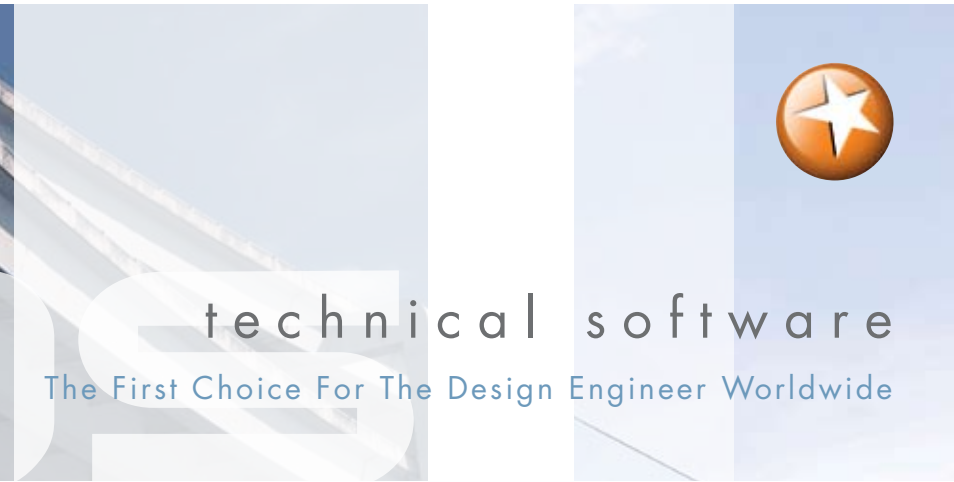




CAUSEWAY
the construction software people

Comino House, Furlong Road, Bourne End,
Buckinghamshire SL8 5AQ
t: +44 (0)1628 552000 f: +44 (0)1628 552001
e: marketing@causeway.com

www.causeway.com



Overlay Design

Developed with guidance from City and County Councils, Overlay can handle urban and rural designs of all sizes and complexity in one fast and precise package.

This flexible pavement renewal design system can be applied to motorways, rural roads, urban streets, runways, hard standings and car parks. Typical problems of existing constraints, both horizontal and vertical, are addressed in a very easy to use interface.

- Survey data input including chain and offset
- Existing surface analysis
- Design from the crown or from channels
- Trial solution appraisals
- Fee and tender estimation
- Iterative design refinement
- Setting out information
- Single or dual carriageways
- Quantities and drawings
- Optimise re-use of planed material

Rail

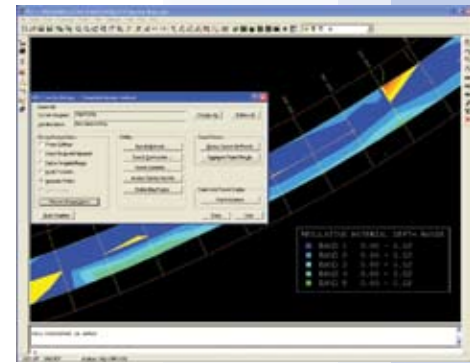
Rail is ideal for improvements to track alignment and sidings as well as design of light and permanent way rail.

Fully compliant with RT60 standards, it readily meets the permanent way engineer's needs, providing a complete track design solution that is fast, flexible, accurate and easy to use.

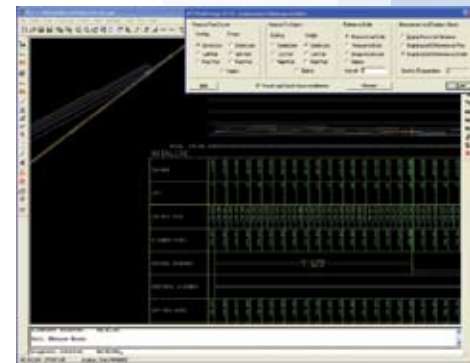
The software facilitates the design of three dimensional alignments representing plain line track, simple turnouts, diamond crossings, crossovers and complex multi-lead layouts.

There are two versions full design and maintenance. Full design deals effectively with horizontal and vertical design whereas maintenance is aimed specifically at those focused on vertical design only.

