Lesson 7: Using QGIS (version 3.4 or later) to Create the Farm Map
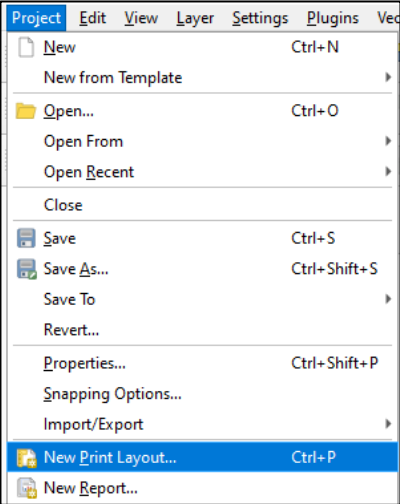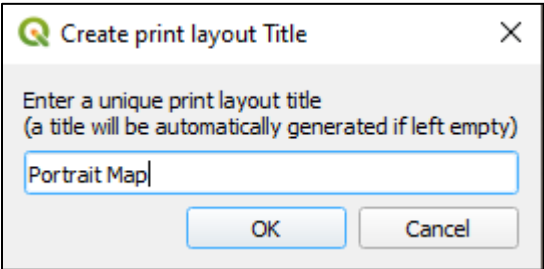
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INTRODUCTION	More recent versions of QGIS (version 3.4 or later) allow a user-friendly method to draw field boundaries and create maps for each farm directly within the software. This can still be done in earlier versions but is more complicated, therefore these guidelines are not applicable to earlier versions of QGIS.
CONTENTS	In this document, you will find instructions for: - Creating the Final Map Product – Create Your Own Map Template - Creating the Final Map Product – Re-Using Your Saved Map Template

CREATING THE FINAL MAP PRODUCT – CREATE YOUR OWN MAP TEMPLATE

Instructions

| Step	Action
1	To begin, under the QGIS **'Project'** dropdown menu, selet **'New Print Layout…'**
2	In the **'Create print layout Title'** dialog box that opens, give your **'Print Layout'** a name. Creating separate portrait and landscape layouts is recommended, so we'll start with portrait…

