

CADD Coordination Policy

Date: October 8, 2024

PURPOSE:

The CADD Coordination Policy is created by the CADD Coordination Group. Its Purpose is to promote better communication, save time and increase efficiency for all CADD users. To ensure success, the CADD Coordination Group will monitor, review and revise the CADD Coordination Policy. The Section Heads and Unit Heads will be involved with the implementation and compliance with this policy.

Approved by: _____

Date: 12/13/24

Todd Hill, P.E.
Assistant Roadway Design Engineer

CADD Coordination Policy

Index

	<u>Sheet #</u>	<u>Date Revised</u>
CADD Coordination Policy Index	1	October 4, 2022
Policy	2	October 4, 2022
File Naming Conventions	3-5	October 8, 2024
Standard Text Styles	6-9	October 8, 2024
Standard Hatching and Patterns	10-12	October 8, 2024

POLICY

General:

1. The following is the CADD Coordination Policy for Roadway Design and its Consultants. It is maintained by the Roadway CADD Coordination Group. The CADD Coordination Group is under the supervision of the Assistant Roadway Design Engineer - Support.
2. Engineers, Designers and Technicians shall follow all standards in this Policy when setting up and working in design files and sheet files.
3. For more information on the plan set, see the Roadway Design Manual, chapter 11.

ProjectWise:

4. The most current version of all CADD files, including design files and sheets files, shall be actively maintained in ProjectWise.
5. All files that contain information displayed in the plan set shall be stored in ProjectWise.
6. All electronic deliverable files shall be stored in ProjectWise.
7. All new dgn files for projects are to be based on file `NDOT_2D_Seed.dgn` in the workspace.
8. When 2 files of the same naming convention are used, files are to be differentiated by a term after the naming convention.
9. CADD users shall input the sheet numbers in the "Sheet Number" column on ProjectWise as listed in the naming conventions below.

Drawing Production:

10. All CADD users shall use the Feature Definition Toggle Bar for design features in CADD files.
11. All Alignment and Profile annotations shall use the element and/or model annotation tool.
12. Documentation of NDOT's Level Names is located on OnBase under "NDOT BTSD Software Documentation/OPENROADS DESIGNER CONNECT/GENERAL".
13. CADD users shall use the annotation scale for all design files and sheet files.
14. All notes and other cells created shall be created from cell libraries from the workspace in ProjectWise. Cell libraries shall not be saved to the CADD users' local machine.
15. Any plan details pulled in from previous projects must be checked with today's standards.

FILE NAMING CONVENTIONS

1. SHEETS FILES

Sheet File Naming			
Type	File Name	File Description Must include	Sheet Number Column
Typical	12345 Sheets Typical Cross Sections	Scale	B_-B_
Soil	12345 Sheets Soil	Scale	D_-D_
Aerial or Wetland	12345 Sheets Aerial or Sheets Enviro	Scale	E_-E_
Align	12345 Sheets Horiz Align	Scale	F_-F_
General	12345 Sheets General Info	Scale	G_-G_
Phasing	12345 Sheets Phasing or Sheets Phase _ Stage _	Scale	H_-H_
Geometrics	12345 Sheets Geometrics	Scale	J_-J_
Grades	12345 Sheets Grades	Scale	J_-J_
Joints	12345 Sheets Joints	Scale	J_-J_
Drainage	12345 Sheets Drainage	Scale	J_-J_
Removal	12345 Sheets Removal	Scale	J_-J_
Construction	12345 Sheets Construction	Scale	J_-J_
Fence	12345 Sheets Fence	Scale	J_-J_
Erosion Control	12345 Sheets Erosion Control	Scale	J_-J_
Utilities	12345 Sheets Utilities	Scale	K_-K_
Plan/Plan-Plan/ Plan & Profile	12345 Sheets Plan or Sheets Plan-Plan or Sheets Plan & Profile	Scale	L_-L_
Lighting	12345 Sheets Lighting	Scale	N_-N_
Landscape	12345 Sheets Landscaping	Scale	P_-P_
Earthwork	12345 Sheets Earthwork	Scale	Q_-Q_
Drainage Cross Sections	12345 Sheets Drainage X Sections	Scale	R_-R_
Special Plans	12345 Sheets Specials	Scale	U_-U_
Roadway Cross Sections	12345 Sheets X Sections	Scale	X_-X_

