

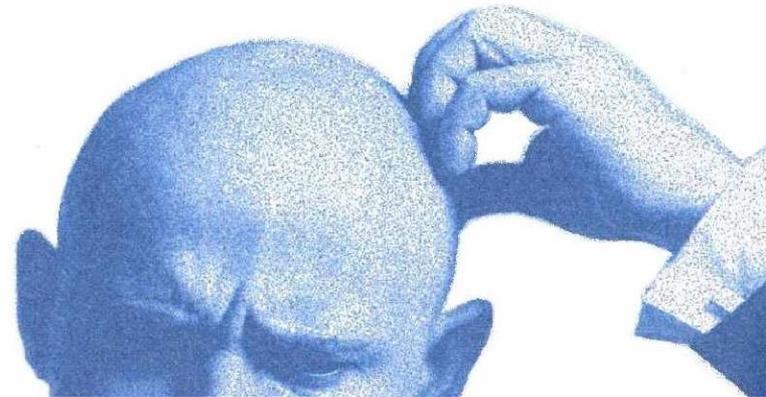


Eliminate Redundant Modeling With Civil Cells

Presented by: Ian Rosam

Civil Cells

- What is a “*Civil Cell*”?

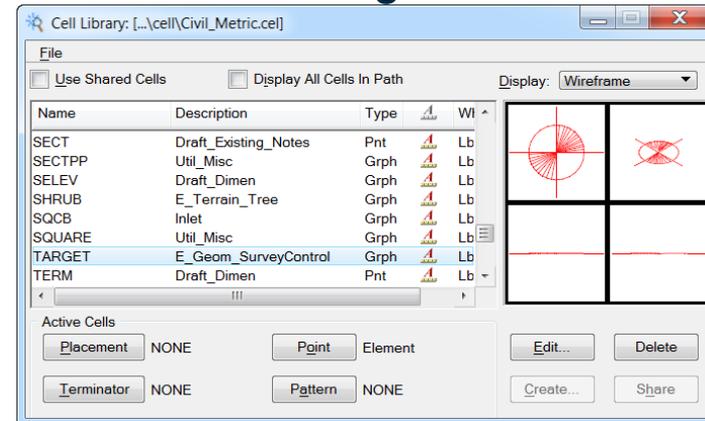


Civil Cells

- What are the problems we need to overcome?

When we draw in a CAD environment, we often find the need to draw the same objects repeatedly. Thus the need in MicroStation to have some type of functionality that allows us to do this.

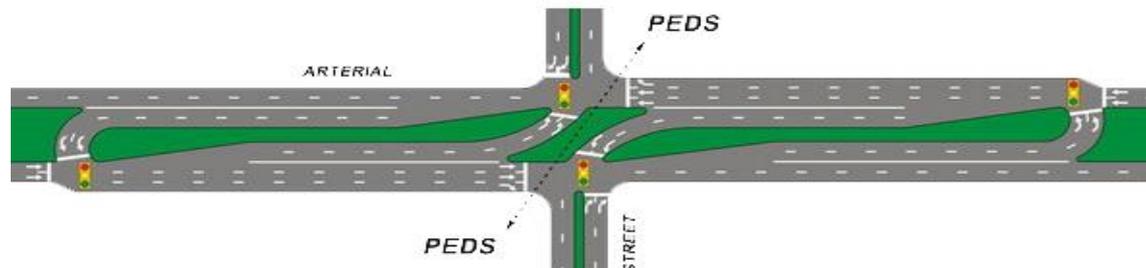
MicroStation cells provide this functionality. We can define and then save these objects in a cell library. And whenever we need a particular object, we just look for it in our library and place it, eliminating the need of drawing the same object repeatedly.



