



Asset Information

Automated Assessment

User Guide - Land Development

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**Government of
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Document Controls

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1 Introduction

Automated Assessment (AA) is the process by which asset data is prepared to a specific standard, submitted to an online portal, automatically validated then automatically loaded into SA Water's various information systems.

This replaces the manual process of data review, manual process of returning the data with mark ups and manual process of data entry. It also completely removes the untimely response of internal/external email correspondence for a particular drawing when revisions or changes are required. Historically asset data has been prepared by one party in one format (usually hard copy plans or PDFs) then provided to SA Water where an employee visually inspects the data for consistency, returns the drawing with mark ups if changes are required, then passes it to another employee who uses it as a reference to manually enter the same data into our Geographical Information System (GIS).

The As-Constructed Design Certification (ACDC) Portal allows submitted drawings to be reviewed within a minute or two and returns either a successful certification message, or a highlighted plan with descriptive requirements of any changes and where they need to be made. Internally the spatial data is then uploaded onto the SA Water GIS upon the click of a button. While it has been a slow transition, there is a requirement for the SA Water business to streamline processes and drive efficient changes to existing practices and AA is at the forefront of this.

The rudimentary stages of AA required a level of redundancy and used a data duplication process whereby a separate CAD drawing was prepared for portal submission, completely removed from the network reticulation drawing. Further development of AA has removed the need for this redundancy and seen further efficiencies applied.

The current state of AA requires small changes made to the design drawing file with certain attribute block additions, block replacements and layer assignment changes to linear features.

The future state of this process will ideally see the original design drawings constructed in AA format without small interim changes being necessary at the as-constructed stage.

Note: the use of this process to capture asset data does not supersede existing handover requirements, in particular pdf as-con submissions for major land divisions (MLD).

1.1 Purpose

The target audience for this document is anyone required by TS153 to submit as-constructed information for land developments compliant with the Automated Assessment process. This version relates specifically to the SAW_AA_2020 validation set and may not be applicable to previous validation sets or future validation sets.

This document covers all initial set up requirements, drawing preparation adjustments, suggested shortcuts, portal submission workflows and processes to follow if unsuccessful validation results are encountered.

This document should be used as a reference and training guide in conjunction with our land development training video found here:

<https://www.youtube.com/watch?v=J0bJQWZDmbU&feature=youtu.be>

1.2 Glossary

The following glossary items are used in this document:

Term	Description
SA Water	South Australian Water Corporation
AA	Automated Assessment
ACDC	As Constructed Design Certification
GIS	Geographic Information System
MLD	Major Land Division
Portal	ACDC Portal, not to be confused with Meridian User Portal for Capital works
Open Spatial	Company that produces ACDC and operates the Portal
Asset Data	Digital data representing physical infrastructure
As-Constructed	The status, position, characteristics, and deviation of asset data from design
ADAC	Asset Design As Constructed specification
Ciux	AutoCAD custom ribbon and menu file
Library	AutoCAD blank model file with embedded layers and blocks
XML	Extensible Mark-up Language
CPC	Certificate of Practical Completion
DCDB	Digital Cadastral Data Base

1.3 References

The following table identifies the documents and/or articles that are referenced in this document:

Title/URL	Version	Date
TS153 Requirements for Automated Assessment	1.0	01/11/2017
TS103 Survey Requirements Specification	2.0	30/06/2019
TS100 Requirements for Technical Drawings	5.0	02/05/2019

1.4 Contacting SA Water

Please use this email address - AutomatedAssessment@SAWater.com.au - for any questions, issues and comments regarding Automated Assessment.

2 Process Overview

The validation process chosen by SA Water is ACDC, which is produced by Open Spatial.

The design drawing for a given Major Land Division (MLD) should be in dwg format and provided at coordinate level accuracy. Once the typical changes from design stage to as-constructed state have been made the placement of assets including pipes, connections and point features should accurately reflect their position on site.

Existing pipework and connection assets must be changed to the appropriate layer with attributes assigned. Fittings must be replaced with the correct AA blocks, ideally using the menu or ribbon options. A closed project area is required around all relevant features and a single common block feature should be added somewhere nearby.

Once these changes have been made to the drawing the model space data must be submitted to the ACDC portal in dwg format and the paperspace drawing must be submitted to reticulation networks in pdf format as per standard practice.

If the portal validation produces errors these need to be addressed and the dwg resubmitted. Once the drawing passes validation the AA process is complete and internal data management is performed by SA Water.

3 Getting Started

If you have not done so already you should contact SA Water and request to register for the Automated Assessment process. SA Water will then generate a portal account for you, a project to submit drawings to - which will be your company name, provide the library file and menu/ribbon cuix support files, offer training (virtual, in office, on site and recorded training material) and provide all the support needed to get started with this new process.

