Gippsland Water Drafting Specifications

Drafting Specifications for Drawings Produced for Gippsland Water

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DRAFTING SPECIFICATION FOR DRAWINGS PRODUCED FOR GIPPSLAND WATER

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:

GW	Gippsland Water
GW RO	Gippsland Water Responsible Officer
AMIS	Asset Management Information System
DM	Drawings Management
DM CO	Drawings Management Coordinator
CAD	Computer Aided Drafting
PDF	Portable Document Format
GIS	Geographic Information System
WSAA	Water Services Association of Australia
MRWA	Melbourne Water Retailer Agencies
P&ID	Process & Instrumentation Diagram
IFT	Issued for Tender
IFC	Issued for Construction
EDRMS	Electronic document records management system
CPA	Consultant's Project Agreement

1. OVERVIEW

Gippsland Water drawings were previously managed by Gippsland Water's Asset Delivery department. Since August 2013, drawing management is now controlled by Gippsland Water's AMIS department (Asset Management Information System) as drawing information is critical to Asset Management. 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 borders. Documents are available for download on Gippsland Water's website **www.gippswater.com.au**.

Gippsland Water maintains a drawing management system through an electronic document management system (HPE Content Manager). Within this system is stored the Computer Aided Drafting (CAD) file and Portable Document Format (PDF) file for all drawings which have not been stored as scanned images. The PDF files are required as the viewing file by this system as they represent the final printed drawing.

Any drawing submitted to Gippsland Water for inclusion into the drawing management system may 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 providers expense, and will be re-audited prior to acceptance into the drawings management system.

The importance of the drawing information retained by Gippsland Water cannot be understated, be it preliminary design or as-constructed information. Gippsland Water's electronic document management system (HPE Content Manager) and Geographic Information System (GIS) are consistently updated with current information, and is available to all 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, including amendments :

- AS 1100 part 101: Technical Drawing- General Principles
- AS 1100 part 201: Technical Drawing- Mechanical Engineering Drawing
- AS 1100 part 301: Technical Drawing- Architectural Drawing
- AS 1100 part 401: Technical Drawing- Engineering Survey and Design Drawing
- AS 1100 part 501: Technical Drawing- Structural Engineering Drawing
- AS 5488-2013: Classification of Subsurface Utility Information

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

- AS 1102 parts 101: Graphical Symbols for Electrotechnical Documentation
- AS/NZ 1102 parts 102 to 111: Graphical Symbols for Electrotechnical Documentation
- AS/NZ 4383.1: Electrotechnology - General Requirements
- AS/NZ 4383.2: Electrotechnology - Function-Oriented Diagrams
- AS/NZ 4383.3: Electrotechnology - Connection Diagrams, Tables and Lists

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, for current and future generations. Gippsland Water also has supplements to the code. Refer to the Gippsland Water Supplement to WSA 03-2011-3.1 Water Supply Code of Australia MRWA Edition 2015. Gippsland Water COR/14/107091. Additionally refer to the Gippsland Water Supplement to WSA 02-2014-3.1 Gravity Sewerage Code of Australia MRWA Edition 2015. 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 4 contains a list of standard and example drawings. Contact the Gippsland Water Drawings Management Coordinator (DM CO) for hardcopy and electronic copies.

Existing Gippsland Water drawings may have been prepared to previous standards and may not comply with these specifications. However, all new drawings and major updates to existing drawings shall comply with these specifications.

3.4 NON-CONFORMING DRAWINGS

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

3.5 SYMBOL DRAWING STANDARDS

The drafting provider shall request clarification from the Gippsland Water Project 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 Project 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 Project 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.

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 Project RO for compliance checking against the drafting specifications and approval given prior to payment.

Gippsland Water accepts both 2D and 3D drawings and models. The Gippsland Water Project RO will determine what drawings are required for the project.

4.1 ACCEPTED 2D DRAWING FILE FORMATS

All new drawings prepared shall be produced using a Computer Aided Drafting (CAD) system. The acceptable file format is either Microstation (Version 8+) or AutoCAD (Release 2004 to 2012). A PDF must always accompany the CAD file.

