Bridge Maintenance Office
ProjectWise

Bridge File Policy

EDITION & REVISIONS PAGE

The purpose of this Policy Document and the **Folder Structure and Wizard Companion** is to provide guidance and direction with regards to the document storage of bridge related files on ProjectWise. Any modifications to this Policy Document require approval of the South Carolina Department of Transportation (SCDOT) Bridge Maintenance Office (BMO). This Policy Document and the **Folder Structure and Wizard Companion** will be reviewed and updated as needed by the Assistant State Bridge Maintenance Engineer (ASBME) or designated representative. However, SCDOT reserves the right to make interim updates to the procedures to address lessons learned, evolving approaches, updates to federal, state, and local laws, regulations, and policies.

Release Date	Version	Sections Revised
March 2023	1.0	Initial Release

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ACRONYMS, DEFINITIONS, & RELEVANT DOCUMENTS

The following abbreviations and definitions are used within this document:

AASHTO - American Association of State Highway and Transportation Officials

BFP - Bridge File Policy (This document)

BIGD - SCDOT *Bridge Inspection Guidance Document*

BMO - SCDOT Bridge Maintenance Office

Bridge File - Refers to the SCDOT ProjectWise storage system holding all files. This includes the "Bridge Data" and "Bridge Quality Records" subfolders.

CSB - Critical Security Bridges

ED - Engineering Directive

FHWA - Federal Highway Administration

LRGD - SCDOT *Load Rating Guidance Document*

LRSF - Load Rating Summary Form

NBIS - National Bridge Inspection Standards

QA - Quality Assurance

QC - Quality Control

SCDOT - South Carolina Department of Transportation

1 Introduction

1   INTRODUCTION

This document outlines the method of organizing and maintaining all data files pertaining to the individual bridge assets managed by the South Carolina Department of Transportation (SCDOT) as dictated by Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials (AASHTO) guidelines. Files may be sourced from Project Deliverables, Load Ratings, Inspections, Maintenance, Rehabilitation, Widenings, etc.

SCDOT utilizes Bentley's ProjectWise system for housing and organizing all project related documents, including but not limited to MicroStation design files, Geopak files, all Microsoft Office documents, Adobe PDFs, text files, images, etc. Users can store any document type within ProjectWise and configure ProjectWise to launch a specific application for each document type. The expected file types, file naming conventions, and general organizational folder structures are outlined in this document as they relate to any and all bridge records to be maintained by the SCDOT.

The SCDOT ProjectWise system is hereafter referred to as the "Bridge File" and includes the ProjectWise folders "Bridge Data" and "Bridge Quality Records."

1.1   Objective and Purpose

This document serves as a guide and reference for Users in the SCDOT Headquarters, SCDOT Districts, and contracted Consultants working with the SCDOT. The organizational file structure of all data pertaining to bridges in the SCDOT inventory should adhere to the policies outlined in this document. The folder structure is meant to serve as an intuitive means of accessing any data required for routine inspections, load ratings, maintenance, rehabilitation, etc.

1.2   Associated Guidance Documents

This Policy should be used with the ***Folder Structure and Wizard Companion*** Excel file. The companion document provides a condensed breakdown of the folder structure and wizard screen inputs for Users to reference when uploading files to the Bridge File. This file can be found on the SCDOT Bridge Maintenance Office website: (https://www.scdot.org/business/bridge-maintenance.aspx)

The documents below should be referenced for guidance regarding the types, descriptions, and use of files.

> *SCDOT Bridge Design Manual/Structural Design Manual*
> *SCDOT Bridge Inspection Guidance Document (BIGD)*
> *SCDOT Load Rating Guidance Document (LRGD)*

1.3   Mandates and Compliance

The Bridge File Policy (BFP) as outlined in this document adheres to the guidelines and requirements as described by the FHWA, AASHTO, and SCDOT policies.

1.3.1 FHWA

The FHWA addresses a series of guidelines and directions in the *Metrics for the Oversight of the National Bridge Inspection Program* publication. This document addresses the storage of items from Metric #15 and Metric #20 of the publication.

Metric #15 outlines the following as a "list of *applicable significant bridge file components*":

- Inspection reports
- Waterway information
- Special inspection procedures or requirements
- Load rating documentation, including load testing results
- Posting documentation
- Critical findings and actions taken
- Scour assessment
- Scour Plan of Action (POA)
- Inventory and evaluation data and collection/verification forms
- Significant correspondence

Metric #20 refers to the procedures that handle quality control and quality assurance for the inspection program. Specifically, two criteria are outlined for the metric, directly quoted as:

- Systematic quality control (QC) and quality assurance (QA) procedures are used to maintain a high degree of accuracy and consistency in the inspection program.
- QC/QA procedures include periodic field review of inspection teams, periodic refresher training requirements, and independent review of inspection reports and computations.

The purpose of the Bridge File is to have a dedicated location for ease of use, recording, and reference of the files such as those described in Metric #15 and #20 of the FHWA guidance.

1.3.2 AASHTO

AASHTO's *Manual for Bridge Evaluation* outlines the purpose and type of data that makes up a bridge file. The intent of a bridge file is to provide "a cumulative history of the structure that is useful to review prior to conducting a bridge inspection, rating, or evaluation." The expected types of documents that should be included in a bridge file are described in the **Folder Structure and Wizard Companion** and Section 4 of this document.

1.3.3 SCDOT

The SCDOT Bridge Maintenance Office (BMO) is responsible for the upkeep of the bridge records of SCDOT owned bridges. The BMO is responsible for the complete bridge records, which will be electronic, for the life of the structure. For guidance on electronic file retention requirements, see Section 6.

1.3.3.1 Critical Security Bridges (CSB)

As directed by Engineering Directive (ED) 18, the Bridge Maintenance Office is required to maintain the list of Critical Security Bridges (CSB). Bridges which appear on the CSB list are

considered to be security sensitive or vulnerable. ED-18 provides direction for the release of bridge plans and bridge information for persons outside of SCDOT, persons inside SCDOT and persons under contract with SCDOT. Users that require access to bridges on the CSB list should reference and follow the procedures for access dictated by ED-18. Once access is approved, SCDOT BMO staff will designate the appropriate access on ProjectWise.

ED-18 can be found online at:

http://info2.scdot.org/ED/Pages/engineering_directives.aspx

2 Access Groups

2   ACCESS GROUPS

Each folder in the ProjectWise Bridge File is customized with security levels corresponding to the appropriate Access Group for which the User is assigned. As a result, some folders discussed in the BFP will not be visible nor accessible to everyone. Each Access Group is given a predetermined set of read and/or write privileges to that folder, subfolder, and/or documents.

To ensure all SCDOT Users have the correct access, it is the responsibility of the SCDOT managing department, office, unit, supervisors, or Users to notify SCDOT IT's PW Administration of the changes needed. Examples of access changes needed may include if a User moves positions, receives a promotion, transfers, retires, etc.

A SCDOT HelpDesk ticket may also be submitted to notify of SCDOT User access changes. Refer to Section 8 for the appropriate contacts.

The following sections describe common levels of Bridge File access for Users at the SCDOT, Consultants, FHWA, and Outside Persons.

2.1   SCDOT Level

Administrative staff in the Director of Maintenance Office including the Bridge Maintenance Office and applicable District Maintenance staff will have read and write access to all system folders.

Staff not listed above (BMO and select District staff) will only have read access.

Once general SCDOT ProjectWise access has been provided, contact via email the BMO to have your credentials added to the appropriate Access Group:

- BMO@scdot.org

2.1.1   SCDOT District Level

Users at the District Level may require access to read and/or write data to the Bridge File system. Users at the District level should confirm their ProjectWise access first. Users should contact staff in the BMO for the process to receive access to files on the Bridge File.

2.2   FHWA

FHWA partner staff will have read/write access.

2.3   Consultants

Consultants contracted with the BMO may require access to multiple levels of the folder structure as a result of new and ongoing contracts with the SCDOT. Additional information for Consultant access is provided in Section 8 of this document.

2.4   Outside Persons

SCDOT Engineering Directive 18 describes the procedure for outside persons to request bridge plans or bridge information.

3 Document Attributes and Upload

3 DOCUMENT ATTRIBUTES AND UPLOAD

Documents uploaded to the Bridge File must have specific attributes assigned for ease of identification. Several of these attributes are assigned automatically if the User utilizes the ProjectWise Wizard system or manually when uploading via the Projects Online System. Users should make every effort to correctly assign the applicable attributes noted in Section 3.1. Additionally, Users should refer to the *Folder Structure and Wizard Companion* for guidance on attribute assignments.

The following sections describe key document attributes and the processes for uploading files via the ProjectWise Wizard system and via the Projects Online System.

3.1 Key Document Attributes

The following list outlines key attributes which are fundamental to using the Bridge File and should **always** be assigned using a wizard.

Document File Naming Convention
The Document File Name is automatically generated from the assigned Document attributes. The File Name should **not** be altered in any way. The Document File Name is composed from five attributes described below for the Bridge Data and Bridge Quality Records folders:

- Bridge Data: Asset ID-Document Type-Freeform-Document Date-Serial No.
- Bridge Quality Records: District-Document Type-Freeform-Document Date-Serial No.

Asset ID
For the Bridge Data folder, all structures are identified according to their Asset ID. This attribute is embedded in each folder and cannot be modified.

District
For the Bridge Quality Records folder, files are identified according to the assigned District. Documents that refer to statewide activities should have a two-character numeric input ("00" through "09") for the District attribute. Documents that refer to Consultant activities should have a numeric input of nine for the District attribute.

Document Type
The Document Type attribute identifies the most common documents uploaded to the Bridge File. They are short descriptions of documents and are standardized for consistency throughout the Bridge File. These should not be altered in any way. A drop-down list is always shown based on the folder where a file is uploaded. The User may select only from the list shown. Refer to the *Folder Structure and Wizard Companion* for a list of the drop-down options in each folder. Additional guidance for certain Document Types in the Bridge Data folder can be found in Section 4.1.1.

The Document Types are fundamental to the organization for files in the Bridge File. They are meant to be clear and consistent, regardless of District, County, or Asset ID. Users should make every effort to correctly assign Document Types to their files. Should there be a file with an unclear Document Type classification, refer to Section 8 for contacts that can assist.

Freeform

A Freeform attribute is manually assigned and is intended to serve as an additional short, intuitive, and judicious descriptor for files, when appropriate. It is not always required and should only be used when it will add value to intuitively identifying a Document via the attributes. Refer to the ***Folder Structure and Wizard Companion*** for common examples of Freeforms. Additional guidance for certain Document Types in the Bridge Data folder can be found in Section 4.1.1.

Document Date

In the case of the Bridge Data folder, the Document Date attribute catalogs a document to a point in time over the life of the structure. The Document Date should be assigned such that it accurately identifies when an event took place or was finalized. For example, Inspection Reports categorized by the National Bridge Inspection Standards (NBIS) Data are easily identified by a NBIS data field; therefore, the Document Date should match the Month and Year noted in the data field. In other cases, such as with As-Let plan sets, these are not considered finalized until stamped and released; therefore, the Document Date should match the date on the plan set that identifies the last date in the process of approval with preference given to the signed and sealed date.

> **Special Cases: Packaged Uploads**
>
> In some cases, multiple documents are linked to one activity in the life of a structure such as a Load Rating activity. Specifically, documents associated with a Load Rating activity may include a Load Rating Summary Form (LRSF) Excel and PDF file, a rating program file, and a QC Checklist document, at a minimum. When files related to a new Load Rating event are uploaded, the Document Date should be assigned as the Signed and Sealed date of the LRSF for all the files tied to the event.

