CLAIMS

1. A method for freezing and treating a mass of soil, making it possible to compensate for deformations of the mass of soil during thawing, including the following steps:

a) producing at least one bore (2) in the mass of soil,

b) at least partly freezing the mass of soil using a freezing fluid injected into the bore, and then

c) injecting a compensation grouting (55) into the mass of soil, using the bore (2) that was used for freezing, during the thawing phase in order to at least partly compensate for variations in the volume of the mass of soil when the latter thaws.

2. The method as claimed in the preceding claim, the bore (2) being produced by means of a drilling tube (10) with or without sleeves (11) equipped at the end with a drilling tool (15), the drilling tube (10) being left in place during the freezing step and during the step of injecting the compensation grouting (55).

3. The method as claimed in the preceding claim, the drilling tube (10) being embedded in the mass of soil by injecting an embedding grouting (50) and then being cleanable to drain it off the embedding grouting (50) before the freezing operation.

4. The method as claimed in either one of the immediately preceding two claims, the compensation grouting (55) being injected at a pressure sufficient to fracture the embedding grouting.

5. The method as claimed in one of the preceding claims, the freezing operation being performed by introducing a freezing probe (20) into the bore (2).

6. The method as claimed in the preceding claim, the freezing operation being performed by introducing a freezing probe (20) into the drilling tube (10) in place.

7. The method as claimed in claim 5 or 6, in which a thermally conductive fluid is used to fill a space provided around the freezing probe (20) in the drilling tube (10).

8. The method as claimed in any one of claims 5 to 7, including a step of drawing the freezing probe (20) before injecting the compensation grouting (55).

9. The method as claimed in any one of claims 5 to 8, the freezing probe (20) including an outer tube (21) and an inner tube (22) disposed inside the outer tube (21).

10. The method as claimed in any one of claims 2 to 9, the compensation grouting (55) being injected with the aid of an injection tube (30) introduced via a plug (61) disposed in the drilling tube (10).

11. The method as claimed in the preceding claim, the compensation grouting (55) being injected at at least two levels into the mass of soil, by moving the plug (61) in the drilling tube (10) and using orifices of the latter preferably blocked by sleeves (11) located at at least two different heights on the tube.

12. An assembly designed for execution of the method as claimed in any one of the preceding claims, including a drilling tube (10) equipped with a drilling tool (15), an injection tube (30) for injecting compensation grouting, the drilling tube (10) being configured to receive the injection tube (30) during the thawing phase, and a freezing probe (20) configured to be fixed removably in the drilling tube (10).