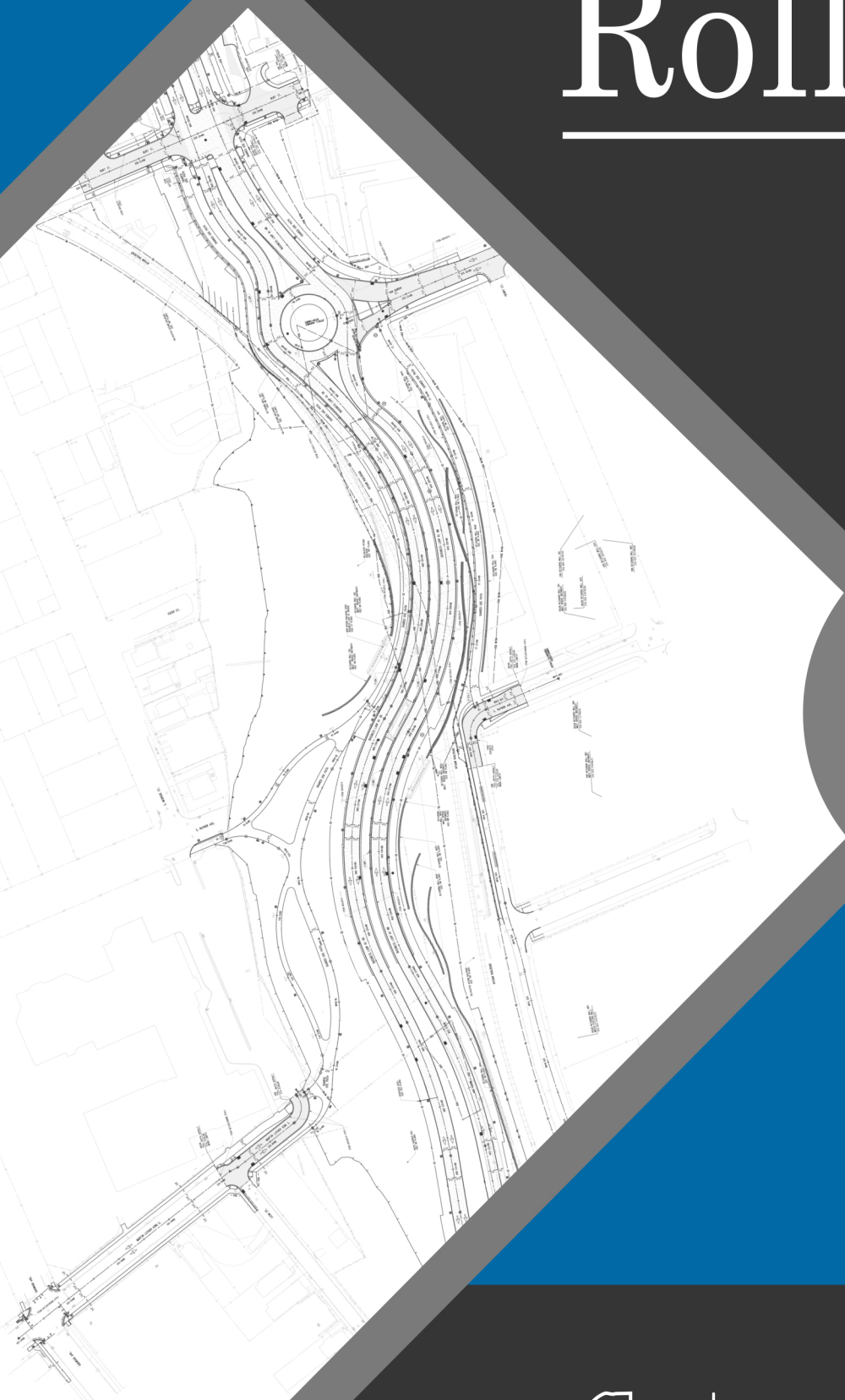
# Roll Plan

July 2025

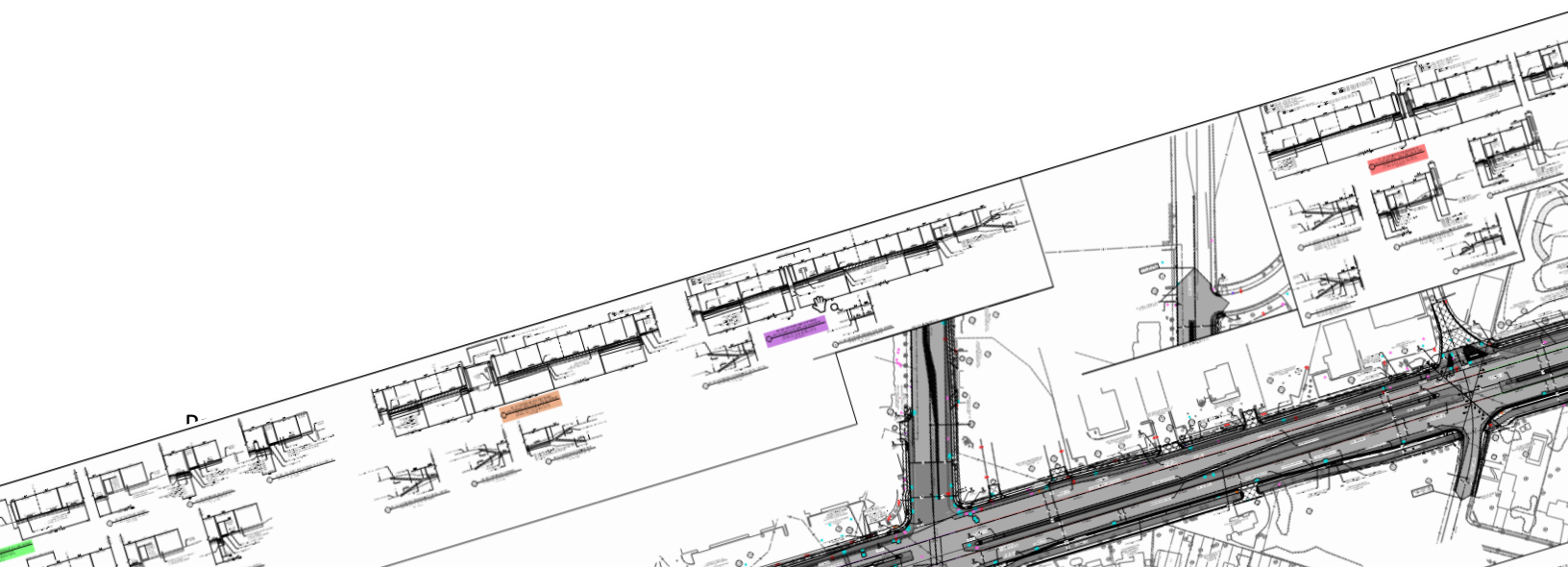


Guidance Document

NEW YORK STATE | Department of Transportation

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**Introduction:** This document is intended to provide users with the latest recommended guidance for preparing roll plans. The following information will assist users with project selection, sheet preparation, plotting and printing, integration with contract documents and other pertinent information. This document also includes embedded files that will be useful for setting up your project roll plans. Please direct any questions or comments regarding this document to Digital.Delivery@dot.ny.gov.

**Section 1- Project Selection:** Roll plans are recommended for projects that are more than 2,500 Feet in station length. This typically results in consolidating four or more 11x17 drawings at a common drawing scale of 40. While there may be some exceptions, this is the recommended minimum length to realize a meaningful reduction in staff resources needed to produce plan sheets. Projects with curves can typically be incorporated on a standard 44" width roll plan as it affords almost 1,800 feet of width on a 40 scale drawing (44" x 40":1' = 1,760'). If the curve is large enough that it will not fit on the roll plan, match lines can be utilized.

Roll plans are a great tool to utilize within the digital delivery environment, and it's important to understand the advantages and potential disadvantages before deciding to use for a project.

### 1.1 Advantages:

1) Consolidating Essential Information – placing relevant information together such as plans, sections and details makes reviewing and locating information for construction easier.
2) Streamline Plan Production - Eliminating all the associated match lines, title block information, scale bars, north arrows, etc. saves significant design and review time.
3) Ease of Viewing – continuous pan and zoom versus flipping back and forth from sheet to sheet.
4) Project Familiarization and Reviewability – viewing the project whole without match lines results in faster familiarization with the project. Design reviews in a shared environment such as Bluebeam results in less duplication of comments on multiple sheets.
5) Construction Field Office - supports roundtable discussions in the field office whether plotted or on large screens.
6) Construction Site – Can easily be used/accessed on smartphones or tablets.
7) Public Involvement - Convenient for use at public information meetings and easier for stakeholders to review.
8) Layered PDF Ready – Roll plans can be structured to plot in layers within the same PDF document allowing for information to be turned on and off in a digital environment.

### 1.2 Disadvantages:

1) Downstream Users - Consideration of the following downstream users should be considered before implementing roll plans on your project. Not considering all downstream users could lead to duplication of effort to furnish a paper product that is acceptable for their needs.
    a. Right of Way Acquisitions – This process relies on traditional methods and delivering paper copies in hand to inform reputed owners of the project and proposed acquisition(s). Projects with acquisitions should coordinate with their right of way group on the need to provide supplemental 11x17 drawings of the parcel(s) for this purpose.
    b. External Agencies – Few external agencies are progressing digital delivery methods. Additional time and effort may be required to assist these groups.
    c. General Public – May not be equipped to view roll plans digitally.

d. Permits & Inspections – Consideration of the permits, inspections and documentation needs should be considered. Coordinating with these parties in advance is recommended.

2) Computing Performance – Not all software applications or computers are created equal. Software applications that do not maximize available computing power or computers that do not have sufficient specifications to run the applications can experience delays and unresponsiveness while viewing.

3) Digital Viewing – Roll plans are intended to be viewed digitally by a device such as a smartphone, tablet, laptop or desktop. Not having a device, or enough devices on a project can make it difficult to get the roll plans on the job site.