For Documents in the Bridge Quality Program subfolders, the Document Date attribute catalogs the date of occurrence for quality processes. These may include monthly or quarterly files which are uploaded as part of inspection or load rating activities.

Serial No.

A Serial Number is a document identifier that increases when multiple documents exist with the same Asset ID or District, Document Type, Freeform, and Document Date attribute assignments. It is a generated number using the Wizards and should not be modified.

> **Incremental Serial Numbers for PDF files**
>
> In order to facilitate review of documents in the Bridge File, when Users must upload documents of the same Asset ID or District, Document Type, Freeform, and Document Date attributes, the following order of upload should be followed:
>
> Example: Document with a companion PDF such as a Document Type of "LR_SuppCalcs - (Supplemental Calculations)"
>
> > Upload order:
> > 1. File 1 (Mathcad, Excel, or other non-pdf copy)
> >   a. Example File Name: 1001-LR_SuppCalcs-2020-01-01-001.xlsx
> > 2. PDF of File 1
> >   a. Example File Name: 1001-LR_SuppCalcs-2020-01-01-002.pdf
> > 3. File 2 (Second Mathcad, Excel, or other non-pdf copy)

        a.   Example File Name: 1001-LR_SuppCalcs-2020-01-01-003.xmcd

   4.   PDF of File 2

        a.   Example File Name: 1001-LR_SuppCalcs-2020-01-01-004.pdf

3.2   Uploading Documents via the ProjectWise Application

The ProjectWise Application file upload process is designed to be intuitive and automated in most cases. This section discusses the general process of uploading a file into a ProjectWise folder. For the import tool to function properly, there are a series of recommended ProjectWise Advanced Wizard settings that will facilitate and automate the upload process. The following sections will discuss each step.
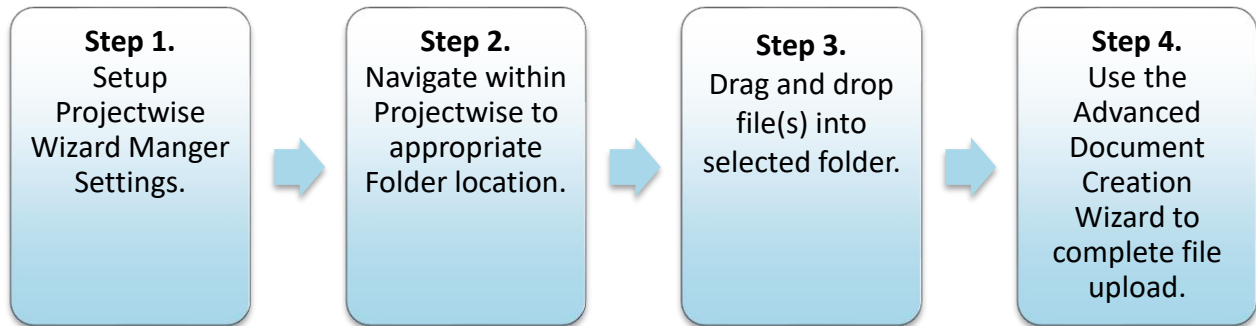
Step 1. Setup Projectwise Wizard Manger Settings.	**Step 2.** Navigate within Projectwise to appropriate Folder location.	**Step 3.** Drag and drop file(s) into selected folder.	**Step 4.** Use the Advanced Document Creation Wizard to complete file upload.

Figure 3.1. Steps for uploading documents via the ProjectWise Application.

Note: Step 4 outlines the use of Wizard Screens which may be reversed depending on the ProjectWise Version installed. Users should review all instructions first in order to prevent missing data in uploads.

3.2.1   ProjectWise Wizard Manager Recommended Settings

The following settings are recommended for a User to efficiently access the Wizards that will assign and auto-populate most Document attributes.

> **Step 1A (Figure 3.2)**
>
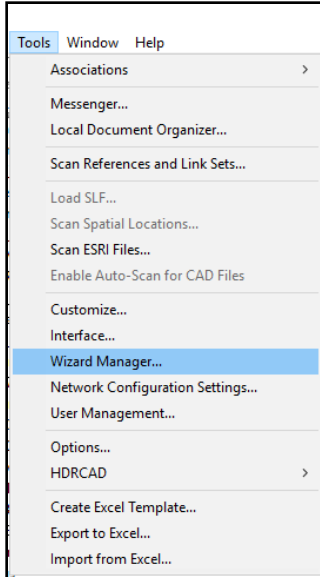> Access the Wizard manager by navigating to the ProjectWise Tools > Wizard Manager.

Figure 3.2. Navigation of Tools > Wizard Manager for recommended Wizard.

Step 1B (Figure 3.3)

In the Wizard Manger:
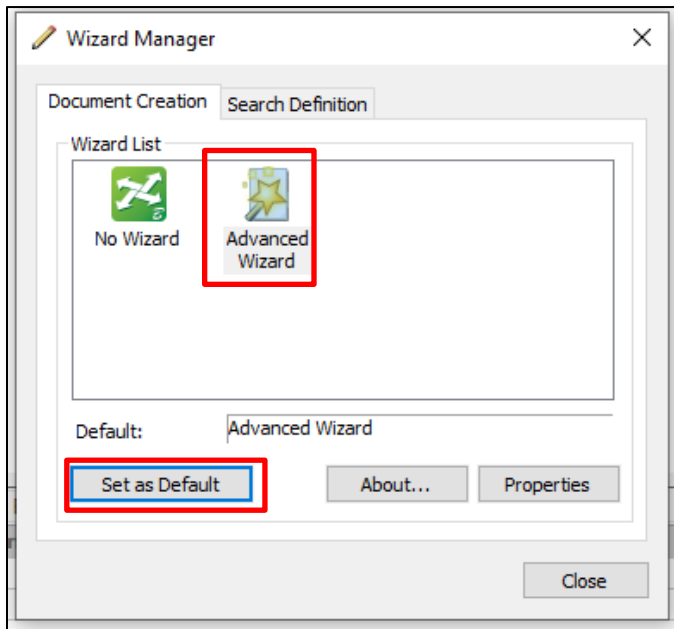1. Select the Advanced Wizard icon
2. Select the "Set as Default" button

Figure 3.3. Wizard Manager Window. Select the "Advanced Wizard" button followed by the "Set as Default" button for Step 1B.2.

Step 1C (Figure 3.4)

Navigate to the Advanced Wizard Properties.
1. Select the Advanced Wizard icon
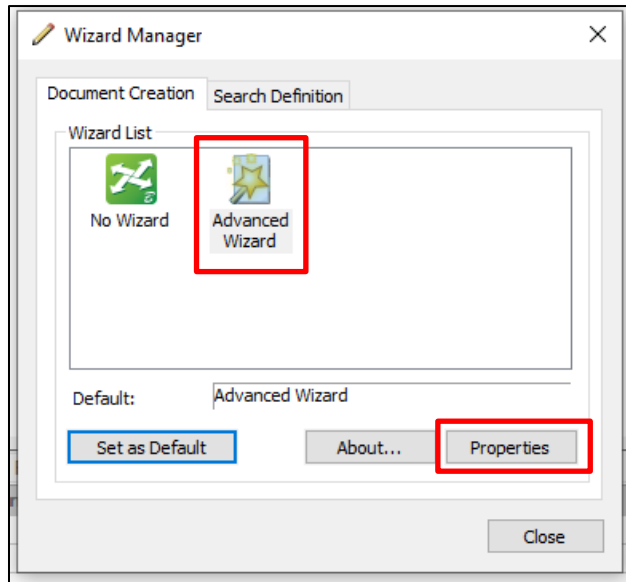2. Select the "Properties" button. This will open Figure 3.5.

Figure 3.4. Wizard Manager Window. For Step 1C.a select the "Advanced Wizard" button followed by the "Properties" button.

Step 1D

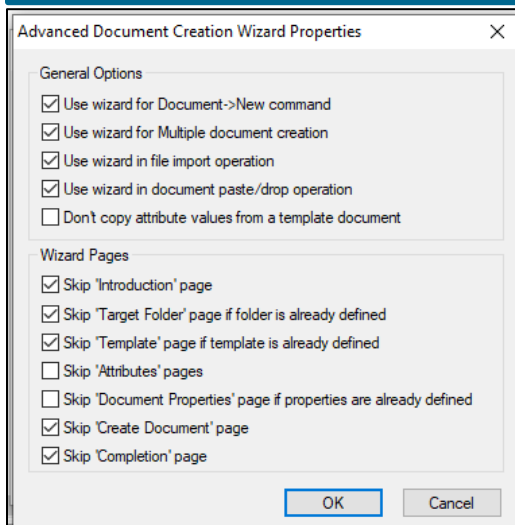In the Advanced Document Creation Wizard Properties select the settings as shown in Figure 3.5.

Figure 3.5. Recommended option selection for Advanced Document Creation Wizard Properties.

3.2.2 ProjectWise Folders and File Upload

The following steps outline how files are uploaded to the ProjectWise system.

> **Step 2 & Step 3**
>
> Navigate to the appropriate folder and drag and drop files into the folder as shown in Figure 3.6. Refer to Section 4 for details on the Bridge File folder structure.
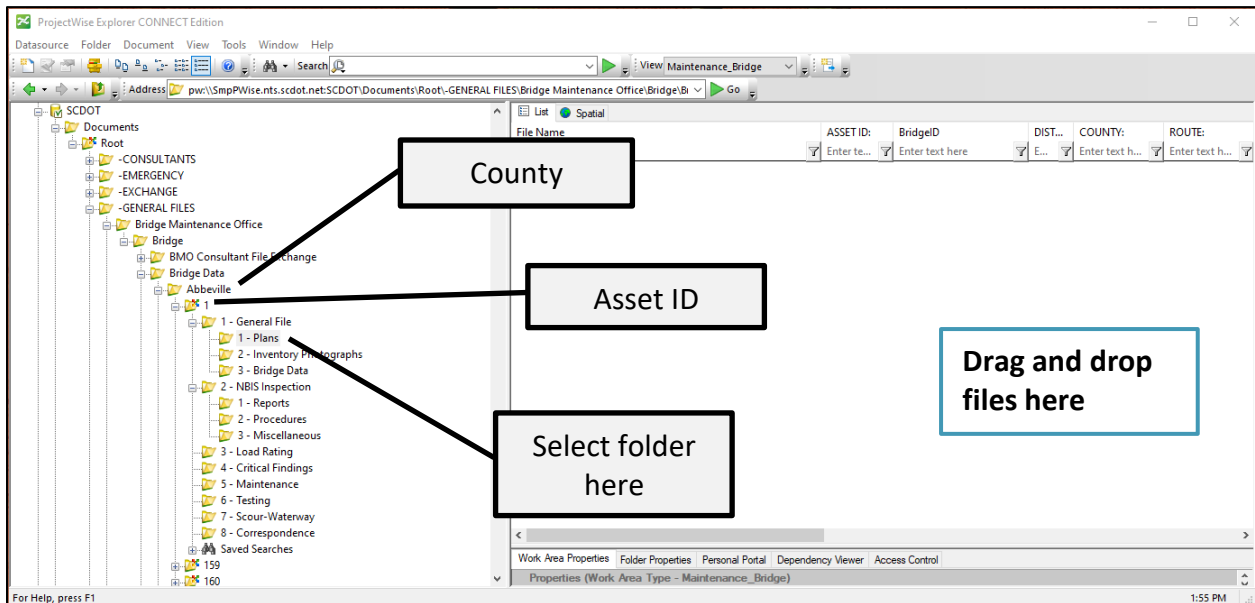

Figure 3.6. Screen capture of ProjectWise window.

