Creating Plan Revisions – B.S.B. Version

(MicroStation CONNECT Edition)

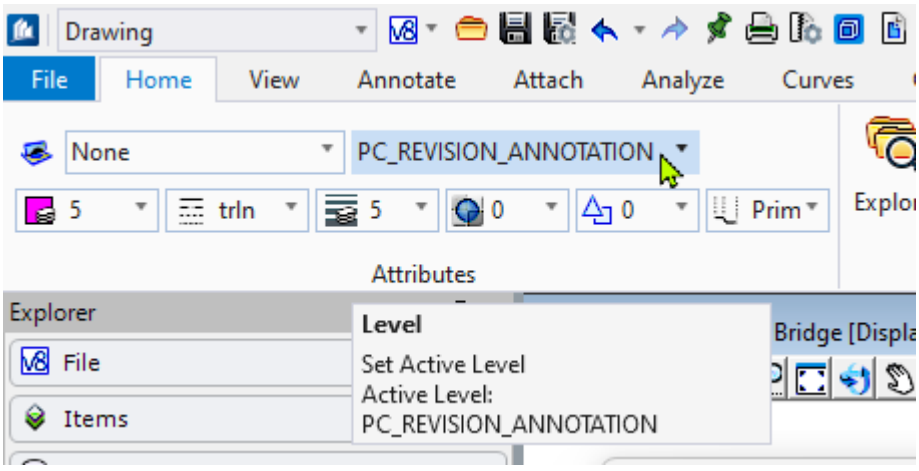
NOTICE: Some of the images shown in the plan revision examples are from the MicroStation V8i format of CADD sheets and differs from the MicroStation CONNECT format of CADD sheets. The relevant part of the visual examples to focus on is the use of the revision cloud, crossed out text and details, and the use of the revision triangle.

Plan revisions may be needed to document changes, including a different construction method, a plan alteration, or a plan correction. DO NOT DELETE OR MOVE ANY EXISTING DETAILS, ELEMENTS, TEXT, OR PLAN SHEETS when creating revisions. The revised text or details are NEVER DELETED but crossed-through (strike-over) with 2 lines and then the NEW INFORMATION IS ADDED using only the PC_REVISION_ANNOTATION level. The CADD cell revision symbol **Rev-Triangle** (denoting which revision, e.g. 1st, 2nd, 3rd...) is placed as near as possible to the note, lines, views, or dimensions that are revised. The cell is located in the "**BridgeGeneralUseCells.cel**" file located in ProjectWise under **PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\Cell**. The Bridge Bureau process calls out the use of a specific revision level that is to be used in CADD, this allows for the "shutting off" of the plan revisions to view the original plan details in the CADD file.

The strike-over and new information is encircled with a cloud using the PC_REVISION_ANNOTATION level. **Revised** dates and a summarized **Reason** for the change are given on each detail sheet affected by the revision.

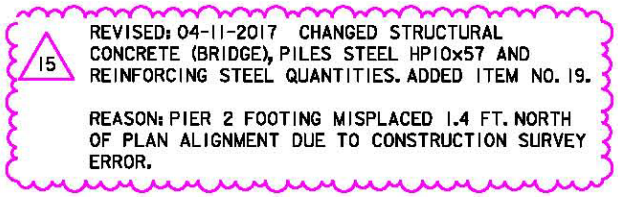
For the revision cloud, use the settings as shown in the image below.

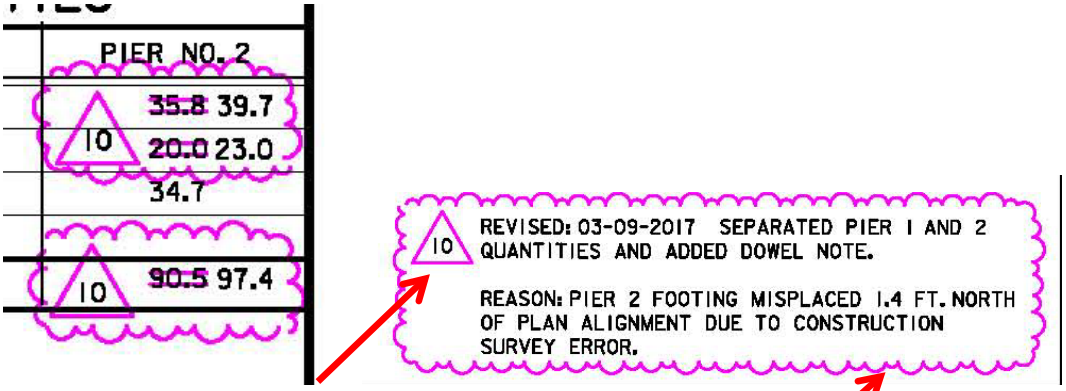
Level = PC_REVISION_ANNOTATION
Color = 5 (ByLevel)
Line Style = 0 (for non-clouded shapes, lines)
Line Style = trln (clouded shapes)
Line Weight = 5 (ByLevel)



Example shown below of clouded note.

The PC_REVISION_ANNOTATION level is to be used for the clouded shape and text note on all sheets.

