SMU SharePoint Guidelines for Structures Design Library (May 2018)

SMU Structures SharePoint Guidelines

Table of Contents

SMU Structures SharePoint Guidelines

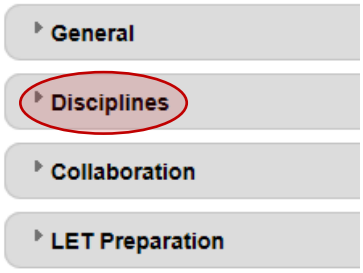
Structures Management will be utilizing SharePoint for project delivery. Below are the guidelines and instructions on how to setup the project and submit documents.

Site Overview Instructions

1) You will need to use the Preconstruction Site: https://connect.ncdot.gov/site/preconstruction/SitePages/Home.aspx

2) Find your project on the NCDOT Preconstruction (SharePoint) Site. Type in your project name in the "Find a Site" search box.

3) Once in the project, click "Disciplines" to expand and show all Discipline Libraries.



4) Click on the "Structures Design" Library.

SMU Structures SharePoint Guidelines

SharePoint File Naming Convention

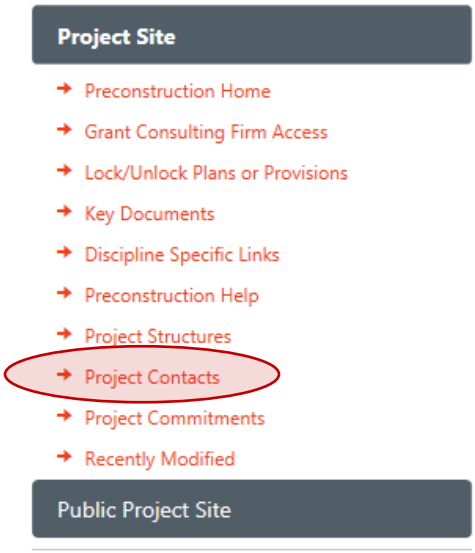
1) All structure files on SharePoint (except 100% individual plans) shall follow the naming convention described below:

   a. **DO NOT PLACE DATES IN THE FILE NAME**
   b. **U-2525C**: TIP number of the project
   c. **PGD**: Document type provided
   d. **401242**: Official structure number in the form XXYYYY, where XX is the county number and YYYY is the bridge number

   NOTE: For 100% Turn-In Guidelines, please refer to page 14.

Add Project Contacts

1) For better communication between disciplines, please fill out the project contacts. This can be done by clicking "Project Contacts" on the left side panel. Then add new item.

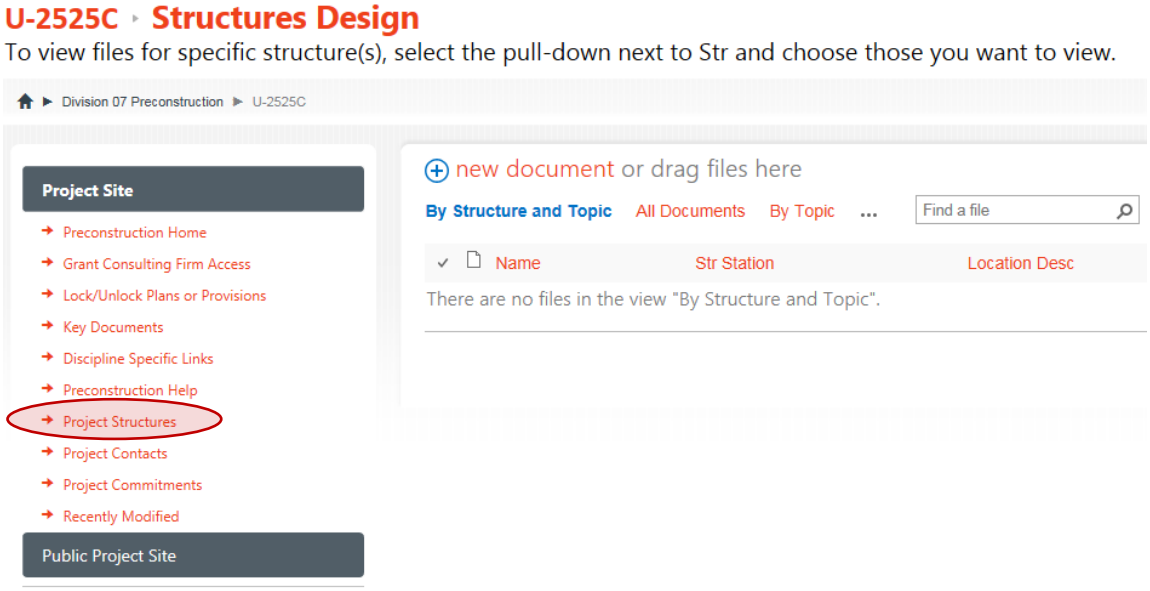


SMU Structures SharePoint Guidelines

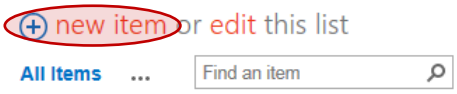
Adding Project Structures

Before uploading any files into SharePoint, add the project structures' information. This allows files and document sets to be grouped by the structure number throughout the project site.

