# ROADWAY DESIGN STAFF MEETING
## Roadway Design Unit Conference Room
March 23, 2011
11:00 A.M. – 12:30 P.M.

## Employee Recognition

Debbie Barbour presented Jay A. Bennett with an AASHTO award for 25 years of public service. This award is bestowed upon a committee member deserving recognition for outstanding service to a subcommittee in the field of highway and transportation design.

## PDEA Move

Debbie Barbour discussed the PDEA staff move from the Highway Building to Century Center building 'A'. Placing planning and design staff in one location should help with project coordination. Their move is scheduled for March 28, 2011.

## Performance Dashboard and Appraisal

Debbie Barbour discussed the new changes for the Performance Dashboard and Appraisal (See the Distribution 'A' Letter from Secretary Gene Conti below). The Appraisal cycle ends March 31, 2011 so the 2010 -2011 PDA close-outs should be completed by April 29th, 2011. No later than May 9th, 2011 each employee should have a new PDA in place for the 2011-2012 PDA which will cover the period from March 31, 2011 to December 31, 2011.

March 18, 2011

| | |
|---|---|
| To: | NCDOT Employees (Distribution A) |
| From: | Secretary Gene Conti |
| Subject: | PDA Changes and Improvements |
| Attachments: | NCDOT Performance Management Policy.PDF |
| | Performance Dashboard and Appraisal Form.DOC |

In 2008, the Department of Transportation implemented a new performance management system focused on results and clear performance expectations. This new system was built around a tool used to plan and evaluate employee performance called the Performance Dashboard and Appraisal (PDA). The PDA system, created to manage our employee performance better, has been effective and will continue to be essential as we strive to enhance performance of employees and the Department in an unpredictable environment.

In an effort to continually improve the PDA system, the Department conducted an assessment in October 2010 using employee opinion surveys and focus group discussions. Based on this feedback, the Department's senior leadership team appointed a work group to review our process and make recommendations for improvement to the PDA and performance management policy. The work group made recommendations in January 2011.

From the survey and the work group's report, senior management has heard clearly that employees desire improvements to the PDA. To honor these improvements requested by employees, we have taken action to make several changes immediately to the performance management policy and PDA.

Effective April 1, 2011, the Department of Transportation will adopt a revised performance management policy that governs the use of the PDA. The revised Performance Management Policy is attached to this memo.

Most importantly, the following two changes will take effect April 1:

1. The PDA form will be reduced in length by removing Section C: Competencies. Supervisors and employees will no longer be required to complete Section C (called "competencies") as part of the performance management process. The benefits of removing this section from the PDA process include eliminating interpretation questions, confusion and inconsistency generated by this section; implementing a single concise form for all employees; and reducing the effort and number of pages associated with the PDA. The new, shortened PDA form, which should be used to begin the next cycle in April, is attached. It's also important to note that competency development for our employees will be retained but led by Human Resources and conducted independently from the PDA process.

2. The PDA's annual cycle will transition to January 1 – December 31. This will take effect January 1, 2012, therefore shortening the 2011 PDA cycle to nine months (April 1, 2011 - December 31, 2011). This change will eliminate an additional performance measurement tracking period, increase the amount of time supervisors have to complete the end-of-year evaluation, and institute consistency for various measurement systems used to track results. Employees are still required to have an individual PDA adopted this year on April 1, 2011, that will be effective for nine months.

In addition to these two policy changes, the Department and senior management have also committed to improve our internal communication efforts regarding performance management, performance metrics and the PDA process. This will be an ongoing effort, and supervisors will be expected to share information with their employees. Performance management resources also will be made available on the Intranet Portal at https://intranet.dot.state.nc.us/portal/ and on the Workplace Portal at https://workplace.ncdot.gov.

As a reminder, this year's performance appraisal will begin on April 1, 2011, as planned. The next cycle will begin on January 1, 2012. Additional guidance on this cycle transition will be communicated later this year.
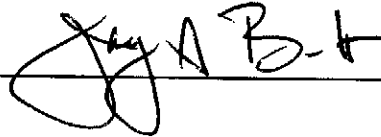
## Employee Recognition

Jay A. Bennett presented Dean Noland and Oak Thammavong an Extra Mile Award for their work with developing Corridor Modeling for the unit. This award is given to employees for service above and beyond their normal duties.