3.1 Software

3.1.1 If you have an AutoCAD product to produce .dwg files

All you need to do is load the custom menus and ribbons. The process is designed to function on AutoCAD and AutoCAD LT and requires no additional licensing fees in order for you to begin capturing asset data in the format required. Both of these factors were an important consideration when SA Water was choosing a solution.

3.1.2 If you do not use an AutoCAD product to produce .dwg files

There are a large number of smaller vendors in the CAD market (too many for us to support) and for some of these the custom menu will not work.

We suggest that you:

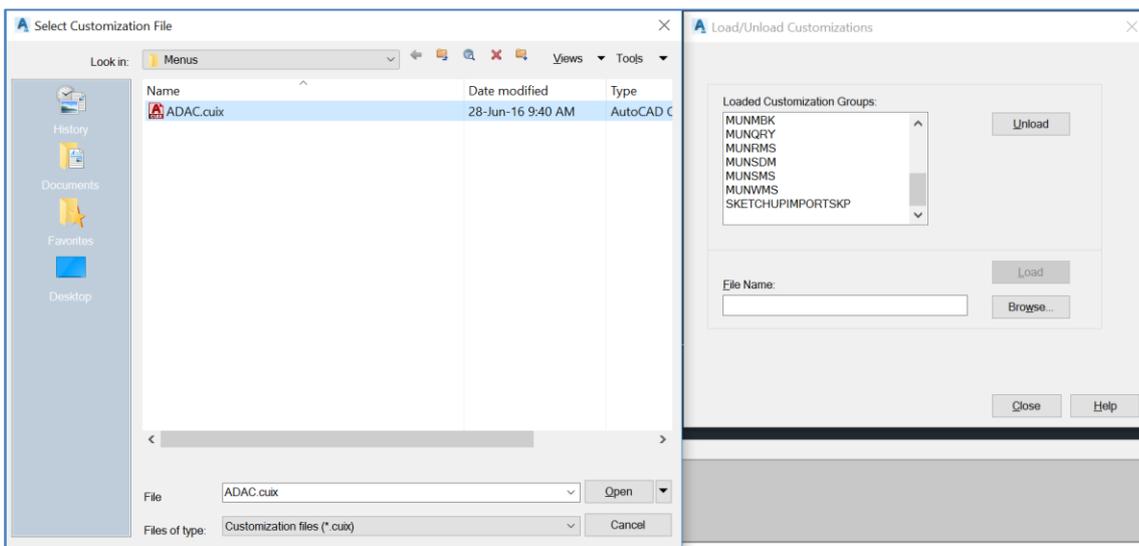
- Attempt to open the template.dwg
 - o We can also provide this as a 2010 .dxf if that helps.
 - o If this fails then your software will likely not be suitable for this process, but please contact SA Water and let us know.
- Attempt to install the custom menu then use the menu
 - o If this works, try creating a few assets then submitting the saved .dwg to the Portal for validation
 - If your submission receives a status of 'ERROR' then the portal does not recognise the .dwg as a suitable file, or it contains elements that your software has added that trip the portal up. Try:
 - Saving as different .dwg version
 - Running AUDIT
 - Running PURGE
 - o If these fail it is likely that your software is not compatible with this solution.
 - If your submission gets a status of 'FAILED' or 'PASSED', congratulations, you are good to go.
 - o If either fail but you can open the template.dwg you can still prepare asset data in the required format. It just will not be as easy as it is using the menus. The menu is a set of macros that set your target layer and specify what you are creating (Polyline, Closed Polyline, Line, attribute block). You can manually do these things by using the equivalent of the 'INSERT' option and submit the .dwg to the portal.

3.1.3 Loading the cuix and associated library file

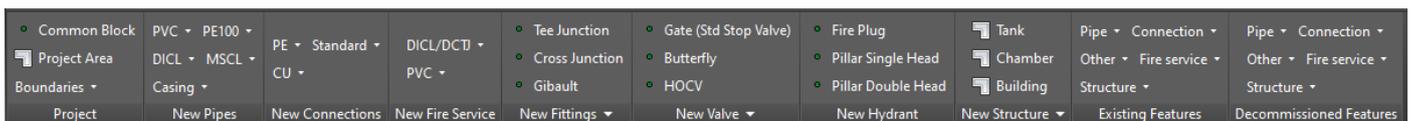
The custom menu file is a native AutoCAD partial customisation file in CUIX format. This cuix file holds drop down icons that code for polyline and point objects to be inserted on specific layers. The library file is in dwg format and holds all of the required layers and blocks to format an existing MLD drawing to AA standard.

