

Some geotechnical soil properties of western bank of Khor Al-Zubair channel coast at Khor Al-Zubair Port location, southern Basrah, Iraq

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Abstract - Five Offshore Boreholes have been drilled by the National Construction Center at Basrah with cooperation the Marine Science Center/Basrah University, together with three Onshore Boreholes at the western bank of Khor Al-Zubair channel during July 2009. The drilling machine of Auger type has been used for drilling. Representative soil samples were taken at appropriate intervals ranged between 0.5 and 2.0 meters depth or where the stratum has been changed. Onshore boring depths ranged from 19.0 – 20.5 m, from natural ground surface, while, the offshore borings were from 7-16 m from the bed level. The depths of drilling reached the bedrock which is hard enough to require N-value of more than 50 blows. Standard Penetration Test (SPT) has been carried out for each 2m depths. Grain size analysis, moisture content, Atterberg limits of these soils were also determined. The results show that there are two main strata making up the coast bank of the navigational channel of Khor Al-Zubair. First is Marly silty Clay or fat clay soil which has of a thickness 18 m, and gradually changes from very soft- m.stiff to stiff-v.stiff which belongs to the Hammar deposits. The second is Silty Sand layer which has two types of sandy soil, these are: (1) borrowed Back filled layer as surficial compaction soil with of a thickness 2.0 m, and (2) are interacted lenses stratum between the gray stiff silty clay and the hard brown silty clay in the near and onshore Boreholes which belongs to the Dibdiba formation.

Keywords: Soils, SPT, Banks, Khor Al-Zubair, Basrah.

Introduction

The investigated area is a part of the western bank of Khor Al-Zubair coast, (Figure 1). The banks of Khor Al Zubair channel are extended along to about 40 Km. Structural setting of Khor Al Zubair tongue indicates a neo tectonic existence responsible of the formation of a fault structure of Khor Al-Zubair zone, which represented an extension of the ancient Euphrates river course (Al-Mosawi, 1991). The uplift of the neighboring areas of Khor Al-Zubair and the subsidence of others led then to the propagation of the sea level and disconnecting of the Euphrates course. Subsequently, Khor Al-Zubair channel became a natural extension of the marine water inside the land. It is recently considered as an elongated lagoon environment (Al Mosawi, 1993; Wasil, 2003). Sediments of Khor Al Zubair banks mostly belong to both Tertiary and Quaternary ages. They involve floodplain, Deltaic and wind deposits as sandy Dibdiba formation deposits. Also, the