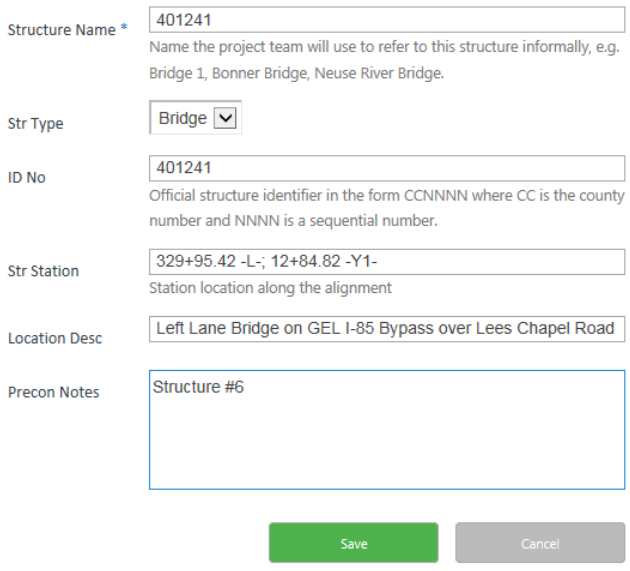
1) Inside the Project's Structure Design Library, click "Project Structures" on the left side a panel.



2) Click "new item".

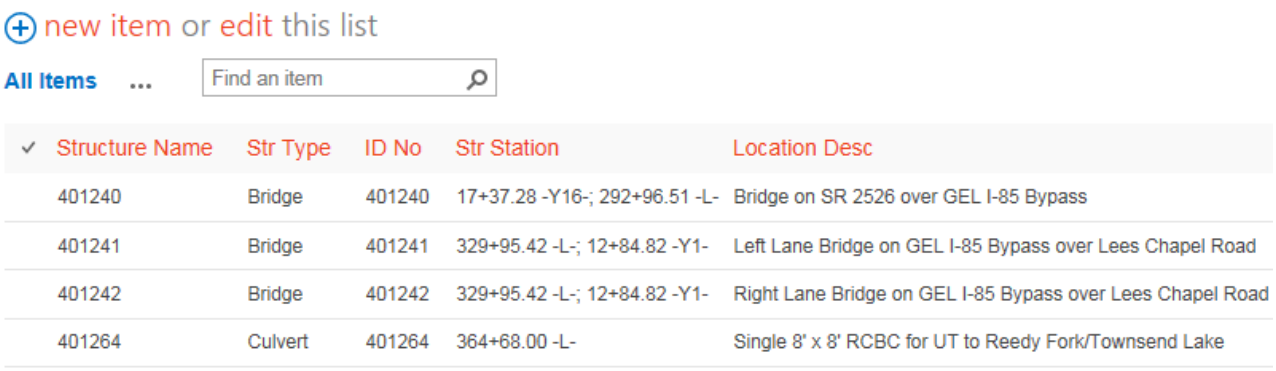


3) Fill out the structures details below. Then Click "Save".
   a. Structure Name: Use the official bridge number. For new bridges without an official bridge number, use the structure number. The *Structure Name* can be updated later once assigned an official bridge number.
   b. Str Type: Bridge or Culvert
   c. ID No.: Official bridge number, if unknown leave blank.
   d. Str Station: Bridge ID Station
   e. Location Desc: Site description
   f. Precon Notes: For projects with multiple structures, use structure number.



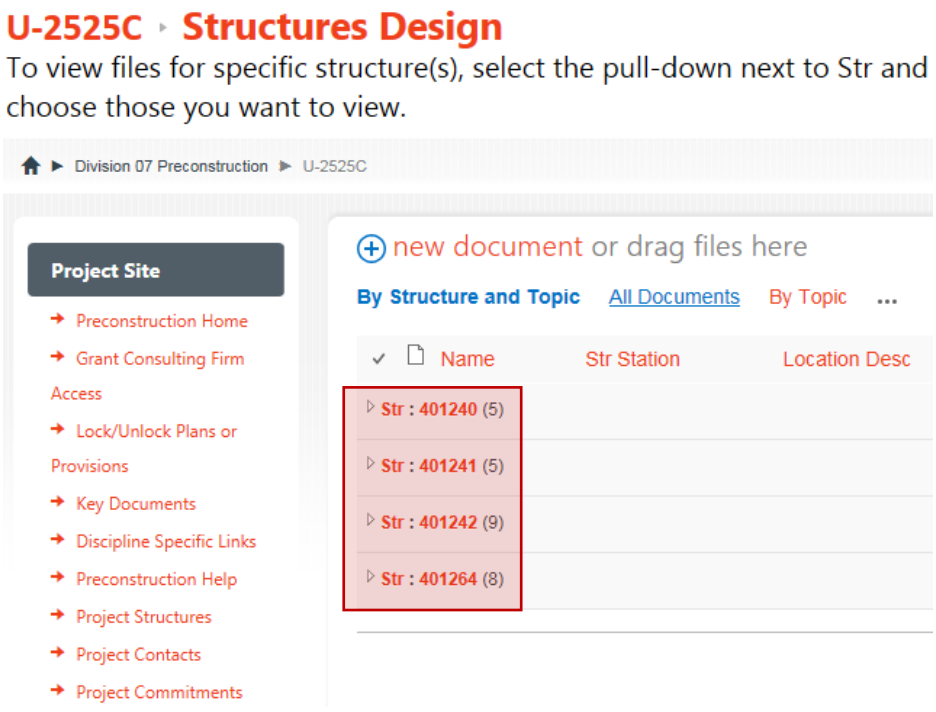
SMU Structures SharePoint Guidelines

4) Repeat for all structures.



