



**37TH INTERNATIONAL
NO - DIG
FLORENCE 2019**

Fortezza da Basso • FLORENCE (Italy)

30th September • 2nd October 2019

Rehabilitation of a 3000 mm water supply line under operating conditions in Buenos Aires

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Prof. Hölterhoff Ingenieur Consulting, Berlin



Drinking water Supply of Buenos Aires



22.471 Km
Pipe network

2.949 Km²
Supply area

5.400.000
m³/d
Drinking water

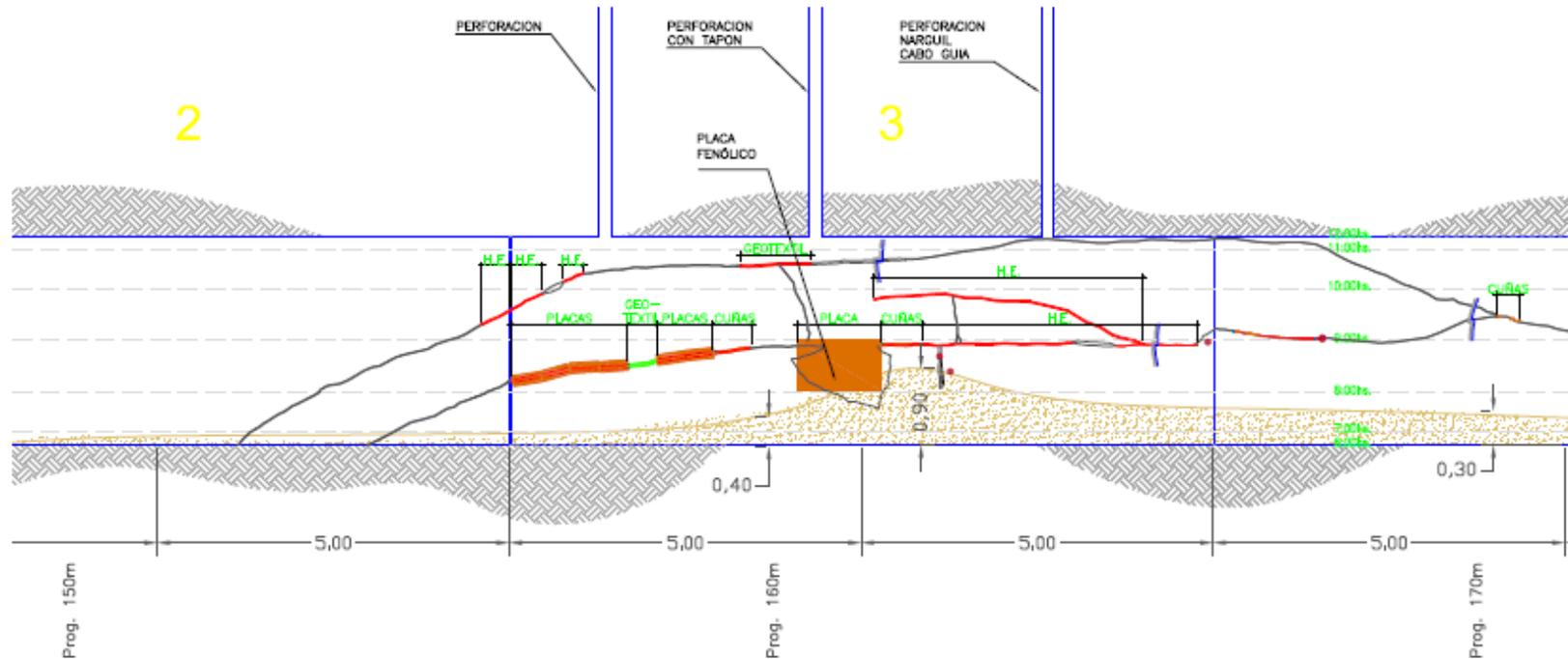
10.500.000
Inhabitants

Tendering and project planning



Tendering and project planning

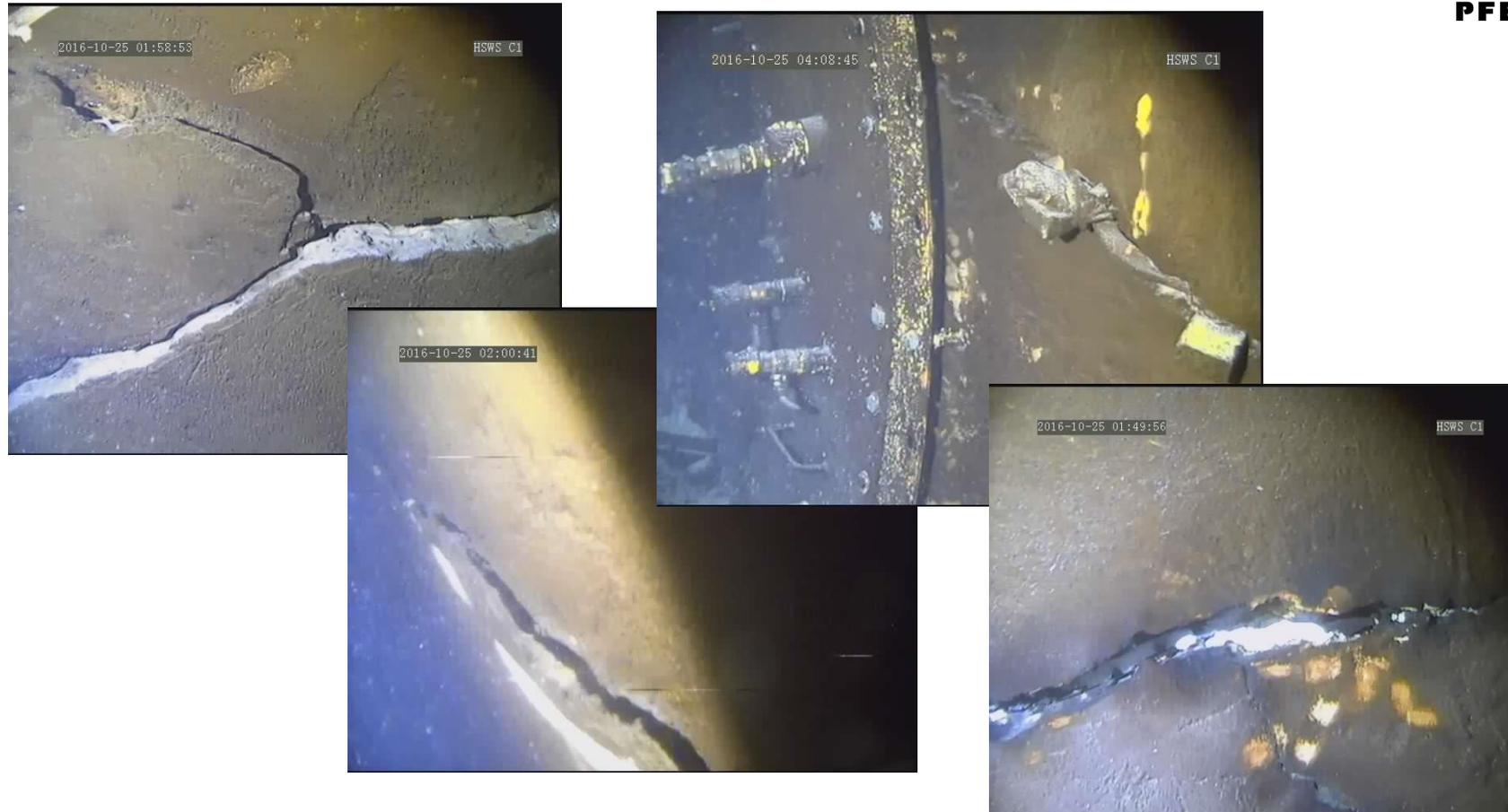
Cracks / shards / concrete sedimentation from earlier external rehabilitation attempt



Situation was particularly critical, so that there was a danger of collapsing!



