

Deep Dive into the

** NEW **

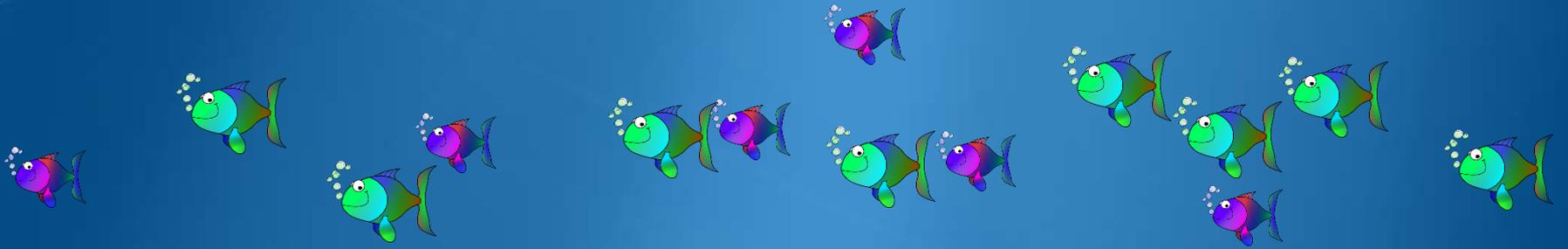
Drainage Structure Module



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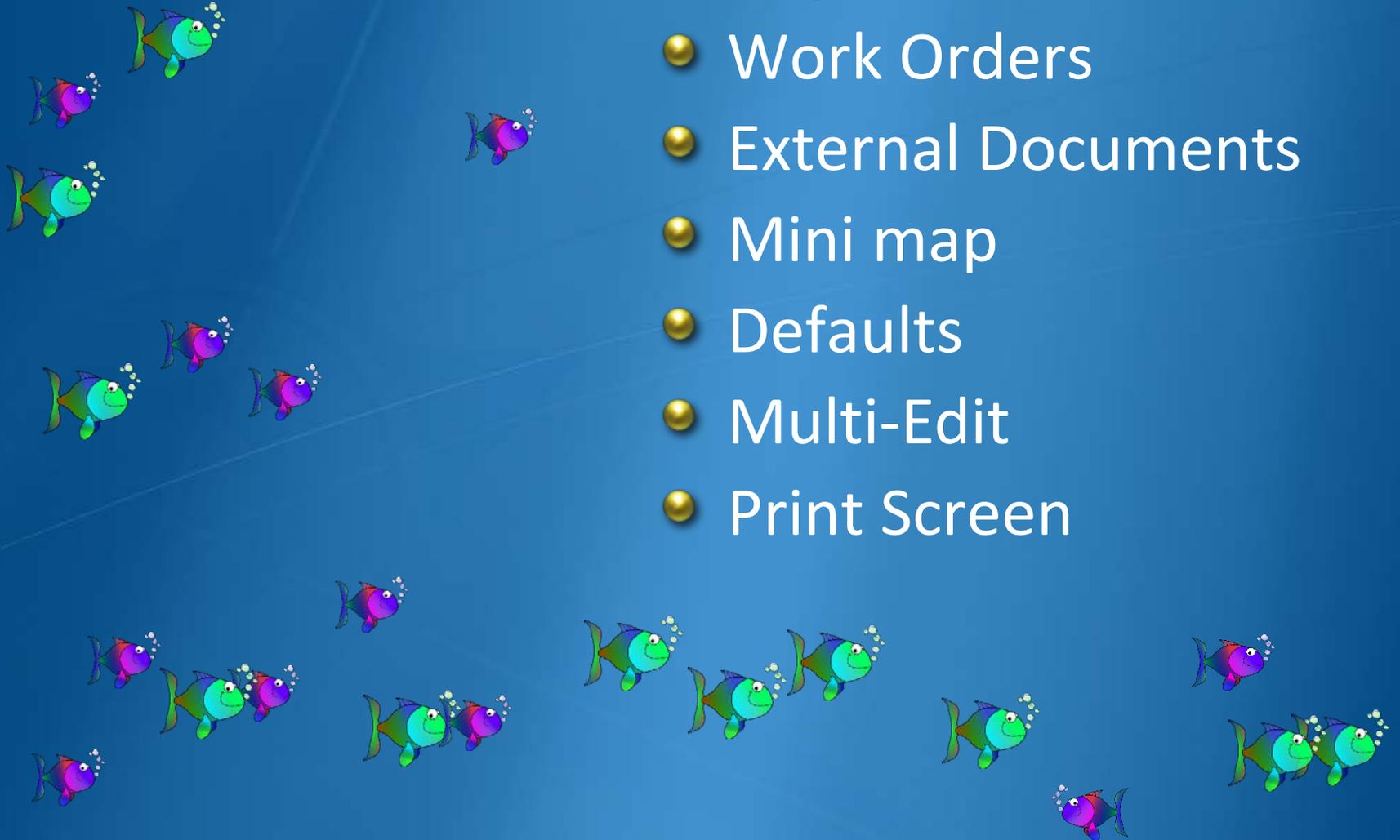
Information Includes:

- Drainage Structure Location
 - GPS Coordinates
 - Linear Reference
- Structure & Cover Features
- Criticality Assessment
- Condition Information
- Administrative Information
- Pipe Information



