

ALTO MAIPO**OWNER'S INSTRUCTION**
Section 2.29
PHAM-PLN12-INS-0003Contract: ☐ AM-CO610/620B ☒ AM-CO630/620A SI 6340 N° 0511

Scope Segment Description: TUNNEL VL4 TO PH CAVERN Scope Segment ID: 3.4

Location: Ch. 0+935 Time for Compliance: BEFORE NEXT ROUND

Contractor shall immediately proceed with the Work described below, in accordance with the terms and conditions of the Contract. This instruction is limited to maximum of 1000 UF or USD \$ 50,000., and without impact on the lump sums or schedule (except for Equivalent Times in the BOQ).

Instruction:

THE CONTRACTOR IS HEREWITH INSTRUCTED TO COMPLETE THE BROUT CURTAIN DESCRIBED IN THE OWNER'S INSTRUCTION N° 0509 AS INDICATED IN THE SKETCH ATTACHED

Owner estimate of impact is: Per Units in BOQ ☒ ; or cost ; &/or Time

If Contractor believes that this instruction constitutes a Change, Contractor shall promptly provide Notice according to Section 11 of the Contract.

Contractor comments (if any):

Issued by

Name: E. Gonzalez

Sign:

Designation: Sr. GEOLOGIST

Date: 29.10.2015 Time: 11:45 hr

Received by Contractor

Name: Matias Rosenfeld

Sign:

Designation: Geo-Manager

Date: 29.10.15 Time: 12:35

(original): Contractor

Grouting Instruction VL4 FIRST GROUT FAN

Tunnel	VL4 (W=6,9-H=6,9)
Instruction N°	511

Instructed by:	E. GONZALEZ
Instruction date:	29.10.2015

Chainage	0+935,0
Total Inflow face	-
Total Inflow Probe hole	-
Water pressure measured	-

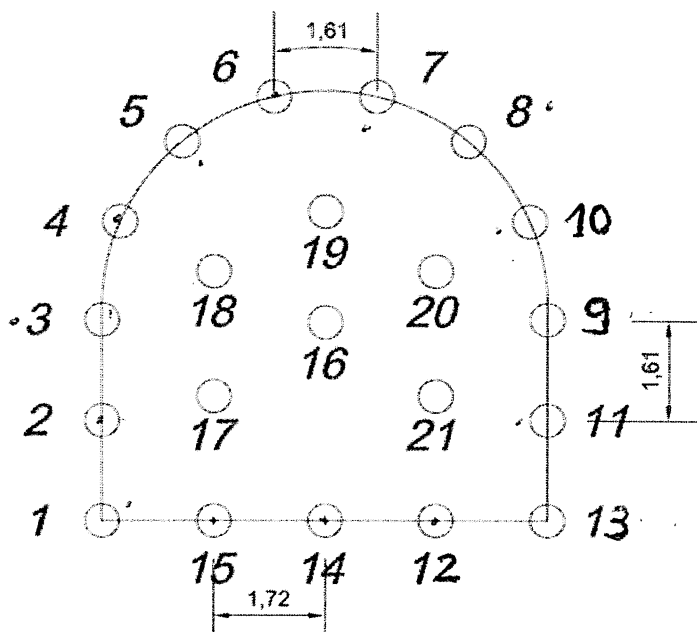
	Holes	16-21	1-14
N° of Grout holes		6	10
Grout holes length (m)		24	24
Grout hole angle ref Tunnel axis		0	15°

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 14 WITH ANGLE 15°

PRIMARY ROUND: HOLE N° 1, 9, 5, 11, 7.
AND GROUT.SECONDARY ROUND: 2, 4, 12, 6, 14
AND GROUT.2- DRILL HOLES: 16, 17, 18, 19, 20, 21
PARALLEL WITH THE TUNNEL AND
GROUT. THE PACKER SHOULD BE
INSTALLED BETWEEN 1,5 AND 3,0M
(DEPENDING OF ROCK MASS CONDITIONS,
REF. LEAKAGE).

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

1. Max. Grout takes

WCR	Liter grout	Kg Cement
0.6	1842	2.000

2. Max. pressure [bar] at closure	MIN. 25
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→ IF GROUNDWATER PRESSURE HIGHER THAN 10 BAR
THEN APPLY GROUT PRESSURE OF 2,5 TIMES
GROUNDWATER PRESSURE.

3. Allowable flow rate at closure:	< 1 L/min
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4. Actions to be taken if closure criteria are not met:

Thicken the grout so the flow stops at the stop pressure, wcr 0.4-0.35 without plasticizer,

max 300 kg cement. Then add accelerator. If jacking, stop the grouting at jacking pressure

E. GONZALEZ
Name


Signature