## Corridor Modeling

Jim McMellon gave a PowerPoint presentation (see attachment) on the current development of Corridor Modeling. This presentation included discussion on new multi-layered dtm's, location of the template library, setting resurfacing grades, superelevation, inspecting models visually and the new method for cutting cross-sections. The library includes culverts, ditches, and retaining walls. There was discussion on the new methods for calculation of quantities for earthwork and pavement. These quantities are calculated internally without the need of log files and spreadsheets. The presentation was then followed by a brief Q & A session.
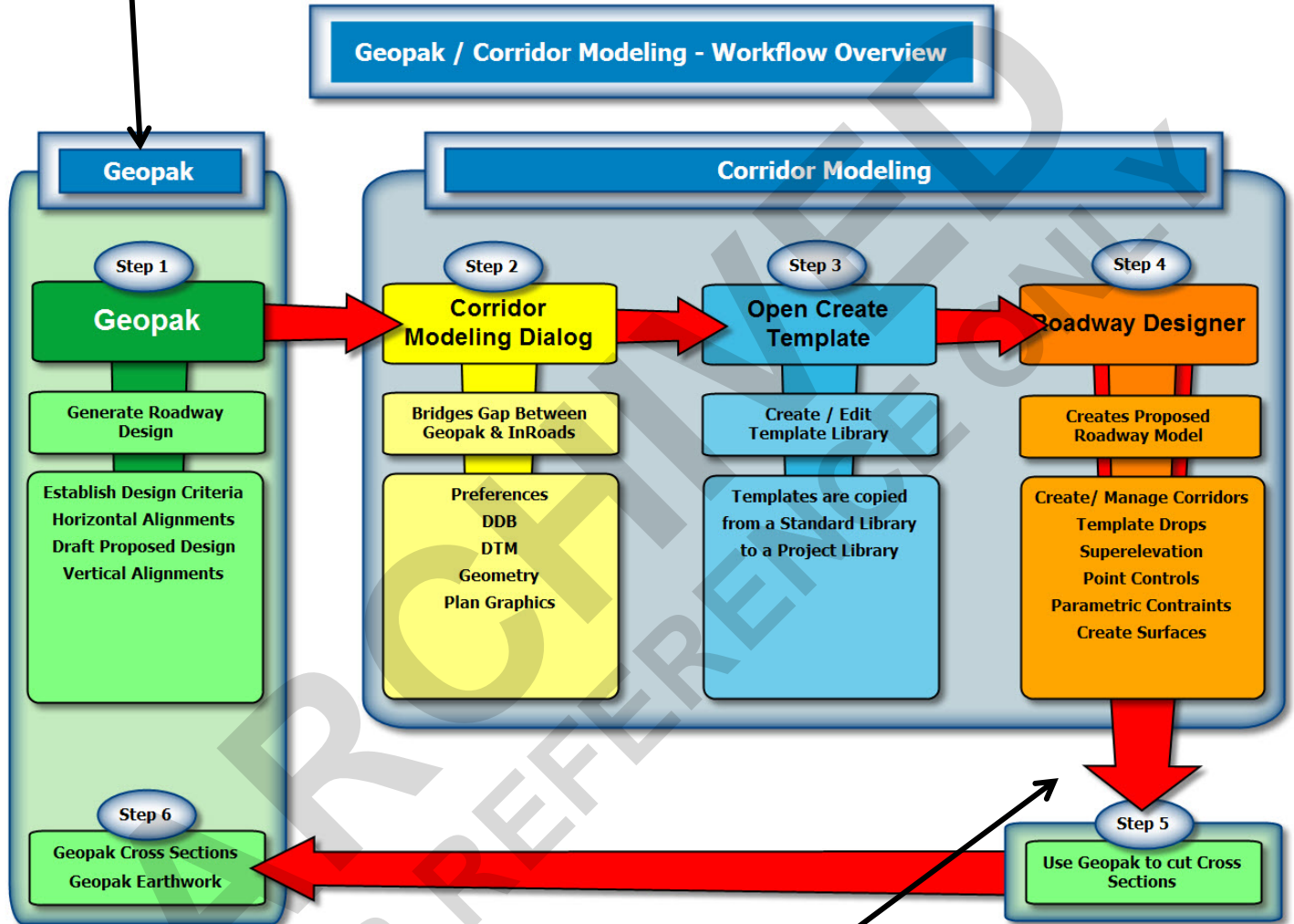
Minutes Approved By: _____     Date: 4/1/14

JAY A. BENNETT

# Preparing for 3D.  Converting Geopak into InRoads data

## Understanding the process

**Project Start –Same**

### Geopak / Corridor Modeling - Workflow Overview

**Geopak**

**Corridor Modeling**

**Step 1**

**Geopak**

Generate Roadway Design

Establish Design Criteria
Horizontal Alignments
Draft Proposed Design
Vertical Alignments

**Step 2**

**Corridor Modeling Dialog**

Bridges Gap Between Geopak & InRoads

Preferences
DDB
DTM
Geometry
Plan Graphics

**Step 3**

**Open Create Template**

Create / Edit Template Library

Templates are copied from a Standard Library to a Project Library

**Step 4**

**Roadway Designer**

Creates Proposed Roadway Model

Create/ Manage Corridors
Template Drops
Superelevation
Point Controls
Parametric Contraints
Create Surfaces

