

BI Program

Business Intelligence Portal

User Guide

Capital Project Number: C9591

Document Controls

Version History

Version	Date	Author	Comments
0.01	24/08/16	Kristi Thomas	First draft as part of C9566 BI Program
0.02	14/05/18	Adrian Bear	Added Report Builder 2016 installation instructions as part of C9591 BI Platform Infrastructure Refresh Project
0.03	17/05/18	Keith Walsh	Added Power BI details, review and amendments as part of C9591 BI Platform Infrastructure Refresh Project
1.0	21/05/18	Sissi Pan	Added new BI URLs as part of C9591 BI Platform Infrastructure Refresh Project

Document Location

URL:

[Business Intelligence Portal User Guide](#)

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1 Purpose

This document serves as a guide to assist the user of the SA Water Business Intelligence (BI) Portal. It outlines some key features that are available in the BI portal and how they can be taken advantage of. It is by no means an exhaustive training manual and has been developed to give new users of the Portal an insight into the type of reports that can be accessed, viewed and developed. It also lists some key internet resources that will give the user a more in-depth training experience in order to get the best out of the available BI tools.

The portal uses Microsoft SharePoint technology which users may already be familiar with. It is not the intention of this document to focus on SharePoint functionality, rather to assist the user to get the most out of the provided Business Intelligence functionality.

Ideally this user guide should be referenced post formal Business Intelligence User training to assist put together specific BI reporting requirements. However, it will also provide a new user with a solid understanding of what can be achieved using the BI Portal and enable them to 'self-serve'.

1.1 New/Different Features in BI 2016

New: Power BI

Power BI is an interactive data visualisation tool. It was released at SA Water in October 2017.

Power BI Desktop can be requested from the IT Self Service Portal.

Reports and Dashboards can be created and published from Power BI Desktop to the Power BI Report Server.

More details to be found in [Session 4.2 Power BI Reports](#).

Difference: Report Builder

BI 2016 no longer allows Report Builder to be downloaded from a Web Browser, it's now a desktop based software, which needs to be requested via IT Self Service Portal.

More details to be found in [Session 4.5.1 Installing Report Builder 2016](#).

Difference: MS Excel Spreadsheets are not on the BI portal

Some MS Excel Spreadsheets that have data connections to EDS, EDW databases will require modification, as the databases now have been upgraded.

More details to be found in [Appendix A MS Excel Data Connection Change](#).

Difference: BI URLs

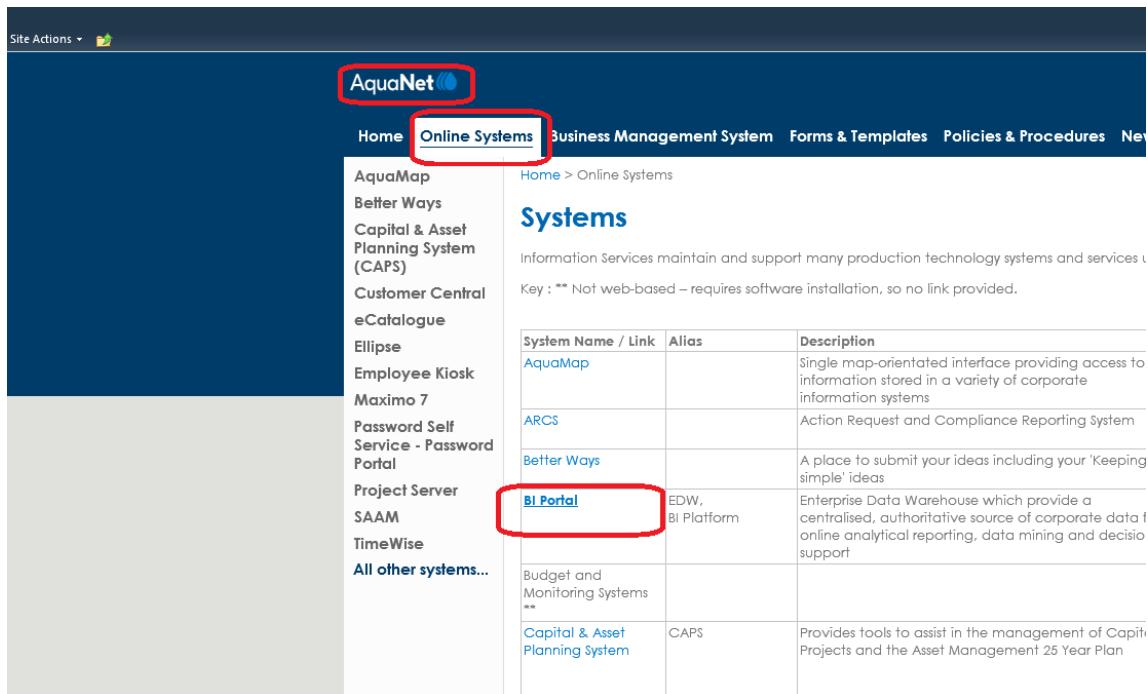
Please use the following links to access the services below and update your respective direct connections, shortcuts or favourites. You may need to clear your web browser 'cache'.

Names	URLs
BI portal SharePoint site	http://biportal.sawater.sa.gov.au
Power BI server	http://powerbi.sawater.sa.gov.au/PowerBIReports
SQL reporting platform	http://ssrsApps.sawater.sa.gov.au/RS_Apps
Master data Services	http://mds.sawater.sa.gov.au
Energy portfolio management – EPM	http://pedw.sawater.sa.gov.au/epm/sitelpages/EPM.aspx
OMCtools – Network Status Display – NSD/Metdaily/NOM	http://pedw.sawater.sa.gov.au/omctools/SitePages/NSD%20Dashboard.aspx
Demand optimization Tool – DOT	http://pedw.sawater.sa.gov.au/dot/SitePages/Home.aspx
ODS Web Portal	http://odsweb.sawater.sa.gov.au

2 BI Portal Overview

2.1 Accessing the SA Water BI Portal

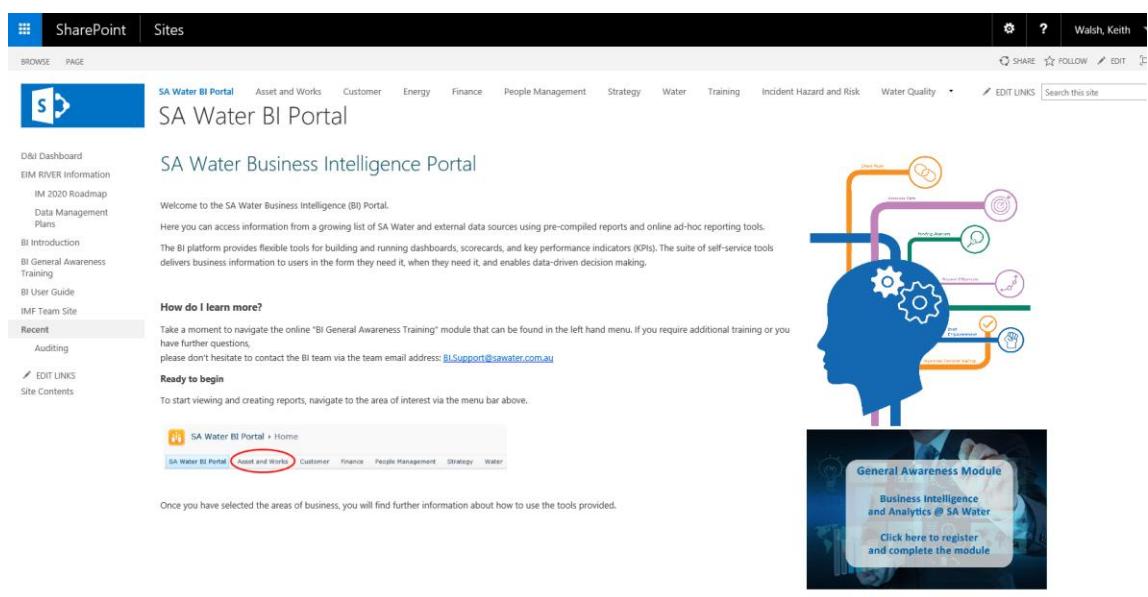
Step 1. The BI Portal is accessible via the *AquaNet | Online Systems | BI Portal*



The screenshot shows a SharePoint site navigation bar with the following items: Site Actions, AquaNet logo, Home, Online Systems (highlighted with a red box), Business Management System, Forms & Templates, Policies & Procedures, and News. Below the navigation bar is a sidebar with links like AquaMap, Better Ways, CAPS, Customer Central, eCatalogue, Ellipse, Employee Kiosk, Maximo 7, Password Self Service - Password Portal, Project Server, SAAM, TimeWise, and All other systems... To the right of the sidebar is a table titled 'Systems' listing various information services. The 'BI Portal' row is highlighted with a red box. The table has columns for System Name / Link, Alias, and Description.

System Name / Link	Alias	Description
AquaMap		Single map-orientated interface providing access to information stored in a variety of corporate information systems
ARCS		Action Request and Compliance Reporting System
Better Ways		A place to submit your ideas including your 'Keeping simple' ideas
BI Portal	EDW, BI Platform	Enterprise Data Warehouse which provide a centralised, authoritative source of corporate data for online analytical reporting, data mining and decision support
Budget and Monitoring Systems		
Capital & Asset Planning System	CAPS	Provides tools to assist in the management of Capital Projects and the Asset Management 25 Year Plan

Step 2. Once in the BI Portal home page, select the appropriate business unit/area to view and create reports in i.e. Asset and Works



The screenshot shows the SA Water BI Portal homepage. The top navigation bar includes SharePoint, Sites, and a user profile for Walsh, Keith. Below the navigation bar is a main menu with links: SA Water BI Portal, Asset and Works (highlighted with a red box), Customer, Energy, Finance, People Management, Strategy, Water, Training, Incident Hazard and Risk, and Water Quality. A search bar and edit links are also present. The main content area features a 'SA Water Business Intelligence Portal' header and a welcome message. On the left, there's a sidebar with links for DSI Dashboard, EIM RIVER Information, IM 2020 Roadmap, Data Management Plans, BI Introduction, BI General Awareness Training, BI User Guide, IMF Team Site, Recent (Auditing), and Site Contents. A 'How do I learn more?' section provides information about the 'General Awareness Module'. To the right, there's a large graphic of a human head with gears and pipes, and a callout box for the 'General Awareness Module'. At the bottom, there's a footer with links for SA Water BI Portal, Asset and Works, Customer, Energy, Finance, People Management, and Strategy.

Step 3. You are now ready to begin!

2.2 Functionality within the BI Portal

Once inside the required business unit area, there are various reporting options that can be selected:

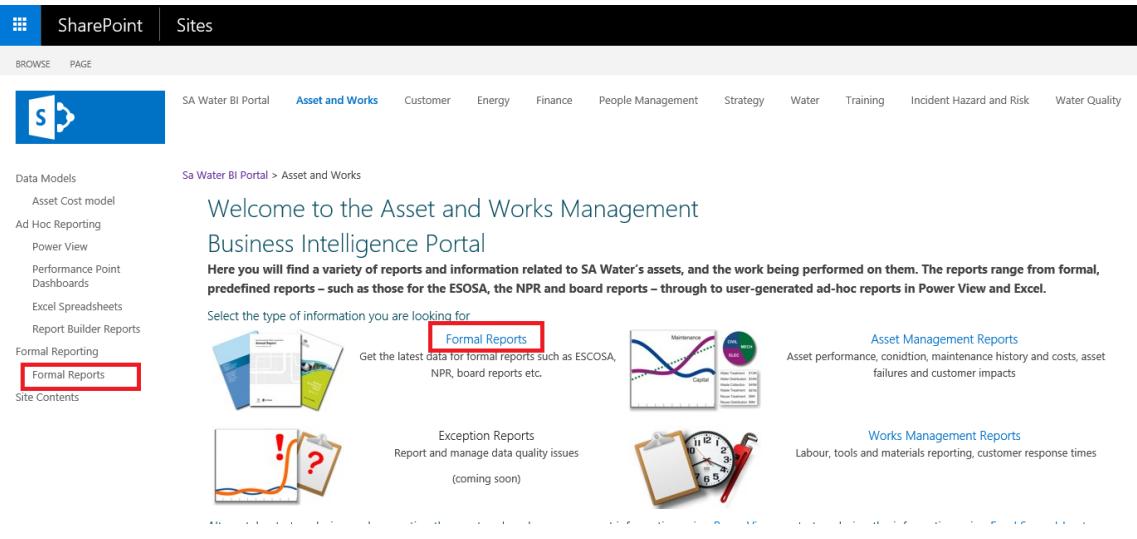
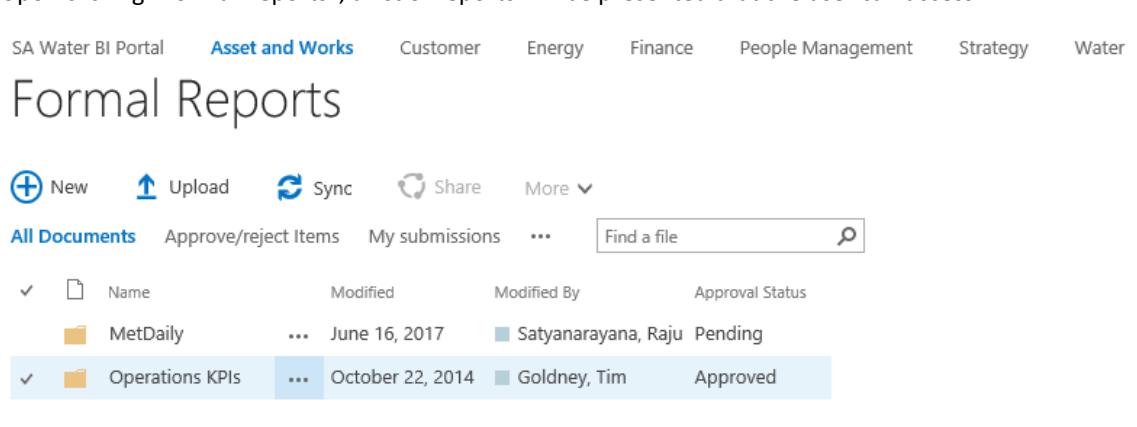
1. **Formal Reports.** Pre-prepared reports that the user can run.
2. **Ad Hoc Reports.** Here, the user can request different views of the underlying data which can provide them with decision making information. The varied ad hoc reporting includes:
 - **Power View** – an interactive data exploration, visualisation and presentation experience that encourages intuitive ad-hoc reporting.
 - **Excel Reports / Spreadsheets**
 - **Performance Point Dashboards** – these are more detailed and interactive reports used for scorecards and KPI tracking.
 - **Report Builder Reports**

Depending on the BI maturity of the business area, there may be additional reports and features (i.e. exception reports and data models) to those listed above that the user can access. For the purpose of this user guide, the focus will be on assisting users' access and develop formal and ad hoc reports.

3 Formal Reports

3.1 Introduction to Microsoft Reporting Services

Microsoft SQL Server 2016 Reporting Services (sometimes referred to as Microsoft SSRS) is a tool that enables the creation of operational reports for pixel-perfect printing and browser-based viewing. It also has the ability to provide ad-hoc data exploration and visualisation. In the BI Portal SSRS is provided via the Microsoft SharePoint interface.

3.2 Accessing formal reports	
Step 1.	<p>Once you have chosen your area of work i.e. Asset and Works, Formal reports can be accessed in one of two ways:</p> <ol style="list-style-type: none"> 1. From the menu on the left hand side; 2. From the hyperlink on the text or image in the body of the page 
Step 2.	<p>Upon clicking “Formal Reports”, a list of reports will be presented that the user can access.</p> 
Step 3.	<p>Some reports may prompt the user to enter parameters in order to filter the data to be displayed on the report as per the below:</p>

3.2 Accessing formal reports

Microsoft SQL Server Reporting Services

the parameters area and click the Apply button.

Parameters

Region

METRO

Facility Class:

Wastewater Pump Station

Fiscal Year

2011-2012

Work Type

BD, CP, OP, PM

Step 4.

Once the parameters are entered, the report is then generated and displayed.

Hovering over areas of the report – e.g. a bar of a bar chart - can give more specific information relating to the highlighted data e.g.:



You may also be able to “Drill Down” and obtain more information by left mouse clicking on the relevant bar.

4 Ad Hoc Reports

4.1 Power View Reports

Power View, a feature of SQL Server 2016 Reporting Services (SSRS), is an interactive data exploration, visualisation, and presentation tool. It provides intuitive ad-hoc reporting for business users such as data analysts and business decision makers. They can easily create and interact with views of data from pre-defined data models – sometimes referred to SQL Server 2016 Analysis Services (SSAS) Cubes.

Power View is a browser-based application launched from SharePoint Server 2016 that enables users to present and share insights with others in their organisation through interactive presentations.

A Power View report is always presentable – you can browse your data and present it at any time, because you're working with real data. You don't need to preview your report to see how it looks.

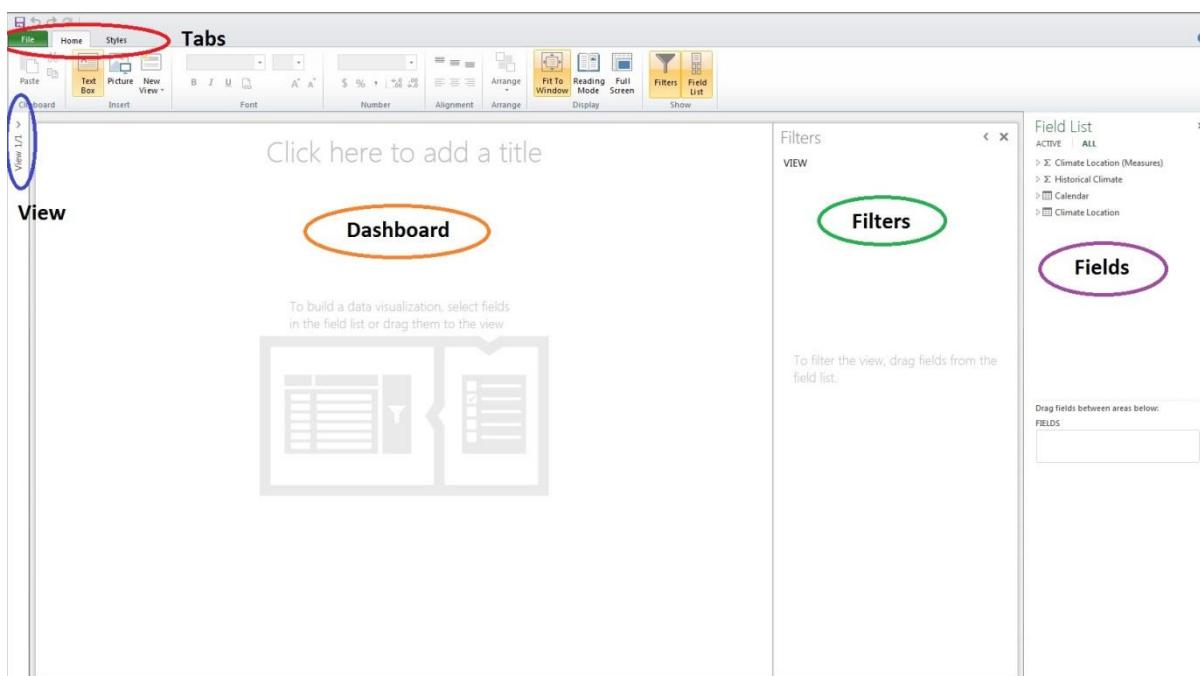
One of the most powerful features in Power View is that you can export an interactive version of your Power View report to PowerPoint. Each view in Power View becomes a separate PowerPoint slide that you can present to an audience.

You can also publish your reports to SharePoint 2016 so others can view and interact with them there.

4.1.1 Features of the Power View Dashboard

The Power View interface has five main areas:

1. **Tabs** – standard Microsoft ribbon functions with charting features for report building.
2. **Dashboard Area** – where the data, charts, text and images are contained for the built report.
3. **View** – allows the user to move between different dashboards
4. **Filters view** - pane for holding the filters that are being applied across the displayed charts and data.
5. **Field List** – list of columns and measures from within the data sources



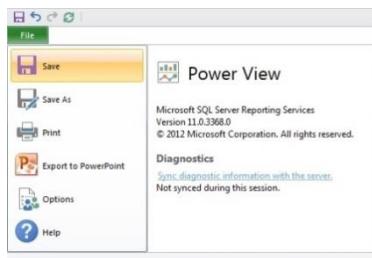
4.1.1 Features of the Power View Dashboard

Sections of the report interface

1. Screen Tabs

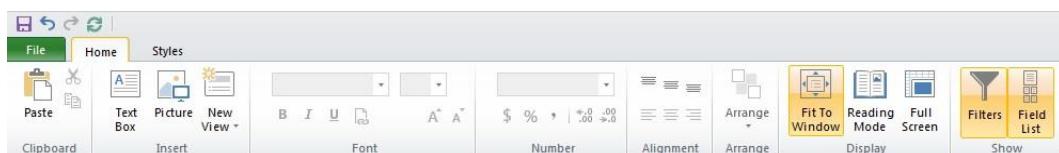
a) File

Standard File attributes for saving and printing.



b) Home

Contains clipboard, insert for objects, font and number editing and display functions



c) Styles

Shows templates for screen displays, font and background editing.

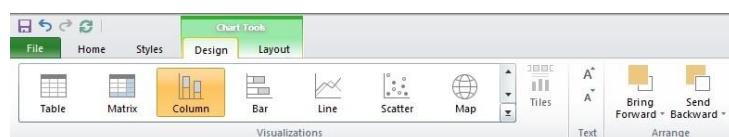


d) Chart Tools

There are two tabs under its subheading – design and layout

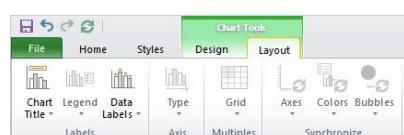
Design

Options for the data set to be displayed – different chart types and controlling layers on the screen



Layout

Options for the formatting of the design objects



4.1.2 Open an existing pre-made Power View report

- Step 1. Navigate to the BI Portal homepage and select your designated business unit

SharePoint | Sites

BROWSE PAGE

SA Water BI Portal Asset and Works Customer Energy Finance People Management

SA Water BI Portal

D&I Dashboard EIM RIVER Information IM 2020 Roadmap Data Management Plans

Welcome to the SA Water Business Intelligence (BI) Portal.

Here you can access information from a growing list of SA Water and external data sources using pre-compi

- Step 2. In the left-hand menu select **Power View** from the Ad hoc reporting option

SharePoint | Sites

BROWSE PAGE

SA Water BI Portal Asset and Works Customer Energy Finance People Management Strat

Data Models Asset Cost model Ad Hoc Reporting Power View Performance Point Dashboards Excel Spreadsheets Report Builder Reports Formal Reporting

Sa Water BI Portal > Asset and Works

Welcome to the Asset and Works Management Business Intelligence Portal

Here you will find a variety of reports and information related to SA Water's assets, and the predefined reports – such as those for the ESOSA, the NPR and board reports – through to user Select the type of information you are looking for

Formal Reports Get the latest data for formal reports such as ESCOSA

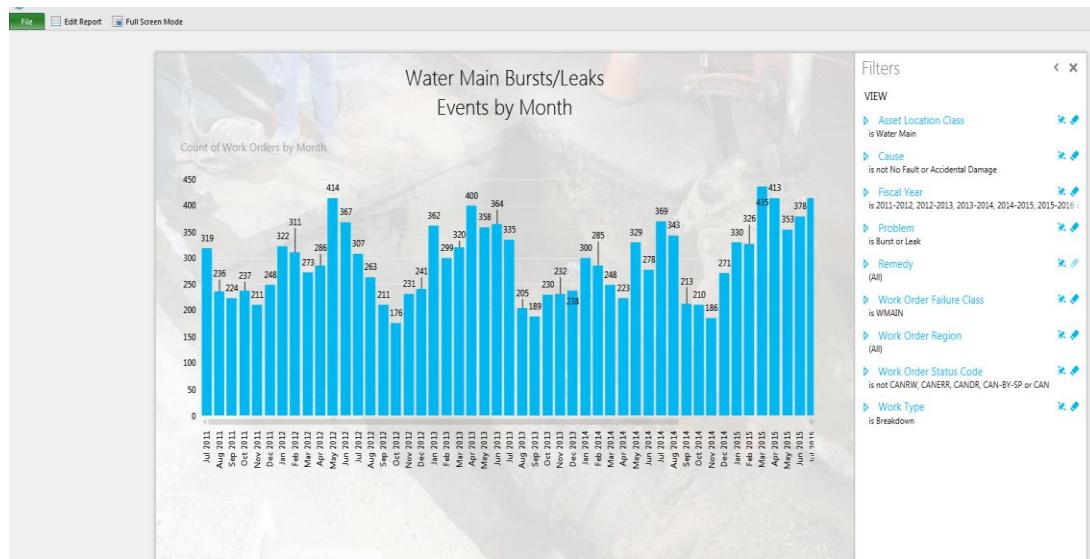
- Step 3. Select the pre-made report you wish to view. Here you will see reports you have made and those which have been assigned a function and category.

4.1.2 Open an existing pre-made Power View report

The screenshot shows the SharePoint interface for managing Power View reports. On the left, there's a navigation pane with categories like Data Models, Ad Hoc Reporting, Formal Reporting, and Site Contents. Under 'Power View', the 'Water Main Burst Prototype Report' is highlighted and circled in red. The main content area displays a list of Power View reports with columns for Name, Approval Status, and Created date. The circled report is listed under the 'All Items' tab.

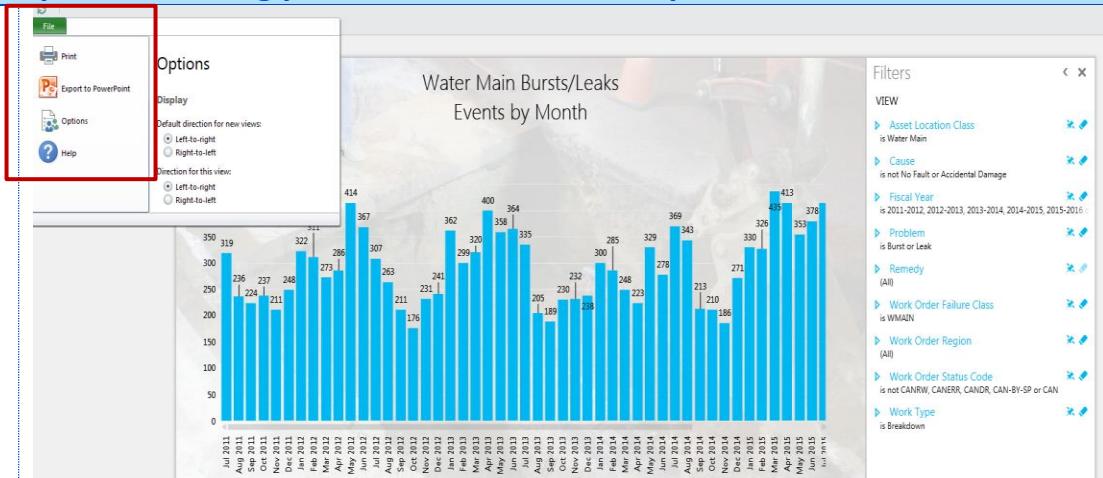
Name	Approval Status	Created
New Power View Report - Asset Management	Draft	Septeml
New Power View Report - Climate	Approved	May 20,
New Power View Report - Operational KPIs	Draft	May 25,
New Power View Report - Met Daily	Approved	June 10,
Water Main Burst Prototype Report	Approved	June 11,
State of the Assets 2	Approved	July 14,
Asset Location Report	Approved	July 23,
Alliance Asset Management Interface Quarterly Report - TG	Approved	August .
AMLT - Quarterly Report 01	Approved	
Workshop hours	Approved	
Alliance Asset Management Interface Quarterly Report	Approved	
Asset Maintenance	Approved	

Step 4. Once you have opened the report you wish to view, you can perform many functions.



You may wish to Print the report, export it to PowerPoint, or change the display options. This can be completed via the File Menu option.

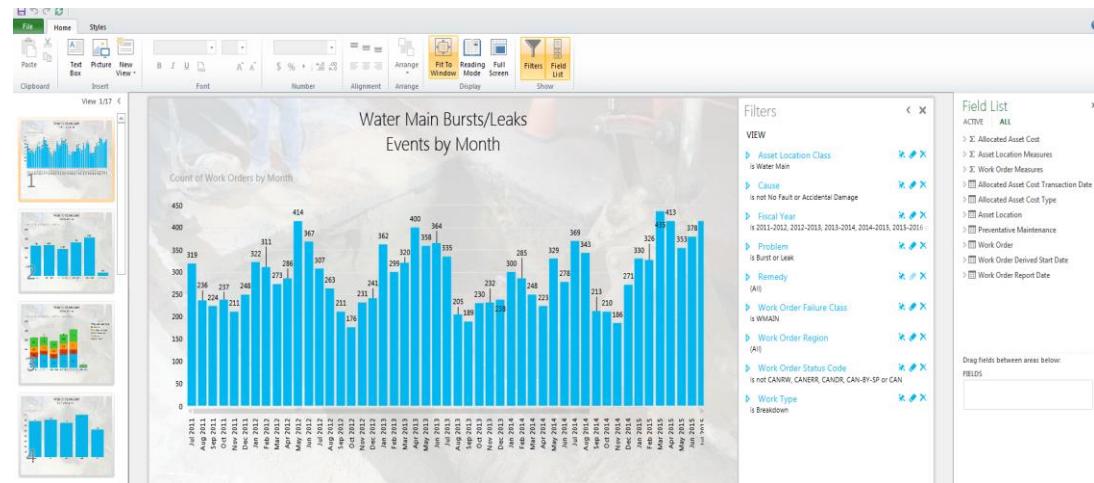
4.1.2 Open an existing pre-made Power View report



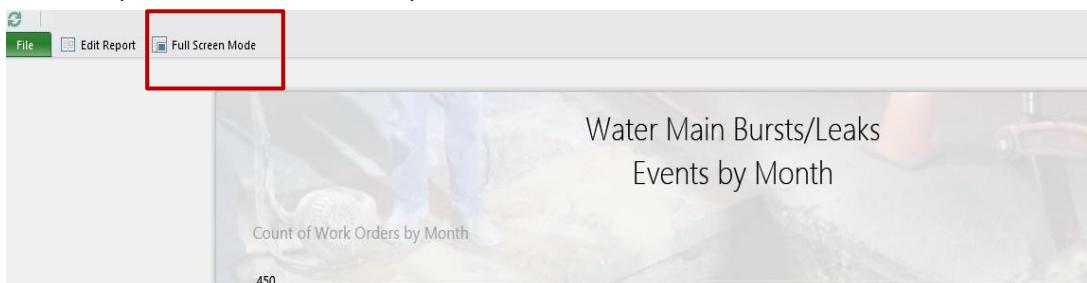
Step 5. You may also wish to Edit the report



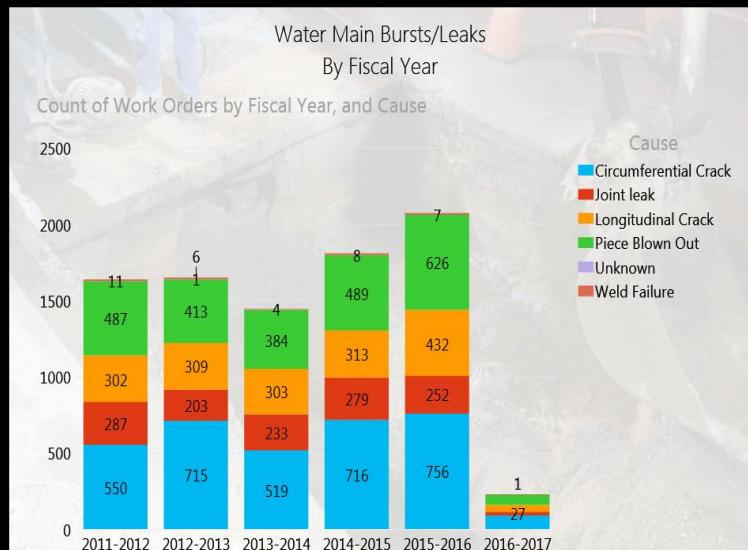
The entire report will then be available to view and Edit using the Field List (for detailed instructions on using the Field List and Filters, please refer to section 4.1.3 "Creating a Power View report").



Step 6. The final option will be to view the report in Full Screen Mode.

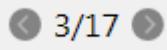


4.1.2 Open an existing pre-made Power View report



You will notice in this view that you can:

1. Move between the report screens using the page selector in the bottom right-hand side of the screen

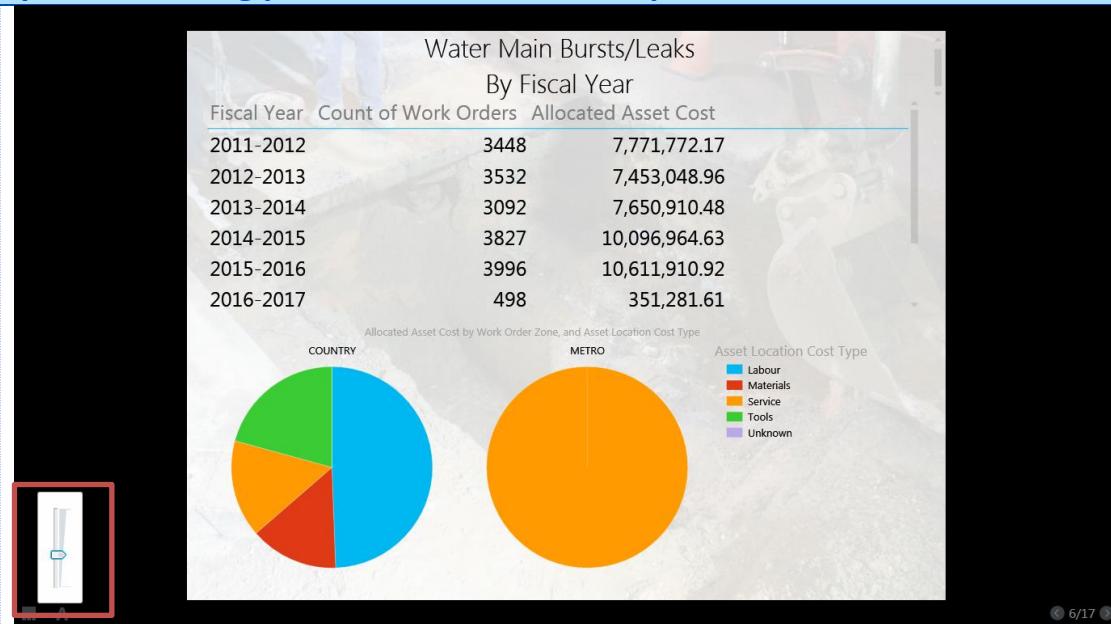


2. Show / Hide the navigation by selecting the icon in the left-hand corner of the screen.



3. Change the text size for all the text in the report by selecting the A in the left hand corner of the screen and move the slider to the required font.

