

**SONDERGAARD GEOSCIENCE, PLLC**  
13012 65<sup>TH</sup> Avenue SE  
Snohomish, Washington 98296

April 30, 2021

Revised May 5, 2021

J-0165

Premium Homes

P.O. Box 1639

Mercer Island, Washington 98040

Attention: Bogdan Maksimchuk

Subject: Critical Area Report

7216 93<sup>rd</sup> Avenue SE

Mercer Island, Washington

Mr. Maksimchuk:

Sondergaard Geoscience, PLLC (SGP) is pleased to provide this critical area report as requested by you. This report is intended to meet the requirements of the Mercer Island Municipal Code (MIMC) Title 19 Section 19.07.110 for a critical area study. This report is based upon review of the best available science consistent with the standards set forth in Chapter 365-195 of the Washington Administrative Code (WAC) and has been prepared by Jon N. Sondergaard, L.E.G. in the State of Washington who meets the qualifications of a qualified professional as defined in MIMC 19.16.010(2).

The methods used to complete this critical area study included reviewing of available, pertinent documents as listed in the attached references, review of previously completed geotechnical studies at the property, review of the proposed development plan and a visit to the subject property to observe the current, existing conditions. The accuracy of the report is as good as the quality of the documents reviewed and the experience of the preparer to the degree implied by the methods used. In our opinion, the accuracy of the report meets the criteria of competent scientific inquiry using the best available science for the subject property.

**PROPERTY AND PROJECT DESCRIPTION**

The subject property consists of a roughly rectangular-shaped parcel covering approximately 39,145 square feet located on the south end of Mercer Island at the above referenced address (Figure 1). The property is currently occupied by 1,340 square feet house built in 1946 and a

detached garage. Both structures are currently abandoned. The topography of the lot slopes gently to moderately down to the east with a small, 1 to 14 feet deep gulley running roughly west to east along the southeast portion of the parcel. Vegetation on the parcel consists of scattered, large maple and evergreen trees with a sparse to moderate understory of small trees, brush and shrubs. It appears that the area around the garage has been graded with placement of 1 to 2 feet of imported fill. Photographs of the property are presented in Photos 1 through 8 attached to this report.

The proposed project consists of demolishing the existing structures and subdividing the parcel into 3 single-family, residential building lots as shown on Figure 2. The lots would be accessed via a concrete driveway entering off of 93<sup>rd</sup> Avenue SE and running along the north property line. Two of the lots are located on the west side of the parcel and one lot is located at the northeast corner of the parcel. The southeast portion of the parcel and an area along the east property line are set aside for geologic hazard mitigation.

## **GEOLOGY AND HYDROGEOLOGY**

The identification of the geologic units underlying the parcel was determined by review of the published geologic map of the area (K.G. Troost and A.P. Wisher, 2006) and of site-specific geotechnical reports prepared for the proposed project (R.M. Pride, 2020a and 202b). The geologic map of the area (Figure 3) indicates that the west portion of the site is underlain by Vashon glacial till and the east half of the site is underlain by Vashon advance outwash. Vashon glacial till typically consists of dense to very dense, gray, silty, gravelly sand that exhibits high strength and low permeability. Vashon advance outwash typically consists of medium dense to very dense, brown to gray, sand, gravelly sand and silty sand that exhibits a moderate to high phi angle and low to high permeability. The findings on the geologic map were confirmed by subsurface explorations completed at the site and that encountered soils generally consisting of medium dense to dense, brown, silty sand underlying surficial topsoil and fill interpreted to be weather glacial till. Testing completed at the site (R.M. Pride, 2020b) determined infiltration rates ranging from 3.75 to 30 inches per hour for soils at depths ranging from 4 to 8 feet below the existing site grade. Groundwater was not detected to depths of 9 feet in soil explorations completed in February 2020.

## **GEOLOGIC HAZARDS**

The identification of geologic hazard areas is based upon review of the existing geology, hydrogeology, topography and the MIMC Title 19, Chapter 19.07, Section 19.07.160. The geologic hazard areas identified are landslide hazard areas, seismic hazard areas and erosion hazard areas.

### **Landslide Hazard Areas**

The site is characterized by a slight slope down to the east on the west half of the property and on most of the northeast portion of the property. A gully runs along the southeast portion of the lot and along the east property line (Figure 4). Review of the Mercer Island Landslide Hazard map (K.G. Troost and A.P. Wisher (2009), Mercer Island Landslide Hazard Assessment prepared for Geomap Northwest and the City of Mercer Island indicates the east portion of the property contains slopes greater than 15 percent inclination (Figure 5). The topographic survey of the property shows that the slopes along the gully range height from about 8 to 20 feet with slope inclinations ranging from approximately 38 to 53 percent. According to MIMC Title 19, Chapter 19.16, Section 19.16.010(L) the gully slopes meet the definition of a landslide hazard area by having slope inclinations greater than 40 percent over a horizontal distance of 30 feet or greater (Figure 6). Based upon observation of the existing site conditions, including the large trees that remain on the site, in our opinion, there is no obvious evidence of past or present shallow or deep landslide movement at the site.

### **Seismic Hazards and Mitigations**

The subsurface soils at the site consist of medium dense to dense glacial till and advance outwash. Subsurface exploration at the site indicates shallow ground water was not present to depths of at least 7 feet and review of near by well logs indicates no groundwater within the upper 30 feet at the site (Washington State Well Report Viewer (2009). Based upon review of the Mercer Island Seismic Hazard map ((K.G. Troost and A.P. Wisher (2009b) and Chapter 19.16, Section 19.16.010(S) the subject property is not located in a Seismic Hazard Area (Figure 7).

### **Erosion Hazards and Mitigations**

Review of the Mercer Island Erosion Hazard map (K.G. Troost and A.P. Wisher (2009c) indicates that east portion of the subject property is located within an Erosion Hazard Area (Figure 8). MIMC Title 19, Chapter 19.16, Section 19.16.010(E) defines erosion hazard areas as those areas with slopes having inclinations greater than 15 percent including those areas underlain by soils with a severe or very severe rill and inter-rill erosion hazard. Review of the USDA Soil Survey (Web Soil Survey, 2021) of the site indicates the site is underlain by Everett-Alderwood gravelly, sandy loams on 6 to 15 percent slopes (Figure 9). According to the USDA, these soils exhibit a moderate erosion hazard. The steep slope area of the site exceeds inclination of 15 percent and are classified as an erosion hazard area (Figure 10).

## **GEOLOGIC HAZARD MITIGATIONS**

As described above, the south and east portions of the site contain Landslide and Erosion Hazard Areas primarily due to the height and inclination of the slopes along the gully that cuts across that portion of the site. The recommended mitigations for these hazards are as follows:

### *Landslide Hazard*

1. Restrict development of the site within the designated landslide hazard area except those portions that meet the requirements of MIMC Title 19, Chapter 19.07, Section 19.07.160(B)(2). The current plan for Lots 2 and 3 shows that the southeast corner of the new home for Lot 2 extends into the buffer approximately 20 feet and the northeast corner of the new home for Lot 3 extends into the buffer about 10 feet. The proposed new home for Lot 1 does not intrude into the buffer. As per the geotechnical recommendations provided by Pride (RM Pride, 2020), foundations that protrude into the buffer should be extended to a minimum depth of 3 feet to reduce potential loads on the slope. An analysis of site specific geologic and topographic conditions indicate that the subject property has not experienced landsliding in the past and the development has been designed so that the risk to the site and adjacent property is mitigated such that the site is determined to be safe.
2. Provide a top of steep slope set back consistent with MIMC Title 19, Chapter 19.07, Section 19.07.160(C)(2)(a) that is equal to the height of the slope (Figure 11). In this case the set-backs would range from approximately 8 to 20 feet as the slope height changes across the site.

### *Erosion Hazard*

- 1) The winter performance of a site is dependent on a well-conceived plan for control of site erosion and storm water runoff. It is easier to keep the soil on the ground than to remove it from storm water. The owner and the design team should include adequate ground-cover measures, access roads, and staging areas in the project bid to give the selected contractor a workable site. The selected contractor needs to be prepared to implement and maintain the required measures to reduce the amount of exposed ground. A site maintenance plan should be in place in the event storm water turbidity measurements are greater than the City of Mercer Island standards.
- 2) All TESC measures for a given area to be graded or otherwise worked should be installed prior to any activity within that area. The recommended sequence of construction within a given area would be to install sediment traps and/or ponds and establish perimeter flow control prior to starting mass grading.

- 3) During the wetter months of the year, or when large storm events are predicted during the summer months, each work area should be stabilized so that if showers occur, the work area can receive the rainfall without excessive erosion or sediment transport. The required measures for an area to be “buttoned-up” will depend on the time of year and the duration the area will be left un-worked. During the winter months, areas that are to be left un-worked for more than 2 days should be mulched or covered with plastic. During the summer months, stabilization will usually consist of seal-rolling the subgrade. Such measures will aid in the contractor’s ability to get back into a work area after a storm event. The stabilization process also includes establishing temporary storm water conveyance channels through work areas to route runoff to the approved treatment facilities.
- 4) All disturbed areas should be revegetated as soon as possible. If it is outside of the growing season, the disturbed areas should be covered with mulch, as recommended in the erosion control plan. Straw mulch provides the most cost-effective cover measure and can be made wind-resistant with the application of a tackifier after it is placed.
- 5) Surface runoff and discharge should be controlled during and following development. Uncontrolled discharge may promote erosion and sediment transport. Under no circumstances should concentrated discharges be allowed to flow over significant slopes.
- 6) Soils that are to be reused around the site should be stored in such a manner as to reduce erosion from the stockpile. Protective measures may include, but are not limited to, covering with plastic sheeting, the use of low stockpiles in flat areas, or the use of straw bales/silt fences around pile perimeters. During the period between October 1 and March 31, these measures are required.
- 7) On-site erosion control inspections and turbidity monitoring should be performed in accordance with City of Mercer Island requirements. TESC monitoring should be part of the weekly construction team meetings. Temporary and permanent erosion control and drainage measures should be adjusted and maintained, as necessary, at the time of construction.