|		
3	A new **'Print Layout'** window will open. Start by right-clicking somewhere along the top toolbars, and make sure all toolbar/panels are turned on, indicated by a check mark. Take some time to become familiar with the various **'Panels'** (right side of window) and **'Toolbars'** (top and left side of window).	
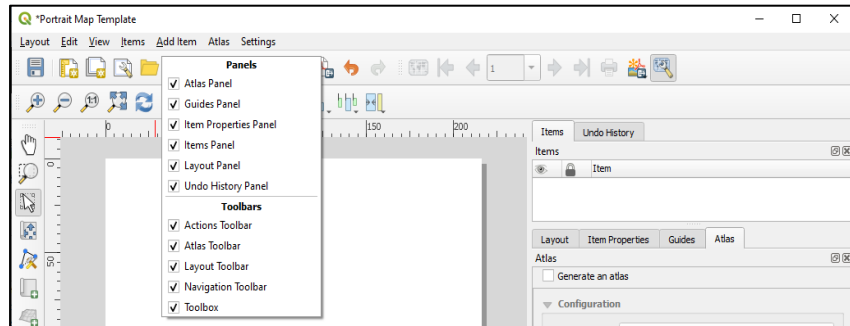
4	Next we'll set some basic page properties. Right-click in the blank (white) page and select **'Page Properties'**
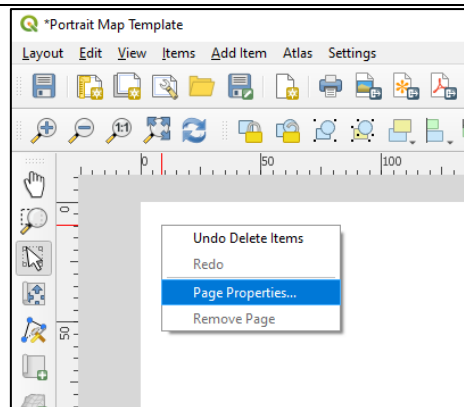
5	In the **'Item Properties'** panel on the right side of the **'Print Layout'** window, select the appropriate page size (select '**Letter**' for 8.5"x11") that you will be printing on and the appropriate orientation.
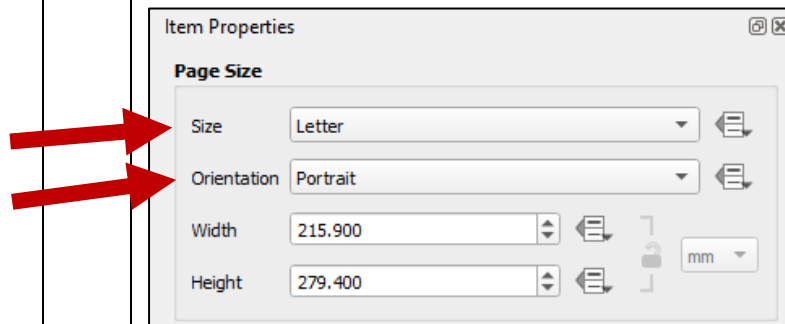
6	Next add your map. Under the **'Add Item'** dropdown menu, select **'Add Map'**…
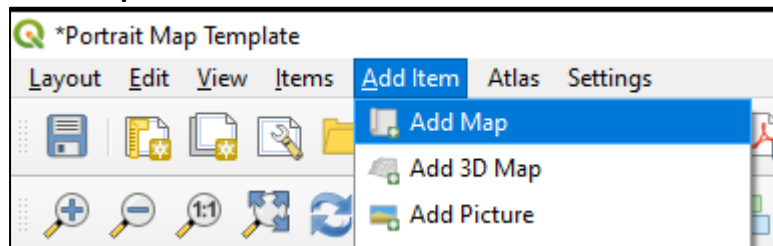
|		
	And then use your cursor to outline the area on the page you'd like the map to show up (outlined in red)…	
7	The **'Map Extent'** is the image that you see on the map (ideally the property outline and all fields). There are a couple of different ways to adjust the **'Map Extent'**… **Option 1:** Use the **'Move Item Content'** tool on the left-hand toolbar. This will allow you to move the view seen within the **'Map Extent.'** You can also use to the scroll bar on your mouse to zoom in/out at set intervals. **Option 2:** Go back to the main QGIS window and get the property/fields you'd want to include on the map within the **'Map Canvas'** view by zoom , pan , and/or the zoom to layer function. Then, return to the **'Print Layout'** window and go to the **'Item Properties'** panel for your map, and click on **'Set to map canvas extent'.** This will make your map reflect the view in your main QGIS window. Admitedly, it may take a couple tries to get it right.	
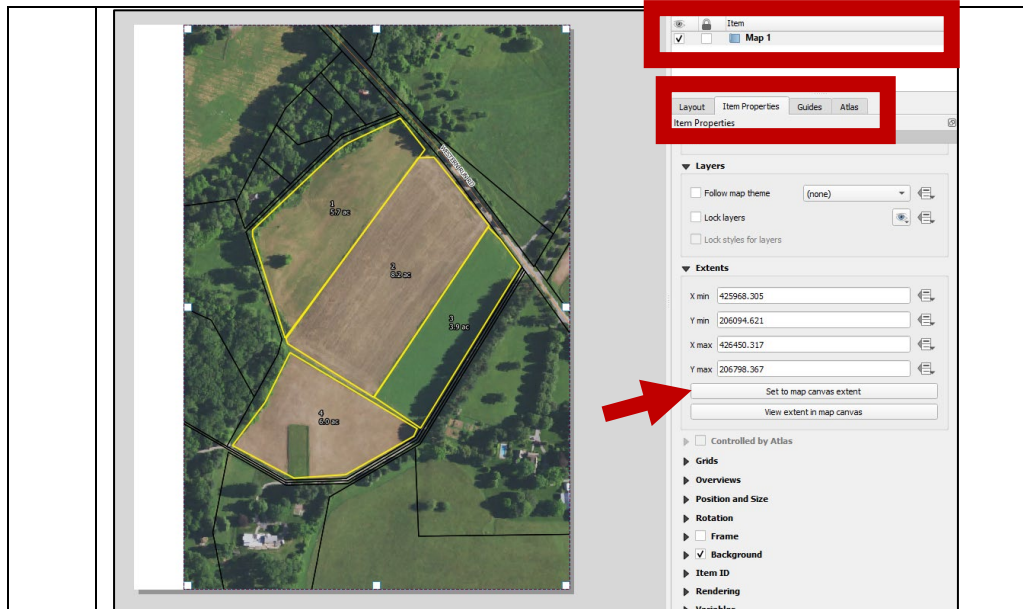
| 8 | Next you'll want to add a Legend. In the **'Add Item'** dropdown menu, select **'Add Legend'**
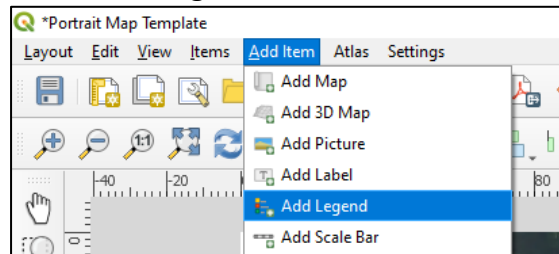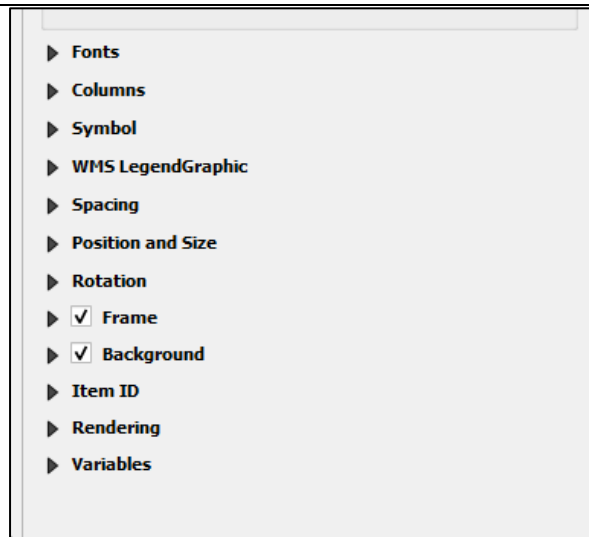

