

REVISION

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1 PURPOSE

The purpose of this standard is to specify a numbers, symbols and naming standards for process and instrumentation diagrams (P &ID) for all of Bundaberg Regional Council (BRC) Water Services' facilities. The standard is to be used for any new, modifications or additions of P&ID's to ensure consistency, accuracy of the process facility. The P&ID documents are used for the purpose of maintenance, operations, and upgrades for Water Services

2 SCOPE

This Technical Standard shall apply to all the Process / Piping and Instrumentation Diagrams (P&IDs) produced for or by Bundaberg Regional Council (BRC), and for all BRC Water Services Facilities.

This Technical Standard specifies P&ID content and format, and BRC requirements. It is consistent with Australian and International Standards and with water industry practice.

3 ROLES AND RESPONSIBILITIES

Table 1: Roles & Responsibilities

Role	Nominee	Responsibility	
Piping and Instrumentation Diagram Standard Owner	Process and Asset Manager	The owner approves this standard and changes to the standard and has responsibility for implementation of the standard within all Process and instrument diagram drawings (P&ID's). The owner is responsible for appointing the Maintainer.	
Piping and Instrumentation Diagram Standard Maintainer		To maintain the standard ensuring consistency, currency and accuracy	
Piping and Instrumentation Diagram Standard User	Any person who interacts with the development of P&ID drawings.	As an end user, who interacts with the document	

4 NORMATIVE REFERENCES

The following standards have referred to in the creation of this standard.

ISO 106828-1, Diagrams for the chemical and petrochemical industry - Part 1: Specifications of diagrams

ISO 106828-2:2012, Diagrams for the chemical and petrochemical industry – Part 2: Graphical symbols

AS 1101, Graphical Symbols

ISO 3511-3, Process Measurement Control Functions and Instrumentation; Symbolic Representation

ISO 3511-4, Industrial Process Measurement Control Functions and Instrumentation; Symbolic Representation



5 P&ID DOCUMENTATION

The P&ID documentation shall consist of the following.

- Title Sheet (Contents Page)
- Legend (Detailing all Graphical Symbols used in the P&ID documentation)
- Process Flow Diagram
- P&ID breakdown of areas

6 DEFINITIONS

The following definitions and the definitions given in ISO106828-1 apply.

6.1 Symbol

A combination of lines, letters and abbreviations which identifies the basic purpose and method of operation of the component represented.

6.2 Process Flow Diagram

The Process Flow Diagram illustrates the process by the use of graphical symbols interconnected by flow lines (See Annex A).

6.3 P&ID

The P&ID is based on the Process Flow Diagram and demonstrates the technical realisation of the process by means of graphical symbols. The P&ID consists of graphical symbols with piping to show process measurement and control functions.

6.4 Reference Designation

The Reference Designation is the code for the identification of equipment in the functional position of the process.



7 PRESSURE PIPING HAZARD LEVELS

BRC requires P&IDs to nominate and show the piping hazard level ratings according to the product (e.g., wastewater chemicals, chlorine gas, digester gas, sludge, supernatant, etc...). All chemicals and process fluids are grouped into one of three hazard level categories:

Hazard Level B (medium (average) level hazard): very harmful fluids, powders, etc... (e.g., typically acids pH<2 or alkalis pH>11)

Hazard level C (low hazard): harmful fluids or powders, low strength acids or alkalis, combustible, corrosive or high temperature fluids

Hazard Level E (negligible hazard): non-harmful fluids or powders, typically all water and wastewater streams and normal process air

The piping hazard level rating shall be shown on P&IDs using the symbols as shown in Figure 1 below:



Figure 1: Hazard Level Classifications

Piping hazard level symbols shall be shown on each process stream/pipe (i.e., positioned at left and right per drawing sheet and across the full process stream) - see the example as shown in Figure 2 below for a liquid chlorine system. Typical process fluids encountered in BRC Water systems, and their associated piping hazard level ratings, are listed in Table 2 below.



Figure 2: Example P&ID hazard classification for a liquid chlorine draw off system.



Table 2: List of typical chemical fluids and typical hazard level rating.