The recommended geologic hazard mitigations should be sequenced as follows:

1. Survey and stake the top of the steep slope and the steep slope buffer prior to clearing and grading.
2. Clear and grade the developable portion of the site. Limit buffer disturbance to those areas on Lots 2 and 3 where proposed building extends into the buffer.

3. Establish temporary erosion control measures per the approved plan across the site as areas of soil are exposed. Temporary erosion control measures should be maintained and modified as necessary to remain effective.
4. Perform foundations excavations within the affected buffer areas only after temporary erosion control measures have been established.

It is our opinion that with the proper implementation of the TESC plans and by field-adjusting appropriate mitigation elements (best management practices) during construction, as recommended by the erosion control inspector, the potential adverse impacts from erosion hazards on the project can be mitigated.

## **CONCLUSIONS**

The subject property is proposed for development with three, single-family residential building lots. The site contains Geologic Hazards consisting of Landslide and Erosion Hazard Areas associated with the topographic gully that runs along the southeast corner of the lot and along the east property boundary. The Landslide and Erosion Hazard Areas classifications are the result of the inclinations of the slopes associated with the gully and not due to historic landsliding or soil and ground water conditions on the property. In our opinion, provided the mitigation recommendations provided in this report are implemented and good construction practices are utilized, the risk to the property and adjacent properties from the development is minimal.

## **CLOSURE**

We appreciate the opportunity to work with you on this project. Should you have any questions regarding this report or other geotechnical aspects of the site, please call us at your earliest convenience.

Sincerely,

**SONDERGAARD GEOSCIENCE, PLLC.**

**Snohomish, Washington**



Jon N. Sondergaard, L.E.G.

Principal

### Attachments:

Figure 1: Vicinity Map

Figure 2: Proposed Development Plan

Figure 3: Site Geology

Figure 4: USGS Topographic Map

Figure 5: Mercer Island Landslide Hazard Map

Figure 6: Site Topographic Survey with Landslide Hazard Area

Figure 7: Mercer Island Seismic Hazard Map

Figure 8: Mercer Island Erosion Hazard Map

Figure 9: USDA Soil Survey Map

Figure 10: Site Topographic Survey with Erosion Hazard Area

Figure 11: Recommended Top of Steep Slope Setback

Site Photographs

## REFERENCES

- K.G. Troost and A.P. Wisler (2006), Geologic Map of Mercer Island prepared for Geomap Northwest and the City of Mercer Island.
- K.G. Troost and A.P. Wisler (2009a), Mercer Island Landslide Hazard Assessment prepared for Geomap Northwest and the City of Mercer Island.
- K.G. Troost and A.P. Wisler (2009b), Mercer Island Seismic Hazard Assessment prepared for Geomap Northwest and the City of Mercer Island.
- K.G. Troost and A.P. Wisler (2009c), Mercer Island Erosion Hazard Assessment prepared for Geomap Northwest and the City of Mercer Island.
- R.M. Pride, (2020a), Geotechnical Recommendations, Proposed Residence, 7216 93<sup>rd</sup> Avenue SE, Mercer Island, Washington prepared for Barcelo Homes.
- R.M. Pride (2020b), Infiltration Testing, Proposed Residence, 7216 93<sup>rd</sup> Avenue SE, Mercer Island, Washington prepared for Barcelo Homes.
- R.M. Pride (2020b), Geotechnical Recommendations, Proposed Residences, 7216 93<sup>rd</sup> Avenue SE, Mercer Island, Washington prepared for Barcelo Homes.
- Washington State Well Report Viewer (2021), Washington State Department of Ecology.
- Web Soil Survey (2021), United States Department of Agriculture, Natural Resources and Conservation Service.