and then use your cursor to draw the approximate location you'd like the legend to show up on the map (you can adjust this later). You'll notice there are more layers in your legend than necessary. This will be addressed below...

Go to the **'Item Properties'** panel for the Legend…
  - Under **'Main Properties'**, you can add a title
  - Under **'Legend Items'**, first make sure **'Auto Update'** check box is *de-selected*. Then you can click on a particular layer and remove it from your legend using the icon below the list of Legend Items… (note this will not remove layers from the map, only from the legend)
  - Double-click on a legend item to change the name |

Items

👁	🔒	Item
✓		**Legend**
✓	✓	Map 1

Layout | **Item Properties** | Guides | Atlas

Item Properties

Legend

▼ **Main Properties**

Title | Legend

Title alignment | Left

Map | Map 1

Wrap text on |

✓ Resize to fit contents

▼ **Legend Items**

☐ Auto update | Update All

▼ Sample Farm Operation
   ☐ **Joe Farm**
   ☐ **Home Farm**
▶
☐ **Property Lines**
▶ Waterbodies
▶ Buffers
▶ Contours
   ☐ *soilmu_a_md005*
── **County 3 Roads**
☐ **Baltimore County Line**
▦ *Baltimore Six Inch Image 2014*
▦ **Baltimore_NAIP_2017**

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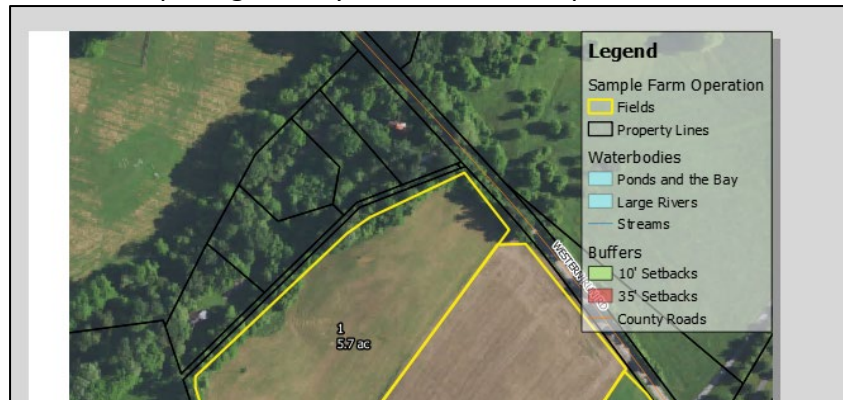
☐ Only show items inside current atlas feature

You can change other Legend details, such as Fonts, Frame, and Background, in the **'Item Properties'** window…
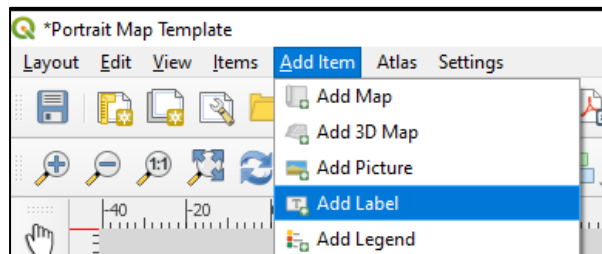
And finally, you can adjust the location of the legend using the

