

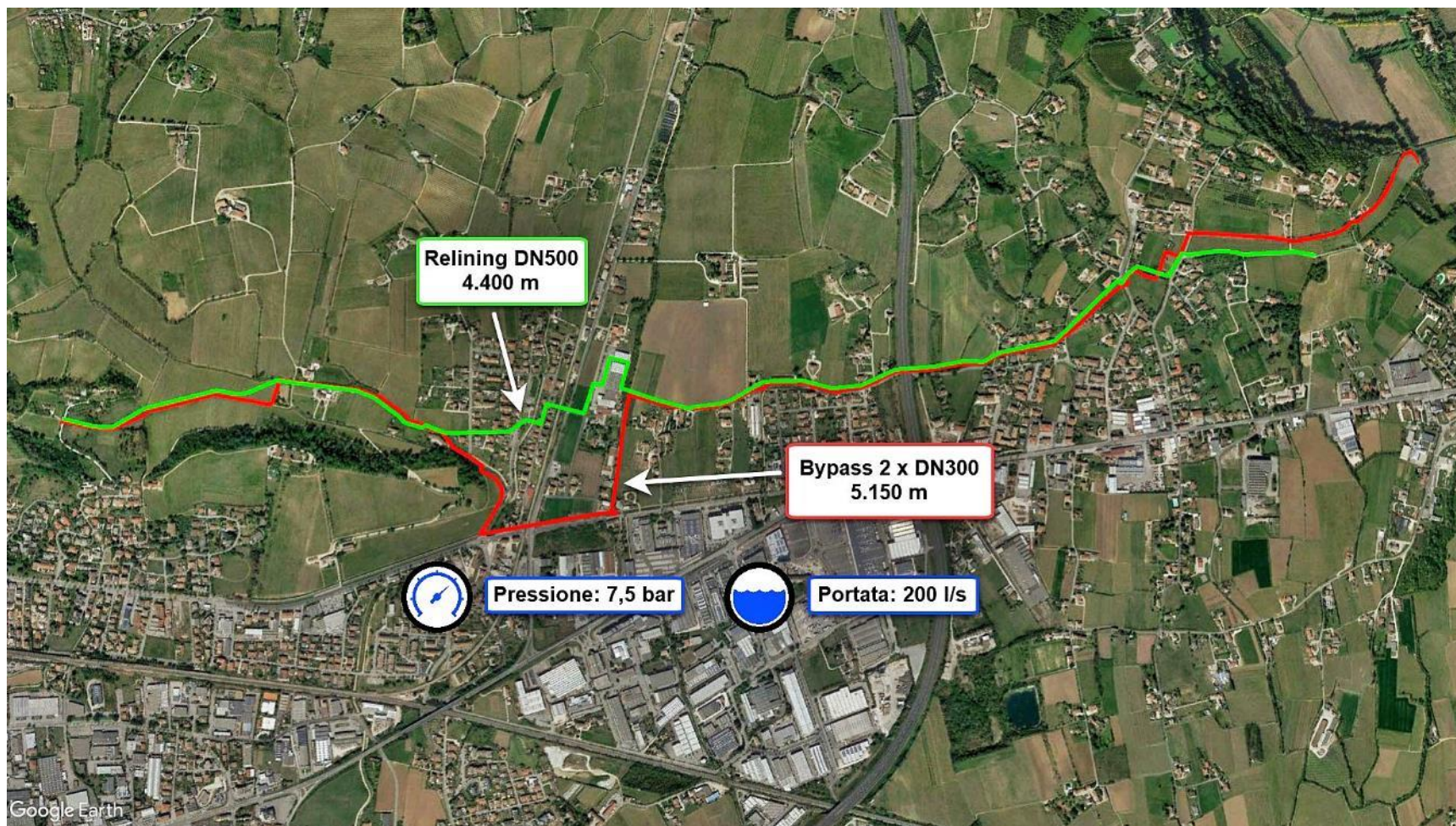
Zero impact rehabilitation in Conegliano Veneto

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Piave Servizi S.p.A. is the operating company that manages the Integrated Water Service for over **135,000 users** located in **39 Municipalities**, supplying quality drinking water to over **344,000 inhabitants**.



Project working steps.