4.1.2 Open an existing pre-made Power View report



As per standard PowerPoint functionality, press ESC to exit out of full screen mode.

4.1.3 Creating a new Power View report

Step 1.

Navigate to the BI Portal homepage and select your designated business unit.

Please note: For the purpose of this user guide and producing a new Power View report, we will use the following data set stored in Water / Power View / New Power View Report - Climate

SharePoint | Sites

BROWSE FILES LIBRARY

SA Water BI Portal Asset and Works Customer Energy Finance People Management Strategy Water

Power View

Ad Hoc Reporting

Power View

New Upload Sync Share More

All Documents Approve/reject Items My submissions ... Find a file SAVE THIS VIEW

Performance Point Dashboards

Excel Spreadsheets

Report Builder Reports

Formal Reporting

Formal Reports

Site Contents

Name ↓

tim test

test report

Test Report 2

Suburb list

shane test - Map function

SAWaterTrainingLogo

New Power View Report - Metered Consumption

New Power View Report - Climate

New Power View Report - Bore Water

Last Training Report ChangePhone

Modified Modified By Approval Status

Wednesday at 4:30 PM SAW_PROD_SPSETUP Draft

August 17, 2016 Berger, Kym Draft

Wednesday at 4:29 PM SAW_PROD_SPSETUP Approved

Wednesday at 4:30 PM SAW_PROD_SPSETUP Approved

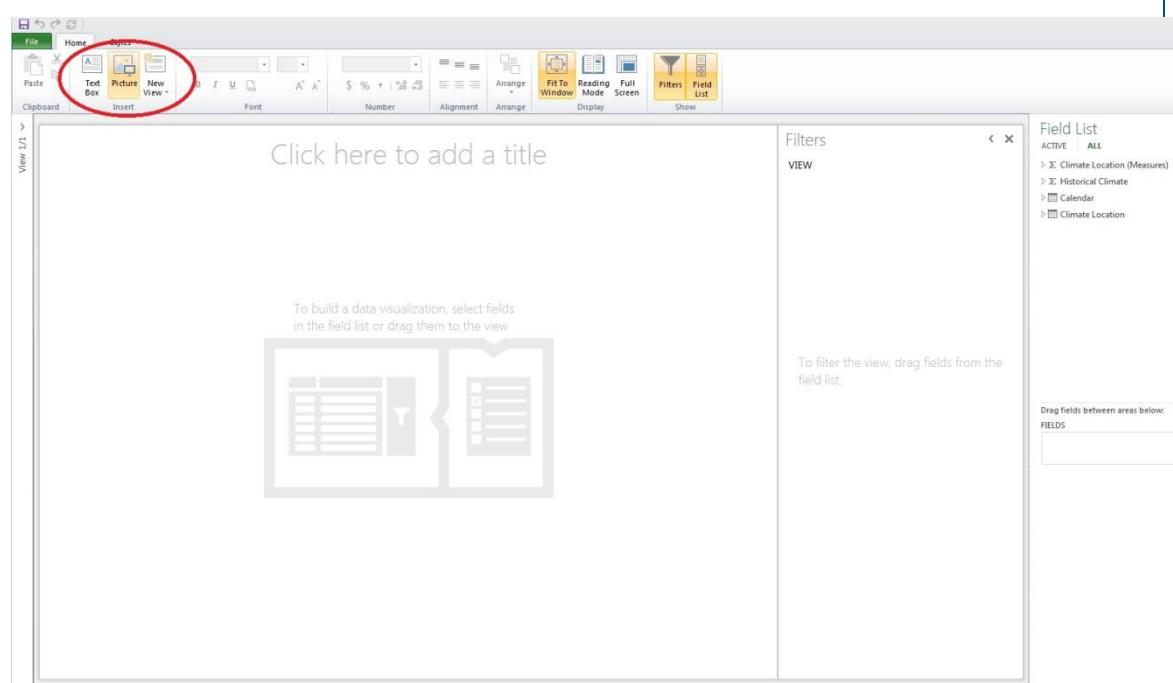
Wednesday at 4:29 PM SAW_PROD_SPSETUP Draft

Wednesday at 4:30 PM SAW_PROD_SPSETUP Draft

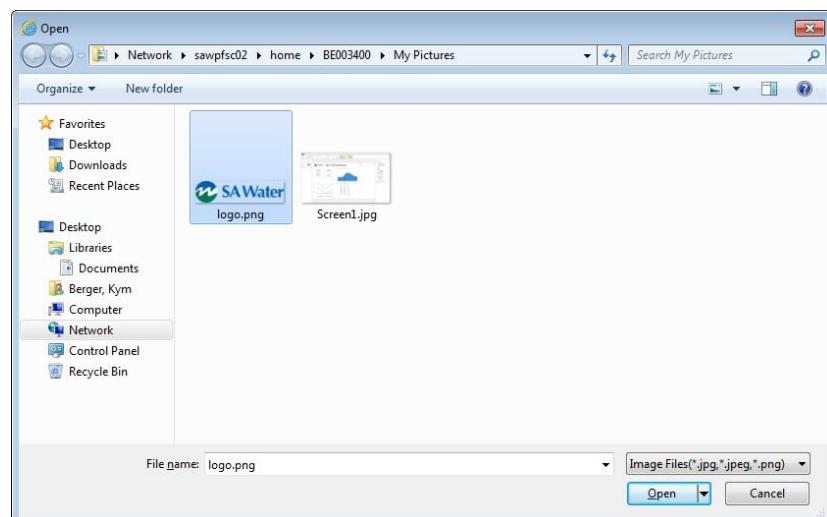
Step 2.

Once the blank report opens, you can chose to **add an image/logo** to the report following the below steps:

4.1.3 Creating a new Power View report



- Click on the Home tab
- Click on the Picture icon
- This will open the File dialogue

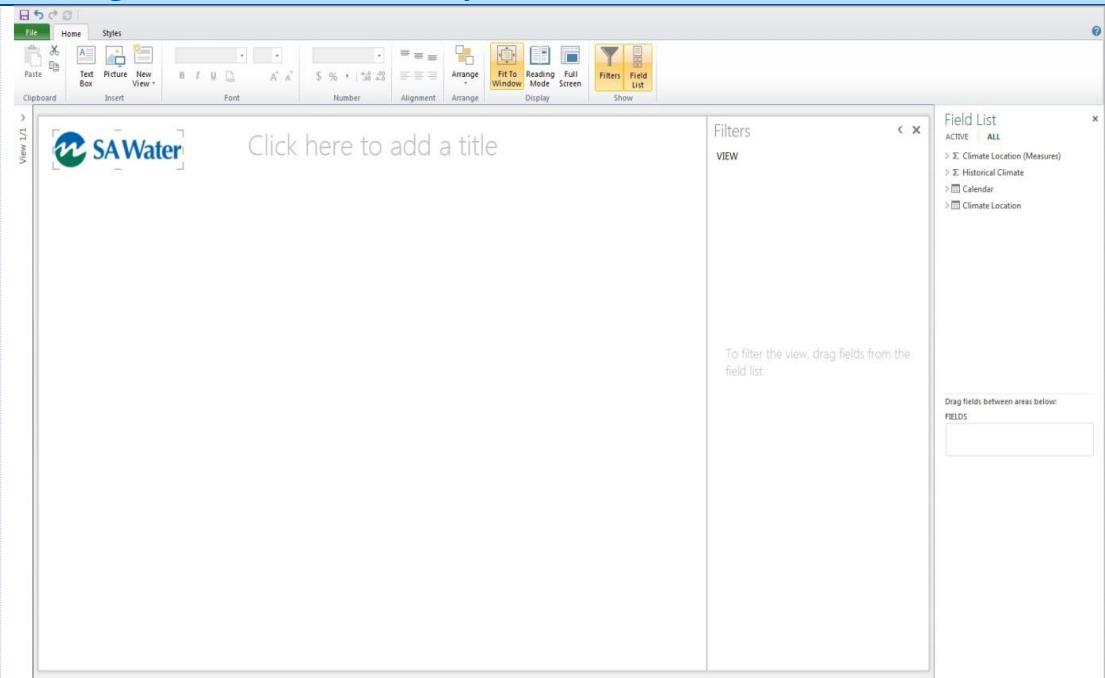


- Highlight the icon of the image you want to use (for this example, doesn't need to be SA Water logo) and click Open
- This will embed the image to the Dashboard
- You can move the icon around to place it on the screen

Make sure you hold the edge of the image to move it around on the screen.



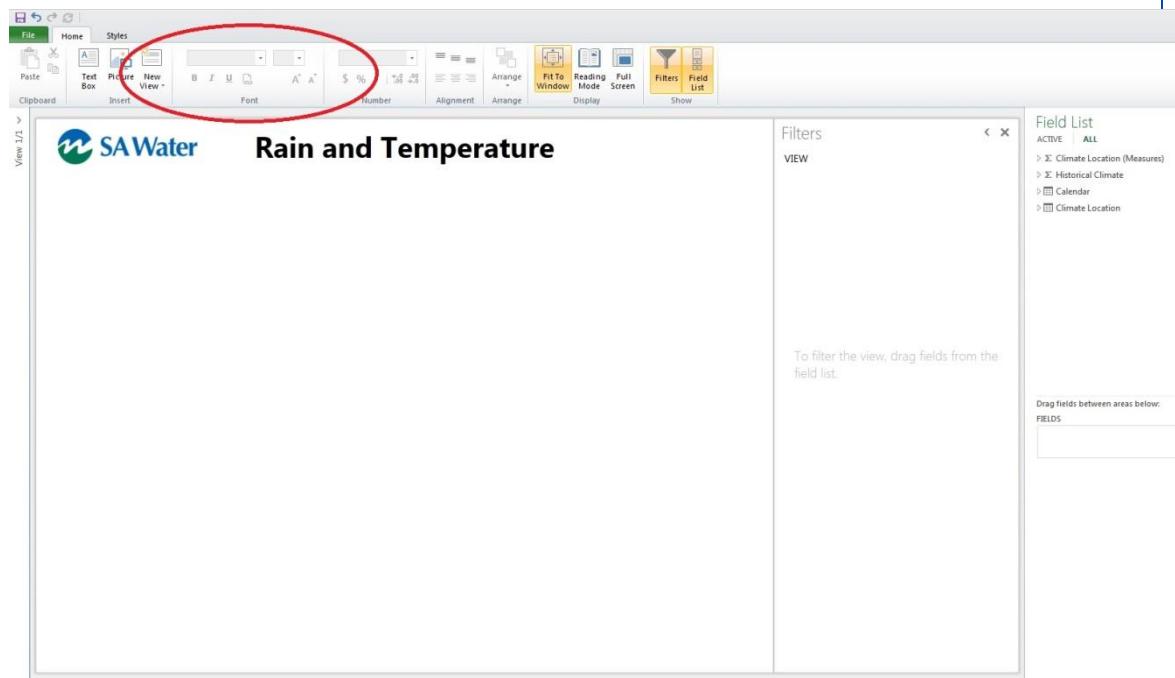
4.1.3 Creating a new Power View report



Step 3.

Now Edit the Page Heading

- Click over the text "Click here to add title"
- Enter the text required for the Dashboard title – "Rain and Temperature".
- You can edit the font, by using the font editing tools.



- Click on the font drop down to change the text to "Segoe UI".
- Set the font size to 28.
- Click on the "B" button to set the font to "Bold".

4.1.3 Creating a new Power View report

- Step 4. Now that your report has a title, you are ready to **Add your first element**. Navigate to the Fields List, under the Historical Climate dimension; check the box next to “Average Rainfall MM”.

- Step 5. On the dashboard screen a new object will appear.

After quick processing, you will see the result of the Field selection.

4.1.3 Creating a new Power View report



Rain and

Average Rainfall MM

329.59

- Step 6.
- To provide further analysis of this number, from the Field List, under the Calendar Measure, expand the Calendar Quarters dimension and select the “Month of Year”.

Field List

ACTIVE | ALL

Climate Location (Measures)

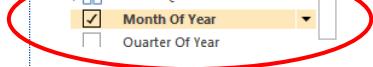
- Latitude
- Longitude

Historical Climate

- Average Max Temp C
- Average Min Temp C
- Average Rainfall MM

Calendar

- By Week
- Calendar
 - Calendar Date
 - Calendar Date.Value
- Calendar Months
- Calendar Quarters
 - Month Of Year
 - Quarter Of Year



- You will now see the data in rows by month of year.



Rain and

Average Rainfall MM Month Of Year

17.96 Jan

18.92 Feb

18.63 Mar

23.25 Apr

32.60 May

39.67 Jun

40.62 Jul

36.99 Aug

31.75 Sep

27.89 Oct

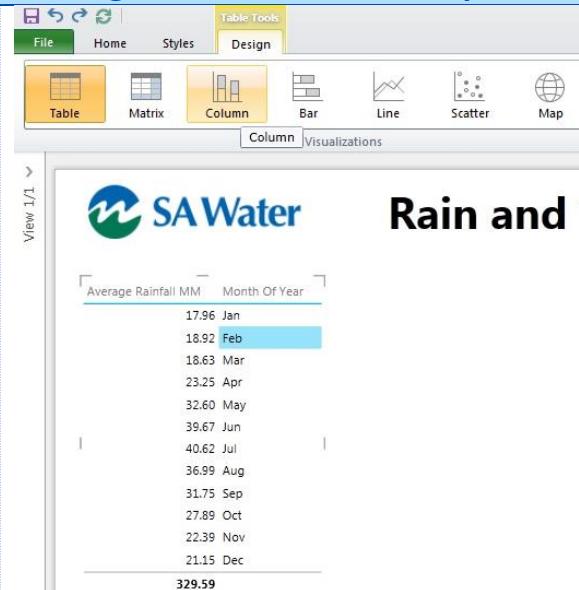
22.39 Nov

21.15 Dec

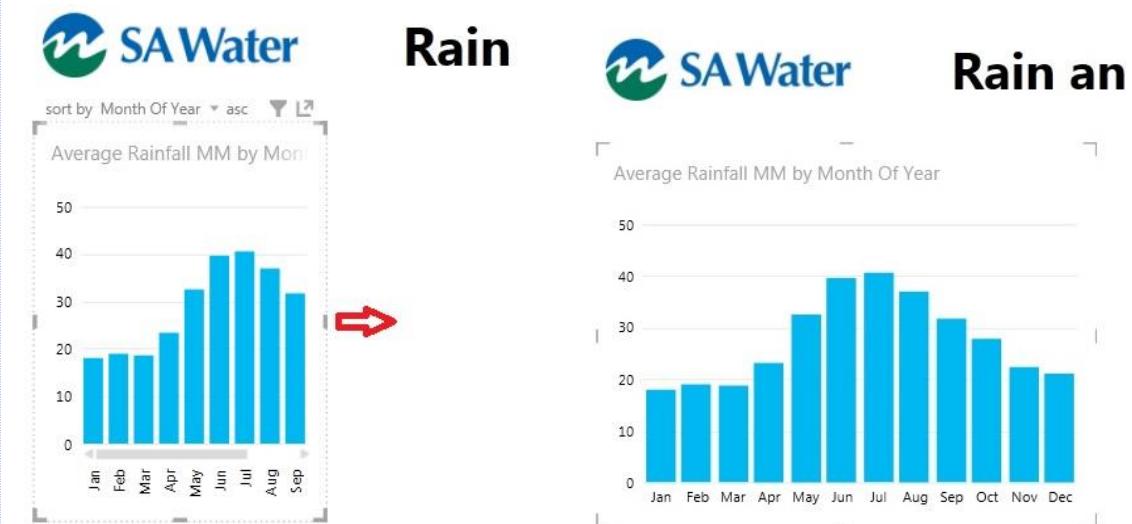
329.59

- Highlight (click) on the grid object in the dashboard and using the Design Tab within the Visualisations, select Column.

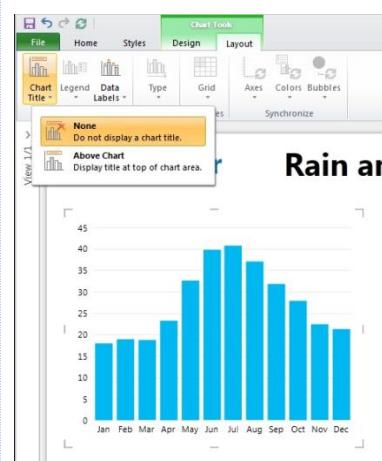
4.1.3 Creating a new Power View report



- d. Drag the right side of the chart out to expand the chart to see the entire data set along the x-axis.

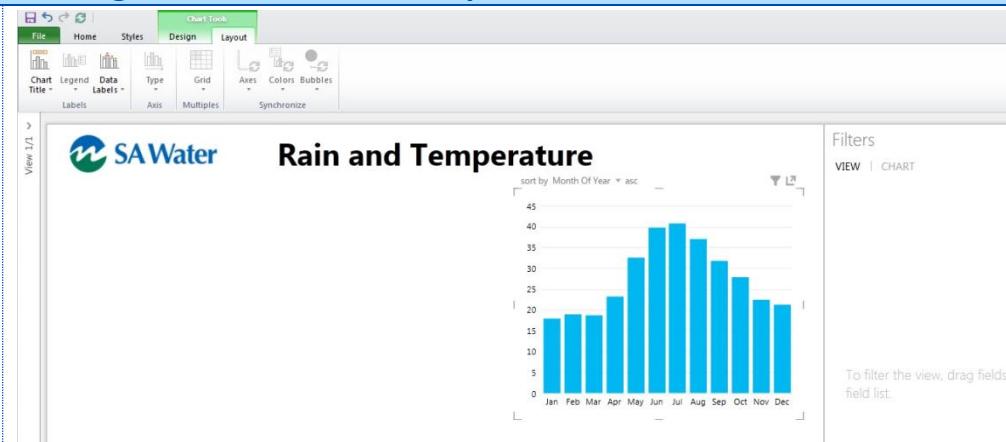


- e. Using the Layout Tab, select Chart Title and select "None" to remove the title from the chart.



- f. Drag the Chart to the Right side of the screen, by selecting the chart, holding the mouse button down and moving across the screen.

4.1.3 Creating a new Power View report



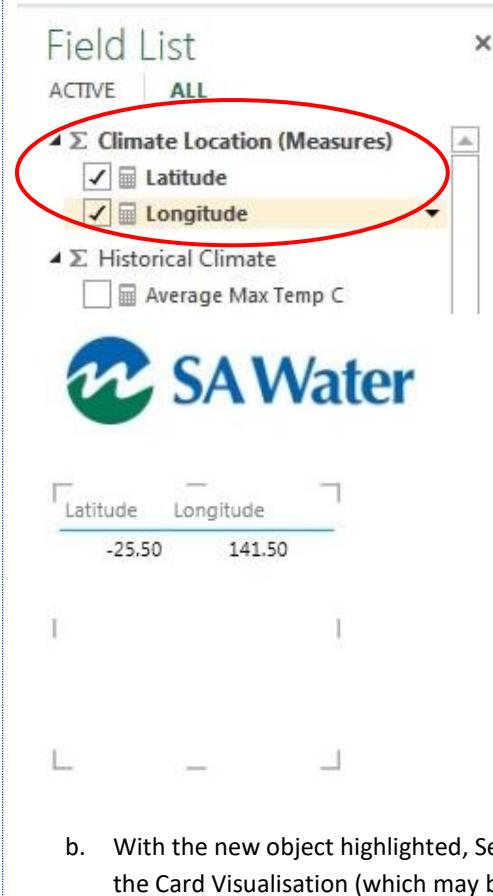
- Click on the Dashboard area to take the highlight off of the chart.

Step 7.

Creating a Card

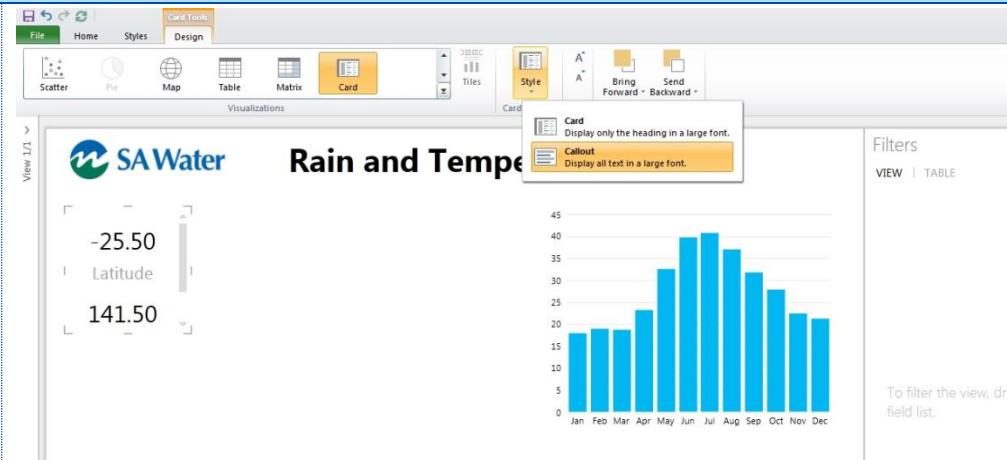
You can now convert the chart to a series of 'cards' that display the data from each row in the table laid out in a card format. The card style displays the default label more prominently.

- In the Field List expand the Climate Location (Measures) dimension and select "Latitude" and "Longitude". This will then display the selected fields within the Dashboard area.

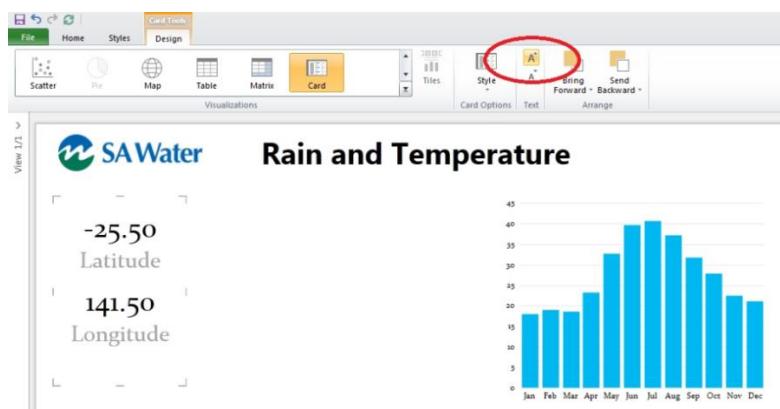


- With the new object highlighted, Select the Design tab under the Table Tools option, click on the Card Visualisation (which may be hidden) and then under Style, select Callout.

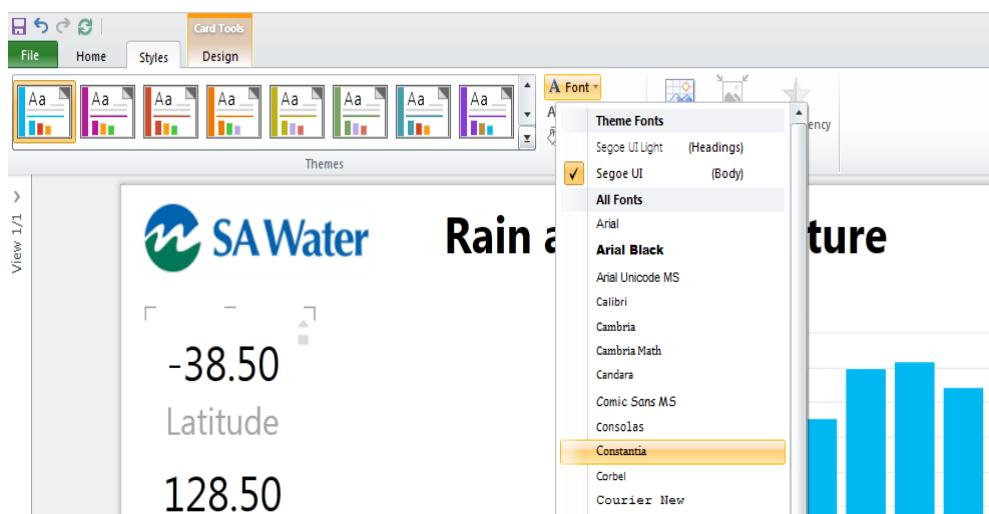
4.1.3 Creating a new Power View report



- c. Within the Text option, click on the “Increase Font Size” twice (2 times).



- d. Click on the Styles Tab.
- e. Click on Font to ascertain the drop down, select “Constantia”.



- f. Drag out the bottom of the box to ensure the vertical scroll bar is removed.
- g. Exit the chart by clicking in the Dashboard.
- h. In the Field List, under Historical Climate dimensions, click on Average Max Temp C.

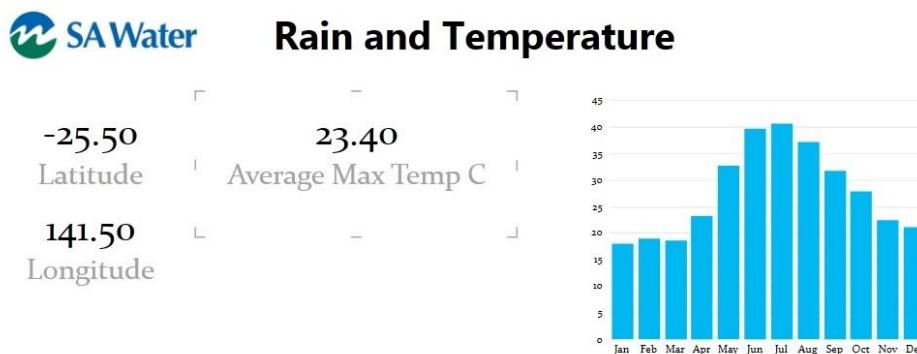
4.1.3 Creating a new Power View report

Field List

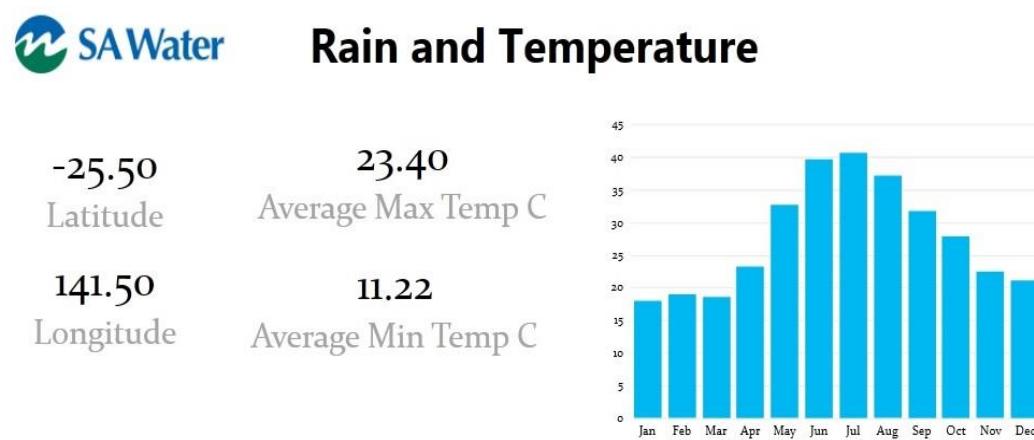
ACTIVE | ALL

- ▲ Σ Climate Location (Measures)
 - Latitude
 - Longitude
- ▲ Σ Historical Climate
 - Average Max Temp C
 - Average Min Temp C
 - Average Rainfall MM

- i. Click on the Text – “Increase Font Size” twice.
- j. Select on Design – Card and Style – Callout.
- k. Drag out the box so the text for the title is not wrapped within the object.
- l. Click on the Dashboard outside of a chart.



- m. Repeat the process for the Average Min Temp C (by repeating steps 7g to 7j above).



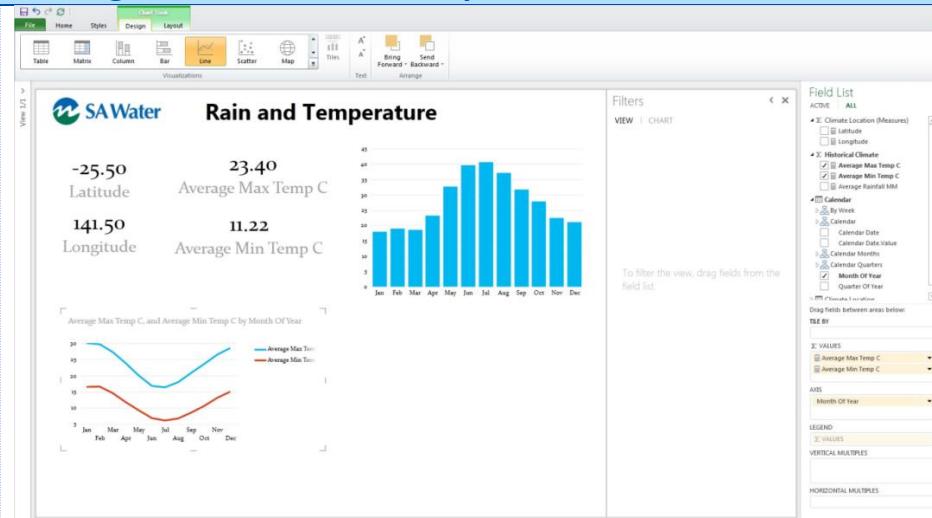
Step 8.

Creating a Line Chart

You can now create a Line Chart of the information in your Dashboard.

- a. In the Field List, under the Historical Climate dimension, click on Average Max Temp C and Average Min Temp C.
- b. In the Field List, under the Calendar dimension, under Calendar Quarters, click on Month of Year
- c. Under the Design tab, click on Line Chart Visualisation.

4.1.3 Creating a new Power View report



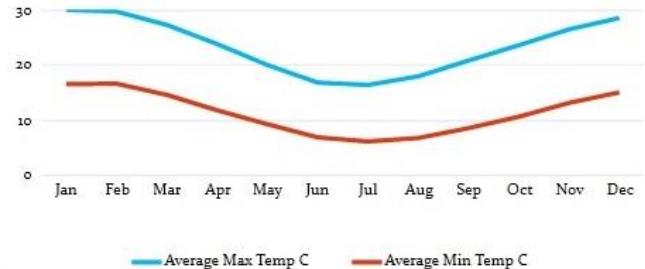
Please note: if your line chart looks a little different, that is ok; it will form as you continue.

- d. Under the Legend Icon on the Layout Tab, select Show Legend at Bottom



Rain and
23.40
Average Max Temp C

- Average Max Temp C, and Average Min Temp C by Month Of Year



- e. Under the Layout Tab, select Chart Title and None to remove the chart title.
f. Click on the Dashboard area.

Step 9.

Adding a Grid

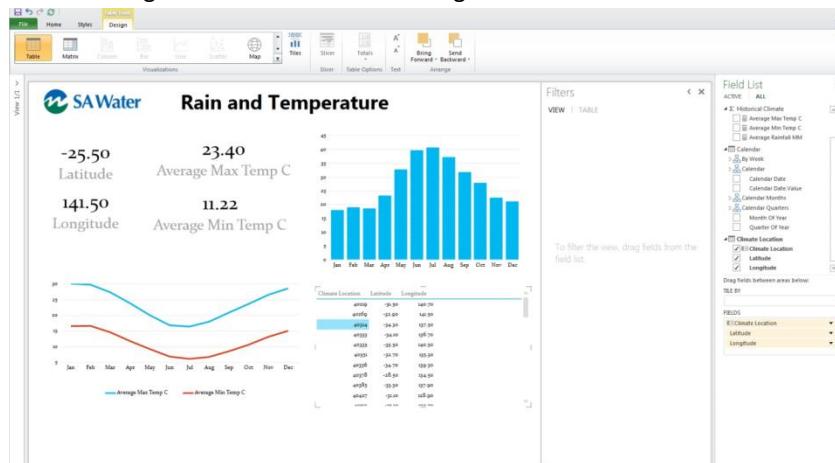
One remaining view on the Dashboard will be adding a Grid.

- a. Under Field List, expand the Climate Location dimension and select the three options – *Climate Location, Latitude, and Longitude*.

4.1.3 Creating a new Power View report

The screenshot shows the 'Field List' pane with the 'ACTIVE' tab selected. Under the 'Climate Location' section, three fields are checked: 'Climate Location', 'Latitude', and 'Longitude'. Other fields like 'Average Max Temp C' and 'Average Min Temp C' are also listed under the 'Historical Climate' section.

- b. Drag the chart box over to the right to cover the screen.



- c. Under the Text option, Click on the Increase Font Size, so you can see the font more clearly.
d. Click on the Dashboard area to remove the chart highlight.

