



GIPPSLAND
WATER

Gippsland Water Drafting Specifications

**Drafting Specifications for Drawings Produced for
Gippsland Water**

Version 16.0

COR/02/22774

01 July 2024

Document Details

Business Owner	Gippsland Water
Procedure	Drafting Specification for Drawings Produced for Gippsland Water
Process Owner/s	Asset Management (AM)
Document Title	Drafting Specification for Drawings Produced for Gippsland Water
CM Record No	COR/02/22774
File location	03/11/12/06

Document Authorisation

	Name	Date
Revised/ Written by	Brooke Samblebe	09/12/2015
Reviewed by	Asset Planning, Asset Delivery, Major Projects, Operations/ Treatment, Field Services, Bulk Systems, Land Development	09/12/2015
Authorised by	David Chambers/ Nazrul Islam	09/12/2015

Document History

Version	Date	Author	Description of Update / Change
8.0	25/07/2014	Brooke Samblebe	Revised & Updated
9.0	04/12/2014	Brooke Samblebe	Revised, Updated & Re-formatted - Approved
9.1	26/08/2015	Graeme Bartle-Smith & Brooke Samblebe	Revised, Updated Sections 3.2, 6.4, 8.1 Appendix 4.
10.0	09/12/2015	Brooke Samblebe	Annual Review and Update. Sections 4.1, 4.1.1, 4.3, 4.3.1, 4.5, 5.9, 8.1, 9.1.1, Appendix 1
11.0	07/06/2017	Brooke Samblebe	5.3 Drawing Titles
12.0	27/11/2018	Gavin Milne	Reference to WSA 02-2014 and Supplement. Drawing Title section and Example 3
13.0	15/10/2021	Peter Stewart, Glenn Nankervis, Brooke Samblebe, Paul Young Approved by Des Dalton	Section 5.4, 5.5, 5.6 Design Certification Signature Block and Checks. First Initial, Surname and Company prefix to be provided. Tracing Number added Updated Sections: 4.3 removed CD, 5.2 & Table 4 moved, 10.2- updated Table 12 & 13, Appendix 2- checklist
14.0	21/12/2021	Brooke Samblebe	Section 4.7 & 5.6 Drawing Index/ Key Sheet Section 5.3, Section 6.4.1, Section 9 DM Process Updated List of Acronyms.
15.0	05/10/2023	Peter Stewart, Glenn Nankervis, Owen Beebe, Brooke Samblebe, Approved by Des Dalton, Paul Young	Sections 3.3 Drawing template, 4.1 File formats, 4.3 Submittal methods, 5.4 Certification, 5.5 Revision, 5.9 Drawing Status, 6.2 CAD, 13.0 Contacts, Appendix 1- Transmittal, Appendix 2- System Codes, Appendix 4- under review, Appendix 5- Drawings
16.0	01/06/2024	DM Team	Final Issue- PER Act 2019.

DRAFTING SPECIFICATION FOR DRAWINGS PRODUCED FOR GIPPSLAND WATER

1. OVERVIEW	6
2. INTRODUCTION.....	6
3. COMPLIANCE WITH APPROPRIATE STANDARDS	6
3.1 AUSTRALIAN STANDARDS.....	7
3.2 WATER SERVICES ASSOCIATION OF AUSTRALIA CODES.....	7
3.3 GIPPSLAND WATER STANDARD & TYPICAL DRAWINGS.....	7
3.4 NON-CONFORMING DRAWINGS	8
3.5 SYMBOL DRAWING STANDARDS.....	8
3.6 ENGINEERING SERVICES	8
4. GIPPSLAND WATER ACCEPTANCE OF DRAWINGS.....	8
4.1 ACCEPTED 2D DRAWING FILE FORMATS	8
4.1.1 MULTI-PAGE 2D DRAWINGS	9
4.2 ACCEPTED 3D DRAWING FILE FORMATS	9
4.3 SUBMITTAL OF COMPLETED DRAWINGS TO GIPPSLAND WATER	9
4.3.1 DESIGN DRAWING SIGN OFF	9
4.3.2 GW ELECTRONIC TRANSMITTAL	9
4.3.3 AS-CONSTRUCTED P&ID SUBMITTAL	10
4.4 DRAWING FILE TYPES REQUIRED BY GIPPSLAND WATER	10
4.5 USE OF CROSS REFERENCING OR REFERENCE FILES	11
4.6 FILE LAYER/ LEVEL STRUCTURE- UNDER REVIEW	11
4.7 PLAN NUMBER- DRAWING INDEX / KEY SHEET	11
4.8 AERIAL IMAGERY	12
5. GIPPSLAND WATER DRAWING SHEET TEMPLATE & INFORMATION	12
5.1. GIPPSLAND WATER DRAWING SHEET & TITLE BLOCK.....	12
5.2 GIPPSLAND WATER DRAWING NUMBER, REVISION NUMBER & FACILITY CODE	13
5.3 DRAWING TITLE DESCRIPTION.....	13
5.4 DESIGN & DRAFTING CERTIFICATION COMPLIANCE SIGNATURE BLOCK AND BANNER.....	15
5.5 REVISION BLOCK DETAILS & DESIGN SIGN OFF.....	16
5.6 REFERENCES WITHIN THE TITLE BLOCK.....	17
5.7 NORTH POINTS, SCALE BARS & LEGEND	17
5.8 DATUM AND GRIDS.....	17
5.9 DRAWING STATUS.....	17
6. GIPPSLAND WATER DRAWING STYLE & FORMAT REQUIREMENTS	18
6.1 FONT	18
6.2 CAD DRAFTING.....	18
6.3 STANDARD DRAWING SHEETS.....	18

OFFICIAL

6.4 DRAWING SCALES	18
6.5 LINE STYLES, COLOURS AND PENTABLES	19
6.5.1 LINE STYLES & COLOUR PRINTS FOR SURVEY	19
6.5.2 LINE STYLES AND COLOUR PRINTS FOR PROCESS AND INSTRUMENTATION DIAGRAMS (P&ID)	20
6.5.3 LINE STYLES AND BLACK & WHITE PRINTS	21
7. SPECIFIC REQUIREMENTS FOR DRAWING DISCIPLINE	21
8. SPECIFIC REQUIREMENTS FOR GIPPSLAND WATER DEPARTMENTS	22
8.1 LAND DEVELOPMENT	22
8.2 COMMERCIAL SERVICES	22
9. DRAWINGS MANAGEMENT PROCESS	23
9.1 NEW DRAWINGS	23
9.1.1 NEW DRAWINGS- LAND DEVELOPMENT	24
9.2 EXISTING DRAWING UPDATES	24
9.2.1 BOOKING OUT (CHECK OUT)	24
9.2.2 EXISTING AS-CONSTRUCTED DRAWING REVISION NUMBERING	24
9.3 REVISION IDENTIFICATION	25
9.3.1 REVISION CLOUDING FOR EXISTING DRAWINGS	25
9.3.2 HOLD	25
9.4 ARCHIVING AND SUPERSEDING	26
9.4.1 SUPERSEDING DRAWINGS	26
9.4.2 DEMOLISHED SITES & DRAWINGS	26
9.4.3 ARCHIVING DRAWINGS	26
10. DRAWING ETIQUETTE	27
10.1 CONVERSION OF DRAWING FILE FORMATS	27
10.2 COMPLETE REDRAW OF EXISTING DRAWINGS	27
11. QUALITY ASSURANCE	27
11.1 DRAWING COMPLIANCE	27
11.2 SCHEDULED AUDITING	27
12. ASSISTANCE TO DRAWING CONTRACTORS	28
13. FURTHER INFORMATION	28
APPENDIX 1 – GW DRAWING TRANSMITTAL_2024.xls (Section 3.3 & 4.3).	29
APPENDIX 2 – SYSTEM CODE _2024 & FUNCTION CODE (Drawing Titles Section 5.3)	30
APPENDIX 3 – DRAWINGS COMPLIANCE CHECKLIST	31
APPENDIX 4 – VIC ROADS FIELD CODING UNDER REVIEW	32
APPENDIX 5 – STANDARD AND TYPICAL DRAWINGS	34

Please Note:

It is the responsibility of all persons involved in the production or modification of drawings for Gippsland Water to ensure they have the latest drafting specifications and standard drawing borders. All are updated periodically.

For the latest information you should either contact Gippsland Water directly or download the latest files from:

www.gippswater.com.au

List of Acronyms:

AEC	Architecture, Engineering & Construction
AMIS	Asset Management Information System
CAD	Computer Aided Drafting
CPA	Consultant's Project Agreement
CM	Content Manager
DM	Drawings Management
DM CO	Drawings Management Coordinator
EDRMS	Electronic document records management system
GIS	Geographic Information System
GW	Gippsland Water
GW RO	Gippsland Water Responsible Officer
IFC	Issued for Construction
IFT	Issued for Tender
MRWA	Melbourne Water Retailer Agencies
PDF	Portable Document Format
PER	Professional Engineers Registration
PRV	Pressure Reducing Valve
PDM	Product Design & Manufacturing
P&ID	Process & Instrumentation Diagram
QA	Quality Assurance
RO	Responsible Officer
WSAA	Water Services Association of Australia

1. OVERVIEW

Gippsland Water drawings are managed by Gippsland Water's Asset Management department within the Asset Information workgroup, as drawing information is critical to Asset Management. Land Development manage GW drawings for developer owner cost works. This document will be reviewed on a regular basis to manage improvements made to Gippsland Water's drawing management system.