Standard Module features

- Inspections
- Work Orders
- External Documents
- Mini map
- Defaults
- Multi-Edit
- Print Screen



Drainage Structure Module

Drainage Structure



PRNo	Road Name	Milepoint	Between Roads	Structure Type	Install Date	Consequence of Failure	Criticality	Life Expectancy (years)
0	Not on PR	<input checked="" type="checkbox"/> 0.05	End-Bluestem Ln	Undefined	1/1/1900	Undefined	0	0
18148	Bluestem Ln	<input checked="" type="checkbox"/> 0.05	End-Bluestem Ln	Undefined	1/1/1900	Undefined	0	0
18263	Brookmist Cir	<input checked="" type="checkbox"/> 0.17	End-Bluestem Ln	Undefined	1/1/1900	Undefined	0	0
18632	Coldwater Dr	<input checked="" type="checkbox"/> 0.17	End-Bluestem Ln	Undefined	1/1/1900	Undefined	0	0
17071	Coneflower Dr							

Mini-Map

Documents | Pipe Information

Drainage Structure Information

Drainage Structure Location

[Edit Location...](#)

GPS Coordinates

GPS Located	Yes
Latitude	41.6513873989336
Longitude	-85.8425650561975

Linear Reference

City/Township	Jefferson Twp
Reference Intersection	Goldenrod Tr
Reference Distance	0.052 mi. (275 ft.)
Between Roads	End-Bluestem Ln
(MP): Segment Name	(0.052) Goldenrod
Is Linear Referenced	True

Structure Features

Structure Type	Undefined
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[Add/Edit Structure Type](#)

Sump Depth	0.00 Feet
Inside Diameter	0.00 Feet

Sump Depth

Measurement from the bottom of the drainage structure to the outlet invert elevation (includes measurement unit).



Closer look at: Information

Drainage Structure Information	
+ Drainage Structure Location	
- Structure Features	
+ Structure Type	Manhole
Sump Depth	0.00 Inches
+ Inside Diameter	0.00 Inches
+ Wall Material	Precast Concrete
Wall Thickness	0.00 Inches
Location	South side of road (133 feet from road)
+ Surface Type	Earth/Grass
- Cover Features	
Cover Opening Size	0.00 Inches
+ Cover Shape	Circular
Grade Ring Height	0.00 Inches
Top of Frame Elevation	802.05 Feet
- Criticality Assessment	
Latest Probability of Failure	Undefined
Consequence of Failure	Undefined
Criticality	0
- Condition Information	
+ Install Date	11/25/2003
Latest Condition Grade	Undefined
Life Expectancy (years)	0
Potential Replacement Year	1900
- Administrative Information	
External ID	DS-2018-187
Facility ID	SD-03438
Maintained By	Yes
Name	

Closer look at: Inspection

Add Inspection

Inspection Information

Date	9/20/2018
Condition Grade	2-Minor Deterioration
Probability of Failure	3 - Occasional
Inspector Name	

Water Test Information

Turbidity	0.00
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Cleanout Information

Sediment Depth (inches)	0
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Proposed Activities

<input checked="" type="checkbox"/> Activity Not Needed	Yes
<input type="checkbox"/> Cleanout	No
<input type="checkbox"/> New Installation	No
<input type="checkbox"/> Remove Obstruction	No
<input type="checkbox"/> Repair	No
<input type="checkbox"/> Replace	No

[Add/Edit Proposed Activities](#)

Memo

Condition Grade
Asset condition rating based on quantitative measures (example: 5% of the asset needs minor maintenance).

Required Field

Save Cancel

Closer look at: Pipe Information

Pipe Information

+ Add

Pipe Information

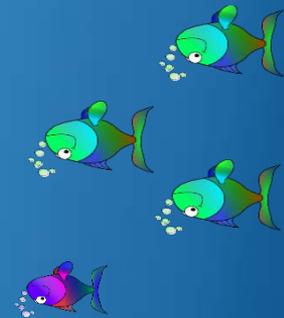
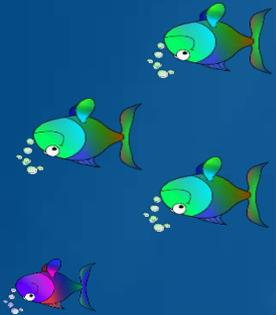
Inlet at 0 Degrees

+ Compass Orientation	0.00
+ Diameter	18.00 Inches
Flow Direction	Inlet
Invert Elevation	802.05 Feet
Rim to Invert	0.00 Feet
+ Pipe Shape	Circular
Pipe Inventory ID	DP-03438-003
+ Pipe Material	PVC or Plastic
Pipe Inlet From	DS-2017-770
Pipe Outlet To	
Pipe Length (in feet)	133
Pipe Memo	

[Delete Pipe Information...](#)

Outlet at 135 Degrees

+ Compass Orientation	135.00
+ Diameter	18.00 Inches
Flow Direction	Outlet
Invert Elevation	801.89 Feet
Rim to Invert	0.00 Feet
+ Pipe Shape	Circular
Pipe Inventory ID	DP-03438-005
+ Pipe Material	PVC or Plastic