3.2.3 Bridge Data: Advanced Document Creation Wizard

The following section details Step 4 which utilizes the Advanced Document Creation Wizard for the Bridge Data Folder. For Step 4 details on Bridge Quality Records, see Section 3.2.4. The Wizard has three screens, shown in Figure 3.7, Figure 3.9, and Figure 3.10.

When a file is uploaded to ProjectWise, the Wizard Screen shown in Figure 3.7 will appear. If the screen is not shown, refer to Section 5.1 for possible solutions.

> **Step 4A (Wizard Screen 1)**
>
> Refer to Figure 3.7. The User should **review** each field and perform the following steps:
>
> 1. Select a "Document Type" from the drop-down menu.
> 2. Input any "Freeform" text, as needed.
> 3. Confirm the "Document Date" and update, as needed.
> 4. Select the "Generate" button to generate the correct sequence number.
> 5. Select the "Next" button.

Figure 3.7. Bridge Data Wizard Screen 1.

The following attributes are shown on the Wizard screen. Some fields allow User input, and some do not. The fields are described as follows:

- **Asset ID**: Auto-populated. Editing is not permitted.
- **Document Type**: Refer to Section 3.1 for additional guidance. A drop-down list is shown based on the folder where a file is uploaded.
- **Freeform (20)**: Refer to Section 3.1 for additional guidance. There is a 20-character alphanumeric limit for this field.
- **Document Date**: Refer to Section 3.1 for additional guidance.
- **Serial Number**: Refer to Section 3.1 for guidance.
- **"Generate" Button**: The User should **always** select "Generate" in order to confirm the correct number in the sequence of files. A popup window shown in Figure 3.8 will ask for confirmation. Select "Yes".
- **Upload Date**: Auto-populated. Editing is not permitted. This date reflects the date and time of the file upload.
- **Type**: Auto-populated. Editing is not permitted.
- **Sub Type**: Auto-populated. Editing is not permitted.
- **File Name field**: This field shows the auto-generated file name.
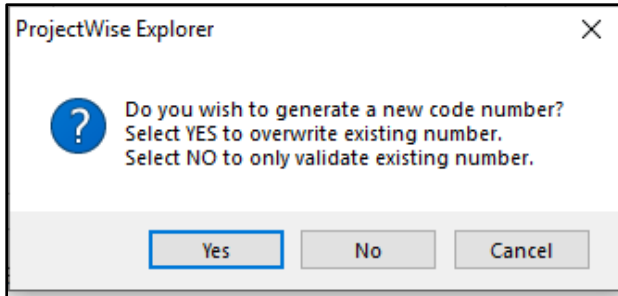- **Show Advanced Generate Options**: No selection is necessary.

Figure 3.8. "Generate" window confirmation.

Step 4B (Wizard Screen 2)

Refer to Figure 3.9. The User should **review** each field and perform the following steps:

1. Copy the text in the "New document name" field.
2. Paste the text in the "Description for the new document" field.
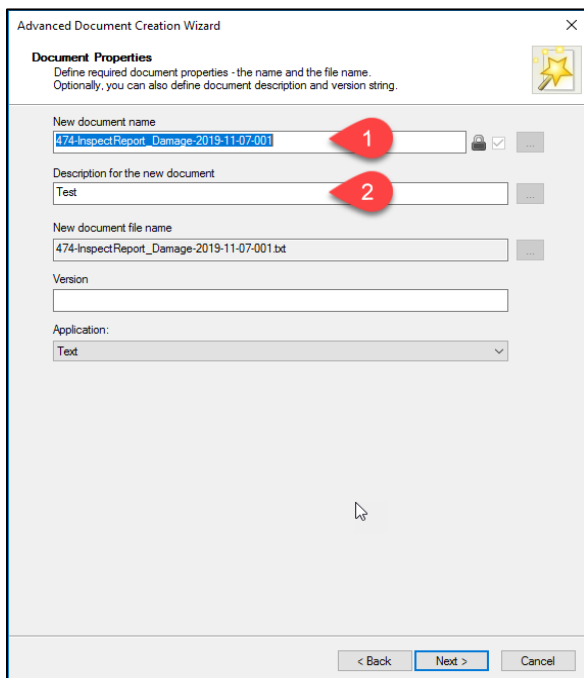3. Select Next.

Figure 3.9. Bridge Data Wizard Screen 2.

This step is **required** to ensure that both the file name and description are the same. Unfortunately, due to current limitations within ProjectWise, this step could not be automated.

Step 4C (Wizard Screen 3)

Refer to Figure 3.10. The User should **review** each field and perform the following steps:

1. Review the Bridge data.
   a. If any errors are found, first verify the selected Asset ID folder. If additional assistance is needed, refer to Section 8 to report the error to the listed SCDOT contacts.
2. Review the Methodology and Attachment (#.#) input and confirm that they are correct.

Figure 3.10. Bridge Data Wizard Screen 3.

The following attributes are shown on the wizard. Some fields allow User input, and some do not.

The following attributes are auto-populated, and editing is not permitted:

- **Asset ID**
- **Upload Date**
- **District**
- **Route**
- **County**
- **Crossing**
- **Status**
- **Location**

The following attributes are auto populated based on the "Document Type" selection and should be confirmed or updated, as needed.

- **Methodology:** ASR, LFR, or LRFR from the LRGD.
- **Attachment (#.#)**: Attachment (#.#) refers to Attachments as found in the BIGD.

3.2.4 Bridge Quality Records: Advanced Document Creation Wizard

The following section details Step 4 which utilizes the Advanced Document Creation Wizard for the Bridge Quality Records Folder. For Step 4 details on Bridge Data Folders, see Section 3.2.3. The Wizard has three screens, shown in Figure 3.11, Figure 3.14, and Figure 3.13.

When a file is uploaded to ProjectWise, the Wizard Screen shown in Figure 3.10 will appear. If the wizard screen is not shown, refer to Section 5.1 for troubleshooting solutions.

<u>Step 4A (Wizard Screen 1)</u>

Refer to Figure 3.11. The User should **review** each field and perform the following steps:

1. Input the applicable District number. For statewide related documents, input a numeric zero ("00") for the District field. For Consultant related documents, input a numeric nine ("09") for the District field.
2. Select a "Document Type" from the drop-down menu.
3. Confirm the "Document Date" and update, as needed. (The "Document Date" may be different from the date the file was uploaded.)
4. Input any "Freeform" text, as needed.
5. Select the "Generate" button to generate the correct sequence number.
6. Select the "Next" button.

Figure 3.11. Bridge Quality Records Wizard Screen 1. (Note that the Document Date Attribute may be different from date the file was uploaded.)

The following attributes are shown on the Wizard screen. Some fields allow User input, and some do not. The fields are described as follows:

- **District**: This field is meant to designate the applicable District for a file. Refer to Section 3.1 for additional guidance.
- **Document Type**: Refer to Section 3.1 for additional guidance. A drop-down list is shown based on the folder where a file is uploaded.
- **Document Date**: Refer to Section 3.1 for additional guidance.
- **Freeform (20):** Refer to Section 3.1 for additional guidance. There is a 20-character alphanumeric limit for this field.
- **Serial No**: Refer to Section 3.1 for additional guidance.
- **"Generate" Button:** The User should <u>always</u> select "Generate" in order to confirm the correct number in the sequence of files. If the "Generate" button is not selected, then an error popup window shown in Figure 3.12 will ask for confirmation before moving to the next screen. Select "No".
- **Upload Date**: Auto-populated. Editing is not permitted. This date reflects the date and time of the file upload.
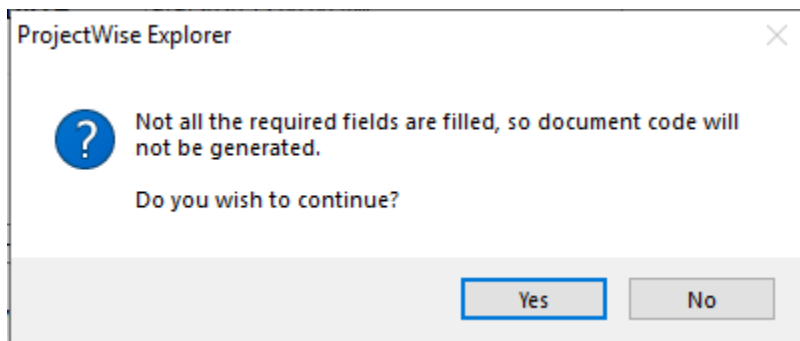

Figure 3.12. Error screen when the "Generate" button is not selected prior to moving forward.

Step 4B (Wizard Screen 2)

Refer to Figure 3.13. The User should **review** each field and perform the following steps:

1. Copy the text in the "New document name" field.
2. Paste the text in the "Description for the new document" field.
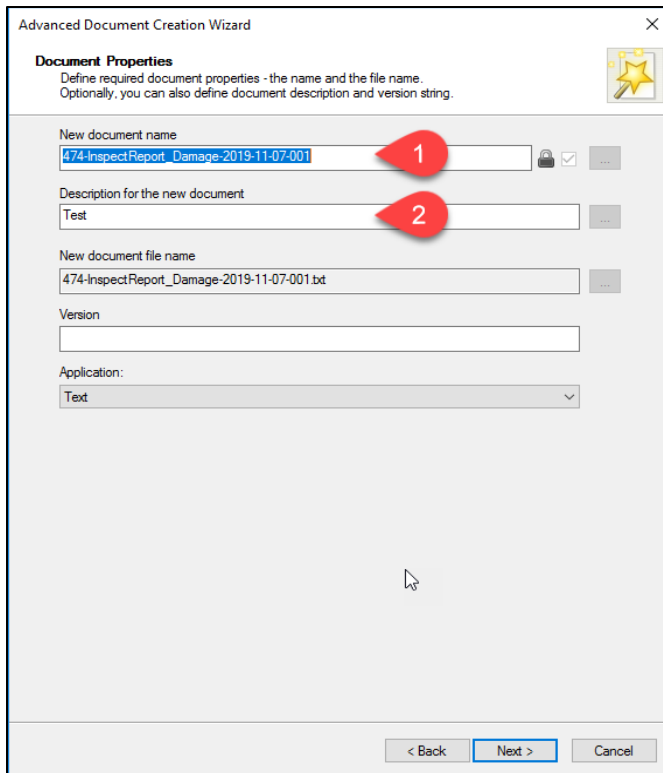3. Select Next.

Figure 3.13. Bridge Quality Records Wizard Screen 2.

This step is **<u>required</u>** to ensure that both the file name and description are the same. Unfortunately, due to current limitations within ProjectWise, this step could not be automated.

Step 4C (Wizard Screen 3)

Refer to Figure 3.14. The User should **review** each field and perform the following steps:

1. Review the Category, Year, Upload Date, Document Type, Attachment, and District.
2. Review the Month and Quarter and update as needed.
3. Select the "Next" button to complete the upload process.

Figure 3.14. Bridge Quality Records Wizard Screen 3.

The following attributes are shown on the Wizard. Some fields allow User input, and some do not.

- **Category:** Auto-populated based on parent "QA" or "QC" folder. This field cannot be edited.
- **Year:** Auto-populated based on parent "Year" folder. This field cannot be edited.
- **Document Type:** Auto-populated based on the previous selection.

The following attributes are auto-populated based on the "Document Type" selection and should be confirmed or updated, as needed.

- **Attachment:** This attribute refers to Attachments as found in guidance documents such as the BIGD.
- **District:** This attribute is linked to the previous input from Wizard Screen 1.
- **Month:** The corresponding month for the file should be selected from the drop-down list. Refer to the *Folder Structure and Wizard Companion* Document for guidance on selection.

