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DEPARTMENT OF TRANSPORTATION

eSignatures

A New Requirement for Professional Engineering
Firms Providing Design Services to NCDOT

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NCDOT Objectives

- High level goals:
 - High quality, text searchable deliverables for Construction
 - Consistency in what NCDOT provides to Contractors
 - Faster/Clearer delivery of designs and changes
 - Reduced space and improved access of archived materials.



NCDOT Requirement

- As of November 2014 let date, all Centrally let project documentation shall be eSigned documents generated directly from their electronic sources (CADD, MS Word, etc.).
- By Spring 2015 Division let project documentation shall be eSigned documents generated directly from their electronic sources.

NCDOT Let Plan Requirements

- All final plan sheets shall be “intelligent” .pdf files with lines and searchable text.
- All final plan.pdf files shall be submitted as a single page .pdf, sealed when appropriate
- All provisions shall be assembled into multi page .pdf files containing current provisions that are text searchable.
- PDF files shall not be generated by printing & scanning
 - Where signatures are used on plans, provisions, proposals and contracts, they shall be provided electronically.
 - Exception - Scans of previously completed, signed plans shall still be accepted if the signer is no longer available



Let Plans Submittal

- Much remains unchanged
 - Plans are created/modified in Microstation
 - Basic file naming standards remain.
Standards can be found at
<https://connect.ncdot.gov/resources/CADD/Pages/default.aspx>
 - Hard copy plans (unsigned) will still be required for review.

Plans Submission

This is changed:

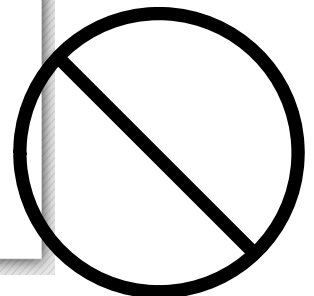
- Plans for review (unsigned) are plotted from .pdf rather than from Microstation.
- Final plans are sealed & eSigned *before* submitting.
- Final plans are sealed & eSigned soft copy .pdf files.
 - Final plans should be delivered as individual files, one file per page
 - DO NOT deliver multi-page .pdf files.
- Pagination and cosmetic changes (e.g. hand modifications) are not possible after eSignatures are in place. Therefore:
 - While basic naming conventions continue, new numeric prefixes to filenames control page sequencing.
 - Page numbers on plan sheets are managed according to new practices.

eSignatures

- All sealed/signed plans and provisions must be submitted as individual electronically signed .pdf files.
- The only thing that can be changed after a file is signed is the filename. All other modifications “break” the signature.
- eSignatures are not required for review submissions. (Review plans are submitted as paper plots from .pdf files.)
- Providers may use *any* recognized eSignature tool to sign documents. Use of DocuSign, the vendor for the state, is *not* required.
- For more information on eSignatures see:
 - <http://www.pcworld.com/article/2035744/e-signatures-the-complete-guide-to-paperless-signing.html>
 - <http://digital-signature.findthebest.com/>
 - http://en.wikipedia.org/wiki/Electronic_signature

Unacceptable Signatures

- Scans of ink signed drawings shall only be accepted if the signer is no longer available (retired, departed, etc.).
- Images of signatures applied over seals are not valid eSignatures.
- Any eSignature that does not immediately display as a valid signature in Adobe Reader (or requires that you accept a certificate before it is recognized as valid) does not satisfy NCDOT requirements.

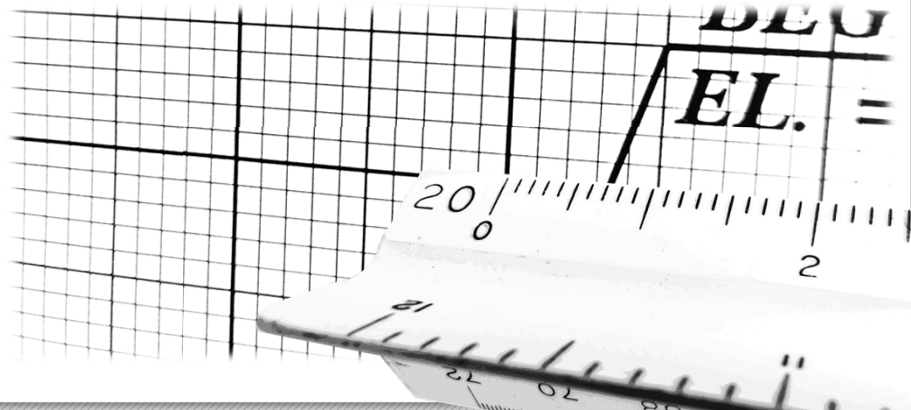


Let Plans PDF Formatting

- Remove content that should not be included in sealed output
- Include cell image of PE seal before creating .pdf
- Ensure PDFs are printable at the appropriate scale.
- Ensure PDFs are text searchable and CADD drawing layers are present.
- Landscape layout (rotation 0 degrees)
- One plan page per PDF file *unless* multiple sheets will always be modified together (plan PDF should be smallest *revisable* unit)
- Must be Full-size (22"x34")*
 - * Except for plans normally provided in 11"x17" size only (subsurface plans, cross-sections when > 30 sheets, etc.)
 - * Except for Interchange plans requiring a larger size

Let Plans - Plotting plans from .pdf files

- Every plotter is different
- Test settings to make sure that the plot is the correct size and scale.
- Ensure sheets print correctly if printed on either 22"x34" or 11"x17" paper
- Plotter configurations for .pdf files are different from Microstation plotter settings. Make sure the correct settings are used when creating .pdf files.