The below table lists the 2D drawing information accepted by Gippsland Water. Drawing hardcopies (if required) will be specified by the Gippsland Water Project RO or by contractual agreement.

	AutoCAD Format	MicroStation	Adobe (PDF)
Minimum Version	Release 2004 to 2012	Version 8 +	Version 11 +
File Type	.dwg	.dgn	.pdf
Colour Table	Refer to Section 6.	Refer to Section 6.	Colour/ Black & White

Table 1. Condition of various 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. Multi-page CAD drawings are not intended for large projects with greater than 10 drawings and therefore, GW will only accept a maximum of 10 drawings supplied per CAD file.

4.2 ACCEPTED 3D DRAWING FILE FORMATS

Gippland Water accepts 3D models using the INVENTOR software. Gippsland Water is new to 3D models and drawings and it is the responsibility of the Gippsland Water Project/ Responsible Officer to determine if 3D drawings and associated model are required for the project.

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

4.3 SUBMITTAL OF COMPLETED DRAWINGS TO GIPPSLAND WATER

Drawings produced for Gippsland Water must be accompanied by a Gippsland Water electronic drawing transmittal (excel spreadsheet) detailing information of the drawings produced. This transmittal is used to upload drawings, refer to the Help Tab for instructions to complete the electronic drawing transmittal. The transmittal can be obtained from Gippsland Water's website under Tenders- Drawing Specifications.

The drawing files must be individually saved and named as the Gippsland Water drawing number. 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 DataBox (Files greater than 8MB). Contact the DM coordinator who can provide access to this service. Refer to Section 13.0
- USB

4.3.1 AS-CONSTRUCTED P&ID SUBMITTAL

Process & Instrumentation Diagrams (P&ID) contain background information with links to Gippsland Water Asset Information, 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 drawings, with an electronic Asset (Tag) List in Microsoft excel version 2010.
- 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 version 2010.
- 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.
- P&ID's shall be split into sheets (Sheet 1 of 2, Sheet 2 of 2) if the drawing has excessive

information resulting in difficulty reading the drawing. If this occurs the drawings shall be titled Sheet 1 of 2 and Sheet 2 of 2, etc.

- Appendix 4 refers to the P&ID symbols sheet that drawings supplied to Gippsland Water shall comply with for new and existing drawings.

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.

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.

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 coorinator 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

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 3.

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

LAYER/LEVEL NAME	DESCRIPTION
A1 BORDER	Al 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 DRAWING INDEX / KEY SHEET

All updated drawings must reference an index sheet/ key sheet. If one does not already exist, one shall be created. Refer to Section 5.6 for details.

For all new green field sites and large projects with multiple drawing sets, the inclusion of an Index Sheet/ Key Sheet is mandatory.

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 TEMPLATE & INFORMATION

Drawings produced for Gippsland Water shall be provided within Gippsland Water drawing 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)
- 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)
- Stamps

The below sections discuss each item in greater detail.

5.1. GIPPSLAND WATER DRAWING BORDER

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 box provided 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.

Both 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.

Drawings from initial design 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.

Through design and construction, drawings will be identified by their revision status, as described below in 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 Gippsland Water RO will provide the first and second line of the drawing title to the drafting contractor, which will be sourced from Asset Management as per the asset system coding structure (AMIS Register).

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

Final drawing titles must be verified by the Gippsland Water RO.
The title shall be centre justified and placed centrally within the drawing title box.

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

1. First line: System Code description in it's entirety. Refer to the *Asset Coding and Naming Structure - COR/07/41921.*
2. Second line: Function Code - Refer to the *Asset Coding and Naming Structure - COR/07/41921.*
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.

Drawing title examples used by Gippsland Water, include:

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 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, Checked and GW RO' shall include the date and first initial and surname of individuals, refer to Figure 1.

It is the responsibility of the contractor/ consultant 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 templates.