To load the cuix file:

1. Place the cuix file in a folder on the local machine.
2. Launch AutoCAD and on the command line type: `menuload`
3. AutoCAD will launch the 'Load/Unload Customization' dialog box (If you have a previous version of the AA menus loaded you may wish to unload these).
4. Navigate to the folder where the menu file has been placed.
5. Select the cuix file, click 'Open' then 'Load' then close the dialog box.



The ribbon options for these custom features will now display with drop down options like the example for Water below:



Note: Menu options with the same functionality will also display for Water and Sewer so long as the 'MENUBAR' option in AutoCAD is set to 1 and not 0. You can use either the menu or ribbon options.

To load the Library file:

1. Place the dwg file in a folder on the local machine.
2. With AutoCAD open, load up an existing MLD drawing that is required in AA format.
3. Type or click on 'INSERT', navigate to the library file, and insert the library file into the existing MLD drawing (if an insertion point is required just insert at the origin at 0,0).

Note: The library file has no objects drawn in model space and is to be used as a blank template.

4 Preparing Asset Data

At this point you should have a log in to the Portal, a project to submit .dwg to, been able to open the template.dwg, installed the custom menu .cuix, and you are ready to capture and modify asset data.

Start out by making a copy of the library.dwg for use with this project, open the drawing that is to be worked on and insert the library file into the existing MLD dwg.

Note: Water and Sewer assets should be saved in separate drawing files and edited separately.

4.1 Coordinate systems

It is your responsibility to ensure that the data in the drawing is in one of the projected coordinate systems: GDA 1994 MGA Zones 54, 53, or 52 as appropriate to the area you are working on in accordance with TS103. With the introduction of GDA2020 projection files across AutoCAD this can also be used as appropriate to the data being captured. You can specify this using the 'MAPCSASSIGN' function in AutoCAD. You may need to transform your survey data into the appropriate projection prior to adding it to the drawing.

SA Water is aware that this will introduce scale issues when measuring linear distances within the drawing, but once incorporated into our systems this is not a factor.

4.2 Add in your survey data

You will then want to bring in your survey data into the drawing in a method appropriate to your survey software.

We would recommend that you do not split your pipe features into individual Line objects, rather keep them as Polylines at this point and only split them if necessary. This saves having to add more attribute blocks than needed when editing the design drawing.

You may want to split or explode property boundaries into individual Line objects.

4.2.1 ACDC requires 2D objects

ACDC processes 2D objects at the time of this writing. It is recommended that a drawing is 'flattened' if it is suspected of having assets drawn in 3D particularly for sewer drawings. The process is basically to reduce the Z value of all vertices of BLOCK, LINE and LWPOLYLINE objects to zero.

To flatten the LINE and LWPOLYLINE objects type FLATTEN on the command line and select LINES and LWPOLYLINES. Ensure no blocks are selected inadvertently.

Do not use the FLATTEN command to flatten blocks. But rather select the relevant block, then bring up the Properties panel, and change the Z ordinate to 0 if required. Using the FLATTEN command to flatten blocks will result in those blocks renamed, which will fail the validation process of absence of blocks of the required names.

This process can also be used prior to data validation in case the authority generating the drawing has not flattened the 3D objects in the design stage.

4.3 Add in other data sources

As appropriate add in data sources that your organisation may not have personally surveyed such as property boundaries, or the location of existing assets which are required to provide a complete picture of the completed work.

Note: do not add these in as XREFs, they interfere with processing the data.

Note: you can add in data that is not strictly required for this process if it assists you with capture. As long as it does not sit on one of the 'SAW_' layers the AA process will ignore these objects.

4.4 Overview of the Library.dwg

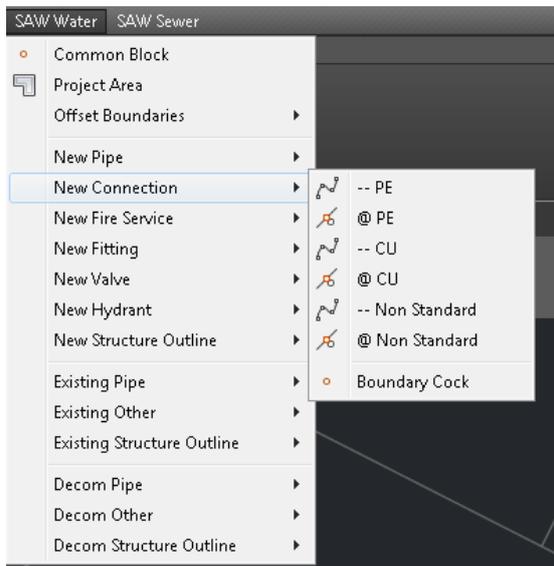
The library is a standard .dwg that contains:

