

Liquefaction-Fluidization phenomena in the 2011 Tohoku Earthquake : Tokyo bay reclaimed land in Urayasu area

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Large scale Liquefaction-Fluidization phenomena was caused by the 2011 off the Pacific coast of Tohoku Earthquake in Tokyo bay reclaimed land areas. Serious liquefaction disaster is recognized as the boiled sand, ejection of sandy water, deformation ground surface, land subsidence and floating underground tanks.

The leveling between the surface bench mark and the 10m piled bench mark indicates that compaction of the shallow strata reached about 14cm. The measuring upward displacement of the piled buildings reveal the serious liquefaction subsidence area. The value of upward displacement is harmonious with liquefaction degree. The maximum displacement reached 95cm more over. Heavy Liquefaction-Fluidization zones correspond to the distribution of thick Holocene formation and/or deep trench of dredge under Artificial formation.

On reclaimed land area, most buildings were existing in the residence area, however, comfortable life are destroyed. Liquefaction-Fluidization phenomena is an exceptional event, however, it is a big problem for low lying and reclaimed land areas because of the immediate heavy damage caused.

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