TYPICAL FLUIDS USED BY SA WATER	TYPICAL HAZARD LEVEL FOR PIPING
Activated Carbon (PAC) (up to 10% slurry)	E
Activated Silicate	В
Air, compressed	E
Aluminium Sulphate (Alum) (50% solution)	В
Ammonia, Anhydrous (100% gas/liquid)	В
Ammonia, Aqua (25% solution) Ammonia Solution	В
Calcium Hydroxide (Hydrated lime) (up to 20% slurry)	В
Calcium Oxide (Quicklime) (up to 20% slurry)	В
Chlorine (100% liquid & gas)	В
Chlorine Solution	С
Citric Acid (50% solution)	С
Diesel / Fuels	С
Ferrous Chloride (42% solution)	В
Fluorosilicic Acid (20% solution)	В
Formic Acid (up to 85% solution)	В
Hydrochloric Acid (up to 10% solution)	В
Hydrogen Sulphide (up to 400 ppm in Sewer Gas)	C
Magnesium Hydroxide (60% slurry)	E
Methane or Natural Gas (Digester gas: 70% Methane)	В
Oxygen, compressed (100% liquid & gas)	В
Polyelectrolytes (various) (> 60% solutions)	E



Potassium Permanganate (5% solution)	С
Sodium Carbonate (Soda Ash) (Assume 15% solution)	E
Sodium Chloride (Saturated Brine) (up to 25% solution)	E
Sodium Hydroxide (Caustic Soda) (up to 50% solution)	В
Sodium Hypochlorite (13% solution)	В
Sodium Silicate	В
Sucrose (Liquid Sugar or Molasses) (up to 67% solution)	E
Sulfamic Acid (30% solution)	В
Sulphuric Acid (98% liquid)	В
Water, fresh & sea water (including wastewater)	E
Water, hot or steam (including wastewater)	C



8 **GRAPHICAL SYMBOLS**

This section outlines the graphic symbols used in P&ID documentation.

- Piping, Joints and accessories. Table 3
- Valves. Table 4
- Drives, Actuators & Control Equipment. Table 5 •
- Table 6 Flow Elements • Table 7
- Level Elements
- Miscellaneous. .

Table 3: Piping, Joints & Accessories

Reference No.	Symbol	Description
01-01-01		Pipe, General Symbol
01-01-02	- -	Crossing Pipe, Not Connected
01-01-03		Junctions
01-01-04		Тее
01-01-05	\sim	Flexible Pipe / Hose
01-01-06	-	Direction of Flow
01-01-07	-E3-	Expansion Joint
01-01-08	\Leftrightarrow	Strainer / Cartridge Filter
01-01-09	>	Strainer, Y-Type
01-01-10	-D	Reducer
01-01-11		Blanked End
01-01-12		Cap Flange
01-01-13		Screwed
01-01-14		Flanged Connection
01-01-15	—- II —	Union

Table 8



01-01-16	\rightarrow	End Socket & Spigot
01-01-17	—D	End Cap
01-01-18	— <u>[]</u>	Kamlok / Hose Cock (Hose Connection)
01-01-19	Y	Overflow / Drain
01-01-20	ſ	Vent
01-01-21	P	Pigtail Siphon
01-01-22	ſ	Anti-Siphon Loop
01-01-23		Hose Reel
01-01-24		Emergency Shower and Eye Wash
01-01-25	ĩ	Handbasin and Eyewash
01-01-26	Ŷ	Vent (Vermin Screen)
01-01-27		Silencer or Filter
01-01-28	-++-	Break Symbol
01-01-29	\mathbb{C}	Bellow



Table 4: Valves

Reference No.	N/Open Symbol	N/Closed Symbol	Description
01-02-01	-	-▶4-	Valve, General Symbol
01-02-02	-k	4	Lockable Valve, General Symbol
01-02-03		*	Shut-Off & Regulating Valve, Three Way
01-02-04	\mathbb{R}	╋	Shut-Off & Regulating Valve, Four Way
01-02-05	¥.		Safety / Relief Valve – Pressure
01-02-06			Safety / Relief Valve – Vacuum
01-02-07	-2-		Pressure Reducing Valve
01-02-08	-2-		Check / Non-Return / One-Way Valve
01-02-09	-224-		Reduced Pressure Zone, Back-Flow Prevention Valve
01-02-10	->>	->	Gate Valve
01-02-11			Knife Gate Valve
01-02-12			Sliding Gate Valve
01-02-13	-181-	->->->	Ball Valve
01-02-14	-🕅-		Diaphragm Valve
01-02-15	-l~~		Butterfly Valve
01-02-16	->>-	$\stackrel{-}{\succ}$	Globe Valve
01-02-17	->>>-		Cock Valve



