

WETLAND DELINEATION REPORT

**Berryman Property
Mercer Island, Washington**

August 10, 2023

RAEDEKE ASSOCIATES, INC.

Report To: Elaine Berryman
5222 West Mercer Way
Mercer Island, Washington 98040

Title: Wetland Delineation Report
Berryman Property
Mercer Island, Washington

RAI Project Number: 2023-072-001

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Date: August 10, 2023

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1.0 INTRODUCTION

1.1 PURPOSE

Raedeke Associates, Inc. was retained by Elaine Berryman to provide a wetland assessment for a property located at 5222 West Mercer Way in the City of Mercer Island, Washington. As part of this assessment, we conducted a site visit to investigate the area for any wetlands or streams on or in vicinity of the project site. As part of this evaluation, we did not observe any streams on the project site, however, we observed one wetland (Wetland 1) on the project site.

This report presents the findings of our background information review, and our July 28, 2023 site investigation of the project site. This report follows the City of Mercer Island (2023a) critical areas regulations and reporting requirements.

1.2 PROPERTY LOCATION

The Berryman Mercer Island project site consists of a 0.34-acre parcel located at 5222 West Mercer Way in Mercer Island, Washington (Figure 1). The project site is identified as King County Tax Parcel No. 1924059311, which is a developed lot with a single-family residence. The parcel is located in a portion of Section 19, Township 24 North, Range 5 East, W.M.

The property is bordered to the north, south, and east by single-family homes and to the west by West Mercer Way. The property is accessed via a private driveway from West Mercer Way.

2.0 METHODS

2.1 DEFINITIONS AND METHODOLOGIES

2.1.1 Wetlands

Wetlands and streams are protected by federal law as well as by state and local regulations. Federal law (Section 404 of the Clean Water Act) prohibits the discharge of dredged or fill material into “Waters of the United States”, including certain wetlands, without a permit from the U.S. Army Corps of Engineers (COE 2021). The COE makes the final determination as to whether an area meets the definition of a wetland and whether the wetland is under their jurisdiction.

The COE wetland definition was used to determine if any portions of the project area could be classified as wetland. A wetland is defined as an area “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Federal Register 1986:41251).

We based our investigation upon the guidelines of the U. S. Army Corps of Engineers (COE) Wetlands Delineation Manual (Environmental Laboratory 1987) and subsequent amendments and clarifications provided by the COE (1991a, 1991b, 1992, 1994), as updated for this area by the regional supplement to the COE wetland delineation manual for the Western Mountains, Valleys, and Coast Region (COE 2010). The COE wetlands manual is required by state law (WAC 173-22-035, as revised) for all local jurisdictions.

Hydrophytic vegetation is defined as “macrophytic plant life growing in water, soil or substrate that is at least periodically deficient in oxygen as a result of excessive water content” (Environmental Laboratory 1987). The U.S. Army Corps of Engineers National Wetland Plant List wetland indicator status (WIS) ratings were used to make this determination (Lichvar et al. 2016). The WIS ratings “reflect the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in wetland versus non-wetland across the entire distribution of the species” (Reed 1988:8). Plants are rated, from highest to lowest probability of occurrence in wetlands, as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and upland (UPL), respectively. In general, hydrophytic vegetation is present when the majority of the dominant species are rated OBL, FACW, and FAC.

A hydric soil is defined as “a soil that is formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (Federal Register 1995: 35681). The morphological characteristics of the soils in the study area were examined to determine whether any could be classified as hydric.

According to the 1987 methodology, wetland hydrology could be present if the soils were saturated (sufficient to produce anaerobic conditions) within the majority of the rooting zone (usually the upper 12 inches) for at least 5% of the growing season, which in this area is usually at least 2 weeks (COE 1991a). It should be noted, however, that areas having saturation to the surface between 5% and 12% of the growing season may or may not be wetland (COE 1991b). Depending on soil type and drainage characteristics, saturation to the surface would occur if water tables were shallower than about 12 inches below the soil surface during this time period. Positive indicators of wetland hydrology include direct observation of inundation or soil saturation, as well as indirect evidence such as driftlines, watermarks, surface encrustations, and drainage patterns (Environmental Laboratory 1987). Hydrology was further investigated by noting drainage patterns and surface water connections between wetlands and streams within and adjacent to the project area.

2.1.2 Ordinary High Water Mark Determination

We based our evaluation of the Ordinary High Water Mark (OHWM) on definitions provided under the Washington State Shoreline Management Act of 1971. The Washington State definition for the OHWM is as follows:

Ordinary high water mark or "OHWM" means the mark on the shores of all waters that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in ordinary years, as to mark upon the soil or vegetation a character distinct from that of the abutting upland, provided that in any area where the ordinary high water line cannot be found, the ordinary high water line adjoining saltwater shall be the line of mean higher high water, and the ordinary high water line adjoining freshwater shall be the elevation of the mean annual flood." ... (RCW 90.58.030(2)(c) and WAC173-22-030(5).

As outlined in the WDOE (2016) Shoreline Administrators Manual, the general guidelines for determining the OHWM include: (1) a clear vegetation mark; (2) wetland/upland edge; (3) elevation; (4) a combination of changes in vegetation, elevation, and landward limit of drift deposition; (5) soil surface changes from algae or sediment deposition to areas where soils show no sign of depositional processes; and/or (6) soil profile changes from wetter conditions (low chroma, high soil organic matter, and lack of mottling) to drier conditions (higher chroma, less organic matter, or brighter mottles).

2.2 BACKGROUND RESEARCH

Prior to conducting our site visit, we reviewed existing background maps and information for the project site from the U.S.D.A. Natural Resource Conservation Service (NRCS 2023) Web Soil Survey, the U.S. Fish and Wildlife (USFWS 2023) National Wetland Inventory (NWI), the City of Mercer Island (2023b) GIS Portal, and the King County

(2023) iMap in order to assist in our determination of whether wetlands were present within the property or its vicinity. In addition, we reviewed current and historical aerial photographs (Google Earth 2023) to assist in the definition of existing plant communities, drainage patterns, and land use.

The online priority habitats and species (PHS) database maintained by Washington Department of Fish and Wildlife (WDFW 2023) and Statewide Washington Integrated Fish Distribution (SWIFD) database maintained by the Northwest Indian Fishery Commission (NWIFC 2023) document information on the potential occurrence of federal- or state-listed endangered, threatened, sensitive, candidate, other priority, or monitor wildlife species (hereafter “species of concern”), or priority habitats on the project site and vicinity. State priority species are defined as those fish and wildlife species “requiring protective measures and/or management actions to ensure their survival”, and State priority habitats are defined as habitat types “with unique or significant value to many species” (WDFW 2008). We also reviewed database information maintained by the Washington Natural Heritage Program (2023) for occurrence of endangered, threatened, and sensitive plants in the vicinity of the project site.

2.3 FIELD SAMPLING PROCEDURES

We conducted a site visit on July 28, 2023 to identify and delineate any wetlands or stream on or within the vicinity of the project site. During our site visits, we also collected information sufficient to describe the general site conditions.

Vegetation, soils, and hydrology were examined in representative portions of the study area according to the procedures described in the Regional Supplement (COE 2010). Plant communities were inventoried, classified, and described during our field investigation. We estimated the percent coverage of each species. Plant identifications were made according to standard taxonomic procedures described in Hitchcock and Cronquist (2018), with nomenclature as updated by the U.S. Army Corps of Engineers National Wetland Plant List (Lichvar et al. 2016). Wetland classification follows the USFWS wetland classification system (Cowardin et al. 1992). We determined the absence of a hydrophytic vegetation community using the procedure described in the Regional Supplement (COE 2010), which requires the use of the dominance test, unless positive indicators of hydric soils and wetland hydrology are also present, in which case the prevalence index or the use of other indicators of a hydrophytic vegetation community as described in the Regional Supplement (COE 2010) may also be required.

We excavated pits to at least 18 inches below the soil surface, where possible, in order to describe the soil and hydrologic conditions throughout the study area. We sampled soil at locations that corresponded with vegetation sampling areas and potential wetland areas. Soil colors were determined using the Munsell Soil Color Chart (Munsell Color 2009). We used the indicators described in the Regional Supplement (COE 2010) to determine the presence of hydric soils and wetland hydrology.

We observed one onsite wetland which we delineated with pink and black flagging labeled WET1-1 through WET1-13. We documented the location of the wetland using a handheld GPS unit.

3.0 EXISTING CONDITIONS

3.1 RESULTS OF BACKGROUND INVESTIGATION

The USDA NRCS (2023) Web Soil Survey (Figure 2) identifies Alderwood gravelly sandy loam 8 to 15% slope soil series on the western portion of the project site and Alderwood and Kitsap very steep soils on the eastern portion of the project site. Alderwood gravelly sandy loam soils and Alderwood and Kitsap soils are not listed as hydric soils on either the state or national hydric soils list, but Alderwood gravelly sandy loam soils potentially contain the following soil inclusions that are considered hydric: Norma and Shalcar soils (NRCS 2016; U.S.D.A. Soil Conservation Service 1991, Federal Register 1995). Soil series boundaries or mapping units are mapped from aerial photographs with limited field verification. Thus, the location and extent of boundaries between mapping units may not be accurate for a given parcel of land within the survey area.

The USFWS (2023) NWI (Figure 3) does not identify any wetlands on the project site, however, it depicts two streams offsite approximately 225 feet to the northwest. Both streams are identified as riverine, intermittent systems with streambeds that are seasonally flooded (R4SBC). Wetlands and streams shown on the NWI are general in terms of location and extent, as they are determined primarily from aerial photograph interpretation. Thus, the number and extent of existing wetlands located within the project area may differ from those marked on the NWI map.

The City of Mercer Island (2023b) GIS Portal (Figure 4) depicts a Type Np open watercourse on the adjacent parcel to the south, immediately south of the private driveway, which flows into a culvert under West Mercer Way.

The WDNR (2023) Forest Practices Application Map and King County (2023) iMap do not depict any wetlands or streams on or in the vicinity of the project site. The NWIFC (2023) SWIFD map does not identify fish or streams within the vicinity of the project site. The WDFW (2023) PHS map does not depict any priority habitats or species within the project vicinity. The Washington Natural Heritage Program (2023) database contains no records of Natural Heritage Features (e.g., listed plant species or Natural Heritage wetlands) in the vicinity of the project site.

3.2 RESULTS OF FIELD INVESTIGATIONS

During our July 28, 2023 site investigation, we identified one wetland (Wetland 1) in the southwest portion of the project site (Figure 5).

3.2.1 General Property Description

The project site is a developed property with a single-family home (Figure 5). There is a shared paved driveway and landscaped gardens with ornamental plantings near the house

on the north, west, and south sides. The parcel slopes down to the west toward West Mercer Way. An undeveloped slope is located in the northeast corner of the parcel.

The vegetation near the house consists of landscaped ornamental species. The slope northeast of the house is dominated by bigleaf maple (*Acer macrophyllum*, FACU), English ivy (*Hedera helix*, FACU), western sword fern (*Polystichum munitum*, FACU), and northern bracken fern (*Pteridium aquilinum*, FACU) (Sample Plot 1). Vegetation on the slope southwest of house is dominated by bigleaf maple, English ivy, and California dewberry (*Rubus ursinus*, FACU). These areas do not meet the criteria for a hydrophytic plant community.

Soils upslope to the northeast and downslope to the southwest of the house consist of more than 12 inches of brown (10YR 3/2) gravelly sandy loam soils (Sample Plots 1 and 2). These soils do not contain indicators of hydric soils.

During our July site visit, we did not observe primary indicators of wetland hydrology on the slopes to the northeast or southwest of the house and thus were determined to not meet wetland criteria (Sample Plots 1 and 2). Typical indicators of wetland hydrology include; surface water, a high water table, or saturation as well as secondary indicators of hydric soil per the COE wetland delineation manual (Environmental Laboratory 1987) and regional supplement (COE 2010).

3.2.3 Wetlands

Wetland 1

We identified and delineated Wetland 1 in the southwest corner of the subject parcel (Figure 5). Wetland 1 is a slope hydrogeomorphic class wetland that contains a shrub layer dominated by English ivy with an emergent layer dominated by red-tinge bulrush (*Scirpus microcarpus*, OBL) (Sample Plot 3). This vegetation meets the criteria for a hydrophytic plant community.

Soils in the wetland contained more than 12 inches of very dark brown (10YR 2/2) gravelly sandy loam soils with dark yellowish brown (10YR 4/6) redoximorphic concentrations in the form of pore linings within the soil matrix (Sample Plot 3). These soils were determined to be hydric (wetland) soils as they meet the criteria for the redox dark surface (F6) indicator.

Hydrologic input to the wetland appears to be primarily from sheet flow, subsurface flow, and flow from four pipes draining into the wetland from upslope areas, as well as groundwater and direct precipitation. At the time of our July 28, 2023 site investigation, we observed oxidized rhizospheres within the wetland area (Sample Plot 3) with areas of surface water and saturation at the ground surface. The wetland outlets to a catch basin along West Mercer Way. Based on our observations, sufficient indicators of wetland

hydrology were present per criteria of the COE wetland delineation manual (Environmental Laboratory 1987) and regional supplement (COE 2010).

Wetland Rating

We rated the wetland using the 2014 WDOE Wetland Rating System for Western Washington (Hruby 2014), as required by City of Mercer Island (2023a) code for determination of wetland buffer widths.

We determined that the wetland consists of a slope hydrogeomorphic (HGM) class (see Appendix B). Based on our analysis, the wetland meets Category III criteria because it scored a total of 17 points (5 for habitat). City of Mercer Island (2023a) code requires a 60-foot-wide buffer from Category III wetlands.

3.2.4 Watercourse

We investigated the area mapped as an open watercourse on the Mercer Island (2023b) GIS Portal. No open watercourse was observed on the subject parcel or the adjacent parcel to the south. Catch basins were observed on the adjacent parcel to the south, immediately south of the shared driveway, in the area mapped as a watercourse. The watercourse is likely a piped watercourse in the general area mapped (Figure 5). According to Mercer Island (2023a) code, piped watercourses have no buffer but have a 45-foot setback from the centerline of the pipe.

4.0 REGULATORY CONSIDERATIONS

4.1 FEDERAL CLEAN WATER ACT (CWA)

Federal law (Section 404 of the CWA) generally prohibits the discharge of dredged or fill material into waters of the United States, including certain wetlands and streams, without a permit from the COE (2021). We caution that the placement of fill within wetlands or other “Waters of the U.S.” without authorization from the COE is not advised, as the COE makes the final determination regarding whether surface water features would be regulated as waters of the U.S., or whether any permits would be required for any proposed alteration (COE 2021). Therefore, we recommend requesting a jurisdictional determination from the COE prior to construction of activities that may impact wetlands or streams. A jurisdictional determination would also provide evaluation and confirmation of our wetland delineation by the COE.

In the state of Washington, before proceeding with work under a COE-authorized permit, Section 401 of the CWA requires that the applicant receive notification that the Water Quality Certification/Coastal Zone Management Consistency Response has been approved, conditioned, or waived by the Washington State Department of Ecology (WDOE). The purpose of the CWA Section 401 is to ensure that federally permitted activities comply with the federal Clean Water Act, state water quality laws, and any other appropriate state laws (such as the Water Resources Act and Hydraulic Code). In addition, if the COE-authorized permit is for actions within the 15 coastal counties, including King County, then the WDOE must confirm or deny that the proposed action complies with the Washington Coastal Zone Management Program.

4.2 WASHINGTON STATE HYDRAULIC CODE

Prior to construction or other work that will use, divert, obstruct, or change the natural flow or bed of any state waters, the work must be approved by the Washington Department of Fish and Wildlife (WDFW) that it meets requirements of the State Hydraulic Code (RCW 75.20.100-140). The WDFW-administered Hydraulic Project Approval (HPA) is intended to protect fish life from damage by construction and other activities in all marine and fresh waters of the state.

4.3 CITY OF MERCER ISLAND CODE

City of Mercer Island (2023a) code regulates wetlands and streams as critical areas. Alterations of wetlands and streams and their buffers are generally prohibited, except as allowed under certain conditions. All direct wetland or stream impacts must be mitigated through creation, restoration, or enhancement. The City of Mercer Island (2023a) has the final authority to determine wetland ratings, buffers, and allowed uses of wetlands, streams, their buffers, and other critical areas under their jurisdiction.

City of Mercer Island (2023a) provides a range of wetland buffers and structure setbacks based on classification of the wetland using the WDOE 2014 Wetland Rating System for

Western Washington and development status of the site. Section 19.07.190(C)(5) provides provisions for buffer width averaging under certain circumstances and subject to specific criteria. During our site investigations, we observed one Category III wetland (Wetland 1).

City of Mercer Island (2023a) requires a 60-foot-wide buffer on Category III wetlands and a 10-foot-wide building setback.

City of Mercer Island (2023a) code provides a range of watercourse buffers and setbacks. The watercourse mapped on the Mercer Island (2023b) GIS Portal is likely a piped watercourse. A 45-foot setback from the centerline of piped watercourses is required.

5.0 PROPOSED PROJECT

During our site investigation, we identified one on-site wetland in the southwest portion of the parcel. The wetland is rated as a Category III wetland with 5 habitat points using the 2014 WDOE rating form (Hruby 2014). Per Mercer Island City Code (2023a), a 60-foot buffer is required for a Category III wetland with low habitat function. A piped watercourse is mapped on the adjacent parcel to the south. Piped watercourses require a 45-foot setback. Critical areas and their buffers or setbacks occur in the western and southern portions of the site.

The proposed project includes construction of an accessory dwelling unit (ADU) above the existing garage with a 63-square-foot porch for access on the north side of the ADU (Appendix C). The ADU will be contained within the footprint of the existing garage. No impacts to wetlands, streams, their associated buffers or required building setbacks are anticipated as a result of this project.

6.0 LIMITATIONS

We have prepared this report for the exclusive use of Elaine Berryman and her consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from Elaine Berryman.

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies.

We warrant that the work performed conforms to standards generally accepted in our field and prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by the project proponent and their consultants, together with information gathered in the course of the study. No other warranty, expressed or implied, is made.

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FIGURES



Approximate Project Location

FIGURE 1 - Regional & Vicinity Map Berryman, Mercer Island WA

5222 West Mercer Way, Mercer Island WA
RAI PROJECT: 2023-072-001

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FIGURE 2 - NRCS Web Soil Survey Map Berryman, Mercer Island WA

5222 West Mercer Way, Mercer Island WA
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FIGURE 3 - National Wetland Inventory Map Berryman, Mercer Island WA

5222 West Mercer Way, Mercer Island WA
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Wetlands

 Estuarine and Marine Deepwater	 Lake
 Estuarine and Marine Wetland	 Other
 Freshwater Emergent Wetland	 Riverine
 Freshwater Forested/Shrub Wetland	
 Freshwater Pond	

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Legend

- Unpiped Watercourse
 - Type "F" = Fish
 - Type "Np" = Non-Fish
 - Type "Ns" = Non-Fish Seasonal
 - Type "Np" (Unverified)
 - Type "Ns" (Unverified)
- Piped Watercourse
 -

FIGURE 4 - Mercer Island GIS Portal
Berryman, Mercer Island WA

5222 West Mercer Way, Mercer Island WA

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 BY: CLS



Image Source: City of Mercer Island
<https://city-of-merc-island-gis-hub-merc-islandgis.hub.arcgis.com/apps/4dee58be28e94b61a820eaaf068e9056/explore>

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Berryman Mercer Island

Figure 5 - Existing Conditions

Legend

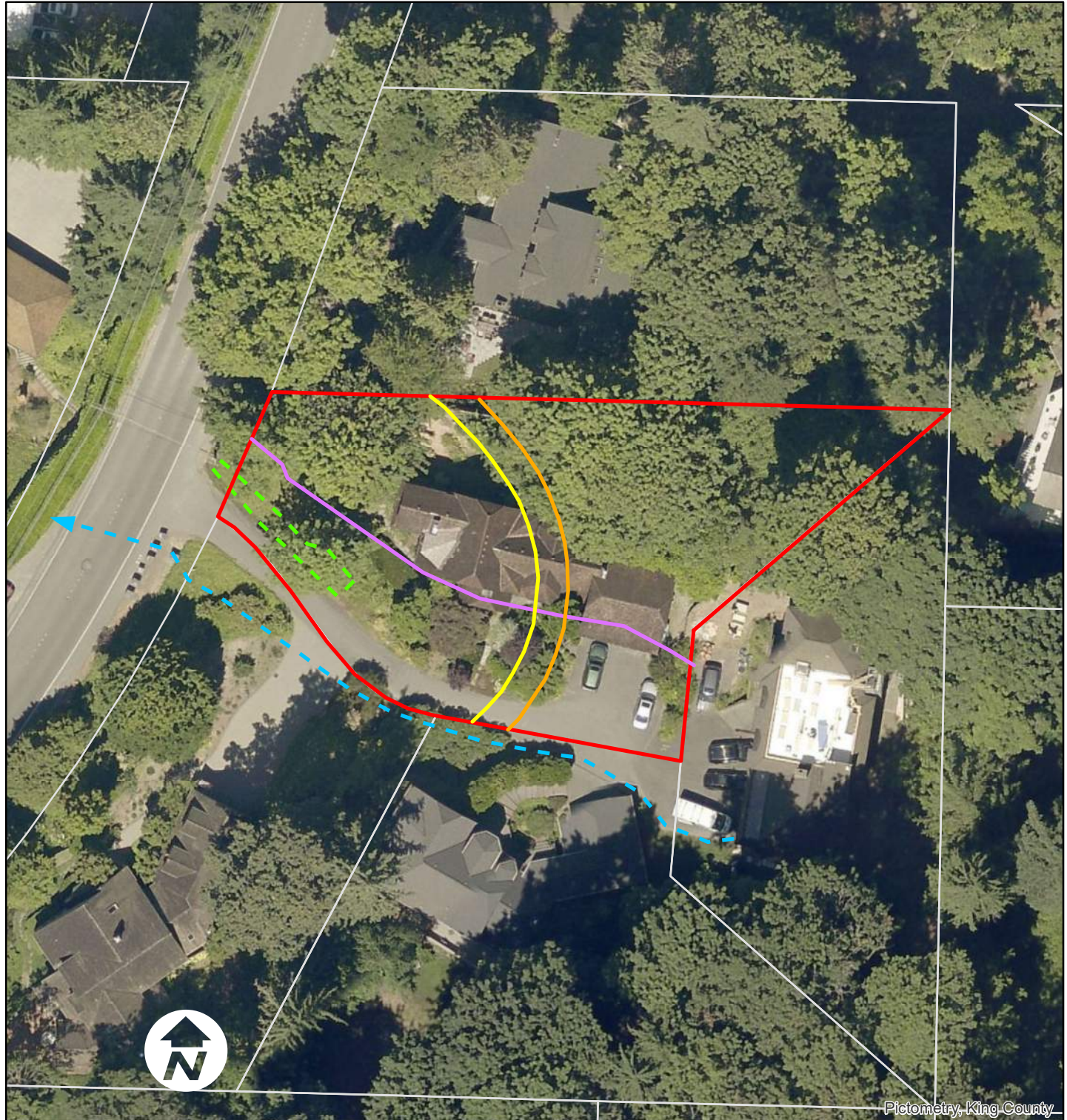
-  Wetland 1 (Category III)
-  Wetland Buffer (60FT)
-  Building Setback (10FT)
-  Piped Watercourse
-  Watercourse Setback (45FT)
-  Subject Parcel

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2111 N. Northgate Way, Ste. 219 Wetland Science
Seattle, WA 98133 Wildlife Biology
Phone 206-525-8122 Landscape Architecture

Note: Boundaries are based on GPS
coordinates and have not yet been surveyed.
Boundaries are approximate.



APPENDIX A:

Field Survey Data

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Berryman Mercer Island City/County: Mercer Island Sampling Date: 7/28/2023
 Applicant/Owner: Elaine Berryman State: WA Sampling Point: SP1
 Investigator(s): Annamaria Clark & Courtney Straight Section, Township, Range: S19, T24N, R5E, W.M.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 60
 Subregion (LRR): Northwest Forests & Coasts (LRR A) Lat: 47.55613 Long: -122.22485 Datum: WGS1983
 Soil Map Unit Name: Alderwood and Kitsap soils NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Sample Plot 1 is on slope near northeast corner of parcel.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 5 m)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer macropyllum (bigleaf maple)</u>	80	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
80 = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: 3 m)				
1. <u>Hedera helix (English ivy)</u>	70	Yes	FACU	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>17</u> x 3 = <u>51</u> FACU species <u>205</u> x 4 = <u>820</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>222</u> (A) <u>871</u> (B) Prevalence Index = B/A = <u>3.92</u>
2. <u>Rubus armeniacus (Himalyan blackberry)</u>	15	No	FAC	
3. <u>Vaccinium parvifolium (red blueberry)</u>	10	No	FACU	
4. <u>Gaultheria shallon (salal)</u>	10	No	FACU	
5. <u>Mahonia nervosa (Cascade Oregon-grape)</u>	5	No	FACU	
6. <u>Rosa nutkana (Nootka rose)</u>	2	No	FAC	
112 = Total Cover				
<u>Herb Stratum</u> (Plot size: 1 m)				
1. <u>Polystichum munitum (western sword fern)</u>	20	Yes	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Pteridium aquilinum (northern bracken fern)</u>	10	Yes	FACU	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
30 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: 3 m)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

Remarks: No indicators of hydrophytic vegetation observed.

