

BluCem HE80

PRESSURE GROUTING FOR SLAB STABILISATION
METHOD STATEMENT

For the installation and quality control of BluCem HE80 - early strength slab stabilisation grout.

1.0. GENERAL

- 1.1. The installation and composition of BluCem HE80 shall be as stated in this Method Statement.
- 1.2. Authorised contractors appointed and trained by Bluey Technologies Pty Ltd shall only carry out installation of the BluCem HE80.
- 1.3. A programme of work shall be agreed with the client prior to commencement of installation. Requirements for the provision of sufficient working area, plant, safety and, if required, protection to the works shall be agreed.
- 1.4. The current method statement together with all necessary Material Safety Data Sheets and risk assessment for the Works shall be given to the client and maintained on-site.

2.0. QUALITY CONTROL

- 2.1. Every batch of material shall be subject to visual quality control checks to ensure compliance with the system specification.
- 2.2. All product received on-site shall be logged and stored in accordance with the manufacturer's instructions to prevent contamination or deterioration.

3.0. GROUT PROPERTIES

- 3.1. Fluidity – The mixed BluCem HE80 must achieve a flow cone <30secs. A test must be done at the start of each shift to ensure correct fluidity is being achieved.
- 3.2. Bleeding – Final bleeding <0.5% (test method ASTM C940).
- 3.3. Strength.
 - 3.3.1. $\geq 20\text{MPa}$ @ 2hrs.
 - 3.3.2. $\geq 40\text{MPa}$ @ 4hrs.
 - 3.3.3. $\geq 60\text{MPa}$ @ 24hrs.

4.0. EQUIPMENT

- 4.1. Mixing: A variety of grout mixers can be used to mix the BluCem HE80. The approved contractor should consult with Bluey Technologies about the suitability of the mixing equipment it proposes to use.
- 4.2. Pumps: A variety of pumps may be used to place the grout. The approved contractor should consult with Bluey Technologies about the suitability of the pumping equipment it proposes to use.
- 4.3. Injection Equipment.
 - 4.3.1. To prevent grout extrusion or backup during injection, the injection equipment must include a grout packer that is capable of sealing the hole.
 - 4.3.2. There are two common grout packers but any device may be used subject to approval by Bluey Technologies that can hold the injection nozzle in place and adequately seal the hole.
 - 4.3.3. The injection equipment should include either a return hose from the packer to the grout tank or reverse switch to stop grout injection.

5.0. PREPARATION OF SUBSTRATE

- 5.2. All concrete deck preparation shall be carried out to provide a sound substrate. The preparation method shall be approved by the client.
- 5.3. All surfaces shall be dry and free from ice, frost, oil, grease, curing compounds, shutter release oils, loose particles, laitance, friable matter, dirt and all other contaminants.
- 5.4. Following the preparation work and prior to the installation of the grout, the substrate shall be inspected and approved by the authorised contractor to ensure the preparatory works are satisfactory.
- 5.3. All surfaces shall be dry and free from ice, frost, oil, grease, curing compounds, shutter release oils, loose particles, laitance, friable matter, dirt and all other contaminants.
- 5.4. Following the preparation work and prior to the installation of the grout, the substrate shall be inspected and approved by the authorised contractor to ensure the preparatory works are satisfactory.

6.0. INSTALLATION

6.1. GENERAL

- 6.1.1. Installation of the BluCem HE80 shall only be carried out by authorised contractors trained by Bluey Technologies.
- 6.1.2. The site record must be signed off by the authorised contractor that the substrate is suitable for acceptance of the BluCem HE80.

6.2. INJECTION HOLES

- 6.2.1. The authorised contractor must drill several holes through the slab in a grid pattern, which has been agreed prior with Bluey Technologies, Client and Engineers.
- 6.2.2. The grid pattern will vary depending upon the pavement and associated voids under the pavements.
- 6.2.3. A 1.5 - 2m grid is a common pattern for slab stabilisation, the pattern shall be established to allow grout flows from one hole to another or to the nearest joint.
- 6.2.4. The contractor may elect to increase the spacing if the grout flows easily between the holes. If the grout does not flow easily, the contractor may elect to reduce the spacing. This must be done in consultation with the client.
- 6.2.5. Each project is unique and trials are necessary at the start of a project to help determine the appropriate.