- Horizontal design from existing tracks or new
- RT60 or user defined Switches and Crossings
- Switch Capacity checks
- Vertical Alignment Design including a best fit option
- Applying Cant either for each arc automatically or for individual arcs
- Horizontal and vertical Annotation
- Measurement between proposed and existing
- Measurement between proposed track and platforms/bridges/gantries



Overlay Design



Rail

Optional Modules

Advanced Design

A standard facility in CDS Highway Design, this module can also be added to Alignment Design and Site Developer for the design of more complex junction improvements and complex roundabouts. There are three main functions within ADF that can work independently, or together providing the design engineer with total flexibility in complex design situations. The ability to display multiple alignments in one longsection box with display markers showing coincident chainage points and longitudinal gradients (ideal for the Stockdale rolling crown method of design). The ability to project levels from one string to another, either by a specified crossfall gradient, or variable crossfall method where two strings are picked to form a plane. The facility to display any string in the design long section box i.e. tie in points including the top of the kerb or crown.

Vehicle Swept Path Analysis

Of particular benefit to generate vehicle swept paths for junctions, access roads and car parks, this model enables the user to either 'drive' the vehicle, or run it along a preset path. Vehicle paths and body overhangs are calculated and displayed either as a still image, or animated. A standard library of vehicles is included and an editor is also provided to allow additional vehicles via a wizard interface.

Borehole Modelling

Borehole information can be imported either by reading an AGS standard format text file, or by entering the borehole strata depths manually. Sub surfaces are quickly and easily modelled and manipulated giving the user total control over how the various strata react to the one above. The Borehole Modelling module generates surfaces that are interrogated by standard CDS digital modelling commands, for example spot levels, sections, profiles, and volume calculations.

Traffic Engineering – applications for AutoCAD

Line

Running within AutoCAD, this application prepares road marking drawings in accordance with TSR&GD 2002. Markings are applied through a simple interface that gives accurate, well-presented drawings and quantity takeoff. All road line types are available, in addition to symbols, road text and hatching. The generated markings are all constructed from standard AutoCAD entities, enabling the user to manually edit markings if required and pass drawings to others. Parking bays, bus stops and pedestrian crossings are all easily drawn.

Sign

Sign introduces new levels of flexibility, guidance, accuracy and speed of design for experienced sign designers and new users alike. This latest innovation in the design and preparation of traffic sign fabrication drawings is in accordance with TSR&GD 2002, running in AutoCAD, AutoCAD Map and AutoCAD Civil 3D.



Vehicle Swept Path Analysis



Line

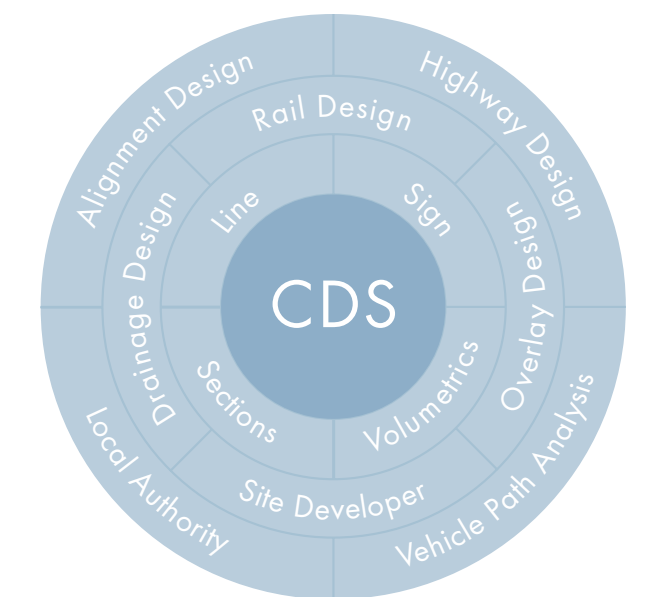
- Earthworks
- Sections
- Surface Design
- Access Roads
- Highway Design
- Rail Design
- Roundabout Design
- Pavement Rehabilitation
- Forward Visibility
- Vehicle Paths
- Automated Design change
- Annotation
- House setting out
- Drainage Layouts
- WinDes Integration
- Clash checks
- Design reports

Causeway Design Suite

powered by PDS

The Causeway Design Suite, (CDS) provides a comprehensive, scalable suite of software for the complete range of services offered by infrastructure design professionals.