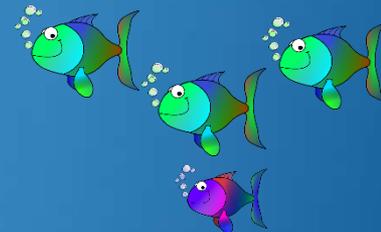
Also included:

- Documents
- Work Orders
- Defaults
- Multi-edit



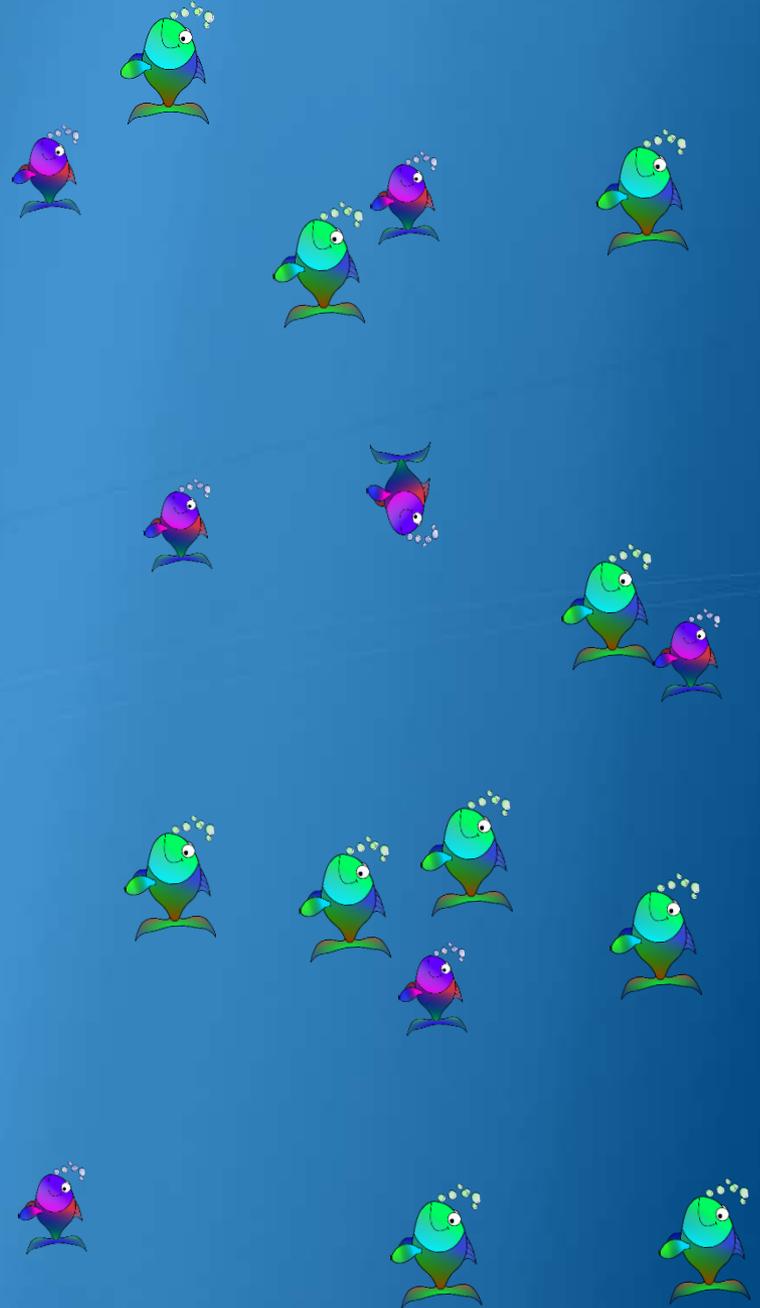
Map Labels

- Cover Shape
- Facility ID
- Structure Type
- Sump Depth
- Wall Material



Reports

- Drainage Structure
 - Inventory Report
- Inspection
 - Inspection History
 - Inspection Summary
 - Latest Inspection
- Pipe Information
 - Pipe Information
 - Pipe Information Summary
- Proposed Activities
 - Proposed Activities History
- Work Order
 - Latest Work Order
 - Work Order History
 - Work Order Summary



Legends



All fields that are numeric will have the option to be used as a legend



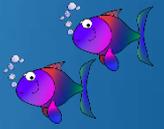
- Compass Orientation
- Compass Orientation Confidence Grade
- Completion Date
- Condition Grade
- Consequence of Failure
- Cover Opening Size
- Cover Opening Size Unit
- Cover Shape
- Cover Type
- Criticality
- Date
- Diameter
- Diameter Confidence Grad
- Diameter Length Unit
- Entry Date
- Facility Group Name
- Flow Direction
- Grad Ring Height
- Grade Ring Height Unit

- Inside Diameter
- Inside Diameter Confidence Grade
- Inside Diameter Unit
- Install Date
- Install Date Confidence Grade
- Invert Elevation
- Invert Elevation Unit
- Is Linear Referenced
- Life Expectancy (years)
- Maintained By
- Pipe Length (in feet)
- Pipe Material
- Pipe Shape
- Pipe Shape Confidence Grad
- Potential Replacement Year
- Priority
- Probability of Failure
- Proposed Activities
- Reason