- All the attribute block definitions required to capture the asset data.
- A list of all the layers that the AA process looks at to find objects to check and convert.
 - o These layers have been prefixed with 'SAW_' so that if you have a lot of other layers in the drawing these can be easily grouped/filtered.
 - o The naming convention for layers (other than the boundary offset layers) is:
 - 'SAW_'+AssetClass+Status+ADACAssetType+SpecificAssetType
 - The ADACAssetType generally matches the ADAC schema.
 - o An associated block for a linear asset will sit on a layer with a name matching the associated linear asset but appended with '_attr'. This is so that you could display just the linear features without having to see the associated block if desired.

The SAW_ layers within the library file have their colour and thickness pre-set to match SA Water's drawing requirements. It is recommended whenever these layers are used that the colour settings of objects are specified as 'ByLayer' as this library has been created to accommodate various ctb file specifications used across the design industry.

4.5 Overview of the menus and ribbons

The menu is displayed below and performs the same function as the ribbon option:

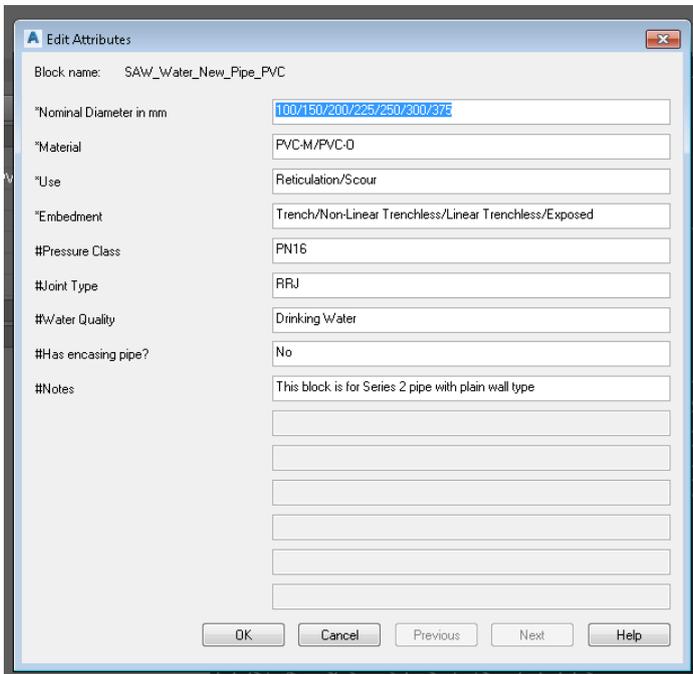


General notes:

- Common Block, Project Area, and Offset Boundaries produce the same effect in each of the different menus (Water, Sewer, etc.).
-  Indicates that there is a secondary drop down with more specific items. In the current build this has been designed so that you only need to go two levels to find items in the menus and one level down to find items in the ribbon.
-  Indicates a Polyline item that must be Closed. This is the Project Area, and all of the Structure Outline items.
-  -- Both the line symbol and the '--' indicate the item is a polyline.
-  @ These mark associate blocks that must sit at the **midpoint of a matching polyline feature**. They hold the attribute information for that linear asset.
-  Indicates an attribute block that does not have to sit at the midpoint of a specific polyline. Note: other than the Common Block, they all should be snapped on a polyline that participates in this process.
- While we have used the ADAC standard to help design our requirements we have used terminology that matches the SA Water approved products guide.
- Each menu item executes a command that sets the target layer and specifies what you are adding to that layer.

4.6 Overview of attribute blocks

When you add an attribute block you should see a prompt similar to this pop up (providing your ATTDIA variable is set to 1, check this by using the ATTDIA in the command line). Note: not all block definitions require attributes to be populated and in these cases no prompt will display.



General notes:

- If the attribute has units then those will be specified ***Nominal Diameter in mm**
- The list of allowed values for an attribute will be in the default values separated by a '/':

Trench/Non-Linear Trenchless/Linear Trenchless/Exposed

Only one of the specified values are allowed in these fields. It is suggested that you simply delete the values that are not required as manually entering the values will take up more time and could result in spelling mistakes which will cause the drawing to fail.