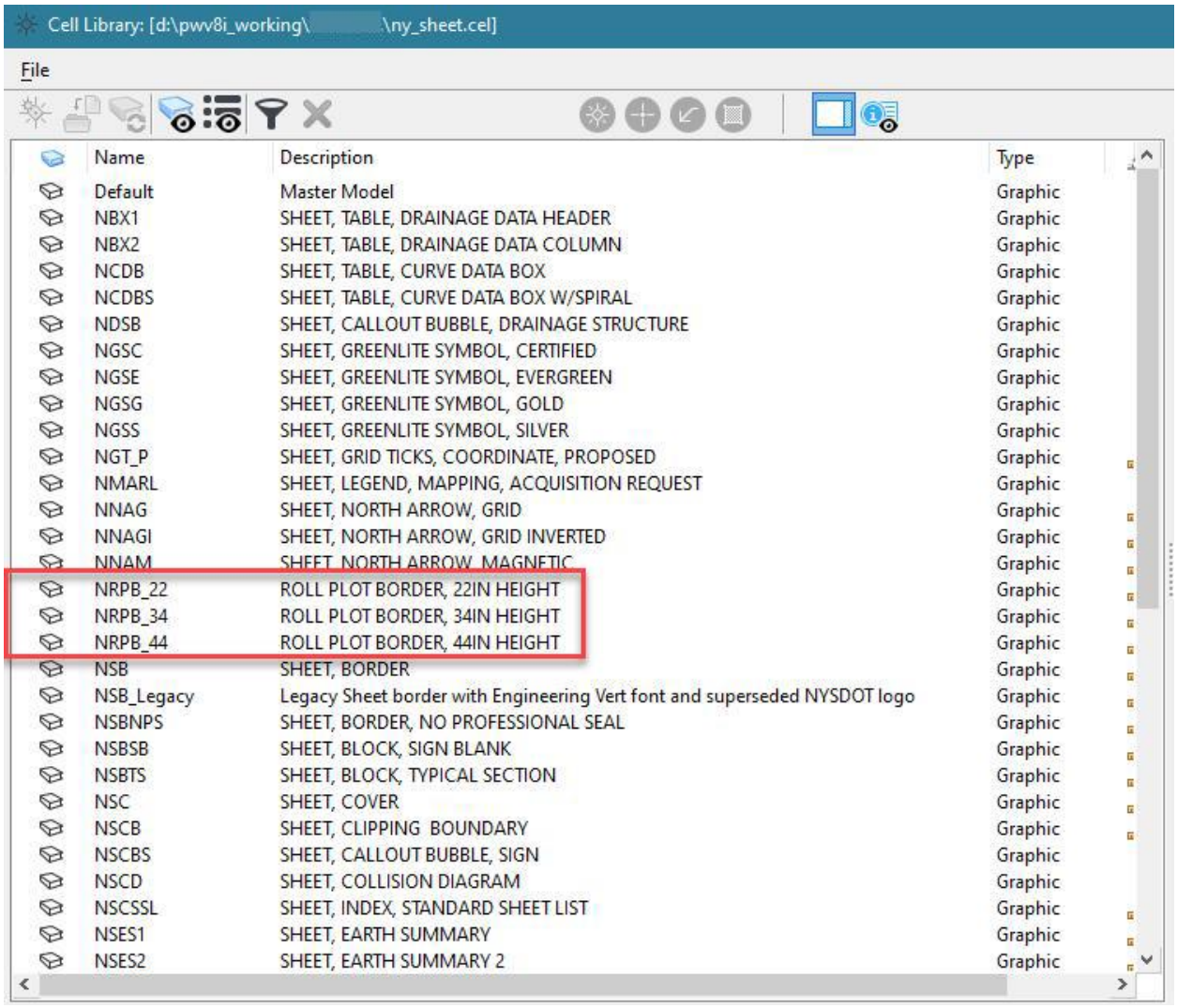
**Section 2 - Roll Plan Sheet Preparation:** Roll plans are simply one very large plan sheet; no change is required for file management/setup in the CAD environment. The following is a recommended process for setting up roll plans.

**2.1 – Orientation:** Orientate the drawing to efficiently make use of the roll plan while avoiding north arrows pointing diagonally down or to the left.

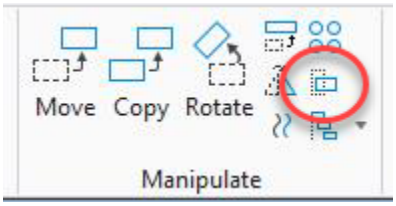
**2.2 – Plot Area:** To begin, select a construction level and place a rectangular box around the limits of your project. The length of the box should be no longer than 200 inches (ISO 32000 standard) and the width should coincide with standard ANSI paper widths of 22, 34 and 44 inches. To determine this width, multiply the drawing scale by the paper width. For example, a drawing scale of 40 feet per inch x 34 inches equals 1,360 feet. It is also recommended to round the length of the plot area to the nearest inch.



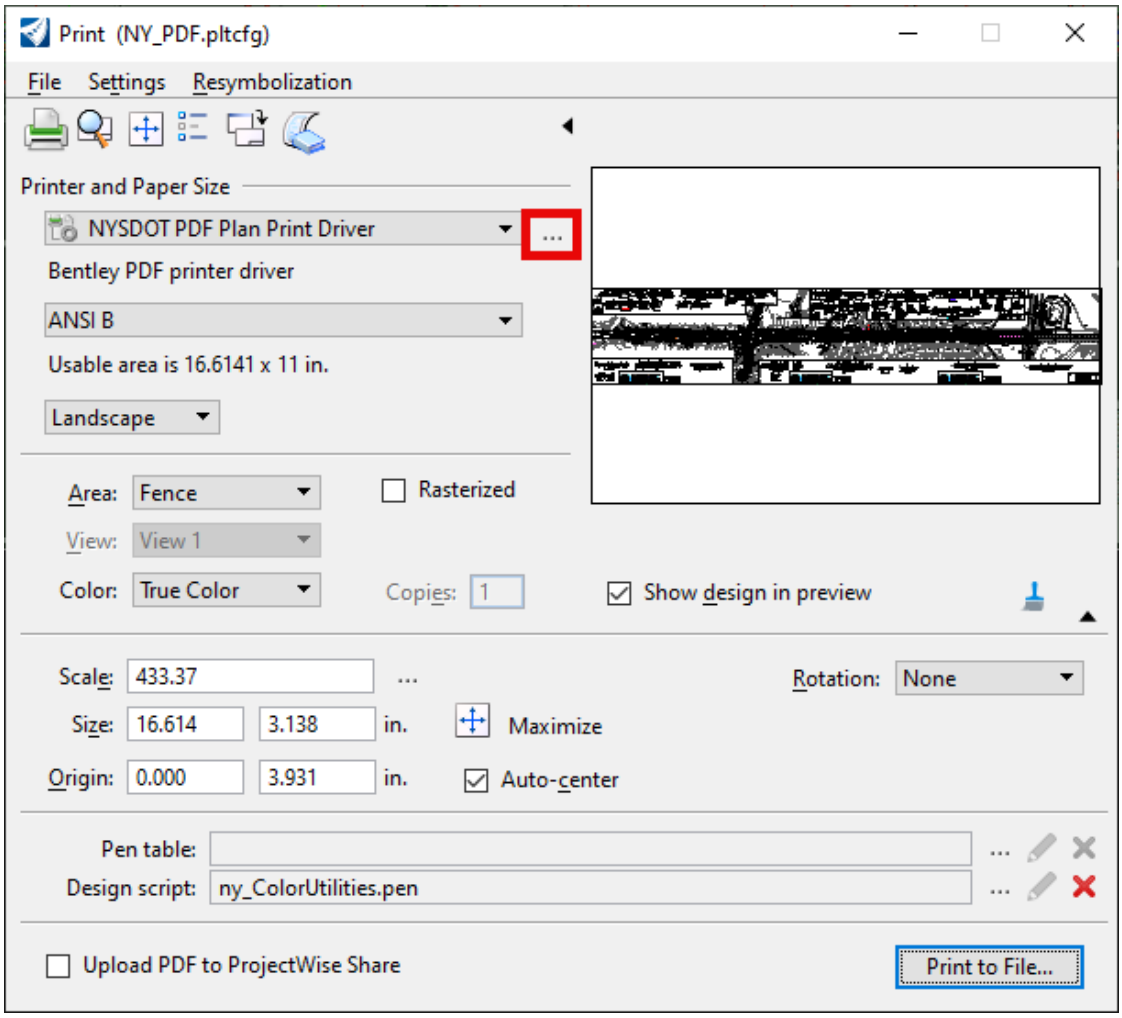

**2.3 - Title Block Information:** Within the OpenRoads cell library for NYSDOT, three sheet border cells are provided for roll plan widths of 22, 34 and 44 inches under “ny_sheet.cel”.



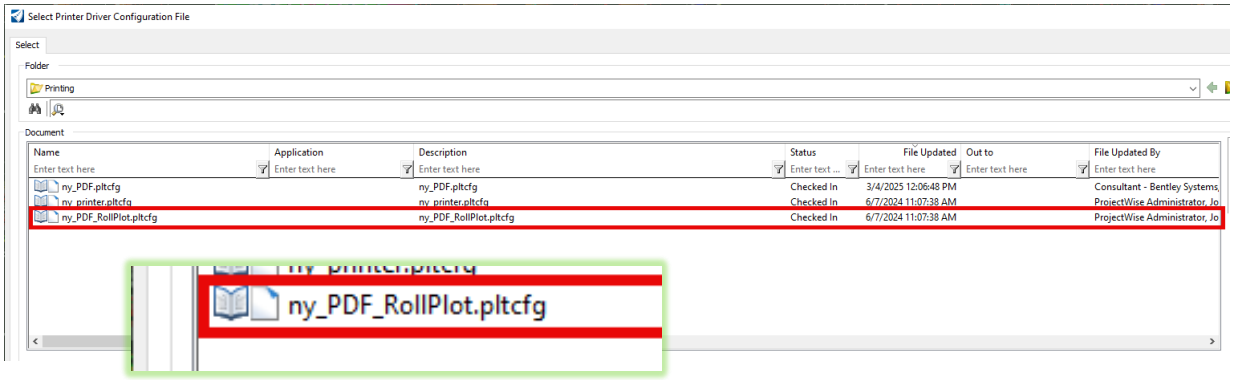

After selecting and placing the cell, users will need to adjust the length of the title block to their desired print area. This can easily be adjusted using the “Stretch” command found within the “Manipulate” toolbar.



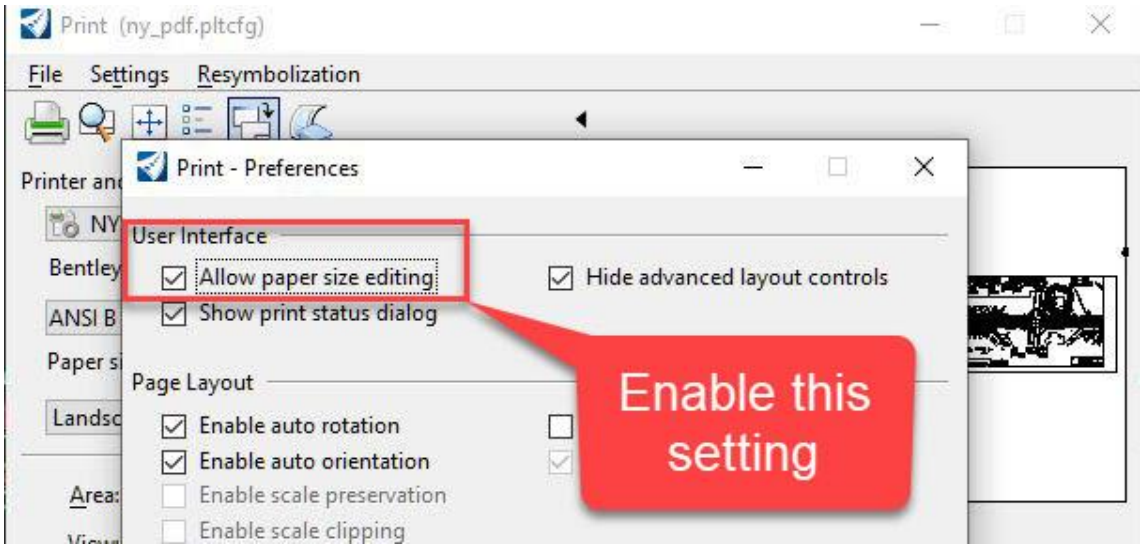

**2.4 – Printing from Bentley OpenRoads to PDF:** Start by placing a fence around the print area, for this example a 34” wide by 180” long print area will be utilized. Proceed by navigating to “File” and selecting “Print”. The following dialog box will appear. Click the three dots to select your driver.