2. DESIGN FILES

Design File Naming		
Type	File Name	File Description Must include
Alignment File	12345 Alignments	
Phasing	12345 Phasing or Phase _ Stage _	
Joints	12345 Joints	Scale
Removal	12345 Removal	Scale
Erosion	12345 Erosion Control	Scale
Utilities	12345 Utilities	
Feature File	12345 Features	
LOC's	12345 Limits of Construction	
Corridor	12345 Corridor	Alignment Name, Station Range
Superelevation	12345 Superelevation	
Lighting	12345 Lighting Features	

3. FILES FOR PLAN REVISIONS

File Naming for Revision		
Type	File Name	File Description Must include
Revision File	[Original File Name] Revision _	description of what changed

4. PRINT ORGANIZER FILES

Print Organizer File Naming	
Type	File Name
Full Size	12345.pset

5. TEMPLATE LIBRARY FILE

Template Library File	
Type	New File Name
Template Library (.itl)	12345.itl

6. DRAFT TOPOGRAPHY FILE

Draft Topography File	
Type	New File Name
Draft Topography	12345 Draft Topog

7. REQUIRED REFERENCE FILE LOGICAL NAMES

Reference File Logical Names	
Type	Logical Name
Alignment	a_
Borders	s_ or border_
Topog	rd t_
Wetlands	w_
Features	f_
Contours	c_ or bc_

8. AERIAL FILE NAMES WITH YEAR

File Name	Information
123450ponaip_2022.tif	photogrammetry digital ortho file, flight type, and year
123450ponaip_2022.tfw	photogrammetry coordinates for digital ortho
123450powl_2022.kmz	photogrammetry ortho wetland for google earth
123450poniroc_2022.tif	photogrammetry ortho niroc file plus year
123450pofas_2022.tif	photogrammetry ortho fsa file plus year
123450powl_2022.tif	photogrammetry ortho wetland file plus year

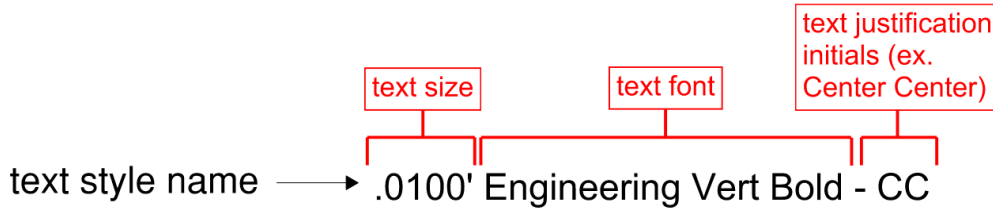
STANDARD TEXT STYLES

For all text, in the element information/properties window, the "Is Annotation" property shall be set to "True". The active "Annotation Scale" in the model will adjust the text size accordingly.

Annotation Definitions do not use Text Styles. The text attributes are defined as part of the Text Favorite and match the listed text style.

Civil Labels listed are all under the NDOT – Roadway Design folder. The specific sub-folder within the NDOT – Roadway Design folder is listed either in parentheses under the column header or in the specific row.

All Text Styles have the same naming conventions shown below:



Alignment Annotation Definitions			
Label / Text Field	Case	Text Style	Civil Label (Plan Labels)
Curve/Spiral P.I. Data Left Arc/Spiral Right Arc/Spiral	All Caps All Caps	.0100' Engineering Vert Bold - LB .0100' Engineering Vert Bold - LT	-
Station Labels Major/Minor	All Caps	.0120' Engineering Vert Bold - CB	-
Station Equation	All Caps	.0125' Engineering Vert Bold - LC	-
Cardinal Station Label	All Caps	.0125' Engineering Vert Bold - LC	-
Alignment Tie Labels	All Caps	.0100' Engineering Vert Bold - LC	Station 1 = Station 2 Station (Alignment) 1 = Station (Alignment) 2 Station Offset 1 = Station Offset 2 Station Offset (Alignment) 1 = Station (Alignment) 2