- If there is a numeric range, then the range will be specified
- If there is a data value, the data format will be specified
- All attributes that must have a valid value populated are flagged with a '*' at the start.
 - o ***Nominal Diameter in mm**
- Attributes flagged with '#' at the start have a single allowed value which is displayed. Do not alter these values or the drawing will fail validation. The reason it is displayed is so that a fuller degree of documentation about that asset is visible and for you to decide if you need to use a non-standard item or not.
- Similar to the above the 'Notes' attribute is there for us to give you more information about this block definition, not so that you can provide us with more information.
- Depending on your version of AutoCAD you may have fewer lines shown and have to use the 'Next' button to get to the second page of attributes.

4.7 Reference data

4.7.1 Common block

The Common Block has some information that would normally sit in the drawing title block. There must exist one (and only one) common block somewhere in the drawing (our preference - in or just outside the project area, in empty space).

The screenshot shows a dialog box titled 'Edit Attributes' with a close button in the top right corner. The dialog contains the following fields and values:

Field Name	Value
Block name:	SAW_Common_Block
*Project Name	
*Asset Class	Water/Sewer/Recycled/Cathodic/Mixed
#Drawing Status	As Constructed
*Drawing Number	
*Drawing Revision	
*Date Revision Approved by Surveyor	DD/MM/YYYY
*Surveyor Name	
*Horizontal Accuracy of survey in mm	50/200/300/300+
*GDA 1994 MGA Zone	MGA54/MGA53/MGA52
*Installation Date	DD/MM/YYYY
*Docket or Capital Project number	#####/YYYY or C#####
*Contract Number	
*Free Asset	Y/N
#Automated Assessment Version	SAW_AA_2017

At the bottom of the dialog are five buttons: OK, Cancel, Previous, Next, and Help.

Project Name: Would be your Drawing Title

Asset Class: Specify what type of Asset this document contains, either Water or Sewer.

Drawing Status: At the moment only As-Constructed asset data is being looked at.

Drawing Number: Drawing number of as-con (typically in a format like 2018-1234-31)

Drawing Revision: This is the revision of the engineering approved as-con.

Date Revision Approved by Surveyor: Date signed off on by the party responsible for producing it.

Surveyor Name: Party responsible for producing asset data

Horizontal Accuracy: Ensure this is set to 50 for the purposes of the current process.

GDA 1994 MGA Zone: Specify as appropriate for area of work

Installation date: Date Constructed or Practical Completion Date.

Docket or Capital Project Number: Land Divisions will provide a docket reference, while capital work should provide a Capital Project Number.

Contract Number:

Free Asset: For Land Divisions the new assets are gifted to SA Water, so this will always be Y.

Automated Assessment Version: Shows user which validation set they are providing data against.

4.7.2 Project area

This is a closed polyline that should encompass all of the new, decommissioned, or modified assets. If the project includes new allotments, then the project area should encompass all of these and where possible snap to the newly surveyed allotment boundaries.

Any asset created outside the project area will be considered an error. This is to check when the user accidentally creates a valve or something a few km away from the project while panning and never notices because it is off the screen.

There should be only one project area per drawing.

Note: The project area does not require an associated attribute block

4.7.3 Offset boundaries

These are the boundaries that would ordinarily be used to generate offsets from.

SA Water wants survey accurate asset data, but we are constrained by the requirement that our asset data must be shown relative to the DCDB. Unfortunately, the DCDB in most areas is not spatially accurate. We cannot store our asset data in its correct coordinates if that puts it inside a property rather than the road per the DCDB.

The four types of boundaries are:

- **New Allotment**
If a new lot has been created as part of this project then this is what should be used to show the surveyed boundary of this lot.
- **Existing Fence line**
This is a visible property boundary that if you were on-site you would reasonably assume is the property boundary. Usually this will be a fence line matching DCDB parcel boundary.
- **Legal Property Boundary**
If you survey the true property boundary, we would like to acquire this information.
- **Road edge**
If there is nothing in 20m that you might assume is a property boundary then use the road edge if it is within 20m. Use the curb if there is one, or the edge of the bitumen, for dirt tracks do not worry about capturing this.

In general you should just bring these into the drawing, explode them down to Lines and assuming you have them on layers with different names you can select similar and change them to the appropriate 'SAW_' offset boundary layer en masse. Do not worry about overlapping/duplicate lines as this is purely reference data.

Note: The offset boundary lines do not require an associated block.

