BUKAKA

Tana Toraja – Sulawesi Selatan, Indonesia

Photo : 3D area power house PLTA Malea 2x45 MW

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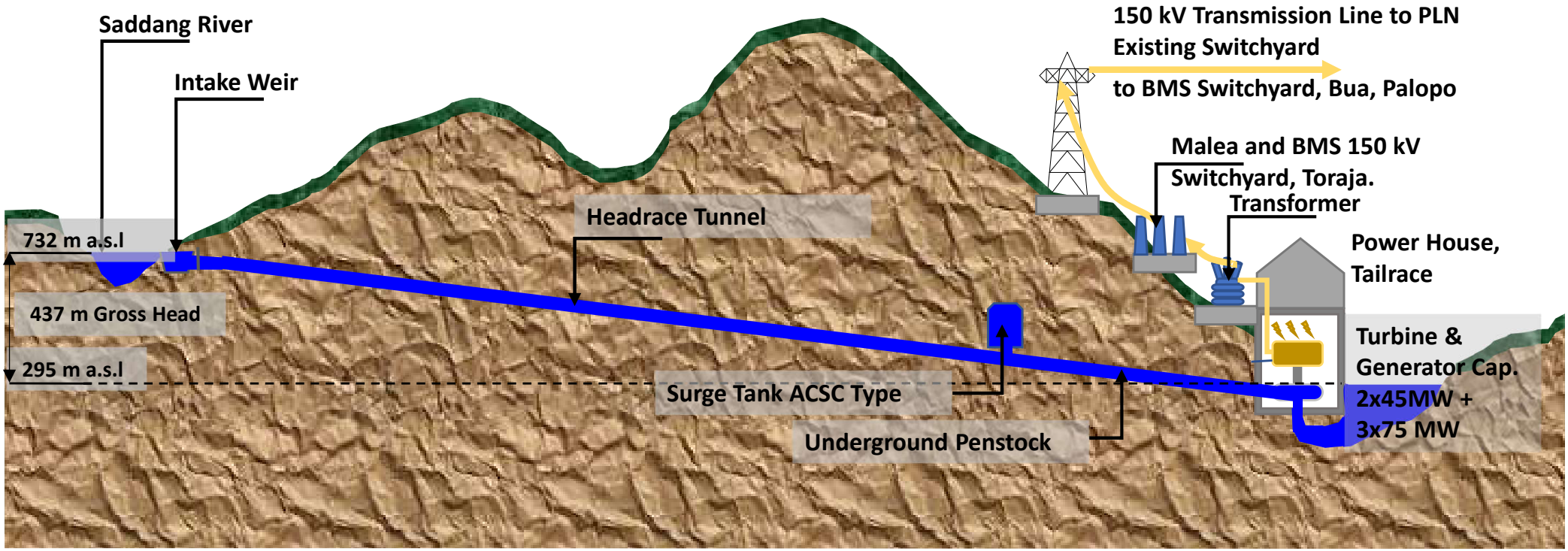
Malea HEPP 2x45 Power Production



Malea HEPP 2x45 MW

Kontrak EPC antara :
PT. Malea Energy (Owner) dengan PT. Bukaka Teknik Utama (Main Contractor)

Nomor Kontrak : 001-1/ME-BTU/HEPP/XI/2015
Tanggal : 26 Nopember 2015
Tanggal Efektif Proyek : 29 Juni 2016
Tanggal COD : 2 July 2021

Lokasi Intake :
Lokasi Intake berada di Kecamatan Makale Selatan dengan titik koordinate E.119° 47’ 33”, N. 3° 7’ 44”

Lokasi PowerHouse :
Lokasi PowerHouse berada di Kecamatan Bonggakaradeng dengan titik koordinate E. 119° 44’ 54”, N.3° 11’ 25”

Umum
Proyek PLTA Malea 2x45 MW ini adalah salah satu proyek energi baru terbarukan program pemerintah untuk percepatan 35.000 MW, peroyek ini sudah berkontrak dengan PLN pada tanggal 4 Mei 2015 dengan tipe BOO (Build Operate Own). Pembangunan ini didukung secara finansial oleh Bank Sindikasi BNI dan BRI, dan tertuang dalam Perjanjian Kredit pada tanggal 29 Juni 2016 dengan total pendanaan Loan USD180 Juta dan Equity USD 45 Juta.

