL NOT BE PLACED WITHIN 2 INCHES OF FIREPLACE. SMOKE CHAMBER OR CHIMNEY WALLS. COMBUSTIBLE MATERIAL SHALL NOT BE PLACED WITHIN 6" OF THE FIREPLACE OPENING. MIN. 4" THICK NON-COMBUSTIBLE HEARTH EXTENDING 16" IN FRONT AND 8" TO THE SIDE OF THE FIREPLACE OPENING. COMBUSTIBLE MATERIAL WITHIN 12" OF THE FIREPLACE OPENING SHALL NOT PROJECT MORE THAN 1/8" FOR EACH 1" DISTANCE FROM SUCH OPENING. *Ref IRC R1001 - R1003*

CEILING HEIGHTS:

HABITABLE SPACE SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0". NOT MORE THAN 50% OF REQUIRED FLOOR AREA OF A SPACE IS PERMITTED TO HAVE A SLOPED CEILING LESS THAN 7'-0" IN HEIGHT WITH NO PORTION LOWER THAN 5'-0". BATHROOM SHALL HAVE A MIN CEILING HEIGHT OF 6'-8" OVER THE FIXTURE AND ITS FRONT CLEARANCE AREA. *Ref IRC R305*

ROOFING:

APPLY ROOFING IN ACCORDANCE WITH *IRC R905.*

BALCONIES, LANDINGS, EXTERIOR STAIRWAYS, OCCUPIED ROOFS AND SIMILAR SURFACES EXPOSED TO THE WEATHER AND SEALED UNDERNEATH SHALL BE WATERPROOFED AND SLOPED A MINIMUM OF 1/4" PER 12" (2% SLOPE) FOR DRAINAGE.

ATTIC:

PROVIDE ATTIC VENTILATION AS INDICATED ON ROOF FRAMING PLANS. THE MINIMUM NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS SHALL BE LOCATED NOT MORE THAN 3 FEET BELOW THE RIDGE OR HIGHEST POINT OF THE SPACE, MEASURED VERTICALLY, WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. *Ref IRC R806.2*

ATTIC ACCESS SHALL HAVE A ROUGH FRAMED OPENING NOT LESS THAN 22 INCHES BY 30 INCHES LOCATED IN A READILY ACCESSIBLE LOCATION. THE MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES MEASURED VERTICALLY FROM THE BOTTOM OF THE CEILING FRAMING MEMBERS. *Ref IRC R807.* FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS *Ref IRC M1305.1.3*

GLAZING:

TO BE IN COMPLIANCE WITH IRC R308 AND WASHINGTON STATE SAFETY GLASS LAW.

GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS ON DOORS, GLAZING WITHIN 24" ON EITHER SIDE OF A DOOR OPENING, AREAS WITHIN 60" VERTICAL AND 36" HORIZONTAL OF THE BOTTOM LANDING OF A STAIRWAY, STORM DOORS, RAILINGS, SHOWER DOORS, SLIDING GLASS DOORS, AND TUB ENCLOSURES SHALL BE SAFETY GLAZING MATERIAL. *Ref IRC R308.4*

ALL EXTERIOR WALL GLAZING SHALL COMPLY WITH THE 2018 EDITION OF THE WASHINGTON STATE ENERGY CODE.

EGRESS:

EGRESS IN EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY EXIT WITH A MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. THE MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24" MINIMUM NET CLEAR OPENING WIDTH DIMENSION OF 20" AND A FINISHED SILL HEIGHT NOT MORE THAN 44" ABOVE THE FLOOR. IRC R310.1.

ONE EXIT DOOR CONFORMING TO IRC R311.2 IS REQUIRED.

FIRE & CARBON MONOXIDE PROTECTION:

SMOKE & CARBON MONOXIDE DETECTOR POWER SOURCES TO BE INSTALLED IN ACCORDANCE WITH NFPA 72, IRC R314 & IRC R315. ALL ALARM DEVICES SHALL BE INTERCONNECTED PER IRC R314.1.

FIREBLOCKING PER *IRC R1003.19, R1001.12, R302.11 & R602.8. DRAFTSTOPPING PER IRC R302.12 & R502.12.*

VENTILATION & LIGHTING:

HABITABLE ROOMS NOT PROVIDED WITH AN OPENABLE EXTERIOR OPENING OF AT LEAST 4% OF THE FLOOR AREA, A MECHANICAL VENTILATION SYSTEM MUST BE PROVIDED THAT PROVIDES MIN. .35 AIR CHANGES PER HOUR. *IRC R303.1.*

DRYER & BATH FANS TO BE 50 CFM, AND RANGE/OVEN FANS TO BE 100 CFM MIN, VENT TO THE OUTSIDE. *IRC303 AND 2006 WA STATE VENTILATION AND INDOOR AIR QUALITY CODE.*

NATURAL LIGHTING TO BE NOT LESS THAN 8% OF THE FLOOR AREA OR ALL HABITABLE SPACES. *IRC R303.*

STAIRS:

MINIMUM HEADROOM OF 6'-8" MEASURED VERTICALLY FROM A SLOPED PLANE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OR PLATFORM. IRC R311.7.2 MINIMUM WIDTH 36", *IRC 311.7.1*

MINIMUM TREAD 10", MAXIMUM RISER 7 3/4", HANDRAIL MINIMUM 34" AND MAXIMUM 38" ABOVE STAIR NOSING. HANDRAIL TO BE 1 1/4" TO 2" CROSS SECTION AND 1 1/2" AWAY FROM WALL. *IRC R311.7.5 & 311.7.8.* INSTALL FIRE BLOCKING AT MID STRINGER SPAN AND AT WALL ALONG STRINGER. COVER WALLS AND SOFFITS OF USABLE SPACE UNDER STAIR WITH 1/2" GYPSUM BOARD. *IRC R302.11*

GUARDRAILS: ANY WALKING SURFACE 30" OR MORE ABOVE GRADE OR ADJACENT SURFACE SHALL HAVE MIN. 36" HIGH GUARDRAIL. *IRC R312.*

BATHROOMS:

ALL TUB AND SHOWER STALLS SHALL HAVE FIREBLOCKING BETWEEN STUDS.

ALL GLAZING USED FOR DOORS OR ENCLOSURES IN BATHROOMS SHALL BE SAFETY GLAZING. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING A SHOWER OR BATHTUB WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60 INCHES ABOVE THE STANDING SURFACE AND DRAIN INLET SHALL BE SAFETY GLAZING. *IRC R308.4*

BATH TUB & SHOWER STALL NON-ABSORBENT WAINSCOTS SHALL BE A MINIMUM OF 72 INCHES ABOVE THE FLOOR. *IRC R307.2.*

WATERCLOSETS SHALL HAVE MIN. 15" TO SIDE WALLS FROM CENTER OF FIXTURE, AND MIN. 21" FRONT CLEARANCE. IRC R307.1

APPLIANCES IN A FIXED POSITION SHALL BE SECURELY FASTENED IN PLACE TO STRUCTURAL MEMBERS WITH STRAP ANCHORS OR SIMILAR ANCHORING METHOD.
IRC G2404.4



PROJECT DIRECTORY

GENERAL CONTRACTOR

Green Field RI Est & Invst LLC
Attn: Simon

22101 38th Ave SE, Bothell, WA 98021
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16night@gmail.com

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Siyao Studio
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Attn: Alex Yu

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ARBORIST

Tree Solutions
Attn: Charlie Vogelheim

2940 Westlake Ave N #200, Seattle, WA 98109
206.528.4670
charlie@treesolutions.net

Project Information	*Contact Information*
Wang & Yang ADU 6450 E Mercer Way, Mercer Island, WA 98040	Siyao Wang

Instructions: This single-family project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. Based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Provide all information from the following tables as building permit drawings: Table R402.1 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and 406.3 - Energy Credits.

Authorized Representative	Siyao Wang	Digitally signed by Siyao Wang Date: 2024.02.18 16:55:44 -08'00'	*Date*	02/18/2024

All Climate Zones (Table R402.1.1)	R-Value [a]	U-Factor [a]
Fenestration U-Factor [b]	n/a	0.28
Skylight U-Factor [b]	n/a	0.50
Glazed Fenestration SHGC [b,c]	n/a	n/a
Ceiling [i]	49	0.026
Wood Frame Wall [d,h]	21 int	0.056
Floor	38	0.029
Below Grade Wall [e,h]	10/15/21 int + TB	0.042
Slab [f,g] R-Value & Depth	10, 2 ft	n/a

a. *R-values are minimums. U-factors and SHGC are maximums.* When insulation is installed in a cavity that is less than the label or design thickness of the insulation, the compressed *R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.*
b. The fenestration U-factor column excludes skylights.
c. "10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21 +5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "5TB" means R-5 thermal break between floor slab and basement wall.
d. R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.
e. For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.
f. R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.
g. For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for *climate zone* 5 of ICC 400.
h. Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78% of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.

Summary of Table R406.2 and 406.3				
Heating Options	Fuel Normalization Descriptions	Credits - select ONE heating option		User Notes
1	Combustion heating minimum NAECA[a]	0.0	☐	
2	Heat pump[a]	1.0	☒	
3	Electric resistance heat only - furnace or zonal	-1.0	☐	
4	DHP with zonal electric resistance per option 3.4	0.5	☐	
5	All other heating systems	-1.0	☐	
Energy Options	**Energy Credit Option Descriptions**	**Credits - select ONE energy option from each category**		
1.1	[illegible]	0.5	☐	
1.2	Efficient Building Envelope	1.0	☐	
1.3	Efficient Building Envelope	0.5	☒	
1.4	Efficient Building Envelope	1.0	☐	
1.5	Efficient Building Envelope	2.0	☐	
1.6	Efficient Building Envelope	3.0	☐	
1.7	Efficient Building Envelope ☐	0.5	☐	
2.1	Air Leakage Control and Efficient Ventilation	0.5	☒	
2.2	Air Leakage Control and Efficient Ventilation	1.0	☐	
2.3	Air Leakage Control and Efficient Ventilation	1.5	☐	
2.4	Air Leakage Control and Efficient Ventilation ☐	2.0	☐	
3.1*	High Efficiency HVAC	1.0	☐	
3.2	High Efficiency HVAC	1.0	☐	
3.3*	High Efficiency HVAC	1.5	☐	
3.4	High Efficiency HVAC	1.5	☐	
3.5.1	High Efficiency HVAC	1.5	☐	
3.5.2	High Efficiency HVAC	1.5	☐	
3.6*	High Efficiency HVAC ☐	2.0	☐	
4.1	High Efficiency HVAC Distribution System	0.5	☒	
4.2	High Efficiency HVAC Distribution System ☐	1.0	☐	

Summary of Table R406.2 (cont.)				
Energy Options	**Energy Credit Option Descriptions (cont.)**	**Credits - select ONE energy option from each category**		**User Notes**
5.1*	Efficient Water Heating	0.5	☐	
5.2	Efficient Water Heating	0.5	☒	
5.3	Efficient Water Heating	1.0	☐	
5.4	Efficient Water Heating	1.5	☐	
5.5	Efficient Water Heating	2.0	☐	
5.6	Efficient Water Heating ☐	2.5	☐	
6.1*	Renewable Electric Energy (3 credits max)	1.0	☐	
7.1	Appliance Package	0.5	☐	
	Total Credits	3.0	Calculate Total	Clear Form

VICINITY MAP



PROJECT ADDRESS

6450 E MERCER WAY
MERCER ISLAND, WA 98040

LEGAL DESCRIPTION & TAX PARCEL NUMBER

POR OF GL 1 IN NE 1/4 BEG ON S LN OF N 498 FT OF SD GL 1646.58 FT E OF W LN SD NE 1/4 TH S 01-25-38 W
89.64 FT TH N 88-35-33 W 171.49 FT TH N 38-38-53 W 117.36 FT TO SD N 498 FT TH S 88-35-15 E 251.89 FT TO
BEG

TAX PARCEL NUMBER: 302405-9004

ZONING CLASSIFICATION

R-15

BUILDING CLASSIFICATION

OCCUPANCY (IBC Chapter 3 & 4)	R-3 (SINGLE FAMILY RESIDENCE)
CONSTRUCTION TYPE (IBC 602.5)	V-B
ALLOWABLE FLOOR AREA (IBC Table 506.2)	Unlimited
ALLOWABLE NO. OF STORIES (IRC R101.2)	3 STORIES ABOVE GRADE PLANE (4 Stories above grade plane are allowed per IBC Table 504.4 when structural design is in accordance with 2018 IBC)
ALLOWABLE BLDG HT IN FEET (IBC Table 504.3)	60'
FIRE PROTECTION SYSTEM	FULL COVERAGE NFPA 13D
SPRINKLERS	REQUIRED
ALTERNATIVE FIRE PROTECTIONS	1. UPGRADED FULL COVERAGE NFPA 13D (DEFERRED SUBMITTAL) 2. MONITORED FIRE ALARM SYSTEM (DEFERRED SUBMITTAL) 3. 1-HR RATED GYPSUM IN ALL AREAS 4. SOLID CORE DOORS * SEE **FIRE CODE ALTERNATE REQUEST**
COMPLIANCE WITH	**2018 INTERNATIONAL RESIDENTIAL CODE (IRC)**

BUILDING AREA CALCULATIONS

REFER TO SHEET A1.05 FOR GROSS FLOOR AREA CALCS

BUILDING HEIGHT CALCULATIONS

REFER TO SHEET A1.02 FOR HEIGHT CALCULATIONS

WET SEASON WORK

WET SEASON WORK IS NOT ALLOWED. REFER TO GEOTECHNICAL REPORT.

DRAWING INDEX

ARCHITECTURAL

A0.01	COVER SHEET
A1.00A	SURVEY
A1.00B	SURVEY
A1.02	ARCHITECTURAL DEMO SITE PLAN
A1.02	ARCHITECTURAL PROPOSED SITE PLAN
A1.03	LOT COVERAGE DIAGRAMS
A1.04	HARDSCAPE DIAGRAM
A1.05	GROSS FLOOR AREA & IMPERVIOUS
A1.06	LANDSCAPING PLAN
A2.01	MAIN FLOOR PLAN
A2.02	UPPER FLOOR PLAN
A2.03	ROOF PLAN
A3.01	EXTERIOR ELEVATIONS
A4.01	BUILDING SECTIONS
A5.01	WALL SECTIONS
A6.01	DOOR AND WINDOW SCHEDULES

STRUCTURAL

S1.0	GENERAL STRUCTURAL NOTES/SHEET INDEX
S1.1	GENERAL STRUCTURAL NOTES
S2.0	FOUNDATION PLAN
S2.1	UPPER FLOOR FRAMING PLAN
S2.2	ROOF FRAMING PLAN
S3.0	FOUNDATION DETAILS
S4.0	FRAMING SCHEDULES
S4.1	WOOD FRAMING DETAILS
S4.2	FLOOR FRAMING DETAILS
S4.3	ROOF FRAMING DETAILS

CIVIL

C01	DRAINAGE SITE PLAN
C02	TESC PLAN
C02.1	TESC DETAILS

SIYAO STUDIO

WANG & YANG ADU
6450 E MERCER WAY
MERCER ISLAND, WA 98040

Job No. 2303
Project Manager: SW
Issue Date: 6/13/2024

NO.	DATE	REVISION
1	10/17/2023	STRUCTURAL
2	12/01/2023	STRUCTURAL REV 1
3	12/07/2023	PRICING
4	12/16/2023	PRE-APP MEETING #2
5	02/25/2024	BUILDING PERMIT
6	06/13/2024	BUILDING PERMIT REV 1

COVER SHEET

A0.01

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TOPOGRAPHIC & BOUNDARY SURVEY

LEGAL DESCRIPTION

THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THOSE PORTIONS OF GOVERNMENT LOT 1 AND THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 30, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY WASHINGTON, LYING BETWEEN THE NORTH 498.00 FEET THEREOF AND THE SOUTH 471.00 FEET THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTH QUARTER OF SAID SECTION 30;
THENCE SOUTH 1°25'38" WEST ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 30, A DISTANCE OF 498.00 FEET;
THENCE SOUTH 88°32'59" EAST, PARALLEL TO THE NORTH LINE OF SAID NORTHEAST QUARTER, 1,646.58 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 01°25'38" WEST 89.64 FEET TO THE NORTH LINE OF GREGORY ADDITION, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 72 OF PLATS, PAGE 69, IN KING COUNTY, WASHINGTON;
THENCE NORTH 88°35'33" WEST ALONG SAID NORTH LINE 171.49 FEET;
THENCE NORTH 38°38'53" WEST 117.36 FEET TO THE SOUTH LINE OF SAID NORTH 498.00 FEET;
THENCE SOUTH 88°3515" EAST 251.89 FEET TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THAT PORTION OF PORTION OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER AND OF GOVERNMENT LOT 1 OF SAID SECTION 30, LYING BETWEEN THE NORTH 498.00 FEET THEREOF, AND THE SOUTH 471.00 FEET THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTH QUARTER CORNER OF SAID SECTION 30;
THENCE SOUTH 01°25'38" WEST, ALONG THE WEST LINE OF SAID NORTHEAST QUARTER, 498.00 FEET;
THENCE SOUTH 88°32'59" EAST, PARALLEL TO THE NORTH LINE OF SAID NORTHEAST QUARTER, 1,133.27 FEET TO THE TRUE POINT OF BEGINNING;
THENCE CONTINUING SOUTH 88°32'59" EAST 274.49 FEET;
THENCE SOUTH 38°38'53" EAST 104.58 FEET TO THE SOUTH LINE OF THE NORTH 578.00 FEET OF SAID GOVERNMENT LOT 1;
THENCE SOUTH 27°49'11" WEST 10.91 FEET;
THENCE NORTH 38°38'53" WEST 104.52 FEET;
THENCE NORTH 88°3533" WEST 260.25 FEET, MORE OF LESS, TO A POINT FROM WHICH THE TRUE POINT OF BEGINNING BEARS NORTH 41°49'00" WEST;
THENCE NORTH 41°49'00" WEST 13.76 FEET, MORE LESS, TO THE TRUE POINT OF BEGINNING;
EXCEPTING THEREFROM THAT PORTION LYING WITHIN THE ABOVE DESCRIBED MAIN TRACT.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

ACCEPTED A BEARING OF N 80°02'58" E BETWEEN SURVEY MONUMENTS FOUND AND SHOWN HEREON.

REFERENCES

R1. RECORD OF SURVEY, VOL. 022, PG. 021. RECORDS OF KING COUNTY, WASHINGTON.
R2. RECORD OF SURVEY, VOL. 017, PG. 168. RECORDS OF KING COUNTY, WASHINGTON.
R3. RECORD OF SURVEY, VOL. 014, PG. 031. RECORDS OF KING COUNTY, WASHINGTON.
R4. RECORD OF SURVEY, VOL. 097, PG. 160. RECORDS OF KING COUNTY, WASHINGTON.
R5. PLAT OF GREGORY ADDITION, VOL. 72 OF PLATS, PG 66, KING COUNTY WASHINGTON

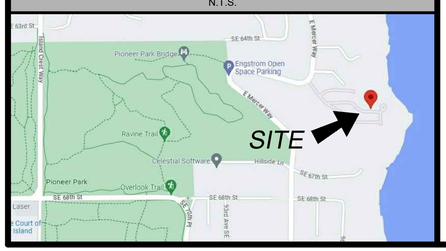
VERTICAL DATUM

NAVD 88 PER GPS OBSERVATIONS

SITE TEMP. BENCHMARK
DESCRIPTION: SET NAIL AT NORTH BASE OF POWER POLE
LOCATION: 6' EAST OF SW PROPERTY CORNER
ELEVATION: 63.88'

VICINITY MAP

N.T.S.



SCHEDULE B ITEMS

1. EASEMENT, EXCEPTIONS AND RESERVATIONS CONTAINED IN DEED
PURPOSE: USE ROAD AND TO LAY AND MAINTAIN WATER PIPELINES
RECORDED: MAY 23, 1927
RECORDING NO.: 2355301
"LOCATION UNSPECIFIED"

2. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
IN FAVOR OF: PUGET SOUND & LIGHT COMPANY, A WASHINGTON CORPORATION
PURPOSE: CONSTRUCT, OPERATE, MAINTAIN, REPAIR, REPLACE AND ENLARGE AN UNDERGROUND ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM UPON AND UNDER THE RIGHT-OF-WAY TOGETHER WITH ALL NECESSARY OR CONVENIENT APPURTENANT THEREFOR, WHICH MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: UNDERGROUND CONDUITS, CABLES, COMMUNICATION LINES; VAULTS, MANHOLES, SWITCHES AND TRANSFORMERS; AND SEMI-BURIED OR GROUND MOUNTED FACILITIES.
RECORDED: MARCH 29, 1938
RECORDING NO: 2990205
"AS CONSTRUCTED"

3. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:
IN FAVOR OF: PUGET SOUND & LIGHT COMPANY, A WASHINGTON CORPORATION
PURPOSE: CONSTRUCT, OPERATE, MAINTAIN, REPAIR, REPLACE AND ENLARGE AN UNDERGROUND ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM UPON AND UNDER THE RIGHT-OF-WAY TOGETHER WITH ALL NECESSARY OR CONVENIENT APPURTENANT THEREFOR, WHICH MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING: UNDERGROUND CONDUITS, CABLES, COMMUNICATION LINES; VAULTS, MANHOLES, SWITCHES AND TRANSFORMERS; AND SEMI-BURIED OR GROUND MOUNTED FACILITIES.
RECORDED: MARCH 29, 1938
RECORDING NO.: 2990210
"AS CONSTRUCTED"

4. EASEMENT FOR WATER PIPE LINES AND THE TERMS AND CONDITIONS THEREOF:
IN FAVOR OF: WATER DISTRICT NO. 93, KING COUNTY, WASHINGTON
PURPOSE: INSTALLING, CONSTRUCTING, MAINTAINING, OPERATING, REPAIRING AND REPLACING THE WATER PIPE LINE OR LINES AND ALL NECESSARY CONNECTIONS AND APPURTENANCES; TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS
RECORDED: DECEMBER 17, 1959
RECORDING NO: 5113737
"PLOTTED"

SCHEDULE B ITEMS

5. EASEMENT AS DISCLOSED BY STATUTORY WARRANTY DEED
PURPOSE: INGRESS AND EGRESS
RECORDED: APRIL 25, 1962
RECORDING NO: 5417239
"PLOTTED"

6. EASEMENT AS DISCLOSED BY QUIT CLAIM DEED
PURPOSE: INGRESS AND EGRESS
RECORDED: APRIL 28, 1969
RECORDING NO: 6502352
"PLOTTED"

7. NOTICE OF ADDITIONAL TAP OR CONNECTION CHARGES
RECORDING DATE: DECEMBER 6, 1977
RECORDING NO.: 7712060812
"NOT SURVEY RELATED"

8. WAIVER AND COVENANT NOT TO SUE ON CONSTRUCTION
RECORDING DATE: MAY 1, 1986
RECORDING NO.: 8605010369
"BLANKET IN NATURE"

9. COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH ON SURVEY:
RECORDING NO: 20170526900002
"CURRENT CONDITIONS SHOWN"

SURVEYOR'S NOTES

1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN APRIL OF 2023. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
3. THE TYPES AND LOCATIONS OF ANY UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED TO US, BY OTHERS OR GENERAL INFORMATION READILY AVAILABLE IN THE PUBLIC DOMAIN INCLUDING, AS APPLICABLE, IDENTIFYING MARKINGS PLACED BY UTILITY LOCATE SERVICES AND OBSERVED BY TERRANE IN THE FIELD. AS SUCH, THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE RELIED ON FOR DESIGN OR CONSTRUCTION PURPOSES; TERRANE IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OR COMPLETENESS OF THIS UTILITY INFORMATION. FOR THE ACCURATE LOCATION AND TYPE OF UTILITIES NECESSARY FOR DESIGN AND CONSTRUCTION, PLEASE CONTACT THE SITE OWNER AND THE LOCAL UTILITY LOCATE SERVICE (800-424-5555).
4. SUBJECT PROPERTY TAX PARCEL NO. 302405-9004
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 19,210 S.F. (0.44 ACRES)
6. ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM CHICAGO TITLE INSURANCE COMPANY'S "ALTA COMMITMENT", ORDER NO. 0200514-ETU, DATED FEBRUARY 4, 2021. IN PREPARING THIS MAP, TERRANE, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS TERRANE, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY THE REFERENCED "ALTA COMMITMENT". TERRANE, INC. HAS RELIED WHOLLY ON CHICAGO TITLE INSURANCE COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND TERRANE, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
7. EXISTING STRUCTURE(S) LOCATION AND DIMENSIONS ARE MEASURED FROM THE FACE OF THE SIDING UNLESS OTHERWISE NOTED.
8. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

LEGEND

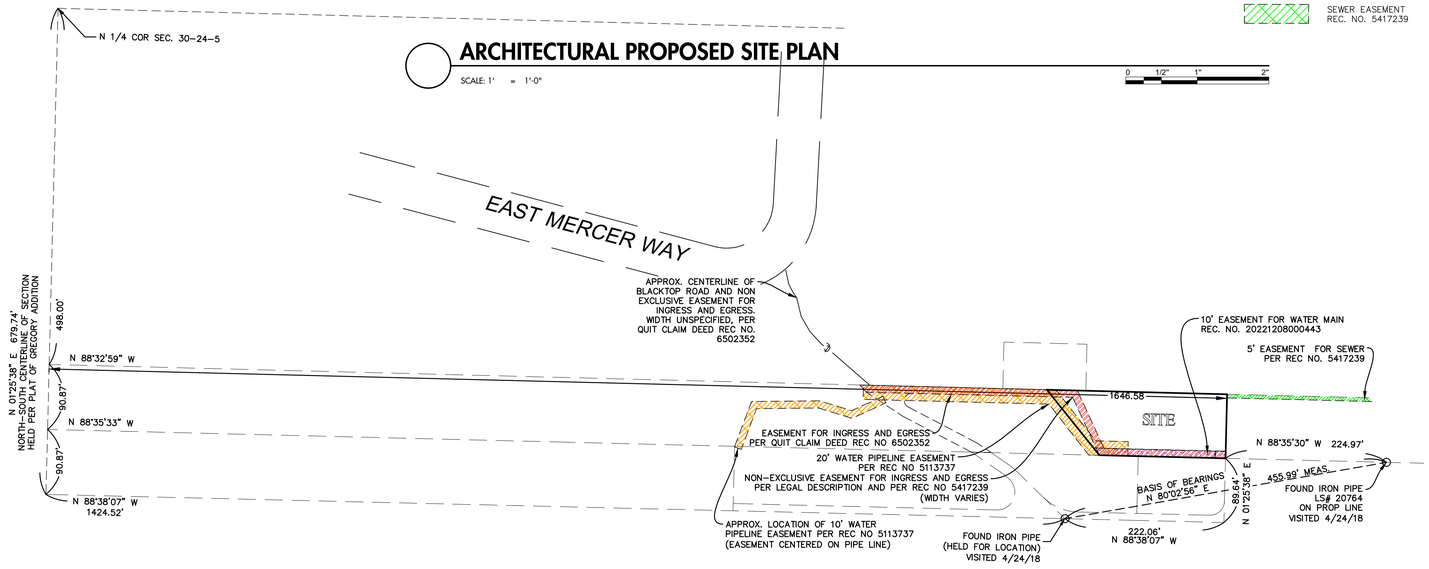
- ASPHALT SURFACE
- BENCHMARK
- BOL — BOLLARD
- BRICK SURFACE
- BUILDING
- CENTERLINE ROW
- SSCO — CLEANOUT
- CONCRETE SURFACE
- DECK
- FENCE LINE (CHAIN LINK)
- FENCE LINE (WIRE)
- FENCE LINE (WOOD)
- FIRE HYDRANT
- FLAGSTONE SURFACE
- G — GAS LINE
- G — GAS METER
- GRAVEL SURFACE
- PAVER SURFACE
- P — POWER METER
- P — POWER (OVERHEAD)
- UP — POWER (UNDERGROUND)
- PP — POWER POLE
- PROPERTY LINE (SUBJECT)
- PROPERTY LINES (ADJACENT)
- REBAR & CAP (SET)
- REBAR AS NOTED (FOUND)
- RETAINING WALL
- RIGHT-OF-WAY LINES
- ROCKERY
- SIZE TYPE — TREE (AS NOTED)
- W — WATER LINE
- WM — WATER METER
- WV — WATER VALVE
- ACU — AIR CONDITION UNIT
- CONC — CONCRETE
- COR — CORNER
- DEC — DECIDUOUS
- ELEV — ELEVATION
- EVG — EVERGREEN
- FF — FINISH FLOOR
- LS# — LAND SURVEYOR NUMBER
- PROP — PROPERTY
- (R) — RECORD DATA

EASEMENTS

- INGRESS, EGRESS EASEMENT REC. NO. 5417239
- WATER EASEMENT REC. NO. 20221208000443
- WATER PIPELINE EASEMENT REC. NO. 5113737
- INGRESS, EGRESS EASEMENT REC. NO. 6502352
- SEWER EASEMENT REC. NO. 5417239

ARCHITECTURAL PROPOSED SITE PLAN

SCALE: 1" = 1'-0"



CONTROL MAP

N.T.S.

STEEP SLOPE/BUFFER DISCLAIMER:

THE LOCATION AND EXTENT OF STEEP SLOPES SHOWN ON THIS DRAWING ARE FOR INFORMATIONAL PURPOSES ONLY AND CANNOT BE RELIED ON FOR DESIGN AND/OR CONSTRUCTION. THE PITCH, LOCATION, AND EXTENT ARE BASED SOLELY ON OUR GENERAL OBSERVATIONS ON SITE AND OUR CURSORY REVIEW OF READILY AVAILABLE PUBLIC DOCUMENTS; AS SUCH, TERRANE CANNOT BE LIABLE OR RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY STEEP SLOPE INFORMATION. ULTIMATELY, THE LIMITS AND EXTENT OF ANY STEEP SLOPES ASSOCIATED WITH ANY SETBACKS OR OTHER DESIGN OR CONSTRUCTION PARAMETERS MUST BE DISCUSSED AND APPROVED BY THE REVIEWNG AGENCY BEFORE ANY CONSTRUCTION CAN OCCUR.

INDEXING INFORMATION

NE 1/4 NE 1/4
SECTION: 30
TOWNSHIP: 24N
RANGE: 05E, W.M.
COUNTY: KING

We are the measure | terrane.net

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 302405-9004

Wang / Yang Residence
6450 E Mercer Way
MERCER ISLAND, WA 98040

TERRANE
10801 Main Street, Suite 102
Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

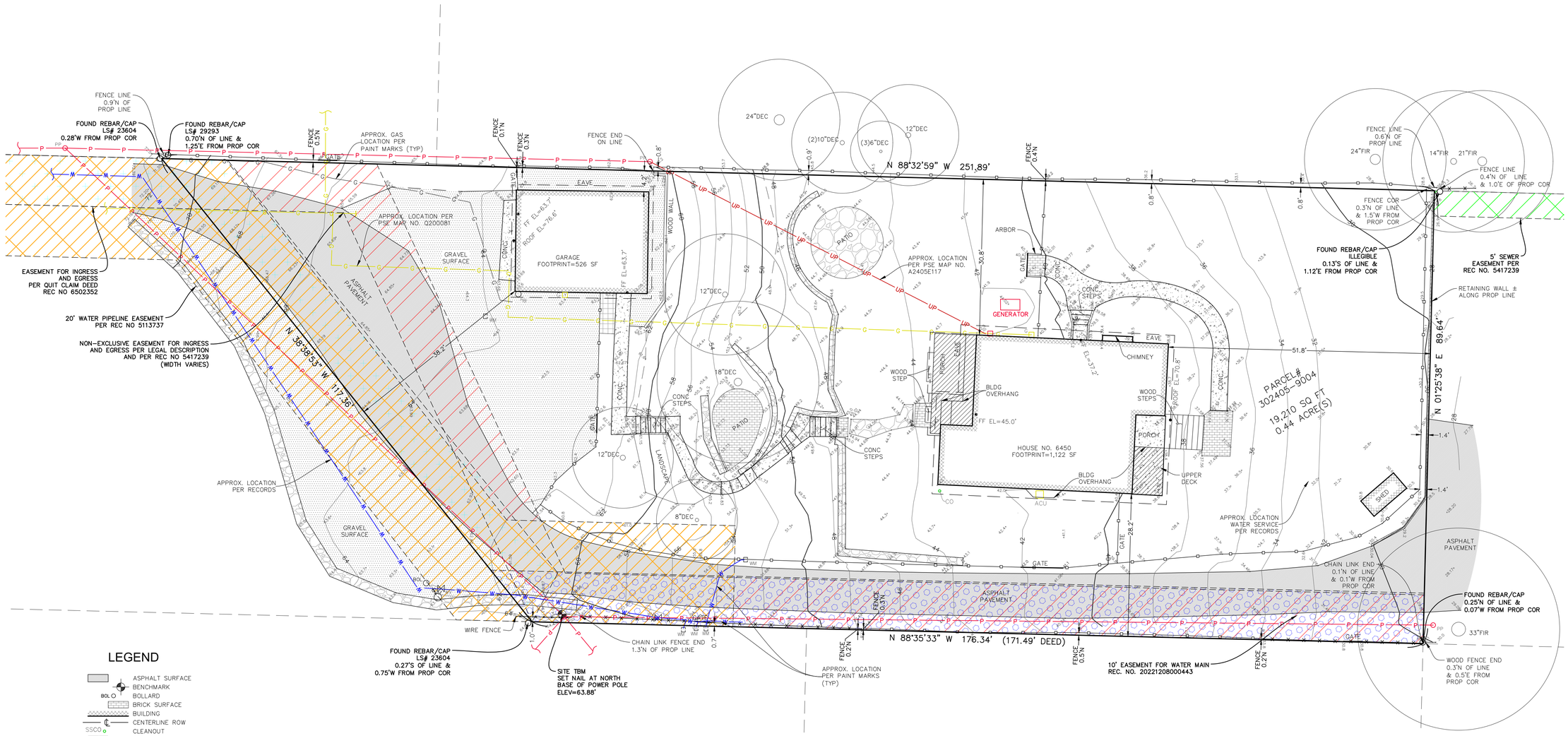
JOB NUMBER:	230545
DATE:	04/26/23
DRAFTED BY:	TLR
CHECKED BY:	JGM/DRT
SCALE:	N.T.S.

REVISION HISTORY

05/10/23	POWER LINES

SHEET NUMBER
1 OF 2

TOPOGRAPHIC & BOUNDARY SURVEY



LEGEND

- ASPHALT SURFACE
- BENCHMARK
- BOL O BOLLARD
- BRICK SURFACE
- BUILDING
- CENTERLINE ROW
- SSCO CLEANOUT
- CONCRETE SURFACE
- DECK
- FENCE LINE (CHAIN LINK)
- FENCE LINE (WIRE)
- FENCE LINE (WOOD)
- FIRE HYDRANT
- FLAGSTONE SURFACE
- G GAS LINE
- G GAS METER
- GRAVEL SURFACE
- PAVER SURFACE
- P POWER METER
- P POWER (OVERHEAD)
- UP POWER (UNDERGROUND)
- PP O POWER POLE
- PROPERTY LINE (SUBJECT)
- PROPERTY LINES (ADJACENT)
- REBAR & CAP (SET)
- REBAR AS NOTED (FOUND)
- RETAINING WALL
- RIGHT-OF-WAY LINES
- ROCKERY
- SIZE TYPE TREE (AS NOTED)
- W WATER LINE
- WM WATER METER
- WV WATER VALVE
- ACU AIR CONDITION UNIT
- CONC CONCRETE
- COR CORNER
- DEC DECIDUOUS
- ELEV ELEVATION
- EVG EVERGREEN
- FF FINISH FLOOR
- LS# LAND SURVEYOR NUMBER
- PROP PROPERTY
- (R) RECORD DATA

EASEMENTS

- INGRESS, EGRESS EASEMENT REC. NO. 5417239
- WATER EASEMENT REC. NO. 20221208000443
- WATER PIPELINE EASEMENT REC. NO. 5113737
- INGRESS, EGRESS EASEMENT REC. NO. 6502352
- SEWER EASEMENT REC. NO. 5417239

10 0 5 10

(IN FEET)
1 INCH = 10 FT.

STEEP SLOPE/BUFFER DISCLAIMER:

THE LOCATION AND EXTENT OF STEEP SLOPES SHOWN ON THIS DRAWING ARE FOR INFORMATIONAL PURPOSES ONLY AND CANNOT BE RELIED ON FOR DESIGN AND/OR CONSTRUCTION. THE PITCH, LOCATION, AND EXTENT ARE BASED SOLELY ON OUR GENERAL OBSERVATIONS ON SITE AND OUR CURSORY REVIEW OF READILY AVAILABLE PUBLIC DOCUMENTS; AS SUCH, TERRANE CANNOT BE LIABLE OR RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY STEEP SLOPE INFORMATION. ULTIMATELY, THE LIMITS AND EXTENT OF ANY STEEP SLOPES ASSOCIATED WITH ANY SETBACKS OR OTHER DESIGN OR CONSTRUCTION PARAMETERS MUST BE DISCUSSED AND APPROVED BY THE REVIEWING AGENCY BEFORE ANY CONSTRUCTION CAN OCCUR.

