


	A	B	C
1	 Unitywater	F10678 - Accepted Electrical Equipment List	
2	Notes: The <i>List</i> is not exhaustive. If a make and model is not specified then check acceptability with Unitywater. New products are regularly being released on to the market. Product appraisal requests can be sent to products@unitywater.com . This list should be read in conjunction with Unitywater Specifications <i>Pr9835 - Electrical Installations at Sewage Treatment Plants</i> and with <i>Pr9380 - Electrical Installations at Network Sites</i> .		
3	Product Type	MAKE and Model	COMMENTS
4	Actuator Valves	Rotork IQ 415 Volt 3 phase 50 Hz power supply	Other options will be considered for single phase powered or DC ELV valves.
5	Ammeters		Refer to Power Meter requirements.
6	Analogue Digital Displays	Red Lion	
7	Antennae	RFI (wireless) Industries stainless steel Yagi (450-480Hz) YBSS9-61, YBSS6-61	
8	Antenna Mounting Brackets	RFI (wireless) Industries UNV, UNV2, UC1, UCR1, UCR2 – as required.	Use of hockey stick mounts is not acceptable.
9	Antenna Pole		Timber or vent pole, alternatively stainless steel pole/aluminium poles accepted to match the structure. Materials throughout shall be matched to prevent galvanic corrosion.
10	Batteries	Telemetry Panasonic LC-X1212P 12Ah Panasonic LC-X1228P 28Ah Generators/repeaters AGM HGL100-12C,HGL120-12B, ED121600,HGL260-12.	Other batteries shall be maintenance free, lead acid 900CCA, N120, N200.
11	Battery Chargers	CTEK M200 12V 15A, M300 12V 25A, XT14000 24V 14A Victron	Victron chargers of a similar size are suitable when CTEK are unavailable. Exact model to be approved prior to purchase.
12	Battery Plugs & Receptacles	Molex Mini-Fit Series 428180212 Plug Molex Mini-Fit Series 428160212 Receptacle	
13	Cable Lugs		Correctly sized hole and lug.
14	Cable Pits		Refer to Specifications Pr9835 and Pr9380
15	Cable trays and ladders		Refer to Specifications Pr9835 and Pr9380
16	Cable Ladder Supports		Ensure separation of dissimilar metals or use the same material as cable ladder.
17	Analysers - pH, Turbidity, Chlorine, Conductivity, Nutrient	Evoqua Depolox 3 Prominent E&H Hach	
18	Chlorine Dosing Pumps	Grundfos DDA	
19	Circuit Breakers		
20	Air Circuit Breakers	<i>Schneider</i> <i>NHP - Terasaki</i>	Others accepted upon approval for Type 2 coordination, arc flash and discrimination.
21	<i>Miniature Circuit Breakers (MCB's) – Motor, General Purpose, RCD</i>	Schneider NHP - Terasaki Siemens	
22	<i>Moulded Case Circuit Breakers (MCCB's)</i>	NHP – Terasaki Schneider Siemens	Others accepted upon approval for Type 2 coordination, arc flash and discrimination.
23	Coax Cables	CNT-400 for DOL sites LDF4-50 for VFD and Soft Starter sites RG58 Celfoil Low Loss between Radio and Surge Diverters	
24	Coax Surge Diverters	PolyPhaser IS-50NX-C2 Critec CSPNB90 Novaris CN-FF-90-2	
25	Communication Racks	Dell	
26	Conduits		
27	<i>Rigid</i>		Refer to specifications Pr9835 and Pr9380.
28	<i>Flexible</i>		Refer to specifications Pr9835 and Pr9380. Corrugated conduit not accepted unless project-specific approval given.
29	Contactors	Sprecher & Schuh CA7 Schneider Siemens SIRIUS	
30	Control Switches & Selectors	Kraus & Naimer CA10 Series NHP – Sprecher & Schuh Schneider	
31	Corrosion Inhibitors	Zerust	Others accepted upon Unitywater approval.
32	Current Transformers	Crompton 781-943 Series IME TAI BB XX/5A Phoenix	
33	Current Transducers/Transmitters/Clip on CTs	Sentry SC 200-1 (up to 50A only) Phoenix - PACT RCP-4000A-1A-D95 - 2904921, PACT RCP-4000A-1A-D140 - 2904922, PACT RCP-4000A-1A-D190 - 2904923	

