

# LoadCalc

## **Help and Operating Instructions**

### **Overview**

The programme is designed to allow the user to select the most suitable pipe bedding for the pipe type and pipe depth required. The user first selects the pipe type required, this will control the pipe sizes and pipe bedding options offered to the user. Once the user has selected the pipe size required the pipe location can be selected. The pipe locations offered are 'Under fields', 'Under lightly trafficked roads' or 'Under main roads'. After the user has selected the pipe location the pipe bedding option can be selected. Once all these options have been selected the programme will automatically advise the user of the minimum and maximum pipe cover permitted.

# **Help and Operating Instructions**

## **Worksheet tabs**

The programme contains a number of worksheet tabs, these are named 'Help', 'Cover sheet' and 'Input'.

**'Help' tab -** 'Help' tab contains the Help and Operating instructions for the programme

**'Cover Sheet' tab -** The 'Cover Sheet' tab contains the cover sheet template for the programme print out.

**'Input' tab -** The 'Input' sheet tab contains the main part of the programme.

## **Help and Operating Instructions**

### **Inputting data**

**Only place data in boxes marked in green**

**Project -** The user should input the name of the project in the marked box. The cell is a free text cell.

**Location -** The user should input the location of the project in the marked box. The cell is a free text input cell.

**Pipe Material -** The pipe material proposed should be selected from the drop down menu. Once the pipe material has been selected the programme automatically selects the correct range of available nominal pipe sizes for that particular type of pipe. The programme also selects suitable bedding classes for the pipe material proposed.

**Pipe Diameter -** The pipe diameter is selected by the user from a drop down list when the user places the cursor over the pipe diameter box. The pipe diameters offered to the user are dependant on the pipe material that has previously been selected by the user.

**Pipe Location -** The pipe location is selected from a drop down menu. There is a choice of 3 locations 'Under fields', 'Under lightly trafficked roads' and 'Under main roads'. The 'Under fields' location should be used for fields and garden locations. The 'Under lightly trafficked roads' should be used for estate roads and other minor roads where there are very few heavy lorries. The 'Under main roads' should be used on main roads where there is frequent lorry use.

**Bedding Class -** The user should select the bedding class proposed from the drop down list. The programme will only offer a selection of bedding classes that are appropriate for the pipe material that has been selected. Details of the bedding classes are shown below.

**Minimum Cover -** The programme will automatically select the minimum pipe cover that is required for the combination of pipe material, pipe size, pipe location and bedding class selected. The pipe cover is measured from the soffit of the pipe to the ground level.

**Maximum Cover -** The programme will automatically select the maximum pipe cover that is required for the combination of pipe material, pipe size, pipe location and bedding class selected. The pipe cover is measured from the soffit of the pipe to the ground level.

**N/A -** If the programme returns the abbreviation N/A in the minimum and maximum it means that the input cells have not been fully updated to show the correct combination of pipe material, pipe diameter and pipe bedding.

**N/M -** If the programme returns the abbreviation N/M in the minimum and maximum columns this means that a pipe of this diameter is not manufactured in this strength class.

**N/R -** If the programme returns the abbreviation N/R in the minimum and maximum columns this means that a pipe of this strength class is not required for this location and a pipe with a lower strength class can be used in this situation.

**P/U -** If the programme returns the abbreviation P/U in the minimum and maximum columns this means that a pipe of this strength class and bedding type is not suitable for this location. The bedding class should be changed to a more highly rated class or a pipe with a higher strength class should be used.

# **Help and Operating Instructions**

## **Creating an additional row**

To create an additional row press the "Add row" button this activates a macro which will add a new line below the existing line. To add a further line press the "Add row" button again.