01-02-18	-**-	-₩	Needle Valve
01-02-19	-4-	- -	Plug Valve
01-02-20			Air Release Valve
01-02-21	R A		Angleseat Control Valve
01-02-22	Ŕ		Self-contained Pressure Regulator
01-02-23	¥ A		Pressure Regulator with External Tap
01-02-24	ł		Ejector
01-02-25	>>>		Control Valve Opens on Failure of Actuating Energy
01-02-26	>>	*	Control Valve Closes on Failure of Actuating Energy
01-02-27	-,丈	-₩	Control Valve Retains Position on Failure of Actuating Energy
01-02-28	×	X	Penstock
01-02-29			Damper, Multiblade Parallel
01-02-30	/		Damper, Single Bladed
01-02-31	\mathbb{M}		Damper, Multiblade Opposed
01-02-32			Stop Board



Table 5: - Drives, Actuators & Control Equipment

Reference No.	Symbol	Description
01-03-01	CV mm	Open / Close Actuator Drive
01-03-02	FCV-7777	Modulating Actuator Valve
01-03-03	NF-7777	Motor Fixed Speed
01-03-04	MV-2337	Motor Variable Speed
01-03-05	P9-7771	Pneumatic Pump
01-03-06	Т	Manual Actuating Element
01-03-07	2	Float Operated
01-03-08		Weight Operated
01-03-09	4	Spring Loaded
01-03-10	曱	Piston, General Symbol
01-03-11	甲	Piston Actuated Single Acting (Spring Loaded)
01-03-12	· - - - - - - - - - - - - -	Piston Actuated Double Acting
01-03-13	s	Solenoid Control Actuator
01-03-14	C	Pump
01-03-15	42	Sample Pump



01-03-16	B	Positive Displacement Pump
01-03-17		Lobe Pump
01-03-18		Pump – Submersible
01-03-19		Dosing Pump
01-03-20	L	Progressive Cavity Pump
01-03-21	\odot	Diaphragm Pump
01-03-22		Peristaltic Pump
01-03-23		Vacuum Pump
01-03-24	s S	Propeller Agitator
01-03-25	<u>لے</u>	Paddle Agitator
01-03-26	\otimes	Mixer in Stilling Mode
01-03-27	S	Centrifugal Blower
01-03-28		Positive Displacement Blower
01-03-29	8	Exhaust Fan
01-03-30	8	Compressor



01-03-31	0	Air Receiver
01-03-32	Ð	Pulsation Dampener

Table 6: Flow Elements

Reference No.	Symbol	Description
01-03 -33	-=-	Magnetic Flowmeter
01-03-34		Mass Flowmeter
01-03-35	-2-	Ultrasonic Flowmeter
01-03-36	8	Rotameter
01-04-01	-[9]	Turbine or Propeller Meter
01-04-02		Orifice Plate
01-04-03		Restriction Orifice
01-04-04		Orifice Plate Inline Change Fitting
01-04-05	¥	Venturi Tube
01-04-06	-[-]-	Flow Nozzle
01-04-07		Pilot Tube
01-04-08	\times	Flume



01-04-09	-11-	Weir
01-04-10		Straightening Vane
01-04-11	\odot	Represents Flow Towards
01-04-12	\oplus	Represents Flow Away From
01-04-13		Filter
01-04-14		Pressure Pump
01-04-15	\bigcirc	Receiving Vessel



Table 7: Level Elements

Reference No.	Symbol	Description
01-05-01	P	Ultrasonic / Radar
01-05-02		Laser
01-05-03		Capacitance or Dielectric
01-05-04		Hydrostatic Level Measurement
01-05-05		Level Switch, Paddle Wheel or Float Type
01-05-06		Magnetic Level Indicator
01-05-07	•	Radioactive
01-05-08		Radar