EPC Contract between :
PT. Malea Energy (Owner) with PT. Bukaka Teknik Utama (Main Contractor)

Contract Number : 001-1/ME-BTU/HEPP/XI/2015
Date : November 26, 2015
Project Effective Date : June 29, 2016
Date of COD : July 02, 2021

Location of Intake :
location of Intake is in South Makale District with coordinates point E.119° 47' 33", N. 3° 7' 44“

Location of PowerHouse :
Location of PowerHouse is in Bonggakaradeng District with coordinates point E. 119° 44’ 54”, N.3° 11’ 25”

General
The Malea 2x45 MW hydropower project is one of the government's new renewable energy projects for the acceleration of 35,000 MW, this project has contracted with PLN on May 4, 2015 with the BOO (Build Operate Own) type. This development was financially supported by the Syndicated Banks BNI and BRI, and was stated in the Credit Agreement on June 29, 2016 with a total funding of USD 180 million Loan and USD 45 Million Equity.

AREA INTAKE SANDTRAP & WEIR

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Intake :

Type : Opened with Gate
Discharge Plan : 90 m3/s
Elevation Floor : +724.0 m.asl
Structure Type : Reinforced Concrete

Sand Trap :

Wide : 22 m
Building Length : 138.48 m
Structure Type : Reinforced Concrete

Weir :

Type : Ogee-Shaped Weir
Wide : 94.5 m
Height : 5 m
Capacity : 3,837 m3/s (Q1000 period)
Structure Type : Reinforced Concrete

AREA HEADRACE TUNNEL

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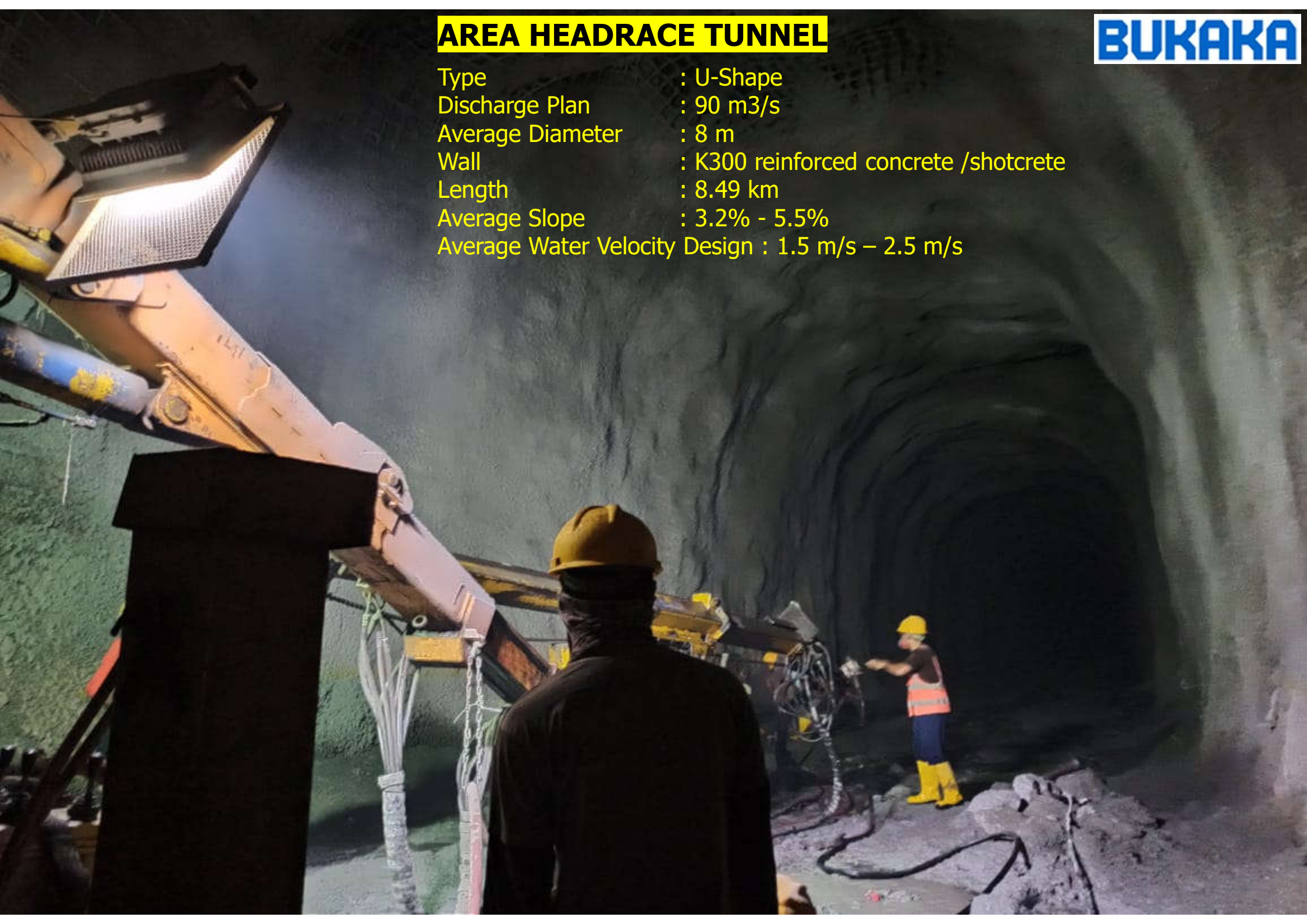
Type : U-Shape
Discharge Plan : 90 m3/s
Average Diameter : 8 m
Wall : K300 reinforced concrete /shotcrete
Length : 8.49 km
Average Slope : 3.2% - 5.5%
Average Water Velocity Design : 1.5 m/s – 2.5 m/s



