NC Department of Transportation



Location & Surveys Unit



Poles User Guide

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Chapter 1 Introduction

The Poles Application Data Process

Pole data should be generated on all utility poles in the project area. This data should be collected and shown in ASCII format by utilizing the Pole Data program developed by NCDOT.

The following information should be collected in this file:

- Station and offset from center of the pole to nearest design alignment
- Distance from center of existing road
- All utilities carried on pole
- Pole ownership and owner's pole ID# (if this can be determined).

For in-house projects, normal collection of pole data occurs in the following order:

- Photo classification or plan sheet field survey (for bridge jobs)
 Field collection of pole data information (counter number, owner, distance from center of existing road, utilities carried, etc.) occurs at this time.
- 2. The *counter / tag* number will be placed on the photograph.
- 3. The **Photogrammetry Unit** will key in the **pole counter number** as classified on the photographs to map the location of the poles by utilizing stereo compilation to obtain the correct location coordinates for the poles.

(NCMAP currently has a routine that will accomplish this.)

- 4. At the same time a project is transmitted to **Location & Surveys** to compute property ties, **Pole Data Station** and **Offset** can be computed.
- 5. The project data should be transmitted to the Location & Surveys Unit, where the Property Surveys section will compute the final pole data sheets. MicroStation plan sheet files, Geopak files containing alignment chains, and the original ASCII pole data file need to be part of the transmittal. An MDL application developed by NCDOT (poles.ma) that runs inside of MicroStation will allow this procedure to be done through CADD.

For Design Services turnkey projects, the above-described process can occur if the route survey and photogrammetry work are contracted as part of the scope of work, along with the roadway design. The contracted route location survey engineer and photogrammetric consultant will be responsible for their respective roles as described in the in-house process.

However, for projects in which the location surveys are completed by in-house NCDOT forces, the project data should be transmitted to the Location & Surveys Unit, where the Property Surveys section will compute the final pole data sheets. MicroStation plan sheet files, Geopak files containing alignment chains, and the original ASCII pole data file need to be included in the transmittal.

Occasionally the NCDOT in-house forces will complete the photogrammetric, location and survey work. The roadway design work will be contracted to consultants. In these instances, the contracted route location survey engineer will be responsible for the entire process; including keying the pole number in to the MicroStation CADD file, generating the ASCII pole file, and generating the final pole data sheet. This will be included in the scope done by the route location survey engineer at the initial scoping meeting.

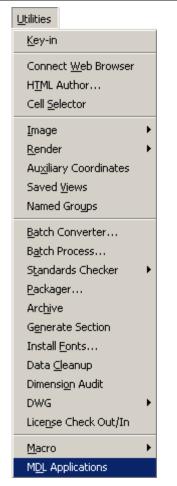
Chapter 2 Application Access

Accessing the Poles Application via the Key-in Field

Step		Action		Result
1	Type MDL L field.	Load Poles in the	N/A	
Key-in				× • 🛱 🖵 🔽
		(Key-in fi	eld)	
2	Press the Enter	key.		The Poles window will appear.
oles Version: 20	09:5:5:0			2
County: Available Chain	Project:	ected Chains	p: Show Tie Lin Show Only T Use Active C Show Tie Te: of	ied Color for Tie Line Export
Pole Number	Exist Align Exist	: Offset Prop Align	Prop Station	Prop Offset
Add Edit	Delete 🔽 Delete /	All	Go to Pole	Tie Line Create Report

The **Poles** application can be accessed 2 different ways:

Accessing the Poles Application via the Utilities Menu



(Utilities Menu)

Step	Action	Result
1	From the UTILITIES drop-down menu, select, MDL APPLICATIONS.	The MDL Applications box will appear.