Table 8: Miscellaneous

Reference No.	Symbol	Description
01-06-01		Conveyor
01-06-02		Screw Conveyor
01-06-03		Basket Strainer
01-06-04		Macerator / Mucher
01-06-05	XXXXXX	Static Mixer
01-06-06	\mathbb{N}	Air Filter
01-06-07	Ϋ́.	Humidifier
01-06-08		Silencer
01-06-09	\oplus	Air Heater
01-06-10	Ο	Air Cooler
01-06-11	_	Separator
01-06-12	0	Dosing Point
01-06-13	© ~	Withdrawable Injection Line
01-06-14	Le	Injection Nozzle
01-06-15		Static Screen



01-06-16		Calibration Tube
01-06-17		Audible Alarm
01-06-18		1 Phase Outlet 240VAC
01-06-19	(sros)	3 Phase Outlet – Switched 415VAC
01-06-20	R	Flashing Light, W-White, G-Green-, A- Amber, R-Red
01-06-21	(* * * * * * * * * * * * * * * * * * *	Aeration Grid
01-06-22		Heater
01-06-23	↓	Auto Air Vent
01-06-24	·	Band Screen
01-06-25		Compressor Rotary Screw
01-06-26		Fire Hydrant
01-06-27		All Flow control Valves (FCV) to have Analogue Signal for Position (4-20mA) and Open and Close Limits
01-06-28		Compressed Air



01-06-29		Control Signal
01-06-30	——— FA —— FA —— FA ——	Foul Air
01-06-31	—— АА — АА — АА —	Aeration Air
01-06-32		Channel

8.2 Unique Asset Representations

Some assets are unique in their physical appearance, sprayer setup, electric motor drive setup, instruments, and other features. Unique assets should be represented with a unique P&ID representation.

A clarifier can have a full-length bridge, half-length bridge, or no bridge at all. A clarifier can be driven by an electric motor at the center, or an electric motor with a roller on the outer edge of the structure. Not every clarifier has a scum sweeper, sludge scraper, or sprayers (no electric motor required). Clarifiers are a unique asset and should be represented as unique and in accordance with the existing clarifier asset. Some examples of unique assets are shown below.

A unique asset P&ID representation is usually generated from a preexisting representation with similarities. Any extra or lacking features will be changed in the copied representation. This approach is more time effective than generating a new and completely unique representation for a unique asset.



Septage receival station



• Automated screen (screw, band, etc.)





• Screw wash press (also called washpactor)



Grit chamber





Grit classifier



• Bioreactor (unique number of cells and paths)





• Clarifier



• Chlorine contact tank





• Digester (unique number of cells and paths)



• Belt filter press (unique number of pulleys, belts, and/or pulley and belt configuration)







9 REFERENCE DESIGNATION

The reference designation for a P&ID graphical symbol is as follows:

A-BC

Table 9: Reference designation

A - Equipment Prefix	B - Area Number Suffix	C - Sequence Number
Up to 4 Letters (Refer to section 3.1)	2 Digits (Refer to section 3.2)	3 Digits, (Use numbers from 000 to 999)

Table 10: Example of Reference Designations

AIT-20011	Analogue Indicating Transmitter (AIT) in the Bioreactor (Oxidation Ditch) Area (20) with a sequence number of 011
PR-62047	Pressure Regulator (PR) in the Caustic Soda Area (62) with a sequence number of 047
NRV-11014	Non-Return Valve (NRV) in the Grit Area (11) with a sequence number of 014

Table 11: Equipment and Functional Abbreviations

Abbreviation	Description
AC	Air Compressor
ACF	Activated Carbon Filter
ACR	Air Cooler
AD	Air Dryer
AE	Analogue Element
AEX	Anion Exchanger
AER	Aerator or Paddle
AIT	Analogue Indicating Transmitter
ARV	Air Releasing Valve
AS	Alarm Station
BAT	Battery