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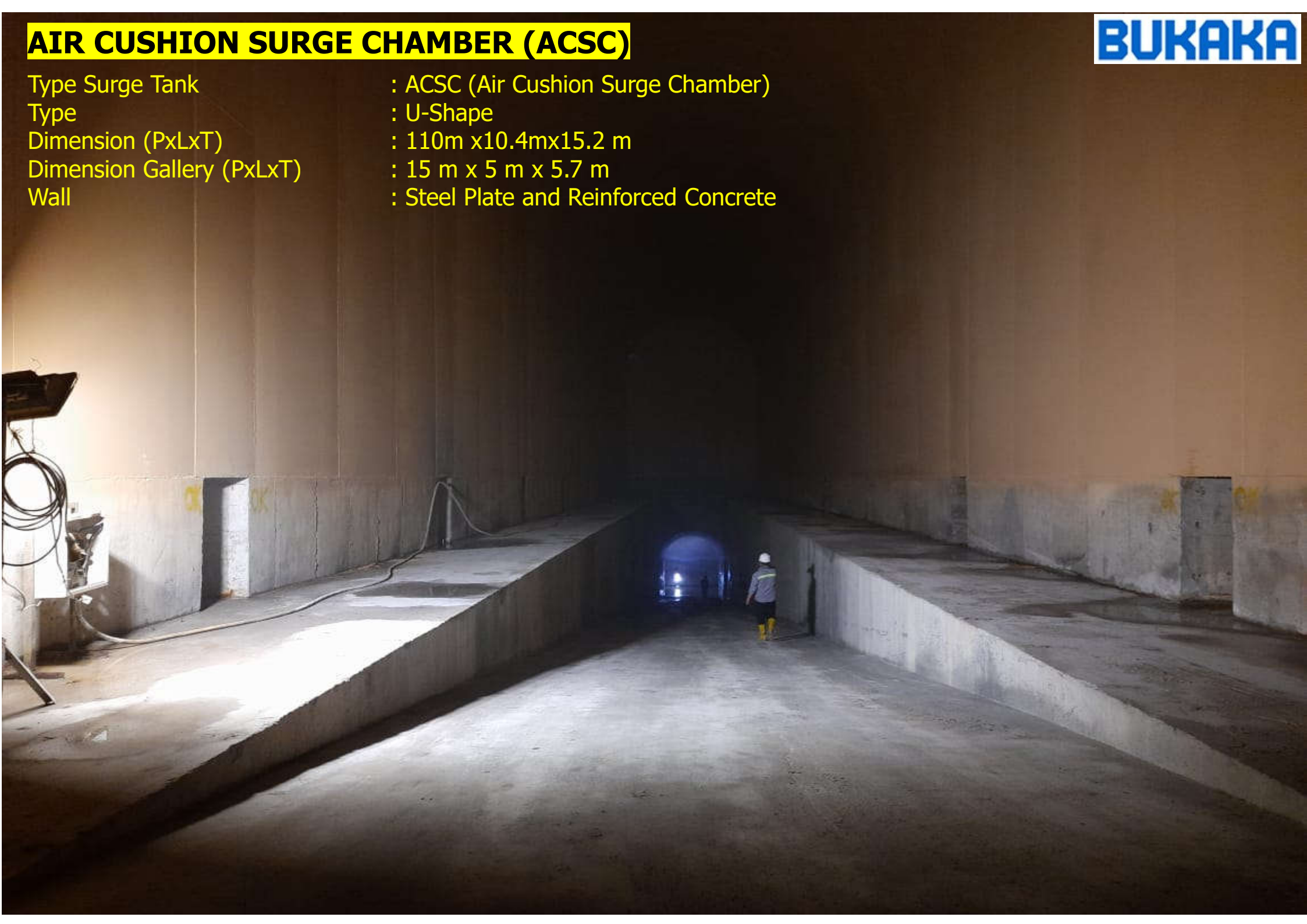
AREA ADIT