Accessing the Poles Application via the Utilities Menu

(Continued)

Loaded Applica	adons		D-1-7	1
ACADPAN		4	<u>D</u> etail	· _
CKWOSP COGOPREF			Unioad	
DTMIC			2	
GPKCORERO.	AD		<u>K</u> ey-ins.	
ODKDON				
GPKDGN		•		
Available Applic Task ID	Filename	.	Load	
Available Appli Fask ID NC_XSREPOF	Filename ?Inc_xsreports			
Available Appli Task ID NC_XSREPOF NTBANG	Filename Pinc_xsreports ntbang.ma	_ _ _	Load <u>B</u> rowse.	
Available Appli Task ID NC_XSREPOF	Filename Rinc_xsreports ntbang.ma Poles.ma			

(MDL Applications Box)

2	In the AVAILABLE APPLICATIONS section, scroll until you find Poles .	N/A
3	Select the Poles application. (Poles.ma)	N/A
4	Click the LOAD button.	The Poles window will appear.

Accessing the Poles Application via the Utilities Menu

(Continued)

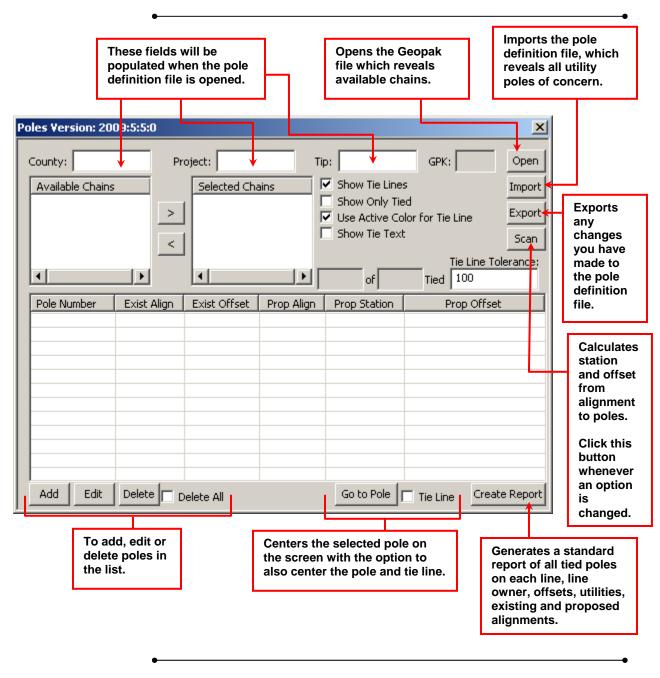
Poles Version: 2009:5:5:0					X
County: Available Chains	Project:	ains F	Show Tie Lines	d lor for Tie Line	Open Import Export Scan Tolerance:
Pole Number Exist Align	Exist Offset	Prop Align	Prop Station	Prop Off	set
Add Edit Delete	Delete All		Go to Pole	Tie Line Cro	eate Report

(Poles Window)

Chapter 3 Application Navigation

The Poles Application Interface

The purpose of the **Poles** application is to establish if existing poles lie within a proposed right-of-way.



Opening the Geopak (GPK) File

The Geopak (GPK) file must exist in the same directory as the DGN file.

From the **Poles** application main window:

Step	Action	Result
1	Click the OPEN button.	The Open GPK dialog box will appear.

0	pen GPK	×
	jobrdy.gpk	
	ОК	Cancel
	·	

(Open GPK dialog box)

3 Click the OK button. The Geopak fil will open, revea	
the available utipole chains.	ing

Opening the Geopak (GPK) File

(Continued)

	Poles Version: 20	09:5:5:0				×
Available Chains List	County: Available Chains SR2 SR3 SR4 SR5 Y2 4	Project: Selected V Y Y1	Chains	ip: ✓ Show Tie Line: Show Only Tie ✓ Use Active Co Show Tie Text	ed Nor for Tie Line	Open Import Export Scan
	Pole Number	Exist Align Exist Offs	et Prop Align	Prop Station	, Prop Offse	t
	Add Edit	Delete 🔲 Delete All		Go to Pole	Tie Line Creal	te Report
			(Poles Window)			

The Geopak file name will default into the **GPK** field.