Structure Name	Str Type	ID No	Str Station	Location Desc
401240	Bridge	401240	17+37.28 -Y16-; 292+96.51 -L-	Bridge on SR 2526 over GEL I-85 Bypass
401241	Bridge	401241	329+95.42 -L-; 12+84.82 -Y1-	Left Lane Bridge on GEL I-85 Bypass over Lees Chapel Road
401242	Bridge	401242	329+95.42 -L-; 12+84.82 -Y1-	Right Lane Bridge on GEL I-85 Bypass over Lees Chapel Road
401264	Culvert	401264	364+68.00 -L-	Single 8' x 8' RCBC for UT to Reedy Fork/Townsend Lake

5) Once all project structures are created, the “Structure Design” Library will default to be organized and separated by structure numbers.



SMU Structures SharePoint Guidelines

Document Sets

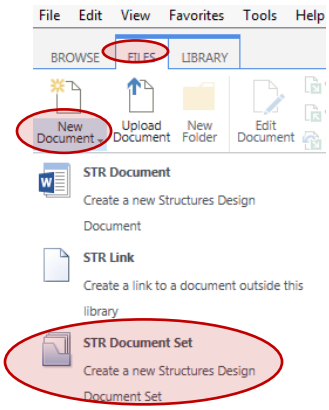
1) In order to organize the Structure Design Library, utilize document sets instead of folders as you can assign METADATA to document sets.
    a. Create the following document sets per structure:
        i. PGD
        ii. 90 Percent (Formerly known as Final Plans)
        iii. 100 Percent (Formerly known as Final Tracings)
        iv. MSE Wall
        v. General Drawing (Only required for Preservation Projects)
        vi. Correspondence*
        vii. Bid Documents *
        viii. Primary Folder *

    *If all structures are designed by the same PEF, then only one document set is necessary per project. **Do not** specify "Str" during the document set creation.

2) See "Document Set Content" section on page 9 for the appropriate content within each document set.

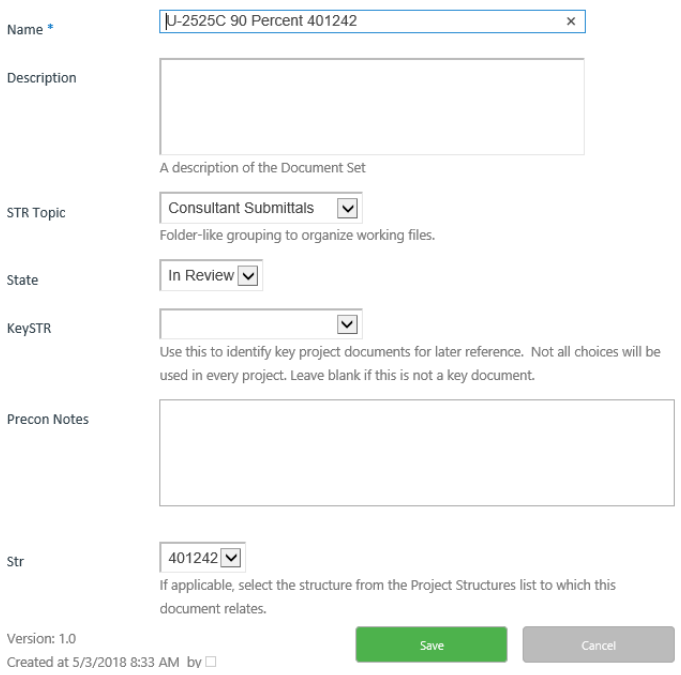
Creating Document Sets

1) In the upper left corner, click "Files".
2) Click the word "New Document". **NOT** the icon.
3) Click "STR Document Set".

