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Chapter 17 - Landscape Standards

CADD Production Criteria Handbook

17.1 GENERAL

“Landscape” or landscaping” means any vegetation, mulches, irrigation systems and any site amenities, such as, street furniture, decorative paving, fences and lighting (excluding public utility street and area lighting). Landscape plans may be a component set of plans (see CPCH Chapter 13, Section 13.1), or be prepared independently. Projects with minor landscaping may include these features on separate sheets in the roadway plans set or features may be detailed on the roadway plans sheets. When prepared as component plans, they shall be assembled as a separate plan set complete with a key sheet, tabulation of quantities and all other relevant landscape sheets. The sheets shall be numbered consecutively with the sheet numbers prefixed by the letters “LD”.

A complete set of landscape plans can include the following:

1. Key Sheet
2. Tabulation of Quantities
3. Planting Sheets
4. Irrigation Layout
5. Details Sheet
6. Other relevant plan sheets as required Pay Items Notes, General Notes or Maintenance Notes and Schedules.

The components should be listed on the Roadway Key Sheet under the “Components of Contract Plan Sets” heading.

17.2 STANDARD FILE NAMES

Florida Department of Transportation (FDOT) utilizes standard naming conventions for all of its files. Some of the automation implemented in various tools provided by FDOT depends on naming conventions being met. More importantly, the naming convention confers information to the downstream customer of the data.

Standard file names should follow this format: **AAAABB##.ext**

Where **AAAA** = *abbreviated file description*, **BB** = *Discipline Denotation*, **##** = *Sequence number*.

Note Please see CADD Production Criteria Handbook (CPCH) Chapter 4 for more information.

The following table defines the Landscaping File Name Standards in regards to FDOT Projects with the understanding the each file name will include sequence numbering. If the need arises to create a file that is defined by another discipline chapter, use the first 4 characters of the standard file name and append the Landscape filename designation (LD), followed by file sequence numbers. An example is topold01.dgn.

File Type	File Name	Model Name	File Description	Rule File	Seed File	Critical File
Borders & Sheets	BDPLLD.dgn	Default	Border Referencing for Sheet Plan	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Borders & Sheets	GNNTLD.dgn	Default	General Notes	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Borders & Sheets	PLANLD.dgn	Default	Plan Sheets	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Clip Borders	CLIPLD.dgn	Default	Clipping Borders	cliprd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Clipping	MTPLLD.dgn	Default	Motif file for plan sheets	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Clipping	MTPRLD.dgn	Default	Motif file for profile sheets	plprrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Existing Topography	TOPOLD.dgn	Default	Topography - Existing	topord.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Key Sheets	KEYSLD.dgn	Default	Key Sheet	keysht.rul	\$(MX_SEEDIR)fdotseedkeymap.dgn	
Proposed Design	DSGNLD.dgn	Default	Proposed Design	dsgnld.rul	\$(MX_SEEDIR)fdotseed2d.dgn	X
Proposed Design	HSDTLD.dgn ¹	Default	Hardscape details	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Proposed Design	IRRGLD.dgn	Default	Layout	irrgls.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Proposed Design	PLAYLD.dgn	Default	Project Layout Sheet	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Proposed Design	TMOTLD.dgn	Default	Technical Maintenance Plan	dsgnld.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Proposed Grading	GRDTLD.dgn	Default	Proposed Grading	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Special Details	DETLLD.dgn	Default	Details	spdtrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Summary Boxes/ Tables	CESSLD.dgn	Default	Summary of Pay Items	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	
Summary Boxes/ Tables	TABQLD.dgn	Default	Tabulation of Quantity Sheets	planrd.rul	\$(MX_SEEDIR)fdotseed2d.dgn	

¹ Hardscape Design files will use the same symbology standards as the Landscape Design file.