Available chains will appear in the AVAILABLE CHAINS list.

 4 To select a chain, click the chain name in the AVAILABLE CHAINS list, then click the right arrow ≥ button. (□) NOTE: For multiple chains, hold down your Ctrl key as you select. 	The selected chain will appear in the SELECTED CHAINS list.
---	---

NOTE: To move the selected chain back from the **SELECTED CHAINS** list to

the **AVAILABLE CHAINS** list, select it and click the left arrow subtron.

Importing the Pole Definition File (PDF)

From the	e Poles application main window:	
Step	Action	Result
1	Click the IMPORT button.	The Import Pole Data Text File dialog box will appear.
Data Text	File	<u>? ×</u>
k jn: 🛅 p	oles	🗧 🗈 💣 🎟 -
t s	PUT-U2809B_LS_PDF.TXT	
		▼ <u>O</u> pen
	Step 1 Data Text k in: P P IIII ts nts k File <u>n</u> a	Step Action 1 Click the IMPORT button. Data Text File Image: Comparison of the image: Comparison of th

(Import Pole Data Text File dialog box)

2 Select the Pole Definition File that you wish to import.	N/A
---	-----

Importing the Pole Definition File (PDF)

(Continued)

Pole Definition File (Standard Naming Convention)

F

n i	-		INPUT-1U2 Project Number	2809BjtLS	ion	Pole efinition File	
	3	Click the	e OPEN butto	on.		All poles in the definition file v listed.	-
Poles Ver	sion: 200	9:5:5:0					×
County: Availab SR2 SR3 SR4 SR5 Y1 4	W Dile Chains	Pr	oject: 5 Selected Cha L Y	ains F	p: 7 Show Tie Line Show Only Ti Use Active C Show Tie Te 20 of 22	ied olor for Tie Line	Open Import Export Scan
Pole N	umber	Exist Align	Exist Offset	Prop Align	Prop Station	Prop Offsel	
8		EL	50.00		12+88.82	-31.26	
9		EL	50.00	I	14+05.12	-26.71	
10		EL	50.00	L	16+53.18	-24.33	
11		EL	50.00	L	20+48.68	-35.01	
12		EL	50.00	L	25+15.30	-44.35	
13		EL	50.00	L	29+03.58	-49.13	
14		EL	50.00	L	33+65.60	-39.45	
15		EL	50.00	L	38+95.81	-35.77	
16		EL	50.00	L	13+08.48	70.29	
17		EL	50.00		14+15.23	81.04	
18		FI	50.00		14+96.37	84.55	الغر
Add	Edit	Delete 🗖 D	elete All		Go to Pole	Tie Line Creat	e Report

(Poles Window)

4 To narrow the selection to only tied poles, check the SHOW ONLY TIED button.	Only tied poles will appear in the list.
---	--

NOTE: To expand a scan range, increase the value in the **TIE LINE TOLERANCE** field.

Viewing Options

There are several customizable viewing options that can be changed within the **Poles** application.

From the **Poles** application main window:

Poles Version: 200	09:5:5:0				X
County: W	Pro	oject: 5	Tip); 7	GPK: 01 Open
Available Chains		Selected Cha	ains	Show Tie Lines	Import
SR2		L	Γ	Show Only Tie	
SR3	>	Y	I.	Use Active Col	or for Tie Line Export
SR4			Γ	Show Tie Text	(Scool)
SR5	<				Scan
Y1	<u> </u>				Tie Line Tolerance:
•		•		20 of 22	Tied 100
Pole Number	Exist Align	Exist Offset	Prop Align	Prop Station	Prop Offset 🔺
8	EL	50.00		12+88.82	-31.26
9	EL	50.00		14+05.12	-26.71
10	EL	50.00	L	16+53.18	-24.33
11	EL	50.00	L	20+48.68	-35.01
12	EL	50.00	L	25+15.30	-44.35
13	EL	50.00	L	29+03.58	-49.13
14	EL	50.00	L	33+65.60	-39.45
15	EL	50.00	L	38+95.81	-35.77
16	EL	50.00	L	13+08.48	70.29
17	EL	50.00		14+15.23	81.04
18	FI	50.00		14+96.37	84.55
Add Edit Delete All Go to Pole Tie Line Create Report					

