4.5 BITUMEN SLIP LAYER FOR PILES

4.5.1 Description

This work shall consist of a bitumen slip layer placed on the upper part of concrete piles before driving.

Bitumen slip layer is provisional, and shall be used only if directed by the Engineer. The use of a slip layer to reduce negative skin friction on the piles will be evaluated after completion of pile load tests.

The bitumen layer shall be used on the upper part of the pile through soft and medium stiff clay. Any shorter length may be decided by the Engineer. This part of the pile shall be primed and uniformly coated with a bituminous material as specified below. No priming or coating shall be allowed below the designated elevation of the installed pile.

4.5.2 Materials

4.5.2.1 Primer

Before priming, the pile shall be completely clean and dry. The primer shall consist of the relevant bitumen for the slip layer and a petroleum solvent, or RC 250 as decided by the Engineer. The bitumen and the solvent shall be suitably blended to produce a liquid coating which may be applied cold, and which produces a suitable bond between the pile surface and the asphalt enamel. The primer shall have good spraying, brushing and levelling properties and a minimum tendency to produce bubbles during application. It shall be homogeneous and free from water.

The amount of primer shall be 0.2 litre/m², applied with brushing or spraying to achieve a uniform continuous film.

The primer shall be allowed to set thoroughly, for minimum 6 hours or more as needed, before the slip layer is applied.

4.5.2.2 Bitumen

The bitumen slip layer shall consist of a straight run bitumen, penetration grade 80-100.

The bitumen shall be heated to a liquid state, that is approximately 200°C, and applied by brushing or other approved means. The thickness shall be minimum 3 mm.

Special measures such as wrapping sprayed surfaces with suitable paper or plastic sheet shall be taken to prevent the bitumen from flowing and stripping and from damage during handling and storage. During storage the piles shall be protected from sun-heat, and if necessary cooled with spraying of water.

4.5.3 Field Storage and Installation

Precautions shall be taken to prevent damage to the bitumen slip layer during installation as deemed necessary by the Engineer.

Piles shall not be placed directly on the ground: wood sleepers shall always be used. The sleepers shall be placed beneath the uncoated end parts. When lifting piles the wire rope should not be in direct contact with the bitumen slip layer.
4.5.4 Measurement

The unit of measurement shall be square meters of pile covered by bitumen slip layer and accepted by the Engineer. Cut off lengths shall not be measured for payment.

4.5.5 Payment

This work measured as provided above shall be paid for at the Contract unit prices per square metre. The unit rate shall constitute full compensation for all materials, equipment and workmanship necessary to provide the slip layer and the protective layer inclusive of protective metal rings if required, and the additional costs incurred during handling and driving of the piles.

Payment shall only be made if bitumen slip layer is selected and ordered in writing by the Engineer.

Pay item shall be:

4/5/1 Bitumen Slip Layer to Concrete Piles Square Metre