SOIL

Sampling Point: SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 12+	10YR 3/2	90	10YR 3/4	10	C	M	Gr. S. L.	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____	<p>Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Remarks: No indicators of hydric soils observed.

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
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<p>Field Observations:</p> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Berryman Mercer Island City/County: Mercer Island Sampling Date: 7/28/2023
 Applicant/Owner: Elaine Berryman State: WA Sampling Point: SP2
 Investigator(s): Annamaria Clark & Courtney Straight Section, Township, Range: S19, T24N, R5E, W.M.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): Northwest Forests & Coasts (LRR A) Lat: 47.55613 Long: -122.22485 Datum: WGS1983
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Sample Plot 2 is on slope approximately 10 feet north of Wetland 1.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>5 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer macropyllum (bigleaf maple)</u>	<u>30</u>	Yes	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>30</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>3 m</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>165</u> x 4 = <u>660</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>170</u> (A) <u>675</u> (B) Prevalence Index = B/A = <u>3.97</u>
1. <u>Hedera helix (English ivy)</u>	<u>90</u>	Yes	<u>FACU</u>	
2. <u>Rubus ursinus (California dewberry)</u>	<u>40</u>	Yes	<u>FACU</u>	
3. <u>Oemleria cerasiformis (oso-berry)</u>	<u>5</u>	No	<u>FACU</u>	
4. <u>Rubus armeniacus (Himalayan blackberry)</u>	<u>5</u>	No	<u>FAC</u>	
5. _____	_____	_____	_____	
<u>140</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>1 m</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>30</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>3 m</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>% Bare Ground in Herb Stratum</u> <u>0</u>				

Hydrophytic Vegetation Present? Yes No

Remarks: No indicators of hydrophytic vegetation observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Berryman Mercer Island City/County: Mercer Island Sampling Date: 7/28/2023
 Applicant/Owner: Elaine Berryman State: WA Sampling Point: SP3
 Investigator(s): Annamaria Clark & Courtney Straight Section, Township, Range: S19, T24N, R5E, W.M.
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): concave Slope (%): 20-30
 Subregion (LRR): Northwest Forests & Coasts (LRR A) Lat: 47.55613 Long: -122.22485 Datum: WGS1983
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Sample Plot 3 is in drainage area near corner of private driveway and West Mercer Way.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>5 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>3 m</u>)				
1. <u>Hedera helix</u> (English ivy)	<u>10</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Hypericum perforatum</u> (common St. John's-wort)	<u>5</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Rubus ursinus</u> (California dewberry)	<u>3</u>	<u>No</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>18</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>1 m</u>)				
1. <u>Scirpus microcarpus</u> (red-tinge bulrush)	<u>60</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Athyrium cyclosorum</u> (western lady fern)	<u>15</u>	<u>No</u>	<u>FAC</u>	
3. <u>Melissa officinalis</u> (lemonbalm)	<u>10</u>	<u>No</u>	<u>FACU</u>	
4. <u>Convolvulus arvensis</u> (field bindweed)	<u>10</u>	<u>No</u>	<u>NI</u>	
5. <u>Fragaria vesca</u> (woodland strawberry)	<u>10</u>	<u>No</u>	<u>FACU</u>	
6. <u>Juncus effusus</u> (lamp rush)	<u>5</u>	<u>No</u>	<u>FACW</u>	
7. <u>Epilobium ciliatum</u> (fringed willowherb)	<u>5</u>	<u>No</u>	<u>FACW</u>	
8. <u>Galium aparine</u> (sticky-willy)	<u>3</u>	<u>No</u>	<u>FACU</u>	
9. <u>Geranium robertianum</u> (lesser herb robert)	<u>2</u>	<u>No</u>	<u>FACU</u>	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	<u>120</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>3 m</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>% Bare Ground in Herb Stratum</u> <u>0</u>				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 60 x 1 = 60
 FACW species 10 x 2 = 20
 FAC species 15 x 3 = 45
 FACU species 43 x 4 = 172
 UPL species 0 x 5 = 0
 Column Totals: 128 (A) 297 (B)
 Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: Convolvulus arvensis not included in analysis as WIS unknown.

SOIL

Sampling Point: SP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 12+	10YR 2/2	95	10YR 4/6	5	C	PL	Gr. S. L.	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Nearby areas had surface water up to 1" and surface saturation.		

APPENDIX B:

WDOE Wetland Ratings

Wetland name or number 1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 1 - Berryman Mercer Island Date of site visit: 7/28/2023

Rated by C. Straight, A. Clark Trained by Ecology? Yes No Date of training 11/2020

HGM Class used for rating Slope Wetland has multiple HGM classes? Y N

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map Google Earth, WDOE

OVERALL WETLAND CATEGORY III (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 - 27

 Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

 Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	7	5	5	17

Score for each function based on three ratings
(*order of ratings is not important*)

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number 1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	1
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	4

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO - go to 2

YES - the wetland class is **Tidal Fringe** - go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO - Saltwater Tidal Fringe (Estuarine)

YES - Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO - go to 3

YES - The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO - go to 4

YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

The water leaves the wetland **without being impounded**.

NO - go to 5

YES - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

The overbank flooding occurs at least once every 2 years.

Wetland name or number 1

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number 1

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?			
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i>			0
Slope is 1% or less	points = 3		
Slope is > 1%-2%	points = 2		
Slope is > 2%-5%	points = 1		
Slope is greater than 5%	points = 0		
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0			0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i>			6
Dense, uncut, herbaceous plants > 90% of the wetland area	points = 6		
Dense, uncut, herbaceous plants > ½ of area	points = 3		
Dense, woody, plants > ½ of area	points = 2		
Dense, uncut, herbaceous plants > ¼ of area	points = 1		
Does not meet any of the criteria above for plants	points = 0		
Total for S 1		Add the points in the boxes above	6

Rating of Site Potential If score is: 12 = H 6-11 = M 0-5 = L

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?			
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?			1
	Yes = 1 No = 0		
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____			0
	Yes = 1 No = 0		
Total for S 2		Add the points in the boxes above	1

Rating of Landscape Potential If score is: 1-2 = M 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?			
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?			0
	Yes = 1 No = 0		
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i>			1
	Yes = 1 No = 0		
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i>			2
	Yes = 2 No = 0		
Total for S 3		Add the points in the boxes above	3

Rating of Value If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number 1

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

<p>S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.</i> Dense, uncut, rigid plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0</p>	1
---	---

Rating of Site Potential If score is: 1 = M 0 = L *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

<p>S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0</p>	1
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Rating of Landscape Potential If score is: 1 = M 0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

<p>S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0</p>	0
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<p>S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0</p>	0
--	---

<p>Total for S 6 Add the points in the boxes above</p>	0
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Rating of Value If score is: 2-4 = H 1 = M 0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number 1

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- Aquatic bed 4 structures or more: points = 4
 - Emergent 3 structures: points = 2
 - Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
 - Forested (areas where trees have > 30% cover) 1 structure: points = 0
- If the unit has a Forested class, check if:*
- The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- Permanently flooded or inundated 4 or more types present: points = 3
- Seasonally flooded or inundated 3 types present: points = 2
- Occasionally flooded or inundated 2 types present: points = 1
- Saturated only 1 type present: points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake Fringe wetland** **2 points**
- Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

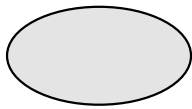
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

- If you counted: > 19 species points = 2
- 5 - 19 species points = 1
- < 5 species points = 0

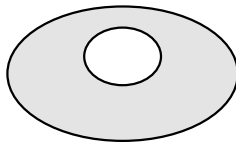
1

H 1.4. Interspersion of habitats

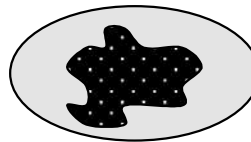
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



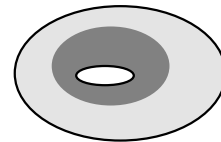
None = 0 points



Low = 1 point

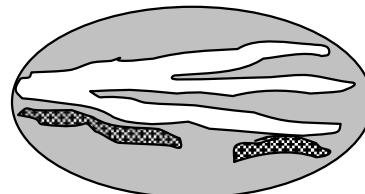
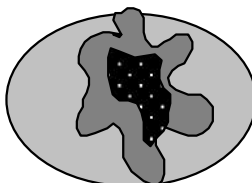
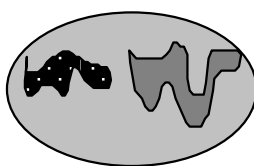


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3points



Wetland name or number 1

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	1
<p>Total for H 1</p>	<p>Add the points in the boxes above</p> <p>3</p>

Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L *Record the rating on the first page*

<p>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</p>	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>3</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>3</u> %</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>20</u> + [(% moderate and low intensity land uses)/2] <u>.5</u> = <u>20.5</u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2</p>	<p>Add the points in the boxes above</p> <p>1</p>

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

<p>H 3.0. Is the habitat provided by the site valuable to society?</p>	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p>— It has 3 or more priority habitats within 100 m (see next page)</p> <p>— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p>— It is mapped as a location for an individual WDFW priority species</p> <p>— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p>— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p><input checked="" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	1

Rating of Value If score is: 2 = H 1 = M 0 = L *Record the rating on the first page*

Wetland name or number 1

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ✓ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number 1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<p>SC 1.0. Estuarine wetlands</p> <p>Does the wetland meet the following criteria for Estuarine wetlands?</p> <ul style="list-style-type: none"> — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <p style="text-align: right;">Yes –Go to SC 1.1 No = Not an estuarine wetland</p>	
<p>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?</p> <p style="text-align: right;">Yes = Category I No - Go to SC 1.2</p>	Cat. I
<p>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i>, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 2.0. Wetlands of High Conservation Value (WHCV)</p> <p>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</p> <p style="text-align: right;">Yes – Go to SC 2.2 No – Go to SC 2.3</p> <p>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p> <p>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</p> <p style="text-align: right;">Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV</p> <p>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</p> <p style="text-align: right;">Yes = Category I No = Not a WHCV</p>	Cat. I
<p>SC 3.0. Bogs</p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No – Go to SC 3.2</p> <p>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</p> <p style="text-align: right;">Yes – Go to SC 3.3 No = Is not a bog</p> <p>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</p> <p style="text-align: right;">Yes = Is a Category I bog No – Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> <p>SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</p> <p style="text-align: right;">Yes = Is a Category I bog No = Is not a bog</p>	Cat. I

Wetland name or number 1

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none">— Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.— Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p style="text-align: right;">Yes = Category I No = Not a forested wetland for this section</p>	Cat. I
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none">— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks— The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p style="text-align: right;">Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none">— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.— The wetland is larger than 1/10 ac (4350 ft²) <p style="text-align: right;">Yes = Category I No = Category II</p>	Cat. I Cat. II
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none">— Long Beach Peninsula: Lands west of SR 103— Grayland-Westport: Lands west of SR 105— Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p style="text-align: right;">Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	Cat I Cat. II Cat. III Cat. IV
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Legend

- 150FT Polygon
- Wetland 1

Wetland 1 is slope PEM, permanent inundation and saturated only, no habitat interspersed

Greater than 25% uphill area within 150FT generates pollutants & excess runoff

Dense, uncut, rigid, herbaceous plants cover >90% of area



Pictometry, King County

BERRYMAN MERCER ISLAND

RAI Project #: 2023-072-001

Date Created: 8/3/2023

Map Created By: C. Straight

Note: Wetland boundaries are based on GPS coordinates and are approximate.

Wetland 1 - Figure 1







Questions: H1.1, 1.2, 1.4
S1.3, 2.1, 4.1, 5.1

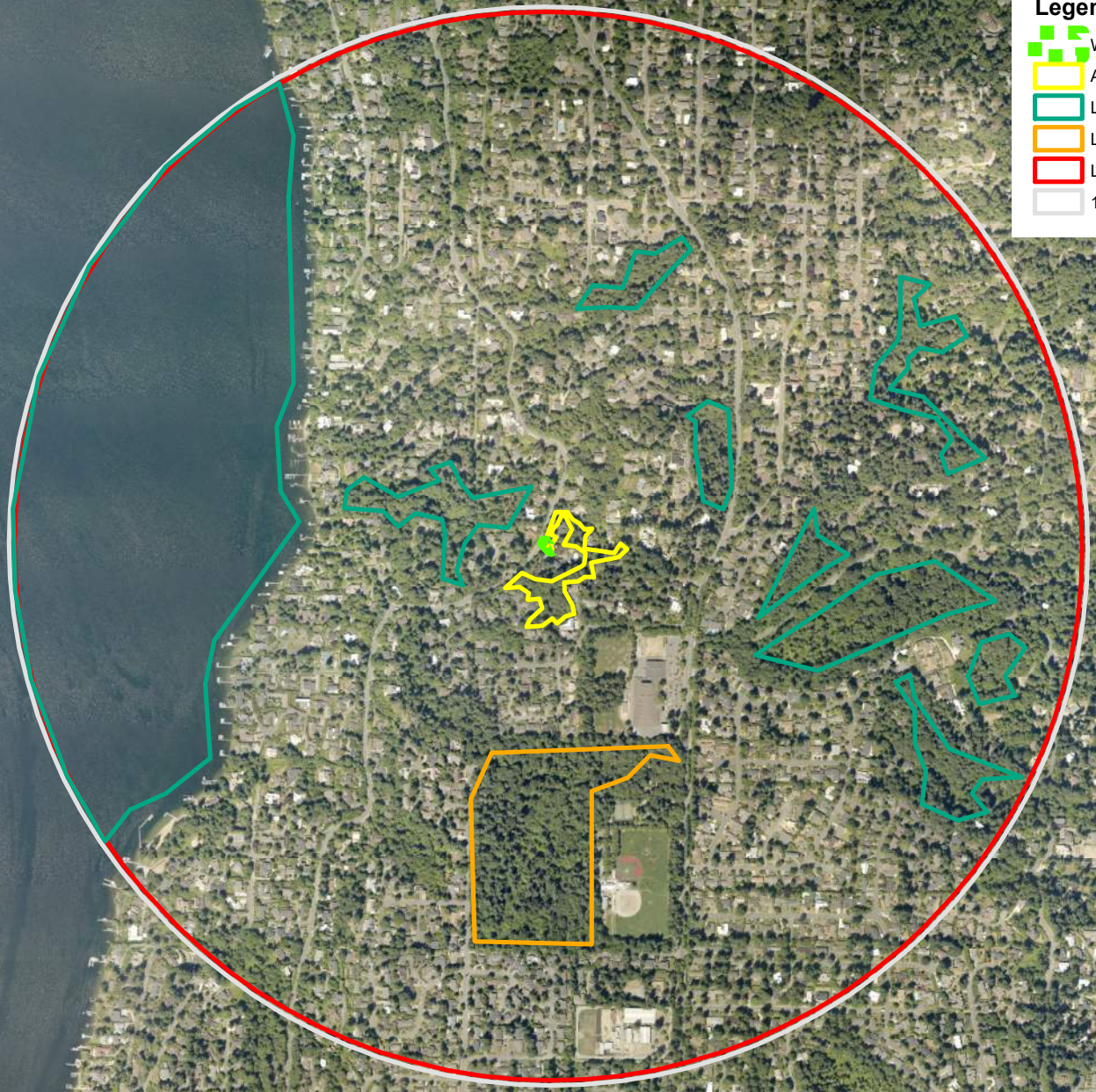


2111 N. Northgate Way, Ste. 219 Wetland Science
Seattle, WA 98133 Wildlife Biology
Phone 206-525-8122 Landscape Architecture



Legend

-  Wetland 1
-  Accessible Habitat: Undisturbed (3%)
-  Land Use: Undisturbed (20%)
-  Land Use: Moderate Intensity (<1%)
-  Land Use: High Intensity (76%)
-  1KM Polygon



Pictometry, King County

BERRYMAN MERCER ISLAND

RAI Project #: 2023-072-001
Date Created: 8/3/2023
Map Created By: C. Straight

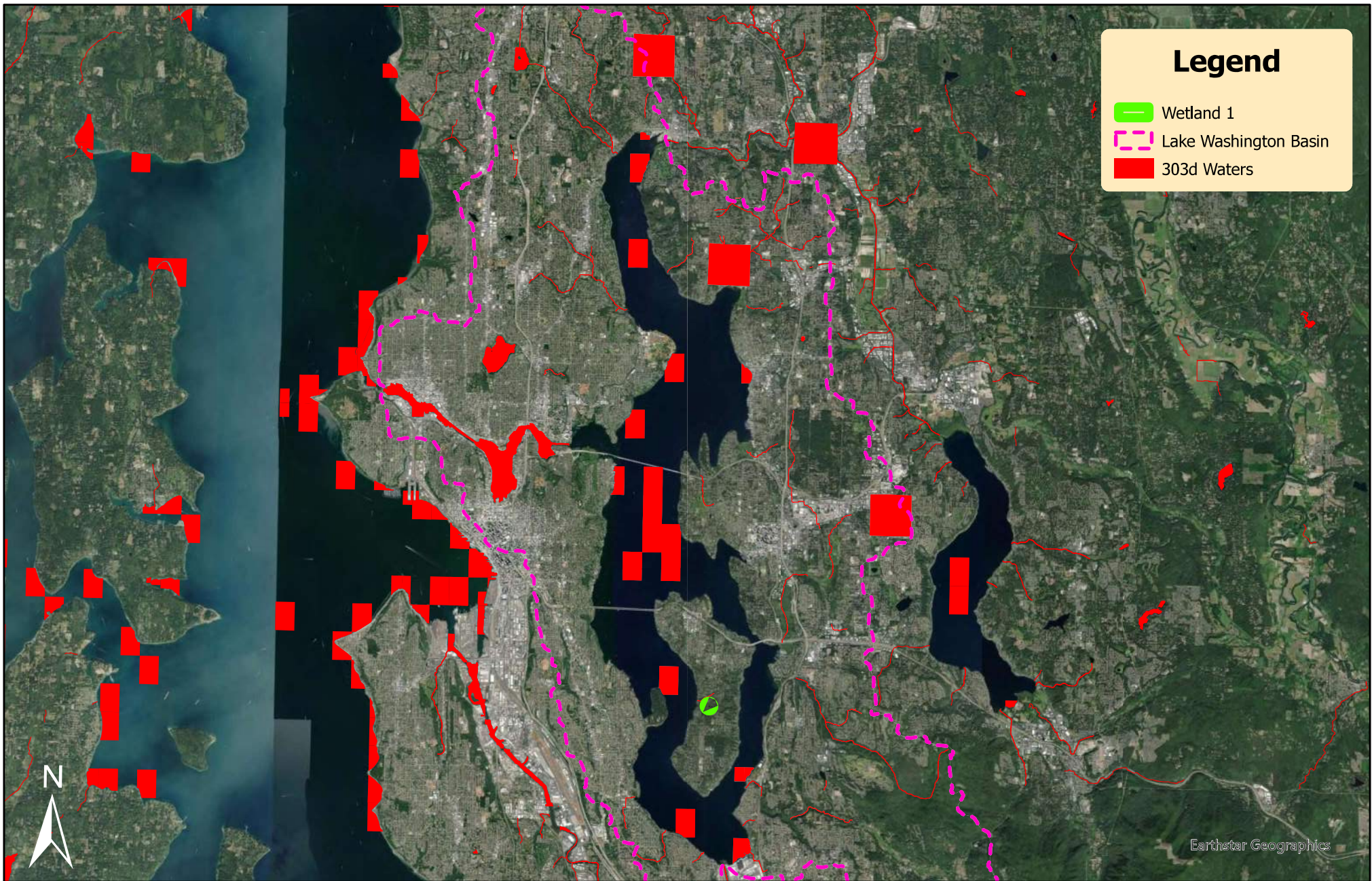
Note: Wetland boundaries are based on GPS coordinates and are approximate.

Wetland 1 - Figure 2

Questions: H2.1, 2.2, 2.3



2111 N. Northgate Way, Ste. 219 Wetland Science
Seattle, WA 98133 Wildlife Biology
Phone 206-525-8122 Landscape Architecture



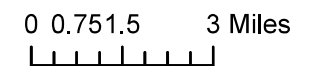
BERRYMAN MERCER ISLAND

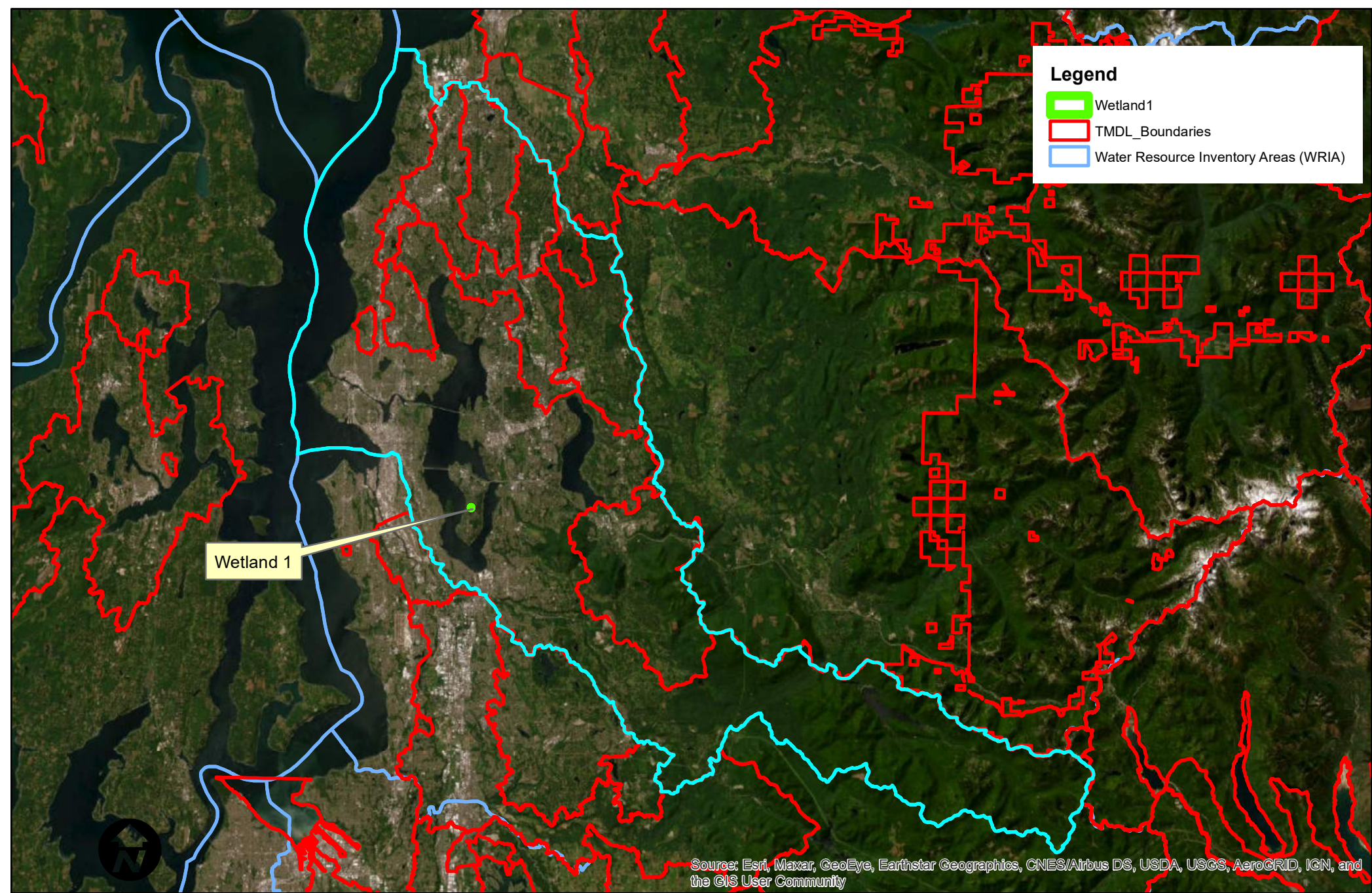
RAI Project #: 2023-054-001
 Date Created: 8/3/2023
 Map Created By: C. Straight

Note: Boundaries are approximate.

Wetland 1 - Figure 3

Questions: S3.1, 3.2





BERRYMAN MERCER ISLAND

RAI Project #: 2023-072-001

Date Created: 8/3/2023

Map Created By: C. Straight

Note: Boundaries are approximate.

Wetland 1 - Figure 4

Questions: S3.3

Raedeke
Associates, Inc.