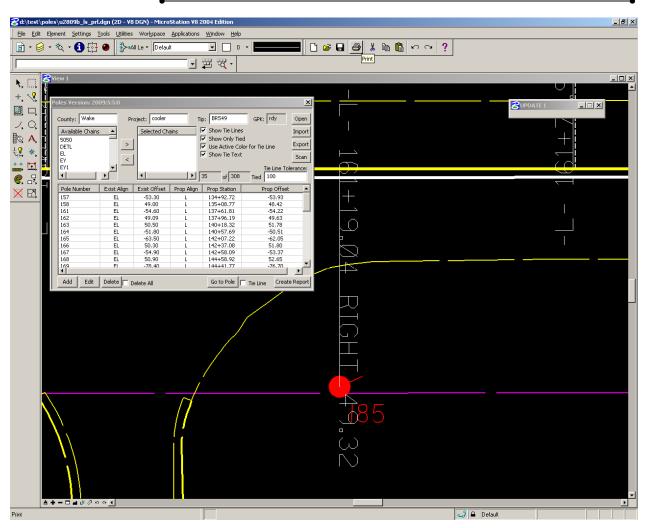
(Poles Window)

Step	Action	Result
1	To view the tie lines in the design file, click the check box in the SHOW TIE LINES field.	The tie lines will be displayed.
2	To view the tie line text , click the check box in the SHOW TIE TEXT field.	The tie line text will be displayed.

NOTE: Uncheck the applicable box to turn each option off.

Viewing Options

(Continued)

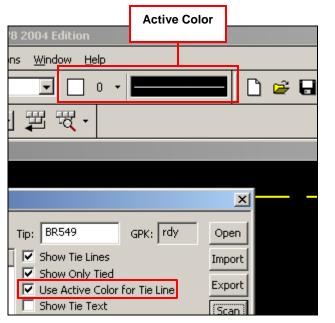


(MicroStation Design File – Pole and Tie Line with Text)

3 To view the tie lines in the <i>active color</i> , click the check box in the USE ACTIVE COLOR FOR TIE LINE field.
--

Viewing Options

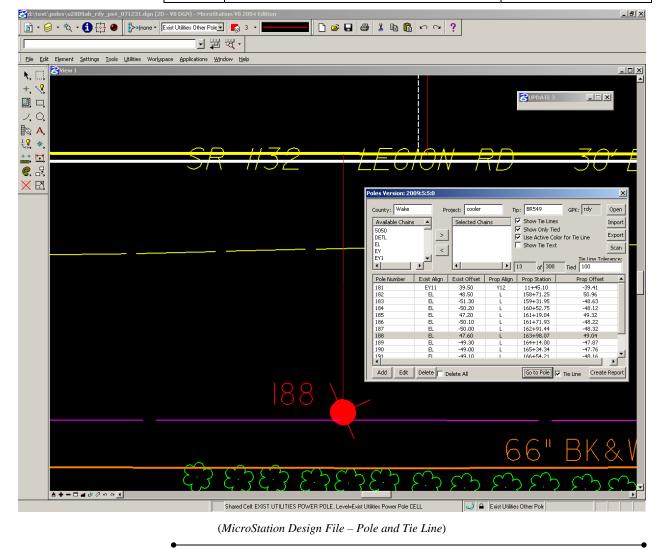
(Continued)



(Active Color Check Box and Selection)

Locating the Pole in the Design File

Step	Action	Result
1	Select the pole record you wish to locate by clicking on it.	N/A
2	If you want to view the tie line as well, check the TIE LINE check box	N/A
3	Click the GO TO POLE button.	The selected pole (or pole and tie line) will appear.