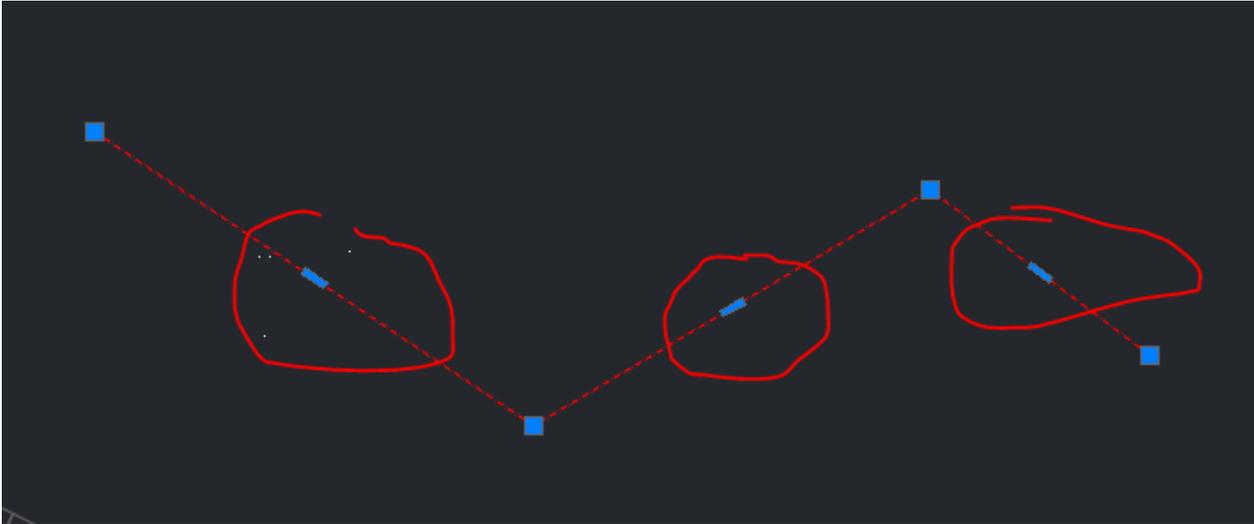
Note: We do not want any of these boundaries to be copied from the DCDB provided by DPTI. These boundaries are to represent what has been surveyed in the field at the time of construction.

4.8 Linear assets and associated blocks

4.8.1 How they work

This is a core concept that allows this process to function with AutoCAD LT. The geometry of a linear asset such as a pipe, connection, or cable holds further attributes with an attribute block placed at any midpoint of the line object.

In the below example an attribute block could be snapped to **one** of the highlighted midpoints:



If this single polyline feature was split into multiple features or these were individual linear features and not a single polyline feature the attribute blocks would be required at one midpoint for each individual feature.

The ACDC tools will look at each midpoint for one of its associated blocks, validate it and convert the line and block into a single GIS polyline feature with attributes.

If the associated block is not at the midpoint it will not be found.

If no associated blocks are found it will fail.

If more than one associated blocks are found it will fail.

If an associate block exists but is not at the midpoint of an associate line then it will fail.

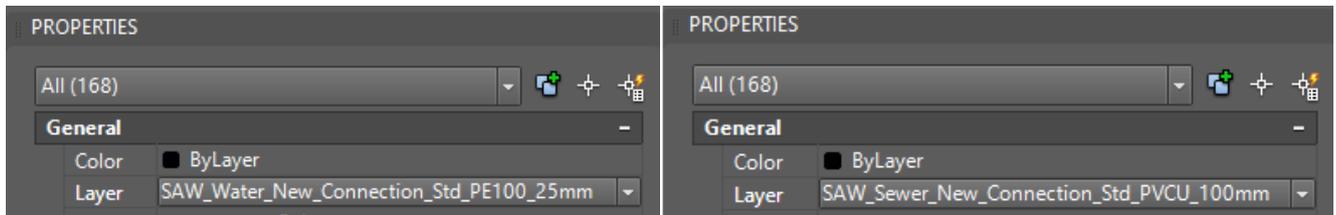
4.8.2 Suggested way to capture linear assets

- 1) Your design drawing should have all as-built changes included (accurate placement of assets, chainage, and dimension adjustments etc). With this drawing open in AutoCAD, insert the AA library file and load up the cuix if not already loaded.
- 2) Split the polylines where any of the attributes for that asset change (for example a material or diameter change, or a change in grade for non-pressure sewer pipe).
- 3) Select all the polylines that match one of the defined linear asset groups (e.g. one pipe type) and change the layer for all the polylines to match the 'SAW_' layer that represents that group. Given the various ctb files used across Land Development we ask that these linear assets are assigned a colour of ByLayer.
- 4) Add the associated attribute block to the midpoint of one of these polylines and populate its attributes.
- 5) Copy that block to the midpoints of all the other polylines that have the same attributes.
- 6) Select a new group of polylines and repeat.

You should not need to redraw your linear assets; you just need to select them, assigned them to the right layer and then add an associated block.