2111 N. Northgate Way, Ste. 219 Wetland Science
Seattle, WA 98133 Wildlife Biology
Phone 206-525-8122 Landscape Architecture

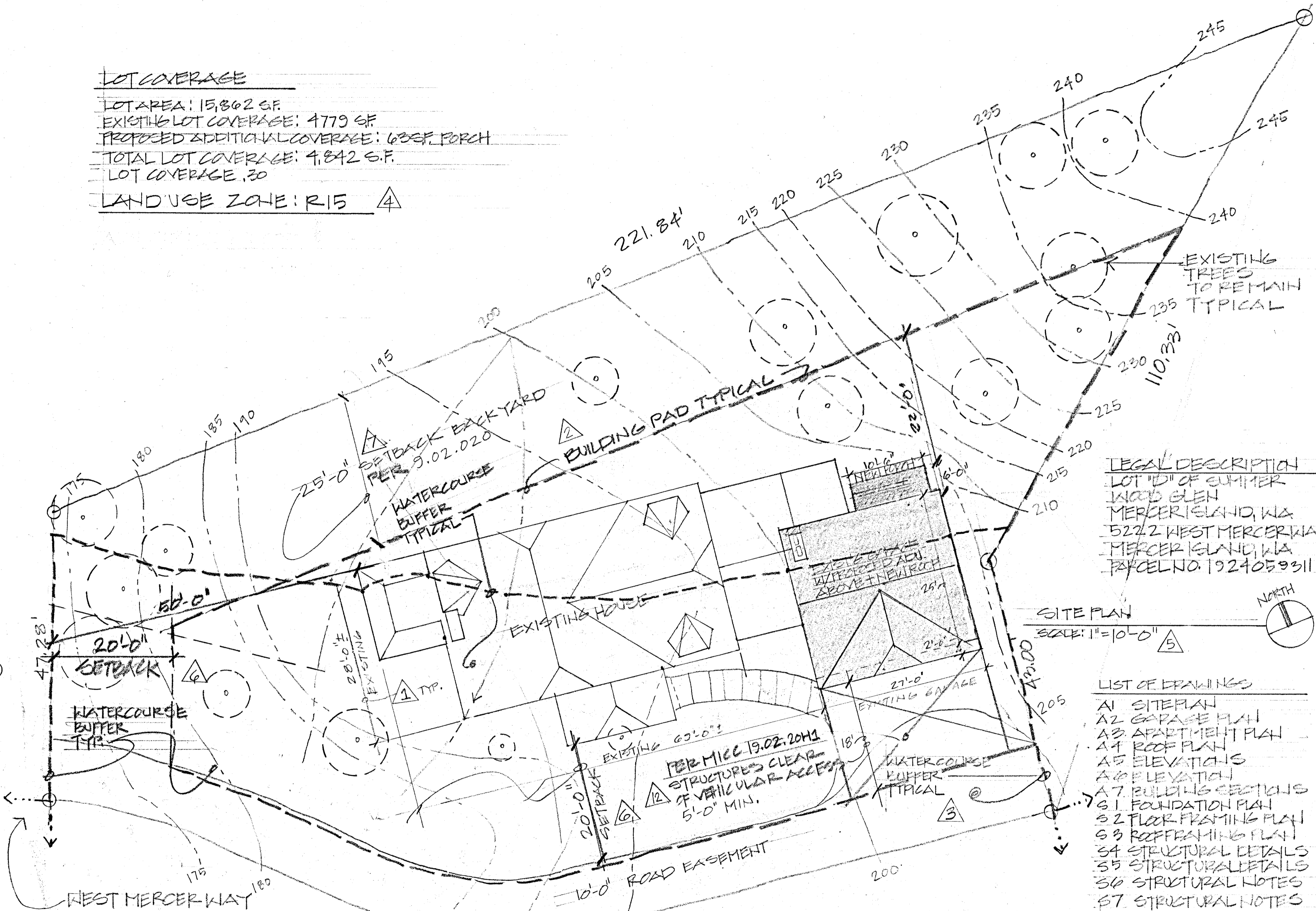
APPENDIX C:

Proposed Plans


LOT COVERAGE

LOT AREA: 15,862 SF.
 EXISTING LOT COVERAGE: 4779 SF
 PROPOSED ADDITIONAL COVERAGE: 603 SF PORCH
 TOTAL LOT COVERAGE: 4,842 S.F.
 LOT COVERAGE .30


LAND USE ZONE: R15 




LEGAL DESCRIPTION
 LOT "D" OF SUMMER
 WOOD GLEN
 MERCER ISLAND, WA
 5222 WEST MERCER WAY
 MERCER ISLAND, WA
 PARCEL NO. 1924059311

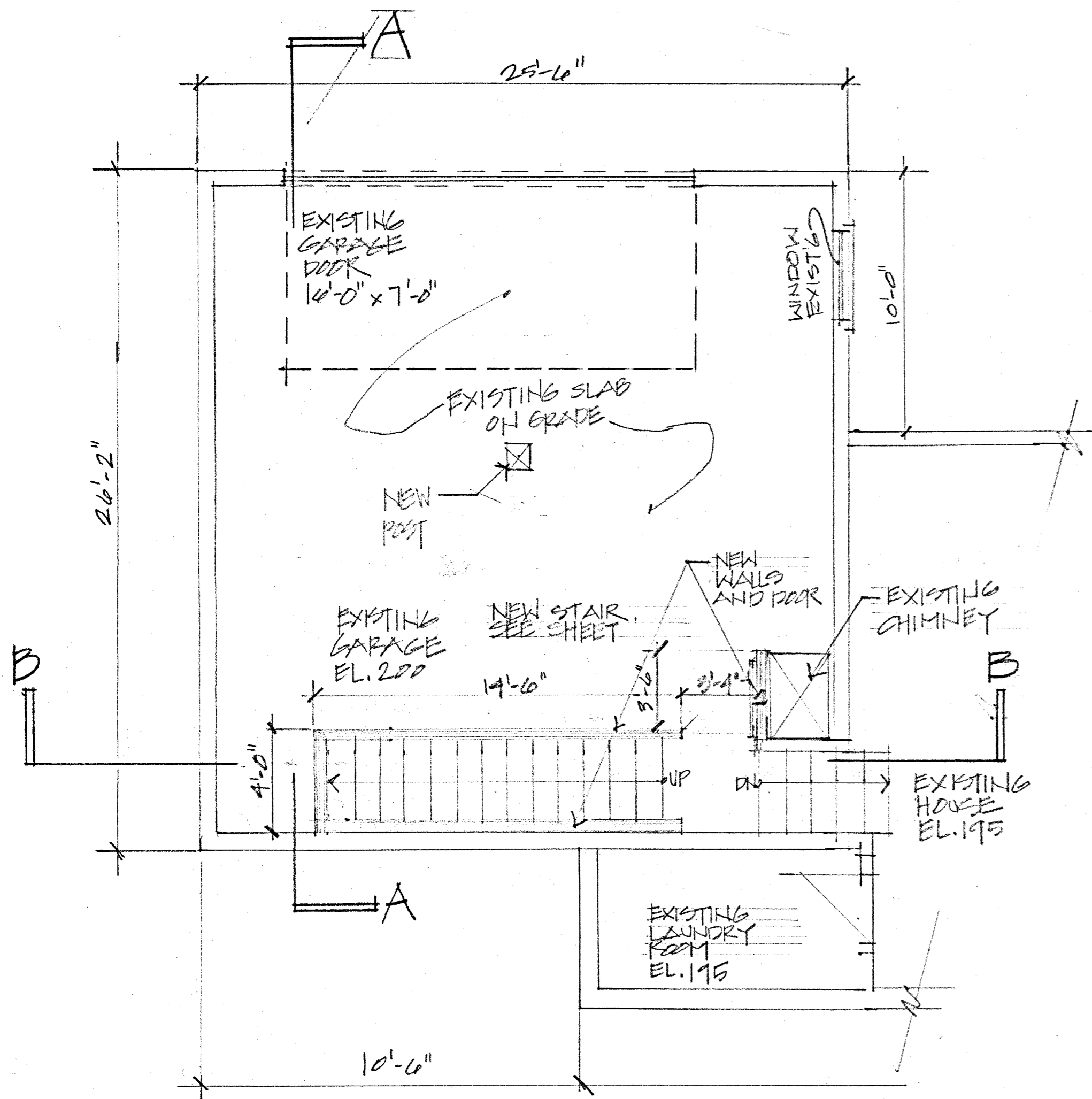
SITE PLAN
 SCALE: 1"=10'-0" 

- LIST OF DRAWINGS**
- A1 SITE PLAN
 - A2 GARAGE PLAN
 - A3 APARTMENT PLAN
 - A4 ROOF PLAN
 - A5 ELEVATIONS
 - A6 ELEVATION
 - A7 BUILDING SECTIONS
 - S1 FOUNDATION PLAN
 - S2 FLOOR FRAMING PLAN
 - S3 ROOF FRAMING PLAN
 - S4 STRUCTURAL DETAILS
 - S5 STRUCTURAL DETAILS
 - S6 STRUCTURAL NOTES
 - S7 STRUCTURAL NOTES
 - S8 STRUCTURAL NOTES
 - S9 STRUCTURAL NOTES
 - S10 STRUCTURAL NOTES
 - S11 STRUCTURAL NOTES

 **MICC 19.02.030 COMPLIANCE:**
 OWNER OCCUPANCY: THE OWNER AND/OR DAUGHTER WILL BE PRIMARY OCCUPANT.
 SUBDIVISION: NO SUBDIVISION WILL BE ALLOWED.
 SIZE AND SCALE: ADU SQFT: 603 ϕ EXISTING RESIDENCE: 4779 \square
 TOTAL PERCENTAGE IS 13% OF PRIMARY DWELLING S.F.
 LOCATION: ADU IS ABOVE EXISTING GARAGE
 ENTRANCE: ADU EXTERIOR ENTRANCE IS LOCATED ON NORTH ELEVATION
 MAIN RESIDENCE ENTRANCE IS LOCATED ON SOUTH ELEVATION.
 ADDITIONS: EXISTING ROOF CONSTRUCTION + MATERIALS WILL BE THE PRIMARY DESIGN OF A.D.U.

 **MICC 19.02.020 COMPLIANCE:**
 PER CODE: EXISTING (2) COVERED PARKING SPACES + (1) ADDITIONAL PARKING SPACE REQ'D FOR 3000 S.F. DWELLING. ADDITIONAL 2 UNCOVERED SPACES FOR (5) TOTAL SPACES.

SITE PLAN
 ADU DESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TOHI SAITOS 206-854-8120
 A1



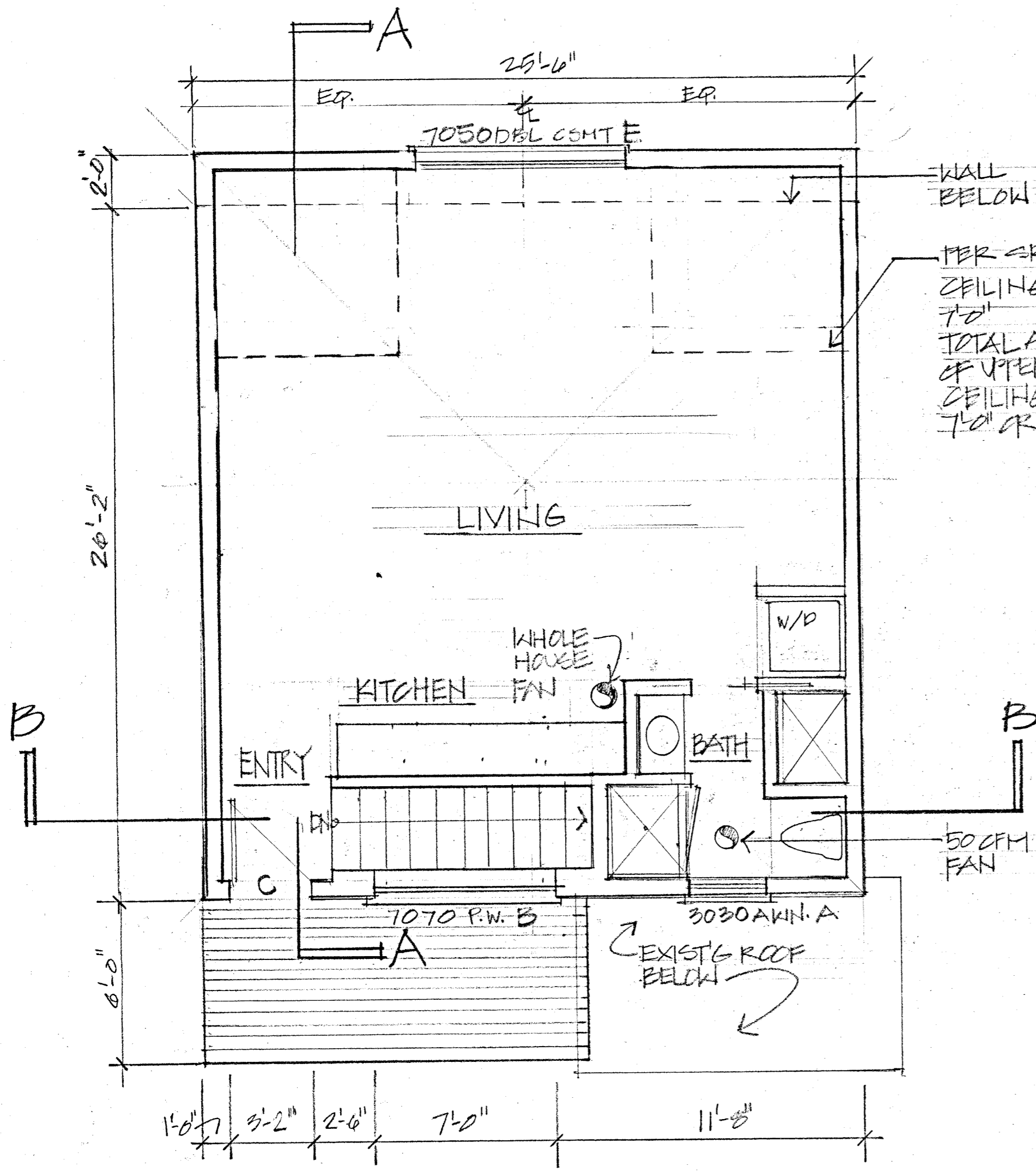
GARAGE PLAN

1/4" = 1'-0"

GARAGE PLAN

ADU DESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TONI SANTOS 2016-05A-010

A2



MARK	WINDOW	FUNCTION	U VALUE	QTY	TOTAL
A	3030	AWNING	.30	1	9.0
B	7070	PICTURE	.30	1	49.0
C	3068	STORE DOOR	.30	1	21.0
D	7050	DBL CSMT	.30	1	35.0
E	2040	SKYLIGHT	.50	2	16.0
TOTAL GLAZING					130.0

ADU S.F. 663
 $130.0 \div 663 = 19\%$ PROPOSED GLAZING AREA

WINDOW SCHEDULE + CALCULATIONS

MANUFACTURER: MILGARD OR EQUAL

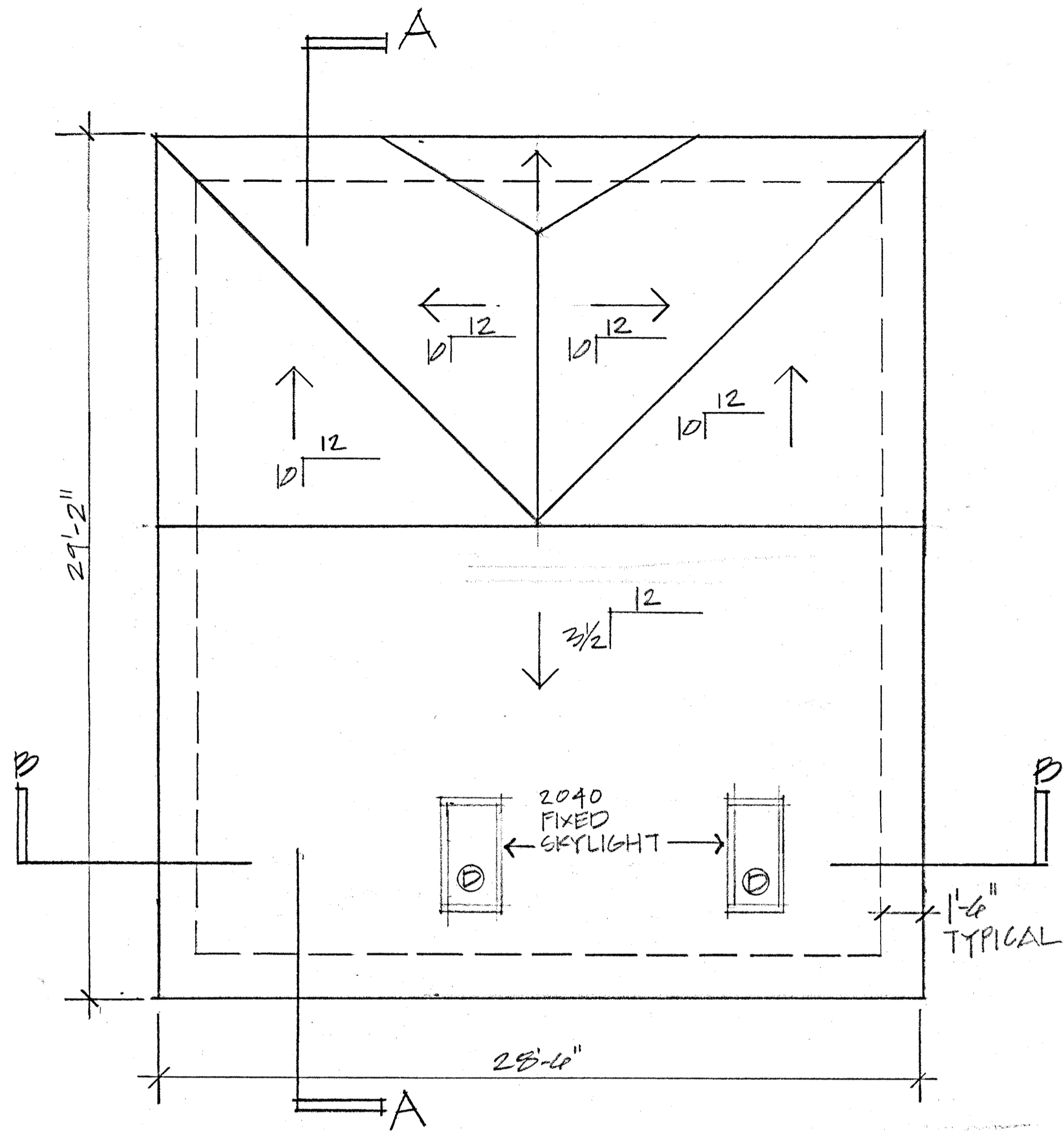
APARTMENT LEVEL
 1/4" = 1'-0"

648 S.F.

APARTMENT LEVEL PLAN

ADU DESIGN FOR ELAINE BARR-YMAH
 5222 WEST MERCER AVE
 MERCER ISLAND, WASHINGTON
 BY TALI SANTOS 200 881 8120

A3

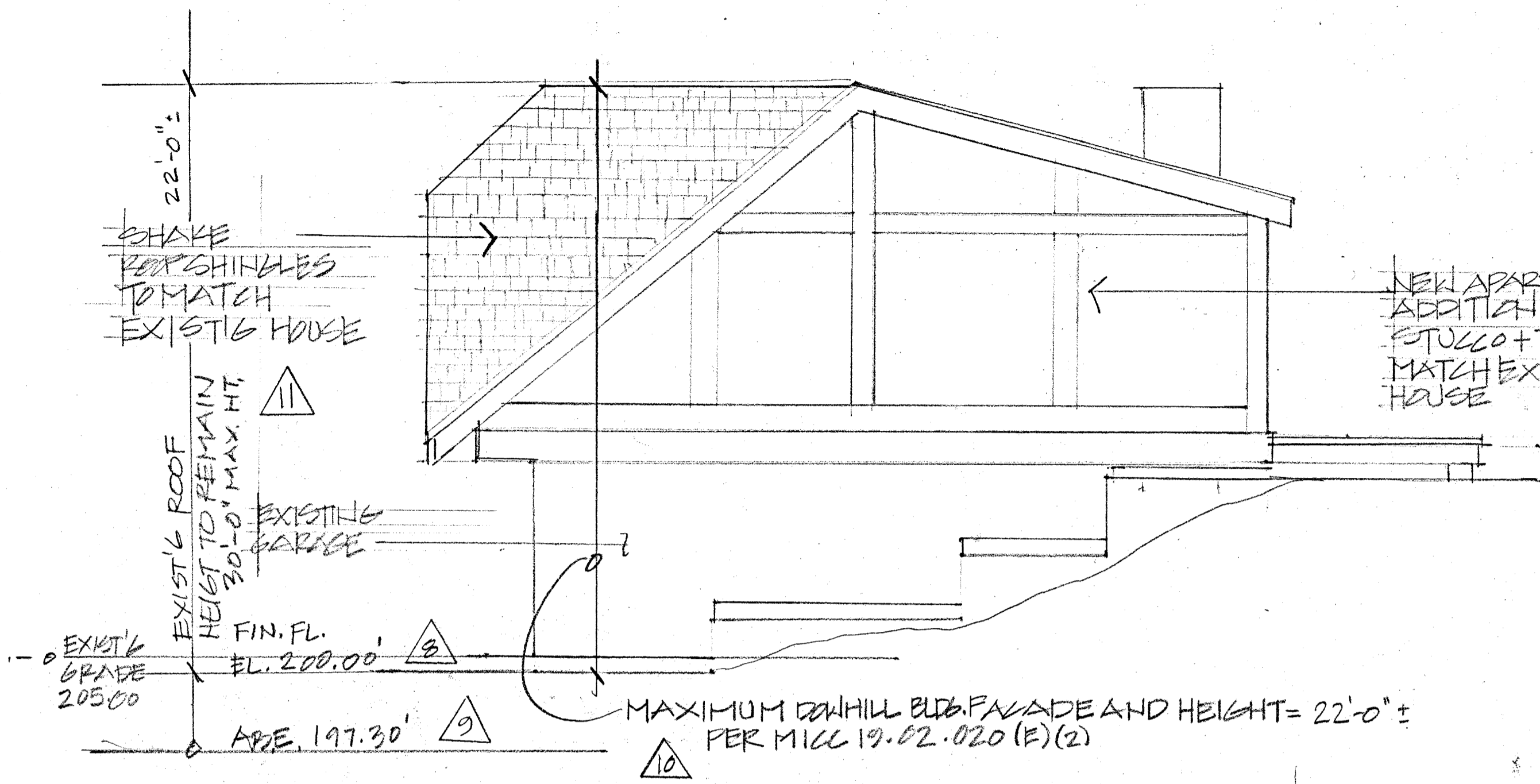


ROOF PLAN
 1/4" = 1'-0"

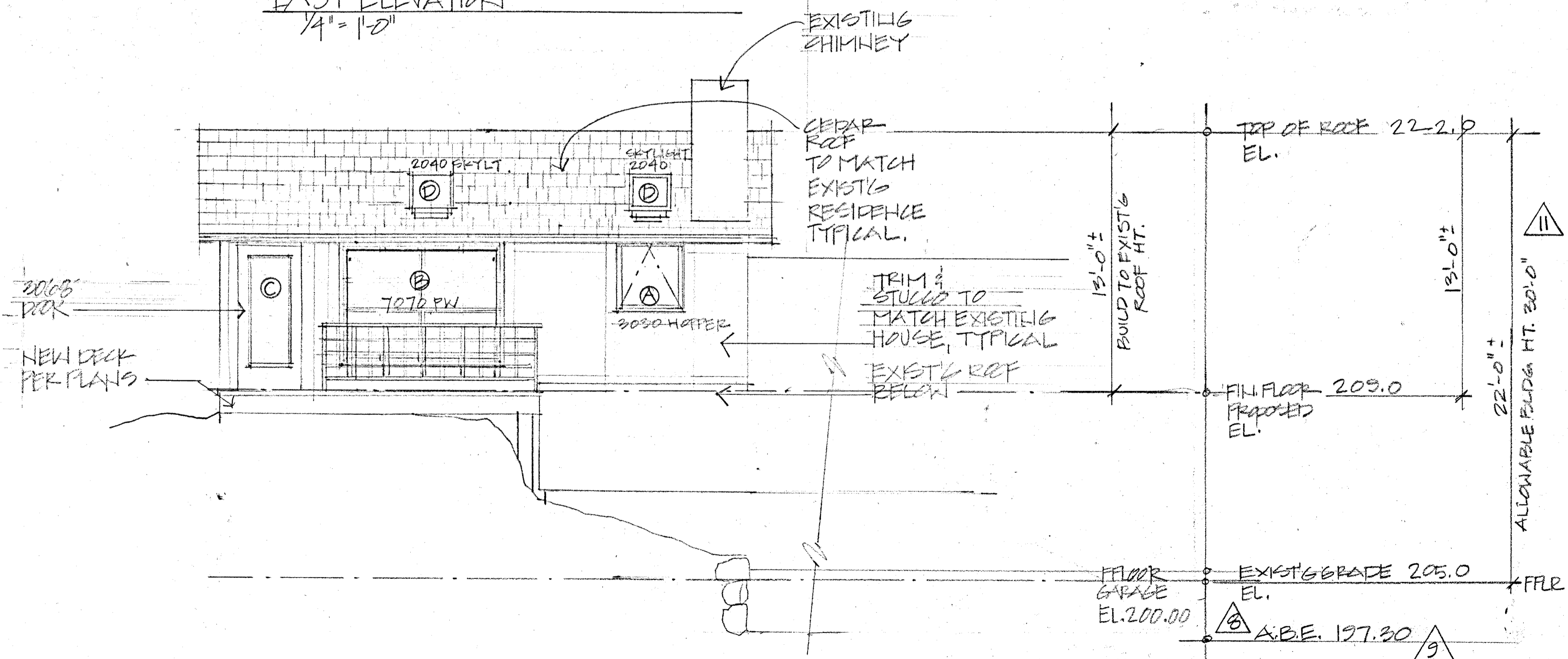
ROOF PLAN

ADU DESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND WASHINGTON
 BY TONI SANTOS 206-854-8120