Profile Annotation Definitions			
Label / Text Field	Case	Text Style	Civil Label (Profile)
Strip Grade – Existing	-	.0100' Engineering Vert Bold - LB	-
Strip Grade – Proposed	-	.0120' Engineering Vert Bold - LT	-
Station Elevation Length Station Elevation Elevation	All Caps	.0120' Engineering Vert Bold - LC	Station Elevation Arc Length ____ Station Elevation ____ Elevation ____
Profile Line Slope Ahead Tangent Slope Back Tangent Slope	-	.0120' Engineering Vert Bold – CB .0120' Engineering Vert Bold – RB .0120' Engineering Vert Bold - LB	Slope - -
Special Ditch VPI	-	.0090' Engineering Vert Bold - RC	-
Profile Name	All Caps	.0120' Engineering Vert Bold - CC	Feature Name

Cross Section Annotation Definitions

Label / Text Field	Case	Text Style	Civil Label (Cross Sections)
PGL Elevation	-	.0100' Engineering Vert Bold - LC	-
Existing Ground Elevation	-	.0080' Engineering Vert - CT	-
Ditch Elevation	-	.0100' Engineering Vert Bold - CT	Elevation [Horizontal]
Offset	Upper/Lower	.0100' Engineering Vert Bold - LC	Offset [Vertical]
Offset + Elevation	Upper/Lower	.0100' Engineering Vert Bold - LC	Offset Elevation [Vertical]
Elevation	Upper/Lower	.0100' Engineering Vert Bold - LC	Elevation [Vertical]
Flow Line Elevation	All Caps	.0100' Engineering Regular - LC	Flow Line Elevation
Station Offset Elevation	Upper/Lower	.0100' Engineering Regular - LC	Drainage Station Offset Elevation
Slope	-	.0100' Engineering Vert Bold - CB	Slope ____

Typical Cross Sections

Label / Text Field	Case	Text Style	Civil Label (Typical XS Labels)
Station Ranges Body Sub-titles Title	All Caps All Caps All Caps	.0100' Engineering Vert Bold - CC .0125' Engineering Vert Bold - CC .0150' Engineering Vert Bold - CC	-
Callout	All Caps	.0100' Engineering Vert Bold - LT	Callout - ____ Milling - ____
Slope	All Caps	.0100' Engineering Vert Bold - CC	Slope - ____
Pavement & Dimension	All Caps	.0100' Engineering Vert Bold - CC	Pavement Full Depth - ____ Overlay - ____
Text Labels	All Caps	.0100' Engineering Vert Bold - LT	Text Label - ____

Map Feature Labels

(All Sheets with Plan View)

Label / Text Field	Case	Text Style	Civil Label (Map Feature Labels)
Section, Township, Range	All Caps	.0100' Engineering Vert Bold - CC	Section Township Range
Hwy. No., Co. Rd. & Street Names	All Caps	.0100' Engineering Vert Bold - CC	Highways – City Streets – County Roads
Rivers & Named Creeks	All Caps	.0100' Engineering Vert Bold - CC	Rivers – Creeks
Lakes, Ponds & Reservoirs	All Caps	.0100' Engineering Vert Bold - CC	Lakes – Ponds – Reservoirs
Railroad	All Caps	.0100' Engineering Vert Bold - CC	Railroad
City Name	All Caps	.0150' Engineering Vert Bold - CC	City Name
County Name	All Caps	.0150' Engineering Vert Bold - CC	County Name

Large Scale Plan Sheets

(Phasing, Geometrics, Grades, Joints, Drainage, Construction, Removal, Erosion Control)