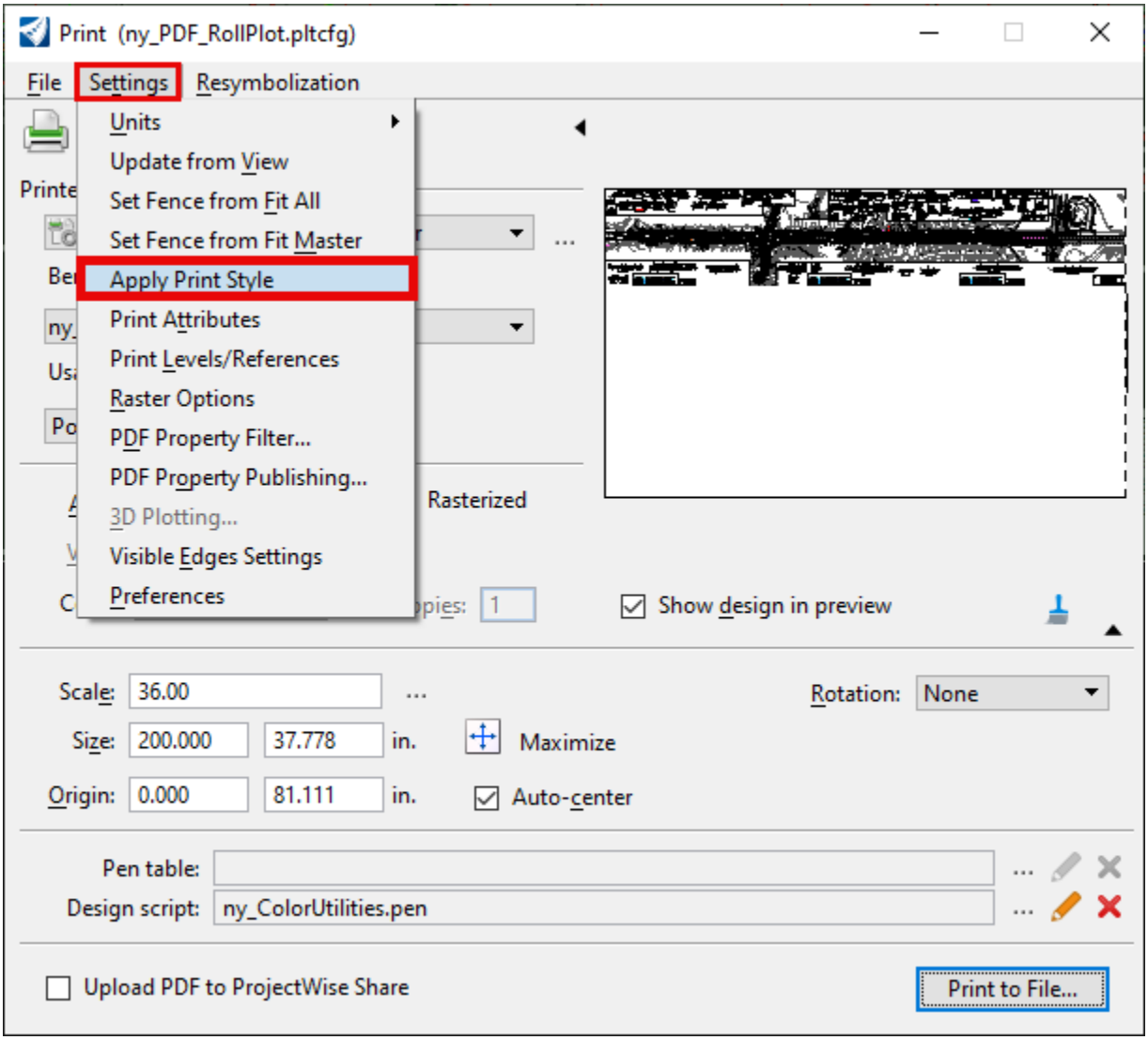

If your project has a managed workspace, it should have the following window pop up from ProjectWise. Select the roll plan driver shown in the image below.



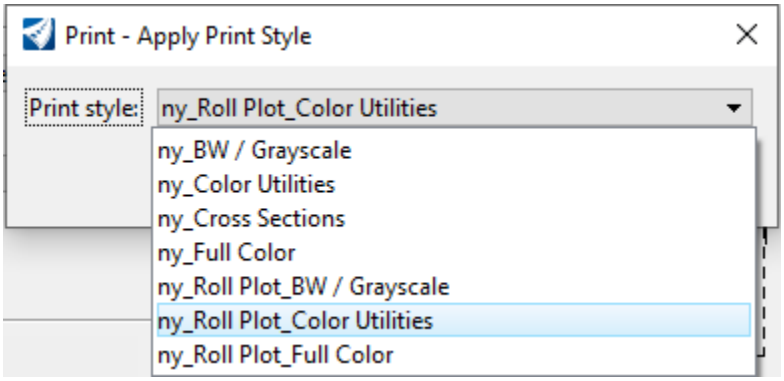

Important: If this is your first time printing a roll plan, you will need to adjust your "Preferences" which can be found under "Settings". This step should only be required once, however if you do not see the paper size entries you will need to repeat this step.



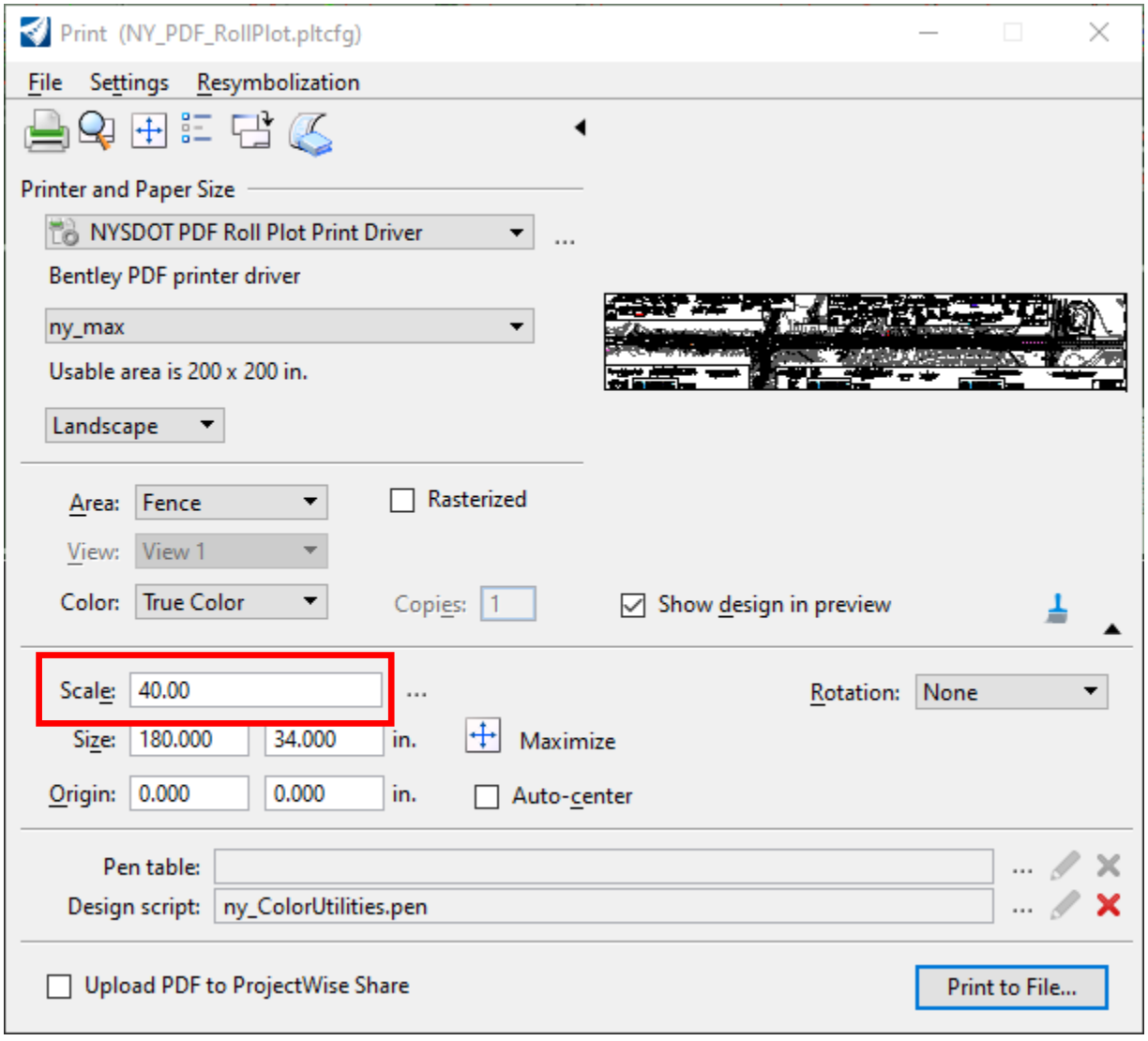

This next step will simplify the print setting setup. Select “Apply Print Style” under “Settings”.



Then select the appropriate print style.

