BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

BRISBANE CITY COUNCIL

BRISBANE WATER

Sandgate Water Reclamation Plant

Phosphorus Reduction Project

Volume 4 – Installation, Pre-Commissioning, Commissioning, System Testing, Training, Method Statements, Q.A.

Tenix Alliance

BCC Contract No. BW.70146-3

4.1. Section 1 - Training

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

1 TRAINING

ALLDOS Training session Sandgate WWTP Acetic Acid Dosing Questionnaire.

1. Why should you not operate the stroke adjustment on a metering pump when it is not operating.
   ……
   ……
   ……
2. What seal material should be used for Acetic Acid solution. Teflon, Viton or EPDM. ……

3. What safety precaution should be taken, prior to any work on the metering systems……
   ……
   ……
4. What safety precaution should be taken, prior to working on any of the metering pumps……
   ……
   ……
5. Do the check valves in the ALLDOS pumps operate in the vertical or horizontal plain.
   ……
6. What is the purpose of the dilution water system.
   ……
   ……
7. What causes siphoning to occur with any metering system.
   ……
   ……
8. What is the purpose of a back pressure loading valve.
   .....
   .....
9. What is the purpose of a pulsation dampener.
   ……
   ……
10. What is the calibration cylinder used for.
    ……
    ……
11. How is the calibration cylinder filled.
    ……
    ……

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Alldos Oceania P/L Training Session for the Sandgate WWTP Acetic Acid Dosing System

Alldos Oceania P/L

- **Brisbane Head Office.**
- **Total chemical solutions company.**
- **Complete design, manufacture, installation and commissioning of chemical dosing systems.**
- **Design and manufacture of all electrical and control systems.**
- **Service and spare parts.**

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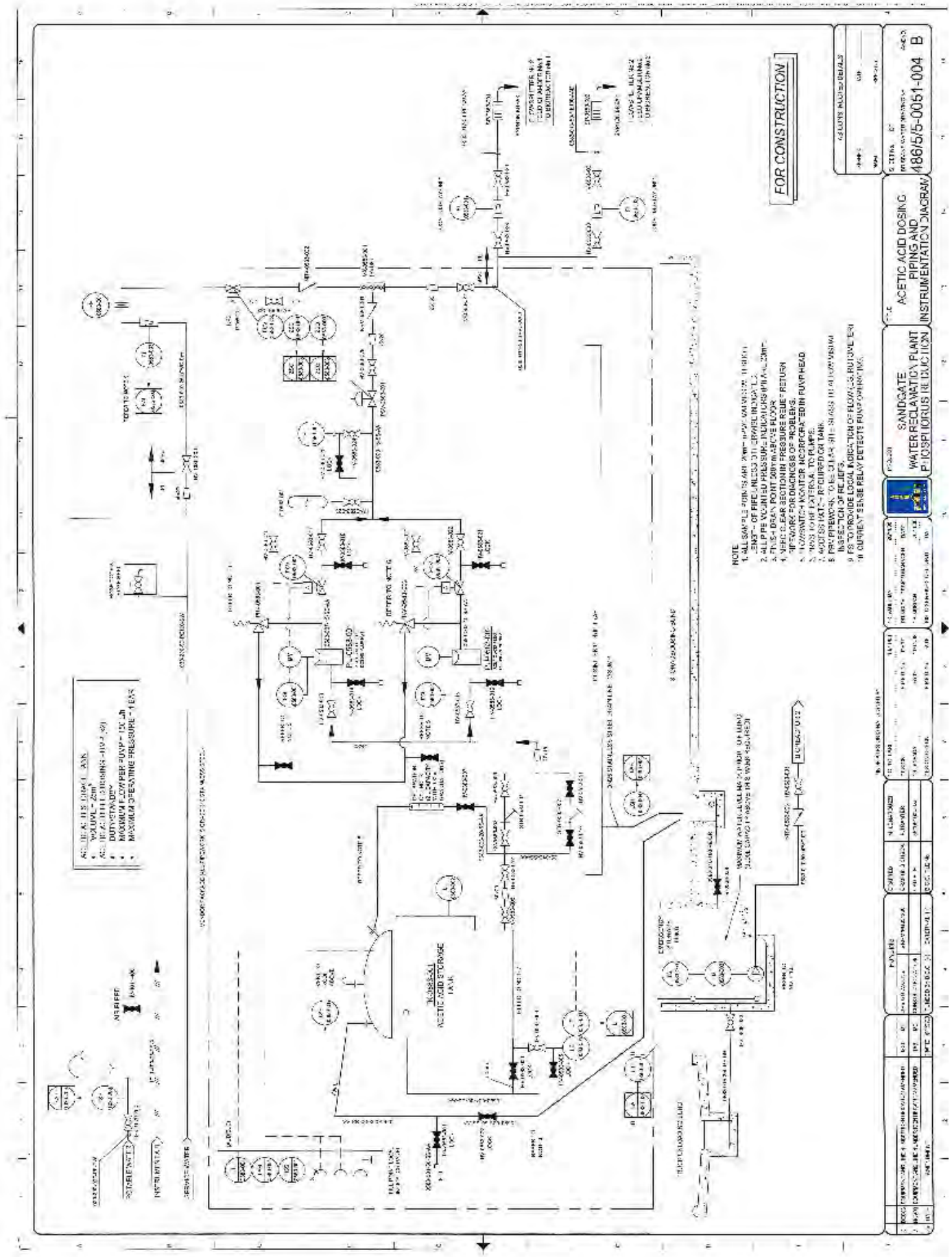
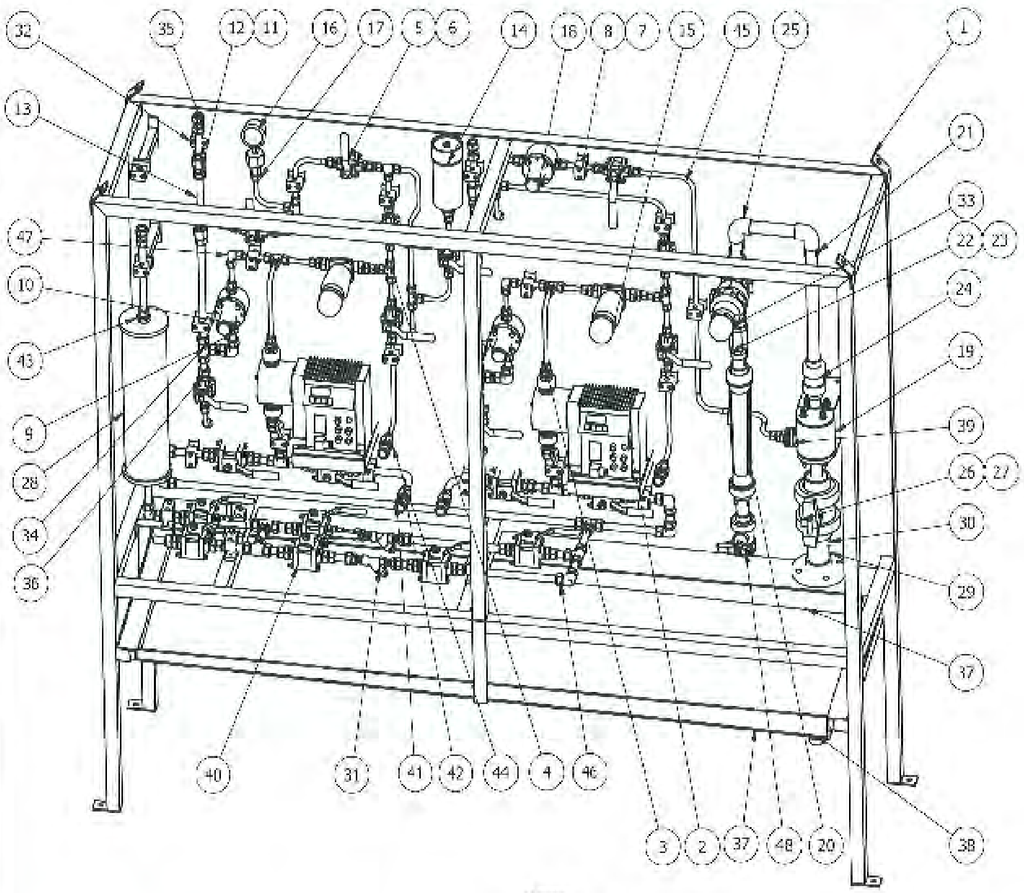
Objectives of training session.