A4



EAST ELEVATION
1/4" = 1'-0"

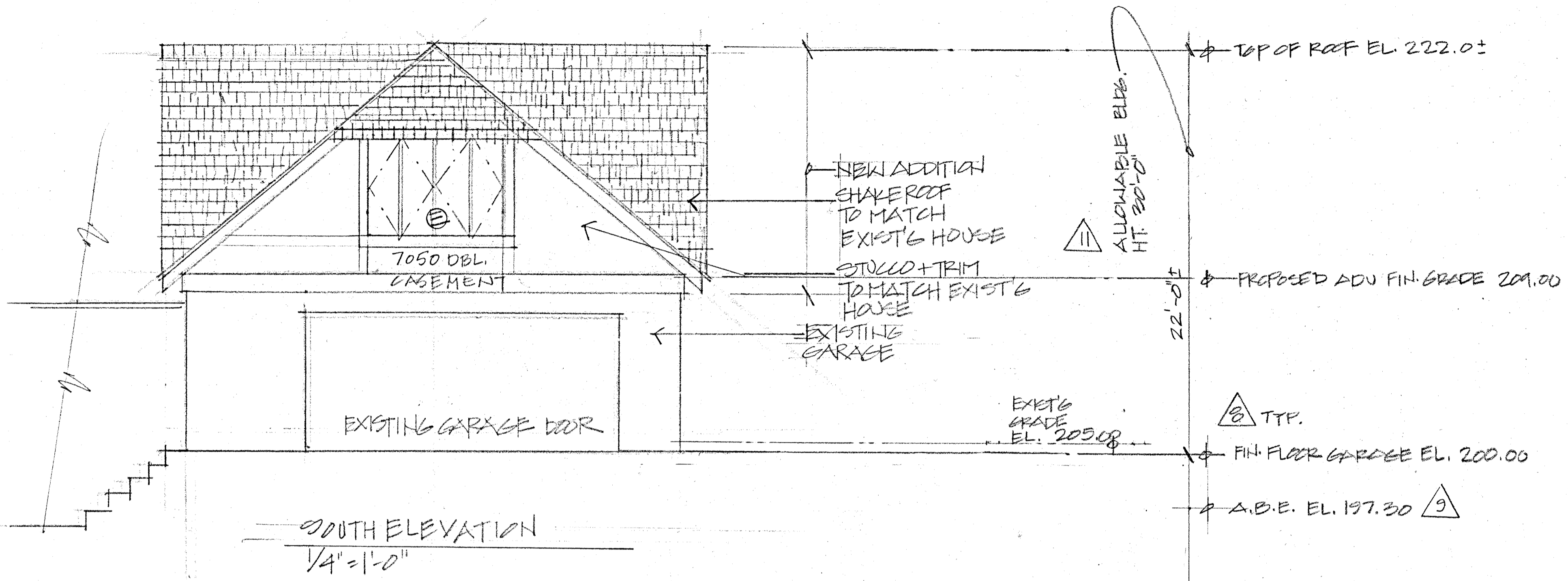


NORTH ELEVATION
1/4" = 1'-0"

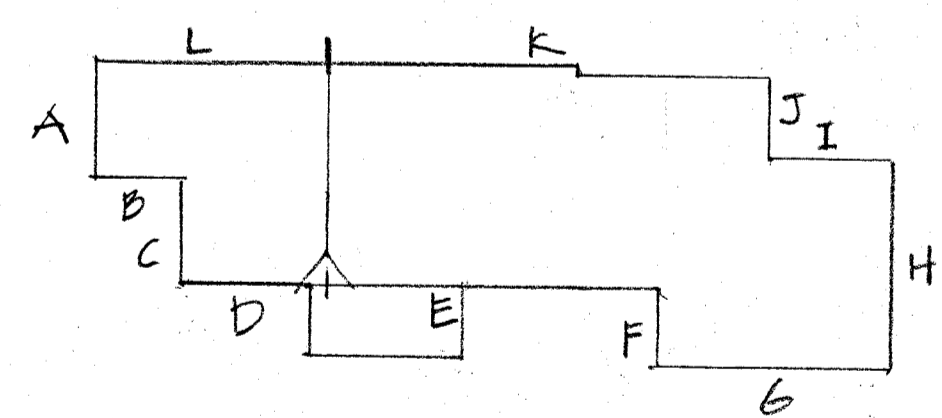
ELEVATIONS

ADU DESIGN FOR ELAINE BERRYMAN
5222 WEST MERCER WAY
MERCER ISLAND, WASHINGTON
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A5



SOUTH ELEVATION
1/4" = 1'-0"



A.B.E. CALCULATIONS / DIAGRAM (MEASURED FROM SITE PLAN)
NOT TO SCALE

$$Aa (190 \times 16) + Bb (190 \times 10) + Cc (190 \times 12) + Dd (195 \times 16) + Ee (200 \times 40) + Ff (200 \times 10) + Gg (205 \times 22) + Hh (205 \times 20) + Ii (205 \times 16) + Jj (205 \times 10) + Kk (195 \times 54) + Ll (195 \times 28)$$

$$a(16) + b(10) + c(12) + d(16) + e(40) + f(10) + g(22) + h(20) + i(16) + j(10) + k(54) + l(28)$$

$$\frac{51,300}{260} = 197.30 \text{ AVERAGE BUILDING ELEV. A.B.E.}$$

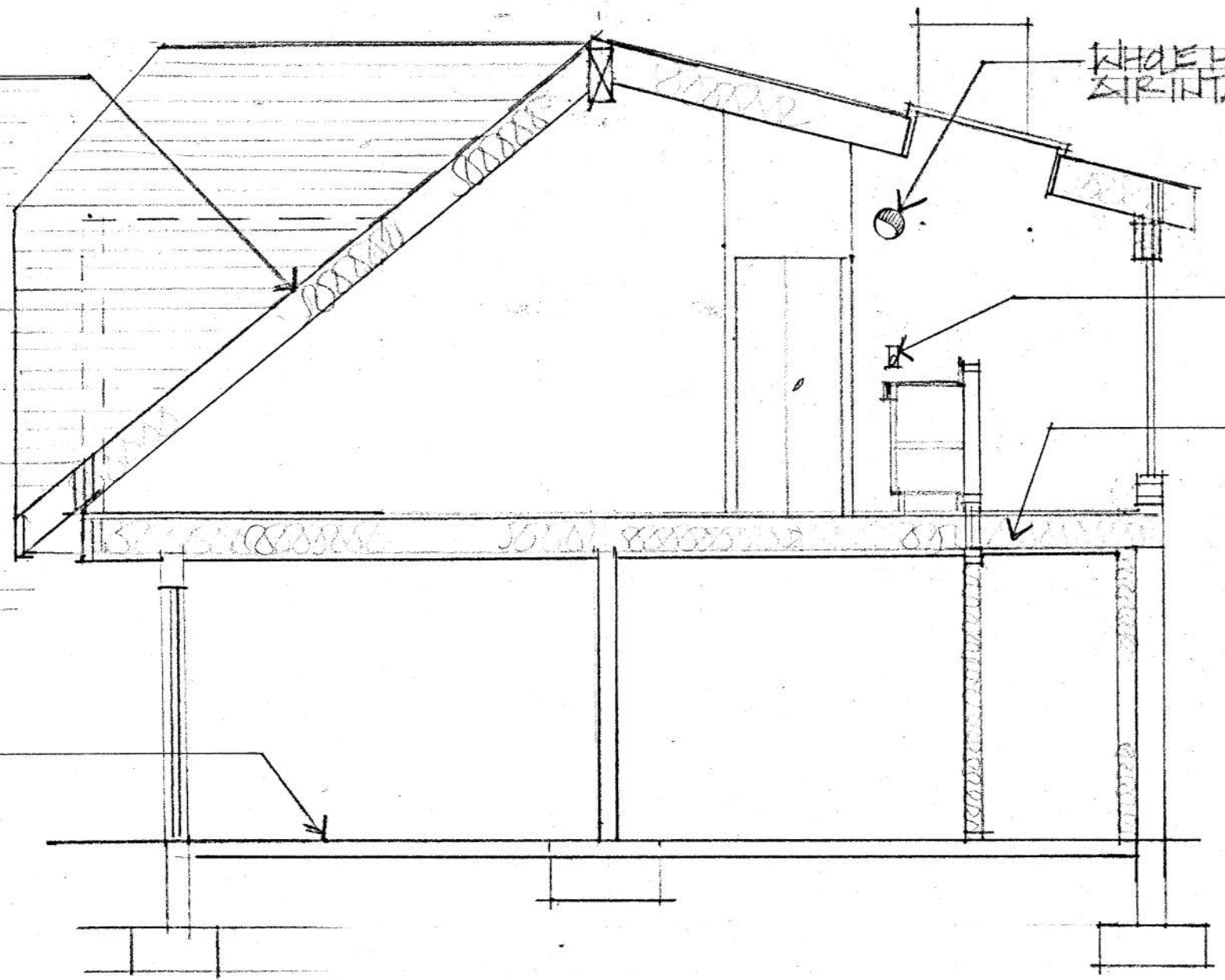
ELEVATION

ADU DESIGN FOR ELAINE BERRYMAN
5222 WEST MERCER WAY
MERCER ISLAND, WASHINGTON
BY TONI SANTOS 206.854.8120

A6

7-8" CERTA-SPEAT
 CERTA-NEED R38
 CLOSED CELL
 AIR IMPERMEABLE
 SPRAY FOAM INSULATION,
 AIR IMPERMEABLE
 INSULATION ONLY.
 INSULATION SHALL
 BE APPLIED IN DIRECT
 CONTACT WITH THE
 UNDERSIDE OF THE
 STRUCTURAL ROOF
 SHEATHING.
 1/2" GYPSUM WALL BOARD
 TO UNDERSIDE OF
 RAFTERS.
 COPY OF REPORT TO
 BE ON SITE FOR
 INSPECTOR.
 ALTERNATE R38 BATTS

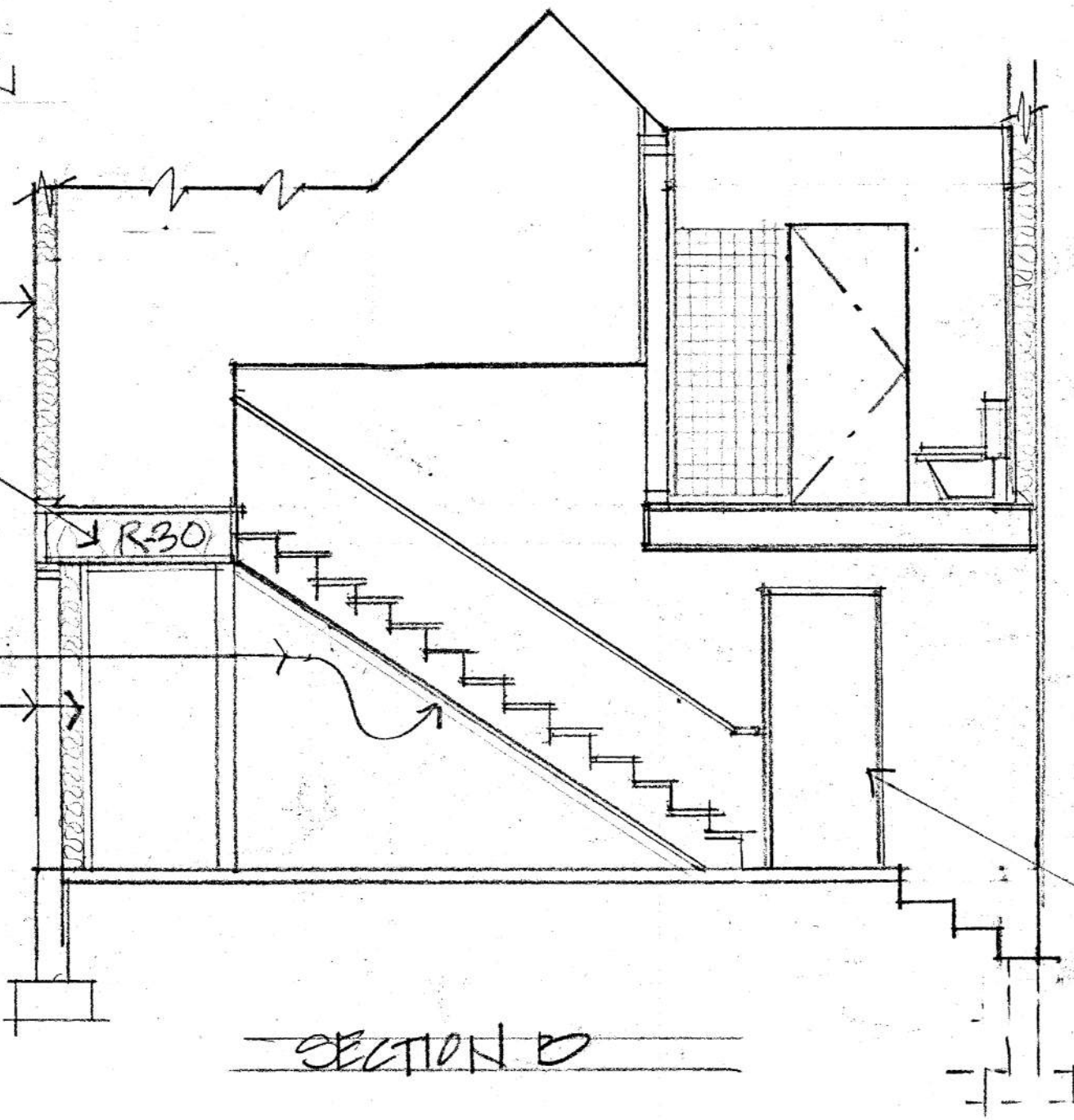
GARAGE FLOOR
 MUST BE NON-
 COMBUSTIBLE
 AND MUST SLOPE
 TO A DRAIN ON
 FLOOR OR SLOPE
 TOWARD THE
 VEHICLE DOOR



SECTION A
 1/4" = 1'-0"

JOINTS WHERE GYPSUM
 WALL BOARD IS REQ'D
 ALL EDGES MUST BE
 BACKED BY FRAMING
 MEMBERS AND MUST BE
 TAPED AND JOINTED TO
 PROVIDE FIRE PROTECTION
 FOR THE FRAMING

R-21 INSULATION
 TO ABOVE GRADE
 WALLS, TYP.
 MIN 5/8" TYPE X GYPSUM
 WALL BOARD ON THE GARAGE
 SIDE OF CEILING COMMON TO
 LIVING SPACE
 MINIMUM 1/2" GYPSUM
 WALL BOARD ON THE
 GARAGE SIDE OF
 COMMON WALLS TO
 LIVING SPACE, TYP.
 MINIMUM 1/2" GYPSUM
 WALL BOARD ON THE
 GARAGE SIDE OF
 BEARING WALLS
 SUPPORTING FIRE
 PROTECTED GARAGE
 CEILING



SECTION B

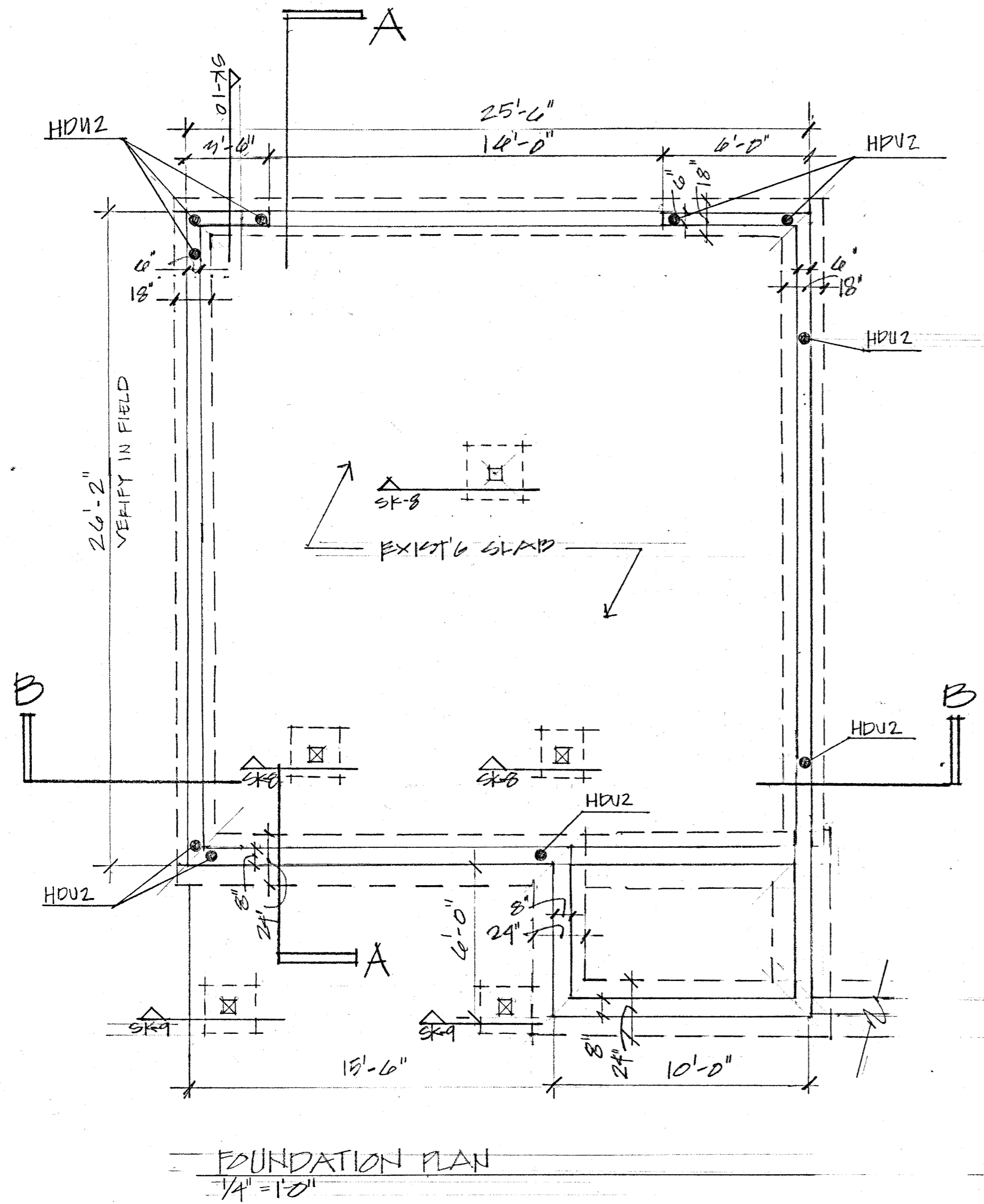
- ENERGY CODE NOTES
- SECTION 502.4.5 - BUILDING AIR LEAKAGE TESTING OR DEMONSTRATING THE SPECIFIC LEAKAGE IS ≤ 0.00030 (SEC. 502.4.5 IS REQ'D PRIOR TO FINAL INSPECTION. THE TEST RESULTS SHALL BE POSTED ON THE RESIDENTIAL ENERGY COMPLIANCE CERTIFICATE (SEC. 105.4))
 - SECTION 503.81 "EACH DWELLING UNIT IS REQUIRED TO BE PROVIDED WITH AT LEAST ONE PROGRAMMABLE THERMOSTAT FOR THE REGULATION OF TEMPERATURE."
 - SECTION 503.10.2 "A SIGNED AFFIDAVIT DOCUMENTING THE DOOR LEAKAGE TEST RESULTS SHALL BE PROVIDED TO THE BUILDING INSPECTOR PRIOR TO THE APPROVED FINAL INSPECTION."
 - SECTION 505 "MINIMUM 50% OF ALL INTERIOR LUMINAIRES SHALL BE HIGH EFFICIENCY LUMINAIRES" AND "ALL EXTERIOR LIGHTING SHALL BE HIGH EFFICIENCY LUMINAIRES."
 - PREScriptive REQUIREMENTS OPTION PER TABLE G-1

DOOR BETWEEN GARAGE AND LIVING SPACE SHALL BE MINIMUM 1 3/8" TIGHT FITTING SOLID CORE DOOR OR METAL CLAD DOOR OR 20 MINUTE FIRE RATED DOOR ASSEMBLY. DOORS AND OTHER OPENINGS FROM GARAGE MAY NOT OPEN DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES.

BUILDING SECTIONS

ARCH DESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TONI SANTOS 206.854.8120

A7



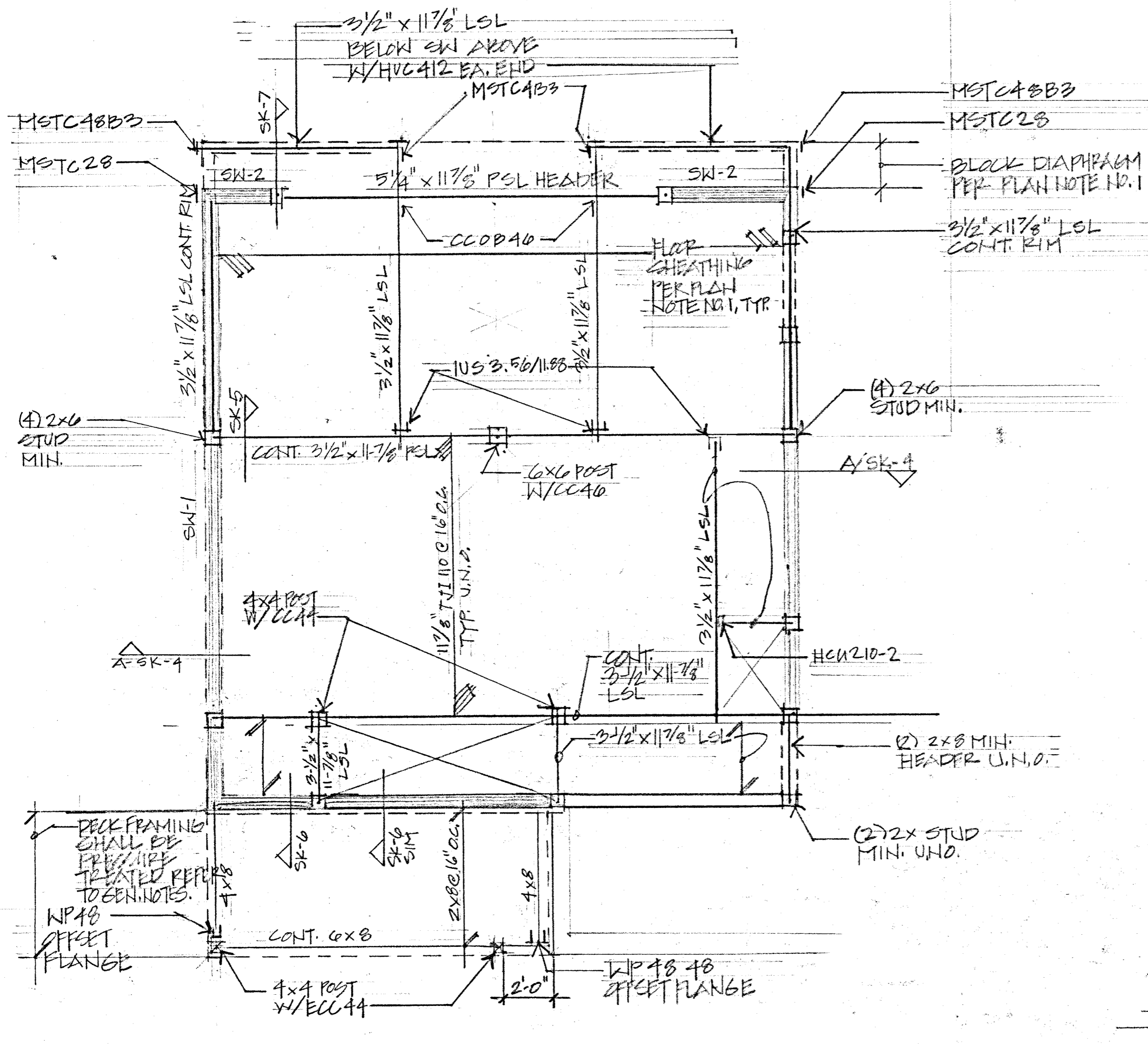
FOUNDATION PLAN NOTES

1. AT HOLDDOWNS PROVIDE THE FOLLOWING ANCHOR BOLTS:

HOLDOWN	ANCHOR
HDU2	5/8" DIAMETER BOLT, SET-3GT EMBED 5" MIN. INTO EXISTING FOOTING.
2. ALL ANCHORS TO BE INSTALLED AS REQUIRED BY MANUFACTURER. MINIMUM (2) 2X STUDS UNLESS OTHERWISE NOTED ON PLANS.