INDEXING INFORMATION

NE 1/4 NE 1/4
SECTION: 30
TOWNSHIP: 24N
RANGE: 05E, W.M.
COUNTY: KING

We are the measure | terrane.net

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 302405-9004

Wang / Yang Residence

6450 E Mercer Way
MERCER ISLAND, WA 98040

LANCE GOODMAN MILLER — REGISTERED PROFESSIONAL LAND SURVEYOR — STATE OF WASHINGTON

05/10/25

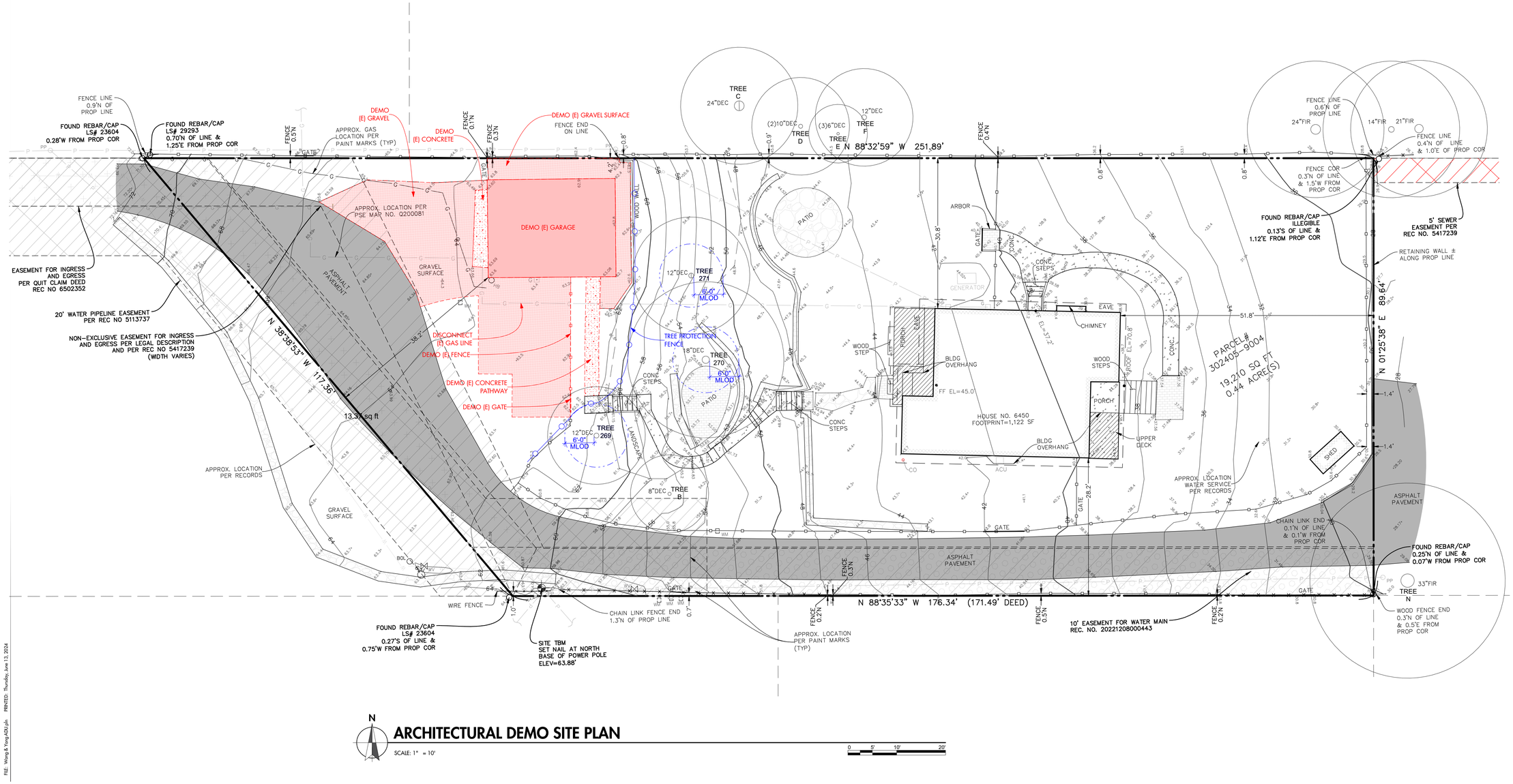
TERRANE
10801 Main Street, Suite 102
Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

JOB NUMBER:	230545
DATE:	04/26/23
DRAFTED BY:	TLR
CHECKED BY:	JGM/DRT
SCALE:	1"= 10'
REVISION HISTORY	
05/10/23	POWER LINES
SHEET NUMBER	
2 OF 2	

LEGEND

- ASPHALT SURFACE
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- WM — WATER METER
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- ACU — AIR CONDITION UNIT
- CONC — CONCRETE
- COR — CORNER
- DEC — DECIDUOUS
- ELEV — ELEVATION
- EVG — EVERGREEN
- FF — FINISH FLOOR
- LS# — LAND SURVEYOR NUMBER
- PROP — PROPERTY
- (R) — RECORD DATA
- MINIMUM LIMITS OF DISTURBANCE (MLOD) PER ARBORIST
- TREE PROTECTION FENCE
- EXCEPTIONAL TREE LESS THAN 24 INCHES
- EXCEPTIONAL TREE GREATER THAN 24 INCHES



N

ARCHITECTURAL DEMO SITE PLAN

SCALE: 1" = 10'

0 5' 10' 20'

FILE: Wong & Yang ADU.pln PRINTED: Thursday, June 13, 2024

SIYAO STUDIO

WANG & YANG ADU

6450 E MERCER WAY
MERCER ISLAND, WA 98040

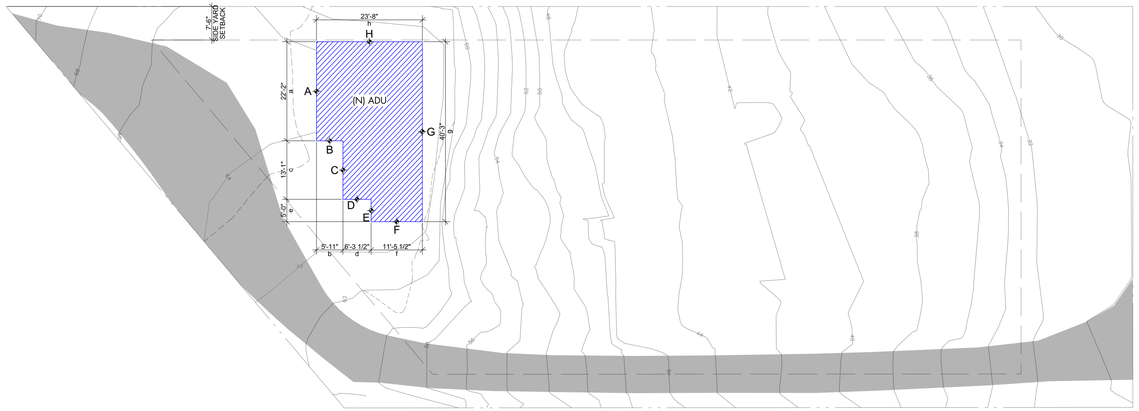
Job No.	2303
Project Manager:	SW
Issue Date:	**6/13/2024**

NO.	DATE	REVISION
1	10/17/2023	STRUCTURAL
2	12/01/2023	STRUCTURAL REV 1
3	12/07/2023	PRICING
4	12/16/2023	PRE-APP MEETING #2
5	02/25/2024	BUILDING PERMIT
6	06/13/2024	BUILDING PERMIT REV 1

ARCHITECTURAL DEMO SITE PLAN

A1.02

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MAX BUILDING HEIGHT CALCULATIONS

		Existing		Finished		
	Top of Gabled Roof	Existing grade	Existing Ground Elevation	Finish Grade	Finished Ground Elevation	Length of Wall Segement
A	88.02'	63.76'	24.26'	64.00'	24.02'	22.17'
B		63.77'	24.25'	63.90'	24.12'	5.92'
C		63.45'	24.57'	63.70'	24.32'	13.08'
D		63.14'	24.88'	63.40'	24.62'	6.29'
E		62.93'	25.09'	63.40'	24.62'	5.00'
F		62.61'	25.41'	63.50'	24.52'	11.46'
G		62.99'	25.03'	63.10'	24.92'	40.25'
H		63.42'	24.60'	63.54'	24.48'	23.67'

PER MICC 19.02.020.C.1.c.iii.(a).(2) and 19.02.020.C.1.c.iii.(b), GABLED ROOF SINGLE-FAMILY DWELLINGS SHALL PROVIDE A MINIMUM SIDE YARD DEPTH OF SEVEN AND ONE-HALF FEET IF THE BUILDING HEIGHT IS MORE THAN 15 FEET BUT LESS THAN 25 FEET MEASURED FROM EXISING OR FINISHED GRADE, WHICHEVER IS LOWER, TO THE TOP OF THE GABLED ROOF END ADJOINING THE SIDE YARD.

AVERAGE BUILDING ELEVATION = (A*a + B*b + C*c + D*d + E*e + F*f + G*g + H*h) / (a + b + c + d + e + f + g + h)
= (63.76*22.17 + 63.77*5.92 + 63.45*13.08 + 63.14*6.29 + 62.93*5 + 62.61*11.46 + 62.99*40.25 + 63.42*23.67) / (22.17 + 5.92 + 13.08 + 6.29 + 5 + 11.46 + 40.25 + 23.67) = 8,085.22 / 127.84 = **63.26'**

ALLOWABLE BUILDING HEIGHT = 63.26' + 25' = **88.26'**

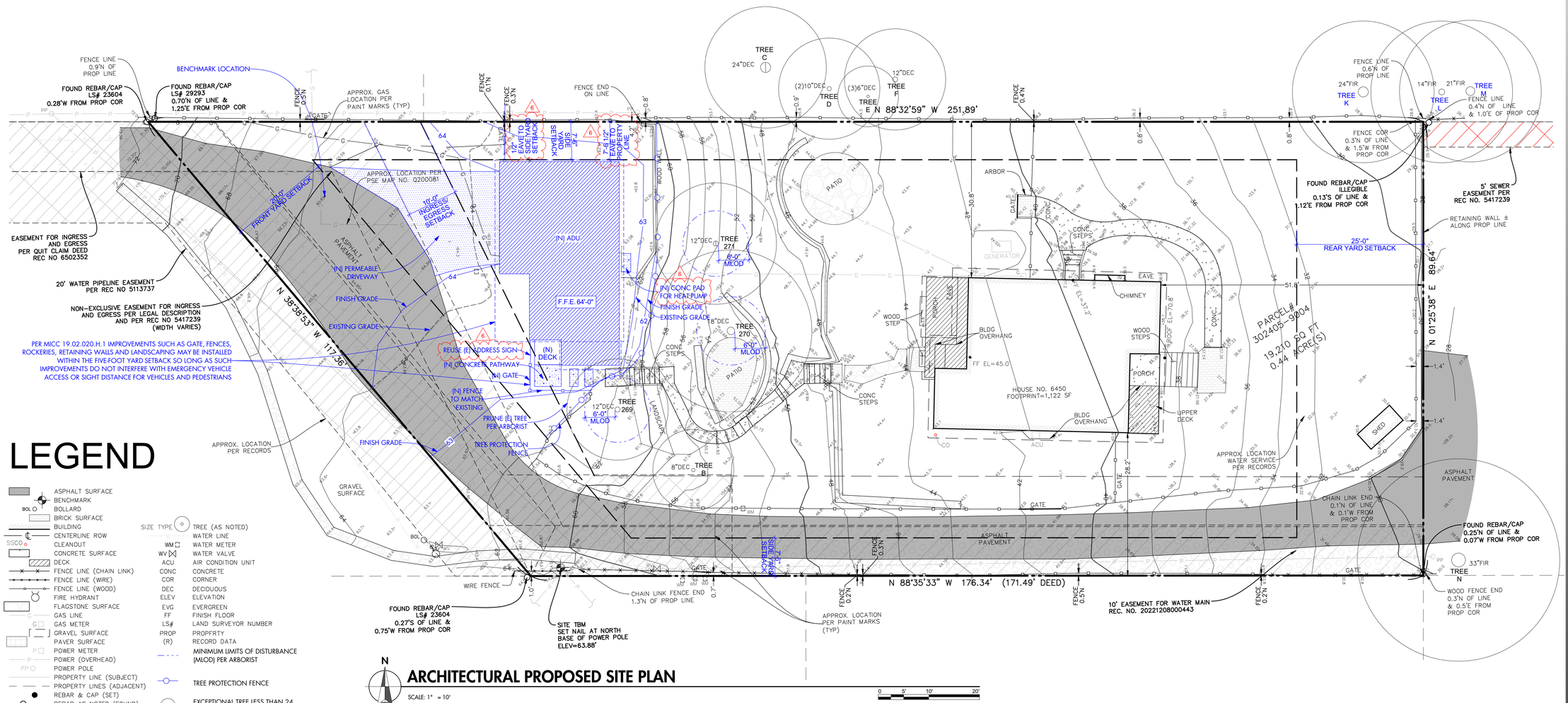
PROPOSED BUILDING HEIGHT = **88.02' < 88.26'** (SEE A3.01)

N

BUILDING HEIGHT DIAGRAMS

SCALE: 1/16" = 1'-0"

0 8' 16' 32'



N

ARCHITECTURAL PROPOSED SITE PLAN

SCALE: 1" = 10'

0 5' 10' 20'

LEGEND

- ASPHALT SURFACE
- BENCHMARK
- BOLLARD
- BRICK SURFACE
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FILE: Wong & Yang ADU.pln PRINTED: Thursday, June 13, 2024

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WANG & YANG ADU

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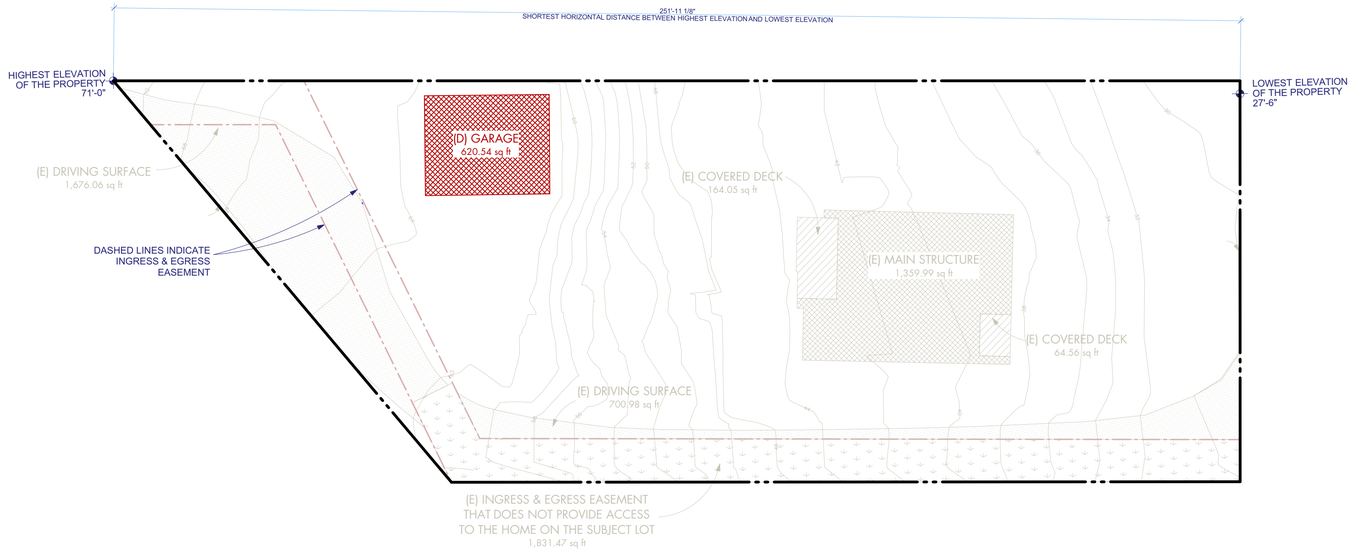
Job No. 2303
Project Manager: SW
Issue Date: 6/13/2024

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ARCHITECTURAL PROPOSED SITE PLAN

A1.02

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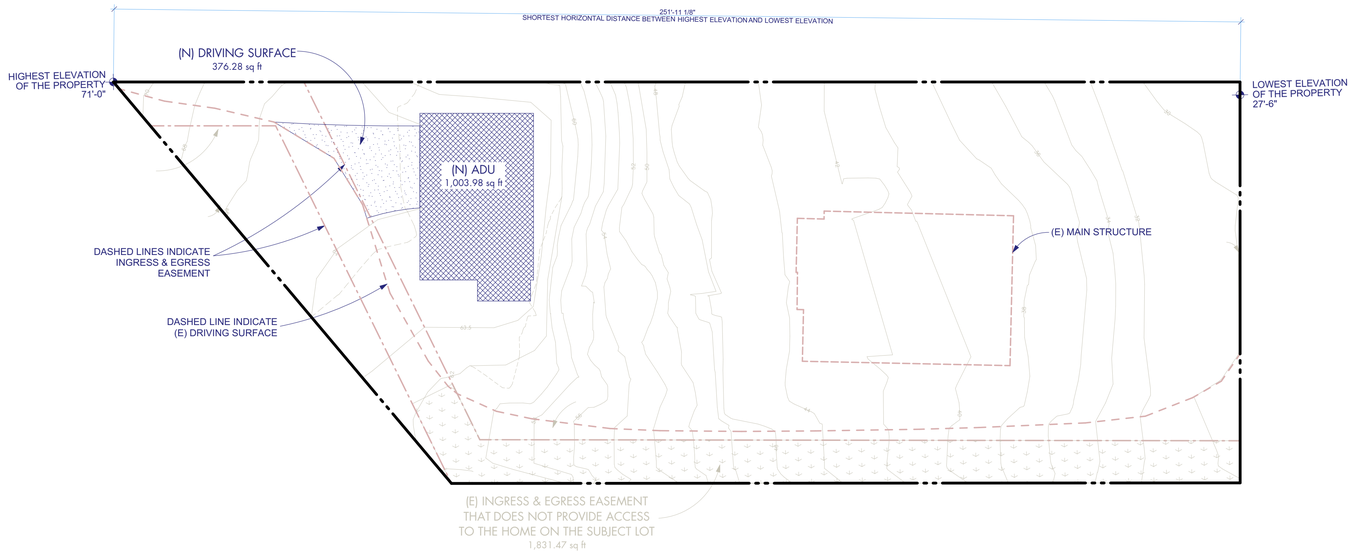


N

(E) LOT COVERAGE DIAGRAM

SCALE: 1/16" = 1'-0"

0 8' 16' 32'



N

(N) LOT COVERAGE DIAGRAM

SCALE: 1/16" = 1'-0"

0 8' 16' 32'

LOT COVERAGE CALCULATIONS

LOT SLOPE CALCULATIONS

HIGHEST ELEVATION OF THE PROPERTY ..... 71'-0" (71')
LOWEST ELEVATION OF THE PROPERTY ..... 27'-6" (27.5')
SHORTEST HORIZONTAL DISTANCE BETWEEN HIGHEST ELEVATION AND LOWEST ELEVATION ..... 251'-11 1/8" (251.93')

LOT SLOPE ..... (71'-27.5') / 251.93' * 100% = **17.27%**

NET LOT AREA CALCULATIONS

LOT AREA ..... 19,270 SF
ACCESS EASEMENT AREA THAT DOES NOT PROVIDE ACCESS TO HOME ON THE SUBJECT LOT ..... 1,831.47 SF

NET LOT AREA ..... 19,270 - 1,831.47 = **17,438.53 SF**

LOT COVERAGE CALCULATIONS

LOT COVERAGE EXISTING

(D) GARAGE	621
(E) COVERED DECK	229
(E) DRIVING SURFACE	2,377
(E) MAIN STRUCTURE	1,360
	4,586 ft²

LOT COVERAGE DEMO

(D) GARAGE	621
	621 ft²

LOT COVERAGE NEW

(N) ADU	1,004
(N) DRIVING SURFACE	376
	1,380 ft²

Lot Slope	Maximum Lot Coverage (house, driving surfaces, and accessory buildings)	Required Landscaping Area
Less than 15%	40%	60%
15% to less than 30%	35%	65%
30% to 50%	30%	70%
Greater than 50% slope	20%	80%

MAX. LOT COVERAGE ALLOWED 35%
MAX. LOT COVERAGE AREA ALLOWED ..... 17,438.53 * 35% = 6,103.49 SF

LOT COVERAGE AREA PROVIDED ..... 4,586 - 621 + 1,380 = **5,345 SF < 6,103.49 SF**
LOT COVERAGE PROVIDED ..... 5,345 / 17,438.53 = **30.65% < 35%**

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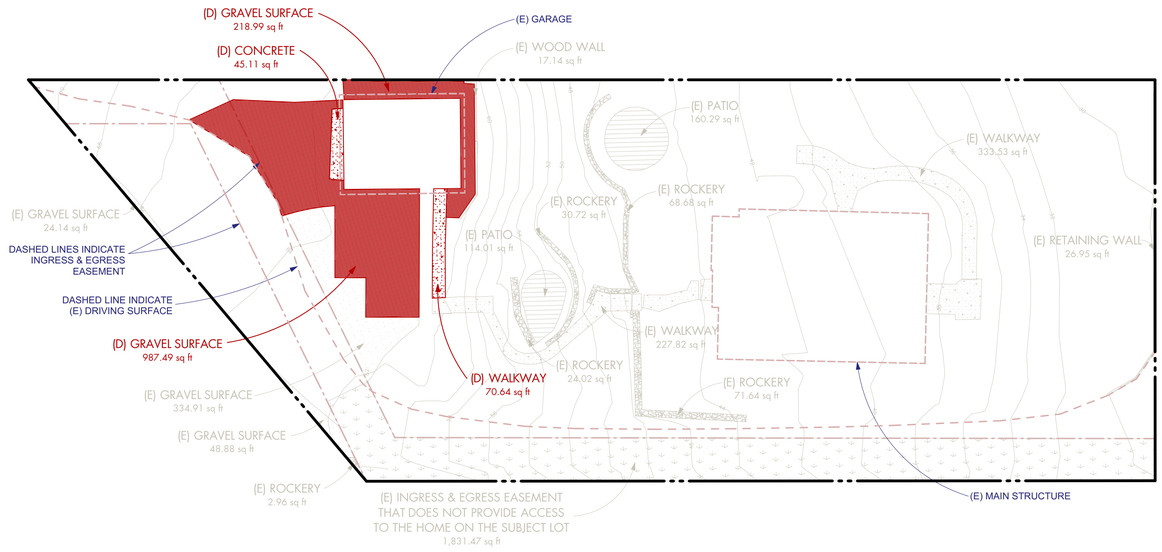
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LOT COVERAGE DIAGRAMS

A1.03

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N

(E) HARDSCAPE DIAGRAM

SCALE: 1/16" = 1'-0"

0 8' 16' 32'

HARDCAPE CALCULATIONS

HARDSCAPE COVERAGE EXISTING

(D) CONCRETE	45
(D) GRAVEL SURFACE	1,206
(D) WALKWAY	71
(E) GRAVEL SURFACE	408
(E) PATIO	274
(E) RETAINING WALL	27
(E) ROCKERY	198
(E) WALKWAY	561
(E) WOOD WALL	17
	2,807 ft² 6

HARDSCAPE COVERAGE DEMO

(D) CONCRETE	45
(D) GRAVEL SURFACE	1,206
(D) WALKWAY	71
	1,322 ft²

HARDSCAPE COVERAGE NEW

(N) CONCRETE PAD	7 6
(N) UNCOVERED DECK	19
(N) WALKWAY	34
	60 ft² 6

NET LOT AREA CALCULATIONS

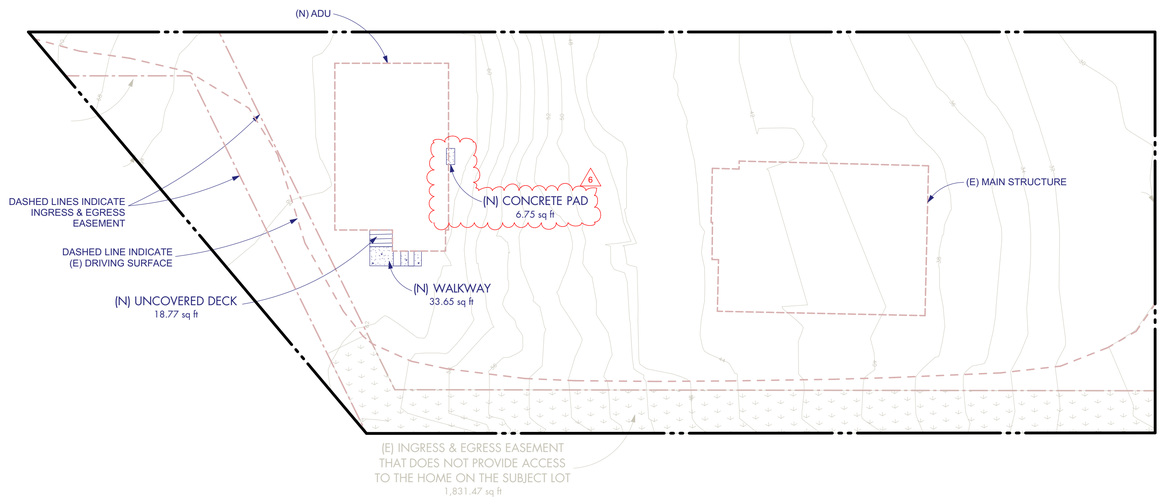
LOT AREA ..... 19,270 SF
ACCESS EASEMENT AREA THAT DOES NOT PROVIDE ACCESS TO HOME ON THE SUBJECT LOT ..... 1,831.47 SF

NET LOT AREA ..... 19,270 - 1,831.47 = **17,438.53 SF**

PER MICC 19.02.020.F.3.b.i, A MAXIMUM OF NINE PERCENT OF THE NET LOT AREA MAY CONCIST OF HARDSCAPE IMPROVEMENTS INCLUDING, BUT NOT LIMITED TO, WALKWAYS, DECKS, ETC.

MAX. HARDSCAPE ALLOWED 9%
MAX. HARDSCAPE AREA ALLOWED ..... 17,438.53 * 9% = 1,569.47 SF

HARDSCAPE AREA PROVIDED ..... 2,807 - 1,322 + 60 = **1,545 SF < 1,569.47 SF** 6
HARDSCAPE PROVIDED ..... 1,537 / 17438.53 = 8.86% < 9%



N

(N) HARDSCAPE DIAGRAM

SCALE: 1/16" = 1'-0"

0 8' 16' 32'

SIYAO STUDIO

WANG & YANG ADU

6450 E MERCER WAY
MERCER ISLAND, WA 98040

Job No. 2303
Project Manager: SW
Issue Date: 6/13/2024

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HARDSCAPE DIAGRAM

A1.04

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ADU SQUAREGFOOTAGE CALCULATIONS

PER MICC 19.02.030.B.4, THE SQUARE FOOTAGE OF THE ACCESSORY DWELLING UNIT SHALL BE A MINIMUM OF 220 SF AND A MAXIMUM OF 900 SF, EXLUDING ANY GARAGE AREA; PROVIDED, THE SQUARE FOOTAGE OF THE ACCESSORY DWELLING UNIT SHALL NOT EXCEED 80% OF THE TOTAL SQUARE FOOTAGE OF THE PRIMARY DWELLING UNIT, EXCLUDING THE GARAGE AREA.

ADU SQUARE FOOTAGE

MAIN FLOOR ..... 171 SF
UPPER FLOOR ..... 591 SF
STAIRS (2-STORY) ..... 50 SF
200% GFA MODIFIER FOR CEILING HEIGHT MORE THAN 16 FT
FOYER ..... 38 SF
TOTAL SQUARE FOOTAGE ..... 171 + 591 + 50 + 38*2 = **888 SF < 900 SF**

GROSS FLOOR AREA CALCULATIONS

GROSS FLOOR AREA - EXISTING

FINISHED BASEMENT ..... 1,070 SF
MAIN FLOOR ..... 1,130 SF
UPPER FLOOR ..... 1,150 SF
COVERED DECK ..... 65 SF
GARAGE ..... 527 SF
TOTAL GROSS FLOOR AREA EXISTING ..... **3,942 SF**

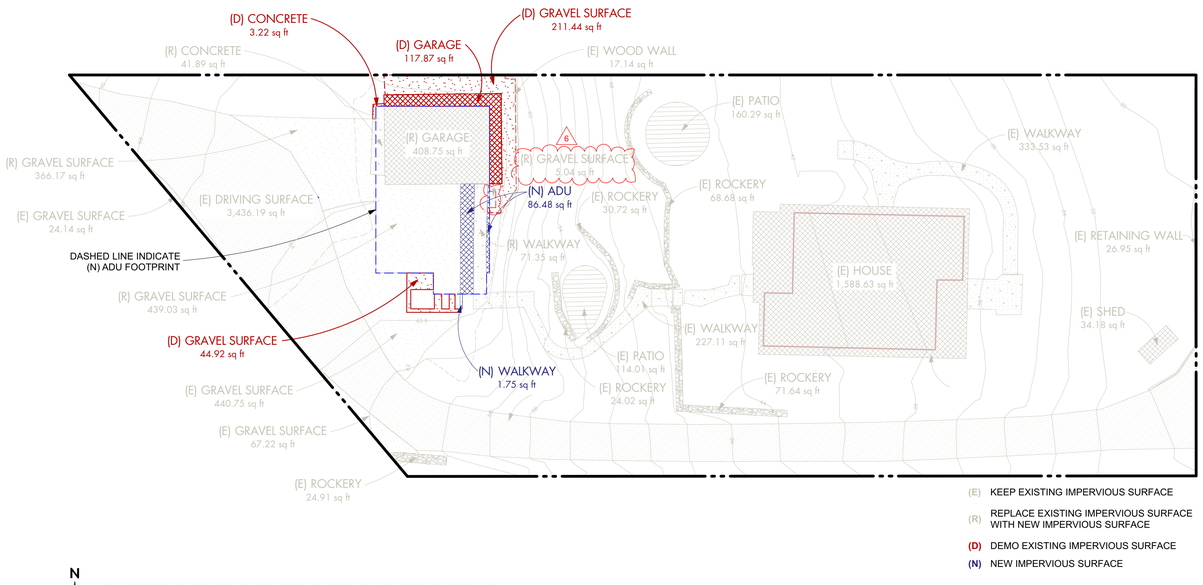
GROSS FLOOR AREA - DEMO

GARAGE ..... 527 SF
TOTAL GROSS FLOOR AREA DEMO ..... **527 SF**

GROSS FLOOR AREA - NEW

MAIN FLOOR ..... 171 SF
UPPER FLOOR ..... 591 SF
STAIRS (2-STORY) ..... 50 SF
GARAGE ..... 513 SF
200% GFA MODIFIER FOR CEILING HEIGHT MORE THAN 16 FT
FOYER ..... 38 SF
TOTAL GROSS FLOOR AREA NEW ..... **1,401 SF**

GROSS FLOOR AREA ALLOWED ..... 19,270 * 40% = **7,708 SF**
GROSS FLOOR AREA PROVIDED ..... 3,942 - 527 + 1,401 = **4,816 SF < 7,708 SF**



(E) KEEP EXISTING IMPERVIOUS SURFACE

(R) REPLACE EXISTING IMPERVIOUS SURFACE WITH NEW IMPERVIOUS SURFACE

(D) DEMO EXISTING IMPERVIOUS SURFACE

(N) NEW IMPERVIOUS SURFACE

N

IMPERVIOUS COVERAGE CALCULATION

SCALE: 1/16" = 1'-0"

0 8' 16' 32'

IMPERVIOUS COVERAGE CALCULATIONS

IMPERVIOUS COVERAGE EXISTING

(E) DRIVING SURFACE	3,436
(E) GRAVEL SURFACE	532
(E) HOUSE	1,589
(E) PATIO	274
(E) RETAINING WALL	27
(E) ROCKERY	220
(E) SHED	34
(E) WALKWAY	561
(E) WOOD WALL	17
	6,690 ft²

IMPERVIOUS SURFACE REPLACE

(R) CONCRETE	42
(R) GARAGE	409
(R) GRAVEL SURFACE	810 6
(R) WALKWAY	71
	1,332 ft² 6

IMPERVIOUS COVERAGE DEMO

(D) CONCRETE	3
(D) GARAGE	118
(D) GRAVEL SURFACE	256 6
	377 ft²

IMPERVIOUS COVERAGE NEW

(N) ADU	86
(N) WALKWAY	2
	88 ft²

PREVIOUS IMPERVIOUS COVERAGE ..... 6,690 + 1,332 + 377 = 8,399 SF
PROPOSED IMPERVIOUS COVERAGE ..... 6,690 + 1,332 + 88 = 8,110 SF

IMPERVIOUS COVERAGE INCREASE ..... 8,110 - 8,399 = **-289 SF** < 500 SF 6

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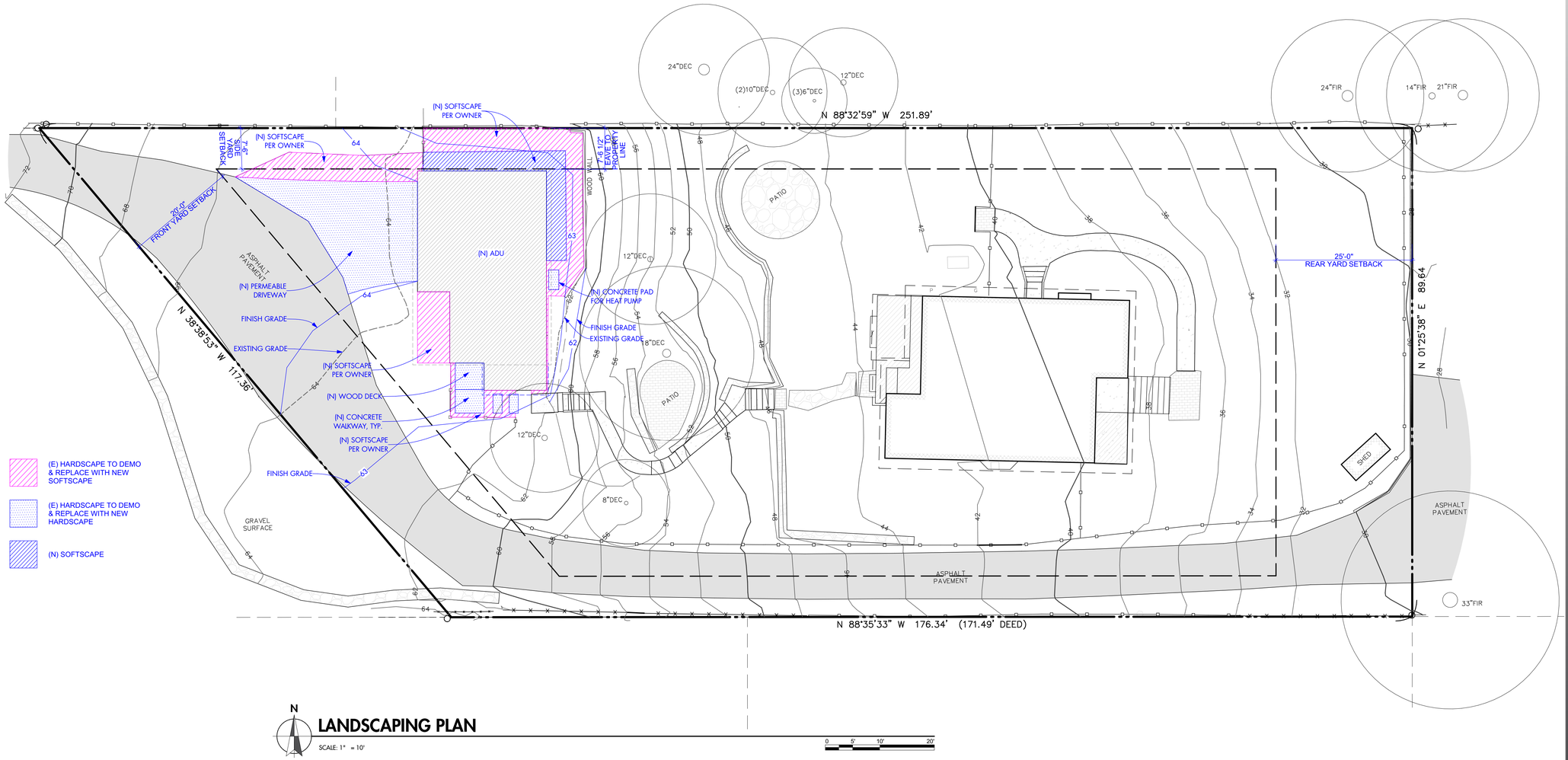
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GROSS FLOOR AREA & IMPERVIOUS

A1.05

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N

LANDSCAPING PLAN

SCALE: 1" = 10'

0 5' 10' 20'

FILE: Wang & Yang ADU.pln PRINTED: Thursday, June 13, 2024

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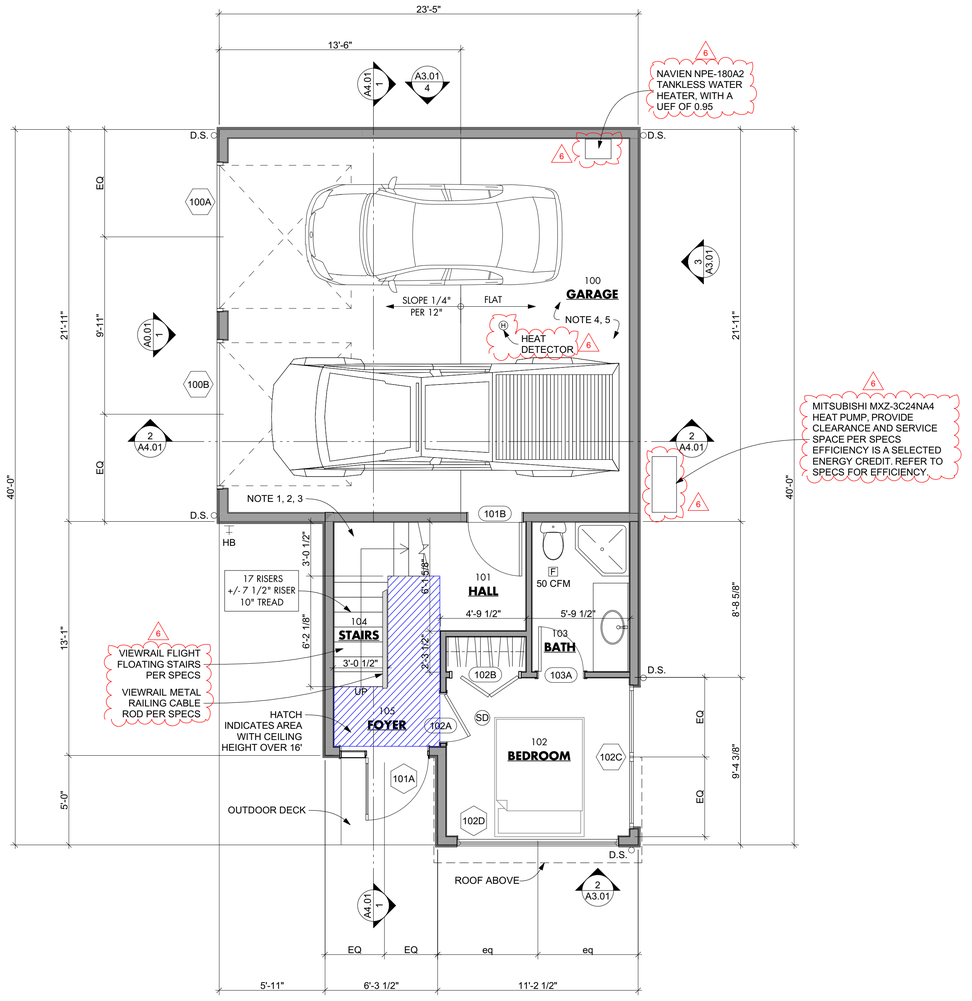
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LANDSCAPING PLAN

6

A1.06

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PLAN NOTES

1) INTERIOR STAIRWAYS SHALL BE ILLUMINATED PER IRC, SECTION R303.7.