1. Bypass route design
2. Mapping of branch connections and services to be restored
3. Deployment of 2xDN300 above ground lines with a total length of 8.5 km
4. Bypass pressure testing
5. Chlorination and water quality of the bypass analysis
6. Bypass commissioning simultaneously with the DN500 pipeline
7. Decommissioning of the existing DN500 pipeline
8. Emptying existing line DN500
9. Pits excavation on the DN500 pipeline
10. CCTV DN500
11. Pipe cleaning
12. Primus Line installation DN500
13. Restoration of vents, drains and branch connections
14. Rehabilitated pipeline pressure testing
15. Chlorination and analysis of the rehabilitated line
16. Commissioning of the rehabilitated line together with the bypass
17. Bypass decommission
18. Bypass emptying
19. Bypass removal
20. Demob.

Phase I – Bypass ON
(1-7)

Phase II – Relining Primus Line
(8-16)

Phase III – Bypass OFF
(17-20)

21. Repeat.

Primus Line system.



Flexible high-pressure liner

Patented end fittings

Primus Line® system

PRIMUS  **LINE**

Composition of the liner – DN 150 to DN 500

Outer layer:

Abrasion-resistant PE sheath

→ Protection of the fabric during insertion process

Reinforcement:

Aramid fibre fabric (one or two layers)

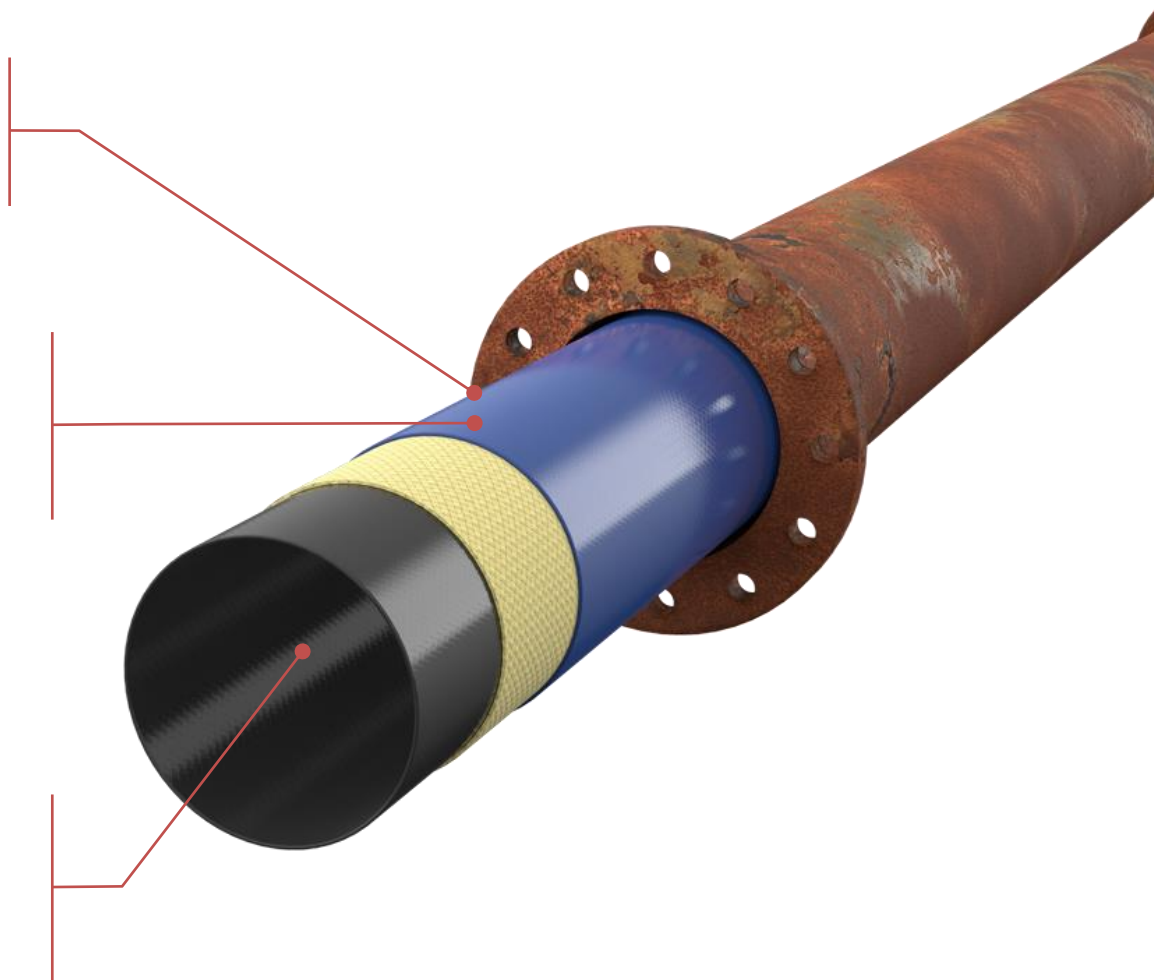
→ Absorption of the tractive forces during insertion