Tendering and project planning

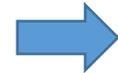


Old pipes were formed by mining as in-situ concrete pipes without steel reinforcement / groundwater infiltrating through cracks

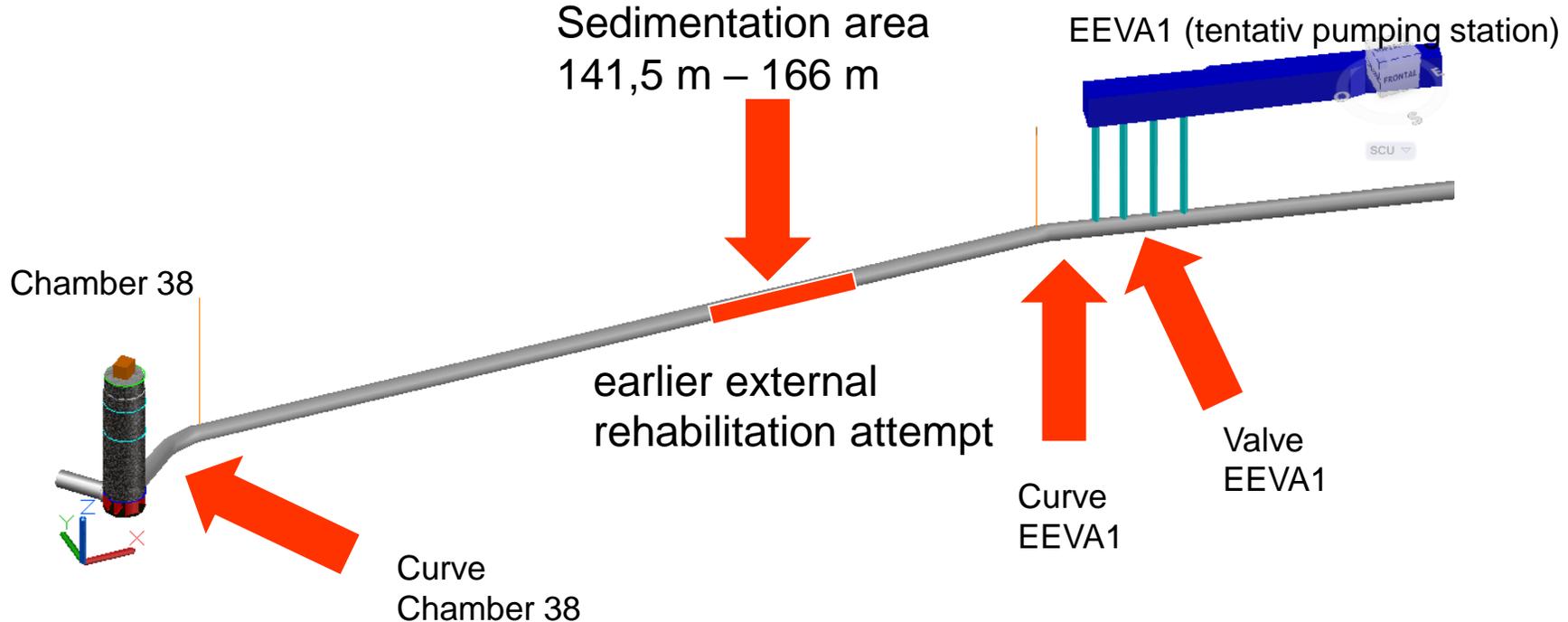
Tendering and project planning

Challenges in project planning / implementation

submit a rehabilitation concept
contract to rehabilitate the pipeline



Ludwig Pfeiffer was awarded the



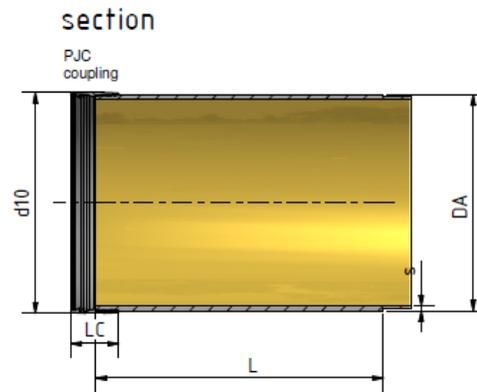
Tendering and project planning



Chamber 38
Villa Adelina

Tendering and project planning

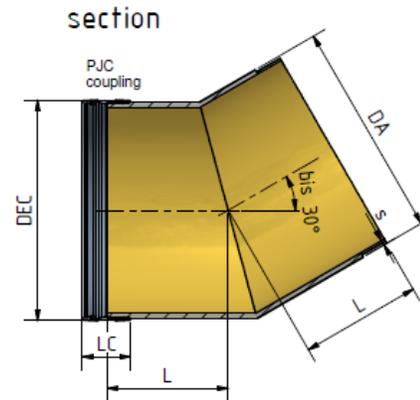
Dimensioning / order GRP pipes



pipe DN 2550 (DA2555)					
SN (N/m ²)	PN (bar)	s min (mm)	s max (mm)	s (mm)	M min (kg/m)
20000	2	68	72	69	1147

length: L = 2,92m +25/-10mm

bend DN 2550 (DA 2555)				
SN (N/m ²)	PN (bar)	s (mm)	M (6°) (kg/m)	L (mm)
20000	2	69	~ 2500	1000



Purpose:

HOBAS pipe as sewer pipe and pressure pipe drinking water according certificate N 000472

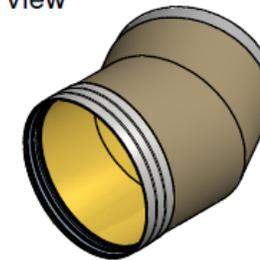
Resin quality:

Polyester resin min. type 1130 acc. DIN 16946-2

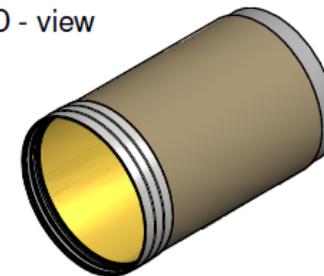
Pipe connection:

PJC coupling (stainless steel 1.4571) with EPDM-gasket

3D - view



3D - view



Development of rehabilitation technology

Test and diver training site Ludwig Pfeiffer Kassel



Development of rehabilitation technology

Test site Ludwig Pfeiffer Kassel / GRP Pipe with coupling device

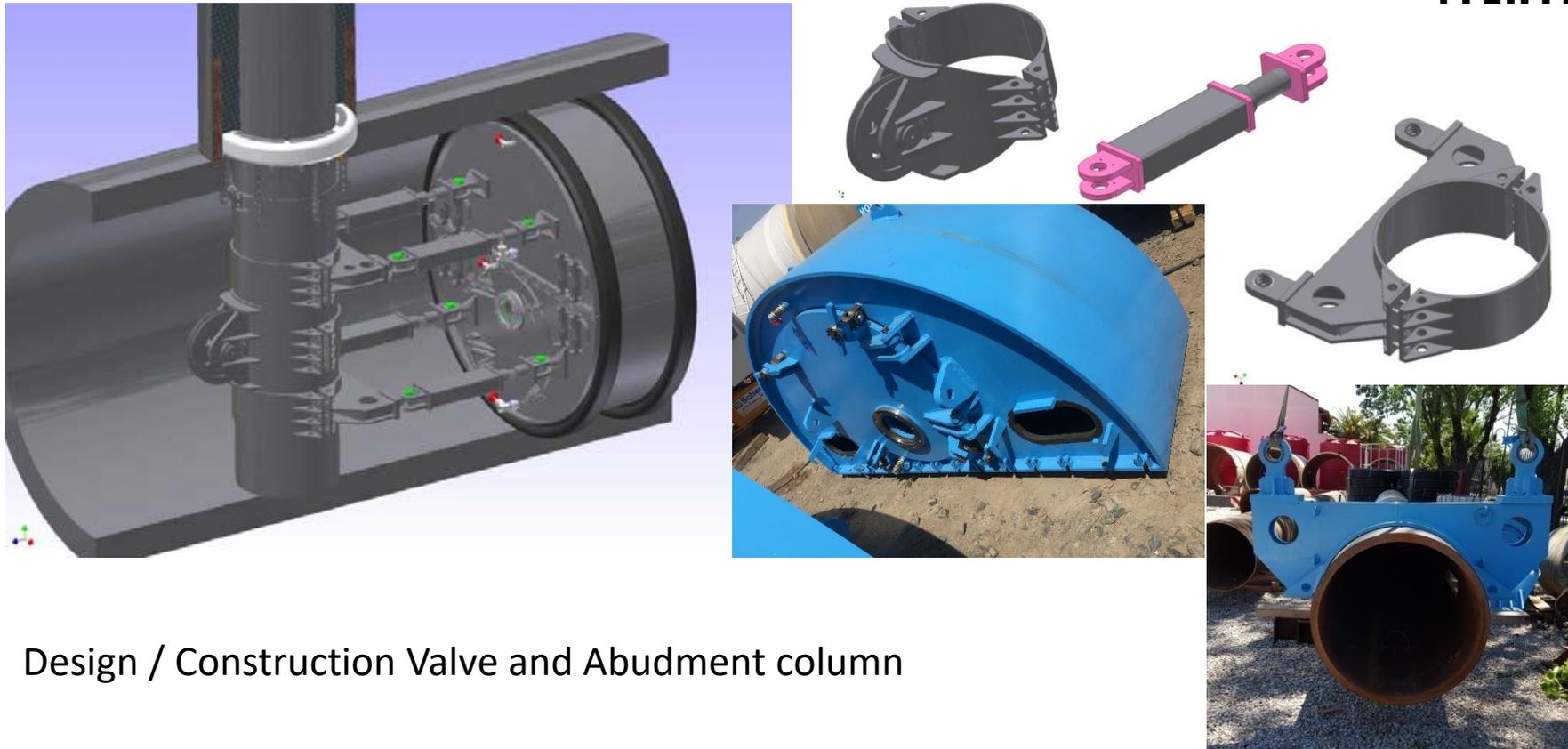


Development of rehabilitation technology

Test site Ludwig Pfeiffer Kassel



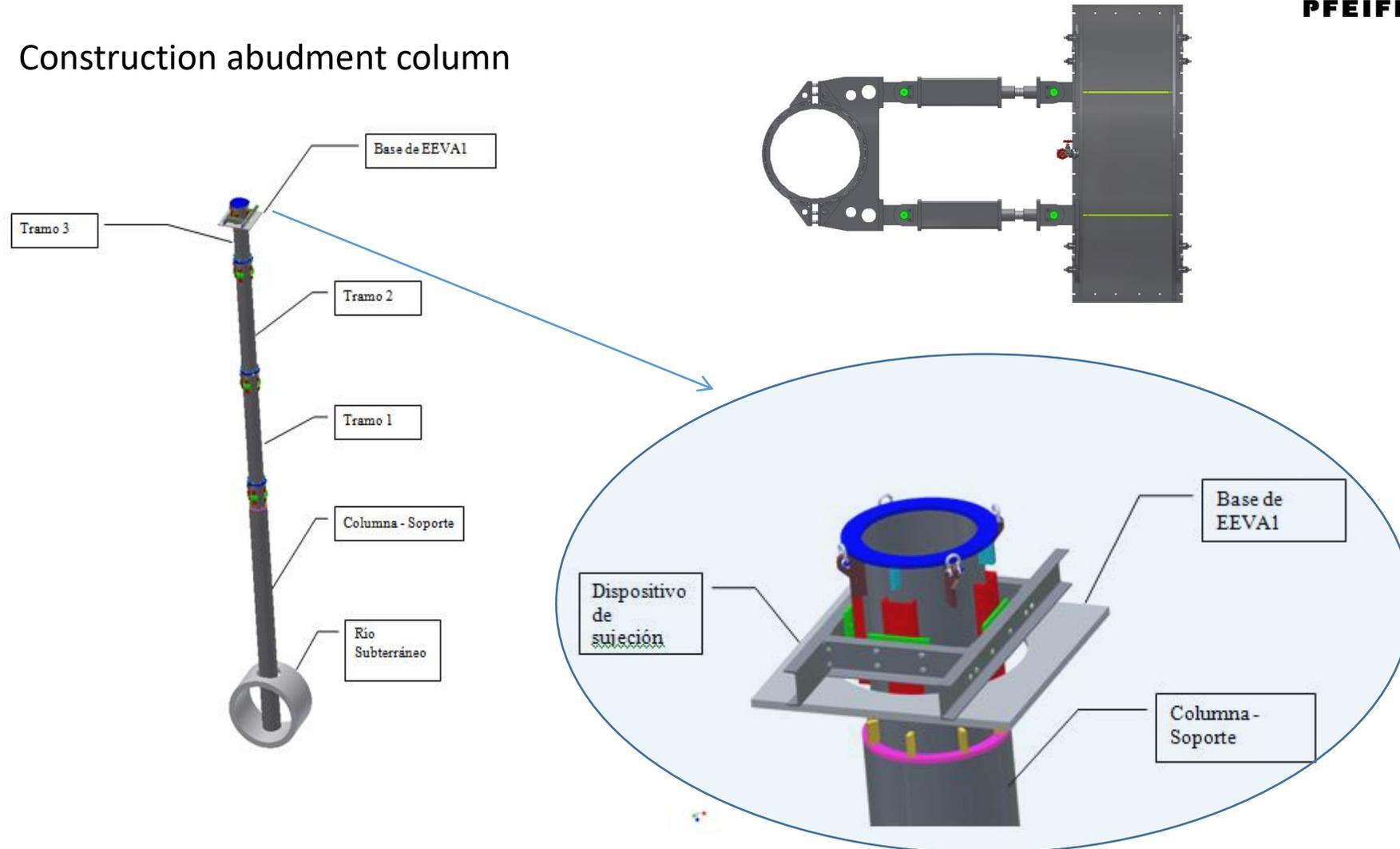
Development of rehabilitation technology