# King County iMap

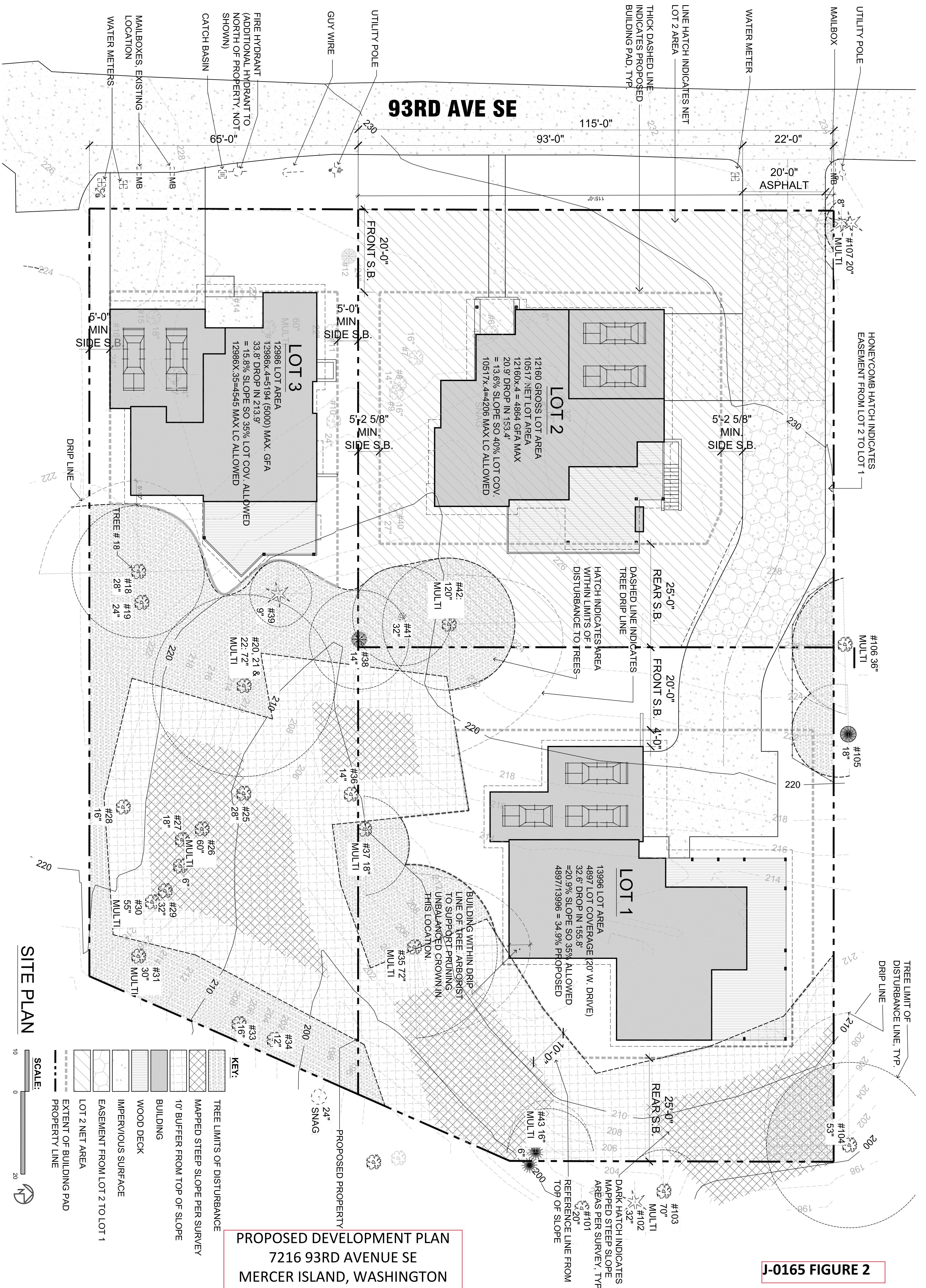


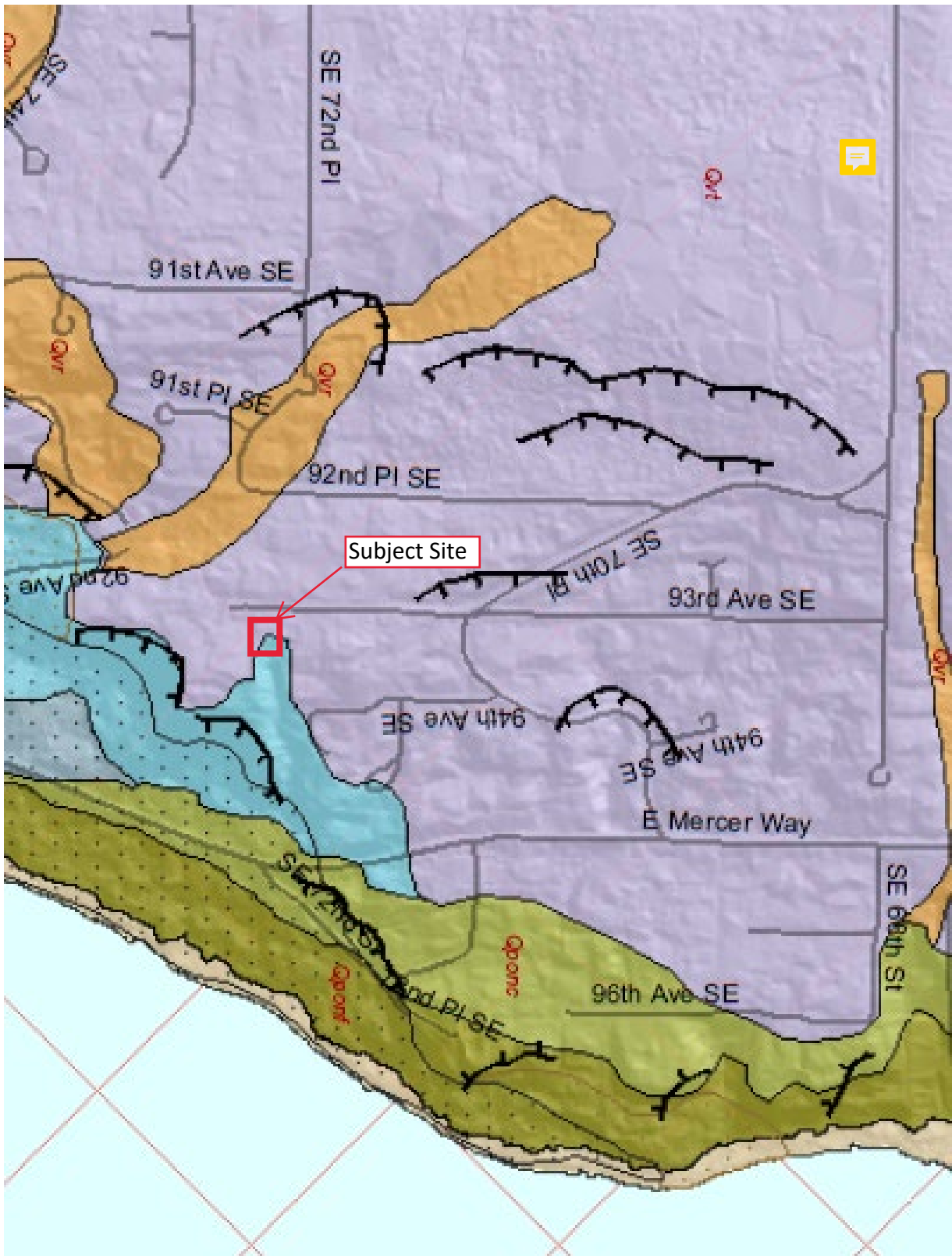
**SITE**

The information included on this map has been compiled by King County staff from a variety of sources and is subject to change without notice. King County makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. King County shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any sale of this map or information on this map is prohibited except by written permission of King County.

VICINITY MAP  
7216 93RD AVENUE SE  
MERCER ISLAND, WASHINGTON

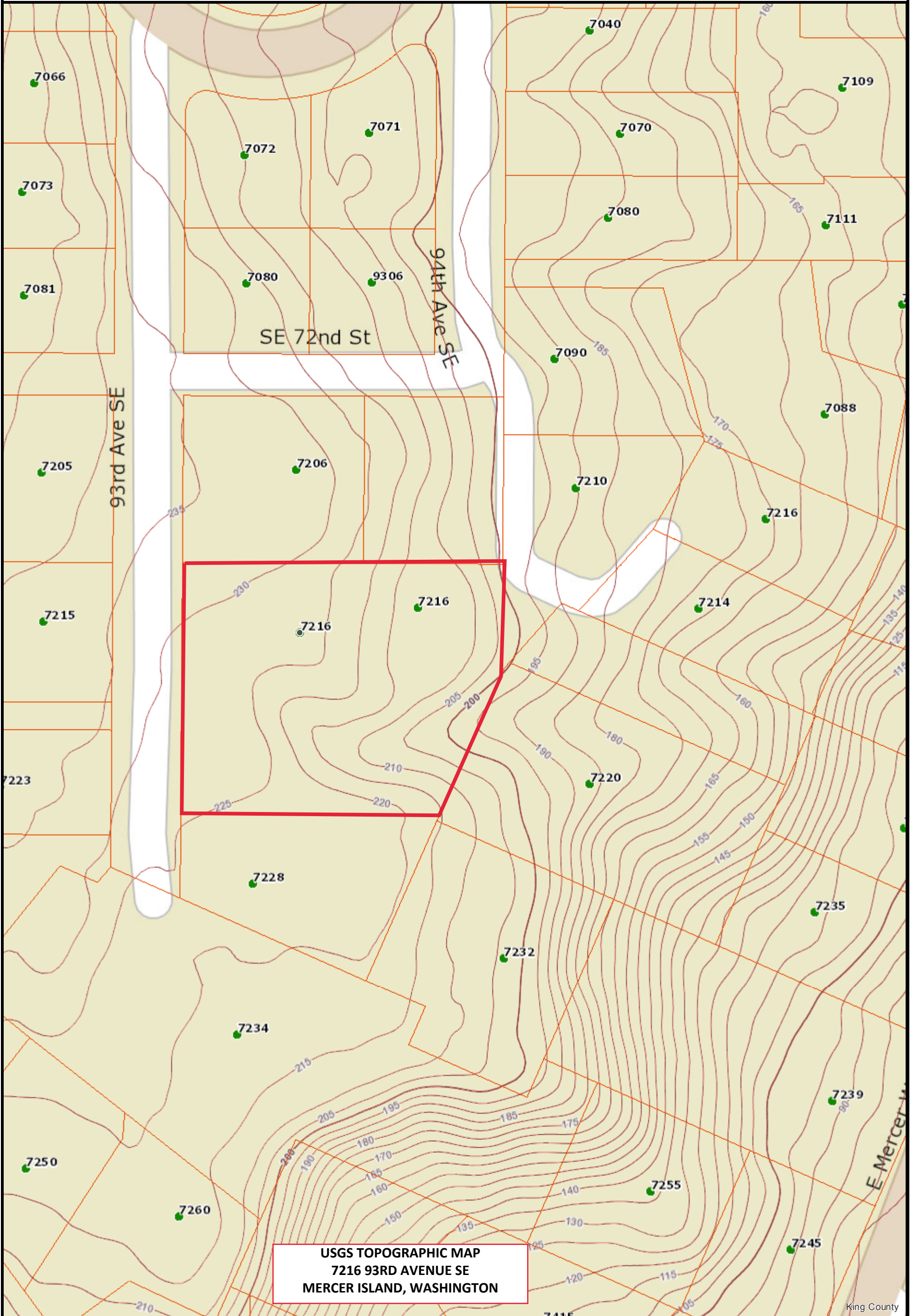
   
J-0165 FIGURE 1 King County





**SITE GEOLOGY**  
**7216 93RD AVENUE SE**  
**MERCER ISLAND, WASHINGTON**

# King County iMap



**USGS TOPOGRAPHIC MAP  
7216 93RD AVENUE SE  
MERCER ISLAND, WASHINGTON**

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Date: 5/4/2021

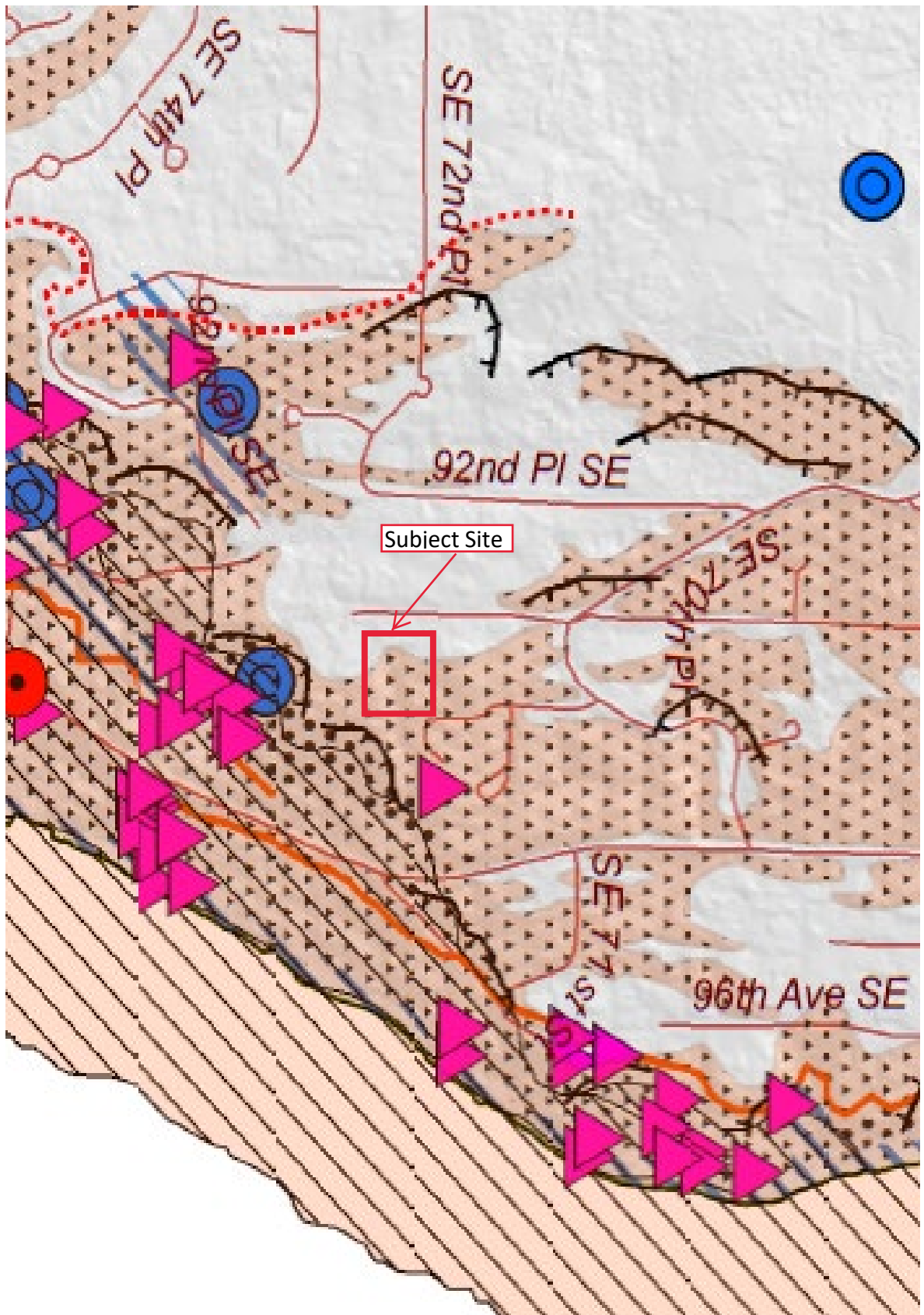
Notes:

**J-0165 FIGURE 4**



**King County**

King County



**MERCER ISLAND LANDSLIDE HAZARD MAP  
7216 93RD AVENUE SE  
MERCER ISLAND, WASHINGTON**

**J-0165 FIGURE 5**

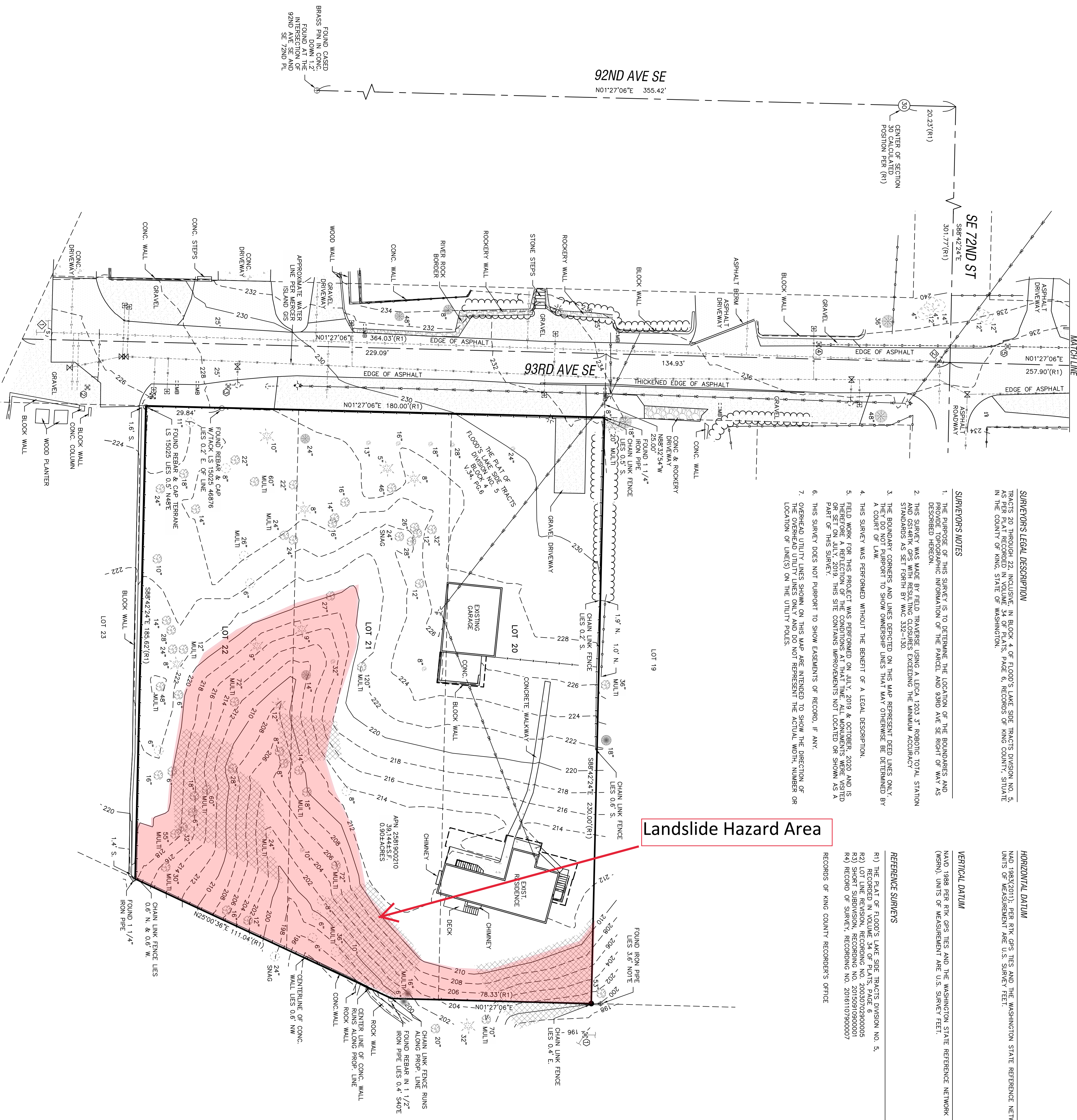
# TOPOGRAPHIC SURVEY

## SEWER STRUCTURE TABLE

- ◇ SEWER MANHOLE  
RIM EL.=225.11'  
(N) 8" IRON I.E.=212.81'  
(S/W) I.E.=212.91'
- ◇ SEWER MANHOLE  
RIM EL.=228.50'  
(E) 8" IRON I.E.=211.60'  
(S) 8" IRON I.E.=211.70'  
(W) 8" IRON I.E.=211.70'

## STORM STRUCTURE TABLE

- ① CATCH BASIN  
RIM EL.=225.11'  
(N) 12" PVC I.E.=191.92'  
(S) 8" DI I.E.=191.92'
- ② DREWELL  
RIM EL.=225.14'  
I.E. TOP GRAVEL=222.84'
- ③ DREWELL  
RIM EL.=228.23'  
I.E. TOP GRAVEL=228.93'
- ④ CATCH BASIN  
RIM EL.=228.27'  
(N) 8" PVC I.E.=234.97'
- ⑤ CATCH BASIN  
RIM EL.=228.27'  
(N) 8" PVC I.E.=234.97'
- ⑥ CATCH BASIN  
RIM EL.=235.99'  
(S) 8" PVC I.E.=234.05'  
(N) 8" PVC I.E.=233.98'
- ⑦ CATCH BASIN  
RIM EL.=233.69'  
(NW) 8" PVC I.E.=232.04'
- ⑧ CATCH BASIN  
RIM EL.=233.92'  
(S) 8" PVC I.E.=231.82'  
(S) 8" PVC I.E.=231.92'  
(N) 8" PVC I.E.=231.72'
- ⑨ CATCH BASIN  
RIM EL.=230.13'  
(S) 8" PVC I.E.=228.83'  
(N) 8" PVC I.E.=228.42'
- ⑩ CATCH BASIN  
RIM EL.=227.87'  
(S) 8" PVC I.E.=226.97'
- ⑪ CATCH BASIN  
RIM EL.=225.46'  
(S) 8" PVC I.E.=223.91'



**SURVEYOR'S LEGAL DESCRIPTION**  
 TRACTS 20 THROUGH 22, INCLUSIVE, IN BLOCK 4 OF FLOOD'S LAKE SIDE TRACTS DIVISION NO. 5, AS PER PLAT RECORDED IN VOLUME 34 OF PLATS, PAGE 6, RECORDS OF KING COUNTY, SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

### SURVEYOR'S NOTES

1. THE PURPOSE OF THIS SURVEY IS TO DETERMINE THE LOCATION OF THE BOUNDARIES AND PROVIDE TOPOGRAPHIC INFORMATION OF THE PARCEL AND 93RD AVE SE RIGHT OF WAY AS DESCRIBED HEREON.
2. THIS SURVEY WAS MADE BY FIELD TRAVERSE USING A LEICA 1203 3" ROBOTIC TOTAL STATION AND GS-HARK GPS WITH RESULTING CLOSURES EXCEEDING THE MINIMUM ACCURACY STANDARDS AS SET FORTH BY WAC 352-130.
3. THE BOUNDARY CORNERS AND LINES DEPICTED ON THIS MAP REPRESENT DEED LINES ONLY. THEY DO NOT PURPORT TO SHOW OWNERSHIP LINES THAT MAY OTHERWISE BE DETERMINED BY A COURT OF LAW.
4. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A LEGAL DESCRIPTION.
5. FIELD WORK FOR THIS PROJECT WAS PERFORMED ON JULY, 2019 & OCTOBER, 2020 AND IS PRESENT ON JULY, 2019. THIS SITE CONTAINS IMPROVEMENTS NOT LOCATED OR SHOWN AS A PART OF THIS SURVEY.
6. THIS SURVEY DOES NOT PURPORT TO SHOW EASEMENTS OF RECORD, IF ANY.
7. OVERHEAD UTILITY LINES SHOWN ON THIS MAP ARE INTENDED TO SHOW THE DIRECTION OR LOCATION OF LINE(S) ON THE UTILITY POLES.

### HORIZONTAL DATUM

NAD 1983(2011), PER RTR GPS TIES AND THE WASHINGTON STATE REFERENCE NETWORK (WSRN). UNITS OF MEASUREMENT ARE U.S. SURVEY FEET.