True model based 3D design ensures that CDS effectively addresses the design of major highways, roads, permanent and light rail, pavement rehabilitation, pipelines, airports, ports, residential and commercial developments.





technical software

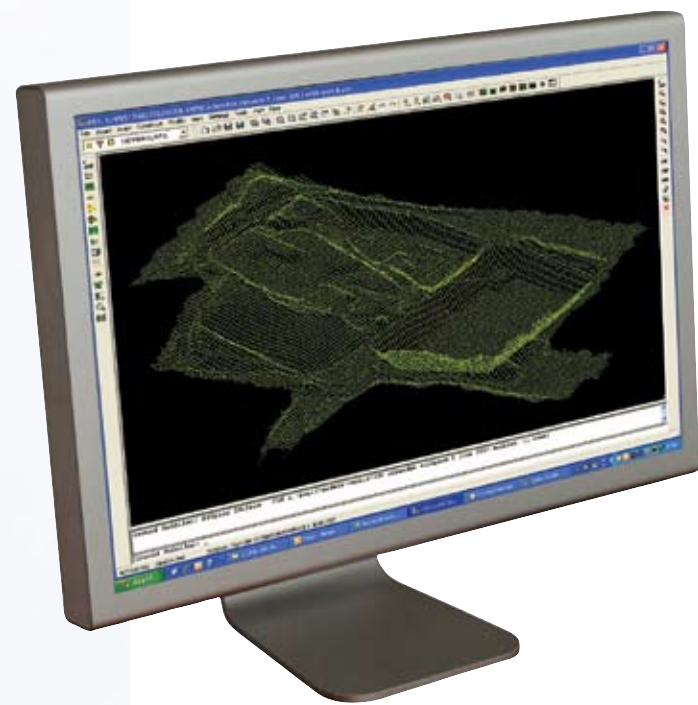
The First Choice For The Design Engineer Worldwide

Digital Modelling

Digital modelling is particularly relevant to those involved in any design where earthworks optimisation and sustainability is a fundamental requirement of the project.

Accurately representing the existing ground, sub strata and proposed design surfaces by a series of 3D triangles of the surface, CDS Digital Modelling is very simple to use and yet remains extremely flexible and suitable for a wide range of applications including site assessment, earthworks modelling, storage pond design, wind farms, landfill and quarries to mention a few.

This is an open system supporting all of the common formats including ASCII, DXF, DWG, MX Genio and LANDXML.



An optional Borehole Modelling module allows geotechnical data in both user defined and AGS formats to be included in your digital models.

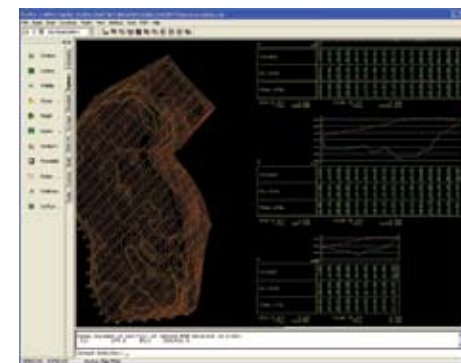
Digital Modelling is offered in two versions, Sections, and Volumetrics to meet the needs of different groups within organisations.

Sections is a low cost solution primarily aimed at those who need to generate sections and profiles quickly and to a high and consistent standard. User specified styles can be used to match your in-house standard profiles and cross sections. Huge time savings over traditional CAD methods or the drawing board will be achieved. Sections includes:

- Conversion of 2D drawing data into 3D modelling entities
- Digital model surface formation
- Creation of contour drawings
- Level interrogation at any point on the modelled surface
- Grid of levels at a user specified interval/orientation
- Average level interrogation for optimising slab levels
- Dynamic or graphical cross sections at a regular orientation
- Generation of long sections either by 'sketching' or following a polyline
- Slope analysis and flow trace
- 3D Visualisation

Volumetrics incorporates the functionality of Sections and more. It is ideal for all aspects of model formation, analysis, design, earthworks and water volumes and is particularly relevant for those assessing 'what if' scenarios optimising cut and fill on tight timescales. Volumetrics includes the following over Sections:

- Isopachyte contouring maps including solid fill options
- Surface Design tools for car parks, sports facilities etc.
- Batter slope design to user specified slopes/berms
- Automatic Composite modelling
- Volume calculations between multiple models – earthworks and water
- Zones of Visual Impact
- Settlement modelling
- Borehole modelling – optional



Digital Modelling

Alignment Design

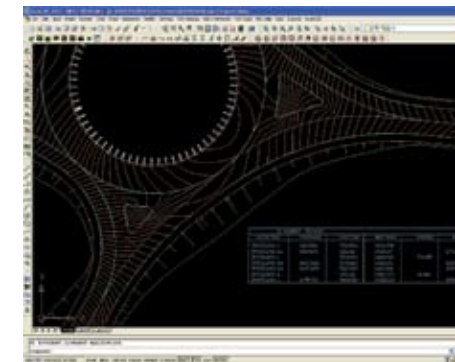
An easy to use and versatile string-based design package suitable for all types and scale of highway and route alignments.