- **Quarter:** The corresponding quarter for the file should be selected from the drop-down list. Refer to the **Folder Structure and Wizard Companion** Document for guidance on selection.

3.3 Uploading via the SCDOT Projects Online System

The preferred method of uploading files is via the Bentley ProjectWise Application; however, Users may upload documents using the SCDOT Projects Online System, which is accessible via an internet browser. When uploading files with this system, no Wizard screens will appear after files are uploaded using the upload button. The steps shown in Figure 3.15 must be followed to correctly and accurately associate the necessary attributes to each file.
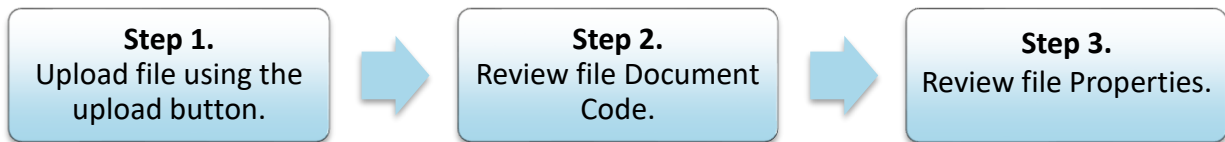

Step 1. Upload file using the upload button. → **Step 2.** Review file Document Code. → **Step 3.** Review file Properties.

Figure 3.15. Steps to upload files via SCDOT Projects Online System.

Step 1

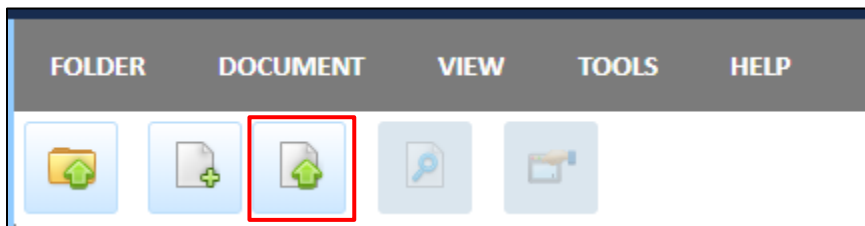Refer to Figure 3.16. Using the Upload button, select files to be uploaded, and upload to the folder.

Figure 3.16. Upload button when uploading via SCDOT Projects Online System.

Step 2

Refer to Figure 3.17.

1. Right click a file and navigate to More > Document Code…
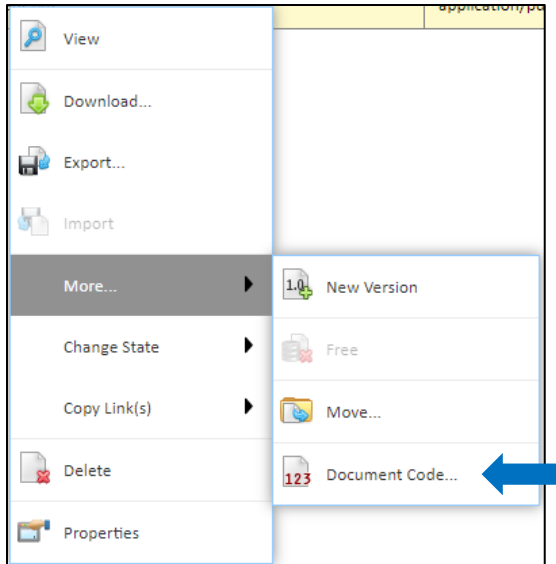2. Select Document Code.

Figure 3.17. Options when right clicking a file on the Online System.

Step 2

1. Select the button at the right end of the "Document Type" field (Figure 3.18).
2. A new window will appear with a dropdown list as shown in Figure 3.19. Select the appropriate Document Type (Figure 3.20) and select the "OK" button.
3. If appropriate, based on the Document Type, input a Freeform field. (Figure 3.21)
4. Input the Document Date and SerialNo (Figure 3.21) based on the guidance from Section 3.1.
    Important: *Review the SerialNo requirements in Section 3.1 to prevent a reversed numbering order for PDF and source files when multiple documents with matching Asset ID or District, Document Type, Freeform, and Document Date attributes.*
5. Select the "Save" button to save the attributes (Figure 3.21).
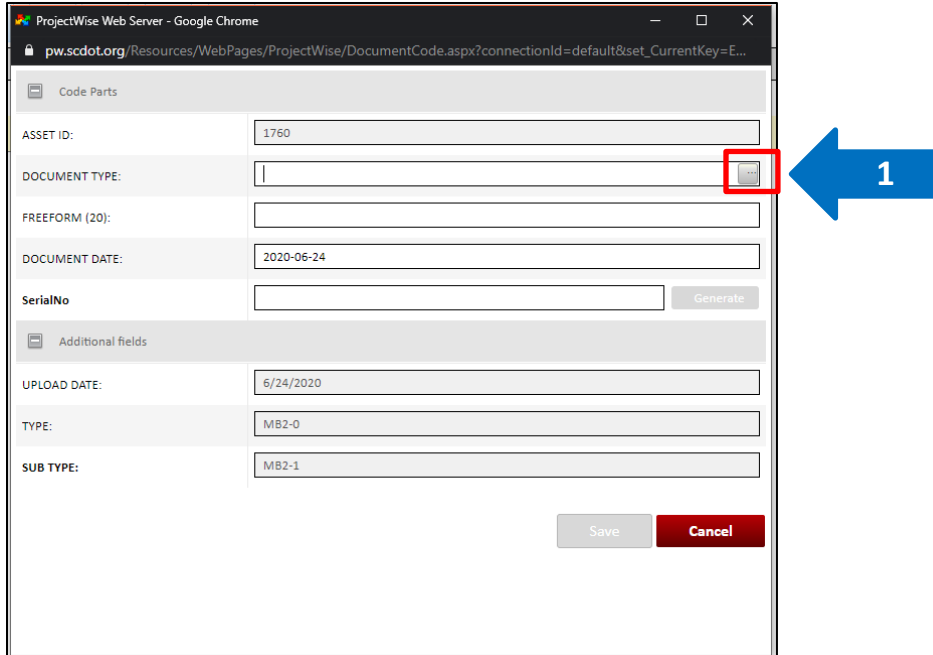
Figure 3.18. Document Code screen. Document Type dropdown list will be visible when the button shown is selected.
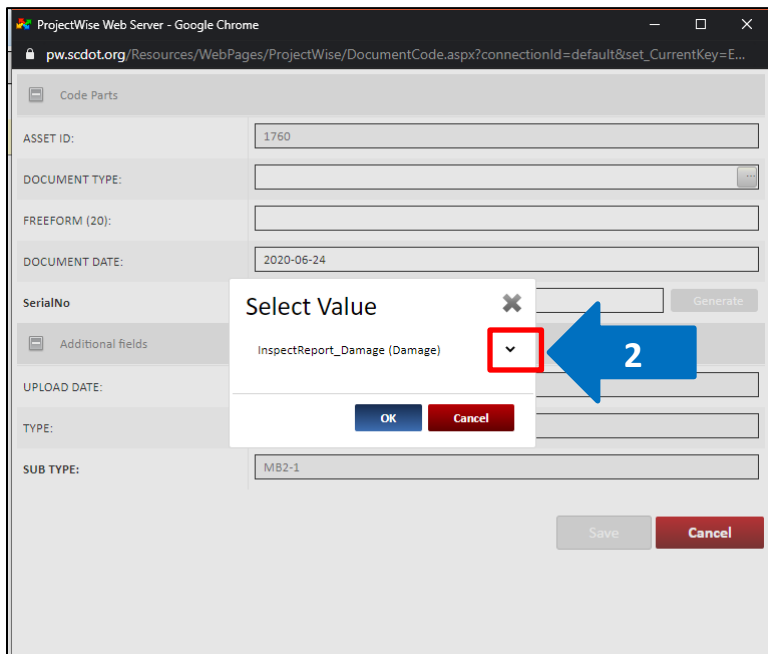

Figure 3.19. The dropdown window is shown by selecting the down arrow button on the pop-up window.
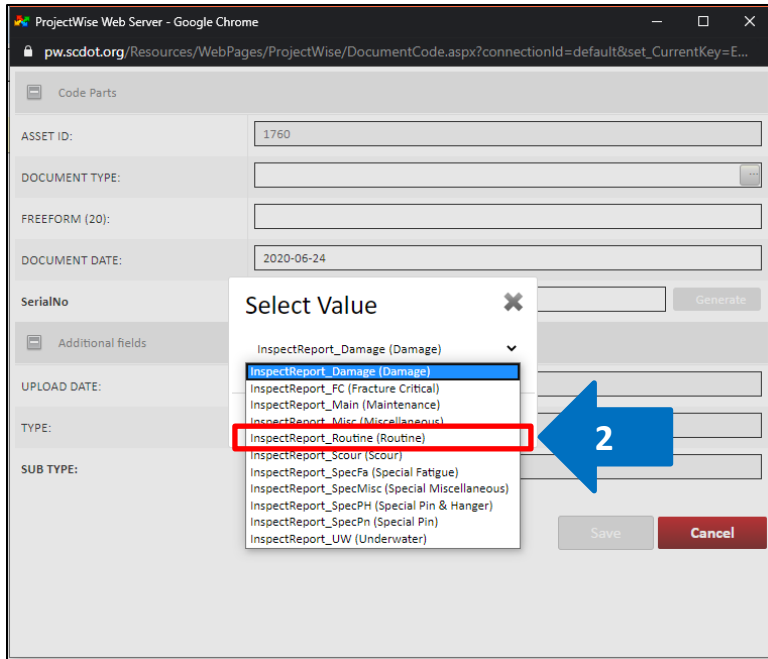
Figure 3.20. The dropdown list will match the Document Types described in Section 5.1.
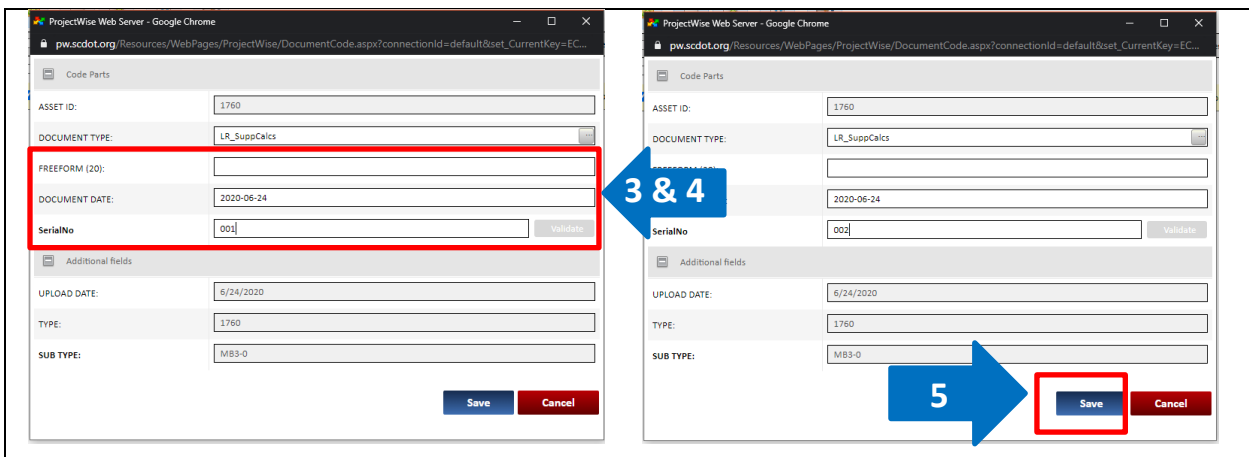
Figure 3.21. The Document Code window requires all fields to be manually inputted. Refer to Sections 3.1 and 3.2 for descriptions of each field.

