# Launching of a long span viaduct

# Characteristics of the viaduct

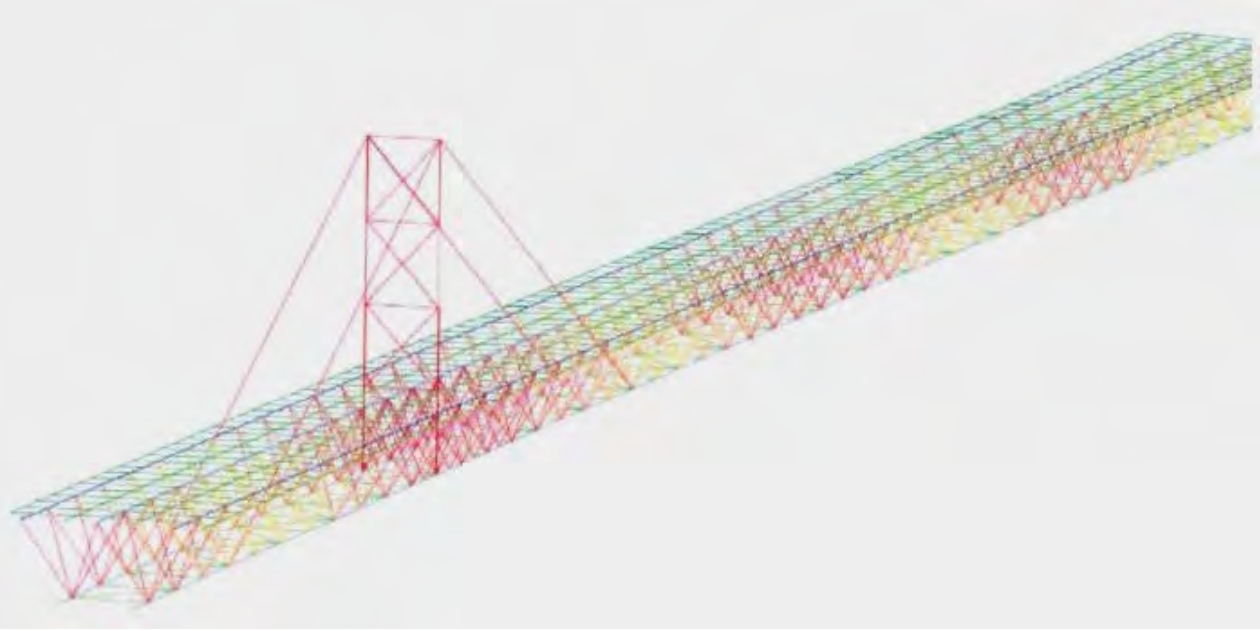
- Lenght : 590 m
- Spans : 85 + 140 + 140 + 140 + 85
- Structure : lattice girder
- Piles height : 60 m
- Placing : by launch
- Value : EUR 22 m

It makes part of a motorway section.

Original period of construction 38 months from Oct 03 to Dec 06.

# Launch

- The launch was carried out with the temporary support of a steel truss tower and a group of 8 post-tensioned cables.
- During the launch through the 4$^{th}$ span the girder suffered a sudden large plastic deformation.



# The loss

# The loss

# The loss

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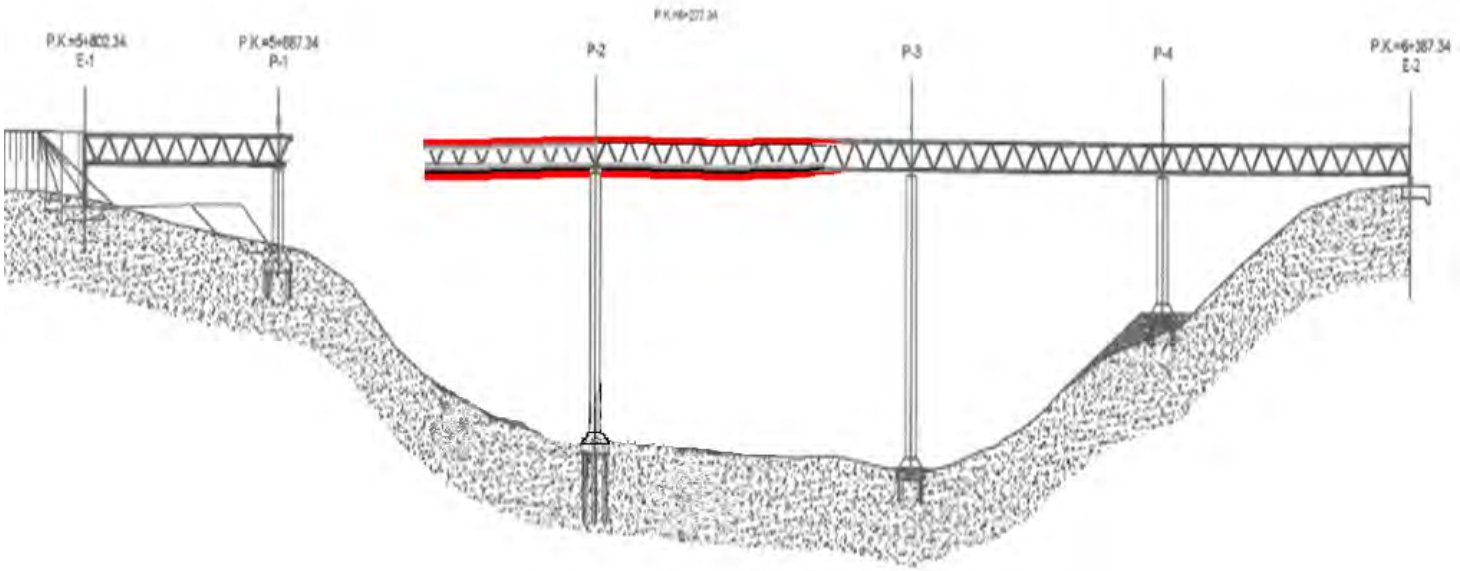
# Reparation works

The reparation process was complicated by the size of the girder and its position over the reservoir.

The sequence finally decided was the following:



# Reparation works

1. Lowering of the level of the reservoir and construction of a reclaimed platform.

# Reparation works

2. Construction of two auxiliary piles housing on top a suitable working platform

# Reparation works

3. Cutting and lowering to the ground the damaged girder section

# Reparation works

4. Substitution of the damaged girder section with a new one.


Preparation at ground level

# Reparation works

**Lifting**

# Reparation works


**Lifting – 2 cranes Demag 2,000 had been used**

# Reparation works


**In situ welding of the section and reinforcement**

# Reparation works

5. Reinforcement of all joints

# Reparation works

6. Control of the structure

# Reparation works

7. Completion of the launching

# Loss figures

The total loss amounted to EUR 16 m.

Indicative breakdown:

- Provisional piles 25 %
- Removal of damaged section 19 %
- Installation of the new section 24 %
- Demolition of the provisional piles 13 %
- Reinforcement of joints 19 %

# Consequences of the loss

- Total expenses incurred EUR 16 m over a total value of the viaduct of EUR 22 m (73%)
- Delay of 30 months in completing the project
- The loss lead the Principal to two changes in design:

- Reinforcement of all joints to avoid possible failure during the completion of the launching
- Amendment in the design of the deck. The increase in weight due to joints reinforcements was 3,000 t that had to be recovered from deck components.

# Underwriting considerations

In assessing the risk exposure the underwriter must give particular consideration not only to :

- Type of structure
- Method of construction
- Height above ground

But also to the accessibility of the structure.