2) ALL HANDRAILS TO BE 34"-38" ABOVE TREAD NOSING, 1 1/2" FROM WALL, NOT LESS THAN 1 1/4" OR MORE THAN 2" IN DIAMETER PER IRC, SECTION R311& R312

3) ALL GUARD RAILS SHALL BE MIN 36" HIGH AND HAVE A MAXIMUM OPENING SUCH THAT A 4" SPHERE CANNOT PASS THROUGH PER IRC, SECTIONS R312.1.2 & R312.1.3

4) THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE WITH A MIN 1/2" GYPSUM BOARD OR EQUIV. APPLIED TO THE GARAGE SIDE. 5/8" TYPE 'X' GYPSUM BOARD IS REQUIRED WHERE THERE ARE HABITABLE ROOMS ABOVE THE GARAGE. SUPPORTING COLUMNS, WALLS AND BEAMS USE 1/2" GYPSUM WALL BOARD PER IRC, SECTION 302.6

5) OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL HAVE A SOLID WOOD, SOLID OR HONEYCOMB-CORE STEEL DOORS NOT LESS THAN 1 3/8" IN THICKNESS OR 20-MIN FIRE-RATED DOORS. ALL DOORS SHALL BE EQUIPPED WITH A SELF CLOSING OR AUTOMATIC CLOSING DEVICE. PER IRC, SECTIONO R302.5.1

LEGEND

- CONCRETE WALL
- EXTERIOR FRAMED WALL, FINISH VARIES
- INTERIOR WALL
- ELEMENT ABOVE
- SD — SMOKE DETECTOR/ CARBON MONOXIDE DETECTOR
- F — FAN

MAIN FLOOR SQUARE FOOTAGES

BATH	49
BEDROOM	107
FOYER	38
HALL	15
STAIRS	50
	258 ft²

N

MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

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6	06/13/2024	BUILDING PERMIT REV 1

MAIN FLOOR PLAN

A2.01

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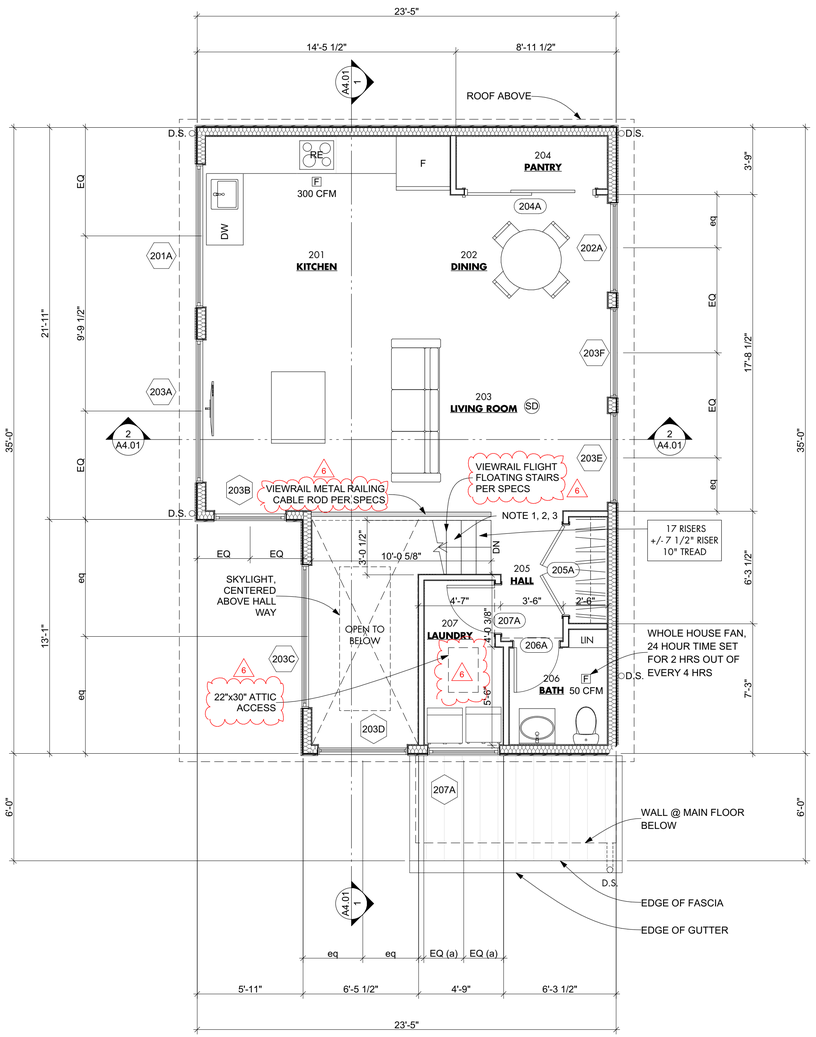
RVE - Wang & Yang ADU.pln PRINTED: Thursday, June 13, 2024

PLAN NOTES

1) INTERIOR STAIRWAYS SHALL BE ILLUMINATED PER IRC, SECTION R303.7.

2) ALL HANDRAILS TO BE 34"-38" ABOVE TREAD NOSING, 1 1/2" FROM WALL, NOT LESS THAN 1 1/4" OR MORE THAN 2" IN DIAMETER PER IRC, SECTION R311& R312

3) ALL GUARD RAILS SHALL BE MIN 36" HIGH AND HAVE A MAXIMUM OPENING SUCH THAT A 4" SPHERE CANNOT PASS THROUGH PER IRC, SECTIONS R312.1.2 & R312.1.3



LEGEND

- CONCRETE WALL
- EXTERIOR FRAMED WALL, FINISH VARIES
- INTERIOR WALL
- ELEMENT ABOVE
- SD — SMOKE DETECTOR/ CARBON MONOXIDE DETECTOR
- F — FAN

UPPER FLOOR SQUARE FOOTAGES

BATH	34
DINING	56
HALL	39
KITCHEN	132
LAUNDRY	42
LIVING ROOM	259
PANTRY	29
	591 ft²

N

UPPER FLOOR PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 6'

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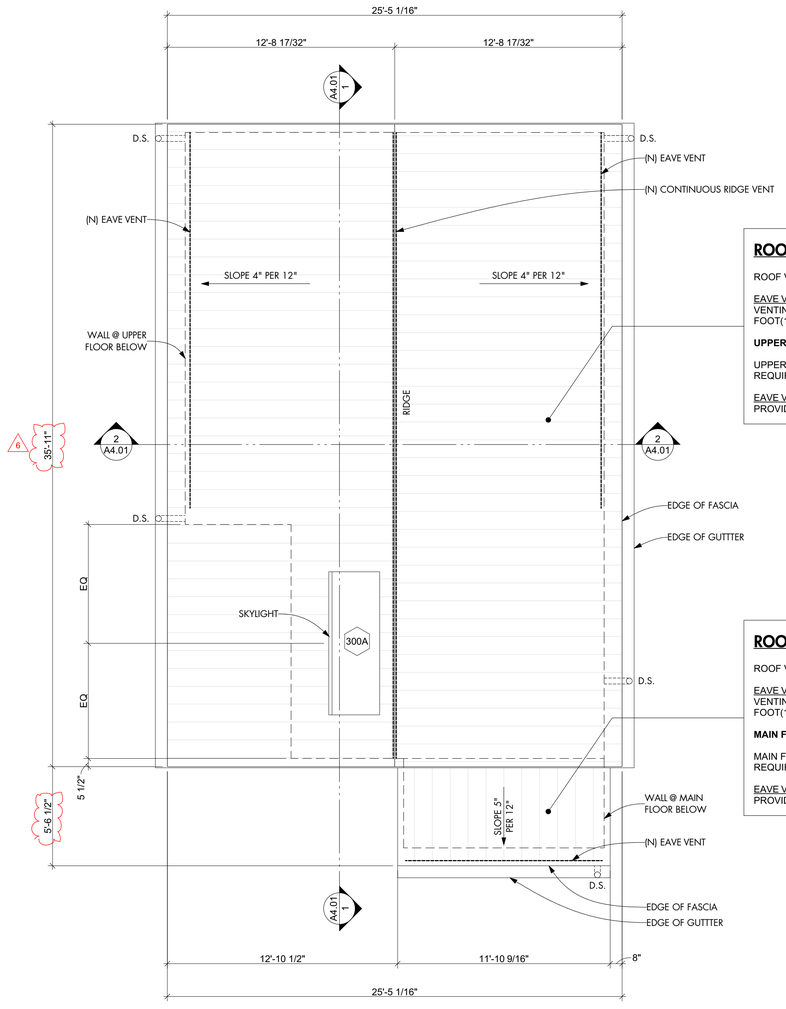
Job No. 2303
Project Manager: SW
Issue Date: 6/13/2024

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UPPER FLOOR PLAN

A2.02

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ROOF VENTING CALCULATIONS

ROOF VENTING PER IRC R806

EAVE VENTING
VENTING PRODUCT: COR-A VENT S-400, 10 SQ IN NFVA/LINEAL FOOT(10/144=0.06944 SG FT/LINEAL FOOT)

UPPER FLOOR ROOF

UPPER FLOOR ROOF AREA: 742 SF
REQUIRED VENTING AREA: 1/300 X 742 SF= 2.47 SF

EAVE VENTING
PROVIDED: 77 X 0.06944 CONTINUOS EAVE VENT= 5.34 SF > 2.47 SF

ROOF VENTING CALCULATIONS

ROOF VENTING PER IRC R806

EAVE VENTING
VENTING PRODUCT: COR-A VENT S-400, 10 SQ IN NFVA/LINEAL FOOT(10/144=0.06944 SG FT/LINEAL FOOT)

MAIN FLOOR BEDROOM ROOF

MAIN FLOOR BEDROOM ROOF AREA: 56 SF
REQUIRED VENTING AREA: 1/150 X 56 SF= 0.37 SF

EAVE VENTING
PROVIDED: 11 X 0.06944 CONTINUOS EAVE VENT= 0.76 SF > 0.37 SF

N

ROOF PLAN

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

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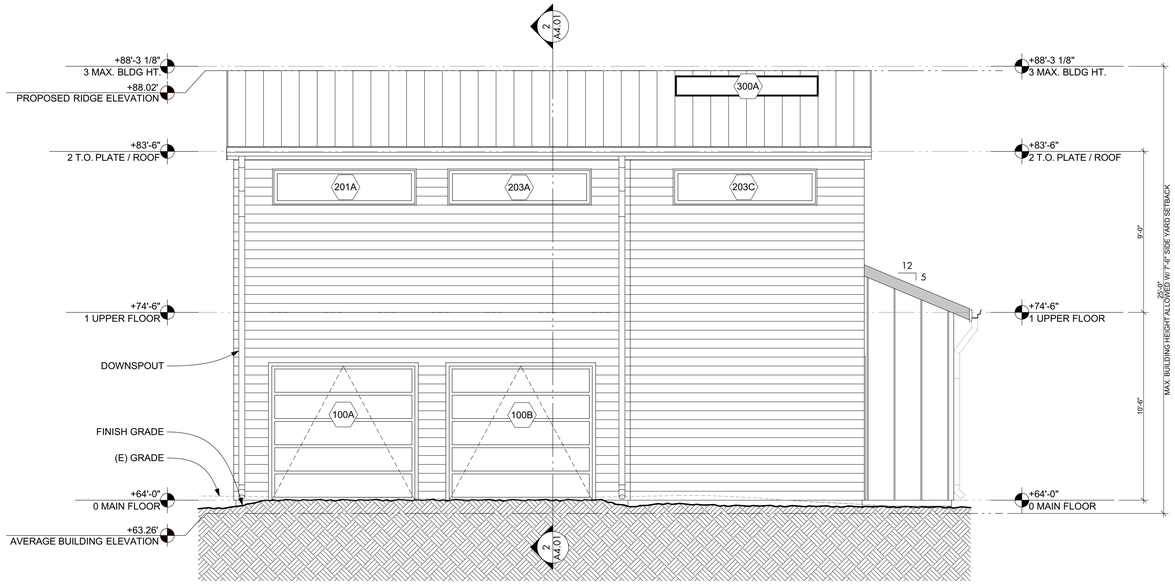
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ROOF PLAN

A2.03

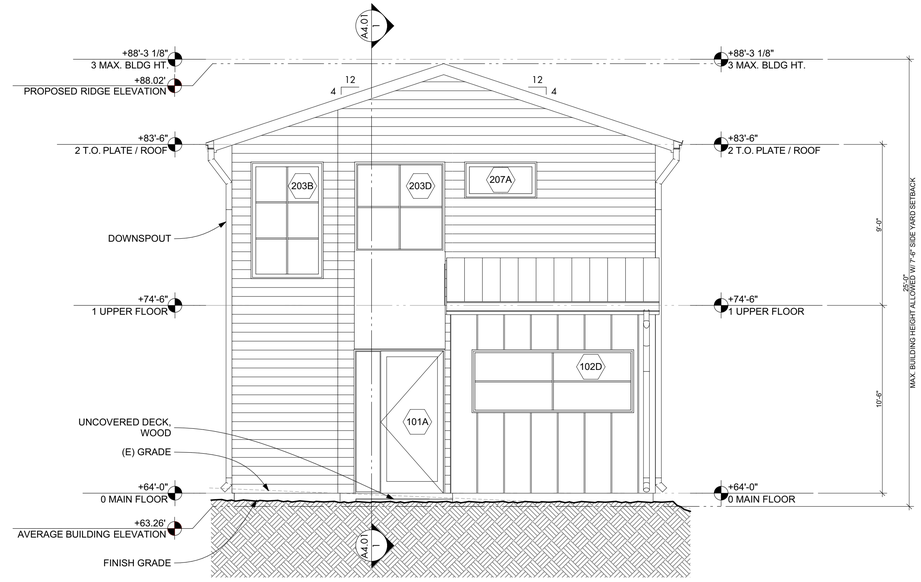
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1 WEST ELEVATION

SCALE: 1/4" = 1'-0"

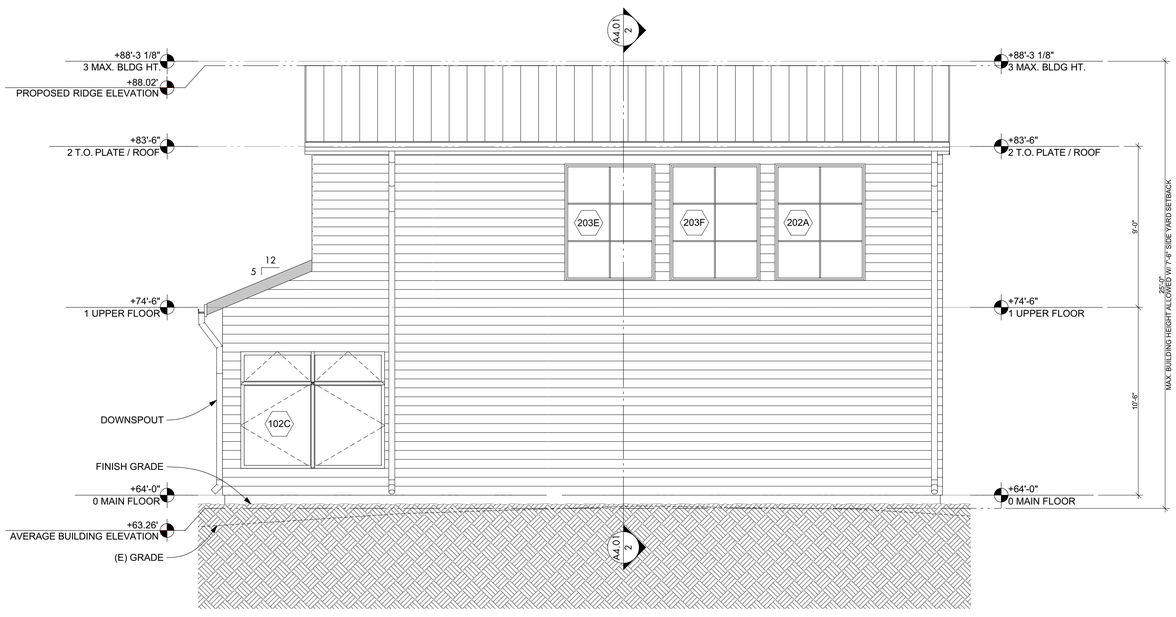
0 2' 4' 8'



2 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"

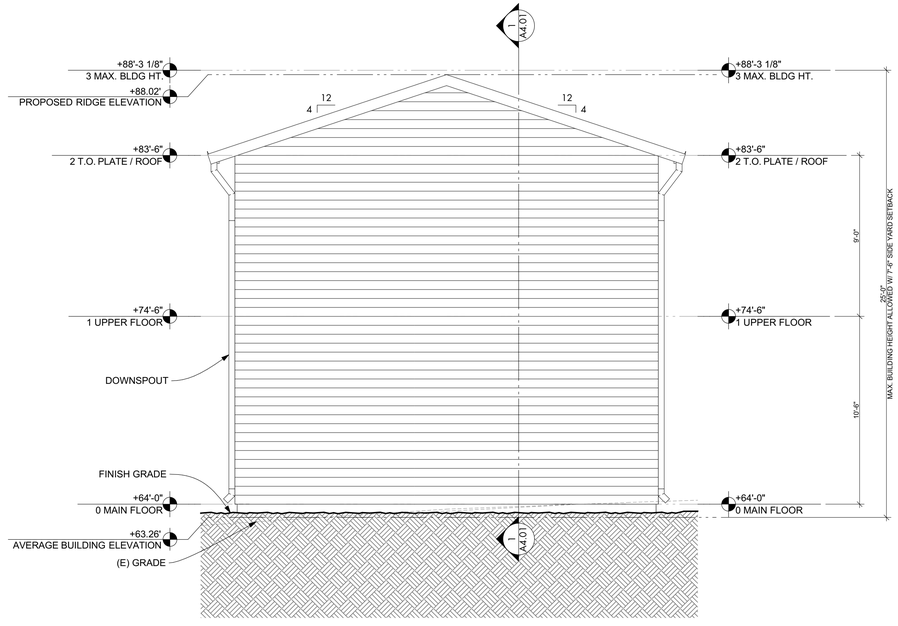
0 2' 4' 8'



3 EAST ELEVATION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'



4 NORTH ELEVATION

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

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EXTERIOR ELEVATIONS

A3.01

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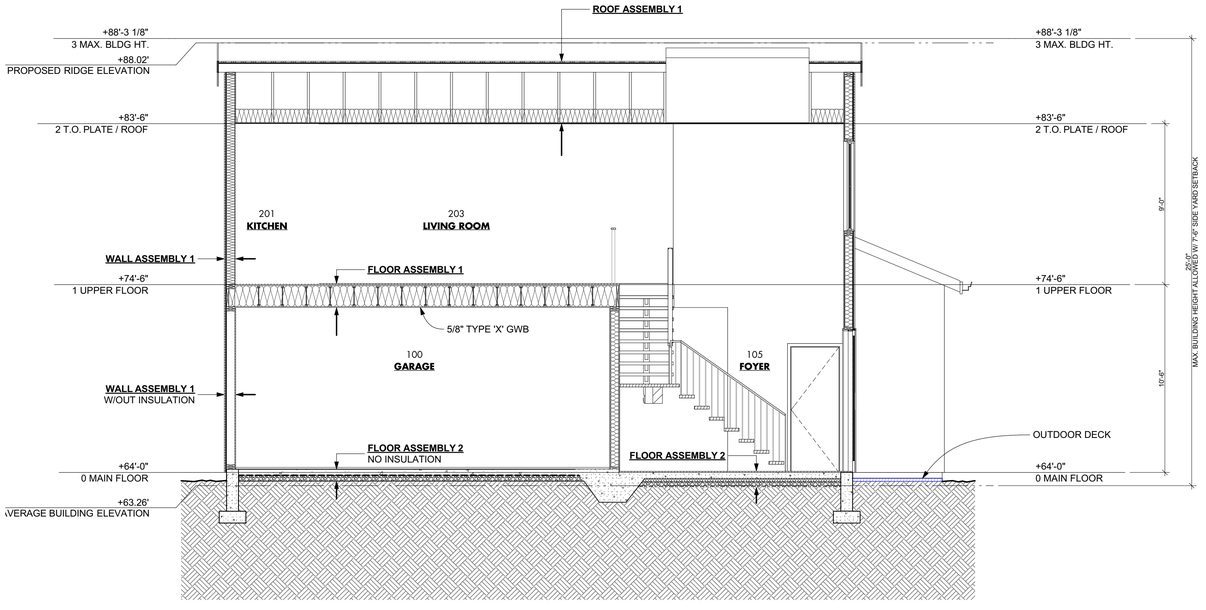
CONSTRUCTION ASSEMBLIES

FLOOR ASSEMBLY 1
* FINISHED FLOORING
* PLYWOOD SUBFLOOR PER STRUCT.
* FLOOR FRAMING PER STRUCT.
* R-38 BATT INSULATION
* 5/8" TYPE 'X' GYPSUM BOARD

FLOOR ASSEMBLY 2
* FINISH FLOORING
* 4" CONCRETE SLAB
* 6 mil VAPOR BARRIER
* R-10 RIGID INSULATION UNDER ENTIRE SLAB
* 4" MIN. GRANULAR FILL

WALL ASSEMBLY 1
* FINISH: SIDING PER ELEVATIONS
* DRAIN MAT
* BUILDING WRAP
* PLYWOOD SHEATHING PER STRUCT.
* STUD WALL PER STRUCT.
* MIN. R-21 BATT INSULATION
* 5/8" TYPE 'X' GYPSUM BOARD FINISH

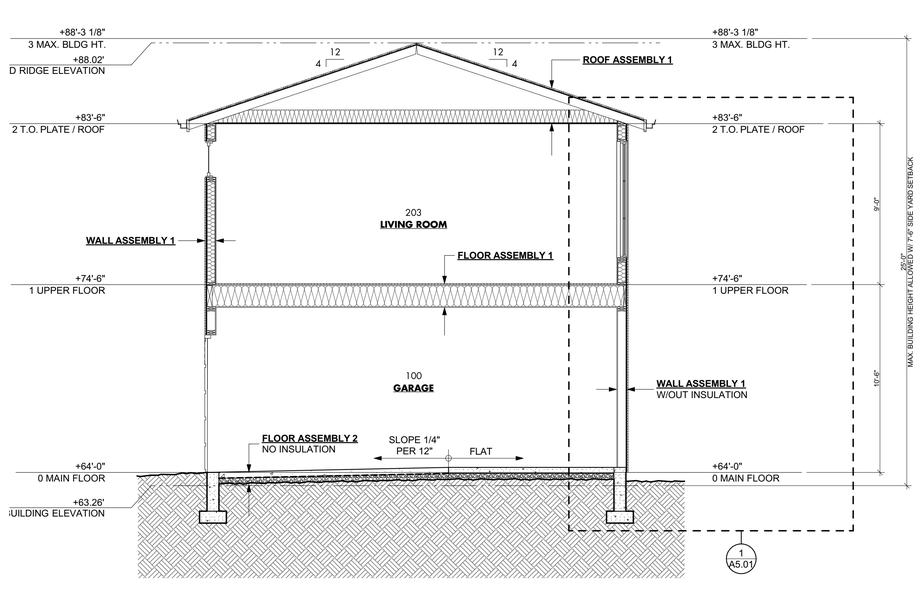
ROOF ASSEMBLY 1
* COMPOSITE SHINGLE METAL ROOF PER ELEVATIONS
* ROOFING FELTS
* PLYWOOD SHEATHING PER STRUCT.
* TRUSS PER STRUCT.
* R-38 INSULATION + MIN. 1" AIR SPACE TO VENT
* 5/8" TYPE 'X' GWB CEILING



1 BUILDING SECTION A

SCALE: 1/4" = 1'-0"

0 2' 4' 8'



2 BUILDING SECTION B

SCALE: 1/4" = 1'-0"

0 2' 4' 8'

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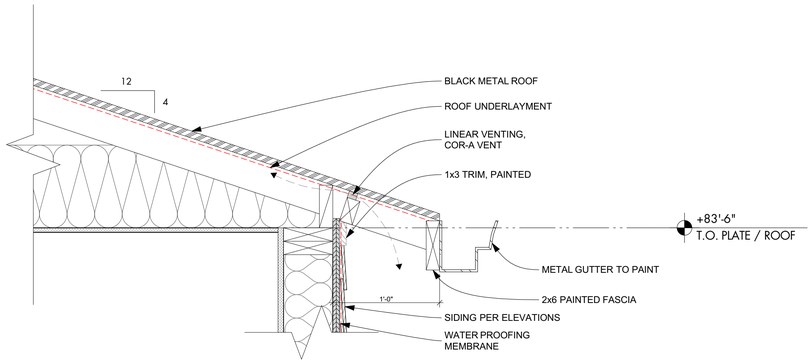
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BUILDING SECTIONS

A4.01

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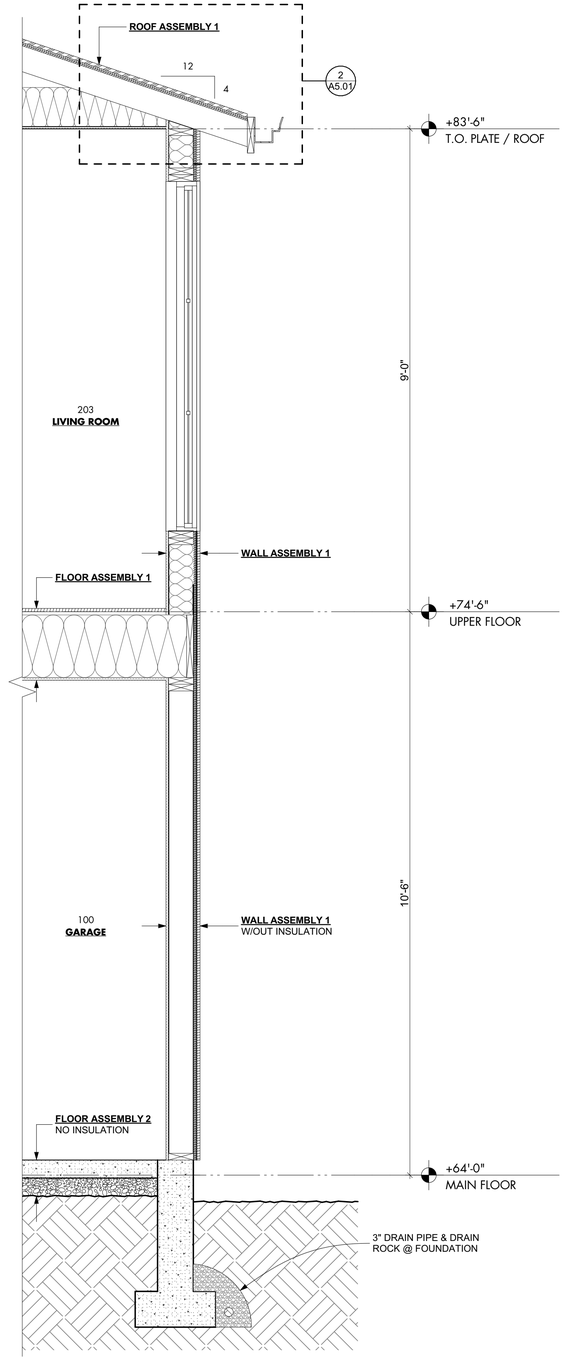
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2 EAVE DETAILS

SCALE: 1 1/2"= 1'-0"

0 6" 12" 18"



1 WALL SECTION

SCALE: 3/4" = 1'-0"

0 1' 2' 3'

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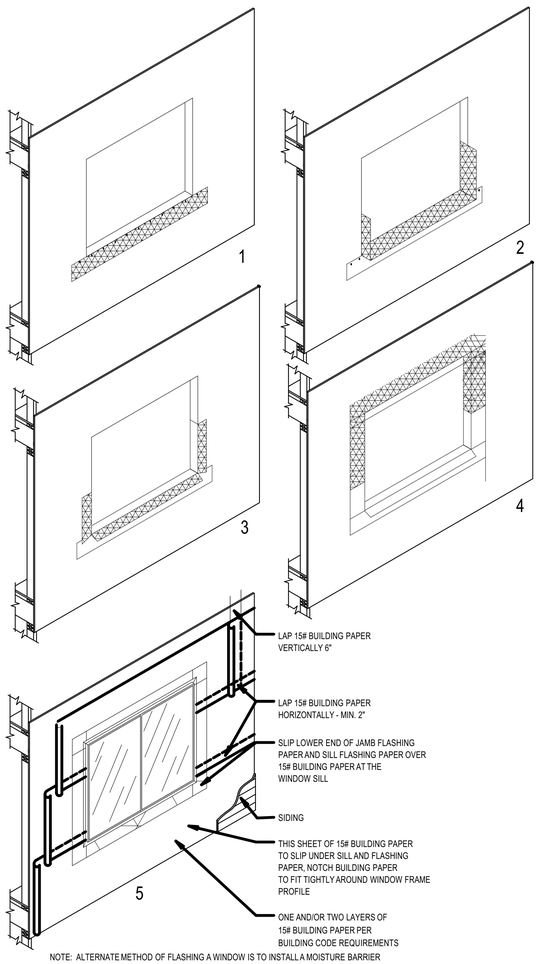
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WALL SECTIONS

A5.01

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NOTE: ALTERNATE METHOD OF FLASHING A WINDOW IS TO INSTALL A MOISTURE BARRIER PAPER TO THE OUTSIDE SURFACE IN THE SAME OPERATION THAT YOU WOULD BE WRAPPING THE ROUGH INSIDE SURFACE OPENING.

THE NAIL ON WINDOW WOULD BE INSTALLED OVER THE FLASHING SYSTEM

INTERIOR DOOR SCHEDULE

LOCATION	NO.	UNIT DIMENSIONS WIDTH	UNIT DIMENSIONS HEIGHT	MFGR	TYPE	SAFETY GLASS	NOTES
MAIN FLOOR							
	101B	3'-0"	7'-0"	PER CONTRACTOR	D3	NO	
	102A	2'-8"	7'-0"	PER CONTRACTOR	D3	NO	
	102B	4'-0"	7'-0"	PER CONTRACTOR	D4	NO	
	103A	2'-6"	7'-0"	PER CONTRACTOR	D3	NO	
UPPER FLOOR							
	204A	7'-0"	7'-0"	PER CONTRACTOR	D5	NO	
	205A	5'-0"	7'-0"	PER CONTRACTOR	D6	NO	
	206A	2'-6"	7'-0"	PER CONTRACTOR	D3	NO	
	207A	2'-8"	7'-0"	PER CONTRACTOR	D3	NO	

NOTE:
ALL DOORS TO BE SOLID CORE.

WINDOW SCHEDULE

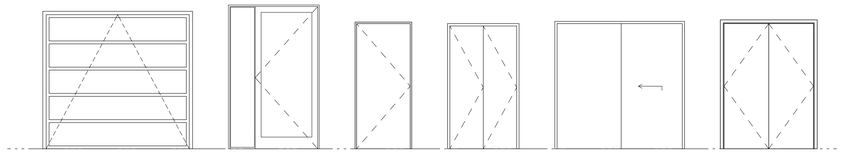
LOCATION	NO.	UNIT DIMENSIONS WIDTH	UNIT DIMENSIONS HEIGHT	UNIT DIMENSIONS HEAD HEIGHT	OPERATION	MFGR	TYPE	EGRESS	SAFETY GLASS	U-VALUE	NOTES:
MAIN FLOOR											
	102C	8'-0"	6'-6"	8'-0"	CSMT	PER CONTRACTOR	W3	YES	NO	0.28	
	102D	9'-0"	3'-6"	8'-0"	FIXED	PER CONTRACTOR	W2		NO	0.28	
UPPER FLOOR											
	201A	8'-0"	2'-0"	8'-0"	FIXED	PER CONTRACTOR	W1		NO	0.28	
	202A	5'-0"	6'-6"	8'-0"	FIXED	PER CONTRACTOR	W4		NO	0.28	
	203A	8'-0"	2'-0"	8'-0"	FIXED	PER CONTRACTOR	W1		NO	0.28	
	203B	4'-0"	6'-6"	8'-0"	FIXED	PER CONTRACTOR	W4		NO	0.28	
	203C	8'-0"	2'-0"	8'-0"	FIXED	PER CONTRACTOR	W1		NO	0.28	
	203D	5'-0"	5'-0"	18'-6"	FIXED	PER CONTRACTOR	W2		NO	0.28	
	203E	5'-0"	6'-6"	8'-0"	FIXED	PER CONTRACTOR	W4		NO	0.28	
	203F	5'-0"	6'-6"	8'-0"	FIXED	PER CONTRACTOR	W4		NO	0.28	
	207A	4'-0"	2'-0"	8'-0"	FIXED	PER CONTRACTOR	W1		NO	0.28	

EXTERIOR DOOR SCHEDULE

LOCATION	NO.	UNIT DIMENSIONS WIDTH	UNIT DIMENSIONS HEIGHT	TYPE	MFGR	SAFETY GLASS	U-VALUE	REMARKS
MAIN FLOOR								
	100A	8'-0"	7'-6"	D1	AMARR	NO		GARAGE DOOR, AMARR LINCOLN
	100B	8'-0"	7'-6"	D1	AMARR	NO		GARAGE DOOR, AMARR LINCOLN
	101A	5'-0"	8'-0"	D2	PER CONTRACTOR	YES		CUSTOM ENTRY DOOR WITH SIDE LITE

SKYLIGHT SCHEDULE

LOCATION	NO.	UNIT DIMENSIONS WIDTH	UNIT DIMENSIONS HEIGHT	MFGR	TYPE	OPERATION	SAFETY GLASS	U-VALUE	NOTES:
T.O. PLATE / ROOF									
	300A	8'-0"	3'-0"	PER CONTRACTOR	SK1	FIXED	NO		



D1
GARAGE DOOR

D2
(1) SINGLE DOOR +
SIDE LITE

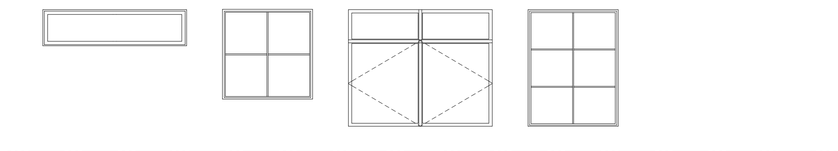
D3
SINGLE DOOR

D4
BI-FOLD DOOR

D5
SLIDING DOOR

D6
DOUBLE DOOR

DOOR TYPES



W1
FIXED WINDOW

W2
FIXED WINDOW

W3
(2) CASEMENT +
(2) FIXED

W4
FIXED

WINDOW TYPES



SK1
FIXED SKYLIGHT

SKYLIGHT TYPES

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DOOR AND WINDOW SCHEDULES

A6.01

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GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC)

2. DESIGN LOADING CRITERIA

ROOF SNOW LOAD	25 PSF
FLOOR LIVE LOAD (RESIDENTIAL)	40 PSF

SNOW : ROOF SNOW LOAD = 25 PSF
GROUND SNOW LOAD = 20 PSF
EXPOSURE Ce = 1.00
IMPORTANCE FACTOR Is = 1.00
THERMAL FACTOR Ct = 1.00

WIND : ANALYSIS PROCEDURE: ASCE 7-16 CHAPTER 27 "PART 1 - BUILDINGS OF ALL HEIGHTS"
RISK CATEGORY II
98 MPH
EXPOSURE "B"
TOPOGRAPHIC FACTOR Kzt = 1.0

CLADDING / WINDOW DESIGN PRESSURE (MAX.)	35 PSF
ROOFING DESIGN PRESSURE NOT AT A CORNER (MAX.)	44 PSF
ROOFING DESIGN PRESSURE AT CORNER (MAX.)	67 PSF

THE DESIGN WIND PRESSURES LISTED ABOVE ARE INWARD OR OUTWARD AND ARE BASED ON AN EFFECTIVE WIND AREA OF 10 SQUARE FEET NEAR A BUILDING CORNER, U.O.N. CORNER AND OTHER ZONES ARE DEFINED BY FIGURE 30.3-1, 30.3-2A TO 2I AND 30.3-5A TO 5B IN ASCE 7-16. REDUCED DESIGN PRESSURES MAY BE CALCULATED USING ASCE 7. NOTE THAT THE DESIGN WIND PRESSURES NOTED ABOVE ARE ULTIMATE VALUES PER THE 2018 IBC AND SHALL BE MULTIPLIED BY 0.6 FOR ALLOWABLE STRESS DESIGN.

EARTHQUAKE : ANALYSIS PROCEDURE: IBC "EQUIVALENT LATERAL FORCE PROCEDURE"
SEISMIC DESIGN CATEGORY (SDC) = D
RISK CATEGORY = II
SEISMIC SITE CLASS = D
IMPORTANCE FACTOR Ie = 1.0
MAPPED MCE Ss = 1.61; S_1 = 0.62
DESIGN ACCELERATION Sds = 1.14; Sd_1 = 0.86
SEISMIC RESISTING SYSTEM: WOOD PANEL BEARING SHEAR WALL, R = 6.5

3. LATERAL LOADS ARE TRANSFERRED BY THE ROOF AND FLOOR DIAPHRAGMS TO THE SHEAR WALLS. FORCES ARE BASED ON THE TRIBUTARY AREA FOR EACH SHEAR WALL AND ARE CARRIED BY THE SHEAR WALLS TO THE FOUNDATION.

4. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

5. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THEIR WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

8. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

9. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. WHERE INFORMATION ON THE DRAWINGS IS IN CONFLICT WITH THE SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. DO NOT SCALE THE DRAWINGS.

10. ALL STRUCTURAL SYSTEMS WHICH ARE COMPOSED OF FIELD ERECTED COMPONENTS SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

11. SHOP DRAWINGS FOR CONNECTOR PLATE WOOD ROOF TRUSSES AND PLYWOOD WEB JOISTS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

12. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. A MINIMUM OF TWO WEEKS SHALL BE ALLOWED FOR REVIEW.

13. SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

GEOTECHNICAL

14. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL REPORT OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB AND GEOTECHNICAL ENGINEER. UNLESS OTHERWISE NOTED, FOOTINGS SHALL BE CENTERED UNDER COLUMNS OR WALLS ABOVE.

BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE GEOTECHNICAL REPORT.

THE STRUCTURAL DESIGN IS BASED ON THE FOLLOWING VALUES FROM THE REFERENCED GEOTECHNICAL REPORT:

ALLOWABLE SOIL BEARING PRESSURE	2,500 PSF

GEOTECHNICAL REPORT REFERENCE: PROJECT # 2EH03221024 DATED OCT.5TH, 2023 PREPARED BY MERIT ENGINEERING, INC.

CONCRETE

15. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301. CONSTRUCTION TOLERANCES SHALL NOT EXCEED THOSE LISTED IN ACI 117. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	28 DAY STRENGTH (f'c)	MAXIMUM SLUMP	MIN. CEMENT CONTENT PER CUBIC YARD	MAX. AGGREGATE SIZE
A. FOOTINGS, SLABS-ON-GRADE, STEM WALLS	2,500 PSI	5"	5-1/2 SACKS	1 1/4"

MIXES SHALL BE PROPORTIONED SO AS NOT TO EXCEED THE MAXIMUM SLUMPS INDICATED (BEFORE THE ADDITION OF ADMIXTURES). THE WATER/CEMENT RATIO SHALL NOT EXCEED 0.55 FOR FOOTINGS AND 0.45 FOR ALL SLABS AND EXPOSED CONCRETE.

THE MINIMUM AMOUNT OF CEMENT AND THE MAXIMUM SLUMP MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. (THE W/C RATIO LIMITS STILL APPLY). THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, CEMENTITIOUS MATERIAL, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER/CEMENT RATIO, SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ACI 301. CHEMICAL ADMIXTURES AND FLY ASH SHALL CONFORM TO ASTM C494 AND C618 RESPECTIVELY. FLY ASH PERCENTAGE OF TOTAL CEMENTITIOUS MATERIAL SHALL NOT EXCEED 20%. THE USE OF A PERFORMANCE MIX REQUIRES BATCH PLANT INSPECTION, THE COST OF WHICH SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY TO CONTRACT DOCUMENTS. CONTRACTOR MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

16. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy = 60,000 PSI. GRADE 60 REINFORCING STEEL INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING STEEL COMPLYING WITH ASTM A615 (S1) MAY BE WELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN A.W.S. D1.4 ARE SUBMITTED.

LONGITUDINAL REINFORCING STEEL IN DUCTILE FRAME MEMBERS AND IN SHEAR WALL BOUNDARY MEMBERS SHALL COMPLY WITH ASTM A706. ASTM A615 GRADE 60 REINFORCING STEEL IS ALLOWED IN THESE MEMBERS IF (A) THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED YIELD STRENGTH BY MORE THAN 18,000 PSI (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3,000 PSI) AND (B) THE RATIO OF THE ACTUAL ULTIMATE TENSILE STRESS TO THE ACTUAL TENSILE YIELD STRENGTH IS NOT LESS THAN 1.25.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

SPIRAL REINFORCEMENT SHALL BE PLAIN WIRE CONFORMING TO ASTM A615, GRADE 60, fy = 60,000 PSI.

17. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315 AND 318. LAP ALL CONTINUOUS REINFORCEMENT #5 AND SMALLER 60 BAR DIAMETERS, 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS #5 AND SMALLER 60 BAR DIAMETERS OR 2'-0" MINIMUM. LAPS OF LARGER BARS SHALL BE MADE IN ACCORDANCE WITH ACI 318, CLASS B. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS. PROVIDE (2) #5 MIN. U.N.O. TRIM BARS AROUND ALL OPENINGS IN CONCRETE WALLS OR SLABS EXTENDING 2'-6" PAST CORNERS, TYPICAL.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. NO REINFORCING BARS SHALL BE "WET-SET" INTO THE CONCRETE. PROVIDE A 20' LONG REBAR GROUND (UFER GROUND) PER ELECTRICIAN.

18. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST EARTH	3"
FORMED SURFACES EXPOSED TO EARTH (i.e. WALLS BELOW GROUND) OR WEATHER (#5 BARS OR SMALLER)	1-1/2"
SLABS AND WALLS (INTERIOR FACE)	GREATER OF (BAR DIAMETER PLUS 1/8") OR 3/4"

19. CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST-IN-PLACE AND PRECAST.

20. POLYSTYRENE (RIGID INSULATION) LIGHTWEIGHT STRUCTURAL FILL PLACED BELOW CONCRETE SLABS SHALL BE RIGID CELLULAR POLYSTYRENE CONFORMING TO ASTM D6817 OR ASTM C578, WITH A MINIMUM COMPRESSIVE RESISTANCE OF 5 PSI @ 1% DEFORMATION AND A MINIMUM COMPRESSIVE RESISTANCE OF 15 PSI @ 10 % DEFORMATION, U.O.N. MAXIMUM DENSITY SHALL BE 2.0 PCF. OFFSET BLOCK JOINTS BETWEEN ADJACENT LAYERS AND ATTACH BLOCKS PER THE MANUFACTURER'S RECOMMENDATIONS.

ANCHORAGE

21. SCREW ANCHORS INTO CONCRETE SHALL BE "TITEN HD", AS MANUFACTURED BY SIMPSON STRONG-TIE ANCHOR SYSTEMS. INSTALL IN STRICT ACCORDANCE WITH I.C.C. REPORT NO. ESR-2713 INCLUDING STANDARD EMBEDMENT REQUIREMENTS U.O.N. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW WITH I.C.C. OR IAPMO UES REPORTS INDICATING EQUIVALENT OR GREATER LOAD CAPACITIES. SPECIAL INSPECTION IS REQUIRED FOR ALL SCREW ANCHOR INSTALLATION.

WOOD

22. FRAMING LUMBER: SHALL BE KILN DRIED OR MC-19 (MOISTURE CONTENT LESS THAN 19%), AND GRADED AND MARKED IN CONFORMANCE WITH W.C.L.I.B. STANDARD NO. 17 GRADING RULES FOR WEST COAST LUMBER. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS (2X AND 4X MEMBERS)	DOUGLAS FIR OR HEM-FIR NO. 2
BEAMS AND STRINGERS (INCLUDING 6 X AND LARGER MEMBERS)	DOUGLAS FIR NO. 1
POSTS AND TIMBERS	DOUGLAS FIR NO. 1
STUDS, PLATES & MISCELLANEOUS LIGHT FRAMING (AS NOTED ON PLANS / DETAILS)	DOUGLAS FIR OR HEM-FIR NO. 2
2X, 3X AND 4X TONGUE AND GROOVE DECKING	HEM-FIR COMMERCIAL DEX

23. WOOD SETTLEMENT SHRINKAGE: DUE TO CROSS GRAIN WOOD SHRINKAGE, THIS BUILDING IS EXPECTED TO SETTLE APPROXIMATELY 1/8 TO 1/4 INCH PER STORY. ALL UTILITIES SHALL BE DESIGNED WITH FLEXIBLE JOINTS OR OTHER MEANS TO APPROPRIATELY ACCOMMODATE THIS NORMAL SETTLEMENT. ALL INTERIOR AND EXTERIOR SHEATHING AND FINISHES SHALL BE INSTALLED SUCH THAT NO DAMAGE WILL OCCUR. SHRINKAGE IS EXPECTED IN THE THICKNESS OF THE WALL PLATES AND NOT IN THE LENGTH OF THE WALL STUDS.

24. LAMINATED VENEER LUMBER (LVL) SHALL BE DESIGNED AND MANUFACTURED PER ASTM D5456. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, AND THE INDEPENDENT INSPECTION AGENCY'S LOGO. ALL LAMINATED VENEER LUMBER SHALL BE MANUFACTURED USING DOUGLAS FIR VENEER GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. MINIMUM STRUCTURAL PROPERTIES ARE AS FOLLOWS:

Fb = 2600 PSI, E = 2.0 x 10^6 PSI, Fv = 285 PSI

DESIGN SHOWN ON PLANS IS BASED ON MATERIALS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

25. LAMINATED STRAND LUMBER (LSL) SHALL BE DESIGNED AND MANUFACTURED PER ASTM D5456. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, AND THE INDEPENDENT INSPECTION AGENCY'S LOGO. ALL LAMINATED STRAND LUMBER SHALL BE MANUFACTURED USING A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559. MINIMUM STRUCTURAL PROPERTIES ARE AS FOLLOWS:

RIM JOISTS AND BLOCKING (1-1/4" MINIMUM THICKNESS AT NON-SHEAR WALLS; SEE SCHEDULE FOR MINIMUM THICKNESS AT SHEAR WALLS):

Fb = 1700 PSI, E = 1.3 x 10^6 PSI, Fv = 400 PSI

BEAMS AND HEADERS:
Fb = 2325 PSI, E = 1.55 x 10^6 PSI, Fv = 310 PSI

STUDS:
2x4 & 2x6 Fb = 1700 PSI, E = 1.3 x 10^6 PSI, Fv = 400 PSI
> 2x6 Fb = 2425 PSI, E = 1.6 x 10^6 PSI, Fv = 400 PSI

COLUMNS:
Fb = 1700 PSI, E = 1.3 x 10^6 PSI, Fv = 400 PSI

DESIGN SHOWN ON PLANS IS BASED ON MATERIALS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

26. PARALLEL STRAND LUMBER (PSL) SHALL BE DESIGNED AND MANUFACTURED PER ASTM D5456. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, AND THE INDEPENDENT INSPECTION AGENCY'S LOGO. ALL PARALLEL STRAND LUMBER SHALL BE MANUFACTURED USING DOUGLAS FIR STRANDS GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. MINIMUM STRUCTURAL PROPERTIES ARE AS FOLLOWS:

Fb = 2900 PSI, E = 2.2x 10^6 PSI, Fv = 290 PSI
Fb = 2400 PSI, E = 1.8x 10^6 PSI, F'c = 2500 PSI (COMMERCIAL COLUMNS)

DESIGN SHOWN ON PLANS IS BASED ON MATERIALS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

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SHEET NUMBER: **S1.0**

GENERAL STRUCTURAL NOTES

(The following apply unless shown otherwise on the plans)

27. WOOD I-JOISTS SHALL BE DESIGNED BY THE MANUFACTURER FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS AND SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. ALL NECESSARY BRIDGING, BLOCKING, BLOCKING PANELS, STIFFENERS, ETC., SHALL BE DETAILED AND FURNISHED BY THE MANUFACTURER. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER. PERMANENT AND TEMPORARY BRIDGING SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S SPECIFICATIONS. GLUE FLOOR JOISTS TO SHEATHING AS REQUIRED BY THE JOIST MANUFACTURER.

    DESIGN SHOWN ON PLANS IS BASED ON JOISTS MANUFACTURED BY THE WEYERHAEUSER CORPORATION. ALTERNATE WOOD I-JOIST MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALTERNATE JOIST HANGERS AND OTHER HARDWARE MAY BE SUBSTITUTED FOR ITEMS SHOWN PROVIDED THEY HAVE I.C.C. OR IAPMO UES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH PLYWOOD WEB JOIST PROVIDED.

28. PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH IBC SECTION 2303.4 AND ANSI/TPI 1-2014 "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION" FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. TRUSSES SHALL BE HANDLED, INSTALLED, AND BRACED PER "HIB 91" PER THE TRUSS PLATE INSTITUTE. LOADING SHALL BE AS FOLLOWS:

TOP CHORD SNOW LOAD	25 PSF
TOP CHORD DL ALLOWANCE FOR PV PANELS	5 PSF
TOP CHORD DEAD LOAD	5 PSF
BOTTOM CHORD LIVE LOAD	10 PSF (NOT INCLUDED IN TOTAL)
BOTTOM CHORD DEAD LOAD	5 PSF
TOTAL LOAD	40 PSF
NET WIND UPLIFT (TOP CHORD)	10 PSF

    THE LOADS ABOVE SHALL BE INCREASED TO THE FOLLOWING IF THE TRUSSES MEET THE DESCRIPTION OF AN "UNINHABITABLE ATTIC WITH LIMITED STORAGE" AS DEFINED IN FOOTNOTE j OF IBC TABLE 1607.1:

BOTTOM CHORD LIVE LOAD	20 PSF - INCLUDE IN TOTAL
BOTTOM CHORD DEAD LOAD	10 PSF

    SNOW LOAD DUE TO DRIFTING AND UNBALANCED LOADS SHALL BE INCLUDED PER THE IBC. TOP CHORDS SHALL BE DF LUMBER. UTILIZE A MINIMUM CREEP FACTOR OF 2.0 FOR DEAD AND SUSTAINED LIVE LOADS IN DETERMINING THE TRUSS DEFLECTIONS. MAXIMUM TOTAL DEFLECTION SHALL BE LESS THAN OR EQUAL TO L/240 OF THE TOTAL SPAN AND MAXIMUM LIVE LOAD DEFLECTION SHALL BE LESS THAN OR EQUAL TO L/360 OF THE TOTAL SPAN. PROVIDE ADEQUATE PLIES AND/OR METAL BRACKETS TO ADEQUATELY DISTRIBUTE THE BEARING PRESSURE AT THE ENDS OF THE GIRDER TRUSSES TO THE TOP PLATES OF THE BEARING WALLS SUCH THAT THE BEARING PRESSURE DOES NOT EXCEED 405 PSI. PROVIDE ADDITIONAL TRUSSES (AS REQUIRED) TO CARRY ALL CONCENTRATED LOADS AND MECHANICAL UNITS.

    WOOD TRUSSES SHALL UTILIZE I.C.C. OR IAPMO UES APPROVED CONNECTOR PLATES. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMITTED DOCUMENTS SHALL BEAR THE STAMP AND SIGNATURE OF A STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER. PROVIDE FOR SHAPES, BEARING POINTS, INTERSECTIONS, HIPS, VALLEYS, ETC., SHOWN ON THE DRAWINGS. EXACT COMPOSITION OF SPECIAL HIP, VALLEY, AND INTERSECTION AREAS (USE OF GIRDER TRUSSES, JACK TRUSSES, STEP-DOWN TRUSSES, ETC.) SHALL BE DETERMINED BY THE MANUFACTURER UNLESS SPECIFICALLY INDICATED ON THE PLANS. PROVIDE ALL TRUSS TO TRUSS AND TRUSS TO GIRDER TRUSS CONNECTION DETAILS AND REQUIRED CONNECTION MATERIALS. PROVIDE FOR ALL TEMPORARY AND PERMANENT TRUSS BRACING AND BRIDGING.

29. WOOD SHEATHING SHALL BE APA RATED, EXTERIOR GLUE; EXPOSURE 1, IN CONFORMANCE WITH THE REQUIREMENTS FOR THEIR TYPE IN DOC PS-1 OR PS-2. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS.

    UNLESS OTHERWISE NOTED ON THE PLANS, ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED TONGUE-AND-GROOVE JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING. TOENAIL BLOCKING TO SUPPORTS WITH (2) 10d-F NAILS AT EACH END, UNLESS OTHERWISE NOTED. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2X BLOCKING AT ALL UNFRAMED PANEL EDGES AND NAIL WITH EDGE NAILING SPACED PER PLANS.

30. ALL WOOD EXPOSED TO WEATHER, OR BEARING ON UNPROTECTED CONCRETE BELOW GRADE, OR BEARING ON UNPROTECTED CONCRETE LESS THAN 8" FROM EXPOSED EARTH SHALL BE PRESSURE-TREATED, U.O.N. PRESSURE TREATMENT SHALL BE WITH AN APPROVED PRESERVATIVE AND BRANDED WITH A QUALITY CONTROL AGENCY MARK BY THE AMERICAN WOOD PRESERVERS BUREAU OR EQUAL. ALL METAL HARDWARE IN CONTACT WITH TREATED WOOD SHALL BE PROTECTED WITH A G185 GALVANIZED COATING (ZMAX) OR BETTER. ALL NAILS IN TREATED WOOD SHALL BE HOT-DIP GALVANIZED OR BETTER. PROVIDE 2 LAYERS OF 30# ASPHALT IMPREGNATED BUILDING PAPER BETWEEN NON-PRESSURE-TREATED LEDGERS, BLOCKING, ETC., AND CONCRETE.

31. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NO. C-C-2019. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE I.C.C. OR IAPMO UES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. CONNECTORS SHALL BE SIZED TO MATCH THE SIZE OF THE FRAMING MEMBERS BEING CONNECTED. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. UNLESS NOTED OTHERWISE, ALL NAILS SHALL BE COMMON. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED. ALL BOLTS TIGHTENED TO SNUG TIGHT.

32. WOOD FASTENERS:

    A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

DRAWING ID	NAIL NAME	NAIL DIAMETER	NAIL LENGTH
"6d"	6d Common	0.113"	2"
"8d Box"	8d Box	0.113"	2-1/2"
"8d"	8d Common	0.131"	2-1/2"
"10d-F"	10d Framer	0.131"	3"
"10d"	10d Shear	0.148"	2-1/4"
"16d"	16d Sinker	0.148"	3-1/4"

    IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

    B. NAILS - SHEATHING FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

    C. SCREWS SHALL BE WOOD SCREWS OF THE DIAMETER AND LENGTH NOTED ON THE DRAWINGS. SDS FASTENERS ARE SIMPSON STRONG DRIVE SCREWS.

    D. HOT DIPPED GALVANIZED NAILS, BOLTS AND METAL PLATES - ALL NAILS, BOLTS AND METAL PLATES IN CONTACT WITH PRESSURE TREATED (INCLUDING FIRE-RETARDANT TREATED) LUMBER SHALL BE HOT DIPPED GALVANIZED.

33. WOOD FRAMING NOTES: THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS:

    A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE IBC. MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO IBC TABLE 2304.10.1. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. TIGHTEN BOLTS AND LAG SCREWS SNUGLY AGAINST WOOD FRAMING AFTER WOOD HAS REACHED SPECIFIED MOISTURE CONTENT.

    B. WALL FRAMING: ALL BEARING AND SHEAR WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2 x 4 STUDS @ 16" O.C. AT INTERIOR WALLS AND 2 x 6 @ 16" O.C. AT EXTERIOR WALLS. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL BEARING AND SHEAR WALLS AND AT EACH SIDE OF ALL OPENINGS. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW.

    ALL BEARING STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS AT 8" O.C. STAGGERED OR BOLTED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS WITH 3"x3"x1/4" PLATE WASHERS @ 4'-0" O.C., UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH 10d-F NAILS @ 8" O.C. STAGGERED. REFER TO THE PLANS AND SHEAR WALL SCHEDULE FOR REQUIRED SHEATHING AND NAILING. WHEN NOT OTHERWISE NOTED, PROVIDE GYPSUM WALLBOARD ON INTERIOR SURFACES AND GYPSUM SHEATHING ON EXTERIOR SURFACES ATTACHED TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING WITH SCREWS AT 8" O.C. USE 1-1/4 " W #6 SCREWS FOR 1/2" GWB AND 5/8" GWB WHERE OCCURS. USE 1-1/4" W #6 GALVANIZED SCREWS FOR 1/2" GWB AND 5/8" EXTERIOR GYPSUM SHEATHING, WHERE OCCURS. VERIFY THE FIRE ASSEMBLY REQUIREMENTS WHERE APPLICABLE WITH THE ARCHITECT.

    C. FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST LENGTH AND AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING AT ALL BEARING POINTS. NAIL ALL MULTI-JOIST BEAMS TOGETHER WITH 10d-F NAILS @ 8" O.C. STAGGERED UNLESS OTHERWISE NOTED.

    D. POSITIVE CONNECTIONS: PROVIDE THE FOLLOWING SIMPSON CONNECTORS AT TYPICAL FRAMING UNLESS OTHERWISE NOTED ON PLAN OR DETAIL. PROVIDE CCQ/ECCQ CAPS AND PBS BASES AT POSTS. PROVIDE BC BASE WHERE POST BEARS ON WOOD FRAMING BELOW. PROVIDE LUS SERIES HANGERS FOR 2X FLOOR AND ROOF JOISTS. CONNECTORS SHALL BE SIZED TO MATCH THE SIZE OF THE FRAMING MEMBERS BEING CONNECTED.

34. TONGUE AND GROOVE STRUCTURAL ROOF AND FLOOR DECKING SHALL BE INSTALLED AS A RANDOM LENGTH CONTINUOUS LAY-UP SYSTEM. INSTALL DECKING IN RANDOM LENGTHS OVER 3 OR MORE SPANS WITH EACH LENGTH OF DECKING OVER AT LEAST ONE FRAMING SUPPORT MEMBER. LAY WITH TONGUES FACING UPWARD ON SLOPED DECKING. FOR 2X AND 3X DECKING THE MAXIMUM MOISTURE CONTENT SHALL BE 15%. FOR 4X DECKING THE MAXIMUM MOISTURE CONTENT SHALL BE 19%.

    END JOINTS: DISPERSE END JOINTS AS RANDOMLY AS POSSIBLE TO MAKE EVEN SEPARATION PATTERN.

    A. AT LEAST 24-INCH APART AT ADJACENT PLANKS.

B. MORE THAN 1-FOOT APART AT ALTERNATE PLANKS SEPARATED BY ONE ROW.

C. NO END JOINTS IN 1/3 OF END SPAN COURSE BETWEEN FRAMING MEMBERS.

D. END MATCH EACH JOINT.

    THE MINIMUM LENGTHS SHALL BE BASED ON THE FOLLOWING:

    2X DECKING

- NOT LESS THAN 40% TO BE 14 FEET AND LONGER.
- NOT OVER 10% TO BE LESS THAN 10 FEET.
- NOT OVER 1% TO BE 4 TO 5 FEET.

    DECKING SHALL BE INSTALLED AS FOLLOWS:

    2X DECKING SHALL BE TOENAILED THROUGH THE TONGUE AND FACENAILED WITH ONE 16d COMMON NAIL PER PIECE PER SUPPORT. COURSES SHALL BE ATTACHED TO EACH OTHER WITH 6d COMMON TOENAILS @ 30" O.C. MAXIMUM.

ABBREVIATIONS

@	At	L	Angle
d	Penny (Nails)	LB.	Pound
ϕ	Diameter	LL	Live Load
°	Degrees	LLH	Long Leg Horizontal
...#	Pounds	LLV	Long Leg Vertical
#...	Number	LONGIT.	Longitudinal
		LT. WT.	Lightweight
(A)	Above		
A.B.	Anchor Bolt	MAX.	Maximum
ADD'L.	Additional	MECH.	Mechanical
ALT.	Alternate	MEZZ.	Mezzanine
APPROX.	Approximate	MF	Moment Frame
ARCH.	Architect	MFR.	Manufacturer
		MIN.	Minimum
(B)	Below	MISC.	Miscellaneous
B/	Bottom of	MK.	Mark
BF	Braced Frame		
BLKG.	Blocking	(N)	New
BLDG.	Building	N.	North
BM.	Beam	N.S.	Near Side
BOT.	Bottom	NOM.	Nominal
BRG.	Bearing	NTS	Not to Scale
BTWN.	Between		
		O.C.	On Center
℄	Centerline	O.D.	Outside Diameter
C	Camber	O.F.	Outside Face
CIP	Cast In Place	O.H.	Overhang
C.J.	Construction Joint or Control Joint	OPNG.	Opening
CJP	Complete Joint Penetration	OPP.	Opposite
CLG.	Ceiling		
CLR.	Clear	PAF	Powder Actuated Fastener
CMU	Concrete Masonry Unit	PC	Precast
COL.	Column	PERM.	Permanent
CONC.	Concrete	PERP.	Perpendicular
CONN.	Connections	PJP	Partial Joint Penetration
CONST.	Construction	PL or ℙ	Plate
CONT.	Continuous	PLF	Pounds per linear Foot
CSK.	Countersink	PLYWD	Plywood
		PREFAB.	Prefabricated
DBA	Deformed Bar Anchor	PSF	Pounds per Square Foot
DBL.	Double	PSI	Pounds per Square Inch
DEG.	Degree	P.T. or PT	Post-Tensioning
DF	Doug Fir-Larch	P/T	Pressure-Treated
DIA.	Diameter		
DIAG.	Diagonal	RAD.	Radius
DIAPH.	Diaphragm	REF.	Reference
DIM.	Dimension	REINF.	Reinforce or Reinforcement
DN.	Down	REQD.	Required
DO	Ditto	REV.	Revise
DTL.	Detail	R.O.	Rough Opening
DWG.	Drawing		
		S.	South
(E)	Existing	SCH. or SCHED.	Schedule
E.	East	SECT.	Section
EA.	Each	SHT.	Sheet
E.F.	Each Face	SIM.	Similar
EL.	Elevation	SOG	Slab On Grade
ELEV.	Elevator	SPEC.	Specification
EMBED.	Embedment Length	SQ.	Square
ENGR.	Engineer	SQ. FT.	Square Feet
EQ.	Equal	SQ. IN.	Square Inch(es)
E.W.	Each Way	SPF	Spruce-Pine-Fir
EXP.	Expansion	S.S.	Stainless Steel
EXT.	Exterior	STD.	Standard
		STIFF.	Stiffener
FDN.	Foundation	STL.	Steel
FIN.	Finish	STR.	Structural
FLR.	Floor	SUB.	Substitute
FRP	Fiber Reinforced Polymer	SYM.	Symmetrical
F.S.	Far Side		
FT.	Foot or Feet	T/	Top of
FTG.	Footing	T&B	Top and Bottom
		T&G	Tongue & Groove
GA.	Gauge	TEMP.	Temporary
GALV.	Galvanized	THRU	Through
GL	Glue Laminated	T.O.C.	Top of Concrete
GWB	Gypsum Wall Board	T.O.S.	Top of Steel
		T.O.W.	Top of Wall
HDG	Hot Dipped Galvanized	TRANS.	Transverse
HF	Hem Fir	TS	Tube Steel
HGR.	Hanger	TYP.	Typical
HORIZ.	Horizontal		
HSS	Hollow Structural Section	U.O.N.	Unless Otherwise Noted
HT.	Height		
		VERT.	Vertical
I.D.	Inside Diameter	VIF	Verify in Field
I.F.	Inside Face		
IN.	Inch	W.	West
INFO.	Information	W/ or w/	With
INT.	Interior	W.H.S.	Welded Headed Stud
		W/O	Without
JT.	Joint	WP	Work Point
		W.T.S.	Welded Threaded Stud
K	Kips	WWF	Welded Wire Fabric
KSF	Kips per Square Foot		
KSI	Kips per Square Inch	X SECT.	Cross Section
		X-STR	Extra Strong
		XX-STR	Double Extra Strong

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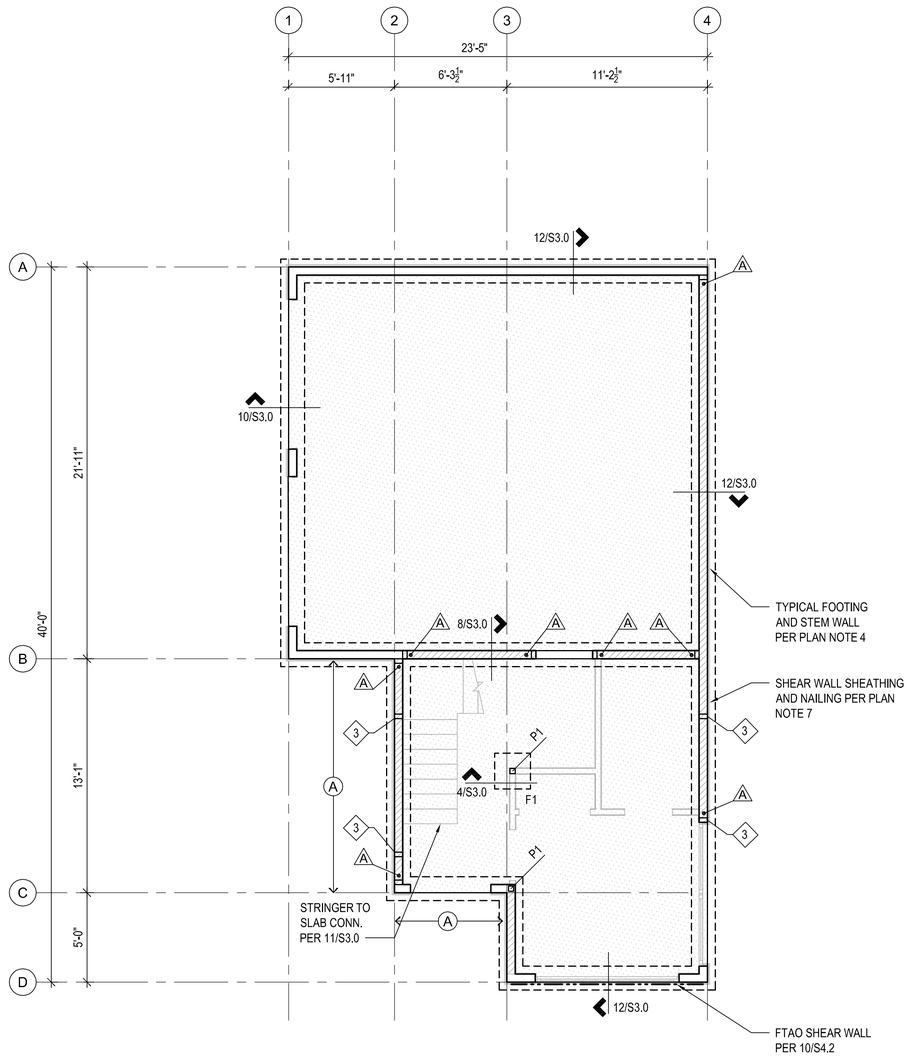
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NO.	DESCRIPTION	DATE

PROJECT NUMBER: 23-146
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CURRENT REVISION: PERMIT

SHEET NAME:
GENERAL STRUCTURAL NOTES

SHEET NUMBER:
S1.1



FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

STUD WALL TYPE SCHEDULE	
(A)	1¾ x5½ LSL (1.55E) STUDS @ 12" O.C.

FOOTING SCHEDULE	
MARK	**SIZE**
F1	24" SQ. x 12" DEEP FOOTING w/ (3) #4 E.W. BOTTOM, TYP.

POST SCHEDULE	
MARK	**SIZE**
P1	P/T 4x4

SEISMIC FORCE RESISTING SYSTEM LEGEND

SW-X — SHEAR WALL TYPE 'X' PER SCHEDULE 8/S4.0

(A) — HOLDOWN TYPE 'X' PER SCHEDULE 12/S4.0

LEGEND

4" SLAB-ON-GRADE PER PLAN NOTE 5

FOUNDATION & MAIN FLOOR FRAMING PLAN NOTES:

1. TOPS OF ALL EXTERIOR FOOTINGS ON THIS PLAN SHALL BE BURIED BELOW FINISHED GRADE AS SHOWN IN THE DETAILS. FOOTINGS SHALL BEAR ON DENSE NATIVE MATERIAL, OR PREPARED AS SPECIFIED IN THE GEOTECHNICAL REPORT.
2. FINAL SITE GRADES TO BE DETERMINED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE UNDERSLAB PIPING REQUIREMENTS AS SHOWN IN 7/S3.0.
3. POSTS AND STUD PACKS SHALL BE CONTINUOUS TO FOUNDATION. TYPICAL STUD WALLS SHALL BE FRAMED USING HEM-FIR #2 2x STUDS @ 16" O.C., U.O.N. POST LOADS FROM ABOVE TO BE BLOCKED PER 7/S4.1.
4. TYPICAL FOOTING TO BE 18"W x 8" DP. CONC. STRIP FTG. w/ (2) #4 CONT. BOTTOM AND #4 @ 16" O.C. TRANS. TYP. STEM WALL TO BE 8" STEM WALL w/ #4 @ 12" O.C. HORIZ. AND 16" O.C. VERT.
5. SLAB-ON-GRADE SHALL BE 4" THICK w/ WWF 6x6-W2.1xW2.1 MID-DEPTH OR #4 @ 16" O.C. E.W. MID-DEPTH, U.O.N. PROVIDE VAPOR BARRIER BELOW SLAB AS REQUIRED AND PER 2/S3.0. INSTALL CONSTRUCTION AND CONTROL JOINTS PER 2/S3.0.
6. ALL CONNECTIONS AND CONNECTORS IN CONTACT WITH PRESSURE-TREATED LUMBER TO BE HOT DIPPED GALVANIZED OR STAINLESS STEEL, PER GENERAL STRUCTURAL NOTES.
7. ALL EXTERIOR WALLS TO BE SHEATHED AND NAILED PER SW-6, U.O.N.

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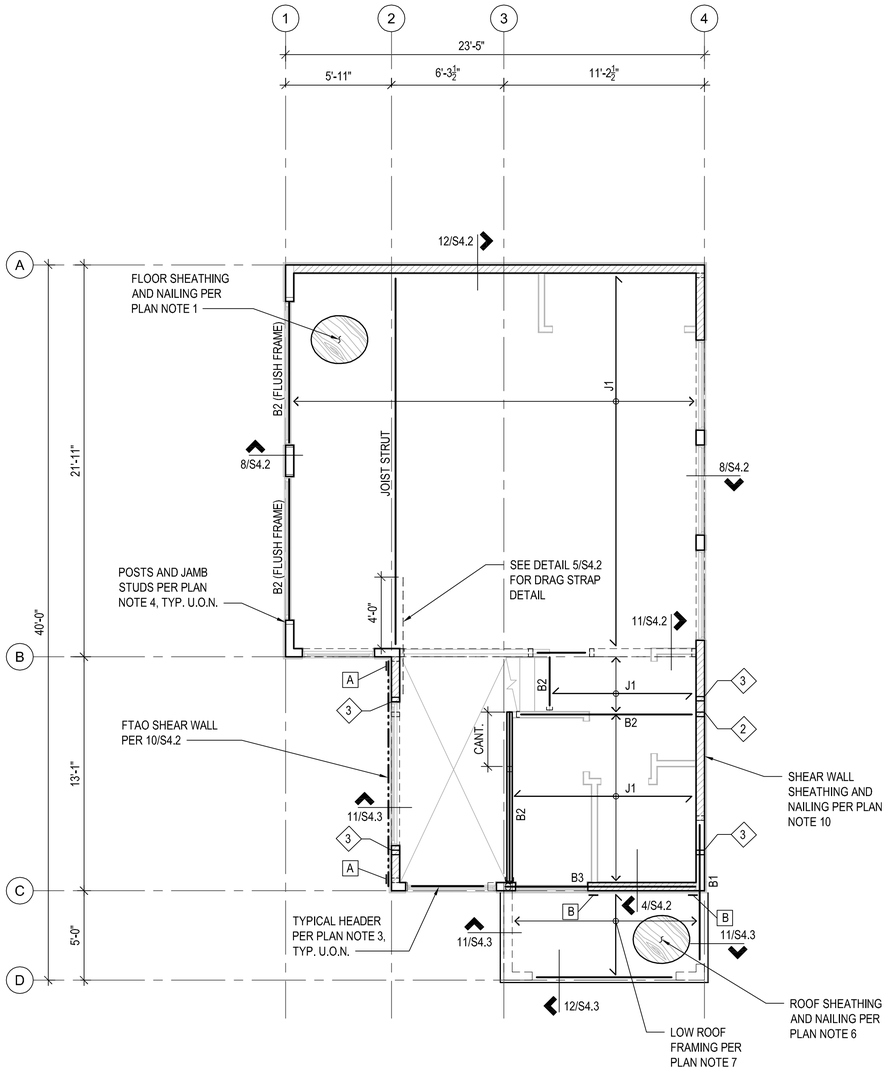
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SHEET NUMBER: **S2.0**



UPPER FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"

JOIST & BEAM SCHEDULE		
MARK	**SIZE**	**HANGER**
J1	14" TJI 110 @ 16" O.C.	PER MFR.
B1	3½ x 9¼ LVL	N/A
B2	3½ x 14 LVL	HUS412
B3	5¼ x 14 LVL	N/A

SEISMIC FORCE RESISTING SYSTEM LEGEND

SW-X	SHEAR WALL TYPE 'X' PER SCHEDULE 8/S4.0
X	STRAP TYPE HOLDOWN PER SCHEDULE 10/S4.0
	EXTENT OF SHEAR WALL SHEATHING
STRUT	FRAMING MEMBER NAILED AS STRUT PER PLAN NOTE 1

LEGEND

	SPAN DIRECTION OF FRAMING MEMBERS (SEE PLAN NOTE 2)
	STRUCTURAL WALL BELOW
	POST BELOW
X	NUMBER OF BUILT-UP STUDS

FLOOR FRAMING PLAN NOTES:

1. FLOOR SYSTEM SHALL CONSIST OF 23/32" PERFORMANCE CATEGORY, APA RATED SHEATHING, 48/24, EXPOSURE 1, NOMINAL 4'x8' (T&G OR SQUARE EDGE) PERMANENT OUTDOOR SHEATHING GRADE SHALL BE "EXTERIOR". NAIL SHEATHING AT ALL FRAMED PANEL EDGES, DIAPHRAGM BOUNDARIES, BLOCKING AND EXTERIOR SHEAR WALLS BELOW WITH 10d @ 6" O.C. PROVIDE 1/8" GAP AT ALL PANEL EDGE. FASTENER EDGE DISTANCE TO PANEL EDGE OF 3/8" MINIMUM. NAIL SHEATHING IN PANEL FIELD TO ALL STRUTS, STRUT BLOCKING, AND INTERIOR SHEAR WALLS BELOW WITH 10d @ 3" O.C. STAGGERED. NAIL SHEATHING AT ALL INTERMEDIATE SUPPORTS WITH 10d @ 12" O.C. GLUE SHEATHING AT ALL SUPPORTS WITH ADHESIVE CONFORMING TO ASTM SPECIFICATION D3498.
2. FLOOR JOISTS TO BE 14" TJI 110 @ 16" O.C. PROVIDE HANGERS PER MFR. AS REQUIRED. ALLOWABLE HOLES IN JOISTS PER JOIST SUPPLIER SPECIFICATIONS.
3. BEAMS OVER INTERIOR AND EXTERIOR OPENINGS SHALL BE 4x8 AND DROPPED BELOW STUD WALL TOP PLATES PER 10/S4.1, U.O.N.
4. POSTS OR JAMB STUDS AT END OF SUPPORTING BEAMS, GIRDER TRUSSES, OR BELOW POSTS SHALL BE (3) STUDS AT A MINIMUM. TYPICAL HEADER STUDS WILL BE (2) CRIPPLE STUDS AND (1) KING STUD.
5. OTHER TYPICAL FRAMING DETAILS SHOWN ON SHEET S4.1.
6. ROOF SYSTEM SHALL CONSIST OF 15/32" PERFORMANCE CATEGORY, APA RATED SHEATHING, 32/16, EXPOSURE 1, NOMINAL 4'x8' (T&G OR SQUARE EDGE). NAIL SHEATHING AT ALL FRAMED PANEL EDGES, DIAPHRAGM BOUNDARIES, STRUTS, BLOCKING, AND SHEAR WALLS BELOW w/ 10d @ 6" O.C. PROVIDE 1/8" GAP AT ALL PANEL EDGE. FASTENER EDGE DISTANCE TO PANEL EDGE OF 3/8" MINIMUM. NAIL SHEATHING AT ALL INTERMEDIATE SUPPORTS WITH 10d @ 12" O.C. U.O.N. INSTALL PANEL EDGE CLIPS PER GENERAL STRUCTURAL NOTES AT ALL UNFRAMED, UNBLOCKED PANEL EDGES
7. ROOF FRAMING SHALL BE CONNECTOR PLATE TRUSSES @ 24" O.C. TRUSS MANUFACTURER SHALL INSTALL ALL TEMPORARY AND PERMANENT TRUSS BOTTOM CHORD BRACING AND BRIDGING, RELATED CONNECTIONS, AND ATTACHMENT DETAILS. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS & ARCHITECTURAL DRAWINGS FOR HEIGHTS AND CONFIGURATIONS. TRUSSES SHALL BE DESIGNED FOR TYPICAL TRUSS LOADING AS SHOWN IN THE GENERAL STRUCTURAL NOTES.
8. DO NOT SCALE DRAWINGS. REFER TO ARCH. DRAWINGS FOR ALL DIMENSIONS.
9. FOR ALL DUCTS, CHASES, AND PIPES, REFERENCE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS.
10. ALL EXTERIOR WALLS TO BE SHEATHED AND NAILED PER SW-6, U.O.N.

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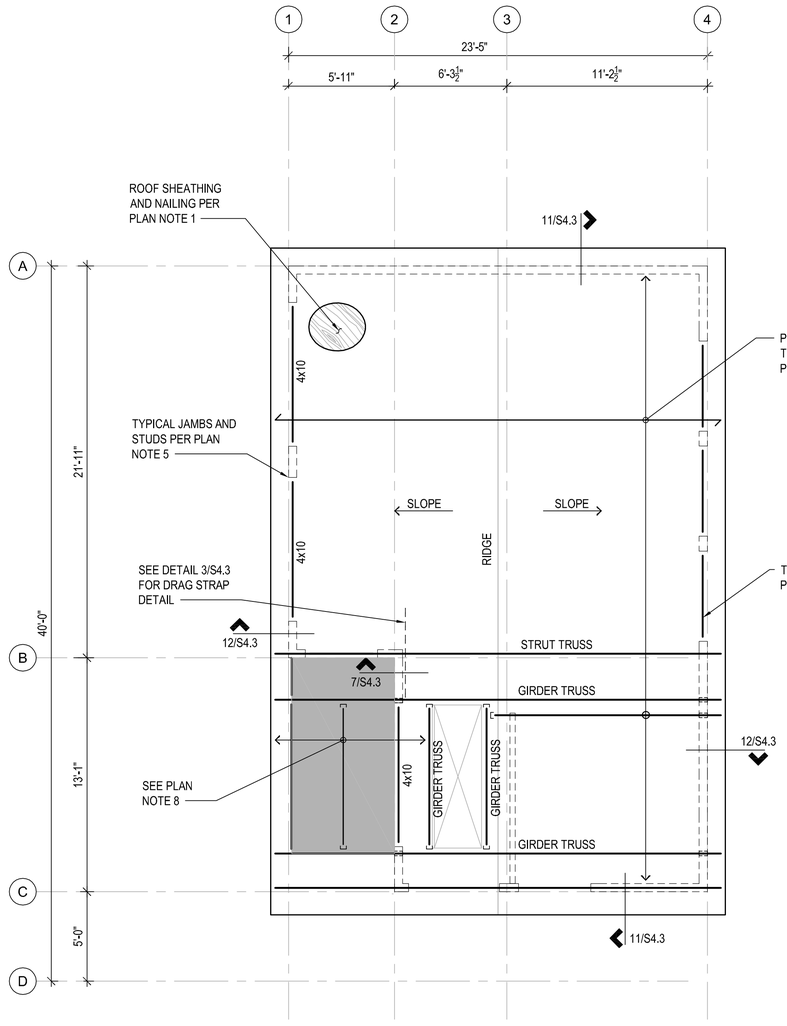
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SHEET NAME:
UPPER FLOOR FRAMING PLAN

SHEET NUMBER:
S2.1



ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

SEISMIC FORCE RESISTING SYSTEM LEGEND

STRUT	FRAMING MEMBER NAILED AS STRUT PER PLAN NOTE 1

LEGEND

	STRUCTURAL WALL BELOW
	SPAN DIRECTION OF FRAMING MEMBERS (SEE PLAN NOTE 2)
	SEE PLAN NOTE 9

ROOF FRAMING PLAN NOTES:

1. ROOF SYSTEM SHALL CONSIST OF $^{15}/_{32}$" PERFORMANCE CATEGORY, APA RATED SHEATHING, $^{32}/_{16}$, EXPOSURE 1, NOMINAL 4'x8' (T&G OR SQUARE EDGE). NAIL SHEATHING AT ALL FRAMED PANEL EDGES, DIAPHRAGM BOUNDARIES, STRUTS, BLOCKING, AND SHEAR WALLS BELOW w/ 10d @ 6" O.C. PROVIDE $^{1}/_{8}$" GAP AT ALL PANEL EDGE. FASTENER EDGE DISTANCE TO PANEL EDGE OF $^{3}/_{8}$" MINIMUM. NAIL SHEATHING AT ALL INTERMEDIATE SUPPORTS WITH 10d @ 12" O.C. U.O.N. INSTALL PANEL EDGE CLIPS PER GENERAL STRUCTURAL NOTES AT ALL UNFRAMED, UNBLOCKED PANEL EDGES
2. ROOF FRAMING SHALL BE CONNECTOR PLATE TRUSSES @ 24" O.C. TRUSS MANUFACTURER SHALL INSTALL ALL TEMPORARY AND PERMANENT TRUSS BOTTOM CHORD BRACING AND BRIDGING, RELATED CONNECTIONS, AND ATTACHMENT DETAILS. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS & ARCHITECTURAL DRAWINGS FOR HEIGHTS AND CONFIGURATIONS. TRUSSES SHALL BE DESIGNED FOR TYPICAL TRUSS LOADING AS SHOWN IN THE GENERAL STRUCTURAL NOTES.
3. CONNECTOR PLATE TRUSS SHOP DRAWINGS TO BE APPROVED BY HAREZLAK ENGINEERING PRIOR TO MANUFACTURING AND INSTALLATION.
4. ALL EXT. HEADERS TO BE 4x8 HF#2 UNLESS OTHERWISE NOTED, SEE 10/S4.1.
5. POST OR JAMB STUDS AT END OF SUPPORTING BEAMS, GIRDER TRUSSES, OR BELOW POSTS SHALL BE (3) STUDS AT A MINIMUM. TYPICAL HEADER STUDS WILL BE (2) CRIPPLE STUDS AND (1) KING STUD.
6. FLAT BLOCKING IS REQUIRED AT ALL UNFRAMED RIDGES, HIPS, AND VALLEYS, FOR SHEATHING CONNECTION.
7. NON-STRUCTURAL WALL CONNECTION TO TRUSS PER 4/S4.3.
8. 2x6 RAFTERS BETWEEN GIRDER TRUSSES @ 24" O.C. INSTALL RAFTERS TO TRUSS TOP CHORD w/ LUS26 HANGER. AT LOW END OF TRUSS PROFILE, INSTALL 2x6 CEILING JOISTS @ 24" O.C. w/ LUS HANGER TO TRUSS BOTTOM CHORD. TRUSS MFR. TO DESIGN FOR 2x6 TOP AND BOTTOM CHORD FOR GIRDER TRUSSES NOTED.
9. INSTALL 2x T&G DECKING OR $^{15}/_{32}$" PLYWOOD SHEATHING PER PLAN NOTE 1 TO UNDERSIDE OF TRUSS/2x FRAMING AT OVERHANG AS NOTED PER PLAN. COORDINATE WITH ARCH. ON FINAL ASSEMBLY.