- To provide an understanding of the basic operating procedures for the system.
- To provide technical input to the operation, service and preventative maintenance of all equipment.
- To provide an insight into what you as an operator, SHOULD and SHOULD NOT DO to maintain the Acetic Acid system installed at site.
- Full detail of the system functions and operational procedures are contained in the Operations and Maintenance Manual.


FOR CONSTRUCTION
SANDGATE
WATER RECLAMATION PLANT
PHOSPHORUS REDUCTION
ACETIC ACID DOSING
PIPING AND
INSTRUMENTATION DIAGRAM
486/5-0051-004 B
NOTE

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
45	8	64.06 12LU 316	64.06-12LU-316
47	2	64.06-8LU-316	64.06-8LU-316
48	1	64.07-161546224	DN25 Lockable Valve VITON (GF)



NOTE:
1. Quantity: 1 off required
2. Frame: 38x38 SHS, 2 mm thk; 316SS with side clear panels & front doors
3. Doors not shown for clarity
4. All valves could be locked.
5. Hold down: Chemsets 800 series, M10 minimum structural thickness 120mm Depth 90mm

As Constructed

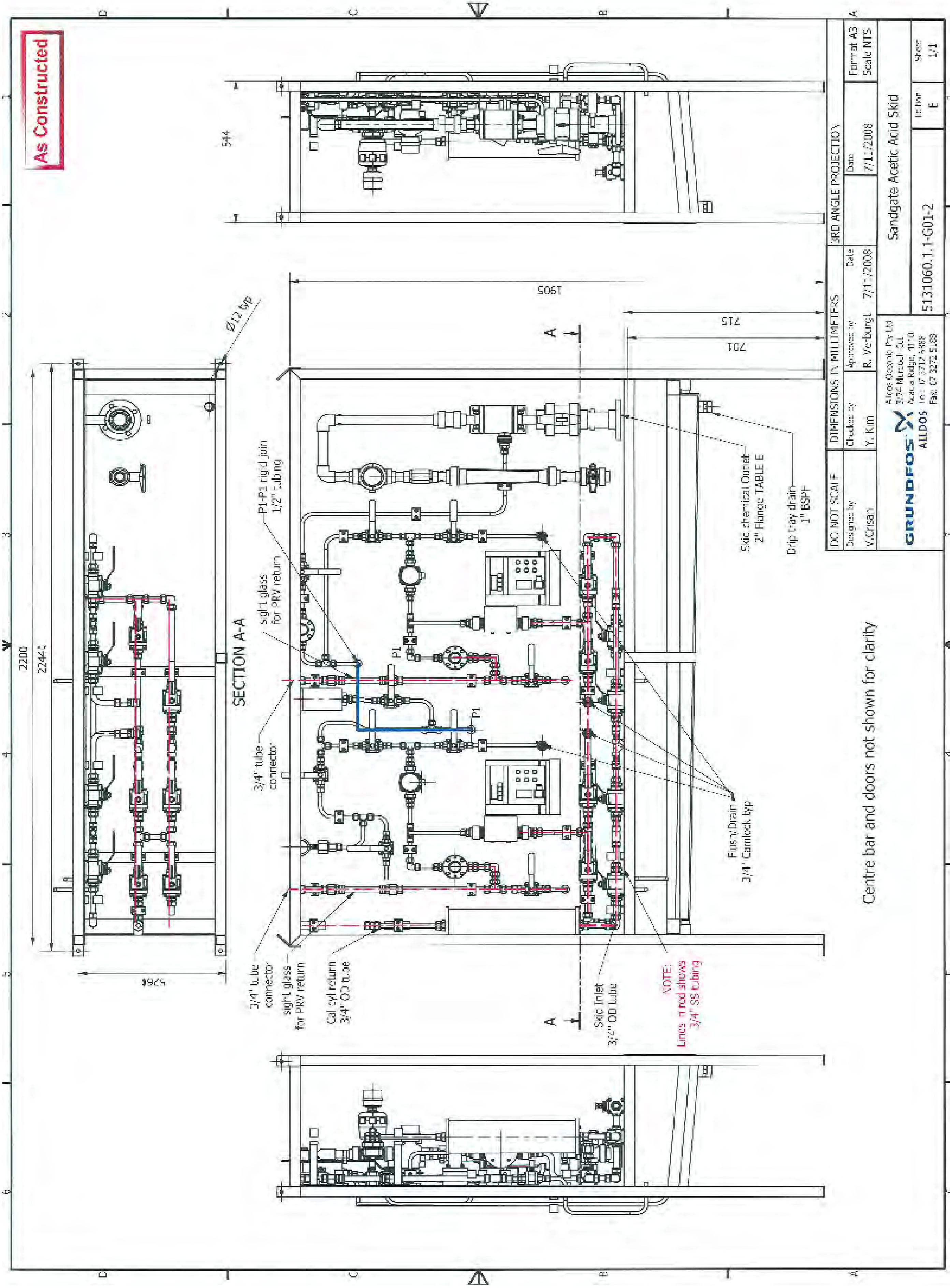
Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	drg. no. 5131060.1.1-F01	Frame (38x38 SHS) 316SS with enclosure & swing doors
2	2	222-150D-10230 E041	Alldos M222 pump 150l/hr, SS head
3	12	8CM12-316EC	3/4" BSPM to 1/2" tube connector
4	8	8TTT-316	1/2" Union Tee (316SS)
5	10	VFB13015EGA	1/2" Ball valve (lockable)
6	18	8CM8-316EC	1/2" BSPM to 1/2" Tube Connector (316SS)
7	27	NA	Clip spacer
8	27	51420-2127-V4A	Tube clip for 1/2" tube
9	24	12CM12-316EC	3/4"BSPM to 3/4" tube Connector (316SS)
10	2	*525-2133	SS DN20 Pressure relief valve
11	4	TORR SS-12-UT-1-12	Ultra torr fitting
12	4	64.06-SS-1210-7-12	3/4" NPTF to 3/4" tube connector (316SS)
13	2		Glass 19mm OD x2.5 Wall x 250mm Long
14	1	64.02-517-2322	Pulsation dampener (Hicracar)
15	2	64.06-141578	DN20 Burkert SS air actuated valve 2031
16	1	5C5-7946024-10	Pressure gauge SS
17	1	8CF8-316FC	1/2" BSPF TO 1/2" tube (316SS)
18	1	525-2132	SS DN20 Pressure loading valve SSDN20
19	1	12.3426-200A	Dn20 Static mixer
20	1	64.06-KSM-1020HK50	DN50 Rotameter 200 2000LPH (KOBOLD)
21	4	64.07-PC100	1" Pipeclip GOEMA
22	1	25FFPP	1" Manic valve
23	2	64.07-721911708	1" Solvent socket to BSPM
24	1	64.07-122072	1" Check Valve (EPDM) Praher
25	2	64.07-721101108	1" Elbows 90 PVC-U BS Inch (GF)
26	1	64.07-161546207	2" Ball valve-GF type 546
27	1	64.07-721 901 360	Reducer Bush 2-1
28	1	64.06-ACS#2-2000GS	2L Calibration cylinder glass (Acu.draw)
29	1	64.07-721731111	2" Flange Table E (AS2129)
30	1	64.07-PC200	2" Pipe Clip
31	2	VYS020FA	3/4" - "Y" Strainer
32	1	SP3190PPDPASV4A	Tube clip for 3/4" tube
33	1	64.06-141468	DN25 Burkert PVC air actuated valve 2030
34	8	12TTT-316	3/4" Union Tee (316SS)
35	3	12U 316	3/4" Union (316SS)
36	6	12CM8-316EC	1/2" BSPM to 3/4" tube
37	1	5131060.1.1-M01	Drip tray base
38	1	64.07-721911008	1" SWJ to BSPF
39	1	522-1811	DN20 SS Non return valve PTFE coated
40	10	VFB13020EA	3/4" Ball valve (316SS)
41	4	KAMA020EA/KAMDC020EA	3/4" Male Camlock /Dust cap
42	2	12CF12-316EC	3/4"BSPF to 3/4" tube connector
43	2	12CF16-316	1"NPTF to 3/4" tube connector
44	2	8CF12-316FC	3/4"BSPF to 1/2" tube connector
45	8m	T012.7CASA	1/2" Tube 316SS