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Let Plans Folder Naming

- Folder & file name numeric prefixes control the Let Plan page order in the final plan set.
- The file name controls the page order as there is no opportunity to shuffle paper and insert/number pages manually.
- Different display devices sort alphanumeric filenames differently.























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Let Plans Folder Naming

The NCDOT Contract Representative will provide guidance on folder and file naming while the project is being scoped.

- Place files in an appropriately named folder
- Folders may be changed/added as appropriate. What is shown here is the default naming.
 - Filenames/numbers within a number block are determined by each Unit.
E.g. Structures (400-499) will have a folder for each bridge, culvert & wall plan set and will deviate from default as needed.
401 Bridge 1
419 Bridge 19
431 Culvert 1
- Allow space in the 3 digit folder# for later additions
E.g. 505 Railroad Subsurface Plans
- The 3 digit folder# is 3 *numerals* followed by a space
no more, no less, no letters

 100 Roadway Plans
 200 Transportation Management Plans
 210 Pavement Marking Plans
 220 Electrical Plans
 230 Erosion Control Plans
 240 Reforestation Plans
 250 Signing Plans
 260 Signal Plans
 270 ITS Plans
 280 Utility Construction Plans
 290 Utilities by Others Plans
 300 Cross Section Plans
 400 Structure Plans - Bridges
 410 Structure Plans - Culverts
 420 Structure Plans - Walls
 500 Roadway Subsurface Plans
 510 Structure Subsurface Plans
 600 Project Proposal
 700 Addenda
 800 Revision Letters

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Let plans

File naming of .pdf files

New-Extended file naming convention

- 3 digit folder#_ 3 digit sequence#_ Your Filename.pdf
- The 3 digit folder# should match the parent folder number
- The 3 digit sequence# is exactly 3 *numerals*, followed by an *_underscore_*
- Allow space in the 3 digit sequence# for later insertions (**this is not the printed sheet number** which may contain other characters).
- The separator between *_and_* after the numbers is an *_underscore_*
- Actual printed page numbers on the sheet may be assigned by your DOT contact during scoping. (Pagination must be on the sheets before signing.) You will be required to follow a particular naming standard
- *Your Filename* may use any legal filename characters. The filename is a useful description for people.
[https://connect.ncdot.gov/resources/CADD/Documents/CADD Standards - File Names.pdf](https://connect.ncdot.gov/resources/CADD/Documents/CADD%20Standards%20-%20File%20Names.pdf)
- There is a Plan File Renaming tool to assist in sorting, sequencing and formatting the numeric prefixes to the files.
https://inside.ncdot.gov/Business/technology/EAD_Apps/PlanFileRenamer/PlanFileRenamer.application

100 Roadway Plans

Name

100_001_b4057_rdy_tsh

2

100_003_b4057_rdy_typ_2

4

100_005_b4057_rdy_sh04

6

100_007_b4057_rdy_sh05

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Let Plans

- **Pagination**
 - Do not confuse file naming prefixes with sheet pagination. Page numbers that appear on the plan sheets *will not* match file name sequence numbers.
 - Each section of the let plan has a unique sheet numbering standard.
 - The NCDOT Contract Representative will provide guidance on pagination while the project is being scoped.

250_035_U25798_Sgn_Let_Sgn03B_141021.pdf - Adobe Reader

Sign Comment

Signature Panel

Sheet NO. SIGN-3B

06/09/2014

40 421

Winston-Salem

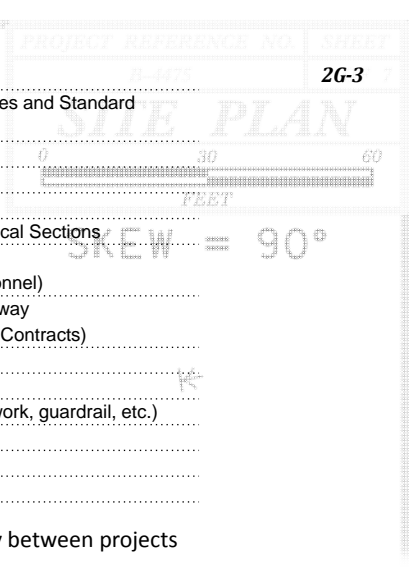
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Let Plans Pagination