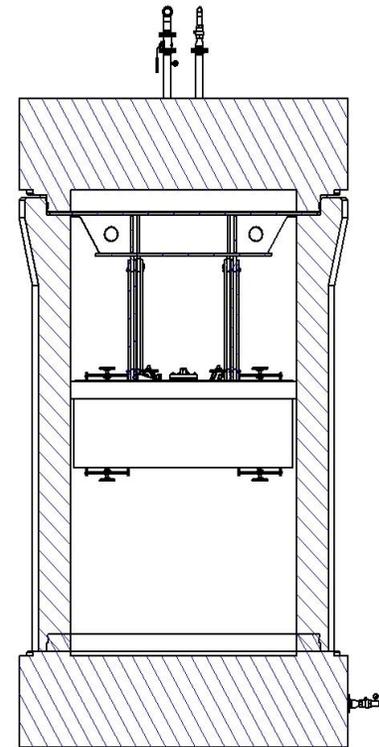
Design / Construction Valve and Abudment column

Development of rehabilitation technology

Construction abudment column

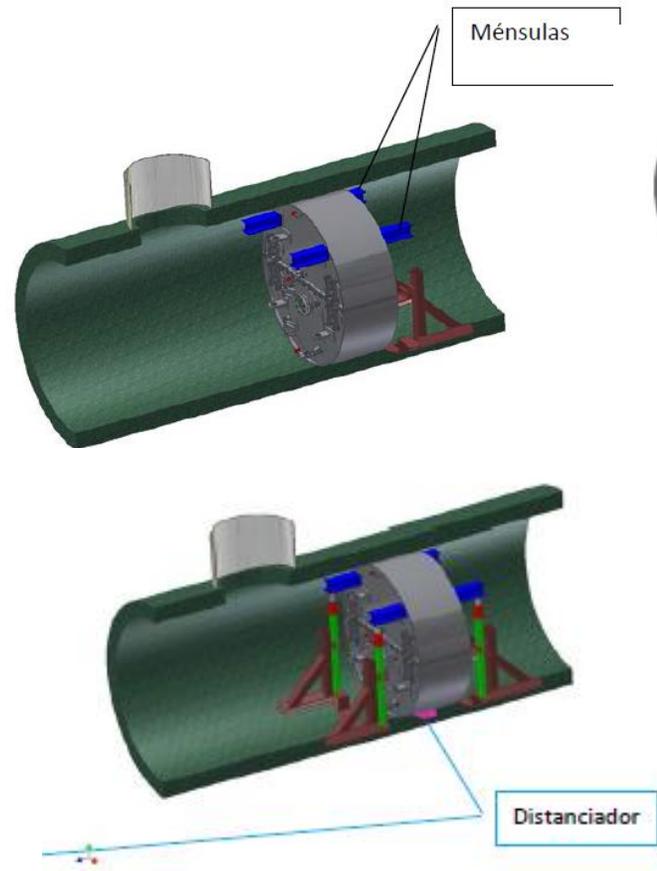


Development of rehabilitation technology



Test seal and valve

Development of rehabilitation technology



Implementation of the rehabilitation



Implementation of the rehabilitation





aysa

Agua y Saneamientos Argentinos S.A.