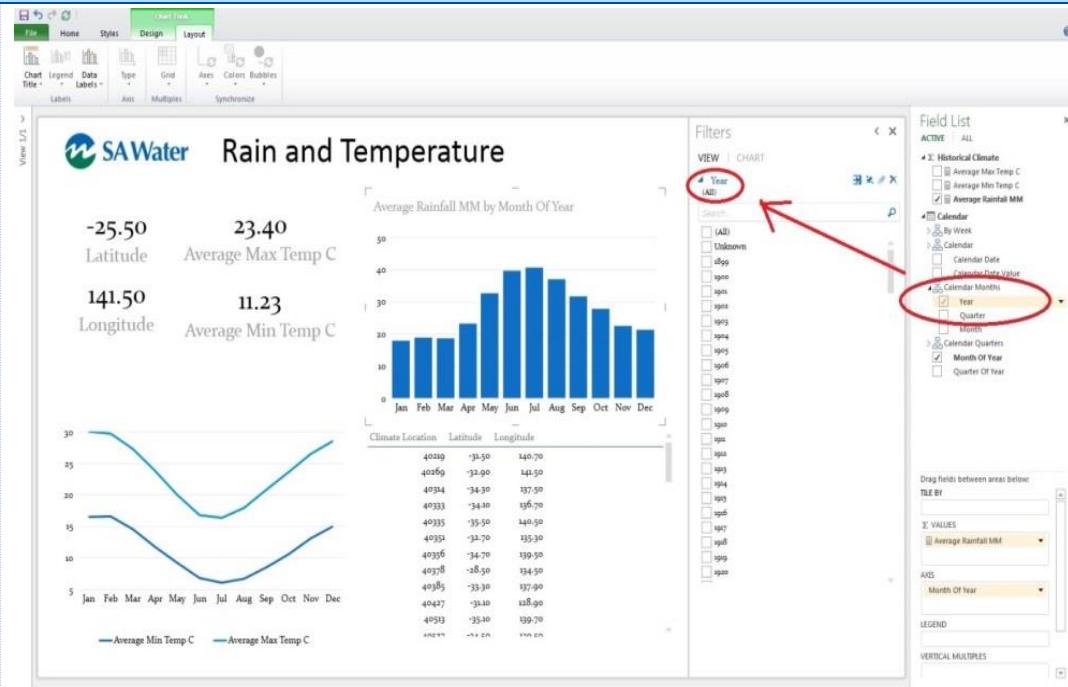
Step 10.

Applying a Filter

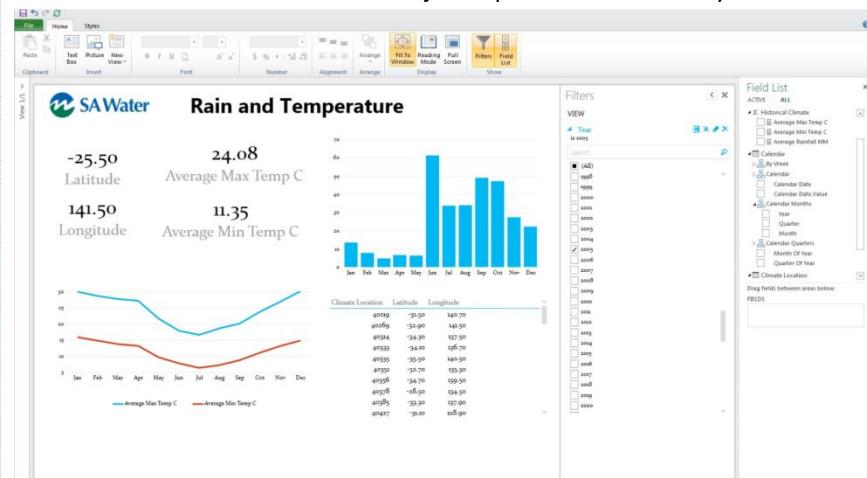
Finally, you can add/apply a Filter to your report.

- a. To add a filter, from the Fields List, under the Calendar dimension, expand the Calendar Months hierarchy and select Year. Drag this field into the Filters pane.

4.1.3 Creating a new Power View report

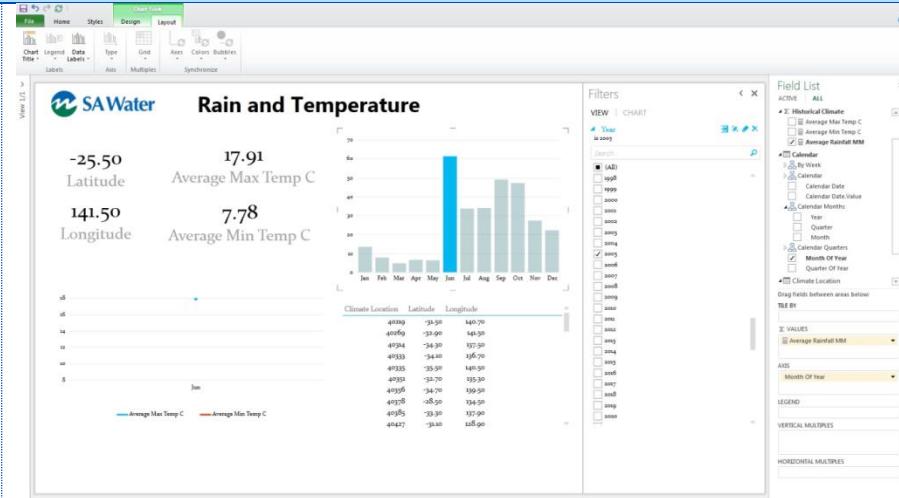


- b. Using the scroll bar, move the list down until you find “2005”. Check the year “2005” and watch the data in all of the chart objects update simultaneously.



- c. Moving back to the Bar chart view you created on the top right of the dashboard, select the month of “Jun”, and watch all the data update simultaneously.

4.1.3 Creating a new Power View report



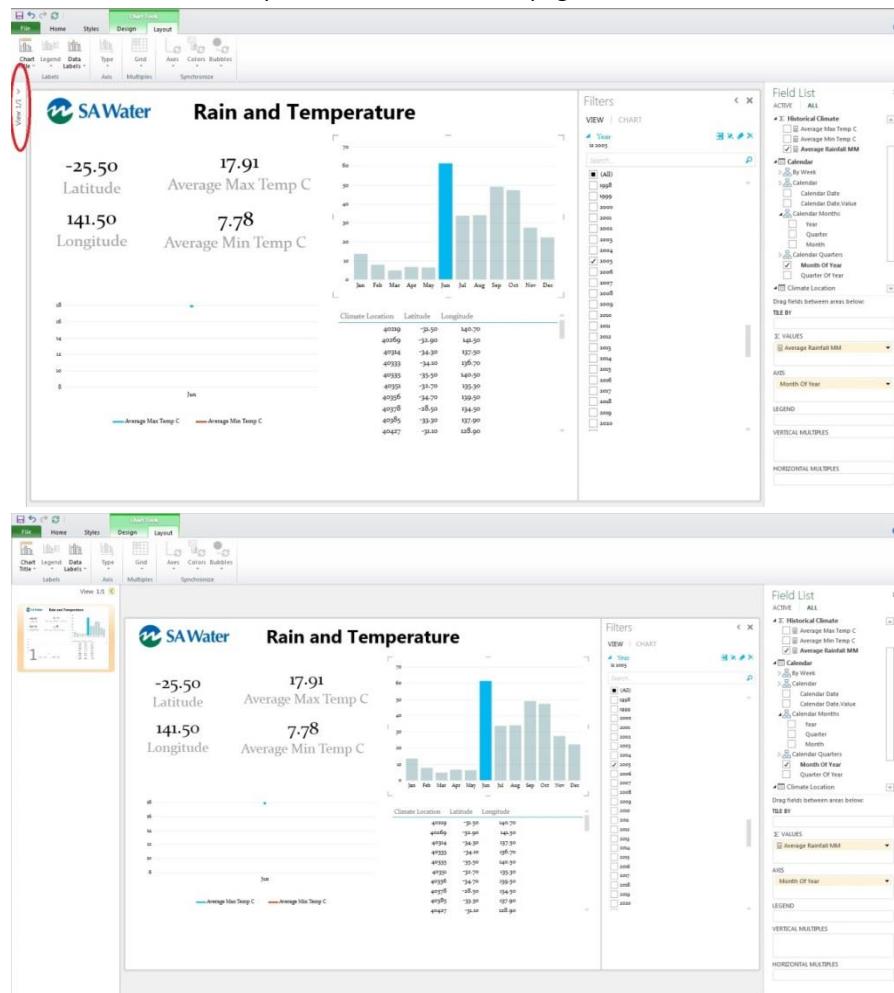
Please Note: To return the data back to the full dataset, click within the bar chart.

Step 11.

Additional Pages and View area

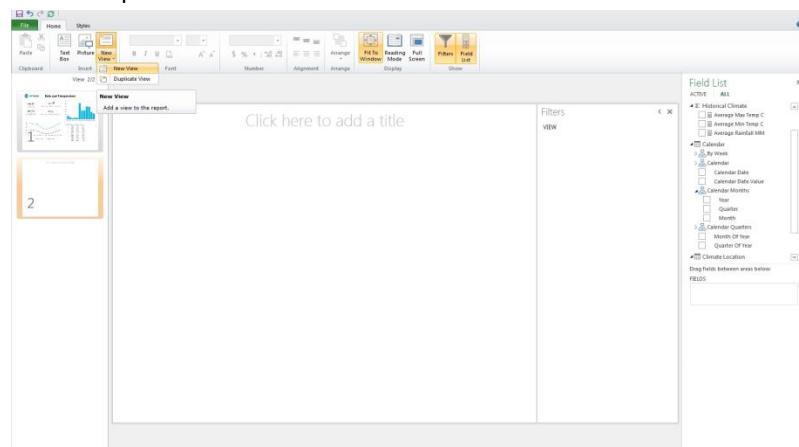
You can also create additional pages in your Power View report.

- To the left side of the screen is the View area.
- Click on the expand arrow to show the pages.

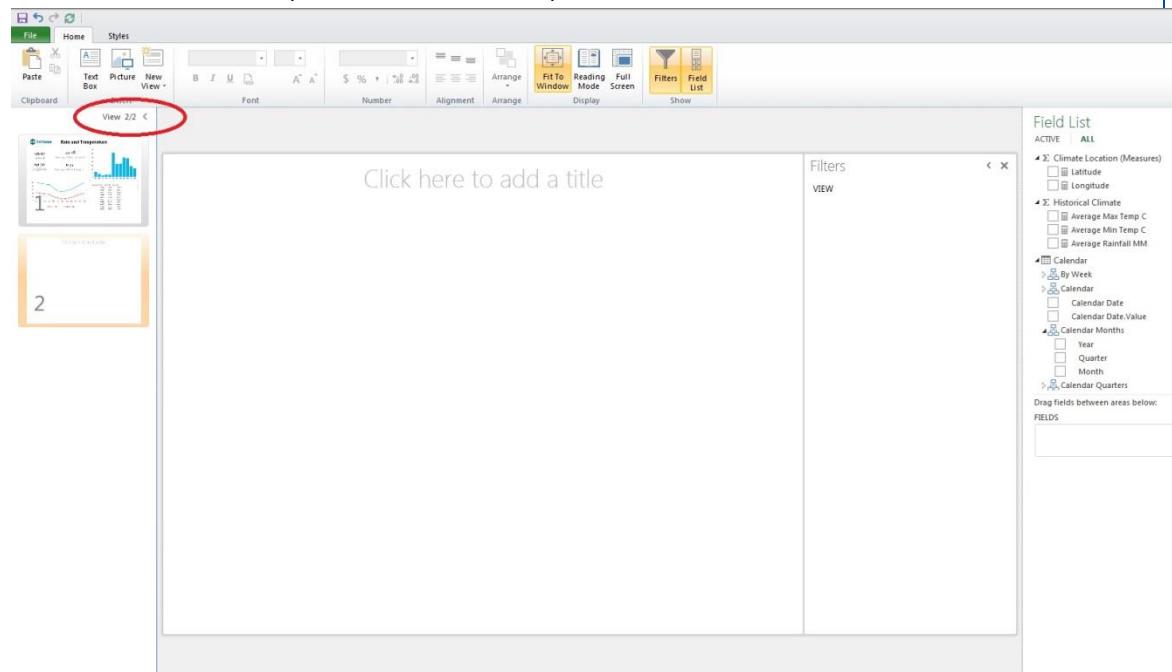


4.1.3 Creating a new Power View report

- c. To add a new page to the report, click on the Home Tab, select New View icon, New View option.



- d. Click on the collapse arrow to return the pane to minimise.

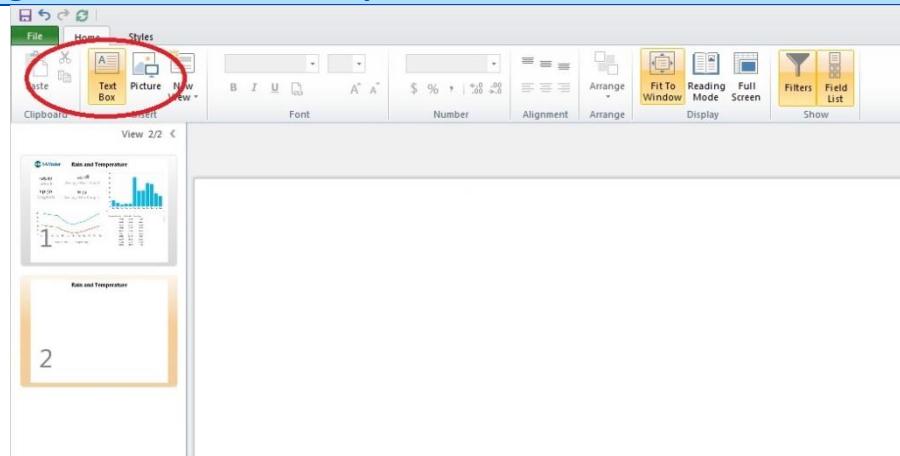


Please Note: You will need to recreate the report “Title Heading” and insert the logo on each new page built. This **does not** carry over, as per normal PowerPoint slides. See if you can remember how to do this (or alternatively, revert to steps 2 to 3f).

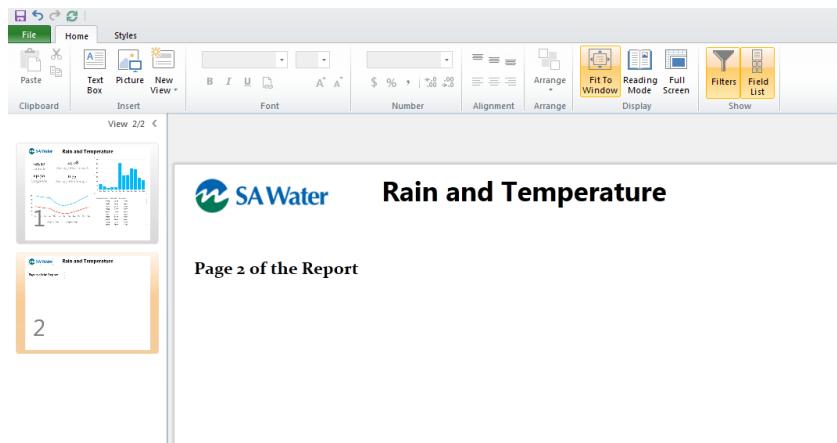
Step 12. Creating a Text Box

- Click on the Home tab.
- Click on the Text Box Icon.

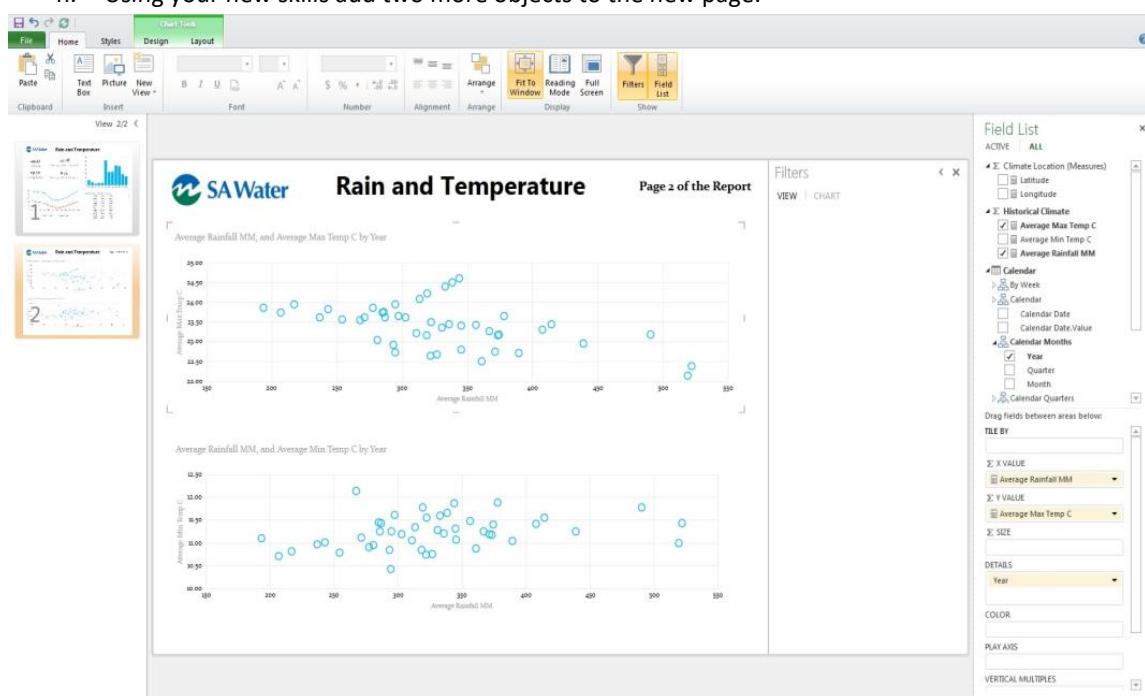
4.1.3 Creating a new Power View report



- c. This will create a text box on the dashboard screen with a flashing cursor.
- d. You can enter the text for the text box i.e. Page 2 of the Report.
- e. You can move the text to the appropriate screen location.
- f. To edit the font, highlight the text, and then use the font editing features.



- g. Drag the new text box over to the top right of the screen.
- h. Using your new skills add two more objects to the new page.



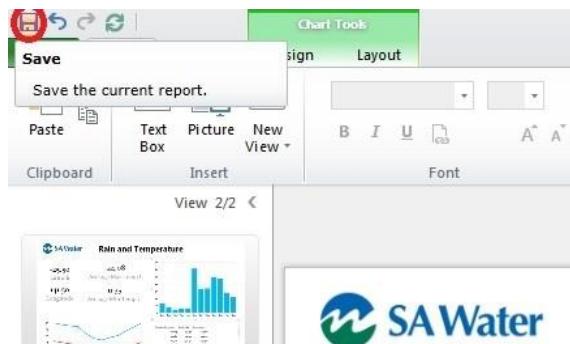
4.1.3 Creating a new Power View report

Step 13.

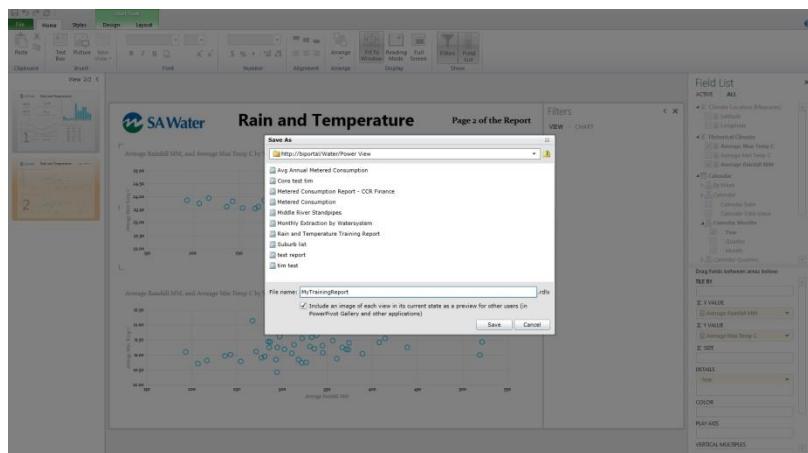
Saving your report

Now that you have added a few extra charts, don't forget to **SAVE** your new report.

- To save, click on the Disk icon in the top left hand corner of your screen, or click on the File tab, and then **Save**.



- This will open the save dialogue box.
- Enter a new file name – i.e. "MyPracticeReport_Userxx". Add your name to the end to make it unique.



- Return to the SharePoint **Water** tab on the BI Portal site.
- Refresh the Power View reports site using the Refresh icon arrow at the end of the URL line, or press "F5" on the keyboard.
- Check that your report is within the file listing.

Congratulations on completing your first PowerPoint Report!

Please note: no one else will see your report; this only occurs once published by your Business Unit Data Custodian.

4.1.4 Other features of Power View Reports

Feature 1:
Show Levels

Users can enable the drilldown option from the **Show Levels** button in the ribbon bar and you can also add multiple levels into the Rows and Columns to build more advanced reports.

4.1.4 Other features of Power View Reports

The screenshot shows the Microsoft Ad-Hoc Report Designer interface. A Matrix visualization titled "Example Allocated Asset Cost Report" is displayed. The report contains data for Asset Location Class (e.g., Accumulator, Actuator, Administration Grouping, Aerator, Aerator Set, Air Conditioning Unit, Ammoniator, Ammoniator Set) and Asset Location Sub Class (e.g., Accumulator, Actuator, etc.). The data is grouped by Fiscal Year (2011-2012, 2012-2013, 2013-2014, 2014-2015). The "Show Levels" button in the ribbon is highlighted with a red box. The Field List pane on the right shows categories like Asset Location Class and Sub Class, with the Fiscal Year field selected and highlighted with a red box.

Asset Location Class	Asset Location Sub Class	2011-2012	2012-2013	2013-2014	2014-2015	Total
Accumulator	Accumulator					404.71
Actuator	Actuator	54,840.05	205,233.19	102,070.66	99,094.37	
	Total	54,840.05	205,233.19	102,070.66	99,094.37	
Administration Grouping	Administration Grouping	1,181,067.01	1,106,322.84	580,399.25	182,348.29	
	Total	1,181,067.01	1,106,322.84	580,399.25	182,348.29	
Aerator	Aerator	10,281.49	24,040.44	61,508.44	13,113.76	
	Total	10,281.49	24,040.44	61,508.44	13,113.76	
Aerator Set	Aerator Set	6,690.13	2,236.55	1,414.42	3,313.62	
	Total	6,690.13	2,236.55	1,414.42	3,313.62	
Air Conditioning Unit	Air Conditioning Unit	131,037.13	138,600.38	218,639.67	168,566.76	
	Total	131,037.13	138,600.38	218,639.67	168,566.76	
Ammoniator	Ammoniator	2,999.25	2,612.72	2,384.41	4,200.12	
	Total	2,999.25	2,612.72	2,384.41	4,200.12	
Ammoniator Set	Ammoniator Set	157.78	697.63	926.13	220.02	
	Total	157.78	697.63	926.13	220.02	

Feature 2: Users can drag an attribute into the *Tile* by section for an interactive way to show data for each region, for example, or any other attribute.

Tile Tool

4.1.4 Other features of Power View Reports

The screenshot shows the Microsoft Ad-Hoc Report Designer interface. The ribbon at the top has tabs for File, Home, Styles, Design, and Tile Tools. The 'Tile Tools' tab is selected, indicated by a red box. Below the ribbon is a toolbar with icons for Tile Visualizations, Text, and Arrange. The main workspace displays a report titled 'Example Report using Tiles'. This report includes a chart titled 'Allocated Asset Cost by Fiscal Year' showing a line graph of cost over time. To the left of the chart is a small pie chart. The 'FIELD LIST' pane on the right lists various asset location fields, and the 'TILE BY' dropdown is set to 'Asset Location Region'. A large red arrow points from the 'FIELD LIST' pane towards the 'TILE BY' dropdown.

Feature 3:

Multiples

Users can drag an attribute into the *Multiples* to create a series of charts. A pie chart representation is detailed below.

The screenshot shows the Microsoft Ad-Hoc Report Designer interface. The ribbon at the top has tabs for File, Home, Styles, Design, Layout, and Chart Tools. The 'Chart Tools' tab is selected, indicated by a red box. Below the ribbon is a toolbar with icons for Scatter, Pie, Map, Table, Matrix, Card, and Tiles. The main workspace displays a report titled 'Example Report using Multiples'. This report contains five pie charts arranged in a grid, each representing a different region. The 'FIELD LIST' pane on the right lists various asset location fields, and the 'MULTIPLES' section is highlighted with a red box, showing 'VERTICAL MULTIPLES' set to 'Asset Location Region'.

4.1.4 Other features of Power View Reports



Some final tips:

- Always check the Ribbon Bar when you have different things selected as the options available will change.
- Save your report REGULARLY

4.1.5 Useful Internet Resources

As mentioned above, a full user guide outlining the capability of Power View is beyond the scope of this document. However, users are strongly encouraged to explore the internet resources below in order to get an idea of how Power View can help them report and analyse their data to assist in decision making.

The following is a short overview video:

[Overview of Power View](#)

The following is a series of videos that demonstrate the different visualisation methods that are available with Power View. These include representing the data in bubble and scatter diagrams, maps, multiples etc. It should be noted that Power View can also be made available in Excel, but at the moment, Power View is only available via the SA Water BI Portal. Hence, you can ignore the first video “Getting Started with Power View in Excel”:

[A Detailed Look at Power View](#)

4.2 Power BI Reports

You can create interactive Power BI reports and dashboards by launching the Power BI Desktop application. Power BI Desktop can be requested from the IT Self Service Portal.

4.2.1 Installing Power BI Desktop

If you don't have Power BI Desktop already installed on your workstation, you will need to request it from the SA Water Self Service Portal.

4.2.1.1 Request for Report Builder 2016

Step 1. Open the IT Self Service Portal <https://sawater.service-now.com/ess/>

Navigate to Software=>Standard Desktop Software.

In Software Details=>More Information click the Magnifying glass and search for “Power BI”

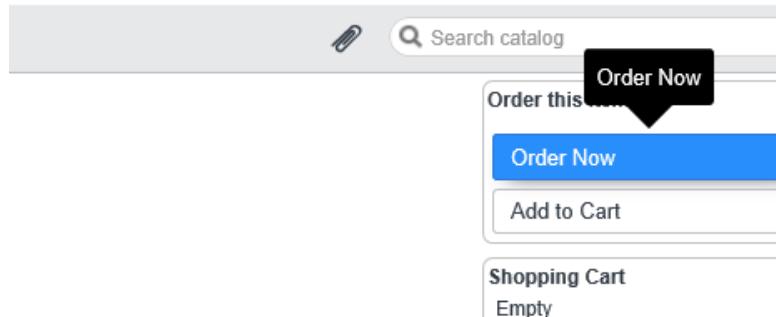
Search	Search	Search	Search
Microsoft	Power BI Desktop		
Microsoft	Power BI Desktop (Optimized)	2.x	
Microsoft	Power Map for Excel	2013	

Select “Power BI Desktop (Optimized)” (2.x)

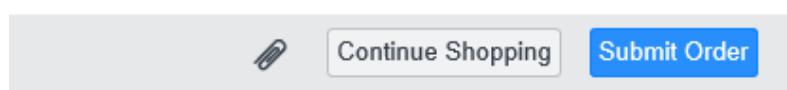
4.2.1.1 Request for Report Builder 2016

Step 2. Change the “Request Type” to “Install / Purchase software” and enter your PC number into “Software to be installed on PC asset number” field.

Scroll back to the top and click “Order Now” in the top right hand corner.



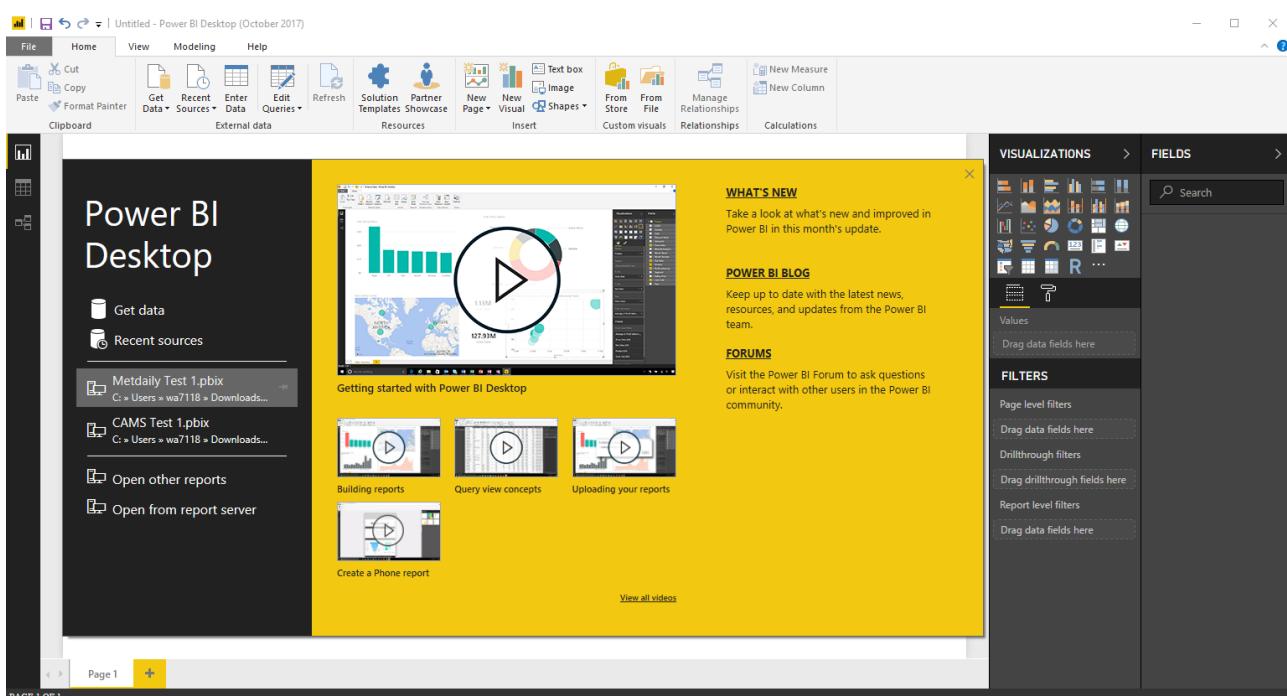
Step 3. The click “Submit Order” (again in the top right hand corner).



The Service Desk will arrange for installation.

4.2.2 Creating Power BI Reports and Dashboards

When opening Power BI desktop you are presented with the screen shown below from where you can choose to create a new report or dashboard.



You can then publish and share your reports and dashboards to the Power BI Report Server at <http://powerbi.sawater.sa.gov.au/PowerBIReports>. You can also publish Report Builder reports to this location.

The screenshot shows the Power BI Report Server interface. At the top, there's a navigation bar with icons for Favorites, Browse, and a search bar. On the right, it shows the user name 'Walsh, Keith'. Below the navigation bar, there's a breadcrumb trail labeled 'Home' and a 'Home' link. A section titled 'FOLDERS (4)' contains three items: 'Customer', 'Finance', and 'Procurement'. Under 'POWER BI REPORTS (1)', there is one report titled 'State of the Assets - Facility and Asset Count'. The bottom right corner of the interface shows a zoom level of '100%'.

4.2.3 Useful Internet Resources

On the help tab of Power BI Desktop there are links to useful resources to help you get started with creating reports and dashboards.

The screenshot shows the Power BI Desktop ribbon with the 'Help' tab selected. A red box highlights the first five links under the 'Help' tab: 'Guided Learning', 'Documentation', 'Training Videos', 'Support Videos', and 'About'. To the right of this red box, there are more links: 'Power BI Blog', 'Community', 'Power BI for developers', 'Samples', 'Community Galleries', and 'Submit an Idea'. The bottom left corner shows a dark sidebar with icons for Home, View, Modeling, and Power Query.

[Microsoft Power BI Guided Learning](#)

[Getting started with Power BI Desktop](#)

[Power BI YouTube Channel](#)

[Power BI Support](#)

4.2.4 Learning and Development

You can also request formal training through the Learning and Development team:

<http://intranet.sawater.sa.gov.au/about/peopleandsafety/learninganddevelopment/Pages/Learning%20and%20Development.aspx>

4.3 Excel Reports

To open and view an existing pre-made Excel report navigate to the BI Portal as detailed in section 2, select your Area of interest [i.e. Water] | Excel Spreadsheets and you can then view reports which have been approved.

The screenshot shows the SharePoint BI Portal interface. At the top, there's a navigation bar with 'SharePoint' and 'Sites'. Below it, a secondary navigation bar includes 'BROWSE', 'FILES' (which is selected), and 'LIBRARY'. A large blue ribbon bar features the 'S' logo and the text 'Excel Spreadsheets'. To the right of the ribbon, there are several navigation links: 'SA Water BI Portal', 'Asset and Works', 'Customer', 'Energy', 'Finance', 'People Management', 'Strategy', and 'Water' (which is highlighted with a red box). The main content area displays a list of documents under 'All Documents'. The first item in the list, 'Metered Consumption by Fiscal Quarter', is also highlighted with a red box. The list includes columns for 'Name', 'Modified', 'Modified By', and 'Approval Status'. A search bar and a 'Find a file' button are located above the document list. On the left, a sidebar lists various reporting options: 'Ad Hoc Reporting', 'Power View', 'Performance Point Dashboards', 'Excel Spreadsheets' (highlighted with a red box), 'Report Builder Reports', 'Formal Reporting', and 'Formal Reports'. A 'New' button, an 'Upload' button, a 'Sync' button, and a 'Share' button are positioned at the top of the document list. A 'More' dropdown menu is also present. A note at the bottom of the list says 'Drag files here to upload'.

This will then provide the user with the detailed report and ability to refresh and manipulate the data presented.

This screenshot shows a Microsoft Excel spreadsheet titled "Metered Consumption by Fiscal Quarter.xlsx [Read-Only]". The main area displays a PivotTable with data for "Average Water Consumption KL" across various categories like Utility Type and Service Point Number. On the right side, a "PIVOTABLE TOOLS" ribbon tab is selected, and a "PivotTable Fields" pane is open. This pane allows users to choose fields to add to the report, including "Metered Consumption" and "Average Water Consumption KL". It also includes sections for "Fiscal Quarter", "More Fields", "Land Use", and "COLUMNS". The "ROWS" section lists "Utility Type" and "Service Point Number", while the "VALUES" section lists "Average Water Consumpti...". A "Drag fields between areas below:" section is also present.

