

# **CLARK-DRAIN MODULAR CHAMBER INSTALLATION GUIDELINES**

These are intended as guidelines only – if in doubt, seek advice  
Always take care when using hand and power tools and wear PPE

## **Notes before starting works:**

- a) *All Clark-Drain modular chambers are supplied with a pre-determined configuration of duct entries along with a selection of 96mm or 110mm bellmouths, and universal blanking caps.*
  - i. *The blanking caps should be used on all unused duct entries, fitted on the outside wall of the chamber, to prevent back-fill from entering during subsequent installation.*
  - ii. *Bellmouths should be fitted on the inside as required for all duct entries.*
  - iii. *Should additional quantities of bellmouths or blanking caps be required these can be purchased separately (product codes CD 24281/96, CD 24281/110 and CD 24282).*
- b) *Should additional duct entries be required the chamber walls can be drilled with a hole-saw at an appropriate position, ideally along the same horizontal plane and without cutting across any joint lines if possible. Please note: breaching too many joint lines while drilling bespoke duct entries may compromise the chamber wall strength.*
- c) *All ducting should enter at 90° to the chamber wall.*
- d) *Chamber depth can be increased using additional ring sections, purchased separately. Each ring increases the chamber depth by 150mm, and must be secured to the adjacent ring by use of link plates provided. When adding rings to increase chamber depth, please remember to purchase and fit additional step-irons (product code CD 24840) as needed. We recommend at least one step every third ring (i.e. every 450mm).*

## **Installation:**

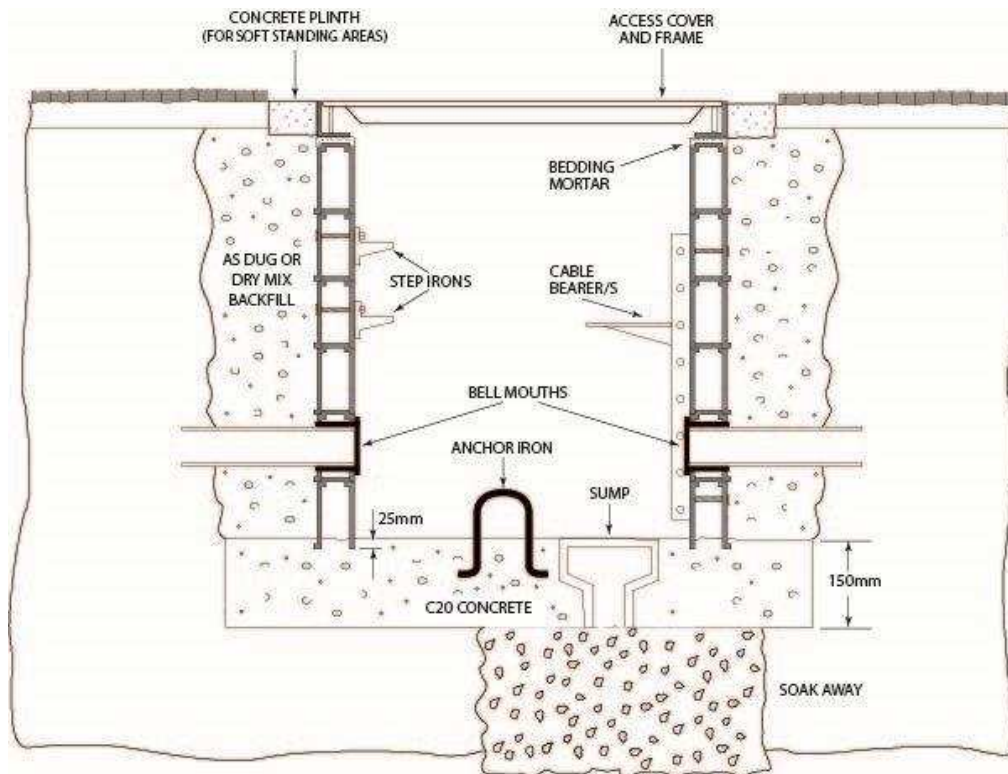
1. Mark out the area where the pit is to be excavated, allowing a minimum of 150mm (or more to allow space to work as needed) around the full perimeter of the chamber for backfilling and compaction.
2. Within the marked area, excavate from finished surface level to the total depth of the chamber, plus the depth of the concrete base, plus the depth of the access cover and frame (including a small allowance for bedding mortar).
3. Once the pit has been excavated, compact the base then install/position the anchor iron and/or sump unit with soakaway if required in their intended positions before pouring a concrete base to form the foundation of the chamber. The concrete used for the base should be of at least C20 grade and be at least 150mm thick. While the concrete is still wet it is recommended that the bottom ring of the modular chamber be set into it by approx. 25mm. To facilitate this, Clark-Drain modular chambers are supplied with the bottom ring easily detachable by removal of the relevant cable bearer bracket fixings, if fitted, or by removal of the plastic welds that hold the bottom ring to the one above.
4. When the bottom ring of the chamber is in position finish the floor using a float and trowel to achieve an even surface that is sloped slightly towards the sump (if installed).
5. The remaining ring sections of the chamber can then be installed on top of the base ring, securing the two together with the fixings provided, and ensuring the ducting is fitted in the relevant duct entry holes and trimmed to the correct length.
6. Prior to back-filling around the chamber, the inside walls **must** be fully and substantially braced to avoid the walls bowing inwards during back-filling and compaction. This bracing should only be removed when the chamber installation is complete and all concrete used has fully cured. At this point all required bell-mouths should be fitted.
7. For FACTA AAA/B125 applications the back-fill can be as-dug material or dry mix concrete. For D400 applications the back-fill **must** be concrete of at least C20 grade. Back-fill in 300mm maximum layers and where dry mix or concrete has been used allow to cure before applying the next layer. Chambers installed in turfed or soft-standing areas should also have a concrete ring around the frame of the access cover of at least 100mm

wide x 75mm deep to prevent damage to the access cover by non-road vehicles (e.g. lawn-mowers) and/or long-term sinking issues.