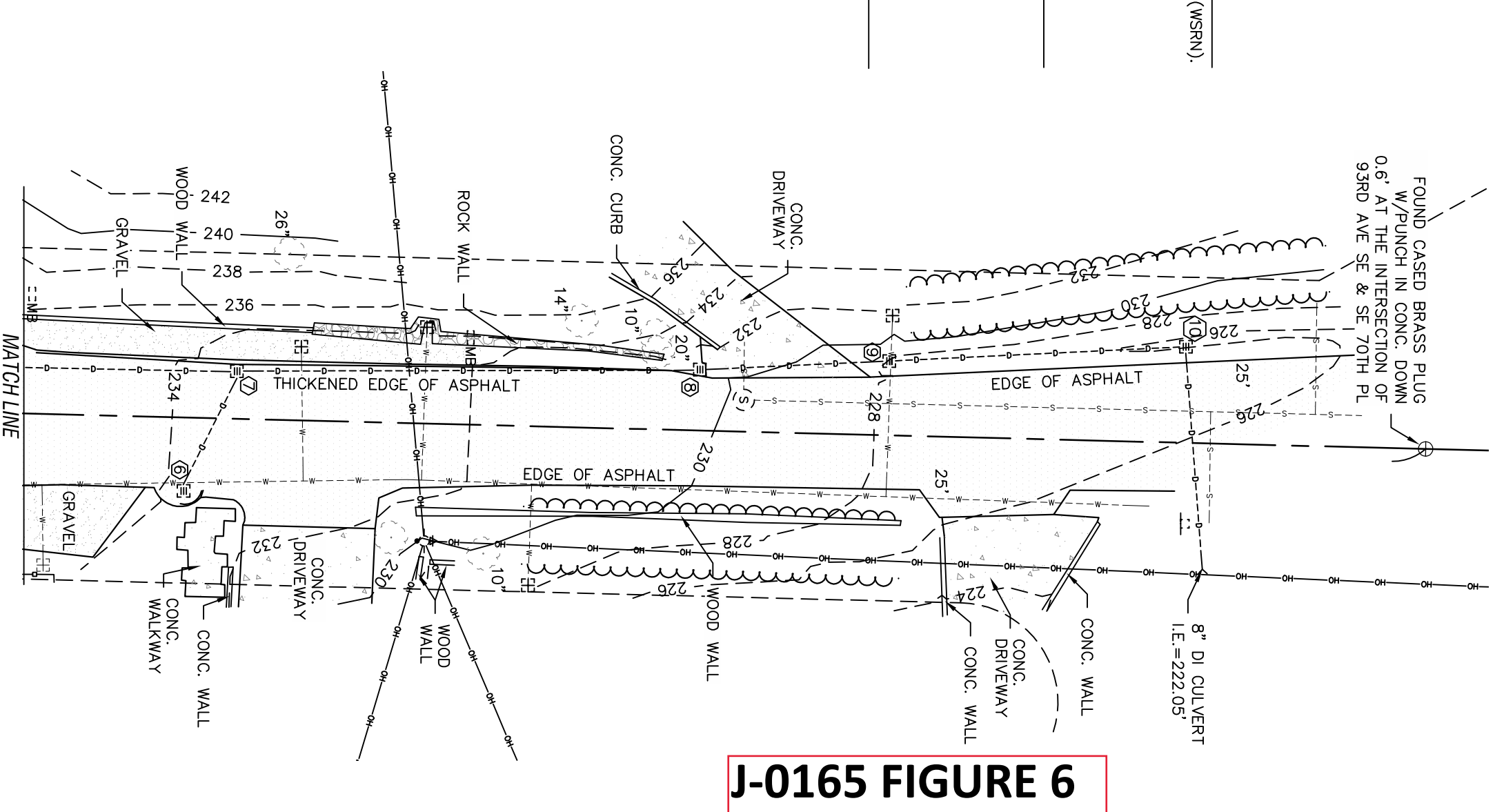
### VERTICAL DATUM

NAVD 1988 PER RTR GPS TIES AND THE WASHINGTON STATE REFERENCE NETWORK (WSRN). UNITS OF MEASUREMENT ARE U.S. SURVEY FEET.

### REFERENCE SURVEYS

- R1) THE PLAT OF FLOOD'S LAKE SIDE TRACTS DIVISION NO. 5, RECORDED IN VOLUME 34 OF PLATS, PAGE 6
  - R2) LOT LINE REVISION, RECORDING NO. 20030702900005
  - R3) SHORT SUBDIVISION, RECORDING NO. 20750910500001
  - R4) REPORT OF SURVEY, RECORDING NO. 2018107500007
- RECORDS OF KING COUNTY RECORDER'S OFFICE

**Landslide Hazard Area**



**J-0165 FIGURE 6**

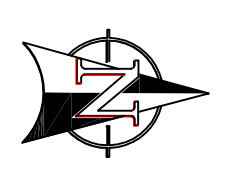
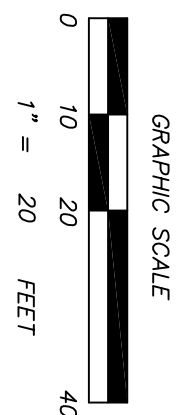
**SITE SPECIFIC LANDSLIDE HAZARD AREA**  
 7216 93RD AVENUE SE  
 MERCER ISLAND, WASHIGTON

### LEGEND

- SET REBAR & CAP E.W. I.S. #44651
- FOUND REBAR & CAP (AS SHOWN)
- ⊕ FOUND IRON PIPE (AS SHOWN)
- ⊕ FOUND CASED MONUMENT (AS SHOWN)
- GUY ANCHOR
- POWER POLE
- POWER POLE W/TRANSFORMER & DROP
- YARD LIGHT
- STORM DRAIN CATCH BASIN
- SEWER MANHOLE
- FIRE HYDRANT
- WATER METER
- IRRIGATION CONTROL BOX
- WATER VALVE
- HOSE BIB
- TREE STUMP
- CEDAR TREE
- DECIDUOUS TREE
- EVERGREEN TREE
- (R) DISTANCE PER REFERENCE
- LS LICENSED LAND SURVEYOR
- 40% OR > SLOPE WITH VERTICAL READER

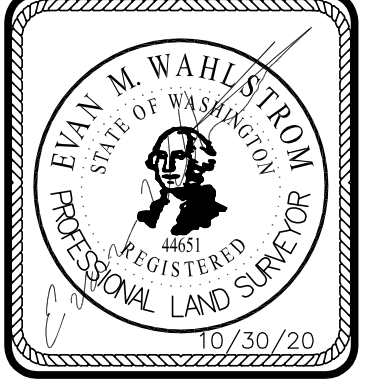
### LINE TYPE LEGEND

- CHAIN LINK FENCE
- WOOD FENCE
- GAS SHUNT LINE
- OVERHEAD UTILITY
- SEWER OPEN
- EDGE OF HEAD
- APPROXIMATE



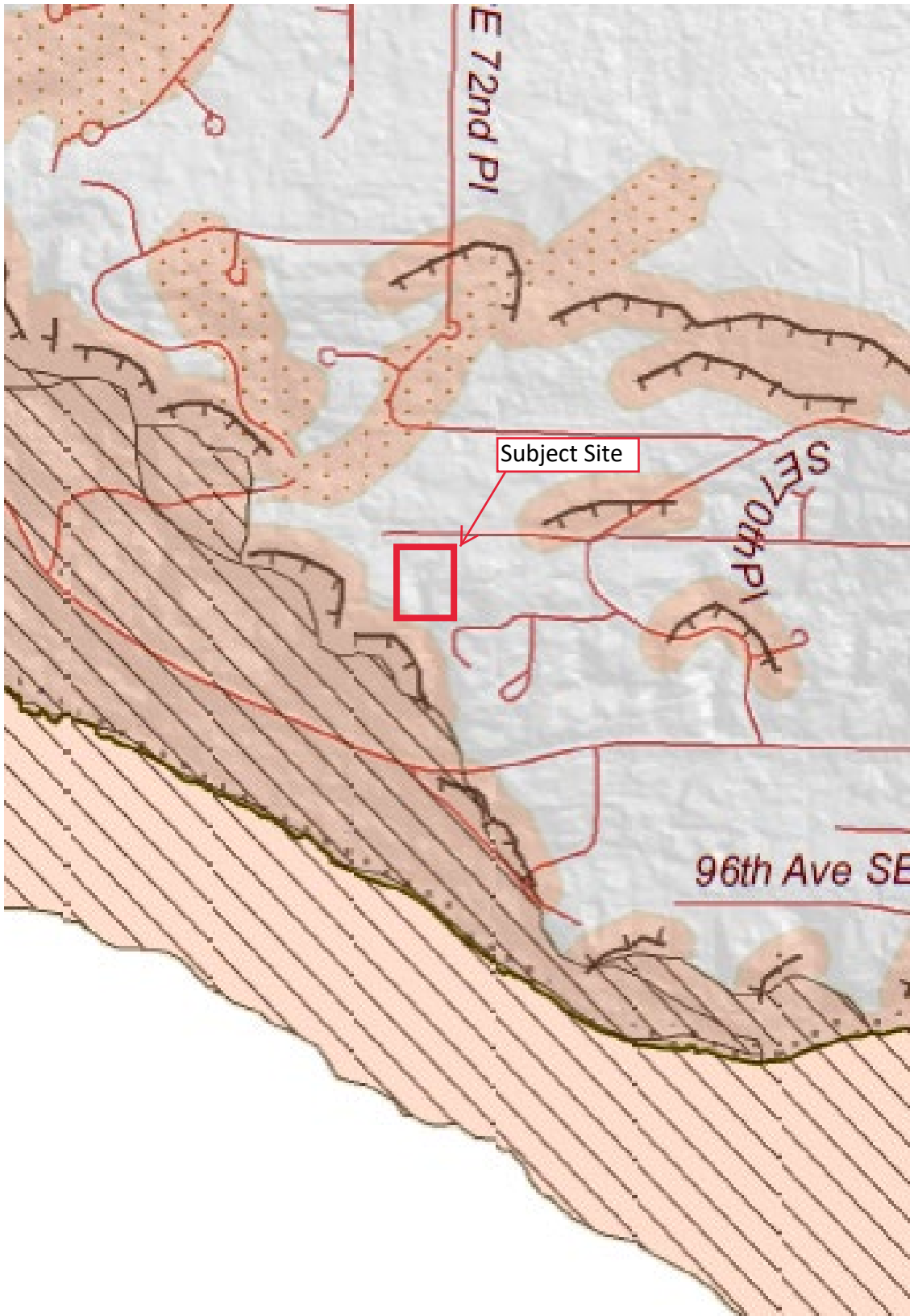
**informed land survey**  
 PO Box 5137  
 Tacoma, WA 98415-0137  
 Phone: 253-627-2070  
 admin@informedlandsurvey.com  
 www.informedlandsurvey.com  
 LAND SURVEYING • MAPPING • CONSTRUCTION LAYOUT