This screenshot shows the same Excel spreadsheet and "PIVOTABLE TOOLS" ribbon tab as the previous image. However, the "DATA" tab is now selected. A context menu is open over the PivotTable, with the "Refresh All" option highlighted and surrounded by a red box. Other options in the menu include "Connections", "Properties", "Edit Links", "All", "Refresh Status", "Cancel Refresh", and "Connection Properties...". The main PivotTable data remains the same, showing consumption figures for different utility types and service points.

4.3.1 Creating a new Excel Report

- Step 1. To create a new blank Excel report, navigate to the BI Portal as detailed in section 2, select your Area of interest [i.e. Water] | *Excel Spreadsheets* then using the Library Tools select **Documents** and click the **New Document** button in the ribbon bar.

The screenshot shows the Microsoft SharePoint ribbon. The 'Library Tools' tab is selected. In the 'New' section of the ribbon, the 'New Document' button is highlighted with a red box. On the right, there's a search bar with the placeholder 'Type Name' and a result 'Metered Consumption by Fiscal Quarter'. Below the ribbon, a sidebar lists categories: Ad Hoc Reporting, Power View, Performance Point Dashboards, **Excel Spreadsheets** (which is selected and highlighted with a blue box), and Report Builder Reports. A large red arrow points from the left towards the 'New Document' button.

- Step 2. Given Excel reports use the same data source as the Power View reports; there are a lot of commonalities. If you know how to use Excel Pivot tables, building your report will be relatively easy.

The screenshot shows a Microsoft Excel window titled 'AM-AllocatedAssetCost Report Template.xlsx - Microsoft Excel'. The ribbon is set to 'PivotTable Tools' with 'Design' selected. A PivotTable is in the center of the sheet, with cell A1 selected. The 'PivotTable Field List' pane is open on the right side, divided into two sections: 'Measures' and 'Dimensions'. The 'Measures' section contains items like 'Allocated Asset Cost', 'Allocated Asset Hours', etc. The 'Dimensions' section contains items like 'Asset Location Measures', 'Work Order Measures', etc. Red arrows point from the text labels 'Measures' and 'Dimensions' to their respective sections in the field list.

- Step 3. Expand the **More Fields** section shown in the **PivotTable Field List** detailed in the right hand side of the Excel spreadsheet

4.3.1 Creating a new Excel Report

PivotTable Field List

Choose fields to add to report:

- Σ Metered Consumption
 - Average Water Consumption KL
- Fiscal Quarter
 - Fiscal Quarters
 - More fields
- Land Use
 - Land Use Code
 - Land Use Level 1
 - Land Use Level 2
 - Land Use Level 3
 - Land Use Level 4
 - Land Use Level 5
 - Local Government Land Use
- Service Point
 - Statistical Area
 - More fields

PivotTable Field List

Choose fields to add to report:

- Σ Metered Consumption
 - Average Water Consumption KL
- Fiscal Quarter
- Land Use
- Service Point
 - Statistical Area
- More fields
 - Demand Area
 - Demand Area Sensible
 - District
 - Local Government Area
 - Postcode
 - Recycled Water District
 - Recycled Water Infrastructure Zone
 - Regional Area
 - SA Water Region
 - Service Point Number

Step 4. Drag and drop the *Measures* into the Values section (or alternatively you can tick the box next to the measures which will move them to the values section).

4.3.1 Creating a new Excel Report

Average Water Consumption KL

PivotTable Field List

Choose fields to add to report:

- Σ Metered Consumption
- Average Water Consumption KL

Fiscal Quarter
Land Use
Service Point
Statistical Area
More fields
Demand Area
Demand Area Sensible
District
Local Government Area
Postcode
Recycled Water District
Recycled Water Infrastructure Zone
Regional Area
SA Water Region
Service Point Number

Drag fields between areas below:
Report Filter Column Labels

Row Labels

Σ Values
Average Water Consumption KL

You will notice this populates data in the spreadsheet.

Step 5. Select or drag and drop necessary Hierarchies or Attributes into the *Filter*, *Column* and *Row Label* sections

Average Water Consumption KL

PivotTable Field List

Choose fields to add to report:

- Statistical Area

More fields
Demand Area
Demand Area Sensible
District
Local Government Area
Postcode
Recycled Water District
Recycled Water Infrastructure Zone
Regional Area
SA Water Region
Service Point Number
Suburb
Waste Water Asset System
Waste Water System
Water District
 Water Infrastructure Zone
Water Pressure Zone
Water Restriction Area
Water System

Report Filter

Column Labels

Row Labels

Σ Values
Average Water Consumption KL

4.3.1 Creating a new Excel Report

- Step 6. You can sort on the values by 'right clicking' on any value and selecting Sort

The screenshot shows a Microsoft Excel window with a PivotTable titled 'Metered Consumption Pivot Template1'. The PivotTable has 'Row Labels' (e.g., Residential, Adelaide (C), Adelaide Hills (DC)) and 'Column Labels' (e.g., 1993-1994, 1994-1995, 1995). The data includes consumption values like 78.473614, 5301.101105, 91322, etc. A context menu is open over a cell in column D, specifically over the value 46972.87048. The menu item 'Sort' is highlighted with a yellow box and a red arrow points to it. Other options in the menu include Copy, Format Cells..., Number Format..., Refresh, Remove 'Average Water Consumption KL', Show Values As, Show Details, Additional Actions, Value Field Settings..., PivotTable Options..., Hide Field List, and More Sort Options... The 'PivotTable Tools' ribbon tab is selected.

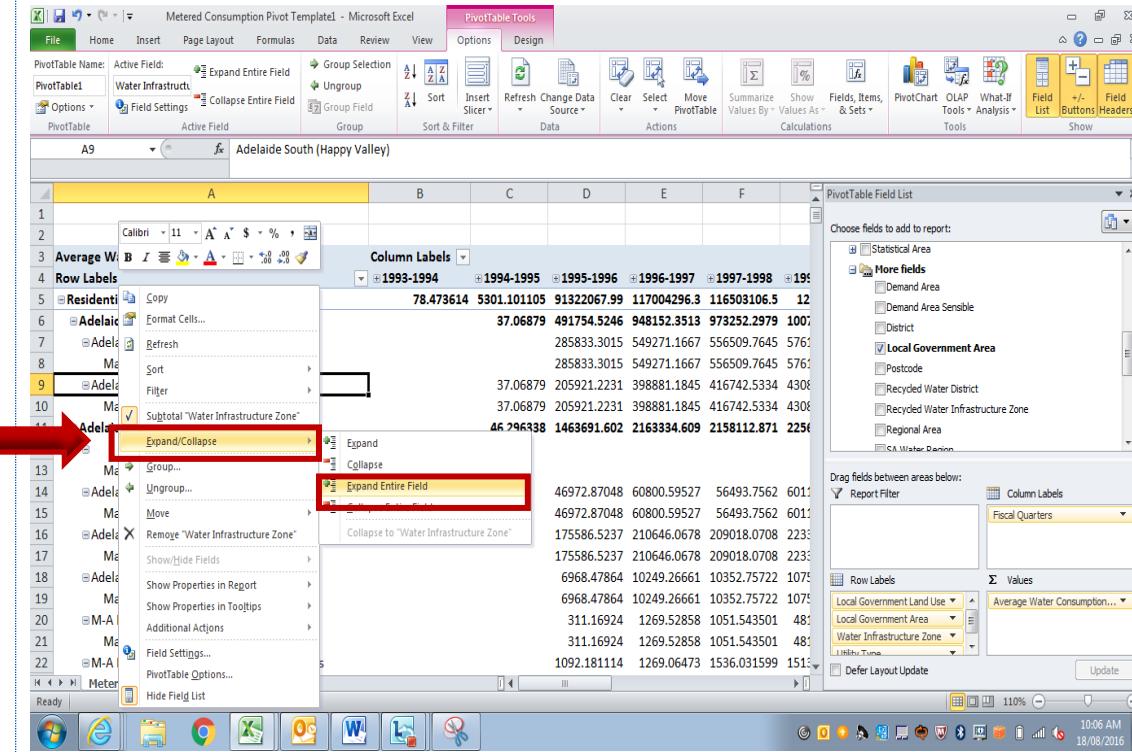
- Step 7. When you use a pre-built Hierarchy, you can use the drill-down / expanding buttons in the Excel report to show more detail as required.

4.3.1 Creating a new Excel Report

Average Water Consumption KL		Column Labels					
Row Labels		1993-1994 1994-1995 1995-1996 1996-1997 1997-1998 1998-1999					
Residential		78.473614	5301.101105	91322067.99	117004296.3	116503106.5	122273123
Commercial - shop				11.785146	2445134.996	3620033.175	3799793.65
Commercial - office					3916555.774		
Commercial - other					631221.9079	965087.3551	1078651.897
Industry - light				138.489788	4967574.579	7295619.657	7638115.327
Adelaide (C)					7899839.806		
Adelaide South (Happy Valley)	Mains Water	0.028038	273949.6484	391546.5931	390564.9541	423305.3992	
Adelaide Hills (DC)					3692.423023	7481.680252	7976.123252
Adelaide East (Country - Anstey Hill)	Mains Water				7281.594429		
Strathalbyn	Mains Water				3692.423031	7481.680252	7976.123252
Summit Storage	Mains Water				7281.594429		
Alexandrina (DC)					1475.635098	1539.482525	1024.535646
South Coast (Country - Myponga)	Mains Water				727.525148		
Strathalbyn	Mains Water				1475.635098	1539.482525	1024.535646
Summit Storage	Mains Water				727.525148		
Barossa (DC)					572.132689	690.958476	766.627811
Mount Pleasant System	Mains Water				668.297726		
Swan Reach - Paskeville	Mains Water				559.387009	666.039703	743.281412
Barunga West (DC)					559.387009	666.039703	743.281412
Morgan Whyalla Pipelines (Bundaleer - Baroota)	Mains Water				650.19885		
					12.74568	24.918773	23.346399
					12.74568	24.918773	23.346399
					1468.072862	1604.184394	1710.196831
					2330.604915		
					1468.072862	1604.184394	1710.196831
					2330.604915		
					49.08546	89.152659	61.925863
					63.95146		
					49.08546	89.152659	61.925863
					63.95146		
					49.08546	89.152659	61.925863
					63.95146		

Step 8.

The user can then right click on a Row Label in the report to expand / collapse all fields.



Alternatively, you can select *Options* from the Menu and click Expand / Collapse Entire Field on the ribbon bar

4.3.1 Creating a new Excel Report

A13 ffx Adelaide Hills (DC)

	A	B	C	D	E	F
1						
2						
3	Average Water Consumption KL		Column Labels			
4	Row Labels	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998
5	Residential	78.473614	5301.101105	91322067.99	117004296.3	1165031
6	Commercial - shop	11.785146	2445134.996	3620033.175	379979	
7	Commercial - office		631221.9079	965087.3551	1078651	
8	Commercial - other	138.489788	4967574.579	7295619.657	7638115	
9	Industry - light	0.028038	273949.6484	391546.5931	390564.9	
10	Adelaide (C)		3692.423031	7481.680252	7976.123	
11	Adelaide South (Happy Valley)		3692.423031	7481.680252	7976.123	
12	Mains Water		3692.423031	7481.680252	7976.123	

Step 9.

Users can also drag (or select) any Hierarchy or Attribute into the *Report Filter*.

B1 ffx All

	A	B	C	D	E
1	Fiscal Quarters	All			
2	Row Labels	Search Fiscal Year			
3	Residential	1899-1900			
4		1900-1901			
5		1901-1902			
6	Recycled Water	1902-1903			
7	Mains Water	1903-1904			
8	Adelaide East (Country - Anstey Hill)	1904-1905			
9	Mains Water	1905-1906			
10	Adelaide East (Metro - Anstey Hill)	1906-1907			
11	Recycled Water	1907-1908			
12	Mains Water	1908-1909			
13		1909-1910			
14	Adelaide North (Hope Valley)	359502019.3			
15	Mains Water	359502019.3			
16	Adelaide South (Happy Valley)	807440016.5			
17	Recycled Water	0			
18	Mains Water	807440016.5			
19	Adelaide South (Metro - Myponga)	74260750.71			
20	Non-potable Water	293.000072			
21	Mains Water	74260457.71			
22	Barmera	399024.7354			

Click the drop down ALL arrow in the report to show the filter options after you have added a Report Filter

Step 10.

With the PivotTable Tools selected, use the *Insert* menu from the ribbon bar to add a chart of the results, in this example, a Bar chart has been used.

4.3.1 Creating a new Excel Report

PivotTable Tools

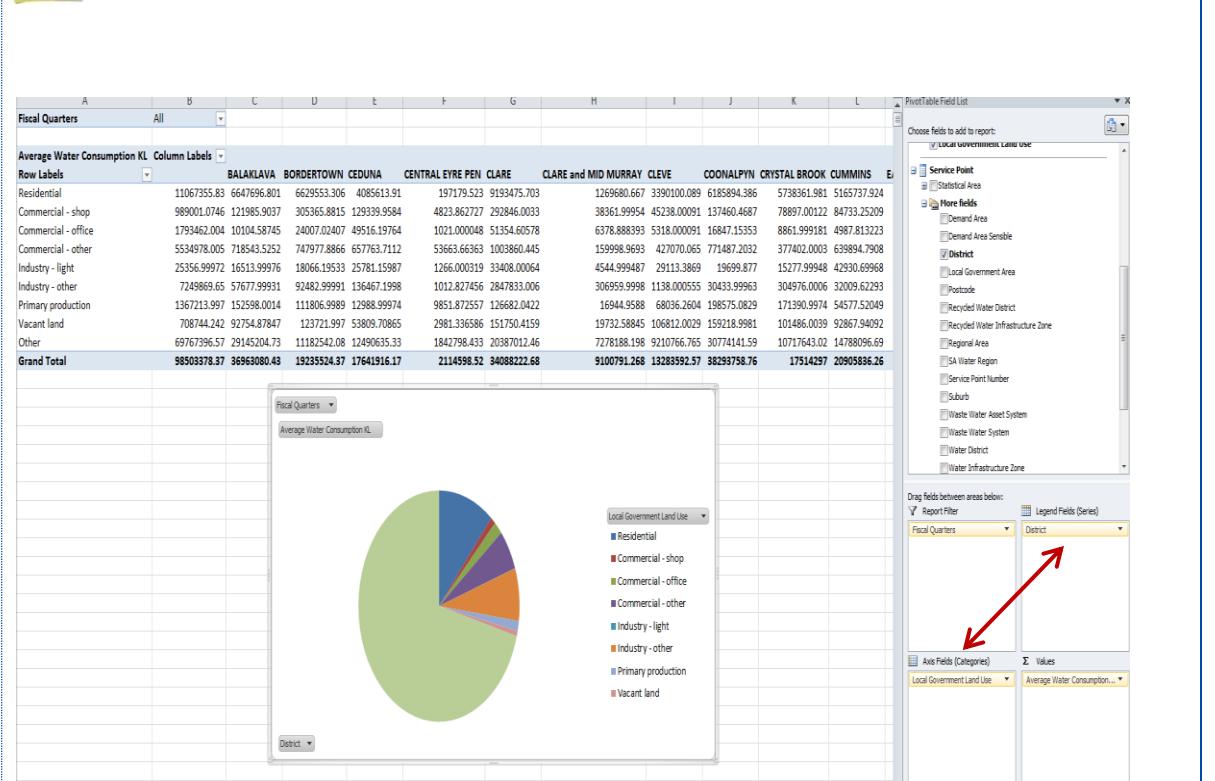
Metered Consumpt

Insert

Bar

Fiscal Quarters		All	BALAKLAVA	BORDERTOWN	CEDUNA	CENTRAL EYRE PEN	CLARE		
Row Labels	Average Water Consumption KL	Column Labels							
Residential	11067355.83	6647696.801	6629553.306	4085613.91	197179.523	9193475.703	197179.523	9193475.703	
Commercial - shop	989001.0746	121985.9037	305365.8815	129339.9584	4823.862727	292846.0033	4823.862727	292846.0033	
Commercial - office	1793462.004	10104.58745	10104.58745	24007.02407	49516.19764	24007.02407	49516.19764	1021.000048	51354.60578
Commercial - other	5534978.005	718543.5252	718543.5252	747977.8866	657763.7112	747977.8866	657763.7112	53663.66363	1003860.445
Industry - light	25356.99972	16513.99976	16513.99976	18066.19533	25781.15987	18066.19533	25781.15987	1266.000319	33408.00064
Industry - other	7249869.65	57677.99931	57677.99931	92482.99991	136467.1998	92482.99991	136467.1998	1012.827456	2847833.006
Primary production	1367213.997	152598.0014	152598.0014	111806.9989	12988.99974	111806.9989	12988.99974	9851.872557	126682.0422
Vacant land	708744.242	92754.87847	92754.87847	123721.997	53809.70865	123721.997	53809.70865	2981.336586	151750.4159
Other	69767396.57	29145204.73	29145204.73	11182542.08	12490635.33	11182542.08	12490635.33	1842798.433	20387012.46
Grand Total	98503378.37	36963080.43	19235524.37	17641916.17	2114598.52	34088222.68			

Helpful Tips



You may need to swap the columns and rows to get the results you are looking for

Step 11. Depending on the view you are seeking, you can right click on any entry in the report, or select multiple entries in the report, select Filter and make your selection i.e. "Keep only selected items"

4.3.1 Creating a new Excel Report

Step 12.	<p>Once you are happy with your created Excel report, it's time to Save and allocate an appropriate naming convention (as per normal Excel saving functionality) that is easy to find in the future.</p>

4.4 Dashboards

PerformancePoint in Microsoft SharePoint 2016 is a performance management service that can be used to monitor and analyse business data. It provides flexible tools for building and running dashboards, scorecards, and key performance indicators (KPIs). PerformancePoint Services can help individuals across an organisation make informed business decisions that align with companywide objectives and strategy.

Dashboards, scorecards, KPIs, and reports can help drive accountability. Integrated analytics help this by moving away from monitoring past information to analysing its meaning and future trends. This analysis can, where appropriate, be shared with a team or throughout the organisation.

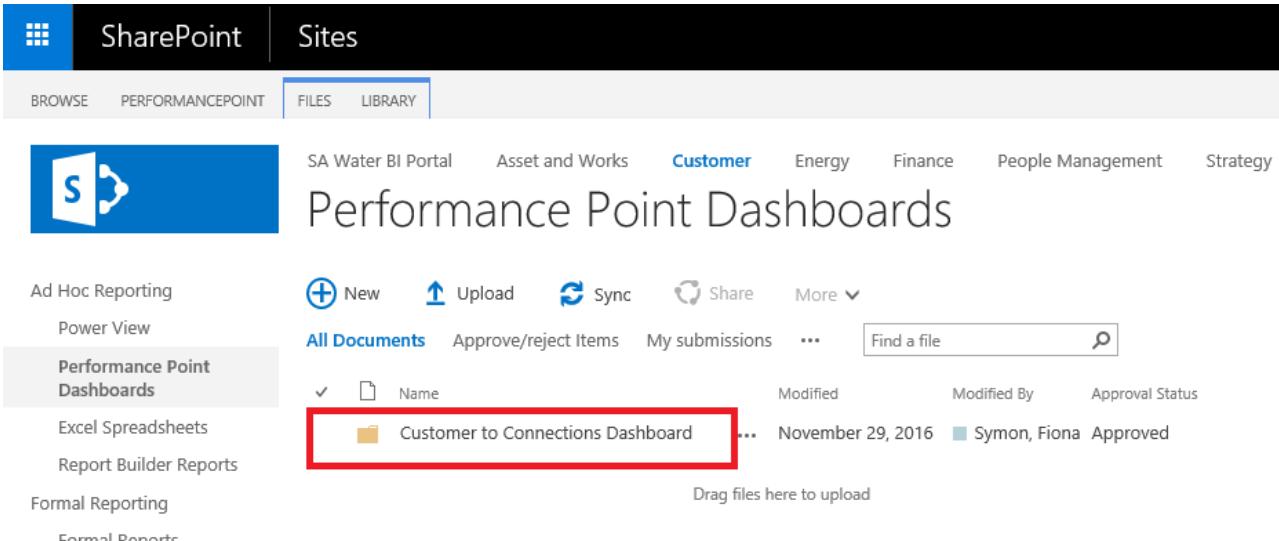
4.4.1 Accessing the Dashboards

Dashboards can be accessed from the left hand menu options under Ad Hoc Reporting:

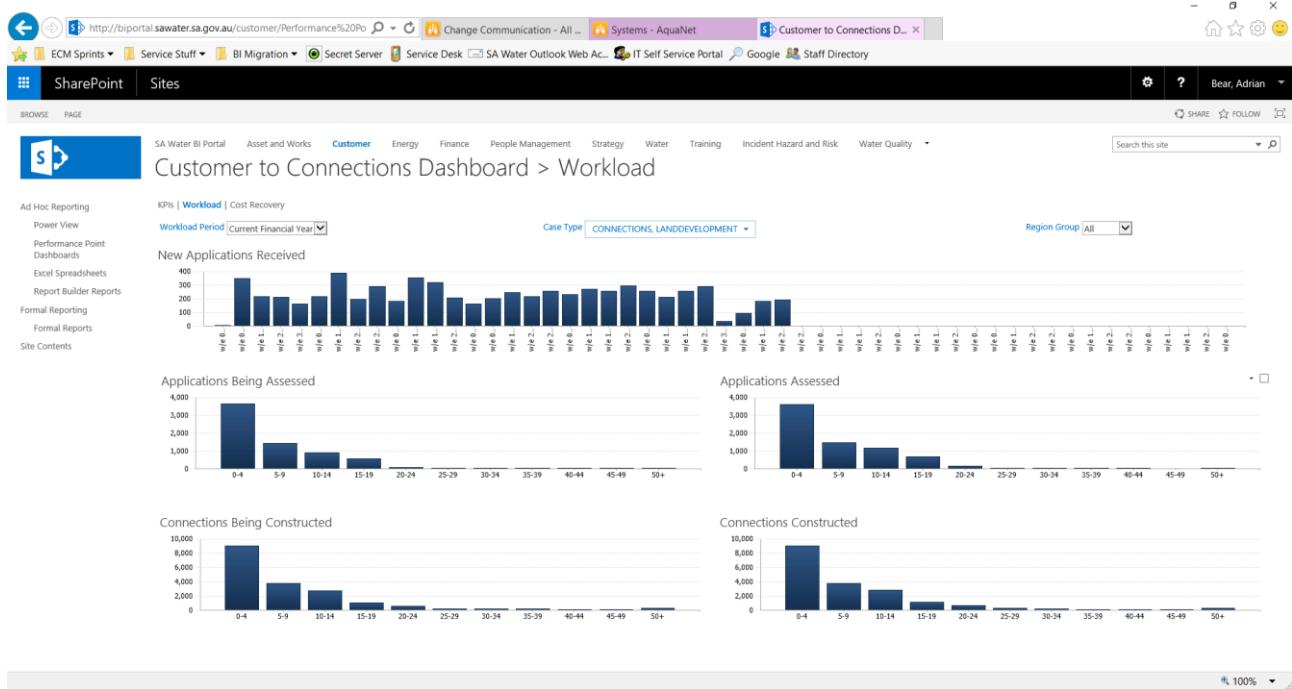


The screenshot shows the SharePoint navigation bar with 'SharePoint' and 'Sites' tabs. Below the navigation bar, there are two tabs: 'BROWSE' and 'PAGE'. The main content area has a blue header with the 'S' logo. Below the header, the 'SA Water BI Portal' is selected. A horizontal menu bar includes 'Asset and Works', 'Customer' (which is highlighted with a red box), 'Energy', 'Finance', 'People Management', and 'Strategy'. On the left, a sidebar lists 'Ad Hoc Reporting' options: 'Power View', 'Performance Point Dashboards' (which is highlighted with a red box), 'Excel Spreadsheets', 'Report Builder Reports', 'Formal Reporting', 'Formal Reports', and 'Site Contents'. The right side displays a welcome message: 'Welcome to the Customer BI Portal' and 'From here, you may want to view **Formal Reports**'. Below the message is a bar chart titled 'Top 20 METRO Wastewater' showing data for various sites.

Once the Dashboard site has been entered, the user will see pre-prepared dashboards that they can navigate to and analyse e.g.:



The screenshot shows the SharePoint document library for 'Performance Point Dashboards'. The navigation bar includes 'SharePoint' and 'Sites' tabs, and the 'FILES' tab is selected. Below the navigation bar, there are tabs for 'SA Water BI Portal', 'Asset and Works', 'Customer' (highlighted with a red box), 'Energy', 'Finance', 'People Management', and 'Strategy'. The main content area displays the title 'Performance Point Dashboards'. Below the title is a toolbar with 'New', 'Upload', 'Sync', 'Share', and 'More'. A search bar 'Find a file' is also present. The document list shows a single item: 'Customer to Connections Dashboard' (highlighted with a red box). The list includes columns for 'Name', 'Modified', 'Modified By', and 'Approval Status'. At the bottom, there is a placeholder 'Drag files here to upload'.

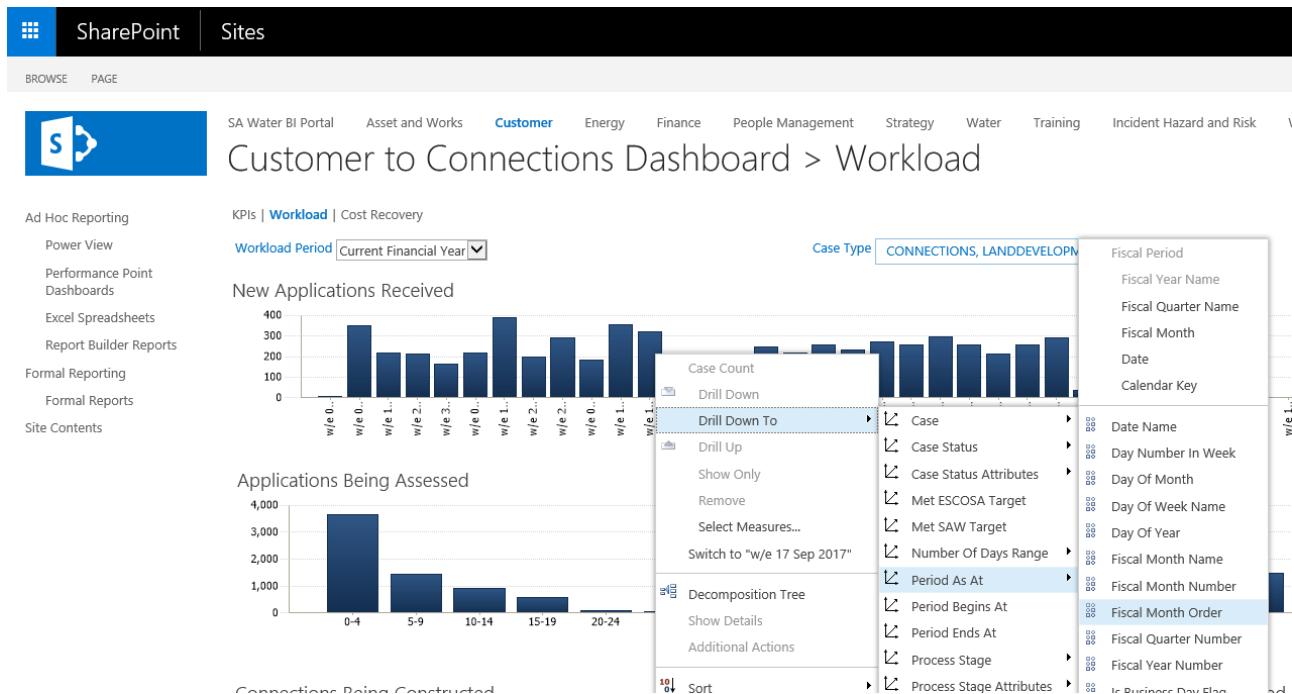


4.4.2 What You Can Do With Dashboards

The following are just some of the actions and activities that can be used to analyse the data to enhance decision-making.

4.4.2.1 Charts: Drill Down see the details at the next level

The example below shows the Drill Down option. If you Right Mouse Click while hovering over an individual bar, you can then dive into the data in order to carry out some deeper analysis:



4.4.2.2 Charts: Other options

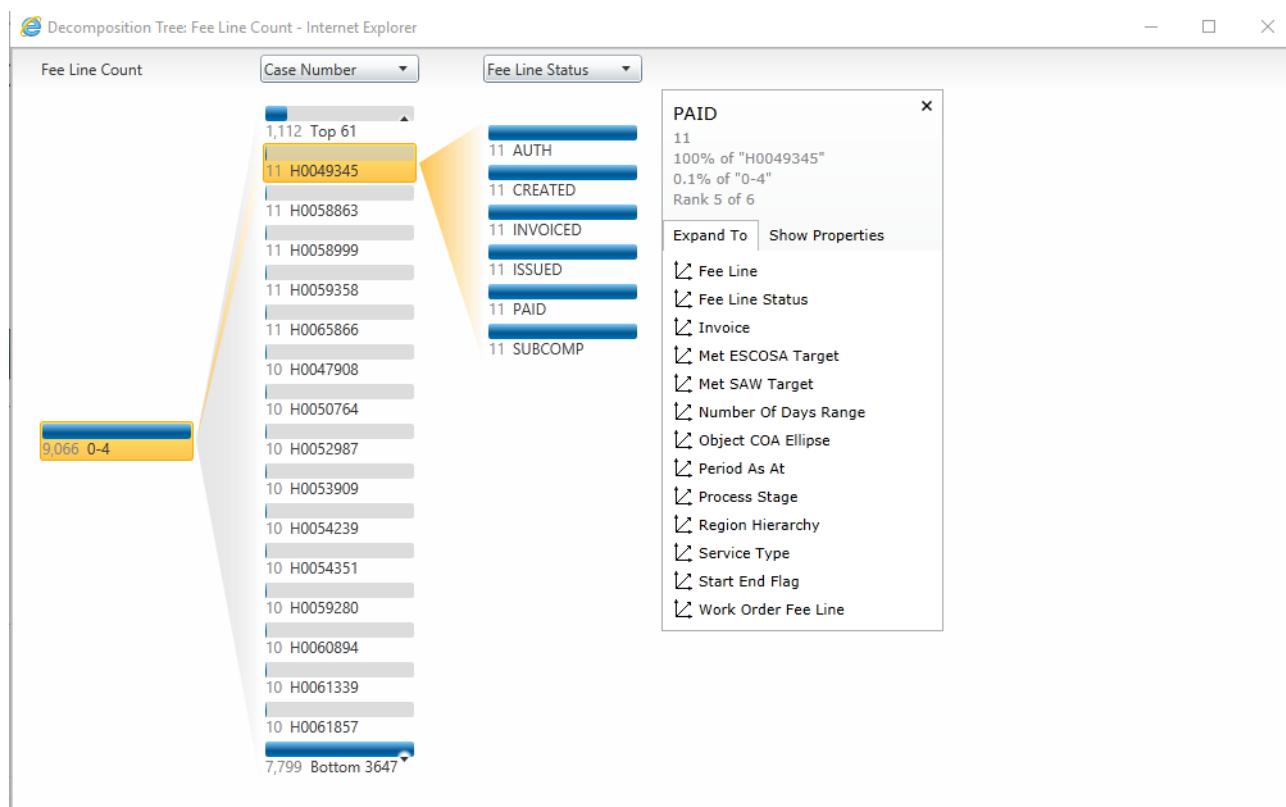
The example above also shows some other options you may wish to explore. For example you can:

- Drill-up (the opposite of drill-down).
- Sort items in ascending or descending order.
- Filter out empty rows or columns, isolate an item, or remove an item from the report view.
- Apply top or bottom members in a group.
- Apply value filters, such as items greater than or less than an amount that you specify.
- Pivot a grid, or change a grid to an analytic chart.
- Show or hide information that is included in the chart or grid.
- Work with pages of grid data (useful when a query returns a large set of results).
- Launch a Decomposition Tree to view more information about a particular report value.

In the next section we will explore the very useful Decomposition Tree feature.

4.4.3 Decomposition Tree

A Decomposition Tree is a PerformancePoint analytics tool that you can use to perform root-cause analysis by viewing how individual members in a group contribute to the whole. In a Decomposition Tree, members are ranked from greatest to least, or from least to greatest. The Decomposition Tree enables users to break down a group to see its individual members and how they can be ranked according to a selected measure, such as by failure type by asset cost:



Please note: a different dashboard was accessed to create this view as it was not available within the Customer Connections dashboard example provided.

The second column in the above screenshot shows the cost associated with the causes of the “Burst” Failure Type. Then, in the third column we can see the cost associated with the remedies for chosen “Piece Blown Out” cause.

It is worth remembering that it may be necessary to Pivot the chart before launching the Decomposition Tree.