The aim of this document is to cover the requirements for drawings produced for Gippsland Water. Drawings are produced through a variety of work phases including engineered design, site inspections, safety and survey.

2. INTRODUCTION

It is the responsibility of the persons involved in the production or modification of drawings for Gippsland Water to ensure they have the latest drafting specification and drawing sheet templates. Documents are available for download on Gippsland Water's website www.gippswater.com.au.

Gippsland Water maintains drawings via Content Manager (CM), an electronic document management system to store Computer Aided Drafting (CAD) and Portable Document Format (PDF) files for all drawings. The PDF files are required as the viewing file by this system as they represent the final printed drawing.

Drawings submitted to Gippsland Water for inclusion into the drawing management system shall be audited for compliance with the requirements of this specification. New drawings produced for Gippsland Water, that are non-conforming and do not comply with this drafting specification, will be returned for rectification of all non-conformances at the drafting provider's expense. The re-submitted drawings will be re-audited prior to acceptance into the drawings management system.

The importance of drawing information retained by Gippsland Water cannot be understated, be it preliminary design or as-constructed information. Gippsland Water's electronic management systems Content Manager, Asset Management Information System (AMIS) and Geographic Information System (GIS) are consistently updated with current information to ensure reliable current information is accessible to Gippsland Water employees, consultants and contractors.

Contractors engaged in works for Gippsland Water are to maintain accurate information and uphold the Codes of Conduct for their respective profession. All work is to comply with the appropriate Australian Standards, Occupational Health & Safety Act and the Gippsland Water's drafting and contractual requirements.

3. COMPLIANCE WITH APPROPRIATE STANDARDS

This section identifies relevant Australian Standards and Gippsland Water specific standards, which shall be used in conjunction with this document when producing drawings for Gippsland Water.

Where there is conflicting or incomplete drafting requirements between standards the following order of precedence shall apply:

1. Project specific drafting requirements
2. Gippsland Water Drafting Specifications (this document)
3. Drafting requirements in WSAA codes
4. Drafting requirements in the Australian Standards

3.1 AUSTRALIAN STANDARDS

All drawings shall comply where applicable with the latest most recent Australian Standards. Gippsland Water subscribes to the SAI Global website for the most recent versions

(<https://www.saiglobal.com/online>). See below amendments:

- The Professional Engineers Registration Act 2019
- AS 1100.101-1992: Technical Drawing- General Principles (Reconfirmed 2014)
- AS 1100.201: Technical Drawing- Mechanical Engineering Drawing (Reconfirmed 2014)
- AS 1100.301: Technical Drawing- Architectural Drawing (Reconfirmed 2018)
- AS 1100.401-1984: Technical Drawing- Engineering Survey and Engineering Survey Design Drawing (Reconfirmed 2014)
- AS/NZS 1100.501-2002: Technical Drawing- Structural Engineering Drawing (Reconfirmed 2014)
- AS 5488.1: 2022: Classification of Subsurface Utility Information (SUI)
- AS 5488.2: 2022: Classification of Subsurface Utility Engineering (SUE)

All electrical/telemetry drawings shall also comply with the following Australian Standards:

- AS/NZS 1102 parts 102 to 111: Graphical Symbols for Electrotechnical Documentation (1997)
- AS/NZS 4383.1/.2/.3/.4 Preparation of Documents used in Electrotechnology (1996)

3.2 WATER SERVICES ASSOCIATION OF AUSTRALIA CODES

Gippsland Water adopts the Water Services Association of Australia (WSAA) Codes, identifying both water and sewage technical requirements to efficiently and safely design and build assets to deliver water and wastewater services sustainably. The following supplements to the code, available on the GW website:

- Gippsland Water Supplement to WSA 03-2011-3.1 Water Supply Code of Australia MRWA.. Gippsland Water COR/14/107091.
- Gippsland Water Supplement to WSA 02-2014-3.1 Gravity Sewerage Code of Australia MRWA. Gippsland Water COR/18/34706.

3.3 GIPPSLAND WATER STANDARD & TYPICAL DRAWINGS

Gippsland Water has standard drawing requirements and provides example drawings for guidance on drafting expectations. Appendix 5. contains a list of standard and typical drawings. Existing Gippsland Water drawings may have been prepared to previous standards and may not comply with these specifications. Therefore, where possible, legends/keys shall be included on drawings.

It is a requirement that the latest drawing sheet templates/ title blocks are used for new design drawings and existing drawing updates. Refer to Section 5.- Gippsland Water Drawing Sheet Template & Information. Drawing sheet templates/ title blocks have been updated in DGN & DWG formats and are available on the Gippsland Water website, from 1st July 2024.

Drawing sheet template/ title block updates within this Drafting Specification (Version 16.0) include Design Certification Block & Revision Box updates, for designed, design checked, first initial and surname, company prefix (4 characters), GW RO and tracing number.

Note: information within the Design Certification Block within existing drawings shall be transferred to the latest drawing sheets available on the GW website.

3.4 NON-CONFORMING DRAWINGS

The drafting provider shall request clarification from the Gippsland Water RO for update of past drawings that do not comply with the current Gippsland Water Drafting Specifications. The drafting provider shall discuss each project and associated updates to past drawings with the Gippsland Water RO on a case-by-case basis.

3.5 SYMBOL DRAWING STANDARDS

The drafting provider shall request clarification from the Gippsland Water RO for requirements to update past drawings with current drawing symbols.

Drafting protocol is to use the existing drawing symbols used on the drawing. The Gippsland Water RO will determine if the updates to the drawing shall be re-drawn with new symbols standards or if the existing drawing symbols will be used. The drafting provider shall discuss each project and associated updates to past drawings with the Gippsland Water RO on a case-by-case basis.

Symbols for layout drawings shall comply with WSAA Codes:

- Water: WSA03-2011-3.1, MRWA Edition and standard drawing MRWA-W-100
- Sewer: WSA02-2014-3.1, MRWA Edition and standard drawing MRWA-S-100

Symbols for Gippsland Water P&ID drawings shall comply with Gippsland Water drawing A1-58517.

3.6 ENGINEERING SERVICES

As per the PER Act 2019, engineering services consist of civil, structural, mechanical, electrical and fire safety.

4. GIPPSLAND WATER ACCEPTANCE OF DRAWINGS

Drafting contractors and consultants must prepare all drawings within the guidelines provided within this Drafting Specification for drawings produced for Gippsland Water.

Drawings will be provided to the Gippsland Water RO for compliance checking against the drafting specifications and approval given prior to payment. Gippsland Water accepts both 2D and 3D drawings and models.

4.1 ACCEPTED 2D DRAWING FILE FORMATS

All new drawings prepared shall be produced using a Computer Aided Drafting (CAD) system. The acceptable file formats are AutoCAD and MicroStation. A PDF must always accompany the CAD file.

Drawing hardcopies (if required) will be specified by the Gippsland Water RO or by contractual agreement.

	AutoCAD Format	MicroStation	Adobe (PDF)
Minimum Version	Release 2012 to 2024	Version 8 +	Version 11 +
File Type	.dwg	.dgn	.pdf
Colour Table	Refer to Section 6.	Refer to Section 6.	Colour/ Black & White

Table 1. File formats accepted.

4.1.1 MULTI-PAGE 2D DRAWINGS

Gippsland Water accepts 2D multi-page drawing formats, consisting of a single CAD file with individual PDF's saved of each drawing. A maximum of 10 PDF drawings can be supplied within a single CAD file for a single completed project site such as PRV sites. Multi-page CAD drawings are not intended for large projects or sites with greater than 10 drawings.

4.2 ACCEPTED 3D DRAWING FILE FORMATS

Gippsland Water accepts 3D models using AEC & PDM collection software. The Gippsland Water RO shall determine if 3D modelling is a project requirement.

Gippsland Water has internal processes to manage and store 3D models and drawings.

4.3 SUBMITTAL OF COMPLETED DRAWINGS TO GIPPSLAND WATER

Drawings produced for Gippsland Water must comply with this specification and requirements under this section.

The drawing files must be individually saved and named as the Gippsland Water drawing number only. For example:

- A1-12345.dgn or A1-12345.dwg
- A1-12345.pdf

All drawings are to be saved in a single folder titled as the project name.

The drawings can be submitted to Gippsland Water via:

- Email containing a zipped attachment. (Not greater than 8MB in size)
- Electronic Link (Files greater than 8MB). The DM coordinator can provide access to this service. Refer to Section 13.0

4.3.1 DESIGN DRAWING SIGN OFF

The *Professional Engineers Registration Act 2019*, requires the designer and or design checker to be on the Register of Engineers. Gippsland Water requests the Design Checker signatory to be the approved Registered Engineer, refer to Section 5.4 & 5.5 for additional details.