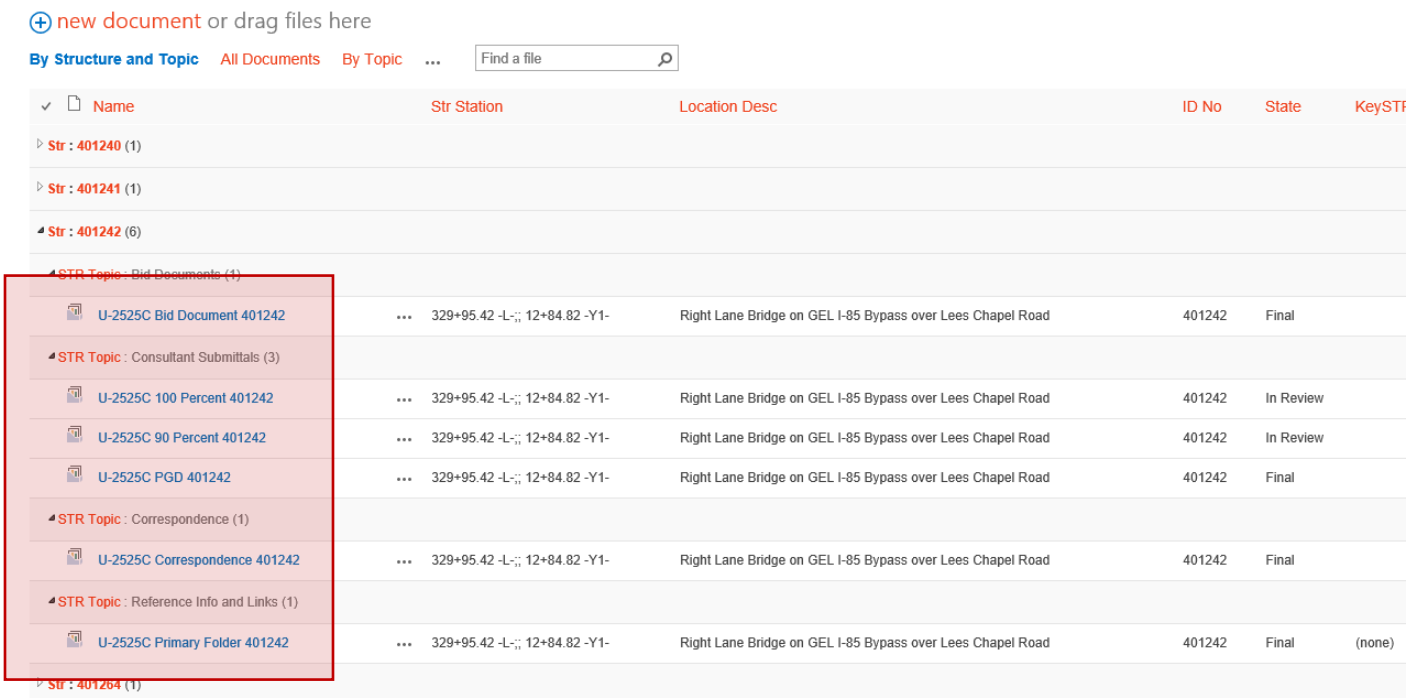


SMU Structures SharePoint Guidelines

4) Fill out the document set details below. Then click “Save”.
   a. Name: Follow the naming convention on page 4.
   b. STR Topic: This Metadata helps organize files and document sets within a structure number. For now, **ONLY** use the topics listed below:
      i. Consultant Submittals
      ii. Bid Documents
      iii. Reference Info & Links
      iv. Correspondence
   c. State: This describes the current status of the document set. For now, **ONLY** use the states listed below:
      i. In Review
      ii. Final
   d. Str: Select the bridge number.



5) Repeat these steps for all document sets. Once all document sets are created, they will be first organized by each structure and then by STR Topic.



SMU Structures SharePoint Guidelines

Document Set Content

1) When submitting deliverables, each document set will contain the following content.
   a. PGD
      i. All PGD reviews and comments will be conducted and contained within this document set.
      ii. Once the PGD is approved, upload a CADD DGN file of the PGD here. Label the State as “Final”.
   b. 90 Percent
      i. All 90 Percent plan reviews and comments will be conducted and contained within this document set.
      ii. Upload a PDF of the Special Provisions Package. Label the State as “In Review”.
   c. 100 Percent
      i. All 100 Percent plan reviews and comments will be conducted and contained within this document set.
      ii. PDF of Design Calculations
      iii. PDF of Construction Elevations
      iv. 100 Percent Combined Set
      v. *100 Percent Individual Sheets with PE seals & e-signatures
      vi. *100 Percent Individual CADD DGN files without PE seals

   *Use compressed zipped folder.

2) Correspondence
   a. Include any important documentation.

3) Bid Documents
   a. Completed Lump Sum Quantity Sheet
   b. Total Bill of Material (CSV Format)
   c. PDF of Special Provisions Package with PE seals & e-signatures
   d. PDF of Working Day Calculations

4) Primary Folder
   a. Inspection Reports
   b. Existing Plans
   c. Link to Roadway Plans
   d. Link to BSR/CSR
   e. Link to Foundation Recs
   f. Link to Permit Drawings
   g. Link to the Environmental Document

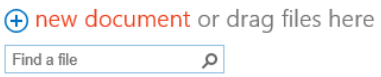
   NOTE: Since other disciplines will be adding their respective documents, we **ONLY** need to add a link to these documents. See “Creating Link” section on page 13.

SMU Structures SharePoint Guidelines

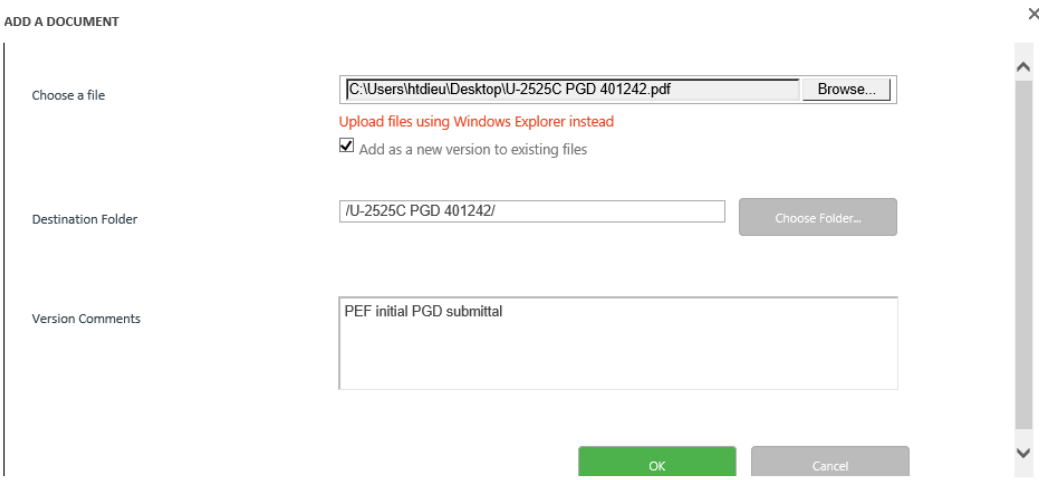
Submitting Documents

1) Click/open proper document set.