- Type : U-Shape
- Diameter : 8 m
- Wall : K300 reinforced concrete/shotcrete
- Length Total : 8.49 km
- Average Slope : 3.2% - 5.5%

AIR CUSHION SURGE CHAMBER (ACSC)

BUKAKA

Type Surge Tank	: ACSC (Air Cushion Surge Chamber)
Type	: U-Shape
Dimension (PxLxT)	: 110m x10.4mx15.2 m
Dimension Gallery (PxLxT)	: 15 m x 5 m x 5.7 m
Wall	: Steel Plate and Reinforced Concrete



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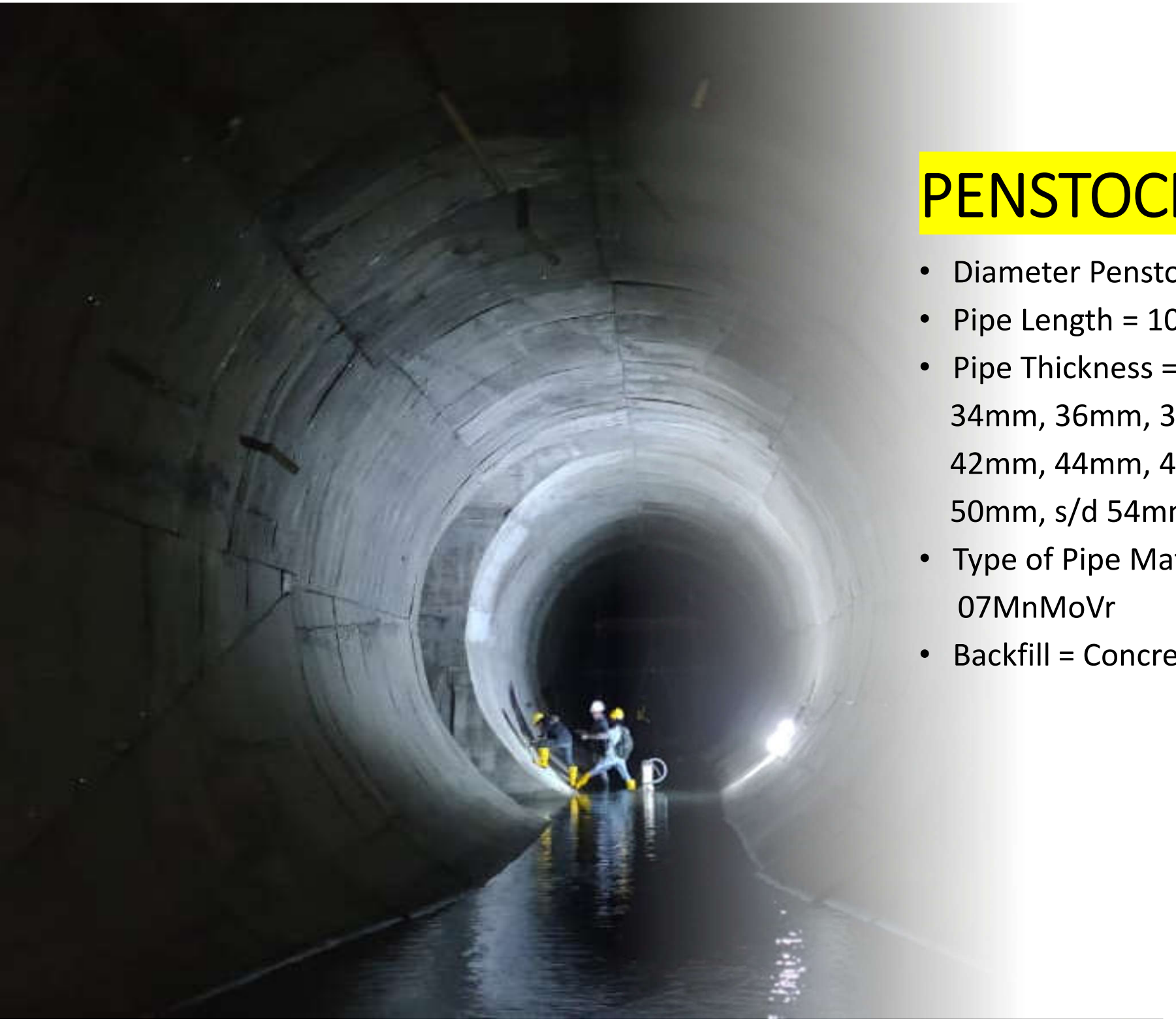


PENSTOCK

- Diameter Penstock = 4.5 m
- Pipe Length = 1075 m
- Pipe Thickness = 32mm, 34mm, 36mm, 38mm, 40mm, 42mm, 44mm, 46mm, 48mm, 50mm, s/d 54mm
- Type of Pipe Mat'l = Q345R & 07MnMoVr
- Backfill = Concrete K-300

POWER HOUSE

POWER HOUSE

Type	= Semi Underground, Concrete and Steel Structure
Type Hoist	= (OHC) Cap. 150 Ton, 50 Ton, and 10 Ton.
Dimension (PxL)	= 43 m x 18 m
Elv. Center Turbine	= +293.6 m.asl

TURBINE

Type	= Vertical Francis
Brand	= TOSHIBA
Type	= SF45-10/3900
Rated output	= 49.5 MW
Rated speed	= 600 r/min
Runaway speed	= 1020 r/min
Rated discharge of unit	= 12.95 m3/s