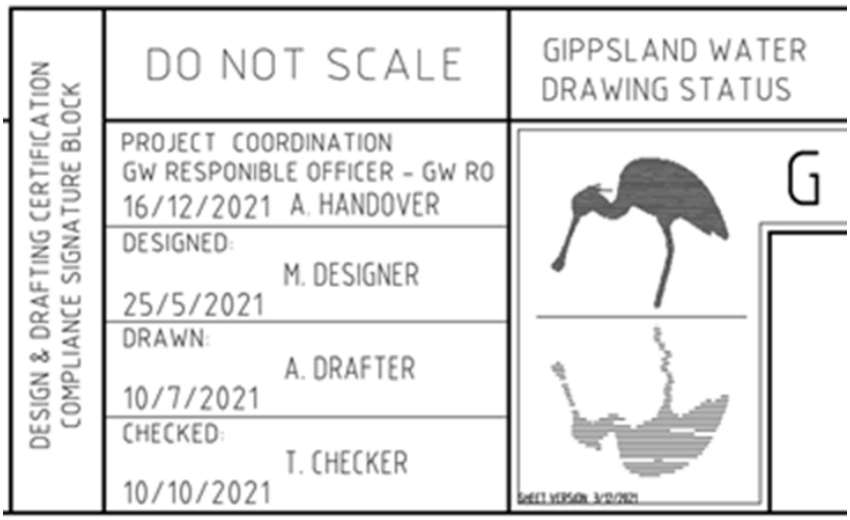


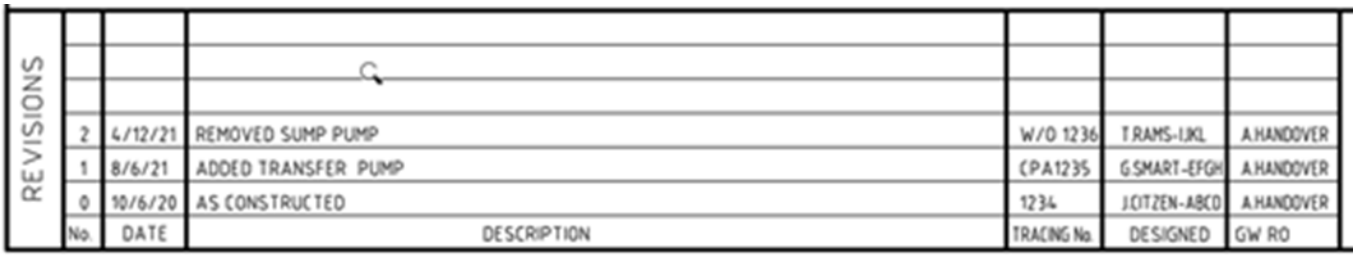
Figure 1. Example of design & drafting certification compliance signature block (design approval).

The design and drafting contractor/consultant can include their company banner within the drawing block upon drawing design. Also 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 block, refer to Section 10: Drawing Etiquette.

5.5 REVISION DETAILS AND NUMBER

The revision block enables tracking of drawing updates with details such as revision number, date, description, tracing number, design consultant- first initial, surname and maximum four character company prefix name and GW Responsible Officer (GW RO). The Gippsland Water RO shall include their first initial and surname to approve the drawing for upload into Gippsland Waters electronic document records management system (EDRMS), refer to Figure 2.

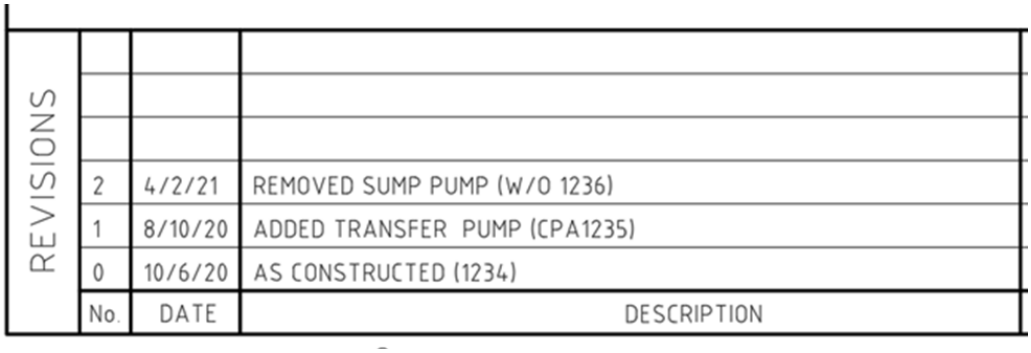
The revision number is also placed in the revision box next to the drawing number in the bottom right corner of the drawing template. All inserted text is to be 2.5mm high, legible and clear within the CAD and PDF versions.