7216 93RD AVE SE  
 MERCER ISLAND, WA 98040  
 TAX PARCEL NO. 2581900210

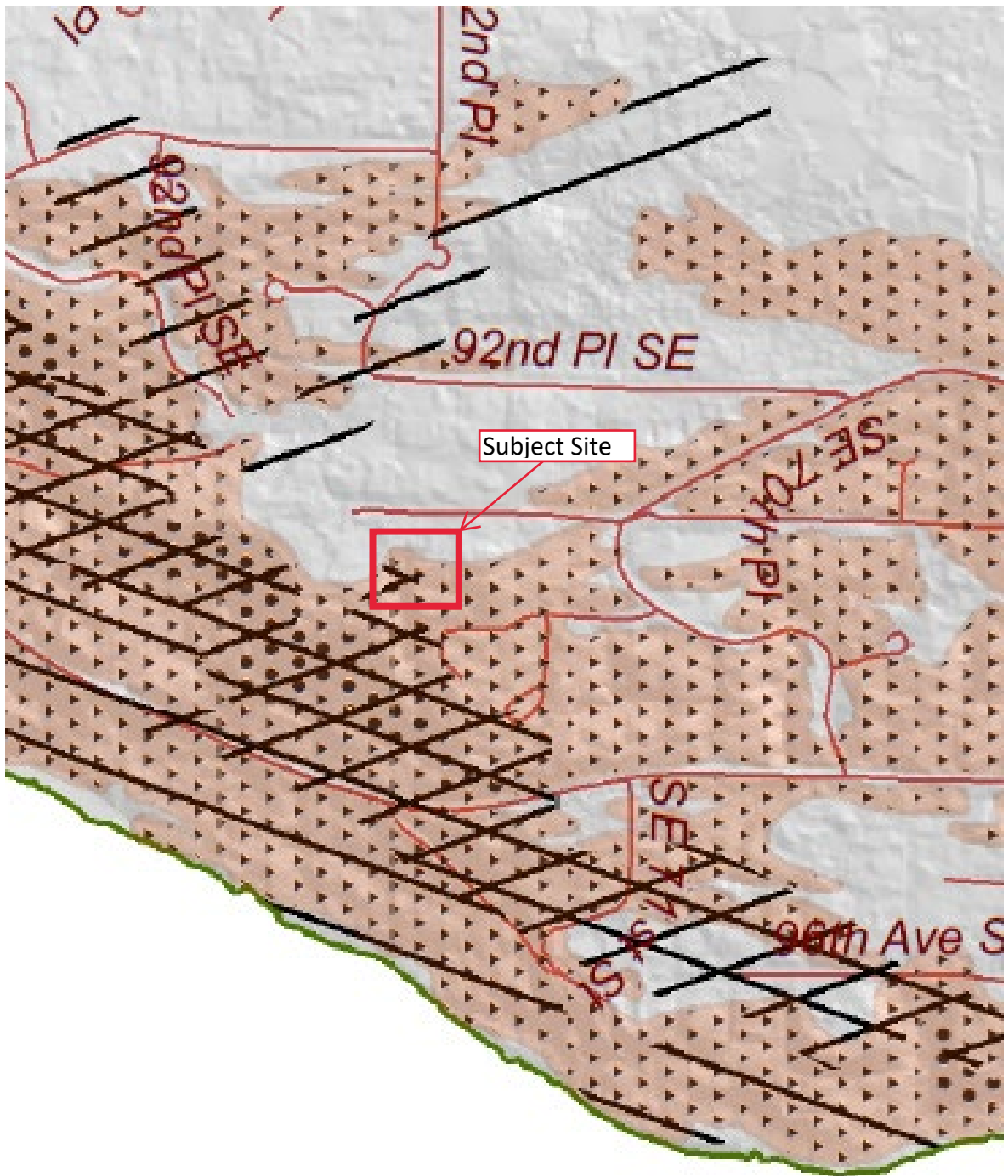


**TOPOGRAPHIC SURVEY**  
 DRAFTED: JR  
 DATE: 10/30/2020  
 SCALE: 1"=20'  
 CHECKED: EMW  
 JOB NO.: BARCE-190624  
 FIELD CREW: AG, AW, TM

LOCATED IN NW 1/4 OF THE SE 1/4 OF SECTION 30, TOWNSHIP 24N., RANGE 5E, W.M.  
 FOR: **BARCELO HOMES**  
 MERCER ISLAND, KING COUNTY, WA  
 SHT. 1 OF 1

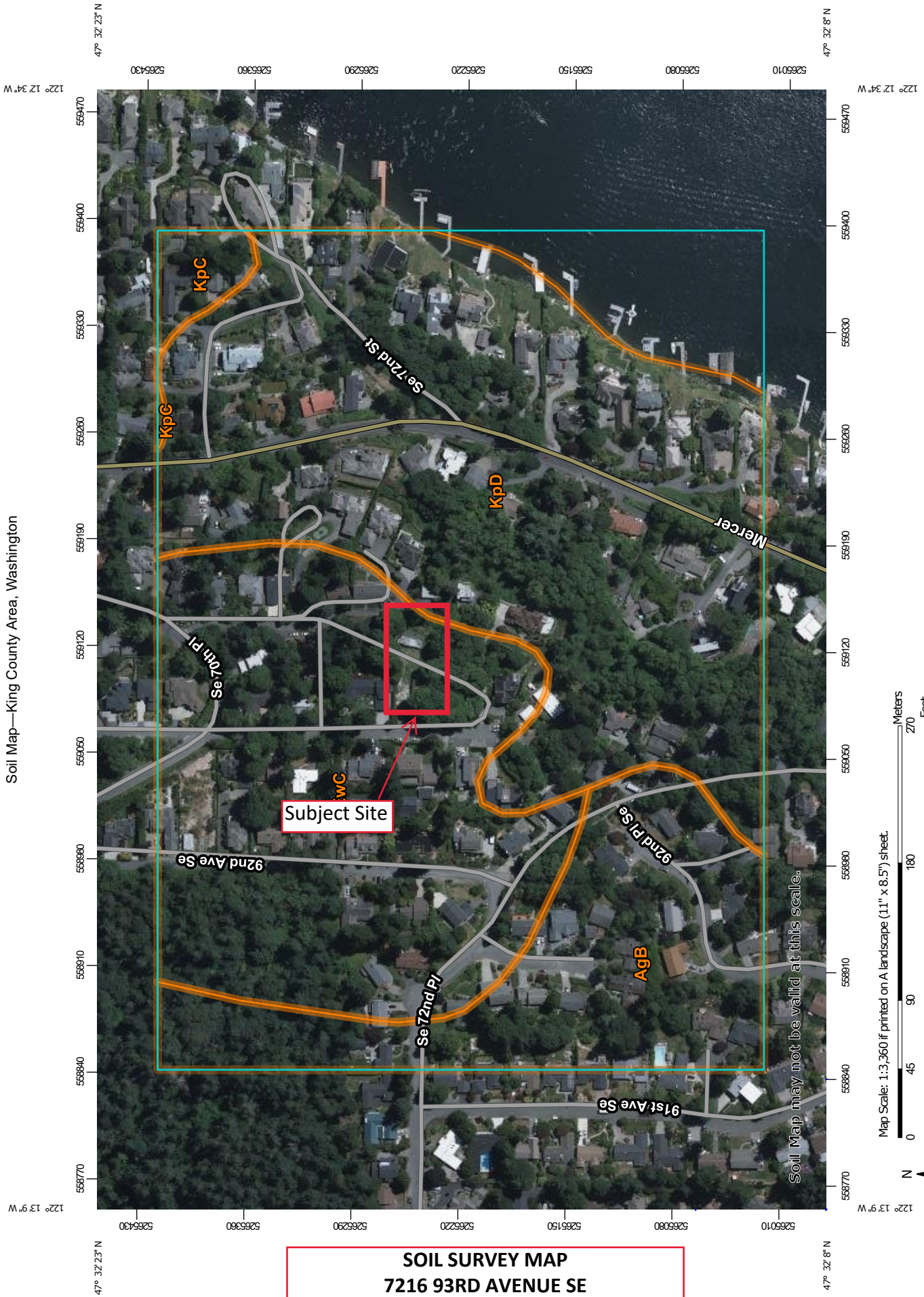


**MERCER ISLAND SEISMIC HAZARD AREA MAP**  
**7216 93RD AVENUE SE**  
**MERCER ISLAND, WASHINGTON**



MERCER ISLAND EROSION HAZARD AREA MAP  
7216 93RD AVENUE SE  
MERCER ISLAND, WASHINGTON





**SOIL SURVEY MAP  
7216 93RD AVENUE SE  
MERCER ISLAND, WASHINGTON**

**J-0165 FIGURE 9**

# TOPOGRAPHIC SURVEY

**SURVEYOR'S LEGAL DESCRIPTION**  
 TRACTS 20 THROUGH 22, INCLUSIVE, IN BLOCK 4 OF FLOOD'S LAKE SIDE TRACTS DIVISION NO. 5, AS PER PLAT RECORDED IN VOLUME 34 OF PLATS, PAGE 6, RECORDS OF KING COUNTY, SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

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**HORIZONTAL DATUM**

NAD 1983(2011), PER RTR GPS TIES AND THE WASHINGTON STATE REFERENCE NETWORK (WSRN). UNITS OF MEASUREMENT ARE U.S. SURVEY FEET.

