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1. INTRODUCTION

1.1 What Is Typical Section Design

Typical Section Design (TSD) is a smart and user-friendly engineering software exclusively developed for civil engineers by CESS LLC. Currently, no other software packages that are currently in the marketplace serve similar purposes; TSD Software presents a groundbreaking approach in providing a reliable yet easy-to-use solution that integrates the cutting-edge computer engineering technologies with our extensive experience in curb ramp design, obtained through numerous civil engineering projects. The powerful features of TSD software have enabled us as well as our clients to maximize the efficiency and productivity in a timely and cost-effective manner.

With a framework that was exclusively developed for typical section and template applied in Inroads based on local design standards and specifications, TSD Software offers users the flexibility to either use an existing typical section in previous projects or assemble typical section from existing components.

1.2 Features of TSD

- **Automation** - All typical sections information is saved in iCloud, which can be selected and displayed automatically instead of drawing them every time.
- **Efficiency** - All typical sections can be drawn in HOUR whatever how large of the project.
- **Flexibility** - All typical section components are listed and can recombination to different typical sections.
- **Consistency** - All typical sections and components are pre-set and keep all typical sections consistent in all projects.
- **Once and For All** - Typical sections are created once and can be applied for all projects.
- **WYSIWYG** – Typical sections can be displayed and drawn in MicroStation immediately.
- **User-Friendly Design** - The software is a very intuitive and easy to master even for infrequent users.
- **Fully Integrated with CAD Platforms** - All curb ramp designs can be added to, updated, or removed from MicroStation or AutoCAD Automatically.

2. NEW TYPICAL SECTION

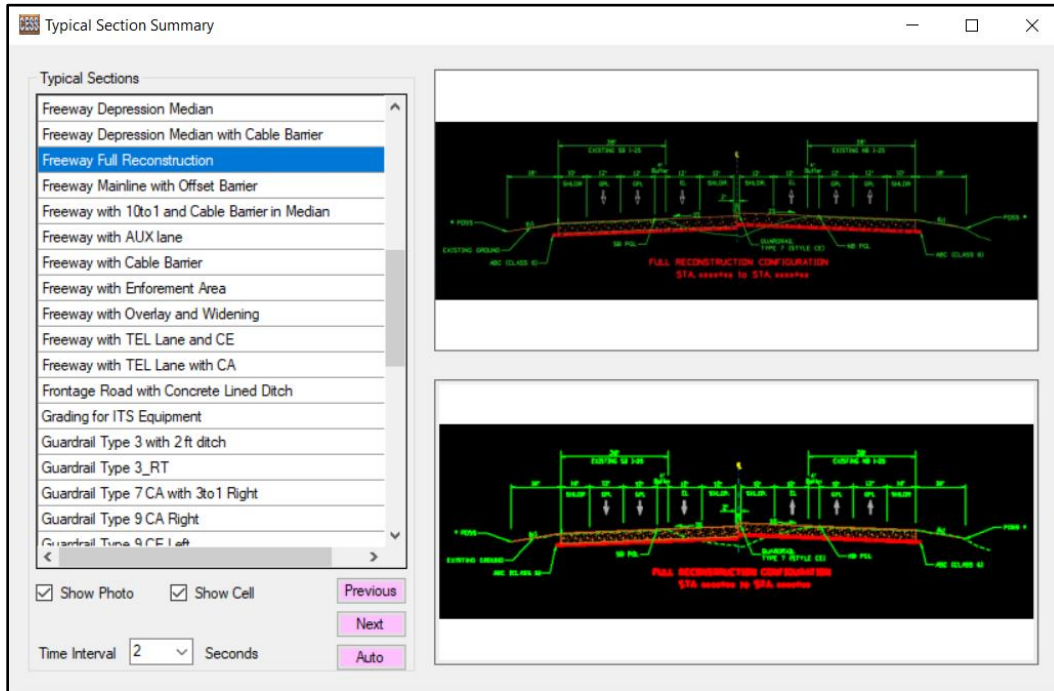
The figure below is the interface for a new typical section.

- **Name:** Specify name for new typical section.
- **Agency:** Agency that typical section applied for.
- **Category:** Classification of typical section.
- **Group:** Group of typical section belong to.
- **Description:** Explanation or note for typical section.
- **Cell Library:** File that typical section is placed.
- **Cell Name:** Name of cell in cell library.
- **Pavement Type:** Type of pavement if available.
- **Median Type:** Type of Median if available.
- **Dimension:** Dimension of typical section, no necessary in most case.
- **Photo:** Legend of typical section.

Template Included: Templates in Inroads are related to typical section. Normally, multiple templates or components are applied in Inroad for one typical section, and all available templates are listed in here. By right clicking on the data grid, a menu displays, and the user can add or remove templates for typical section.