'Select/Move Item' tool in the left-hand toolbar to finish with a clean, simple legend anywhere on the map.

| 9 | Next, you may want to add text to the map, such as farm name, address, account ID, etc. To do this, go to the **'Add Item'** dropdown menu and select **'Add Label'**
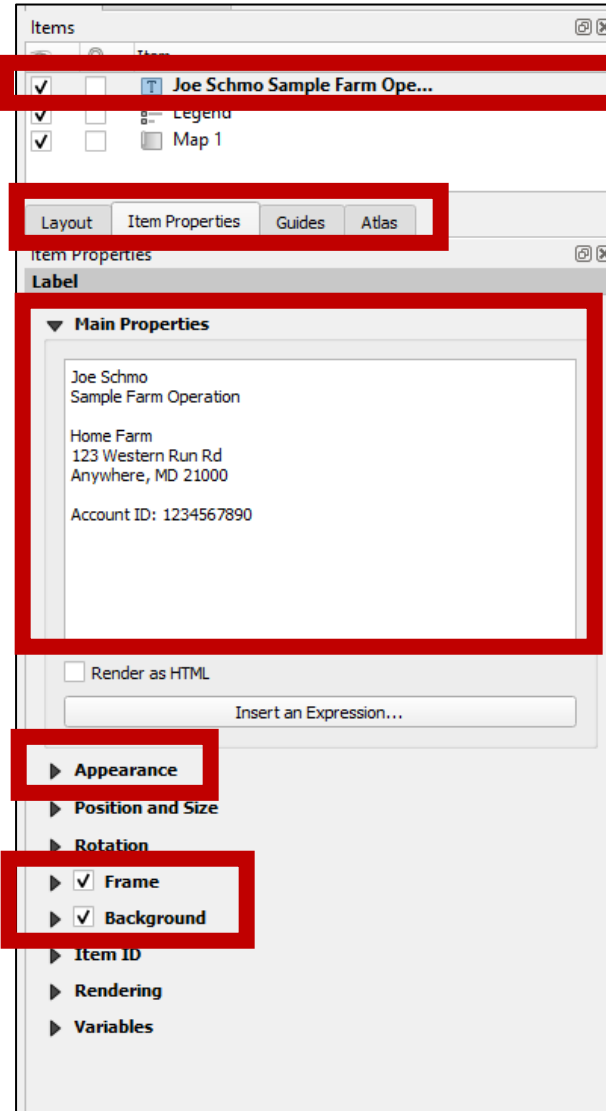

and then use your cursor to draw the approximate location you'd like the legend to show up on the map (you can adjust this later).

Go to the **'Item Properties'** panel for the Label…
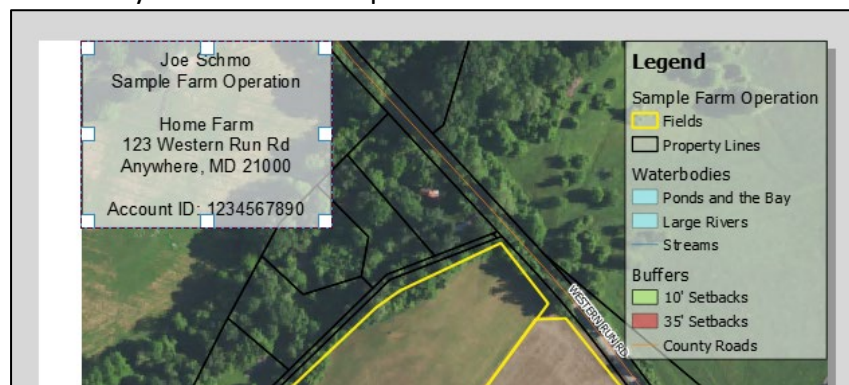- Under **'Main Properties'**, you can add text |

- Under **'Appearance'**, you can adjust the font
- You can adjust other preferences using the **'Frame'** and **'Background'** sections