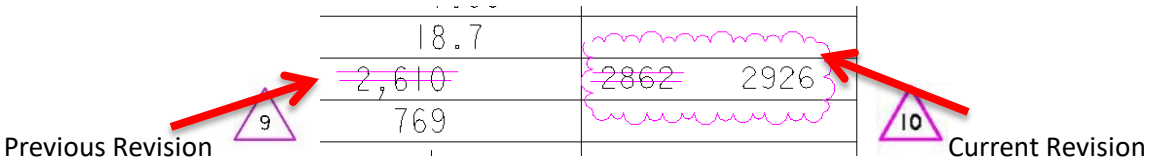




Use the cell **Rev-Triangle** next to revision and the clouded note.

When possible, place note in lower right corner of ALL revised and added plan sheets.

If a sheet is revised and later revised again, the clouds are to be removed from the first, or previous, revision corrections leaving the "strike-over". The second, or latest, revision changes are to be the only items that are both "strike-over and clouded".



Previous Revision

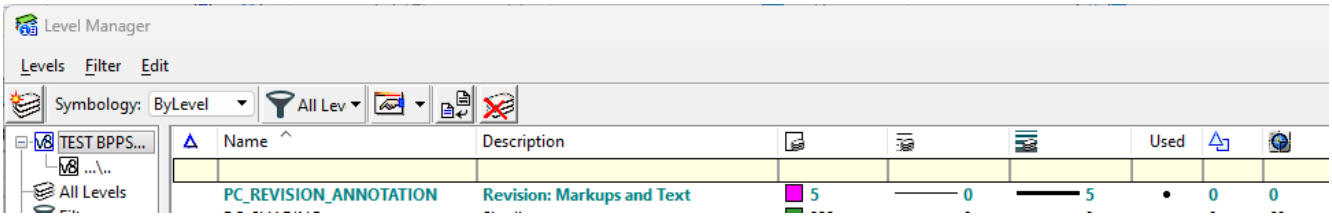
Current Revision

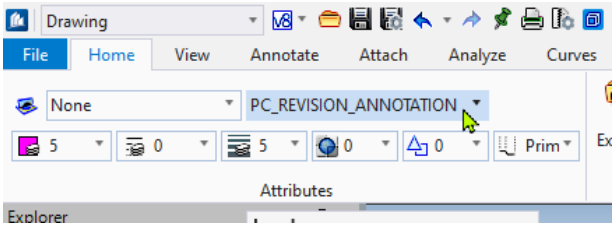
Revision Dimensions, Notes and Elements

If a new “revision” dimension and note is required to be added to an existing sheet, then use the appropriate IowaDOT…. dimension and text style placed on the PC_REVISION_ANNOTATION level.

For the revision dimensions and notes added to an existing sheet, use the settings as shown in the image below.

Level = PC_REVISION_ANNOTATION
Color = 5 (ByLevel)
Line Style = 0 (ByLevel)
Line Weight = 5 (ByLevel)



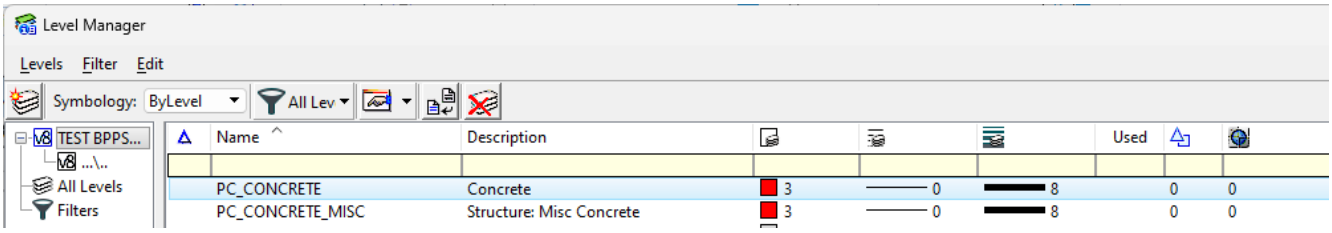


If new “revision” linear elements are required to be added to an existing sheet, then use the PC_REVISION_ANNOTATION level with the appropriate color, line style and weight for the specific elements needing detailed, matching the properties of the intended elements level.

For revision linear elements needing added to an existing sheet, use the settings examples as shown below.

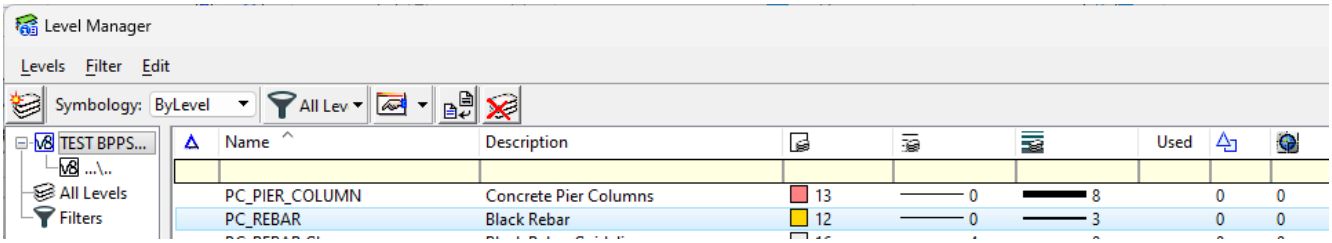
Example shown below of an added Revision CONCRETE element to an existing sheet.