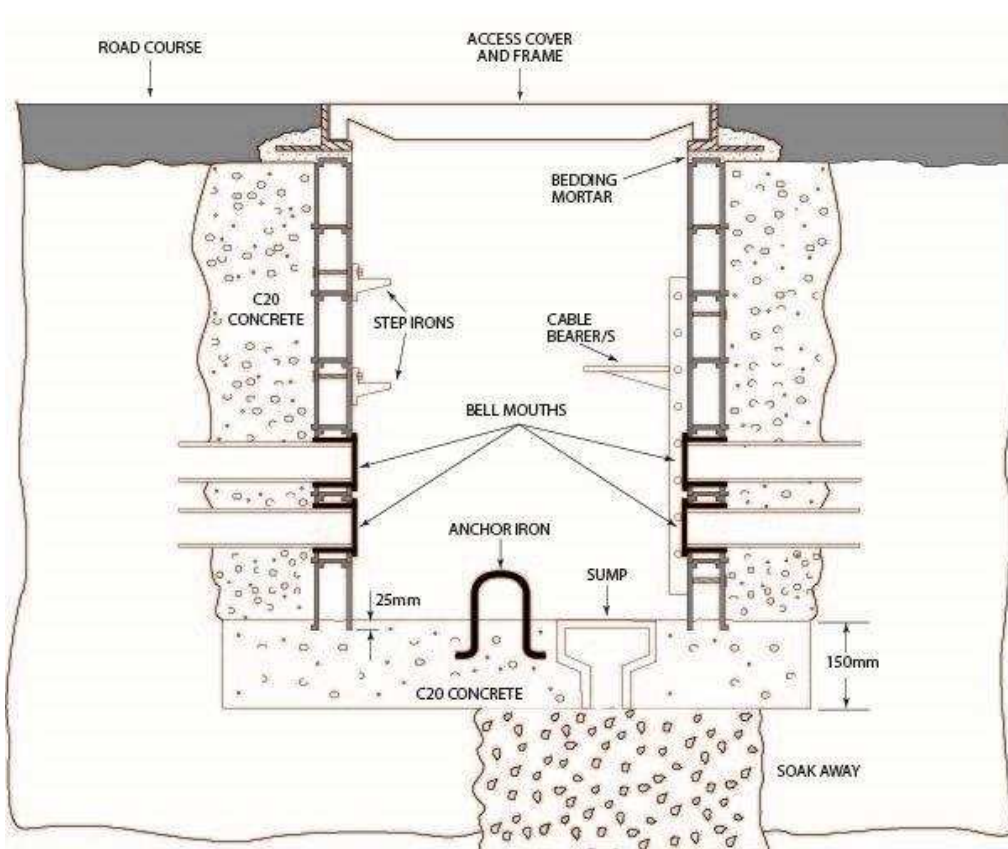
8. When the back-filling is complete and any concrete used has fully cured the access cover and frame can be fitted as per normal procedure. Resin-based bedding mortar between the access cover frame and chamber top is *recommended* for FACTA AAA/B125 applications, and a *necessity* for D400 applications (as per standard industry practice).

**Example installation diagrams:**

### FACTA AAA/B125



### D400



## **FACTA E / E600 Addendum**

**For FACTA E / E600 installations the guidelines above for D400 installations should be followed, with the following exceptions:**

1. Back-fill surround width around the full perimeter of the outside of the chamber should be **250mm** minimum.
2. The thickness of the concrete base should be **250mm** minimum.
3. Concrete grade used for back-fill and base should be **C30** minimum.
4. Where the manhole cover being used is intended to be directly sited on top of the chamber, bedding of the manhole cover frame on a thermosetting polymer resin or cement based bedding mortar complying to HA104/09 (Tensile strength of  $>5\text{N/mm}^2$  and Compressive strength  $>30\text{N/mm}^2$  at 3 hours) is a MUST. Please note that resin based mortars should not be used/applied in wet/rainy conditions as their performance is significantly affected.
5. Where the manhole cover being used is intended for installation on a site-constructed concrete ring beam this must be constructed as directed on separate guidelines (provided with each order) using C30 grade minimum concrete. The manhole cover frame should also be bedded on a thermosetting polymer resin or cement based mortar complying to HA104/09 as per point 4 above. Some covers have integral frame levelling points to aid this part of the installation and setting process. Additionally, any open area around the manhole frame between it and the concrete ring beam should be filled with 45 cube or 40 cylinder concrete during installation using 10mm aggregate.
6. Allow time for all concrete and bedding mortar used to fully cure before trafficking the area.