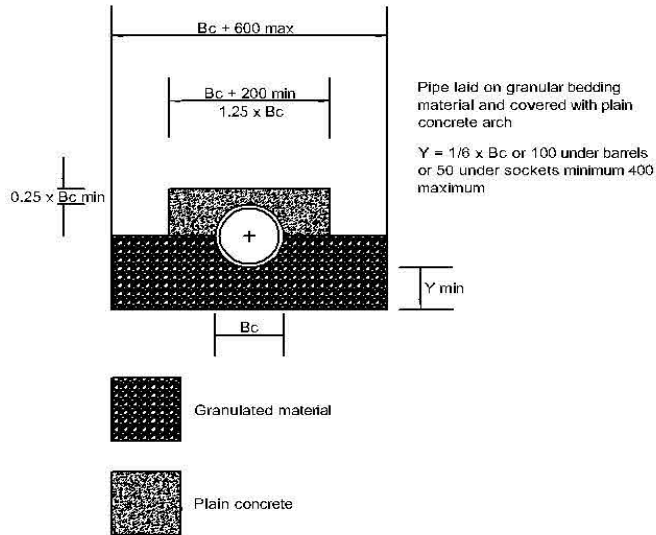
## **Removing a row**

To remove a row press the "Remove row" button this activates a macro which will remove the last row. To remove a further row press the "Remove row" button again. The programme will not allow the user to remove the first row.

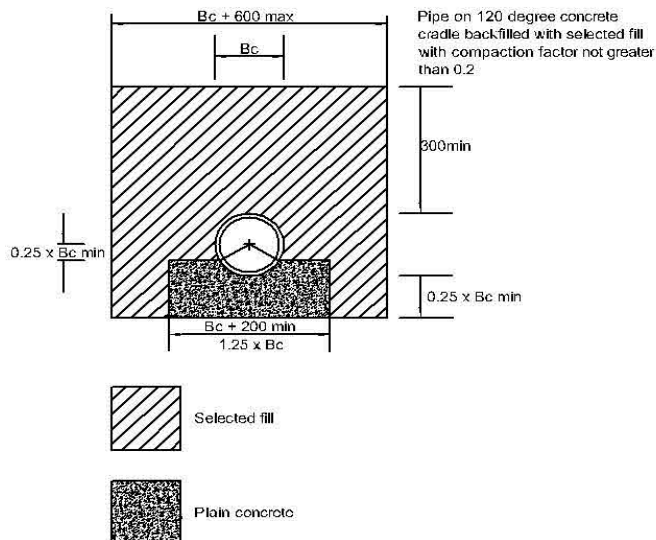
## **Setting the print area**

To set the print area of the "Input" sheet press the "Set project for printing" this activates a macro which will set the print area ready for printing.