- Rim to Invert
- Rim TO Invert Unit
- Sediment Depth (inches)
- Sediment Removed (cubic yards)
- Status
- Storage Capacity (in cubic feet)
- Structure Depth (in inches)
- Structure Type
- Sump Depth
- Sump Depth Unit
- Surface Type
- Top Frame Elevation Unit
- Top of Frame Elevation
- Turbidity
- Wall Material
- Wall Material Confidence Grade
- Wall Thickness
- Wall Thickness Unit
- Water Removed (gallons)



Filters



● All fields (including Custom fields) can be used in filters

● Drainage Structure

- Consequence of Failure
- Cover Opening Size
- Cover Opening Size Unit
- Cover Shape
- Cover Type
- Criticality
- External ID
- Facility Group Name
- Facility ID
- Grade Ring Height Unit
- Inside Diameter
- Inside Diameter Confidence Grad
- Inside Diameter Unit
- Install Date
- Install Date Confidence Grade
- Is Linear Referenced
- Life Expectancy (years)
- Location
- Maintained By
- Memo
- Potential Replacement Year
- Storage Capacity (in cubic feet)
- Structure Depth (in inches)
- Structure Type
- Top Frame Elevation Unit
- Top of Frame Elevation
- Wall material
- Wall Material Confidence Grad
- Wall Thickness
- Wall Thickness Unit

● Work Order

- Activity
- Assigned To
- Authorized By
- Completion Date
- Entry Date
- Invoice Number
- Priority
- Reason
- Sediment Removed (cubic yards)
- Short description
- Status
- Water Removed (gallons)
- Work Details
- Work Order ID
- Worker Comments

● Pipe Information

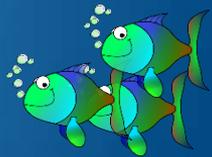
- Compass Orientation
- Compass Orientation Confidence Grad
- Diameter
- Diameter Confidence Grad
- Diameter Length Unit
- Flow Direction
- Invert Elevation
- Invert Elevation Unit
- Pipe Inlet From
- Pipe Inventory Id
- Pipe Length (in feet)
- Pipe Material
- Pipe Memo
- Pipe Outlet To
- Pipe Shape
- Pipe Shape Confidence Grade
- Rim to Invert
- Rim to Invert Unit

● Inspection

- Condition Grade
- Date
- Inspector Name
- Memo
- Probability of Failure
- Sediment Depth (inches)
- Turbidity

● Proposed Activities

- Memo
- Proposed Activities



** New Features **

(these will be expanded to other modules in the future)



Structures not attached to roadway

This is the first module where an asset doesn't have to be linear referenced to a road



Selection Information:

Unreferenced shows as PRNo=0

Selection Information : Drainage Structure								
PRNo	Cover Opening Size	Sump Depth	Inside Diameter	Grade Ring Height	Wall Thickness	Top of Frame Elevation	Is Linear Referenced	C
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input type="checkbox"/>	0
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input type="checkbox"/>	0
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input type="checkbox"/>	0
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input type="checkbox"/>	0
10998	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input checked="" type="checkbox"/>	0
10998	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	<input checked="" type="checkbox"/>	0

Drainage Module: Shows as PRNo=0 Not on PR, Linear Reference = unreferenced

Drainage Structure

PRNo	Road Name	Milepoint	Between Roads	Structure Type	Install Date	Consequence of Failure	Criticality	Life Expectancy (y)
0	Not on PR	<input checked="" type="checkbox"/> 0.00	-	Undefined	1/1/1900	Undefined	0	0
10998	Holben Woods Ln	<input checked="" type="checkbox"/> 0.00	-	Undefined	1/1/1900	Undefined	0	0
		<input checked="" type="checkbox"/> 0.00	-	Undefined	1/1/1900	Undefined	0	0
		<input checked="" type="checkbox"/> 0.00	-	Undefined	1/1/1900	Undefined	0	0

Mini-Map

Documents
Pipe Information

Drainage Structure Information

- Drainage Structure Location [Edit Location...](#)
- GPS Coordinates
 - GPS Located: Yes
 - Latitude: 41.6726055508127
 - Longitude: -86.0500830134592
- Linear Reference (unreferenced)**
 - Is Linear Referenced: False
- Structure Features

Inspection
Work Order

Filter: Is Linear Referenced

Drainage Structure Filter Builder

Open Save Delete Clear

Drainage Structure

Find field...

Field

- Install Date Confidence Grade
- Is Linear Referenced**
- Life Expectancy (years)
- Location
- Maintained By
- Memo
- Potential Replacement Year
- Storage Capacity (in cubic feet)
- Structure Depth (in inches)

Operator: Value:

= True

<>

Add

Group: 1

Group	Field	Operator	Value(s)
1	Is Linear Referenced	<>	True

Custom Fields

- Add/Edit Custom Field:
 - Choose Type
 - Define Label
 - Optional Description
- Edit Lookup values (if applicable)
- Set value & save (just like all other fields)



Edit Drainage Structure Custom Fields

Edit Drainage Structure Custom Fields ✕

+ Facility Group Name [Lookup]

- Cover Type [Lookup]

Custom Type	Lookup
Label	Cover Type
Abbreviated Name	CvrType
Description	This field represents the type of cover for this drainage structure.
Created Date	7/25/2018

[Delete](#)

