

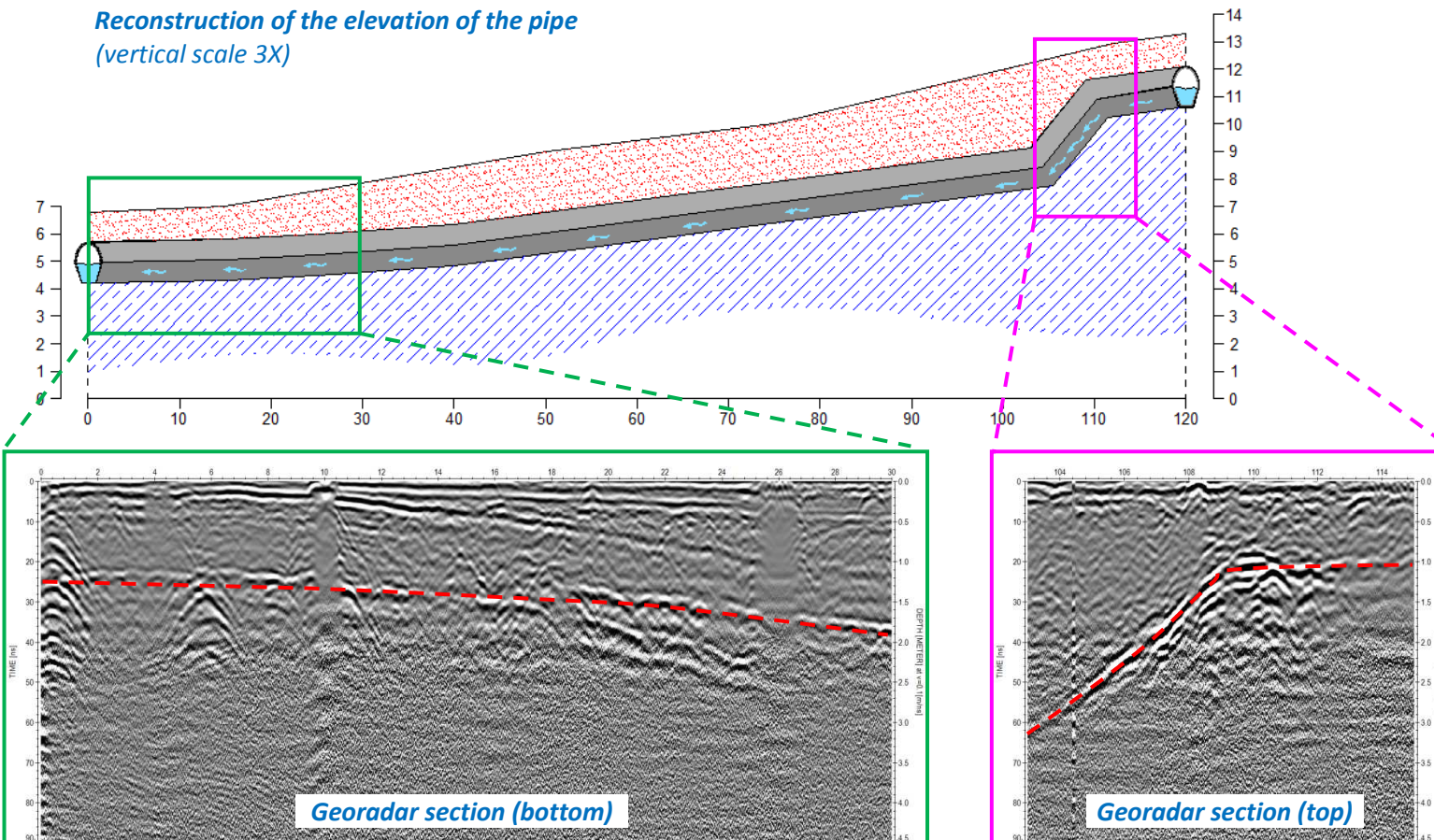
BIG REINFORCED CONCRETE PIPE LOCATION GROUND PENETRATING RADAR (GPR)

The foreknowledge on the type and position of underground utilities and of underground structures in the urban environment is of fundamental importance for each intervention of excavation, whether it is finalized to the laying of new pipes or, in general, of underground structures. The position of underground structures is not, in fact, always known or is not sufficiently detailed.

Among the indirect method of investigation, GPR is the more appropriate, because it combines fast survey and high resolution results. This method is based on the reflection of electromagnetic waves generated by elements different dielectric characteristics, and highlights "shapes" easily associated to artifacts buried (for size, continuity, etc..). The survey according to a regular grid of GPR sections allows a precise reconstruction of the underground structures.

The example below refers to a survey performed along a road, in order to locate a big reinforced concrete pipe and reconstruct its development. The predicted depth of the pipe was between 1.5 and 3.5 m: for this reason we decided to use a medium-low frequency antenna (270 MHz), ensuring a greater depth of investigation. In this way it was possible, in a first phase, accurately locate the pipe by transverse sections and then realize a section exactly on the axis of the pipe in order to reconstruct its elevation.

*Reconstruction of the elevation of the pipe
(vertical scale 3X)*



GPR equipment