Chapter 4 Procedures

Adding a Pole Record

Step	Action	Result
1	Click the ADD button.	The Pole Edit dialog box will appear.
Pole Ed	t	×
Pole No	umber: Utilities:	Type UNKNOWN
	sting: gnment: Offset: 0	Proposed Alignment: Offset: 0
	Owner: Nur	nber:
Rema	ks:	
	[OK]	Cancel

From the **Poles** application main window:

(Pole Edit Dialog Box)

2	Type the pole number in the Pole NUMBER field.	N/A
3	Type the types of utilities on the pole in the UTILITIES field.	N/A
4	Select the type from the drop-down list in the Type field.	N/A

Adding a Pole Record

(Continued)

In the **EXISTING** section:

5	Type the chain in the ALIGNMENT field. N/A			
6	Type the distance in the OFFSET field.N/A			
In the PROPOSED section:				
7	Type the chain in the ALIGNMENT field.	N/A		

In the **OWNER** section:

8	Type the name of the owner company in the NAME field.	N/A
9	Type the vendor number in the NUMBER field.	N/A
10	Type any remarks about the pole in the REMARKS field.	N/A
11	Click the OK button.	The pole record will be saved to the list.

Editing a Pole Record

From the **Poles** application main window:

Step	Action	Result
1	Select the pole record you wish to edit by clicking on it.	N/A
2	Click the EDIT button.	The Pole Edit dialog box will appear.

NOTE: You can also double click a pole record to edit it.

Pole Edit			×
Pole Number:	Utilities: PWR TEL CATV		J T
Existing: Alignment: EL	Offset: 49.09	Proposed Alignment: L	Offset: 49.62525:
Owner:		Number: 654049501	
Remarks:			
	OK]	Cancel	

(Pole Edit Dialog Box)

3	Edit information in the editable fields.	N/A
4	Click the OK button.	The pole record will be saved to the list.

Deleting a Pole Record

From the **Poles** application main window:

Step	Action	Result
1	Select the pole record you wish to delete by clicking on it.	N/A
2	Click the DELETE button.	The pole record will be deleted from the list.

Repeat Steps 1 and 2 for each record you wish to delete.

NOTE: If you wish to delete all pole records from the list, check the **DELETE ALL** box, then click the **DELETE** button.

If you do this, the following dialog box will appear.

	×
formation?	
No	

(Delete All Dialog Box)

Click the **YES** button to remove all pole records from the list.

Click the **No** button to return to the **Poles** application main window, list intact.

Exporting Pole Definition Files

When you make any changes to pole information in the **Poles** application, you can export these changes in the form of a new **Pole Definition File**.

From the **Poles** application main window:

Step	Action	Result
1	Click the EXPORT button.	The Export Pole Data Text File dialog box will appear.

Export Pole Data	Text File				? ×
Save in:	🔁 poles		•	🗕 🗈 💣 🎟	•
My Recent Documents Desktop My Documents My Computer	OUTPUT-U280	9B_LS_PDF.TXT			
My Network	File <u>n</u> ame:	BR549_ls_pdf_xxxxx		•	Save
Places					
	Save as <u>t</u> ype:	Pole Data Text Files	(*.txt)	•	Cancel

(Export Pole Data Text File dialog box)

2	Type the name of the new exported file in the FILE NAME field,	N/A
3	Click the SAVE button.	The file has been saved.

Creating A Report

The **Report** function creates a text file containing all tied utility poles within the selected project. This report assists in determining which poles are in conflict with highway construction

The report groups poles by **Owner**, and provides the following:

Pole Tag Numberfor use with the Preliminary Plans, to identify the
general location of the pole.Owner's Number(if available).Utilities(if available).Offset distance from center of the pole to an Existing Alignment.

