

ARCHITECTURE AND CIVIL ENGINEERING

UDC 624.154:624.131.389(55)

PILE FOUNDATION IN THE INTEGUMENTARY DEPOSITS OF IRAQI MESOPOTAMIA

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The paper presents the results of field tests of piles in Mesopotamia. In spite of the marked drawback of the American methods (ASTM) practiced in Iraq, it was concluded that it's feasible to implement a building practice of Iraq actions of the Belarusian standard. Pressed load should start such in which the settlement pile of tens of millimeters and there is a complete failure of the shear forces along the barrel. Reliable estimate of the ultimate bearing capacity of piles should be performed after additional field studies.

The natural basis structures in these regions of Iraq, in most cases are clay soils. Based on data from engineering and geological surveys in the design of raft and strip foundations of low-rise buildings should be limited to the contact pressure approximately 80 – 110 kPa, where settlement reaches the normative values. [1].

If necessary, transfer the base of large concentrated loads and avoid high deformability in such circumstances expedient to apply the foundations of deep deposits. Characteristic for the Mesopotamian area of Mesopotamia geo-technical incisions to a depth of 20 to 30 m and drilling are presented in the work of column. [2]

Planned in some areas of Mesopotamia construction of unique objects for Iraq (support span bridges, slab-bottoms tank capacitive, high-rise buildings) led to the relevance of the use of high load-bearing capacity of foundations. In areas of Mesopotamia the author tested piles pressed by statistical load (Fig. 1). In all cases, the pile cut through the clay layer with the lower end of the pile rests on a layer of sandy soil. In Al-Nasiriyah 2-meter layer of clay on the 4-meter layer of sand underlain by clay formation. In Al-Diwaniyah 14-meter layer of clay soil is underlain by sand sediments. In Khder 7-meter layer of clay soil is underlain by fine sand. Test piles are made in Iraq practiced by American method (ASTM) [4]. Figure 2 shows a plot of the settlement S from load P , and marked by the length of piles. Shutter speed under load was 1 hour and then proceeds to the next step. In this stabilization could remain unfinished, which should be attributed to the shortcomings of this technique.

The presented in Figure 2 graphs show that the actual settlement piles define the value 2,77 – 7,61 mm. In this case, for small values of settlement piles that do not even reach maximal shift is not possible to judge the actual full load-bearing capacity. Soil shears resistance along the side surface of the barrel and compress them at the low end, were not realized to the full magnitude we can conclude that the piles are able to take the load more than their value in the experience. Therefore, the final decision should be taken after further study of piles with higher loads at full pressed settlement measured in tens of millimeters after the collapse of the shear forces along the trunks and inclusion in the process of compression of the soil under their lower ends.

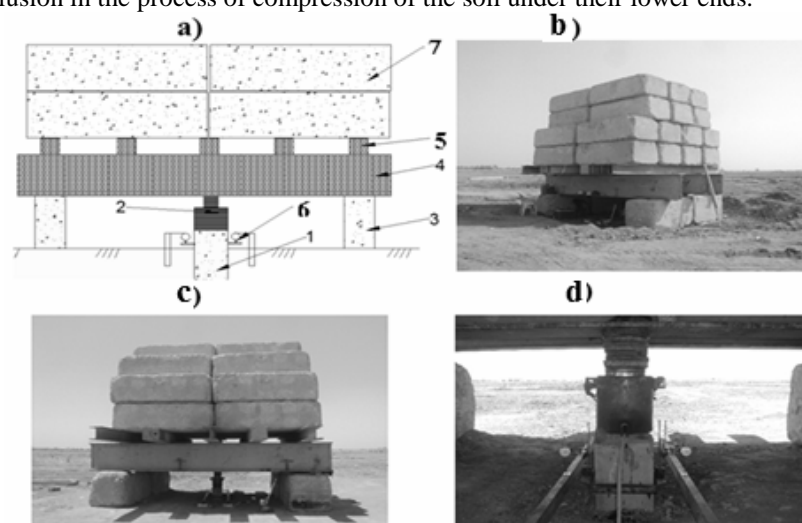


Fig. 1. Diagram and experienced test stand piles indentation:

- a)** – the platform; **b)** – end view; **c)** – side view; **d)** – jack with the reference Istemi;
 1 – testing pile; 2 – hydraulic jack with a pump; 3 – the base support; 4 – longitudinal beam;
 5 – crossbar; 6 – the reference system with deflect meter; 7 – load

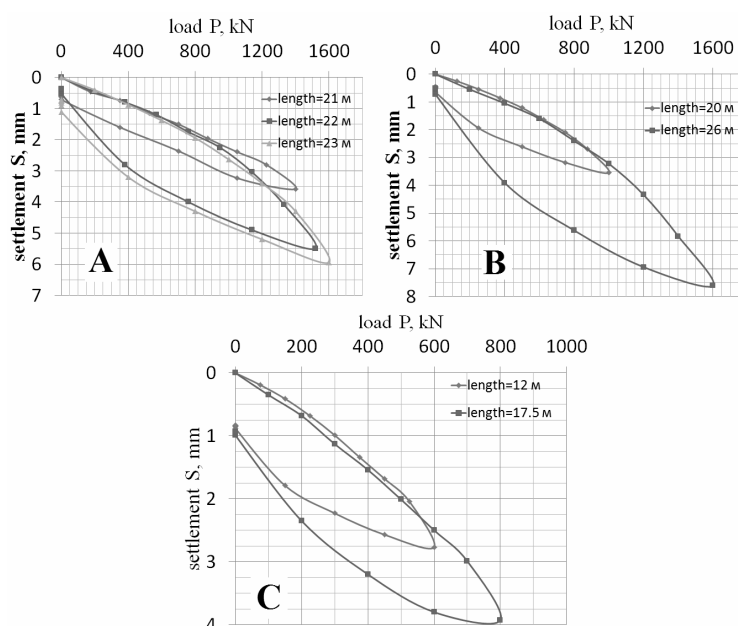


Fig. 2. The graph depending $S = f(P)$ (A) Al-Nasiriyah, (B) Al-Diwaniyah, (C) Khder

Practiced Iraq method ASTM piles comprise studies lack of exposure time on loading levels within 1 hour - for this stabilization time cannot end.

In this regard, it is appropriate to use in Iraq techniques Belarusian standard TKP [3], which contains requirements excerpts load steps to stabilize settlements.

Field test piles pressed load in different areas of Mesopotamia have confirmed the possibility of transferring heavy loads on piles, cutting through clay strata and to wipe them with the lower end on the sandy ground they spread. However, due to the limited ability to create value of the pinch load and low precipitation (a few millimeters) of the complete failure of the shear forces along the barrel did not happen.

For accurate final assessment of bearing capacity of piles bases in Mesopotamia they should be tested on the pinch load with bringing settlement trunks to values not less than ten millimeters in which the resistance of the soil under the lower end and the side surface can be realized in full.

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UDC 721.011+69.03

THE STRENGTH CALCULATION FOR BULK MATERIALS STORAGE

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Silage bunker, lateral pressure, Kuhlmann's graphical method, bulk materials, bending moment, symmetry of the load, calculation of strength. The aim of this work is to study issues of identifying the lateral pressure of loose bodies on the walls of bunkers and calculation of internal forces arising from this load. As a result, studies have shown that the presence of a hard core of loose body significantly reduces the amount of sliding wedge, thus reducing the design load. In this work the calculation of the horizontal belt hopper with the use of force in the calculation of statically indeterminate systems is carried out. The result of the studies shows that the presence of the hard core in granular material significantly reduces the amount of sliding wedge, thus reducing the design load.