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3	Product Type	MAKE and Model	COMMENTS
34	Data Loggers	Hach Radcom Multilog	
35	DC Converters	Meanwell Snaptech	
36	DIN Rails		TS35 aluminium or stainless steel.
37	Dissolved Oxygen DO Sensors and Transmitters	E&H Hach Siemens	
38	Door Switches	Camsco	
39	Earth Links	Clipsal BP 165 Series DORE Electrics 165E12	
40	Earth Pits	Repelec Aluminium 120x120x76mm Nesco Pit-03 ACO PEP225 Earth Rod Pit with Steel Cover (Part #75778)	
41	Earth Terminals		Same as Terminals (below).
42	Emergency Stop Pushbuttons		Enclosures to be yellow.
43	Emergency Stop Safety Monitoring Relays		
44	Fans	Rittal Cosmotec	
45	Float Switches (must activate within 50 mm of contact)	Flygt ENM 10 Float with suitable cable length IFM Efector	
46	Flowmeters - Magflow	ABB Watermaster ABB Aquamaster	
47	Flow Switches - Process	Burket 8030 IFM Effector E&H DTT31	No paddle types
48	Flow Switches - Diesel Fuel Line	Kelco	
49	Fobots	AFS DIN Rail Mounted	24 port minimum for sewage treatment plants.
50	Fuses		
51	Fuse Cartridges		
52	Fuse Holders		
53	Generators	FG Wilson Cummins	Other brands considered. However, the controller shall be standardised where practical. Must comply with Pr9913 <i>Acoustic Enclosed Generators</i> .
54	Generator Controllers and Synchronisation Controllers	Deep Sea	
55	Generator Inlets	Proconnect 63A <25 kW Proconnect 125A 25 to 60 kW Powersafe Sequential Mating Box >60 kW	
56	HMIs		Refer to Unitywater <i>Preferred Control System Equipment List</i> for details of Network HMI. HMI not allowed in sewage treatment plants.
57	Indication Lamps (22.5 mm)	Sprecher & Schuh D7P Series Schneider Siemens SIRUIS	
58	Intrinsically Safe Equipment (Hazardous Area Rated Equipment)		Must meet eX rating as per the design.
59	Isolators & Main Switches	Schneider Terasaki NHP Socomec SLB Series	
60	Isolators Local Motors & Drives	Schneider Terasaki Sprecher and Schuh	
61	Junction Boxes		Refer Pr9835 and Pr9380.
62	Labels		Refer to specifications Pr9835 and Pr9380 indoor and outdoor including cables, wiring ferrules, terminals, equipment, switchboards etc.
63	Level Control Relays		
64	Emergency Pump Starter	Multitrode Safe-TL	Not allowed in sewage treatment plants.
65	Overflow	Multitrode Safe-FS	Not allowed in sewage treatment plants.
66	Level Probes		
67	Hydrostatic	Vegawell 52 (WL52.XXA4AMD1DD1X)	
68	Capacitive		
69	Three Element Emergency Pump Starter	Multitrode 0.5/3-10	Not allowed in sewage treatment plants.
70	Single Element Overflow	Multitrode 0.2/1-10	Not allowed in sewage treatment plants.
71	Level Switches		
72	Network sites	Flygt ENM 10 Ball Float	
73	Sewage Treatment Plant sites	IFM Efector E&H Liquiphant FTL31 E&H Prosonic FDU90 E&H Prosonic FMU92	
74	Level Transmitters – Radar	VegaPuls	
75	Level Transmitters – Ultrasonic	VegaSon	
76	Lighting	Eye Lighting Pierlite Phillips	All lighting to be LED.

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3	Product Type	MAKE and Model	COMMENTS
77	Lightning Rods		
78	Limit Switches	Honeywell Heavy Duty LS series Schneider Endress & Hauser	
79	Locks		Refer to Pr9380 for Network requirements. Refer to Unitywater for STP requirements.
80	Modems		Refer to <i>Preferred Control System List</i> .
81	Motors	WEG Teco	Other brands considered but require Unitywater approval. 4 pole preferred and approval needed otherwise. For performance requirement refer to Pr9835 and Pr9380.
82	Motor Contactors	Sprecher & Schuh CA7-23E Schneider Siemens SIRIUS	
83	Motor Protection Relays	Schneider TeSys T LTM R27EBD Siemens Simocode 3UF7100, 3UF7101, 3UF7110, 3UF7110	Dual ethernet port TCP/IP model.
84	Networking - Managed		Refer to <i>Preferred Control System List</i> .
85	Networking - Unmanaged		See <i>Control Systems Specification</i> . Unmanaged switches not allowed in sewage treatment plants.
86	Neutral Links	Clipsal BP 165 Series DORE Electrics 165E Series	
87	Nutrient Analysers	Endress & Hauser Hach Siemens	
88	Odour Loggers	Drager	
89	P.E. Cells	Clipsal 56 SSR – 3 wire only	
90	Phase Failure Relays	Carlo Gavazzi DPB02-C-M48 Rhomberg SP430-DP	
91	pH Sensors and Transmitters	Endress & Hauser Hach Siemens	
92	Poles - Lighting		See electrical specs for performance requirements.
93	Power Meters	Electrex Zepto PFA8611-18 (24V DC Aux) Schneider Power Logic Meters Siemens Sentron PAC3200	
94	Power Outlets - 3 Phase	Clipsal 56 series	Must be suitable for installation outside.
95	Power Outlets - 1 Phase Internal	Clipsal "classic" or "2000" series or similar	Red for UPS backed GPOs.
96	Power Outlets - 1 Phase External	Clipsal 56 series NHP ISO	
97	Power Supplies		
98	240V AC / 24V DC	240VAC/24VDC or 12VDC Puls QS10.241-C1, QS5.241 Siemens SITOP PSU8600 and PSU6200 series Weidmuller PROTOP1 series Phoenix QUINT-4 series	Preferably with Modbus, SNMP or Profinet comms where available.
99	12/24V DC UPS	Puls UB10.245	For Network sites only. Not to be used in sewage treatment plants.
100	Pressure Switches	SquareD Industrial Class 9012G Endress & Hauser Burkert	
101	Pressure Transmitters – Pressure and Level Measurement	Vega E&H Rosemount/Emerson ABB Yokogawa	
102	Pressure Transmitters – Differential Pressure	Vega E&H Rosemount/Emerson ABB Yokogawa	
103	Pressure Transmitters - Hydrostatic	Vega E&H Rosemount/Emerson ABB Yokogawa	Must be supplied with S/S isolating valve manifold when used on sewage (to prevent blockages).
104	Process Control SCADA Systems		Refer to <i>Preferred Control System List</i> .
105	Programmable Logic Controller Output Relays		Refer to <i>Preferred Control System List</i> .
106	Programmable Logic Controllers		Refer to <i>Preferred Control System List</i> .
107	Programmable Logic Controllers & Remote Telemetry Units		Refer to <i>Preferred Control System List</i> .
108	Protocol Convertors		As per specific site requirements. To be decided in conjunction with Unitywater control system staff.