REVISION HISTORY

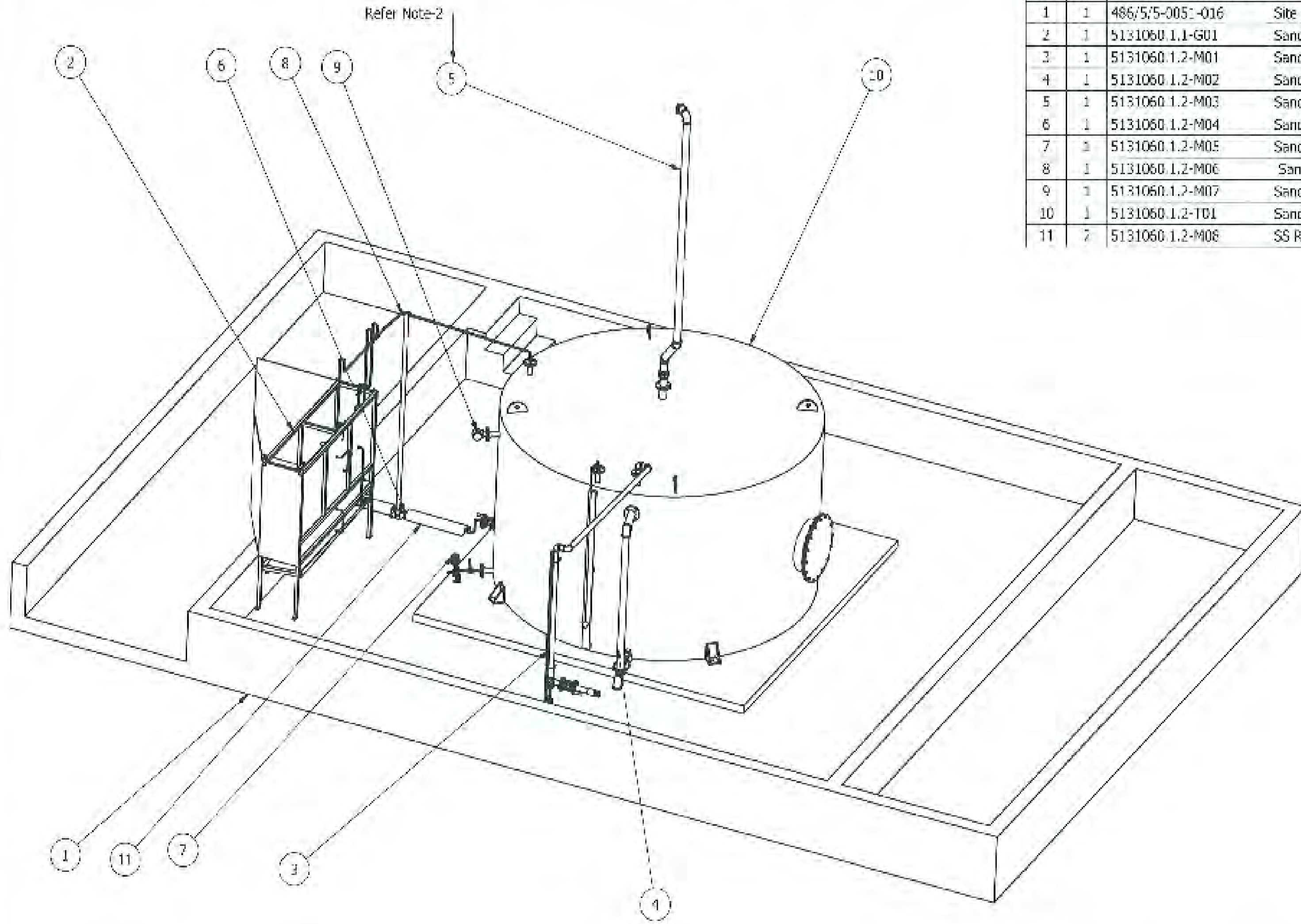
REV	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
A	Original Issue	7/11/2008	V. Crisan	Y. Kim	R. Verburgt
B	Skid width increased: inlet pipework 3/4", modified as requested	13/11/2008	V. Crisan	Y. Kim	R. Verburgt
C	Skid height increased with 50 mm, details as requested	26/11/2008	V. Crisan	K. Kumaresan	R. Verburgt
D	Issued For Construction	15/12/2008	K. Kumaresan	Y. Kim	R. Verburgt
E	As built	19/01/2009	A. Cook	Y. Kim	R. Verburgt

DO NOT SCALE	DIMENSIONS IN MILLIMETERS			3RD ANGLE PROJECTION	
Designed by V.Crisan	Checked by Y. Kim	Approved by R. Verburgt	Date 7/11/2008	Date 7/11/2008	Format A3 Scale N.S
GRUNDFOS ALLDOS	Alldos Oceania Pty Ltd 3/74 Murdoch Cct Acacia Ridge, 4110 Tel 07 3712 6888 Fax 07 3272 5188	Sandgate Acetic Acid Skid			
		5131060.1.1-G01-1		Edition E	Sheet 1/1