REVISIONS						
	2	4/12/21	REMOVED SUMP PUMP	W/O 1236	TRAMS-IJKL	A.HANDOVER
	1	8/6/21	ADDED TRANSFER PUMP	CPA1235	G.SMART-EFGH	A.HANDOVER
	0	10/6/20	AS CONSTRUCTED	1234	J.CITZEN-ABCD	A.HANDOVER
	No.	DATE	DESCRIPTION	TRACING No.	DESIGNED	GW RO

Figure 2. Example of <u>new drawing template</u> with tracing number and GW RO.

Gippsland Water drawings now require a tracing number to be added, to trace the origin of the request. Existing drawings will not have a designated column like the new drawing templates, therefore the tracing number shall be added to the description within the revision block. Refer to Figure 3.



REVISIONS			
	2	4/2/21	REMOVED SUMP PUMP (W/O 1236)
	1	8/10/20	ADDED TRANSFER PUMP (CPA1235)
	0	10/6/20	AS CONSTRUCTED (1234)
	No.	DATE	DESCRIPTION

Figure 3. Example of <u>existing drawing details</u> with tracing number added within the description.

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 or Contract Number
Asset Planning	CPA Number
Asset Delivery	Contract Number
Land Development	U File Number

Table 5: Examples of tracing numbers preferences.

5.6 REFERENCE TITLE BLOCK (PLAN NO.)

It is a condition that the Reference block MUST include a plan number. A plan number can also be referred to as the Drawing Index, Key Sheet or Locality Plan. The drawing index sheet, key sheet or locality plan must be produced for all drawing sets and shall be referenced on individual drawings. Refer to Section 4.7.

References to other drawings shall be to Gippsland Water drawing numbers only.

Do not reference other drawings as “Refer Sheet 2” for example. Be specific by stating the whole drawing number (eg. Refer A1-12345)

5.7 NORTH POINTS, SCALE BARS & LEGEND

North points in correct orientation (prefer up the page where possible).

Scale bars and legends have to 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 GIS and DM coordinators.

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 STAMPS

Drawings produced for Gippsland Water shall be clearly stamped to identify the drawing status. The stamp shall be located above the drawing facility code. The stamp shall be either:

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

For internal Gippsland Water creation of Standard & Typical Drawings the below stamps shall be used:

- **STANDARD TEMPLATE**
- **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 to be used is “ISOCP.SHX”.

In MicroStation files the font number to be 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.

Non-conforming fonts will be accepted for drawings which meet the criteria listed in Section 6.5 (Special Purpose Drawings).

6.2 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.

A copy of Gippsland Water’s standard drawing sheets are available for download from the Gippsland Water website **www.gippswater.com.au** in both AutoCAD and Microstation formats.

6.3 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. 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.

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.

6.4 LINE STYLES, COLOURS AND PENTABLES

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

6.4.1 LINE STYLES & COLOUR PRINTS FOR SURVEY

Colour printouts for survey drawings will follow the colour legend shown in Table 6 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 7- Qualty Level (QL-x).

Existing drawings may still show the previous symbols which are shown in Table 8.

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 6. Line styles for underground services, including Quality Level (QL- x) to be determined by Quality Level in Table 7. (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. Anecodotal Evidence. Line between two points (approximate)
D	(QL-D)	DBYD & GIS (approximate- not accurate)

Table 7. 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 8. For existing drawings, the line styles for true surveyed locations of underground services are deplicted by the 't' symbol. If no 't' is present then the survey locations are approximate only.

6.4.2 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 4. for line weight thickness in conjunction with the below colour table.

Utilities	Colour
Main Process Stream	Green
Compressed Air	Blue
Chemical	Violet

Table 9. Colour styles for P&ID drawings

6.4.3 LINE STYLES AND BLACK & WHITE PRINTS

The following table shows the relationship between CAD line colour and plotted line thickness for all drawings. For survey drawings also refer to Section 6.4.1.

