

DETAILS OF INTERESTING CLAIM

No: DOIC 64 (CAR)

Type of Insurance:

CAR

Description of damaged item:

Defective grout of the foundation for the bridge pylons

Cause of Loss:

(2) Faulty material or workmanship

Claim Cost

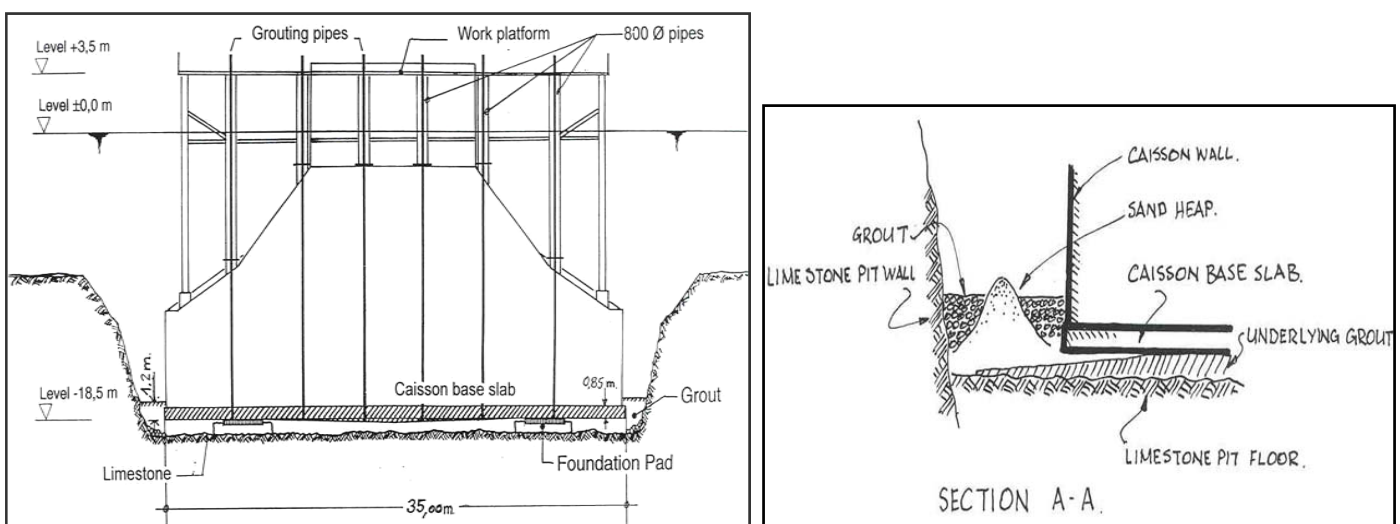
30 m USD

Description of Incident and Loss Prevention Measures initiated:

The foundations for the pylons consist of pre-fabricated concrete caissons grouted in the limestone, approx. 18 m below the surface of the sea. The caissons were floated out to their locations, suspended between pontoons, then lowered into the sea and positioned on three supporting pads located on the bottom of a pit, which was excavated in the limestone seabed.

Following the placement of the caisson the cavity between the underside of the caisson base and the bottom of the limestone pit were to be grouted.

Base grouting had to be stopped for 8 hrs due to bad weather. At that time 50% of grout had been placed. Before recommencing the grouting a diver was dispatched in order to ensure that no seaweed was being mixed with the grout material. He made a video film of this inspection, which was viewed only two days later. After restarting grouting and while viewing this video a heap of sand was observed on top of the grout between the pit wall and the caisson slab at the West pylon. At that time 95 % of grout had been placed.



After careful investigation it was concluded that no sand had been washed into the trench from the seabed but that the grout had de-mixed or had been washed out and therefore the sand stemmed from the grout. Additional core drillings confirmed that there was sand at various locations below the base slab. It was feared that the grout was likely to be inadequate for its intended purpose.;

Outline the interesting or unusual aspects of this claim or problems experienced during settlement

Cause of the loss:

The loss consisted in defective grout, no damage had occurred to the insured works.

Possible causes for the erosion of the grout were

- defect in workmanship
- defect in design
- adverse weather conditions
- seaborne traffic

The root cause of the de-mixing or erosion of the grout could not be unambiguously determined. Adverse weather conditions could not be proven to be the cause.

Initial repair works included backfilling of grout on the outside of the caisson and drillings within the caissons cells. The final repair was based on additional investigations and the confirmed

nature of the problem and extent of defect. Jet grouting and pressure conductivity systems were applied.

Repair costs, i.e. jet grouting costs were claimed.

The claim amount of approx. 30 m USD was later revised to 15, then to 12 m USD.

The policy exclusions applicable in this case were

- Normal action of the sea,
- Defective workmanship (accidental damage covered).

Based on the investigations and the policy exclusions the claim was declined. Due to the complicated legal situation (English wording, Swedish Law, Danish jurisdiction) and uncertainties in respect of the root cause a commercial settlement amounting to 650.000,00 USD was negotiated on a "strictly without prejudice" basis.

Conclusion:

The exclusion of adverse weather conditions (normal action of the sea clause) often proves insufficient. It requires additional definitions, quantification and a mutual understanding on how to measure the sea activity. Even a professional policy has often to be interpreted in the context of language, law and jurisdiction, which may render a univocal understanding of the policy liability very difficult if not impossible.

Often there is a combination of various causes contributing to a loss. Defects in design and defective workmanship very often are important and decisive factors to losses in wet works. Usually the allocation of repair costs to the individual causes requires comprehensive investigations and extensive negotiations as well.

(From [Engineering Insurance Exposure related to Wet Risks](#) - IMIA Paper WGP50(07)E)