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TWEED SHIRE COUNCIL

E1.001.1 Sewer Pumping Station Factory Acceptance Testing (FAT) and Commissioning Checklist Development Construction Specification C402 – Sewerage System Requirements

Commissioning Checklist

SPS Name:

SPS Location:

DNP (when changing DNP address power down after change)

Note: Ensure: SCADAPACK Firmware is above 8.12.1, HMI is Version 4.2, ISaGRAF is Version 09d for SPS and Backup Controller PLC has STD_SPS_TSC_V_1.0.pro.

GENERAL	Type	Pass	Fail	Checked
Touch Screen (Door Sw must be open or reset will occur) Code 0000 till SCADA changes	General			
Duty Type - Check Correct selection and Backup Controller is configured correctly. Confirm that pulses are sent in both directions. If it fails check wiring or try 'Write Duty Config' again.	General			
Ensure worksite is safe to proceed fill out risk assessment	General			
Record radio serial No.	General			
All radio and communications leads must be tested prior to installation.	General			
Adjust overload settings to FLC of motor, change if required. Record name plates AMPS	General			
Perform point to point check on all wiring.	General			
Ensure both neutral terminals on main switch are tightened (even if unused)	General			
Ensure all cables ends are ferruled and numbered. (hand written labels unacceptable).	General			
Apply 3 phase power to the switchboard and test power and control functions.	General			
Configure all components (addresses etc)	General			
Check system is set to standby and duty mode is operational.	General			
Attach Test Motor to Pump Starter for current test	General			
Ensure power supply OVDC and B- are in correct order (0VDC on far left of green plug, B- 2nd terminal in)	General			
Primary check CT's direction of cable through CT	General			

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INPUTS & ALARMS (Attach Test Motor to Pump Starter for current test)	**Type**	**HMI**	**SCADA**	**ALARM**
Pump 1 Auto	Digital Input			
Pump 1 Manual	Digital Input			
Pump 1 Running	Digital Input			
Pump 1 Thermistor (Remove bridging resistor)	Digital Input			
Pump 1 Seal (Short to earth)	Digital Input			
Pump 1 Starter fault (Remove wire 610 on starter) Ensure doesn't auto reset	Digital Input			
Pump 1 C/B Status (Turn off pump isolator)	Digital Input			
Pump 1 Unavailable	Alarm			
Pump 1 Failed to Start (Remove run relay)	Alarm			
Pump 1 Inhibited (Select in Pump>Control)	Alarm			
Pump 1 Low Amps (Change settings on touch screen) three times then lockout	Alarm			
Pump 1 High Amps (Change settings on touch screen)	Alarm			
Pump 2 Auto	Digital Input			
Pump 2 Manual	Digital Input			
Pump 2 Running	Digital Input			
Pump 2 Thermistor	Digital Input			
Pump 2 Seal	Digital Input			
Pump 2 Starter fault	Digital Input			
Pump 2 C/B Status	Digital Input			
Pump 2 Unavailable	Alarm			
Pump 2 Failed to Start	Alarm			
Pump 2 Inhibited	Alarm			
Pump 2 Low Amps	Alarm			

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Commissioning Checklist				
Pump 2 High Amps	Alarm			
Pump 3 Auto	Digital Input			
Pump 3 Manual	Digital Input			
Pump 3 Running	Digital Input			
Pump 3 Thermistor	Digital Input			
Pump 3 Seal	Digital Input			
Pump 3 Starter fault	Digital Input			
Pump 3 C/B Status	Digital Input			
Pump 3 Unavailable	Alarm			
Pump 3 Failed to Start	Alarm			
Pump 3 Inhibited	Alarm			
Pump 3 Low Amps	Alarm			
Pump 3 High Amps	Alarm			
Door Switch	Digital Input			
Surge Arrestors (remove wire 656)	Digital Input			
Lit1005 H level (setup ultrasonic, adjust position sensor head)	Digital Input			
Lit1005 HH level (setup ultrasonic, adjust position sensor head)	Digital Input			
Overflow Probe (Short relay to earth) Make sure Backup Controller Runs	Digital Input			
Standby Pump Running (setup ultrasonic, adjust position)	Digital Input			
Lit 1005 Low Level (setup ultrasonic, adjust position)	Digital Input			
Backup Controller Running (setup ultrasonic, adjust position)	Digital Input			
DC Power supply fault (disconnect power to power supply CB Q19)	Digital Input			
Ultrasonic Level, Inject 4-20mA at input and confirm correct operation.	Analogue Input			
Generator fault (if to be installed)	Digital Input			