**VERTICAL DATUM**

NAVD 1988 PER RTR GPS TIES AND THE WASHINGTON STATE REFERENCE NETWORK (WSRN). UNITS OF MEASUREMENT ARE U.S. SURVEY FEET.

**REFERENCE SURVEYS**

- R1) THE PLAT OF FLOOD'S LAKE SIDE TRACTS DIVISION NO. 5, RECORDED IN VOLUME 34 OF PLATS, PAGE 6
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- R3) SHORT SUBDIVISION, RECORDING NO. 2070910500001
- R4) RECORD OF SURVEY, RECORDING NO. 2018107500007

RECORDS OF KING COUNTY RECORDER'S OFFICE

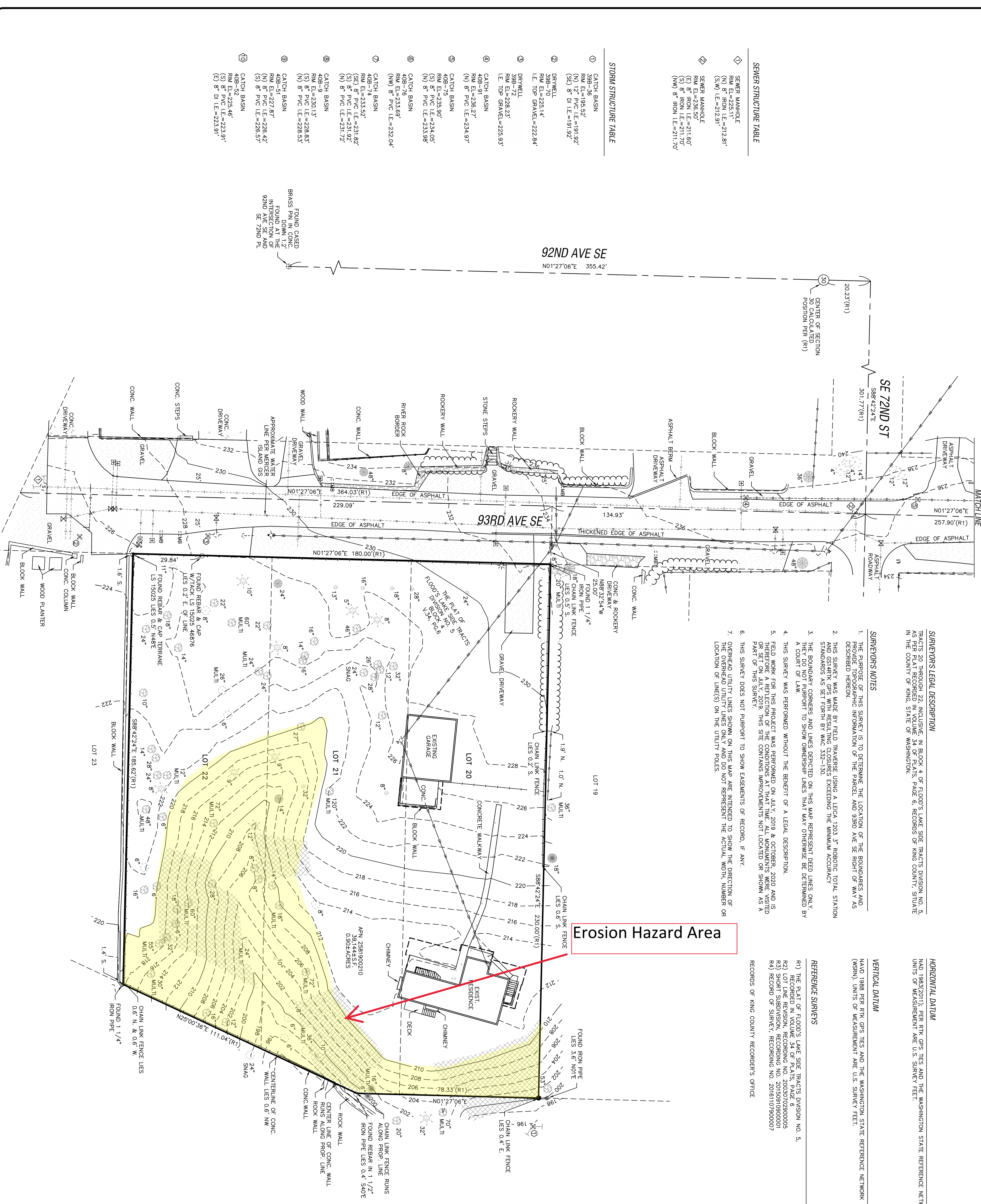
**SEWER STRUCTURE TABLE**

◇	SEWER MANHOLE	SEWER EL.=225.11'
◇	(N) 8" IRON I.E.=212.81'	(S) W/ I.E.=212.91'
◇	SEWER MANHOLE	SEWER EL.=228.50'
◇	(E) 8" IRON I.E.=211.60'	(S) 8" IRON I.E.=211.70'
◇	(NW) 8" IRON I.E.=211.70'	

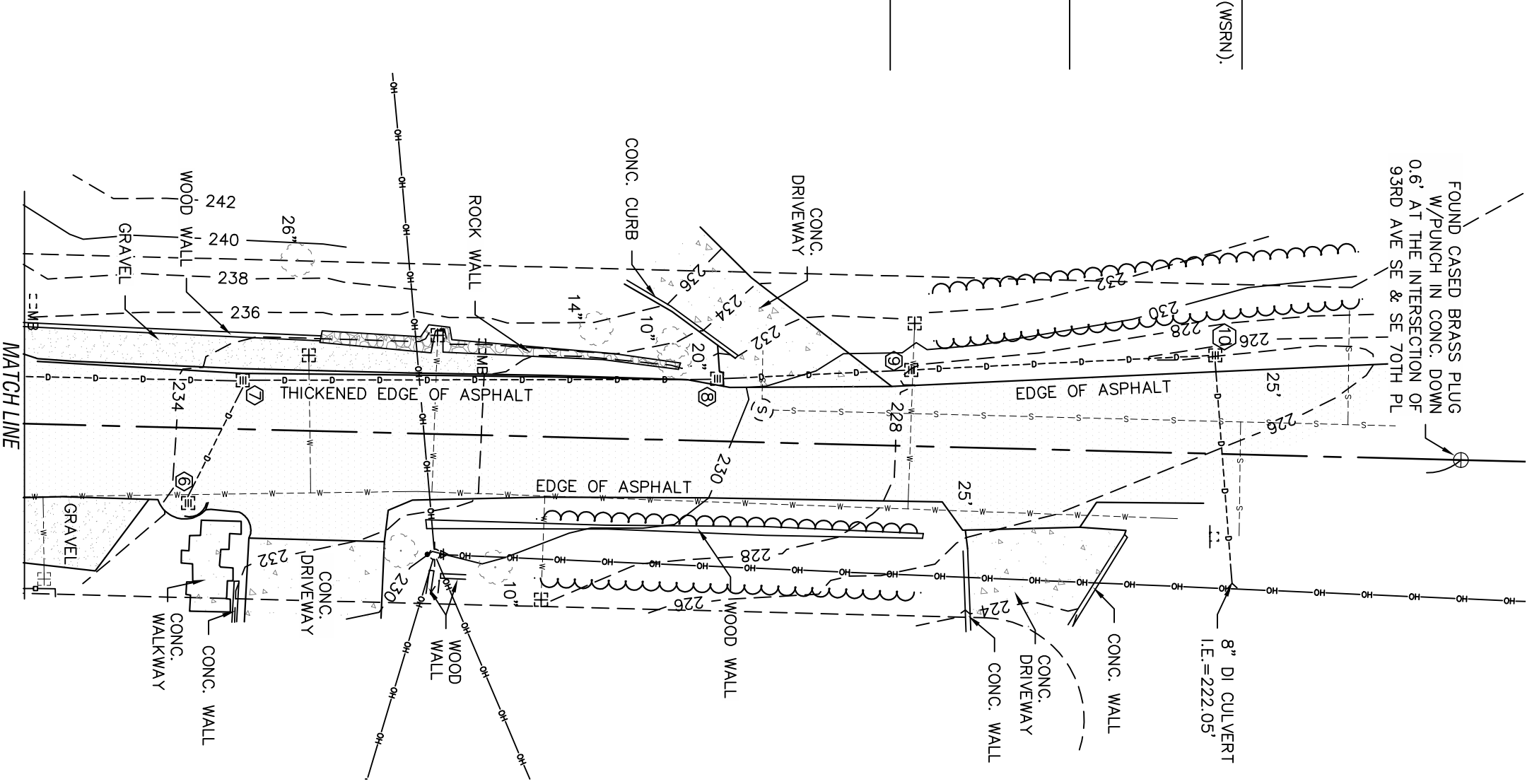
**STORM STRUCTURE TABLE**

①	CATCH BASIN	RAIN EL.=225.11'
①	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
②	DRWELL	RAIN EL.=225.14'
②	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
③	DRWELL	RAIN EL.=228.23'
③	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
④	CATCH BASIN	RAIN EL.=228.27'
④	(N) 8" PVC I.E.=231.92'	(NW) 8" PVC I.E.=232.04'
⑤	CATCH BASIN	RAIN EL.=228.27'
⑤	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
⑥	CATCH BASIN	RAIN EL.=228.27'
⑥	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
⑦	CATCH BASIN	RAIN EL.=228.27'
⑦	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
⑧	CATCH BASIN	RAIN EL.=228.27'
⑧	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
⑨	CATCH BASIN	RAIN EL.=228.27'
⑨	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'
⑩	CATCH BASIN	RAIN EL.=228.27'
⑩	(S) 8" PVC I.E.=231.92'	(SE) 8" DI I.E.=191.92'

FOUND CASED BRASS PIN IN CONC. FOUND AT THE INTERSECTION OF 93RD AVE SE AND SE 72ND ST.