Label / Text Field	Case	Text Style	Civil Label
Contour Labels	-	.0080' Engineering Bold - CC	-
Tabular Notes: Body Sub-titles Title	All Caps All Caps All Caps	.0100' Engineering Vert Bold - CC .0100' Engineering Vert Bold - CC .0150' Engineering Vert Bold - CC	-
Prelim. Pipes & Structures	All Caps	.0100' Engineering Vert Bold - LT	-
Grade Elevations Left of label Right of label	- -	.0100' Engineering Vert Bold – LC .0100' Engineering Vert Bold – RC	Grade Elevations / ____
Geometric Data	All Caps	.0100' Engineering Vert Heavy - LT	Geometrics / ____

Plan Sheets

Label / Text Field	Case	Text Style	Civil Label
Prelim. Pipes & Structures	All Caps	.0100' Engineering Vert Bold - LT	Construction Notes / ____
Construction Notes	Upper/Lower	.0125' Engineering Vert Heavy - LT	Construction Notes / ____
Removal Notes	Upper/Lower	.0125' Engineering Heavy - LT	Construction Notes / ____
Begin/Resume/Stop/End Project/Construction	Upper/Lower	.0125' Engineering Bold - LC	Project Limits / ____

Guardrail Special Plan

Label / Text Field	Case	Text Style	Civil Label (Guardrail Special Plan)
Station/Offsets	-	.0100' Engineering Vert Bold - CB	Station-Offset
Bridge # - Station #	All Caps	.0150' Engineering Vert Bold - CC	Bridge # - Station #

Draft Topog

12345 Draft Topog.dgn

Label / Text Field	Case	Text Style	Civil Label (Topo Labeler)
Topog. Sta & Offset: Left of CL Right of CL	- -	.0100' Engineering Vert Bold – LC .0100' Engineering Vert Bold – RC	Utility Station Offset Left Utility Station Offset Right
Topog. & Drives: Left of CL Right of CL	All Caps All Caps	.0100' Engineering Vert Bold - RC .0100' Engineering Vert Bold - LC	Centerline Station Left Centerline Station Right
"Approx. Section Line"	All Caps	.0100' Engineering Vert Bold - CC	Approx Sec Line
"Approx. Corp. Limits"	All Caps	.0100' Engineering Vert Bold - CC	Corporate Limits

Wetland Labels

Label / Text Field	Case	Text Style	Civil Label (Wetlands)
Channel	Upper/Lower	.0083' Engineering Bold – RC	Wetland - Channel
Wetland	Upper/Lower	.0083' Engineering Bold – CC .0083' Engineering Bold – LC .0083' Engineering Bold – RC	Wetland – PEMA/PEMC Center Center Wetland – PEMA/PEMC Left Center Wetland – PEMA/PEMC Right Center

STANDARD HATCHING AND PATTERNS

Patterns are located in cell library "Area_Patterns.cel".

All Patterns shall be drawn with Scale = 1 and Rotation = 0°

"Is Annotation = TRUE", in element information/properties.

"Annotation Scale" will display hatch spacing/pattern size accordingly.

Typical Cross Sections

Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Shoulder Subgrade Preparation	Hatch	135	0.02'	-	Notes General Notes	3	1
New Foundation Course	Hatch	135	0.015'	-	Notes General Notes	0	1
New Subgrade Preparation	Hatch	45	0.02'	-	Notes General Notes	3	1
Gravel Embedment	Hatch	45	0.035'	-	Notes General Notes	0	1
Milling	Hatch	135	0.03'	-	Notes General Notes	0	0
Sandfill for Medians	Crosshatch	45 / 135	0.01' / 0.01'	-	Notes General Notes	0	1

Wetlands

Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Permanent Wetland Impacts	Hatch	45	0.008'	-	Notes Hatching Wetlands 0_	0	0
Temporary Wetland Impacts	Hatch	135	0.008'	-	Notes Hatching Wetlands 0_	0	0

Construction

Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Imprinted Concrete Pavement	Pattern	-	-	BRICK 1	RD Pavement	0	1
Imprinted Concrete Median Surfacing	Pattern	-	-	BRICK 1	RD Median Surfacing	0	1
Imprinted Concrete Surfacing	Pattern	-	-	BRICK 1	RD Pavement	0	1
Rock RipRap	Pattern	-	-	RIPRAP 1	RD Erosion Control Hatching 0_	0	1
Broken Concrete RipRap	Pattern	-	-	RIPRAP 2	RD Erosion Control Hatching 0_	0	1
Sodding	Pattern	-	-	GRASS 1	RD Sodding	0	1
MS4 Stormwater Treatment Facility	Pattern	-	-	GRASS 2	RD MS4 Treatment Facility	0	1