Step 3

Important: Verify the file name according to the File Naming Convention described in Section 3.1. Users should also reference the ***Folder Structure and Wizard Companion*** for file name examples.

1. Right click a file and navigate to More > Properties.
2. Select Properties (Figure 3.22).
3. Verify that the Document Name, Document Description, and File Name fields match for the file and meet the File Naming Convention guidelines (Figure 3.23). If they do not match, copy and paste the correct file name according to the File Naming Convention.

Figure 3.22. Options when right clicking a file on the Online System.
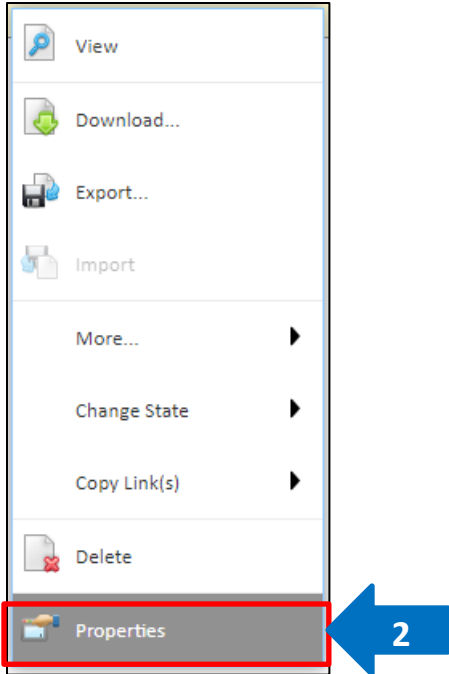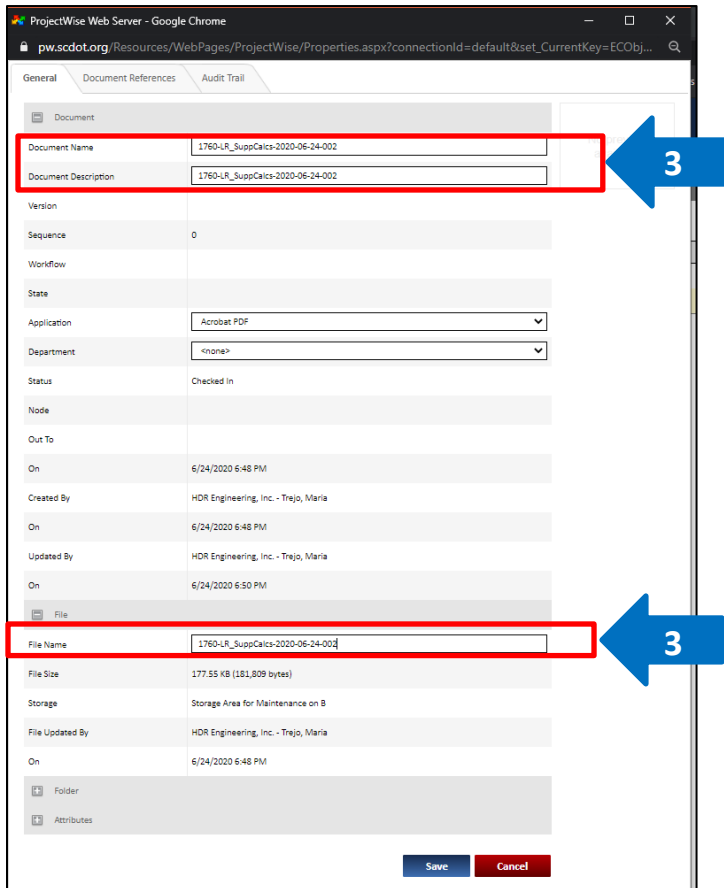

Figure 3.23. The three fields shown (Document Name, Document Description, and File Name) must match, and the file name must follow the File Naming Convention.

4 Overview of File Structure

4   OVERVIEW OF THE FILE STRUCTURE

The SCDOT Bridge File has two main subfolders, Bridge Data and Bridge Quality Records. These two subfolders are organized according to Counties for the Bridge Data folder and by three quality categories for the Bridge Quality Records folder. Figure 4.1 outlines the typical folder structure for each main subfolder. This structure cannot be modified and is standardized for ease of use throughout the system.

```
Bridge Data                              Bridge Quality Records
    [County]                                 Correspondence
        [Asset ID]                               [Year]
            1 - General File                 QA
                1 - Plans                        [Year]
                2 - Inventory Photographs    QC
                3 - Bridge Data                  [Year]
            2 - NBIS Inspection
                1 - Reports
                2 - Procedures
                3 - Miscellaneous
            3 - Load Rating
            4 - Critical Findings
            5 - Maintenance
            6 - Testing
            7 - Scour-Waterway
            8 - Correspondence
```
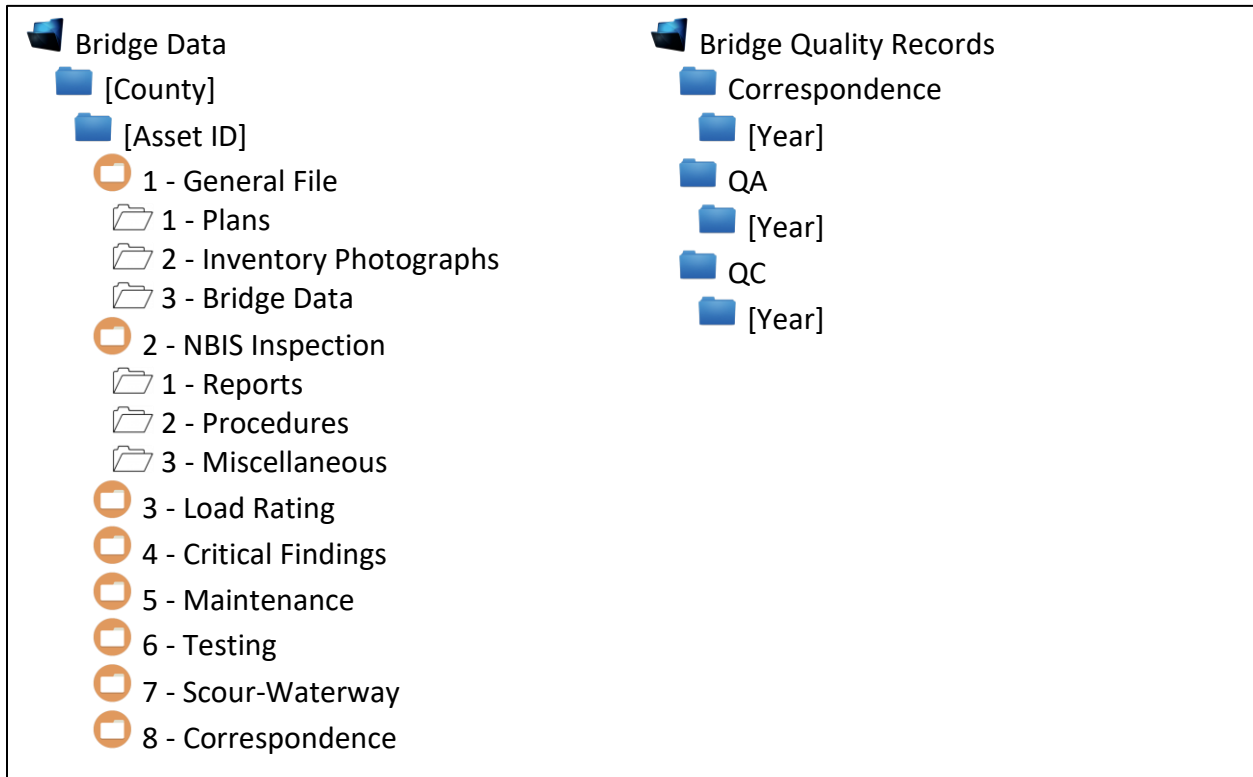
Figure 4.1. Typical Bridge File Folder Structure.

This section covers the description of each folder and subfolders. Each folder is set up to accept specific types of files, and with the assistance of the ProjectWise import Wizard, the files can be automatically named according to a predetermined format. The folder structure and the available Document Types that may be selected for each folder are noted below. The ***Folder Structure and Wizard Companion*** should also be referenced for an overview of folders and files.

For descriptions of Attachments or specific details, refer to the associated guidance documents:

- *SCDOT Bridge Design Manual/Structural Design Manual*
- *SCDOT Bridge Inspection Guidance Document (BIGD)*
- *SCDOT Load Rating Guidance Document (LRGD)*

4.1 Bridge Data

Each County will have an individual folder, and within each County folder will be the individual Asset ID folders. In other words, every structure with an Asset ID will have the Bridge Data folder structure shown in Figure 4.1. The County folders are arranged alphabetically. The Asset ID subfolders are arranged in ascending number.

The following sections describe the purpose of each folder in the Bridge Data folder.

📁 Bridge Data
   📁 County
      📁 Asset ID
         🟠 1 - General File

Files and data pertaining to the structure elements from initial design and construction up to repair and rehabilitation phases in the structure life span should be included in this folder. Documents that are related to the structure construction, record keeping, or classification may be placed here (for example: Asset ID requests that assign a new Asset ID number for the structure). These may be placed in one of the three subfolders.

   📂 1 - Plans

Plan files and documents referencing the layout or component description of the structure may be placed in this folder.

   📂 2 - Inventory Photographs

This folder is intended to house typical photos of the structure.

   📂 3 - Bridge Data

This folder houses documents related to the NBIS or database data and records of costs or construction activities.

🟠 2 - NBIS Inspection

   📂 1 - Reports

All inspection reports should be housed in this folder.

   📂 2 - Procedures

Procedural documents used as reference for inspections should be placed in this folder.

   📂 3 - Miscellaneous

This folder is meant to capture any supplemental files related to inspections that do not include the report or procedures.

🟠 3 - Load Rating

All files relating to a Load Rating package should be included in this folder. Refer to the latest version of the LRGD and/or Load Rating Technical Notes for details on specific files.

🟠 4 - Critical Findings

This folder contains files related to critical findings resulting from an inspection.

🟠 5 - Maintenance

This folder includes a comprehensive record of maintenance activities.

- ⬭ **6 - Testing**

  This folder includes documentation related to testing or procedural activities related to any testing of the structure or structural elements.
- ⬭ **7 - Scour-Waterway**

  Files in this folder detail the scour or waterway running through or under the structure and any activities associated with assessing or evaluating scour or the waterway.
- ⬭ **8 - Correspondence**

  The Correspondence folder is intended to capture all communication related to a structure throughout its history that can detail activity purpose, actions taken, or processes followed.

4.1.1 Selected Document Type Clarifications

Descriptions for select Document Types are described in the following sections. These sections do not cover all Document Types. They are intended to address frequently asked questions regarding some Document Types. Users should always refer to the associated Guidance Documents for full descriptions of specific documents.

4.1.1.1 1 - General File > 1 - Plans

Plan files and documents referencing the layout of the structure may be placed in this folder. Several Document Types are shown with additional guidance.