The 2020 version of our library file includes standard connection options for water and sewer so for standard residential connections they can be all selected and changed to the standard connection layer which do not require attribute blocks.

-As a suggested format, select one or two connections, type 'SELECTSIMILAR' into AutoCAD and in the Properties dialog with colour 'ByLayer' change the layer of all selected connections to either 'SAW_Water_New_Connection_Std_PE100_25mm' or 'SAW_Sewer_New_Connection_Std_PVCU_100mm':



4.9 Fittings and asset blocks

Fittings like hydrants, valves, maintenance holes, tees etc should have their original design blocks replaced with the AA equivalent blocks dropped in from the ribbon or menu. Some of these AA blocks have attributes that must be specified, and some do not. The attributes should be chosen from the list of available options where applicable.

SA Water is aware that there may be some characteristics for a specific asset that are likely to change as staged MLDs progress (i.e. valve statuses) but in these instances we request the normal operating conditions of these assets be specified (i.e. Open for valves).

4.10 Structure outlines

Closed Polylines.

In general, these should only be required for Capital Project work and have been added to assist in testing application of this process to these projects.

4.11 Existing and decommissioned assets

4.11.1 Spatial accuracy

New network assets are almost always connected to existing assets. Existing assets have been captured into our databases from a wide range of sources, some of which date back to the 1870's and vary widely in quality.

This means that it is highly probably that the spatial location of our existing asset data does not line up with your survey observations.

The primary considerations are that the existing and decommissioned asset data matches both your field observations (survey and otherwise) and the relative shape of our network assets to each other. In practice, this means you need to move the display of the existing assets around to match your survey observations. This should be no different than what is currently done for existing as-cons under TS95.

4.11.2 Required attributes

Most existing assets do not require attributes to be populated. For example, existing connections and fire services do not need an attribute block. If the required attributes for existing assets reflect characteristics that are not known simply choose the 'unknown' or UNK' option in these attributes.

The primary requirement is that pipes have a material and diameter recorded if known.

Decommissioned assets require even fewer attributes.

4.11.3 End caps/blank flanges and removed/abandoned assets

If a section of pipe has been cut and an end cap/blank flange installed, we expect the end cap to be represented as a new asset and its placement to meet the accuracy requirements specified.

If an end cap/blank flange sits between an existing and a decommissioned pipe, then the assumption is that the decommissioned pipe is removed. However, if there is a second end cap/blank flange that sits on only the decommissioned pipe we will assume that the pipework beyond this asset has been abandoned in-situ and SA Water has a continuing duty of care over that non-operational asset.

4.12 Snapping

The snapping requirements are:

Linear assets:

- Where two polyline ends meet those ends should be snapped together.
- Where one polyline meets the edge of another it should be snapped to that edge.

Block assets:

- Must be snapped to the edge or end of a linear asset (except for the common block).

Attribute blocks:

- Must be snapped to the midpoint of a pipe or connection line/polyline feature.

4.13 Non-standard items

Non-standard items allow you to provide asset data for items that are not in the SAW Authorised Products Guide. You will notice that the number of required fields is longer and the range of allowed values is greater.

Due to the limits of the portals current checking capabilities it is not possible to fully check that the values in one attribute are consistent with the values in another attribute. For example, you could specify a Non-Standard Pipe that has Material PVC-M and Lining of CL and this would pass validation but would almost certainly be incorrect.

This means that any drawing that contains Non-Standard Items will require further manual checking of these items.

4.14 Drawing management

There are some existing requirements for drawing appearance that must be satisfied in order for the Engineering group and Land Development group to issue CPC.

The drawing changes we have described should not impact the appearance of the plotted pdf sheet sets as the common block, attribute blocks and project area have been placed on non-plotting layers. However, if you wish to clean up the appearance of the detailed viewport in AutoCAD you can select the attribute blocks and common block and adjust the annotative scales, so these do not display through the viewports. Across an average sized MLD the viewport scales will most commonly be 1:500 or 1:1000.

It is also suggested that to suit the existing layout sheet format the newly layered connections, valves, hydrants, and maintenance holes are hidden from view along with any other blocks that would not typically appear on this sheet. A suggested way to execute this is using the 'LAYFRZ' command and in settings select viewports then vpfreeze and select these objects that you do not want displayed through that viewport.



Layout view of MLD prior to LAYFRZ changes



Layout view of MLD following LAYFRZ changes

Once these changes have been carried out the drawing should be saved as its drawing number and in 2013 dwg format ready for ACDC portal submission.