Level = PC_REVISION_ANNOTATION
Color = 3
Line Style = 0
Line Weight = 8



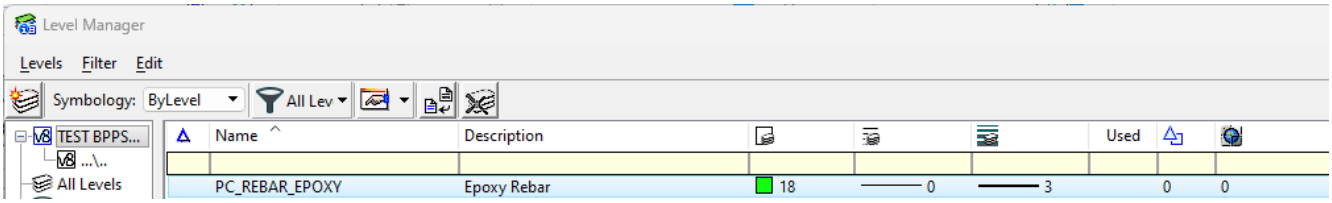
Example shown below of an added Revision REBAR (Black Rebar) element to an existing sheet.

Level = PC_REVISION_ANNOTATION
Color = 12
Line Style = 0
Line Weight = 3



Example shown below of an added Revision REBAR (Epoxy Rebar) element to an existing sheet.

Level = PC_REVISION_ANNOTATION
Color = 18
Line Style = 0
Line Weight = 3

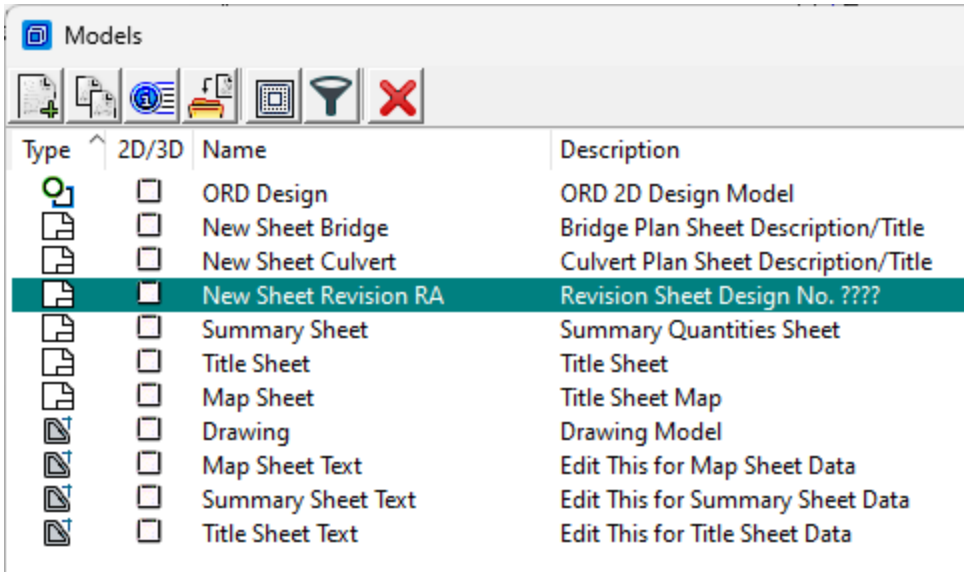


Revision Index Sheet

The Revision Sheet model is included in the Bridge Plan Production Seed file. (This seed file is located in PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\ProStructures\Seed\Imperial3d.dgn). The revision plan sheet is to be added to the plan set after the Title and Map Sheet. The **Revision RA** Sheet model can also be referenced or imported into MicroStation from the Bridge Plan Production Seed file location.

If there is no Title Sheet, then the **RA** sheet is to be placed after the Quantity Sheet. On sheet **RA**, a more extensive explanation and description of the plan revision should be given. The CADD sheet model name for the Revision Sheet (**SHEET NUMBER RA**) is the same sheet model name as the Title Sheet (or Quantity Sheet) with an '**RA**' added, CCDDDDs000RA (CC = two-digit County number, DDDD = four-digit Design Number e.g. 420399s000**RA**), indicating the revision sheet. This sheet (**RA**) will follow the Title Sheet model. If more than the single **RA** Revision Sheet is needed the additional Revision Sheet/s should be named **RB**, **RC**, etc. for the plan Sheet Number. The sheet model names for additional Revision Sheets should be named CCDDDDs000**RB** for the second Revision Sheet and CCDDDDs000**RC** for the third Revision Sheet, etc.

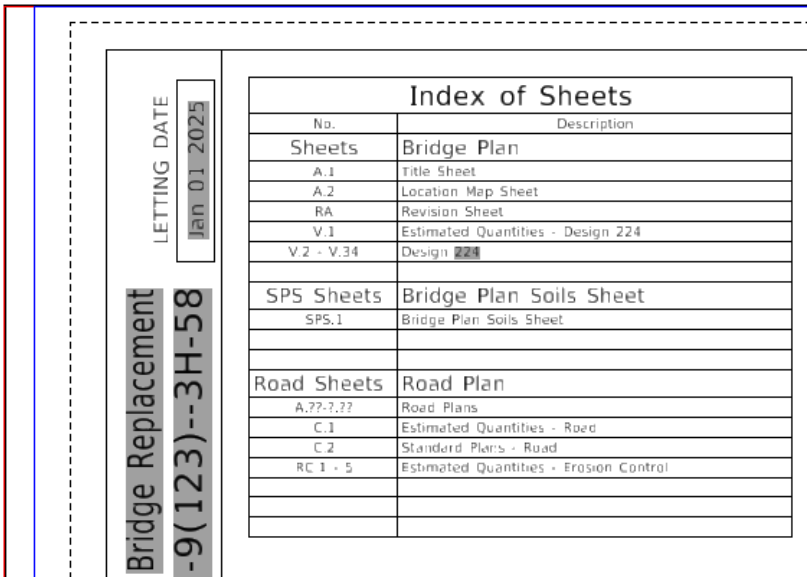
Example shown below of Model name for Plan Revision Sheet RA.