As Constructed
SECTION A-A
Centre bar and doors not shown for clarity
P1-P1 rigid join 1/2" tubing
sight glass for PRV return
3/4" tube connector
Cal cyl return 3/4" OD tube
Skid Inlet 3/4" OD Tube
NOTE: Lines in red shows 3/4" SS tubing
Flush/Drain 3/4" Camlock typ
Skid chemical Outlet 2" Flange TABLE E
Drip tray drain 1" BSPF
Ø12 typ
1905
715
701
544
2200
2244
1925
DO NOT SCALE
DIMENSIONS IN MILLIMETERS
3RD ANGLE PROJECTION
Designed by V.Crisan
Checked by Y. Kim
Approved by R. Ve-burgt
Date 7/11/2008
Date 7/11/2008
Format A3
Scale NTS
Sandgate Acetic Acid Skid
5131060.1.1-G01-2
Edition E
Sheet 1/1
GRUNDFOS ALLDOS

Parts List

ITEM	QTY	DRAWING NUMBER	DRAWING TITLE
1	1	486/5/5-0051-016	Site Layout-Alldos Scope
2	1	5131060.1.1-G01	Sandgate Acetic Acid Skid
3	1	5131060.1.2-M01	Sandgate Acetic Acid. Fill Line
4	1	5131060.1.2-M02	Sandgate Acetic Acid. Overflow/Drain manifold
5	1	5131060.1.2-M03	Sandgate Acetic Acid. Vent manifold
6	1	5131060.1.2-M04	Sandgate Acetic Acid. Outlet manifold-assembly
7	1	5131060.1.2-M05	Sandgate Acetic Acid. Pressure sw manifold
8	1	5131060.1.2-M06	Sandgate Acetic Acid. PRV return manifold
9	1	5131060.1.2-M07	Sandgate Acetic Acid. Level sw manifold
10	1	5131060.1.2-T01	Sandgate Acetic Acid. Tank Drawing (25 000L)
11	2	5131060.1.2-M08	SS Ramp Cover



NOTE:
1. Quantity: 1 off required
2. Vent manifold to be braced to roof at the time of installation.

ISSUED FOR INFORMATION ONLY

REVISION HISTORY

REV	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
A	Original Issue	11/11/2008	V. Crisan	K. Kumaresan	R. Verburgt
B	As requested by the client	26/11/2008	V. Crisan	K. Kumaresan	R. Verburgt
C	As requested by the Client	10/12/2008	K. Kumaresan	Y. Kim	R. Verburgt
D	Issued For Construction	15/12/2008	K. Kumaresan	Y. Kim	R. Verburgt

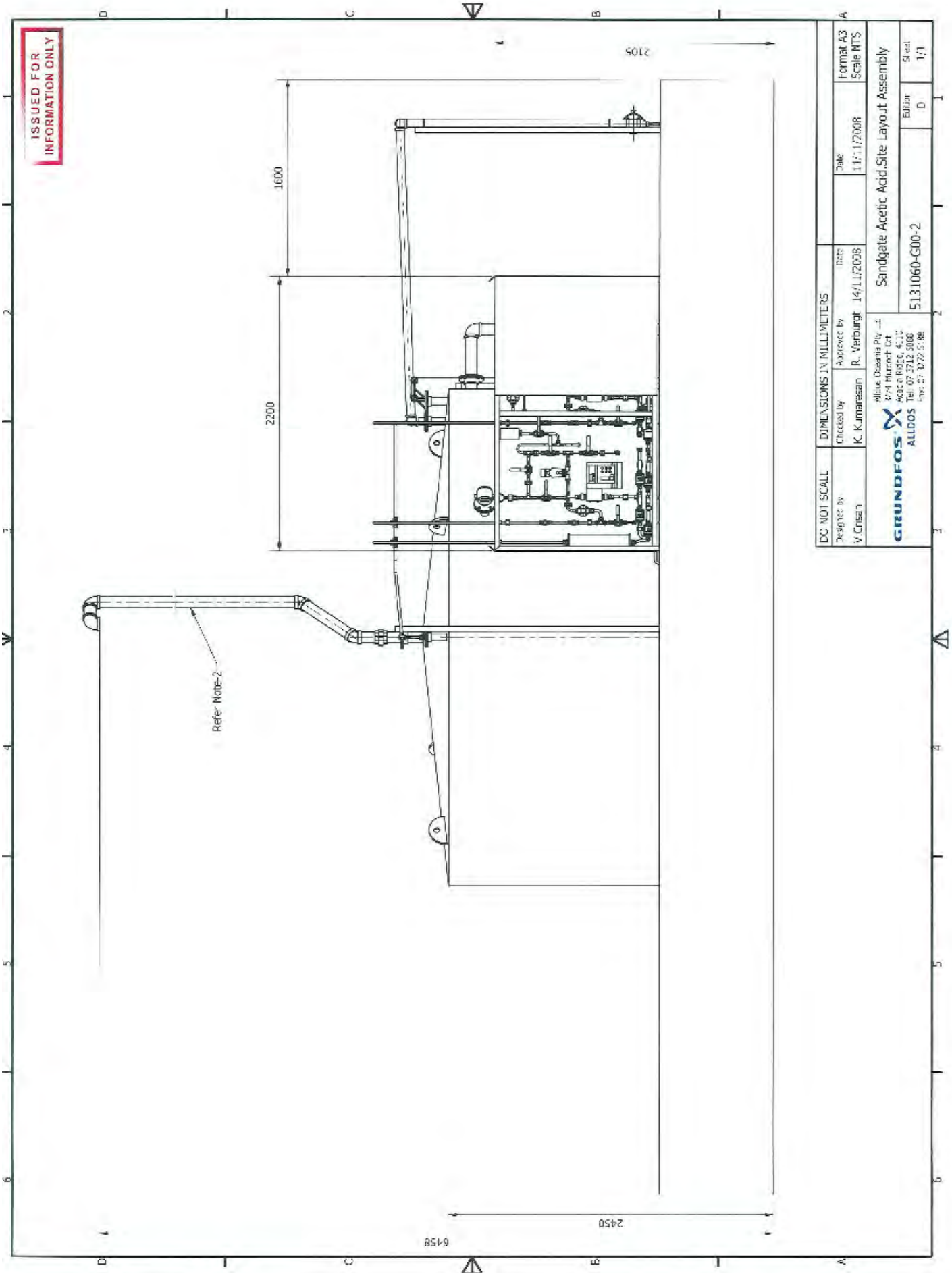
DO NOT SCALE — DIMENSIONS IN MILLIMETERS