+ Structure Depth (in inches) [Whole Number]

- Storage Capacity (in cubic feet) [Whole Number]

Custom Type	Whole Number
Label	Storage Capacity (in cubic feet)
Abbreviated Name	StorgCap
Description	This field represents the Storage Capacity in cubic feet of the drainage structure.
Created Date	7/27/2018

[Delete](#)

Facility Group Name [Lookup]

+ Add ✓ Done

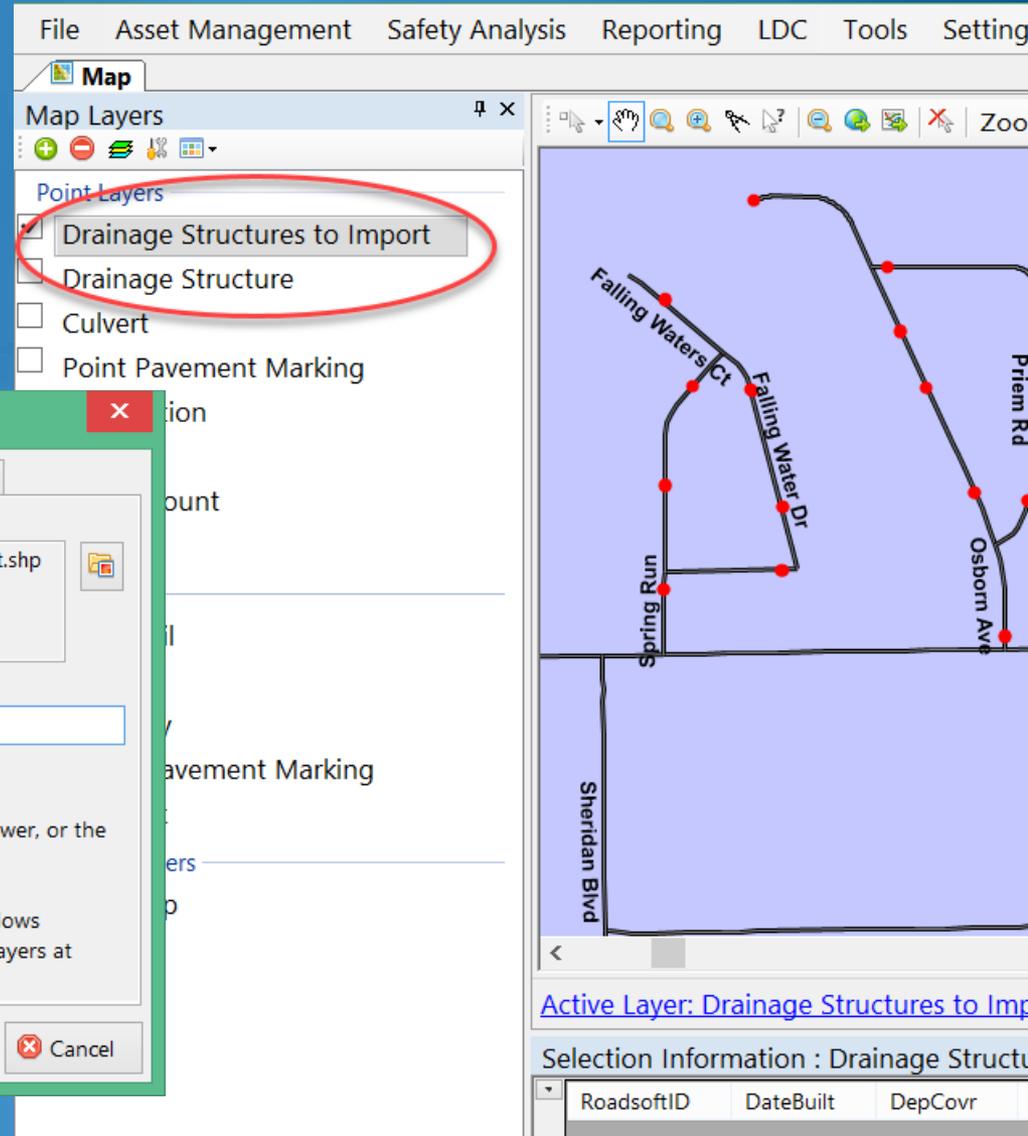
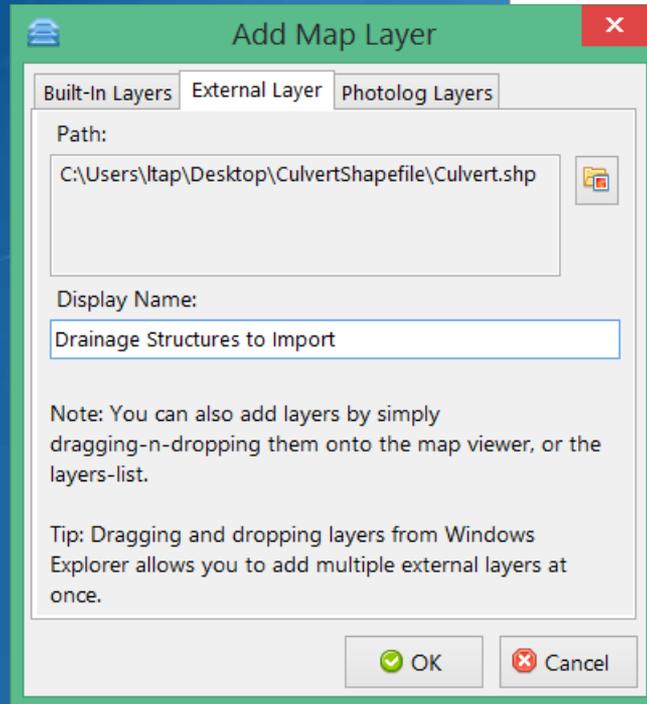
Importing data from another GIS source