→ Accomodates the operating pressure by itself

Inner layer:

Based on PE or TPU

→ Sealing the reinforcement against the transported fluid



What is Kevlar ® ?

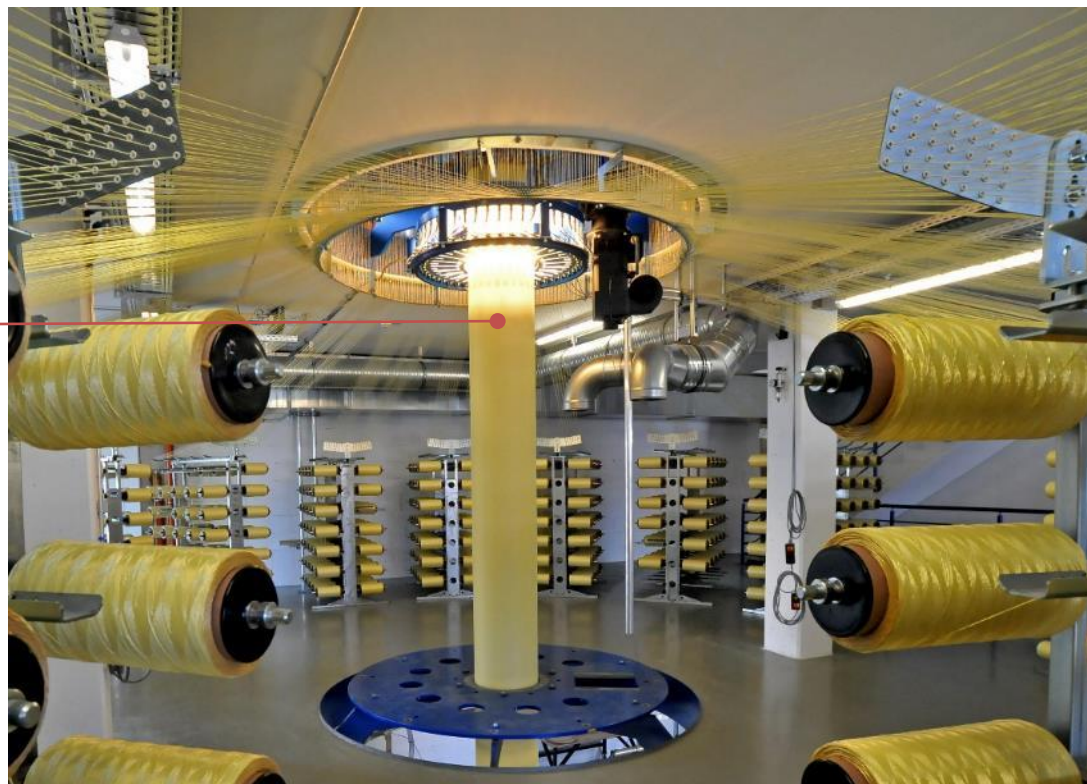
Synthetic aramid fiber developed by Dupont® in 1965.

Ultralight and ultra-resistant material.

Great mechanical tensile strength.

Weight for weight it is 5 times stronger than steel in tensile strength.

Used for PPE, bulletproof vests, motoring, aviation, sports equipment etc.