LabelDiagram - (Labeling Diagram) and SchematicDwg - (Schematic Drawing)
- ⌘ *Labeling Diagram/Schematic Drawing DGN and PDF files are acceptable per the LRGD.*
- ⌘ *The order of uploads should follow the guidance of Section 3.1.*
- ⌘ *No Freeform attribute should be assigned to this Document Type.*

- ✓ Example File Name: AAAAA-LabelDiagram-YYYY-MM-DD-001.DGN
- ✓ Example File Name: AAAAA-LabelDiagram-YYYY-MM-DD-002.PDF

Plans_95Review - (95% Review Plans)
- ⌘ *Plans designated for an intermediary review typically associated with interim Load Rating Package submittals.*
- ⌘ *These are typically superseded by As-Let and As-Built plans.*
- ⌘ *No Freeform attribute should be assigned to this Document Type.*

- ✓ Example File Name: AAAAA-Plans_95Review-YYYY-MM-DD-001.PDF

Plans_AsBuilt - (As Built Plans)
- ⌘ *As-built plans identify the structure in an as-built condition.*
- ⌘ *This Document Type includes plans, regardless of scope, that detail the built structure and confidently describe the existing design. Plan sets for deck rehabilitation, replacements, widenings, joint repairs, etc. can be considered "As-Built" plans if they are labeled with an "As-Built" note or cover sheet.*
- ⌘ *No Freeform attribute for the original structure should be assigned to this Document Type.*

- A Freeform attribute is permitted for plans labeled "As-Built" for a widening, repair, or some other improvement to a structure. Suggested Freeforms include: Widening, DeckReplacement, JointRepair.
  - ✓ Example File Name: AAAAA-Plans_AsBuilt-Widening-YYYY-MM-DD-###.PDF

Plans_AsLet - (As Let Plans)
- As-let plans identify the original structure.
- In the absence of As-Builts, the Inspector/Engineer will use this as a basis for the original design. The intent of this document type is solely for the original As-Let plans (e.g. not widenings).
- As-let plans should **not** have a Freeform attribute assigned.
  - ✓ Example File Name: AAAAA-Plans_AsLet-YYYY-MM-DD-###.PDF

Plans_Misc - (Misc. Plans)
- Miscellaneous plans identify modifications or improvements to the original structure that are not considered to be a repair or rehabilitation.
- Miscellaneous Plans include modifications or improvements of the original structure that are not labeled as "As-Built". Typically, these are modifications that affect the capacity, access, and/or use of the structure (e.g. modifying shoulders to add a lane, adding a sidewalk for pedestrian access, etc.)
- Suggested Freeforms include: Widening, SidewalkAdd, LaneChange, DDI (Diverging Diamond Interchange)
  - ✓ Example File Name: AAAAA-Plans_Misc-SidewalkAdd-YYYY-MM-DD-###.PDF

Plans_Repair - (Repair/Rehab Plans)
- Repair or Rehabilitation plans identify repairs or rehabilitations meant to preserve the integrity of the original or modified structure.
- This Document Type refers to repair or rehabilitation plans that are not labeled "As-Built."
- Suggested Freeforms include: DeckReplacement, JointRepair, Painting
  - ✓ Example File Name: AAAAA-Plans_Repair-DeckReplacement-YYYY-MM-DD-###.PDF

4.1.1.2   2 - NBIS Inspection > 1 - Reports

All inspection reports should be stored in this folder.

InspectReport_Damage - (Damage)
- Refer to BIGD Section 4.8.2. Damage inspections are typically needed for severe bridge damage. These inspections occur out-of-frequency. The report can typically be identified by the creation of a new damage flag.
- When there is a specific type of severe damage, a freeform **may** be used to identify the type of damage and source of damage. Suggested Freeforms include: Collision_Unknown, Collision_Vehicular, Collision_Boat, Fire, Overload
  - ✓ Example File Name: AAAAA-InspectReport_Damage-YYYY-MM-DD-###.PDF
  - ✓ Example File Name: AAAAA-InspectReport_Damage-Collision_Unknown-YYYY-MM-DD-###.PDF

InspectReport_Main - (Maintenance)

- ⌗ *Refer to BIGD Section 4.8.1. These are typically inspections to confirm activity that cleared a Critical Finding or HMMS Maintenance Flag.*
- ⌗ *No Freeform attribute should be assigned to this Document Type.*
- ✓ Example File Name: AAAAA-InspectReport_Main-YYYY-MM-DD-###.PDF

4.2 Bridge Quality Records

SCDOT internal Bridge Quality Records will be maintained on ProjectWise. These folders will only be visible to those within the appropriate Access Group. Quality Records include files associated with Quality Control and Quality Assurance processes and activities. The documents, procedures, and reporting requirements can be found in associated guidance documents. The folder structure is shown in Figure 4.1.

The following sections describe the purpose of each folder in the Bridge File.

📁 Bridge Quality Records

  📁 Correspondence

    The Correspondence folder is intended to store all communication related to Quality processes for each year.

    📁 YYYY

  📁 QA

    Expected files in this folder relate to Quality Assurance processes that are completed monthly, quarterly, or annually. These are organized by year.

    📁 YYYY

  📁 QC

    Expected files in this folder relate to Quality Control processes that are completed monthly, quarterly, or annually. These are organized by year.

    📁 YYYY

5 Troubleshooting

5 TROUBLESHOOTING

See Section 8 for troubleshooting assistance with SCDOT ProjectWise Access and Bridge File access issues.

If an error is encountered within a Wizard where no User editing is permitted, refer to Section 8 for contacts within the SCDOT Bridge Maintenance Office that should be notified of the error. Please provide a screen capture of the issue for faster resolution of the error.

5.1 Additional Wizard Screens

The screens shown in Figure 5.1 through Figure 5.6 may appear if the Wizard Manager settings are not set up as recommended. For these screens, the appropriate selections are shown with red boxes. Users should refer to Section 3.2.1 for the recommended Wizard Manager sections.
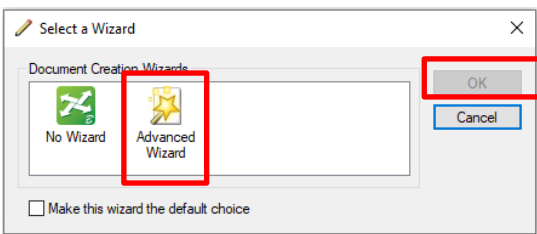
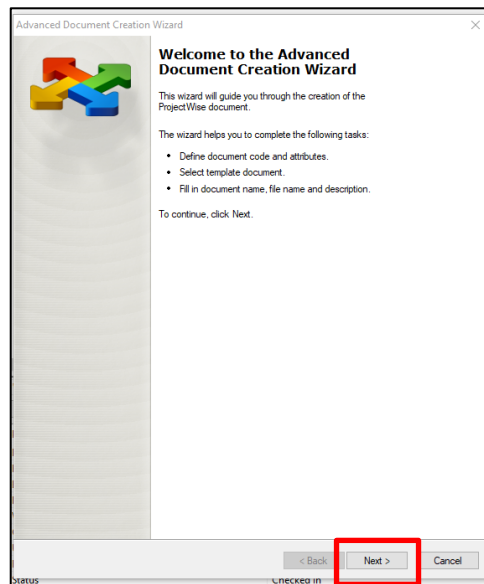Figure 5.1. Wizard selection. Select "Advanced Wizard".
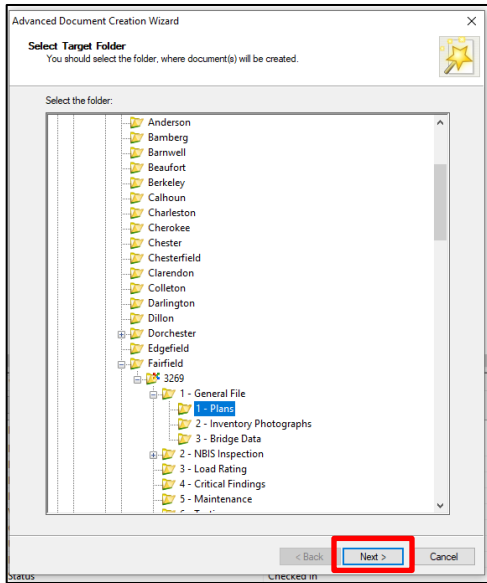

Figure 5.2. Confirm Wizard by selecting "Next".

Figure 5.3. It is not necessary to designate another folder for the files. The folder is selected by the "drag and drop" process.
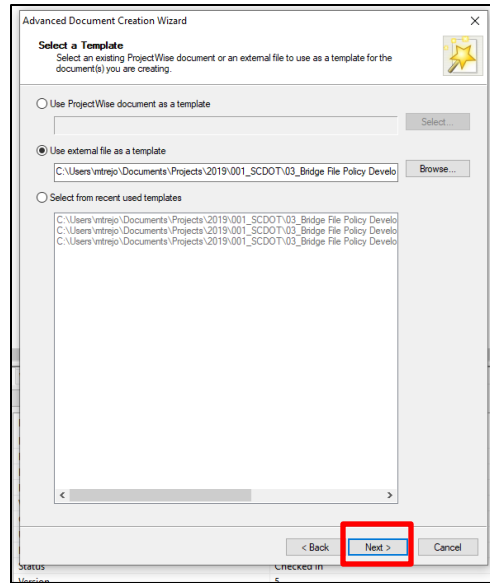

Figure 5.4. Most files that will be uploaded are new files without templates. Selecting "Next" is recommended.
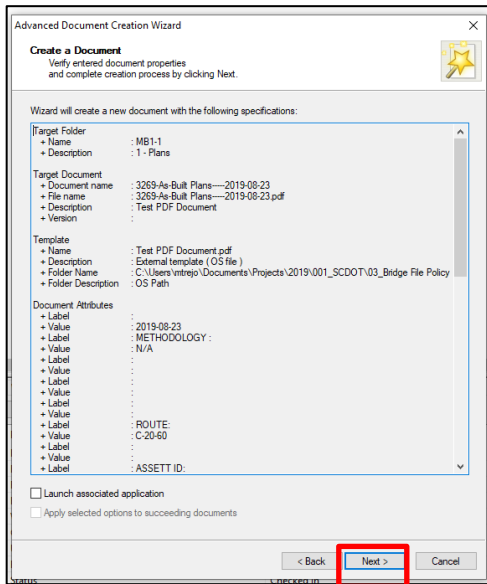

Figure 5.5. This screen displays all attributes as assigned to the file. Select "Next" to proceed to the next window.
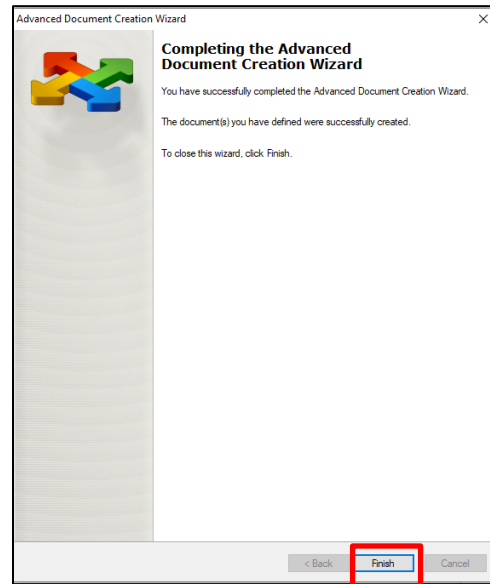

Figure 5.6. This screen confirms the completion of the wizard. Selecting "Finish" will complete the upload.