17.3 RESOURCE FILES

Engineering/CADD Systems Office (ECSO) provides standard resource files for Computer Aided Design and Drafting (CADD) Landscape Plans, which use MicroStation, GEOPAK and other approved FDOT software to produce an electronic project data delivery. If a custom line style or font is needed, it must either be embedded in the active design file or the corresponding resource file must be copied to the \SYMB sub-directory of the FDOT project directory structure and included as part of the electronic delivery of the project. The justification for the non-standard line style or font must be noted in the journal file. These resources are found at the main ECSO website:

<http://www.dot.state.fl.us/ecso/downloads/software/default.shtm>

17.4 ENGINEERING DATA

Engineering Data to be delivered with each project should be located in the ...eng_data directory and include:

- ASCII files containing Q/C reports
- PostScript files of each sheet in the plan set.

The PostScript files are to be plotted from the MicroStation design files containing the sheets. If the project is electronically Signed & Sealed, the PostScript files located in the ...eng_data directory are the files to be Signed & Sealed.

17.5 PROFESSIONALS' ELECTRONIC DATA DELIVERY SYSTEM (PEDDS)

PEDDS shall be used to Secure and Authenticate project data. When projects are received, the FDOT authenticates the data on the delivered CD. Each time data is transmitted to or received by FDOT the data shall be secured and authenticated. PEDDS shall also be used to authenticate any project specific data received as part of a delivery from an outside source or discipline. For example, an electronic delivery to Roadway from Survey or EMO should be secured and authenticated. Roadway shall electronically secure all files for delivery.

17.6 SYMBOLOGY STANDARDS

Symbology Standards that apply to FDOT Projects are set up under a listing of Standard Level Names with specific ByLevel Color, Style and Weight attributes. These levels are grouped under specific Rule Files which are associated to each valid Standard Filename of each Discipline for the purpose of performing the Quality Control check for FDOT Standard compliancy of each FDOT project design file. Section 17.2 of this chapter provides for the complete Standard File Name listing with associated Rule File.

Note Refer to Chapter 3 FDOT Resource and Support Files to review the Level names listing for each associated Rule File.

The following are the basic level naming convention rules to follow to always know what level an element should be placed on:

- 1) Level Names have 18 maximum characters.
- 2) The format of the name is: **object_sv**

object (represents element type)	s (represents state)	v (represents view)
	<u>states</u>	<u>views</u>
	p (proposed)	x (cross section)
	d (drafting element)	r (profile)
	e (existing)	p (plan) (DTM is the same as plan)

Note Level Names without including the “_sv” portion in the name are assumed proposed plan view elements.

Example: With this information one can determine the following about the Level names below:

gas	- Proposed Plan view elements for “gas” related items
gas_ep	- Existing Plan view elements
gas_px	- Proposed cross section view elements