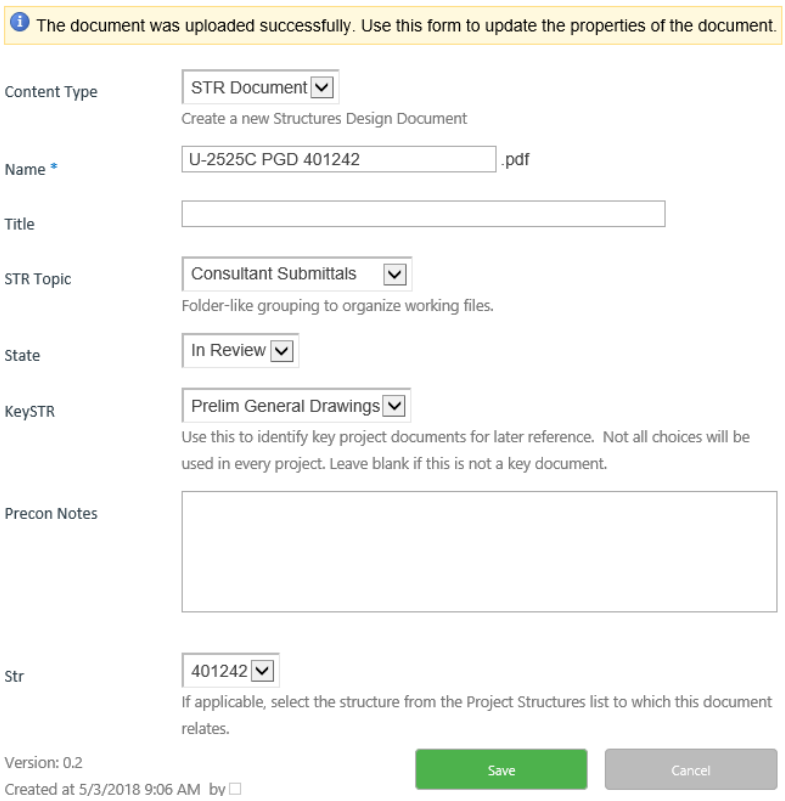
2) Click new document button.



3) Choose the file location, leave check mark, and fill out Version Comments.



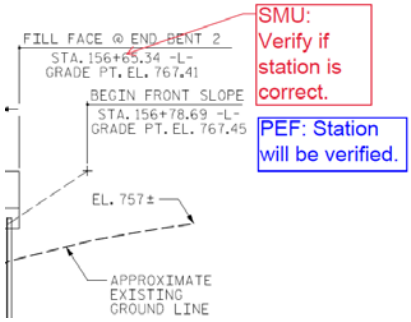
4) Most of the Metadata will be automatically filled in. Fill out the remaining Metadata below, then click save.
   a. State: This indicates the current status of the file. For now, **ONLY** use the states listed below:
      i. In Review
      ii. Final
   b. KeySTR: This identifies the file as a key document. For SMU, **ONLY** use this if the file is a PGD. Leave blank for all other documents.



SMU Structures SharePoint Guidelines

Plan Review Process

1) All plan reviews and discussions will be contained within the Review Document Sets. SharePoint has the capability to automatically generate and keep track of all submittal versions, dates of when submittals were modified, and the individuals that modified them. Visually there will be one plan file in the document set, but SharePoint will keep track of all plan versions submitted. All versions can be viewed/downloaded by clicking the "Version History" feature. See Page 12.
    a. Submit initial plans into the proper document set. Label the State as "In Review". Notify SMU via email that the plans have been submitted on SharePoint and include a SharePoint link.
    b. SMU will review, comment on the plans, and upload the redline plans into the same document set with **the same exact file name**. SMU will notify the PEF via email the redline plans have been uploaded and will include a SharePoint Link.
    c. The PEF will respond to SMU comments directly on the redline plans. Then resubmit these responses back into the same document set with the same exact file name. **DO NOT CHANGE** the file name. This version will take place of the traditional comment log.



    d. After revising the plans as necessary, resubmit the revised plans into the same document set with the same exact file name. **DO NOT CHANGE** the file name. Then notify SMU via email that the plans have been submitted and include a SharePoint link.
    e. SMU will then review the PEF Response and PEF Revised Plan Submittal. This process is repeated until plans are approved. Below is an example of the timeline and version history for file.