Erosion Hazard Area



**LEGEND**

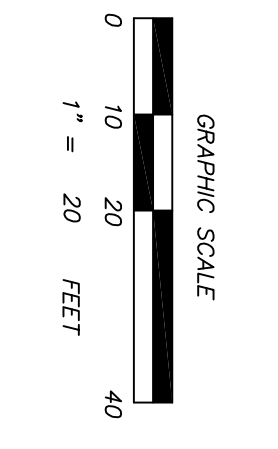
- SET REBAR & CAP E.W. LS #44651
- FOUND REBAR & CAP (AS SHOWN)
- ⊕ FOUND IRON PIPE (AS SHOWN)
- ⊖ FOUND CASED MONUMENT (AS SHOWN)
- GUY ANCHOR
- POWER POLE
- POWER POLE W/TRANSFORMER & DROP
- YARD LIGHT
- STORM DRAIN CATCH BASIN
- SEWER MANHOLE
- FIRE HYDRANT
- WATER METER
- IRRIGATION CONTROL BOX
- WATER VALVE
- HOSE BIB
- TREE STUMP
- TREE
- DECIDUOUS TREE
- EVERGREEN TREE
- (R) DISTANCE PER REFERENCE
- LS LICENSED LAND SURVEYOR
- 40% OR > SLOPE WITH VERTICAL REBAR

**LINE TYPE LEGEND**

- CHAIN LINK FENCE
- WOOD FENCE
- GAS SHUNT LINE
- OVERHEAD UTILITY
- SEWER OPEN LINE
- EDGE OF HERDES
- SEWER LINE
- APPROXIMATE WAIT

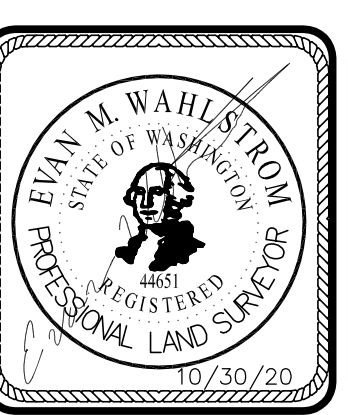
**SITE SPECIFIC EROSION HAZARD AREA MAP**  
 7216 93RD AVENUE SE  
 MERCER ISLAND, WASHINGTON

J-0165 FIGURE 10



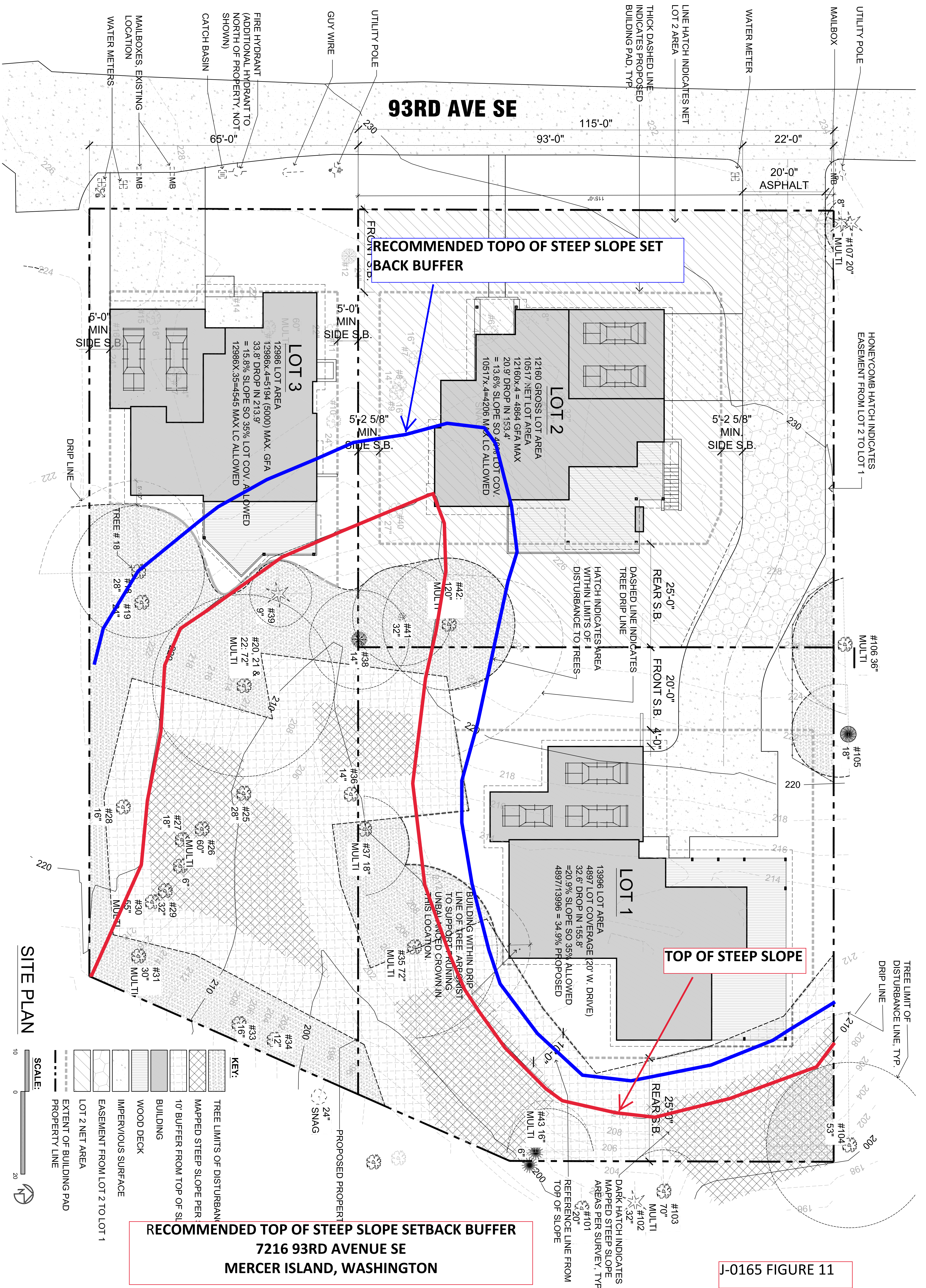
**informed land survey**  
 PO Box 5137  
 Tacoma, WA 98415-0137  
 Phone: 253-627-2070  
 admin@informedlandsurvey.com  
 www.informedlandsurvey.com  
 LAND SURVEYING • MAPPING • CONSTRUCTION LAYOUT

7216 93RD AVE SE  
 MERCER ISLAND, WA 98040  
 TAX PARCEL NO. 2581900210



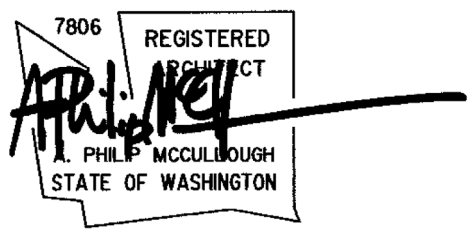
**TOPOGRAPHIC SURVEY**  
 DRAFTED: JR  
 DATE: 10/30/2020  
 SCALE: 1"=20'  
 CHECKED: EMW  
 JOB NO.: BARCE-190624  
 FIELD CREW: AG, AW, TM

LOCATED IN NW 1/4 OF THE SE 1/4 OF SECTION 30, TOWNSHIP 24N., RANGE 5E, W.M.  
 FOR: **BARCELO HOMES**  
 MERCER ISLAND, KING COUNTY, WA  
 SHT. 1 OF 1



**RECOMMENDED TOP OF STEEP SLOPE SETBACK BUFFER**  
**7216 93RD AVENUE SE**  
**MERCER ISLAND, WASHINGTON**

**J-0165 FIGURE 11**



Revisions	Comment



Photo 1: Site looking east from 93<sup>rd</sup> Avenue SE with the garage in the foreground and the residence to the east.



Photo 2: Looking east toward the southeast at the head of small gully that runs along the south side of the property.



Photo 3: Looking south down slope of small gully on the south side of the property.



Photo 4: Looking northeast at abandoned residence located on the east side of the property.



Photo 5: Looking east along the north side of the abandoned residence.



Photo 6: Looking east at the northeast corner of the property down road cut for 94<sup>th</sup> Avenue SE.



Photo 7: Looking south along west property line toward southwest corner of the lot.



Photo 8: Looking northeast along north property line toward adjacent property to the north.