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3	Product Type	MAKE and Model	COMMENTS
109	Proximity Switches	IFM Efector NHP – Sprecher & Schuh D7P Series Schneider Siemens SIRIUS Turck Pepper and Fuchs	
110	Pushbuttons	Sprecher & Schuh D7P Series Schneider Siemens SIRIUS	
111	Radios		Refer to <i>Preferred Control System List</i> .
112	Relays	Finder 55 Series with DIN rail mounting base and retaining clip – 4 contact minimum Telemecanique – 4 contact minimum	
113	RTUs		Refer to <i>Preferred Control System List</i> .
114	RTUs - 3G/4G Small Sites		Refer to <i>Preferred Control System List</i> .
115	Seal Fail Relays	Emotron Mini CAS	
116	Sealing compounds	Henley's compound Denso Mastic	Not grout, not foam-a-fill.
117	Signal Isolators and Converters	APCS SL332 Weidmuller eLine API (aka Burkert) Red Lion IAMA and AIMI series	
118	Soft Starters	Danfoss MCD500 Schneider Altistart	Not allowed in sewage treatment plants.
119	Solenoid Valves	Process Systems B25-2-2-8VM 24V DC Burkert type 0331	
120	Strobe Light Alarms		
121	Stop / Start Stations	Kraus & Naimer Custom	Other brands accepted with approval from Unitywater. The functionality must be as per Pr9835 and Pr9380.
122	Surge Diverters	Critec DSD340TNC275A Transtech TLP Series+B154:B166 Novaris Erico Phoenix PLT-SEC-T3 series, TTC-6P series, VAL-MS series MTL Weidmuller VPU or VSS series	
123	Surge Reduction Filters	Critec DSD340TNC275A Transtech TLP Series+B154:B166 Novaris Erico Phoenix PLT-SEC-T3 series, TTC-6P series, VAL-MS series MTL Weidmuller VPU or VSS series	
124	Terminals	Phoenix UT series Weidmuller W series Telemachinique Sprecher and Schuh	No push in terminal allowed.
125	Thermal Overloads	Sprecher & Schuch CEP7-EE-DB Schneider - Telemecanique	
126	Thermistor Protection Relays	Schneider LT3 24V DC	VFD connections preferred.
127	Thermostats	Rittal Cosmotec	
128	Timers	Schneider Zelio Carlo Gavazzi	To be avoided. Unitywater preference is to use PLC/SCADA/RTU for this function.
129	Transducers	Crompton NHP	
130	Transfer Switches		
131	Automatic	Schneider NHP – Terasaki NHP Socomec SIRCOVER	
132	Manual	NHP Socomec SIRCOVER for >125A ABB switch ABBOT80F4C + handle, shrouds and shaft <125A	
133	Transient Barriers	Erico Critec UTB-30SP Erico Critec UTB-30SPG for use in disconnection cubicles Novaris SL36-G Novaris SL36-EC90 for use in disconnection cubicles MTL SD32	
134	Turbidity Sensors and Transmitters	Endress & Hauser Hach Siemens	
135	Uninterruptible Power Supplies	Eaton (STP and Network) Emerson (Network only)	Must have network interface card with SNMP capability for monitoring purposes.

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3	Product Type	MAKE and Model	COMMENTS
136	Variable Frequency Drives	Schneider ATV600 series Fuji Frenic Aqua Danfoss VLT Aqua (FC202)	Ethernet interface required.
137	Variable Frequency Drives Speed Control Potentiometers		Not allowed.
138	Variable Frequency Drives Remote Key Pads		As per VFD requirements.
139	Voltmeters		Refer to Power Meter requirements.