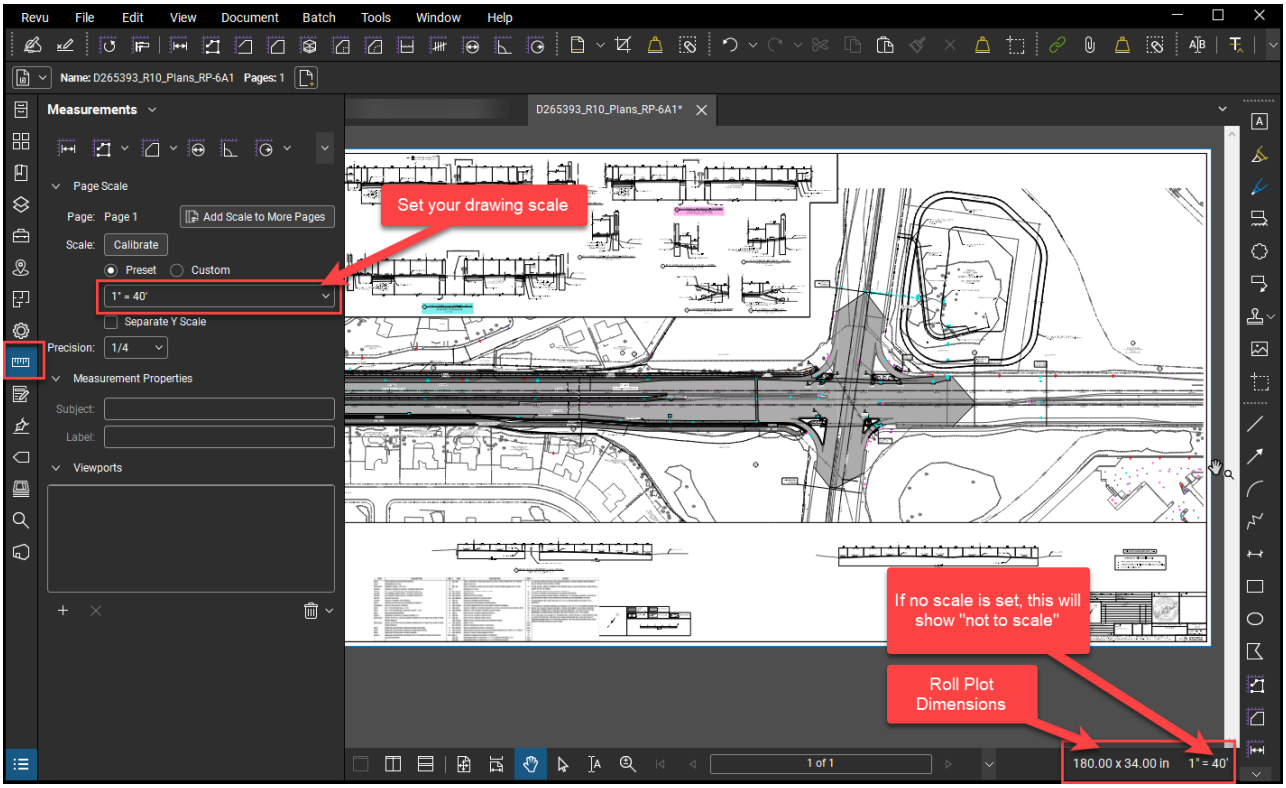



Note that pen tables are no longer used, and that field should be blank. Enter your drawing scale (for this example 40 is used) then hit TAB. This should auto-size your paper to the correct size.

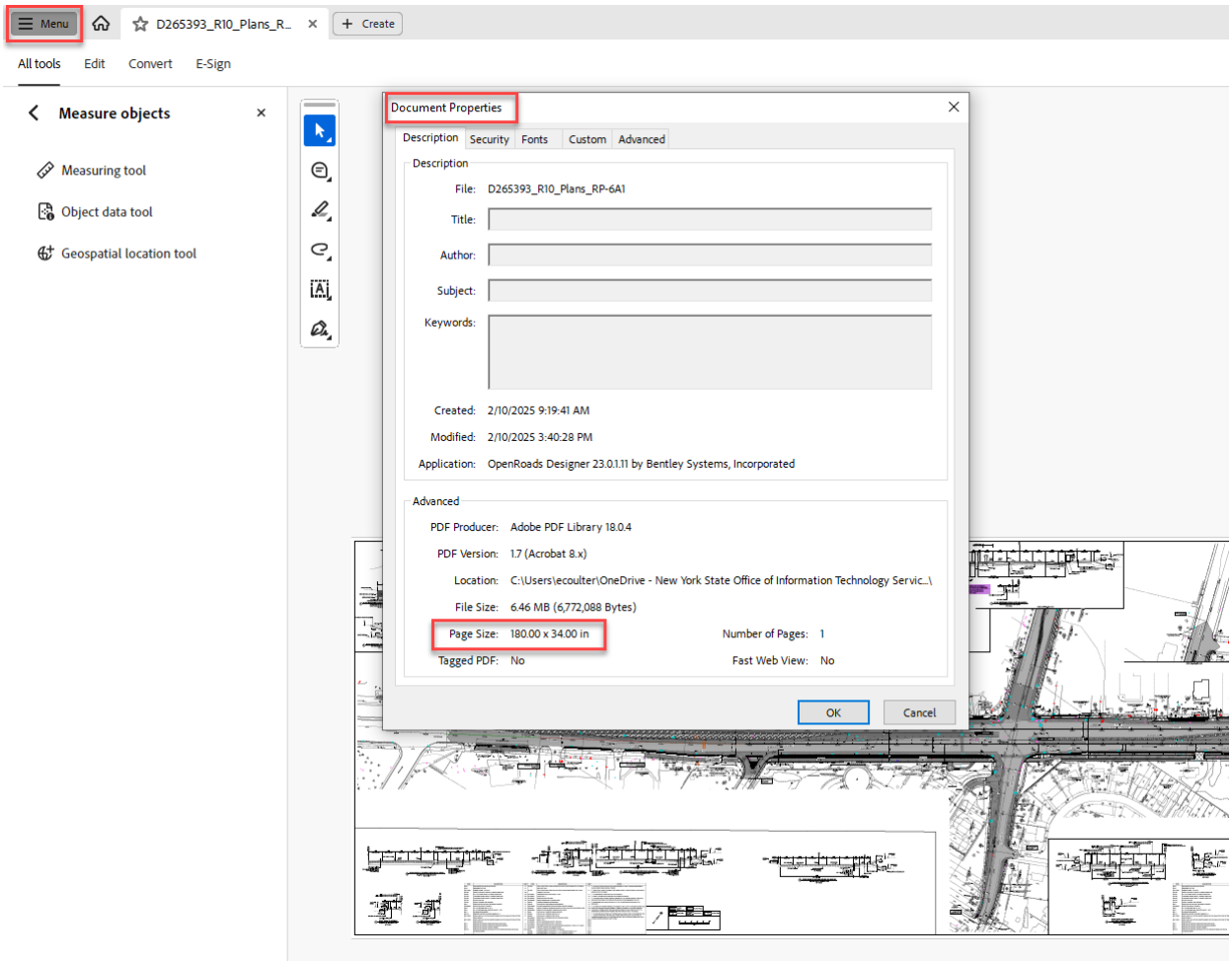


With the paper size fields enabled and print styles applied, verify the settings shown above. The paper size may require adjustment to the print area defined by the fence. In this example the print area was 180” x 34”. Since we set this width to a drawing scale of 40, this field should automatically be updated to the correct scale. If this lists something other than the drawing scale, something is incorrect. Make sure the “Area” is set to “Fence” and that the fence you placed is to the correct print area (i.e. outside line of sheet border).

Once all the print settings have been selected, click “Print to File” which will create the roll plan PDF. After the file has been created, open it in either Bluebeam or Adobe and verify the size of the roll plan is correct. This is easier to do within Bluebeam as it is visually displayed in the lower right-hand corner of the interface. Within Bluebeam you can also set the drawing scale which will allow users to measure within the application.




Within Adobe you will need to navigate to “Document Properties” under “Menu” to see the page size.

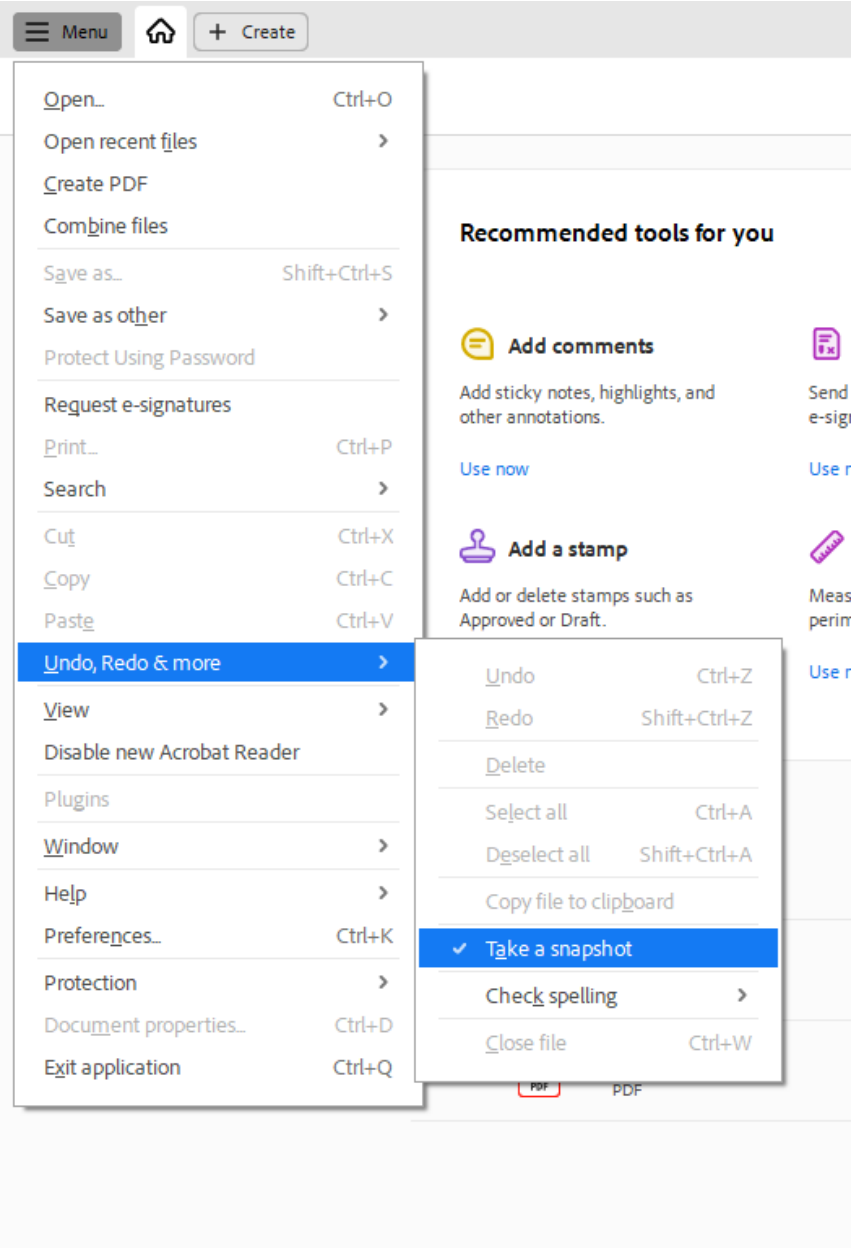



When printing from CAD, often there are a multitude of reference files, layers, levels, etc. that are processed into the PDF as “Layers”. This can affect the processing of the PDF within viewers and therefore it is recommended to flatten the roll plans before distributing to downstream users. Within Bluebeam, this command is found under “Document”. Adobe offers an online tool that will compress a PDF which can be found at: https://www.adobe.com/au/acrobat/online/compress-pdf.html

**Section 3 - Printing from PDF to Paper:** Roll plans are intended to be viewed digitally on a device such as a tablet or computer. It is impractical to carry around a long roll plan on the construction site or provide to an interested stakeholder. If a paper copy is needed, a smaller and more manageable paper size can be generated from the roll plan and at various scales. This can be achieved in both Adobe and Bluebeam applications. Note that this functionality may be limited to licensed versions of the software.