Sheet Model Name Examples	*Description (will display in plan sheet Title Block)*
CCDDDDs000 RA	
420125s000 RA	Revision Sheet

The addition of Revision Sheet **RA** is to be added to the "INDEX OF SHEETS" on the Title Sheet and placed after the Title Sheet listing. The revision box on the Title Sheet is to be filled out with the revision date.

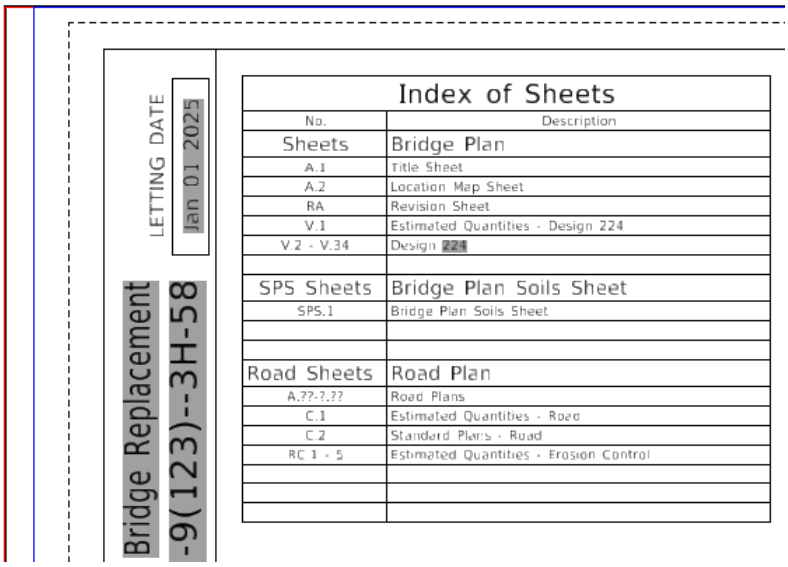
Example shown below of plan revision information added to the Title Sheet.



Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
RA	Revision Sheet
V.1	Estimated Quantities - Design 224
V.2 - V.34	Design 224
SPS Sheets	Bridge Plan Soils Sheet
SPS.1	Bridge Plan Soils Sheet
Road Sheets	Road Plan
A.??-?.??	Road Plans
C.1	Estimated Quantities - Road
C.2	Standard Plans - Road
RC 1 - 5	Estimated Quantities - Erosion Control

REVISIONS	
SEE REVISION SHEET RA	03-09-2017

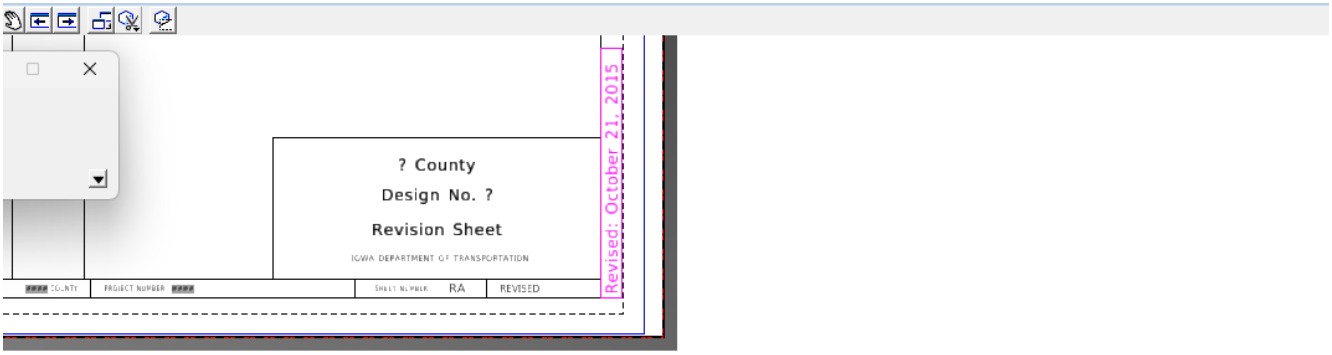
Example shown below of multiple plan revisions and revision sheets added to the Title Sheet.



Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
RA	Revision Sheet
V.1	Estimated Quantities - Design 224
V.2 - V.34	Design 224
SPS Sheets	Bridge Plan Soils Sheet
SPS.1	Bridge Plan Soils Sheet
Road Sheets	Road Plan
A.??-?.??	Road Plans
C.1	Estimated Quantities - Road
C.2	Standard Plans - Road
RC 1 - 5	Estimated Quantities - Erosion Control

REVISIONS	
SEE REVISION SHEET RA	03-09-2017
SEE REVISION SHEET RA	03-27-2017
SEE REVISION SHEET RA	04-11-2017
SEE REVISION SHEET RB	04-15-2017

The Revision sheet model contains instructions outside of the sheet border that are beneficial and provide guidance for editing the sheet Title Block and border information with regards to Revision and Plan Sheet Number “V” sequencing. See example shown below.