1. Add GIS file as an external layer in Roadsoft
2. File, Import, Import Drainage Structure
3. Map data fields, Preview and Import



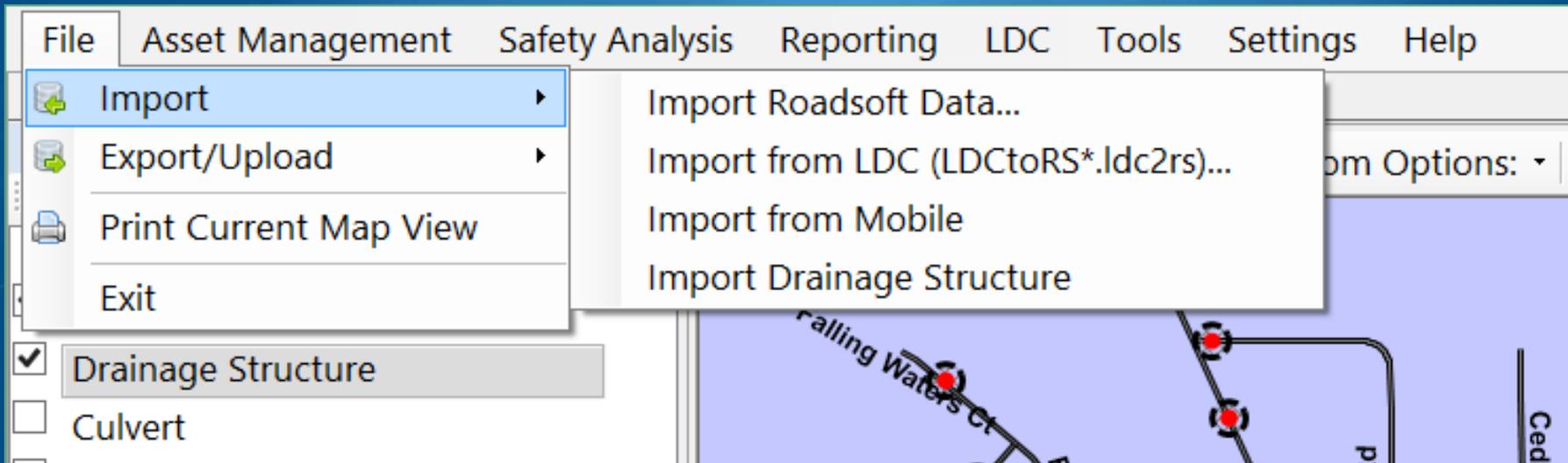
Add External Layer

- Use Add in Map Layers box – External layer (or drag and drop)



Choose to import Drainage Structures

- File menu,
Import,
Import Drainage Structure



Import: 3) Map fields & import

Data Import - Drainage Structure

External Layers: Drainage Structures to Inr

Drainage Structure Field Mapping

Map your external fields to Roadsoft fields by selecting, dragging, and dropping from one field to another between the lists.

External Fields

- WETPROACT
- WIDTH
- WTRDEPTHIN
- WTRDEPTHOT
- WTRVELIN
- WTRVELMEAS
- WTRVELMEAW

Roadsoft Fields

- Facility Group Name
- Grade Ring Height
- Grade Ring Height Unit
- Inside Diameter
- Inside Diameter Confidence Grade
- Inside Diameter Unit
- Install Date

Select a pair row in order to edit the external to internal value mapping.

External Fields	Roadsoft Fields
MEMO	Memo
SITEID	Facility ID
ROADSURF	Surface Type
SHAPE	Cover Shape

Value Map [External Field | Roadsoft ...]

SHAPE	CoverShape
Undefined	Undefined
Circular	Circular
Rectangular	Beehive
Other	Beehive

