

Tech Note 7: Underground, Concrete & Press-Fit

TN.07

Using press fittings underground or embedded in direct contact with concrete is not recommended however, where installation above ground is not possible, protecting the pipework and joins is crucial from possible and future external contaminants and environmental conditions achieved by separating and/or shielding the pipework.

Possible interactions include (but not limited to):

- High water table waters,
- Contaminated or reclaimed soils,
- Microbial inhabitants (ie MIC),
- High chlorine soils and sites near to bodies of salt water,
- Excessive expansion, contraction or restraint of movement by the concrete,
- Proximity to established or future plantings and the possibility of tree root egress.
- Soil movement; above ground weight loads including vehicles.

Site specific investigations including water and/or soil testing are recommended for each site by a NATA accredited laboratory. For example, the limitations of suitability for grade 316 stainless are where soil resistivity > 1000ohm.cm; pH > 4.5 & Chlorides < 1,400ppm.

Design Considerations

- A. Forming a continuous and impervious barrier (lagging or conduit) that extends a minimum of 75mm above finished ground level or past the edge of the concrete.
- B. Ensure the barrier is suitable for use with the pipework material and application. Note for fire water pipelines, AS 2419.1 (fire hydrant) does not permit the use of loose poly sleeve as a barrier but requires a double wrapped layer of Denso.
- C. The barrier is applied and installed in accordance with the manufacturer's instructions.
- D. Prevent trapping and the egress of moisture (including condensation) between the pipework external surface and the barrier material chosen. Prepare the surface to remove possible contaminants before 'trapping' with the barrier.
- E. Backfill the trench with pH neutral river sand with low chloride (this can be confirmed when ordering sand for a chemical batch analysis report from the supplier).
- F. Any trace wire be a minimum of 25mm clear of the pipework.
- G. Recommended warning tape be installed above the pipework in accordance with the relevant standard (eg AS 3500).

It is noted that this is a generic installation method and each project shall be assessed individually to confirm suitability and effectiveness of the protection method.