PROF. HÖLTERHOFF
INGENIEUR CONSULTING



Implementation of the rehabilitation



Floating valve part



Implementation of the rehabilitation Diver control center



Implementation of the rehabilitation



Expansion of concrete sedimentation by diamond saws and hydraulic splitter

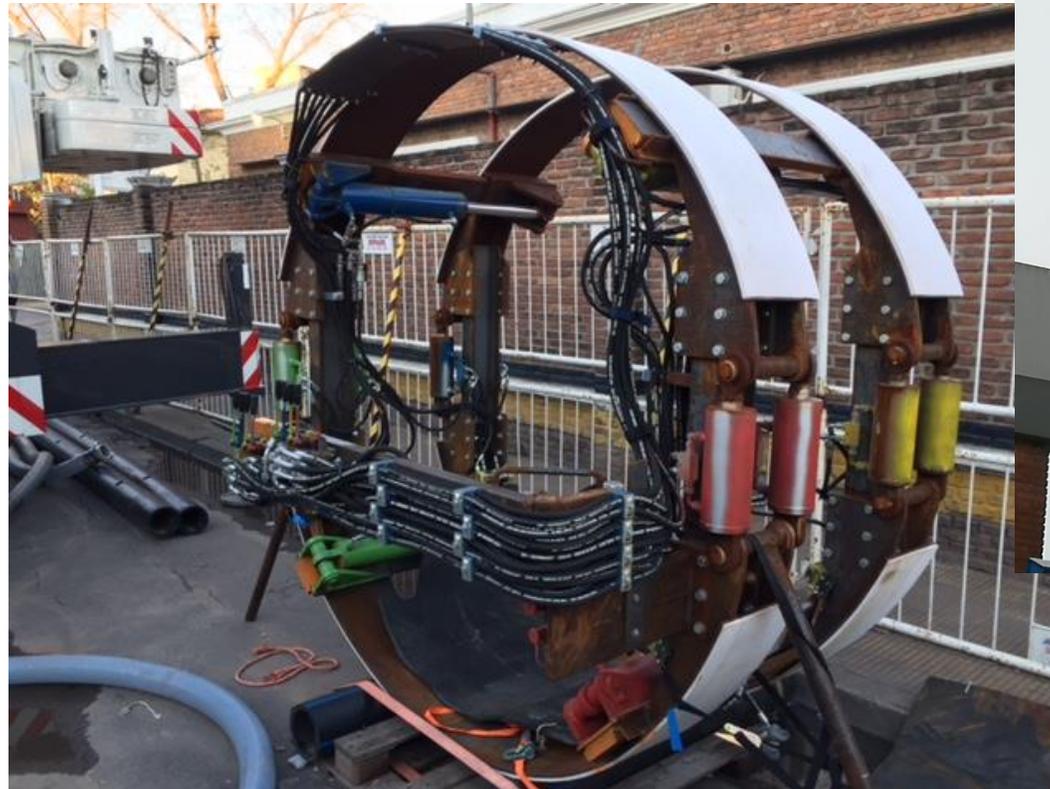
Implementation of the rehabilitation

