varying between 0.2 and 17,5 kPa, cohesion (as obtained from direct shear strength tests) from 0.7 and 3.6 kPa), angle of friction between 6° and 25° and compression index between 0.092 adn 2.400 (with corresponding void ratios between 0.38 and 6.14). The deeper formations present geotechnical characeristics of increased quality with unconfined compressive strength varying between 11.0 and 20.0 kPa and SPT values between 11 and 36 (for a penetration of 30 cm).

Since one of the sources of the observed variation was thought to be the percentage of organic material, a regression analysis was carried out, and statistically significant correlations were found between the former and the percentages of silt and clay, the plastic index and the plascti limit, moisture content, voids ratio, wet and dry density, unconfined compression strength and cohesion.

As far as the foundation of technical works is concerned, foundation by pilling is considered to be the most applicable one, both from a safety and from an economical point of view. The other methods are considered to be either mora expensive or unsafe.

GEOTECHNICAL BEHAVIOUR OF OLONOS-PINDOS ZONE FORMATIONS WITH EMPHASIS ON THE CONSTRUCTION OF LARGE TECHNICAL WORKS

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Olonos-Pindos geotectonic zone is one of the external Hellenides and is characterized by its intense folding and imbrication structures. In order to investigate the geomechanical features of its formations, with final purpose to predict the rockmass behaviour during construction of large technical works, a geotechnical research was carried out, including field observations, borehole-data and in situ and laboratory tests. Field measurements were taken in several localities throughout the studied area and both a microstructural analysis in order to find the main discontinuity sets, and a rockmass classification (CISR system) were carried out for all the formations.

The formations which were investigated, can be distiguished into the following units (from oldest to youngest):

a) *Middle to Upper Triassic dolomites and limestones.* Thin to medium bedded dolomites and limestones with flint, sandstone, claystone and chert interbeds. They present satisfactory geomechanical properties, but they can easily manifest rock falls or landslides, as they are highly fractured due to intense deformation. Fair rock.

b) *Jurassic limestones,* usually thin bedded, with claystone and chert interbeds. They present satisfactory geomechanical properties, but they can easily manifest rock falls or landslides, as they are highly fractured due to intense deformation. Very poor to fair rock.

c) Upper Jurassic to Cretaceous cherts. Thin bedded cherts alternating with pelites. The surface horizons are usually easily weathered, producing a thick zone of loose materials. They present a high risk of landslide manifestation. Poor to fair rock.

d) Upper Cretaceous limestones to marly limestones. Thin bedded limestones with flint, sandstone and pelite interbeds. The tectonic, lithologic and geomechanical conditions of this formation lead to the instability of both natural and artificial slopes. Poor to fair rock.

e) Transition zone of Maestrihtin age. Transition zone from the Upper Cretaceous limestones to the flysch sediments. It consists of thin bedded limestones alterneting with claystones, conglomerates, brecciated limestones, marly limestones, pelites and calcareous sandstones. Because of the variety of rocks involved in this formation, both a great fluctuation of the geomechanical properties and an increase of slope instabilty are observed. Poor to fair rock.

f) Paleocene-Oligocene flysck. Sandstones alternating with pelites as well as with conglomerate and limestone interbeds. This formation can be distinguished in four different facies: 1. fine grained (very poor to poor rock), 2. chaotic (poor to fair rock), 3. sandstones alternating with siltstones (poor to fair rock), 4. thick bedded sandstones (poor to good rock), while the limestone interbeds are classified as fair rock. Their goemechanical properties are influenced by their lithological type and consecuently they present a large range in their values. Flysch as a whole presents e high risk of landlides manifestation.

Consequently, during the construction of large technical works and especially in the case of underground excavations, formations with low engineering geological properties due to the intense deformation, the peculiar hydrogeological conditions and their lithologic arrangement, are expected to be met.

The succesful facing of these problems requires taking of special measures related with the stabilization of artificial slopes of the constructions (tunnel portals, excavation slopes, etc.), the supporting of zones with intense loosening of the rockmass and the reduction of the udnerground water action.

THE GENESIS OF THE ISTRANJA BATHOLITH AND ASSOCIATED PORPHYRY TYPE MINERALIZATIONS

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Instranja batholith is one of the most composite volcanic-plutonic complexes in the Timok - Srednogorie - Istranja magmatic belt of Late Cretaceous age. It consist of three modal, tholectic: Gabbr - diorite - tonalite, Calc-alkaline: Granodiorite, and alkaline;