### 3.1 - Process for Adobe:

1) In Adobe select “Take a Snaphot” which is located under “Menu” → “Undo, Redo & More”. This will enable you to drag a box around the area you are interested in printing.




2) Navigate to “Print” and select your printer

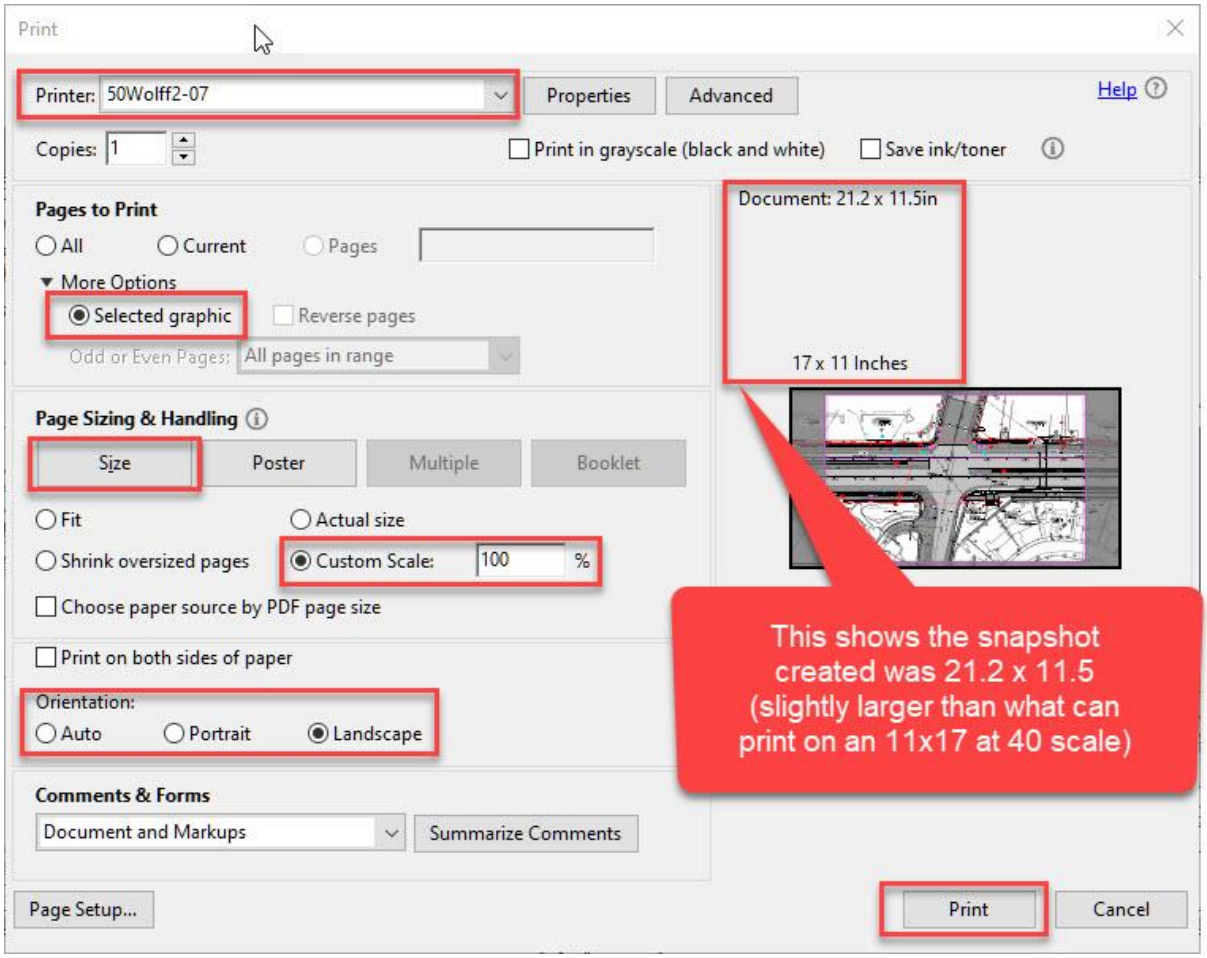
3) Select your desired paper size (8.5x11, 11x17, 22x34, etc.)

4) Verify “Selected Graphic” is enabled.

5) Enter your “Custom Scale” Choosing 100% will apply the original plotting scale. For this example, 40 scale was the original plot scale. Selecting 50% would therefore result in a print out at 80 scale.

6) Select the desired orientation and “Print”

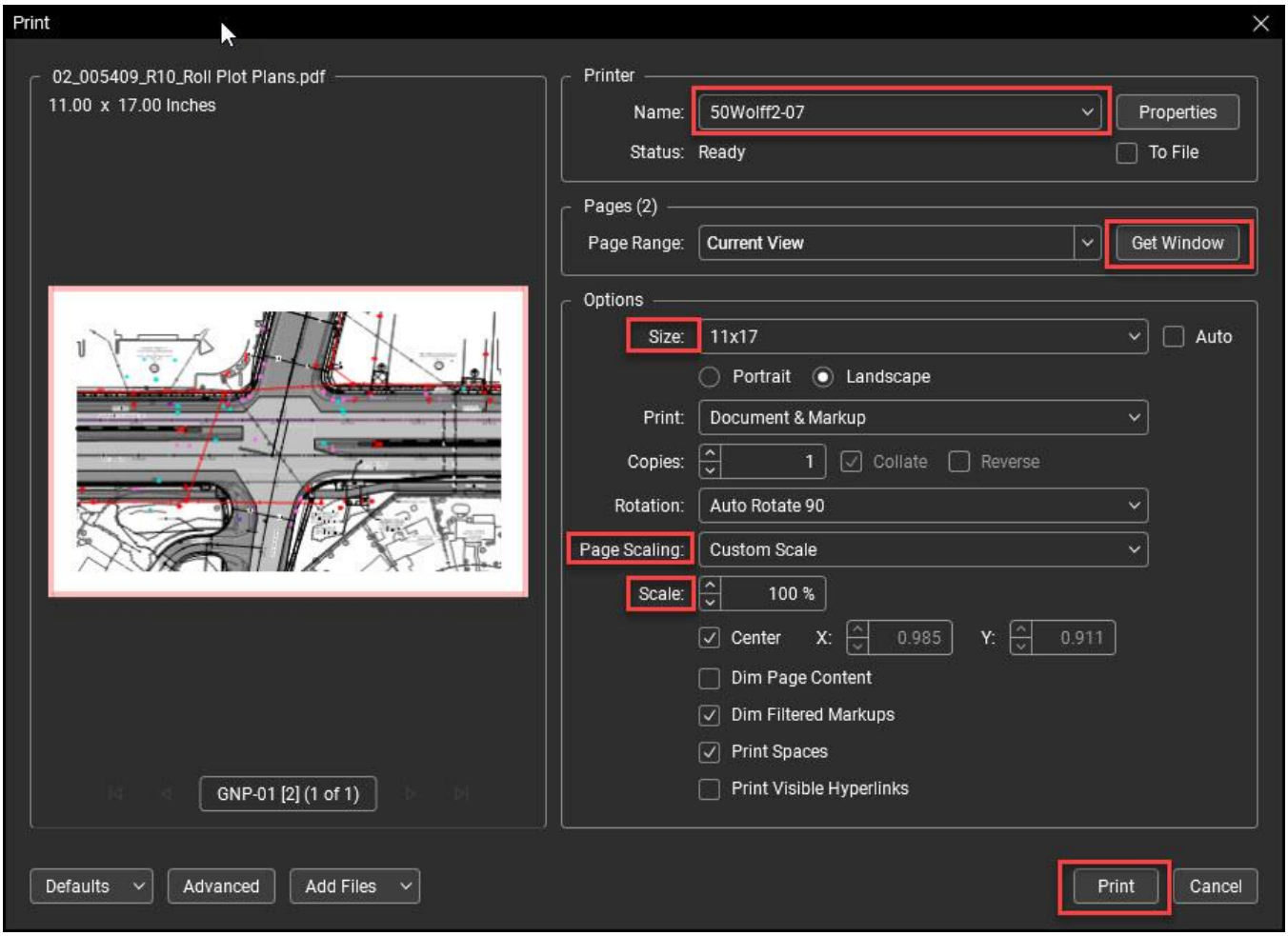
The following graphic illustrates the settings above.