The following link is a short video that demonstrates how to use the Decomposition Tree:

[Using the Decomposition Tree](#)

4.4.4 Useful Internet Resources

The following link contains extremely useful information that shows the user how to navigate PerformancePoint dashboards, charts and grids. At the end of the page, there is a very informative overview on the power of PerformancePoint. Users are encouraged to spend some time going through this information in order to get the best out of analysing the data:

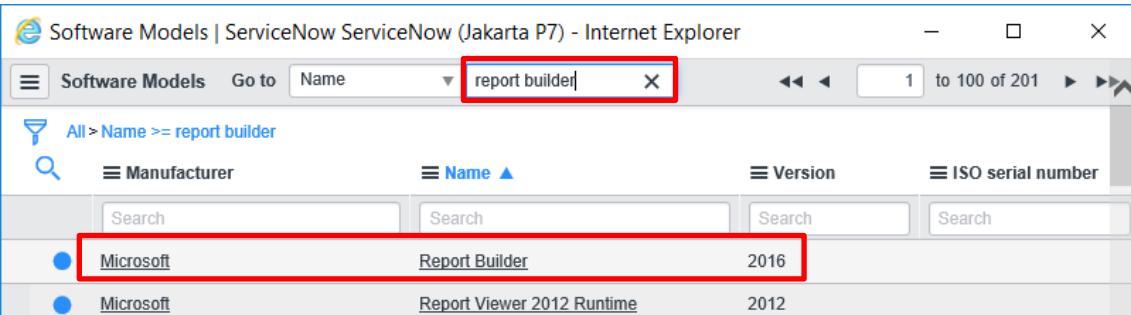
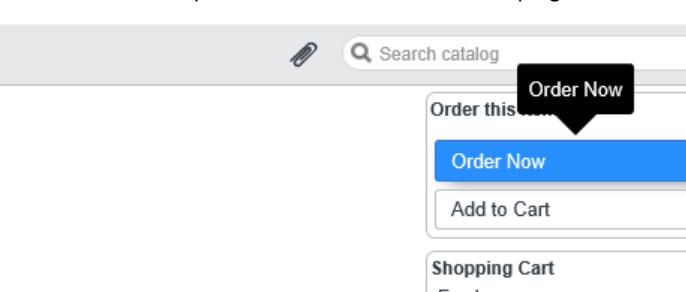
[How to Navigate Dashboards/Charts and Explore Data](#)

4.5 Report Builder Reports

Microsoft SQL Server 2016 Reporting Services (SSRS) includes a tool called Report Builder 2016, which allows the creation of reports that can then be used as formal reports, or simply for ad hoc reporting in an environment familiar to those with SSRS skills.

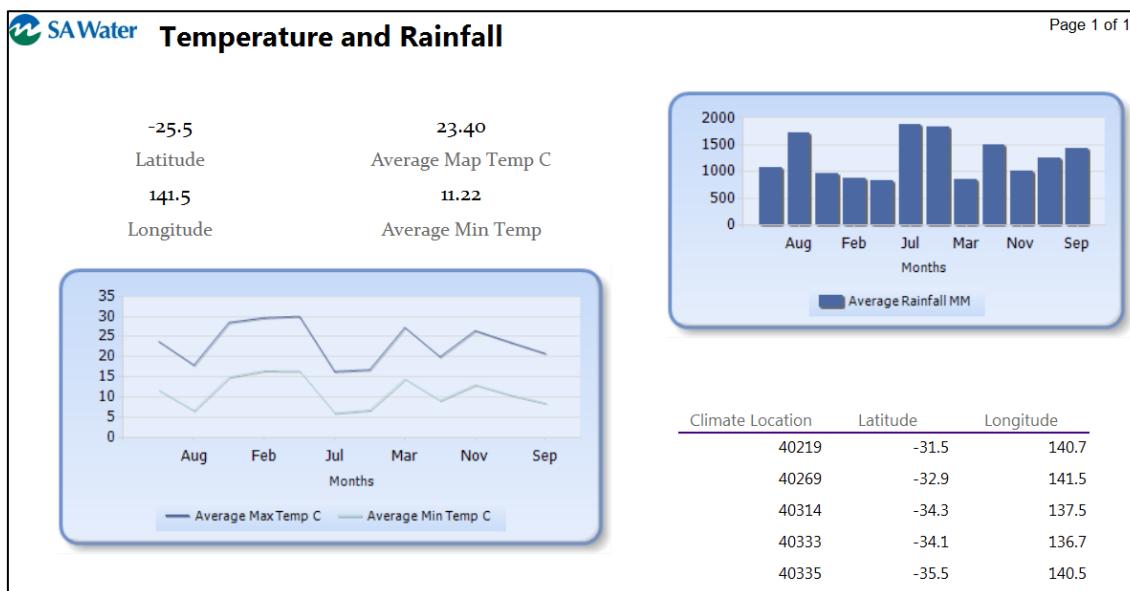
4.5.1 Installing Report Builder 2016

If you don't have Report Builder 2016 already installed on your workstation, you will need to request it from the SA Water Self Service Portal.

4.5.1.1 Request for Report Builder 2016	
Step 1.	<p>Open the IT Self Service Portal https://sawater.service-now.com/ess/</p> <p>Navigate to Software=>Standard Desktop Software.</p> <p>In Software Details=>More Information click the Magnifying glass and search for "Report Builder"</p>  <p>Select "Report Builder" (version 2016)</p>
Step 2.	<p>Change the "Request Type" to "Install / Purchase software" and enter your PC number into "Software to be installed on PC asset number" field.</p> <p>Scroll back to the top and click "Order Now" in the top right hand corner.</p> 
Step 3.	<p>The click "Submit Order" (again in the top right hand corner).</p>  <p>The Service Desk will arrange for installation.</p>

4.5.2 Creating Report Builder Reports

The following step by step instruction guide has been put together to assist create a Report Builder Report. At the end of this section you will have created a report that resembles the following:

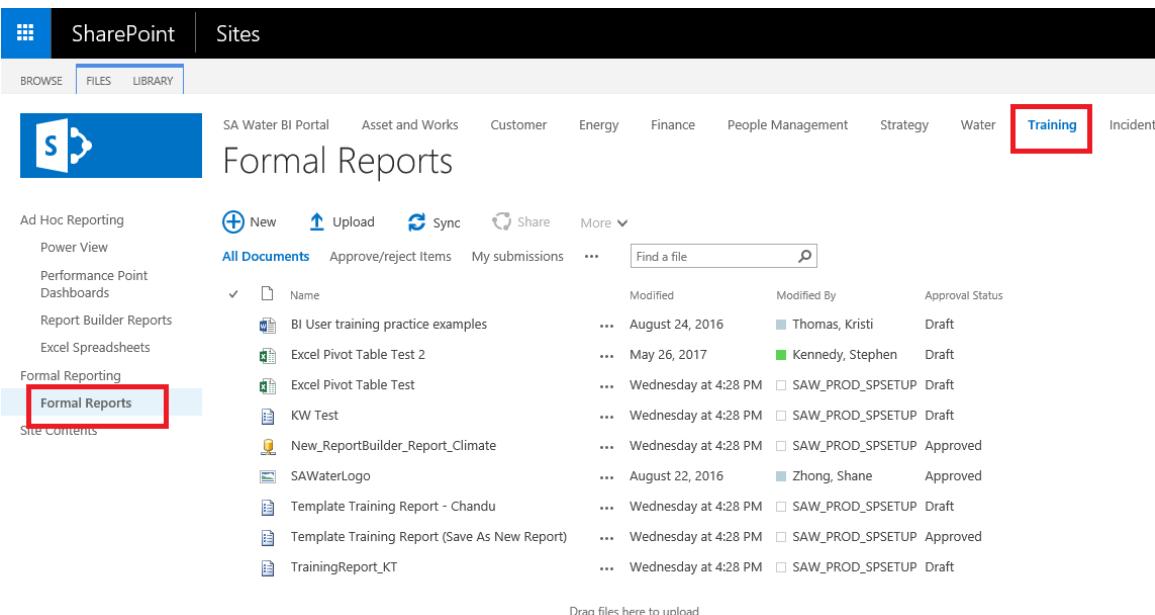
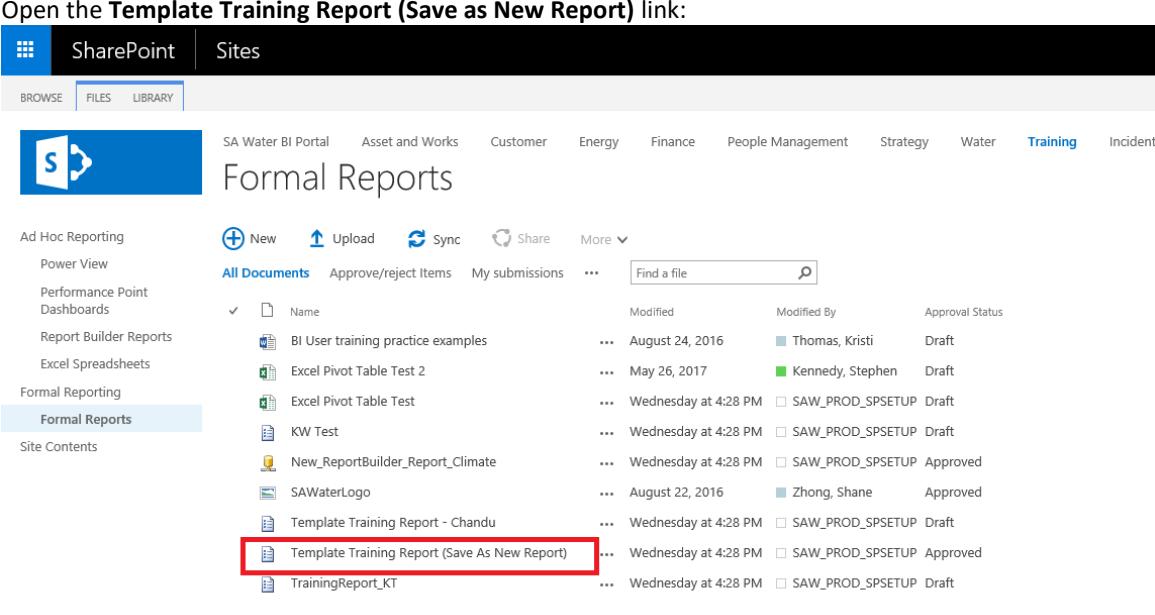


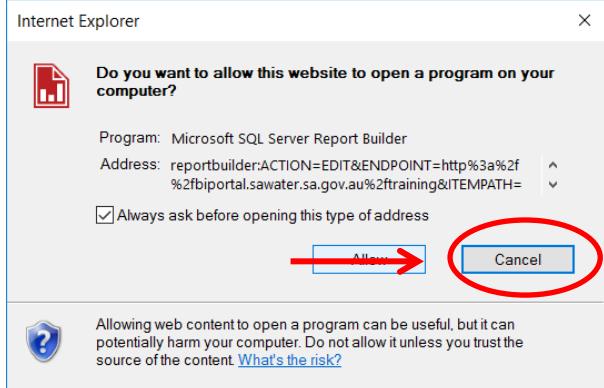
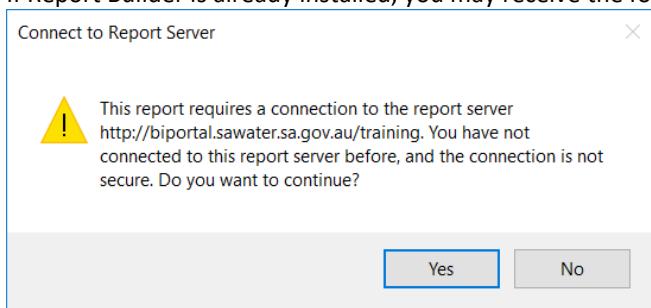
Instructions

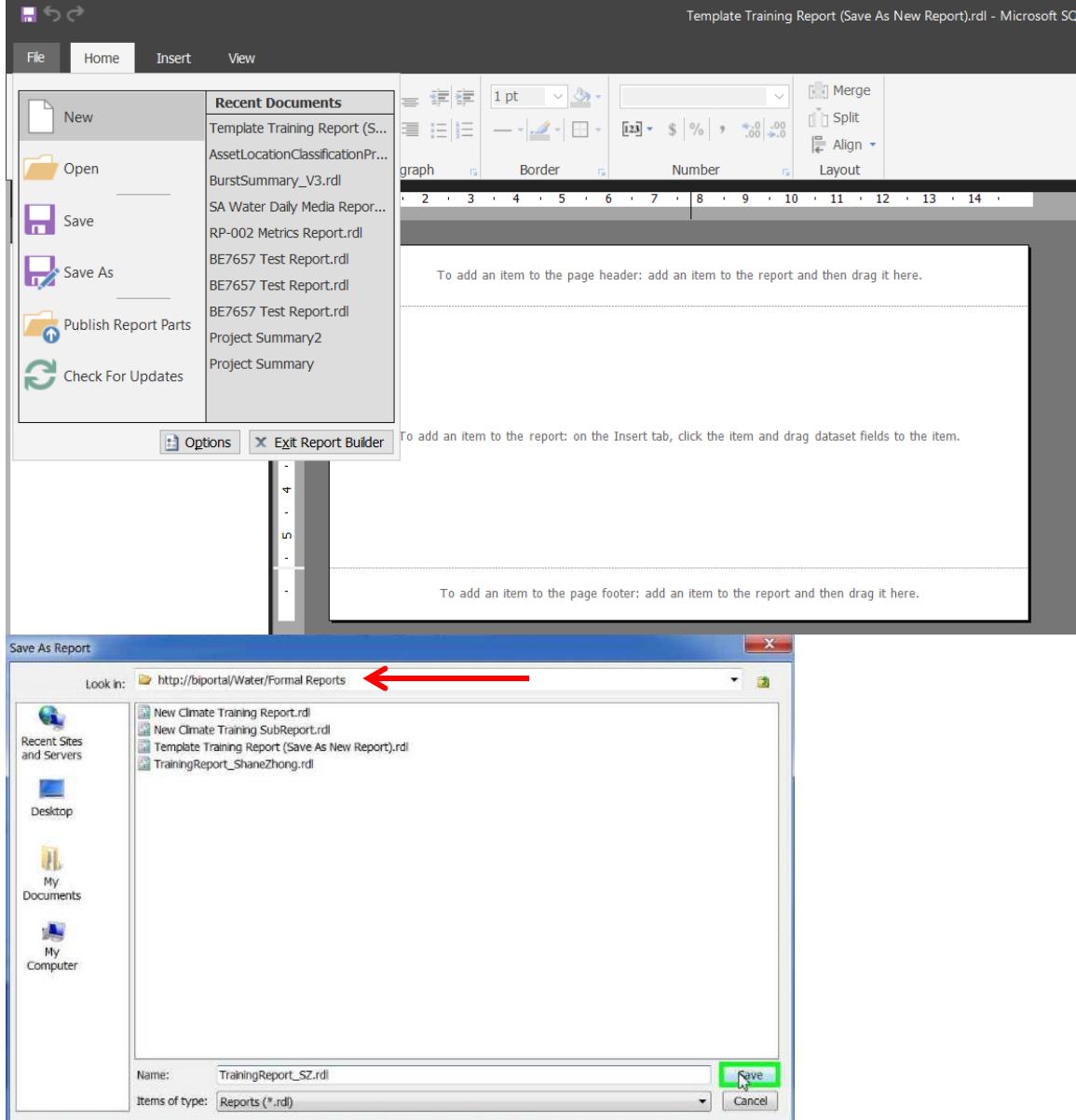
Step 1. Access the **BI Portal** from the AquaNet homepage:

The screenshot shows the **Online Systems** menu item highlighted with a red box. Below it, the **BI Portal** entry is also highlighted with a red box. The BI Portal entry has the alias **EDW, BI Platform**.

Step 2. For the purpose of developing this report, select the **Training** tab and then choose **Formal Reports**.

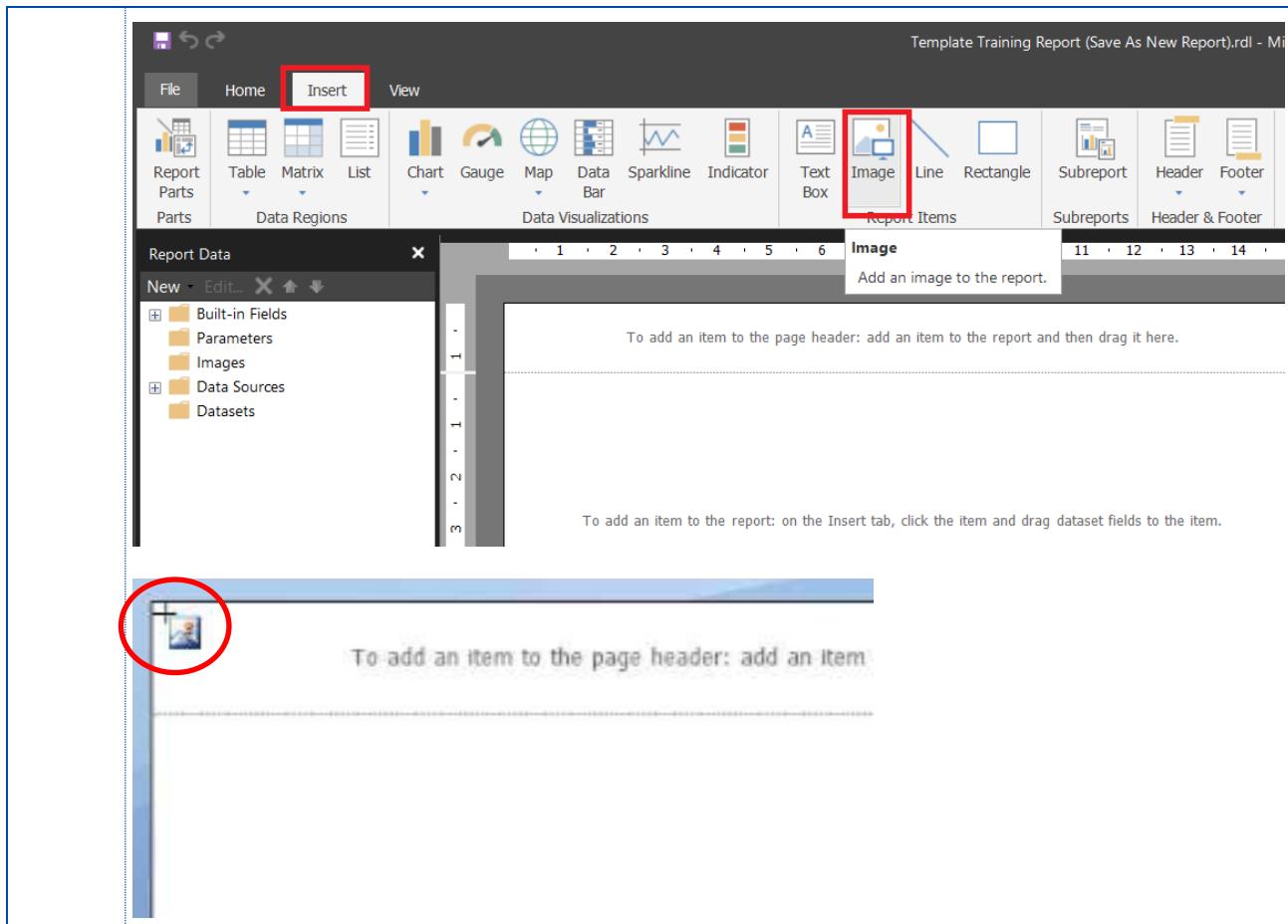
	 <p>The screenshot shows a SharePoint site titled "Formal Reports". The left navigation menu includes "Ad Hoc Reporting", "Power View", "Performance Point Dashboards", "Report Builder Reports", "Excel Spreadsheets", "Formal Reporting", and "Site Contents". The "Formal Reporting" option is highlighted with a red box. The top navigation bar has tabs for "SA Water BI Portal", "Asset and Works", "Customer", "Energy", "Finance", "People Management", "Strategy", "Water", "Training" (which is also highlighted with a red box), and "Incident". The main content area displays a list of documents in the "All Documents" library, showing columns for Name, Modified, Modified By, and Approval Status. A message at the bottom says, "Alternatively, you can select your own data set information i.e. Finance to formulate your report by selecting Report Builder Reports under the Ad Hoc Reporting menu option on the left hand side."</p>
Step 3.	 <p>The screenshot shows a SharePoint site titled "Formal Reports". The left navigation menu includes "Ad Hoc Reporting", "Power View", "Performance Point Dashboards", "Report Builder Reports", "Excel Spreadsheets", "Formal Reporting", and "Site Contents". The "Formal Reporting" option is highlighted with a red box. The top navigation bar has tabs for "SA Water BI Portal", "Asset and Works", "Customer", "Energy", "Finance", "People Management", "Strategy", "Water", "Training" (which is also highlighted with a red box), and "Incident". The main content area displays a list of documents in the "All Documents" library, showing columns for Name, Modified, Modified By, and Approval Status. The document "Template Training Report (Save As New Report)" is highlighted with a red box.</p>
Step 4.	<p>Once it is open, click Actions tab and then select Open with Report Builder. If it is the first time you use this function, a window will pop up and install the Report Builder package. Click Run to install.</p>

	<p>SA Water BI Portal > Training > Formal Reports</p> <p>Actions (1) < 1 of 1 > () Find Next 100% ▾</p> <ul style="list-style-type: none"> Open with Report Builder New Data Alert Subscribe Print Export
	 <p>Internet Explorer</p> <p>Do you want to allow this website to open a program on your computer?</p> <p>Program: Microsoft SQL Server Report Builder</p> <p>Address: reportbuilder:ACTION=EDIT&ENDPOINT=http%3a%2f%2fbiportal.sawater.sa.gov.au%2ftraining&ITEMPATH=</p> <p><input checked="" type="checkbox"/> Always ask before opening this type of address</p> <p>Allow Cancel</p> <p>Allowing web content to open a program can be useful, but it can potentially harm your computer. Do not allow it unless you trust the source of the content. What's the risk?</p>
	<p>If Report Builder is already installed, you may receive the following window.</p>  <p>Connect to Report Server</p> <p>! This report requires a connection to the report server http://biportal.sawater.sa.gov.au/training. You have not connected to this report server before, and the connection is not secure. Do you want to continue?</p> <p>Yes No</p> <p>Click Yes to continue.</p>
	<p>If Report Builder is not installed, please refer to section “Installing Report Builder 2016”.</p> <p>Step 5. In the SQL Server Report Builder, click the icon on the top left and Save as this document as TrainingReport_[your ID].rdl in the default directory.</p>

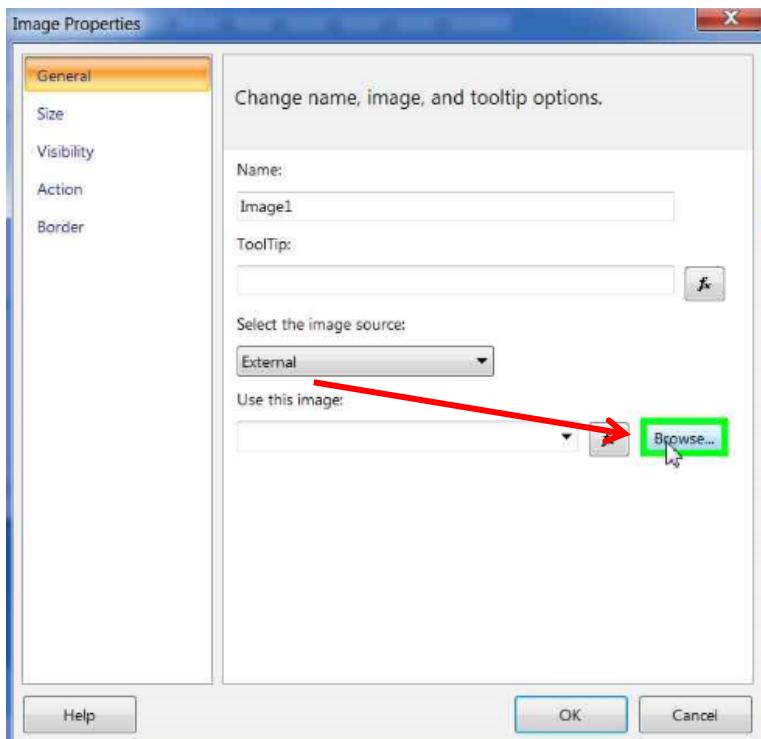


Note: To check the report is saved in the right directory, refresh the folder in the BI portal ([link](#)) and you should be able to see your report.

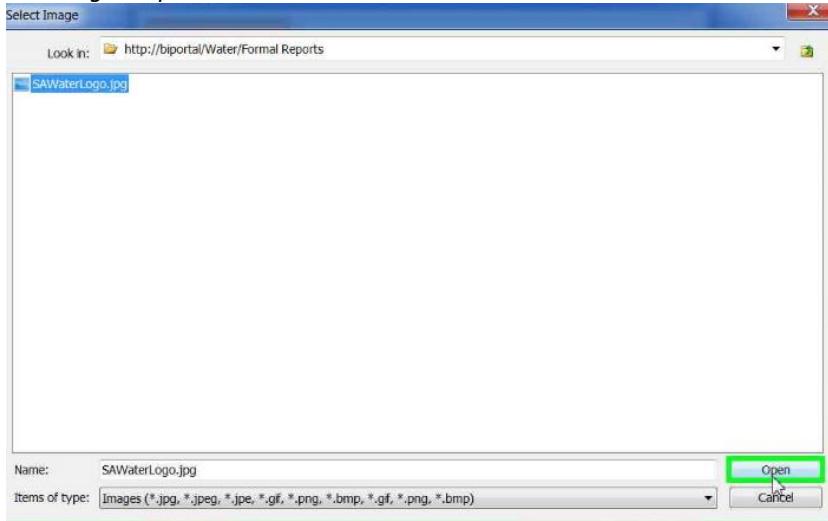
Step 6.	<p>Create a heading in the report (Step 6 – 20)</p> <p>SA Water Logo Under the 'Insert' tab, click 'Image' and then click on the top left corner of the report to set the image position.</p>
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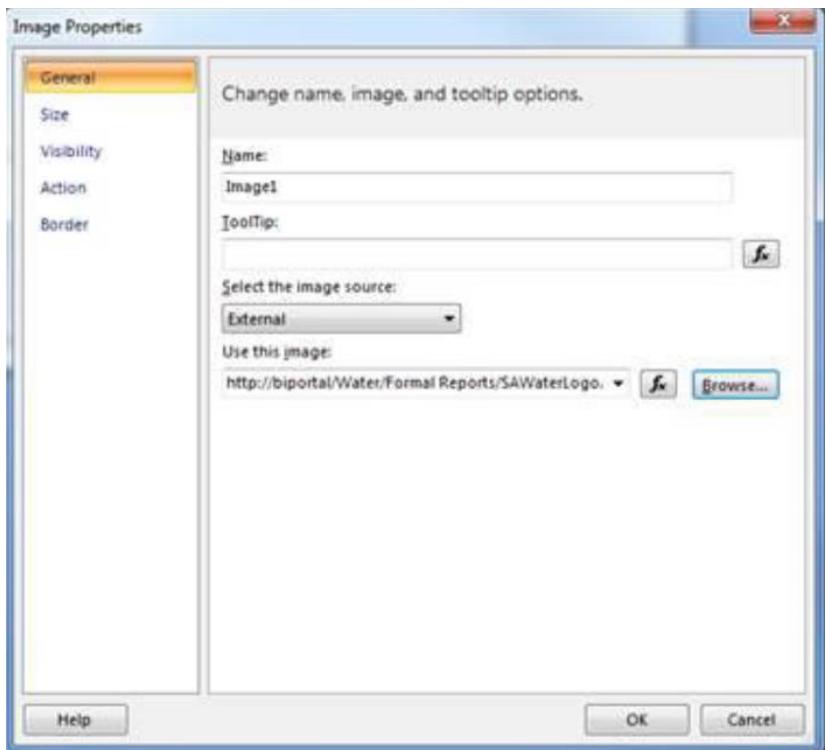
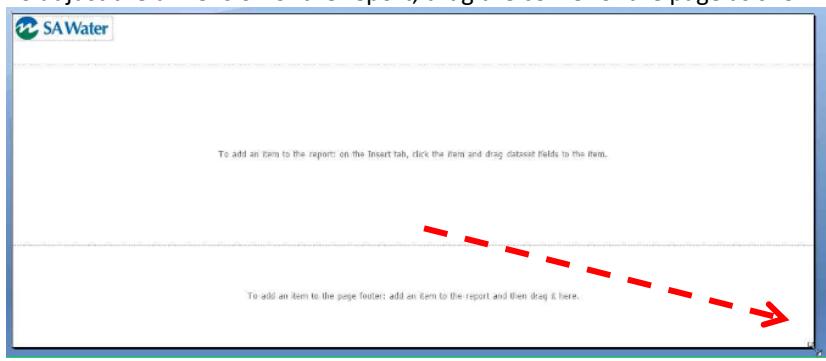


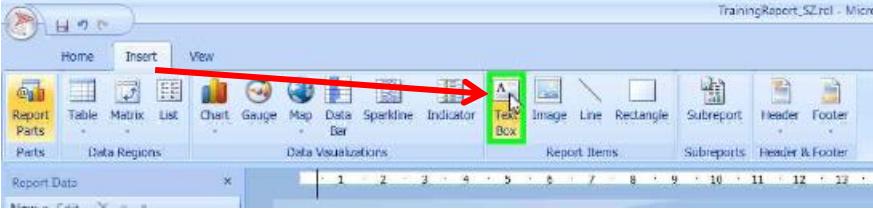
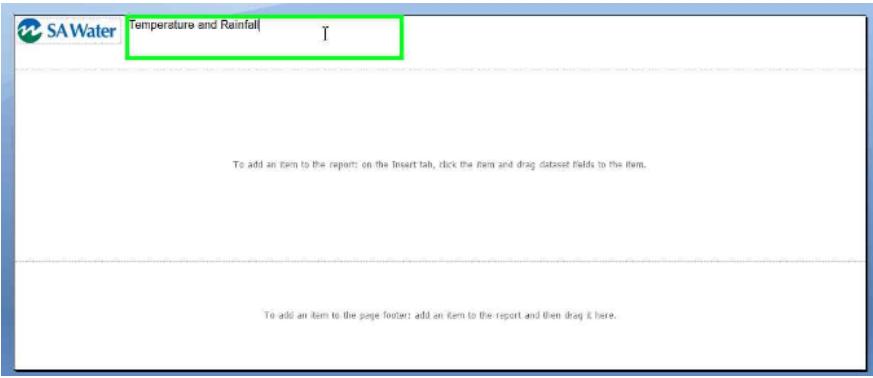
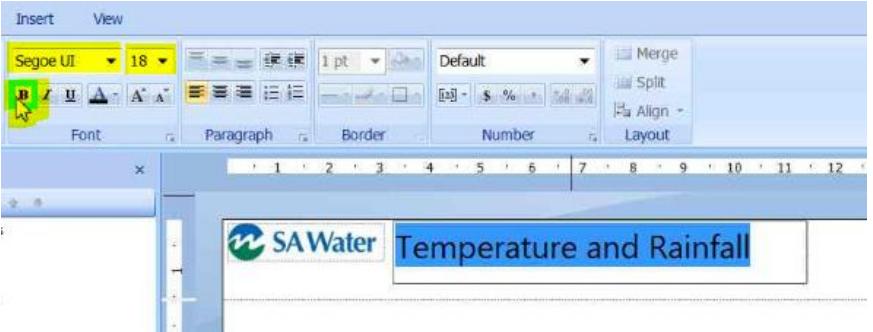
- Step 7. Select the image source to '**External**' and then click '**Browse**'.



- Step 8. Select the '**SAWaterLogo.jpg**' from the default directory, click **Open** to import the image and click **OK** in the *Image Properties* window.