VERSION HISTORY

Delete All Versions | Delete Minor Versions

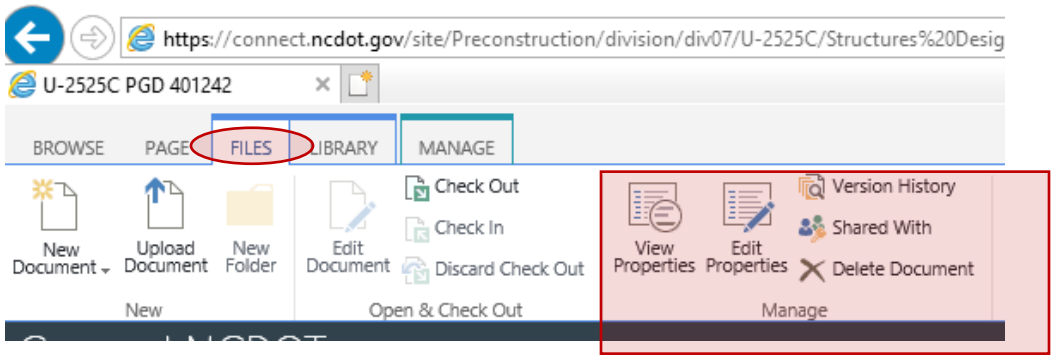
No.	Modified	Modified By	Size	Comments
0.4	5/3/2018 9:18 AM	Hoang T. Dieu	1.2 MB	PEF Revised PGD Submittal
0.3	5/3/2018 9:17 AM	Hoang T. Dieu	1.2 MB	PEF Responses to SMU's Redline Comments
0.2	5/3/2018 9:17 AM	Hoang T. Dieu	1.2 MB	SMU's Redline Comments
0.1	5/3/2018 9:16 AM	Hoang T. Dieu	1.2 MB	PEF Initial PGD Submittal

STR Topic	Consultant Submittals
State	In Review
KeySTR	Prelim General Drawings
Str	401242

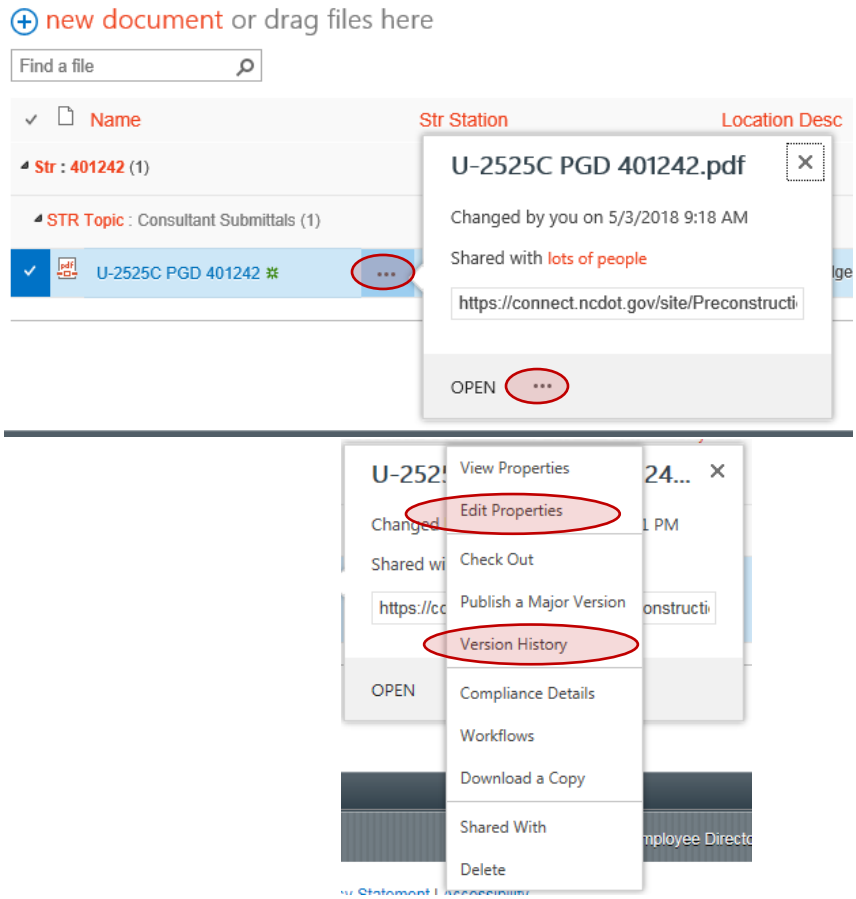
SMU Structures SharePoint Guidelines

Access Version History & Edit Properties

The Version History & Edit Properties can be accessed by clicking the Files button at the top of the screen and using the drop-down ribbon.



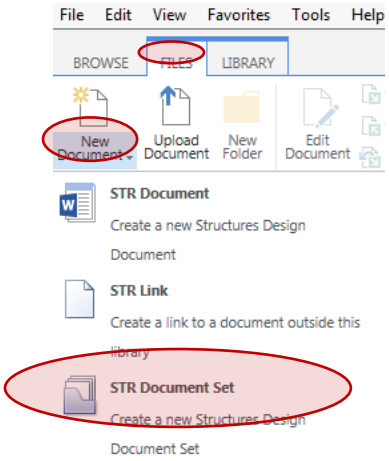
Another way to access Version History & Edit Properties is to click on the file ellipsis icon next to the file.