4.3.2 GW ELECTRONIC TRANSMITTAL

All GW drawings submitted must be accompanied by a Gippsland Water electronic drawing transmittal (excel spreadsheet) detailing drawing information. The transmittal can be obtained from the Gippsland Water website. Refer to the Help Tab within the electronic transmittal for instructions to complete.

The *Professional Engineers Registration Act 2019*, requires the designer and or design checker registration number to be included within design drawing information. GW requests the Design Checker Engineers Registration (AMR) number to be included in the last column in GW electronic drawing transmittal.

4.3.3 AS-CONSTRUCTED P&ID SUBMITTAL

Process & Instrumentation Diagram (P&ID) drawings contain background information with links to Gippsland Water's AMIS, therefore require specific guidelines. Gippsland Water will only accept As-Constructed P&ID drawings that comply with the following:

- Gippsland Water accepts both MicroStation (DGN) and AutoCAD (DWG) formats for new P&ID drawing.
- Updates to existing P&ID CAD file formats shall remain in their current CAD format. If the current CAD version is in MicroStation (DGN), then it must remain in MicroStation (DGN) it cannot be converted to AutoCAD (DWG). No conversion of existing P&ID's will be accepted due to loss of data and corrupt files.
- The CAD file must be accompanied with an Asset (Tag) List in Microsoft excel.
- The CAD file must be accompanied with a PDF (requirement for all drawings).
- All P&ID's shall only show Gippsland Water asset tags. Where P&ID's are supplied with vendor packages, the asset tagging shall use the Gippsland Water asset tagging system, where possible.
- The P&ID shall be drawn with flows paths from left to right and top to bottom where practical.
- Large facilities that contain multiple P&ID drawings, shall be split into sheets with the process area name included in the title.
- Drawing A1-58517 refers to the Gippsland Water P&ID symbols sheet.

4.4 DRAWING FILE TYPES REQUIRED BY GIPPSLAND WATER

Unless otherwise specified Gippsland Water requests CAD and PDF drawings from all drawings phases to be uploaded into the Drawing Management System. Table 2. below shows the drawing phases and the drawing file types required. This enables drawings & data to be stored, in the event the project does not progress.

For Tender issued drawings, the PDF must be A3 size printable, for inclusion into tender documentation.

DRAWING PHASE	DRAWING FILE FORMATS REQUIRED BY GIPPSLAND WATER
DESIGN drawings	DWG/DGN(*) & PDF
FOR TENDER drawings	DWG/DGN(*) & PDF (A3)
FOR CONSTRUCTION drawings	DWG/DGN & PDF
AS-CONSTRUCTED drawings	DWG/DGN & PDF

Table 2. Drawing phases and file types required for upload.

(*) CAD files will be requested if the project does not progress to For Construction drawing phase.

4.5 USE OF CROSS REFERENCING OR REFERENCE FILES

The use of reference files is an accepted part of creating drawings and especially maps in CAD format. This enables other drawing files to be used as overlays in the production of drawings. However the final CAD file being handed over to Gippsland Water shall where possible, not use cross referencing or reference files. The final CAD file shall contain all of, and only, the information shown on the final plot supplied to Gippsland Water and be as shown in the supplied PDF file.

In particular to Survey Drawings, separate .jpg. files shall be saved as the drawing number.jpg (**A1-12345.jpg**) to be saved with the drawings (**A1-12345.dwg/ dgn/ pdf**) and included in the Gippsland Water electronic transmittal for upload.

Exceptions may apply where externally referenced files cannot be readily bound into the drawing file. The GW Project RO shall approve the drawings and the DM coordinator shall ensure the records and future updates can be maintained. In these circumstances, the drawing file and associated cross referencing files shall be grouped together and saved as a zip.file, titled as the drawing number eg, **A1-12345.zip**

4.6 FILE LAYER/ LEVEL STRUCTURE- **UNDER REVIEW**

The objective of layering and level structure is simplicity and to maintain future updates. Gippsland Water accepts layers and levels for project works in accordance with the VicRoads standard field coding structure, refer to Appendix 4.

An example of the AutoCAD Layer structure used by Gippsland Water for water main replacements is as follows:

LAYER/LEVEL NAME	DESCRIPTION
A1 BORDER	All drawing border & details
TITLE	Cadastral information (ie. road & property boundaries)
FEATURES	Any surface features obstructions (ie. tree, kerb, pole....)
SERVICES	Any existing services (ie. power, gas, telephone.....)
WATER EXISTING	Existing water main location
WATER PROPOSED	Proposed water main location
DETAILS	Any special detailing (ie. notes, details, tables....)

Table 3. Layer structure for water main replacement

4.7 PLAN NUMBER- DRAWING INDEX / KEY SHEET

All Gippsland Water drawings must reference a Gippsland Water PLAN number, also known as an index sheet, key sheet, locality plan. If one does not exist, one shall be created. Refer to Section 5.6 for details.

4.8 AERIAL IMAGERY

Gippsland Water accepts aerial imagery at a resolution file size at <8MB. Gippsland Water generally saves the low resolution drawing into the drawing management system. If the higher resolution is required, then the Project RO can request this from the survey drafting provider to be saved alternatively within Gippsland Water's record management system.

5. GIPPSLAND WATER DRAWING SHEET TEMPLATE & INFORMATION

Drawings produced for Gippsland Water shall be provided within Gippsland Water drawing sheet templates, available on the Gippsland Water website. Drawing templates are available in both AutoCAD (DWG) and MicroStation (DGN).

Drawings produced for Gippsland Water shall include:

- Gippsland Water drawing number
- Revision Number
- Facility Codes (The terminology 'site code' is no longer used)
- Drawing title description
- Design & Drafting Certification Compliance Signature Block
- Drafting provider details and banner. Refer to Section 10- Drawing Etiquette.
- Revision Details & Number
- Reference Title Block (Plan Number) to include Drawing Index drawing number
- Tracing number
- North point(s) if required.
- Scale bar(s) if required
- Legend if required.
- Datum note to include source of coordinate and level datum if required
- Grid (MGA coordinate datum, spacing at 10% of the drawing scale)
- Drawing Status

The below sections discuss each item in detail.

5.1. GIPPSLAND WATER DRAWING SHEET & TITLE BLOCK

Recent changes have been made to the Gippsland Water drawing sheet templates. These are available from the Gippsland Water website www.gippswater.com.au.

5.2 GIPPSLAND WATER DRAWING NUMBER, REVISION NUMBER & FACILITY CODE

The Gippsland Water drawing number shall appear in the bottom right corner of the drawing sheet. The revision number shall be directly beside the drawing number. The facility code must be provided on the drawing, above the drawing number & revision number in the bottom right corner.

Gippsland Water drawing numbers and facility codes are provided by the Gippsland Water Responsible Officer (GW RO) sourced from Asset Management. Gippsland Water recommends drawing number requests take into consideration the proposed number of drawings to be produced for the project, and therefore request a batch of drawing numbers to enable sequential numbering, where possible.

The Gippsland Water drawing number, revision number and facility code shall be drawn in **green 0.5mm**. This text shall be black when provided on the PDF drawing.

Design drawings through to As-Constructed will be entered into Gippsland Water's drawing management system. Preliminary drawings will have an alpha revision number (alphabetically starting from Rev A). Once the drawings have been 'Issued for Construction' the revision number will become numeric starting at Rev 0, refer to Table 4. Drawings can be requested at any stage during design and construction by Gippsland Water.

Drawing Phase	Revision Description	Revision Number
Design	Design Drawings	Rev A (Alpha)
Tender	Issued for Tender	Rev (Alpha)
For Construction	Issued For Construction	Rev 0 (Numeric)
As-Constructed	As-Constructed	Rev (Numeric)

Table 4. Drawing phase and corresponding revision description and revision number.

5.3 DRAWING TITLE DESCRIPTION

The GW RO will provide the first and second line of the drawing title to the drafting contractor, which will be sourced from the Asset Management system coding structure (AMIS Register). Refer to Appendix 2- SYSTEM CODES & FUNCTION CODES.

The remaining third and fourth lines of the drawing title will be provided by the drafting contractor once the drawing content is produced on the drawing.

Drawing titles must be verified by the GW RO. The title shall be centre justified and placed centrally within the drawing title box. There will be exceptions to this rule, however this is the preferred method to identify the correct system & function of the asset within the drawings produced.

The drawing title lines for drawings produced for Gippsland Water shall be as follows:

1. First line: System Code description in it's entirety. Refer to the **Asset Coding and Naming Structure - COR/07/41921. Refer to Appendix 2**
2. Second line: Function Code - Refer to the **Asset Coding and Naming Structure - COR/07/41921. Refer to Appendix 2.**
3. Third line: project/ plant/component
4. Fourth line: specify the drawing contents

No two drawings should have the same title, except if it has multiple sheets, eg, Sheet 1 of 2.