5 Submitting Asset Data to the Portal

Log into the portal, go to the validations tab and select Submit New. Your project will be selectable as your company name but if you wish to test the process without actually submitting a drawing you will also see the 'SAW_AA_2017 Testing' project available for submitting drawings against. We request you submit the case number and network (water or sewer) as part of the description.

After you press ok, you will have a minute or two to wait while the checks are carried out and then hit the refresh button.

The drawing should now have one of four statuses:

- Processing:
 - o The validation process has yet to complete. Give it a bit more time.
 - o Note: Open Spatial recommends you do not hit refresh too quickly as this can cause issues with the user interface. Give it about 30 seconds between clicks of the refresh button.
 - o Note: that sometimes the drawings get 'stuck' and it requires Open Spatial personnel to 'unstick it'. In these cases, it can take an hour to process. If your drawing takes more than an hour you should contact Open Spatial Support quoting the submission ID.
- Error
 - o Something about the file you sent meant that the ACDC Portal was unable to process the file.
 - o If you are using a non-AutoCAD solution to produce DWG this may be a problem.
 - o Try exporting your drawing as a 2010 DXF format file, reopening and running AUDIT and PURGE (or equivalents) to remove unnecessary objects. Be careful when running PURGE that you do not remove the unused AA Block Definitions as you may need them later.
 - o If this still does not work, please contact SA Water.
- Failed
 - o One or more objects in the drawing failed. You will want to download the failed drawing and proceed to the section on Correcting Errors
- Passed
 - o All of the automated checks are complete, and you have successfully certified the AA drawing.

5.1 Correcting errors

In general, you will likely get errors the first time you submit data, do not worry it is very easy to forget to populate a required value or incorrectly type values – and this is why we are using this process.

Fortunately, it is also very easy to correct these errors as the failed drawing has error mark-ups inserted on their own 'ERROR' layers that circle the objects with errors and have text attributes telling you what kind of error has been found.

5.1.1 Update original DWG or update failed DWG?

While the failed dwg will have the error mark-ups, we recommend you use this as a visual guide to update the original dwg that you submitted. This is because the portal makes alterations to the submitted data with audits, purges, snapping and insertion of error blocks which can cause corruptions and could remove components that your business may need to have in the drawing.

5.1.2 Error types

Error Type	Description	Action
Geometry	Associated Block on Incorrect Layer	Assign to correct layer
Geometry	No valid object layer/type combination found	Object type is not valid. Change to a valid object type.
Geometry	Associated Block is contained within more than one configured object	Should only be within a single associated closed polyline.
Geometry	Associated Block is not contained within configured object	Should be within associated closed polyline.
Geometry	More than one object found with associated block	Attribute block should only be coincident with a single associated line features midpoint. Choose a different mid-point that is not coincident with the second line object.
Geometry	No objects found on correct layer	Objects have not been placed on correct layers, this is a risk if not using the menus or ribbons. Ensure data is on correct layers.
Geometry	Object without associated block.	Line object missing its attribute block. Find it and move it to a midpoint or create one.
Geometry	Object with more than one associated block.	Linear field with more than one associated block at one or more of its midpoints. Remove the unnecessary one.
Geometry	Service connection that does not connect to a pipe.	Snap services to the main.
Attribute	Attribute information found in drawing conflicts with attribute definitions in configuration.	Data type mismatch. Letters in a numeric field, or decimal values in an integer field etc.
Attribute	Lookup code or value incorrect.	Please check the list of allowed values and enter a correct value.
Break	Cannot break pipe if breaking the pipe will produce a segment shorter than the value specified by gPipeLengthBreakTol setting.	Please move the valve/junction so that the resulting short pipe length is at least 20cm in length.
Break	Node cannot break a pipe if snapped to multiple pipes.	The splitting block (junction) would split more than just one line. If this is valid, manually split these until the block sits at the end points of all lines.
Extent	Objects outside of XY Extent	Ensure you are using GDA 1994 MGA Zones and that you do not have objects at the extremes of the drawing (0,0 for example).

If you believe that the data you have submitted is correct, but the portal is flagging an error please contact SA Water. Although we have done extensive testing there are instances where a drawing inherits corruptions as it passes through the various stages of an MLD.

5.1.3 Resubmit

Once you have corrected the errors: Resubmit the drawing.

Ideally after correcting the identified errors in the original dwg there should not be any (or as many) errors. If there are still errors do not worry, you can download the new failed drawing and repeat the correction process as many times as needed.

5.2 Notifying SA Water of a valid drawing for download

You do not need to alert SA Water of a successful drawing validation. The ACDC Portal automatically generates a certification email to AutomatedAssessment@SAWater.com.au. This is an internal component of issuing CPC for MLD drawings. This email address should be the point of contact for any support with this process.