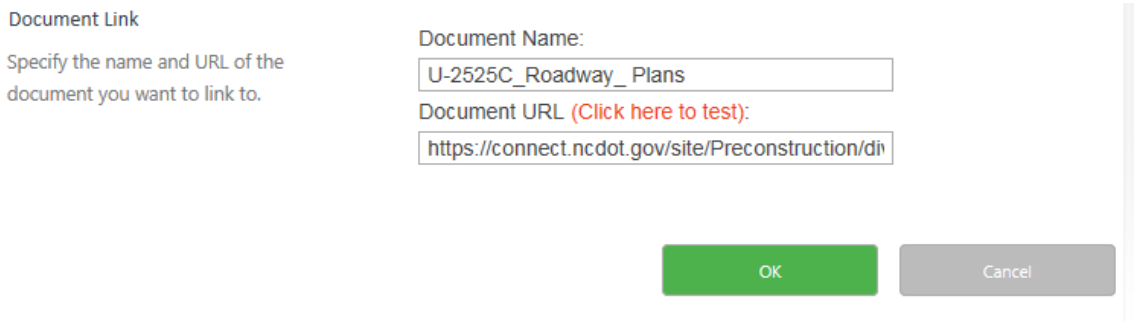
SMU Structures SharePoint Guidelines

Creating Links

1) In the upper left corner, click “Files”.
2) Click the word “New Document”. **NOT** the icon.
3) Click “STR Link”.



4) Fill out the Document Name. **TIP:** Find the document and copy the link you want to use before going to add the link to the library. Paste the link into the Document URL. Then click “OK”.



SMU 100% Turn-In Guidelines

CADD DGN Files and Electronically Sealed PDF Naming Convention

All Structure 100% PDF plans shall be electronically sealed, full size (22”x34”), individual sheets and follow the naming convention described below:

401_001_U2579B_SMU_GD01_###

4xx – All Structures plans will be in the 400 series of sheets and the xx will be the structure # given during the scoping process (400 will be the title sheet) (Culverts will be in the 410 series unless there are more than 9 structures on the project and walls will be 420)

001 – Electronic page number for the particular bridge (each bridge set starts at 001 and successive numbers are all odd, ie. 001, 003, 005….)

U2579B – TIP number for the particular project

SMU – Structures Management Unit

GD – abbreviation of the drawing type as found in the Design File Generator program. Refer to page 17.

- Sheet number as shown on the plans (In the example below, this number would be 2 or 002.

Example Bridge: 401_001_ R2006BA_SMU_TS_###.PDF
403_025_R2006BA_SMU_E1_###.PDF

Example Culvert: 410_001_ R2006BA_SMU_CU_###.PDF

Example Wall: 420_001_ R2006BA_SMU_RW_###.PDF

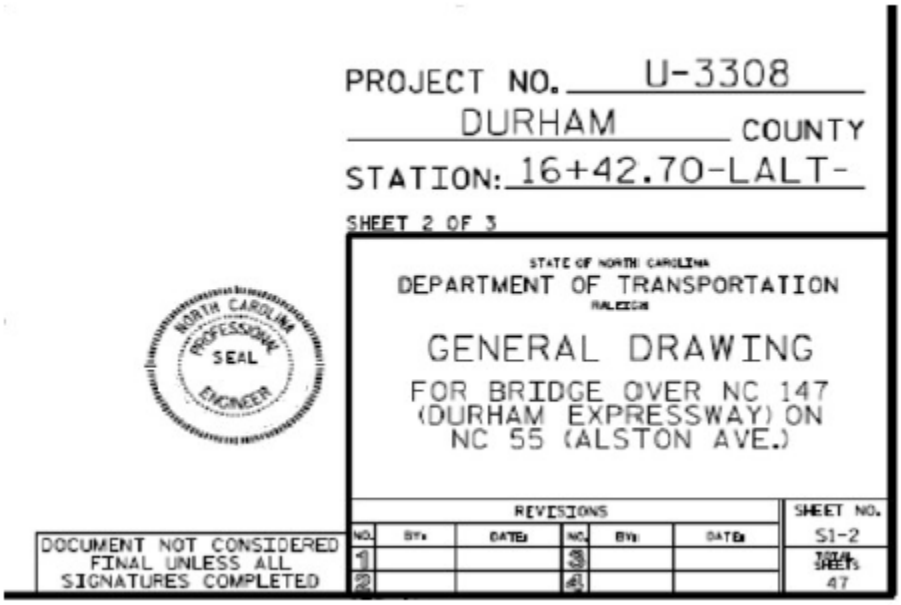
Example Title Sheet: 400_001_R2006BA_TSH_001.PDF

Example SN Sheet: 499_001_SN.PDF

SMU 100% Turn-In Guidelines

Plansheet Numbering

For all projects with multiple bridge structures, the following sheet numbering convention should be used in the lower right corner of each plan sheet:



For this example, S1 is the first structure in the project and this is the second page. The total number of sheets are based on the single structure and not the entire plan set.

Do not number Title Sheet or SN sheet. Do not include Title Sheet or SN in total sheets.