INSTRUCTIONS TO CADD USER (UPDATED JANUARY 2023):
Edit the text directly on this sheet.

Text fields in the border are "auto-filled" with information when added to the Sheet Index.
The text fields on this sheet are reading data from the Folder Properties of the "Title Sheet" folder part in the Sheet Index (See Image 1).

After placing the Revision Sheet in the Sheet Index, highlight the sheet in the Sheet Index and in the Sheet Index Properties, select "Exclude From Sequence Number" and set to "On" (See Image 2). This will allow the other plan sheets in the Plan Sheets Design folders of the Sheet Index to use the updated Plan Sheet "V" sheet numbering and auto sequence those sheets.

To show the "Revised" text in the lower right box of the plan sheet border, turn on the level "SheetRevisedText" in the referenced file "Border.dgn".
Also turn on the level "PC_REVISION_ANNOTATION" and the "Revised" cell will display vertically outside the border at the lower right corner. Edit the date in the cell accordingly.

Image 1

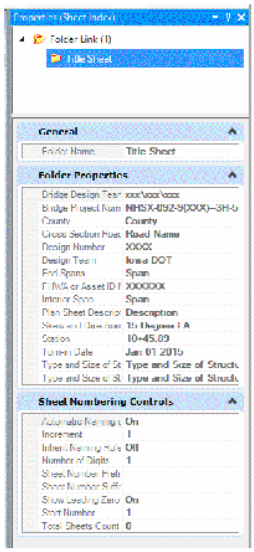
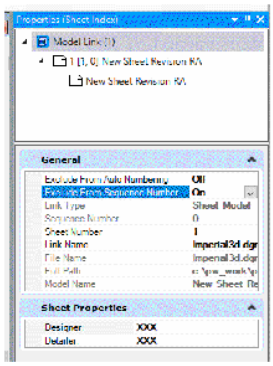
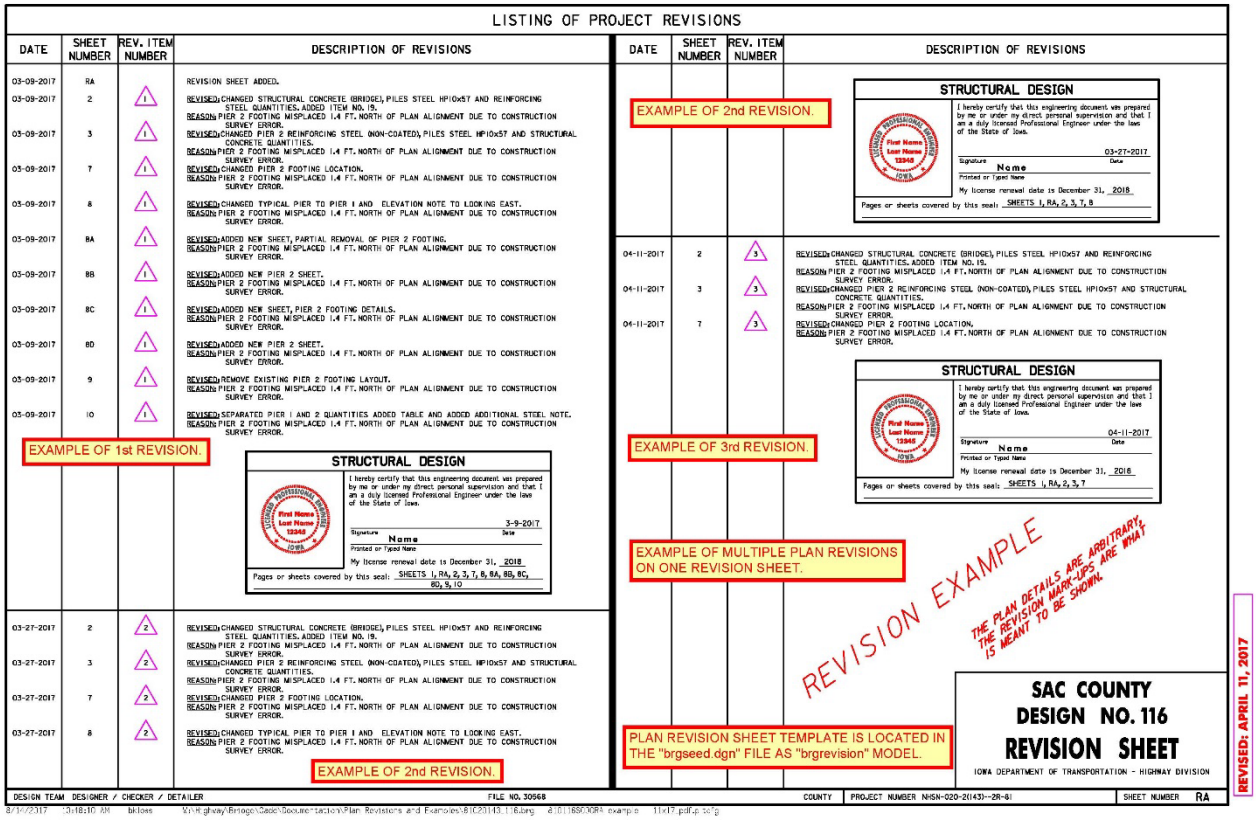