This software has built in intelligence to ensure the implications of any change, for example, elements such as carriageway, kerbs and footpaths are intelligently linked so that a design change at any stage will automatically re-generate all of the features to their correct positions in terms of chainage, offset and level relative to the new design.

CDS is the only software to offer this facility that represents a significant advantage over traditional and CAD based methods.

Alignment Design includes the Digital modelling Volumetrics package and includes:

- Rule based design parameter files
- Interactive horizontal and vertical design by element and IP design methods
- Rule based automatic vertical alignment design
- Dynamic horizontal and vertical alignment editing



Alignment Design

- Violation checks against user defined criteria
- Varying width single or dual carriageways
- Freeform carriageways and features
- Junction and turning heads including user defined shapes
- Horizontal, vertical and junction visibility checks – 2D and 3D
- User defined annotation 'styles'
- Design and setting out reports
- Complete project cut and fill including road construction quantities

Highway Design

Built on Alignment Design the Highway package is aimed at major routes, grade separated junctions, complex junctions, roundabout design (including Stockdales rolling crown method). It includes automatic and user controlled super elevation application and the Advanced Design Features module.

Site Developer

The industry standard solution for housing, retail and commercial development site and general infrastructure design.

Site Developer has been tailored to meet the specific needs of design engineers in the site development sector. It incorporates digital modelling, alignment design and drainage layout and annotation and is fully integrated with Micro Drainage WinDes to ensure a single project database and fully co-ordinated design.

The design engineer is quickly and easily able to build up a full 3D model of the site to:

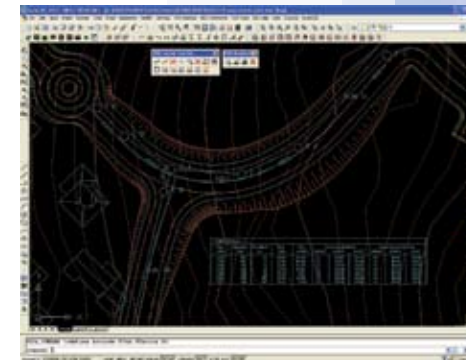
- Assess optimum building levels
- Design and check access, driveway and plot gradients
- Design roads to local authority standards (with in-built design parameters)
- Design car parking areas and check the drainage implications
- Check the impact of the design on existing features and services
- Check for clashes of the proposed drainage system against itself and existing
- Consider the impact on earthworks

Drainage Layout Design

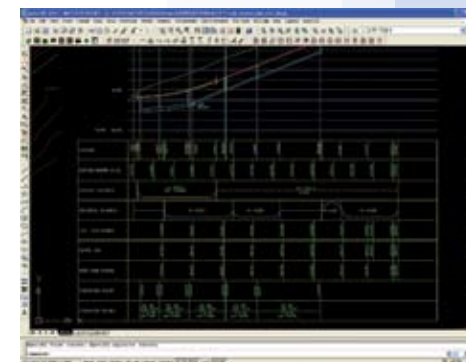
The most comprehensive drainage layout package available today. CDS Drainage Design naturally compliments, and is fully integrated with, Micro Drainage WinDes for full hydraulic network analysis including SUDS devices.

Storm and foul networks are laid out in CDS either in open ground or within the carriageway (or a mixture of both), analysed in WinDes and then interrogated for clash checks, setting out, quantification and schedules reported and sections generated. All sections types from pipes to culverts and swale are supported for all interrogation.

- Interactive rule based layout
- Intelligent response to surface condition (open ground or road)
- Automated pipe/manhole numbering/re-numbering
- Integrated with WinDes
- Automated layout annotation
- Combined road and drainage sections
- Clash detection
- Automated scheduling including manholes
- Private drainage layout and annotation



Site Developer



Drainage Layout Design