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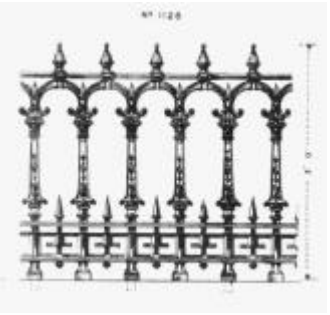
Technical Guidance Note 11

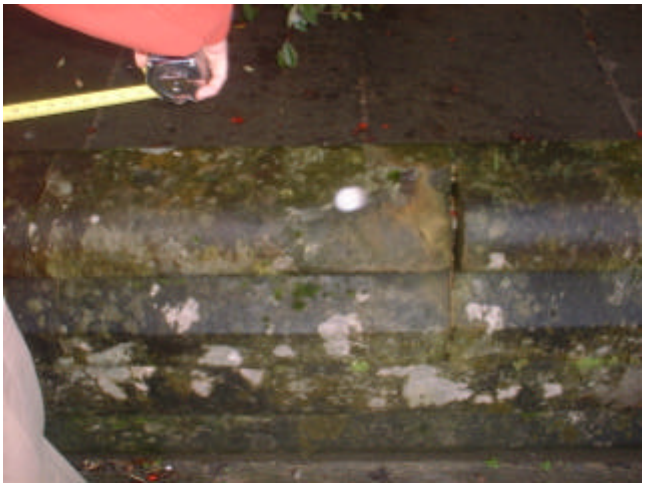
Cold Removal of railing fragments from sandstone cope.

Introduction



Railings removed for the war effort in Glasgow / typical detail

Removal of Iron railings for the war effort has left many cope stones with railing stubs intact set into tamped lead sockets. At between £3-500 per lineal metre for new cope, and with the aim of maintaining the historic fabric of the wall, this method provides a low – tech method for removal to allow a new installation.



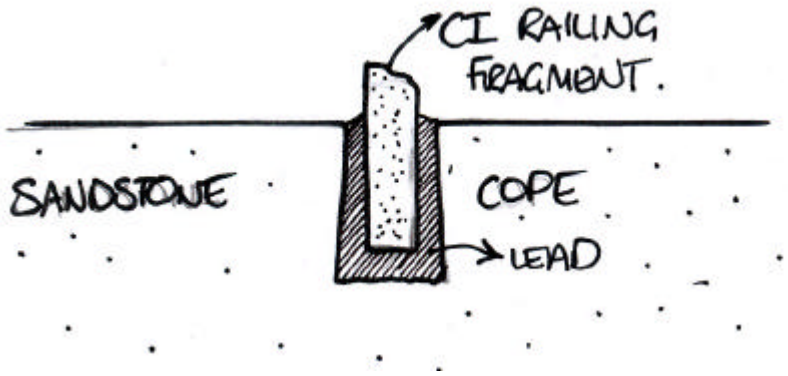
Existing cope, railings removed and stubs in – situ. Dungarvan

Heat should NEVER be used for the removal of stubs. The Health & Safety risks associated with melting lead in a public space are onerous, and wet copes can often explode as the water turns to steam and expands rapidly. Some copes are beyond saving however, as the sample to the right (above) shows.

This technique is reliant on the fact that when originally poured, most lead sockets chilled rapidly (unless the iron was heated). The lower void below the railing is often found to