OFFICIAL

Drawing title examples used by Gippsland Water, below:

Note: Bold italics used as a visual explanation only, not part of the drawing requirement

Example 1.

Facility Code **10RR41**:

Warragul-Drouin Water Supply System

Warragul ***Water Reticulation*** Extension

Smith St Warragul

Survey Layout Plan

Example 2.

Facility Code **62TS05**:

Regional Outfall Sewer

Maryvale Emergency ***Effluent Storage***

Power and Control Supplies

Single Line Diagram

Example 3.

Facility Code **41CR01**:

Warragul Sewer System

Warragul ***Sewer Reticulation*** Extension

Tarwin St & Meadowbrook Cres Warragul

Layout Plan

The Gippsland Water drawing title description in the title block shall be drawn in **red 0.35mm**. This text shall be black when provided on the PDF drawing.

5.4 DESIGN & DRAFTING CERTIFICATION COMPLIANCE SIGNATURE BLOCK AND BANNER

The design and drafting certification compliance signature block shall be completed with each design drawing update, up to and including Rev 0 (Issued For Construction - IFC), to ensure compliance with Gippsland Waters drafting specifications. Once the As-Constructed drawings are produced, the design certification compliance block is not changed. The 'Designed, Drawn, Design Checked and GW RO' shall include the date, first initial and surname of individuals as well as the 4 letter company prefix, refer to Figure 1.

Where the drawing includes professional engineering services, at least one of the designed or design checked signatories shall be registered as a professional engineer in Victoria in the relevant discipline and included in the GW electronic transmittal. The Designed and Design Checked can be the same person, however for QA purposes it is recommended to have two separate signatories.

It is the responsibility of the Consultant / Contractor to ensure the drawings are checked and comply with Gippsland Waters drafting specifications during the design certification. The design and drawn certification text is attributed within the drawing sheet, therefore all text shall be legible and clear within both CAD and PDF version. Refer to Gippsland Waters website for the most recent drawing sheet templates.

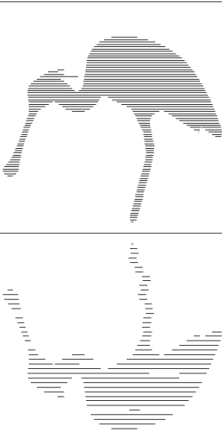
DESIGN & DRAFTING CERTIFICATION COMPLIANCE SIGNATURE BLOCK	DO NOT SCALE	GIPPSLAND W DRAWING STA
	PROJECT COORDINATION GW RESPONSIBLE OFFICER - GW RO 8/2/2024 A. HANDOVER	
	DESIGNED: 25/5/2023 M. DESIGNER- ABCD	
	DRAWN: 10/6/2023 A. DRAFTER - EFGH	
DESIGN CHECKED: 10/7/2023 T. CHECKER- IJKL	SHEET VERSION 8/2/2024	

Figure 1. Example of design & drafting certification compliance signature block (design approval).

The design and drafting consultant can only include their company banner within the drawing sheet block on drawing sheets A1 and A0, due to paper size. Gippsland Water now requires a company prefix of 4 characters after the first initial. surname to recognise the company.

Refer to Section 10.2 Complete Redraw of Existing Drawings. If an existing drawing is completely redrawn, then the designer logo and certification box shall be updated. Minor updates to existing drawings does not require a consultant to place their company banner within the drawing sheet block, refer to Section 10: Drawing Etiquette.

5.5 REVISION BLOCK DETAILS & DESIGN SIGN OFF

The revision block enables tracking of drawing updates with details such as revision number, date, description, Gippsland Water Responsible Officer (GW RO), design consultant (DESIGNED) and design checker (DESIGN CHECKED) and tracing number. The consultant will include their first initial, surname and 4 character company prefix name, refer to Figure 2.

The revision number is also placed in the revision box next to the drawing number in the bottom right corner of the drawing sheet. All inserted text is to be **2.5mm high**, legible, and clear within the CAD and PDF versions.

REVISIONS	No.	DATE	DESCRIPTION	GW RO	DESIGNED	DESIGN CHECKED	TRACING No.
	3	4/6/2023	REMOVED SUMP PUMP	D. HANDOVER	D. DESIGNER- ABCD	X.CHECKER- ABCD	W/O 967890
2	4/3/2023	ADDED TRANSFER PUMP	C. HANDOVER	C. DESIGNER- ABCD	X. CHECKER- ABCD	W/O 967890	
1	8/12/2022	AS CONSTRUCTED	B. HANDOVER	B. DESIGNER- ABCD	X. CHECKER- ABCD	CPA1235	
0	10/6/2022	ISSUE FOR CONSTRUCTION (IFC)	A. HANDOVER	A. DESIGNER- ABCD	X.CHECKER- ABCD	CPA 1432	

Figure 2. Drawing template/ title block updates with relevant checks and tracing number.

Not all drawing updates will require a signatory in the DESIGNED and DESIGN CHECKED columns, as this will depend on the drawing update. Non-Engineering changes such as text changes associated with asset information will not require a signatory name. DO NOT leave blank, all sections within the revision box must contain information. Additional information regarding the change can be provided in the description column. See below examples of terminology accepted by Gippsland Water in both DESIGNED & DESIGN CHECKED columns within the revision box. All consultants & contractors shall comply with these specifications.

DRAWING UPDATE	DESIGNED	DESIGN CHECKED
Design change requires a signatory and company prefix.	A. DESIGNER- ABCD	X. CHECKER- ABCD
Redline markup reflecting what is currently on site. Existing design has no signatory. Redline markups provided to drafting contractor.	GW SITE	X. CHECKER- ABCD
Non-Engineering Change. Text, asset coding.	NO DESIGN Change	NO DESIGN Change

Table 5: Update examples, terminology and checks

Applicable Gippsland Water tracing numbers include work order number, CPA number, contract number and U File reference number. A tracing number shall be obtained by the Gippsland Water Responsible Officer (GW RO) and provided to the contractor. Below are tracing number preferences that are used within Gippsland Water departments/ service areas.

GW Department/ Service Area	Tracing number
Operations	Work Order, CPA or Contract Number
Asset Planning	CPA Number
Asset Delivery	CPA or Contract Number
Land Development	U File Number

Table 6: Examples of tracing number preferences.

5.6 REFERENCES WITHIN THE TITLE BLOCK

It is a condition that the References block **MUST** include a Gippsland Water PLAN number also known as an index sheet, key sheet, locality plan of associated drawings. A PLAN number must be produced for all drawing sets. All individual drawings shall Reference a PLAN number. Refer to Section 4.7.

5.7 NORTH POINTS, SCALE BARS & LEGEND

North points in correct orientation, direction up the page, where possible.

Chainage shall run left to right, where possible.

Scale bars and legends shall be clear and legible.

5.8 DATUM AND GRIDS

For all new sites the survey datums are to be in the Map Grid Australia, Zone 55 (MGA 55), and the Australian Height Datum (AHD).

For existing Gippsland Water sites that have a historical basis with the previous survey datum AMG 55, shall retain the same datum and will not be required to be updated to the new survey datum MGA 55. It is the responsibility of the GW Project RO to ensure the correct datum is being used, with assistance from the Gippsland Water GIS coordinator.

With regards to grids, any grid system shall be consistent throughout a project, ie architectural and engineering drawings should have the same grid orientation and notation.

5.9 DRAWING STATUS

Gippsland Water drawings identify the drawing status within the title block. This is located above the drawing title and beside the facility code;

- **DESIGN**
- **FOR TENDER**
- **FOR CONSTRUCTION**
- **AS-CONSTRUCTED**

For internal Gippsland Water creation of Standard & Typical Drawings the below are used:

- **STANDARD DRAWINGS**
- **TYPICAL DRAWING ONLY**

6. GIPPSLAND WATER DRAWING STYLE & FORMAT REQUIREMENTS

6.1 FONT

Lettering conforming with ISO 3098/1 Type B Upright only will be accepted.

In AutoCAD files the font file used is "ISOCP.SHX".

In MicroStation files the font number used is 128. This could be the AutoCAD font file "ISOCP.SHX" imported into the different contractors font.rsc.

For MicroStation users, a FONT.rsc (resource library) is available for download from Gippsland Water's website, containing the accepted font.

The drawing title description in the title block shall be drawn in **red 0.35mm**.

The Gippsland Water drawing number, facility code & revision number shall be drawn in **green 0.5mm**.

The certification compliance signature block shall be drawn in **white 0.25mm**.

Also refer to Section 5.

6.2 CAD DRAFTING

Gippsland Water accepts both DGN and DWG file formats. Drawing sheet templates are available on the Gippsland Water website for both software applications. ACAD Master template file shall be used for Civil, Mechanical & Survey drawings. Gippsland Water requires drawings to be drafted in model space with the drawing sheet, dimensions, leaders, text, etc drafted in paper space.

Process & Instrumentation Diagrams (P&ID's) and Electrical drawings shall be drawn entirely in model space using A1 paper sizing only, with drawing sheet templates in both DGN and DWG available on the Gippsland Water website. Electrical drawing references to A2 drawings within the drawing sheets, will be replaced with A1 where possible, to eventually remove the A2 drawing numbers.

