HOBAS

HOBAS PIPE USA

Technical Advice Sheet

HOBAS Tee Base Manhole System

General:

The HOBAS tee base manhole system consists of a HOBAS tee base and a riser system. The riser system can consist of a one-piece fiberglass riser, segmented fiberglass riser, or segmented RCP riser.

The tee base consists of a HOBAS thru-pipe (or fitting) and a HOBAS vertical stub, connected at the saddle-cut with a structural fiberglass lamination. The main pipe can be straight (no angle) or mitered to a specific angle (typically up to 90º). The structural fiberglass lamination is very strong and will typically equal or exceed the tensile strength of the pipe itself. Although the pipe can withstand up to 5% long-term uniform deflection, the irregularly shaped saddle connection can tolerate very little deformation. The tee base must therefore be prevented from distorting. This is typically done with a concrete encasement (sometimes needs reinforcement). Details regarding necessary reinforcement will depend on conditions and will need to be designed by a structural concrete design engineer.

If in doubt, seek advice from:
HOBAS PIPE USA
800-856-7473

Encasement:

Traditionally, the body of the tee base is encased, with the encasement stopping before the joint on each end (see FIGURE 1). While this will effectively protect the tee base, it creates a dramatically different support condition for the pipes on each side of the coupling at each of the adjacent joints. The tee base thru-pipe will be held perfectly round, supported rigidly, and the adjacent pipe will be supported elastically by the native soil and the pipe-zone surround system. While the FWC coupling that seals this joint is flexible and quite forgiving, it cannot easily maintain seal when connecting pipes with dramatically different shapes.

This phenomenon is magnified as the main diameter increases. Experience indicates that with sizes 48" and larger (typically), it is advisable to extend the concrete encasement past the joint (1' – 4' depending on diameter – see FIGURE 2). This will eliminate the risk of leak due to differential deflection of the coupling joints on each side of the tee base.

This will, however, create a rigid connection in the pipe wall, posing another, albeit smaller, potential risk. If the bedding and side support in the elastically supported pipe immediately adjacent to the encasement is not adequate, the resulting stress in the pipe wall where the encasement ends could be sufficient to damage the pipe wall. Excellent bedding and side support at this transition is critical. While this transition area is important and has associated risks, cases of pipe wall damage at rigid concrete connections are rare.

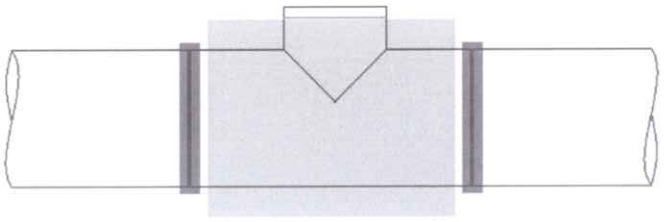

FIGURE 1

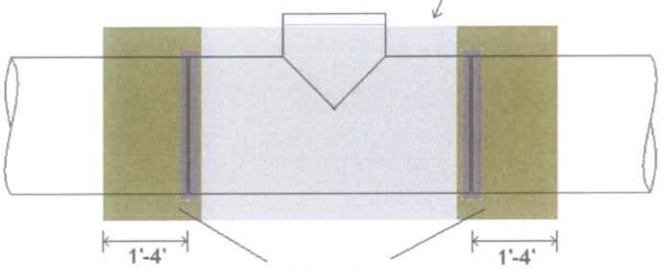

FIGURE 2

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Conclusion:

For tee bases with thru-pipes of 48" and larger, HOBAS' experience indicates extending the concrete encasement past the joints by about 1' – 4' (depending on diameter) is advisable. If the tee base encasement is pre-cast (aboveground), cement-stabilized sand (CSS) can be used for the 1' to 4' extension of rigid support past the couplings. The cement-stabilized sand should be allowed to set prior to backfilling the trench to grade. Excellent bedding and side support is critical in the elastically supported pipe adjacent to the end of the encasement.

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