5.2 Sequence Number Error

Figure 5.7 shows an error that may occur when a file with an identical Asset ID or District, Document Type, Freeform, and Document Date attribute assignment already exists in the folder. For this error, the User should select "OK" and go "Back" to Wizard Screen 1 (Figure 3.7) to select the "Generate" button. This will auto-generate the next consecutive number.
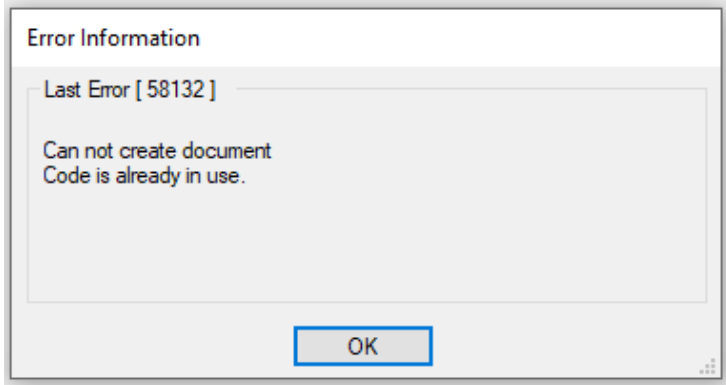
Figure 5.7. Sequence Number error screen.

5.3 Corrupt PDF Files

Occasionally, when uploading documents to ProjectWise, the file will become corrupt and inaccessible by the User. It is recommended that the User delete the file and re-upload it.

5.4 Re-Uploading Files and Document Code Reservation Errors

In some instances, a file may need to be deleted and re-uploaded for an error in an upload, Document Type attribute assignment, or inconsistent file description assignment. An error, as shown in Figure 5.8, may appear. When attempting to re-upload a file, the Serial Number may generate as one step ahead of the deleted file which may not be the correct sequence.

For example:

File 1: Supplemental Calculations Excel document

The Excel document is uploaded first and has the following file name and description: 101-LR_SuppCalcs-2020-02-15-001.XLSX

File 2: Companion PDF version of Supplemental Calculations

The companion PDF document is uploaded second, but an error is made in the upload process. The file uploads as 101-LR_SuppCalcs-2020-02-15-002.PDF

The PDF file is deleted and re-uploaded, but in the new upload the serial number is generated as 003.

The following troubleshooting steps should be followed:

1. Confirm whether or not the document was uploaded to ProjectWise by pressing "F5".
2. If the file is in fact present, then "free" the file (if needed) and delete it. If the file is not present, then proceed to Step 3.
3. Within the folder, select any file and right click. This will show a drop-down list of options as shown in Figure 5.9.
4. Navigate to 'Attributes' then select 'Document Code Reservation…"
5. A new window will pop up as shown in Figure 5.10.

   a. Users should find their name in the 'User' column and associate their Date/Time and Code for the File Upload in question.
   b. When the specific file is found, select it.
   c. Once the file is selected, navigate to and click the 'Remove' button.
6. A prompt will appear asking the User to confirm the removal of the selected reservation. Select 'Yes'. (Figure 5.11)
7. The User may then select 'Close' to close the 'Document Code Reservation' window.
8. The User should then re-upload the file. Refer to Section 3.2.

If this does not resolve the Serial Number issue, please reach out to the contacts listed in Section 8 for assistance.

Please note, a User may only delete his/her own code in the 'Document Code Reservation'. An error as shown in Figure 5.12 will appear if an attempt is made to delete someone else's code reservation.
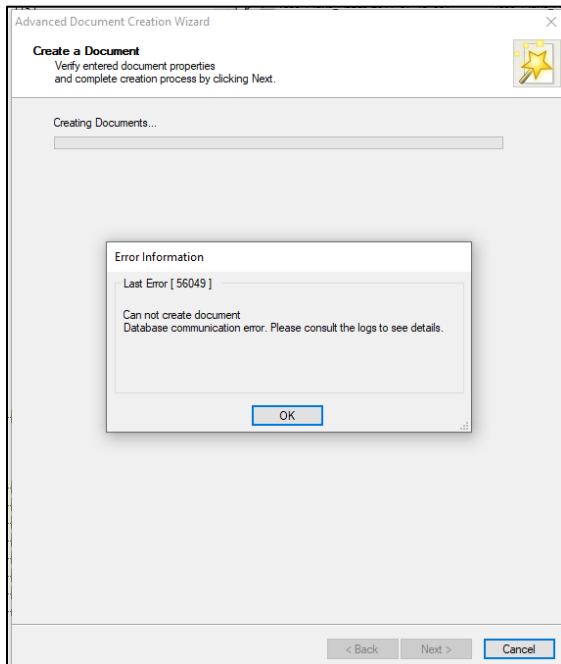

Figure 5.8. Error message when an error occurs in the upload process.

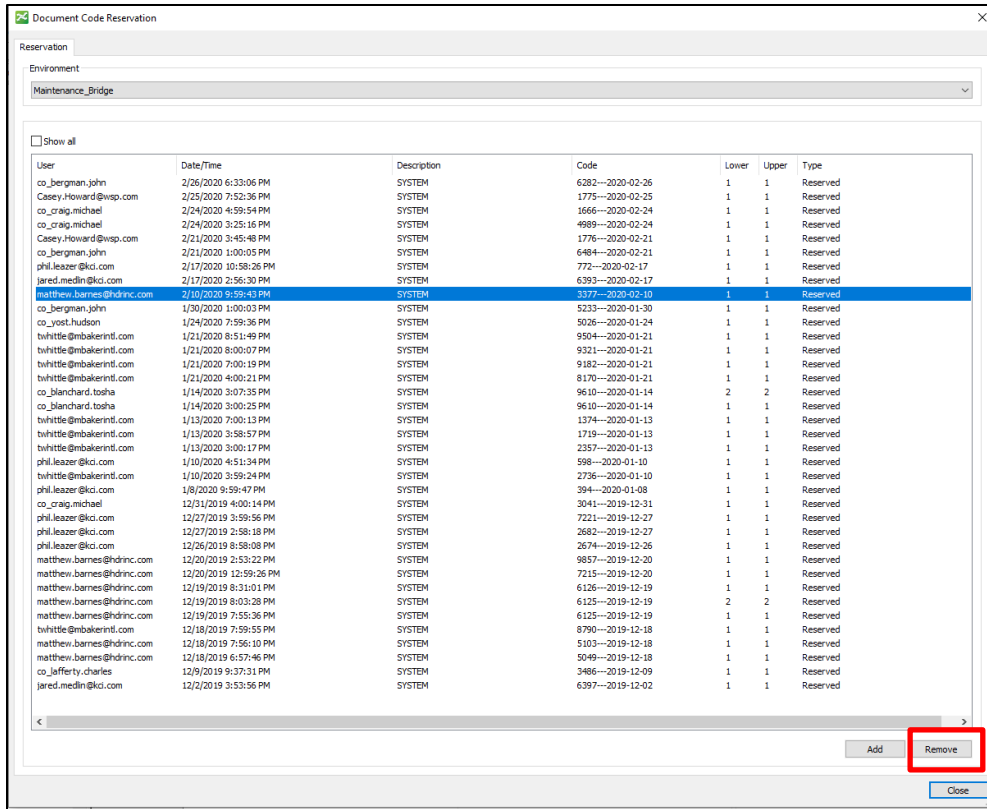Figure 5.9. Menu options when right clicking a file.

Figure 5.10. Document Code Reservation window. Users should find their name and associated code, select it, and click the 'Remove' button.
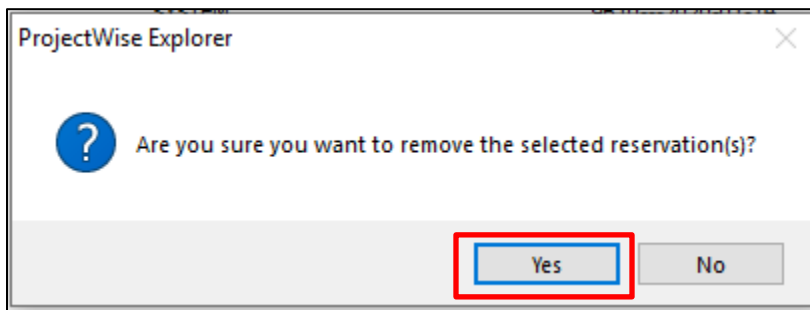

Figure 5.11. Window requesting confirmation to remove a selected reservation. The User should select 'Yes'.
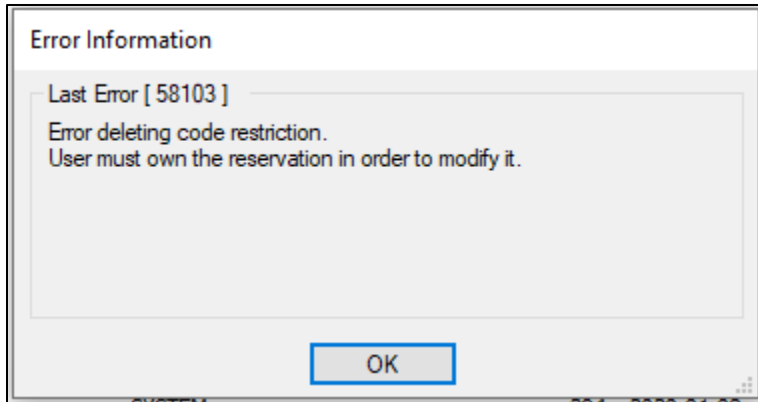
Figure 5.12. Error when a User attempts to delete a code for another User.

5.5 PDF Package and Portfolio Files

Users may come across forms with a digital signature that must be combined with other forms or reports. However, the use of digital signatures on a form restricts the ability to "flatten" and "combine" a PDF document. Combining a digitally signed PDF with other documents (inspection report, stream/ground profile sheet, photos, etc.) will invalidate the signature.

In order to prevent invalidating the signature on a file but to not exclude it from the Bridge File, a PDF Package/Portfolio can be created. A PDF Package/Portfolio is a PDF file that allows for documents of different formats to be packaged into one file. The individual files can retain their properties (such as digital signatures), and each file can be opened individually from the Package/Portfolio. The process of creating a PDF Package/Portfolio is similar to that of combining PDF files.

Adobe Acrobat steps to create a PDF Portfolio:

https://helpx.adobe.com/acrobat/using/create-customize-pdf-portfolios.html

Bluebeam Revu steps to create a PDF Package:

https://support.bluebeam.com/online-help/revu2017/Content/RevuHelp/01--File/01--Create/Creating-a-PDF-Package.htm

5.6 Correcting File Attributes, Names, and Descriptions

In instances when the attributes, file name, or description need to be updated for a file, it is recommended that Users **delete the file and then re-upload it with the correct Wizard inputs**. **A file re-name will not update all attributes correctly**, and the attribute code must be identified and updated in multiple locations.

If the original file is unavailable for a re-upload, then the User should follow the steps below for correctly associating data with a file:

1. Navigate to the file on ProjectWise. Right click the file and navigate to Attributes > Document Code as shown in Figure 5.13.
2. In the Document Code window, assign the correct data per guidance in Sections 3 and 4. The Document Code window is shown in Figure 5.14. The attribute assignment steps are:

a. Select the correct Document Type from the drop-down list.

b. Input a Freeform, if needed. Input the Document Date.

c. Select the 'Generate' button.

d. The bottom field of the window shows the correct file name. After inputting all the appropriate fields, copy the file name.

e. Save the attributes.