3. TYPICAL SECTION SUMMARY

All available typical sections are listed in the data grid, Click a typical section, and photo and cell displays.



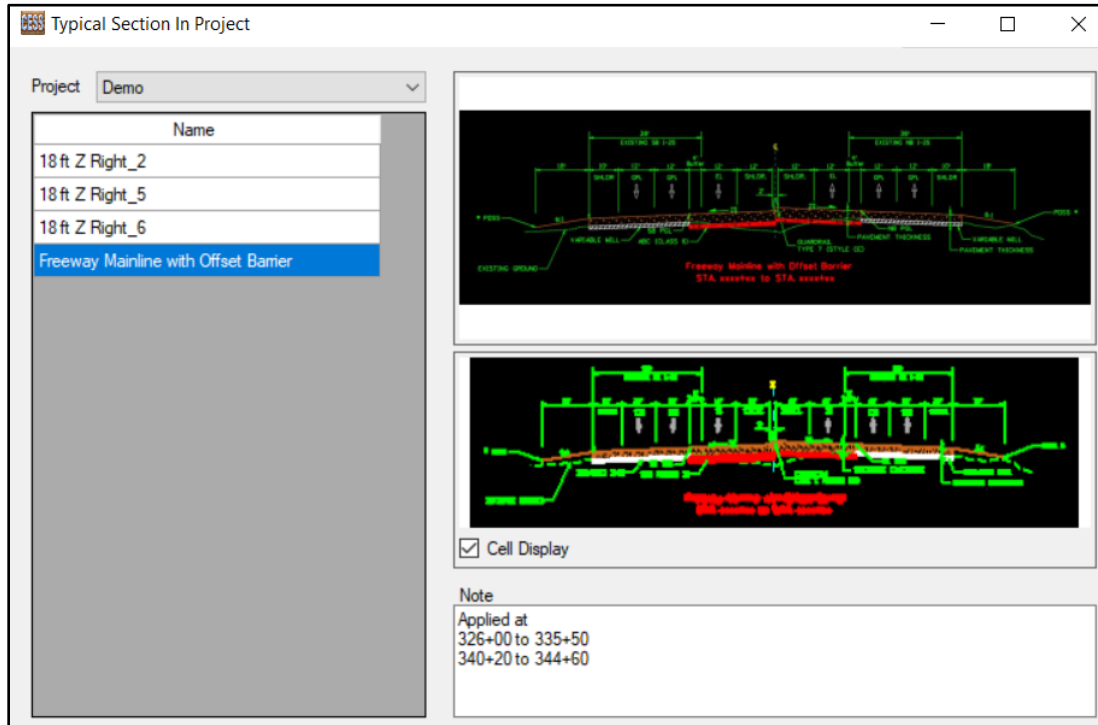
Check box of “Show Photo” determine whether typical section legend will display, check box of “Show Cell” determine whether Cell displays or not. Time Interval is for auto review and meant to determine the gap between two typical sections.

Right click on data grid, and a menu with nine sub menus will display:

New	New: Add a new typical section.
Edit	Edit: Similar to New.
Details	Details: Details of typical section.
Remove	Remove: Delete typical section from database.
Refresh	Refresh: Reload all typical sections.
Draw	Draw: Draw typical section cell in MicroStation.
Add To Project	Add To Project: Add current typical section to the current project.
Search...	Search...: Search specific typical section.
Auto Review	Auto Review: Review typical section one by one listed in data grid.

4. TYPICAL SECTION IN PROJECT

The figure below is the interface for typical section in project. Select a project and all typical sections in the project are listed. Click a typical section, and legend, cell, and note will display.



Right click on data grid, and a menu with five sub menus will display.

- New
- Edit
- Details
- Remove
- Draw

New: Add new typical section to the project.

Edit: Similar as New.

Details: Show details of typical section

Remove: Remove typical section from project.

Draw: Draw typical section in MicroStation.

Input all information of template, and then click **Save**.

