

# Chamber System Installation Requirements and Recommendations

Dickinson-Iron District Health Department

*\* Follow system design as specified on the site evaluation and sewage construction permit. Site conditions may dictate whether a single, multi-lateral, trench or bed type system needs to be installed.*

## REQUIREMENTS

### Installation

**High capacity units must be used for all undercut systems.**

All chambers must be able to support an H-10 load rate (16,000 lbs/axle with 12" of cover).

The minimum width of a trench for chambers is four (4) feet.

In a bed system the excavation must extend 6 inches beyond the sidewall of the outermost chamber laterals and the end plate(s).

The base of the excavation must be free of debris, smooth and as level as possible.

If any smearing or compaction occurs during the excavation process, hand rake or chisel these surfaces prior to installing the chambers.

**Do not** over excavate the area of the header in a multi-lateral system. This will minimize shifting of the header as it is crucial to maintain it in as level a position as possible to allow for equal distribution of the effluent.

A double header must be installed in systems exceeding more than four laterals.

A minimum of one observation tube must be installed on a single lateral system. It shall be installed on the last chamber in the lateral. On a multi-lateral system, a minimum of two observation tubes are required. (One on the last chamber of each of the two outer most laterals). This will not only allow the owner to monitor the system, but when necessary, simplify locating the system.

A footer must be installed on all multi-lateral systems. The footer must be installed on the **lower** outlet of the manufactured end plate. Once the footer is installed into the end plate the remaining annular space around the outlet must be properly sealed to avoid soil intrusion.

The fill material provided in an undercut system must be free of any large stones, frozen material or other debris. A minimum of four (4) feet of approved fill (course/medium sand) must be in place, prior to installing the chambers.

## **Backfilling**

While backfilling all chamber systems, every effort must be made to keep heavy equipment off the absorption system.

The backfilling material must be free of any large stones, frozen material or other debris.

In a trench system, the chamber sidewall must be backfilled first. This will provide support and prevent shifting of the chambers.

In a bed system, the outer most laterals must be backfilled first. Then as the areas between the chambers are being backfilled, provide compaction to achieve soil stability. Be sure to maintain the chambers in the original installation positions.

Avoid direct contact with the chambers when using large wheeled vehicles. Maintain a minimum of 12 inches of support between vehicle and chamber.

To prevent forcing the chambers down into fresh fill, do not drive across them with heavy equipment when backfilling across the top of the chambers. This will help maintain a level system. Only drive across the trench(s) or bed area when necessary and never drive down the lateral lengths.

## **RECOMMENDATIONS**

### **Natural Soils**

While installing the chamber absorption system, every effort should be made to keep heavy equipment from entering on to the disposal area.

A minimum soil cover over the chambers of twelve (12) inches is recommended.

Maximum soil cover should be in accordance with the manufacturer's specifications.

After final backfill, all systems permitted to be installed during the restricted season (December through March) should be covered with straw.

The installer should install a few screws through the area where the two chambers overlap. This will ensure that the chambers will not separate when they are being backfilled.

### **Undercut Systems**

In order to minimize settling, the approved fill should be spread evenly at twelve (12) inch intervals throughout the excavated area and then compacted.

In a trench system, compaction can be accomplished by tamping with the bucket of a backhoe. In a bed system, this can be accomplished by moving along the bed at increments equal to the width of the wheels of a backhoe or the tracks of a bulldozer. Continue this process until the designated elevation (see permit specifications) is achieved.

All other recommendations as listed for the natural soils are appropriate.