GENERATOR

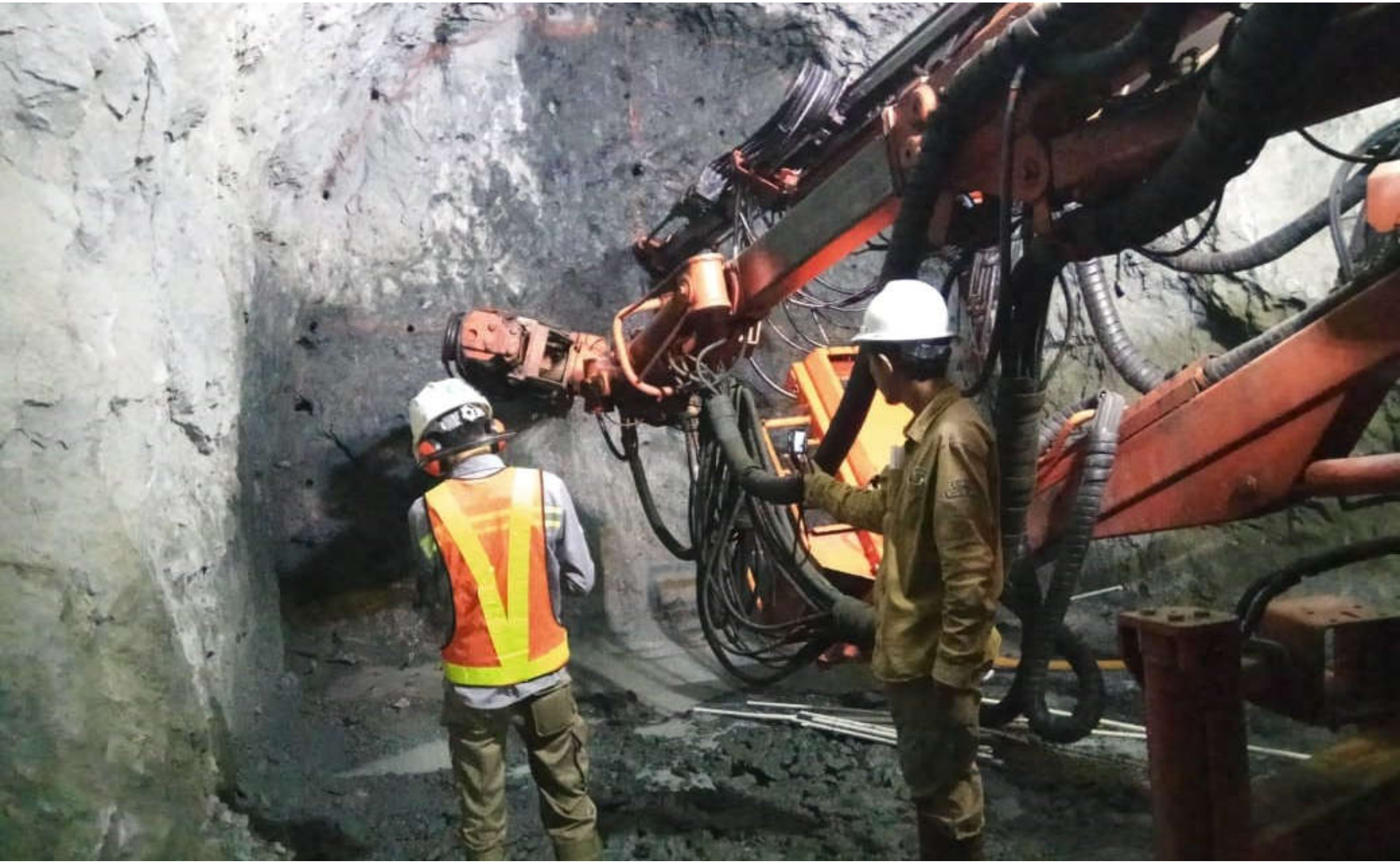
Type	= SF45-10/3900
Brand	= Toshiba
Rated output	= 45 MW/52.94 MVA
Rated Voltage	= 11kV
Rated Current	= 2779 A
Rated Frequency	= 50 Hz
Rated Power Factor	= 0.85 (lagging)

DOKUMENTASI

AIR CUSHION SURGE CHAMBER (ACSC)

HEADRACT TUNNEL – PROSES DRILLING

BUKAKA



HEADRACT TUNNEL – PROSES DRILLING

BUKAKA

HEADRACT TUNNEL – PROSES CHARGING BLASTING

HEADRACT TUNNEL – PROSES CHARGING BLASTING

HEADRACE TUNNEL

HEADRACE TUNNEL

HEADRACE TUNNEL COMPLETED

INTAKE WEIR SANDTRAP COMPLETED

FIRST SYNCHRONE – PLTA MALEA 2X45