EFFECTS OF SOIL CONDITIONS ON GROUND SHAKING DURING AN EARTHQUAKE

The most damaging effect of an earthquake is the ground shaking. The amount of ground shaking during an earthquake is directly related to the amount of energy released by the fault rupture. The energy is converted into seismic waves that travel through the Earth's crust. The strength of these waves is influenced by the soil conditions in the path of the waves.

Site Class Map

of Island County, Washington

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WHAT IS A SITE CLASS MAP?

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WHAT IS A SITE CLASS?

In the methodology proposed by BCAI (1997), site classes A to E are assigned to a soil region based on the likelihood of earthquake damage. Site class A represents a low risk; site class E represents a high risk. The site class is based on a soil classification system developed by the Building Code Administrators Institute (BCAI) in the 1990s. The site class system is designed to provide a basis for determining the potential for earthquake damage in a particular area.

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EXPLANATION

- Site class A: Represents a low risk; site class E represents a high risk. The site class is based on a soil classification system developed by the Building Code Administrators Institute (BCAI) in the 1990s. The site class system is designed to provide a basis for determining the potential for earthquake damage in a particular area.

OTHER FACTORS CONTRIBUTING TO GROUND SHAKING

The map provides only a general guide to areas where shaking is likely to occur. Additional factors, such as the location of the earthquake and the distance from the fault, may also affect the severity of ground shaking. Two of the most important of these factors are the size of the earthquake and the distance from the fault.

The amount of energy released during a fault rupture, expressed in the earthquake magnitude, can vary tremendously from one earthquake to another. The earthquake magnitude is logarithmic; it increases in steps of 1 for each tenfold increase in energy released. For example, an earthquake magnitude of 5.0 releases about 32 times as much energy as an magnitude of 4.0.

The site class map is intended to be printed at a scale of 1:100,000 and was generated using 1:100,000-scale digital elevation data of the National Elevation Dataset (NED) and 1:100,000-scale digital elevation data provided by the U.S. Geological Survey (USGS). The site class map does not incorporate other factors affecting the actual ground shaking, such as the location of the earthquake and the distance from the fault. It is intended as a general guide to areas where shaking is likely to occur. Additional factors, such as the location of the earthquake and the distance from the fault, may also affect the severity of ground shaking. Two of the most important of these factors are the size of the earthquake and the distance from the fault.