**Step 6**

Geopak Cross Sections
Geopak Earthwork

**Step 5**

Use Geopak to cut Cross Sections

Create surface used in cutting x-sect

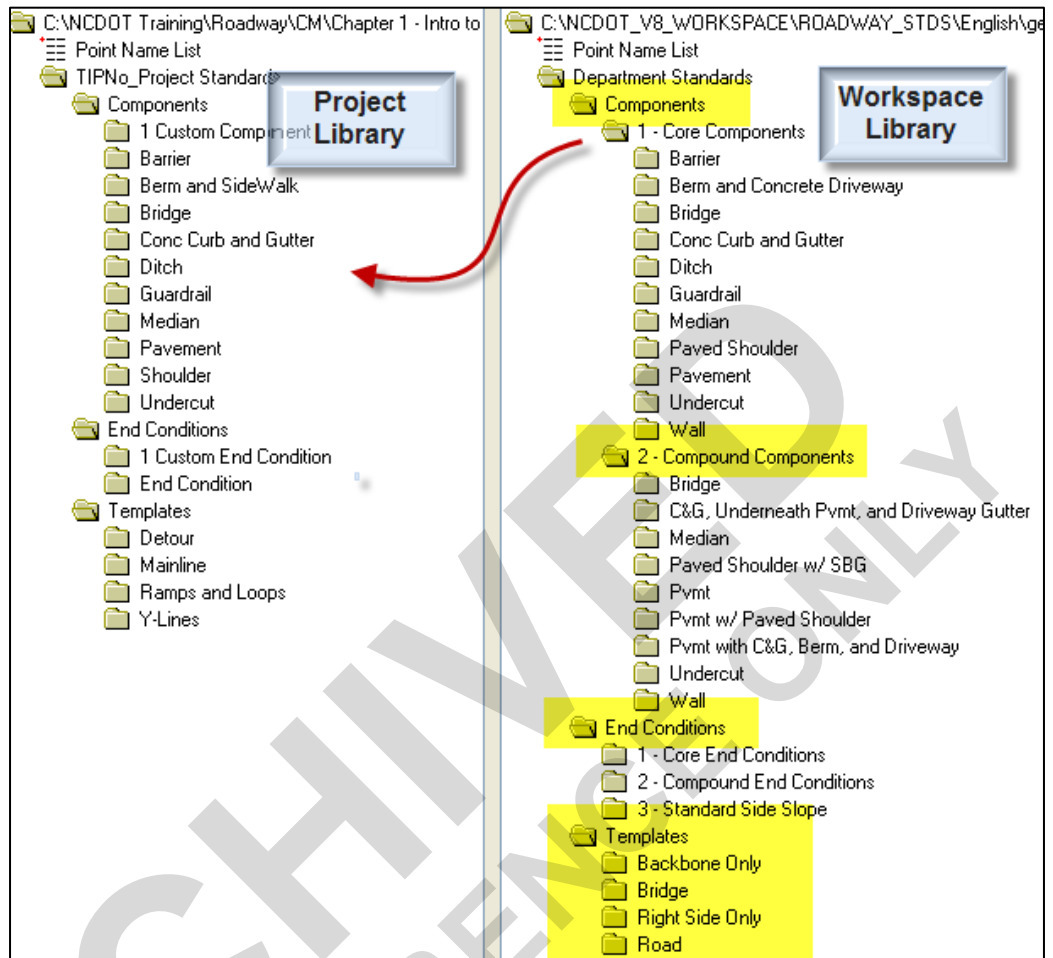Old .tin file was a single layer 3D surface.

New .dtm file is a 3D surface of multi-layers.

It is important to understand because there are volumes between each of the surfaces.
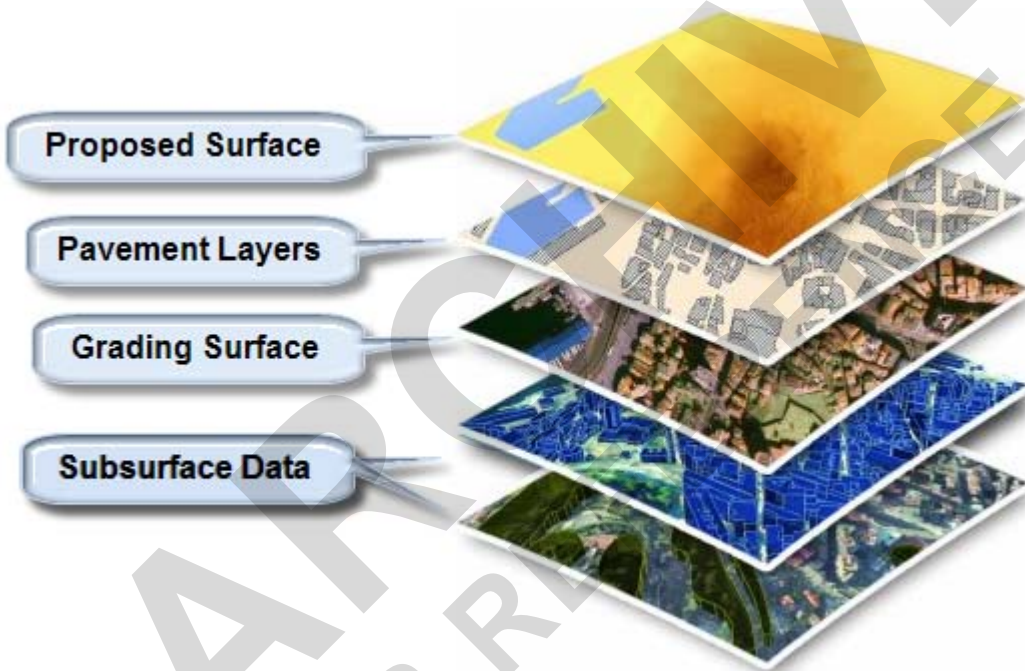
# Template Library