6.3 STANDARD DRAWING SHEETS

Sheet sizes shall be A3, A2 or A1 in accordance with AS 1100.

The drafting provider and GW Project RO are to agree on the preferred drawing sheet size for drawings produced for their specific project, to ensure the drawing detail is legible. The drafting provider needs to advise Gippsland Water of the drawing paper size when requesting drawing numbers from Gippsland Water.

Gippsland Water drawing sheet templates are available on the Gippsland Water website, in AutoCAD and MicroStation formats.

6.4 DRAWING SCALES

All drawing scales are to conform to the relevant Australian Standards. All scales stated on a drawing shall be accompanied by a scale bar conforming to AS 1100 Part 101 –1992 (reconfirmed 2014). Drawings shall be produced in the following scales, unless otherwise instructed by the Gippsland Water Project Responsible Officer.

PLAN

1:250 or 1:500 – Urban Areas

1:500, 1:1000 or 1:2000 – Rural Area

LONGITUDINAL SECTIONS

1:250, 1:500, 1:1000 or 1:2000 - Horizontal Scale.

OFFICIAL

The vertical exaggeration is to be either 5:1 or 10:1 of the horizontal scale. Cross Sections 1:100 – Horizontal Scale The vertical exaggeration is to be either 1:1 or 2:1 of the horizontal scale.

Where water and wastewater assets are of an intricate nature, or proposed in areas where there are numerous or nearby services or features, enlargements of those works shall be drawn at a scale of 1:100, 1:25 and/or 1:20, as agreed by the GW Project RO.

6.5 LINE STYLES, COLOURS AND PENTABLES

Drawings produced for Gippsland Water have custom line styles, described throughout Section 6. Generally, colour printouts are preferred for survey and P&ID drawings, black and white for other disciplines such as mechanical or civil. Gippsland Water allows colour prints to the below specifications.

6.5.1 LINE STYLES & COLOUR PRINTS FOR SURVEY

Colour printouts for survey drawings will follow the colour legend shown in Table 7 and 8. Line styles for utility services shall have a line weight for **approximate survey locations at 0.18mm** and for **true survey locations at 0.25mm**.

Gippsland Water requests new survey drawings follow Australian Standard AS 5488-2013 “Classification of Subsurface Utility Information”, refer to symbols shown in Table 8- Quality Level (QL-x).

Existing drawings may still show the previous symbols which are shown in Table 9.

Utilities	Symbols	Colour
Electricity (underground)	-- E (QL-x) --	Red
Electricity (overhead)	— E (QL-x) —	Red
Telecommunications	-- T (QL-x) --	Orange
Fibre Optic Cable	— FOC(QL-x) —	Orange
Gas	-- G (QL-x) --	Yellow
Water	-- W (QL-x) --	Blue
Drain	-- D (QL-x) --	Aqua
Sewer	-- S(QL-x) --	Brown
Vegetation	-- V --	Dark Green

Table 7. Line styles for underground services, including Quality Level (QL- x) to be determined by Quality Level in Table 8. (A, B, C or D)

Quality Level (QL-x)	Symbol	Description
A	(QL-A)	Direct Measurement (Pot holed & Excavated)
B	(QL-B)	Electronically Traced
C	(QL-C)	Existing Drawings & Records. Anecdotal Evidence. Line between two points (approximate)
D	(QL-D)	DBYD & GIS (approximate- not accurate)

Table 8. Australian Standard (AS) symbols to be applied to new survey drawings.

Utilities	Symbols	Colour
Electricity (underground)	-- Et --	Red
Electricity (overhead)	— Et —	Red
Telecommunications	-- Tt --	Orange
Fibre Optic Cable	— FOct —	Orange
Gas	-- Gt --	Yellow
Water	-- Wt --	Blue
Drain	-- Dt --	Aqua
Sewer	-- St --	Brown
Vegetation	-- Vt --	Dark Green

Table 9. For existing drawings, the line styles for true surveyed locations of underground services are depicted by the 't' symbol. If no 't' is present then the survey locations are approximate only.

6.5.2 LINE STYLES AND COLOUR PRINTS FOR PROCESS AND INSTRUMENTATION DIAGRAMS (P&ID)

Gippsland Water allows colour print outs for P&ID's, however the colour table is currently under review. Therefore refer to the PID Standard Symbols sheet Appendix 5. for line weight thickness in conjunction with the below colour table.

Utilities	Colour
Main Process Stream	Green
Compressed Air	Blue
Chemical	Violet

Table 10. Colour styles for P&ID drawings

6.5.3 LINE STYLES AND BLACK & WHITE PRINTS

The following table shows colours and plotted line thickness allocated, for all Gippsland Water drawings. For survey drawings also refer to Section 6.5.1. Refer to the Gippsland Water website for CAD information.

Colour	Full Size Plotted Line Thickness (mm)	Colour Number (AutoCAD)	Colour Number (MicroStation)
Light Grey	0.18	9	9
Grey	0.18	8	8
White	0.25	7	0
Red	0.35	1	3
Green	0.5	3	2
Blue	0.7	5	1
Cyan	0.8*	4	7
Magenta	1.0*	6	5
Yellow	1.2*	2	4

Table 11. AutoCAD and MicroStation colours and line thickness.

7. SPECIFIC REQUIREMENTS FOR DRAWING DISCIPLINE

Depending on the drawing discipline, some drawings require extra information and guidelines on Gippsland Water expectations and requirements. The different drawing disciplines include:

- Civil
- Structural
- Electrical
- Mechanical
- Architectural
- Survey
- Process and Instrumentation Diagrams (P&ID)

Also refer to Gippsland Water Design Standards and specific Contract Specifications.

8. SPECIFIC REQUIREMENTS FOR GIPPSLAND WATER DEPARTMENTS

Various departments within Gippsland Water use drawing information for various tasks. In particular Land Development and Commercial services still maintain some drawing information and work in conjunction with the Asset Management department. See below detail:

8.1 LAND DEVELOPMENT

Land development is responsible for providing and receiving information from external consultants and contractors/developers for new estates, sub-divisions and existing assets. They receive & maintain drawing information such as:

- As-Constructed CAD and PDF drawings
- Field notes
- Field survey
- Updates to Gippsland Water GIS

Typical field note format and layout drawings are provided in PDF on the Gippsland Water website to view as examples of the requirements expected.

8.2 COMMERCIAL SERVICES

Commercial services is responsible for Land & Legal matters including:

- Titles
- Land boundaries

9. DRAWINGS MANAGEMENT PROCESS

To maintain consistent and accurate drawing records, new and existing drawings must be maintained within Gippsland Water electronic document management system. Gippsland Water's Asset Management department provides drawing information to internal and external stakeholders.

This section identifies how drawings are managed by the DM Coordinator. The specific tasks include:

- Issuing drawing numbers and providing facility codes
- Checking out existing drawings for update
- Uploading new and existing drawings into Gippsland Water drawing management system
- Tracking revision number updates
- Superseding and Archiving drawings

9.1 NEW DRAWINGS

New drawings developed during the Design Phase, will begin with an alpha revision number. Once drawings progress to 'Issued For Construction', the drawing revision number will become numeric starting at Revision 0.

Drawings are uploaded once approved at each drawing phase. This is indicated by a hash # symbol in the below example, Table 12.

New Drawing Revision Example.	Drawing Revision		
DRAWING PHASES	DESIGN & TENDER	FOR CONSTRUCTION	AS-CONSTRUCTED
Revision Characters	Alpha	Numeric	Numeric
Design- Initial drawing	A1-66666 Rev A		
Modification 1	A1-66666 Rev B		
Approved Design	A1-66666 Rev C [#]		
Tender	A1-66666 Rev D		
Approved Tender	A1-66666 Rev E [#]		
Issued for Construction		A1-66666 Rev 0 [#]	
Changes		A1-66666 Rev 1	
Final change		A1-66666 Rev 2	
As-Constructed			A1-66666 Rev 3 [#]
It is the responsibility of the Gippsland Water Project RO to follow the revision process and ensure the contractor is working with the most current revision. [#] Required for upload by DM coordinator.			

Table 12. Drawing revision number for new drawings, from Design through to As-Constructed.

9.1.1 NEW DRAWINGS- LAND DEVELOPMENT

For drawings managed by Gippsland Water's Land Development department, who upload the As-Constructed drawings and field notes for developer works and who do not manage the construction, will request the As-Constructed drawings received by Gippsland Water to start at Rev 1.

Note: For all drawings submitted to Gippsland Water the revision numbering starts at;

- Rev0: For Construction drawings.
- Rev1: As-Constructed drawings (if no changes occurred during construction).

9.2 EXISTING DRAWING UPDATES

It is the responsibility of the Gippsland Water Project RO to research Gippsland Water's drawings management system to identify all drawings to be updating and/or superseded.

