

The main thesis point

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Effects of geological and geographical features on propagation characteristics of environmental ground vibration

ふりがな A degree applicant かつや たなか Katsuya Tanaka

In this study, it was cleared the influence of geological and geographical features about vibration propagation characteristic of the environmental ground vibration problems.

First of all, at the two large metropolitan areas on a reclaimed fill in domestic, it was correlated ground vibration levels caused by railroad with the classification of geological and geographical features, micro-topography, and incremental value of measured seismic intensity. Next, it was correlated ground vibration levels with the results of ground research, the points is existence of large vibration levels against general attenuation in distance, about the environmental ground vibration near the monorail traffic. Besides, in the model test of viaducts and ground, it was reproduced the environmental ground vibration in a residential area near the monorail traffic.

Finally, it was discussed propagation characteristic of the ground vibration occurred by the large press machines, and make a study about propagation characteristics of the environmental ground vibration.

As the results, it was understood that the characteristic of geological and geographical features affected vibration propagation characteristic of the environmental ground vibration.

About the environmental ground vibration for the monorail traffic, it was cleared an amplification behavior of vibration level, by the study and consideration about the vibration level in the residential area and the peculiar ground where was occurred in complaints. Besides, it was cleared the influence of the characteristic about the environmental ground vibration, through the simulation analysis of the model test was reproduced.

Another, it was determined on low frequency level of the machines vibration by using the vibration frequency analysis, and it was propagated to long far.

That was cleared where were points at a vibration acceleration levels of low frequency vibration cannot have the attenuation behavior in distance. Also, it was cleared the influence of geological and geographical features about the vibration propagation characteristic of the environmental ground vibration problems.

During the wave propagation under the ground, it is changing form and characteristics by the influence of geological and geographical features.

In this study on ground vibration level, it cannot judge by the soil hardness, influenced by geological and geographical features.

Therefore, it is desirable that a technique is compounded with the geological and geographical features, about the classification of the ground of the environmental ground vibration problems. By a model test, simulation analysis and on-the-spot investigation, it was cleared that the vibration frequency not more than 10 Hz amplitude through a sediment fill, at circuit from center of a bowl shaped fill.

By the issue of the ground environmental vibration problem, the vibration ingredients were different in each kind machine. However, it was elucidated that the vibration frequency of the each machine were different, the frequency of long distance propagation

wave is 3-7 Hz (5 Hz).