FOUNDATION PLAN

ADU DESIGN FOR PLANE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TOHI SANTOS 206.854.8120



FLOOR FRAMING PLAN

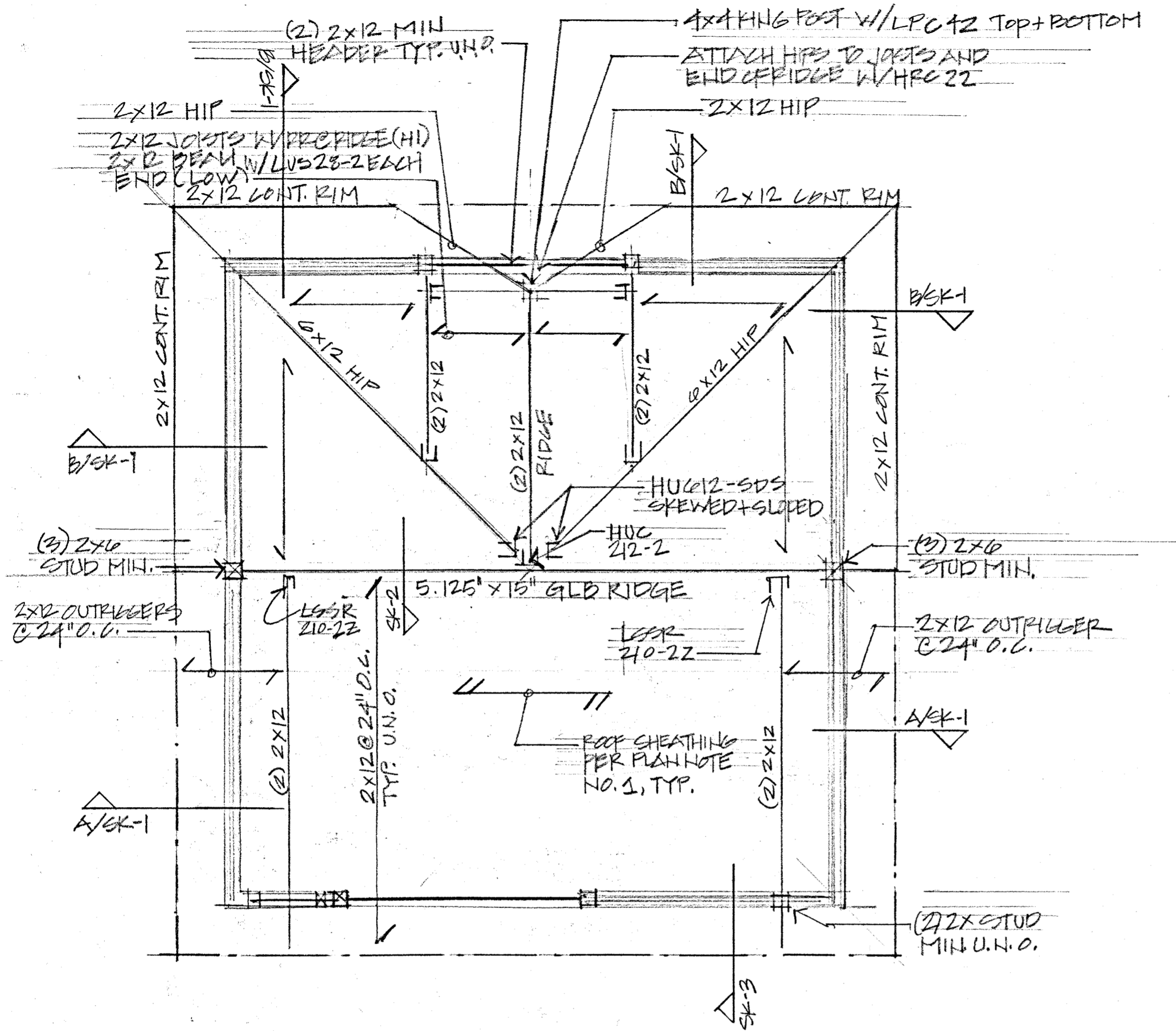
1/4" = 1'-0"

FLOOR FRAMING PLAN NOTES

1. FLOOR SHEATHING SHALL BE 23/32" APA STURD-1-FLOOR W/A PANEL INDEX OF 40/20. NAIL TO FRAMING W/10d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. IN FIELD U.N.O. ON PLANS. WHERE NOTED ON THE PLANS ALL PANEL EDGES SHALL BE BLOCKED W/A MIN. 2X MATERIAL.
2. ALL HEADERS AND BEAMS SHALL BE (2) 2X8 MIN. U.N.O. REFER TO NOTE 3 FOR SUPPORT REQUIREMENTS.
3. ALL COLUMNS SHALL BE DOUBLE STUD MINIMUM, U.N.O., WITH THE BEAM OR HEADER BEARING FULLY ON THE COLUMN. INDIVIDUAL STUDS SHALL BE NAILED TOGETHER PER THE GENERAL STRUCTURAL NOTES. WHERE NOTED ON THE PLANS ALL THE PANEL EDGES SHALL BE BLOCKED WITH MINIMUM 2X MATERIAL.
4. EXTERIOR WALL SHEATHING SHALL BE 15/32" APA RATED SHEATHING WITH A PANEL INDEX OF 24/10 (ORIENTED STRAND BOARD OF EQUIV. THICKNESS, EXPOSURE RATING, AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD AT CONTRACTOR'S OPTION).

FLOOR FRAMING PLAN

ADUPESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TONI SANTOS 206-854-8120



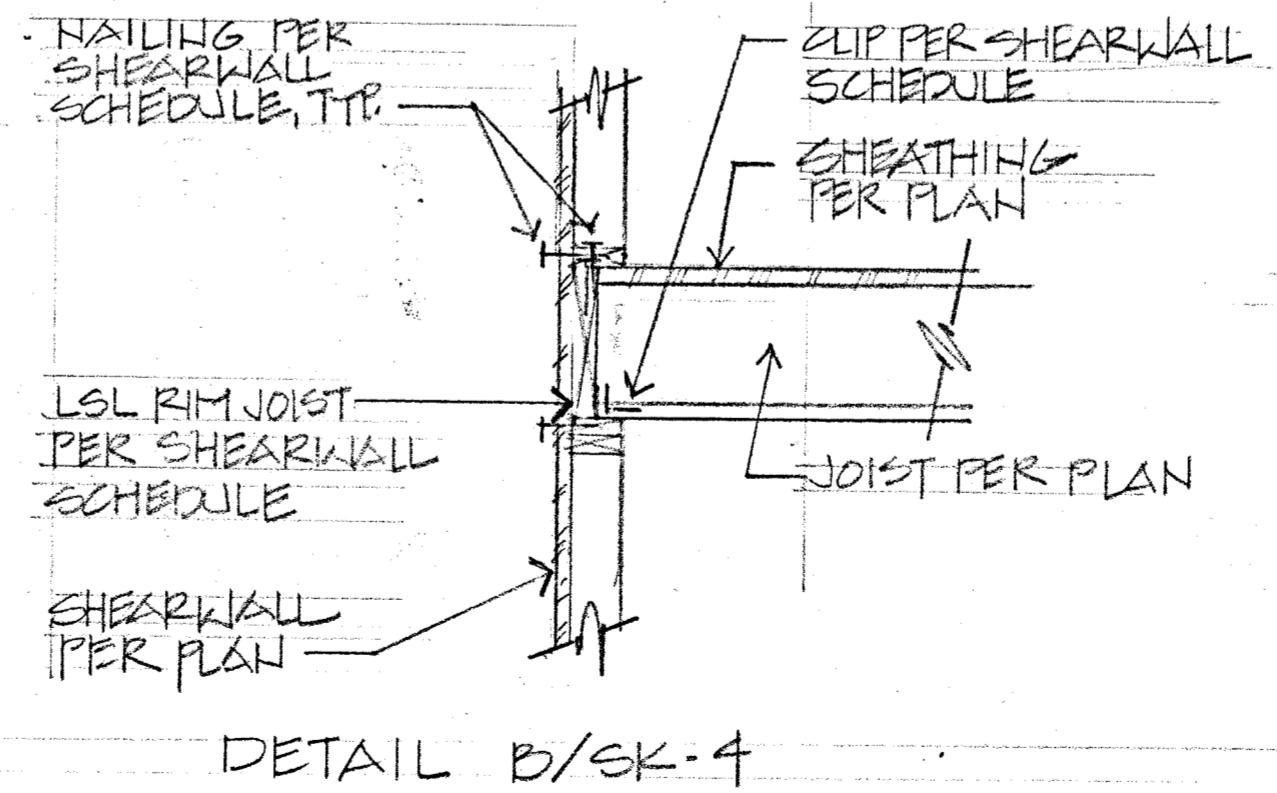
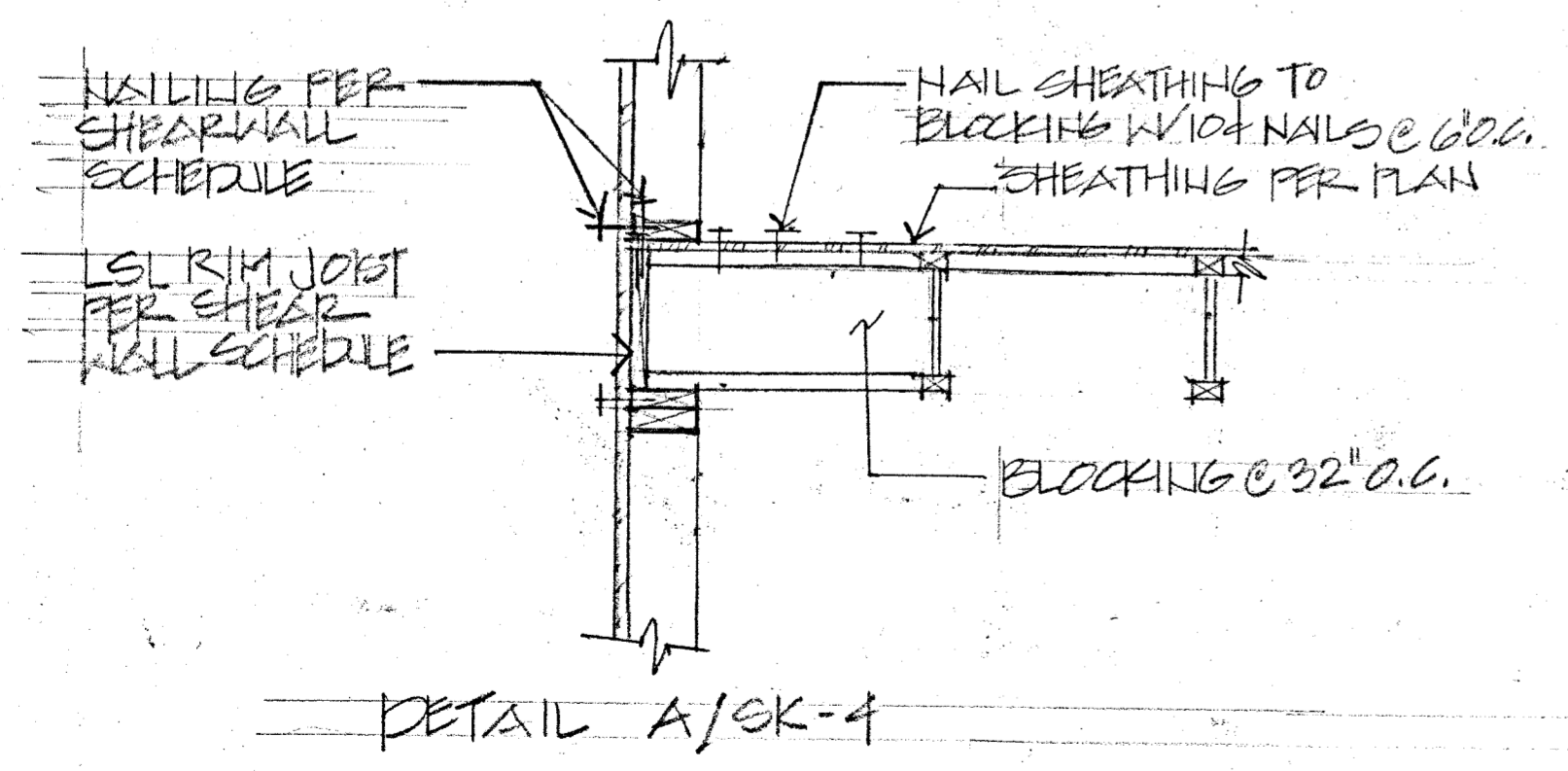
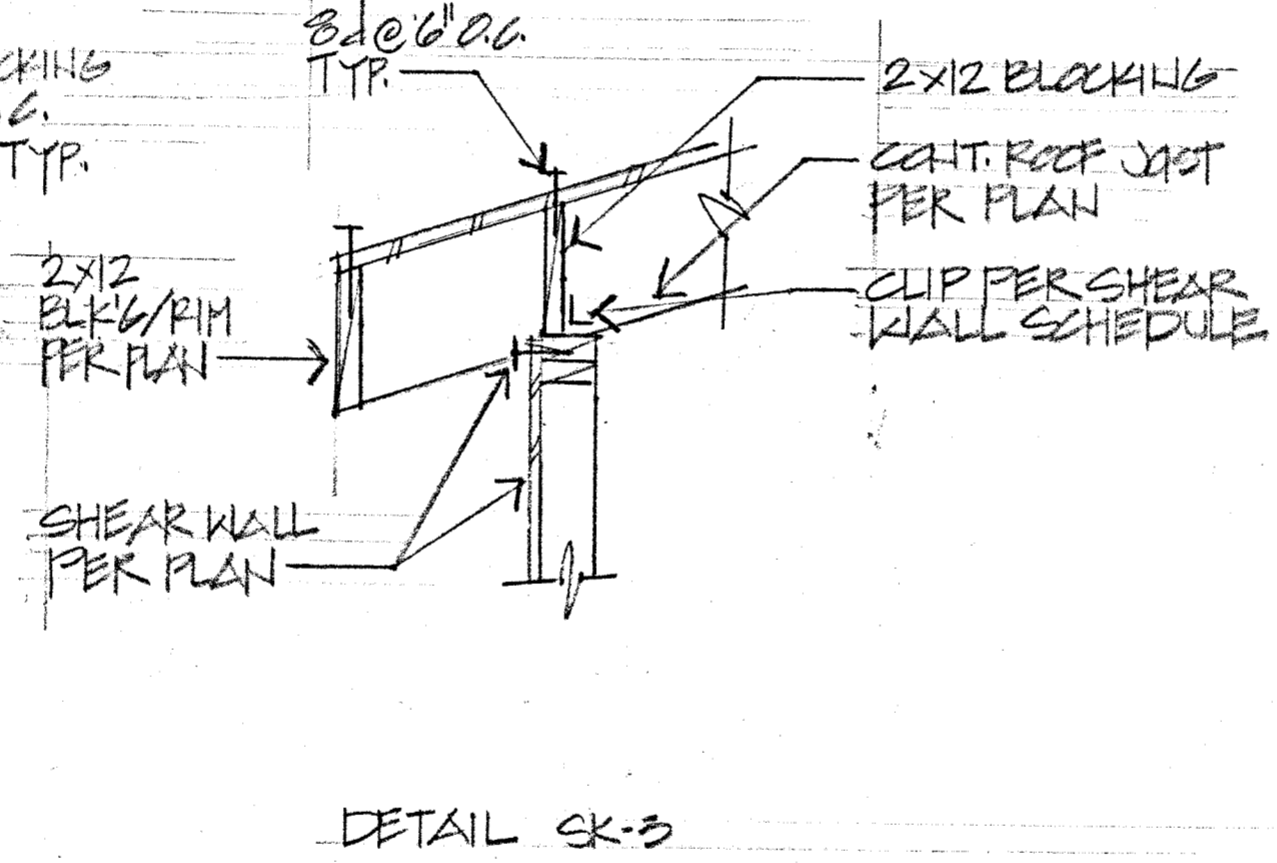
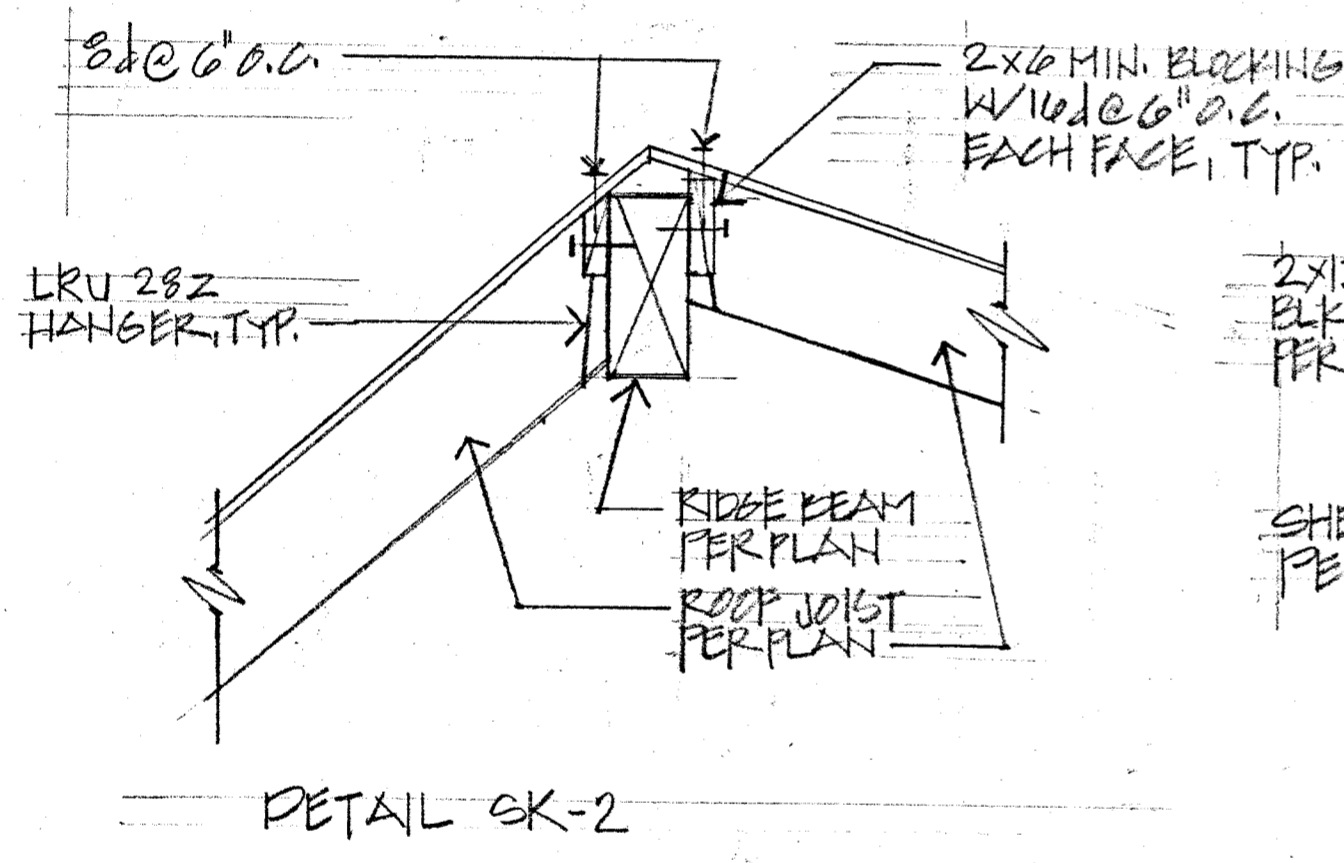
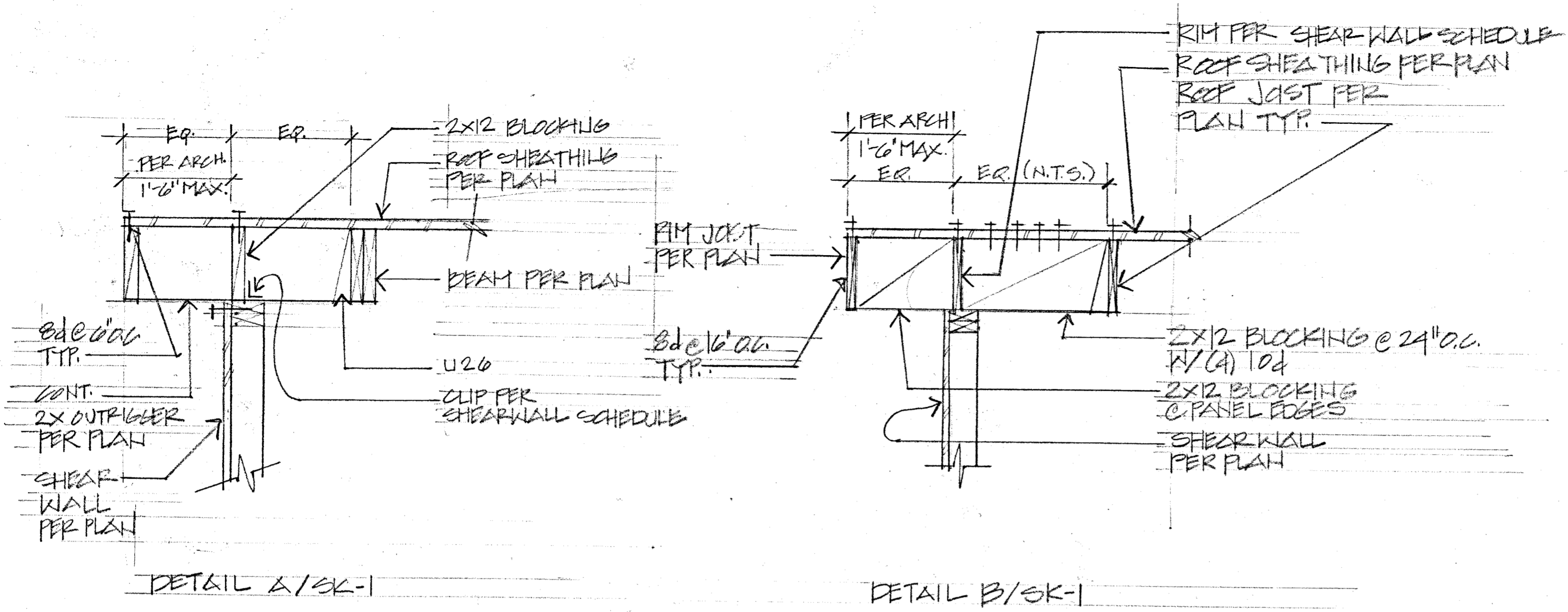
ROOF FRAMING PLAN
 1/4" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING WITH A PANEL INDEX OF 24/0. NAIL TO FRAMING W/ 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. IN FIELD U.N.O. ON PANS.
2. ALL HEADERS AND BEAMS SHALL BE (2) 2X8 MIN. UNLESS NOTED OTHERWISE, REFER TO NOTE 3 FOR SUPPORT REQUIREMENTS
3. ALL COLUMNS SHALL BE DOUBLE STUD MINIMUM, U.N.O., WITH THE BEAM OR HEADER BEARING FULLY ON THE COLUMN. INDIVIDUAL STUDS SHALL BE NAILED TOGETHER PER THE GENERAL STRUCTURAL NOTES.
4. EXTERIOR WALL SHEATHING SHALL BE 15/32" APA RATED SHEATHING WITH A PANEL INDEX OF 24/0 (ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING, AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD AT CONTRACTOR'S OPTION.

