

BULLETIN

News from *SubTerra, Inc.*[®]

Vibration Monitoring for Test Piles University of Washington, Seattle, Washington

Plans for a covered practice field on the University of Washington campus called for driven piles. Because the facility would be constructed near several existing buildings, concern for potential damage due to pile driving prompted the contractor, Baugh Construction, to undertake a test pile driving program, with the help of SubTerra, Inc.

SubTerra, Inc., was contracted to monitor vibrations associated with driving two 60-ft. long, 3-ft. diameter steel casings, which would subsequently be used as forms for casting reinforced concrete piles.



Construction specifications for pile driving required that Peak Particle Velocities (PPV's) during driving be kept below 0.25 in/sec for 72-hr or younger concrete, and 0.5 in/sec for older and pre-existing concrete.



Vibration monitors were situated at various distances from the pile driving operations, in order to identify a relationship between PPV and distance. The relationship thus obtained allowed prediction of pile driving effects on pre-existing structures, and recommendations for minimizing these effects.

In addition to developing a predictive relationship for the effects of driving on existing structures, the vibration monitoring program also provided a comparison between the performance of two different hydraulic hammers used in the test program.