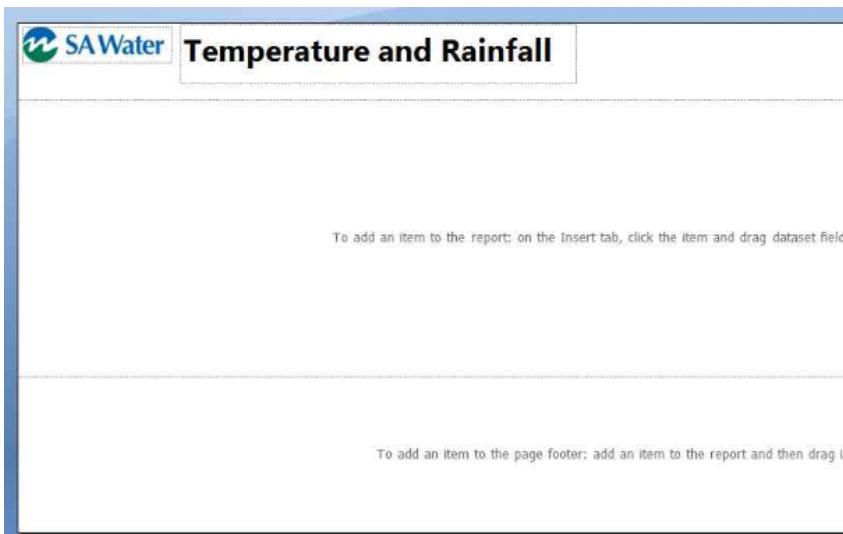
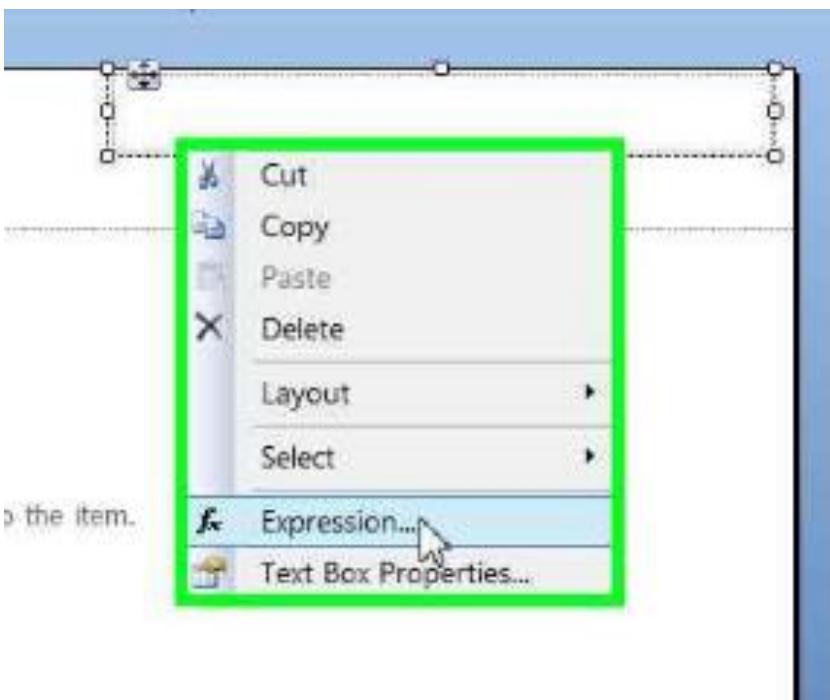


	
Step 9.	<p>Once the logo appears in the report, drag the corner of the image to adjust the size:</p>  <p>To add an item to the report: on the Insert tab, click the item and drag dataset fields to the item.</p> <p>Now we have the SA Water logo in the report header.</p>
Step 10.	<p>To adjust the dimension of the report, drag the corner of the page as shown:</p> 

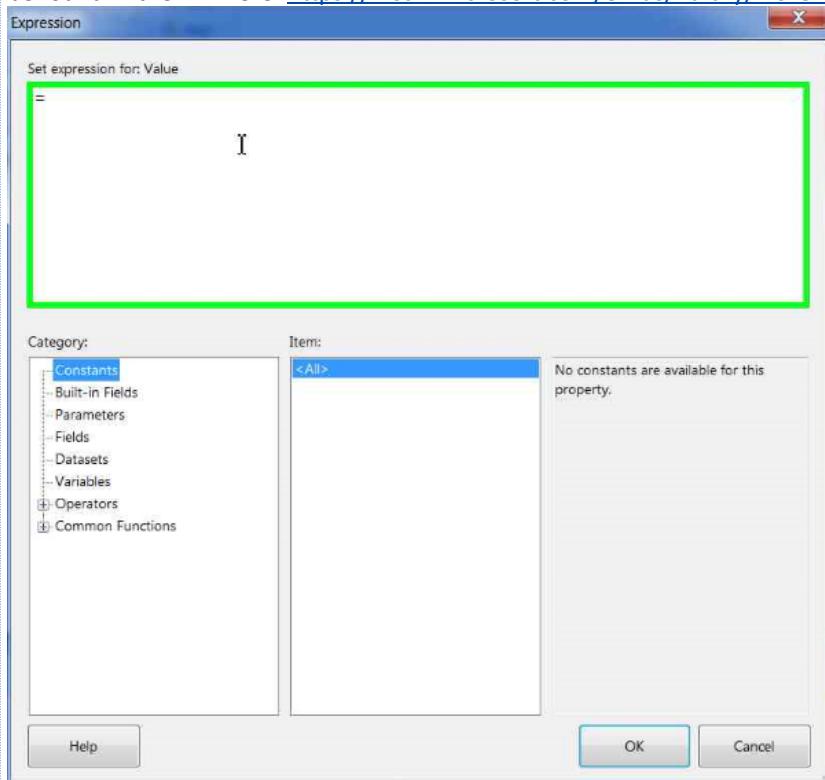
Step 11.	<p>Report Heading</p> <p>To add a report title, click the 'Insert' tab and select Text Box option.</p> 
Step 12.	<p>Drag a box in the header section of the report and type 'Temperature and Rainfall' as the report heading.</p> 
Step 13.	<p>Similar to other Microsoft applications, you can change the font and size of the title:</p> <ul style="list-style-type: none"> • Select the text in the text box • Change the font to Segoe UI • Change the size to 18 • Bold text  <p>Now we have the report title.</p>

Step 14. Page Number

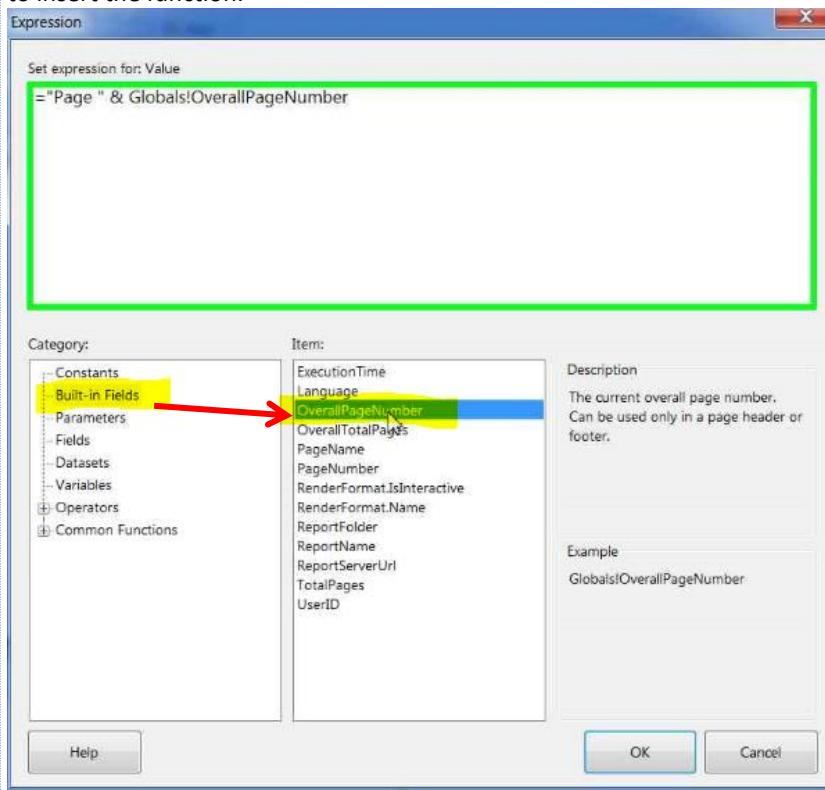
To add the page number in the header, create a text box at the top right corner of the report (repeat step 11) and then click anywhere in header space but outside the newly created text box:

**Step 15.** Right click the text box and then select “**Expression...**”

- Step 16. The highlighted box in the *Expression* window is similar to the cell in Excel where you can type numbers or formulae. The **category** list contains some default functions that you can choose to run customised queries, such as find maximum/minimum values, print today's date or add page number. More details can be found in the link here: <https://msdn.microsoft.com/en-us/library/ms157328.aspx>

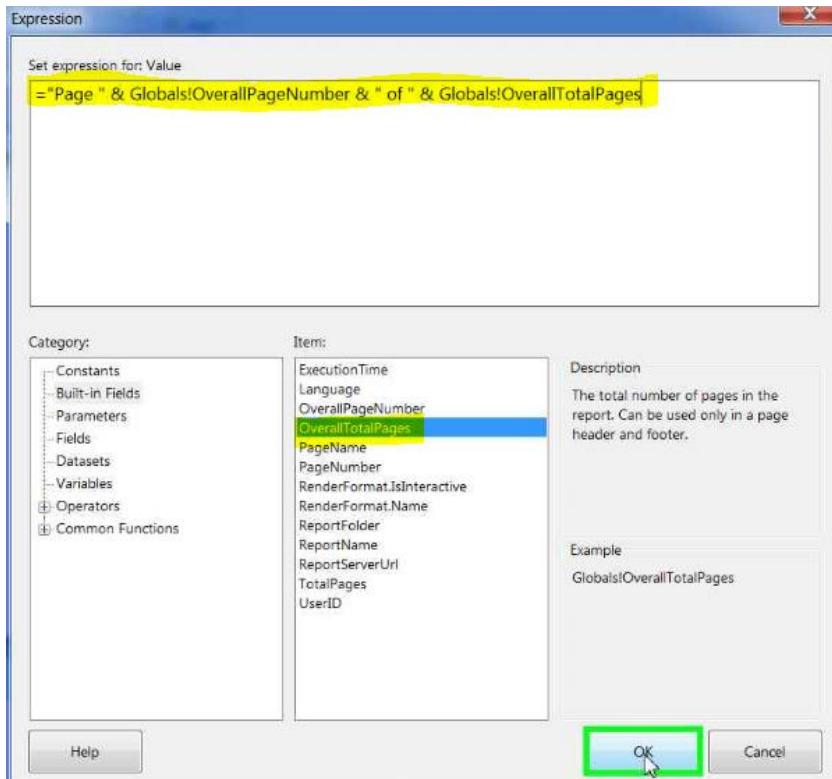


- Step 17. In the highlighted box, type **"Page " &** then select 'Build-in Fields' and **double click 'OverallPageNumber'** to insert the function.



Step 18. Complete the remaining query as shown below and click **OK**:

- type **& " of "&**
- double click **OverallTotalPages** in the Items list
- Click **OK**.

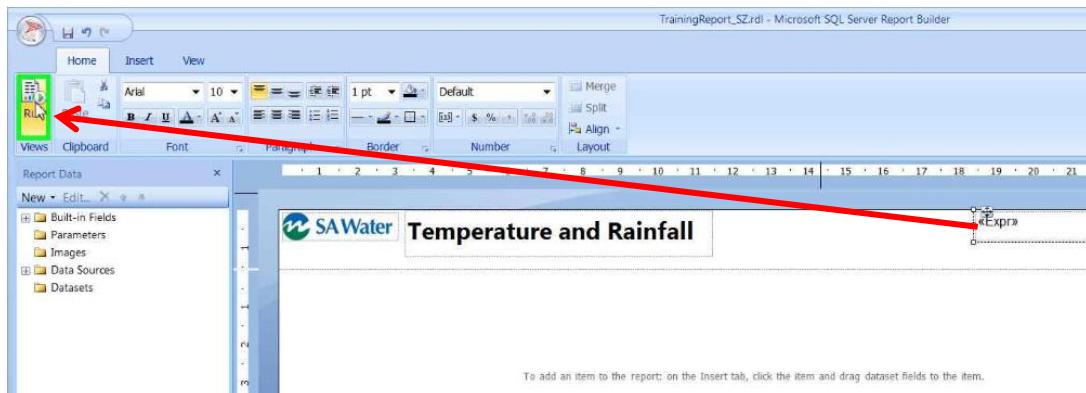


Code:

= "Page " & Globals!OverallPageNumber & " of " & Globals!OverallTotalPages

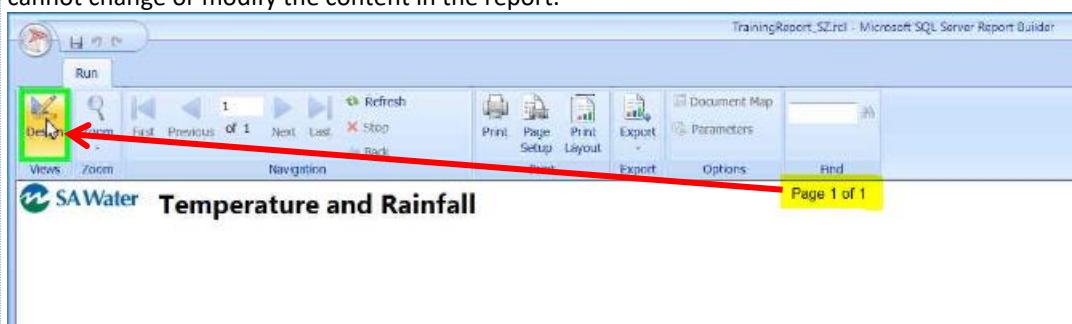
Step 19. Now you should be able to see “<<Expr>>” in the text box which contains the code you typed in the previous step.

To view the actual page number, click the **Run** button under the **Home** tab:



Step 20.

-  Now you should be able to see the page number in the report. Since it is in the 'Run' mode, you cannot change or modify the content in the report.



To revert back to the design mode, click the '**Design**' button.

Step 21.

Add Datasets to create charts and tables

In order to create graphs and tables in the report, you need to create customised datasets from a given data source. In this report template, we have the '**Climate DS**' data source in place so the next step is to create some sample datasets.

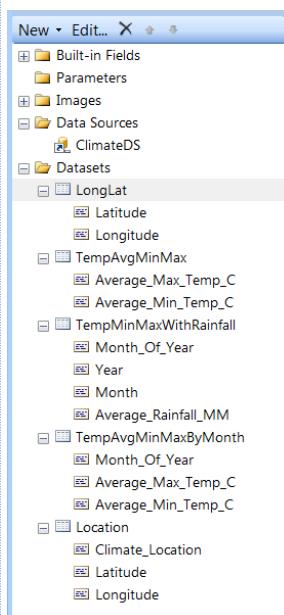


Data source: It is the raw data which may contain hundreds of rows and columns. (e.g. It may contain info such as 'Year', 'Month', 'Max temperature', 'Min temperature', 'Avg temperature'...).

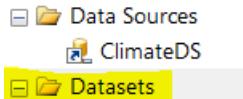
Dataset: It is a subset of the data source and only contains the fields used in a specific graph or table. (e.g. It may only contain two columns such as 'Date' and 'Max temperature').

Step 22.

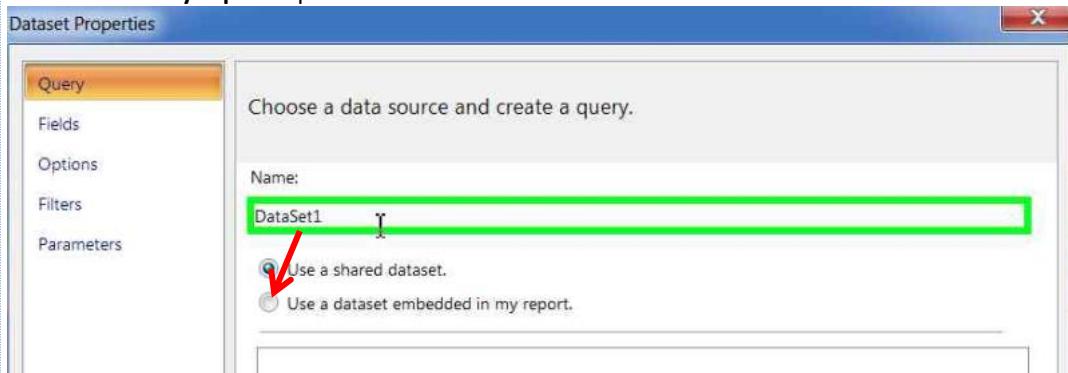
In this sample, we are going to create five separate datasets as shown below:



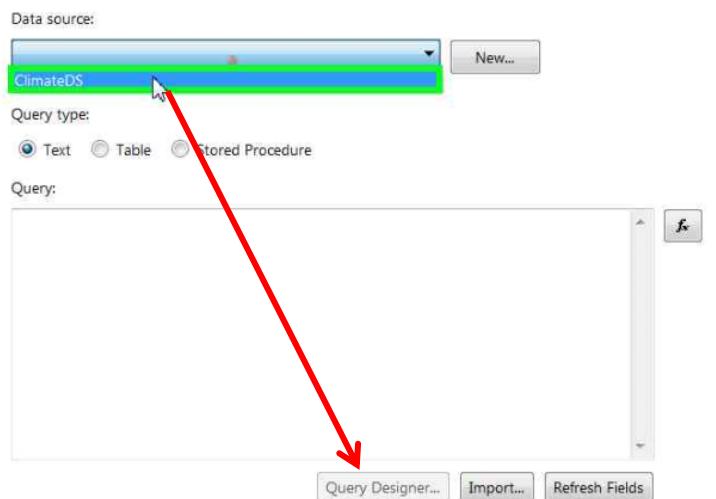
Step 23. To add new Datasets, right click the **Datasets** folder icon, then select '**Add Dataset...**'



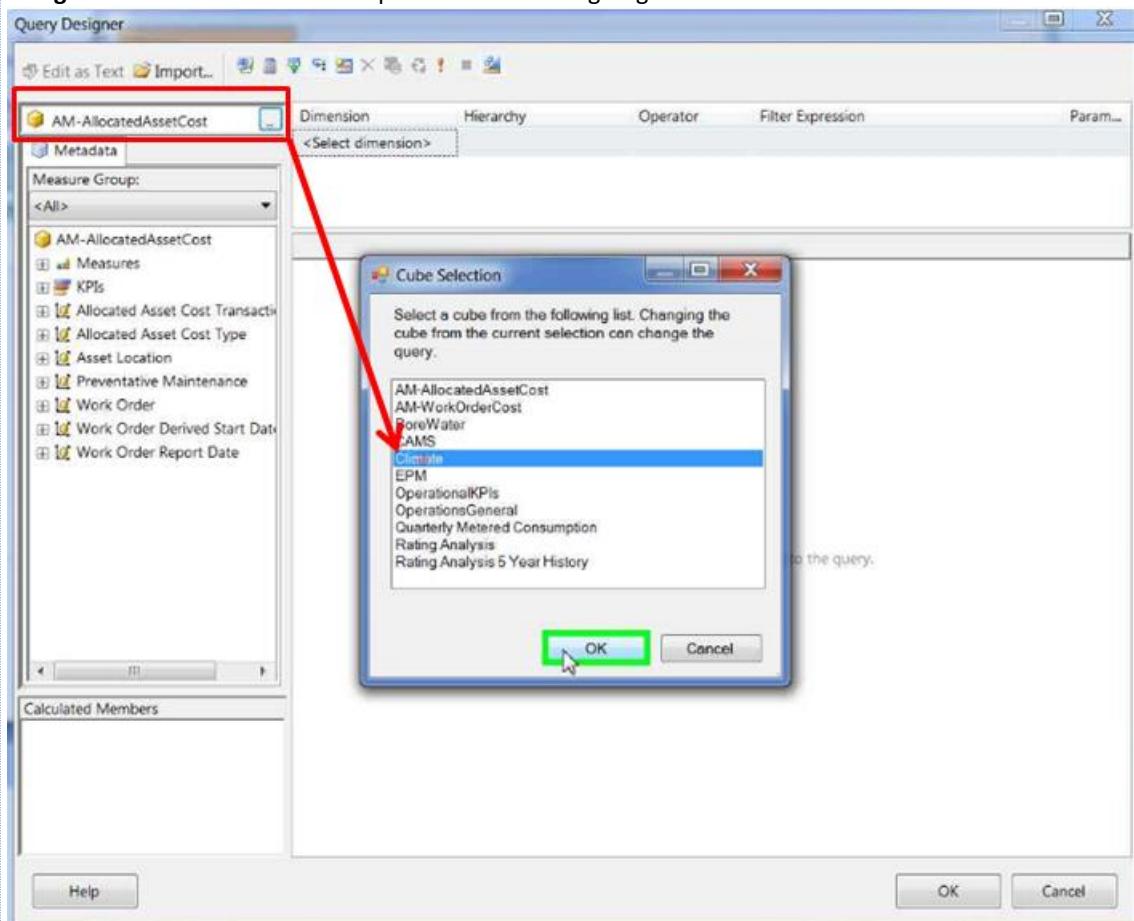
In the Dataset Properties window, change the name of the dataset to '**LongLat**', then click '**Use a dataset embedded in my report**' option.



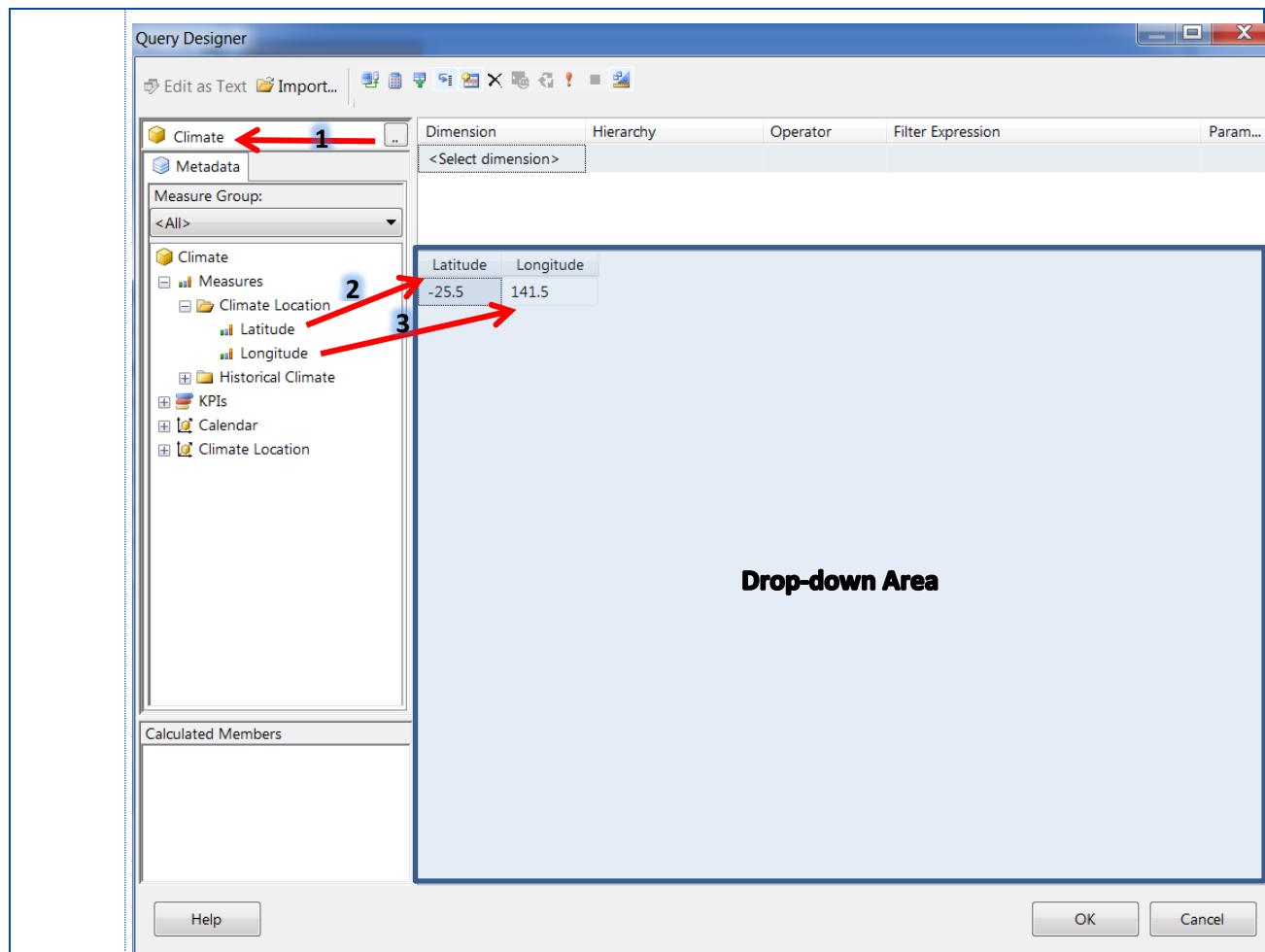
Change the Data source to '**ClimateDS**' and click the **Query Designer...** button.



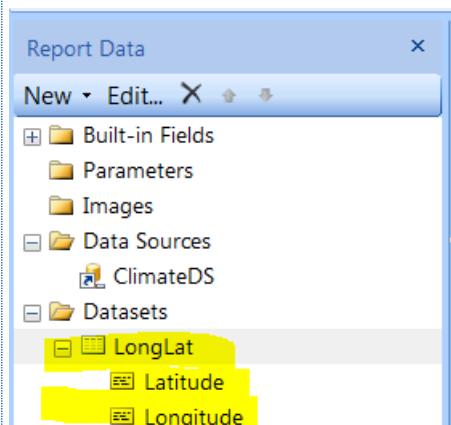
- Step 24. Inside Query Designer window, change the Data Source to 'Climate' and then drag 'Latitude' and 'Longitude' attribute from the dropdown list to the hightlighted area as shown below:



Click the hightlighted '+' sign to expand options: Measures



After the Latitude and Longitude data appears in the drop-down area, click **OK** and return to the design mode. Now a new dataset is created and can be accessed from the panel on the left hand side.

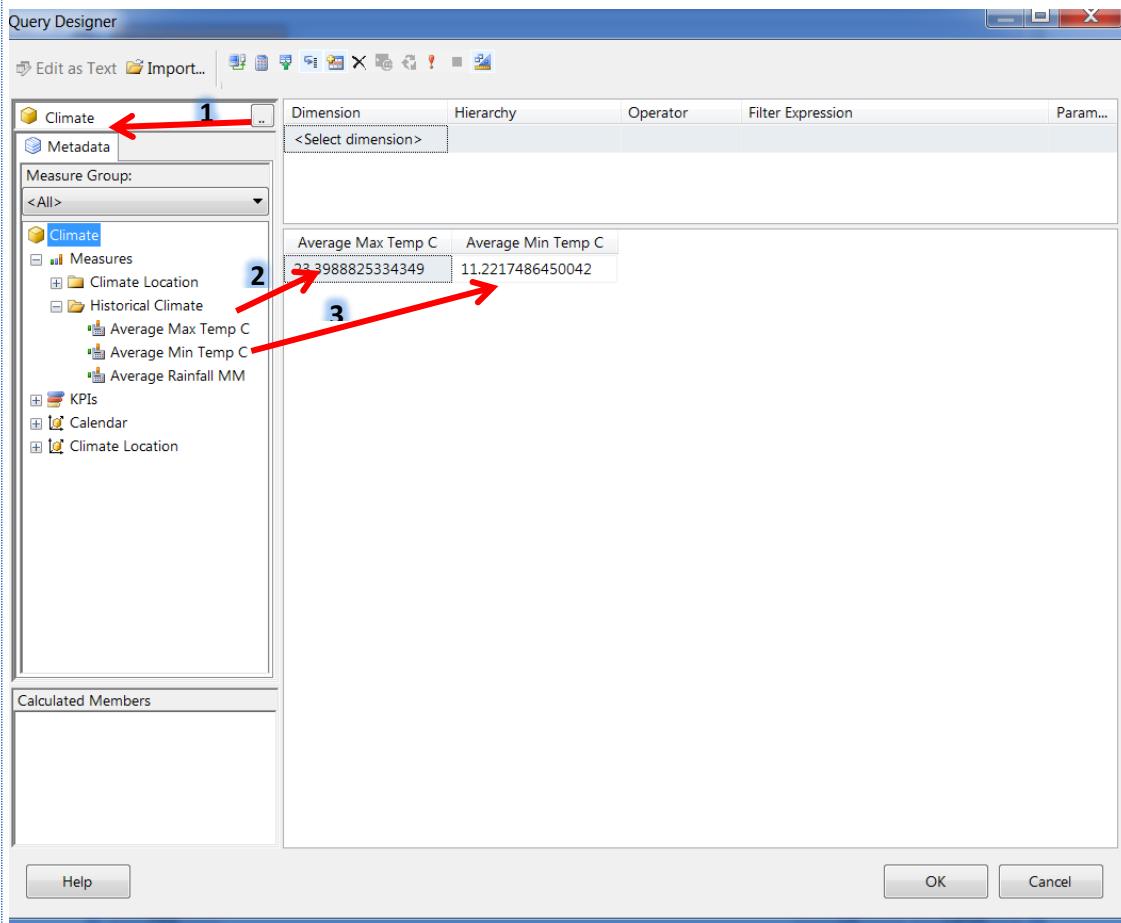


Repeat the same process (step 23 & 24) to create another four datasets:

- TempAvgMinMax (step 25)
- AverageRainFall (step 26)
- TempMinMaxByMonth (step 27)
- Location (step 28)

Step 25. To create the **TempAvgMinMax** dataset, use the '**Average Max Temp C**' and '**Average Min Temp C**' attributes in the query designer setting. A brief instruction is given below:

- Right click **Datasets** folder, select **Add dataset...**
- Change the name to **TempAvgMinMax**
- Select **Use a dataset embedded in my report**
- Select **ClimateDS** as the data source
- Click the **query designer** button
- Change the query designer setting as shown below:



Step 26. To create the **AverageRainFall** dataset, use the '**Month of Year**', '**Year**', '**Month**' and '**Average Rainfall MM**' attributes:

- Right click **Datasets** folder, select **Add dataset...**
- Change the name to **AverageRainFall**
- Select **Use a dataset emdedded in my report**
- Select **ClimateDS** as the data source
- Click the **query designer** button
- Change the query designer setting as shown below:

The screenshot shows the Microsoft Query Designer interface. On the left is a tree view of the schema:

- Climate** (highlighted with a red arrow and numbered 1)
- Metadata**
- Measure Group:** <All>
 - Climate**
 - Measures**
 - Average Rainfall MM** (highlighted with a red oval and numbered 5)
 - KPIs**
 - Calendar**
 - Calendar Date**
 - Month Of Year** (highlighted with a red oval and numbered 3)
 - Quarter Of Year**
 - By Week**
 - Calendar**
 - Members**
 - Year** (highlighted with a red oval and numbered 4)
 - Quarter**
 - Month** (highlighted with a red oval and numbered 5)
 - Date**
 - Climate Location**
- Calculated Members**

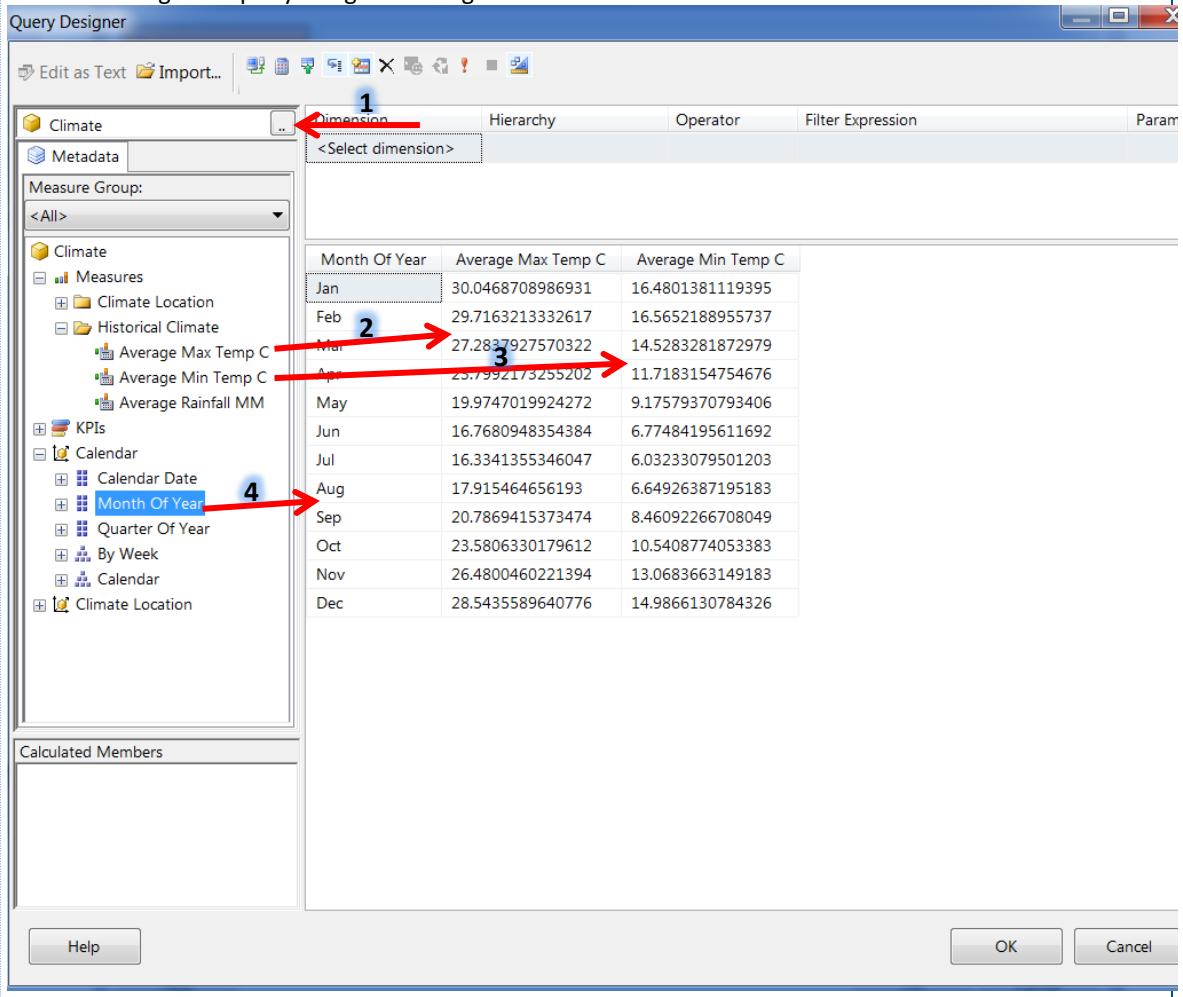
The main pane displays a table with four columns: Month Of Year, Year, Month, and Average Rainfall MM. The data shows monthly rainfall values from January 1971 to January 1992.

Month Of Year	Year	Month	Average Rainfall MM
Jan	1971	Jan 19...	3.35382960893855
Jan	1972	Jan 19...	47.6343477653632
Jan	1973	Jan 19...	17.3689238826816
Jan	1974	Jan 19...	64.1549029329609
Jan	1975	Jan 19...	9.95383030726256
Jan	1976	Jan 19...	21.1984853351955
Jan	1977	Jan 19...	13.6278952513966
Jan	1978	Jan 19...	12.4577353351955
Jan	1979	Jan 19...	18.1328072625699
Jan	1980	Jan 19...	6.54294762569833
Jan	1981	Jan 19...	26.8188945530726
Jan	1982	Jan 19...	13.0763282122905
Jan	1983	Jan 19...	4.93007472067039
Jan	1984	Jan 19...	27.5404622905028
Jan	1985	Jan 19...	4.78451047486033
Jan	1986	Jan 19...	2.77443575418994
Jan	1987	Jan 19...	20.9381878491621
Jan	1988	Jan 19...	12.7286215083799
Jan	1989	Jan 19...	3.16773393854749
Jan	1990	Jan 19...	16.9075481843575
Jan	1991	Jan 19...	19.8593938547486
Jan	1992	Jan 19...	3.47659078212291

Buttons at the bottom right include **OK** and **Cancel**.