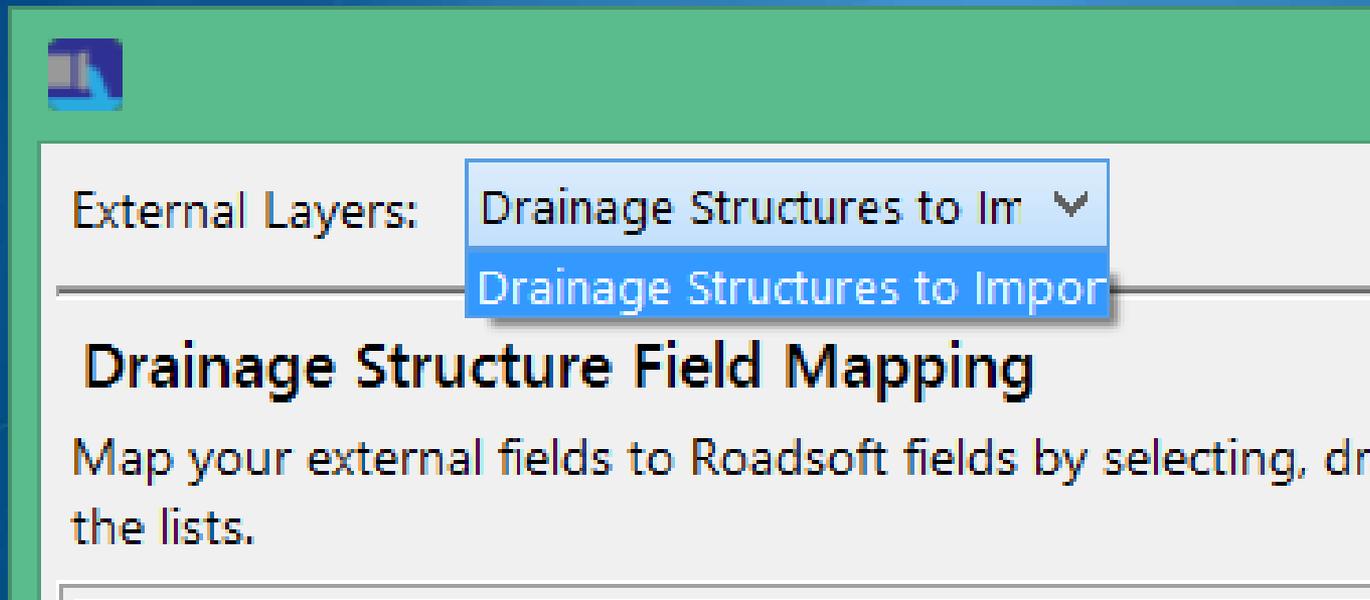
[Add New Value](#)
[Auto Map External Values](#)

UID	Memo	Facility ID	Surface Type	Cover Shape
1	SD-2016...		Asphalt	Undefined
2	SD-2016...		Asphalt	Undefined
3	SD-2015...		Asphalt	Undefined
4	SD-2015...		Asphalt	Undefined
5	SD-2015...		Asphalt	Undefined
6	SD-2016...		Asphalt	Undefined
7	SD-2016...		Asphalt	Undefined
8	SD-2016...		Asphalt	Undefined
9	SD-2016...		Asphalt	Circular
10	SD-2016...		Asphalt	Undefined
11	SD-2016...		Asphalt	Circular
12	SD-2016...		Asphalt	Undefined
13	SD-2016...		Asphalt	Circular
14	SD-2016...		Asphalt	Circular
15	SD-2016...		Asphalt	Circular
16	SD-2016...		Asphalt	Undefined
17	SD-2016...		Asphalt	Circular
18	SD-2016...		Asphalt	Undefined
19	SD-2016...		Asphalt	Undefined
20	SD-2016...		Asphalt	Undefined
21	SD-2016...		Asphalt	Undefined
22	SD-2016...		Asphalt	Undefined
23	SD-2016...		Asphalt	Undefined
24	SD-2016...		Asphalt	Undefined
25	SD-2016...		Asphalt	Undefined
26	SD-2016...		Asphalt	Circular
27	SD-2015...		Asphalt	Undefined
28	SD-2015...		Asphalt	Undefined
29	SD-2015...		Asphalt	Undefined
30	SD-2015...		Asphalt	Undefined
31	SD-2015...		Asphalt	Undefined

Add/Edit Custom Fields
Remove Mapping
Preview Data
Cancel
Import Data

Data Import Form – Step 1

- Use drop-down to select which External Layer to use for the import



The screenshot shows a software interface for data import. At the top left is a small icon of a landscape with a road. Below it, the text "External Layers:" is followed by a dropdown menu. The dropdown menu is open, showing two options: "Drainage Structures to Im" and "Drainage Structures to Impor". Below the dropdown, the section is titled "Drainage Structure Field Mapping" in bold. Underneath the title, there is a paragraph of text: "Map your external fields to Roadsoft fields by selecting, dra" and "the lists." Below this text is a horizontal line, and then a partially visible table or list structure.

External Layers: Drainage Structures to Im ▼
Drainage Structures to Impor

Drainage Structure Field Mapping

Map your external fields to Roadsoft fields by selecting, dra
the lists.

Data Import Form – Step 2

- Map external fields to Roadsoft Drainage Structure fields by dragging and dropping