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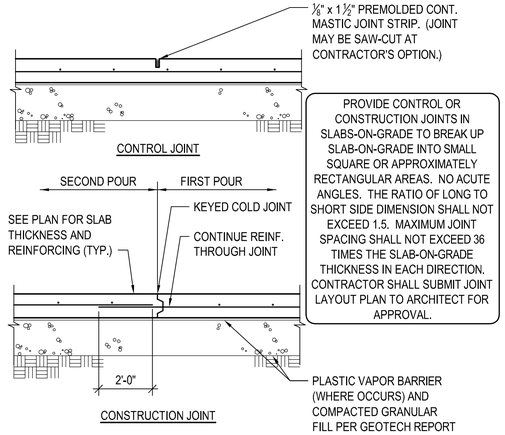
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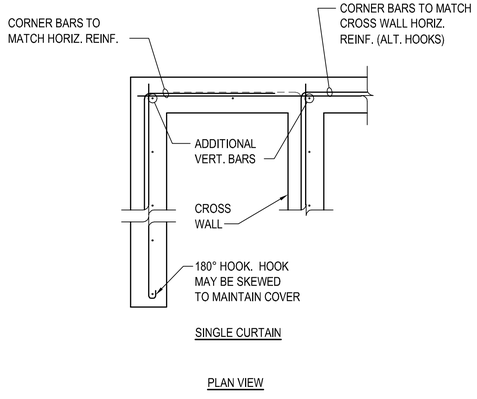
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ROOF FRAMING PLAN

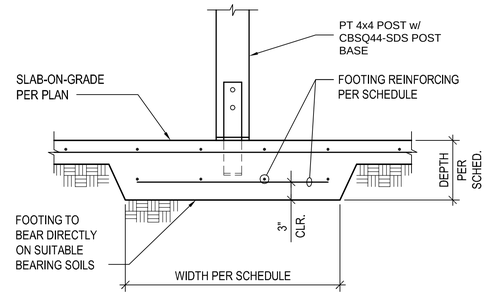
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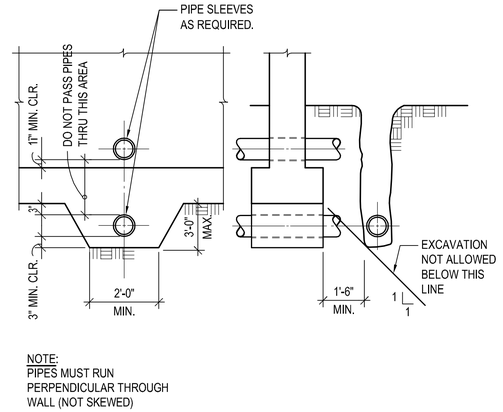


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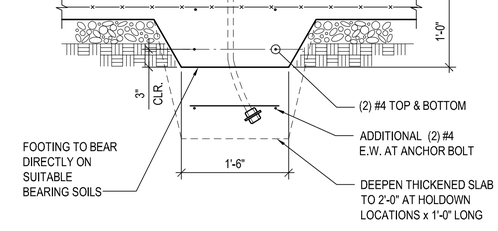
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NOTE:
PIPES MUST RUN PERPENDICULAR THROUGH WALL (NOT SKEWED)

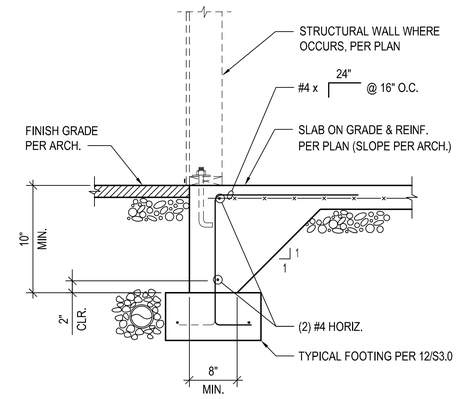
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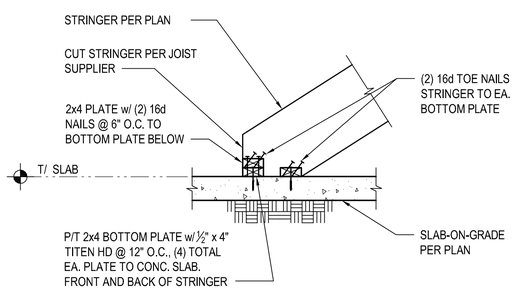
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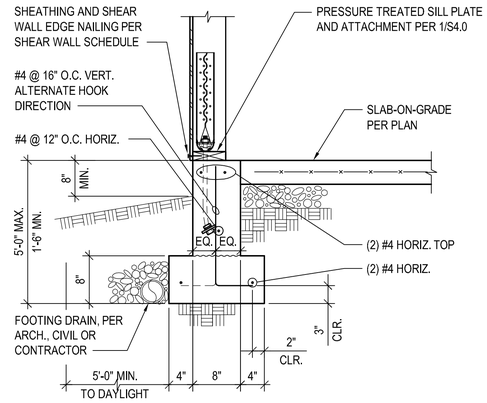


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12

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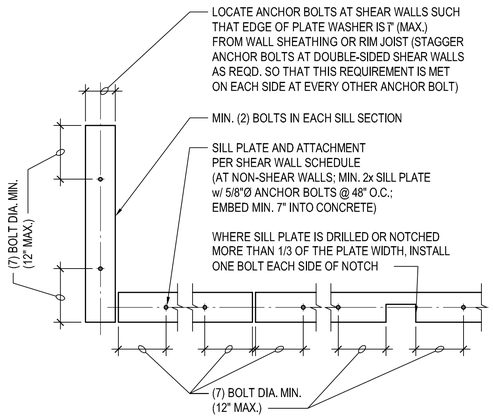
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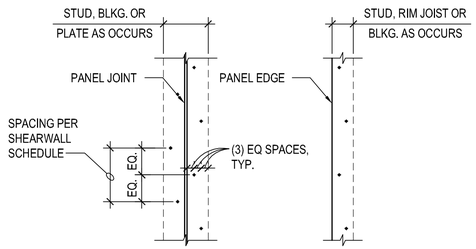
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SHEET NAME:
FOUNDATION DETAILS

SHEET NUMBER:
S3.0





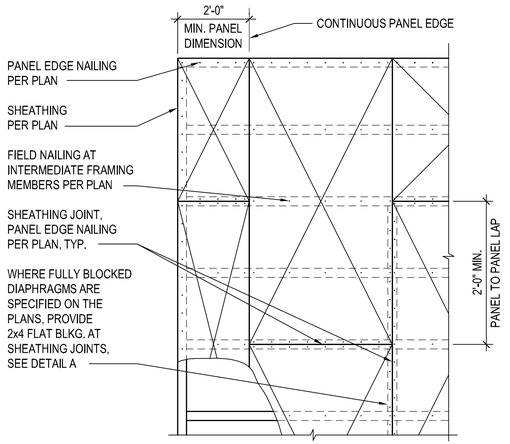
NOTE:
STAGGER EA. LINE OF NAILING (AT ALL PANEL EDGES) AS INDICATED

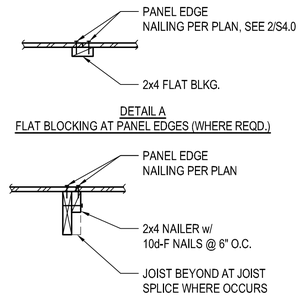
SHEAR WALL SCHEDULE (HEM-FIR, 10d NAILING)										
SHEAR WALL TYPE	SHEAR WALL SHEATHING (1)	PANEL EDGE FRAMING (2)(7)	PANEL EDGE NAILING (3)	BOTTOM PLATE ATTACHMENT			TOP PLATE ATTACHMENT		ALLOWABLE SHEAR WALL CAPACITY (PLF)	
				2x BOTTOM PLATE CONNECTION TO RIM JOIST OR BLOCKING BELOW	ANCHOR BOLTING OF SILL PLATE TO CONCRETE BELOW (4)(5)		RIM JOIST OR BLOCKING CONNECTION TO TOP PLATE (6)			
					3x PLATE	2x PLATE	INTERIOR WALL	EXTERIOR WALL	SEISMIC	WIND
SW-6	15/32" APA ONE-SIDE SHTG.	2x	0.148"Øx2 ¼" @ 6" O.C.	0.148"Øx3 ¼" @ 6" O.C. (9)	⅝"Ø @ 48" O.C.	⅝"Ø @ 48" O.C.	A35 @ 16" O.C.	LTP4 @ 16" O.C.	288	405

NOTES:

1. INSTALL PANEL SHEATHING EITHER HORIZONTALLY OR VERTICALLY FOR THE ENTIRE LENGTH OF THE WALL PER PLAN.
2. ALL INTERMEDIATE WALL STUDS SHALL BE PER PLAN. PROVIDE BACKING FRAMING AT ALL PANEL EDGES INCLUDING HORIZONTAL BLOCKING PER THE SCHEDULE.
3. PROVIDE NAILING TO ALL PANEL EDGES, TOP & BOTTOM PLATES AND HORIZONTAL BLOCKING. PROVIDE THE SAME NAILING PATTERN TO EACH MULTIPLE STUD OF THE BUILT-UP HOLD DOWN POST. NAIL PANEL TO INTERMEDIATE FRAMING MEMBERS w/ 0.131"Ø x 2 ½" @ 12" O.C.
4. EMBED CAST-IN-PLACE 5/8"Ø ANCHOR BOLTS 7" MIN. (OR EMBED ADHESIVE ANCHOR BOLTS 5 1/2" IN (E) CONCRETE; SEE STRUCTURAL NOTES). PROVIDE PLATE WASHER 3" x 3" x 1/4" AT EACH ANCHOR BOLT. SILL PLATES SHALL BE TREATED PER GENERAL NOTES, AND SHALL BE 2x OR 3x PER THE SCHEDULE. SEE DETAIL 1/S4.0 FOR OTHER REQUIREMENTS.
5. PROVIDE HOT DIPPED GALVANIZED NAILS, BOLTS, OR METAL PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED MEMBERS.
6. PROVIDE 0.131"Ø x 1-1/2" LONG NAILS FOR CLIPS DIRECTLY ATTACHED TO FRAMING MEMBERS; PROVIDE 0.131"Ø x 2-1/2" LONG NAILS FOR CLIPS INSTALLED OVER FLOOR OR WALL SHEATHING ON FRAMING MEMBERS. SEE 6/S4.1 FOR TOP PLATE SPLICE.
7. ALTERNATIVE TO 3x STUDS AND 3x HORIZ. BLOCKING IS (2) 2x STUDS/BLKG. NAILED TOGETHER WITH 0.148"Ø x 3" LONG NAILS WITH THE SAME SPACING AS THE PANEL EDGE NAILING PER THE SCHEDULE (STAGGER).
8. STAGGER NAILS PER 2/S4.0.
9. RIM JOIST/BLOCKING MINIMUM WIDTH OF 1 ½". STAGGER NAILS PER 2/S4.0 WHERE SPACING IS LESS THAN 6" O.C.

1





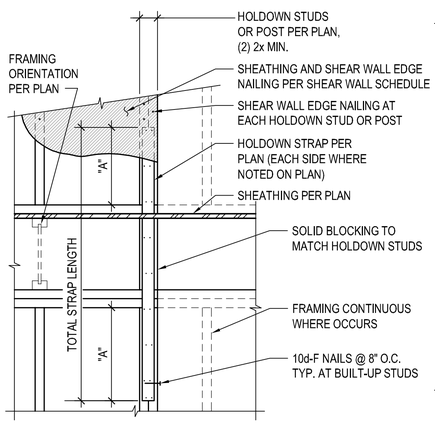
DETAIL A
FLAT BLOCKING AT PANEL EDGES (WHERE REQD.)

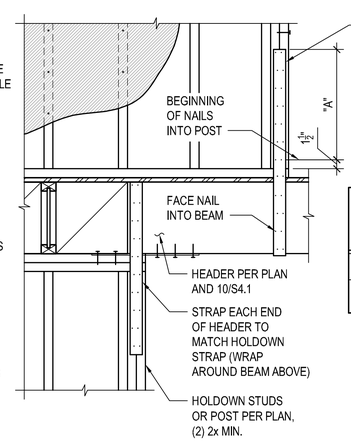
DETAIL B
PANEL EDGE NAILING AT JOIST SPLICE

NOTES:

1. RUN LONG DIMENSION OF SHEATHING PANELS PERPENDICULAR TO FRAMING.
2. WHERE FRAMING LAP SPLICE AND SHEATHING JOINTS ARE OFFSET, SEE DETAIL B ABOVE.

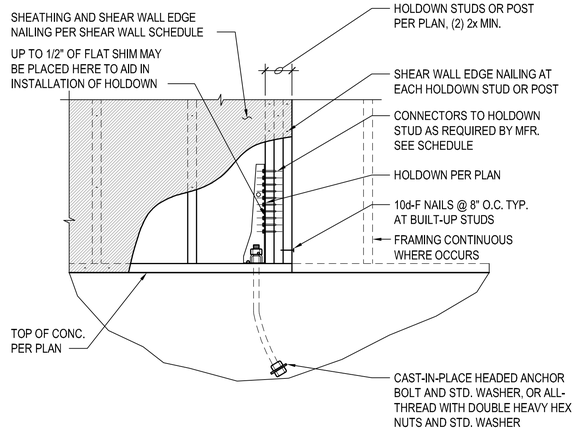
6





MARK	HOLDOWN STRAP	MIN. NUMBER OF NAILS EACH END	MIN. STRAP END LENGTH "A"
A	CS16	(15) 8d	1'-4"
B	MSTC66B3Z	(38) 10d FACE (4) 10d BEAM	1'-9"

10



MARK	HOLDOWN	ANCHOR BOLT *	CONNECTORS TO HOLDOWN STUDS	END STUDS / POST
A	HDU5	SB 5/8 x 24"	(14) SDS ¼"x2½" SCREWS	(2) 2x

NOTE:
PROVIDE HOT DIPPED GALVANIZED NAILS, BOLTS, OR METAL PLATES FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED MEMBERS.

* CONTRACTOR OPTION TO PROVIDE THREADED ROD IN LIEU OF ANCHOR IN SCHEDULE. DIAMETER TO BE AS INDICATED, CONTACT HAREZLAK ENGINEERING FOR PROJECT SPECIFIC EMBED REQUIREMENTS.

12

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11745 87th Ave. S.
Seattle, WA 98178
PH: 360.224.0627
E: phil@harezlakengineering.com

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PHILIP HAREZLAK — STATE OF WASHINGTON — 55577 — REGISTERED PROFESSIONAL ENGINEER

DRAWN BY: TA
CHECKED BY: MJH
APPROVED BY: PAH

11/17/2023

PROJECT INFORMATION:
WANG & YANG ADU

PROJECT ADDRESS:
6450 E MERCER WAY
MERCER ISLAND, WA 98040

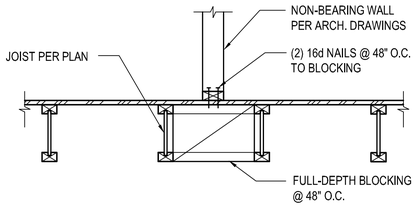
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NO.	DESCRIPTION	DATE

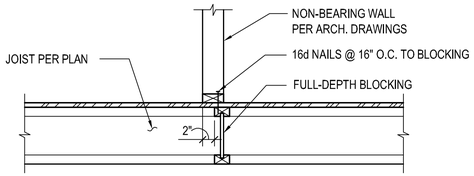
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ISSUE DATE: 11.17.2023
CURRENT REVISION: PERMIT

SHEET NAME:
FRAMING SCHEDULES

SHEET NUMBER:
S4.0

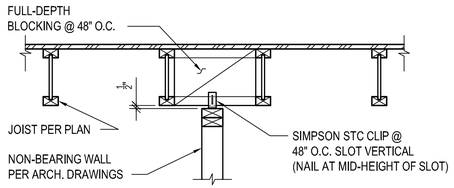


WALL PARALLEL TO FLOOR FRAMING

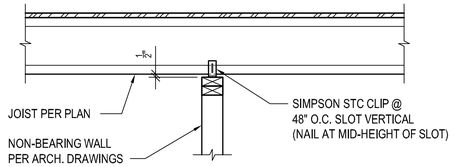


WALL PERPENDICULAR TO FLOOR FRAMING

1

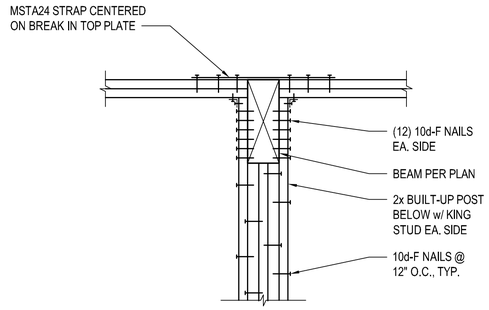


WALL PARALLEL TO ROOF/FLOOR FRAMING



WALL PERPENDICULAR TO ROOF/FLOOR FRAMING

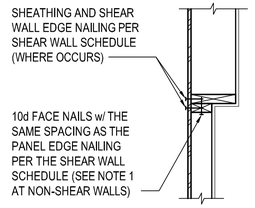
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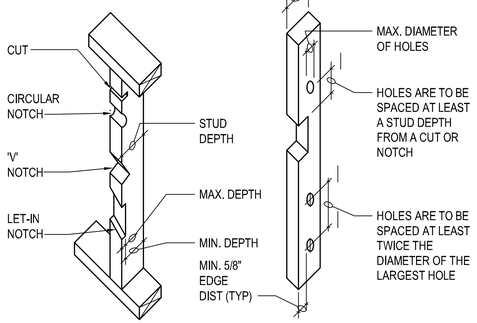
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NOTES:

1. AT NON-SHEAR WALLS, NAIL STUDS TOGETHER WITH 10d-F NAILS @ 8" O.C.
2. ADDITIONAL STUDS REQUIRED AS NAILERS, ETC. ARE NOT SHOWN.



VARYING WALL SIZE



A. CUTTING AND NOTCHING WOOD STUDS
(DO NOT NOTCH MORE THAN 3 ADJACENT STUDS w/o REVIEW BY ENGINEER)

BEARING WALL STUDS:

STUD SIZE	MAX. DEPTH OF SAW CUT OR NOTCH	MIN. DEPTH REMAINING AFTER CUT OR NOTCH
2x4	7/8"	2-3/8"
2x6	1-3/8"	4-1/8"
2x8	1-7/8"	5-3/8"

NON-BEARING WALL STUDS:

STUD SIZE	MAX. DEPTH OF SAW CUT OR NOTCH	MIN. DEPTH REMAINING AFTER CUT OR NOTCH
2x4	1-1/2"	2"
2x6	2-3/8"	3-1/8"
2x8	3"	4-1/4"

B. HOLES IN WOOD STUDS

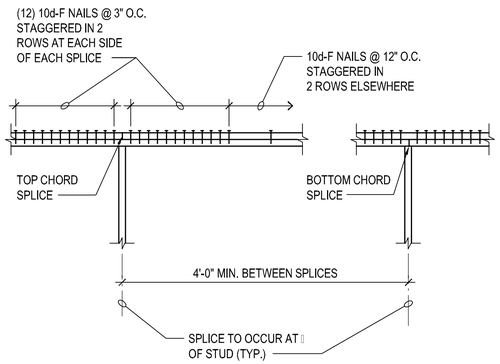
BEARING WALL:

STUD SIZE	MAX. DIAMETER OF HOLE
2x4	1-1/2"
2x6	2-3/8"
2x8	3"

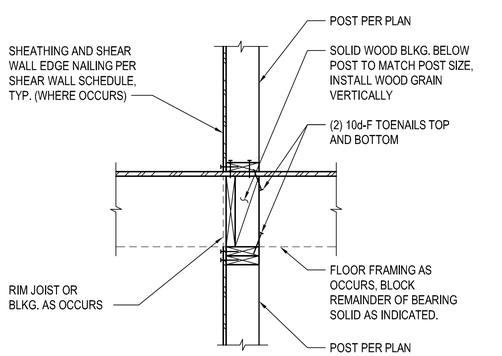
NON-BEARING WALL:

STUD SIZE	MAX. DIAMETER OF HOLE
2x4	2-1/4"
2x6	3-3/8"
2x8	4-1/2"

9

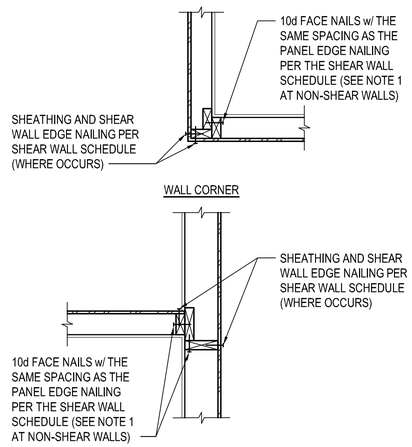


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NOTE:
FRAMING CONDITIONS VARY, FOR INFORMATION NOT NOTED SEE PLAN & APPROPRIATE DETAILS

7

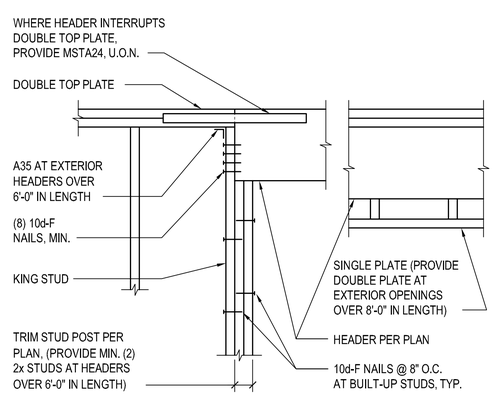


WALL CORNER

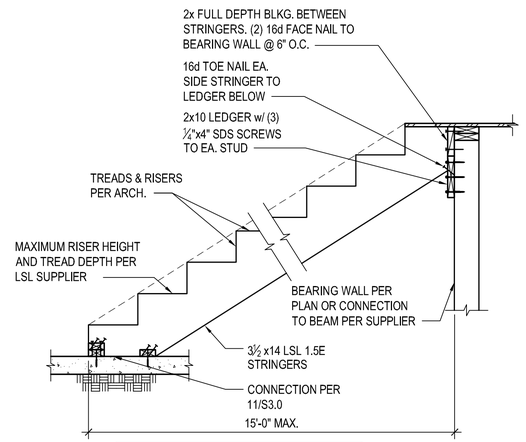


WALL INTERSECTION

8



10



SEE SUPPLIER, TYPICAL LSL STAIR STRINGER DETAILS FOR LOW END CONNECTION TO BEAM

11 12

HAREZLAK ENGINEERING
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PROFESSIONAL ENGINEER
11/17/2023

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CHECKED BY: MJH
APPROVED BY: PAH

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WANG & YANG ADU

PROJECT ADDRESS:
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MERCER ISLAND, WA 98040

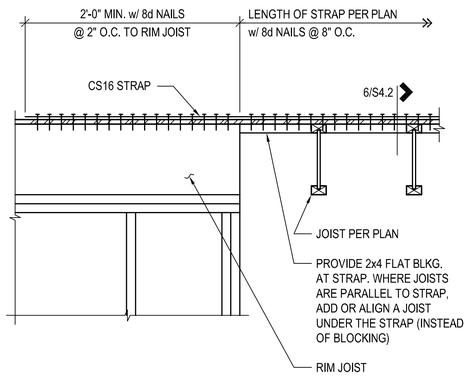
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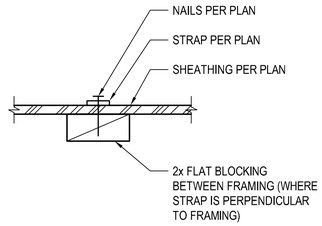
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ISSUE DATE: 11.17.2023
CURRENT REVISION: PERMIT

SHEET NAME:
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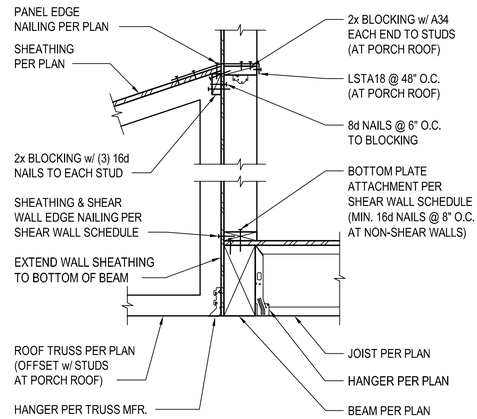
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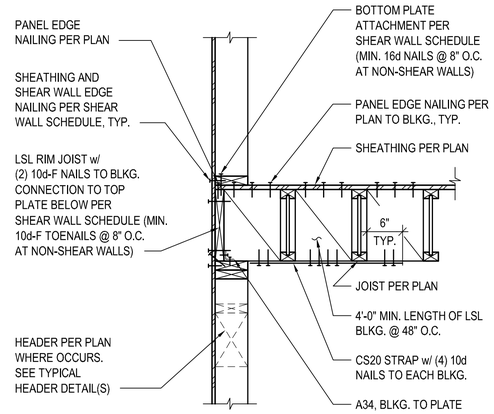
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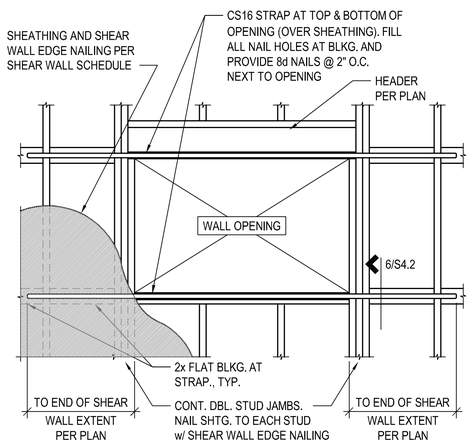
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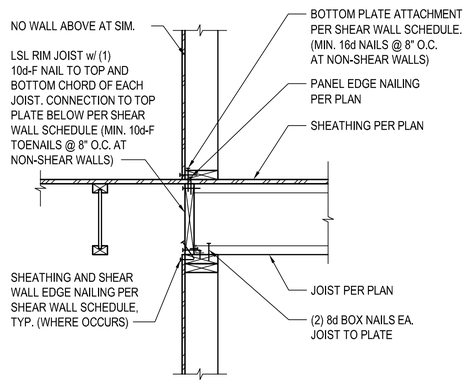
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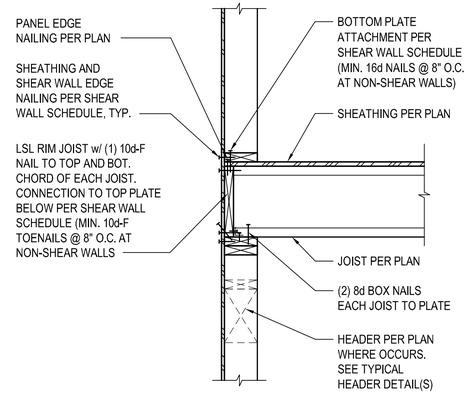


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CHECKED BY: MJH
APPROVED BY: PAH

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WANG & YANG ADU

PROJECT ADDRESS:
6450 E MERCER WAY
MERCER ISLAND, WA 98040

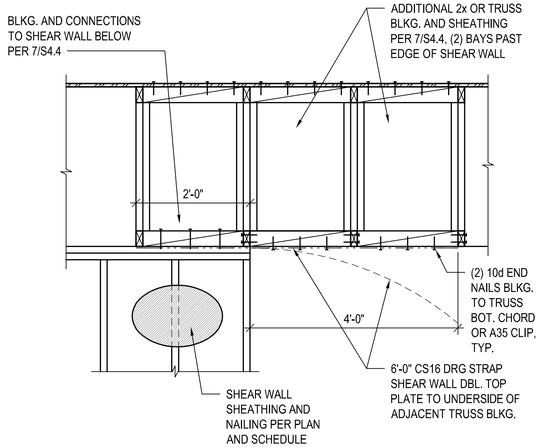
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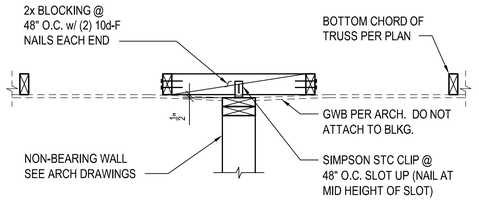
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ISSUE DATE: 11.17.2023
CURRENT REVISION: PERMIT

SHEET NAME:
FLOOR FRAMING DETAILS

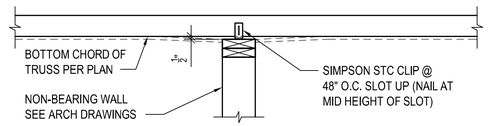
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WALL PARALLEL TO TRUSS FRAMING



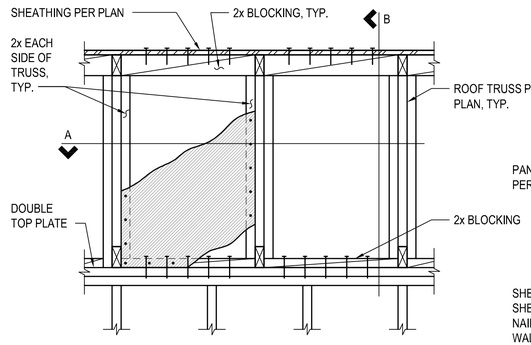
WALL PERP. TO TRUSS FRAMING

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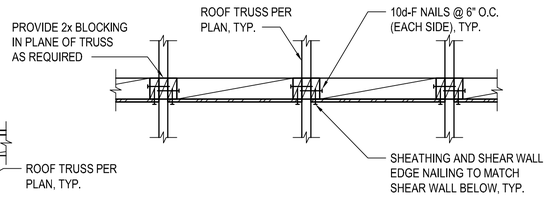
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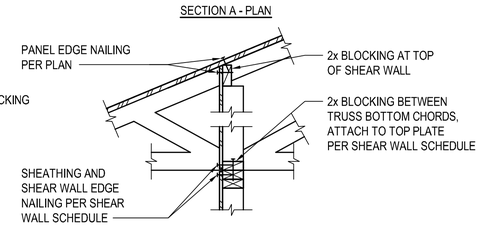
NOTE:
AT CONTRACTOR'S OPTION TRUSS MANUFACTURER MAY PROVIDE BLOCKING PANELS INSTEAD OF SITE-BUILT FRAMING SHOWN. MATCH CAPACITY OF SHEAR WALL BELOW.



ELEVATION



SECTION A - PLAN

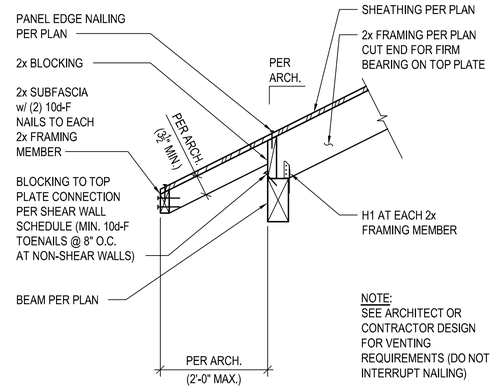


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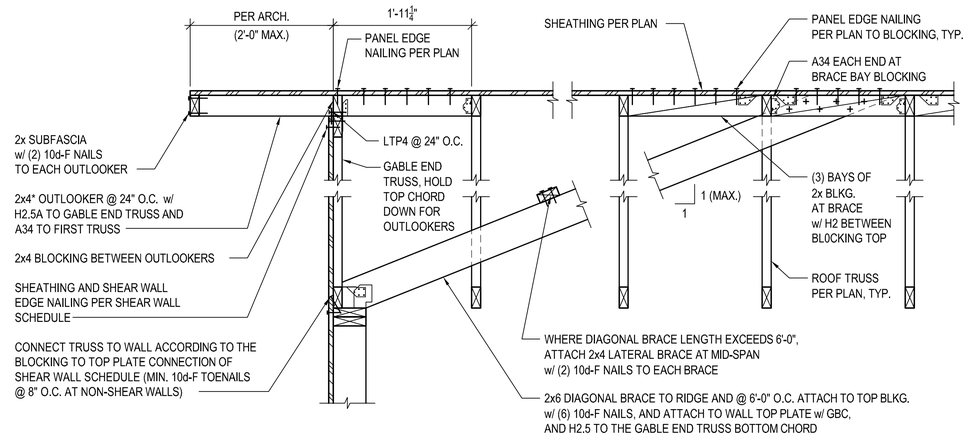
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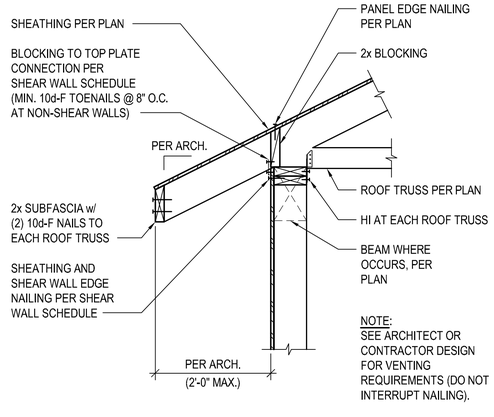
NOTE:
SEE ARCHITECT OR CONTRACTOR DESIGN FOR VENTING REQUIREMENTS (DO NOT INTERRUPT NAILING)



9

11

12



NOTE:
SEE ARCHITECT OR CONTRACTOR DESIGN FOR VENTING REQUIREMENTS (DO NOT INTERRUPT NAILING).

HAREZLAK ENGINEERING
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STATE OF WASHINGTON
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REGISTERED PROFESSIONAL ENGINEER

DRAWN BY: TA
CHECKED BY: MJH
APPROVED BY: PAH

11/17/2023

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PROJECT ADDRESS:
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MERCER ISLAND, WA 98040

REVISIONS:

NO.	DESCRIPTION	DATE

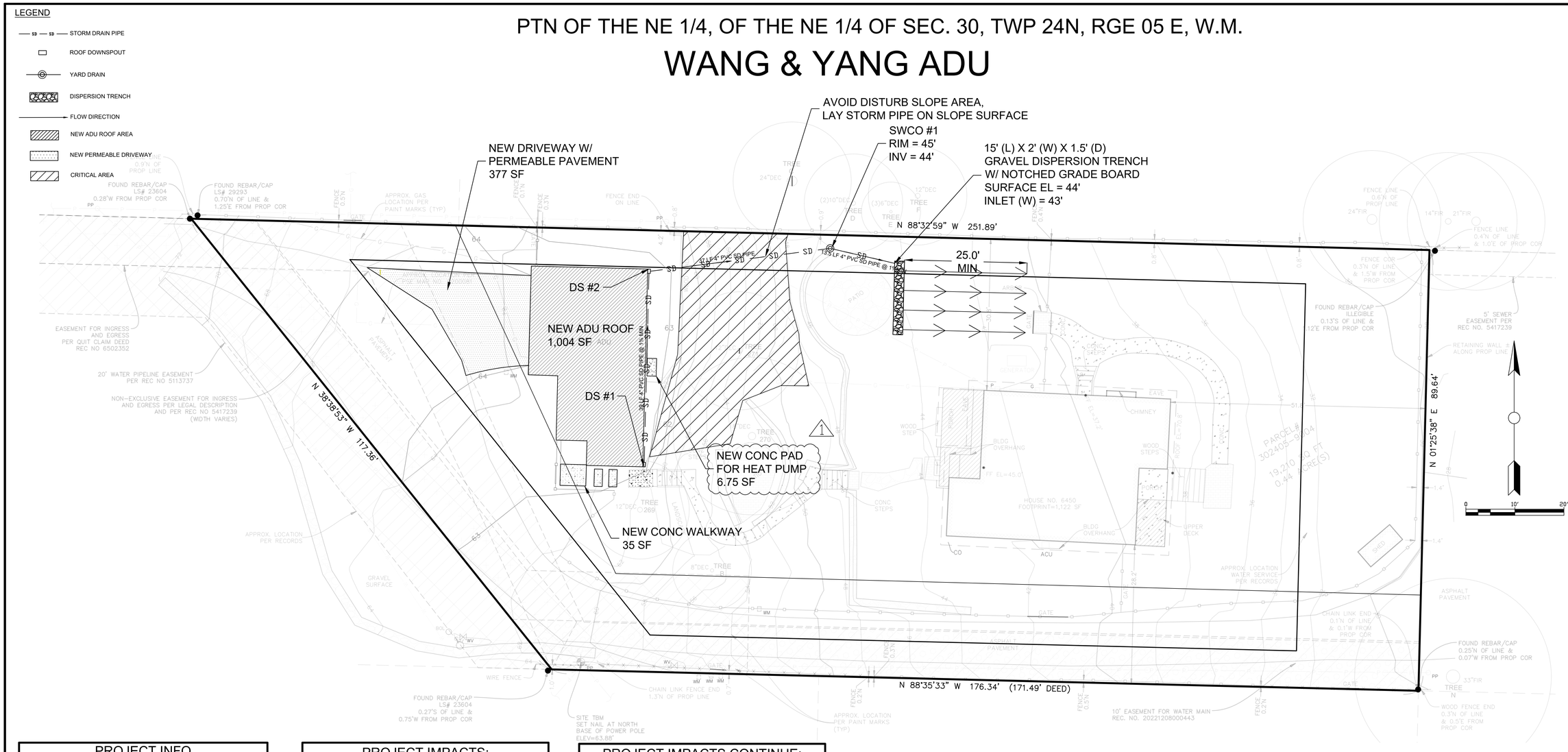
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ISSUE DATE: 11.17.2023
CURRENT REVISION: PERMIT

SHEET NAME:
ROOF FRAMING DETAILS

SHEET NUMBER:
S4.3

PTN OF THE NE 1/4, OF THE NE 1/4 OF SEC. 30, TWP 24N, RGE 05 E, W.M.