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Commissioning Checklist				
Generator Running (if to be installed)	Digital Input			
Rain Gauge Counter (if to be installed)	Digital Input			
Flow Meter Pulse (if to be installed)	Digital Input			
Sump High Alarm Float (Dry Well Only - 1 minute delay before alarming)	Digital Input			
OUTPUTS	**Type**	**HMI**	**SCADA**	**ALARM**
Backup PLC Test Relay (time to run from SCADA) Make sure Backup Controller Runs for 5 mins	Digital output			
Station inhibit Relay (set time on touch screen- zero will reset)	Digital output			
Well Wash Solenoid Relay (if to be installed)	Digital output			
POWER METER (Modbus Address = 1) Comms 19200, 8,E, 1 - Primary CT set	**Type**	**HMI**	**SCADA**	**ALARM**
Volts A Phase	Display			
Volts B Phase	Display			
Volts C Phase	Display			
Amps A Phase	Display			
Amps B Phase	Display			
Amps C Phase	Display			
Power Meter Comms (Remove Comm-B wire wait for time out)	Alarm			
AC Power Fail (Turn off supply C/B Q13) OR (For a multiple power meter site turn off all circuit breakers)	Alarm			
TeSysU Pump No.1. (Dip-switch Settings - 01011)	**Type**	**HMI**	**SCADA**	**ALARM**
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
TeSysU Pump No.2. (Dip-switch Settings -01100)	**Type**	**HMI**	**SCADA**	**ALARM**
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
Soft Starter No 1 (Modbus Address, P1=24, P2=25, P3=26) Comms 9600, 8, N, 1)	**Type**	**HMI**	**SCADA**	**ALARM**
Active Power	Modbus Input			

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Commissioning Checklist				
Ensure Com 2 Link (Jumper 13) in SCADA Pack is moved to 485	General			
Amps	Modbus Input			
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
Soft Starter No 2 (Modbus Address, P1=24, P2=25, P3=26) Comms 9600, 8, N, 1)	**Type**	**HMI**	**SCADA**	**ALARM**
Active Power	Modbus Input			
Ensure Com 2 Link (Jumper 13) in SCADA Pack is moved to 485	General			
Amps	Modbus Input			
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
VSD Starter No 1 (Modbus Address, P1=21, P2=22, P3=23) Comms 9600, 8, N, 1) Set to 50Hz	**Type**	**HMI**	**SCADA**	**ALARM**
Speed	Modbus Input			
Amps	Modbus Input			
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
VSD Starter No 2 (Modbus Address, P1=21, P2=22, P3=23) Comms 9600, 8, N, 1) Set to 50Hz	**Type**	**HMI**	**SCADA**	**ALARM**
Speed	Modbus Input			
Amps	Modbus Input			
C/B Open Reason Code (Circuit breaker must be in off State)	Modbus Input			
Comms (remove RJ 45 wait for time out)	Modbus Alarm			
GENERAL	**Type**	**Pass**	**Fail**	**Checked**
Test RCD, test GPO and light for correct operation. Record RCD trip time	General			
Connect battery and test extra low voltage circuits.	General			
Isolate SME power supply and check dc battery voltage at (521, 519 & 525).	General			
Disconnect battery and re check above voltages.	General			

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Turn on radio and check communications (connect temporary di-pole aerial).		General			
Ensure all equipment is labeled.		General			
Isolate all circuit breakers and disconnect temporary supply.		General			
Ensure a copy of electrical schematics are included in the enclosure.		General			
Clean out and vacuum all enclosures wipe and clean lids.		General			
Return original copy of commissioning sheet to the electrical supervisor.		General			
Include a copy of commissioning sheet with switchboard documentation.		General			
Remove/Nullify all alarms on ClearSCADA before site is turned off		Critical			
QA SIGN OFF	**Date:**				
	Name:	**Signature:**			
Electrician:					
Elec Supervisor:					
SCADA Supervisor:					

Back up Controller Pulse Table		High Amps Trip Code	
Backup Controller Pulses	Site Type Configuration	Percentage of FLC	Time Delay till trip occurs
1	1 Pump	100-115%	300 seconds (5 mins)
2	2 Pumps Max 1 to Run	115-125%	60 seconds
3	2 Pumps Max 2 to Run	125-150%	30 seconds
4	3 Pumps Pump 1 Jockey	150-175%	15 seconds
5	3 Pumps Pump 2 Jockey	175-200%	10 seconds
6	3 Pumps Pump 3 Jockey	200% & Greater	1 second