BCH	Battery Charger
BFP	Belt Filter Press
BGL	Bag Loader
BIN	Bin (Silo or Hopper)
BLW	Blower (High Volume and Low Pressure)
BLO	Blower
BRI	Mechanical Bridge
CAR	Carousel (Bagging)
CEX	Cation Exchanger
CFG	Centrifuge
СНВ	Chamber
CHN	Channel
CLA	Clarifier
CNL	Canal
CON	Conveyor (Belt, Slotted Belt or Bucket)
СР	Compressor
СРТ	Catch Pot
CRN	Crane (Crane/Davit/Gantry/Hoist/Pulley/Chain-block/Winch)
CRU	Crusher
CS	Composite Sampler
СТ	Calibration Tube, Vessel, Cylinder, etc.
CTW	Cooling Tower
CV	Control Valve
CYC	Cyclone
DAM	Dam
DE	Dust Extractor
DEB	Debubbler



DEC	Decanter
DHR	Dehumidifier
DIF	Diffuser (Air, Water, etc.)
DIG	Digester
DMP	Pulsation Dampener
DO	Dissolved Oxygen
DRM	Drum
DWL	Dry Well
ED	Educator / Ejector
EFS	Effluent Filling Station
EJR	Ejector, Injector or Educator
EPS	Effluent Pump Station
EVP	Evaporator
FAN	Fan (Includes All Fans Such as Cooling Tower Fans)
FCV	Flow Control Valve (For Automated Valves That Are Flow Modulating)
FDR	Feeder (Screw, Rotary, etc.)
FE	Flow Element
FI	Filter
FIT	Flow Indicating Transmitter
FHY	Fire Hydrant
FS	Flow Switch
FSH	Flow Switch – High
FSL	Flow Switch – Low
FSV	Flow Switching Valve (For Automated Valves That Are Either Open or Closed)
FT	Flow Transmitter
FV	Float Valve
GDD	Gravity Drainage Deck



GEN	Generator
GTR	Grit Classifier
HTR	Heater
HV	Hand Valve
HXR	Heat Exchanger, Ambient Heat Vaporiser
HYV	Hydrant (Valve)
IGV	Inlet Guide Vane
IT	Incline Trough
KL	Kamlock Fitting
LE	Level Element
LI	Level Indicator
LIT	Level Indicating Transmitter
LS	Level Switch
LSH	Level Switch – High
LSHH	Level Switch – High High
LSL	Level Switch – Low
LSLL	Level Switch – Low Low
LSK	Lime Slaker
LT	Level Transmitter
LU	Lubricator (For Compressed Air)
МСТ	Macerator
MCR	Muncher
MD	Moisture Detection
MF	Motor – Fixed Speed
MFM	Microfiltration (MF) / Ultra filtration (UF) Membrane
MV	Motor – Variable Speed
MX	Static Mixer



MXR	Mixer, Flocculator
NRV	Non-Return Valve
OCU	Odour Control Unit
OGD	Off Gas Destructor
PCV	Pressure Control Valve (For Automated Valves That Are Pressure Modulating)
PDE	Pressure Differential Element
PDT	Pressure Differential Transmitter
PDI	Pressure Differential Indication
PDIT	Pressure Differential Indicating Transmitter
PE	Pressure Element
PEN	Penstock
PG	Pressure Gauge
рН	pH Meter
PI	Pressure Indicator
PIT	Pressure Indicating Transmitter
PMD	Dosing Pump (Metering Special Function, etc.)
PMP	Pump (Centrifugal, Positive Displacement, Piston, Diaphragm, etc.)
PR	Pressure Regulator
PRS	Plate Press (Dewatering)
PRV	Pressure Relief Valve
PS	Pressure Switch
PSH	Pressure Switch – High
PSHH	Pressure Switch – High High
PSL	Pressure Switch – Low
PSLL	Pressure Switch – Low Low
PST	Primary Sedimentation Tank
PSV	Pressure Sustaining Valve