Image 2



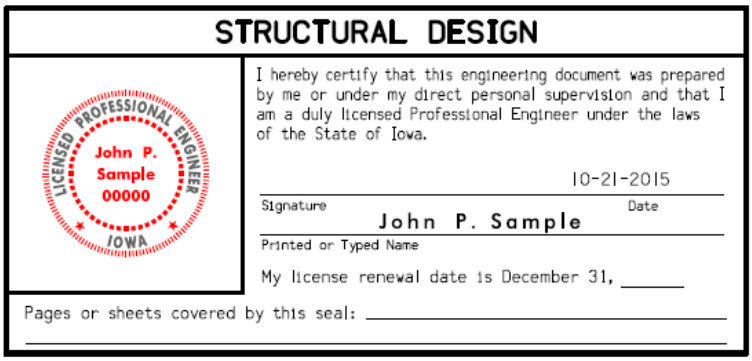
Example shown below of Plan Revision Sheet RA.



For each revision, an Engineering Seal is to be added with the Revision Date on the signature line and a listing of the revised plan sheet numbers is to be listed in MicroStation Normal Text properties (SheetText level). The Title Sheet, sheet number, does not have to be shown in the listing of revised sheets (unless a change is made to the Title Sheet). The TOTAL SHEETS on the Title Sheet does not change. Changing the total sheets could conflict with the sheet numbers on the original Engineer Seal shown on the Title Sheet. The added sheets will be accounted for on the Revision Sheet **RA** and "signed for" by the Revision Engineer with their seal on the Revision Sheet.

Sheet **RA** will need the revision Engineer's seal with the revision date and a listing of the revised sheets and any new added sheets. If a second revision occurs, the second revision Engineer's seal is to be added to the revision sheet and detailed with the new revision date and a listing of the plan sheets affected in the second revision. Ensure the revision date matches on all sheets that are part of the same revision.

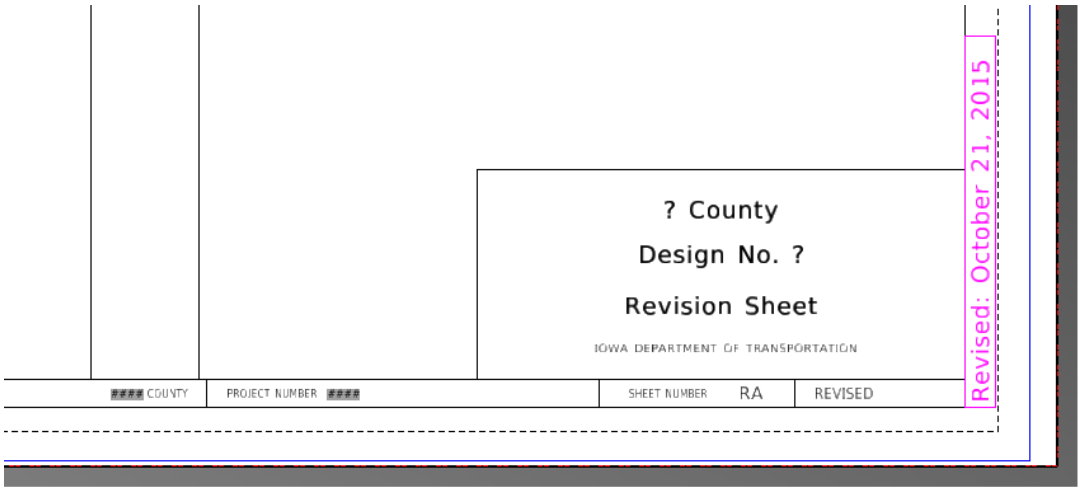
Example shown below of Engineer Seal



The Revision Sheet (**RA**) title block lists the design number being revised. If multiple designs are in this project and a second revision occurs involving other designs, these revised design numbers need to be added to the title block to indicate all the design numbers involved in the revisions. If a second revision occurs, the new revision DATE, SHEET NUMBERS and DESCRIPTION OF REVISIONS will indicate more than one revision has occurred and separate the previous revision from the current revision.

The cell named **Revised**, which shows the revision date, needs to be attached in the lower right-hand corner of each revised sheet, existing and new, and including the revision sheet **RA** in the plan. If a second revision occurs with a different revision date, the date shown on the **Revised** cell shown below is to be changed to reflect the date of the second revision. The strike-over is not to be used on the **Revised** cell. The cell named **Revised** is not used on the Title Sheet. The cell is located in the "**BridgeGeneralUseCells.cel**" file located in ProjectWise under **PWMain\Documents\IowaDOTStandardsConnect\Configuration\Organization-Civil\IowaDOT_Standards\Cell**.
The Revised cell is also part of all the updated sheet models used in the Bridge Plan Production Seed File. Turn on the level "PC_REVISION_ANNOTATION" and the "Revised" cell will display vertically outside the border at the lower right corner. Edit the date in the cell accordingly. To show the "REVISED" text in the lower right box of the plan sheet border, turn on the level "SheetRevisedText" in the referenced file "Border.dgn".

Example shown below of Revised cell and Revision Sheet Title Block and border.