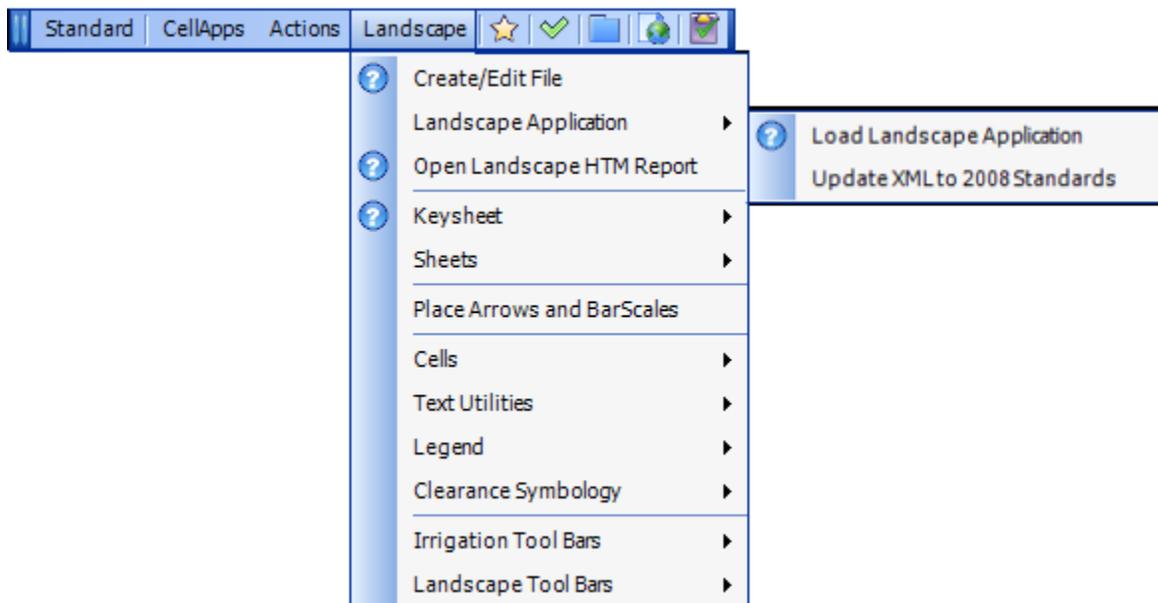
17.7 QUALITY CONTROL

Quality Control (QC) of the graphics files that are required with the project delivery is the responsibility of the data producer. FDOT supplies the QC Software as an aid to check for compliance of filenames and symbology standards with Department standards as defined in this chapter. The Registered Landscape Architect (RLA) must provide quality control of plans and electronic file deliverables, as outlined in the Department's CADD Manual, Topic No. 625-050-001 and the Plans Preparation Manual, Topic No 625-000-008. These resources, in conjunction with district and project scope requirements, shall form the basis for contract plans format and assembly.

17.8 LANDSCAPE APPLICATION

This section is an introduction to the FDOT Landscaping Tools, starting a new landscaping project and selection of components from the global list for placement within the new project. The FDOT Landscaping Tools discussed include: tools to place cell components, cells single, cells along element, cell shapes, linear components, patterned components, as well as FDOT Landscaping Tools to generate reports.

Select *Landscape>Landscape Application>Load Landscape Application* from FDOT's Landscape Menu bar. This will load the landscape application and open the FDOT Landscape toolbar.



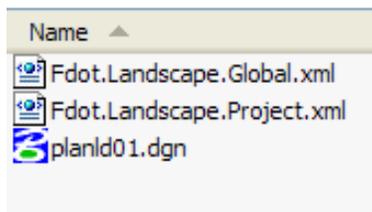


Note This application can also be started using a MicroStation key-in: MDL LOAD fdot.landscape.ma

FDOT Landscape Toolbar		
	Place New Item	Place the current item. (NOTE: Only available when a Landscape command is active.)
	View/Edit Existing	View and edit the item attributes for an item that exists in the design file.
	Match Existing	Locate an item in the design file and make it the current item for placement.
	Current Item Settings	Open/Close the <i>Current Item Settings</i> dialog. (NOTE: Only available when a Landscape command is active.)
	Place Quantity Note	Create a quantity note for selected design file items.
	Generate Reports	Open/Close the <i>Generate Reports</i> dialog.
	Shortcut Key-in	Key-in an item's shortcut to make that item the current item for placement.
	Project Manager	Open/Close the <i>Project Manager</i> dialog.
	Tool Settings for Current Command	Open/Close the <i>Tool Settings</i> dialog. (NOTE: Only available when a Landscape command is active.)

Loading FDOT Landscape for the first time will automatically initialize the *\landscp* folder, by creating the necessary landscape XML files. Confirm that the project XML files were created by opening Windows Explorer and navigating to:

\<current active project Path>\landscp



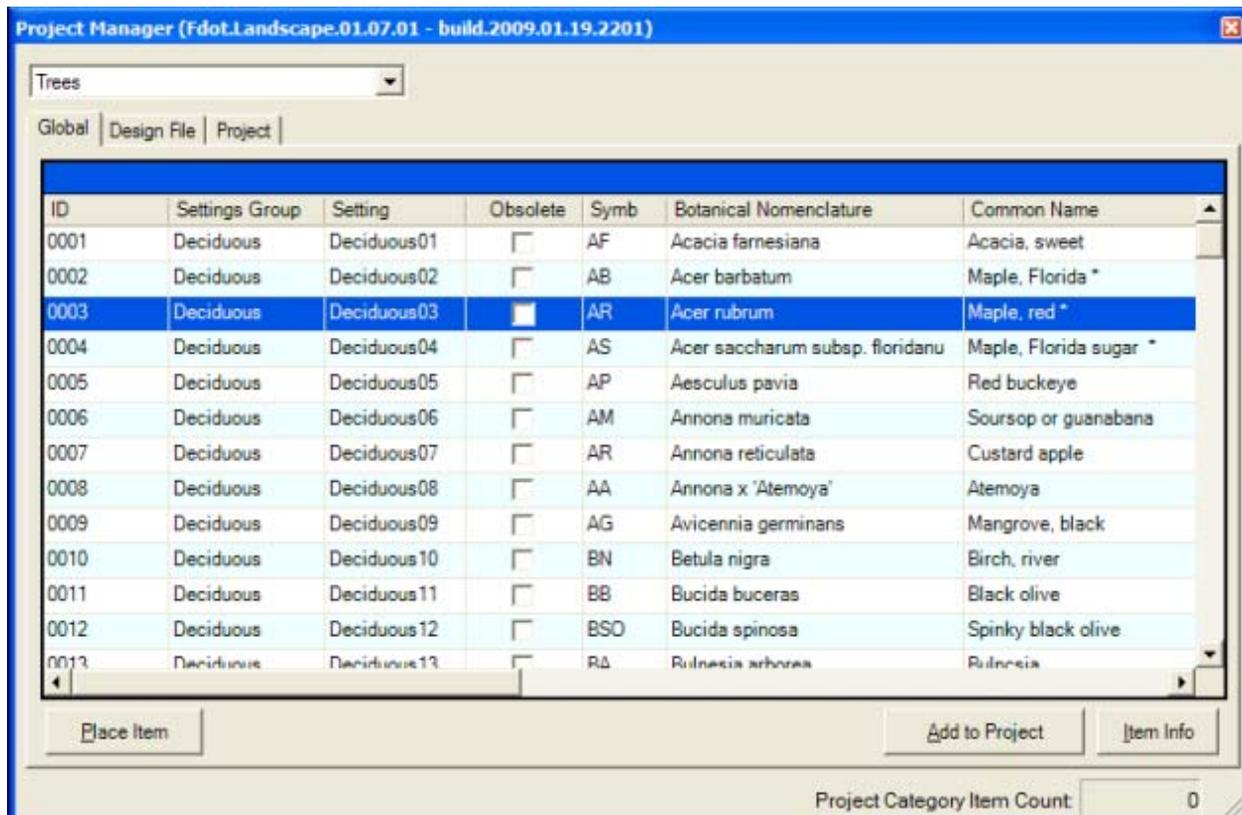
Note: If the current design file wasn't contained in a valid project component folder, then an error message would have been displayed when Fdot.Landscape started.

17.8.1 Project Manager

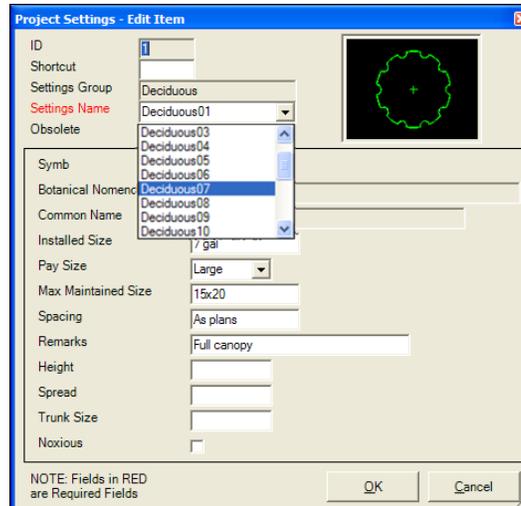
The Project Manager is opened from the FDOT Landscape toolbar using the last button on the toolbar and displays directly under the FDOT Landscape toolbar. This button is used to both open and close the *Project Manager*. Moving the toolbar will also move the Project Manager. If the Project Manager is ever in your way, just use the toolbar button to hide it temporarily.