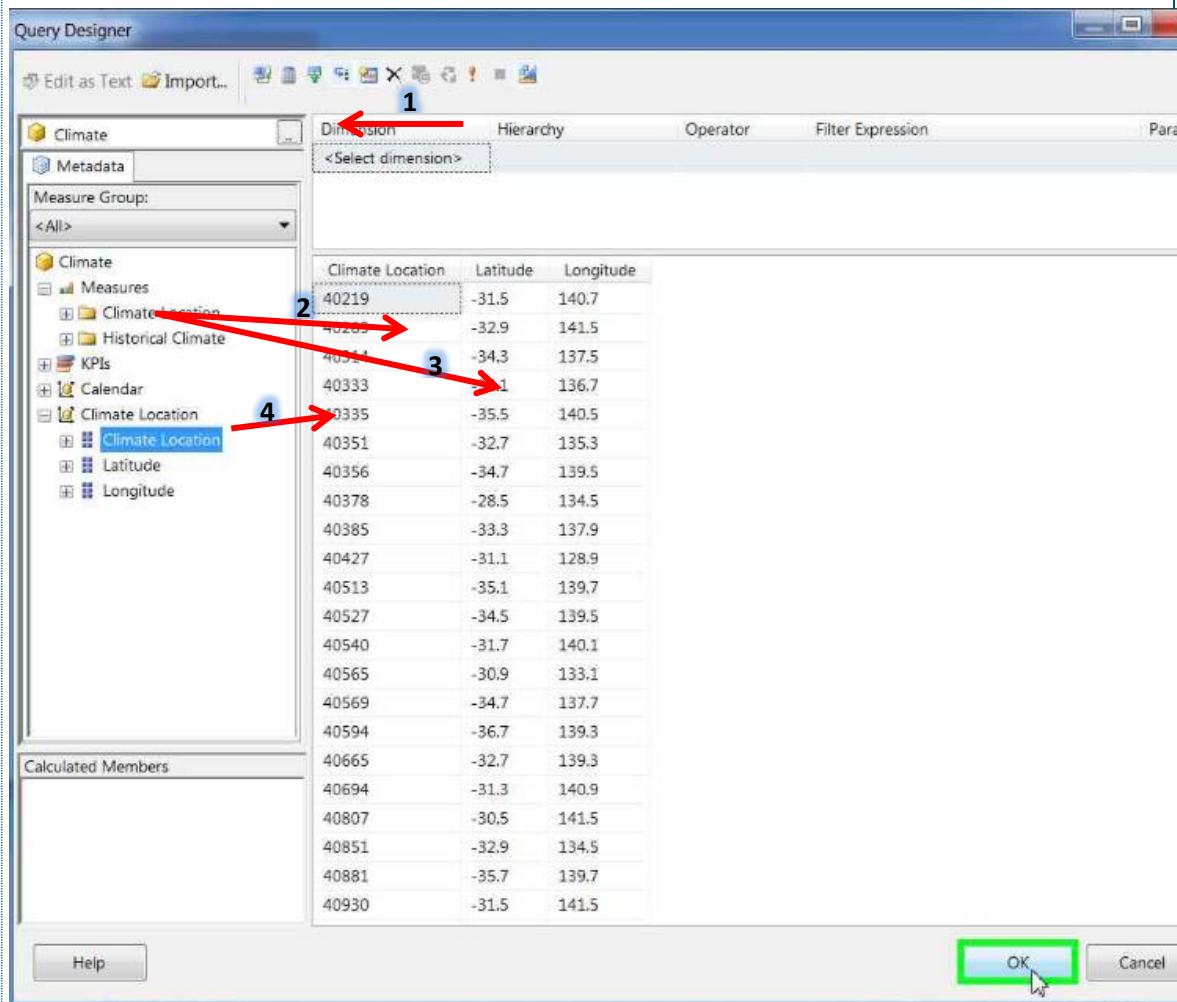
Step 27. To create the **TempMinMaxByMonth** dataset, use the **Month of Year**, **Average Max Temp C** and **Average Min Temp C** attributes:

- Right click **Datasets** folder, select **Add dataset...**
- Change the name to **TempMinMaxByMonth**
- Select **Use a dataset emdedded in my report**
- Select **ClimateDS** as the data source
- Click the **query designer** button
- Change the query designer setting as shown below:



Step 28. To create the **Location** dataset, drag the **Latitude** and **Longitude** fields under **Measures** and **Climate Location** under **Climate Location** tab:

- Right click **Datasets** folder, select **Add dataset...**
- Change the name to **Location**
- Select **Use a dataset embedded in my report**
- Select **ClimateDS** as the data source
- Click the **query designer** button
- Change the query designer setting as shown below:



Please note: For step 2 and 3 above, expand the **Climate Location** to select **Latitude** and **Longitude**.

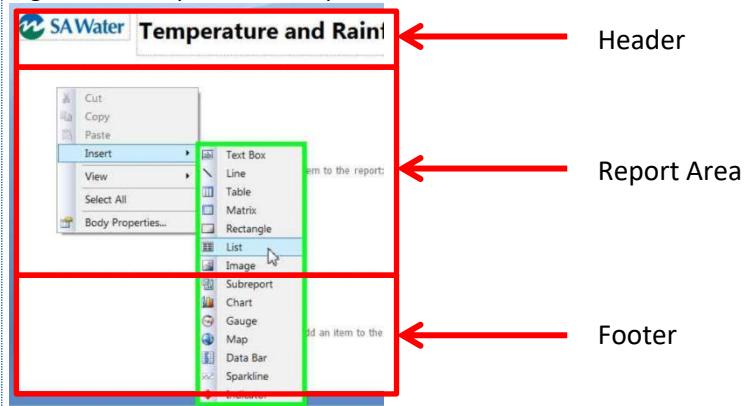
Step 29. After following the above steps, we have all the datasets in place and are ready to create graphs and tables.

Create graphs and tables

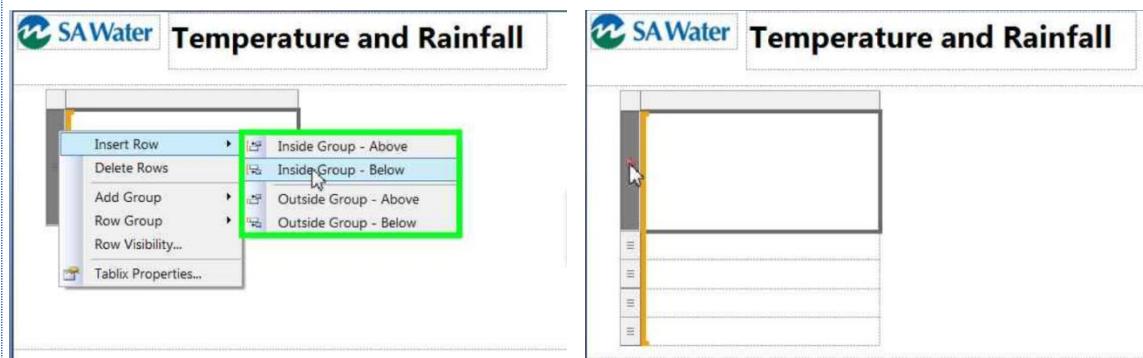
In this section, we will visualise our datasets using the following four functions:

- List (Step 30-38)
- Bar Chart (Step 39-40)
- Line Chart (Step 41-42)
- Table (Step 43-44)

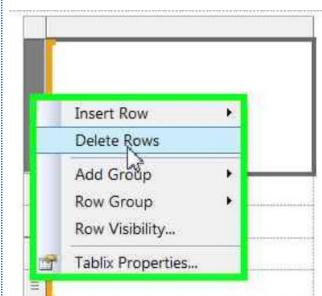
Step 30.

Create graphs and tables - ListRight click the space in the report area, then select **Insert -> List**

Right click the list area and select **Insert Row -> Inside Group – Below**. Repeat this step four times to create four additional rows.



Step 31.

Right click the first row again and select '**Delete Rows**'. You should now have four rows in the list.

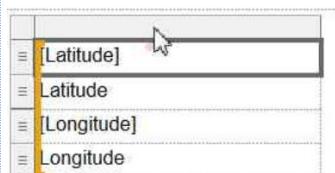
Note: The first row of the list is removed since it does not support '**Expression...**' function.

- Step 32. Move the cursor to the top right corner of the list, you should see a small square icon. Click the icon then select ClimateDS -> LongLat -> Latitude. Text [Latitude] will then appear in the first row. The square bracket [] indicates that



this field is related to the attribute in the dataset.

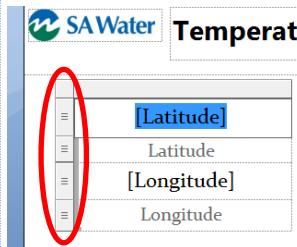
- Step 33. Repeat Step 31 to add [Longitude] into the third row. Double click and type Latitude and Longitude in the 2nd and 4th row as shown:



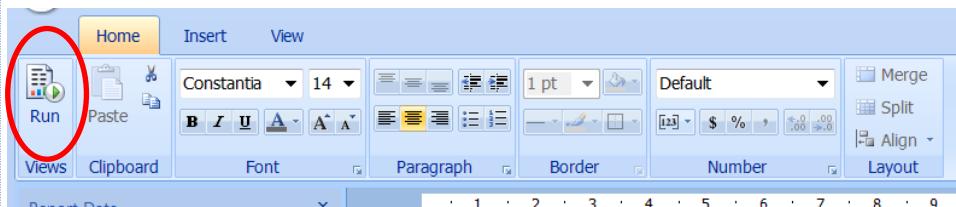
Note: One list can only link to one dataset. In this instance, it is connected to the 'LongLat' dataset.

- Step 34. Similar to Microsoft Excel, you should be able to change the font, size and position of these fields in the list. Click on left side of the box and highlight the rows to modify the list:
- **Font:** Constantia for all four rows
 - **Size:** 1st and 3rd rows – Size 14, 2nd and 4th rows – Size 12
 - **Position:** Center Text

- Step 35. To adjust the height of the row, drag the gray box on the left hand side of the list:



- Step 36. To test if the setting works, click the **Run** button in the panel under the **Home** tab.



You should be able to see the following report layout, where [Latitude] and [Longitude] are now converted to the actual values.

SA Water Temperature and Rainfall

-25.5

Latitude

141.5

Longitude

- Step 37. Repeat step 30 to 36 to create another list for displaying the maximum and minimum tempeartures:

[Latitude]	[Average_Max_Temp_C]
Latitude	Average Map Temp C
[Longitude]	[Average_Min_Temp_C]
Longitude	Average Min Temp

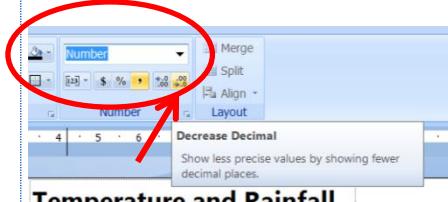
Under the 'Run' mode, you should be able to see the values as below:

SA Water Temperature and Rainfall

-25.5	23.3988825334349
Latitude	Average Map Temp C
141.5	11.2217486450042
Longitude	Average Min Temp

Return to 'Design' mode once done.

- Step 38. To limit the numbers into two decimal places, select the rows that contain the numeric values (hold *ctrl* to select multiple rows) and use the **Number panel** on the top to format numbers.
- Change the cell type from **Default** to **Number**
 - Click the **Decrease Decimal** button
 - View the results by click the **Run** button.



Temperature and Rainfall

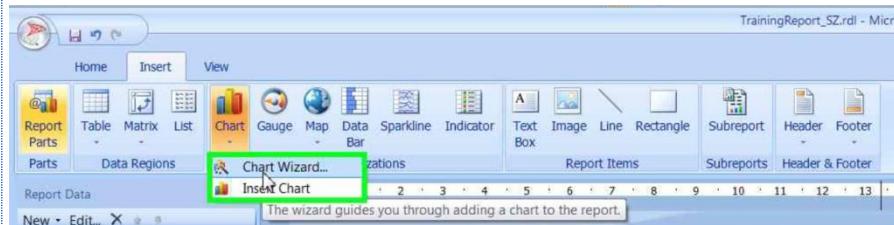
Latitude	[Average_Max_Temp_C]
Longitude	Average Map Temp C
Latitude	[Average_Min_Temp_C]
Longitude	Average Min Temp

Reformatted results:

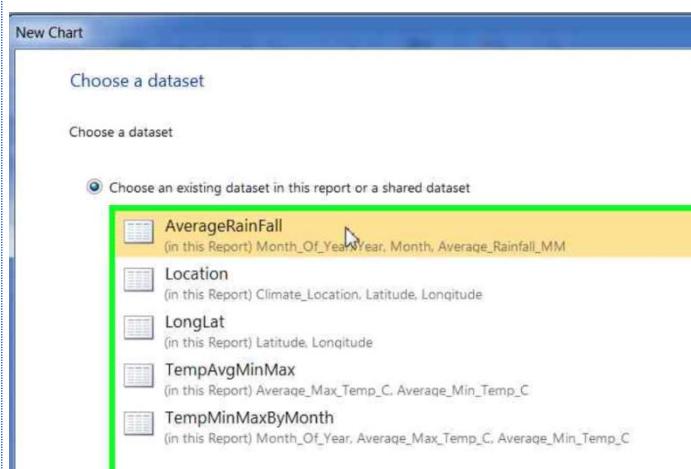
-25.5	23.40
Latitude	Average Map Temp C
141.5	11.22
Longitude	Average Min Temp

Step 39. **Create graphs and tables – Bar Chart (Average Rainfall by months)**

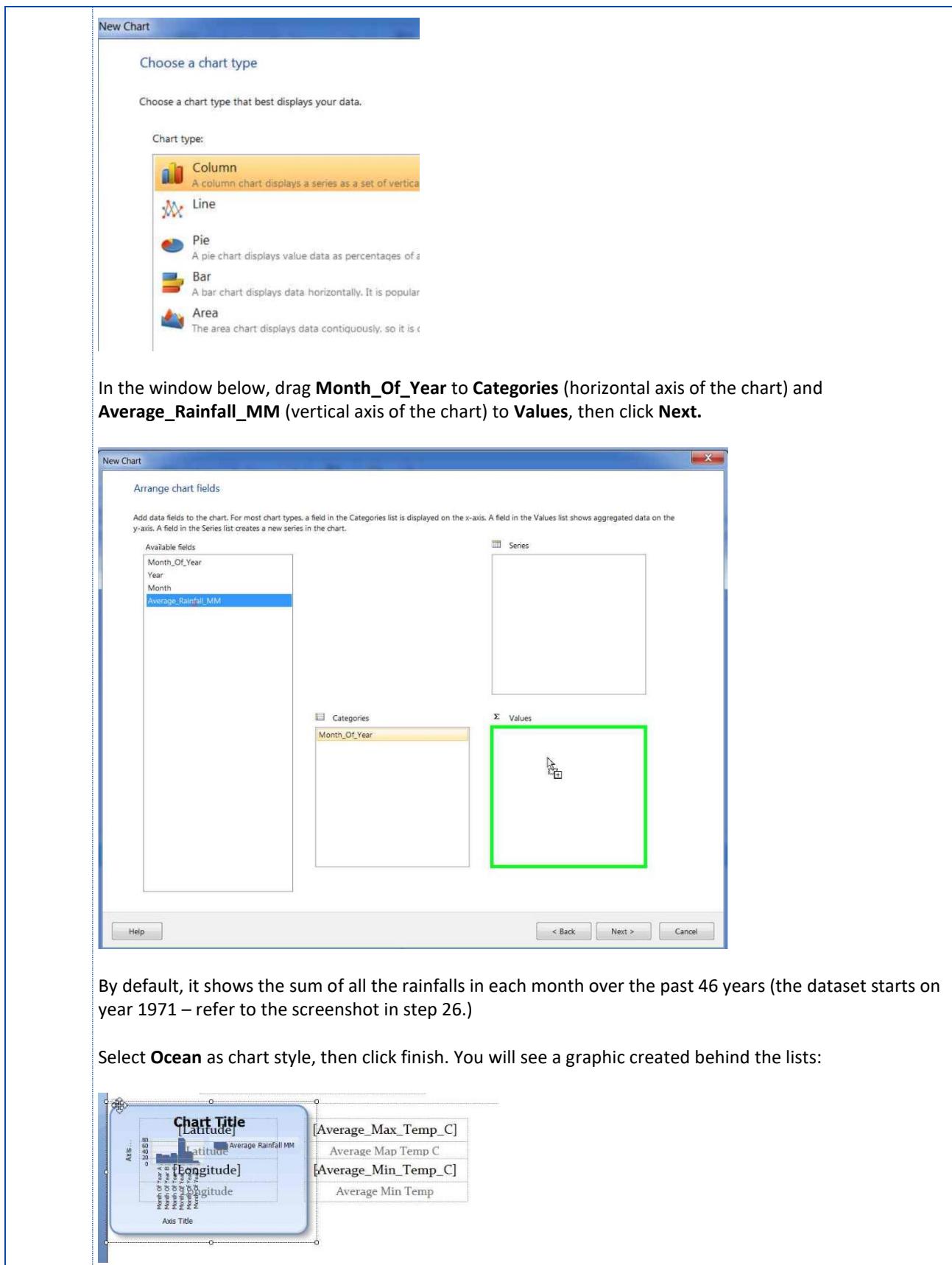
To create a bar chart or any types of charts, click the **Insert** tab and select **Chart** and then **Chart Wizard**:



Select **AverageRainFall** dataset and click **Next**.

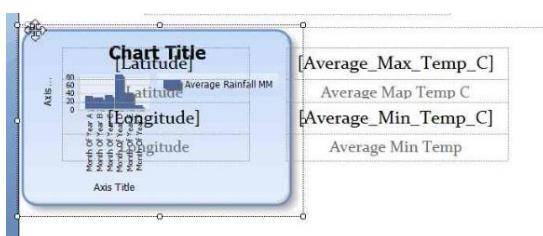


Select **Column** as Chart Type and click **Next**.

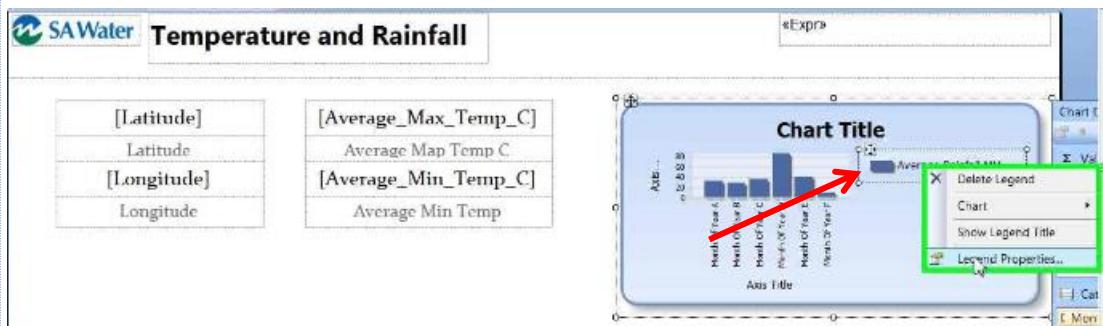


By default, it shows the sum of all the rainfalls in each month over the past 46 years (the dataset starts on year 1971 – refer to the screenshot in step 26.)

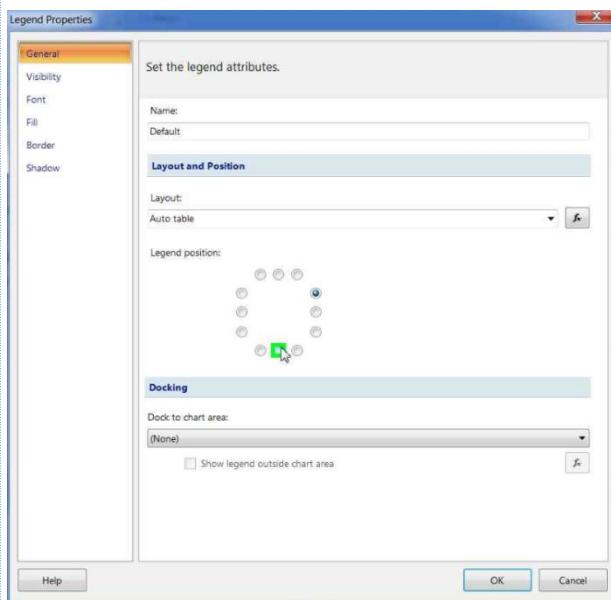
Select **Ocean** as chart style, then click finish. You will see a graphic created behind the lists:



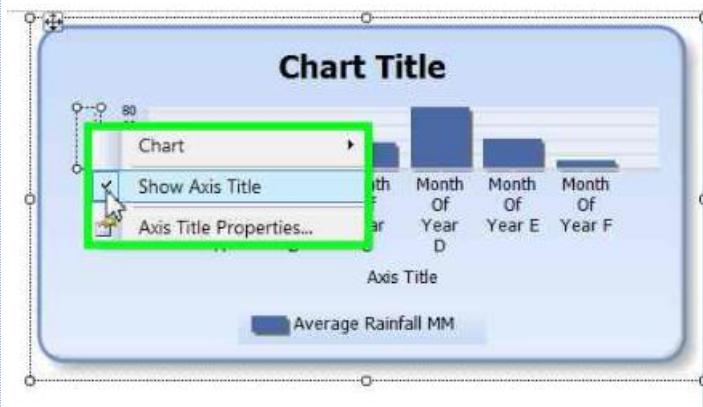
Step 40. Move the graph to the right, right click the **legend** and select **Legend Properties...**



Change the legend position to **center bottom**, then click **OK**.



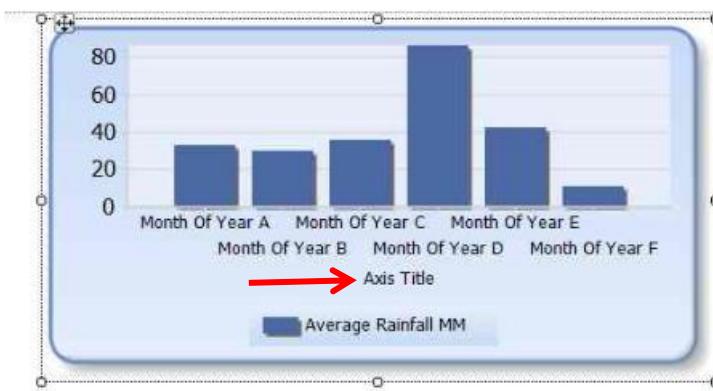
Right click the **vertical axis label** and untick **Show Axis Title**.



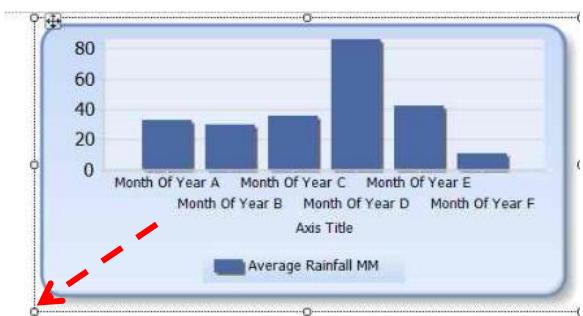
Repeat the above step to remove the **Chart Title**.



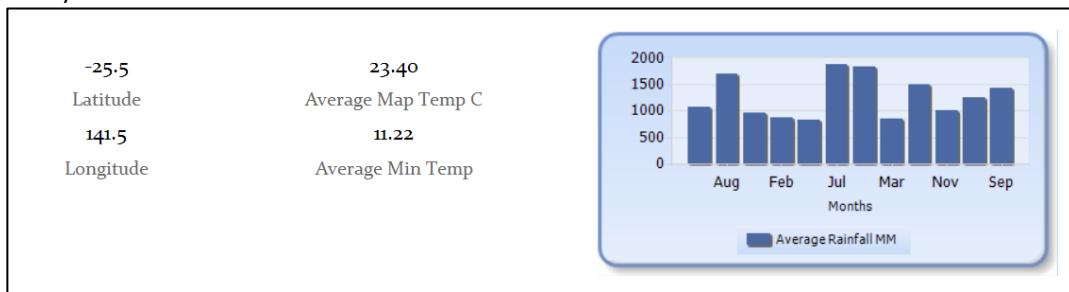
Double click the **Axis Title** text and change it to **Months**.



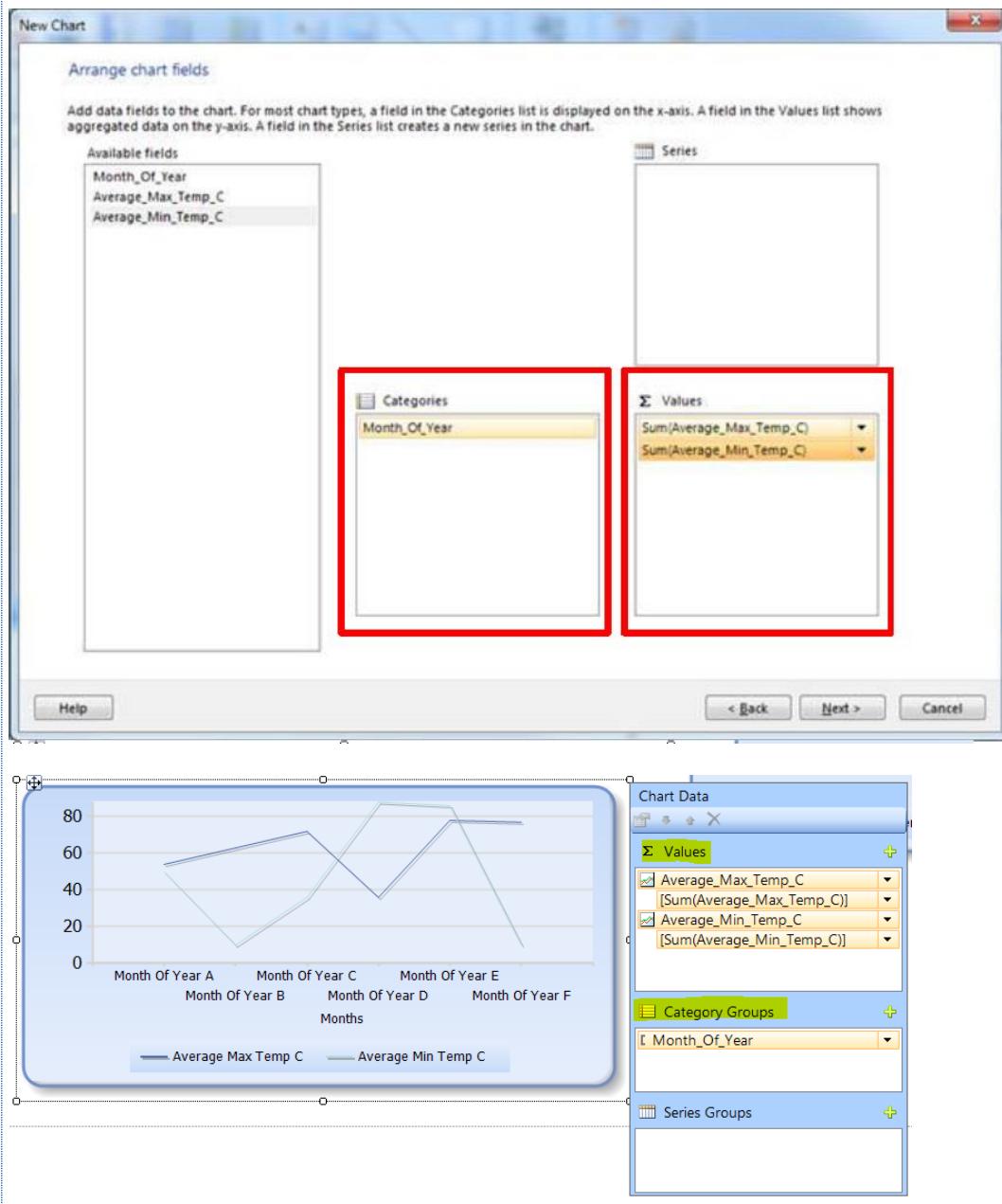
Drag the corner of the diagram to adjust the chart size.



Now you should be able to see the results of the chart in the 'Run' mode.

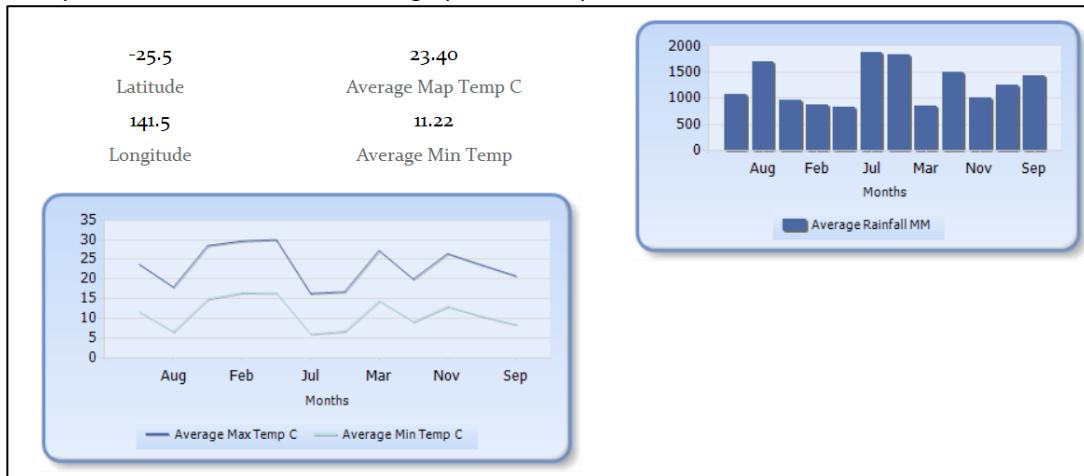


- Step 41. Repeat Step 39 and 40 to create a line chart for **TempMinMaxByMonth** using the Chart Wizard. To make sure you have the correct attributes in the right space:



Step 42.

Now you should be able to see boths graphs in the report:



Step 43.

Create graphs and tables – Table (Location – Latitude - Longitude)

You can create a table using the **Table Wizard...** option simlar to the **Chart Wizard...** method described in step 39-42. The following steps is an alternative way of creating a table from scratch.

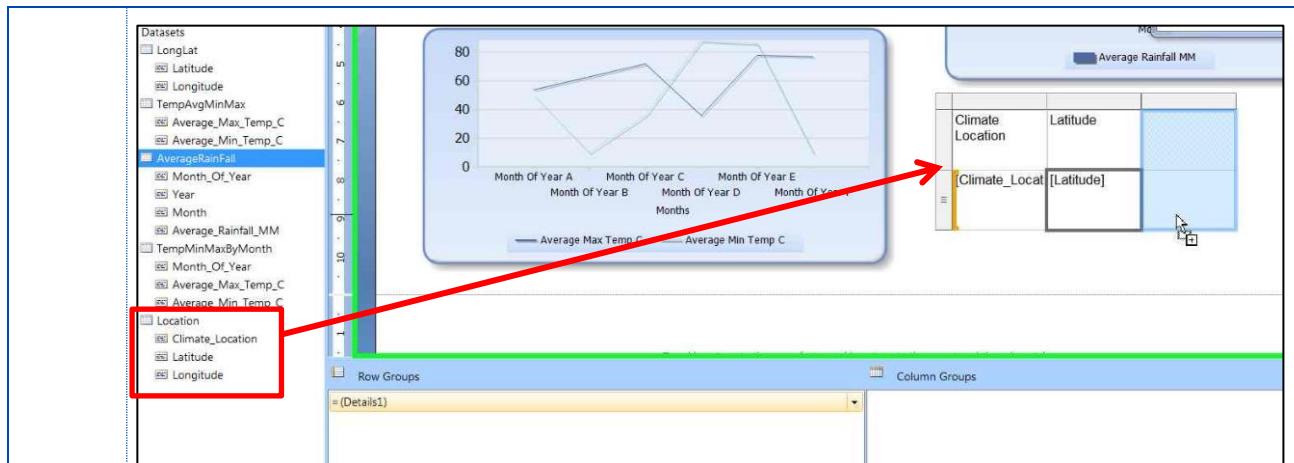
From the **Insert** tab, select **Table** -> **Insert Table**.