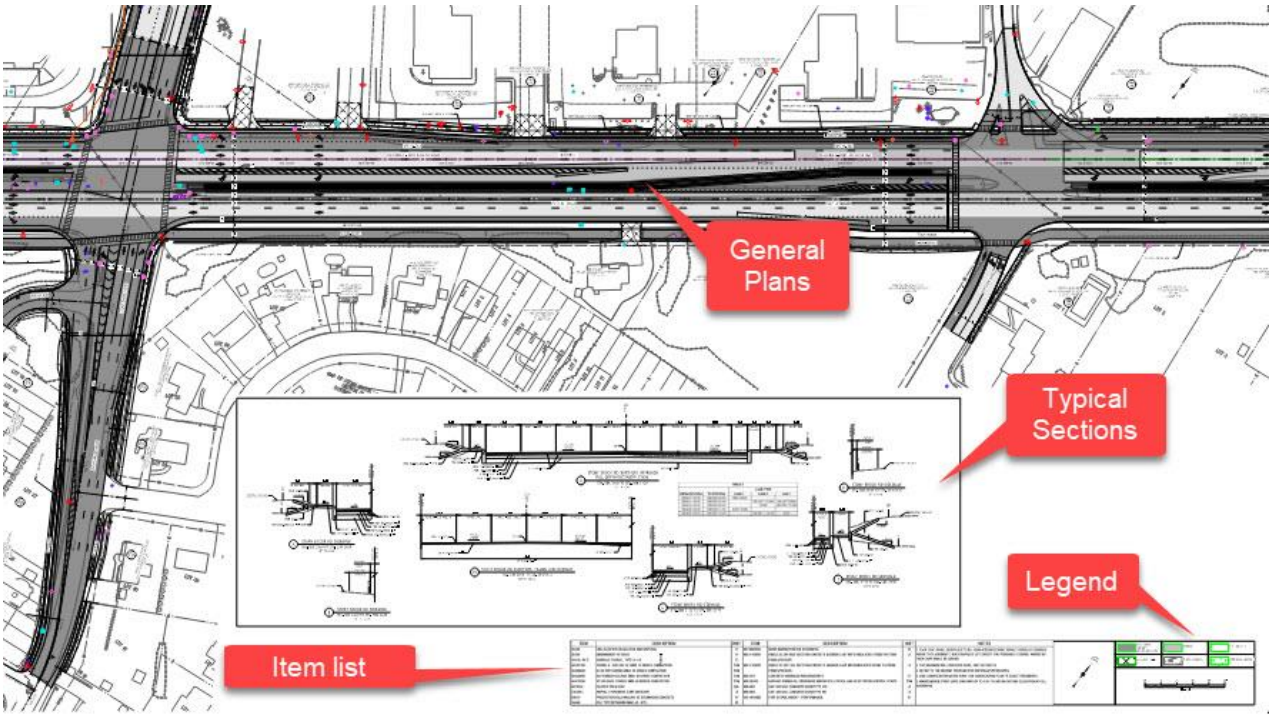

### 3.2 - Process for Bluebeam:

1) Navigate to “Print” and select your printer
2) Similar to Adobe, “Get Window” allows the user to drag a box around the region of interest.
3) Select your desired paper size (8.5x11, 11x17, 22x34, etc.) and orientation.
4) Select “Custom Scale” under “Page Scaling” and enter your desired scale. Choosing 100% will apply the original plotting scale. For this example, 40 scale was the original plot scale. Selecting 50% would therefore result in a print out at 80 scale.
5) Select “Print”

The following graphic illustrates the settings above.



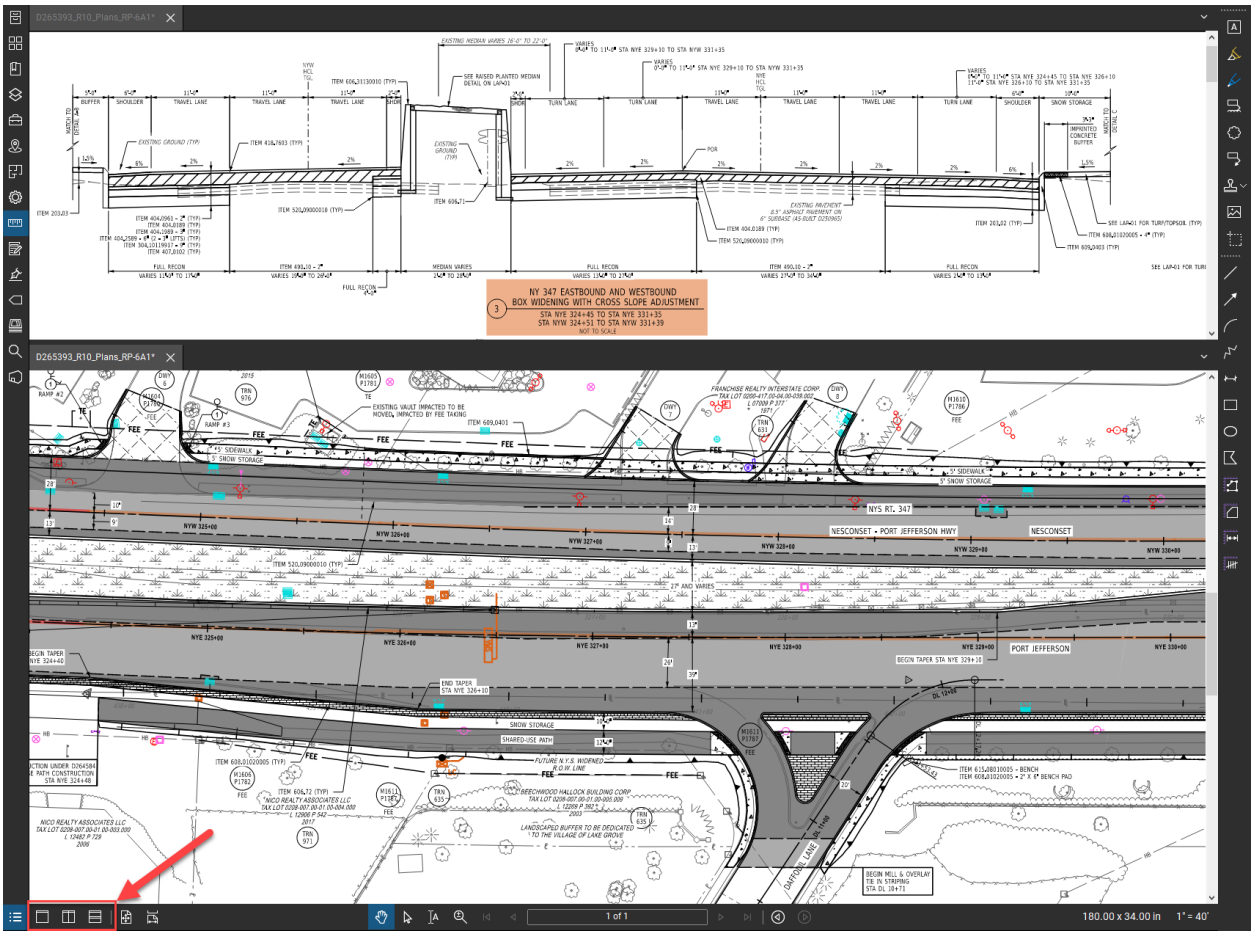

**Section 4 - Consolidating Essential Information:** Highway roll plans typically leave empty white space throughout the print area. These areas can be viewed as an opportunity to consolidate pertinent information that would typically be segregated on 11x17 drawings. A few examples are locating typical sections and miscellaneous details on the general plan roll plan, locating drainage table information on the drainage roll plan and sign text data sheets on a sign and striping roll plan. This consolidation of information further streamlines the 11x17 plan production and puts the essential information where you need it. A balance should be considered as too much information can be overwhelming and detract from the overall product. It is also recommended to discuss this with the project team on a project-by-project basis and agree upon the information to be included. `




Another aspect to consider when making use of the available white space is the repetition of certain information such as scale bars, legends, north arrows, etc. On longer roll plans having this information repeated strategically prevents having to navigate away from your current viewshed to find the information. The interval should ultimately be determined by the designer, however a good rule of thumb is every 3 feet of roll plan length.

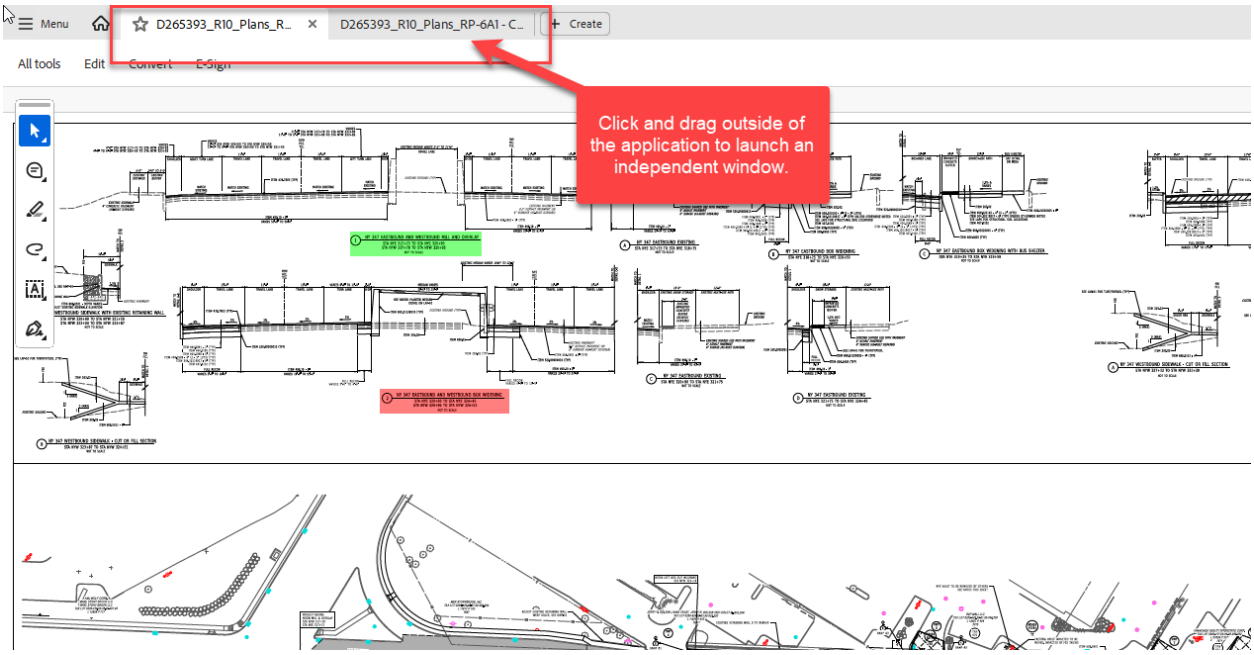
**Section 5 – Optimized Viewing:** When viewing roll plans digitally, there are a couple of ways to make the experience more efficient. Users can split their view either horizontally or vertically which enables independent view ports. This is extremely beneficial for digitally viewing plans along with details, tables, typical sections, etc. simultaneously.

**5.1 Process for Bluebeam:** The split screen function is located under "View" within the main ribbon, or a shortcut can be accessed in the lower left corner of the application. Both horizontal and vertical split options are available.