Installation of Liner Plates DA 2,88 m



Implementation of the rehabilitation

Installation of the Coupling device

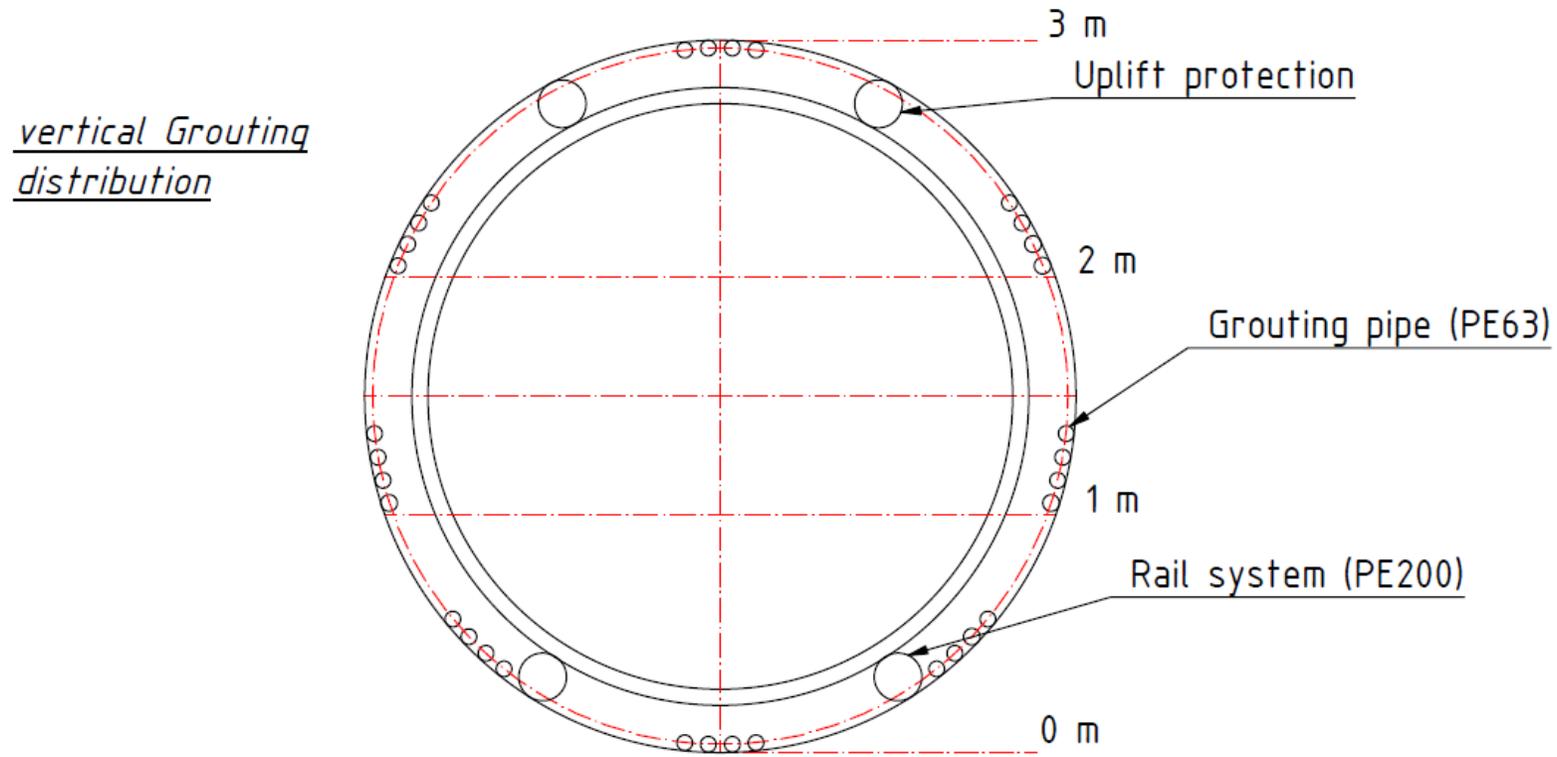


Implementation of the rehabilitation Installation of GRP jacking pressure pipe



Implementation of the rehabilitation

Rio Subterraneo grouting the annular space



Questions?

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