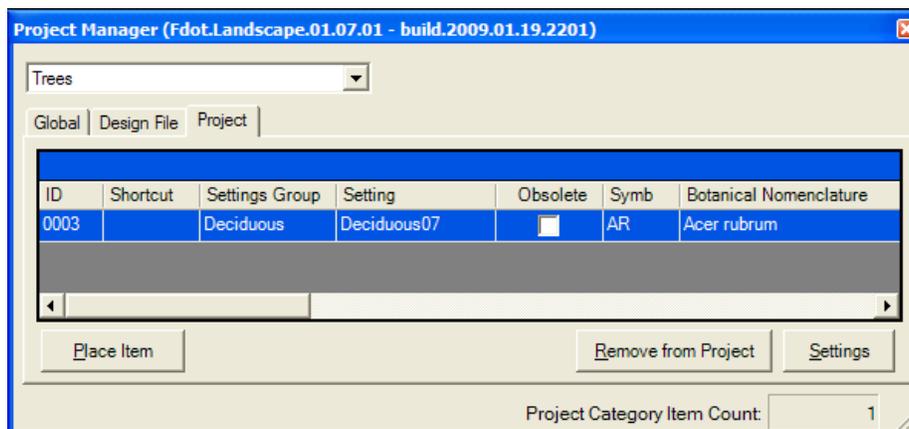
The *Global* tab displays all components that are available. The *Design File* tab displays all components that are present in the current design file. The *Project* tab displays all components that have been selected from the Global list and are available for placing in design files.



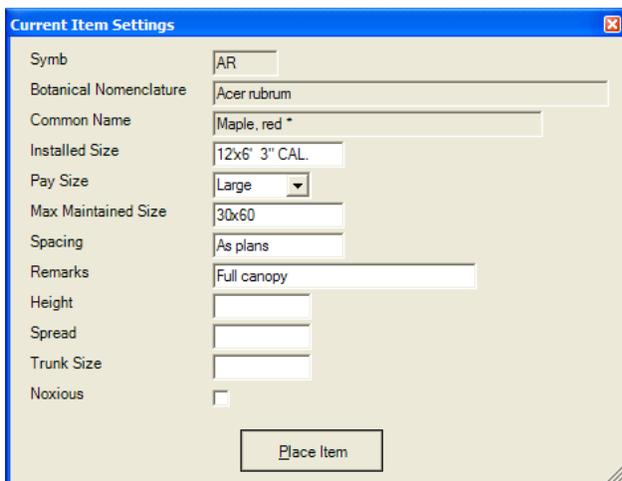
When the project is first initialized, there are no components listed in the *Project* tab. From the *Trees* category, a *Red Maple* (*Acer rubrum*) can be added by highlighting the item in the *Global* tab and selecting the **Add to Project** button. The component will be added to the landscape project and the 'Project Settings – Edit Item' dialog box will display.



The settings can be adjusted in this dialog, such as the **Setting Name** (required field), by selecting (Deciduous07 in this case) a new setting for the component, and then selecting **OK**.



The new landscaping component is added to the *Project* tab and can now be added to design files by selecting **Place Item**. The 'Current Item Settings' dialog displays for placement. Selecting **Place Item** activates the command and displays the Place Cell dialog.



17.8.2 Landscaping tools to place cell components

• Place Cells Single

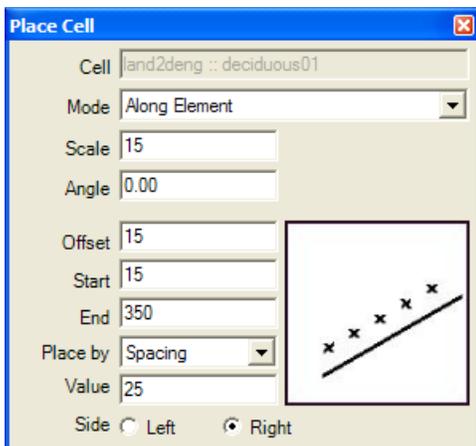
The *Place Cell* dialog should now be displayed directly under the Landscape toolbar. Place trees one-at-a-time using **Single** mode by clicking in the design file.