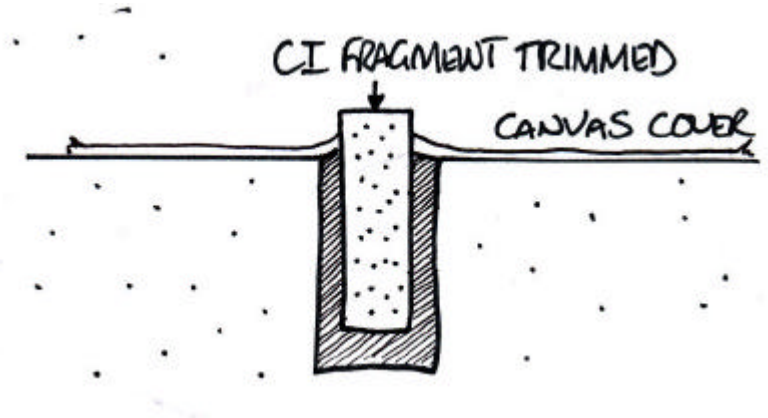
have no lead. Some baluster roots were swaged or serrated. These can be difficult to remove.

General Arrangement : cross section of cope and railing fragment



The removal process is shown below as a seven stage process. It is important that the operative hones the technique off – site on a sample cope. The technique requires skill in maintaining equal load on removal, and in drilling and tapping the fragment square. Care must be taken not to snap the tap in the fragment.

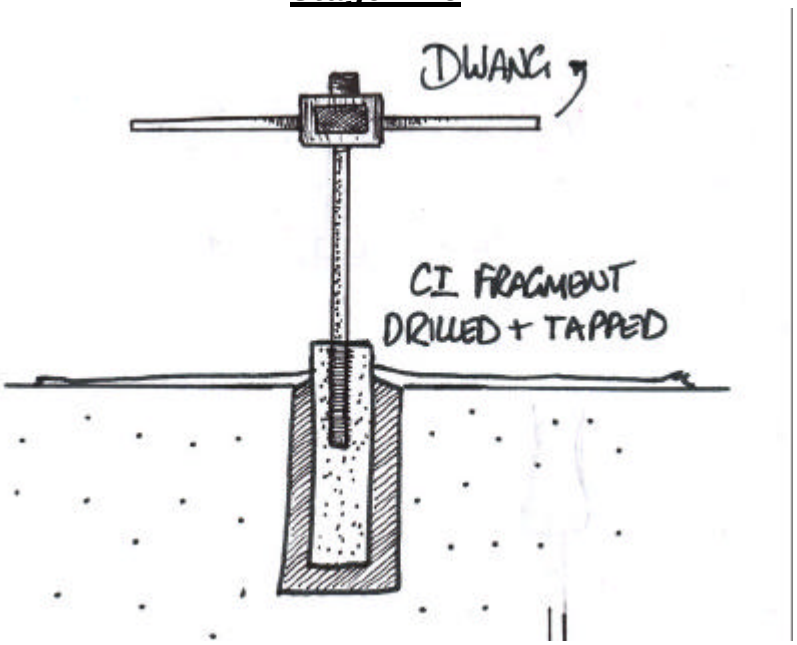
Stage One



The cope is protected from iron staining by canvas, and the railing fragment is filed by hand (to prevent excess CI dust)