Civil Cells

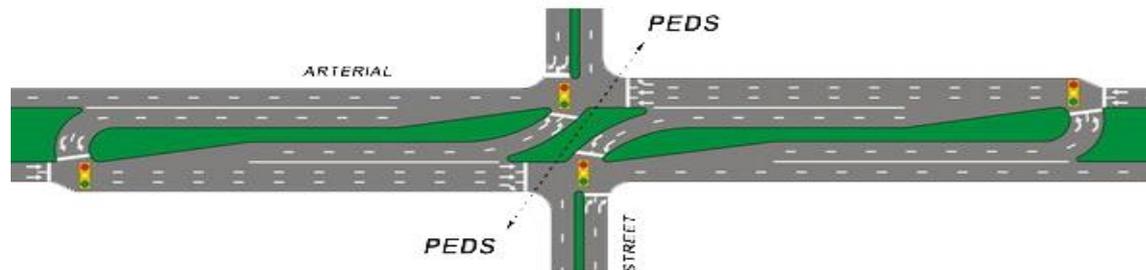
- What are the problems we need to overcome?

As Civil Designers we find ourselves designing the same ‘*Standards Driven*’ geometric configurations over and over but often only with minor modifications.



Civil Cells

- What are the problems we need to overcome?
 - Manual creation is a time consuming process, fraught with potential errors
 - ‘Standards Driven’ does not mean ‘Standard’ in practice
 - Traditional wizards are often too restrictive, they might make the simple easy but they make the complex impossible as they only allow what’s been programmed into them
 - Simply maintaining the graphical representation of these configurations in a standard MicroStation cell would not be sufficient.
 - We must be able to carry the engineering intelligence behind the configuration forward in order to reuse it and modify after placement.



Civil Cells

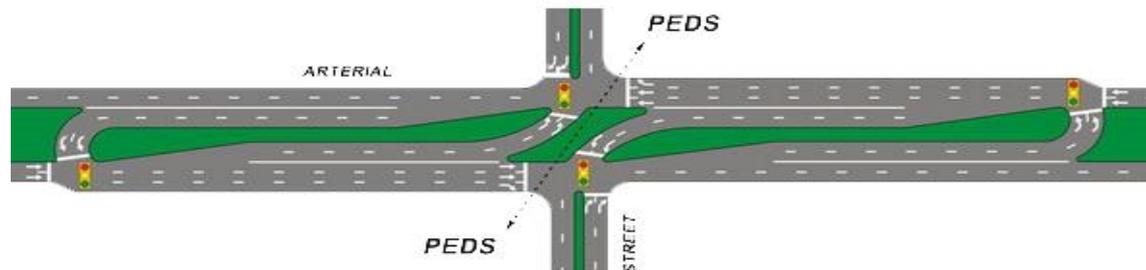
- What is a “*Civil Cell*”?

OpenRoads Technology

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MicroStation Cell

At it's simplest it can be thought of as a 'Visual Macro' for repeated use of pre-configured 2D and 3D geometric layouts that maintain design intelligence.