Phasing							
Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Grading	Hatch	135	0.01'	-	PH Construction Phase 0_	0	0
Build Temporary Pavement	Hatch	45	0.005'	-	PH Construction Phase 0_	0	0
Completed Temporary Pavement	Pattern	-	-	PHASING_PLUS	PH Construction Phase 0_	0	0
Build Crushed Rock Embedment	Crosshatch	45 / 135	0.005' / 0.005'	-	PH Construction Phase 0_	0	0
Completed Crushed Rock Embedment	Pattern	-	-	PHASING_CIRCLE	PH Construction Phase 0_	0	0
Build Concrete Pavement / Bridge	Crosshatch	45 / 135	0.01' / 0.01'	-	PH Construction Phase 0_	0	0
Completed Concrete Pavement / Bridge	Pattern	90	0.005'	-	PH Construction Phase 0_	0	0

Removal							
Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Remove Asphalt Surface	Hatch	135	0.01'	-	Notes Hatching Removals 0_	0	0
Remove Pavement	Hatch	45	0.01'	-	Notes Hatching Removals 0_	0	0
Remove Concrete Median Surfacing	Hatch	135	0.005'	-	Notes Hatching Removals 0_	0	0
Remove Driveway	Hatch	45	0.005'	-	Notes Hatching Removals 0_	0	0
Remove Walk	Hatch	45	0.0025'	-	Notes Hatching Removals 0_	0	0
Cold Milling, Class 4, Type A	Pattern	-	-	HONEYCOMB 1	Notes Hatching Removals 0_	0	0
Cold Milling, Class 4, Type B	Pattern	-	-	PHASING_PLUS	Notes Hatching Removals 0_	0	0
Crush Concrete Pavement	Pattern	-	-	PHASING_CIRCLE	Notes Hatching Removals 0_	0	0

Erosion Control

Item	Type	Angle (PA)	Spacing (PD)	Pattern Name	Level	Line Style	Weight
Slope Protection Netting - Class 1A	Crosshatch	45/135	0.01'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 1B	Crosshatch	45/135	0.005'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 1C	Hatch	135	0.01'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 1D	Hatch	45	0.01'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 1E	Hatch	135	0.005'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 1F	Hatch	45	0.005'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 2A	Pattern	-	-	ANSI 37	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 2B	Hatch	0	0.005'	-	RD Erosion Control Hatching 0_	0	1
Erosion Control, Class 2C	Hatch	90	0.005'	-	RD Erosion Control Hatching 0_	0	1
Cellular Confinement	Pattern	-	-	HONEYCOMB 2	RD Erosion Control Hatching 0_	0	1
Articulated Concrete	Pattern	-	-	HONEYCOMB 2	RD Erosion Control Hatching 0_	0	1
Interlocking Concrete Paver Blocks	Pattern	-	-	HONEYCOMB 1	RD Erosion Control Hatching 0_	0	1
Transition Mat	Pattern	-	-	ANSI 38	RD Erosion Control Hatching 0_	0	1
Hydro-Mulch, Type 1	Pattern	-	-	ZIGZAG 1	RD Erosion Control Hatching 0_	0	1
Hydro-Mulch, Type 2	Pattern	-	-	ANSI 33	RD Erosion Control Hatching 0_	0	1
Hydro-Mulch, Type 3	Pattern	-	-	ANSI 35	RD Erosion Control Hatching 0_	0	1
Hydro-Mulch, Type 4	Pattern	-	-	BATEN 1	RD Erosion Control Hatching 0_	0	1
MS4 Stormwater Treatment Facility	Pattern	-	-	GRASS 2	RD MS4 Treatment Facility	0	1
Crushed Rock Embedment	Pattern	-	-	GRAVEL 1	RD Erosion Control Hatching 0_	0	1