Station and Offset to the nearest Proposed Design Alignment.

From the **Poles** application main window:

Poles Version: 2009:5:5:0						
Available Chains Selected Chains ✓ Show Tie Lines Impo SR2 > Y ✓ Use Active Color for Tie Line Expo					Open Import Export Scan	
		•		20 of 22	Tied 100	
Pole Number	Exist Align	Exist Offset	Prop Align	Prop Station	Prop Offset	
8	EL	50.00	I	12+88.82	-31.26	
9	EL	50.00	I	14+05.12	-26.71	
10	EL	50.00	L	16+53.18	-24.33	
11	EL	50.00	L	20+48.68	-35.01	
12	EL	50.00	L	25+15.30	-44.35	
13	EL	50.00	L	29+03.58	-49.13	
14	EL	50.00	L	33+65.60	-39.45	
15	EL	50.00	L	38+95.81	-35.77	
16	EL	50.00	L	13+08.48	70.29	
17	EL	50.00		14+15.23	81.04	
18	FI	50.00	I	14+96.37	84.55	
						<u> </u>
Add Edit	Delete 🗖 D	elete All		Go to Pole	Tie Line Create	e Report

(Poles Window)

Creating A Report

(Continued)

Step	Action	Result
1	Click the CREATE REPORT button.	The Create Pole Data Report File dialog will appear.

Create Pole Dat	a Report File				? ×
Savejn	🔁 poles		•	🗕 🗈 💣 🎟	
My Recent Documents Desktop My Documents My Computer	E cool.txt INPUT-U2809B moo.txt OUTPUT-u2809				
My Network Places	File <u>n</u> ame:	BR549_ls_pole_xxxxxx		•	<u>S</u> ave
	Save as <u>t</u> ype:	Pole Output Text File (*.txt)		▼	Cancel

(Create Pole Data Report File Dialog Box)

2	Type the name of the new report file in the FILE NAME field,	N/A
3	Click the SAVE button.	The file has been saved.

Creating A Report

(Continued)

The report will look like this.

File Edit Format View Help
Lie Ear Lõunar Mew Telb
PROJECT: cooler TIP: BR549 COUNTY: Wake OWNER OF POLE LINE: PROGRESS ENERGY
POLE NUM: 157 OWNER NUM: FD07AE UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 53.300L PROPOSED> ALIGNMENT: L OFFSET: 53.926L STATION: 134+92.72
POLE NUM: 161 OWNER NUM: FD11AE UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 54.600L PROPOSED> ALIGNMENT: L OFFSET: 54.223L STATION: 137+61.81
POLE NUM: 164 OWNER NUM: 11HD64 UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 51.800L PROPOSED> ALIGNMENT: L OFFSET: 50.508L STATION: 140+57.69
POLE NUM: 167 OWNER NUM: 79H04/20K UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 54.900L PROPOSED> ALIGNMENT: L OFFSET: 53.375L STATION: 142+58.09
POLE NUM: 169 OWNER NUM: 7×T17 UTILITIES: PWR WITH LT EXISTING> ALIGNMENT: EL OFFSET: 78.400L PROPOSED> ALIGNMENT: L OFFSET: 76.701L STATION: 144+41.77
POLE NUM: 170 OWNER NUM: FD14AE UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 53.300L PROPOSED> ALIGNMENT: L OFFSET: 51.480L STATION: 145+40.30
POLE NUM: 172 OWNER NUM: 28G14 UTILITIES: POWER EXISTING> ALIGNMENT: EL OFFSET: 53.200L PROPOSED> ALIGNMENT: L OFFSET: 51.080L STATION: 148+09.13
POLE NUM: 174 OWNER NUM: FD16AE UTILITIES: PWR WITH LT EXISTING> ALIGNMENT: EL OFFSET: 51.700L PROPOSED> ALIGNMENT: L OFFSET: 49.370L STATION: 150+01.51

(Create Pole Data Report File Dialog Box)