Note Scale and Angle modify the cell being placed which is shown on the cursor in MicroStation.

• Place Cells Along Element

While the Place Cell command is still active change the mode to **Along Element** and the Place Cell tool settings dialog will update to contain new settings. Enter the settings shown in the image below and then select the red line string in the design file. After the element is selected a preview will be shown in the design file, allowing the settings to be changed or the command cancelled. Left click in the design file to accept the placement of the new cells.



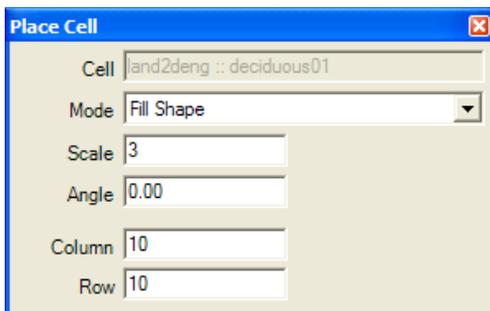
STEPS:

1. Change *Mode* to **Along Element**
2. Enter new settings
3. Select **red line string** in design file
4. View preview of new elements
5. **Accept** elements with left-click

Note The image in the dialog provides description for Offset, Start, End, Place by, and Side.

• Place Cells Inside Shape

While the Place Cell command is still active change the mode to **Fill Shape** and the Place Cell tool settings dialog will update to contain new settings. Enter the settings shown in the image below and then select the red shape in the design file. After the element is selected a preview will be shown in the design file, allowing the settings to be changed or the command cancelled. Left click in the design file to accept the placement of the new cells.

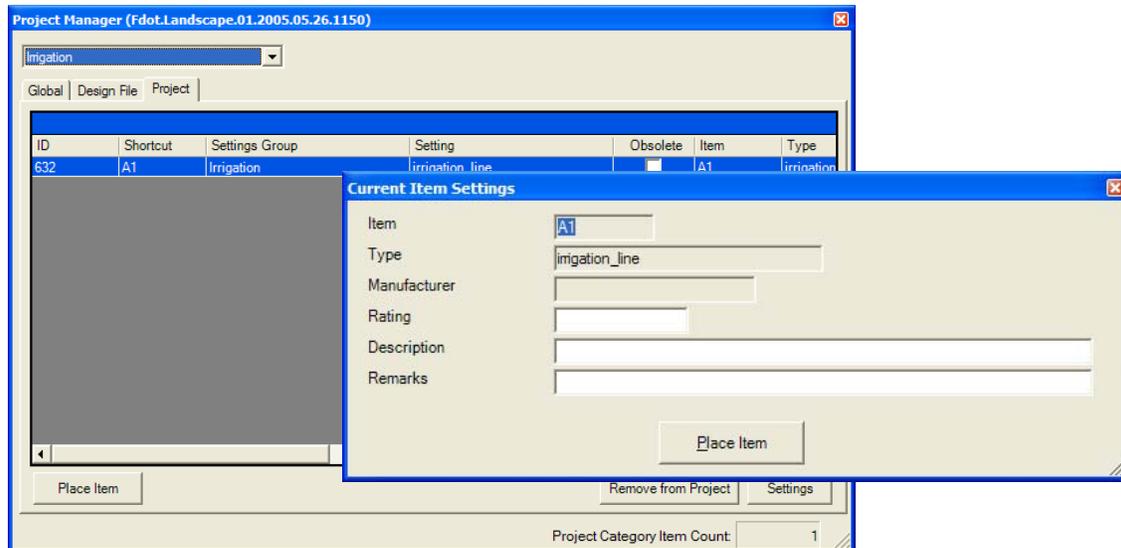


STEPS:

1. Change *Mode* to **Fill Shape**
2. Enter new settings
3. Select **red shape** in design file
4. View preview of new elements
5. **Accept** elements with left-click