Create customized templates for any station range or can use the standard template included in the workspace.

# Set Resurfacing Grade

## Cross Slope Optimization

Results:

| Station | Ground Slope | Design Slope | Difference | Corrected Slope | Delta Elev |
|---|---|---|---|---|---|
| 12+60.00 | 1.61% | -2.00% | -3.61% | 1.61% | 0.0000 |
| 12+70.00 | 0.42% | -2.00% | -2.42% | 0.42% | 0.0000 |
| 12+80.00 | -0.74% | -2.00% | -1.26% | -0.74% | 0.0000 |
| 12+90.00 | -1.29% | -2.00% | -0.71% | -1.29% | 0.0000 |
| 13+00.00 | -1.68% | -2.00% | -0.32% | -1.68% | 0.0000 |
| 13+10.00 | -2.25% | -2.00% | 0.25% | -2.25% | 0.0000 |
| 13+20.00 | -2.79% | -2.00% | 0.79% | -2.79% | 0.0000 |
| 13+30.00 | -3.34% | -2.00% | 1.34% | -3.34% | 0.0000 |

## Vertical Adjustments
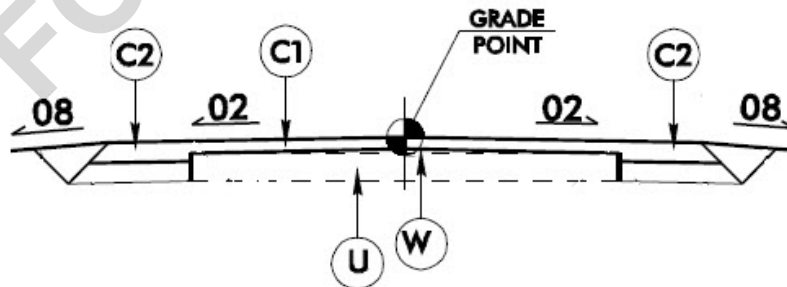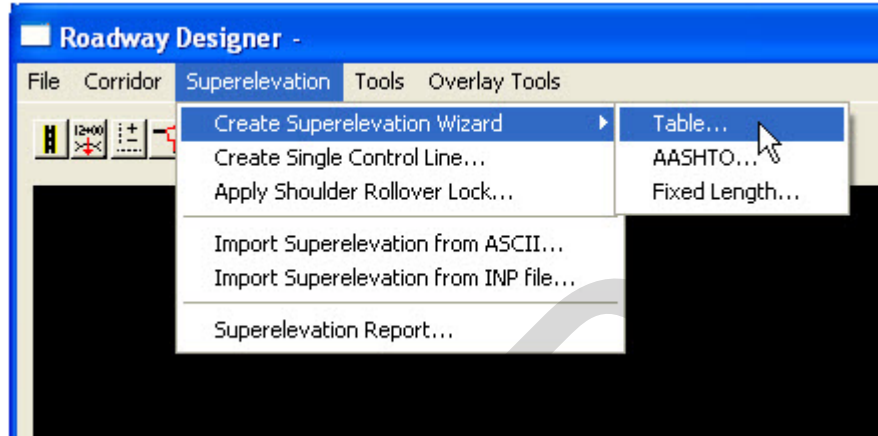
# Create Top & Bottom Envelope
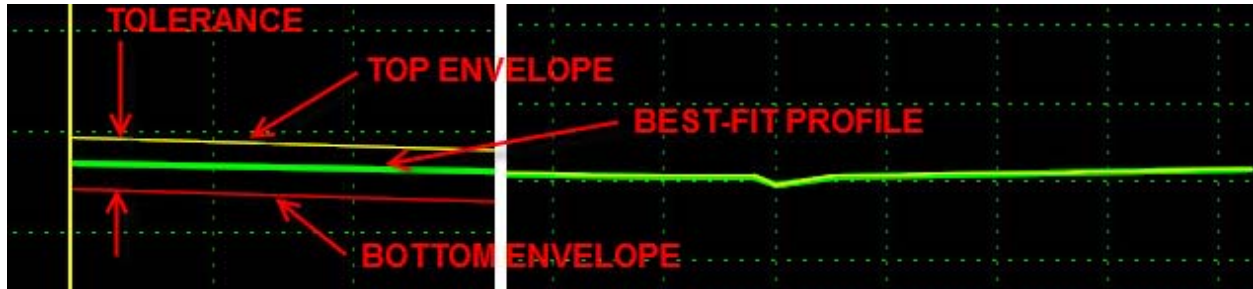