ROOF FRAMING PLAN

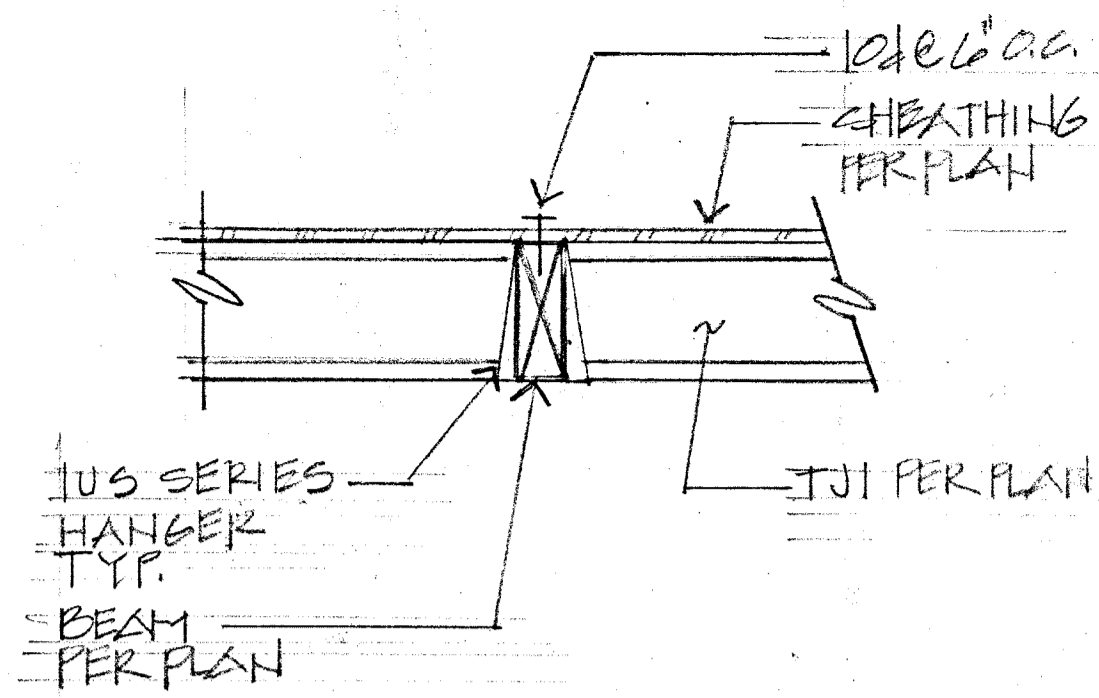
AD DESIGN FOR FLAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TONI SANTOS 206.854.8120



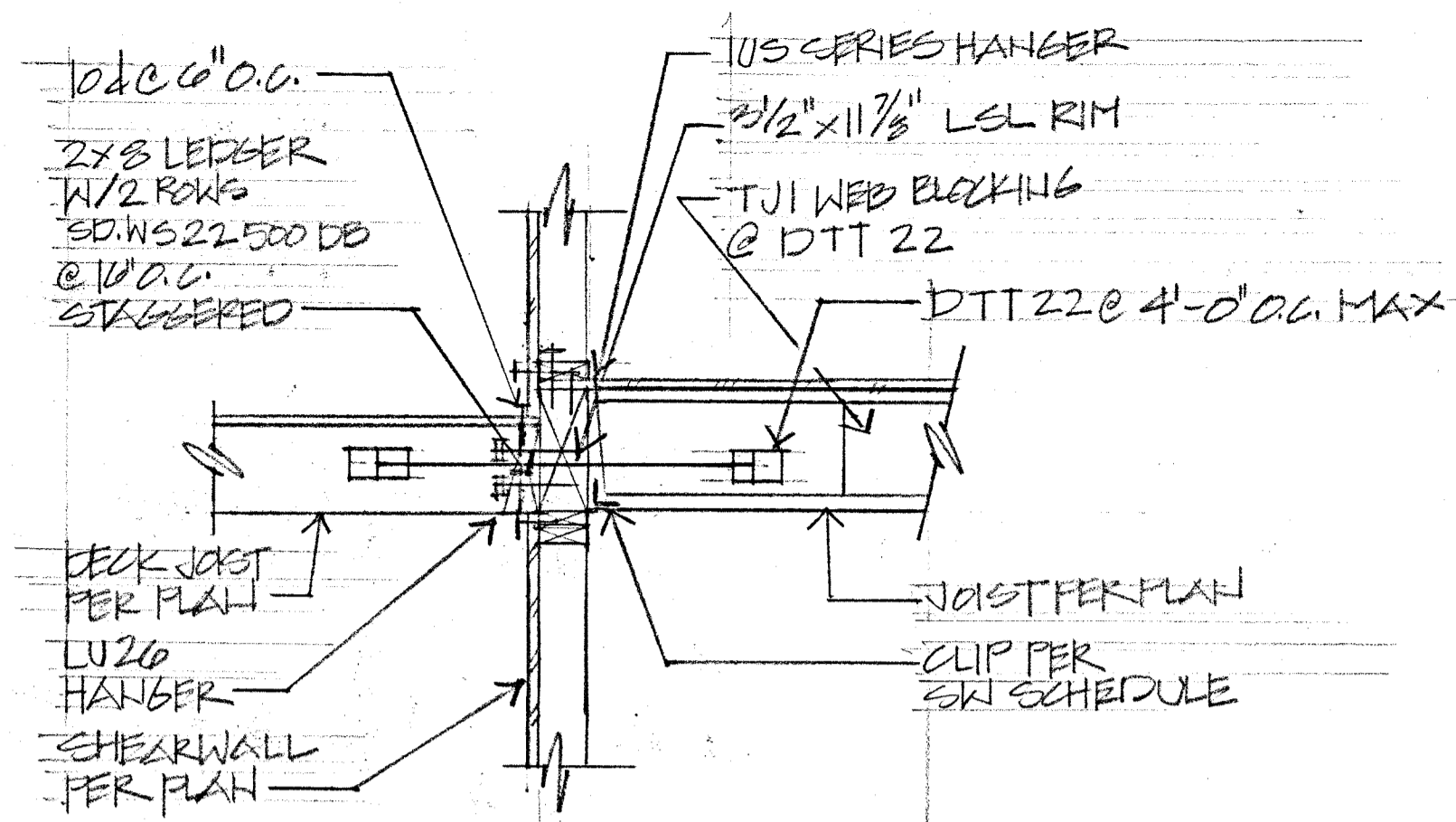
STRUCTURAL DETAILS

ADU DESIGN FOR ELAINE BERRYMAN
5222 WEST MERCER WAY
MERCER ISLAND WASHINGTON
BY TONI SANTOS 206.854.8120

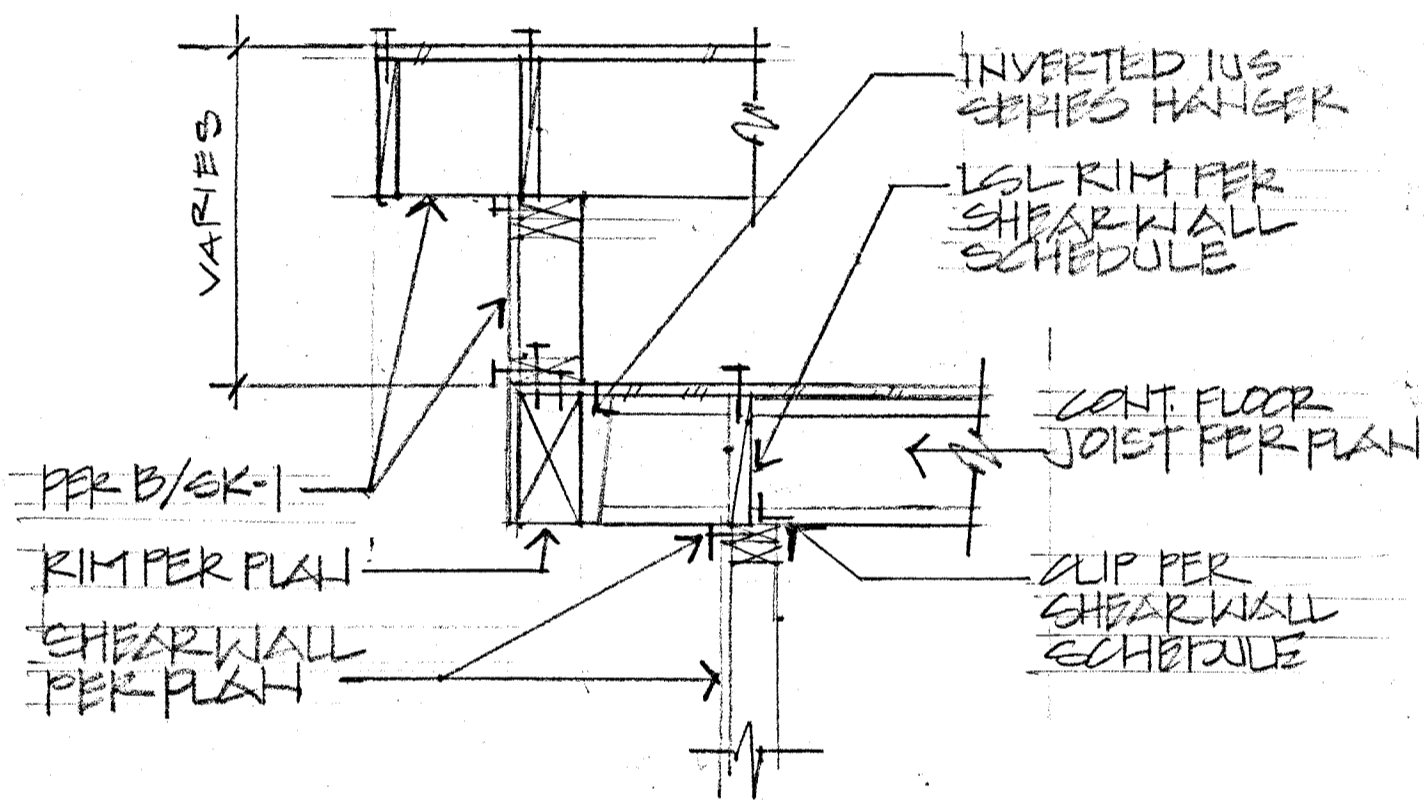
S4



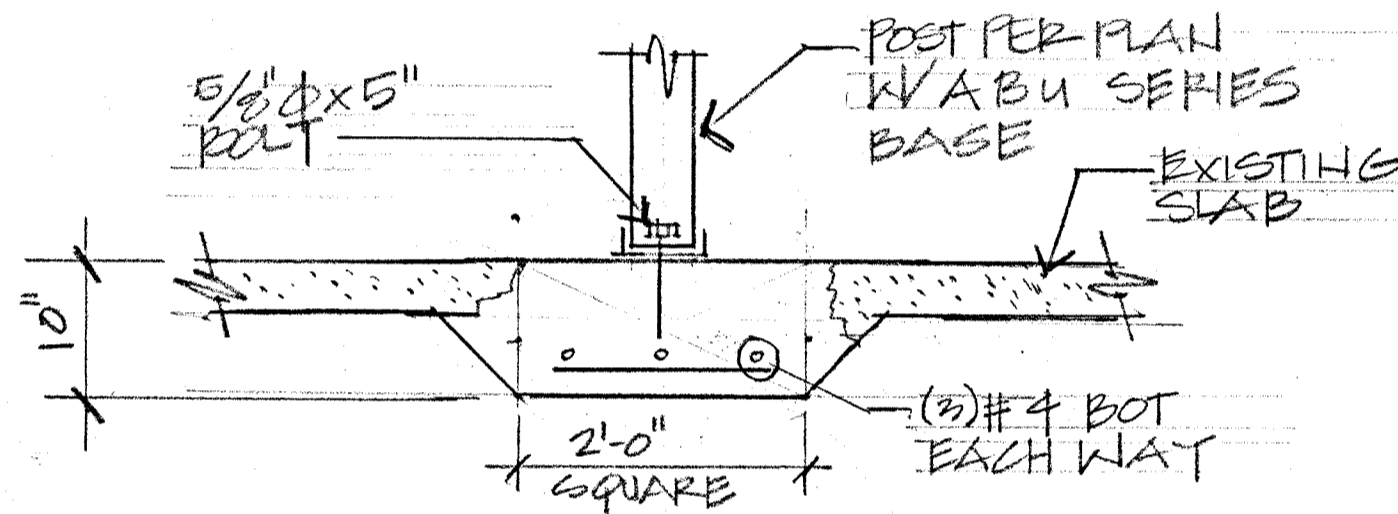
DETAIL SK-5



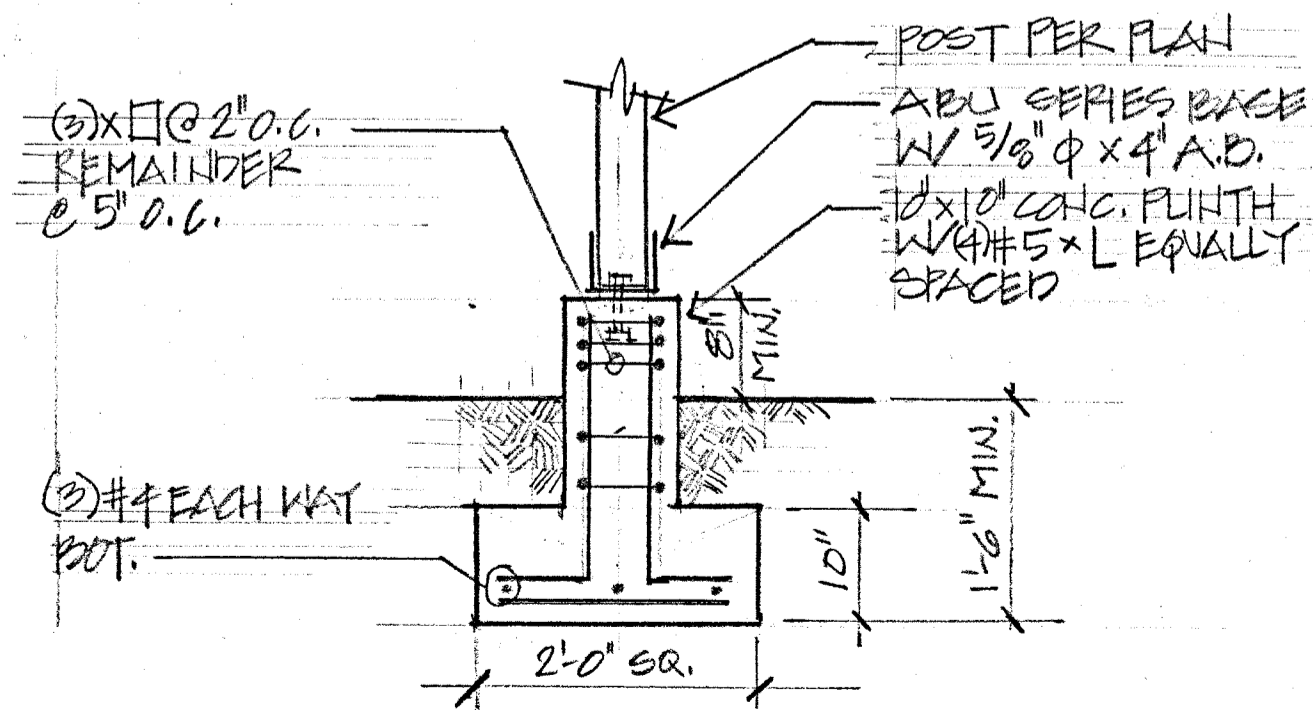
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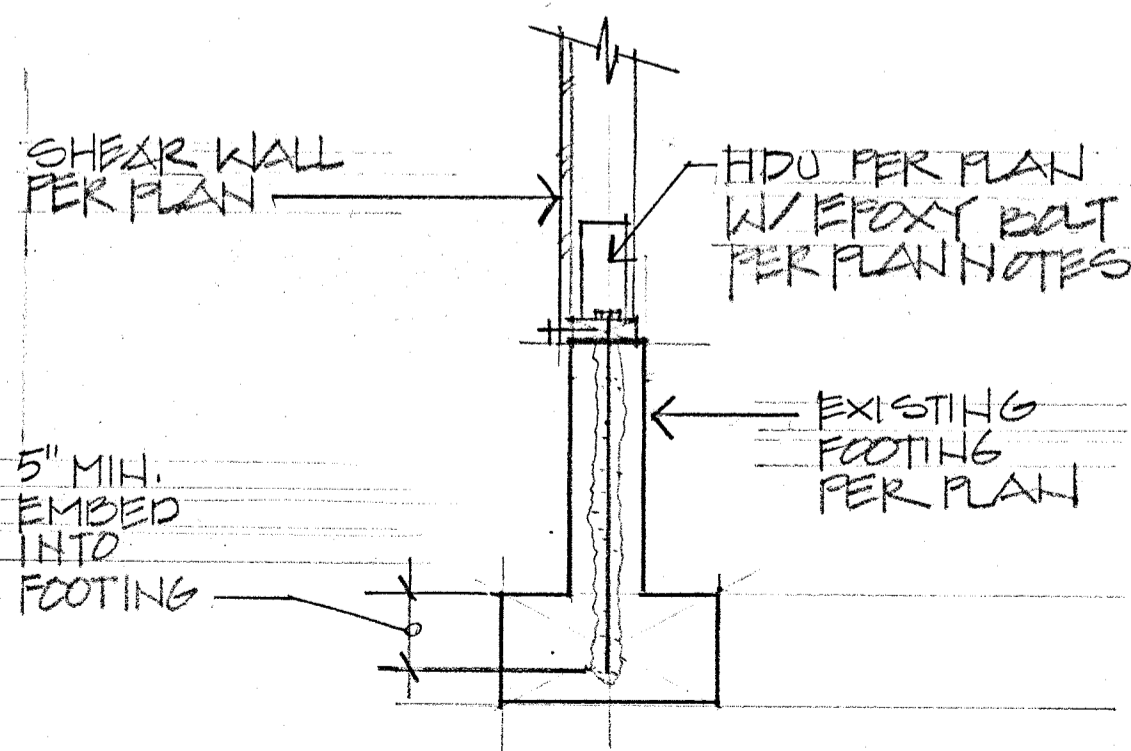
DETAIL SK-7



DETAIL SK-8



DETAIL SK-9



DETAIL SK-10

STRUCTURAL DETAILS

ADU DESIGN FOR ELAINE BERRYMAN
 5222 WEST MERCER WAY
 MERCER ISLAND, WASHINGTON
 BY TOLI GANTOS 206.854.8120

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 INTERNATIONAL BUILDING CODE (IBC) INCLUDING WASHINGTON STATE MODIFICATIONS.
2. DESIGN LOADING CRITERIA

SNOW LOAD	GROUND SNOW LOAD, $P_g = 25$ PSF
FLOOR LIVE LOAD (RESIDENTIAL)	40 PSF
FLOOR LIVE LOAD (RESIDENTIAL BALCONIES AND DECKS)	60 PSF
GUARDRAILS/BALCONY RAILS (RESIDENTIAL)	200 LBS.
WIND (MAIN WIND FORCE RESISTING SYSTEM)	BASIC WIND SPEED = 97 MPH ALLOWABLE STRESS DESIGN WIND SPEED = 75 MPH IMPORTANCE FACTOR, $I_w = 1.0$ RISK CATEGORY = II TOPOGRAPHIC FACTOR, $K_{zt} = 1.6$ EXPOSURE CATEGORY = B INTERNAL PRESSURE COEFFICIENT, $(GC_{pi}) = 0.18/-0.18$ WIND BASE SHEAR = 9.4 KIPS, 9.0 KIPS
EARTHQUAKE (EQUIVALENT LATERAL FORCE PROCEDURE)	$S_s = 1.448$ $S_{ds} = 1.158$ $S_1 = 0.503$ $S_{d1} = 0.503$ IMPORTANCE FACTOR, $I_e = 1.0$ SITE CLASS D SEISMIC DESIGN CATEGORY = D RISK CATEGORY = II R = 6.5 FOR WOOD STRUCTURAL PANEL SHEAR WALLS OVER STRENGTH FACTOR, $\Omega_o = 3.0$ DEFLECTION AMPLIFICATION FACTOR, $C_d = 4.0$ REDUNDANCY FACTOR = 1.0 SEISMIC RESPONSE COEFFICIENT, $C_s = 0.178$
RAIN INTENSITY	SEISMIC BASE SHEAR = 6.8 KIPS 1.0 INCHES/HOUR
3. 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. ALL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED FOR REFERENCE ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS.
4. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.
5. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THE 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.
7. 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.
8. 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.
9. ALL STRUCTURAL SYSTEMS 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.
10. MECHANICAL / ELECTRICAL / PLUMBING: CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE LOCATION, LOADS, AND ANCHORAGE OF ALL MECHANICAL, ELECTRICAL, PLUMBING, AND SPRINKLER ATTACHMENTS IN EXCESS OF 50 POUNDS TO STRUCTURAL ENGINEER FOR REVIEW PRIOR TO INSTALLATION. ALL DETAILS NECESSARY FOR ATTACHING THESE SYSTEMS TO THE BASE BUILDING STRUCTURE, INCLUDING THE DESIGN AND DETAILING OF THE DESIGNATED SEISMIC LOAD RESISTING SYSTEM AS REQUIRED BY SECTION 1705.12.4 OF THE INTERNATIONAL BUILDING CODE, ARE THE RESPONSIBILITY OF THE SUPPLIER OF THAT EQUIPMENT AND MUST BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WASHINGTON.
11. STATEMENT SPECIAL INSPECTIONS:

THE FOLLOWING CONSTRUCTION TYPES ARE TO BE REVIEWED BY A SPECIAL INSPECTOR DESIGNATED BY THE OWNER OR ARCHITECT. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. SPECIAL INSPECTION SHALL CONFORM TO SECTION 1704 OF THE 2018 INTERNATIONAL BUILDING CODE. SPECIAL INSPECTION AGENCY SHALL BE RESPONSIBLE FOR KEEPING RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION REPORTS AND TEST RESULTS.

POST INSTALLED ANCHORS: PERIODIC SPECIAL INSPECTION IN ACCORDANCE WITH THE PRODUCTS APPROVED ICC-ES REPORT.
12. THE CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED WIND OR SEISMIC SYSTEM, OR SEISMIC FORCE RESISTING COMPONENT SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK AS REQUIRED BY SECTION 1704.4 OF THE INTERNATIONAL BUILDING CODE.

GEOTECHNICAL

13. FOUNDATION NOTES: ALLOWABLE BEARING PRESSURE AND COEFFICIENT OF FRICTION HAVE BEEN ASSUMED PER IBC TABLE 1806.2. LATERAL EARTH PRESSURES HAVE BEEN ASSUMED PER IBC TABLE 1610.1. IT HAS BEEN ASSUMED THAT EXISTING SOILS ARE A COMBINATION OF SAND, SILTY SAND, AND POORLY GRADED SAND-SILT/SAND GRAVEL MIXES. IF SOILS ARE FOUND TO BE OTHER THAN ASSUMED, NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE FOUNDATION REDESIGN.

FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED EARTH AT LEAST 18" BELOW ADJACENT FINISHED GRADE, UNLESS OTHERWISE NOTED, FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE.

BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING, GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE.

ALLOWABLE SOIL PRESSURE	2,000 PSF
LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	60 PCF/45 PCF
LATERAL EARTH PRESSURE (SEISMIC)	8H (ULTIMATE LOAD)
PASSIVE EARTH PRESSURE (INCLUDES FACTOR OF SAFETY = 1.5)	150 PCF
COEFFICIENT OF FRICTION (INCLUDES FACTOR OF SAFETY = 1.5)	0.25

RENOVATION

14. DEMOLITION: CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED, AND IN A MANNER SUITABLE TO THE WORK SEQUENCES. EXISTING REINFORCING SHALL BE SAVED WHERE AND AS NOTED ON THE PLANS. SAW CUTTING, IF AND WHERE USED, SHALL NOT CUT EXISTING REINFORCING THAT IS TO BE SAVED. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 40 PSF.
 - a. ALL NEW OPENINGS THROUGH EXISTING WALLS, SLABS AND BEAMS SHALL BE ACCOMPLISHED BY SAW CUTTING WHEREVER POSSIBLE. OVERCUTTING AT CORNERS SHALL NOT BE PERMITTED.
 - b. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LOCATION OF MEMBERS PRIOR TO CUTTING ANY OPENINGS.
 - c. SMALL ROUND OPENINGS SHALL BE ACCOMPLISHED BY CORE DRILLING, IF POSSIBLE.
 - d. WHERE NEW REINFORCING TERMINATES AT EXISTING CONCRETE, THREADED BARS INTO THREADED EXPANSION INSERTS IN EXISTING CONCRETE SHALL BE PROVIDED TO MATCH HORIZONTAL REINFORCING, UNLESS OTHERWISE NOTED ON PLANS.
15. CONTRACTOR SHALL CHECK FOR DRY ROT AT ALL EXTERIOR WALLS, EXISTING TOILET ROOM FLOORS AND WALLS, AREAS SHOWING WATER STAINS, AND ALL WOOD MEMBERS IN BASEMENT AND CRAWL SPACES. ALL ROT SHALL BE REMOVED AND DAMAGED MEMBERS SHALL BE REPLACED OR REPAIRED AS DIRECTED BY THE STRUCTURAL ENGINEER.
16. 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. THE CONTRACTOR SHALL BRING ALL CONFLICTS AND DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER.

CONCRETE

17. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH ACI 318-14 AND ACI 301-16. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH (f'_c) OF 3500 PSI BASED ON EXPOSURE CLASS F1, SHALL CONTAIN NO LESS THAN 5-1/2 SACKS OF CEMENT, HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45, MAXIMUM AGGREGATE OF 3/4-INCH, AND A SLUMP OF 5 INCHES OR LESS. CONCRETE HAS BEEN DESIGNED BASED ON A CONCRETE STRENGTH (f'_c) OF 2500 PSI PER INTERNATIONAL BUILDING CODE SECTION 1705.3 EXCEPTION 2.3 TO AVOID SPECIAL INSPECTIONS AND MATERIAL TESTING.

ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494M, AND C618. UNLESS OTHERWISE NOTED THE TOTAL AIR CONTENT SHALL BE 5%. AIR CONTENT SHALL BE SAMPLED IN ACCORDANCE WITH ASTM C172 AND AIR CONTENT MEASURED IN ACCORDANCE WITH ASTM C231 OR C173.
18. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENTS S1), GRADE 60, $F_y = 60,000$ PSI.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185
19. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI SP-66-04 AND ACI 318-14 CHAPTER 25. LAP ALL REINFORCEMENTS AS FOLLOWS:

BAR SIZE	MINIMUM LAP LENGTH	MINIMUM HOOK EMBEDMENT
#3	24-INCHES	6-INCHES
#4	31-INCHES	8-INCHES
#5	39-INCHES	11-INCHES

PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. FIELD BENDING OF GRADE 60 REINFORCEMENT SHALL NOT BE ALLOWED.
20. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
ALL OTHER CASES	1-1/2"
21. SLABS-ON-GRADE: UNLESS NOTED OTHERWISE SHALL BE 4" CONCRETE, REINFORCED WITH 6X6 W1.4XW1.4 WELDED WIRE FABRIC CENTERED IN SLAB. UNLESS OTHERWISE DIRECTED BY SOILS REPORT PROVIDE MINIMUM 10 MIL VAPOR BARRIER OVER 4" OF COMPACTED SAND OR GRAVEL.
22. 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. TOLERANCES FOR ALL STRUCTURAL CONCRETE AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 117-10 AND ACI 117.1R-14.
23. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO

THE MATERIAL ON WHICH IT IS PLACED (3,000 PSI MINIMUM).