Designed by	Checked by	Approved by	Date	Date	
V.Crisan	K. Kumaresan	R. Verburgt	14/11/2008	11/11/2008	Format A3 Scale 1:50

GRUNDFOS ALLDOS — Alldos Oceania Pty Ltd, 3/74 Murdoch Cct, Acacia Ridge, 4110, Tel: 07 3712 6888, Fax: 07 3272 5188

Sandgate Acetic Acid.Site Layout Assembly

5131060-G00-1 — Edition D — Sheet 1/1


ISSUED FOR INFORMATION ONLY
2105
1600
2200
Refer Note-2
2450
6158
DO NOT SCALL
DIMENSIONS IN MILLIMETERS
Designed by
V.Crisan
Checked by
K. Kumaresan
Approved by
R. Verbungt
Date
14/11/2008
Date
11/11/2008
Format A3
Scale NTS
Sandgate Acetic Acid Site Layout Assembly
GRUNDFOS ALLDOS
5131060-G00-2
Edition
D
Sheet
1/1

Safety Issues.

- **Always observe the rules and regulations in relation to maintaining equipment for the dosing system.**
- **"Always" wear protective clothing when operating or undertaking any maintenance on the chemical system. ie clothing, eye protection, gloves.**
- **"Always" ensure you isolate the power to the equipment you are about to work on, to avoid the risk of the equipment starting up without warning.**
- **"Always" ensure you isolate the suction and discharge of each pump before attempting to do any service work or repairs.**
- **"Always" relieve the back pressure in the discharge line between the isolation valve and the pump, prior to attempting to work on the pump, or remove any fittings, unions, or connections.**
- **Always use the correct tools.**

Maintenance tips.

- All SS pipe fittings are generally tightened as per the manufacturers specifications. **“DO NOT OVERTIGHTEN”**
- Do not use multigrips to tighten union fittings.
- Should a small leak occur from a union joint, tighten and if leak persists, check the connection for possible damage.

M222-150 Pump

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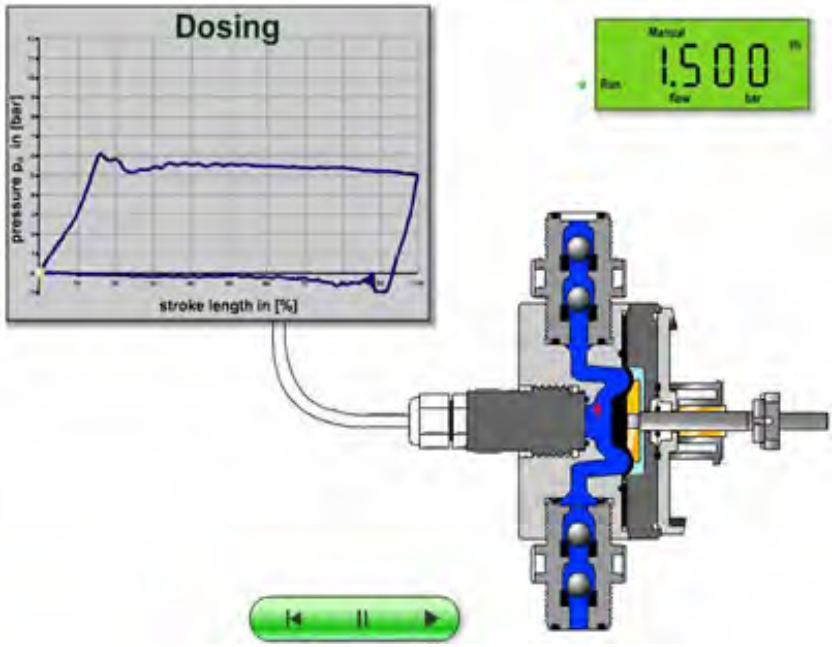
- 800:1 turndown.
- Pump head SS fitted with PTFE diaphragm, Teflon coated Viton seals and Teflon check balls.
- Pump fitted with Flow sensor.



Troubleshooting. Pump ceases to operate.

1. If the pump ceases to discharge, check firstly the power supply to ensure power is available. Ie pump switched on.
2. Check to make sure pump operates in manual mode, if not, pump requires service, as there is an apparent electrical fault.
3. If power is available and no discharge is evident, there may be an air lock. To check this, slowly open the bleed valve between the PLV and discharge to drain to allow the air to bleed from pump.
4. If item 3 has not rectified the problem, there may be a blockage in the suction/discharge valves, or line strainer. This requires further checking and may require valve removal and cleaning. Refer to manual.

