

## 2 hour loading

This function will apply a specified return storm period to the selected design for two hours. The display shows the section number followed by a series of stars (indicating surcharge). The display is two hours 'wide', with the vertical lines indicating 20 minute periods. Reading down at a given point will show which sections are surcharged at that time

- 1) Open the Surface water program;
- 2) Select **Surcharge**, then 2 Hour loading from the top menu bar;
- 3) The Open File dialog appears – select the file you wish to view and click on Open - if you wish to apply a two hour loading to the tutorial file, then select "Workbook01.SW";
- 4) The sizing constants box is displayed – this is used to set the basic parameters for the sizing routine. It displays:
  - i. The hydrological data for the site
  - ii. FEH map data if available – if the FEH CD-ROM is available, these constants can be extracted and entered into these boxes;
  - iii. Rainfall can be calculated from FSR or FEH data – the latter is only available if the FEH data is present
  - iv. There is a box labelled 'Urban creep' – leave these at zero. This will apply a factor to the calculations to allow for urban growth over a specified time period if this is required. The annual growth rate and the growth period can be entered. If a 1% growth rate is forecast over 25 years, the adjustment factor is 1.28 ( $1.01^{25}$ ).
  - v. Set the return period to that required by the design for surcharge – note that this already contains the default value for surcharge set in the Options menu.
  - vi. The Gradients box will allow a blanket recalculation of gradients based on pipe diameters, or will retain any entered values for gradients – leave this at 'Keep existing'.
  - vii. Select the required slope of the site, or enter a value to be used – be sure to click the 'Manual' button for the latter.
  - viii. The Areal reduction factor will have little effect on a small site, so it can be On or Off in this case. The ARF is a factor applied to the rainfall intensity that varies according to the site area (see Wallingford Procedure Vol.1)

Set values required and click on the OK button

- 5) The next box displays the calculated runoff factor, the Wetness Index factor and the Volumetric runoff coefficient. These latter two are calculated from the hydrological constants. Click Yes to accept – if you click No, the default values set in the Options section are displayed and used in the calculations;
- 6) The progress bar fills up in the status bar at the bottom of the screen display, and then the results window is shown. A '\*' indicated that the section was surcharged at that point in time.
- 7) Select Exit in the results window, and leave this function