# Export to Profile Generator
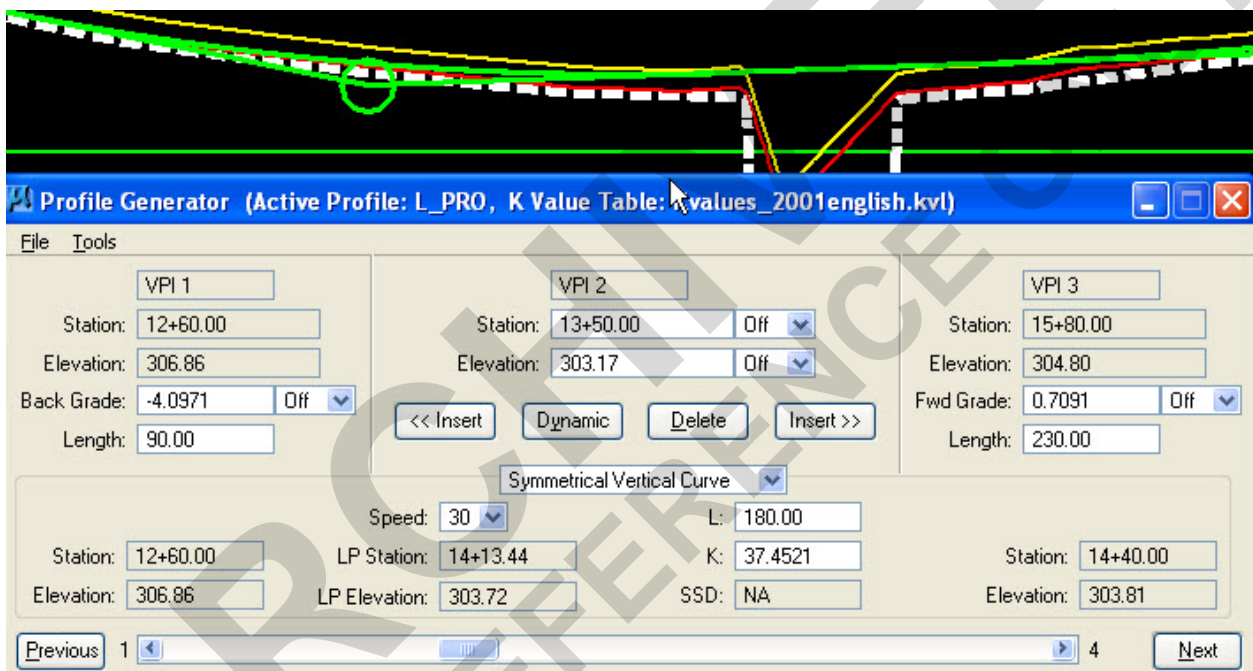
# Superelevation

Superelevation is controlled inside Roadway Designer. Do not need Geopak to create shapes.



Get superelevation data reports and station reports.

## Superelevation Data Report

**Super Control Line:** Y9_SE PV1_PGL-LT_PV1_OEOT
**Type:** Linear

| Station | Cross Slope | Point Type |
|---|---|---|
| 9+60.29 | -2.00% | Normal Crown |
| 10+32.78 | 0.00% | Zero Cross Slope |
| 11+05.26 | 2.00% | Reverse Crown |
| 12+50.23 | 6.00% | Full Super |
| 19+14.35 | 6.00% | Full Super |
| 20+04.35 | 2.00% | Reverse Crown |
| 49.35 | 0.00% | Zero Cross Slope |
| 94.35 | -2.00% | Normal Crown |
| 18.74 | 1.36% | Normal Crown |
| 58.74 | -0.42% | Zero Cross Slope |
| 98.74 | 2.00% | Reverse Crown |
| 18.74 | 8.00% | Full Super |

## Superelevation Station Report

| Station | | | |
|---|---|---|---|
| 10+00.00 | Name: LT_PV1_OEOT | RT_PV1_OEOT | |
| | Cross Slope: -0.90% | -2.00% | |
| | Delta G: 0.3311 | 0.0000 | |
| | Mode: Linear | Constant | |
| 10+32.78 | Name: LT_PV1_OEOT | RT_PV1_OEOT | |
| | Cross Slope: 0.00% | -2.00% | |
| | Delta G: 0.3311 | 0.0000 | |
| | Mode: Linear | Constant | |
| 10+50.00 | Name: LT_PV1_OEOT | RT_PV1_OEOT | |
| | Cross Slope: 0.48% | -2.00% | |
| | Delta G: 0.3311 | 0.0000 | |
| | Mode: Linear | Constant | |
| 11+00.00 | Name: LT_PV1_OEOT | RT_PV1_OEOT | |
| | Cross Slope: 1.85% | -2.00% | |
| | Delta G: 0.3311 | 0.0000 | |
| | Mode: Linear | Constant | |