9.2.1 BOOKING OUT (CHECK OUT)

Existing As-Constructed CAD and PDF drawings must be booked out (checked out) of Gippsland Water's EDRMS when asset upgrades are occurring. When a drawing is checked out, the drawing becomes unavailable to other parties until the drawing update is complete and uploaded back into the drawing management system. Booking out requests are not required during initial concept design.

Drawing booking out requests shall occur at a point when drawing updates are confirmed to proceed. Booking out request can be submitted by either the GW RO or the drafting consultant via email to the DM coordinator.

9.2.2 EXISTING AS-CONSTRUCTED DRAWING REVISION NUMBERING

Existing Drawing Revision Example.	Drawing Revision		
Drawing Phases	DESIGN & TENDER	FOR CONSTRUCTION	AS-CONSTRUCTED
Revision Characters	Numeric & Alpha	Numeric	Numeric
As-Constructed (existing)			A1-99999 Rev 3*
New Design- modification	A1-99999 Rev 3A		
Approved Design	A1-99999 Rev 3B [#]		
Tender	A1-99999 Rev 3C		
Approved Tender	A1-99999 Rev 3D [#]		
Issued for Construction		A1-99999 Rev 4 [#]	
Changes		A1-99999 Rev 5	
Final change		A1-99999 Rev 6	
Finalised/As Constructed			A1-99999 Rev 7 [#]
It is the responsibility of the Gippsland Water Project RO to follow the revision process and ensure the contractor is working with the most current revision. * Drawing checked out (Section 9.2.1) [#] Required for upload by DM coordinator.			

Table 13. Drawing revision number for existing drawings, from Design through to As-Constructed.

9.3 REVISION IDENTIFICATION

During updates to drawings through design and construction, clouding may be used to identify what changes are made to the previous drawing revision and if a section has insufficient information at the time of drawing issue. Revision clouding is not required on the initial drawing.

Before and after drawing submittal to the GW RO is recommended, to compare the previous version with the updated version. This is regularly used for P&ID drawing updates.

9.3.1 REVISION CLOUDING FOR EXISTING DRAWINGS

Revision updates shall be identified by drawing an outline cloud around the revised area under review. When subsequent revisions are made, the cloud and any previous identifier relating to the previous revision shall be removed and the new changes clouded. This is regularly used for P&ID drawing updates.

For existing drawing updates to P&ID drawings, the clouds will be colour coded to represent the change, as follows:

- **Blue cloud:** New Item eg, new asset, new process stream.
- **Yellow cloud:** Update or relocation on the drawing eg, asset coding change, location of an asset.
- **Pink cloud:** Deleted from the drawing

Therefore the previous revision can be viewed and compared to the updated revision with the clouds. This can be used for field installation works and asset management.

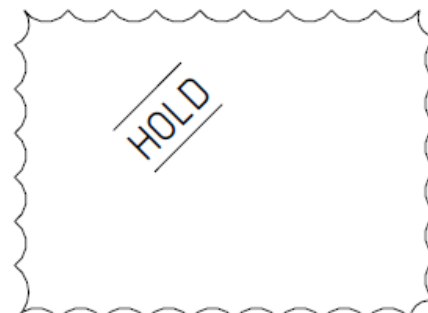
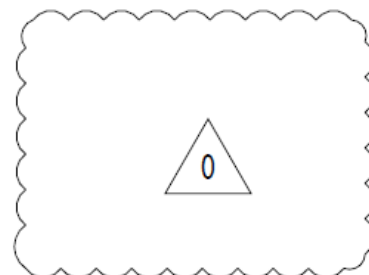
In the revision box, the new revision status shall be shown with a brief, specific note of the change and the revision number updated.

When a drawing is issued as As-Constructed, all clouding shall be removed i.e., the As-Constructed issue shall be in a 'clean' state.

9.3.2 HOLD

A hold is to be placed on a portion of the drawing that cannot be completed or released through lack of information.

Draw an inverted cloud around the hold area and write the word HOLD in 7.0 mm high text. This together with a reason for the hold, can be placed inside the cloud or outside of it with a leader to the cloud.



9.4 ARCHIVING AND SUPERSEDING

Superseded drawings are drawing that are replaced by another drawing and are referenced, compared to archived drawing that are drawings that are no longer true or relevant and are archived for historical purposes.

9.4.1 SUPERSEDING DRAWINGS

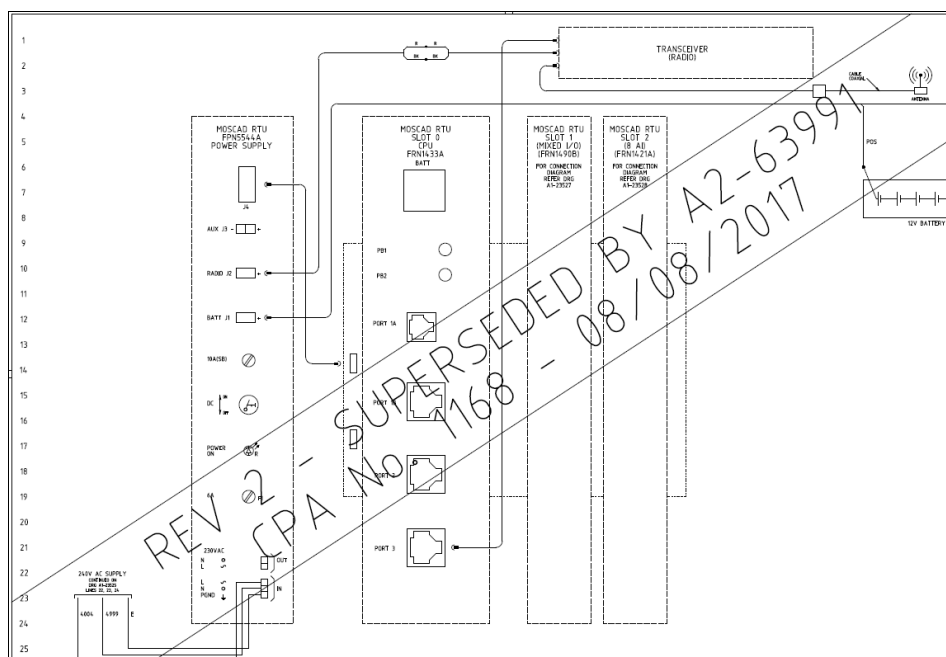
Drawings to be superseded must be clearly marked, with a bold diagonal note. The revision number must be revised, if currently Rev 2 it must be Rev 3- SUPERSEDED.

The text on the pdf and dwg./dgn. drawing must include:

- The word 'SUPERSEDED'
- The new drawing number
- Gippsland Water number (CPA, WO, Contract No.)
- Date it was superseded (xx/xx/xxxx)

Example:

REVX - SUPERSEDED BY AX-XXXXX
CPA No. XXXX- DATE XX/XX/XXXX



9.4.2 DEMOLISHED SITES & DRAWINGS

Drawings contain information that has been demolished must be clearly marked, with a bold diagonal note. The revision number must be revised, if currently Rev 2 it must be Rev 3- DEMOLISHED.

9.4.3 ARCHIVING DRAWINGS

Gippsland Water will archive drawings via internal processes.

10. DRAWING ETIQUETTE

Gippsland Water requires drawing etiquette standards to be complied with when working with multiple drafting consultants and engineering firms.

Gippsland Water drawing etiquette requirements must be followed by all consultants and companies that produce drawings for Gippsland Water. These include and are not limited to:

10.1 CONVERSION OF DRAWING FILE FORMATS

As Gippsland Water accepts both MicroStation (dgn) and AutoCAD (dwg) drawing file formats, if a drawing is converted from MicroStation to AutoCAD or vice versa then the drafting consultant must update the revision number and indicate this in the revision box.

- Conversion from MicroStation (dgn) to AutoCAD (dwg) must be indicated by text in the revision box eg, Conversion dgn/dwg
- Conversion from AutoCAD (dwg) to MicroStation (dgn) must be indicated by the text in the revision box eg, Conversion dwg/dgn

Therefore, if the drawing file become unstable and ultimately corrupt at any time after the drawing has been converted, then Gippsland Water reserves the right to request the responsible party either the drafting consultant or engineering firm to reproduce the drawing file at their own expense and provide this to Gippsland Water.

10.2 COMPLETE REDRAW OF EXISTING DRAWINGS

If an existing drawing shows the company banner of the original or previous designer, and the drawing is then completely redrawn, the original/ previous designer's banner shall be removed, as the responsibility of the drawing is now with the new designer. The design & drafting certification compliance signature block shall be updated and an updated banner applied, refer to Section 5.4. The revision box shall also reference the drawing update with 'Redrawn & Revised'.

11. QUALITY ASSURANCE

11.1 DRAWING COMPLIANCE

Gippsland Water will conduct compliance auditing on drawings submitted. Non-conformances will be required to be rectified before the drawings will be accepted, at the drawing provider's expense.

Often the non-conformances appear to be the result of poor drafting practice or presentation which does not meet expected industry standards such as the National Codes or Australian Standards. Gippsland Water requires all drafting suppliers to use qualified drafting personnel with a sound knowledge of drafting standards and practices.