WANG & YANG ADU



PROJECT INFO

OWNER:	**ENGINEER:**
BUPING WANG & WANQIU YANG	MERIT ENGINEERING, INC 10129 MAIN ST., #201 BELLEVUE, WA 98004 TEL: 425-454-2133 EMAIL: merit@meritengineering.com
ARCHITECT:	**SURVEYOR:**
SIYAO STUDIO EMAIL: SIYAOW@SIYAO.STUDIO TEL: 734-834-5994	PACIFIC COAST SURVEYS,INC. P.O. BOX 13619 MILL CREEK, WA 98082 TEL:425-512-7099 FAX: 425-357-357

SITE NOTES:

ADDRESS:	6450 E MERCER WAY, MERCER ISLAND, WA 98040
TAX ACCOUNT No.:	302405-9004
ZONING:	R-15
GOVERNMENT AGENCY	CITY OF MERCER ISLAND
AREA:	19,270 SF
LEGAL DESCRIPTION:	SEE SURVEY NOTES

PROJECT IMPACTS:

IMPERVIOUS COVERAGE EXISTING:	
EXISTING DECK	274 SF
EXISTING DRIVING SURFACE	3,436 SF
GRAVEL SURFACE	532 SF
HOUSE	1,589 SF
RETAINING WALL	27 SF
ROCKERY	220 SF
SHED	34 SF
WALKWAY	561 SF
WOOD WALL	17 SF
TOTAL	6,690 SF
IMPERVIOUS SURFACE REPLACE:	
CONCRETE	42 SF
GARAGE	409 SF
GRAVEL SURFACE	810 SF
WALKWAY	71 SF
TOTAL	1,332 SF

PROJECT IMPACTS CONTINUE:

IMPERVIOUS COVERAGE DEMO:	
CONCRETE	3 SF
GARAGE	118 SF
GRAVEL SURFACE	256 SF
TOTAL	377 SF
IMPERVIOUS SURFACE NEW:	
ADU	86 SF
WALKWAY	2 SF
TOTAL	88 SF

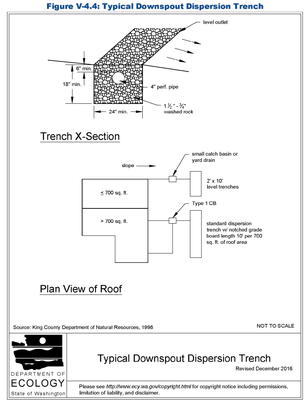
QUANTITES:

EXTENT OF CLEARING:	3,600 SF
CUT/FILL	95 CY CUT

SHEET INDEX

SHEET #	PLAN #	DETAIL/SHEET
1	C 01	DRAINAGE PLAN
2	C 02	TESC PLAN
3	C 02.1	TESC DETAIL

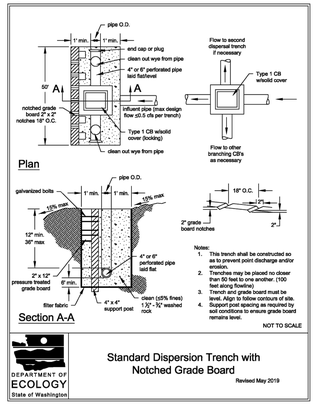
Figure V-4.4: Typical Downspout Dispersion Trench



2019 Stormwater Management Manual for Western Washington
Volume V - Chapter 4 - Page 715

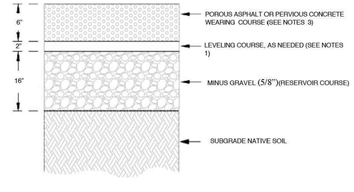
1 C 01 ***DISPERSION TRENCH*** NTS

Figure V-4.5: Standard Dispersion Trench with Notched Grade Board



2019 Stormwater Management Manual for Western Washington
Volume V - Chapter 4 - Page 716

2 C 01 ***NOTCHED GRADE BOARD*** NTS



NOTES:

1. LEVELING COURSE MATERIALS: 1.5" TO U.S. NO.8 UNIFORMLY GRADED, CRUSED (ANGULAR), THROUGHLY WAHSED STONE.
2. LONGITUDINAL SLOPE, 0 TO 5% MAX. FOR POROUS ASPHALT.
3. PERVIOUS CONCRETE MUST BE INSTALLED BY A CERTIFIED PERVIOUS CONCRETE INSTALLER. POROUS ASPHALT MUST BE INSTALLED BY AN EXPERIENCED POROUS ASPHALT INSTALLER.

3 C 01 ***PERMEABLE PAVEMENT*** NTS

MERIT ENGINEERING INC.
10129 Main Street, #201
Bellevue, Washington 98004
Telephone: (425)454-2133
http://www.meritengineering.com

No.	Date	Revision
1	06/03/2024	COMMENT

CALL 811 2 BUSINESS DAYS BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATION AS APPROX)

PROJECT:
WANG & YANG ADU
PARCEL # 302405-9004

SCALE	1" = 10'
DESIGNED	ZD
DRAWN	ZD
CHECKED	AY
APPROVED	AXH

AUSTIN X HUANG STATE OF WASHINGTON 28572 REGISTERED PROFESSIONAL ENGINEER

JUNE 03, 2024

PERMIT SET

THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATIONS BY GOVERNMENTAL AGENCIES

TITLE
DRAINAGE
SITE PLAN

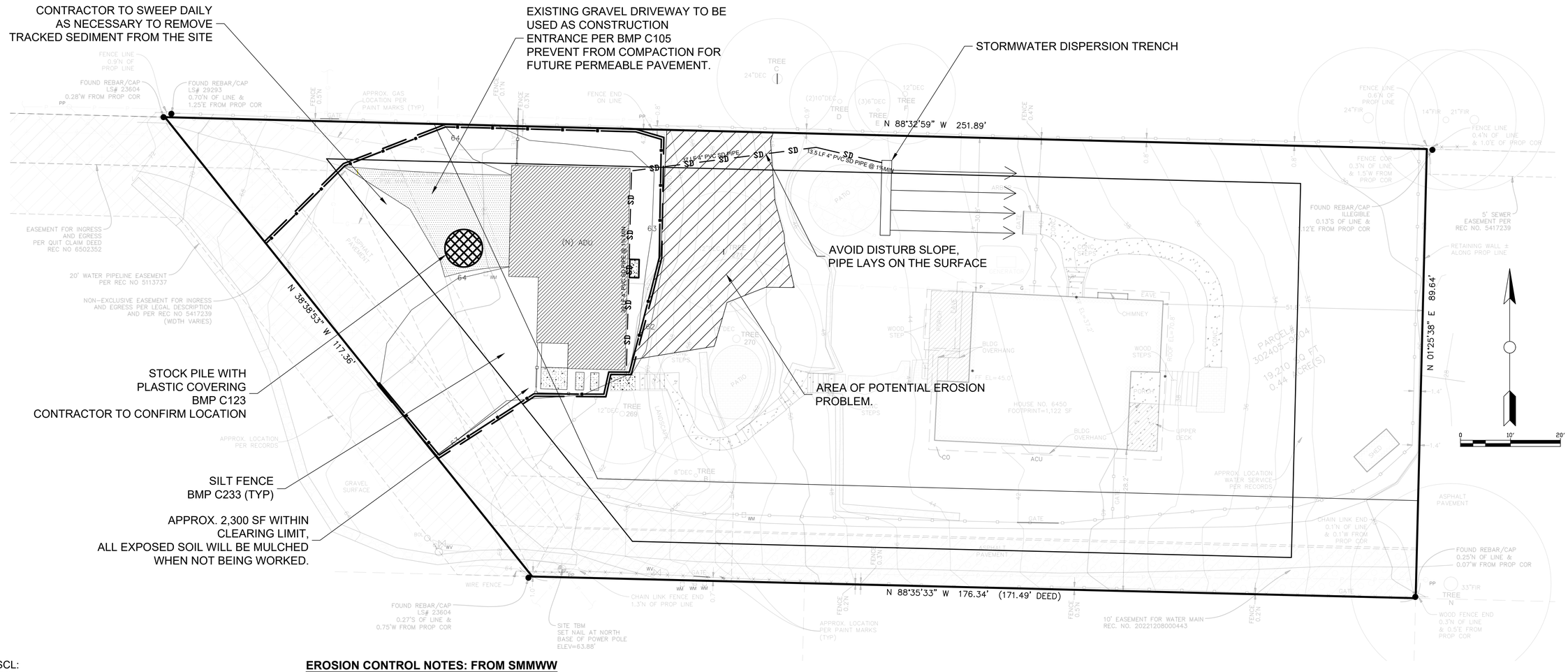
PROJECT No.
2EH03221024

DATE
JUNE 03, 2024

SHEET No.
C 01

APPROVED FOR CONSTRUCTION
By:
Permit No.:
Date:

PTN OF THE NE 1/4, OF THE NE 1/4 OF SEC. 30, TWP 24N, RGE 05 E, W.M.



CESCL:
DI ZHU
ID#: EF8184699
TEL: 253-391-7441

TESC LEGEND

- CONSTRUCTION ENTRANCE
- PLASTIC STOCK PILE
- SILT FENCE
- CLEARING LIMIT
- TREE PROTECTION
- CRITICAL AREA

QUANTITES:	
EXTENT OF CLEARING:	3,600 SF
CUT/FILL	95 CY CUT

EROSION CONTROL NOTES: FROM SMMWW

1. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE SC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
2. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY A CONTINUOUS LENGTH OF SURVEY APE (OR FENCING, IF REQUIRED) PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED.
3. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
4. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
5. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
6. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES DURING THE WET SEASON (OCT. 1 TO APRIL 30) AND OF MONTHLY REVIEWS DURING THE DRY SEASON (MAY 1 TO SEPT. 30).
7. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
8. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN FIFTEEN (15) DAYS.
9. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT (48) HOURS FOLLOWING A STORM EVENT.
10. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING.
11. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
13. ANY PERMANENT FLOW CONTROL FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST THREE FEET ABOVE THE FINAL GRADE OF THE PERMANENT FACILITY. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2 TO 3 INCHES.
14. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE CITY INSPECTOR. THE CITY INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

MERIT ENGINEERING INC.
10129 Main Street, #201
Bellevue, Washington 98004
Telephone: (425)454-2133
http://www.meritengineering.com

No.	Date	Revision

CALL 811 2 BUSINESS DAYS BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATION AS APPROX)

PROJECT:
WANG & YANG ADU
PARCEL # 302405-9004

SCALE	1" = 20'
DESIGNED	ZD
DRAWN	ZD
CHECKED	AY
APPROVED	AXH

AUSTIN X HUANG STATE OF WASHINGTON 28511 REGISTERED PROFESSIONAL ENGINEER

JUNE 03, 2024
PERMIT SET
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATIONS BY GOVERNMENTAL AGENCIES

TITLE
TESC PLAN

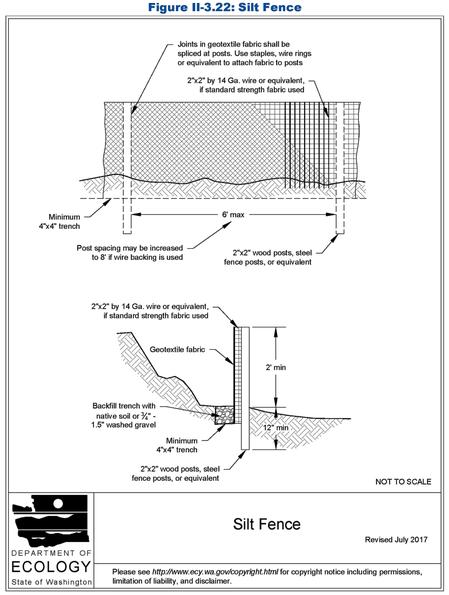
PROJECT No.
2EH03221024

DATE
JUNE 03, 2024

SHEET No.
C 02

APPROVED FOR CONSTRUCTION
By:
Permit No.:
Date:

Figure II-3.22: Silt Fence



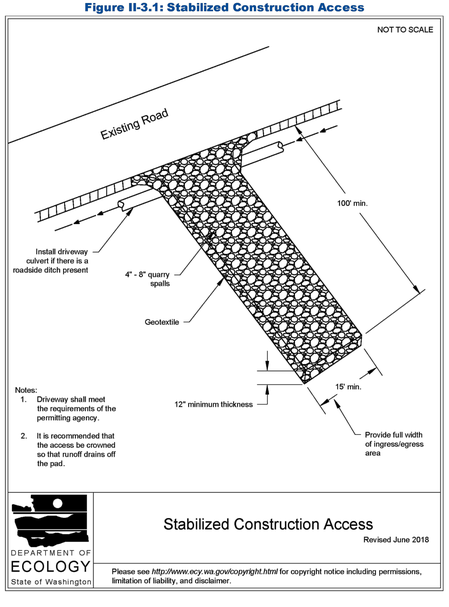
2019 Stormwater Management Manual for Western Washington

Volume II - Chapter 3 - Page 371

1 C 02.1 ***SILT FENCE DETAIL***

NTS

Figure II-3.1: Stabilized Construction Access



2019 Stormwater Management Manual for Western Washington

Volume II - Chapter 3 - Page 279

3 C 02.1 ***TEMPORARY CONSTRUCTION ENTRANCE***

NTS

MERIT ENGINEERING INC.
10129 Main Street, #201
Bellevue, Washington 98004
Telephone: (425)454-2133
http://www.meritengineering.com

No.	Date	Revision

CALL 811 2 BUSINESS DAYS BEFORE YOU DIG
(UNDERGROUND UTILITY LOCATION AS APPROX)

PROJECT:
WANG & YANG ADU
PARCEL # 302405-9004

SCALE	NTS
DESIGNED	ZD
DRAWN	ZD
CHECKED	AY
APPROVED	AXH

AUSTIN X HUANG STATE OF WASHINGTON 28534 REGISTERED PROFESSIONAL ENGINEER

JUNE 03, 2024

PERMIT SET

THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATIONS BY GOVERNMENTAL AGENCIES

TITLE
TESC DETAILS

PROJECT No.
2EH03221024

DATE
JUNE 03, 2024

SHEET No.
C 02.1

APPROVED FOR CONSTRUCTION
By:
Permit No.:
Date:

SIYAO

STUDIO

February 25, 2024

City of Mercer Island

Community Planning & Development

Wang & Yang ADU – Building Permit

Project Narrative:

The project proposal is to tear down and replace an existing garage accessory structure originally constructed in 1985. The lot is zoned R-15. The existing structure is a 1-story garage of about 526 sf. The existing structure will be replaced with an approximately 888 sf 2-story ADU in the same location with a garage on the first floor.

This project also has Critical Area Review 2 under review. I've submitted a Concurrent Review requesting that the permit submittal be accepted and reviewed concurrently during the review of Critical Area Review 2.

Sincerely,

Siyao Wang

Instrument Number: 20240523000820 Document:N Rec: $307.50 Page-1 of 5
Record Date:5/23/2024 3:10 PM
Electronically Recorded King County, WA

Name & Return Address:

Buping Wang

6450 E Mercer Way

Mercer Island, WA 98040

Washington State Recorder's Cover Sheet (RCW 65.04) Please print legibly or type information.

Document Title(s) Disclosure and Notice of Critical Area

Grantor(s) Buping Wang and Wanqiu Yang

____ Additional Names on Page _____ of Document

CTI 0274195-ETU

Grantee(s) City of Mercer Island

____ Additional Names on Page _____ of Document

Chicago Title Company of Washington has placed the document of record as a customer courtesy and accepts no liability for the accuracy or validity of the document

Legal Description
(Abbreviated: i.e., lot, block & subdivision name or number OR section/township/range and quarter/quarter section)

PTN NE 1/4 SEC 30-24-5E, W.M.

Complete Legal Description on Page _____ of Document

Auditor's Reference Number(s)

Assessor's Property Tax Parcel/Account Number(s) 3024059004

Non Standard Fee $50.00

By signing below, you agree to pay the $50.00 non standard fee.

I am requesting an emergency non standard recording for an additional fee as provided in RCW 36.18.010. I understand that the recording processing requirements may cover up or otherwise obscure some part of the text of the original document.

_____

Signature of Party Requesting Non Standard Recording

NOTE: Do not sign above or pay additional $50.00 fee if document meets margin/formatting requirements.

The Auditor/Recorder will rely on the information provided on this cover sheet.
Staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

EXHIBIT "A"

Legal Description

For APN/Parcel ID(s): 3024059004

THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THOSE PORTIONS OF GOVERNMENT LOT 1 AND THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 30, TOWNSHIP 24 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY WASHINGTON, LYING BETWEEN THE NORTH 498.00 FEET THEREOF AND THE SOUTH 471.00 FEET THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTH QUARTER OF SAID SECTION 30;

THENCE SOUTH 1'25'38" WEST ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 30, A DISTANCE OF 498.00 FEET; THENCE SOUTH 88'32'59" EAST, PARALLEL TO THE NORTH LINE OF SAID NORTHEAST QUARTER, 1,646.58 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 01'25'38" WEST 89.64 FEET TO THE NORTH LINE OF GREGORY ADDITION, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 72 OF PLATS, PAGE 69, IN KING COUNTY, WASHINGTON; THENCE NORTH 88'35'33" WEST ALONG SAID NORTH LINE 171.49 FEET; THENCE NORTH 38'38'53" WEST 117.36 FEET TO THE SOUTH LINE OF SAID NORTH 498.00 FEET; THENCE SOUTH 88'3515" EAST 251.89 FEET TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THAT PORTION OF PORTION OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER AND OF GOVERNMENT LOT 1 OF SAID SECTION 30, LYING BETWEEN THE NORTH 498.00 FEET THEREOF, AND THE SOUTH 471.00 FEET THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTH QUARTER CORNER OF SAID SECTION 30; THENCE SOUTH 01'25'38" WEST, ALONG THE WEST LINE OF SAID NORTHEAST QUARTER, 498.00 FEET; THENCE SOUTH 88'32'59" EAST, PARALLEL TO THE NORTH LINE OF SAID NORTHEAST QUARTER, 1,133.27 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING SOUTH 88'32'59" EAST 274.49 FEET; THENCE SOUTH 38'38'53" EAST 104.58 FEET TO THE SOUTH LINE OF THE NORTH 578.00 FEET OF SAID GOVERNMENT LOT 1; THENCE SOUTH 27'49'11" WEST 10.91 FEET; THENCE NORTH 38'38'53" WEST 104.52 FEET; THENCE NORTH 88'3533" WEST 260.25 FEET, MORE OF LESS, TO A POINT FROM WHICH THE TRUE POINT OF BEGINNING BEARS NORTH 41'49'00" WEST; THENCE NORTH 41'49'00" WEST 13.76 FEET, MORE LESS, TO THE TRUE POINT OF BEGINNING; EXCEPTING THEREFROM THAT PORTION LYING WITHIN THE ABOVE DESCRIBED MAIN TRACT.

Disclosure and Notice of Critical Area

Legal description (abbreviated)

Portion of the NE Quarter/ Section 30/ Township 24 North/ Range 5 East, W.M./ in King County, Washington

Additional legal on page 3 of document

Assessor's Property Tax Parcel/Account Number(s) 3024059004

DO NOT WRITE IN MARGINS
The Auditor/Recorder will rely on the information provided on this form.
The staff will not read the attached document to verify the accuracy or
completeness of the indexing information provided herein.

For Permit Number 2402-186, CAO24-004

For Parcel Number 302405-9004

Street Address 6450 E Mercer Way, Mercer Island, WA 98040

This property contains critical area steep slope and steep slope buffer as defined by the Mercer Island City Code (MICC) 19.07 and regulated by provisions in MICC 19.07.160.

Due to development activity within a critical area and associated buffer, a City of Mercer Island Critical Area Study and Mitigation Plan has been required to be prepared and implemented for this property. This mitigation plan may have required some or all of the following: grading, soil amendments, native vegetation planting, watering, habitat feature or structure installation, fencing, signage, performance and/or maintenance bonding, annual maintenance, and annual monitoring reporting to be performed by a qualified professional at the property owner's expense. For further information regarding related requirements and limitations, please contact the City of Mercer Island Community Planning and Development Department.

This notice shall run with the land and shall not be removed except upon specific written authorization approved by the City of Mercer Island and recorded herein by King County.

I, (print name) Buping Wang, Wanqiu Yang,

hereby certify that I am the owner of the above-referenced property.

Owner's Signature

State of Washington, County of King

SUBSCRIBED AND SWORN TO before me this 20Th day of May, 2024.

Notary Seal

PREMKUMAR SHANMUGAM 206295 NOTARY PUBLIC COMMISSION EXPIRES 01-17-27 STATE OF WASHINGTON

Notary Public Signature

PremKumar Shanmugam

Notary Public Printed Name

01/17/2027

Commission Expiration

Attachments

LEGAL DESCRIPTION

POR OF GL 1 IN NE 1/4 BEG ON S LN OF N 498 FT OF SD GL 1646.58 FT E OF W LN SD NE 1/4 TH S 01-25-38 W 89.64 FT TH N 88-35-33 W 171.49 FT TH N 38-38-53 W 117.36 FT TO SD N 498 FT TH S 88-35-15 E 251.89 FT TO BEG

PLat Block:

Plat Lot:

I, (print name) Buping Wang, Wanqiu Yang,
hereby certify that I am the owner of the above-referenced property.

Owner's Signature

State of Washington, County of King

SUBSCRIBED AND SWORN TO before me this 20Th day of May, 2024

Notary Seal

PREMKUMAR SHANMUGAM 206295 NOTARY PUBLIC COMMISSION EXPIRES 01-17-27 STATE OF WASHINGTON

Notary Public Signature

Prem Kumar Shanmugam
Notary Public Printed Name

01/17/2027
Commission Expiration

City of Mercer Island Property Hazard Report

Site Address: 6450 E MERCER WAY

Parcel #: 3024059004 Report Generated on August 16, 2024

Potential Slide:



Steep Slope:

No Hazard Found

Erosion:



Seismic:



Wind Exposure:



Wind Speed Up Values 1.0 1.3 1.6 1.9



These maps are for the use of City of Mercer Island staff for the purposes of permit application evaluation. It provides a general assessment of known or suspect hazard areas for which the City will require site and project specific evaluation by a Washington State licensed engineer, geologist or engineering geologist prior to issuing a site for development. All areas have not specifically evaluated for hazards and there may be locations that are not correctly represented on these maps. It is the responsibility of the property owners and map users to evaluate risk associated with their proposed development. No site-specific assessment of risk is implied or otherwise indicated by the City of Mercer Island by these maps.

COMMUNITY PLANNING & DEVELOPMENT

206.275.7605
www.mercerisland.gov/cpd

3/14/2024

Attn: Siyao Wang
Via: Email

RE: **CAO24-004** Letter of Completeness; 6450 E Mercer Way, Mercer Island, WA 98040

The City of Mercer Island received the above referenced application for a Critical Area Review 2 (CAR2) permit for the property located at 6450 E Mercer Way, Mercer Island, WA 98040 on March 5, 2024. The City has assigned file number CAO24-004 to the CAR2 application. Following review of the application, City staff has determined that the application is complete and has established a vesting date of March 12, 2024.

The application is scheduled for mailing and posting on March 18, 2024 as required by MICC 19.15.030.

Formal review of the application will now begin in compliance with Mercer Island City Code, Chapter 19. As review progresses, additional documentation will most likely be requested.

Pursuant to Mercer Island City Code 19.15.110(B), if the applicant fails to provide the required information within 60 days from the date of any request for information, the application shall lapse, and become null and void.

Please do not hesitate to contact me at 206-275-7764 or via e-mail at grace.manahan@mercerisland.gov if you have any questions.

Sincerely,

Grace Manahan

Grace Manahan, Assistant Planner
City of Mercer Island Community Planning and Development

CAO24-003COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
206.275.7605 | www.mercerisland.gov

PUBLIC NOTICE OF APPLICATION

NOTICE IS HEREBY GIVEN for the application described below:

File No.:	CAO24-004
Permit Type:	Type III
Description of Request:	A request for a Critical Area Review 2 for the replacement of an existing 1 story garage with a new 2 story garage located within geological hazardous areas.
Applicant/Owner:	Siyao Wang / Buping Wang & Wanqiu Yang
Location of Property:	6450 E Mercer Way, Mercer Island WA 98040 King County Assessor tax parcel number: 302405-9004

SEPA Compliance:
The project is exempt from SEPA Review pursuant to WAC 197-11-800(B)(i).

Project Documents: https://mieplan.mercergov.org/public/CAO24-004

Written Comments: This may be the only opportunity to comment on this proposal. Written comments on this proposal may be submitted to the City of Mercer Island either by email, in person, or by mail to the City of Mercer Island, 9611 SE 36th Street, Mercer Island, WA 98040-3732. Anyone may comment on the application, receive notice, and request a copy of the decision once made. Only those persons who submit written comments or participate at the public hearing (if a hearing is required) will be parties of record; and only parties of record will have the right to appeal.

Public Hearing and Public Meeting:	Pursuant to MICC 19.15.030 Tables A and B, a public hearing is not required for Type I-III permits.
Applicable Development Regulations	Applications for Critical Area Review 2 are required to be processed as Type III land use reviews pursuant to Mercer Island City Code (MICC) 19.15.030. Processing requirements for Type III land use reviews are further detailed in MICC 19.15.030.
Other Associated Permits:	Permit No(s): 2402-186, ADU24-004
Environmental Documents:	Copies of all studies and/or environmental documents are available through the above project documents link.

Application Process Information:

Date of Application:	March 5, 2024
Determined to Be Complete:	March 12, 2024
Weekly Permit Bulletin Notice:	March 18, 2024
Date Mailed:	March 18, 2024
Date Posted on Site:	March 18, 2024
Comment Period Ends:	5:00PM on April 17, 2024

Project Contact: Grace Manahan, Assistant Planner

grace.manahan@mercerisland.gov | (206) 275-7764

COMMUNITY PLANNING & DEVELOPMENT
206.275.7605
www.mercerisland.gov/cpd

4/30/2024

Attn: Siyao Wang
Via: Email

RE: **CAO24-004** Review Letter 1; 6450 E Mercer Way, Mercer Island, WA 98040

Dear Siyao Wang,

The City of Mercer Island Community Planning and Development Department has completed a review for compliance with the zoning code, Title 19 of the Mercer Island City Code (MICC) for the above Critical Area Review 2 application. The following issues need to be addressed in your resubmission:

Planning:

1. Review and prepare responses to Planning Review comments in the shared review file linked below. Resubmit plans and any supplemental materials following instructions outlined below.
2. Provide the Disclosure and Notice on Title. A Disclosure and Notice on Title recorded with the King County Recorder's Office consistent with MICC 19.07.070 disclosing the presence of critical areas on the development proposal site and any mapped or identifiable critical areas within the distance equal to the largest potential required buffer applicable to the development proposal on the development proposal site.
3. A landscaping plan is required that includes the landscaping of all disturbed areas outside of the building footprints and installation on hardscape, prior to final inspection per MICC 19.07.160(B)(2)(d)

Geotechnical Peer Review:

1. I reviewed the geotechnical report and plan set provided and have the following comments for the geotechnical engineer of record:
    a. Please review the proposed development plan set and provide a letter indicating whether the plan set incorporates your design recommendations in accordance with the geotechnical design report.
    b. Please include in the review letter a statement of risk in accordance with MICC 19.07.160.B.3.

The City's processing of the Critical Area Review 2 application has been put on hold until these issues are resolved. Pursuant to MICC 19.15.110, all requested information must be submitted within 60 days or a request for extension requested. The deadline for a

complete response or request for extension is June 29, 2024. If a complete response is not received or an extension response has not been received prior to that date, the application will expire and be canceled for inactivity. No additional notification regarding this deadline or expiration of the application will be provided.

Sincerely,

Grace Manahan

Grace Manahan, Assistant Planner
City of Mercer Island Community Planning and Development
grace.manahan@mercerisland.gov
(206) 275-7764

Download the Correction Drawing File to Review and Respond to Comments:

<https://MIePlan.mercergov.org/adobe/eplan/~CurrentSharedReviews/2402-186-SUB1-PLANS_review.pdf>.

1. To access the file, enter the following credentials into your web browser:

Username: eguest@mercergov.org

Password: @mercer123

2. To view comments, download the file to your hard drive and open in an Adobe Reader or Adobe Acrobat.
3. The first time you access this system, you will enter the same credentials two times. Once to open the plan in your web browser, and then again to open the plan in Adobe.

Please note, you can forward this link to your sub-consultants for their review, input, and replies.

Responding and Resubmitting: Click for More Detailed Instructions

1. Reply to all plan review comments within the correction drawing file.
2. Update your drawings, and any necessary supplemental documents or forms.
3. Upload updated drawings to the Mercer Island Permit Submittal Portal.

Having Trouble? Please Review the Following:

Accessing, Reviewing, and Responding to MIePlan Comments

Troubleshooting MIePlan

MIePlan Overview

Thank you for your participation in the MIePlan review process.

COMMUNITY PLANNING & DEVELOPMENT
206.275.7605
www.mercerisland.gov/cpd

6/21/2024

Attn: Siyao Wang
Via: Email

RE: **CAO24-004** Review Letter 2; 6450 E Mercer Way, Mercer Island, WA 98040

Dear Siyao Wang,

The City of Mercer Island Community Planning and Development Department has completed a review for compliance with the zoning code, Title 19 of the Mercer Island City Code (MICC) for the above Critical Area Review 2 application. The following issues need to be addressed in your resubmission:

Planning:

1. Provide a copy of the recorded Notice on Title.

Geotechnical Peer Review:

1. Please have the geotechnical engineer of record revise the statement of risk to conform to the requirements of MICC 19.07.160.B.3

The City's processing of the Critical Area Review 2 application has been put on hold until these issues are resolved. Pursuant to MICC 19.15.110, all requested information must be submitted within 60 days or a request for extension requested. The deadline for a complete response or request for extension is August 21, 2024. If a complete response is not received or an extension response has not been received prior to that date, the application will expire and be canceled for inactivity. No additional notification regarding this deadline or expiration of the application will be provided.

Sincerely,

Grace Manahan

Grace Manahan, Assistant Planner
City of Mercer Island Community Planning and Development
grace.manahan@mercerisland.gov
(206) 275-7764

Download the Correction Drawing File to Review and Respond to Comments:

Responding and Resubmitting: Click for More Detailed Instructions

1. Reply to all plan review comments within the correction drawing file.
2. Update your drawings, and any necessary supplemental documents or forms.
3. Upload updated drawings to the Mercer Island Permit Submittal Portal.

Having Trouble? Please Review the Following:

Accessing, Reviewing, and Responding to MIePlan Comments

Troubleshooting MIePlan

MIePlan Overview

Thank you for your participation in the MIePlan review process.

SIYAO
STUDIO

June 13, 2024

RE: CAO24-004 Review Letter 1; 6450 E Mercer Way, Mercer Island, WA 98040

To Whom It May Concern:

Following are responses to your comments from review #1 dated 04/30/2024

Planning

1. *Review and prepare responses to Planning Review comments in the shared review file linked below. Resubmit plans and any supplemental materials following instructions outlined below.*

   Response:
   Responses have been added in the shared review file. Plans and supplemental materials have been resubmitted.

2. *Provide the Disclosure and Notice on Title. A Disclosure and Notice on Title recorded with the King County Recorder's Office consistent with MICC 19.07.070 disclosing the presence of critical areas on the development proposal site and any mapped or identifiable critical areas within the distance equal to the largest potential required buffer applicable to the development proposal on the development proposal site.*

   Response:
   A disclosure and notice of the critical area has been added to the title as well as recorded with the King County Recorder's office. Please refer to **NOTICE AND DISCLOSURE RECORDING NUMBER_20240523000820**.

3. *A landscaping plan is required that includes the landscaping of all disturbed areas outside of the building footprints and installation on hardscape, prior to final inspection per MICC 19.07.160(B)(2)(d)*

   Response:
   A landscape plan has been added to sheet **A1.06** in **2024-06-13 WANG & YANG ADU PERMIT SUBMITTAL REV 1**.

Geotechnical Peer Review

1. I reviewed the geotechnical report and plan set provided and have the following comments for the geotechnical engineer of record:
   a. Please review the proposed development plan set and provide a letter indicating whether the plan set incorporates your design recommendations in accordance with the geotechnical design report.
   b. Please include in the review letter a statement of risk in accordance with MICC 19.07.160.B.3.

   Response:
   Please refer to **MINIMUM RISK LETTER** prepared by our geotechnical engineer.

Sincerely,

Siyao Wang

SIYAO
STUDIO

June 27, 2024

RE: CAO24-004 Review Letter 2; 6450 E Mercer Way, Mercer Island, WA 98040

To Whom It May Concern:

Following are responses to your comments from review #2 dated 06/21/2024

Planning

1. *Provide a copy of the recorded Notice on Title.*

   Response:
   A disclosure and notice of the critical area has been added to the title as well as recorded with the King County Recorder's office. Please refer to **NOTICE AND DISCLOSURE RECORDING NUMBER_20240523000820**.

Geotechnical Peer Review

1. Please have the geotechnical engineer of record revise the statement of risk to conform to the requirements of MICC 19.07.160.B.3

   Response:
   Please refer to **MINIMUM RISK LETTER 06262024** prepared by our geotechnical engineer.

Sincerely,

Siyao Wang

MERIT ENGINEERING INC.

GEOTECHNICAL ENGINEERING INVESTIGATION

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, Washington
Parcel#: 302405-9004



Prepared For:
Buping Wang
5425 96th Ave SE
Mercer Island, Washington

October 5, 2023
Project No. 2EH03221024

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October 5, 2023
Project No. 2EH033221024

2018 ASCE Washington Honorable Mention Engineering Excellence

Buping Wang & Wanqiu Yang
c/o Siyao Studio
siyaow@siyao.studio

Re: Geotechnical Engineering Investigation
6450 E Mercer Way
Mercer Island, WA 98040
Parcel#:302405-9004

Dear Buping:

At your request, we have conducted a geotechnical engineering investigation at the above referenced project site. The following geotechnical engineering report represents the results of our visual site reconnaissance, DCP test observations, engineering analysis, and derived conclusions on the slope stability of proposed residential building.

Thank you for this opportunity to work with you on this project. Please contact us if you have any questions about this report.

Sincerely,



Austin X. Huang, Ph.D., P.E., L.G., D.GE., F.ASCE
Principal

F.ASCE: Fellow - American Society of Civil Engineering
D.GE - Diplomate - Academy of GeoProfessionals

D.GEs provide successful projects that benefit their clients.
The D.GE certification recognizes geotechnical engineers who possess specialty education, extensive experience, integrity, and good judgment.

GEOTECHNICAL ENGINEERING REPORT

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, Washington

Prepared for:

Buping Wang
6450 E Mercer Way
Mercer Island, Washington

by



October 5, 2023

Austin X. Huang, Ph.D., P.E., L.G., G.DE, F.ASCE
Principal

October 5, 2023
Project No. 2EH03221024

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1. INTRODUCTION

At request of Buping Wang, Merit Engineering, Inc. has conducted a geotechnical engineering investigation for the proposed development of the site, located at 6450 E Mercer Way, in Mercer Island, Washington 98040 (Parcel #302405-9004). The project area and vicinity is shown in Figure 1 and the site plan with proposed new Accessory Dwelling Unit (ADU) and test locations in Figure 2 in the Appendix.

We understand, from the information Architect Siyao provided to us, that the site is currently occupied by a single family house and a detached garage with a slope in between. The proposed project is to replace the existing detached garage with a new ADU at approximately same location. The ADU will be a 2-story structure with approximately 900 sf of conditioned space and a 2-car garage. We understand that the proposed new ADU will be at the top of the slope. The ADU will be built with minimum intrusion into the slope. Based on the topographic map provided by TERRANE, the slope at east of existing detached garage is approximately 1.57H:1V (~63.6%) with average horizontal distance 22ft with elevation loss of ~14ft, greater than 40%. The site also has Geologically Hazardous Area concerns according to the City of Mercer Island Land Development Code (LDC).

Therefore, the objective of this study specifically was to investigate surface, subsurface, and slope conditions at the site, conduct a hazard analysis, derive conclusions, and provide recommendations for site preparation, design, construction and geologic hazard mitigation of the proposed ADU. The report will, in particular, address critical area concerns of geologically hazardous area, to comply with City of Mercer Island Land Development Code 19.07.060 - Critical area maps and inventories, 19.07.090 - Critical area reviews, 19.07.100 -

Mitigation sequencing, 19.07.110 - Critical area study, and 19.07.160 - Geologically hazardous.

2. PROJECT DESCRIPTION

The project site is a rectangular-shaped parcel of land with an area of approximately 19,270sf surrounded by single-family. The site is at east of E Mercer Way with a private shared driveway to the existing detached garage and parking space. Topography at property has generally three portions. The upper portion has a slope approximately 7.77H:1V (~12.8%) with local elevation loss ~9ft, roughly 7.3° following up with a steeper slope at middle portion approximately 1.57H:1V (~63.6%) with local elevation loss ~14ft, roughly 32°. Then gentle slope at lower portion approximately 5.85H:1V (~17%) with local elevation loss ~20ft, roughly 9.7° to property boundary at east and ultimately reaches to the Lake of Washington.

The proposed new ADU will be at the same location of upper potion of site with approximately same setback from top of steeper slope. The ADU will be built with minimum intrusion into the steeper slope.

3. SCOPE

Based on all the above information and understanding of the project and difficult access, we conducted a site exploration using Dynamic Cone Penetration Test (DCP[1]) with scope of work in compliance with our proposal No. P2EH0533827 dated August 21, 2023, in particular includes:

[1] DCP test consists of driving a 10 cm^2 (1.4″ diameter) cone into the ground. The cone is attached to steel rods and driven by a 35 pound hammer with 15″ free fall. Number of blows for each 10 cm (4″) penetration was recorded

- Conducting a site reconnaissance of the property and adjacent area;
- Conducting three (3) DCP to maximum depth of 10 feet, where penetration refusal was encountered.
- Logging soil and ground water conditions;
- Performing a slope stability analysis;
- Performing engineering analysis;
- Preparing a geotechnical engineering report with geotechnical engineering recommendations:
    (1) surface conditions;
    (2) subsurface soil conditions;
    (3) groundwater conditions, and
    (4) computer model analysis of slope stability

Recommendations for:

(5) foundation design parameters,
(6) structural fill and compaction criteria,
(7) foundation retaining wall design parameters,
(8) slab-on-grade floor,
(9) drainage,
(10) site grading, and

4. SITE INVESTIGATION

4.1 Surface Conditions

This subject site is located at hillside at east of E Mercer Way overlooking east to Lake Washington. Site reconnaissance was performed by a representative of Merit Engineering, Inc. on September 7, 2023 during our field DCP tests. A survey completed by TERRANE was used in this study to construct site plans showing property lines, major features, and test locations (Figures 2). The City of Mercer Island, King county online GIS map program was used to reference general topographic features at the site. Detailed slope measurements taken by Merit Engineering, Inc. were then used to note the topographic contours and location of slope to better reflect actual site conditions and create a topographic profile (Figure 9) for

slope interpretation, discussed later in this report. DCP tests were performed by a representative on September 7, 2022. We also observed surface topography, surface soils, vegetation, and surface water conditions at the subject slope.