PT	Pressure Transmitter		
PVL	Pasteurising Vessel		
RES	Reservoir		
ROM	RO Membrane		
ROT	Rotameter		
RPZ	Reduced Pressure Zone		
RV	Rotary Valve		
SB	Stop Board		
SCB	Scrubber		
SCN	Screen (Mechanically Raked, Hand Raked, Step & Trash Racks)		
SCP	Scraper		
SCV	Scour Valve		
SCW	Screw		
SEH	Safety Eyewash and Hand Basin		
SIL	Silencer		
SKM	Skimmer / Scum Harvester		
SLO	Silo (e.g., Lime)		
SMR	Sampler		
SPS	Sewer Pump Station		
SSR	Safety Shower		
ST	Strainer		
SU	Surge Vessel		
SV	Solenoid Valve		
TE	Temperature Element		
ТІ	Temperature Indicator		
TIT	Temperature Indicating Transmitter		
TFI	Trickling Filter		



ТНВ	Thermoblender
тнк	Thickener
TNK	Tank or Vessel (Non-Pressurised)
TRP	Тгар
TWR	Tower
UVB	Ultraviolet Bank
VAP	Vacuum Pump
VCR	3-Way Spool Vented Centre to Return (VCR) Valve
VIB	Vibrator, Hammer or Shaker
VR	Vacuum Regulator
VSD	Variable Speed Drive (Includes Variable Voltage Variable Frequency Drives (VVVFD) and Controllers)
VSL	Pressure Vessel (Any Pressurised Tank or Vessel)
WCN	Wetting Cone
WCP	Washer Compactor
WE	Weight Element
WI	Weight Indicator
WIT	Weight Indicating Transmitter
WT	Weight Transmitter
WEL	Well
WER	Weir
WGB	Waste Gas Burner
WPR	Washpactor
WSL	Weigh Scale
XSH	Torque Switch High (Over Torque)
ZS	Position Switch
ZSC	Position Switch – Closed
ZSO	Position Switch – Open



ZSR

Position Switch – Rotation

Table 10 - Area Descriptors

Plant Wide Systems - (PWSY)		
Area No	Sub Area	Area Descriptor
0	0	000 to 999 General
0	1	000 to 999 Raw Water (Untreated Potable Water)
0	2	000 to 999 Service Water
0	3	000 to 999 Potable Water
0	4	000 to 999 Fire Systems
0	5	000 to 999 Storm Water
0	6	000 to 999 Compressed Air
0	7	000 to 999 Odour Control
0	8	000 to 999 Roadworks
0	9	000 to 999 Buildings
Prelimina	ry Treatment	– Inlet Works – (INTL)
Area No	Sub Area	Area Descriptor
1	0	000 to 999 Screening
1	1	000 to 999 Grit
1	2	000 to 999 Foul Water
1	3	000 to 999 Bypass
1	4	000 to 999 Balance Tank
1	5	000 to 999 Raw Pump Station
1	6	000 to 999 SPARES
1	7	000 to 999 SPARE
1	8	000 to 999 SPARE
1	9	000 to 999 SPARE
Primary & Biological Treatment – (PRBT)		



Area No	Sub Area	Area Descriptor
2	0	000 to 999 Bioreactors – (Oxidation Ditch)
2	1	000 to 999 Waste Activated Sludge – (WAS)
2	2	000 to 999 Scum Harvester
2	3	000 to 999 Digested Waste Activated Sludge – (DWAS)
2	4	000 to 999 Dewatering – (Belt Filter Press, Centrifuge)
2	5	000 to 999 Return Activated Sludge – (RAS)
2	6	000 to 999 Primary Sedimentation
2	7	000 to 999 Fermenter
2	8	000 to 999 Biofilter
2	9	000 to 999 SPARE

Secondary Treatment – (SECT)		
Area No	Sub Area	Area Descriptor
3	0	000 to 999 Scum Pump
3	1	000 to 999 Secondary Clarifiers
3	2	000 to 999 Membrane Feed / Recycle
3	3	000 to 999 Membrane Permeate
3	4	000 to 999 Membrane CIP
3	5	000 to 999 SPARE
3	6	000 to 999 SPARE