## Create Surface – Drive – Inspect



Multi-layer Surface
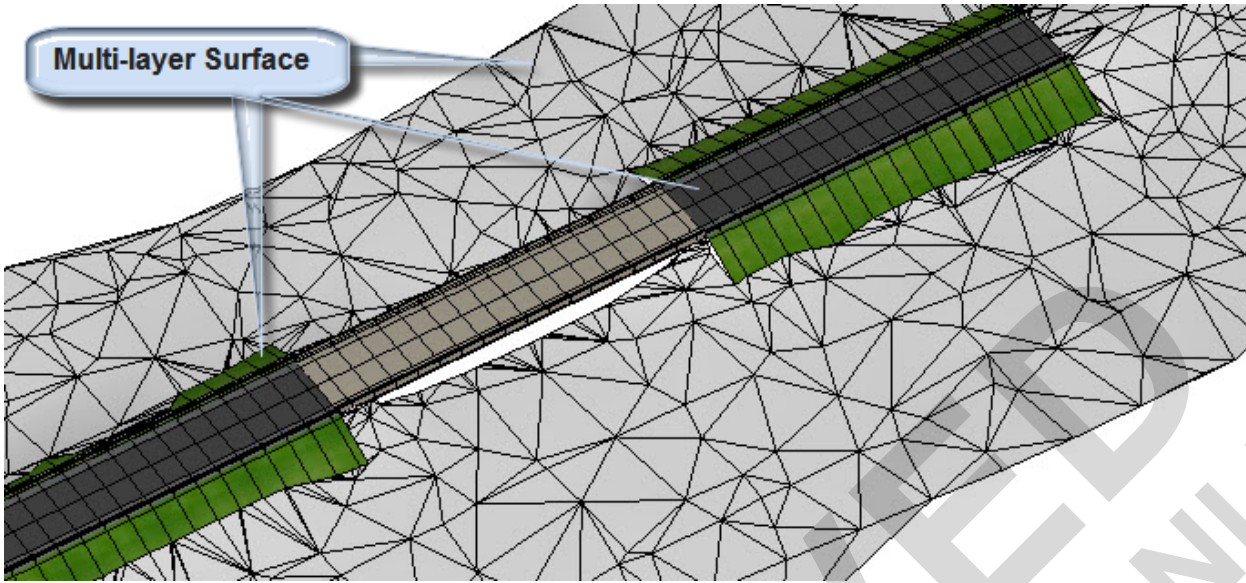
## Inspect Model Against Plan Graphics



Taper doesnt match

Paved shoulder width

## Walk / Drive / Fly

# Cross Sections

## Draw Cross Sections

**Job Number:** RDY    **Chain:** L    [Draw]

☐ DP Origin

### XS Cells | Surfaces

| Type | Name | Display Settings | Meth |
|------|------|------------------|------|
| DTM | Proposed_L.dtm | Lv: Default, Co: ...\ ByLevel | Tr... |
| DTM | B4834_ls_tin.dtm | Lv: Default, Co: ...\ ByLevel | Tr... |

**New Method
Use Existing & Proposed Surfaces**

### Details

Dtm File: Proposed_L.dtm

Method: Triangles     Type: Line String

Display Settings     Filter Tolerances

## Process Cross Sections

### Input File
**Name:**

### Output
To Screen

☐ Pause On Each Section    [Apply]
☐ Criteria Viewer
☐ Disa...

**Old Method
Criteria and Input Files**

---

## Geopak

### Corridor Modeling

**Step 1 — Geopak**
Generate Roadway Design

Establish Design Criteria
Horizontal Alignments
Draft Proposed Design
Vertical Alignments

**Step 2 — Corridor Modeling Dialog**
Bridges Gap Between Geopak & InRoads

Preferences
DDB
DTM
Geometry
Plan Graphics

**Step 3 — Open Create Template**
Create / Edit Template Library

Templates are copied from a Standard Library to a Project Library

**Step 4 — Roadway Designer**
Creates Proposed Roadway Model

Create/ Manage Corridors
Template Drops
Superelevation
Point Controls
Parametric Contraints
Create Surfaces