11.2 SCHEDULED AUDITING

A full audit & review of a percentage of drawings received from all drafting contractors will be performed by Gippsland Water to ensure compliance with the Drafting Specifications.

12. ASSISTANCE TO DRAWING CONTRACTORS

Gippsland Water shall assist drafting providers, as follows:

1. Drawing number requests
2. Providing existing drawings for update (pdf and dgn./dwg)
3. Verification of Drawing Titles
4. Project specific drafting specifications
5. Facility Codes (no longer referred to as site codes).
6. Gippsland Water title block and drawing template in either AutoCAD .dwg or MicroStation .dgn are available for download from the Gippsland Water website.

13. FURTHER INFORMATION

For the latest copy of this document and other related drafting specifications and standard drawing borders you can either contact the below personnel or search the Gippsland Water website at www.gippswater.com.au

Property services and connections matters contact:

Land Development Team Leader: Anthony Faltum

anthony.faltum@gippswater.com.au

Drawing, drafting and engineering contractual matters contact:

Drafting Contracts Engineer: Owen Beebe

owen.beebe@gippswater.com.au

Drawings management and drafting specifications matters contact:

Drawings Management Coordinator: Brooke Samblebe

brooke.samblebe@gippswater.com.au

APPENDIX 1 – GW DRAWING TRANSMITTAL_2024.xls (Section 3.3 & 4.3).

FILE NAME	DRAWING NUMBER	FILE TYPES	DRAWING REVISION	FACILITY CODE	DRAWING TYPE	TITLE	LOCATION	SOURCE	SOURCE DRAWING No.	RECORD TYPE	GW RO NAME	CONTAINER	DESIGNED	DRAWN	DESIGN CHECKED	Registration Number/ AMR operator reference
A1-12345.DGN	A1-12345	DGN	1	51CR25	SURVEY	TRARALGON SEWER SYSTEM SEWER RETICULATION EXTENSION STIRLOCH CIRCUIT DETAIL PLAN	TRARALGON	TOP STUFF CONSULTING ENGINEERS	TSE/02345/1	CAD Asset Drawings	J Citizen	ADC-1	M.DESIGNER	A. DRAFTER	T. CHECKER	PE0012345
A1-12345.PDF	A1-12345	PDF	1	51CR25	SURVEY	TRARALGON SEWER SYSTEM SEWER RETICULATION EXTENSION STIRLOCH CIRCUIT DETAIL PLAN	TRARALGON	TOP STUFF CONSULTING ENGINEERS	TSE/02345/1	AS-CONSTRUCTED Asset Drawings	J Citizen	ADC-1	M.DESIGNER	A. DRAFTER	T. CHECKER	PE0012345

Example: GW Drawing Transmittal Spreadsheet (Excel file) to be submitted with drawings.

List all drawings produced for the project, to be upload into Gippsland Water document management system. The 2024 update now includes Designed, Drawn, Design Checked and Registered Engineer AMR Number.

This can be downloaded from the Gippsland Water website.

<https://www.gippswater.com.au/developers/information/drawing-specifications>

APPENDIX 2 – SYSTEM CODE _2024 & FUNCTION CODE (Drawing Titles Section 5.3)

System Codes						Approved Function Code combinations					
Code	Description	Code	Description	Code	Description	Code	Title	Code	Title	Code	Title
WATER			SEWER			CORPORATE AND OTHER					
10	Warragul-Drouin Water Supply System	40	Drouin Sewer System	75		HM	Weir OR Raw Water Transfer Main (RWTM)				
11	Neerim South-Noojee Water Supply System	41	Warragul Sewer System	76		HP	Raw Water Pump Station (RWPS)				
12	Moe-Newborough Water Supply System	42	Neerim South Sewer System	77		HS	Reservoir OR Raw Water Storage				
13	Willow Grove Water Supply System	43	Willow Grove Sewer System	78		WT	Water Treatment Plant (WTP)				
14	Thorpdale Water Supply System	44	Rawson Sewer System	79		RD	Water Distribution Main (TWDM)				
15	Mirboo North Water Supply System	45	Walhalla	80		RP	Water Pump Station				
16	Erica-Rawson Water Supply System	46	Moe-Newborough Sewer System	81	81 GRO - Gippsland Regional Organics Facility, Dutsen	RQ	Water Monitoring and Control				
17	Walhalla	47	Yallourn North Sewer System	82		RR	Water Reticulation				
18	Morwell-Churchill Water Supply System	48	Mirboo North Sewer System	83		RS	Water Basin(s) OR Water Tank(s)				
19	Boolarra Water Supply System	49	Churchill-Boolarra-Yinnar Sewer System	84		RT	Water Disinfection				
20	Traralgon Water Supply System	50	Monwell Sewer System	85		CB	Sewer Trunk or Branch Main				
21	Tyers-Glengarry-Rosedale Water Supply System	51	Traralgon Sewer System	86		CC	Sewer Collection PS Rising Main				
22		52	Glengarry-Toongabbie Sewer System	87		CP	Sewage Pump Station (SPS)				
23	Heyfield Water Supply System	53	Rosedale Sewer System	88		CQ	Sewer Monitoring and Control				
24	Coongulla-Glenmaggie Water Supply System	54	Heyfield Sewer System	89		CR	Sewer Reticulation				
25		55	Coongulla-Glenmaggie Sewer System	90	Other Operational Assets	CS	Sewage OR Trade Waste Storage				
26	Briarolong Water Supply System	56	Maffra (Domestic) Sewer System	91	Financial Records	CT	Sewage Solids Removal				
27	Maffra-Stratford-Boisdale Water Supply System	57		92	Spares	ST	Sewer Treatment Plant				
28	Sale-Wurruk Water Supply System	58	Stratford Sewer System	93	Non Operational Assets	TC	Effluent Disposal PS Rising Main				
29	Seaspray Water Supply System	59	Sale-Wurruk Sewer System	94	Environmental Management	TF	Effluent Disposal Outfall Main				
30	Loch Sport Water Supply System	60	Seaspray Sewer System	95		TP	Effluent Disposal Pump Station				
31		61	Loch Sport Sewer System	96		TS	Effluent Disposal Storage				
32		62	Regional Outfall Sewer	97		TT	Effluent Disposal Solids Removal				
33		63	Dutson Downs Sewer System	98		TQ	Effluent Disposal Monitoring and Control				
34	Blue Rock - Mondarra Augmentation System	64	Gippsland Water Factory Facility	99	Non GW Assets	PA	Farm Operations				
35	Bulk (Moonarra) Water Supply System	65				PD	Recycled Water Distribution				
36	Australian Paper (Maryvale Mill) Water Supply System	66				PQ	Recycled Water Monitoring				
37	Loy Yang Power Station High Quality Water Supply System	67				PR	Recycled Water Reticulation				
38	Yallourn W Power Station Water Supply System	68									
39	Hazelwood Power Station Water Supply System	69				LL	GRO Landfill				
		70	Yallourn W Power Station Sewer System			LT	GRO				
		71	Loy Yang SWOP Sewer System								
		72	Murray Goulburn (Maffra) Sewer System								
		73	Australian Paper (Maryvale Mill) Sewer System								
		74	ESSO Longford Gas Plant Sewer System								

1	2	3	4	5	6
System Functional Unit Code					
System Code		System Function		SEQ #	
Numeric	Alpha	Alpha	Numeric		
See above table and refer to Function tab for system					

APPENDIX 3 – DRAWINGS COMPLIANCE CHECKLIST

FOR CONSULTANTS' AND CONTRACTORS' USE

This checklist is for contactors/consultants to complete prior to submitting drawings to Gippsland Water, to ensure information supplied to Gippsland Water under this specification is complete.

PROJECT:	
Gippsland Water drawing sheet template from GW website	
CAD file format is in AutoCAD (DWG) or MicroStation (DGN)	
Gippsland Water line colour table has been used	
Design & Drafting Certification Compliance Signature Block completed on drawing	
GW drawing numbers have been obtained from Gippsland Water RO	
Facility Code (Site Code) has been obtained from Gippsland Water RO	
Drawing title has been confirmed with Gippsland Water RO	
Revisions box and revision number updated	
Drawing text conforms to specification	
Only relevant Gippsland Water's drawing numbers appear on the drawings	
References to other Gippsland Water drawings have been noted	
Reference title block has include a Key Index Sheet/ Drawing Index	
Legend provided if required	
Scale bar/s shown as required	
North point shown if necessary and in correct orientation	
CAD file has been structured into layers or levels (if required)	
No information is shown outside of the drawing border in the CAD and PDF files	
All information shown in the final CAD and PDF file supplied to Gippsland Water is correct	
PDF file format obtained from CAD file	
Plot files for all CAD files supplied in correct format and contain all the information shown in the CAD files	
CAD & PDF files are named correctly with the drawing number only . E.g. A1-12175.pdf and A1-12175.dwg or A1-12175.dgn. No revision number to be added to drawing number.	
Cross referencing or reference files contained in a Zip File (if not able to be captured within CAD drawing)	
Electronic drawings transmittal file (excel spreadsheet) is supplied with drawings, listing all drawing names to be uploaded.	