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 10. AutoCAD and MicroStation colours and line thickness.

**** These colours have been allocated a line thickness. No longer free to assign.***

6.5 SPECIAL PURPOSE DRAWINGS

This section is intended to cover drawings which fit into the following categories:

- **Large scale topographic drawings**
- **Large scale thematic mapping drawings.**

Gippsland Water will allow the use of fonts not complying with Section 6.1 and the use of restricted use drawing borders for drawings which meet all of the following criteria:

Drawing scale is not less than 1:5000

Drawings that meet the requirements of this Section may have no restriction on font style and are eligible to use Gippsland Water's restricted use drawing borders.

The restricted use drawing borders available are:

- A1 portrait
- A0 landscape
- A0 portrait

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
- Charts or graphics

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 Mangement department. See below detail:

8.1 LAND DEVELOPMENT

Land development is responsible for providing and receiving information from external consultants and contractors for new estates, sub-divisions and existing assets. They maintain developer works 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. Refer to drawings A4-59288: Field Notes of Water Supply Works and A4-59289: Field Notes of Sewerage Works.

Refer to the Gippsland Water website under:

- Commercial Customers/Tenders/ Drafting Specifications and/or
- Developers-Builders/ Information for Developers/Drafting Specifications

8.2 COMMERCIAL SERVICES

Commercial services has a Land & Legal departments that manages:

- 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 11.

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 11. Drawing revision number for <u>new drawings</u>, 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 occuring. 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 design.

Drawing booking out requests for update 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. * This drawing must be checked out (Section 9.2.1) # Required for upload by DM coordinator.			

Table 12. 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 will 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.

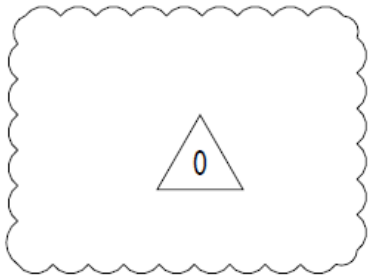
9.3.1 REVISION CLOUDING FOR EXISTING DRAWINGS

Revision updates shall be identified by drawing an outline cloud around the revised area. When subsequent revisions are made, the cloud and any previous identifier relating to the previous revision shall be removed and the new changes clouded.

For existing drawing updates, 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 for asset management.

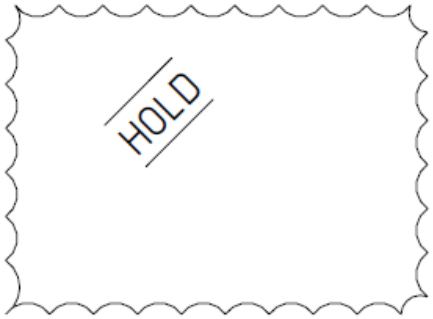


In the revision box, the new revision status shall be shown with a brief, specific note of the change and the revision number updated.

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 contract number
- Date it was superseded (xx/xx/xxxx)

Example:

SUPERSEDED BY A1-12345

CONTRACT GIPPSLAND WATERS 700 on 01/08/2014

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 Micro-Station (dgn) and AutoCAD (dwg) drawing file formats, if a drawing is converted from Micro-Station to AutoCAD or vice versa then the drafting consultant must update the revision number and indicate this in the revision box.

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

REVISIONS						
	2	01/01/14	CONVERSION DGN/DWG. DOING PUMP UPDATE	WO84520	G.SMART-EFGH	A.HANDOVER
	1	01/02/13	AS-CONSTRUCTED	10203	J.CITZEN- ABCD	A.HANDOVER
	0	01/01/13	ISSUED FOR CONSTRUCTION	10203	J.CITZEN- ABCD	A.HANDOVER
	No	**DATE**	**DESCRIPTION**	**TRACING**	**DESIGNED**	**GW RO**

Table 13. Example of the required description in the revision box if a drawing file format is converted. This example shows a dgn converted to a dwg file type: as well the updated drawing description.

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 or other 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' refer to Table 14.