6.3. GROUT INJECTION

- 6.3.1. In most cases injection should start at the centre holes and work out towards the shoulders.
- 6.3.2. When pumping holes near the edge of the pavement the contractor must use care to avoid raising the shoulder.
- 6.3.3. The grout injection should start at low pumping rate and pressure. Grout injection pressure should usually be in the range of 2.5 bar – 4 bar with a maximum pressure of 7 bar. Initially a short pressure surge may be necessary to clear debris from the grout hole and voids. This initial surge can be as high as 14bar for 2-3seconds. If the pressure doesn't drop after three seconds there is likely some other problem, such as blockage or no voids.
- 6.3.4. Pumping should cease when any of the following occur; the slab begins to rise, the grout no longer pumps at maximum pressure, grout begins to flow up adjacent holes or joints.
- 6.3.5. When the grout is displacing water from under the slab, pumping should continue until undiluted grout flows from the same area.

6.4. SUBBASE LAYER

- 6.4.1. Where grout must be pumped beneath the subbase concrete, the packer being used must be inserted to the level where the grout will be injected to ensure that no grout is deposited between the subbase concrete and base concrete.

6.5. COMPLETION OF WORK

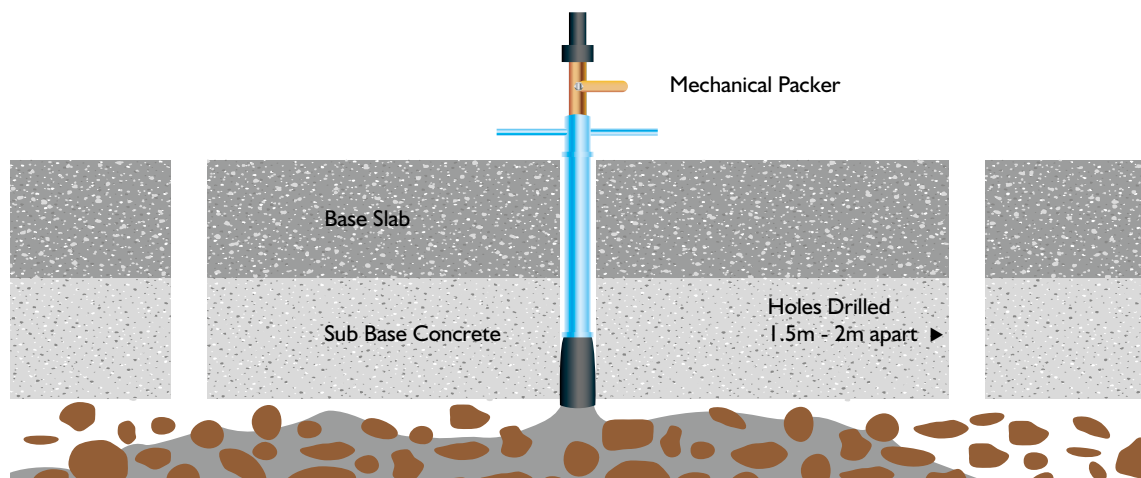
- 6.5.1. After completing the grouting works the contractor should remove the packer and plug the hole with grout.
- 6.5.2. Traffic can resume a minimum of 2 hours after completion of grouting. Contact Bluey Technologies to discuss reducing this time period if required.

7.0. SYSTEM INSTALLATION CHECKS

- 7.1. The batch numbers and coverage rate/usage shall be recorded for each slab injected.

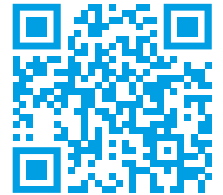
8.0. DOCUMENTATION

- 8.1. A site record shall be maintained for each day's production by the authorised contractor. The records shall be dated and numbered consecutively for each phase of a contract. These should be signed off by the client.



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