

Grouting Instruction VL4 FIRST GROUT FAN

Tunnel	VL4 (W=6,9-H=6,9)
Instruction N°	0572

Instructed by:	Andrés Topio P.
Instruction date:	11-01-16

Chainage	11+142.0 (exp)
Total Inflow face	0.1/1
Total Inflow Probe hole	11.6 L/s
Water pressure measured	8.0 Bar

	HOLES 1-15	16-21
N° of Grout holes	15	6
Grout holes length (m)	24	24
Grout hole angle ref Tunnel axis	15	0

Position of Grout holes 1st grout round:

Mark additional holes with x and number

Erase holes not to be used

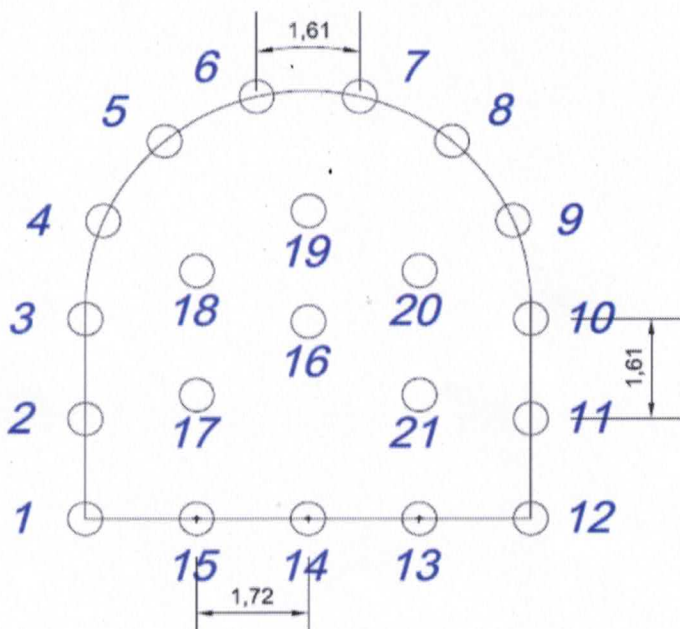
1- DRILL HOLES: 1 TO 15 WITH ANGLE 15°

PRIMARY ROUND: 2,8,14,6,12,4,10,15 AND GROUT

SECONDARY ROUND: 1,7,13,5,11,3,9 AND GROUT

2- DRILL HOLES IN ORDER: 17,19,21,18,20,16
PARALLEL TO THE TUNNEL AND GROUT.

THE PACKER SHOULD BE INSTALLED BETWEEN 1,5
AND 3,0 M (DEPENDING OF ROCK MASS
CONDITION, REF LEAKAGE)



Design Mix (Type A,B,C, D or E)	A
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WCR	0.65
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Closure criteria

Pmax	25*
Vmax (l/m borehole)	85
GIN	1000



*IF GROUNDWATER PRESSURE IS
HIGHER THAN 10 BAR THEN APPLY
GROUT PRESSURE OF 2,5 TIMES
GROUNDWATER PRESSURE

NOTES:

1-DRILLING OF A HOLE SHALL BE STOPPED AND THE HOLE SHALL BE GROUTED IN CASE SUDDEN HIGH WATER INFLOW (>3L/S) IS ENCOUNTERED GROUTING SHALL BE CONDUCTED WITH THE MINIMUM POSSIBLE TO PUMP W/C RATIO ABOUT 0,4 AND A MAXIMUM OF 500 Kg OF CEMENT. THE GROUT PRESSURE SHALL BE 15 BAR ABOVE THE GROUNDWATER PRESSURE

2- THE MAXIMUM INCREASE OF GROUTING PRESSURE SHALL BE NOT MORE THAN 2,5 BAR PER MINUTE.

3- DRY HOLE SHALL NOT BE REDRILLED OR REGROUTED.

Name Signature