**Step 5**
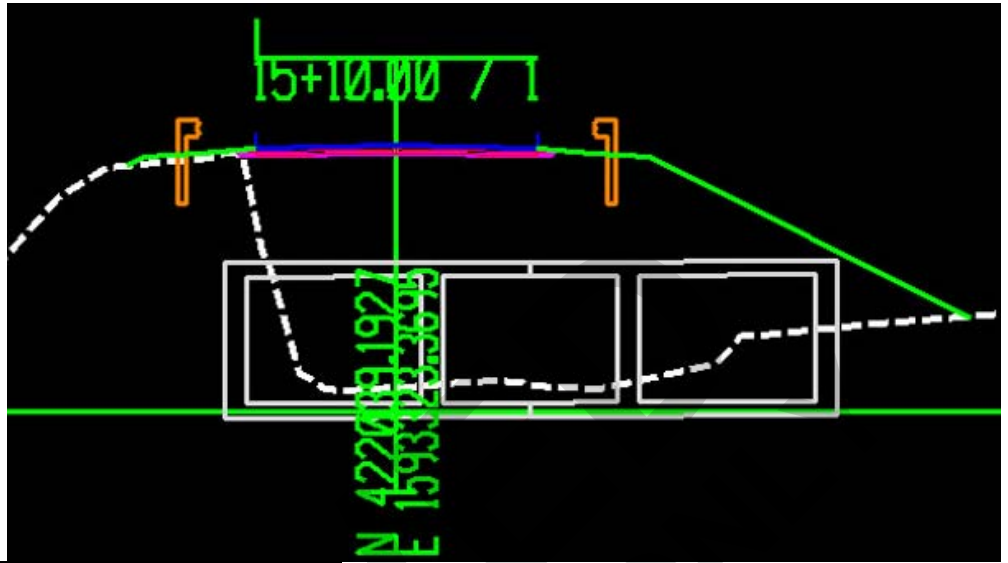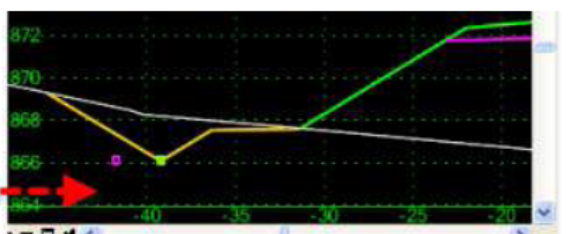Use Geopak to cut Cross Sections
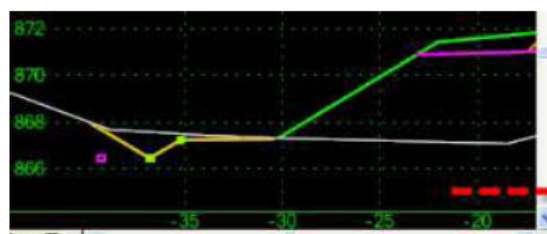
**Step 6**
Geopak Cross Sections
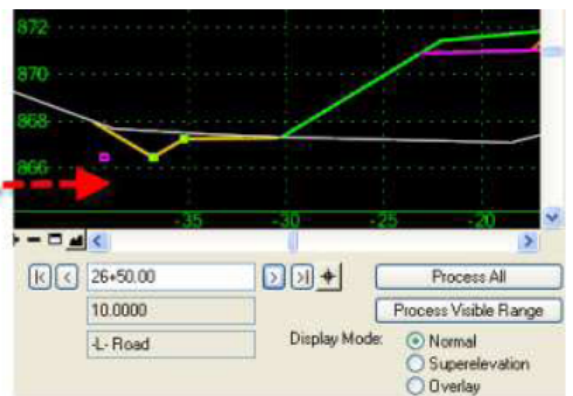Geopak Earthwork