Bypass deployment



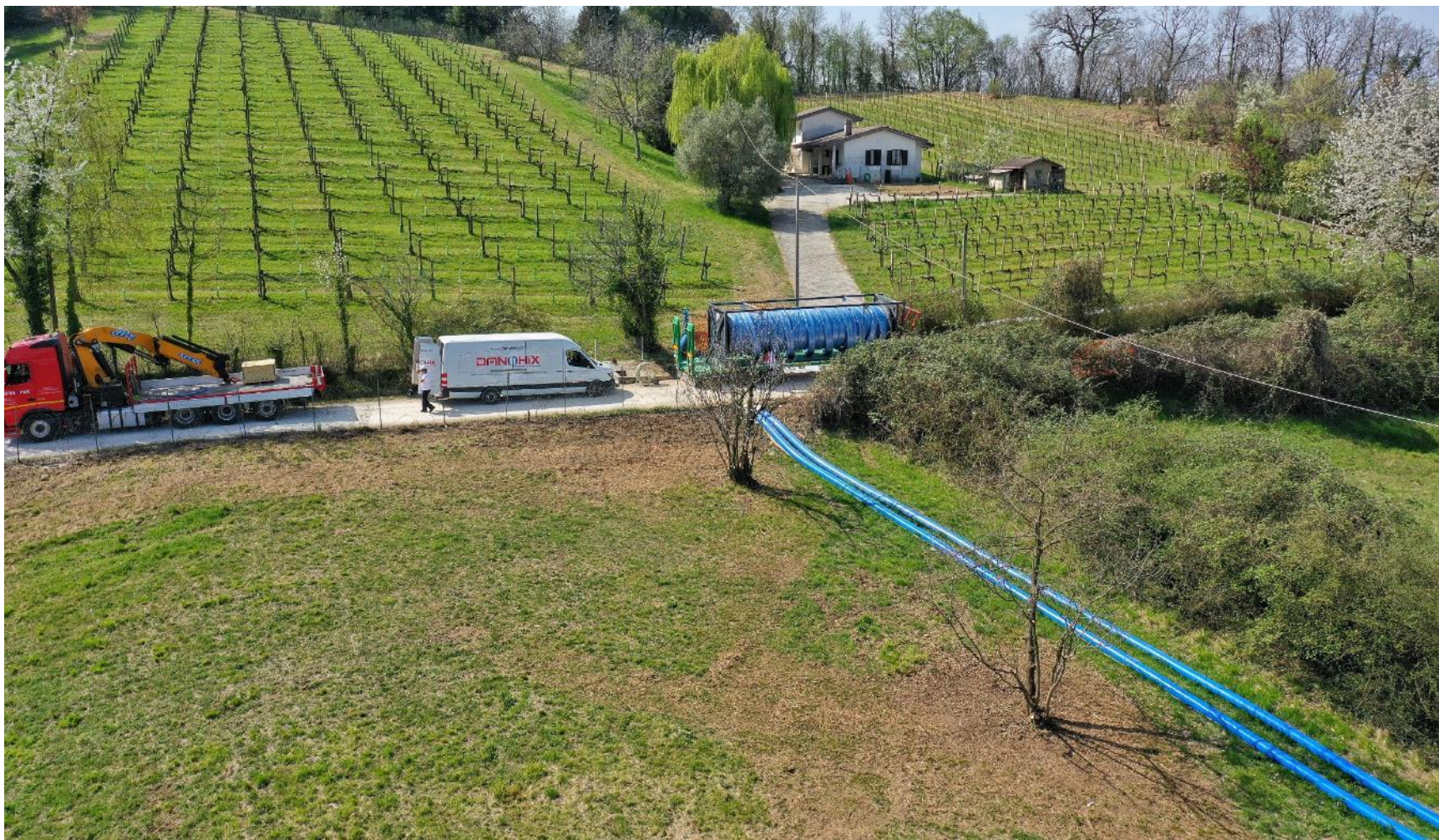
Bypass tie-in point with
existing line







Very delicate and
sensitive working areas



Line rehabilitation during bypass operation



Line rehabilitation during bypass operation

Existing pipeline chamber



Bypass 2 x DN300 in operation

Liner on transport unit – 1.1 km DN500



Line rehabilitation during bypass operation



Line rehabilitation during bypass operation



DN300 branch
connection restored



Air valve restored



Bypass removal

Fine.

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