

# The Follo Line Project, EPC TBM TBM EXCAVATION Geological Face Mapping

TUNNEL: INB  
CHAINAGE: 08+493

MACHINE: TBM1  
RING: 1826

DATE: 30/5/17  
HOUR: 13:00

REF. N°:  
137

Mapping performed:

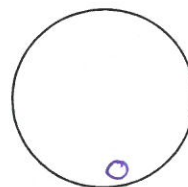
☐ Yes

☐ No

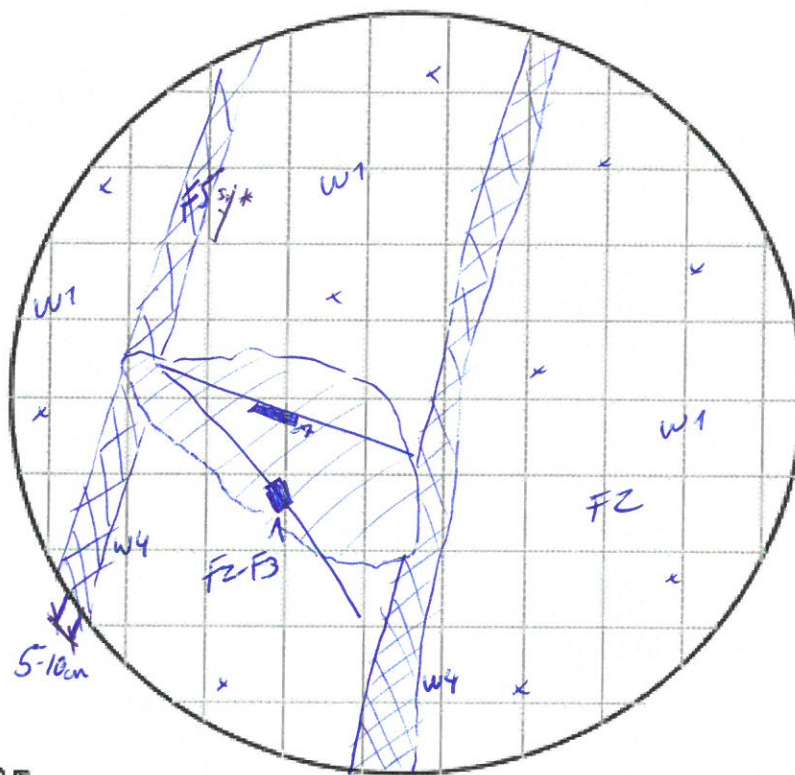
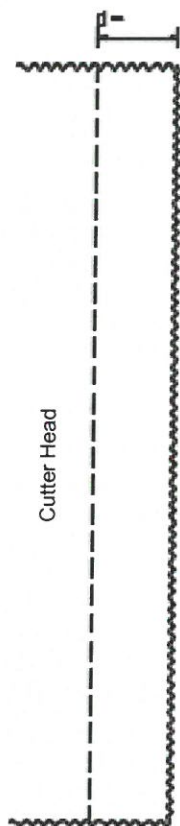
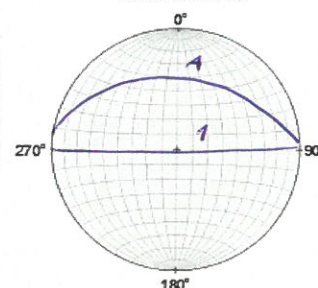
Plan view

Face of the Excavationm

Schematic position of  
the cutter head while  
mapping



Schematic Rock  
Mass Structure



1.0 m

\*WZ ALONG FOLIATION

Light Gneiss

Dark Gneiss

Foliation

Joint Set (Strike/dip)

Weakness zone < 1m

Pegmatite

Amphibolit

Joint Set (sub. Vertical)

Geological Contact

Water

Joint Set (Sub Horizontal)

Geological Contact (diffuse)

Weakness zone > 1m (thickness)

## DISCONTINUITIES

Fracture set	1	A	S			
Strike ( $\alpha_s$ )	E-W	E-W	N-S			
Dip ( $\alpha_f$ )	~80-90	~45-60	~70°W			
Spacing (cm)	-	-	-			
Length (m)	1-3	1-3	3-5			
Aperture (mm)	<1.0	<1.0	1-5			
Roughness	VII	VII	VI			
Infilling	-	- / soft clay < 5mm	- / soft clay < 5mm			
Weathering	W1-W2	W1-W2	W2-W4			

## FACE CHARACTERISTICS

Quartz	Veins	<input checked="" type="checkbox"/>	Masses	<input checked="" type="checkbox"/>
Garnets	Low	<input type="checkbox"/>	High	<input checked="" type="checkbox"/>
Water	Dry	<input checked="" type="checkbox"/>	Moist	<input checked="" type="checkbox"/>
	Dripping	<input type="checkbox"/>	Flowing	<input type="checkbox"/>
	Quantity:	15 l/min		
Fracturing	RQD:	60-70		
Overbreak	Depth (cm):	5-20		
	Amount (%):	90%		
Mixed face	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

## NOTES

DARK GNEISS WITH PEGMATITE AT CENTER. 2 WEAK ZONES (ONE SMALL 5-10cm) WITH CRUSHED ROCK, CLAY AND OXIDATION; BOTH ALONG FOLIATION. DRIPPING FROM SEVERAL POINTS.

## AGJV Geologist

Date	Name	Signature
30/5/17	XRV	Xavier Villegas

## Bane NOR Geologist

Date	Name	Signature
30/5-17		B38



TUNNEL: INBOUND  
CHAINAGE: 08+493  
DIRECTION: NORTH

MACHINE: TBM 1  
RING: 1826

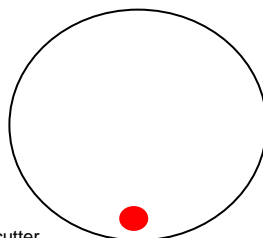
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TBM1\_20170530\_08493\_136

LEFT SIDE



RIGHT SIDE



Schematic position of the cutter  
head while mapping

UPPER SIDE



FACE



AGJV Geologist

Date	Name	Signature
30/05/2017	XMV	

Bane NOR Geologist

Date	Name	Signature