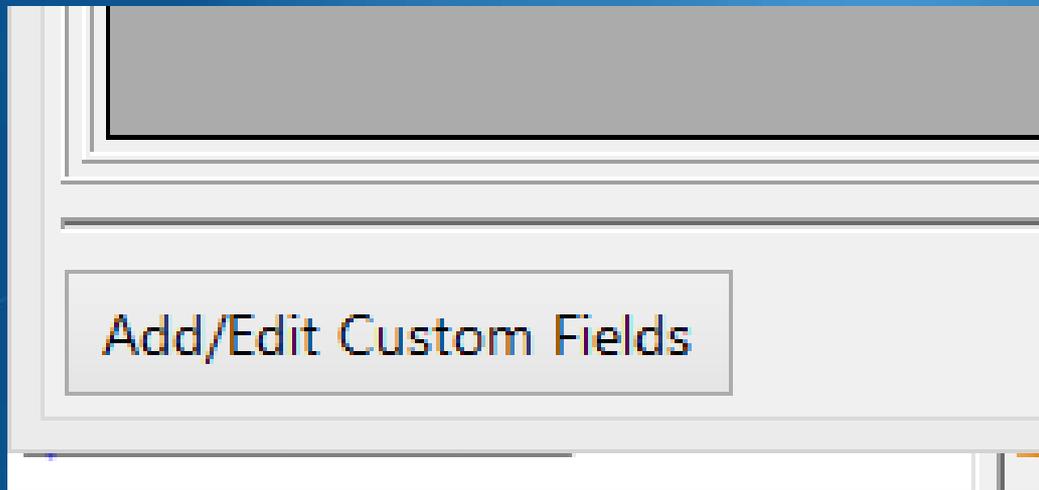
Drainage Structure Field Mapping

Map your external fields to Roadsoft fields by selecting, dragging, and dropping from one field to another between the lists.

External Fields	Roadsoft Fields
WATERWAY	Facility Group Name
WATRWAYRTG	Grade Ring Height
WETPROACT	Grade Ring Height Unit
WIDTH	Inside Diameter
WTRDEPTHIN	Inside Diameter Confidence Grade
WTRDEPTHOT	Inside Diameter Unit
WTRVELIN	Install Date
WTRVELMEAS	

Data Import Form – Step 2 (optional)

- If necessary, you can Add/Edit Custom Fields right from this form



Data Import Form – Step 3

- Select mapped field set (External to Roadsoft) and set Roadsoft values for each External value

Select a pair row in order to edit the external to internal value mapping.

External Fields	Roadsoft Fields
MEMO	Memo
SITEID	Facility ID
ROADSURF	Surface Type
SHAPE	Cover Shape

Value Map [External Field Roadsoft ...	
SHAPE	CoverShape
Undefined	Undefined
Circular	Circular
Rectangular	Beehive
Other	Beehive
	Circular
	Invert dome/beehive
	Rectangular
	Square
	Undefined

Data Import Form – Step 4

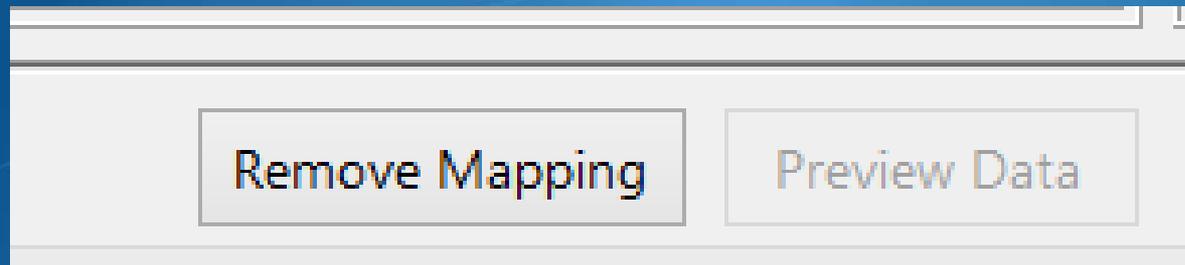
- Use the Preview Data button to preview what data will import for each field

Preview Data

UID	Memo	Facility ID	Surface Type	Cover Shape
1	SD-2016...		Asphalt	Undefined
2	SD-2016...		Asphalt	Undefined
3	SD-2015...		Asphalt	Undefined
4	SD-2015...		Asphalt	Undefined
5	SD-2015...		Asphalt	Undefined
6	SD-2016...		Asphalt	Undefined
7	SD-2016...		Asphalt	Undefined
8	SD-2016...		Asphalt	Undefined
9	SD-2016...		Asphalt	Circular
10	SD-2016...		Asphalt	Undefined
11	SD-2016...		Asphalt	Circular
12	SD-2016...		Asphalt	Undefined
13	SD-2016...		Asphalt	Circular
14	SD-2016...		Asphalt	Circular
15	SD-2016...		Asphalt	Circular
16	SD-2016...		Asphalt	Undefined
17	SD-2016...		Asphalt	Circular

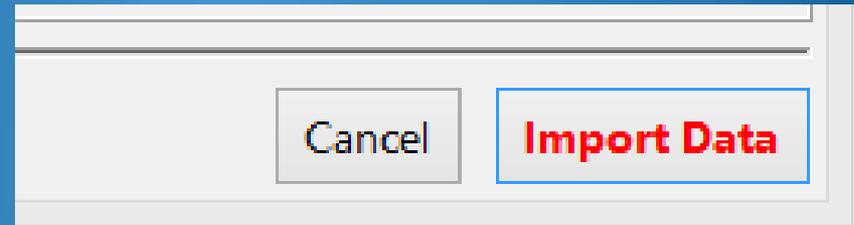
Data Import Form – Step 4 (if necessary)

- Remove field Mapping and re-map fields until previewed data gives desired results



Data Import Form – Step 5

- Import the data



Importing shapes and creating database objects.



Future Plans?

- Expand features to other modules
- Linear Drainage features?
- Other suggestions?



Roadsoft Tech Support

- (906) 487-2102
- roadsoft@mtu.edu
- www.roadsoft.org
 - Roadsoft Manual

