DELIVERING FOR QUEENSLAND

Technical Note 45

Surface Finish of Prestressed Concrete Octagonal Piles

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Queensland Government

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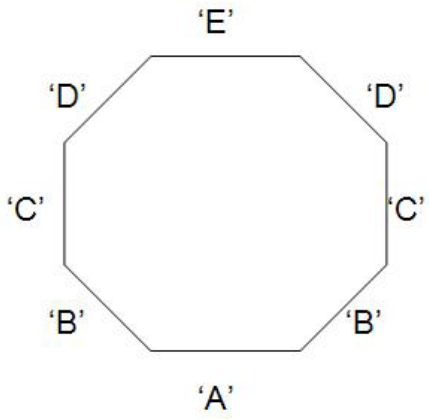
1 Introduction

This document provides further guidance on the required surface finish of prestressed precast concrete piles manufactured to MRTS73 *Manufacture of Prestressed Concrete Members and Stressing Units*. A uniform Class 2 finish to AS 3610 can be difficult to achieve with the shuttered surfaces (D) of octagonal piles (see Figure 1).

Figure 1 – Surfaces of octagonal piles, as cast (E up)



2 General

MRTS73 *Manufacture of Prestressed Concrete Members and Stressing Units* requires:

a) a Class 2 finish for faces A, B and C

b) a Class 3 finish for faces D, and

c) a steel-trowelled finish for face E.

Further to these requirements, any air (blow) holes exceeding 12 mm in lateral dimension or having a depth greater than 3 mm need to be filled. Of particular concern is the area near the pile tip which should be thoroughly checked and repaired if necessary.

3 Lower Faces

Faces 'A' 'B' and 'C' shall have a Class 2 finish to AS 3610. This should be readily achievable with clean rigid metal forms and adequate vibration of workable concrete. The slope of Face 'C' may vary up to 5 mm from the vertical to enable the pile to be easily removed from the form.

4 Inclined Faces

Precast manufacturers should also aim to achieve a Class 2 finish on faces 'D' however due to the propensity for air bubbles to become trapped in this area during vibration, a relaxation to a Class 3 is permitted.

Where the bridge design incorporates prestressed piles all the way to the headstock, this relaxation does not apply to the length of pile between ground level and the base of the headstock by default. At the Administrator's discretion, it may still be applied, for example, where aesthetics are not a concern.

5 Top Face

Face ‘E’ (the top face) is smooth finished with a steel trowel and then marked for length in accordance with MRTS73 *Manufacture of Prestressed Concrete Members and Stressing Units*.

6 Examples

It is recommended that sample / reference panels be kept for agreement on what constitutes a typical Class 2 and Class 3 finish. Figures 6(a) and 6(b) compare acceptable and unacceptable finishes.

Figure 6(a) – Acceptable Surface Finish following repair (Face C)

Figure 6(b) – Unacceptable surface finish (Face D)