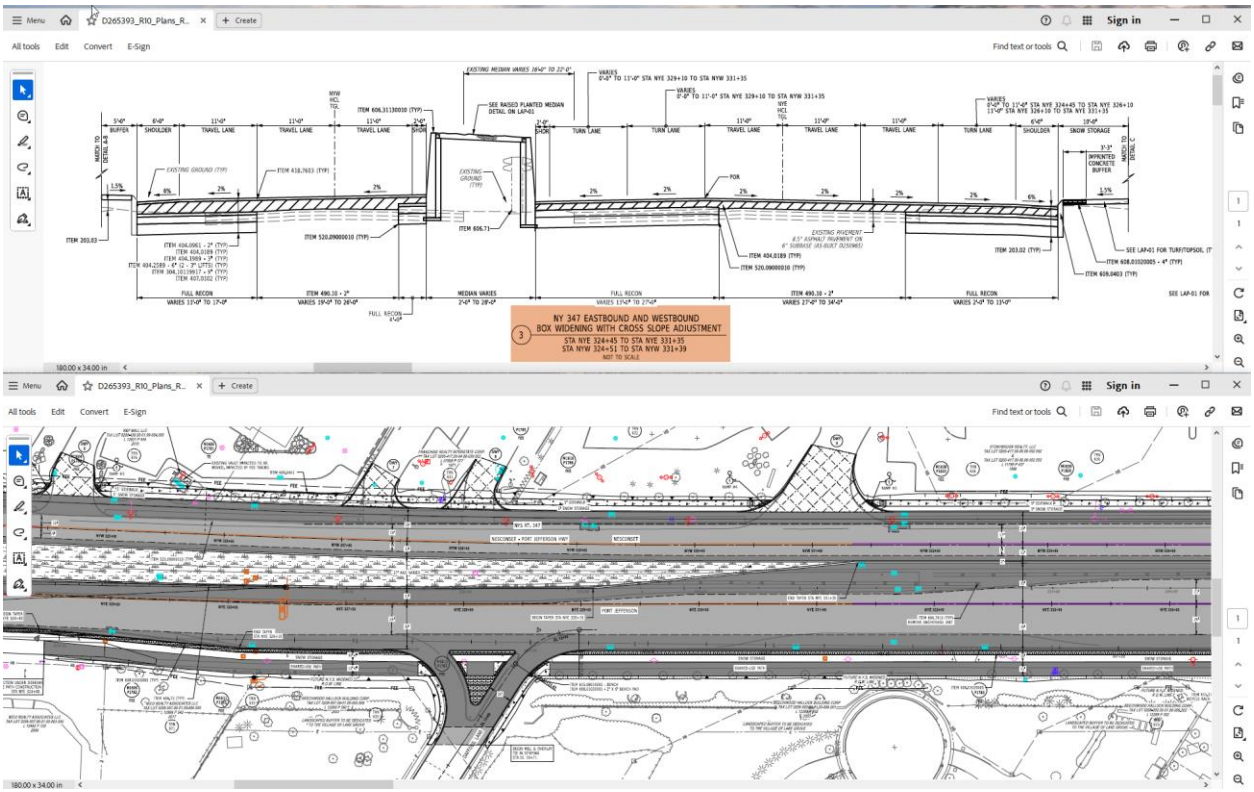



## 5.2 Process for Adobe:

While Adobe does not offer this functionality, a similar experience can be achieved with a little extra effort. First, you will need to make a copy of the file. Second, open both files. They will typically open within one application window as shown below. Simply click and drag one of the files outside the application area.

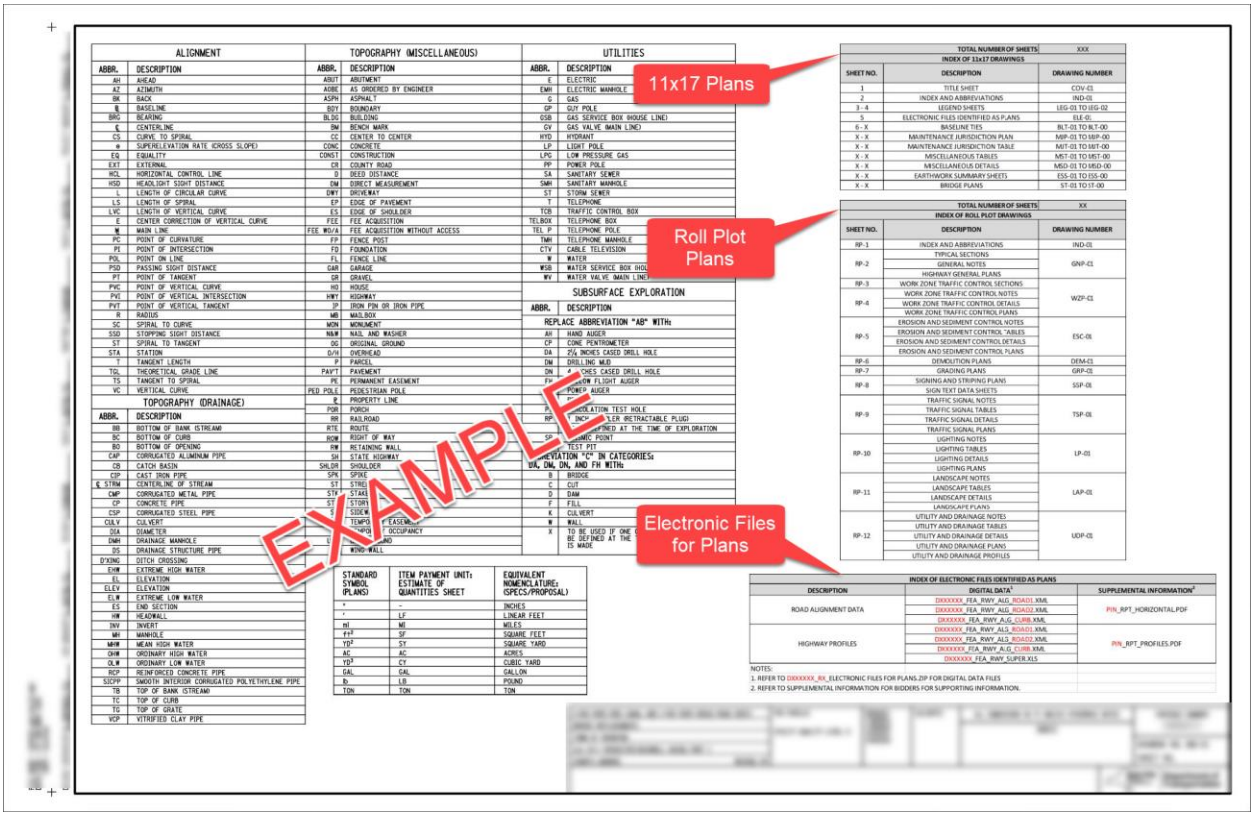



This will create two application windows. With some modifications to the window sizes a similar setup and experience can be achieved.



**Section 6 - Index of Drawings:** As mentioned previously, roll plans are simply a very large plan sheet. Roll plans are the contract plans along with the 11x17 drawings as well as any electronic files identified as plans. The index of drawings is provided for digital delivery projects via embedded attachment (1. Index of Drawings.xlsx) within the Digital Delivery Guidance Document. The index serves as crosswalk or roadmap to connect users with the traditional index of information from years past and the digital delivery methodologies of today. This also provides for a more consistent deliverable statewide.

The example graphic below depicts an index sheet with traditional 11x17 Plans, Roll Plans and Electronic Files for Plans developed using this guidance.

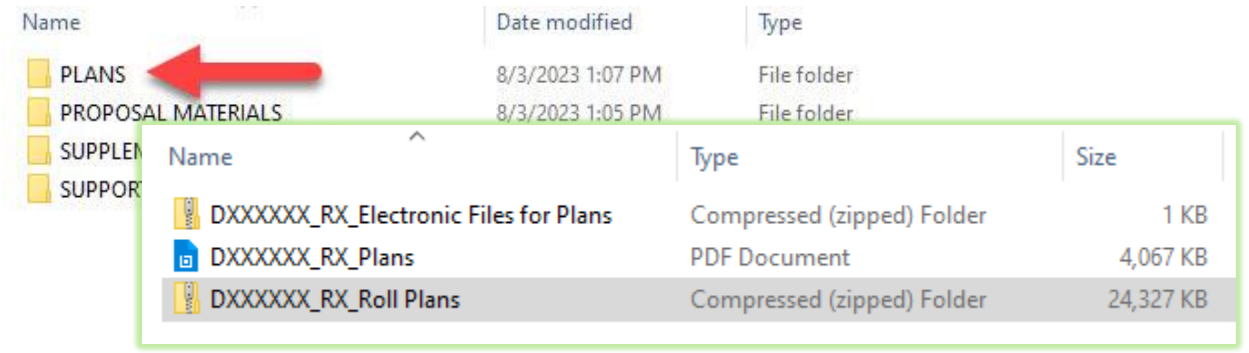



**Section 7 – Design Approval Documents:** When preparing design approval documents, Appendix A includes Maps, Plans, Profiles & Typical Sections. Roll plans should be included within Appendix A to scale. Do not force roll plans to an 11x17 paper size as the scale will be compressed and the plan will be illegible. To provide the optimal viewing experience, it is recommended to provide the roll plans as individual PDF's. This can be accomplished by creating subsections of Appendix A, such as A.1, A.2, A.3, etc. and depicting them in the table of Appendices as shown in the table below:

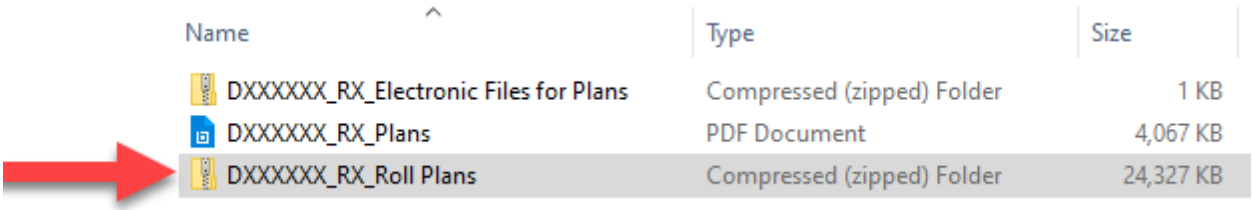
| Table of Appendices | |
|---|---|
| A. | Maps, Plans, Profiles & Typical Sections |
| A.1 | Roll Plan – General Plan |
| A.2 | Roll Plan - Profiles |
| B. | Environmental Information |
| C. | Traffic Information |
| D. | Pavement Information |
| E. | Structures Information |
| F. | Nonstandard Features Justification |
| G. | Public Involvement |
| H. | Right-of-Way Information |
| I. | Miscellaneous |
| J. | Other |

The recommendation is to keep the appendices separate from the body of the report to limit the file size and to provide the best viewing performance.

**Section 8 - PS&E Submittal:** Roll plans represent a portion of the contract plans. When submitting your PS&E for processing to the Design Quality Assurance Bureau, the **roll plans should be prepared as individual PDF's**. Previous guidance of consolidating all roll plans into one file has resulted in poor performance for downstream users. Limiting roll plans to one per file and consolidated into one zip folder has helped mitigate this issue. The roll plan zip folder should be submitted in the "Plans" folder. As is the case with all files posted to the contract website, file sizes need to be less than 90Mb to post to the contract website. Therefore, the roll plan zip folders will need to be split into volumes as necessary. The images below further illustrate this submittal.