Revision Levels, Dimensions and Text

NOTICE, For information only:
In the past, plan revisions done with MicroStation V8i or earlier, there were a separate set of levels, dimension and test styles used when placing revision elements and text provided through the level library filter called "Bridge Revisions". The older Bridge Bureau revision levels, dimensions and text styles that were used for placing revised elements on existing sheets were prefixed as "brgRev….." levels and the Bridge Bureau "Rev. Eng….." dimension styles. **This is no longer the process! With the change to the CONNECT Version of CADD, there are no prefixed level names using "brg…" or "brgRev…", these are obsolete.**

Revision Detailing

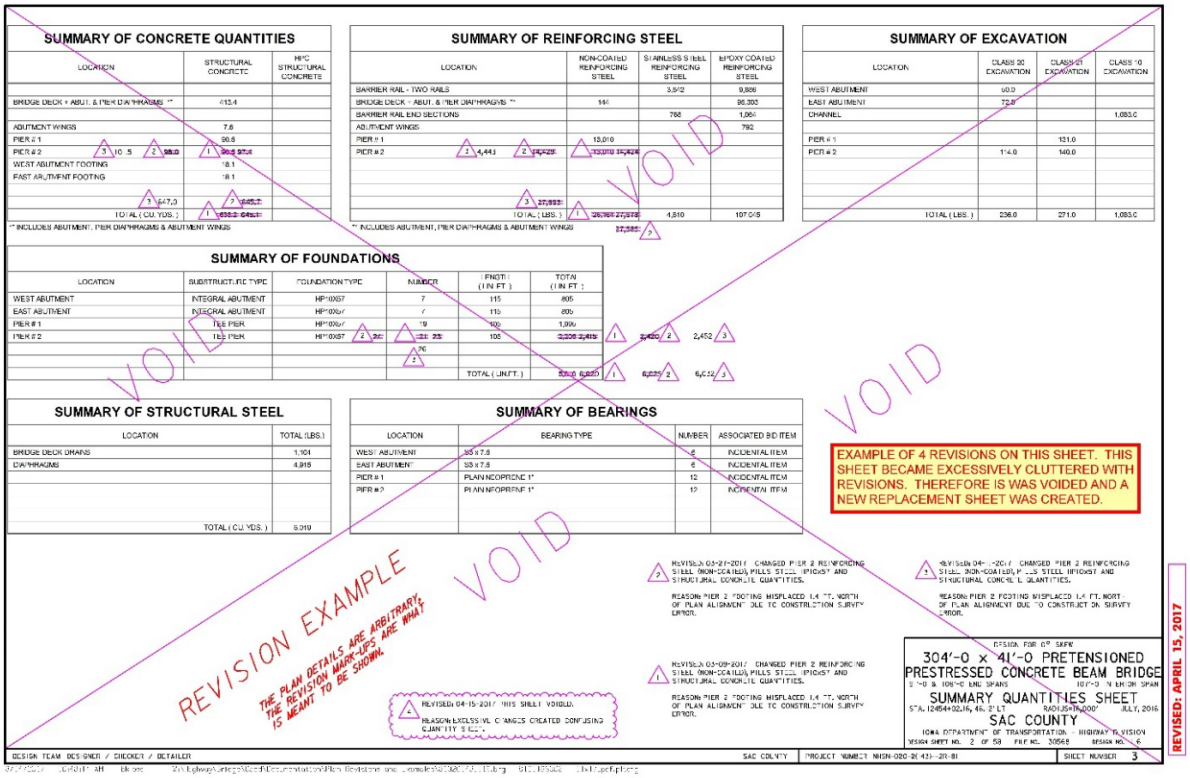
If new details are added to an existing sheet, then the new details are added using the PC_REVISION_ANNOTATION level following the guidance from the "-Revision Dimensions, Notes and Elements-" section in this document.

If a plan sheet becomes cluttered with revisions or if the revision is large, such as a pier redesign, then it would be best to void the original plan sheet and add a new revised plan sheet to allow for clear details. With all revision sheets that are new added sheet/s to a plan, an '**A**' is to be appended to the CADD Model Number, Design Sheet Number, and the Plan Sheet Number. For revised sheets requiring a new detail sheet to replace the original (voided) plan sheet, use the voided model number with an '**A**' appended to the new model number (e.g. 420399s005**A**). This new added sheet is to follow the voided sheet in the set of plans.

If several new sheets are added but are scattered throughout the plan, they should be placed in the proper plan sheet location and numbered using the model and sheet number of the sheet they follow with an '**A**' appended to the numbers. If more than one new additional plan sheet is needed in sequence, the other new additional sheet/s would follow the new '**A**' sheet and would be named in the CADD Model '420399s005**A01**', '420399s005**A02**', etc. This will locate any new added design sheets in the correct model order in MicroStation.

When a NEW sheet is added, the normal CADD levels are to be used on all new additional, or replacement sheets. (The use of the PC_REVISION_ANNOTATION level is used for the clouded shape and text note on all sheets.)

Example shown below of Void Plan Revision sheet.
The word “VOID” and the “X” are placed using the PC_REVISION_ANNOTATION revision level.



If a later revision occurs and the ‘**A**’ sheets that were done with the previous revision are voided, or if additional revision sheets are added, then the replacement sheet numbers for the CADD Model Number, Design Sheet Number and Plan Sheet Numbers would be **A1a**, **A2a** (Model 420399s005**A01a,** 420399s005**A02a**) etc.
Using capitalized and lower-case letters are to be adhered to when renaming revision sheets.