Create surface used in cutting x-sect

# Other Items

## Culverts
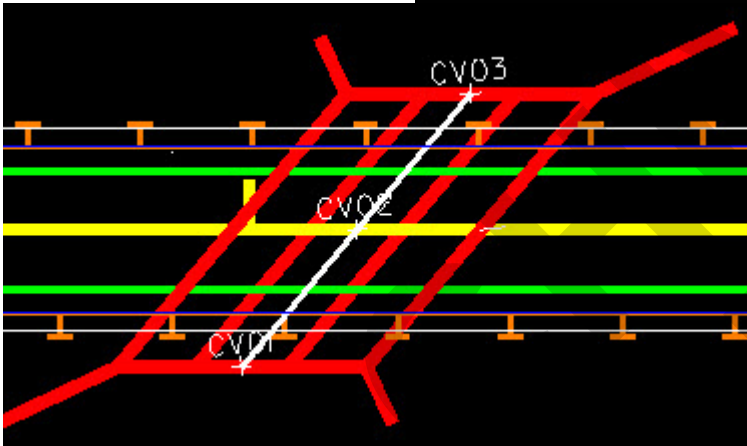




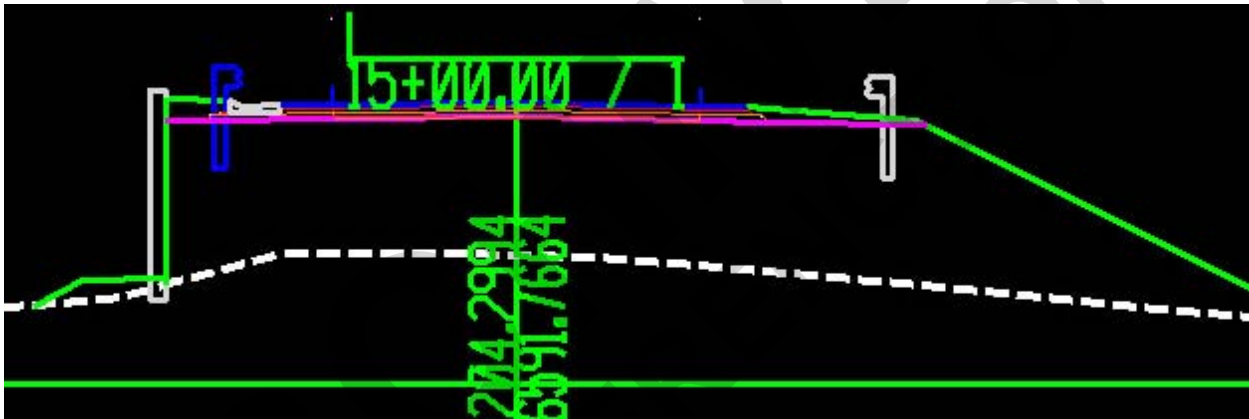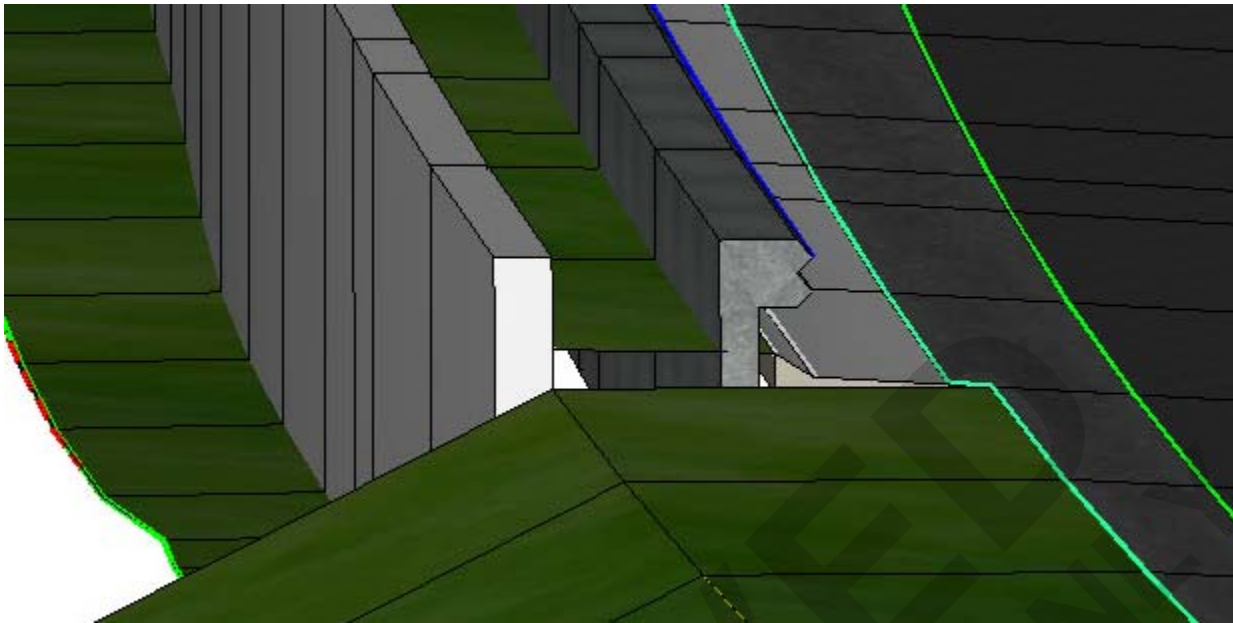## Ditches

# Walls





# Quantities

Earthwork (includes shallow & regular undercut)

Pavement (includes wedging)

Currently using input files and processing the runs for Earthwork log files
Roadway Designer Calculates Internally

NCWedge is no longer required for quantities on old projects

On the Way

On-Site Detours
Bridge Abutments, End Bents, Approach Slabs
At-grade Intersections
Divided Facilities
Interchange
Automated Calculation of Quantities

Reasons for this development path.

Each previous step is a building block for the next step.

Components and end conditions ──────▶ Templates

Undivided, detours, intersections ──────▶ Divided Facilities

Changes

Roadway Design manual side slopes.

Standard Drawing Shoulder Construction

Wedging Details

No need for Criteria or NCWedge

Computations of certain quantities and Plan Checking involvement