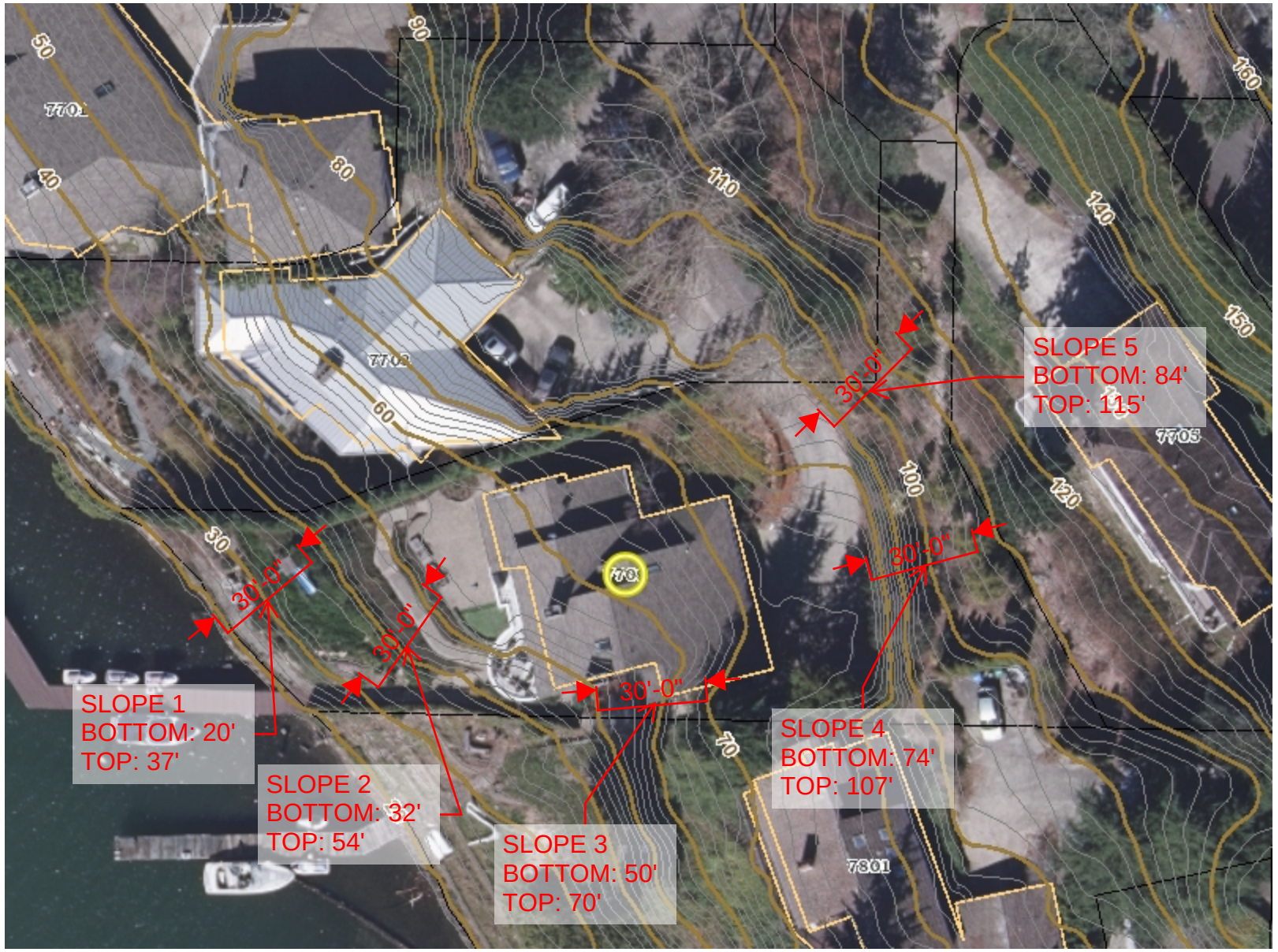
City of Mercer Island



Legend

- 2ft Lidar Contours (2016)
- 10ft Lidar Contours (2016)
- Address
- Parcels
- Buildings
- Parks
- March 2020
  - Red: Band_1
  - Green: Band_2
  - Blue: Band_3

SLOPE 1
17 ÷ 30 = 56%

SLOPE 2
22 ÷ 30 = 73%

SLOPE 3
20 ÷ 30 = 66%

SLOPE 4
33 ÷ 30 = 110%

SLOPE 5
31 ÷ 30 = 103%

0 40 80 Feet

1 inch = 80 feet

Map Printed: October 13, 2021

Notes

USGS science for a changing world

Resources for Teachers

To Determine Percent of Slope and Angle of Slope

<Back

Percent of slope is determined by dividing the amount of elevation change by the amount of horizontal distance covered (sometimes referred to as "the rise divided by the run"), and then multiplying the result by 100. The "run" assumes you're traveling on an idealized flat surface – it does **not** account for the actual distance traveled once elevation change is factored in.

Example: let's assume your climb gains **1,000** feet in altitude (the rise) and the horizontal distance as measured on the map is **2,000** feet (the run).

1,000 divided by **2,000** equals **0.5**
Multiply **0.5** by 100 to derive percent of slope: **50%**

Example: let's assume your climb gains **500** feet in altitude (the rise) and the horizontal distance as measured on the map is **3,000** feet (the run).

500 divided by **3,000** equals **0.166**
Multiply **0.166** by 100 to derive percent of slope: **16.6%**

Example: let's assume your climb gains **700** feet in altitude (the rise) and the horizontal distance as measured on the map is **500** feet (the run).

700 divided by **500** equals **1.4**
Multiply **1.4** by 100 to derive percent of slope: **140%**

Angle of slope represents the angle that's formed between the run (remember it's an idealized flat surface that ignores elevation change) and your climb's angular deviation from that idealized flat surface. To calculate this, you divide the rise divided by the run, and then obtain the inverse tangent of the result.

Example: let's assume your climb gains **1,000** feet in altitude (the rise) and the horizontal distance as measured on the map is **2,000** feet (the run).

1,000 divided by **2,000** equals **.5**
Press the **INV** button on your calculator (sometimes called 2nd function)
Press the **TAN** button on your calculator
Your angle of slope is **26.5 degrees**

Example: Let's assume your climb gains **1,000** feet in altitude (the rise) and the horizontal distance as measured on the map is **1,000** feet (the run).

1,000 divided by **1,000** equals **1**
Press the **INV** button on your calculator (sometimes called 2nd function)
Press the **TAN** button on your calculator
Your angle of slope is **45 degrees**