- Section Example

1	Title Sheet
1A	Index of Sheets, General Notes and Standard Drawings
1B	Conventional Symbol Sheet
1C Series	Survey Control Sheets
1D Series	Centerline Coordinate List
2A Series	Pavement Schedule and Typical Sections
2B Series	Roadway Details (produced by Roadway personnel)
2C Series	Details not Covered by Roadway (Special Details produced by Contracts)
2D Series	Drainage Details
2G Series	Geotechnical Details
3B Series	Roadway Summaries (earthwork, guardrail, etc.)
3D Series	Drainage Summaries
3G Series	Geotechnical Summaries
3P Series	Parcel Index Sheets

Plan pagination and sections will vary between projects



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Let Plans

Review

- Which is the correct format file name?
 - ☐ 250_001A_Page4A.pdf
 - ☐ 250-002 Page_4 A.pdf
 - ☐ 250_004_Page_4A .pdf
 - ☐ 250_003-Page 4 (revised).pdf
 - ☐ 250_005_Page 5a.pdf
 - ☐ 250_001_A_4A.pdf
- Which are the correct .pdf generation settings (for most sheets)

☐ Portrait

☐ Landscape

☐ 22"x34"

☐ 11"x17"

☐ B Size

☐ D Size

☐ One sheet per file

☐ All sheets, one file

☐ Smallest revisable unit/file

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Special Provisions Changes

Special provisions are submitted as pdf files fully formatted with a header containing TIP*, Page# & County.

- Header and body font is Times New Roman, 12 pt
- Page number must be centered and include the assigned Unit *section* prefix followed by a dash. Page numbers start at 1 in each file.
- Page Number is **18 Pt Bold**
- Final Provision .pdf files must be sealed/signed & dated, if appropriate, before being submitted.

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Special Provisions

- File Naming and Section Pagination.
 - Each NCDOT Unit is assigned a single letter sequence prefix for the .pdf file name.
 - Units are also assigned "chapter" letter prefixes so each section of the final provisions document has its own pagination.
 - Take care not to confuse the *file* prefix letter with the *page* prefix
 - File naming and page naming assignment will be provided during project scoping.

UNIT PROVISIONS	File Prefix	Page Prefix
ICT's	A	
GeoTechnical	C	GT
GeoEnvironmental	D	GV
Signing & Delineation	E	SN
Traffic Control	F	TC
Lighting	G	LT
Utility Construction	H	UC
Utilities By Others	I	UBO
Erosion Control	J	EC
Planting / Reforestation	K	PL
Rest Area	L	RA
Traffic Signals	M	TS
Intelligent Trans. Systems	N	ITS
Railroad Insurance (Roadway)	O	RI
Str / Culverts / RR Ins (Structures)	P	ST
Permits	R	P

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Special Provisions

- Provisions Filename Format:
 - FilePrefixLetter_TIP#_filename.pdf*

File Edit View Tools Help

Organize Burn New folder

U3615b

- Approvals
- Common
- Construction
- Contract Standards
 - Records
 - Special Detail Req
- Special Provisions
- Drainage

Name

- M_U-3615B Signal Specs.pdf
- i_U-3615B_Guilford_UbO_Latest_SP_140102_K
- J_U-3615B (1-8-14).pdf
- D_U-3615B_GeoEnvironmental_Spec (E-seale
- ~~F_Law Enforcement (E-Sealed 1-10-14).pdf~~
- C_U3615B (E-sealed).pdf
- H_U-3615B_Guilford County_UC_SP_131220_

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Things to Remember:

- Any recognized electronic signature is acceptable. DocuSign is not a required vendor.
- Documents should be generated directly from their source – not scans of plans.
- Scans of signed documents shall be accepted if the signer or source is no longer available.
- A signature image applied to a seal or signature line is not an electronic signature.
- NCDOT still accepts faxed/scanned contracts, bonds, bids, etc.. Electronic notaries are still in the planning stages.
- **Pagination** *must* be applied **before** eSignatures.
- **Filenames** may be changed after eSignatures.
- Work with your NCDOT contact to determine file naming and pagination standards for each project.

More Things to Remember:

- Final plans are eSigned individual pdf pages. Do NOT deliver a multi-page .pdf
 - Once they are signed the sheets can be bundled into a .zip file or .pdf portfolio for delivery
- Each section of the Special Provisions is an eSigned multi-page file.

What products/services do I need to have?

- Ability to generate a .pdf file from CADD & CAE applications.
- Ability to generate a .pdf file from word processing/spreadsheet applications (Save As...).
- eSignature service/tool.

What information do I need for a project?

- Project Identifier (TIP, Contract, Other) _____
- Plans
 - Plan Section Page# Prefixes _____
 - Is there a limited page # range Y/N _____
 - Plan Section Folder #s _____
 - File naming standard Y/N _____
 - Paper review copies required Y/N Qty _____
 - Final media/file delivery method _____
- Special Provisions
 - Provision Section Page # Prefixes _____
 - File name prefix for each section _____
 - Final media/file delivery method _____