The site is situated approximately at bottom of east flank of hill at east of E Mercer Way. The top of the hill is at an elevation ~340´ with an east slope down to the lake. The rectangular-shaped parcel slopes from west to east with 19,270 square feet area. The north boundary of site is at an elevation of ~71ft with a southeast slope of 12°(~21.4%) over an average horizontal distance 70ft with elevation loss ~9ft down to the top of steeper slope at an elevation ~62ft. The existing detached garage is located at top of steeper slope with approximately 5ft setback in this site upper portion area.

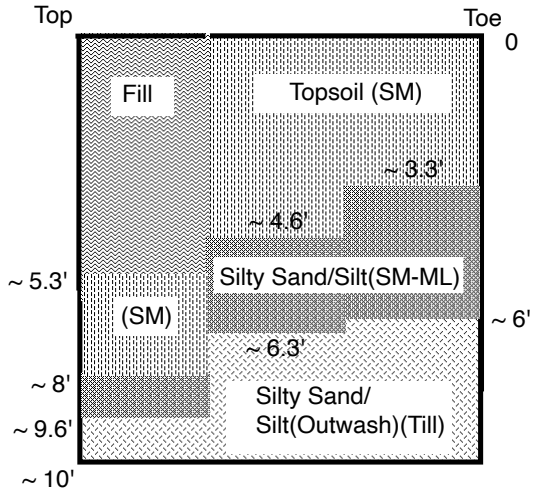
Further to east at an elevation of approximately 62ft is the top of the steeper slope. This slope angle is 32° (~63.6%) over an average horizontal distance 22ft with elevation loss of ~14ft. This site middle portion area was covered by heavy ground cover.

The steeper slope continues with a gentle slope approximately 5.85H:1V (~17%) over an average horizontal distance 117ft with elevation loss of ~20ft. The existing single family house was sit at middle of this site lower portion area with front patio area and grass land at back.

Vegetation on the middle portion slope is characterized by ground cover including shrubs and ferns. A large diameter deciduous tree is present at middle portion slope. The tree are vertically straight and do not show signs of slope movement. The landscape including patio and small trails and rockery steps are are at south of site and toe of slope. Most of the area between the house and the lake is lawn. We have not observed incline and movement of trees in the proposed parcel.

4.2 Subsurface Conditions

The site access is difficult for large machine, therefore a portable dynamic cone penetration equipment was used for testing. Surface soil and ground water conditions were investigated by conducting three (3) DCP tests along the slope at toe, middle and top to maximum 10´ depth on September 7, 2023. Tests were conducted near the adjacent to the existing detached garage foundation to generalize subsurface soil conditions. Test locations are shown on the site plan (Figure 2). DCP tests are presented in the Appendix of this report as Figures 4 through 6. Descriptions of soil symbols and classifications used in this report are also presented in the Appendix (Figure 3). Site soils are generalized in the schematic and summarized as follows:



a. Topsoil/Fill

b. Silty Sand with gravel/Silt (SM-ML)

c. Silty Fine Sand with gravel (SM-ML)

a. Topsoil/Fill

A layer of loose silty sand which varies in thickness from 3.3´ - 8´ generally blankets the slope. The soil was dry, crumbly when disturbed, and loose in situ. However, the fill soils were encountered in DCP#3 at top of slope that is ~5 feet way from foundation of detached garage to a depth of approximately 5.3 feet below the ground surface. We interpret the existing fill as being placed during the construction of the existing detached garage.

b. Silty Sand with Gravel/Silt (SM-ML)

A layer of silty sand underlying the topsoil extends to the depth of ~9.6´. The soil is

medium dense and stiff. The more closer to the top of slope, the thinner of this layer is.

c. Silty Fine Sand with gravel/Silt (Outwash)(Till)

Underlying the medium dense silty sand beginning at ~9.6´ depth to the total penetration depth of ~10´ was a layer of silty sand with gravel. The soil is dense to very dense and very stiff to hard.

4.3 Geologic Background

The Lake Washington basin and Puget Sound areas were overidden by Vashon glacier around 17,600 years Cal B.P. At its maximum extent, the ice was over 3,000 feet thick in the seattle area and extended from the foothills of the Olympics to the foothills of the Cascade Mountains and from Brithsh Columbia, Canada, to south of Olympia, Washington (Booth and others, 2004). During glacial advance, sub-glacial melt water carved the Lake Washington basin and all the troughs of Puget Sound, including the Duwamish, Green, Puyallup, and Sammamish river valleys. Sub-glacially, these troughs were connected to Puget Sound, and when the ice receded, the troughs were still connected via water.

We evaluated near surface soil conditions at the site by reviewing the "Soil Survey, King County Area, Washington" by the United States Department of Agriculture (USDA) and the Geologic Map of Mercer Island by Kathy Troost and Aaron Whisher of Geologic Map of Mercer Island, Washington dated October 2006. The USDA soils map identifies the prominent soil type in the vicinity of the property as Kitsap silt loam (KpD) on slopes ranging from about 15 to 30 percent. The Soil Conservation Service (SCS now NRCS) describes the Kitsap silt loam as consisting of pre-Vashon, fine sand, silt and clay-sized particles. The SCS further indicates soils of this type are generally expected to have high

strength, low permeability, and present a moderate to severe erosion hazard when exposed on the face of a steep slope.

The geologic map reviewed indicated that the soils in the project vicinity are predominantly Pre-Olympia non-glacial deposits overlying Pre-Olympia coarse-grained glacial deposits. These soils have been deposited and overridden by ice and are generally very dense/hard. The native soils encountered in the DCP tests are generally consist with the published informations.

4.4 Surface and Ground Water Conditions

No surface water was observed and no groundwater seepage was encountered during our site exploration on September 7, 2023. However, runoff or seeps of stormwater, and possibly pockets of temporary shallow groundwater, may occur locally during periods of heavy rainfall.

5. GEOLOGIC HAZARDS

5.1 Geologic Hazard Designation and Typing

Geologic hazard areas are designated by the City of Mercer Land Development Code (LDC19.07.160A) that geologically hazardous areas are lands that are susceptible to erosion, landslides, seismic events, or other factors as identified by Washington Administrative Code (WAC 365-190-120). We researched available publications for geologic hazard areas on or in the vicinity of the site.

5.2 Landslide Hazards (LDC 19.16.010)

The LDC 19.16.010 defines Landslide Hazard Areas based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible to landslide because

of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors, and include, at a minimum, the following:

1. Areas of historic failures;
2. Areas with all three of the following characteristics:

    a. Slopes steeper than 15 percent; and

    b. Hillsides intersecting geologic contacts with a relatively permeable sediment

    c. overlying a relatively impermeable sediment or bedrock; and

    Springs or ground water seepage;
3. Areas that have shown evidence of past movement or that are underlain or covered by mass wastage debris from past movements;
4. Areas potentially unstable because of rapid stream incision and stream bank erosion; or
5. Steep slope. Any slope of 40 percent or greater calculated by measuring the vertical rise over any 30-foot horizontal run.

The subject site was depicted as potential landslide hazards area on City of Mercer Island GIS Map. The site dose contain a small area at direct east of existing detached garage which are 40 percent or steeper slope. However, the majority of the site is comprised of slopes inclined at gradients less than 40 percent. We observed no surficial evidence of recent or historic landslide activity or slope instability during our geologic reconnaissance of the site. As discussed above, the site contains a number of large conifer trees, none of which show any signs of past or on-going slope movement. The site is not within certain mapped intersecting geologic contacts which are prone to producing springs or groundwater seepage. Therefore, in our opinion, the risk of a potential slide in this area is considered to be low provided that the building pad are sited to minimize impacts to the extent reasonably feasible.

We compared the each criterion of the Critical Area Ordinance with site existing conditions. None of these conditions are present at the site. Base on our investigation and engineering analysis, the site is not a Landslide Hazard Area as defined by the LDC in our opinion.

5.3 Erosion Hazard Areas (LDC 19.16.010)

The LDC 19.16.010 defines those areas greater than 15 percent slope and subject to a severe risk of erosion due to wind, rain, water, slope and other natural agents including those soil types and/or areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "severe" or "very severe" rill and inter-rill erosion hazard.

The site is within a large areas mapped by the City of Mercer Island as a potential erosion hazard area. Site specific evaluations must be made in each application to determine actual site conditions. And discoverable information of actual site conditions from site-specific review is both the most accurate and reliable information to determine whether a particular site or portion of a site falls under the City's definition of an Erosion Hazard Area. The City Code should be logically read to only resort to SCS mapping as determinative if there is some ambiguity with respect to site -specific circumstances. Such is not the case for this project as we have had the opportunity to perform a complete site evaluation. It should be noted that the proposed new ADU is at approximately same location of existing detached garage.

Based on 1) the soils encountered in explorations completed at the site, 2) the condition of the existing vegetation at the site, and 3) the absence of existing erosion features at the site, in our opinion the erosion potential of the site is low. Therefore, in our opinion the site does not fall within the City's definition of an Erosion Hazard Area. However, the erosion may

exist during construction from disturbed soils. Therefore we have included recommendations to mitigate erosion hazards at the site later in this report.

5.4 Seismic Hazard Areas (LDC 19.16.010)

The LDC 19.16.010 defines seismic hazard areas are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction or surface faulting.

The site and vicinity is mapped as having a low to moderate liquefaction susceptibility to seismic shaking according to the King County Liquefaction hazard map (May, 2010). And based on our field tests, the site soils consist primarily of very dense till soil at shallow depth. See the seismic hazard discussion in section 8.8 below for more details.

6. CRITICAL AREAS EVALUATION

6.1 Slope Considerations

During this study, we considered local slope conditions and focused on the specific slope area east of the proposed residence in order to evaluate the critical areas identified above and assess project feasibility. Cross-section profile (Figure 9) was constructed through locations of interest based on survey data and subsurface testing.

From site DCP tests, reconnaissance, and our knowledge of local geology, local slope stability on the site appears to be controlled by the relationship of the silty sand cover soil and hard refusal soil underneath.

Slope stability against erosion and local slumping is influenced by the interaction of the natural topography, shallow soil character, groundwater, and slope of the hardpan till or glacial deposits that may act as a failure plane. Cover soil stability must also be considered

in relation to slope grading and design for the proposed development.

We understand that the proposed development is to replace a existing detached garage with new ADU at approximately same location. At the time of preparing this report, detailed site grading and building plans were not available. According to the Topographic Survey Plan prepared by TERRANE, the new ADU is proposed on the top of slope. No other development are proposed on the slope.

6.2 Hazard Analysis: Interpretations of Slope Stability

Our site reconnaissance did not find obvious visual evidence of current or past slope stability issues within the project area. We are not aware of any historic slope failures in the site vicinity. Due to the variable nature of the geology and topography in the area, the potential for such failures can vary widely between adjacent sites, and thus should be evaluated on a site-specific basis.

Surficial soils on the site slopes may exhibit some minor surface creep or erosional instability if disturbed during construction, and may be more at risk for ongoing erosion without stabilization measures such as replanting. In general, the site does not seem to be problematic in terms of large-scale mass wasting because of the moderate dense to dense soil conditions. However, care must be taken in site design and construction to avoid loading shallow soils on slopes with fill application, walls, or other landscape features that could instigate a shallow failure of the cover soil. Recommendations on practices for slope grading and construction with erosion and drainage control are provided later in this report.

We conducted an analysis on slope stability of the slope with proposed ADU, and soil parameters estimated based on the soil type from filed tests, published soil/geological information, and publication of slope stability charts by Hoek and Bray “Rock Slope

Engineering", in which they publicized computer model generated circular failure mode slope stability charts for uniform soil conditions and ground water surface at 4 times slope height behind the toe of the slope. The results show in Figure 7 and 8. Using these data, our analysis indicates that the slope projected from top to the toe of slope, which is 1.57H:1V (~63.6%), has a factor of safety over 1.5, which is the factor of safety we need for a permanent slope.

7. SLOPE STABILITY EVALUATION

We have performed a slope stability assessment using computer model analysis for factor of safety incorporating multiple methods for parameter evaluations including reconnaissance, subsurface testing, and regional interpretation. Visual reconnaissance with observations and surface mapping of slope conditions was completed during our filed test site visit.

Slope stability conditions were evaluated by using a STABLE computer model as well as by using calculations derived from literature. Soil parameters were based on field tests, soil classification, and literature values. Our model used site-specific soil parameters to determine slope conditions that have an acceptable FS (factor of safety) for static and seismic conditions.

7.1 Engineering Properties of Soils

We used values for soil unit weights (γ) based on soil classification and literature values from Hoek and Bray (1981). The values for friction angles (ϕ) of the slope soil was estimated using the correlation between ϕ and N (DCP test from geotechnical penetrating tests). The value for cohesion (c) of the soil was estimated using the correlation between c and N (DCP Test) and verified by similar values provided by Hoek and Bray (1981). In

addition, the value for cohesion (c) of silty sand/silt was back-calculated using the STABLE computer model under the existing slope condition by assuming factor of safety = 1.5 for conservative.

Hoek and Bray (1981) specify the friction angle of loose sand, mix grained size to be 34° to 40°. For pure sand cohesion to be 0 psf. Friction angle for glacial till (mixed grain size) to be 32° to 35° and the cohesion to be 3,000 psf to 5,000 psf. Our analysis is considered somewhat conservative due to selecting the lower bound parameters of estimated literature soil strength properties. Our analysis, therefore, should produce more practical results because we have verified parameters through multiple sources.

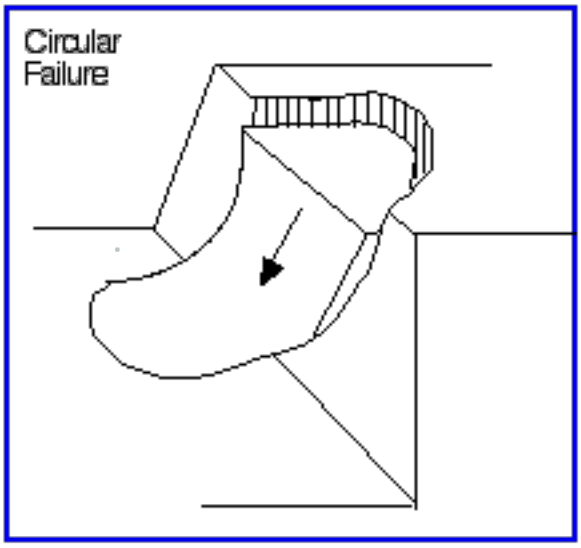
TABLE 1: Basic Engineering Properties for the Materials on Site

Soil	Depth (ft)			Cohesion (psf)	Friction Angleϕ	Dry Unit Wt. ϒ dry, (pcf)	Sat. a Wt. ϒ wet, (pcf)
	DCP-1	DCP-2	DCP-3				
Topsoil/Fill (SM)	0'-3.3'	0'-4.6'	0'-8'	0	32°	99	124
Silty Sand W/Silt (SM-ML)	3.3'-6'	4.6'-6.3'	8'-9.6'	250	32°	116	135
Outwash Till	6'-6.6'	6.3'-7.3'	9.6'-10'	3000	34°	130	145

7.2 Slope Failure Mode

The possible mode of slope failure at this site has to be considered for the slope stability analysis. Modes of slope failure are best categorized according to controlling geological structures. For instance, such structures can be bedrock, faults, or high strength soil layers interbedded with low strength layers. As discussed above, for this analysis we are considering the failure of the sand unit itself. Therefore, there is no significant controlling structure and the material is assumed as homogeneous soil with the internal parameters listed

in Table 1. Soil slope failures are characterized to fail in a circular mode according to Hoek and Bray (1981). This will be the assumed failure mode for this site, depicted here.



7.3 STABLE Computer Model

Theoretically, a slope is acceptable if the Factor of Safety (FS) is greater than 1.0. However, in practical scenarios an FS of greater than 1.0 is always adopted to account for uncertainties that may arise from either parameter estimations or approximations of conditions imposed by the analytical model which may not be perfectly applicable to the project site. A minimum FS of 1.5 is suggested for critical slopes adjacent to haul roads or important installations that are required to remain stable for long periods of time under static conditions (Hoek and Bray, 1981) and is widely adopted in civil engineering practice.

In our analysis of the subject slope, we employed the Bishop model of slices which yields more accurate results at this site over the Janbu method. Based on the parameters described in the previous sections, the STABLE program outputs a cross-section showing the ten most critical theoretical failure planes of the cross-section and the corresponding FS values for each surface. We approached the analysis in a somewhat conservative fashion, meaning the engineering properties of the soils were more indicative of the weaker soil conditions observed on the site.

To calibrate the STABLE model, one cross-sections were created using topographic information (using survey map provided to us by Terrane), shown in Appendix. We modeled

groundwater begin to flow at the surface, which is 4 times H (height of slope) horizontal distance away from toe of slope. The groundwater path was modeled conservatively by this assumption due to the lack of water table encountered when performing DCP tests. Our analysis considered both static and the pseudostatic (seismic) conditions. We considered seismic loading conditions of the subject slope by employing a horizontal earthquake coefficient of 0.31g. This acceleration is equal to one-half of the peak horizontally ground acceleration from ASCE 7 Hazard Tool with ASCE/SEI 7-16 reference document with a two-percent in 50-year probability of exceedance as defined by the 2018 International Building Code. Typically, minimum FS values employed for seismic conditions are ~75% of target static value (FS ~ 1.125).

7.4 Discussion of Results

Slope Stability With Proposed ADU

According to the preliminary building plan, the proposed building will occupy at approximately same location as existing detached garage at elevation ~63´. Based on the topographic map, the height of the slope is approximately 14´. Using these data, our analysis indicate that the slope projected from top to toe, which has slope 1.57H:1V (~63.6%), has a factor of safety over 1.5, which is the factor of safety we need for a permanent slope.

Based on our derived soil properties and site parameters, shown on the Table 1 for the entire slope from top to the toe, the ten (10) most critical surfaces were created, shown in Figure 7. The factor of safety for the critical surfaces range from 2.14 to 5.94, which is over 1.5 for representative cross-section A-A'. This gives us that at the top of slope with proposed ADU may be satisfactory.

Analysis showed that cross-sections A-A', Figure 8, do meet the minimum FS of 1.125 for seismic conditions for a horizontal earthquake coefficient of 0.31g.

8. CONCLUSIONS AND RECOMMENDATIONS

We have conducted a study of existing site and slope conditions and slope stability assessment for the proposed ADU at 6450 E Mercer Way, in Mercer Island, Washington 98040 (Parcel #302405-9004) to fulfill City of Mercer Island critical area requirements. The results of our site testing and reconnaissance are presented herein with accompanying discussion on slope stability concerns and interpretations.

We conclude, and it is our opinion based on the results and stated limitations of this study, that the site is suitable for the proposed ADU if recommendations in this report are followed. The proposed alterations to the Critical Area should not decrease slope stability on the subject or adjacent properties, adversely impact the surrounding Critical Areas, or increase surface water discharge, sedimentation, or erosion rates if the recommendations in this report are followed.

The following sections present a summary of this study and our recommendations for construction of ADU to erosion control, stormwater control, and drainage control to enhance and protect slope stability as possible within the subject property.

We understand the project location is designated as a geologically critical area. Therefore, it is our understanding that the analyses and recommendations provided in this report are based on the assumption that our firm's level of professional services will be retained for future project design and construction phase services as needed. We recommend that we be contacted to review final plans for development after the recommendations of this report are

considered, to ensure they are consistent with the results and intent of recommendations herein.

8.1 Site Preparation and Grading

We recommend removing any organic topsoils and unsuitable loose and soft soils from the areas under the proposed residential structure. We anticipate that soil excavation can be accomplished with conventional equipment, although excavation into the hardpan till may be more difficult.

Any soft subgrade soils encountered during site excavation should be removed and replaced with structural fill as recommended in the Structural Fill section of this report. Based on our observations, the native silty sand subsoil may be suitable for subgrade depending on fine content, organic content, and moisture levels. If the subsoil is present at proposed subgrade level, it should be evaluated in the field, and its suitability may depend on the specific structure be installed at a given location.

Dry season construction at this site is recommended. Due to the sloping nature of the site, we recommend that care be taken to the maximum extent possible for erosion and ground control. It should be understood that significant additional costs and construction difficulty could be incurred if work proceeds in wet weather comparing with dry weather construction. Therefore, we don't recommend wet season construction.

We recommend that we observe and verify site excavation to suitable subgrade soils, test to verify import fill materials, and observe and test compaction of structural fill materials.

8.2 Construction Recommendations

8.2.1 Temporary Excavations

Temporary soil cutslopes during earthwork without control measures should generally be no steeper than 2:1 (Horizontal:Vertical) for sandy soil, and should be evaluated for general stability after shaping and periodically in construction. For temporary cutslopes that will remain exposed for any length of time, we recommend that we review conditions on site. We also recommend that we review and consult on the proposed methods of excavation prior to earthwork, and that we verify excavation to suitable cutbank conditions and geometry during construction. As local variations may exist between locations within the site, we recommend that we evaluate all cutbanks to ensure they are consistent with the conclusions in this report, and if necessary provide alternate recommendations per location.

Maximum temporary excavation depths are expected to extend to depth of 6 to 8 feet below existing grade. Temporary excavations greater than 4 feet deep should be properly sloped or shored. All temporary excavations should be performed in accordance with Part N of WAC 296-155. The contractor is responsible for maintaining safe excavation slopes and/or shoring. The temporary cut slopes should be re-evaluated by a representative of Merit Engineering during construction based on actual observed soil conditions.

8.2.2 Dewatering

No surface water was observed and no groundwater seepage was encountered during our site exploration on September 7, 2023. However, it may be anticipated the footing excavation will encounter groundwater due to fluctuation of seasonal water table and unforeseen circumstance of heavy rainfall in wet season. The contractor should be prepared to provide a temporary dewatering system to control and remove seepage into the excavations. Due to the relatively fine grained nature of the soils underlying the site, we anticipate groundwater

seepage in the footing excavation can be controlled by sloping the base of the excavation to drain and removing the water with sumps and pumps.

8.3 Structural Fill

Structural fill should be placed on firm, horizontal subgrade in about 10-inch thick loose lifts and compacted to at least 95% of the ASTM D-1557 maximum dry density for footings, grade slab, parking and road, and sidewalks.

We recommend import structural fill be sandy gravel or gravelly sand meeting specification - 9-03.12 (1) B, APWA/DOT 2006, that is typical in this area as base granular materials with exception that percent passing U.S. No. 200 Sieve shall not exceed 5% and all materials smaller than 4″. The specification is summarized below:

Table 2: Specification of Imported Fill Materials

Sieve Size	Percent Passing by Weight
4″ Square	100
2″ Square	75-100
U.S. No. 4	22-66
U.S. No. 200	5.0 max.
Dust Ratio $\frac{\%\ Passing\ U.S.\ No.\ 200}{\%\ Passing\ U.S.\ No.\ 40}$	⅔ max.
Sand Equivalent	30 min.

Backfill immediately behind retaining walls or adjacent to foundation stem walls should be compacted to about 90% of the ASTM D-1557 maximum dry density. Care must be taken to avoid over-compaction immediately behind walls. Backfill behind retaining walls must be free draining material.

It is important that plumbing and utility trenches be properly backfilled. Backfill in the trenches should meet the appropriate compaction criteria described above.

8.4 Foundation Design Parameters

We recommend placing foundation on native dense glacial till soils or on import structural fill installed on the native glacial till soils. Sand sub grade soils should be compacted to 95% modified proctor. If site soils are not found to be firm at a footing location and grade, we recommend excavating down to appropriately firm soils and replacing the soft/loose soil section with structural fill.

We recommend that all perimeter footings be at least 18 inches below final outside grade for frost protection. The base width of footings shall be at least 18 and 24 inches for continuous and isolated column spread footings, respectively.

Under condition of satisfying the above recommended footing dimensions, a soil bearing pressure of 2,500 psf (*pounds per square foot*) is recommended. Bearing pressure may be increased by $^1/_3$ for transient wind or seismic loads. This bearing recommendation is preliminary pending building design details. We recommend that we be contacted in the design phase to evaluate building details with our soils and slope condition and revise bearing allowances accordingly.

With the above recommended soil bearing capacity, the anticipated load on the footings, and the soil conditions from the tests, we estimate that the total potential settlement of the foundations should be less than 1 inch. While most settlement will occur in the short term as loads are applied, some settlement may occur over a long period of time after construction.

We recommend proof-rolling building pads before placement of footings with a loaded dump truck to reveal soft or yielding surficial soils. Any soft subgrade soils encountered during site excavation or exposed during proof-rolling should be re-compacted.

We recommend that we review portions of plans and specifications pertaining to earthwork and foundations to ensure they are consistent with recommendations in this report.

We also recommend that we observe and verify site excavation to suitable soil stratum, a proof roll test to verify imported fill materials, and observe and test compaction of structural fill materials.

8.5 Foundation and Site Drainage

A perimeter footing drainage system should consist of at least 6-inch diameter, perforated, rigid pipe. Pipes should be placed along the exterior base of the foundation perimeter and tightlined to a storm drain system or natural drain course. Pipe should be bedded on 2 inches, and backfilled with a minimum of 12-inches, of pea gravel.

Under-slab cross-drains may be helpful to maintain a dry slab floor to facilitate drainage. A cross-drain system should be overlain by drain rock beneath the slab.

Roof downspouts should be tightlined to a storm drain system separately from footing drains. In addition, the site should be graded so that surface water runoff is directed to catch basins attached to a storm sewer drain.

In addition, the site general perimeter drain shall be installed for general slope stability protection. And we recommend that we be retained to consult and review on the drainage installation work.

8.6 Slab-On-Grade Floor

A slab-on-grade floor may be supported on building pads that are prepared with firm native subgrade soils, or import structure fill compacted over firm native soils. At least 4-inches of drain rock of ¾" maximum size should be placed between the slab and slab subgrade.

A vapor barrier visquine should be placed between the slab and capillary break material. An additional 1 to 2 inches of sand may be placed on top of the vapor barrier if desired to aid in concrete curing. In addition, use of a commercial concrete slab sealant for moisture protection may prove to be very helpful.

Floor slabs reinforced with 6 x 6 wire mesh may help reduce potential crack separation and vertical offsets at cracks. Reinforcement should be set at or above the mid-depth of the slabs. To reduce cracking potential we suggest exterior patios and other flatworks contain reinforcement as recommended above for floor slabs. Any flatwork subgrades should be watered thoroughly prior to concrete placement to close soil shrinkage cracks. Flatworks should have frequent joint controls.

Additional measures to reduce potential cracking are considered warranted at critical areas where slab movement could impair use; such critical areas include any exterior patio slabs that meet the interior floor level at doorways. For such areas we recommend that recommend that the upper 12-inches of native soil be over excavated and replace with import structural materials as specified in the Structural Fill section of this report.

8.7 Lateral Earth Pressure

We recommend that we be contacted for consultation and evaluation engineered retaining walls or walls with a surcharge loads are considered in site design. Addition of a retaining

wall and backfill near the top or on a slope may cause undue loading and therefore surficial soil-slope instability, and it is preferable to limit or avoid such load application if possible. Retaining walls against the base of an existing slope or cut are acceptable given the wall will not change the current topography significantly.

We recommend placing structural fill behind subsurface and retaining wall. The horizontal thickness of the fill should be at least the height of the wall. For structural fill, as recommended in the Structural Fill section of this report with a level ground, the parameters of lateral earth pressures are listed in Table 3

Soil	Active K_a	Passive, K_p	At Rest, K_o
Structural Fills	0.28	3.54	0.44
Equivalent Fluid Pressures*			
Structural Fills	34	425	53

*Equivalent fluid pressure is the product of lateral earth pressure coefficient and the unit weight of the soil.

The soil parameters of lateral earth pressure for the on-site soils may be much stronger than those in the above table, however, it must be evaluated to confirm on site during construction when site excavation opens up the ground for visual observation.

Design of subsurface walls should include appropriate lateral load due to adjacent surcharge. Under uniform surcharge qo, lateral load due to a uniformly distributed lateral pressure σ, should be added to active and at rest soil lateral pressure, respectively as defined in the following equations:

$$\sigma = \begin{cases} K_a q_o & \text{for active case} \\ K_o q_o & \text{for at rest case} \end{cases}$$

A coefficient of base friction of 0.55 and 0.45 may be used between concrete and structural fill and between concrete and native fine sandy soil, respectively. However, if passive pressures are used in conjunction with frictional resistance to determine lateral resistance to sliding, only 1/2 the value of passive pressure presented above should be used since larger strains are required to mobilize passive soil resistance as compared to frictional resistance.

8.8 Seismic Design Parameters

The site is located in the seismically active Puget Low lands. Deep focus earthquakes from subduction of the Juan de Fuca plate beneath the North American plate can cause amplified shaking at the ground surface due to seismic waves of different velocities interacting. Seismic waves propagate relatively slow through soft soils and considerably faster in rock. As a result, areas with softer soils underlain by rock tend to experience greater ground shaking than areas with little variation in the underlying substratum. Local building codes and design practices now consider the possible effects of soil conditions and large subduction related earthquake in the design of structures.

8.8.1 Liquefaction

Liquefaction is a phenomenon associated primarily with near surface saturated cohesionless soils under zero effective stress. Effective stress equals the confining pressure of the soil minus pore water pressure. When saturated cohesionless soils undergo cyclic seismic loading, the induced excessive pore pressure cannot dissipate and thus grows larger. When the pore pressure becomes equal to the confining pressure from the overburden load, the effective stress of the soil becomes zero and the soil lost its strength or stiffness and becomes liquefied. Foundation settlement and

lateral movement could damage structures supported by liquefiable soils and sites with conditions favorable for liquefaction are designated as Site Class F. Site classes are a simplified method for describing the amplification of ground shaking during a seismic event due to effects of underlying soil conditions and are defined by a unique range of average shear wave velocities in the upper 100´ of the site soil column.

The site and vicinity is mapped as having a low to moderate liquefaction susceptibility to seismic shaking according to the King County Liquefaction hazard map (May, 2010). According to our site specific evaluations, the site soils consist primarily of very dense till soil at shallow depth. Based on these soil, it is our opinion that liquefaction potential at the site is low because soils at the site are generally very dense till.

8.8.2 Design Parameters

Using the results of our DCP (Dynamic Cone Penetration) test holes and geologic setting as discussed in this report, we estimate the average N value, using methods provided in Section 1613 of the 2018 IBC. The results of our average N value estimated and projected for a 100´ section indicate a very dense soil N > 50. Based on the results from our subsurface exploration the soil profile at the site may be defined as Site Class D according to IBC (International Building Code) 2018, representing a stiff soil. Seismic design parameters for this site class and location, from ASCE 7 Hazard Tool with ASCE/SEI 7-22 reference document, are summarized in the following table:

Table 4: Spectral Response Acceleration (SRA)

SRA and Site Conditions	Short Period (0.2 sec)	1- Second Period
Mapped SRA	$S_S = 1.61$	$S_1 = 0.62$
SITE CLASS D		
Site Coefficients	$F_a = 1.06$	$F_v = 2.08$
Max. Considered Earthquake SRA	$S_{MS} = 1.72$	$S_{M1} = 1.29$
Design SRA	$S_{DS} = 1.14$	$S_{D1} = 0.86$

9.GEOLOGIC HAZARD MITIGATION

9.1 Landslide Hazard Mitigation (LDC 19.07.100)

Based on our subsurface exploration and literature research, we have determined that the site slope is composed of relatively shallow till soil. We have completed a slope stability analysis and determined that the steep slope is generally having a factor of safety greater than 1.5, which is considered acceptable for permanent important structures on steep slope area or adjacent area. Please note that the Puget Sound area is seismically active and there may be seismic hazards associated with the slope as discussed below.

A critical slope area and associated “No Building Buffer” area is typically designated (refer to chapter 9.4), which should not be developed in order to mitigate possible landslide and erosion hazards. This scenario is apparently not applicable to this site. The main concern with the proposed development involves loading or disturbing shallow cover soils in a manner that increases erosion or causes shallow slumps, surface creep, or subsidence. Our recommendations above are generally for cut grading to construct the proposed ADU on the top of slope of the property. It is our opinion that the subject slope may not be adversely affected since the proposed ADU will be at same location of existing detached garage with 5

feet setback from slope, and therefore, the proposed development will not increase the potential for landslide or erosion hazard if the recommendations in this report are followed.

9.2 Erosion Hazard Mitigation (LDC 19.07.100)

The following general recommendations will assist in preventing high rates of erosion that may cause site slopes to become unstable during and after construction. Vegetation removal and ground disturbance on the slope should be limited to only as necessary in work areas. During construction if warranted or desired, soil containing measures such as silt fencing, hay bails, or straw waddles may be helpful in limiting erosion and the effects of earthwork activity on adjacent areas down slope. The contractor should comply with Best Management Practices (BMPs) and temporary erosion control measures as required.

The soil cutslope recommendations above are intended to reduce the overall area of ground disturbance while allowing for re-establishment of adequate slopes after construction. Care should be taken to restore disturbed or cleared areas to a naturalized state via plantings, control drainage and limit runoff onto these areas, and provide ongoing maintenance of vulnerable slope faces as needed in the long term, to minimize the potential for erosion and local soil slumps.

Construction and construction equipment should be confined to the areas of the building construction. It should be understood that the impacts of construction equipment and vegetation removal disturbs the soil and removes stabilizing rooting, causing the slope surface to be less stable. Equipment use on the slopes should be limited to light machinery.

We recommend drainage controls and appropriate outlets be applied as possible to limit the potential for slope instability due to water inundation. The on-site soil may cause areas of temporary saturation during storm events, especially around grading alterations and

improvements. Features that may collect ground or surface water, should be designed with perforated pipe for water collection and drainage. Drainage pipes should be tightlined to a natural drain course or dispersed in an appropriate area below and away from slope faces.

Provided that the recommendations above are implemented, we conclude that the erosion hazard will be adequately mitigated during and after site development.

9.3 Seismic Hazard Considerations

The seismic hazards has been addressed early in this report Section 8.8 Seismic Design Parameters.

9.4 Buffers and Setbacks (LDC 19.07.100)

Based on our evaluation, and provided that the proposed development is designed and constructed in accordance with our recommendations provided in this report, the proposed development:

- Proposed development is not located in a landslide hazard area and seismic hazard is low;
- Would not increase the hazard to adjacent properties with similar slopes over the existing condition or result in a need for increased buffers on neighboring properties; and
- Can be designed safely under anticipated conditions.

Our site reconnaissance did not find obvious visual evidence of current or past slope stability issues within the project area. We are not aware of any historic slope failures in the site vicinity. The slope stability analysis was performed for proposed ADU structure at top of middle portion slope of subject site. The factor of safety for the critical surfaces range from

2.14 to 5.94, which is over 1.5 for representative cross-sections A-A´. This gives us that at top of slope with proposed ADU may be satisfactory.

10.GENERAL CONDITIONS

The recommendations provided herein are based on our understanding of the project at this time. We expect the on-site geologic conditions to reflect our findings, however, some variations may occur. Should soil conditions be encountered that cause concern and/or are not discussed herein, Merit Engineering, Inc. should be contacted immediately to determine if additional or alternate recommendations are required.

We recommend that we review those portions of the plans and specifications pertaining to earthwork, cutslopes, and wall design to ensure that they are consistent with the recommendations in this report.

We recommend that we verify site excavation to suitable soil stratum, verify imported fill materials, and observe and test compaction of structural fill. We recommend that we be retained to evaluate the condition of cutslopes once open, including soil condition, structures, and soil stability, and provide recommendations as needed for remediation or reinforcement of permanent cutbanks.

This report is prepared for Buping Wang for specific application to the critical areas evaluation for the proposed development located at 6450 E Mercer Way, in Mercer Island, Washington 98040 (Parcel #302405-9004). This report has been prepared in accordance with generally accepted geotechnical/geological engineering practices in this area. No other warranty, expressed or implied, is made.

This report is an instrument of our professional service, and we (Merit Engineering, Inc.) shall retain an ownership and property interest therein. We grant Buping Wang a license to use the instrument of our professional service for the purpose of constructing the above mentioned proposed improvements. We do not permit reuse or modification of this document for application to a different structure or location other than the proposed or to another property because soil and subsurface conditions are unique and site specific for different locations.

The STABLE computer model was calibrated using the observed slope height of ~14´. Should the slope height change, or soil conditions or other related parameters change, the calculations would be inaccurate and Merit Engineering, Inc. should be contacted to determine if alternate recommendations are required. We expect the onsite conditions to reflect our findings; however, some variations may occur. Should soil conditions be encountered that cause concern and/or are not discussed herein, Merit Engineering, Inc. should be contacted immediately to determine if additional or alternate recommendations are required.

Results presented in this report are based on our field tests and engineering analysis using the best available knowledge we have, which by no means gives any warranty or guarantee that slope failure after site development will not occur. We understand the owners have chosen and are ultimately willing to live an area that is a potential geohazard. Therefore, we recommend long term monitoring of the slope. Additionally, the owners and/or their representatives should understand that they are willing to take the risk to live in a geologically critical area and, therefore, agree to indemnify and hold Merit Engineering, Inc.

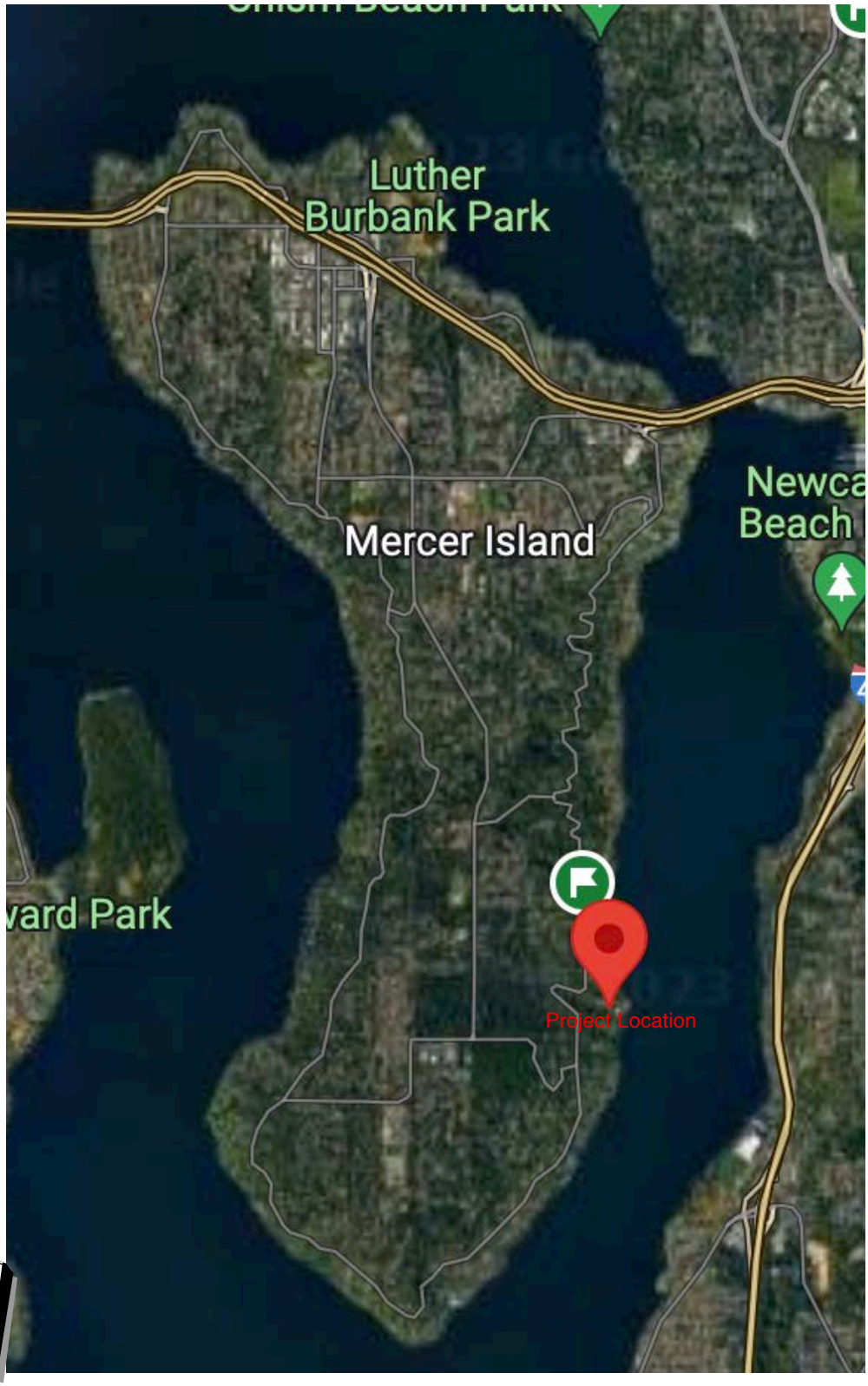
harmless, including its owners and employees, for the property owners are ultimately responsible for the potential adverse consequences of living in a geologically critical area.