3	7	000 to 999 SPARE
3	8	000 to 999 SPARE
3	9	000 to 999 SPARE

Tertiary Treatment - (TERT)		
Area No	Sub Area	Area Descriptor
4	0	000 to 999 Contact Tank
4	1	000 to 999 Coagulation / Flocculation
4	2	000 to 999 Sedimentation
4	3	000 to 999 Oxidation
4	4	000 to 999 Filters
4	5	000 to 999 pH Correction
4	6	000 to 999 Chemical Disinfection
4	7	000 to 999 UV Disinfection
4	8	000 to 999 SPARE
4	9	000 to 999 SPARE

Process Equipment – (PREQ)		
Area No	Sub Area	Area Descriptor
5	0	000 to 999 Aeration
5	1	000 to 999 Bioreactor Blowers
5	2	000 to 999 Membrane Blowers
5	3	000 to 999 SPARE
5	4	000 to 999 Digester Blowers
5	5	000 to 999 SPARE
5	6	000 to 999 Air Compressors
5	7	000 to 999 SPARE



5	8	000 to 999 SPARE
5	9	000 to 999 SPARE

Chemical Storage and Dosing - (CHEM)			
Area No	Sub Area	Area Descriptor	
6	0	000 to 999 Ferric Chloride	
6	1	000 to 999 Aluminium Sulphate – (Alum)	
6	2	000 to 999 Sodium Hydroxide – (Caustic Soda)	
6	3	000 to 999 Chlorine Gas	
6	4	000 to 999 Polymer	
6	5	000 to 999 Carbon / Liquid Sugar	
6	6	000 to 999 Sodium Hypochlorite – (Hypo)	
6	7	000 to 999 Soda Ash – (Sodium Carbonate)	
6	8	000 to 999 Hydrated Lime – (Hydrated Calcium Hydroxide)	
6	9	000 to 999 Methanol	

Solids Handling – (SOHD)			
Area No	Sub Area	Area Descriptor	
7	0	000 to 999 Sludge Balance Tank (SBT)	
7	1	000 to 999 Sludge Thickening Tank (STT)	
7	2	000 to 999 Sludge Conditioning	
7	3	000 to 999 Digester	
7	4	000 to 999 Dewatering	
7	5	000 to 999 Drying Bed	
7	6	000 to 999 Sludge Storage	
7	7	000 to 999 Solar Dryer	
7	8	000 to 999 SPARE	



7	9	000 to 999 SPARE
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Water Storages and Pump Stations – (WSPS)			
Area No	Sub Area	Area Descriptor	
8	0	000 to 999 Balance Tank	
8	1	000 to 999 Clear Water Storage – (Treatment Plant Reservoir)	
8	2	000 to 999 Reservoir – (Reticulation Storage)	
8	3	000 to 999 Water Tower – (Elevated Storage)	
8	4	000 to 999 Transfer Pump Station	
8	5	000 to 999 High lift Pump Station	
8	6	000 to 999 Booster Pump Station	
8	7	000 to 999 Washwater Pump Station	
8	8	000 to 999 SPARE	
8	9	000 to 999 SPARE	

Sewage, Effluent Pump Stations – (SEPS)			
Area No	Sub Area	Area Descriptor	
9	0	000 to 999 General Purpose Pump Station	
9	1	000 to 999 Sewage Pump Station	
9	2	000 to 999 Effluent Pump Station	
9	3	000 to 999 Recycled Water	
9	4	000 to 999 Effluent Outfall	
9	5	000 to 999 SPARES	
9	6	000 to 999 SPARES	
9	7	000 to 999 SPARES	
9	8	000 to 999 SPARES	
9	9	000 to 999 SPARES	



10 PROCESS FLOW TAG FORMAT

Process flow tags shall contain the following information as appropriate:

FLUID code or description with source or destination

DRAWING NUMBER of source or destination drawing.

Example: Incoming process (RAS) Return Activated Sludge on a previous sheet might be designated as shown below:



Figure 3: Process flow tag format



11 CHANGE HISTORY

A record of changes to the standard:

Table 12: Change History

Change History					
Νο	Date	Author of Change	Description of Change	Section & Table Reference	
1	25/09/2023	S. Askew	Inclusion of water treatment plant abbreviations and additional symbols	Section 9, Table 11	
2	25/09/2023	S. Askew	Inclusion of unique graphical figures	Section 8.2	