Create a Table at the bottom right corner of the report:



Drag the attributes from the **Location** dataset to the table:



Step 44. Format Table

Adjust the width of the columns:

Climate Location	Latitude	Longitude
[Climate_Location]	[Latitude]	[Longitude]

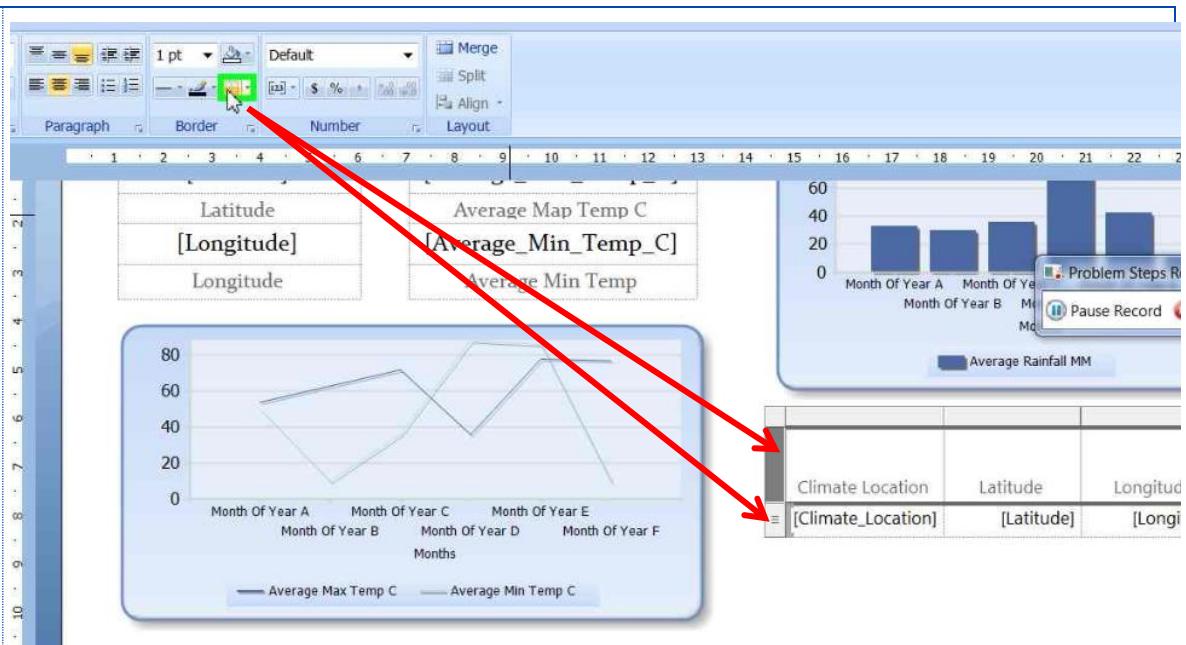
Change the position of the headings to **bottom – Center**, colour to **Dim gray** and font to **Segoe UI**:

Climate Location	Latitude	Longitude
[Climate_Location]	[Latitude]	[Longitude]

Adjust the height of the rows:

Climate Location	Latitude	Longitude
[Climate_Location]	[Latitude]	[Longitude]

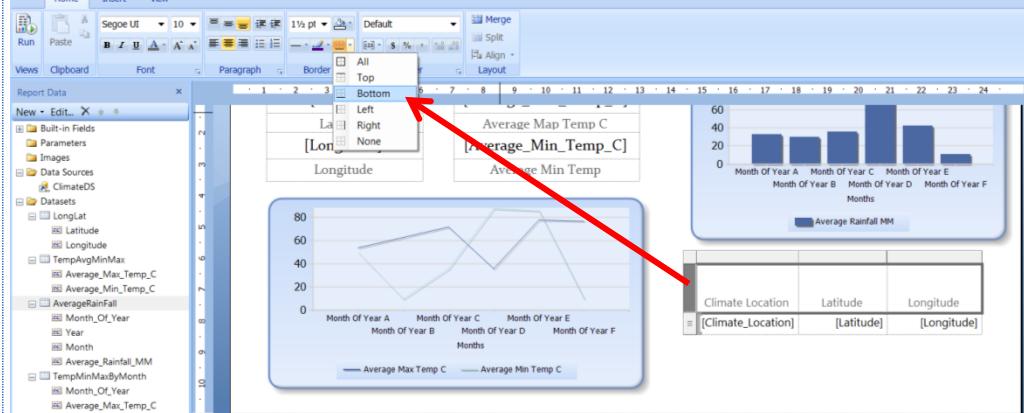
Select the rows and remove the table border:



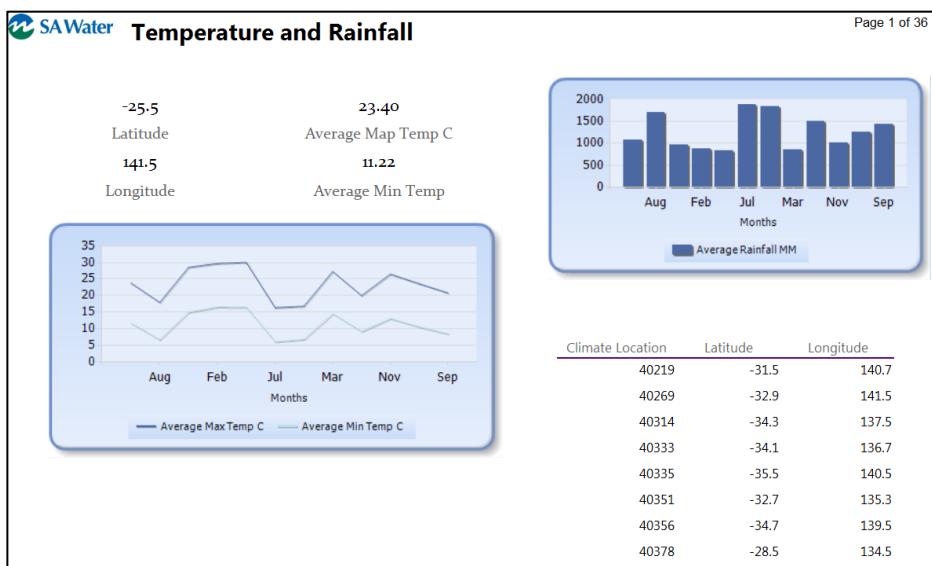
In the **border panel**, change the line thickness to **1.5 pt**, colour to **Indigo**.



Select the 1st row of the table and add **Bottom** border:



To visualise the final report, click **run**:

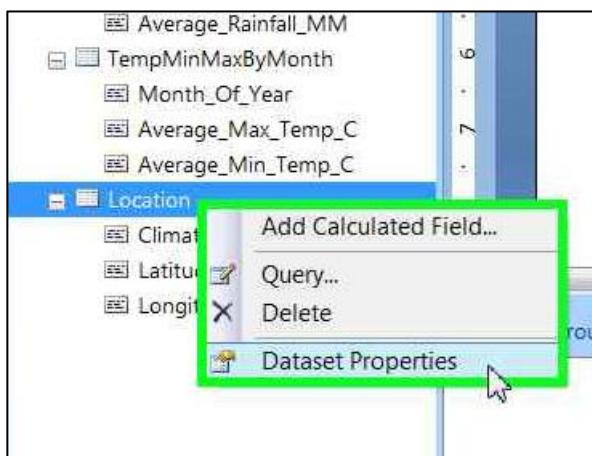


Step 45. Apply filter

The screenshot in the previous step shows that there are 36 pages in the report, as the table displays all the climate locations available from the **Location** dataset. The following steps demonstrate the filter function that will only display the first 5 climate locations in the table.

Return to Design Mode.

- Right click '**Location**' in the Datasets Panel and select **Dataset Properties**.



- Click **Query Designer...**

Query:

```
SELECT NON EMPTY { [Measures].[Longitude], [Measures].[Latitude] } ON COLUMNS,
NON EMPTY { ([Climate Location].[Climate Location].[Climate Location].ALLMEMBERS ) }
DIMENSION PROPERTIES MEMBER_CAPTION, MEMBER_UNIQUE_NAME ON ROWS
FROM [Climate]
CELL PROPERTIES VALUE, BACK_COLOR, FORE_COLOR, FORMATTED_VALUE,
FORMAT_STRING, FONT_NAME, FONT_SIZE, FONT_FLAGS
```

Query Designer

Time out (in seconds):

- c) Click the dropdown button and select **Climate Location**.

Query Designer

Dimension	Hierarchy	Operator	Filter Expression
<Select dimension...>			
Climate Location			
40219	-31.5	140.7	
40269	-32.9	141.5	
40314	-34.3	137.5	
40333	-34.1	136.7	
40335	-35.5	140.5	
40351	-32.7	135.3	
40356	-34.7	139.5	
40378	-28.5	134.5	
40385	-33.3	137.9	
40427	-31.1	128.9	
40513	-35.1	139.7	
40527	-34.5	139.5	
40540	-31.7	140.1	
40565	-30.9	133.1	
40569	-34.7	137.7	
40594	-36.7	139.3	
40665	-32.7	139.3	
40694	-31.3	140.9	
40807	-30.5	141.5	
40851	-32.9	134.5	

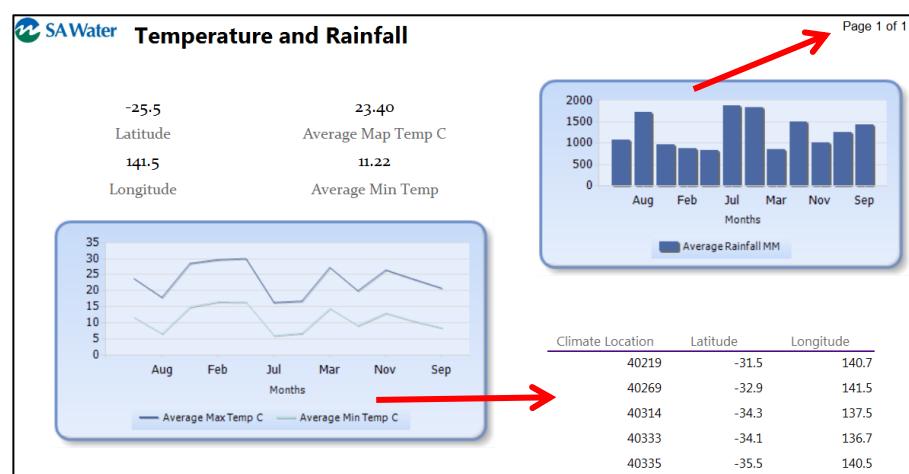
- d) Select **Climate Location** under the Hierarchy column.

Dimension	Hierarchy	Operator	Filter Expression	Param
Climate Location	<Select hierarchy...>			
<Select dimension>	<Select hierarchy>			
Climate Location	Climate Location			
40219	-31.5	140.7		

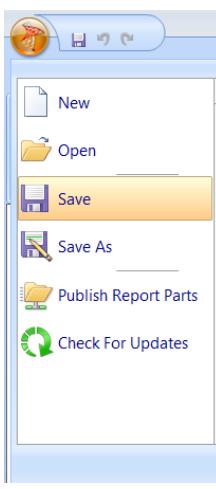
- e) Click the cell under the Operator heading and select **Equal**.

- f) Select the first five locations under the Filter Expression then press **OK**.

- g) Select RUN and if you have done it correctly, the report now only displays the first five locations in the table:



Step 46. You have successfully created a report! Don't forget to save before exit.



4.5.3 Useful Internet Resources

This document is not designed to teach skills about how to create reports using Report Builder. However, there is a lot of useful information about Report Builder on Microsoft's TechNet site at:

[Report Builder in SQL Server 2016](#)

A guide for creating data sets against Analysis Services cubes can be found at:

[Analysis Services MDX Query Designer](#)

5 Security Access for the BI Portal

It should be recognised that access to data must be controlled, to ensure that the BI Portal can be used for sensitive data without fear of it being available to unauthorised users. The only alternative would be not to store sensitive data, which would defeat the purpose of the EDW.

5.1 SharePoint Access

All authenticated Active Directory (AD) users have access to the BI Portal.

5.2 Report Access

The publisher of the reports will grant access to users with the appropriate role privileges.

5.3 Data Sources

Data sources within SharePoint will be set up by the BI Developers team, and users will not have access to change them. They will be granted access to consume data sources that use Windows Integrated Security (i.e., passing through the end-user's credentials). They will not be granted access to data sources that have higher-privilege access through the use of stored credentials.

Stored credentials will only be used for formal reports that do not have ad hoc reporting capability, such as the ability to drill-through to any dimension. These reports would be specifically designed to provide more information than would otherwise be available to the end user.

5.4 Cube Access

Cube access should be provided by passing Active Directory credentials through to the cube, access levels can be verified and modified as necessary. Roles within the Analysis Services database can be designed according to the different types of access needed. It is expected that some level of access would be provided to every cube in the Analysis Services database.

The ability to drill-through to leaf-level records within the cube may be available on some cubes, but should be assumed to be available, as some business units will have sensitive data stored with the cube.

5.5 Data Warehouse Access

End users will not have permissions to query the EDW data warehouse directly (i.e., using a connection to the SQL Server database). All access will be via the Analysis Services database.

6 Contacts for assistance with the SA Water BI Portal

If you need any assistance with the BI Portal, please contact the BI Support team via their dedicated email account:

BI.Support@sawater.com.au

Appendix A MS Excel Data Connection Change

The MS Excel spreadsheets in target are not the ones on BI Portal (i.e. Session 4.3), but the spreadsheets have embedded data connections to the BI databases.

The BI databases have been upgraded as of 20/05/2018, therefore, the data connections in the relevant Excel spreadsheets will require to be updated as well.

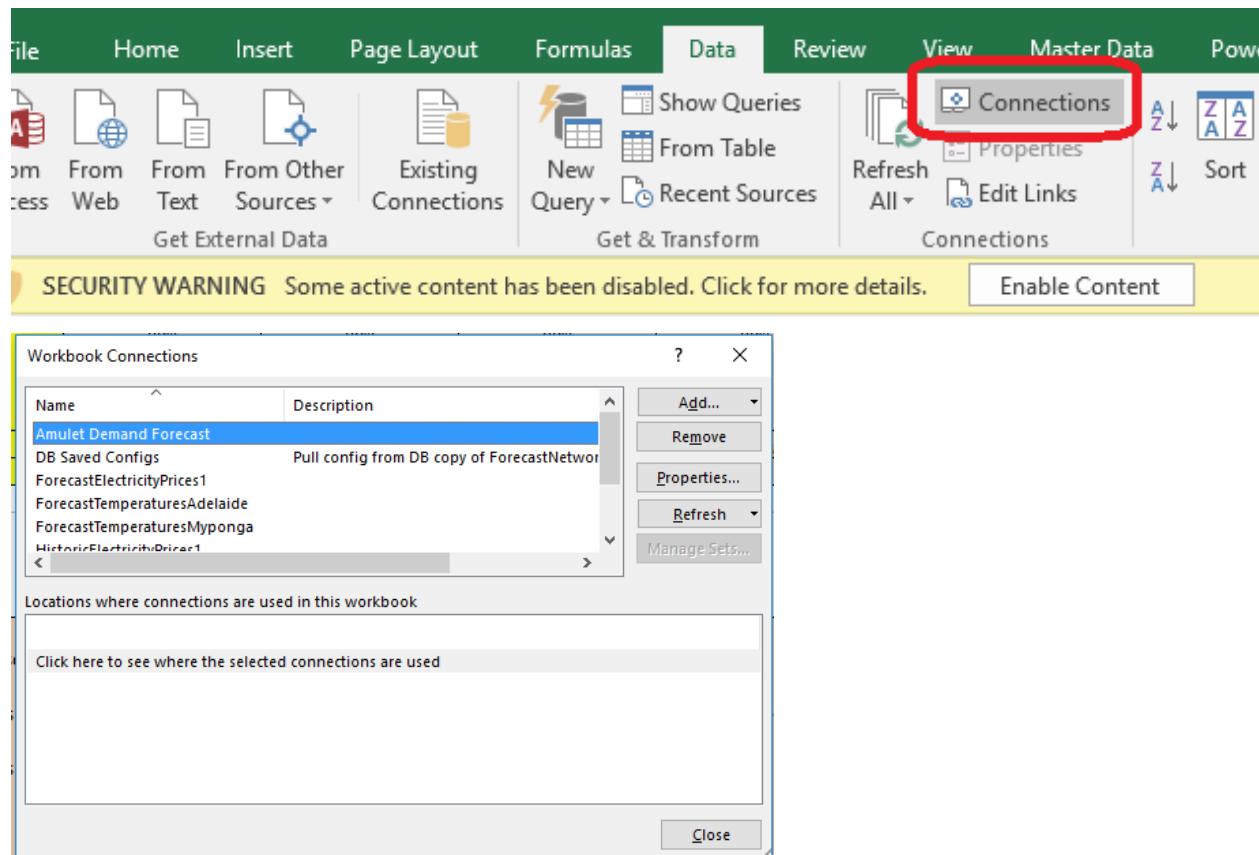
This session outlines the procedure for changing data connections in MS Excel.

Impacted databases:

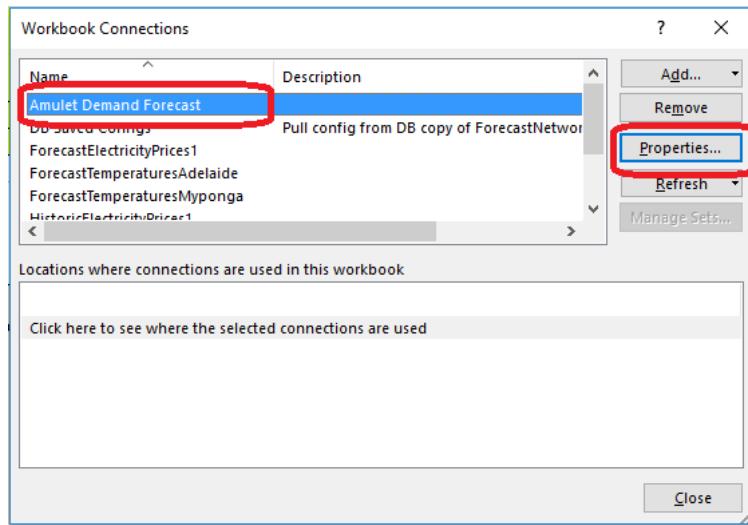
Database	Old Database Names	New Database Names
EDS	SAWpEDS01\PROD	SAWpEDS
EDW	SAWpFST01	SAWpEDW
InfoServer	SAWpEDS01\PROD	SAWpaEMO
Infoserver_EMVS	SAWpEDS01\PROD	SAWpaEMO

Step 1: Open the impacted Excel sheet

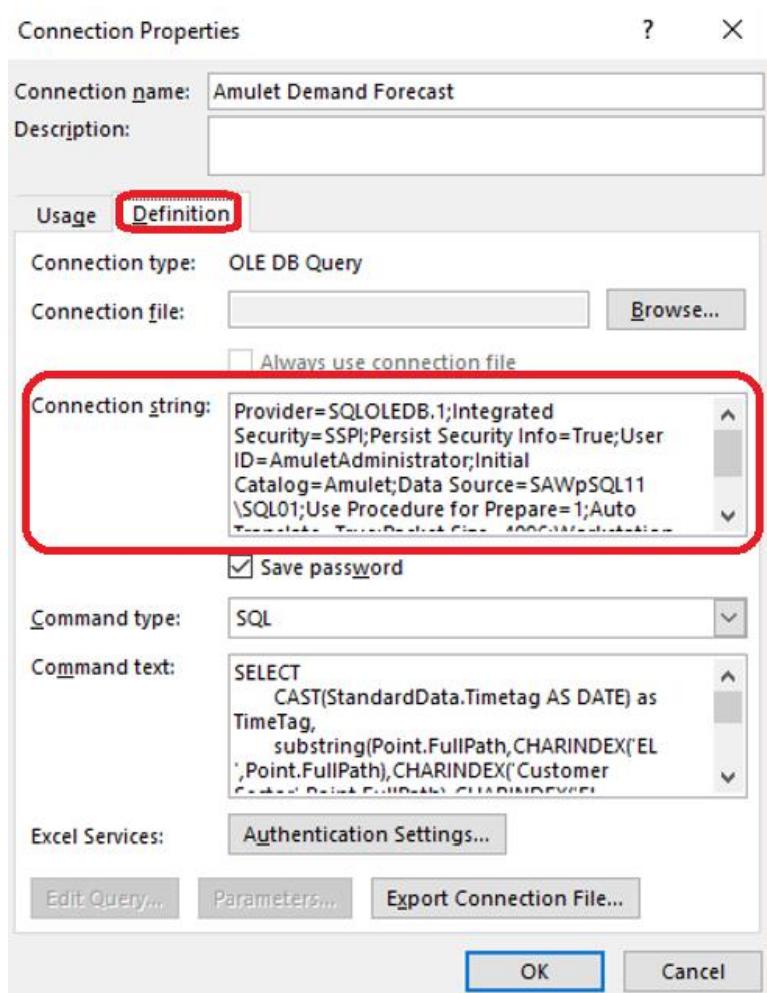
Step 2: Click on Data menu -> Connection



Step 3: Select each connection name and click on properties



Step 4: Click on Definition and Modify Connection string

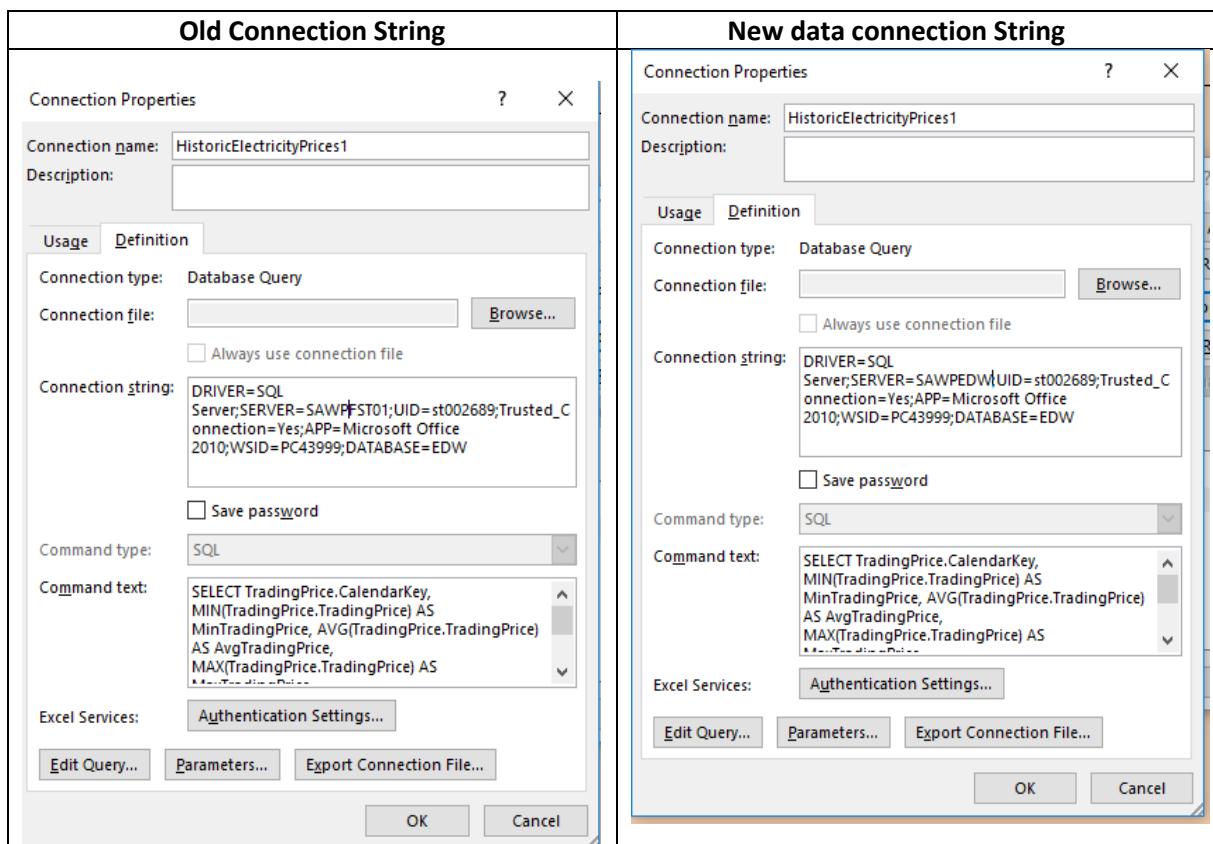


Example 1 - Old Connection String - HistoricElectricityPrices1

Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security Info=True;Initial Catalog=EDW;**Data Source=SAWPFST01**;Use Procedure for Prepare=1;Auto Translate=True;Packet Size=4096;Workstation ID=PC50644;Use Encryption for Data=False;Tag with column collation when possible=False

New data connection String

Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security Info=True;Initial Catalog=EDW;**Data Source=SAWPEDW**;Use Procedure for Prepare=1;Auto Translate=True;Packet Size=4096;Workstation ID=PC50644;Use Encryption for Data=False;Tag with column collation when possible=False

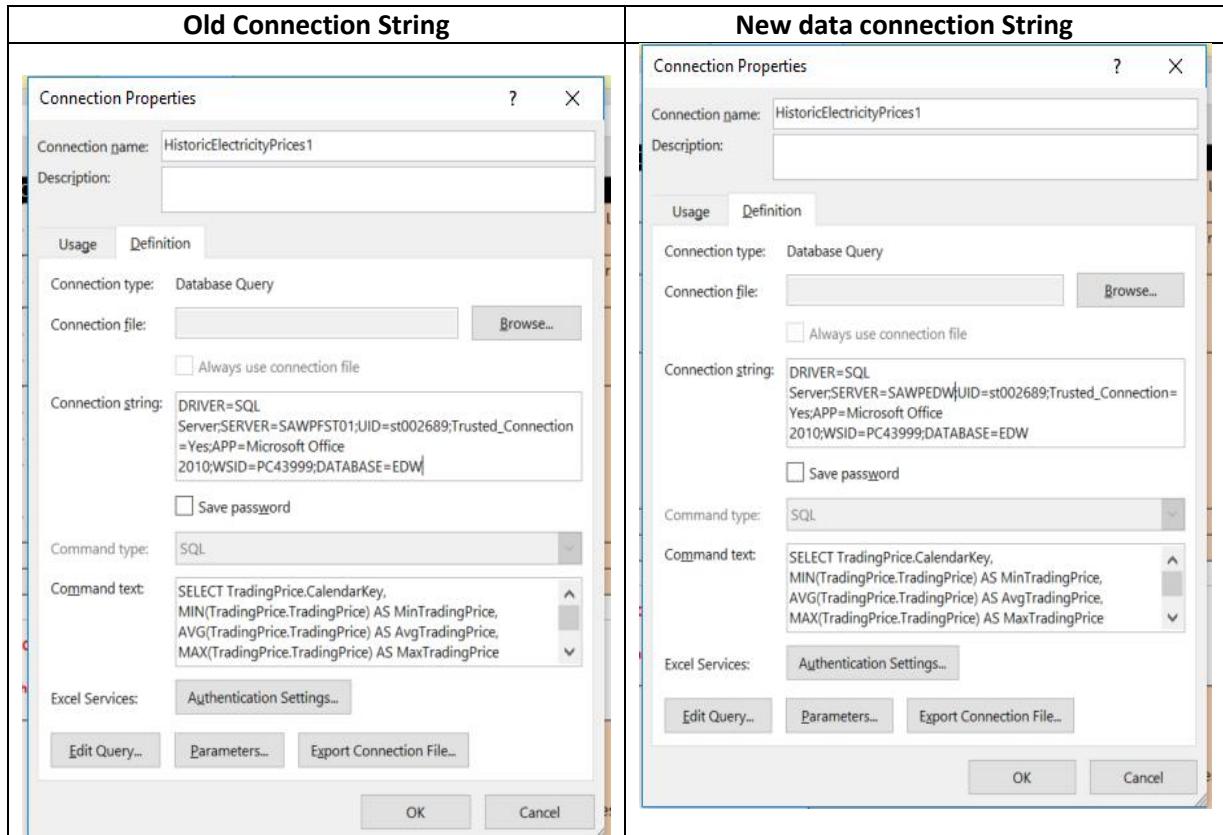


Example 2 - Old Connection String - HistoricElectricityPrices1

DRIVER=SQLServer;SERVER=SAWPFST01;UID=st002689;Trusted_Connection=Yes;APP=Microsoft Office 2010;WSID=PC43999;DATABASE=EDW

New data connection String

DRIVER=SQL Server;SERVER=SAWPEDW;UID=st002689;Trusted_Connection=Yes;APP=Microsoft Office 2010;WSID=PC43999;DATABASE=EDW

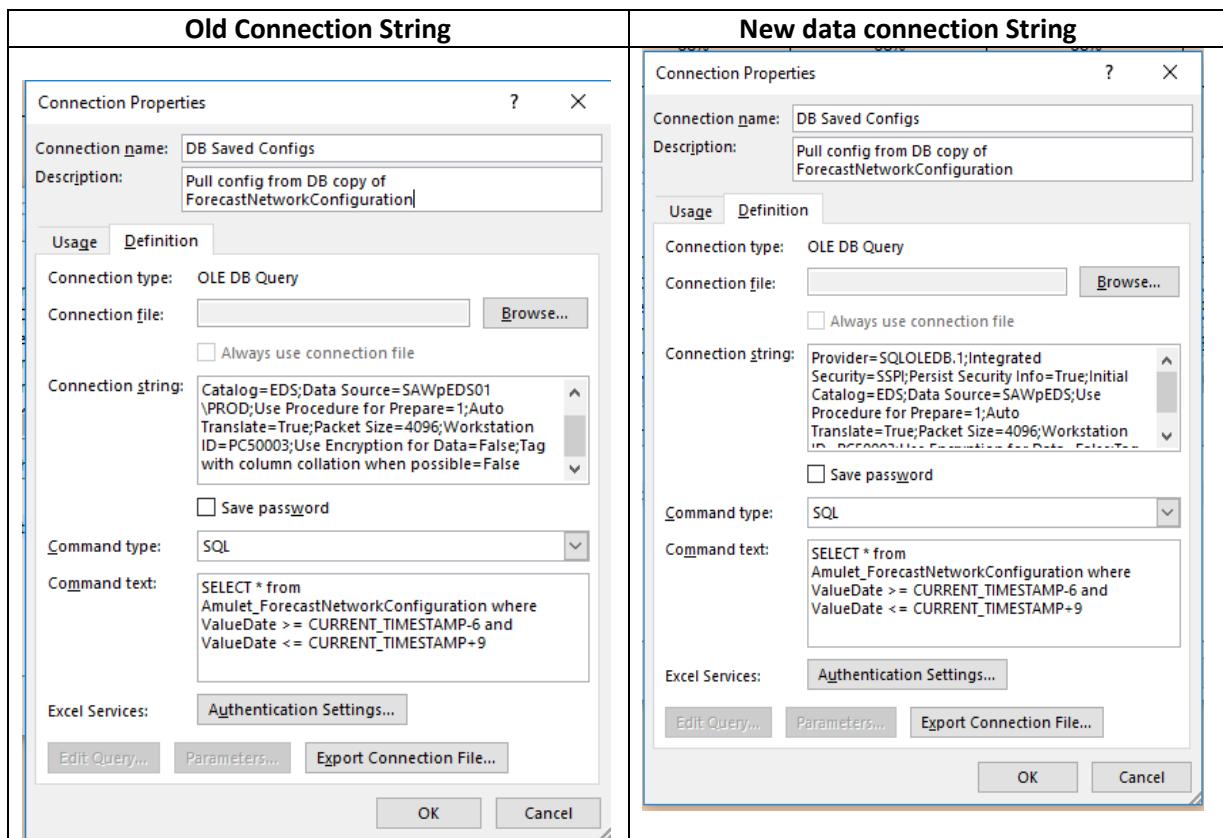


Example 3 - Old Connection String - DB Saved Configs

```
Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security Info=True;Initial Catalog=EDS;Data Source=SAWpEDS01\PROD;Use Procedure for Prepare=1;Auto Translate=True;Packet Size=4096;Workstation ID=PC50003;Use Encryption for Data=False;Tag with column collation when possible=False
```

New Connection String

```
Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security Info=True;Initial Catalog=EDS;Data Source=SAWpEDS;Use Procedure for Prepare=1;Auto Translate=True;Packet Size=4096;Workstation ID=PC50003;Use Encryption for Data=False;Tag with column collation when possible=False
```



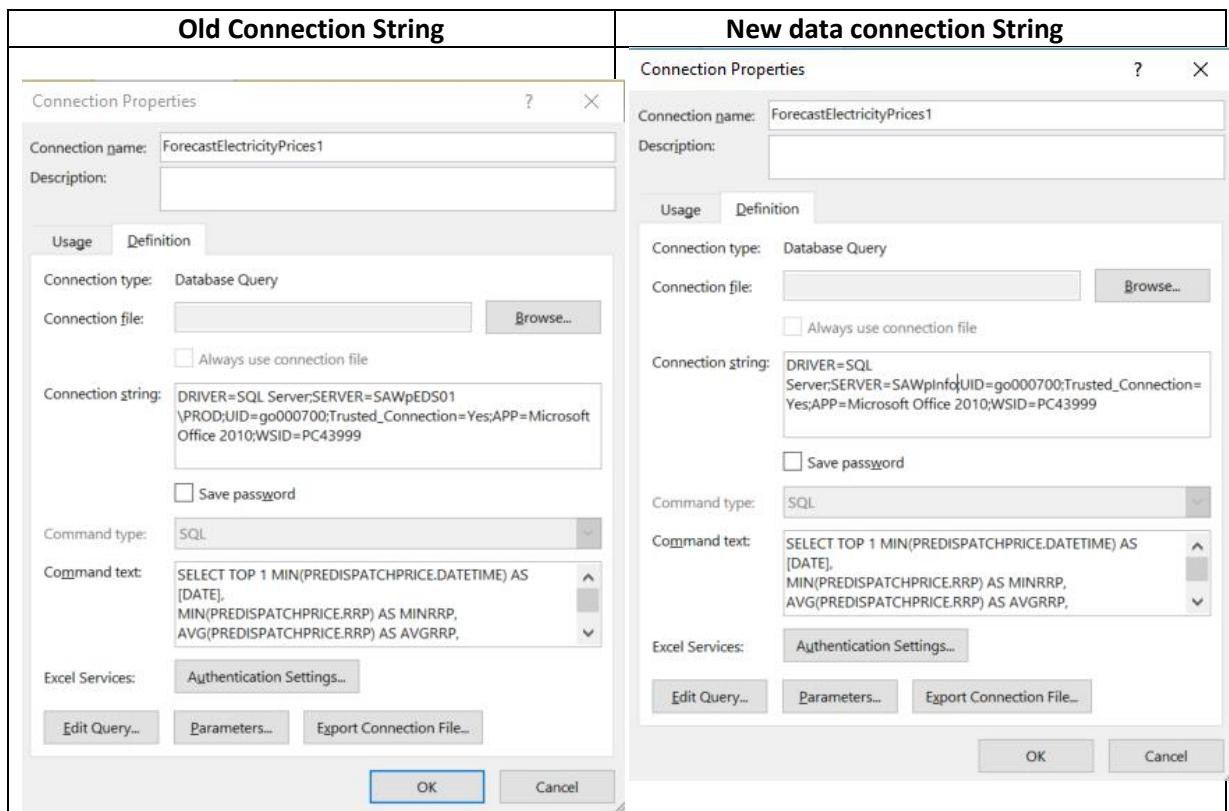
Example 4 - Old Connection String - ForecastElectricityPrices1

DRIVER=SQL

Server;SERVER=SAWpEDS01\PROD;UID=go000700;Trusted_Connection=Yes;APP=Microsoft Office 2010;WSID=PC43999

New Connection String

DRIVER=SQL Server;SERVER=SAWpInfo;UID=go000700;Trusted_Connection=Yes;APP=Microsoft Office 2010;WSID=PC43999



Step 5: Repeat above steps for each connections