

11. The Quality of Pile Head Concrete Trimmed by Using a Vacuum Pump

Takanori Okihashi, Takashi Uenishi, Masanori Kono

Using a vacuum pump to remove fresh extra bank concrete from cast-on-site pile is a noiseless, dust-free operation available when neighborhood environment must be considered during the construction. However, the quality of pile-head concrete trimmed by this method had not been verified. The strength of boring cores was tested to be compared with designed strength standards. Quality of the very surface concrete to which pressure tests are not applicable was also evaluated by strength tests.

Following results were given from those experiments. The compressive strength of the extra bank concrete showed no significant difference depending on the depth from which the test piece cores had been collected. Also, samples from the extra banking showed no inferiority in strength compared with the cores taken from below the pile top. The pile head concrete trimmed by a vacuum pump satisfies required structural strength to meet planning standards. Its strength can be checked, as usual, by examining the 28-days old standard test piece soaked in water. The hardness of the mortar decreases at the very surface of the pile top concrete trimmed by a vacuum pump.

Taking the results of these experiments, "Okumura Kuitou-Yomoriresu Method" has been developed as a vacuum trimming method of pile heads of cast-on-site reinforced concrete piles. This method has obtained the verification of construction technique performance issued by General Building Research Corp. of Japan.

Key words: pile top, extra-banking, concrete, vacuum, structural strength