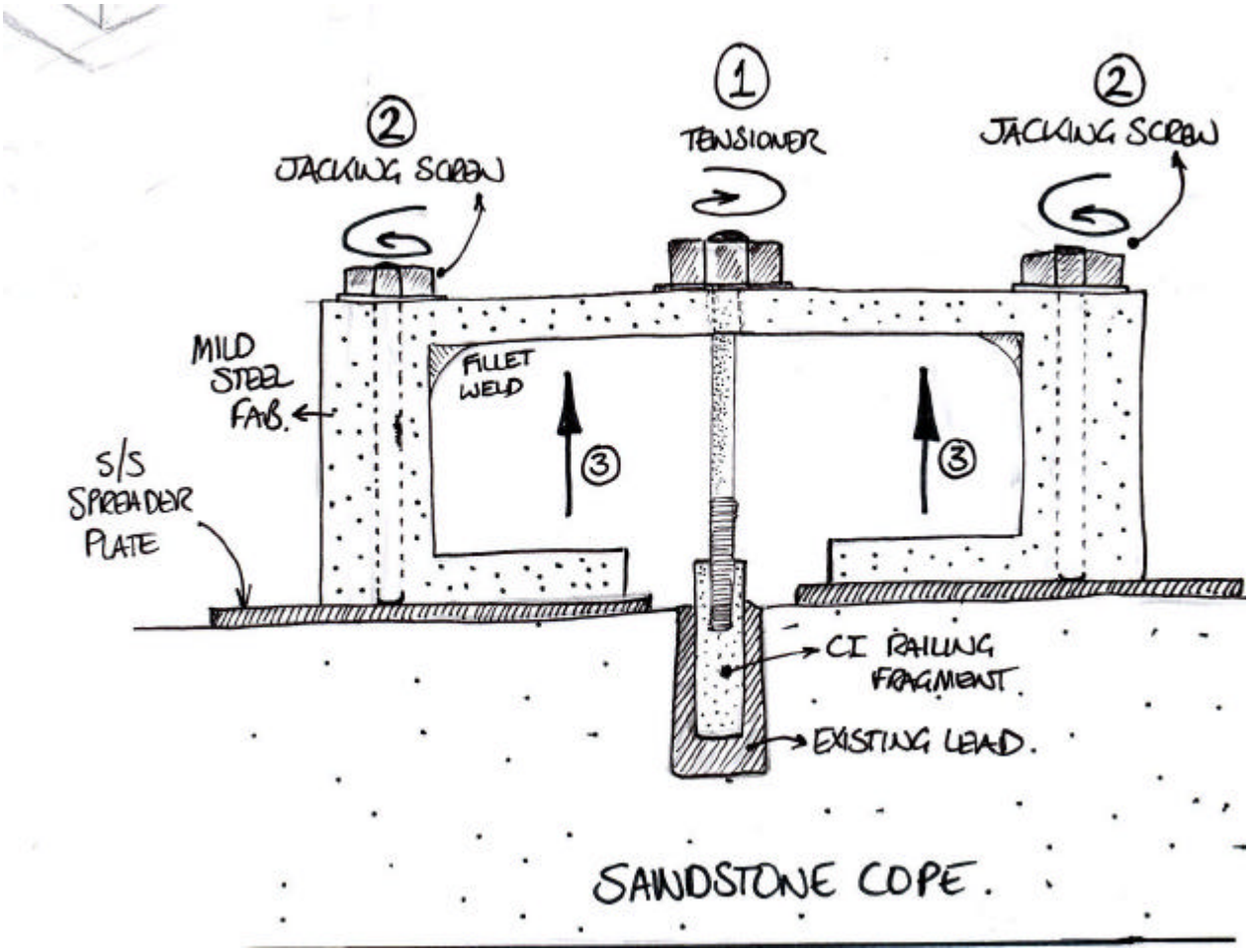
The protection of the cope from iron filings is most important. The cope should be protected, and also cleaned down and washed on completion. Sandstone suffers from iron staining to a great degree due to it's porous nature.

Stage Two



The railing fragment is drilled and tapped square as shown.

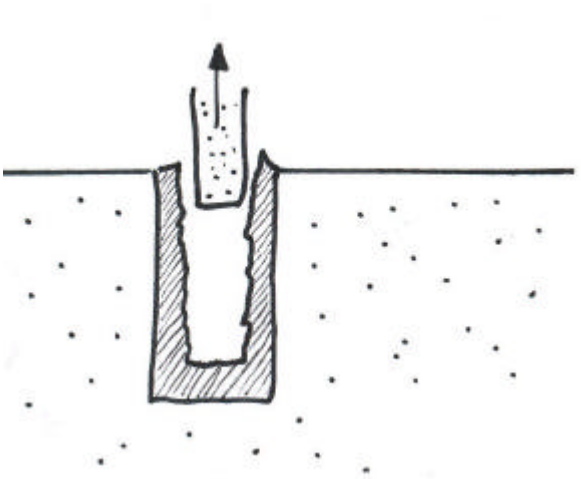
Stage Three



A jacking device can be simply manufactured in mild steel, or in stainless for long term use. A tensioner takes up a slight load into the tapped fragment. Stainless steel plates are used

