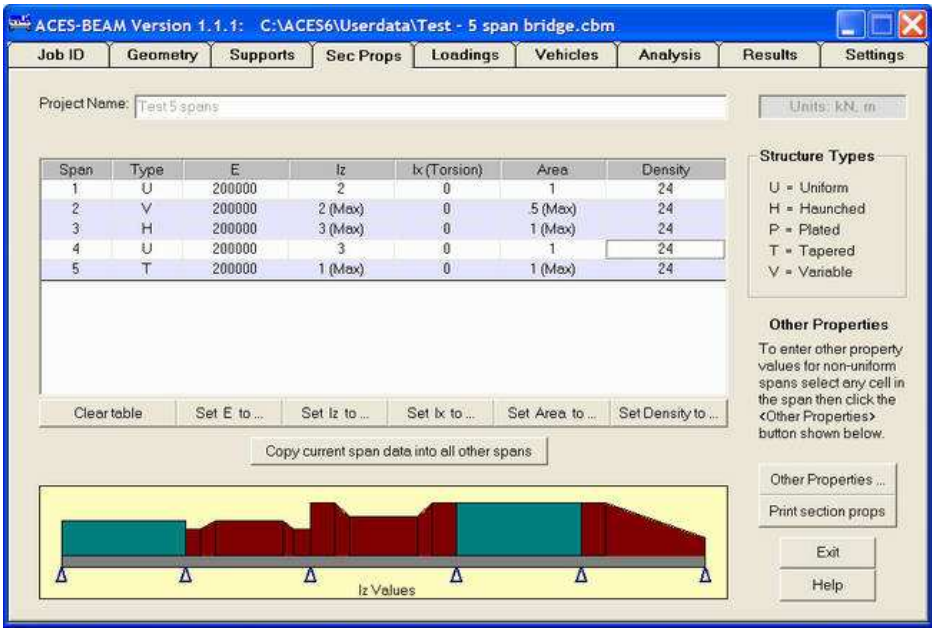
ACES Continuous Beam Module

ACES-BEAM allows continuous beam models to be quickly and easily created. A full range of static and user-defined/Austroads moving vehicle and lane loads can be applied, including the new AS5100 - MS1600 traffic loading, prestress and settlement. Vehicles can be moved in either, or both directions, and include variable axle group spacing, Dynamic Load Allowance and a general multiplier factor to account for multiple vehicles.

All load cases (including every vehicle position) can be interrogated for moment, shear, reaction and deflection and full envelopes of all force vectors created in seconds. Maximum and minimum values can be viewed graphically or in tabular form (together with their corresponding forces). All graphical diagrams and results tables are printable and saveable and reports can be ported directly into *EXCEL*.