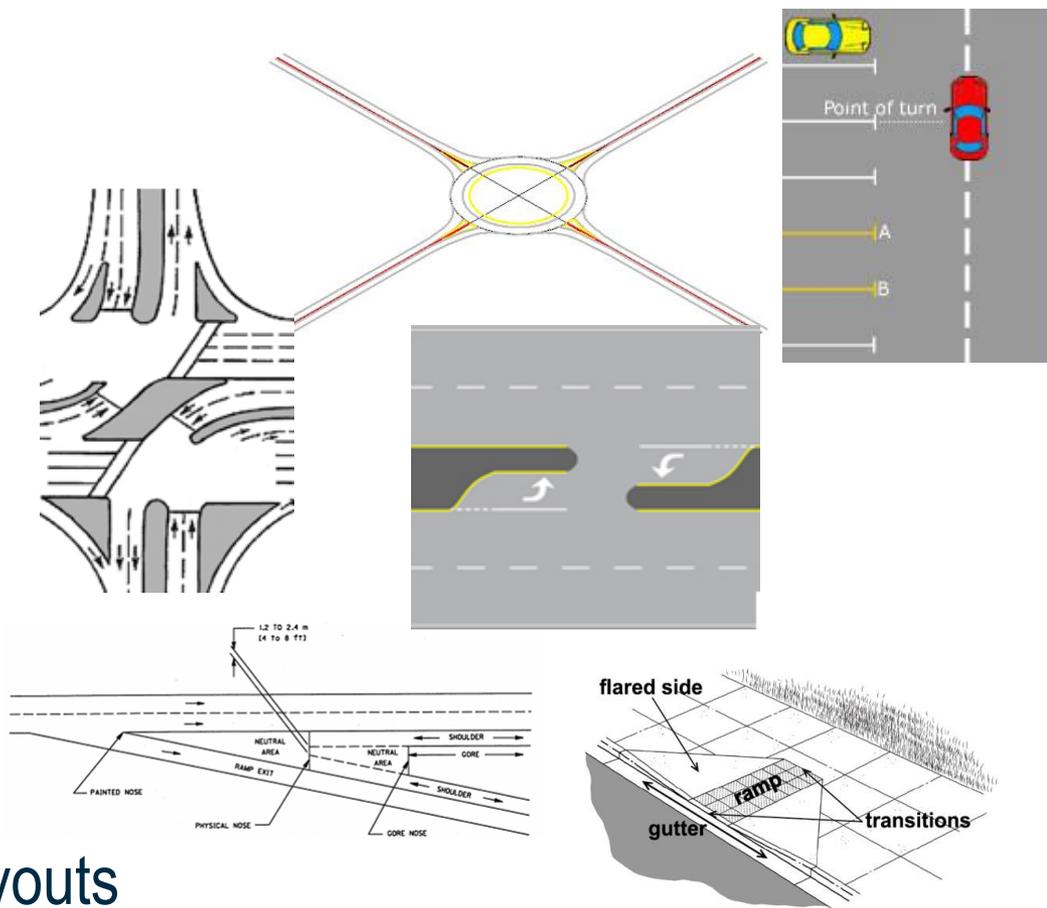


Use Cases

‘Simple’ 2D geometry layout right through to ‘full’ 3D layout

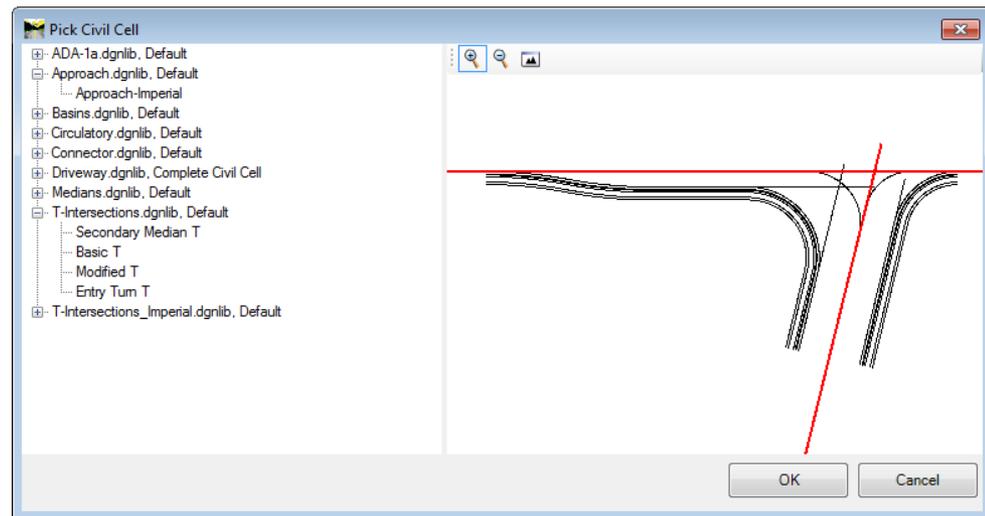
Examples

- Junctions
- Driveways
- Median Cross Overs
- Roundabouts
- Ponds
- Ramps
- Parking bays
- Building pads
- Traffic Management layouts



Placing Civil Cells

- Selection from distributed DGNlib
- Requires base Geometry for References and where defined
Optional References
- Direction control
- Corridor to Clip - optional



Manipulating Civil Cells

- Geometry
- Area Templates
- Linear Templates
- Clipping
- Template Drops
- Target Aliasing