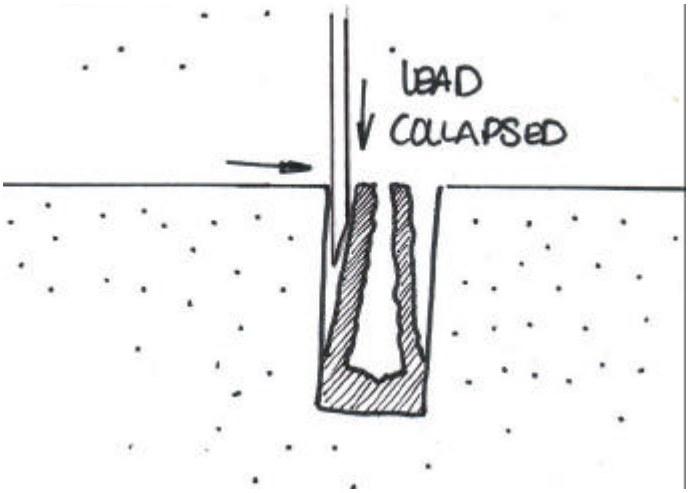
to spread the load on the cope. The jacking screws are slowly tightened against the resistance of the fragment in the lead.

Stage Four



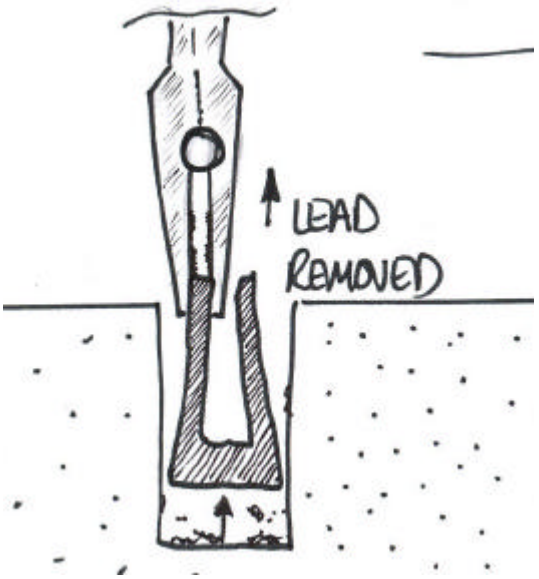
The railing fragment is released from the lead and removed.

Stage Five



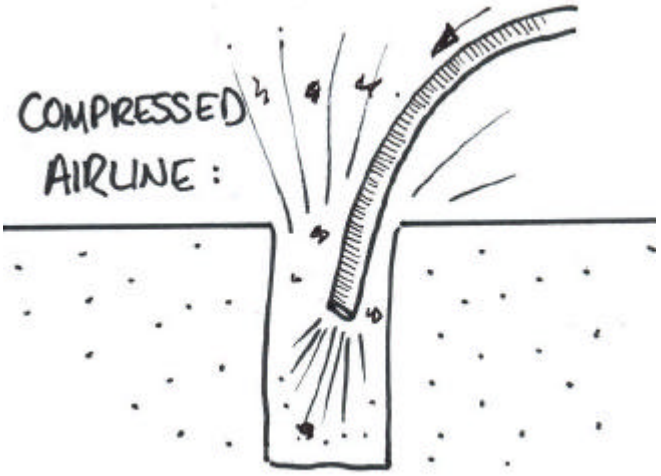
Using a chisel, the lead is carefully collapsed into the chased cope. Care must be taken to avoid damage to the cope.

Stage Six



The lead is removed with long nosed pliers, leaving small fragments of lead and stone behind.

Stage Seven



An airline is used to clear any residual debris.