SOUTHERN CONCRETE SDN. BHD. (385615-W)
Address: PT 1097, 2 1/2KM, Off Jalan Pengkalan, Mukim Sg. Raya, 31300 Kg. Kepayang, Perak Darul Ridzuan, Malaysia.
Tel: 605-357 4950 **Fax:** 605-357 4945

Criteria to select the class of pipe

The criteria for selection of pipe class is depend on the following factors:-

a) Type of Soil Fill

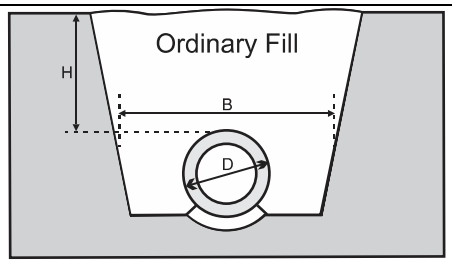
Sand	Sandy Clay	Wet Clay
• Non-cohesive granular soils with a low proportion of fines. • Favorable fill in trenches but unfavorable under embankment conditions.	• Soils of fine to medium grained structure and medium to low cohesion. • Classified as loams varying from a clay loam to a sandy loam.	• Soils of microscopic structure and medium to high plasticity. E.g: normal wet clay wet silky clay.

b) Dept of Fill

The depth of fill (H) is the vertical distance, in meter. It is measured from the level of the top of a pipe to the surface of the fill material over the pipe. (Please refer to Figure below)

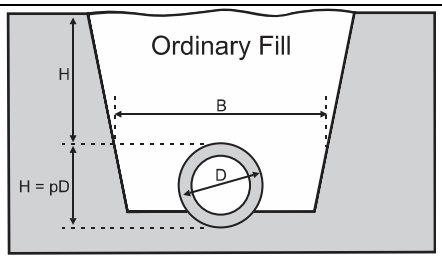
c) Installation Conditions

i)



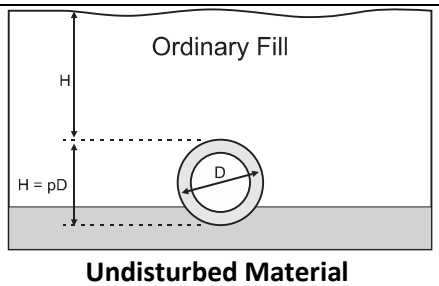
Narrow Trench
- The pipe is laid in a narrow trench excavated in earth/rock.
- The weight of the fill material above the pipe less frictional forces between the fill material and the sites of the trench.

ii)



Wide Trench
The pipe is laid in a wide trench.
The frictional resistance between the fill material and the walls of trench has less effect than in the case of an ordinary trench.

iii)



Positive Protection Embankment
The pipe is laid in a shallow excavation with its top projecting above the adjacent undisturbed foundation material.

The vertical load transmitted to the pipe is usually greater than the weight of the fill material above the fill material adjacent to the pipe transfers additional load to the pipe by friction.

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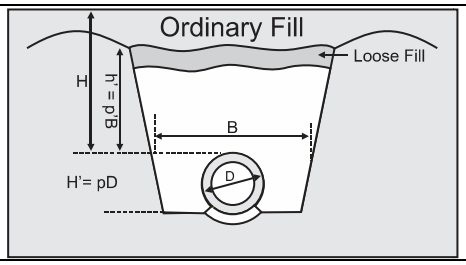
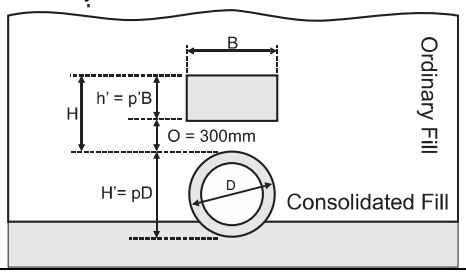
iv)



Negative Protection Embankment
The pipe is laid in a narrow trench excavated in undisturbed earth or rock.

The trench is loosely filled up to natural surface and the fill material is then built up to the designed height.