Using Civil Cells

- Lets Take a Look

Civil Cell Contents

Geometry

- Requires Geometry references
- Rules to Children Elements
 - Direction and location of reference elements are used to try and find best placement solution
 - Manages metric / imperial conversion automatically
- Snaps
 - Civil Accudraw constructions maintained
 - Good snaps – end point, intersection, perpendicular, tangent, center, mid point (used carefully)
 - Bad snaps – XY, Nearest

Civil Cell Contents

Terrain

- Created from Graphics - this is a Ruled Terrain and so updates automatically

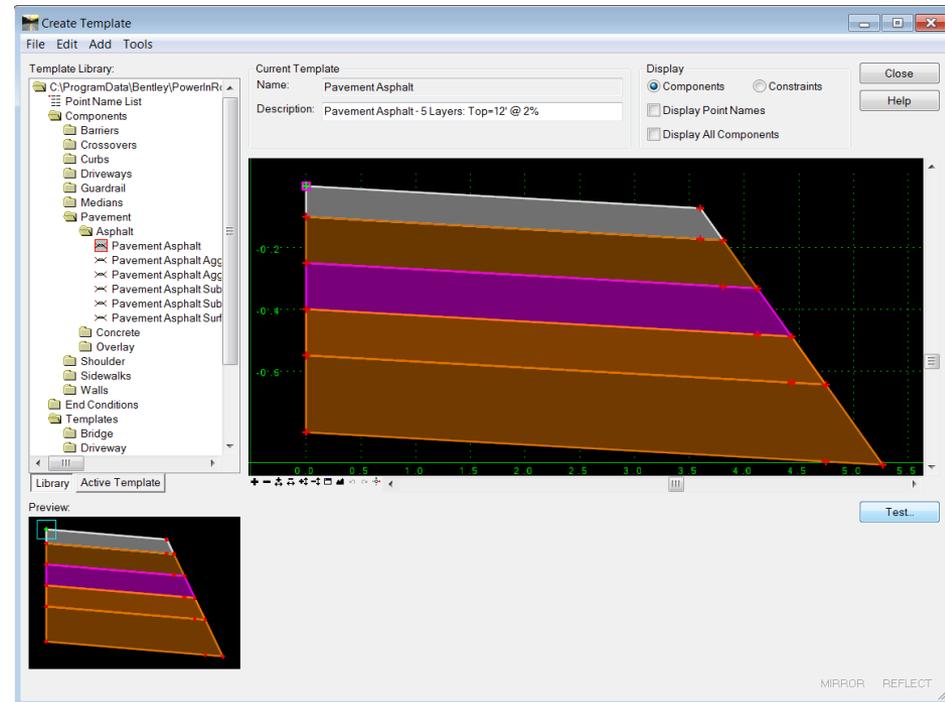


- Can be created with an open boundary
- Temporary construction terrains made from geometry allow draping on the surface where required

Civil Cell Distribution

Area Templates

- Depth components about origin
- Can only be applied to Terrains
- Only forms Vertical edge
- Allows overlay components