REVISIONS						
	3	06/06/21	REDRAW & REVISED- JOHNS DRAFTING PTY LTD	CPA9876	T.SMITH-JDFT	A.HANDOVER
	2	01/01/14	CONVERSION DGN/DWG. DOING PUMP UPDATE	WO84520	G.SMART-EFGH	A.HANDOVER
	1	01/02/13	AS-CONSTRUCTED	10203	J.CITZEN- ABCD	A.HANDOVER
	0	01/01/13	ISSUED FOR CONSTRUCTION	10203	J.CITZEN- ABCD	A.HANDOVER
	No	**DATE**	**DESCRIPTION**	**TRACING**	**DESIGNED**	**GW RO**

Table 14. Example of the required description if a drawing is redrawn and 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 SUPPLIERS

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 frame 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 personal or search the Gippsland Water website at www.gippswater.com.au

Property services and connections matters contact:

Land Development Team Leader: Anthony Faltum (03) 5177 4734

anthony.faltum@gippswater.com.au

Drawing, drafting and engineering contractual matters contact:

Drafting Contracts Engineer: Rohan Beaton (03) 5177 4615

rohan.beaton@gippswater.com.au

Drawings management and drafting specifications matters contact:

Drawings Management Coordinator: Brooke Samblebe (03) 5177 4705

brooke.samblebe@gippswater.com.au

APPENDIX 1 – GW DRAWINGS TRANSMITTAL_FINAL DEC 2015 (EXCEL SPREADSHEET)

	A	B	C	D	E	F	G	H	I	J	K
1	FILE NAME	DRAWING NUMBER	FILE TYPES	DRAWING REVISION	FACILITY CODE	DRAWING TYPE	TITLE	LOCATION	SOURCE	SOURCE DRAWING No.	RECORD TYPE
2	A1-12345.DGN	A1-12345	DGN	0	51CR25	SURVEY	TRARALGON SEWER RETICULATION LODGE DRIVE RISING MAIN DETAIL PLAN SHEET 1 OF 2	TRARALGON	TOP STUFF CONSULTING EN	TSE/02345/1	CAD Asset Drawings
3	A1-12345.PDF	A1-12345	PDF	0	51CR25	SURVEY	TRARALGON SEWER RETICULATION LODGE DRIVE RISING MAIN DETAIL PLAN SHEET 1 OF 2	TRARALGON	TOP STUFF CONSULTING EN	TSE/02345/1	AS-CONSTRUCTED Asset Drawing
4											
5											
6											

Example of Gippsland Waters Drawings Transmittal Spreadsheet (Excel file) to be completed with drawings. This lists all drawings produced for upload into Gippsland Water document management system. This can be downloaded from the Gippsland Water website https://www.gippswater.com.au/commercial/tenders/drawing-specifications

APPENDIX 2 -- 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:	
CAD file format is AutoCad DWG or MicroStation DGN	
PDF file format obtained from CAD file	
Gippsland Water standard drawing borders used	
Drawing numbers have been obtained from Gippsland Water RO	
References to other Gippsland Water drawings have been noted	
Only relevant Gippsland Water's drawing numbers appear on the drawings	
Facility Code (Site Code) has been obtained from Gippsland Water RO	
Drawing title has been confirmed with Gippsland Water RO	
Reference title block has include a Key Index Sheet/ Drawing Index	
Legend provided if required	
All information shown in the final CAD and PDF file supplied to Gippsland Water is correct	
Revisions box and revision number updated	
CAD file has been structured into layers or levels (if required)	
Gippsland Water line colour table has been used	
Drawing text conforms to specification	
Scale bar/s shown as required	
North point shown if necessary and in correct orientation	
No information is shown outside of the drawing border in the CAD and PDF files	
Design & Drafting Certification Compliance Signature Block completed on drawing	
Cross referencing or reference files contained in a Zip File (if agreed by RO and DRAWINGS MANAGAMENT COORDINATOR)	
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.	
Electronic drawings transmittal file **(excel spreadsheet)** is supplied with drawings, listing all drawing names to be uploaded.	

NOTE: Your files may be checked for compliance. Drawing compliance checking/auditing is conducted using the above checklist.