SMU 100% Turn-In Guidelines

Abbreviation of Drawing Type

FILE DESCRIPTIONS			
File Type Code	DESCRIPTION CODES FOR FILE NAMES	File Type Code	DESCRIPTION CODES FOR FILE NAMES
AB	ABUTMENT SHEET	FP	FRAMING PLAN LAYOUT SHEET
AR	ALASKA RAIL	MD	CONCRETE MEDIAN
AS	APPROACH SLAB SHEETS	MJ	MODULAR EXPANSION JOINT SEAL
BR	BARRIER RAIL	OR	OREGON RAIL
BG	BEARING SHEET	PC	STAGE OF PHASE CONSTRUCTION
BK	BULKHEAD SHEET	PGD	PRELIMARY GENERAL DRAWING
BM	SUPERSTRUCTURE BILL OF MATERIAL SHEET	PP	PRESTRESSED CONCRETE PILE
BR	BARRIER RAIL SHEET	RF	RAIL RETROFIT
B1, B2, B3 OR B4....	BENT SHEETS	RR	RIP-RAP SHEET
CG	COAST GUARD PERMIT SHEET	RW	RETAINING WALL DETAIL SHEET
CS	CORED SLAB SHEETS	SP	SLOPE PROTECTION SHEETS
CU	CULVERT SHEETS	S1, S2, S3 OR S4....	PLAN OF SPAN SHEETS
DT	DETOUR SHEETS	SS	STRUCTURAL STEEL DETAIL SHEETS
DL	DEAD LOAD DEFLECTION TABLE SHEETS	SW	SIDEWALK DETAILS SHEET
DP	PRESTRESSED CONCRETE DECK PANEL	TA	TEMPORARY ACCESS
E1, E2, E3 OR E4	END BENT SHEETS	TS	SUPERSTRUCTURE TYPICAL SECTION SHEET
JS	JOINT SEAL SHEET	UT	UTILITIES DETAILS SHEET
GD	GENERAL DRAWING SHEETS	1MR	ONE BAR METAL RAIL
GR	GUARDRAIL ATTACHMENT SHEET	2MR	TWO BAR METAL RAIL
G1, G2, G3, OR G4....	PRESTRESSED CONCRETE GIRDER SHEETS	3MR	THREE BAR METAL RAIL
IS	INDEX OF MULTI-STRUCTURE PROJECTS	JT	JOINT DETAIL
LC	LONG CORD LAYOUT SHEET	SSR	STRUCTURAL STEEL REPAIRS
FL	FOUNDATION LAYOUT SKETCH	DSR	DECK SURFACE REPAIR

SMU 100% Turn-In Guidelines

County Codes Numbering Convention

XX - County Numbers		
00 - ALAMANCE	34 - FRANKLIN	68 - PAMLICO
01 - ALEXANDER	35 - GASTON	69 - PASQUOTANK
02 - ALLEGHANY	36 - GATES	70 - PENDER
03 - ANSON	37 - GRAHAM	71 - PERQUIMANS
04 - ASHE	38 - GRANVILLE	72 - PERSON
05 - AVERY	39 - GREENE	73 - PITT
06 - BEAUFORT	40 - GUILFORD	74 - POLK
07 - BERTIE	41 - HALIFAX	75 - RANDOLPH
08 - BLADEN	42 - HARNETT	76 - RICHMOND
09 - BRUNSWICK	43 - HAYWOOD	77 - ROBESON
10 - BUNCOMBE	44 - HENDERSON	78 - ROCKINGGHAM
11 - BURKE	45 - HERTFORD	79 - ROWAN
12 - CABARRUS	46 - HOKE	80 - RUTHERFORD
13 - CALDWELL	47 - HYDE	81 - SAMPSON
14 - CAMDEN	48- IREDELL	82 - SCOTLAND
15 - CARTERET	49 - JACKSON	83 - STANLY
16 - CASWELL	50 - JOHNSTON	84 - STOKES
17 - CATAWBA	51 - JONES	85 - SURRY
18 - CHATHAM	52 - LEE	86 - SWAIN
19 - CHEROKEE	53 - LENOIR	87 - TRANSYLVANIA
20 - CHOWAN	54 - LINCOLN	88 - TYRRELL
21 - CLAY	55 - MACON	89 - UNION
22 - CLEVELAND	56 - MADISON	90 - VANCE
23 - COLUMBUS	57 - MARTIN	91 - WAKE
24 - CRAVEN	58 - MCDOWELL	92 - WARREN
25 - CUMBERLAND	59 - MECKLENBURG	93 - WASHINGTON
26 - CURRITUCK	60 - MITCHELL	94 - WATAUGA
27 - DARE	61 - MONTGOMERY	95 - WAYNE
28 - DAVIDSON	62 - MOORE	96 - WILKES
29 - DAVIE	63 - NASH	97 - WILSON
30 - DUPLIN	64 – NEW HANOVER	98 - YADKIN
31 - DURHAM	65 - NORTHHAMPTON	99 - YANCEY
32 - EDGECOMBE	66 - ONSLOW	
33 - FORSYTH	67- ORANGE	

ST-1

Project B-5407 Polk County

Project Special Provisions

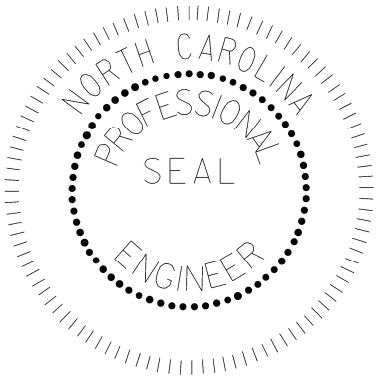
Structure

Structure
Structures
Structure & Culvert...

Use appropriate title applicable to the overall project

Table of Contents

All text should be Times New Roman Font 12 except for the sheet numbers should be Font 18.



Please do not include a company logo or any additional information on this sheet.

PROJECT SPECIAL PROVISIONS STRUCTURE

FALSEWORK AND FORMWORK (4-5-12)

1.0 DESCRIPTION

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term "temporary works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS

A. Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

ST-3

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screed Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 ½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.