NOTE: Drawing compliance checking/auditing is conducted using the above checklist.

APPENDIX 4 – VIC ROADS FIELD CODING UNDER REVIEW

Layer Description Layer Description

1	Permanent Survey Mark	401	Centre-line of bitumen
2	Bench Mark	402	Spot on bitumen
3	Title peg	403	Edge of bitumen
4	Instrument Station	404	Centre/spot formation
5	Survey mark (general)	405	Edge formation/shoulder
6	Photo control point	406	Lip kerb/channel
7	Check profile/point	407	Invert kerb/channel
8	Trigonometric Station	408	Back kerb/channel
9	Bench Mark QS-1	409	Top kerb/channel
10	Bench Mark S-2	410	Pedestrian path
11	Bench Mark SH-1	411	Driveway
12	Reference Mark -Rod	412	Track (vehicular)
13	Reference Mark -Rod	413	Road Loc. -unclassified
14	Reference Mark -Pipe	414	Detector pad/loop
15	Reference Mark -RM-2	415	Lane lines/markers(dashed)
16	Dumpy Peg	416	Ceramic Delineators/marks
17	Nail	417	Linemarking (non-contour)
18	Spike	418	Lane lines/markings (solid)
101	Contour -Standard	419	Edge of Concrete
102	Top -Cut/fill/bank etc	420	Traffic Direction Arrow
103	Toe -Cut/fill/bank etc	501	Guard rail/barrier
104	Existing surface -Spot	502	Kilometre post
105	Contour -Index	503	Signs
106	Contour -Approximate	504	Letterbox (Aust Post)
109	Ground String -Profile	505	Traffic signal pole
110	Ground String -Breakline	506	Traffic signal box
201	Single tree > 2mm	507	Traffic signal pit
202	Plantation -Orchard etc	508	Emergency telephone
203	Group trees/shrubs	509	Road furn. (unclassified)
204	Single shrub < 5m	510	Monument/Historic Mark
205		511	Joint use pole
301	Drain-Drain conc/earth	512	Cable Pit
302	Watercourse -bed river	513	Detector Pit
303	Pondage -edge dam, lake	514	Red Light Flash Camera
304	Reinforced concrete pipe	515	Red Light Camera
305	Box culvert	516	Side Mounted Sign
306	Underground drainage	517	Centre Mounted sign
307	Wing wall -left	518	Multiple Mounted Sign
308	Side entry pit	519	Curved Sign
309	Grate pit	520	Traffic Signal Wiring
310	Junction pit	521	Bollard
311	Other drainage pit	601	House
312	Unclassified drainage etc	602	Minor Building
313	Mainly dry watercourse	603	Major Building
314	Perennial watercourse	604	Verandah
315	Swamp -unclassified	609	Retaining wall-General
316	Wing wall -right	610	Structure -Unclassified
317	Obvert -culvert/pipe	611	Swimming Pool
318	Endwall	612	Stockpile
319	Flusher Pit	613	Bore/Well
320	Rock Beaching	614	Windmill, windpump
321	Invert Pipe or Pit	615	Quarry,pit

OFFICIAL

616 Sports arena, field	741 Sewerage pit
617 Wall	742 Sewerage (Unclassified)
618 Tower/Chimney	743 Sewerage -underground
619 Retaining wall -Crib	744 Sewerage -Inspection Outlet
620 Retainig wall -Rock	751 Stop valve
621 Retainig wall -Conc	752 Fire plug
622 Retaining Wall -Wood	753 Fire hydrant
623 Garage/Service Station	754 Water meter
624 Petrol Bowser	755 Water (unclassified)
625 Aboveground Fuel tank	756 Water -underground
626 Underground Fuel tank	757 Water Market Post
627 Petrol valve S/Station	758 Water Tap
628 Tank/Trough	759 Air Valve
638 Centreline of Conveyor	761 Stay for pole
651 Bridge Deck/Slab/Kerbs	762 Unclassified pit
652 CL Bridge/Culvert	763 Unclassified pole
653 CL Piles/Foundations	764 Unclassified utility
654 CL Abutments/Piers	801 Railway Line
655 CL Slab/Beams/Box Girder	802 Railway boom gate
656 CL of Diaphragm	803 Railway signal pole
657 Edge Culvert base slab	804 Railway signal box
658 Edge of Pile/Foundation	805 Railway Stanchion (Right)
659 Edge Abut/Piers	806 Railway (unclassified)
660 Edge Slabs/Beams	807 Tramways pole
661 Edge Rail/P'pets/Endpost	808 Tramways (unclassified)
662 Edge Retain-Wall/W-Wall	809 Tram Line
663 Edge Expansion Joint	810 Bus/Tram shelter
664 Edge of Pedestal	811 Railway Stanchion (Left)
665 Edge of Culvert Unit	901 Boundary line
666 Bridge -Unclassified	902 Boundary intersection
711 Light Pole	903 Fence
712 Electricity pole only	904 Gate
713 Electric pole & light	905 Left boundary
714 Transmission tower/pylon	906 Right boundary
715 Electricity-unclassified	907 Title boundary -Road
716 Electricity pit	908 Title boundary -Allot
717 Electricity lines O'head	909 Title boundary -Reserve
718 Electricity lines Ugrnd	
719 Electricity Marker Post	
721 Telecom pit 300*600	
722 Telecom pillar	
723 Telecom marker post	
724 Telecom pole	
725 Telecom phone box	
726 Telecom (unclassified)	
727 Telecom lines -Overhead	
728 Telecom lines -Undergrnd	
729 Telecom Pit 1200	
(900	
731 Gas & Fuel valve	
732 Gas & Fuel marker post	
733 Gas & Fuel (unclassified)	
734 Gas & Fuel -underground	

APPENDIX 5 – STANDARD AND TYPICAL DRAWINGS

Note: Previous drawing sheet formatting used

STANDARD DRAWINGS

SYMBOL LIBRARY

NO.	TITLE
A0-58517	GIPPSLAND WATER PROCESS AND INSTRUMENTATION SYMBOLS AND CODES
MRWA-W-100	WATER SUPPLY SYMBOL LIBRARY
A2-32919	GIPPSLAND WATER PROCESS AND INSTRUMENTATION STANDARD SYMBOLS (For drawings completed prior to August 2015)
A3-35200	GIPPSLAND WATER FACTORY - STAGE ONE LEGEND SHEET 1 PIPING & INSTRUMENTATION DIAGRAM (For drawings completed after August 2015)

TYPICAL DRAWINGS

LAND DEVELOPMENT:

NO.	TITLE
	To be updated

TYPICAL DRAWINGS

SURVEY

NO.	TITLE
	To be updated

TYPICAL DRAWINGS

CIVIL

NO.	TITLE
A1-47054	WARRAGUL SEWERAGE RETICULATION CENTRAL TRUNK SEWER STAGE 3 PLAN AND LONGITUDINAL SECTION SHEET 1 OF 8
A1-47051	WARRAGUL SEWERAGE RETICULATION CENTRAL TRUNK SEWER STAGE 3 LOCALITY PLAN AND DRAWING LIST
A1-50031	COONGULLA GLENMAGGIE SEWERAGE SCHEME LOCOLA ROAD SEWAGE PUMP STATION GENERAL ARRANGEMENT PLAN
A1-47070	WARRAGUL SEWERAGE RETICULATION CENTRAL TRUNK SEWER STAGE 3 GIPPSLAND RAILWAY CROSSING DETAIL

OFFICIAL

A1-47064	WARRAGUL SEWERAGE RETICULATION CENTRAL TRUNK SEWER STAGE 3 DETAILED MAINTENANCE HOLE LOCATION PLANS SHEET 3 OF 4
A1-50034	COONGULLA GLENMAGGIE SEWERAGE SCHEME LOCOLA ROAD SEWAGE PUMP STATION STRUCTURAL SECTIONS
A1-50032	COONGULLA GLENMAGGIE SEWERAGE SCHEME LOCOLA ROAD SEWAGE PUMP STATION GENERAL ARRANGEMENT SECTION

TYPICAL DRAWINGS**HYDRAULIC**

NO.	TITLE
A1-68152	HEYFIELD TO COONGULLA INTERCONNECT PIPELINE- HYDRAULIC PROFILE

TYPICAL DRAWINGS**ELECTRICAL**

NO.	TITLE
A1-47731	STANDARD SEWERAGE PUMP STATION PUMP STATION UP TO 5.5kW (DOL) INSTRUMENTATION & CONTROL DRAWING INDEX
A1-47775	STANDARD SEWERAGE PUMP STATION PUMP STATION 7.5kW TO 22kW (VSD)- DIRECT METERED INSTRUMENTATION & CONTROL DRAWING INDEX
A1-52770	STANDARD SEWERAGE PUMP STATION PUMP STATION 30kW TO 132kW (VSD) – CT METERED INSTRUMENTATION & CONTROL DRAWING INDEX