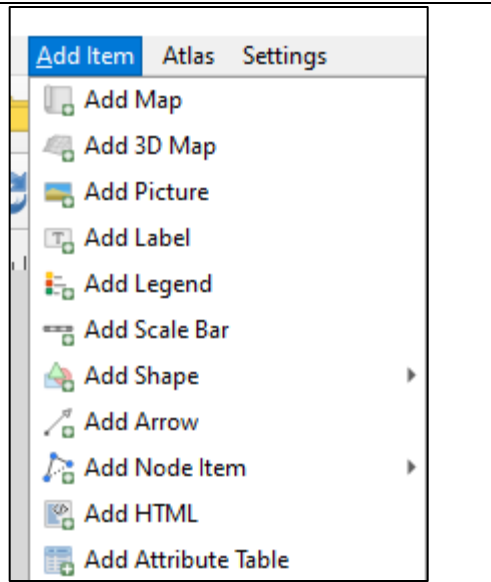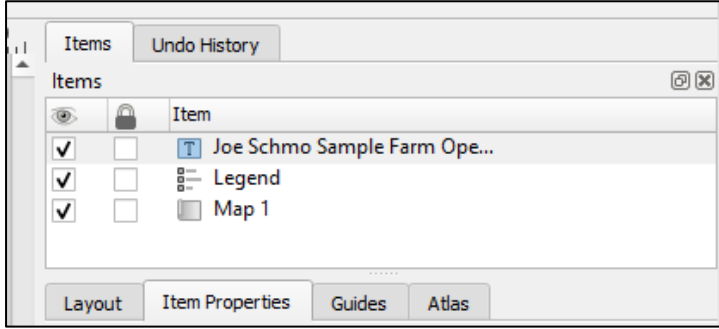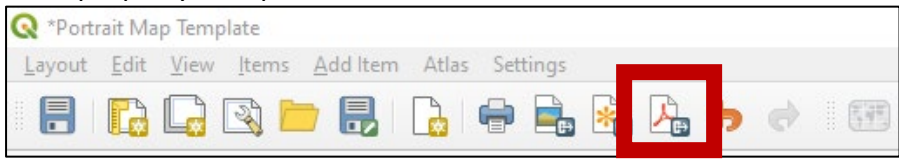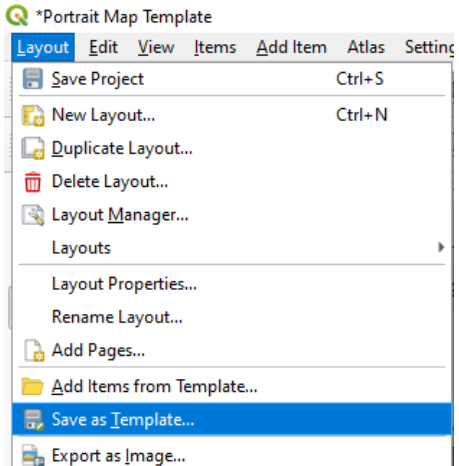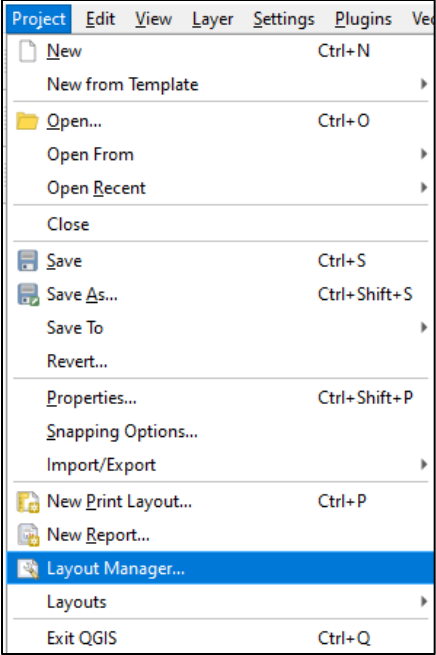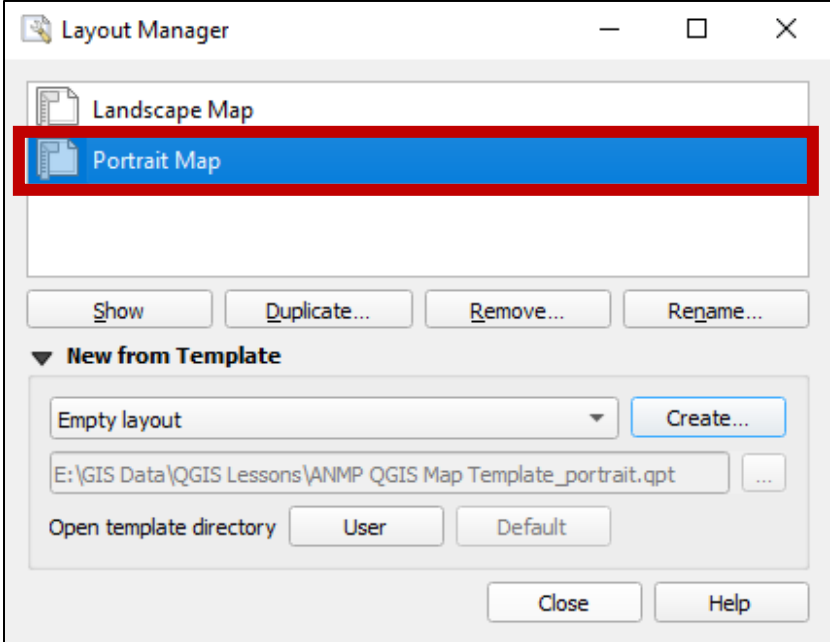And finally, you can adjust the location of the legend using the