Example CADD Sheet Model Numbering for revisions:
Original Plan Sheet model;
420399s005
1st Revision Added two plan sheets after original plan sheet;
420399s005A01, 420399s005A02
2nd Revision Added two more plan sheets to the previous 5A01 plan sheet that was added from the first revision;
420399s005A01a, 420399s005A01b

Example **Plan Sheet Numbering** for revisions to the corresponding Sheet Models example:
Original Plan Sheet Number;
SHEET NUMBER V.06
1st Revision Added two plan sheets after original plan sheet;
SHEET NUMBER V.06A01, V.06A02
2nd Revision Added two more plan sheets to the previous V.06A01 plan sheet that was added from the first revision;
SHEET NUMBER V.06A01a, V.06A01b

Example **Design Sheet Numbering** for revisions to the corresponding Sheet Models example:
Original Design Sheet Number;
Design Sheet No. V.05
1st Revision Added two plan sheets after original plan sheet;
Design Sheet No. V.05A01, V.05A02
2nd Revision Added two more plan sheets to the previous V.06A01 plan sheet that was added from the first revision;
Design Sheet No. V.05A01a, V.05A01b

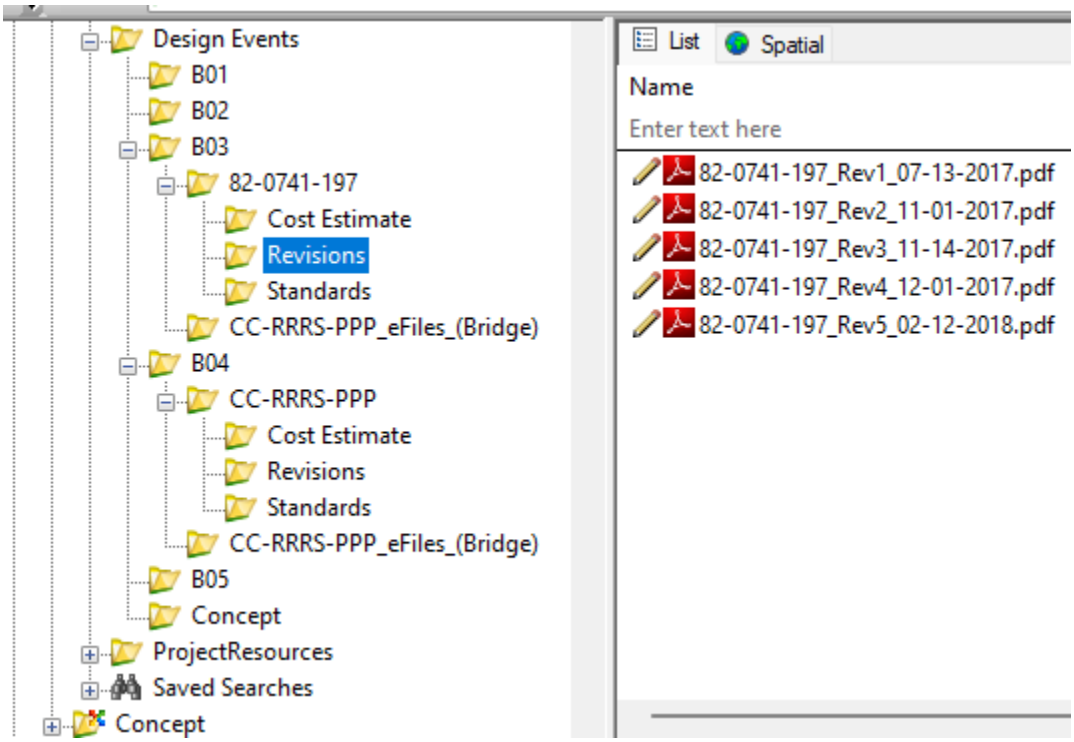
Revision PDF in ProjectWise

A set of only the revised sheets should be made into a multipage PDF file with the revision Engineer's signature. Include the Title Sheet if there is one. Use the contract ID format, County-Route, federal control Section-Paren (**CC-RRRS-PPP_Rev1_**date **MM-DD-YYYY**)**.pdf**. Do not use the # sign to list the Revision number, use Rev1, Rev2, etc.

Store the revision PDF file in ProjectWise under the contract ID sub-folder titled "Revisions" (CC-RRRS-PPP ex. 77-0353-167) in the Projects Directory. (**The "Revisions" subfolder may need to be created.**)

Example of Revisions subfolder shown below:
Project Number IM-NHS-074-1(197)5- -03-82 would be **82-0741-197_Rev1_07-13-2017**.

Example shown below of Revisions folder and files.



Terminology Definitions

Revision – The term "revision" refers to any change on the plans after the plans have been Let. Do not delete or move any original plan details or notes, only cross out and add new details and text.

Revision Note and Reason – Each revision is to have a REVISED note showing the date of the revision and what was revised and a REASON for the revision stated in a brief description.

Revision Date - The date of the revision will be on every sheet that is revised. Ensure the revision date matches on all sheets that are part of the same revision.

Revision Number – Each revision is assigned a number in sequence, starting with 1 then 2 and so on.

Revision Symbol – A revision symbol is a Revision Number enclosed in an equilateral triangle. Revision symbols shall be used to locate the revision in the plans.

Revision Symbol Location – Revision symbols shall be located as near as possible to the notes, lines, views, or dimensions that are revised.

Multiple Changes – All changes to a plan that are incorporated at the same time shall be identified by the same revision number and symbol.

Revising a Change – Whenever a previous revision is revised again then a new revision symbol is placed next to the previous one.