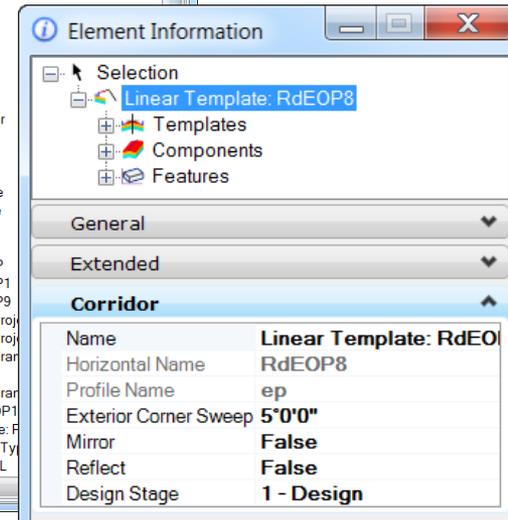
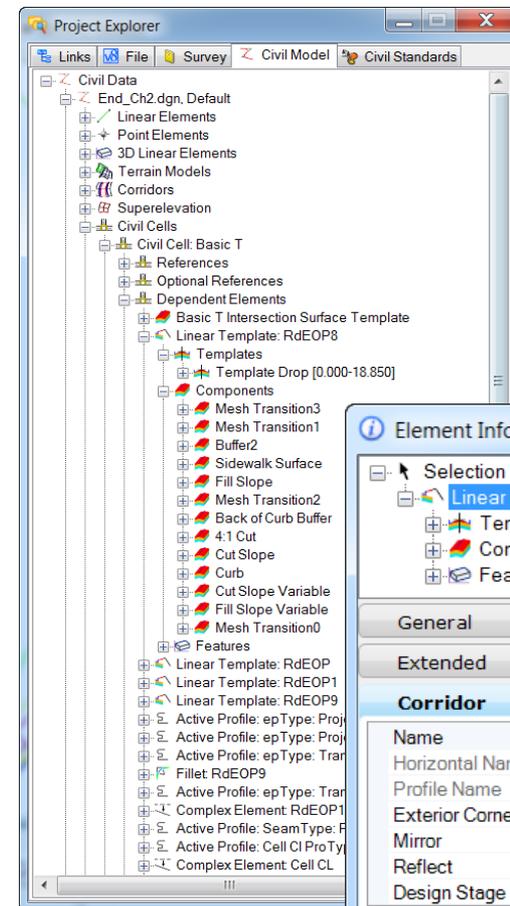
Civil Cell Contents

Linear Templates

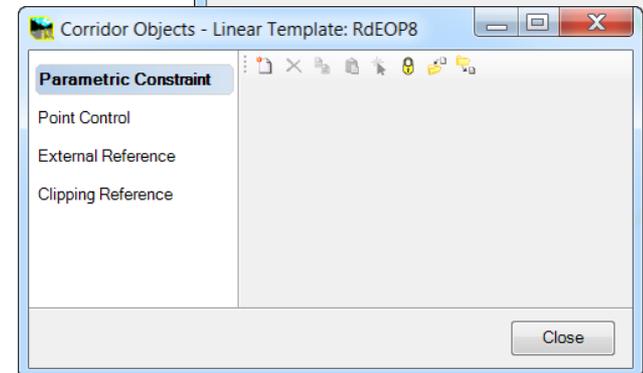
- Design Stage (different from corridor)
- Corridor objects – sub set of Corridor
 - Parametric Constraints
 - Point Controls

Unsupported corridor objects

- Clipping Reference
- External Reference



Note anything with a station is not supported in Civil Cells



Civil Cell Contents

Corridors - **Keep it Simple**

- Design Stage
- Drop Interval
- Corridor objects - restricted
 - Parametric Constraints
 - Point Controls

Unsupported corridor objects

- Secondary Alignment
- Key Station
- Curve Widening
- End Condition Exception
- Clipping Reference
- External Reference

Note anything with a station is not supported in Civil Cells

Civil Cell Creation – getting started



"It may be a model, Captain, but it's highly illogical."

www.FieldstoneAlliance.org

Civil Cell Creation – getting started

- Use Control Geometry
 - Civil Accudraw
 - Construction Elements
 - Consider Keeping the 2D
- Think about your approach to Corridor Templates
 - Plan ahead
 - Build small sub components and test
 - Consider how it might be modified
- Consider Element Naming
- Consider user prompts

Civil Cell Creation – getting started

- Workshop
 - BCR3WK4 - OpenRoads Technology- Using Civil Cells
- Best Practices Guide available off the OpenRoads web page
- Bentley YouTube Channel

Civil Cell Distribution

- DGNLib
- Defined by cfg variable

CIVIL_CIVILCELLDGNLIBLIST

\WorkSpace\Projects\Examples\Bentley-Civil-Metric.pcf

CIVIL_CIVILCELLDGNLIBLIST =
\$(_USTN_PROJECTDATA)/dgnlib/Civil_Cells_Metric.dgnlib

Eliminate Redundant Modeling With Civil Cells

Thank you!



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