This study has used limited methods employed for evaluating slope conditions within the site and its vicinity, with limitations noted herein, as allowed within the reasonable scope of the project. This study does not attempt to perform an in-depth subsurface investigation of deep soils or bedrock, which is beyond the feasible scope and cost of the project at this time. The on-site soil condition should be reevaluated, if different soils are encountered during construction or if the deep excavation below current ground surface occur. We recommend that we be retained consult and review the soil conditions when subsurface open up or during the construction phase of the project to confirm they are in accordance with the soils encountered in this report. The owners should therefore understand that the soil conditions described herein are the result of surficial interpretations provided within the scope of this study, and thus are not intended to represent or substitute for a comprehensive study of subsurface conditions.

APPENDIX

Subsurface conditions at the site were investigated by conducting three (3) DCP tests on September 7, 2023. DCP test locations were determined by a representative of Merit Engineering Inc. as shown approximately on the Site Plan (Figure 2) presented in the Appendix of this report. Tests were conducted near the adjacent to the building footprint to generalize subsurface soil conditions. Depths referred to in this report are relative to the existing ground surface at the time of this field investigation.

Descriptions of subsurface conditions are based on observations made at the site at the time of the field investigation. DCP test logs are presented in Figures 4 through 6. The soils observed at the site were classified using the USCS (Unified Soils Classification System) in accordance with ASTM D-2488-69 and ASTM D 2487. This classification system is also presented in the Appendix (Figure 3).

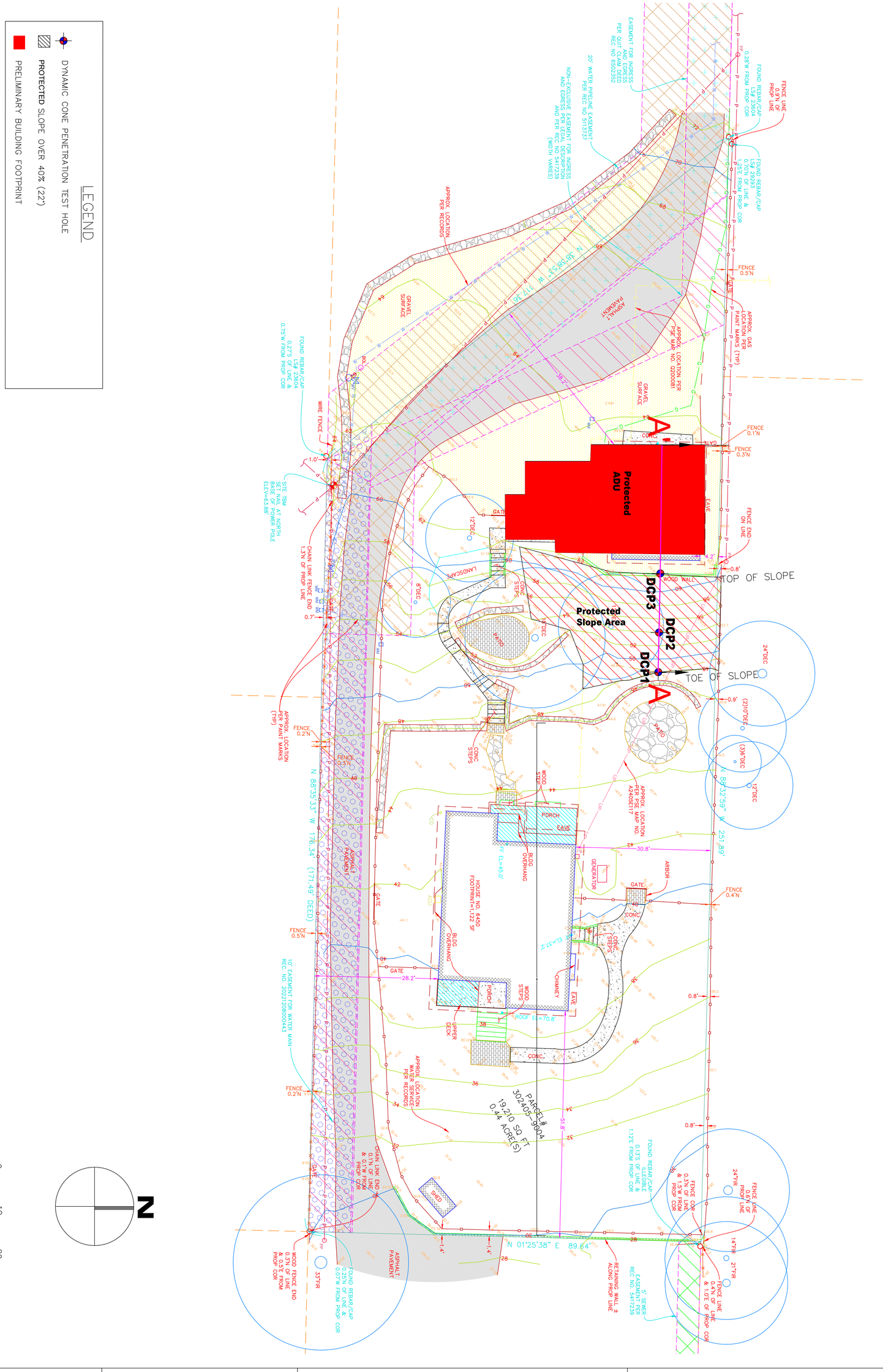


Project No: 2EH03221024	**PROJECT LOCATION & VICINITY MAP**	Date: 09/07/2023	*Figure 1*

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

Prepare For: Buping Wang

MERIT ENGINEERING INC.
10129 Main Street #201
Bellevue, Washington 98004
Telephone: (425) 454-2133
http://www.MeritEngineering.com



Note: Property Lines and Topogrphy based on the Survey From Terrane

New Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA
Parcel Number: 302405-9004

SITE PLAN

PROJECT NO.	DATE	APPROVED BY
2EH03221024	10/04/2023	AXH

For: Buping Wang

Figure 2 SCALE; 1":10'

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UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS				DESCRIPTION
COARSE GRAINED SOILS more than 50% retained on #200 sieve	GRAVELS more than 50% coarse fraction is larger than No. 4 sieve size	Gravels with less than 5% fines	GW	Well graded gravels, gravel-sand mixtures
			GP	Poorly graded gravels, gravel-sand mixtures
		Gravels with more than 12% fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS more than 50% coarse fraction is smaller than No. 4 sieve size	Sands with less than 5% fines	SW	Well graded sands, gravelly sands
			SP	Poorly graded sands, gravelly sands
		Sands with more than 12% fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS more than 50% passing #200 sieve	SILTS AND CLAYS Liquid Limit less than 50		ML	Inorganic silts & 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, or lean clays
			OL	Organic clays and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid Limits greater than 50		MH	Inorganic silts, micaceous or diatomacious fine, sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils
UNCONTROLLED FILL				Uncontrolled, with highly variable constituents

LEGEND

SAMPLE	SYMBOL
SPLIT SPOON SAMPLER	GROUNDWATER TABLE
SHELBY TUBE SAMPLER	q_u PENETROMETER READING TSF (*tons per square foot*)

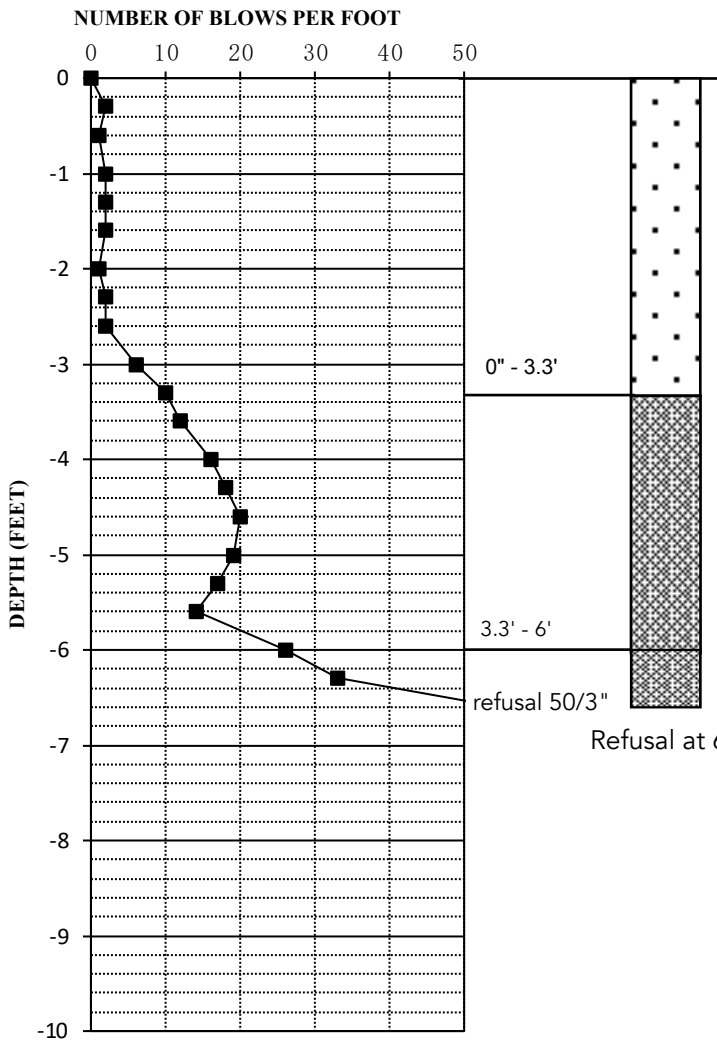
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SOIL CLASSIFICATION & LEGEND

Figure 3

DCP-1 DYNAMIC CONE PENETRATION TEST	SOIL DESCRIPTION AND CLASSIFICATION

X,Y =
Surface Elevation = 48'
Surface Conditions = Ground Cover



LOOSE SILTY SANDS

SILTY SANDS WITH GRAVEL /SILT (SM-ML)

SILTY FINE SANDS WITH GRAVEL/SILT (OUTWASH)(TILL)

Note: Soil profile is inferred from CPT results. Subsrface conditions were not observed directly during DCP testing.

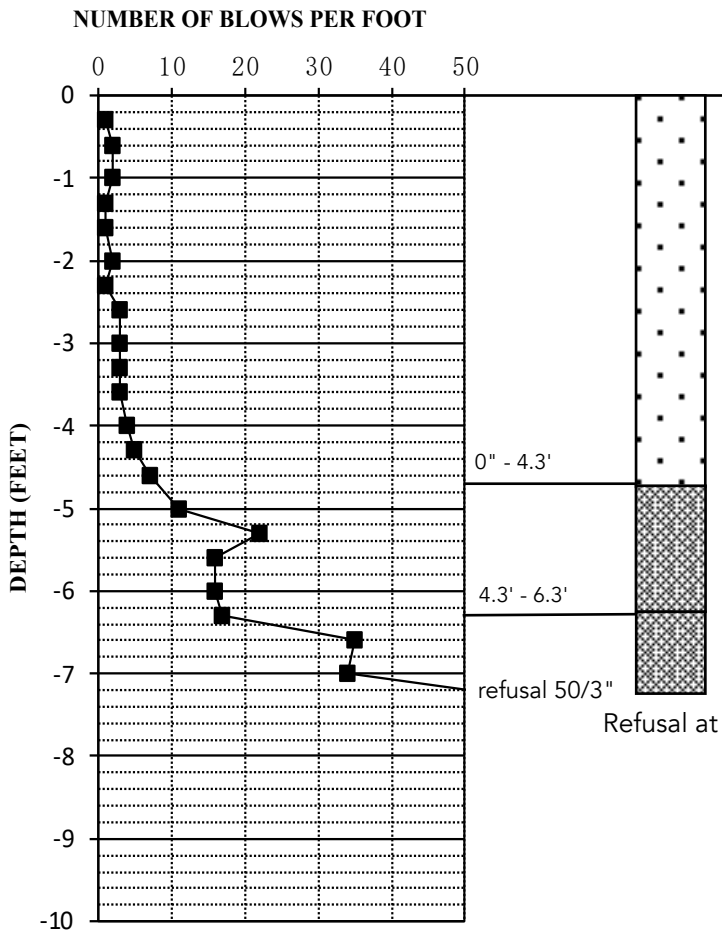
Project No: 2EH03221024	Date: 09/07/2023	**LOG OF DCP TEST**	Approved by AXH	Figure 4

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

Prepare For: Buping Wang

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DCP-2 DYNAMIC CONE PENETRATION TEST	SOIL DESCRIPTION AND CLASSIFICATION



X,Y =
Surface Elevation = 56'
Surface Conditions = Ground Cover

LOOSE SILTY SANDS

SILTY SANDS WITH GRAVEL/SILT (SM-ML)

SILTY FINE SANDS WITH GRAVEL/SILT (OUTWASH)(TILL)

Note: Soil profile is inferred from CPT results. Subsrface conditions were not observed directly during DCP testing.

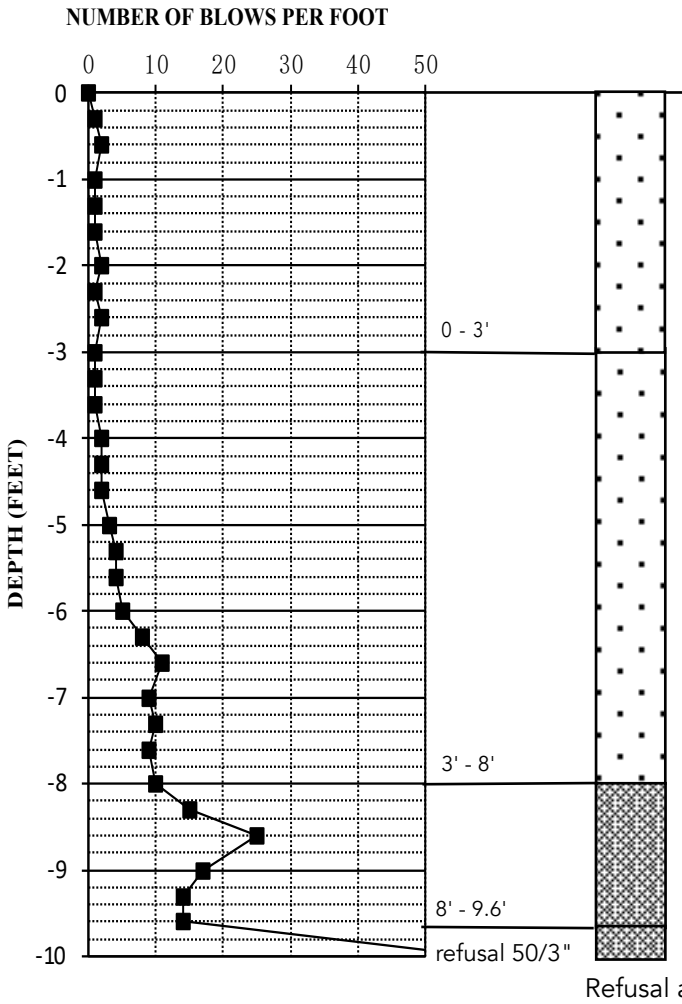
Project No: 2EH03221024	Date: 09/07/2023	**LOG OF DCP TEST**	Approved by AXH	Figure 5

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

Prepare For: Buping Wang

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DCP-3 DYNAMIC CONE PENETRATION TEST	SOIL DESCRIPTION AND CLASSIFICATION



X,Y =
Surface Elevation = 62'
Surface Conditions = Ground Cover

FILL

LOOSE SILTY SANDS

SILTY SANDS WITH GRAVEL/SILT (SM-ML)

SILTY SANDS WITH GRAVEL (OUTWASH)(TILL)

Refusal at 10'

Note: Soil profile is inferred from CPT results. Subsrface conditions were not observed directly during DCP testing.

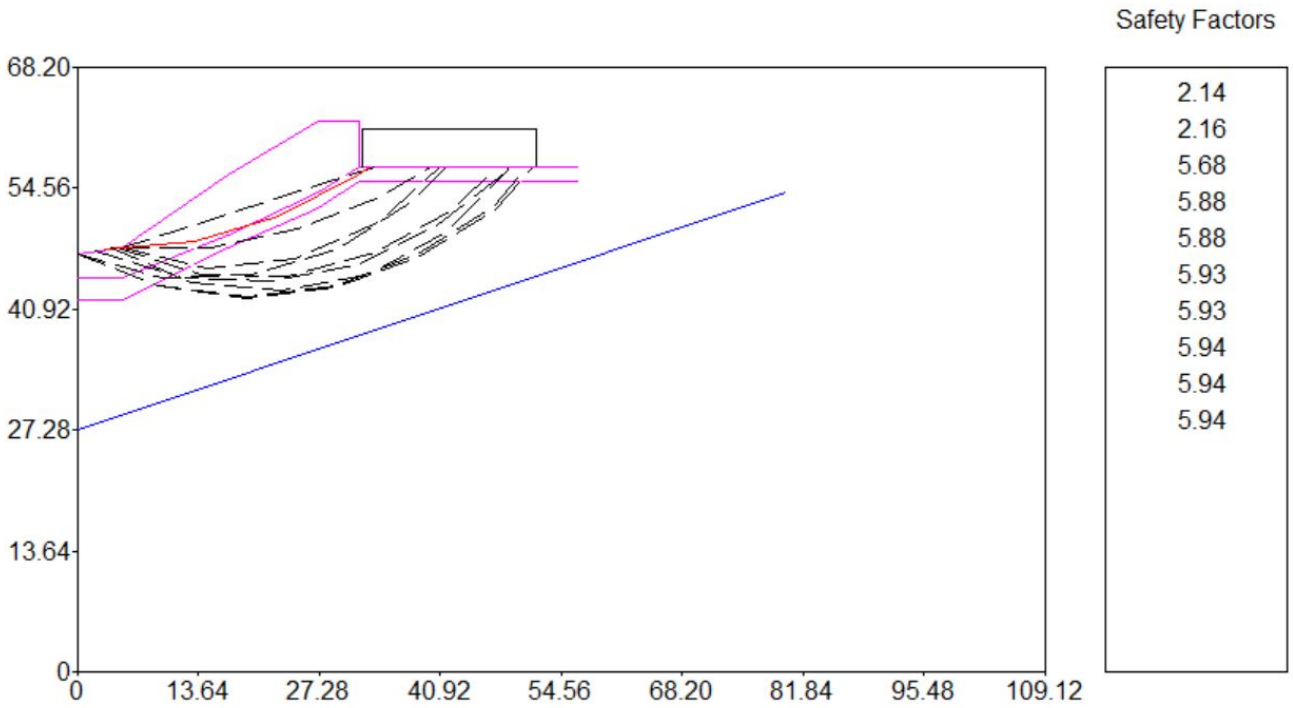
Project No: 2EH03221024	Date: 09/07/2023	**LOG OF DCP TEST**	Approved by AXH	Figure 7

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

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STATIC CONDITION	*Figure 7*



LEGEND

- Topography and Soil horizon
- Ground Water Level

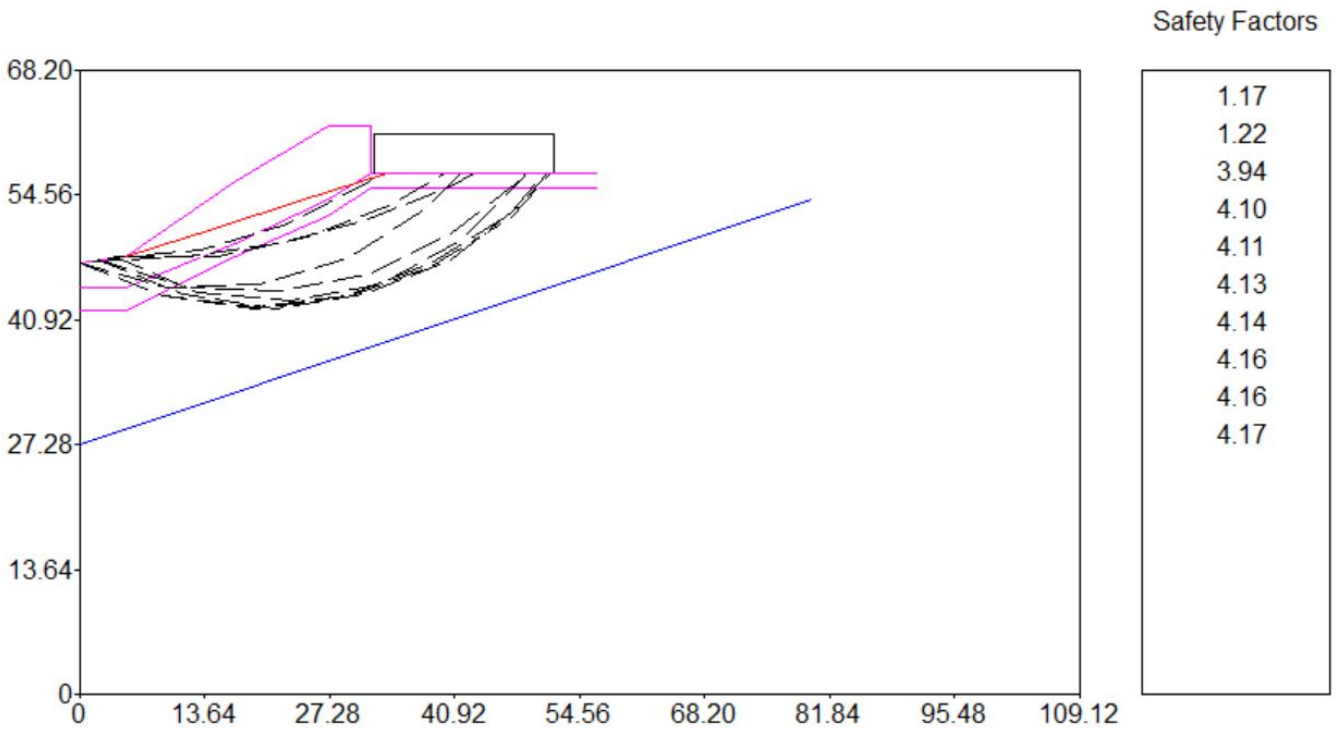
Project No. 2EH03221024	Date: 09/07/2023	**CROSS SECTION A-A'**	Approved by A.X.H.	*No Scale*

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

Prepared For: Buping Wang

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SEISMIC CONDITION g=0.31	*Figure 8*



LEGEND

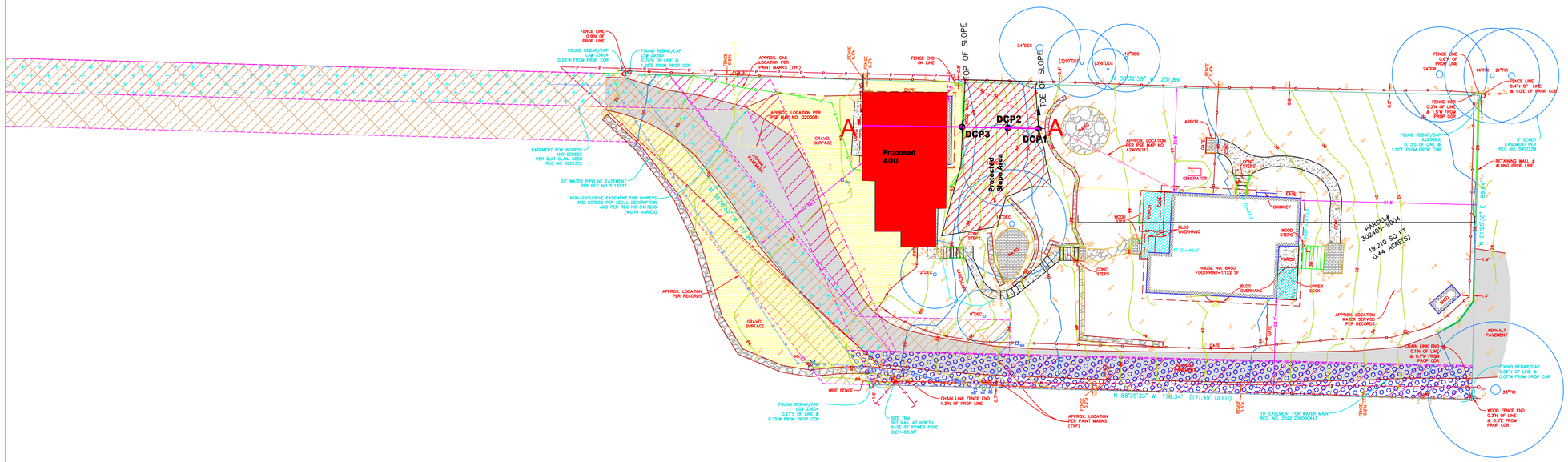
- Topography and Soil horizon
- Ground Water Level

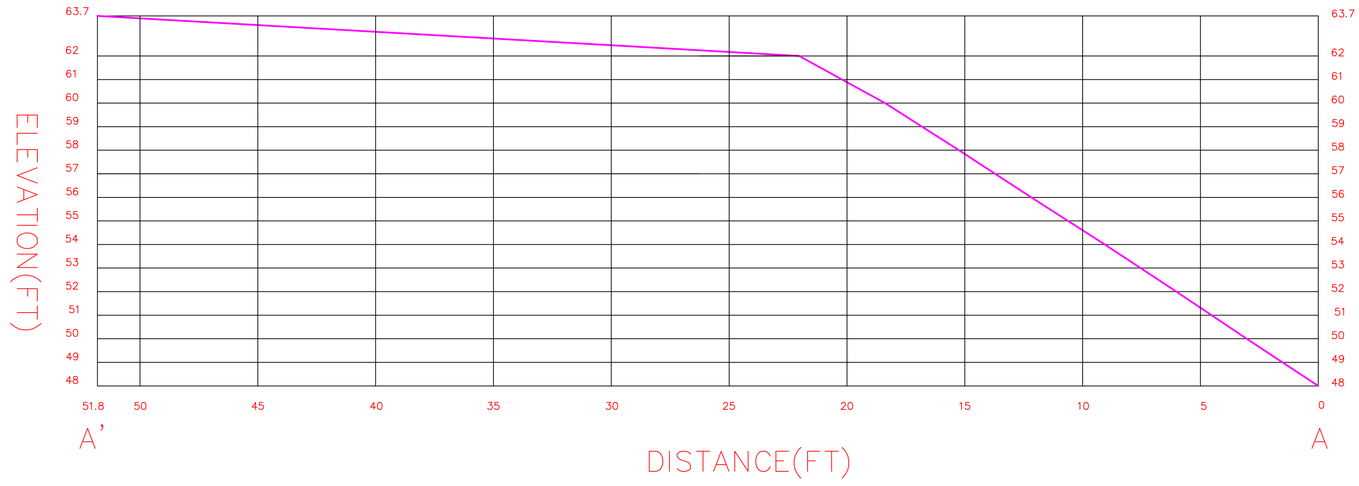
Project No: 2EH03221024	Date: 09/07/2023	**CROSS SECTION A-A'**	Approved by A.X.H.	*No Scale*

Proposed Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA

Prepare For: Buping Wang

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Note: Property Lines and Topogrphy based on the Survey From Terrane

Figure 9

For: Buping Wang

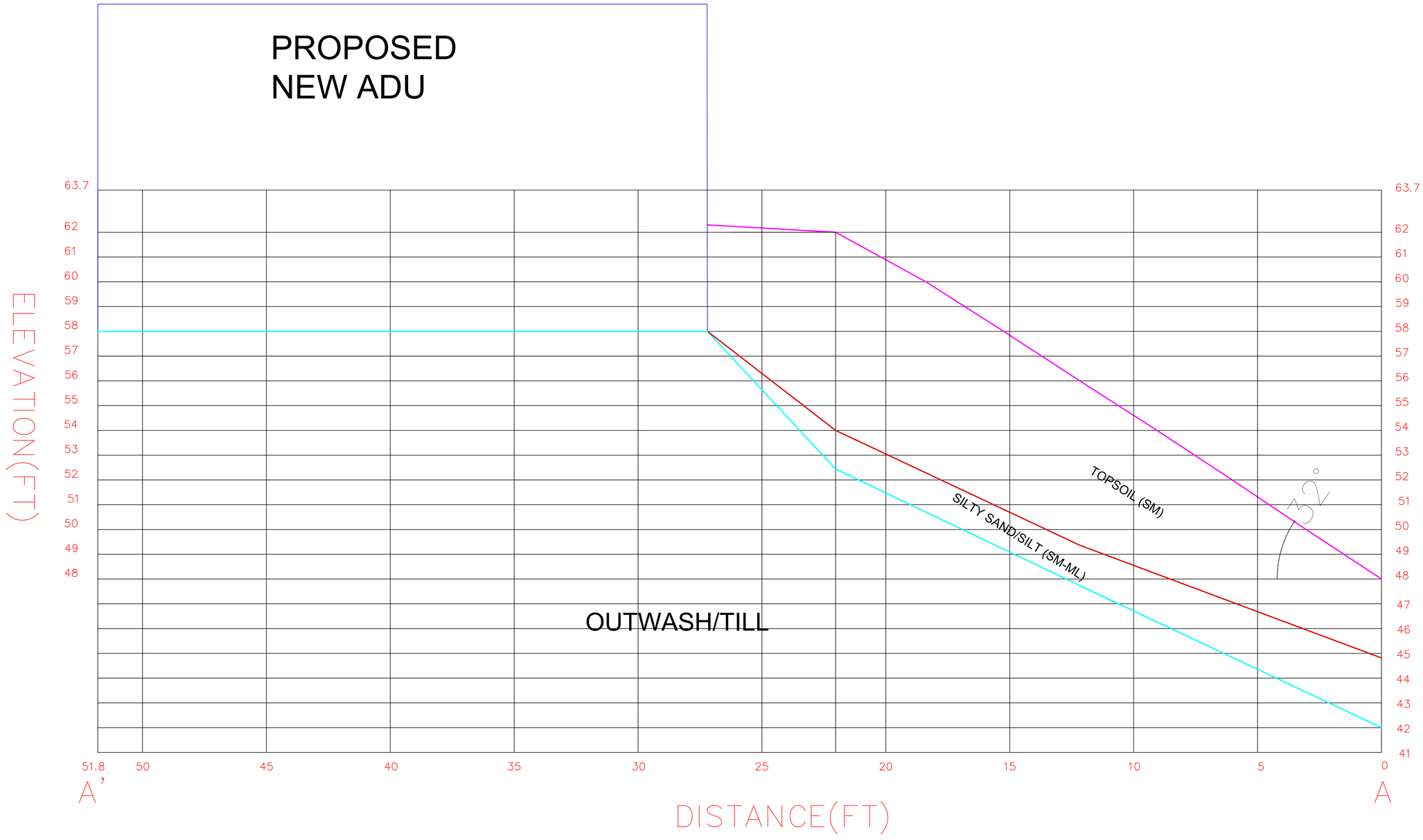
New Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA
Parcel Number: 302405-9004

SCALE: NOT ON SCALE

SLOPE PROFILE

PROJECT NO.	DATE	APPROVED BY
2EH03221024	10/04/2023	AXH

MERIT ENGINEERING INC.
10129 Main Street, #201
Bellevue, Washington 98004
Telephone: (425)454-2133
http://www.MeritEngineering.com



Note: Property Lines and Topogrphy based on the Survey From Terrane

Figure 10

For: Buping Wang

New Accessory Dwelling Unit
6450 E Mercer Way
Mercer Island, WA
Parcel Number: 302405-9004

SCALE: NOT ON SCALE

CROSS - SECTION A-A'

PROJECT NO.	DATE	APPROVED BY
2EH03221024	10/04/2023	AXH

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MERIT ENGINEERING INC.

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Bellevue, Washington 98225
Tel: (360)738-6083
Fax: (360)738-1499
merit@MeritEngineering.com

http://www.MeritEngineering.com

June 9, 2024
Project No. 2EJ01261028

2018 ASCE Washington Honorable Mention Engineering Excellence

Buping Wang & Wanqiu Yang
c/o Siyao Studio
siyaow@siyao.studio

Re: Geotechnical Engineering Investigation for Residential Development
6450 E Mercer Way
Mercer Island, WA 98040

Dear Buping and Wanqiu:

At your request, I provide this letter of minimum risk statement.

Merit Engineering has reviewed the latest Architectural Plan dated 05/05/2024 from Siyao Studio, Civil Engineering Plan dated 06/03/2024 from Merit Engineering, INC and Structural Plan dated 11/17/2023 from HAREZLAK Engineering. Based on our review of the plans, it is our opinion that the geotechnical aspects of these documents are generally consistent with the design recommendations presented in our geotechnical report dated October 05, 2023.

Provided that the project is completed in accordance with the plans and specifications and that the geotechnical engineer of record provides observation during construction, it is our opinion that the areas disturbed by construction will be stabilized and remain stable and will not increase the potential for soil movement. The risk of damage as a result of soil instability will be minimal on the property being developed, and on adjacent properties. The use of the word "minimal" in the above statement should not be taken to imply that there is no risk, but rather that it is our opinion that the risk is low.

Thank you for the opportunity to work with you on this project. Should you have any questions regarding to this letter, please contact us.

Sincerely,



June 9, 2024

Austin X. Huang, Ph.D., P.E., L.G., D.GE., F.ASCE
President

F.ASCE: Fellow - American Society of Civil Engineering
D.GE - Diplomate - Academy of GeoProfessionals

D.GEs provide successful projects that benefit their clients.
The D.GE certification recognizes geotechnical engineers who possess specialty education, extensive experience, integrity, and good judgment.

MERIT ENGINEERING
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June 26, 2024
Project No. 2EJ01261028

2018 ASCE Washington Honorable Mention Engineering Excellence

Buping Wang & Wanqiu Yang
c/o Siyao Studio
siyaow@siyao.studio

Re: Geotechnical Plan Review and Minimum Risk Letter
6450 E Mercer Way
Mercer Island, WA 98040
CAO24-004 Review Letter 2

Dear Buping and Wanqiu:

At your request, I provide this letter of minimum risk statement.

We prepared a geotechnical engineering evaluation for the project site dated October 5, 2023. In general, we concluded that the site does not contain Landslide Hazard Areas, Erosion Hazard and Seismic Hazard is low as defined by the Mercer Island Municipal Code (MICC). The proposed development plans consist of replacing the existing detached garage with a new 2-story ADU at approximately same location. In our geotechnical report dated October 5, 2023, A slope stability was conducted showing that with such development the site is determined to be safe and geologic hazard mitigation is also conducted showing that the proposed development will not adversely impact the subject property or adjacent properties and other critical areas.

Merit Engineering has reviewed the latest Architectural Plan dated 05/05/2024 from Siyao Studio, Civil Engineering Plan dated 06/03/2024 from Merit Engineering, INC and Structural Plan dated 11/17/2023 from HAREZLAK Engineering. Based on our review of the plans, it is our opinion that the geotechnical aspects of these documents are generally consistent with the design recommendations presented in our geotechnical report dated October 05, 2023

MINIMUM RISK STATEMENT

Based on our site-specific subsurface evaluation the proposed development is not within a landslide hazard area or seismic hazard area meeting the requirements stated in **Mercer Island City Code 19.07.160.B.3.a.**

Provided that the project is completed in accordance with the plans and specifications and that the geotechnical engineer of record provides observation during construction, it is our opinion that the areas disturbed by construction will be stabilized and remain stable and will not increase the potential for soil movement. The risk of damage as a result of soil instability will be minimal on the property being developed, and on adjacent properties. The use of the

word “minimal” in the above statement should not be taken to imply that there is no risk, but rather that it is our opinion that the risk is low.

We appreciate this opportunity to present our proposal to you. If you have any questions, please contact us at 425-454-2133.

Sincerely,



June 26, 2024

Austin Huang, Ph.D., P.E., LG., F.ASCE, D.GE
President
Diplomate - Academy of Geo-Professionals
Fellow - American Society of Civil Engineering

D.GEs provide successful projects that benefit their clients.

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COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
206.275.7605 | www.mercerisland.gov/cpd

PUBLIC NOTICE OF DECISION

NOTICE IS HEREBY GIVEN that approval has been granted for the application described below:

File No.:	CAO24-004
Permit Type:	Type III
Description of Request:	A request for a Critical Area Review 2 for the replacement of an existing 1 story garage with a new 2 story garage located within geological hazardous areas.
Applicant/ Owner:	Siyao Wang / Buping Wang & Wanqui Yang
Location of Property:	6450 E Mercer Way, Mercer Island, WA 98040 King County Assessor tax parcel number: 302405-9004

SEPA Compliance:
The project is exempt from SEPA Review pursuant to WAC 197-11-800(B)(i).

Applicable Development Regulations:	Pursuant to Mercer Island City Code (MICC) 19.15.030 Table A, applications for Critical Area Review 2 permits are required to be processed as Type III land use reviews. Processing requirements for Type III land use reviews are further detailed in MICC 19.15.030 Table B.
Other Associated Permits:	2402-186, ADU24-004
Project Documents:	https://mieplan.mercergov.org/public/CAO24-004
Decision:	Approved subject to conditions.

Appeal Rights: *DISCLAIMER: This information is provided as a courtesy. It is the ultimate responsibility of the appellant to comply with all legal requirements for the filing of an appeal.*

Parties of record have the right to appeal certain permit and land use decisions. In some cases, other affected parties also have appeal rights. Depending on the type of decision, the appeal may be heard by a City Hearing Examiner, Commission, Board, or City Council, or outside the City to the State Shoreline Hearings Board, the State Growth Management Hearings Board, or King County Superior Court. For a comprehensive list of actions and the applicable entity who will hear the appeal, see MICC 19.15.030 Table B.

If you desire to file an appeal of a decision that is appealable to the City, you must submit the appropriate form and file it with the City Clerk **within the time stated in the Notice of Decision.** Forms are available from Community Development and Planning. Upon receipt of

a timely complete appeal application and appeal fee, an appeal hearing will be scheduled. To reverse, modify or remand a decision, the appeal hearing body must find that there has been substantial error; the proceedings were materially affected by irregularities in procedure; the decision was unsupported by material and substantial evidence in view of the entire record; or the decision is in conflict with the City's applicable decision criteria.

Application Process Information:	Date of Application:	March 5, 2024
	Determined to Be Complete:	March 12, 2024
	Public Comment Period:	March 18, 2024 through 5:00 PM on April 17, 2024
	Date Notice of Decision Issued:	August 26, 2024
	Appeal Filing Deadline:	5:00 PM on September 9, 2024
Project Contact:	Grace Manahan, Code Compliance Planner grace.manahan@mercerisland.gov | (206) 275-7764	