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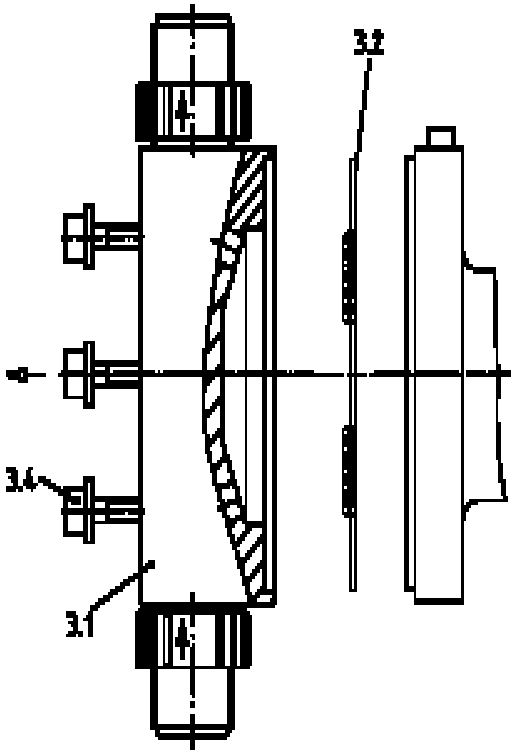
Isolating and removing metering pump.

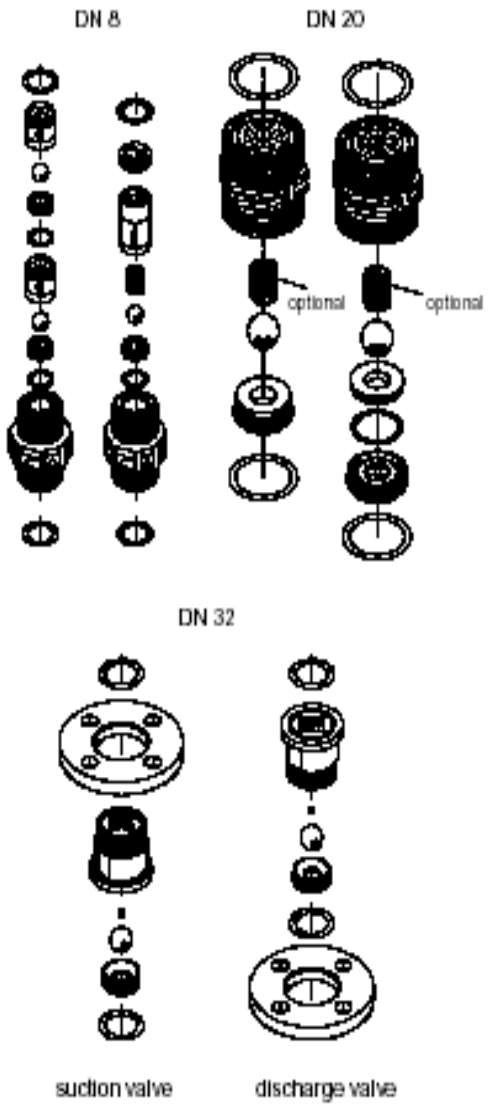
1. To remove the metering pump, firstly make sure power supply is disconnected from the pump, including all signal cables.
2. Close the pump suction isolation valve, followed by the pump discharge isolation valve.
3. Once both valves are closed, slowly open the bleed valve between the pump and the isolation valve and drain to a suitable container. This is to relieve any residual pressure between the pump and the back pressure valve.
4. Disconnect the unions on the metering pump by hand to disconnect the pump from the pipework.
5. Once this has been done, the pump can be removed from service to carry out any required maintenance.

Diaphragm exchange



- Unscrew the closing screw (40), and collect the gear oil in a container.
- Re-screw the closing screw and tighten it well (do not forget the gasket (4)).
- Shut the dosing lines at the suction and pressure side, loosen the cap nut of the suction and pressure valves.
- Loosen the 6 screws (3.4) of the dosing head (3.1) and remove the dosing head.
- Remove the diaphragm and place the new diaphragm (observe the correct side). (fig.4)
- Place the dosing head and tighten the screws crosswise with a torque wrench; torque: 2-4 Nm for KM 251-252, 10 Nm for KM 253, and 50-54 Nm for KM 254 till KM 257.

Cleaning of the suction and pressure valves



If the pump loses capacity, clean the suction and pressure valves as follows:

- Unscrew the valve

DN20 / DN32

- Unscrew the screw part resp. valve seat (18.1/21.1) with round pliers.

DN8

- *Press out the valve cartridge, remove valve seat from ball cage.*
- Clean all parts, replace faulty parts by new ones.
- Re-assemble the valve.
- Replace the O-rings (18.6/21.6) by new ones, and place the valve. Observe the direction arrow.