3. Once again, right click the file and navigate to the Properties as shown in Figure 5.13.

4. Refer to Figure 5.15. The attribute assignment steps are:

a. In the General tab of the Properties window, enter the file name (or paste it from the previous Document Code window) in both the Name and Description fields.

b. Navigate to the Attributes tab and input any information, as needed. Refer to Section 3 for guidance on field types.
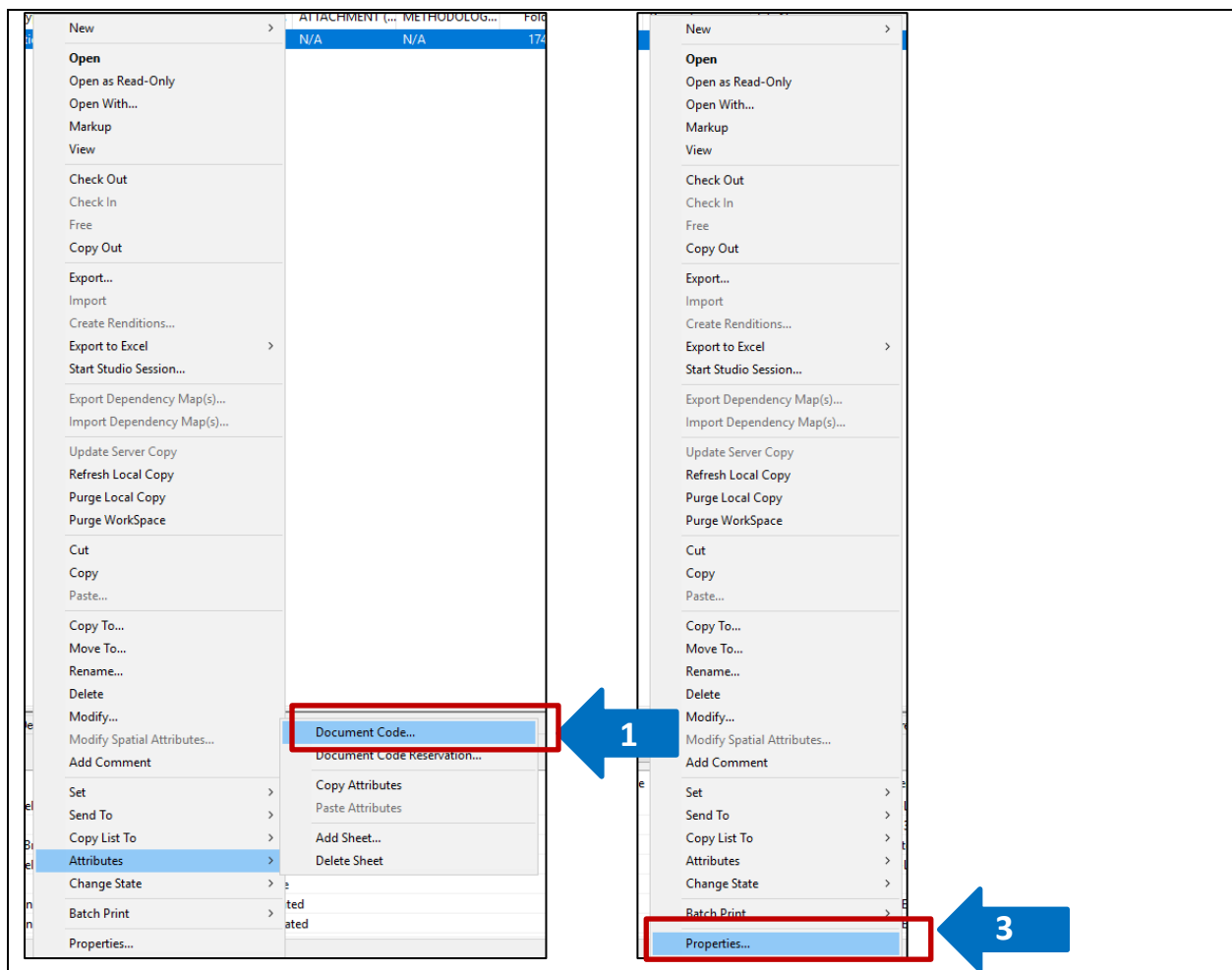
c. Save any changes and close the window.

Figure 5.13. When right clicking a file, the following menu appears. The Attributes > Document Code selection will be selected for Step 1 and the Properties will be selected for Step 2.
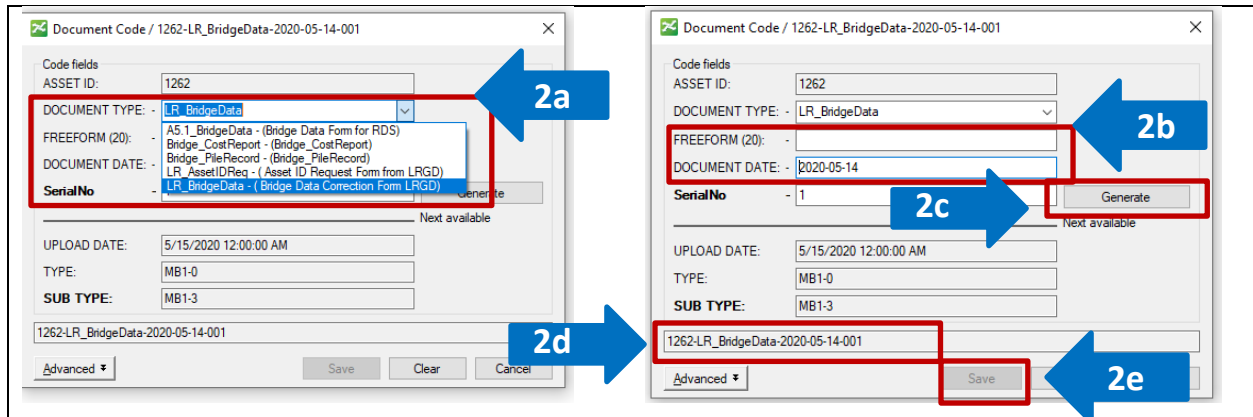
Figure 5.14. Document Code window where data can be assigned to a file. Note the correct File Name is displayed in the bottom field. This can be copied for correctly re-naming a file.
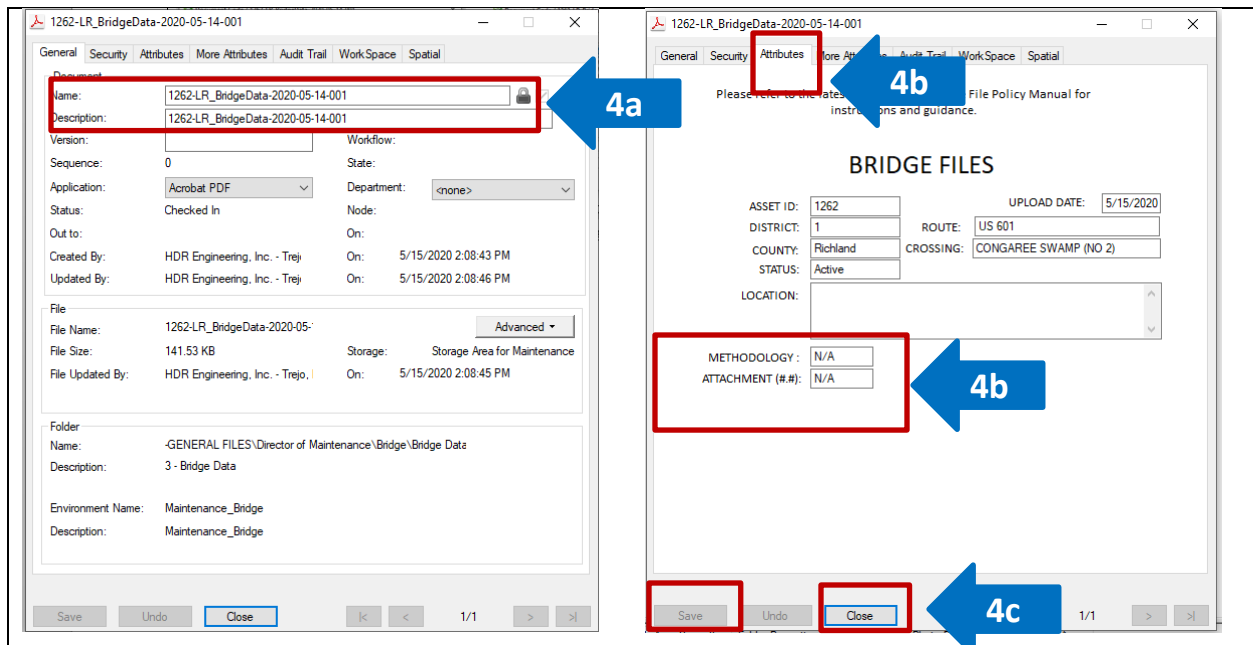

Figure 5.15. When the Properties option is selected for a file, the menu shown appears with several tabs. In order to update the file code, the User will need to access the General and Attributes tabs.

6 Bridge File Policy Maintenance and Updates

6 BRIDGE FILE POLICY MAINTENANCE AND UPDATES

6.1 Roles and Responsibilities

It shall be the responsibility of the SCDOT Bridge Maintenance staff to determine the required updates and timing of implementation. When a revision to the BFP file structure and/or naming convention is required, the update(s) will be published to the SCDOT BMO website.

6.2 Maintaining Files

The BFP ProjectWise file environment is housed on SCDOT servers. Once files have been uploaded by SCDOT and/or Consultants, it shall be the responsibility of the SCDOT Bridge Maintenance Staff to maintain the records in accordance with internal record keeping protocol. Consultants shall not be required to maintain records beyond contractual record keeping limits.

6.3 Asset Ownership, Transfer, or Retirement, and Electronic File Retention

For SCDOT owned bridges which are turned back, given or sold to local municipalities, counties or private/public organizations, a copy of all bridge inspection file information shall be given to its new owner. A record of the ownership transfer shall be maintained in the Bridge File.

For Asset ID numbers that are retired or taken out of service, the Asset ID folder shall remain in the Bridge File and contain the following, at minimum:

- Files detailing the last Routine Inspection shall remain in the folder.
- Files detailing any inspections prior to the last Routine Inspection may be removed from the bridge file after five years have passed from the date of retirement.

7 NOTIFICATIONS

7.1 Automated Notifications

At this time, the ProjectWise Bridge File environment is not programmed to send out email notifications automatically when files are uploaded. It is the responsibility of the individual uploading the files to provide the appropriate level of notification to SCDOT staff as files are uploaded.

7.2 User Generated Notifications

When requested by SCDOT, email notifications of the completion of file uploads should be sent to the following SCDOT staff:

1. SCDOT Program Manager

   Provide primary notification of upload to SCDOT staff member requesting upload.

2. SCDOT Bridge Maintenance Staff

   Provide secondary notification via CC to the SCDOT Bridge Maintenance Office email: BMO@scdot.org

8 Bridge File Policy Related ProjectWise Assistance Contacts

8   BRIDGE FILE POLICY RELATED PROJECTWISE ASSISTANCE CONTACTS

8.1   SCDOT IT Services - Engineering Technology and Research Department

In order to access the SCDOT ProjectWise server system, Consultants should first request general SCDOT ProjectWise access via the SCDOT ProjectWise Account Request Form for each individual requesting access to the system. Additionally, Consultants should refer to the SCDOT Electronic Submission and Retrieval Guide for additional instructions on installation and general ProjectWise setup and uploading procedures.

Reach out to the following contacts with IT for IT-related assistance at BMO@scdot.org:

- ETR Manager & PW Administrator
- Assistant PW Administrator

Figure 8.1. Screen capture of SCDOT IT Services HelpDesk ticket system. (Only available on SCDOT devices.)

On a SCDOT device, a SCDOT HelpDesk ticket may also be submitted for assistance with ProjectWise:

http://apps.sharepoint.dot.state.sc.us/HelpDeskApp/Lists/servicerequests/NewForm.aspx

8.2   SCDOT Bridge Maintenance

Once general SCDOT ProjectWise access has been provided, Consultants contracted with the BMO should contact via email your contract SCDOT Program Manager to request Project folder

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access. Consultants contracted with other SCDOT Offices should contact their SCDOT Program Manager for assistance retrieving files from the Bridge File.

For additional guidance, questions or troubleshooting issues that are not discussed herein, contact BMO at BMO@scdot.org.