5. TEMPLATE AND COMPONENT

5.1 New Template

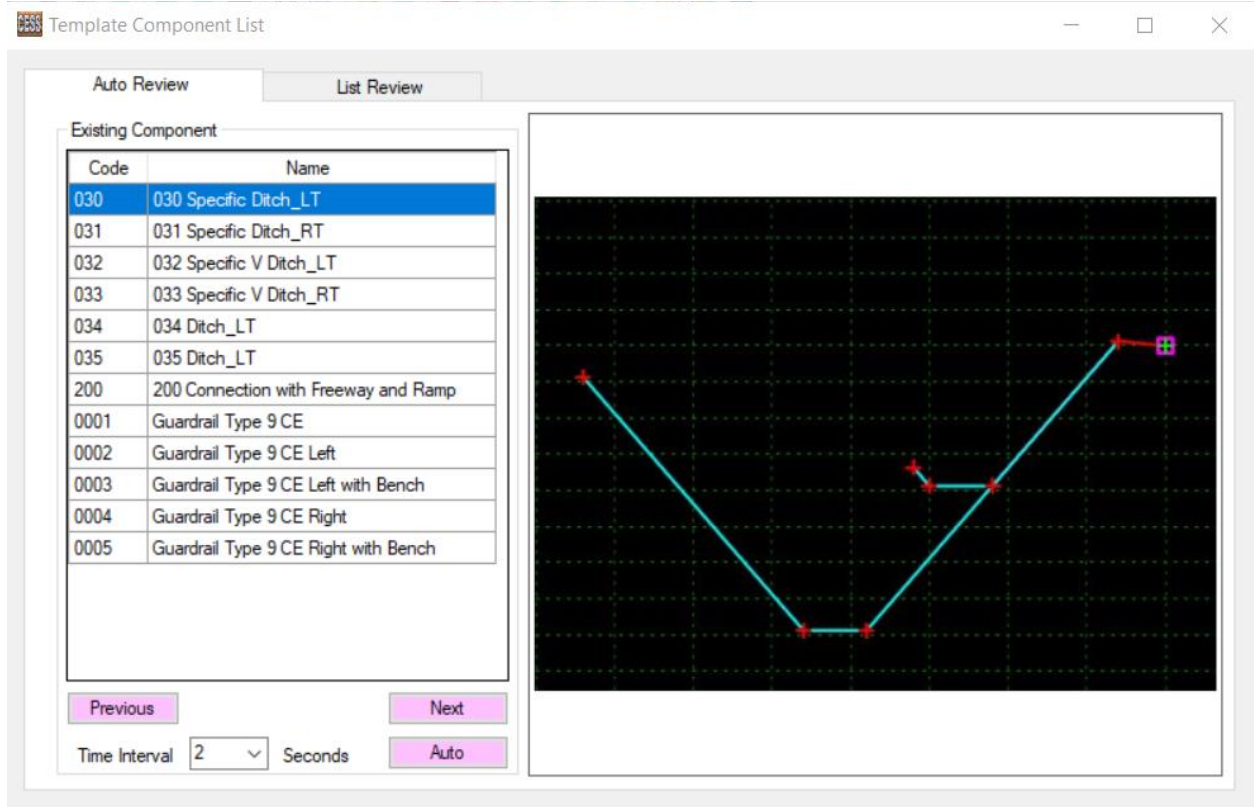
The figure below is the interface for a new template component.

The screenshot shows a software window titled "New Template Component". The window is divided into two main sections. The left section contains a vertical list of input fields: "Name" (text box), "Code" (text box) with a "Side" dropdown menu, "Agency" (dropdown), "Category" (dropdown), "Group" (dropdown), "Library" (text box) with a "Browse..." button, "Template" (text box), "Alt. Surfaces" (text box with up/down arrows), "Points" (text box with up/down arrows), "Display Rules" (text box with up/down arrows), "Parametric Constraints" (text box with up/down arrows), and "Point Control" (text box with up/down arrows). The right section contains a "Description" text area, a "Photo" field with a "Browse..." button, and a "Set Plan Properties" button. At the bottom right of the window, there are "Save" and "Close" buttons.

- **Name:** Template / Component name.
- **Code:** number to identify the component, and it also to determine whether the component display in the template.
- **Side:** Left or right side applied in road.
- **Agency:** Agency that template/component applied.
- **Category:** Classification of template/component.
- **Group:** Group of template/component.
- **Library:** Template library in Inroads (.itl)
- **Template:** Template name in library.
- **Alt. Surface:** Alternative surface in template.
- **Points:** Points included in template/component.
- **Display Rules:** Display Rules in template/component.
- **Parametric Constraints:** Parametric Constraints in template/component.
- **Point Control:** Point Control in template/component.
- **Description:** Description of template/component.
- **Photo:** Photo of template/component.

5.2 Template Summary

The figure below is the interface of template summary, there are two tabs, Auto Review and List Review, which include all existing template Components.



In Auto Review tab, template component can be reviewed automatically. Functions are introduced below:

Previous: display previous .

Next: display next component

Auto: Review templates one by one automatically.

Time Interval: The interval between the two templates when reviewing (similar to a slideshow).

Right clicks on data grid, and a menu with five sub-menu display.

New	New: Add new template, see New Template module for details.
Edit	Edit: Similar with New function.
Details	Details: Details of template component
Remove	Remove: Remove the template from database.
Search	Search: Search specific template, See search module for details.

Search Template

Using this function, user can search the specific templates