'Select/Move Item' tool in the left-hand toolbar to finish with a label anywhere on the map. Add other labels as needed.

10	Use the **'Add Item'** dropdown menu to add any other details to your map template, such as a scale bar, pictures (i.e. for company logos), or additional labels. As with our previous legend and label, you can edit details with the **'Item Properties'** panel of each.
11	Once your are content with the map you've created, use the **'Export as PDF'** tool to create a PDF version of your farm map. You should save the PDF version with a recognizable name for this specific farm/property's map.
12	Repeat steps 7 and 11 to create maps for each property on the farm operation.
13	To save your map template to create similar maps in other QGIS files (files with extension *.qgs* or *.qgz*), go to the **'Layout'** dropdown menu and select **'Save as Template...'** Save the template in your PC's QGIS folder with a recognizable name (QGIS map templates have a *.qpt* file extension).

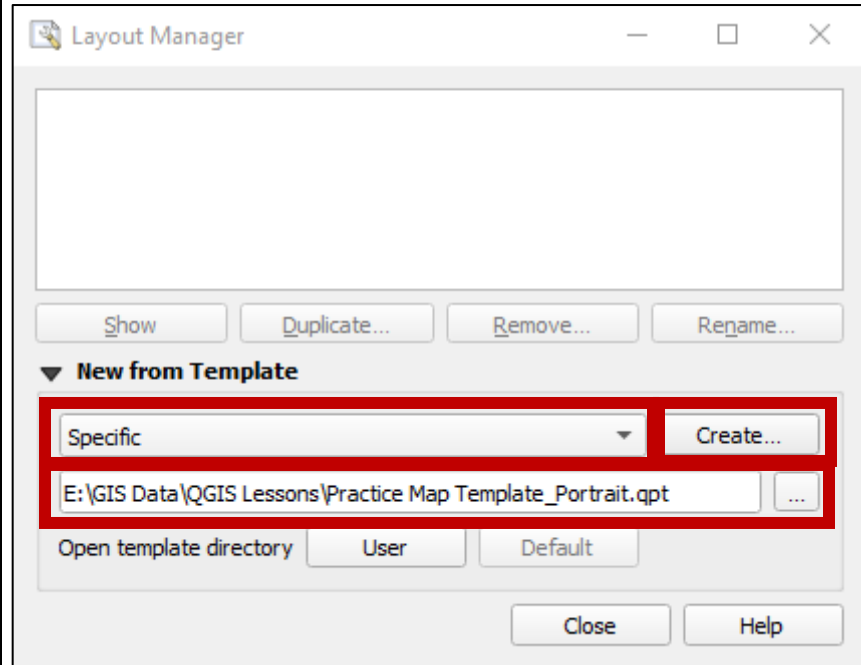**CREATING THE FINAL MAP PRODUCT – RE-USING YOUR SAVED MAP TEMPLATE**

Instructions

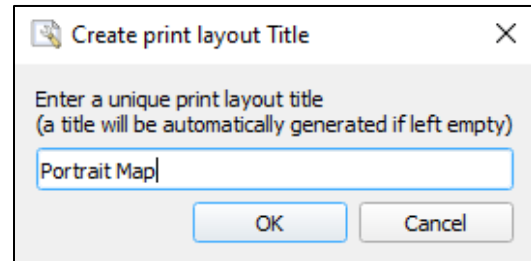| Step	Action
1	To begin, under the QGIS **'Project'** dropdown menu, selet **'Layout Manager…'** Project Edit View Layer Settings Plugins Vec New Ctrl+N New from Template Open… Ctrl+O Open From Open Recent Close Save Ctrl+S Save As… Ctrl+Shift+S Save To Revert… Properties… Ctrl+Shift+P Snapping Options… Import/Export New Print Layout… Ctrl+P New Report… Layout Manager… Layouts Exit QGIS Ctrl+Q
2A	If you already created a map **Layout** within the particular QGIS file (files with extension *.qgs* or *.qgz*) that you are working on currently, you will see that **Layout** in your **'Layout Manager'** window. Simply double-click on the chosen **Layout** to create a new map. Repeat steps 7 and 11 in the previous section to create new maps. Layout Manager Landscape Map Portrait Map Show Duplicate… Remove… Rename… ▼ **New from Template** Empty layout Create… E:\GIS Data\QGIS Lessons\ANMP QGIS Map Template_portrait.qpt … Open template directory User Default Close Help