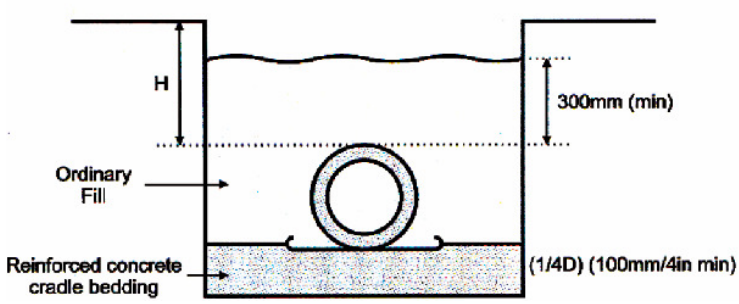
v)



Imperfect Trench
- The pipe is laid under positive projection conditions. The fill material is placed and compacted to the designed height.
- A trench of width equal to the excavated in the compacted fill material directly over the pipe and to within 300mm of the top of the pipe.
- This trench is then refilled with loose material such as straw, leaves or brush and left unconsolidated.

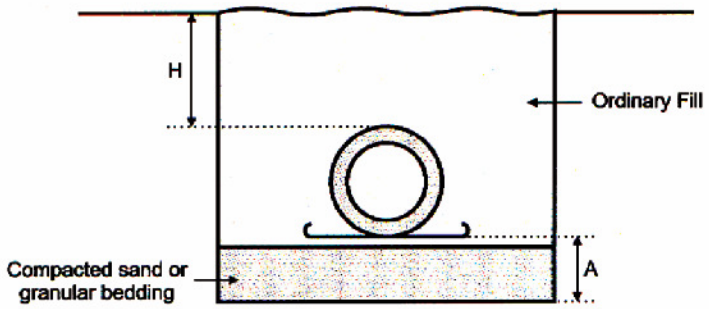
Type of Bedding

A) Normal Conditions



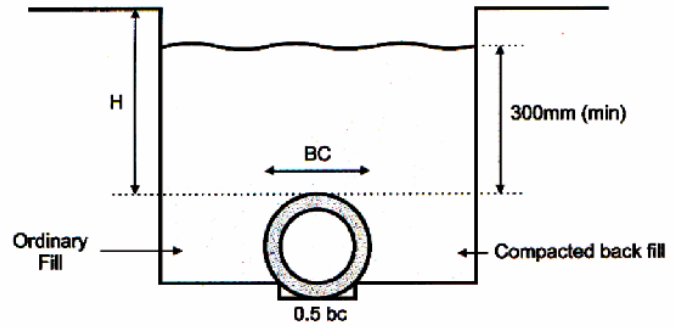
- Supported on a reinforced concrete cradle.
- The minimum transverse steel area to be 0.4% of the in-situ concrete area at section 2-2 (if required)

Granular Base Conditions



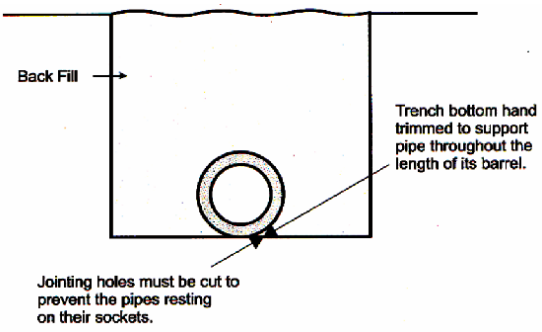
- Suitable for use in wet conditions, in rock in areas liable to mining subsidence.
- A = 40mm per meter of H, 200mm minimum

C) Hand – Shaped Trench Bottom Conditions



- Generally only suitable for pipes up to 300mm (12in) diameter in uniform fine-grained soils where conditions are relatively dry.

D) Hand – Trimmed Flat Trench Bottom Conditions



- Only suitable for pipes up to 300mm (12in) diameter in uniform fine-grained soils where conditions are relatively dry. Regarding 'wide trench' loads.