POST INSTALLED ANCHORS

24. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REINFORCEMENT. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND ICC-ES REPORT. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE INTERNATIONAL BUILDING CODE. SUBSTITUTIONS SHALL HAVE CURRENT ICC-ES APPROVAL.

A. CONCRETE ANCHORS

1. MECHANICAL ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 308.2 AND ICC-ES AC108. PRE-APPROVED MECHANICAL ANCHORS INCLUDE:
 - a. SIMPSON STRONG-TIE "STRONG-BOLT 2" (ICC-ES ESR-3037)
 - b. SIMPSON STRONG-TIE "TITEN-HD" (ICC-ES ESR-2713)
 - c. HILTI "KWIK BOLT TZ" (ICC-ES ESR-1917)
2. ADHESIVE ANCHORS FOR USE IN CRACKED AND UNCRACKED CONCRETE SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC308. PRE-APPROVED ADHESIVE ANCHORS INCLUDE:
 - a. SIMPSON STRONG-TIE "SET-XP" (ICC-ES ESR-2508)
 - b. SIMPSON STRONG-TIE "SET-3G" (ICC-ES ESR-4057)
 - c. SIMPSON STRONG-TIE "AT-XP" (IAPMO UES ER-263)
 - d. HILTI "HIT-RE 500-V3" (ICC-ES ESR-3814)
 - e. HILTI "HIT-HY 200" (ICC-ES ESR-3187)

WOOD

25. FRAMING LUMBER SHALL BE KILN DRIED OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17, LATEST EDITION. FURNISH TO THE FOLLOWING MINIMUM STANDARDS.

<p>JOISTS: (2X, 3X, AND 4X MEMBERS) BEAM AND STRINGERS: (6 X AND LARGER MEMBERS) POSTS AND TIMBERS: (6 X AND LARGER MEMBERS) STUDS PLATES & MISCELLANEOUS LIGHT FRAMING (FINGER JOINTED STUDS MAY NOT BE USED UNLESS WITH APPROVAL FROM STRUCTURAL ENGINEER)</p>	<p>HEM-FIR NO. 2 MINIMUM BASE VALUE, F_b = 850 PSI DOUGLAS FIR LARCH NO. 1 MINIMUM BASIC DESIGN STRESS, F_b = 1,350 PSI DOUGLAS FIR LARCH NO. 1 MINIMUM BASIC DESIGN STRESS, F_b = 1,200 PSI, F_c = 1,000 PSI DOUGLAS FIR LARCH OR HEM-FIR NO. 2,</p>
<p>2X AND 3X TONGUE AND GROOVE DECKING</p>	<p>MINIMUM BASIC DESIGN STRESS F_b = 850 PSI, F_c = 1,300 PSI HEM-FIR COMMERCIAL DEX, F_b = 1,350 PSI</p>

26. **PARALLEL STRAND LUMBER (PSL):** EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY. MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES: F_b = 2900 PSI, E = 2000,000 PSI, F_v = 290 PSI.

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY THE WEYERHAEUSER. ALTERNATE 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 ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

27. **LAMINATED VENEER LUMBER (LVL):** EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY. MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES: F_b = 2600 PSI, F_v = 285 PSI, E = 2,000,000 PSI.

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY WEYERHAEUSER. ALTERNATE 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 ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

28. **LAMINATED STRAND LUMBER (LSL):** EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY. MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES: F_b = 2325 PSI, F_v = 310 PSI, E = 1,550,000 PSI,

LSL RIM JOISTS SHALL CONFORM TO ANSI/APA PRR 410 AND SHALL BE MARKED IN ACCORDANCE WITH THE STANDARD.

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY WEYERHAEUSER. ALTERNATE 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 ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

29. **PREFABRICATED PLYWOOD WEB JOIST** DESIGN SHOWN ON PLANS IS BASED ON JOIST MANUFACTURED BY THE WEYERHAEUSER. ALTERNATE PLYWOOD WEB 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 ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH PLYWOOD WEB JOIST PROVIDED.

30. **PLYWOOD SHEATHING** SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1-09 OR PS 2-18 AND AMERICAN PLYWOOD ASSOCIATION PERFORMANCE STANDARD PRP-108. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS. EACH PANEL SHALL BE IDENTIFIED FOR GRADE AND GLUE TYPE BY THE TRADEMARKS OF AN APPROVED TESTING AND GRADING AGENCY.

ALTERNATE PLYWOOD WEB 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 ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH PLYWOOD WEB JOIST PROVIDED.

30. **PLYWOOD SHEATHING** SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1-09 OR PS 2-18 AND AMERICAN PLYWOOD ASSOCIATION PERFORMANCE STANDARD PRP-108. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS. EACH PANEL SHALL BE IDENTIFIED FOR GRADE AND GLUE TYPE BY THE TRADEMARKS OF AN APPROVED TESTING AND GRADING AGENCY.

31. **ALL WOOD PLATES** IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE, PROVIDE 2 LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGERS, BLOCKING, ETC. AND CONCRETE OR MASONRY.

PRESSURE TREATED LUMBER SHALL COMPLY WITH THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) STANDARD U1, COMMODITY SPECIFICATION A AS INDICATED BELOW OR HAVE EQUIVALENT ICC-ES APPROVAL.

PROPOSED USE		AWPA USE CATEGORY
RESIDENTIAL DECKS	DECKING	3B
	JOISTS ABOVE GROUND	3B
	JOISTS IN CONTACT WITH GROUND	4A
	POSTS	4A
	RAILING	3B
	LEDGERS	3B
SAWN LUMBER	ABOVE GROUND	3B
	GROUND CONTACT	4A
PLYWOOD	DAMP ABOVE GROUND	2
	EXTERIOR ABOVE GROUND	3B
POLES	GROUND CONTACT	4A
	ROUND	4B
FENCING	SAWN	3B
	PICKETS, SLATS, AND TRIM	3B
	SAWN POSTS	4A
	ROUND POSTS	4A
	RAILS	3B
SILL PLATES	IN CONTACT WITH CONCRETE OR MASONRY	2
INTERIOR LEDGERS	IN CONTACT WITH CONCRETE OR MASONRY	2

ALL TREATED LUMBER SHALL BEAR THE QUALITY MARK OF AN ACCREDITED INSPECTION AGENCY. THE QUALITY MARK SHALL INCLUDE:

- A. IDENTIFICATION OF TREATING MANUFACTURER
- B. TYPE OF PRESERVATIVE USED
- C. MINIMUM PRESERVATIVE RETENTION (PCF)
- D. END USE FOR WHICH THE PRODUCT IS TREATED
- E. IDENTITY OF THE ACCREDITED INSPECTION AGENCY
- F. STANDARD TO WHICH THE PRODUCT IS TREATED

32. **TIMBER CONNECTORS** CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2021. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER TO ACHIEVE THE MAXIMUM PUBLISHED ALLOWABLE LOAD. ALL 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. SHIMS, WHERE REQUIRED, SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

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. ALL LAG SCREWS SHALL BE INSTALLED IN PRE-DRILLED HOLES.

UNLESS NOTED OTHERWISE ALL SAWN LUMBER JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS AND ALL PREFABRICATED PLYWOOD WEB JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "IUS" SERIES JOIST HANGERS.

ALL CONNECTIONS/FASTENERS IN CONTACT WITH PRESERVATIVE-TREATED OR FIRE-RETARDANT-TREATED WOOD, SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL. HOT DIPPED GALVANIZED FASTENERS SHOULD CONFORM TO ASTM STANDARD 153, AND HOT DIPPED GALVANIZED CONNECTORS SHOULD CONFORM TO ASTM STANDARD A653 (CLASS G-185). STAINLESS STEEL FASTENERS AND CONNECTORS SHOULD BE TYPE 304 OR 316. NOTE: ELECTROPLATED GALVANIZED FASTENERS AND CONNECTORS ARE NOT TO BE USED WITH PRESSURE TREATED WOOD. SIMPSON PRODUCT FINISHES CORRESPONDING TO THE ABOVE REQUIREMENTS ARE ZMAX (HOT DIPPED GALVANIZED) AND SST300 (STAINLESS STEEL). STAINLESS STEEL HARDWARE AND FASTENERS SHALL NOT BE COMBINED WITH UNTREATED OR GALVANIZED MATERIAL.

33. **WOOD FASTENERS:**

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

SIZE	LENGTH	DIAMETER
6d	2"	0.113"
8d	2-1/2"	0.131"
10d	3"	0.148"
12d	3-1/4"	0.148"
16d	3-1/2"	0.162"

DESIGN IS BASED ON COMMON STEEL WIRE NAILS MEETING THE REQUIREMENTS OF ASTM F1667. USE OF ALTERNATE FASTENERS MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION.

B. **NAILS** – PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

34. **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 INTERNATIONAL BUILDING CODE. MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO TABLE 2304.10.1 OF THE INTERNATIONAL BUILDING CODE. UNLESS NOTED OTHERWISE, ALL NAILS SHALL BE AS SPECIFIED ABOVE.

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. INSTALLATION OF BOLTS AND LAG SCREWS SHALL CONFORM TO SECTIONS 12.1.3 AND 12.1.4 OF THE 2018 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. NATURALLY DURABLE OR PRESSURE TREATED WOOD SHALL BE PROVIDED WHERE REQUIRED BY SECTION 2304.12 OF THE INTERNATIONAL BUILDING CODE.

- B. WALL FRAMING: ALL STUD WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2X6 AT 16" O.C. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS. TWO 2 x 8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED AND SHALL BEAR FULLY ON A MINIMUM OF TWO STUDS. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW. PROVIDE SOLID BLOCKING BETWEEN STUDS AT MID-HEIGHT OF ALL STUD WALLS OVER 10' IN HEIGHT.

STUDS MAY BE NOTCHED, CUT, OR PENETRATED WITH ROUND BORED HOLES AS FOLLOWS:

STUD SIZE	MAXIMUM NOTCH / CUT	MAXIMUM BORED HOLE
2X4	7/8"	1-3/8"
2X6	1-3/8"	2-1/8"

BORED HOLES SHALL NOT BE LOCATED WITH 5/8" FROM THE EDGE OF THE STUD OR AT THE SAME LOCATION AS A NOTCH OR CUT.

WALLS SHALL HAVE A SINGLE BOTTOM PLATE AND A DOUBLE TOP PLATE. END NAIL TOP PLATE TO EACH STUD WITH TWO 16d NAILS, AND TOENAIL OR END NAIL EACH STUD TO BOTTOM PLATE WITH TWO 16d NAILS. FACE NAIL DOUBLE TOP PLATE WITH 16d AT 12" O.C. AND LAP MINIMUM 4'-0" AT JOINTS AND PROVIDE EIGHT 16d NAILS AT 4" O.C. EACH SIDE OF JOINT.

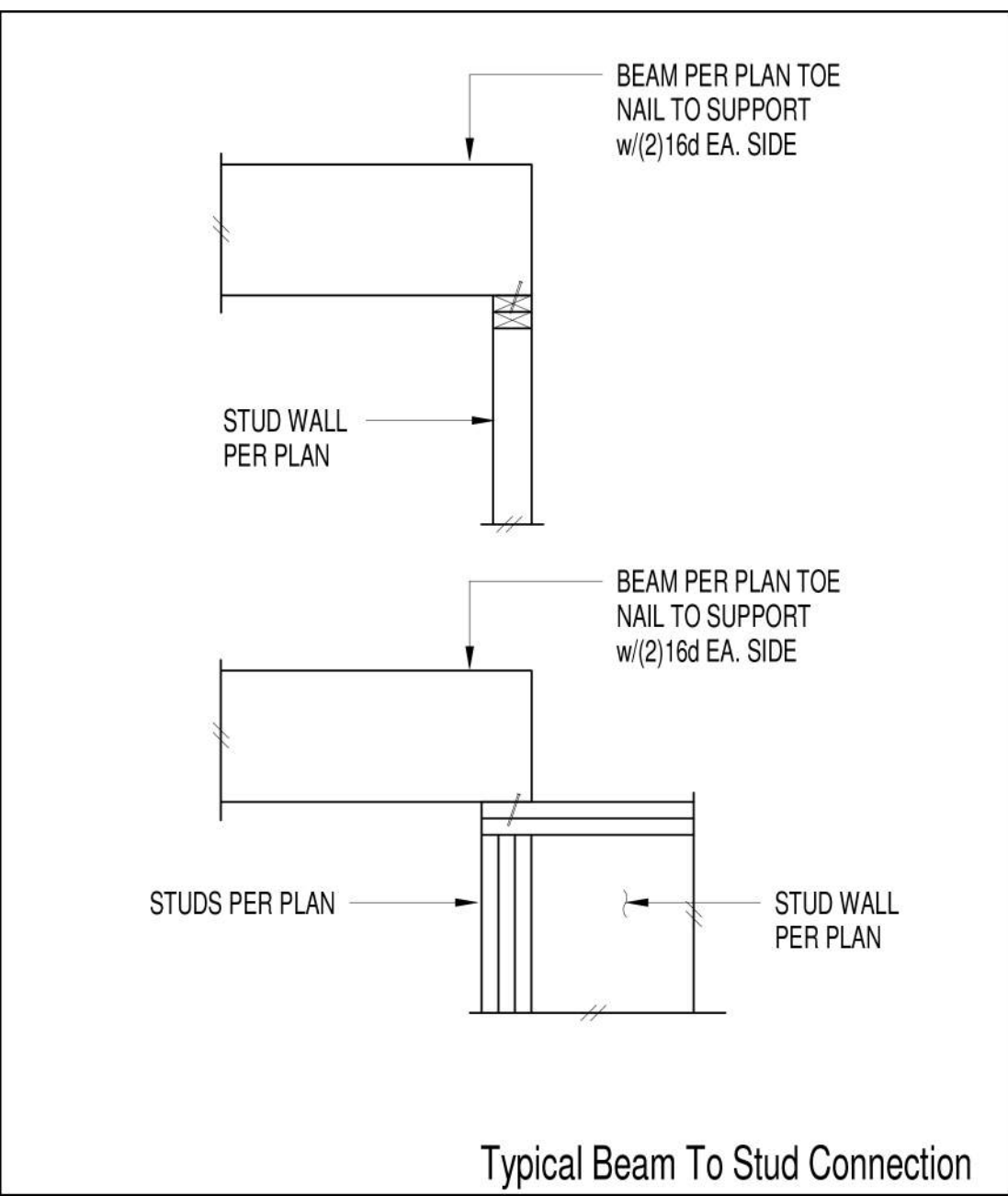
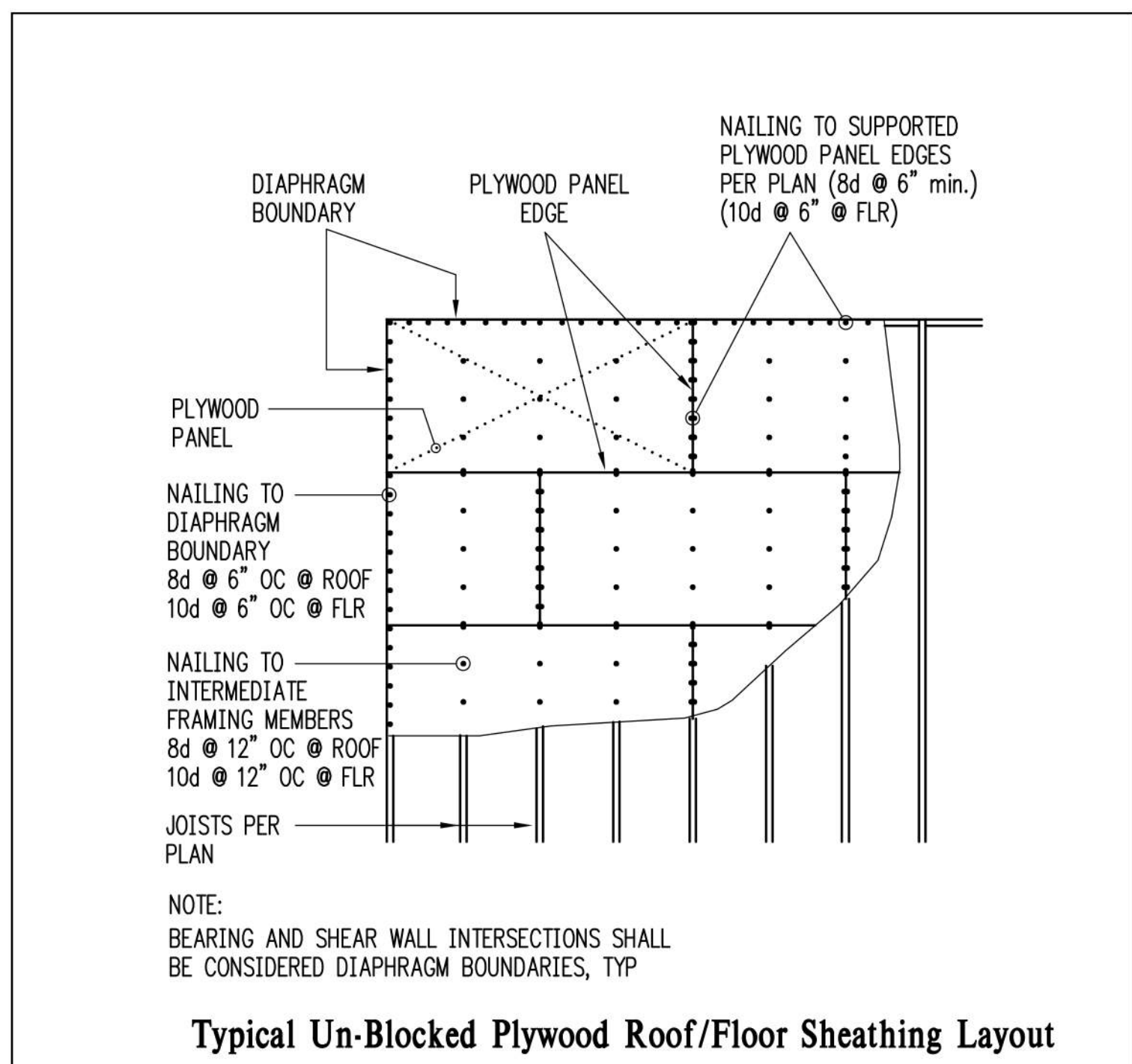
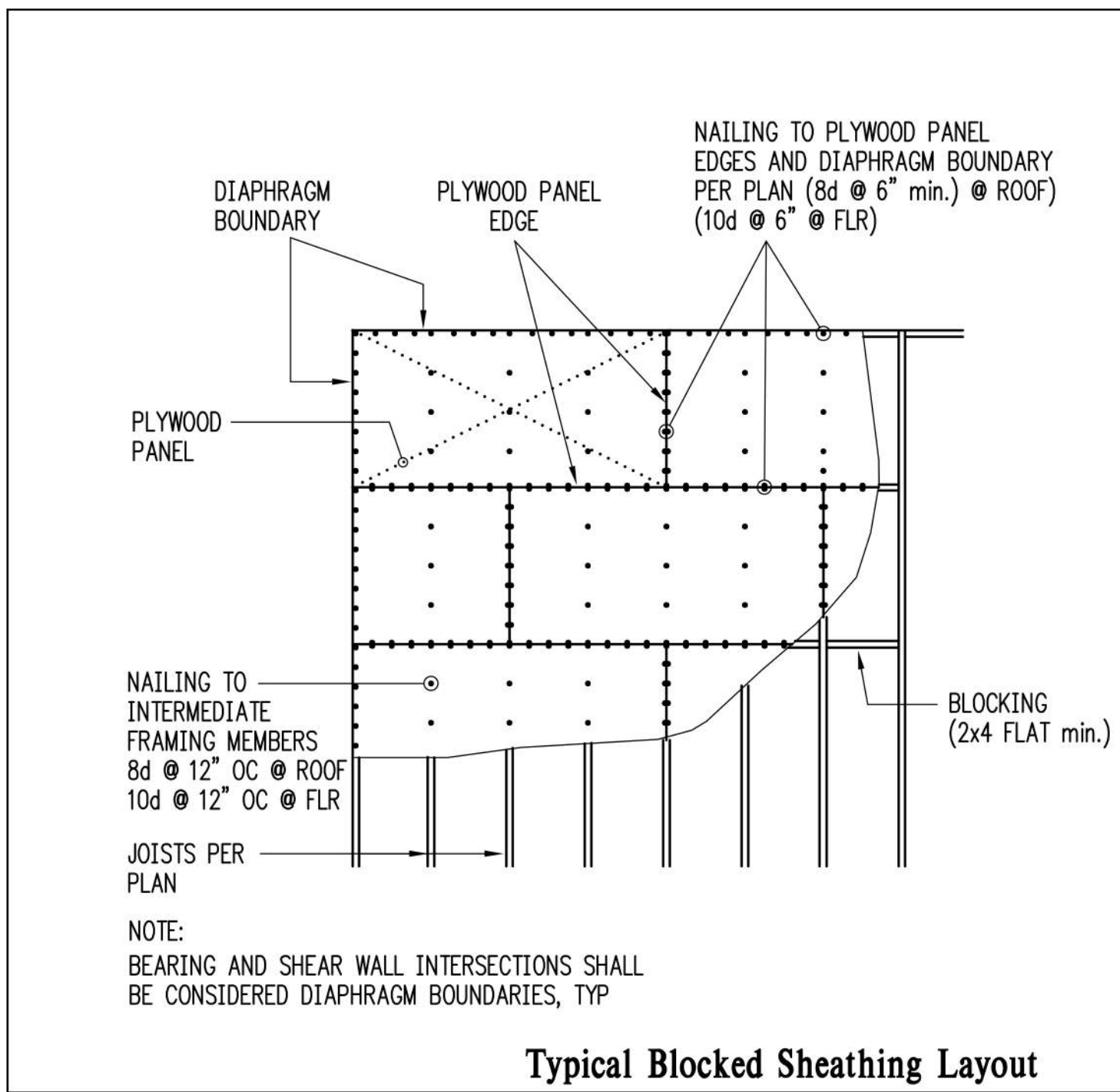
ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH 16d NAILS AT 12" O.C. STAGGERED OR BOLTED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS (WITH 7" MINIMUM EMBEDMENT) @ 4'-0" O.C. UNLESS INDICATED OTHERWISE. PROVIDE 3"x3" x1/4" HOT-DIPPED GALVANIZED PLATE WASHERS AT ALL ANCHOR BOLTS. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH 16d NAILS @ 12" 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 NAILED TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING WITH NAILS AT 7" O.C. USE 5d COOLER NAILS FOR 1/2" GWB AND 6d COOLER NAILS FOR 5/8" GWB. PROVIDE 15/32" APA RATED SHEATHING (SPAN RATING 24/0) ON EXTERIOR SURFACES NAILED AT ALL PANEL EDGES (BLOCK UNSUPPORTED EDGES), TOP AND BOTTOM PLATES WITH 8d NAILS @ 6" O.C. AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH NAILS @ 12" O.C. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS.

- 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.

NOTCHES AT THE END OF JOISTS AND RAFTERS SHALL NOT EXCEED 1/4 THE DEPTH OF THE MEMBER. NOTCHES IN THE TOP OR BOTTOM SHALL NOT EXCEED 1/6 THE DEPTH OF THE MEMBER AND SHALL NOT BE LOCATED WITHIN THE MIDDLE 1/3 OF THE SPAN. THE DIAMETER OF ROUND HOLES BORED IN JOISTS AND RAFTERS SHALL NOT EXCEED 1/3 OF THE DEPTH OF THE MEMBER AND SHALL NOT BE LOCATED WITHIN 2" FROM THE TOP OR BOTTOM EDGE.

TOENAIL JOISTS TO SUPPORTS WITH TWO 16d NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH SIMPSON METAL JOIST HANGERS IN ACCORDANCE WITH NOTES ABOVE. NAIL ALL MULTI-JOIST BEAMS TOGETHER WITH TWO ROWS OF 16d @ 12" O.C. ATTACH RAFTERS AND ROOF TRUSSES AT BEARING LINES WITH H2.5 @ 24" O.C. UNLESS OTHER METAL CONNECTIONS ARE INDICATED.

UNLESS OTHERWISE NOTED ON THE PLANS, APA RATED ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS AND ATTACHED WITH 10d NAILS @ 6" O.C. TO FRAMED PANEL EDGES AND OVER STUD WALLS AS SHOWN ON PLANS AND @ 12" O.C. TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. 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 ALL ROOF AND FLOOR SHEATHING. TOENAIL BLOCKING TO SUPPORTS WITH 16d NAILS @ 12" O.C. UNLESS OTHERWISE NOTED. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2X BLOCKING AT ALL UNFRAMED PANEL EDGES AND FASTEN SHEATHING TO FRAMING/BLOCKING AS SPECIFIED.