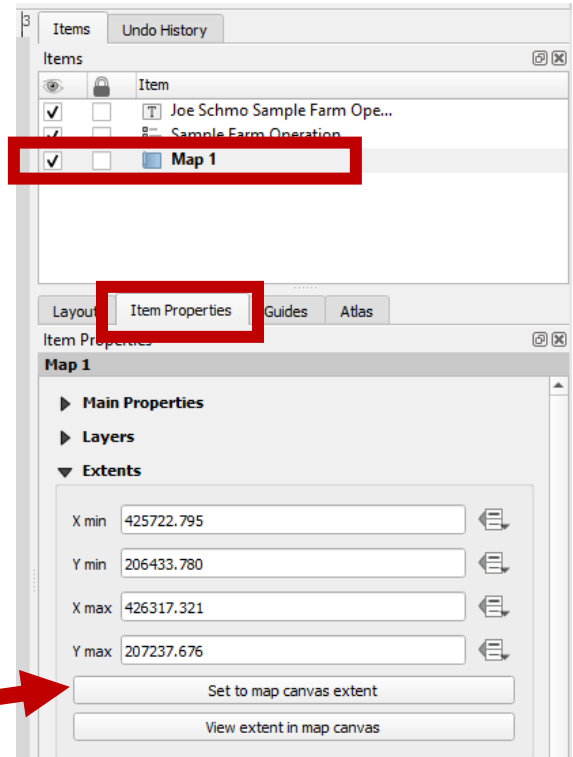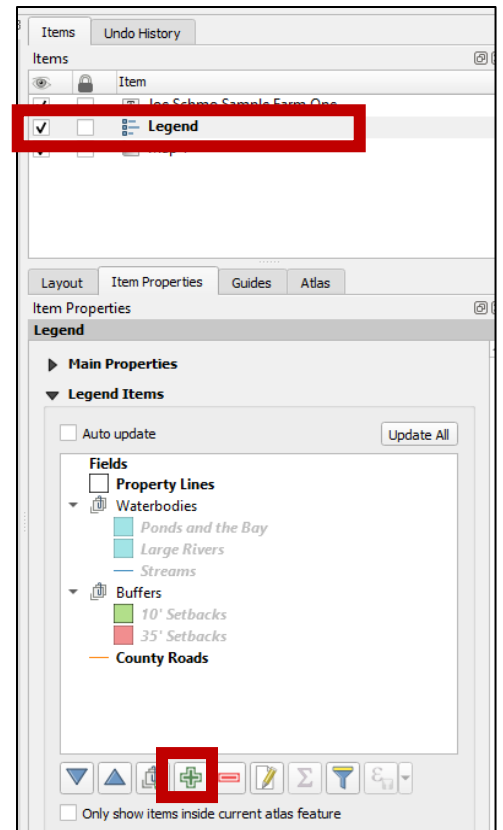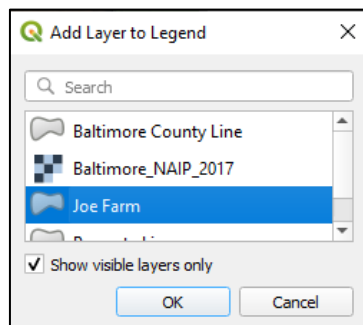|	
2B	If you want to re-use a saved **Layout Template** to create maps in a different QGIS files from which the template was created... - In the dropdown menu of the **'Layout Manager'** window, select **Specific** - Click on the **'...'** button and navigate to the location on your PC where you saved the **Layout Template**. The template file will have a *.qpt* file extension. - Click **'Create...'** Layout Manager Show Duplicate... Remove... Rename... ▼ **New from Template** Specific Create... E:\GIS Data\QGIS Lessons\Practice Map Template_Portrait.qpt ... Open template directory User Default Close Help - Enter a **'Print Layout'** title in the dialogue box that appears Create print layout Title ✕ Enter a unique print layout title (a title will be automatically generated if left empty) Portrait Map OK Cancel
3	Click on the **'Map Extent'**, or click on **Map 1** in the **Items Panel.** Adjust the **'Map Extent'** to show the fields/properties that you want to include on this map. There are a couple of different ways to adjust the **'Map Extent'**... **Option 1:** Use the **'Move Item Content'** tool on the left-hand toolbar. This will allow you to move the view seen within the **'Map Extent.'** You can also use to the scroll bar on your mouse to zoom in/out at set intervals.