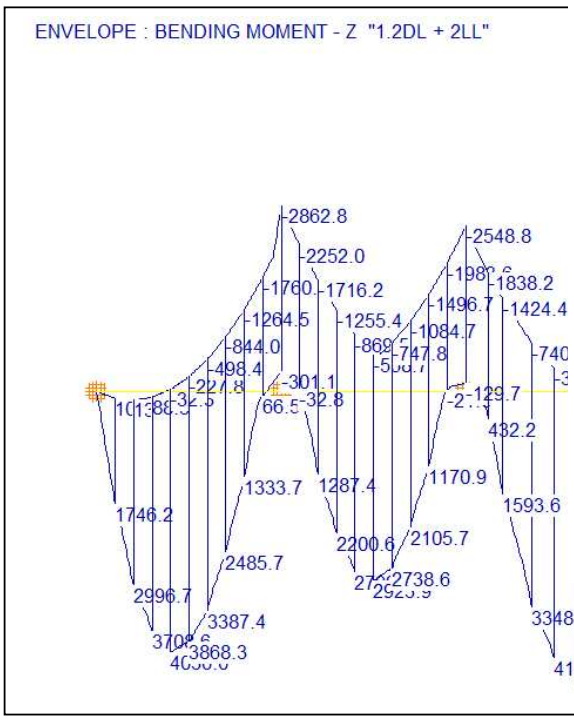


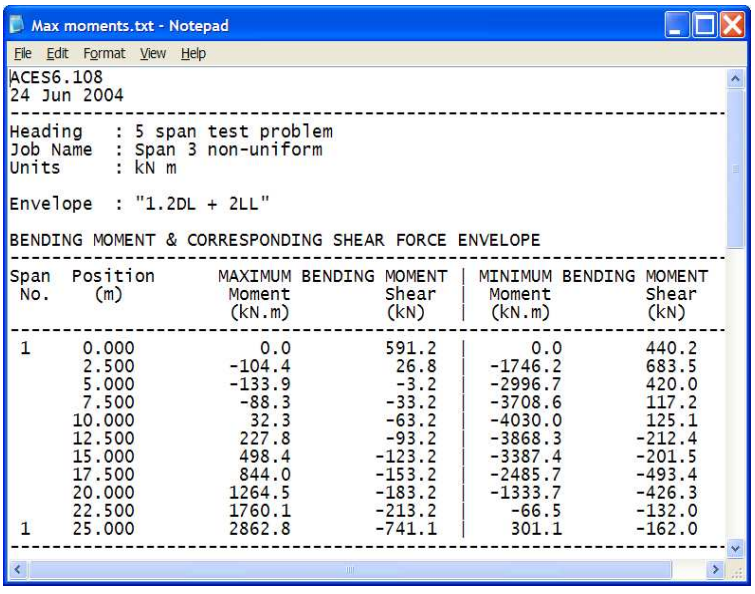
Loading Types

- Moving Vehicles
- Concentrated
- Uniform & Lane
- Primary moments
- Trapezoidal
- Moments
- Support settlement
- Settlement envelope

Support Types

- Cantilever
- Fixed
- Hinge
- Knife-edge
- Pin
- Spring




Max moments.txt - Notepad

File Edit Format View Help

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ACES6.108
24 Jun 2004
-------------------------------------------------------------------------------
Heading   : 5 span test problem
Job Name  : Span 3 non-uniform
Units     : kN m

Envelope  : "1.2DL + 2LL"

BENDING MOMENT & CORRESPONDING SHEAR FORCE ENVELOPE
-------------------------------------------------------------------------------
Span  Position      MAXIMUM BENDING MOMENT  |  MINIMUM BENDING MOMENT
 No.    (m)          Moment        Shear    |    Moment        Shear
                     (kN.m)         (kN)    |    (kN.m)         (kN)
-------------------------------------------------------------------------------
 1      0.000          0.0          591.2    |      0.0          440.2
        2.500       -104.4           26.8    |  -1746.2          683.5
        5.000       -133.9           -3.2    |  -2996.7          420.0
        7.500        -88.3          -33.2    |  -3708.6          117.2
       10.000         32.3          -63.2    |  -4030.0          125.1
       12.500        227.8          -93.2    |  -3868.3         -212.4
       15.000        498.4         -123.2    |  -3387.4         -201.5
       17.500        844.0         -153.2    |  -2485.7         -493.4
       20.000       1264.5         -183.2    |  -1333.7         -426.3
       22.500       1760.1         -213.2    |    -66.5         -132.0
 1     25.000       2862.8         -741.1    |    301.1         -162.0
-------------------------------------------------------------------------------
```


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Results: Graphical / tabular reports of all loadings & envelopes
Envelopes: Maximums and minimums with corresponding values and contributing load case numbers

FEATURES

GEOMETRY

- Simply supported spans can be easily modeled with pinned supports
- Hinged supports model drop-in spans
- Other support types include cantilever, knife-edge, fixed and spring
- Support types can be mixed
- Templates are provided for defining plated, haunched and tapered sections
- A tabular form is available for defining variable and non-uniform sections

LOADINGS

- Static loads include uniform, trapezoidal, concentrated, moment, settlement
- Auto-generation of the AS5100 vehicle and lane loadings (M1600 and S1600)
- A primary moment loading case is available for parasitic/secondary effects
- Variable tandem axle group spacing can be specified for all vehicle loadings
- Vehicle movement can be specified in the forward, reverse or both directions
- Vehicle load factor is available to allow for multi-lane structures
- Provides for a Dynamic Load Allowance factor (either vehicle-based or span-based)
- Auto-generation of a full settlement load case
- Auto-generation of lane-loadings
- Vehicles can be easily created and saved to the database

RESULTS

- Envelopes easily created for full vehicle and lane load patterning
- All load cases (including the loading for every vehicle position) can be interrogated for moment, shear, reaction and deflection
- Results of vehicle loadings can be animated for all valid force vectors
- Maximum and minimum values can be viewed graphically or in tabular form
- Reports of maximum and minimum values together with their corresponding forces can be quickly and easily generated.
- All graphical diagrams and results tables are printable and save-able
- Graphical diagrams can be zoomed, panned and scaled
- Results can be specified at up to three unique sections in each span
- Reports can be ported directly into *EXCEL*.

OTHER

- The model file can be ported directly into the ACES Bridge Analysis Program
- A large range of default values can be preset and saved for future use