17.8.3 Landscaping tools to place linear components

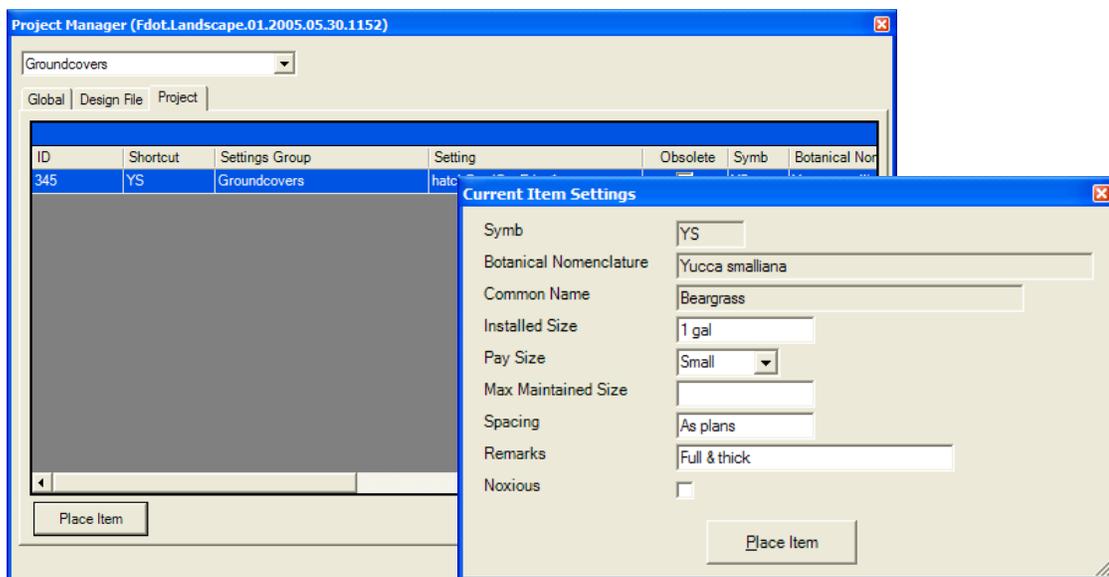
Start FDOT Landscape and open the *Project Manager* and select the *Project* tab. Select the *Irrigation* category. Highlight the *irrigation_line* component and select **Place Item**. On the *Current Item Settings* dialog, also select **Place Item**.



There aren't any tool settings for linear commands. Place the components in the same way that standard lines would be drawn in MicroStation.

17.8.4 Landscaping tools to place patterned components.

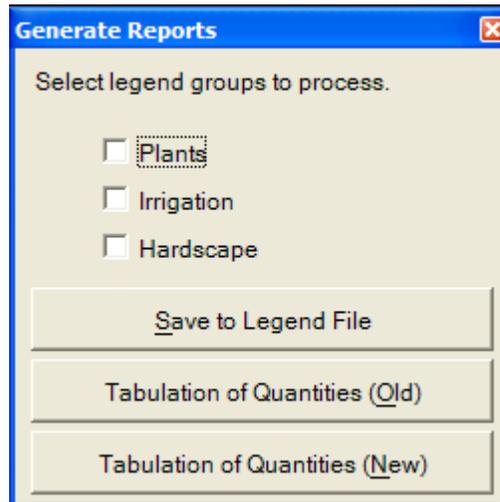
Start FDOT Landscape and open the *Project Manager* and select the *Project* tab. Select the *Groundcover* category. Highlight the *Beargrass* component and select **Place Item**. On the *Current Item Settings* dialog, also select **Place Item**.



There aren't any tool settings for patterning commands. Place the patterns by selecting and accepting the shapes in the design file.

17.8.5 Landscaping Tools To Generate Reports

Select *Generate Reports* from the Landscape toolbar (6th button from the left). Select **Plants**, and then select **Tabulation of Quantities**. A Tabulation of Quantities will be generated based on the current project. When the process is finished, an Excel file (QuantityTabulation.xls) should be created and displayed.



Note The Excel file QuantityTabulation.xls is created in the landscp folder of the current project.