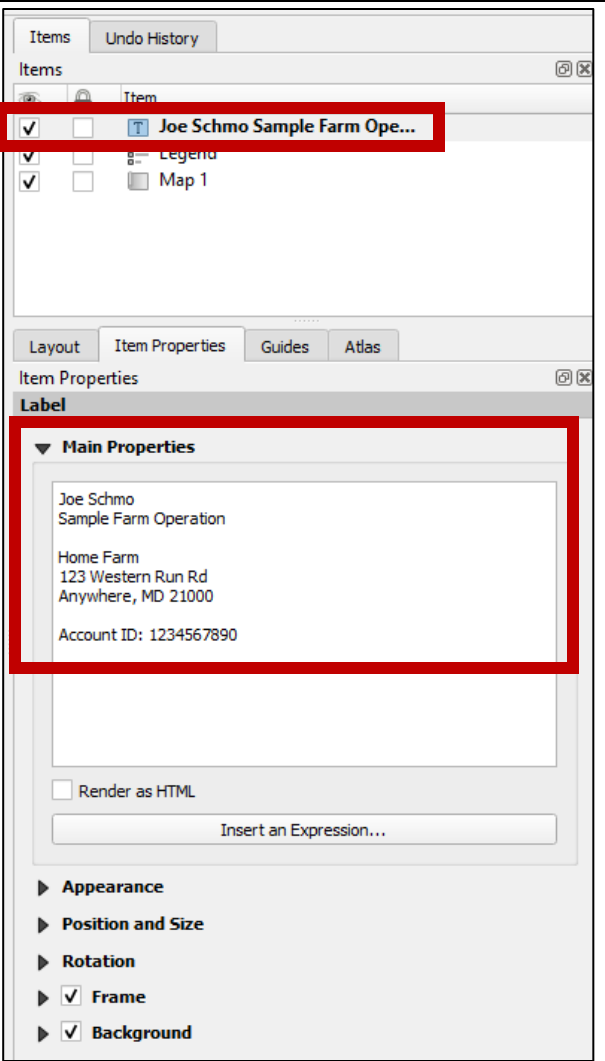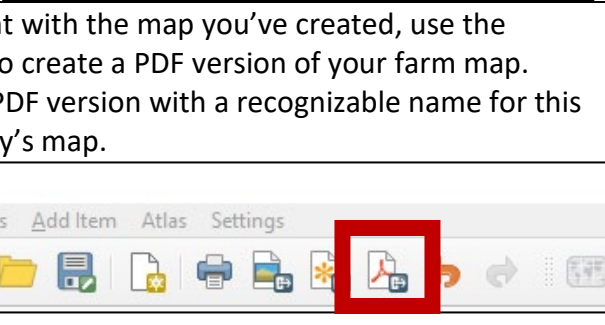|		
	Option 2: Go back to the main QGIS window and get the property/fields you want to include on the map within the **'Map Canvas'** view by zoom , pan , and/or the zoom to layer function. Then, return to the **'Print Layout'** window and go to the **'Item Properties'** panel for your map, and click on **'Set to map canvas extent'.** This will make your map reflect the view in your main QGIS window. Admitedly, it may take a couple tries to get it right.	
4	The **Legend** will need to be updated to include the fields layers. To do this, click on the legend, either on the **Map Extent** or in the **Items Panel.** In the **'Item Properties'** panel under **Legend Items**, click on the button to add a new layer to the **Legend.** In the dialogue box that opens, select one of your farm layers to show the field outline color in the **Legend**, and click **'OK.'**	 You may also need to remove the old **Legend Items** using the button. Double-click on a **Legend Item** to change the name.

5	You will also need to change the **Label** that includes farm information. Click on the **Label** in the '**Map Extent**', or select the **Label** in the '**Items Panel.**' Under '**Item Properties'** you can edit the information entered. You can also edit other properties, such as the appearance, frame, and background of the **Label.**	
6	Once your are content with the map you've created, use the '**Export as PDF'** tool to create a PDF version of your farm map. You should save the PDF version with a recognizable name for this specific farm/property's map.
7	Repeat steps 3 through 6 to create maps for each property on the farm operation.