

## عنوان مقاله:

MECHANIZED EXCAVATION Challenges on RBD excavation of Uma Oya Multipurpose Development Pressure Shaft

## محل انتشار:

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## خلاصه مقاله:

Farab as EPC contractor of Uma Oya Multipurpose Development Project in Sri Lanka is foreseen to excavate the vertical shaft (630 m depth, final excavation diameter: 3.2 m) by means of the raise boring drill method (RBD) to its final excavation diameter. During pilot excavation at depth of 56-58 meters of pilot a water loss had been occurred. Because of huge water loss raise boring machine was not able to continue excavation and stopped to working. It seemed that a crushed zone or void or cave had been encountered resulting in water loss. Providing enough amount of water at Uma Oya construction site almost impossible and water is necessary to fore excavation and wash out excavation debris. According to review resulting of geological and geotechnical conditions of pressure shaft area and performing new investigation holes near to shaft (with 7 m distance from shaft axis), it has been found at least a weak zone with more than 50 meters depth that should be sealed and stabilized properly. Strong recommendation for constructing grout curtain around pressure shaft and make a tight sealing works for preventing water ingress into the power house area, making stabilization PS wall against collapsing during reaming and lining performance as well. Sealing and consolidating of area has been performed in three stage as below: Stage 1: Grouting with the purpose of filling voids which, based on amount of initial grout takes and conditions of the boreholes used thick grout mixes, mortar, or concrete. Stage 2: Grouting in open joints and disconnected voids which used relatively thick or thin grout mixes. Stage 3: To ensure safety and to supporting and reinforce the shaft walls, washing out clay and silt fill between the voids and joints and replacing it with grout mix. Just now, drilling is ongoing in the depth of 435m without any problem and it is expected 15 l/s seepage into the shaft at the end excavation of

## کلمات کلیدی:

Grouting, Raise boring drilling, grout takes, lugeon, pressure shaft

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/613919>