SHEARWALL SCHEDULE

Mark	Sheathing	Bck'g	Panel Nailing ¹	Attachment to top plate ³	Bottom Plate Attachment			Capacity (plf) (Seismic)
					Rim Joist Req'd	Nailing to ⁴ wood below	A. Bolts to ⁵ concrete below	
SW 1	15/32" APA Sheathing	Yes	8d @ 6"oc	CLIP @ 24"oc	2x or 1¾" LSL	16d @ 6"oc	5/8" @ 48"oc	240
SW 2	15/32" APA Sheathing	Yes	8d @ 4"oc ²	CLIP @ 20"oc	2x or 1¾" LSL	16d @ 4¾"oc	5/8" @ 48"oc	355

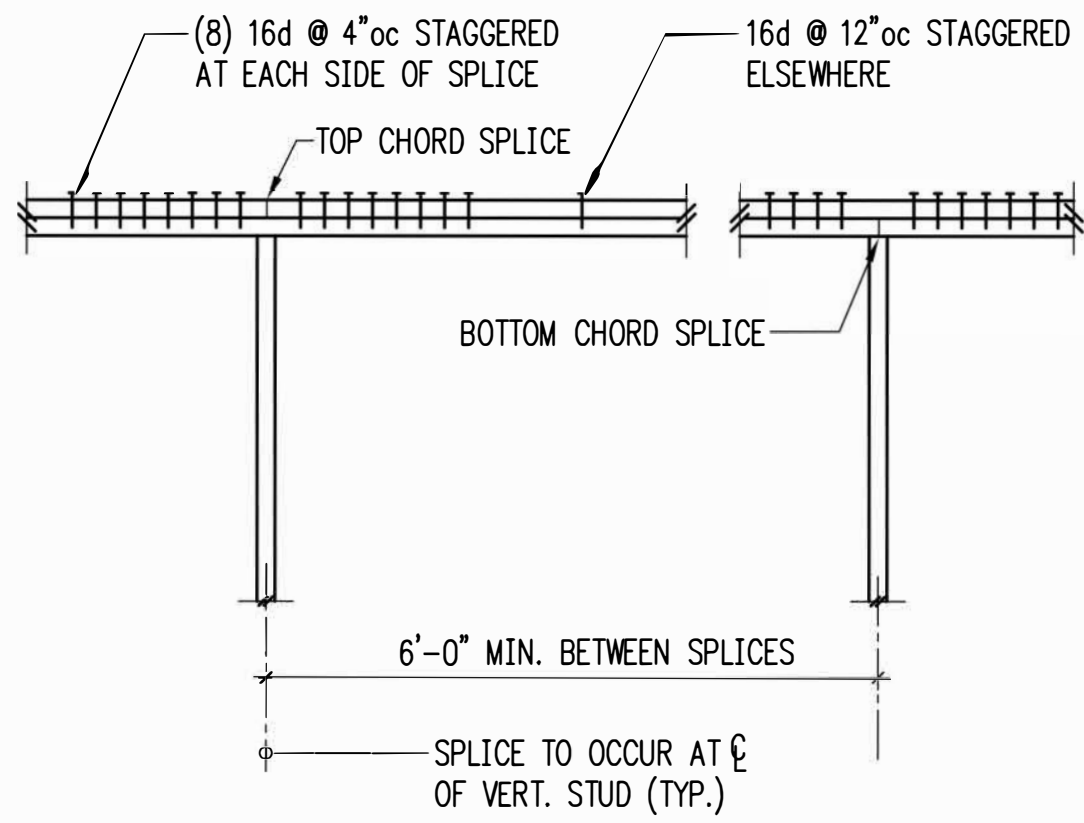
¹ Nails shall be 8d box. Nailing applies to all panel edges (block all unsupported panel edges), top & bottom plates and blocking. Nail to intermediate framing members w/ 8d @ 12"oc. (Note: where stud spacing is 24"oc, nail to intermediate framing members with 8d@6"oc.)

² Framing at adjoining panel edges shall be 3-inch nominal or wider and nails shall be staggered.

³ Clip shall be either A35, LTP4.

⁴ Nails shall be 16d box (0.135Øx3½") or 10d common (0.148Øx3½")
Screws shall be Simpson SDS25412 (1/4"Øx4½"min).

⁵ Provide 3"x3"x0.229" plate washer at all anchor bolts. Anchor bolts shall be positioned such that plate edge of plate washer is with 1/2" of the edge of the bottom plate.
(Plate washers may be diagonally slotted with a width of up to 13/16" and a length not to exceed 1¾")



Typical Top Plate Splice - Side View

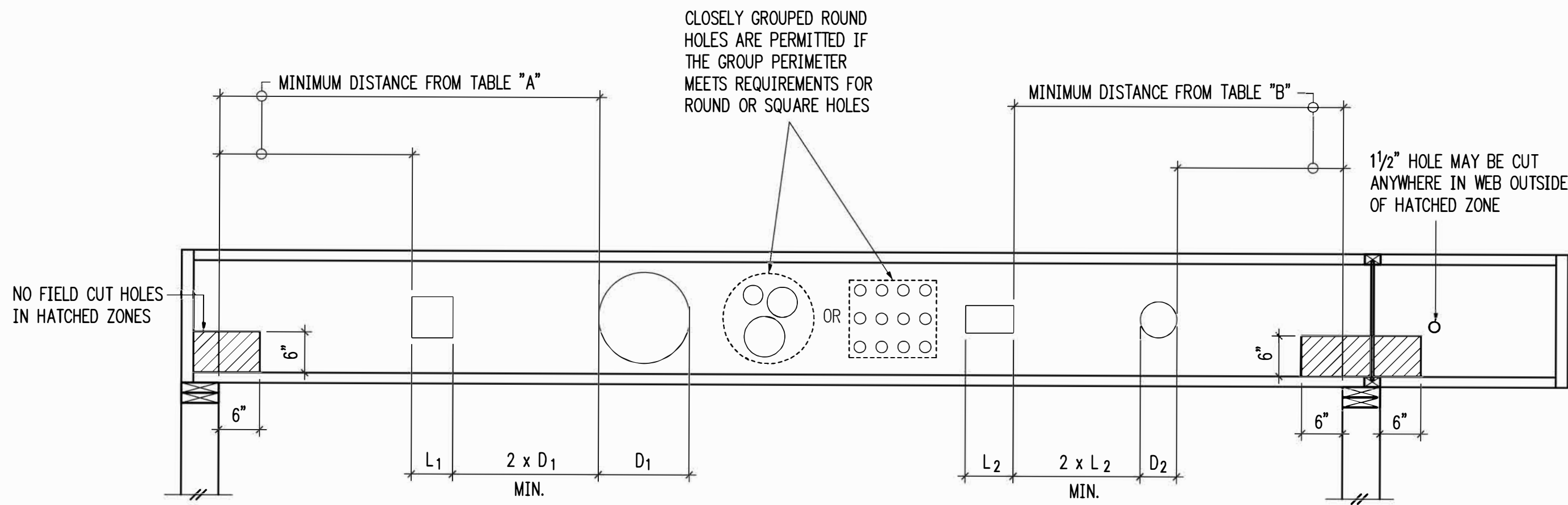
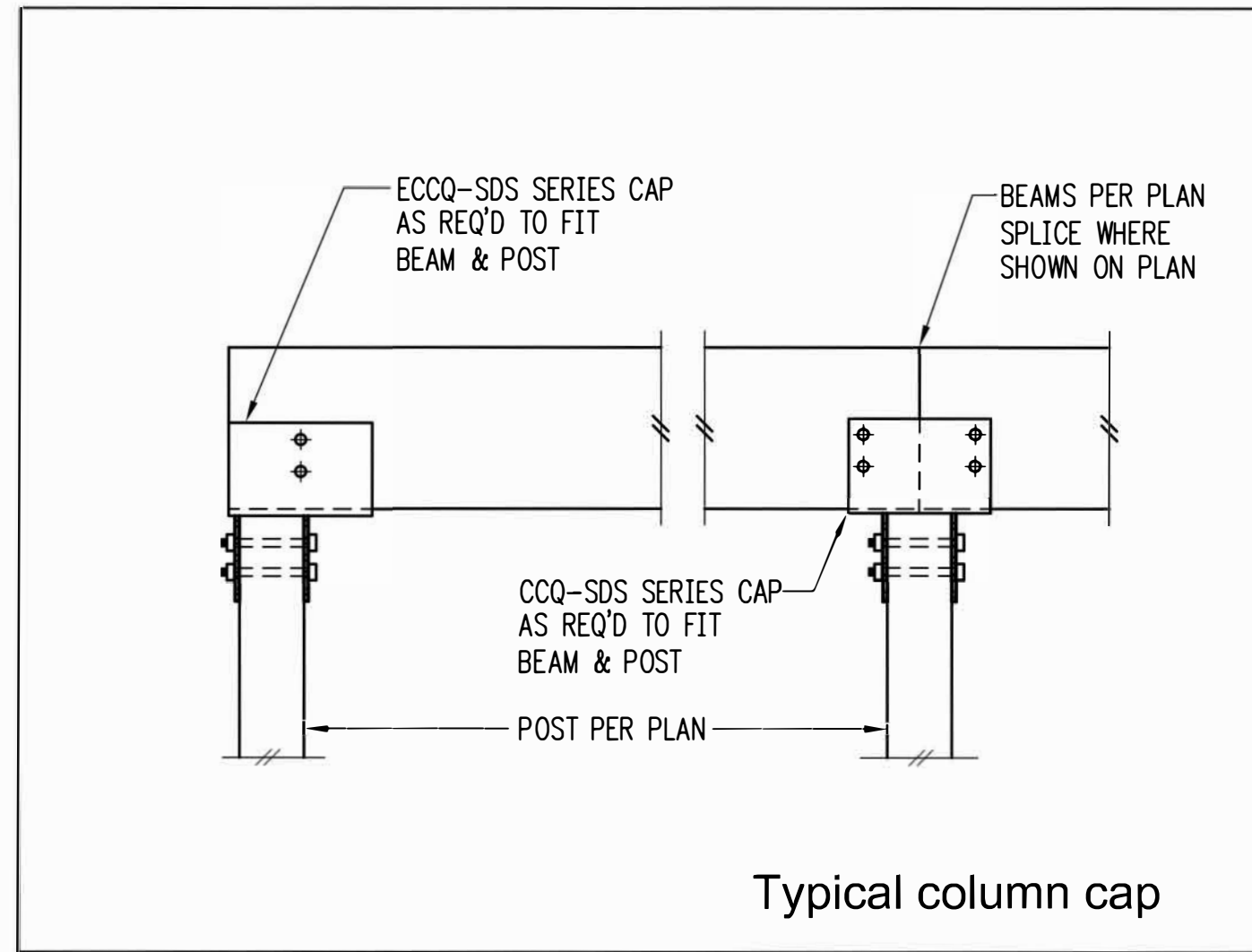
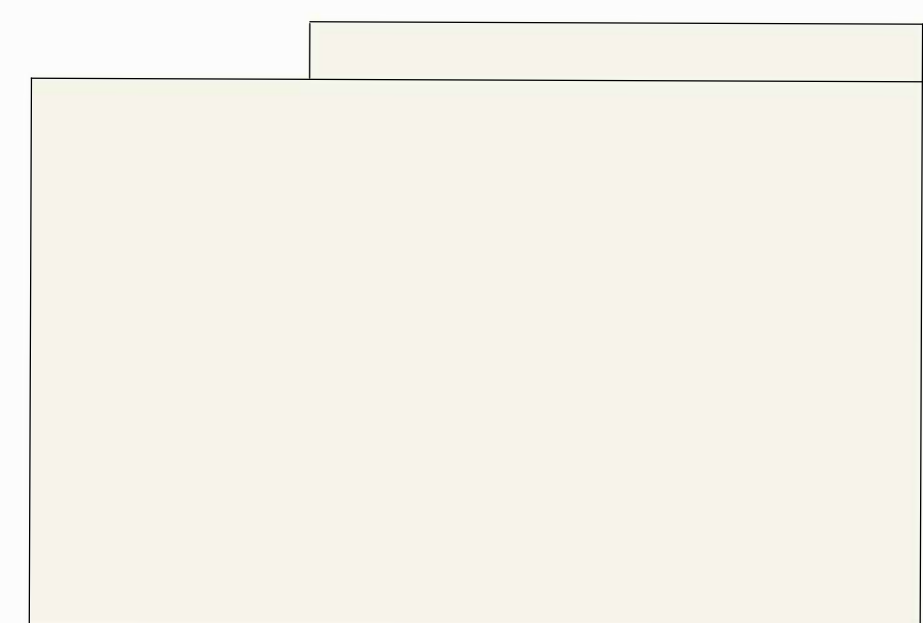
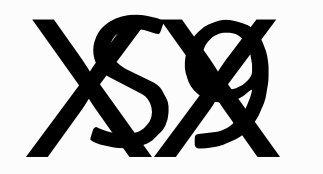


TABLE A - END SUPPORT
 MINIMUM DISTANCE FROM EDGE OF HOLE TO INSIDE FACE OF NEAREST END SUPPORT

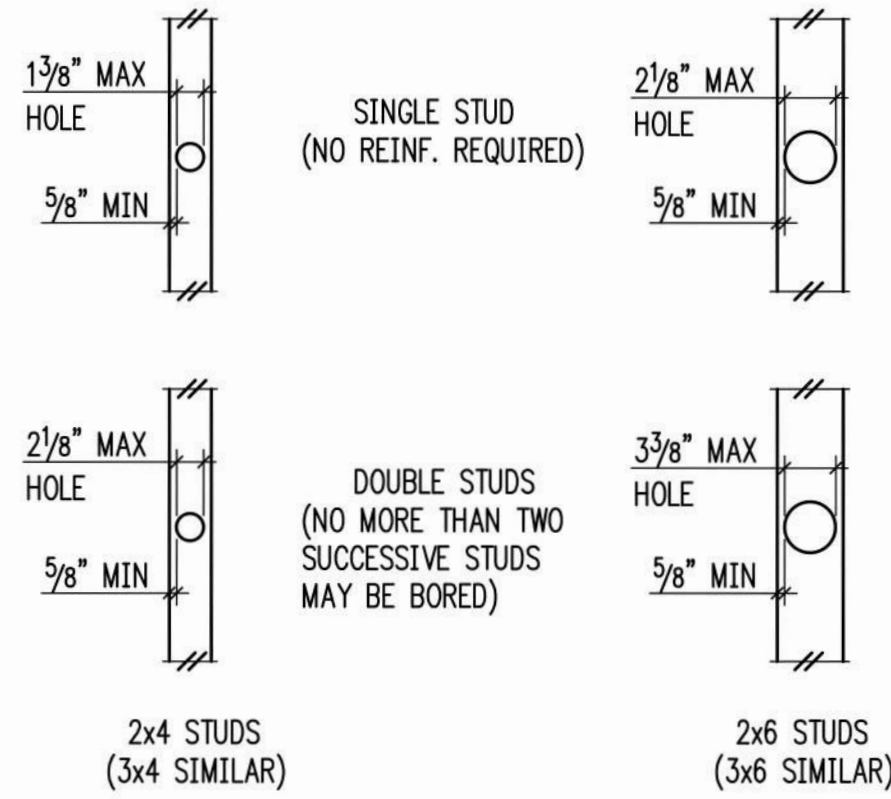
DEPTH	TJI	○ ROUND HOLE SIZE									□ SQUARE OR RECTANGULAR HOLE SIZE								
		2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"	2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"
9 1/2"	110	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"	-	-	-	-	1'-0"	1'-6"	2'-6"	3'-6"	4'-6"	-	-	-	-
	210	1'-0"	1'-6"	2'-6"	3'-0"	5'-6"	-	-	-	-	1'-0"	2'-0"	2'-6"	4'-0"	5'-0"	-	-	-	-
	230	1'-6"	2'-0"	2'-6"	3'-6"	5'-6"	-	-	-	-	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	-	-	-	-
11 7/8"	110	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	5'-6"	-	-	1'-0"	1'-6"	2'-0"	2'-6"	4'-6"	5'-0"	6'-0"	-	-
	210	1'-0"	1'-6"	2'-0"	2'-0"	3'-0"	3'-6"	6'-0"	-	-	1'-0"	1'-6"	2'-6"	3'-0"	5'-0"	5'-6"	6'-6"	-	-
	230	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	6'-6"	-	-	1'-0"	2'-0"	2'-6"	3'-6"	5'-6"	5'-6"	7'-0"	-	-
	360	1'-6"	2'-0"	3'-0"	3'-6"	4'-6"	5'-0"	7'-0"	-	-	1'-6"	2'-6"	3'-6"	4'-6"	6'-6"	6'-6"	7'-6"	-	-
	560	1'-6"	2'-6"	3'-0"	4'-0"	5'-6"	6'-0"	8'-0"	-	-	2'-6"	3'-6"	4'-6"	5'-6"	7'-0"	7'-6"	8'-0"	-	-



S10



NOTE: BORED HOLES SHALL NOT BE LOCATED @ THE SAME SECTION OF STUD AS A NOTCH.

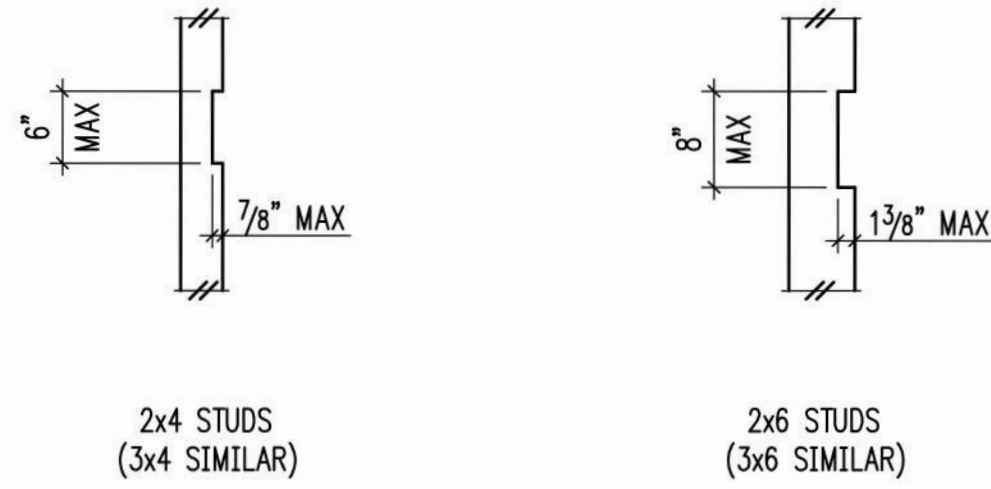


- NOTES:
1. BORED HOLES SHALL NOT BE LOCATED @ THE SAME SECTION OF STUD AS A NOTCH.
 2. WHERE HOLES EXCEED MAX. SIZE ABOVE, PROVIDE CS14 STRAP x 2'-0" CENTERED ON HOLE.

Scale : N.T.S.

Holes Allowed Through Studs

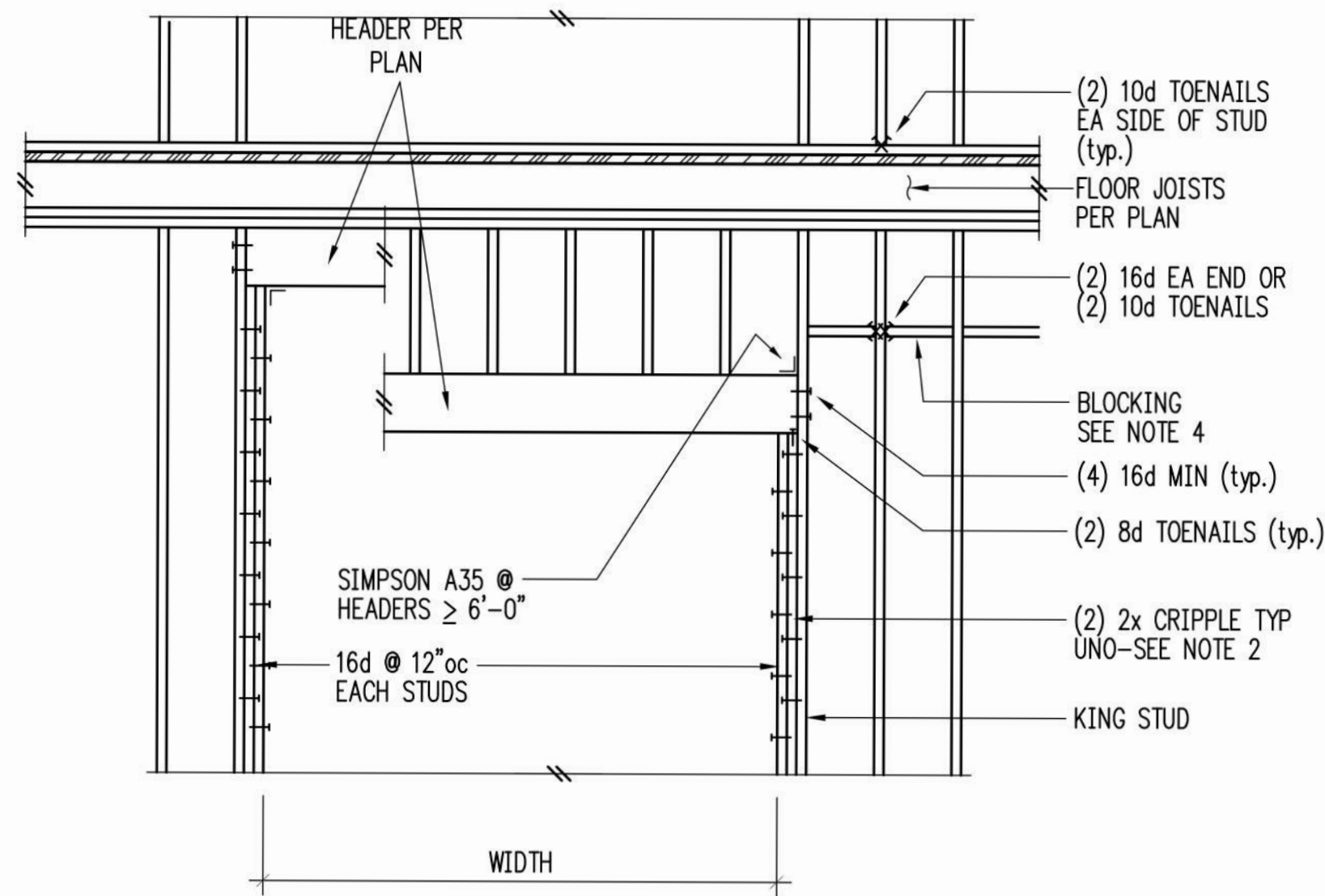
NOTE: NOTCHES SHALL NOT OCCUR IN MORE THAN (2) SUCCESSIVE STUDS



- NOTES:
1. ANY NOTCH OR HOLE THRU STUDS EXCEEDING ABOVE DETAIL PROVIDE CS14 STRAP x 2'-0" CENTERED ON HOLE.

Scale : N.T.S.

Allowable Notches In Studs



NOTES:

1. HEADERS PER PLAN
2. PROVIDE (2) 2x CRIPPLE STUDS MINIMUM TYPICAL, U.O.N.
3. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS
4. 2x SOLID BLOCKING REQUIRED AT CEILING LINE, ALL PANEL EDGES, AND @ 8'-0"oc MAX.

Typical Wall Opening Framing Elevation

TABLE B - INTERMEDIATE OR CANTILEVER SUPPORT
MINIMUM DISTANCE FROM EDGE OF HOLE TO INSIDE FACE OF NEAREST INTERMEDIATE OR CANTILEVER SUPPORT

DEPTH	T/J	SQUARE OR RECTANGULAR HOLE SIZE																		
		2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"										
9 1/2"	110	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"		
	210	2'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"		
	230	2'-6"	3'-0"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	-		
	110	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	
	210	1'-0"	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	
	230	1'-0"	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	
	360	2'-0"	2'-0"	3'-0"	3'-0"	4'-0"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	-	
	560	1'-6"	3'-0"	4'-6"	5'-6"	6'-0"	6'-0"	6'-6"	7'-0"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	11'-0"	12'-0"	-	
	11 7/8"	110	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"
		210	1'-0"	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"
230		2'-6"	3'-0"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	-		
110		1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	
210		1'-0"	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	
230		1'-0"	1'-0"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	
360		2'-0"	2'-0"	3'-0"	3'-0"	4'-0"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	8'-6"	9'-0"	10'-0"	11'-0"	12'-0"	-	
560		1'-6"	3'-0"	4'-6"	5'-6"	6'-0"	6'-0"	6'-6"	7'-0"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	11'-0"	12'-0"	-	

GENERAL NOTES

- HOLES MAY BE LOCATED VERTICALLY ANYWHERE WITHIN THE WEB. LEAVE 1/8" OF WEB (MINIMUM) AT TOP AND BOTTOM OF HOLE.
- KNOCKOUTS ARE LOCATED IN WEB AT APPROXIMATELY 12" ON-CENTER, THEY DO NOT AFFECT HOLE PLACEMENT.
- DO NOT CUT OR NOTCH FLANGE.