Completed By: **Date:**

APPENDIX 3 – VIC ROADS FIELD CODING

Layer Description Layer Description

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

616 Sports arena, field
617 Wall
618 Tower/Chimney
619 Retaining wall -Crib
620 Retainig wall -Rock
621 Retainig wall -Conc
622 Retaining Wall -Wood
623 Garage/Service Station
624 Petrol Bowser
625 Aboveground Fuel tank
626 Underground Fuel tank
627 Petrol valve S/Station
628 Tank/Trough
638 Centreline of Conveyor

651 Bridge Deck/Slab/Kerbs
652 CL Bridge/Culvert
653 CL Piles/Foundations
654 CL Abutments/Piers
655 CL Slab/Beams/Box Girder
656 CL of Diaphram
657 Edge Culvert base slab
658 Edge of Pile/Foundation
659 Edge Abut/Piers
660 Edge Slabs/Beams
661 Edge Rail/P'pets/Endpost
662 Edge Retain-Wall/W-Wall
663 Edge Expansion Joint
664 Edge of Pedestal
665 Edge of Culvert Unit
666 Bridge -Unclassified
711 Light Pole
712 Electricity pole only
713 Electric pole & light
714 Transmission tower/pylon
715 Electricity-unclassified
716 Electricity pit
717 Electricity lines O'head
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

741 Sewerage pit
742 Sewerage (Unclassified)
743 Sewerage -underground
744 Sewerage -Inspection Outlet
751 Stop valve
752 Fire plug
753 Fire hydrant
754 Water meter
755 Water (unclassified)
756 Water -underground
757 Water Market Post
758 Water Tap
759 Air Valve
761 Stay for pole

762 Unclassified pit
763 Unclassified pole
764 Unclassified utility
801 Railway Line
802 Railway boom gate
803 Railway signal pole
804 Railway signal box
805 Railway Stanchion (Right)
806 Railway (unclassified)
807 Tramways pole
808 Tramways (unclassified)
809 Tram Line
810 Bus/Tram shelter
811 Railway Stanchion (Left)
901 Boundary line
902 Boundary intersection
903 Fence
904 Gate
905 Left boundary
906 Right boundary
907 Title boundary -Road
908 Title boundary -Allot
909 Title boundary -Reserve

APPENDIX 4 – GIPPSLAND WATER STANDARD AND TYPICAL DRAWINGS

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 prior to August 2015)

TYPICAL DRAWINGS

LAND DEVELOPMENT:

NO.	TITLE
A1-59283	TYPICAL DRAWING WATER AND SEWERAGE RETICULATION EXTENSION LOCALITY PLAN AND KEY SHEET
A1-59284	TYPICAL DRAWING SEWERAGE RETICULATION EXTENSION LAYOUT PLAN
A1-59285	TYPICAL DRAWING SEWERAGE RETICULATION EXTENSION LONGITUDINAL SECTION
A1-59286	TYPICAL DRAWING WATER RETICULATION EXTENSION LAYOUT PLAN AND DETAILS
A1-59287	TYPICAL DRAWING WATER MAIN REPLACEMENT LAYOUT PLAN AND DETAILS
A1-59288	TYPICAL DRAWING FIELD NOTE OF WATER SUPPLY WORKS
A1-59289	TYPICAL DRAWING FIELD NOTE OF SEWERAGE WORKS

TYPICAL DRAWINGS

SURVEY

NO.	TITLE
A1-53848	WARRAGUL SEWERAGE RETICULATION CENTRAL TRUNK SEWER STAGE 3 DETAIL & SERVICES SURVEY LAYOUT PLAN

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
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
A1-50024	COONGULLA GLENMAGGIE SEWERAGE SCHEME SCHEMATIC HYDRAULIC PROFILE

TYPICAL DRAWINGS

Electrical/ SCADA:

NO.	TITLE
A1-47731	STANDARD SEWERAGE PUMP STATION PUMP STATION UP TO 5.5kW (DOL) INSTRUMENTATION & CONTROL DRAWING INDEX
A1-47732	STANDARD SEWERAGE PUMP STATION PUMP STATION UP TO 5.5kW (DOL) POWER & CONTROL SUPPLIES SINGLE LINE DIAGRAM
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