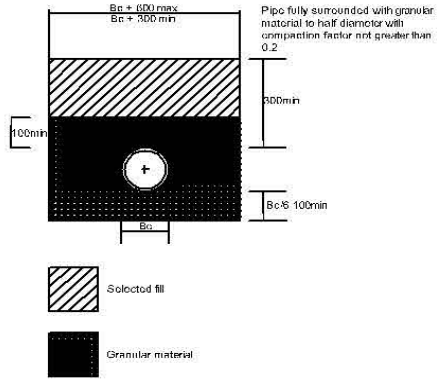
## Bedding Class A Bedding Factor 2.6



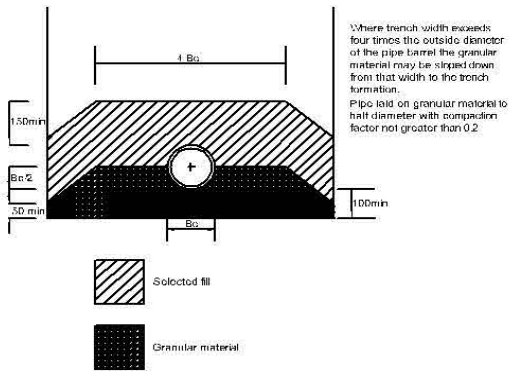
## Bedding Class A Bedding Factor 2.6



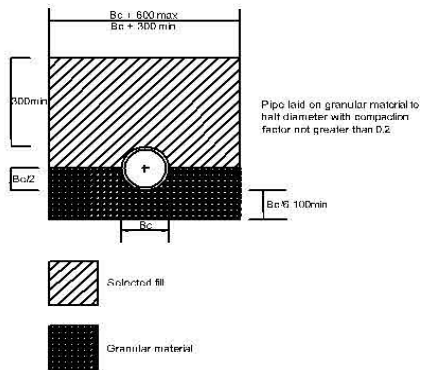
## Bedding Class S Bedding Factor 2.2



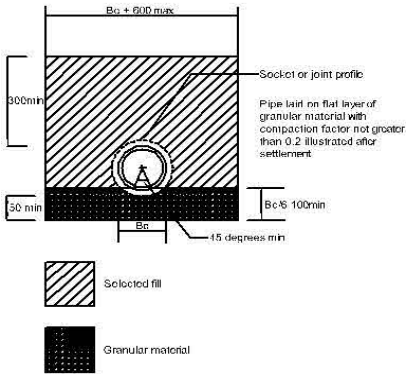
## Bedding Class B Bedding Factor 1.5



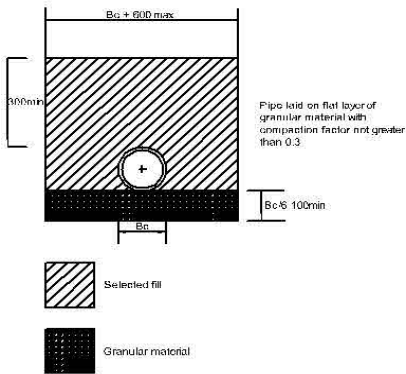
## Bedding Class B Bedding Factor 1.9



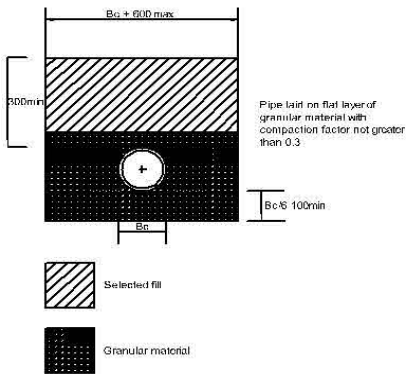
## Bedding Class F Bedding Factor 1.5



## Bedding Class N Bedding Factor 1.1



## Bedding Class T Bedding Factor



# **Help and Operating Instructions**

## **Granular Bedding**

The granular bedding shall comply with table 4 of BS 882 , air-cooled blast furnace slag to BS 1047 and lightweight aggregates to BS 3797. The sizes of the aggregates shall be as follows:-

Pipe diameter	Aggregate size (Single size)	Nominal max. particle size
100mm	10mm	10
Over 100 to 500mm	10mm or 14mm	15
Over 150 to 300mm	10mm, 14mm or 20mm	20
Over 300 to 550mm	14mm or 20mm	20
Over 550mm	14mm, 20mm or 40mm	40

Pipe diameter	Aggregate size (Graded)	Nominal max. particle size
Over 100 to 500mm	14mm to 5mm	15
Over 150 to 300mm	14mm to 5mm	20
Over 150 to 300mm	20mm to 5mm	20
Over 300 to 550mm	14mm to 5mm	20
Over 300 to 550mm	20mm to 5mm	20
Over 550mm	20mm to 5mm	40
Over 550mm	40mm to 5mm	40

## **Selected Fill**

Selected fill from a trench can be used as side fill for rigid pipes above the bedding or for the layer directly above the pipes for rigid and flexible pipes, provided that it is readily compactible. It should exclude stones retained on a 40mm sieve, hard lumps of clay retained on a 100mm sieve, timber, frozen material and vegetable and foreign matter. Cohesive soil that has dried out on a spoil heap may not be readily compactible and is not suitable.

## **Plain Concrete**

Plain concrete shall comply with BS EN 206-1/BS 8500 Class 16/20