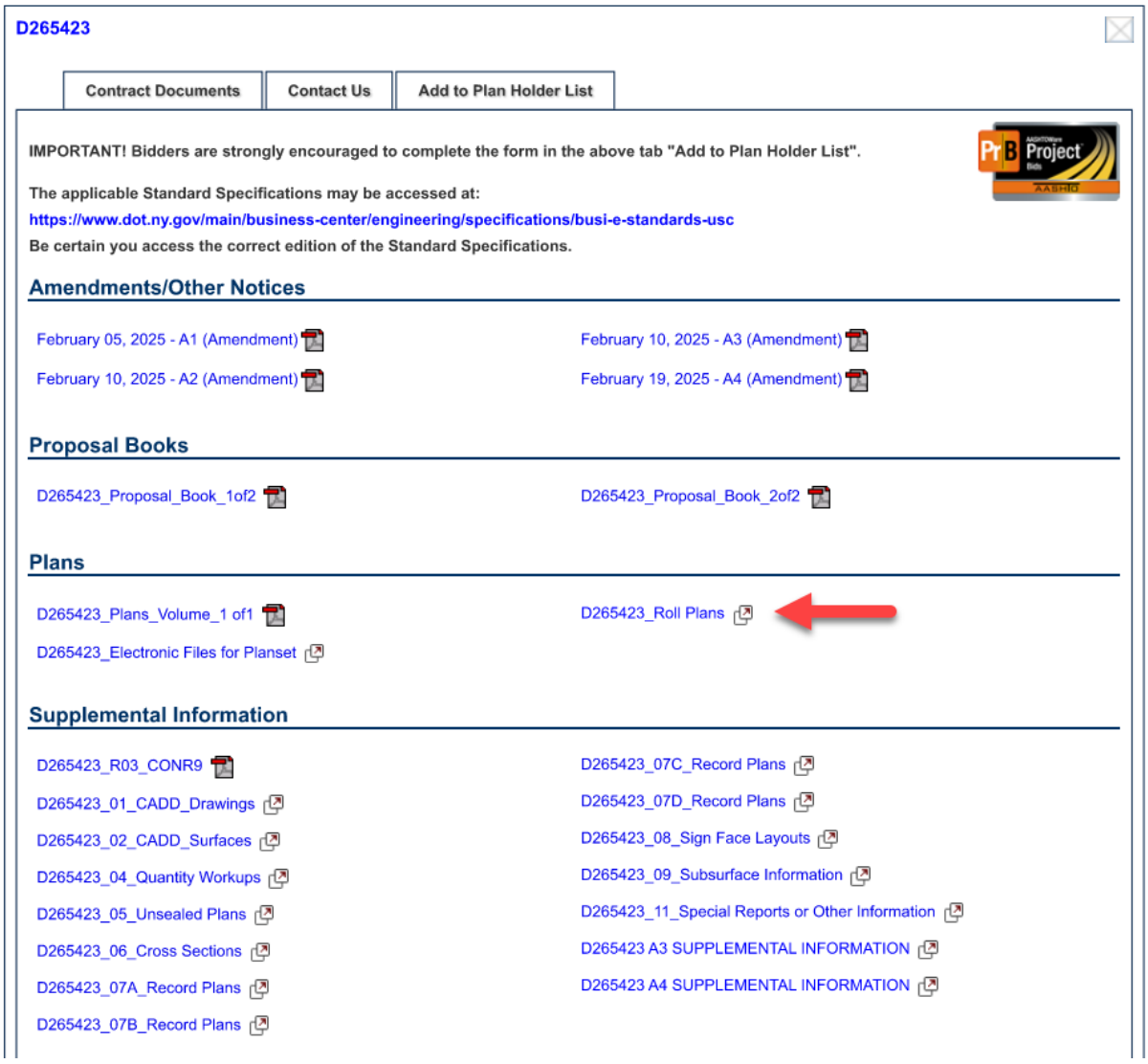



The recommended naming convention for the individual roll plan files is: **DXXXXXX_RX_sheet#_drawing#** Having the sheet number ahead of the drawing number allows for correct order in folder structures. Having the drawing number in the file name allows for easy identification of the roll plan.

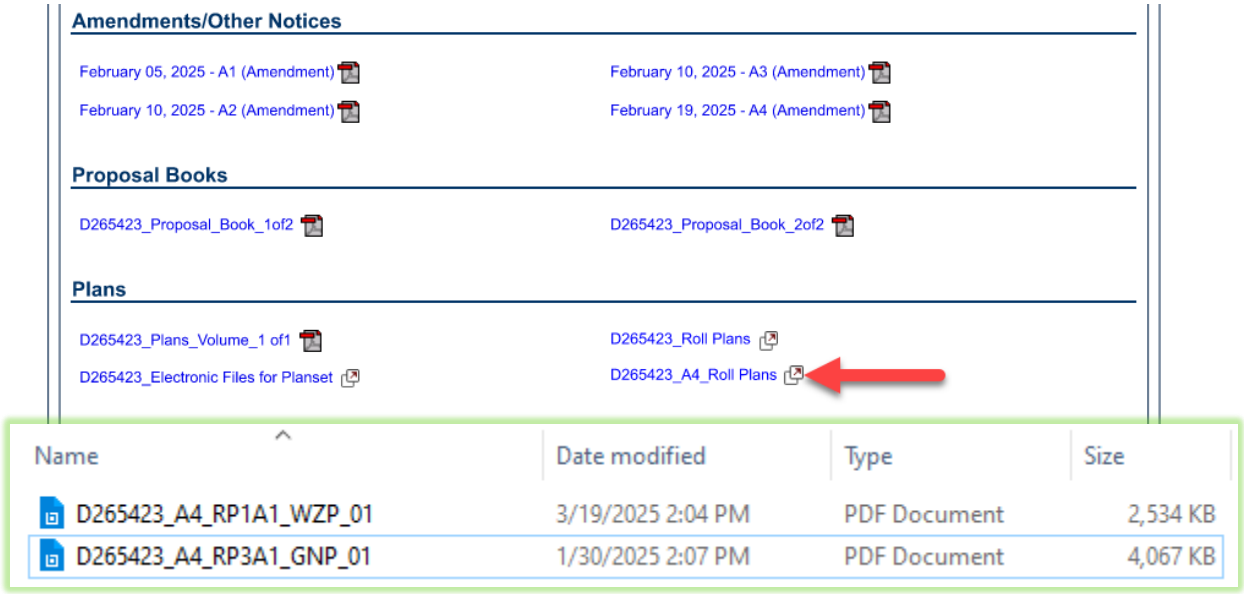


| Name | Date modified | Type | Size |
|---|---|---|---|
| DXXXXXX_RX_RP1_WZP_01 | 3/19/2025 2:04 PM | PDF Document | 2,534 KB |
| DXXXXXX_RX_RP2_ESC_01 | 3/19/2025 2:03 PM | PDF Document | 8,134 KB |
| DXXXXXX_RX_RP3_GNP_01 | 1/30/2025 2:07 PM | PDF Document | 4,067 KB |
| DXXXXXX_RX_RP4_SGP_01 | 1/30/2025 2:07 PM | PDF Document | 4,067 KB |
| DXXXXXX_RX_RP5_UDP_01 | 3/19/2025 2:04 PM | PDF Document | 5,170 KB |
| DXXXXXX_RX_RP6_LAP_01 | 3/19/2025 2:03 PM | PDF Document | 12,196 KB |

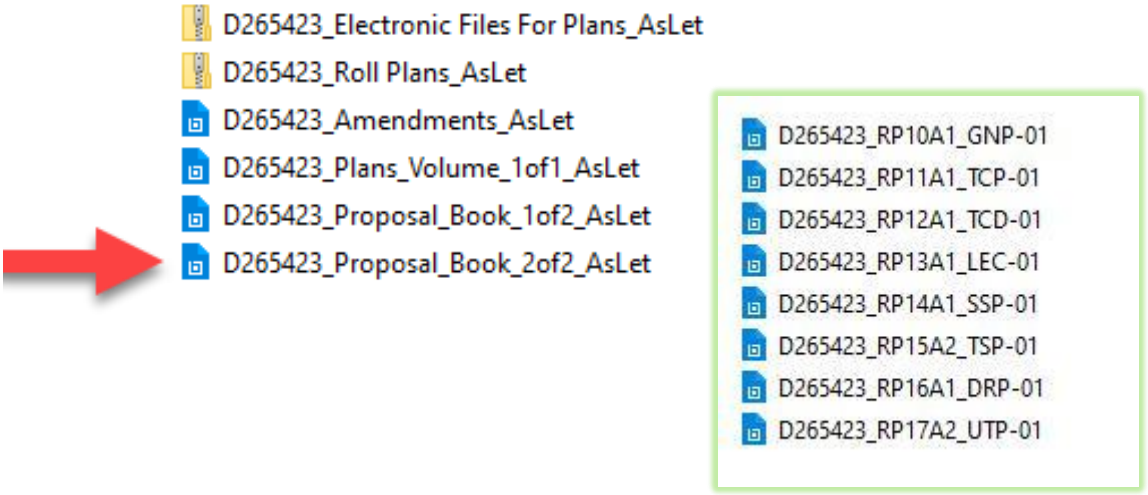
**Section 9 – Contract Website:** Roll plans are to be posted on the project website under the "Plans" section. As shown in the example below, **the roll plans are posted as a zip folder**. When selected, the zip file is downloaded directly to the user's device and prevents the PDF from launching in the web browser. This also allows the user to see all the roll plans included on the project within the folder.



**Section 10 – Amendments:** Project amendments should follow the same procedures as for 11x17 plan drawings. Refer to the Highway Design Manual Ch 21 section 21.10 for additional information. When supplying amended roll plans for your project, a zip folder containing only the amended roll plans should be provided and be named **DXXXXXX_amendment#_Roll Plans.zip**. The recommended naming convention for each roll plan contained within the zip folder is **DXXXXXX_amendment#_sheet#A#_drawing#.pdf** where **A#** represents the version of the sheet. See example below.




**Section 11 – As Let Documents:** During the advertisement phase, there is a potential for several roll plan zip folders to be issued by amendment. Following the letting and in accordance with Department procedures, the record retention folder on ProjectWise shall be populated with the As Let documents. The roll plan zip folders should be consolidated and named **DXXXXXX_Roll Plans_AsLet.zip**. Within the zip folder, the roll plans should be named **DXXXXXX_ sheet#A#_drawing#.pdf** as illustrated below.



**Embedded Documents:** The following sample roll plans are attached to this PDF.

| File Name | Description |
|---|---|
| D265393_A2_RP6A1_GNP01 | Example General Roll Plan (Amendment No.2 Rev.1) |
| D265393_A3_RP7A2_LAP01 | Example Landscape Roll Plan (Amendment No.3 Rev.2) |
| D265423_A4_RP17A2_UTP01 | Example Utility Roll Plan (Amendment No.4 Rev. 2) |

*Instructions for accessing embedded files within this document using **Adobe Acrobat**:*

1) Click “View”

2) Select “Show/Hide”

3) Select “Navigation Panes”

4) Click on “Attachment”

5) Select the paper clip icon on the left.

6) Select the document of interest.

7) User can open or save document(s).

*Instructions for accessing embedded files within this document using **Bluebeam**:*

1) Select “Properties” icon from the left toolbar 

2) Select document of interest

3) Users can open or save document(s).