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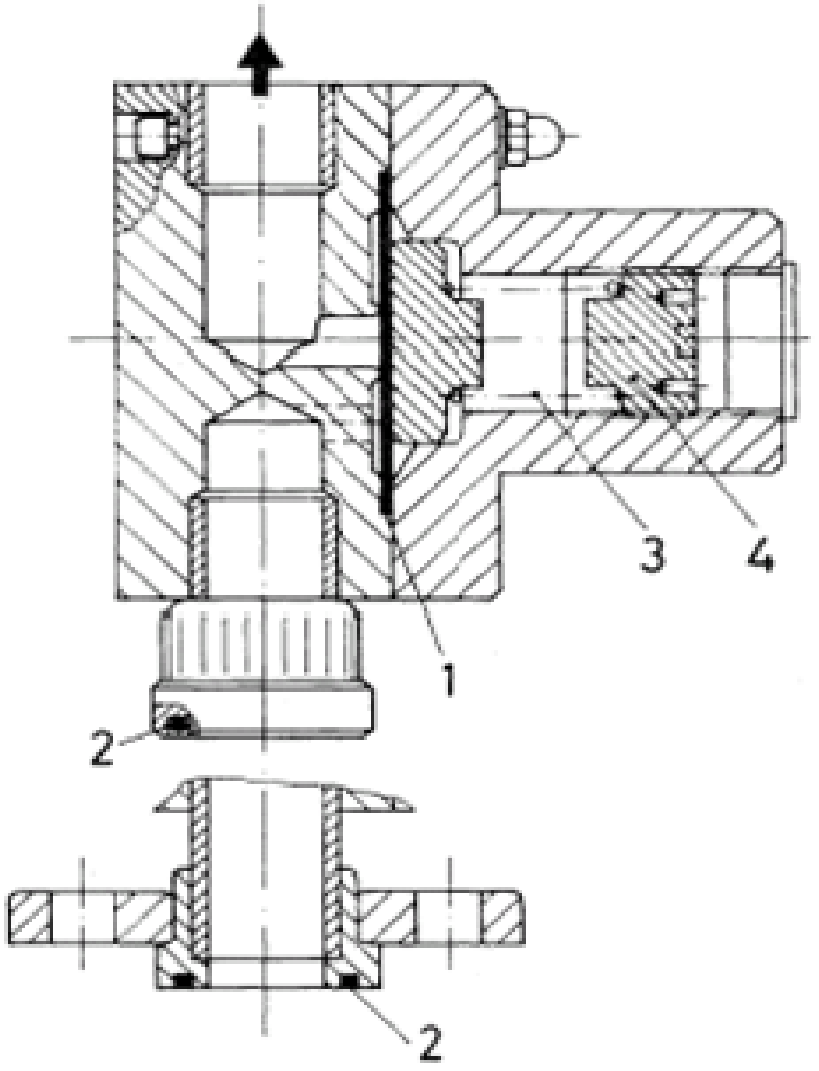
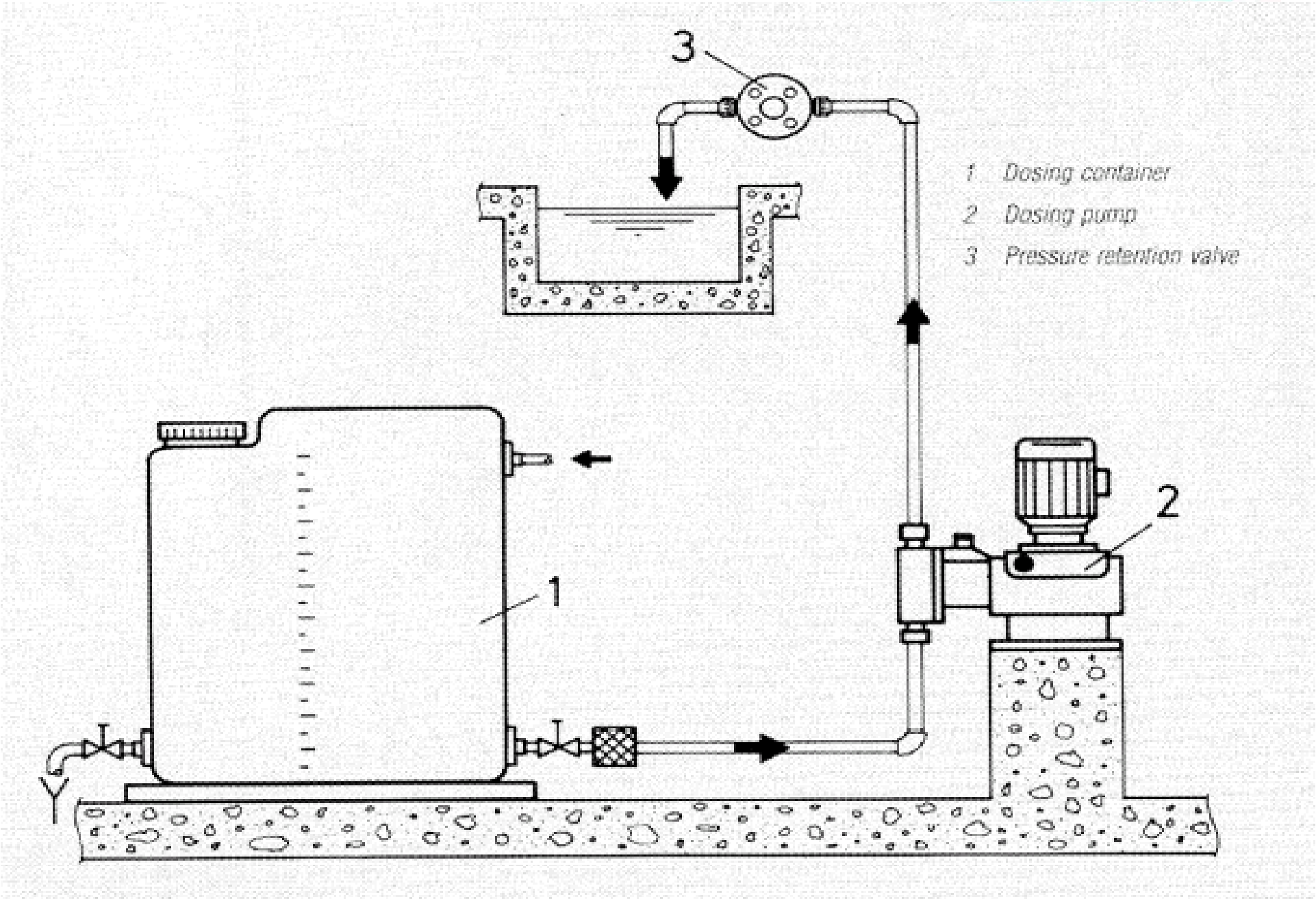
Pressure Loading Valves



DN 8 - DN 32

Pressure Loading Valves



Alldos pulsation dampeners.

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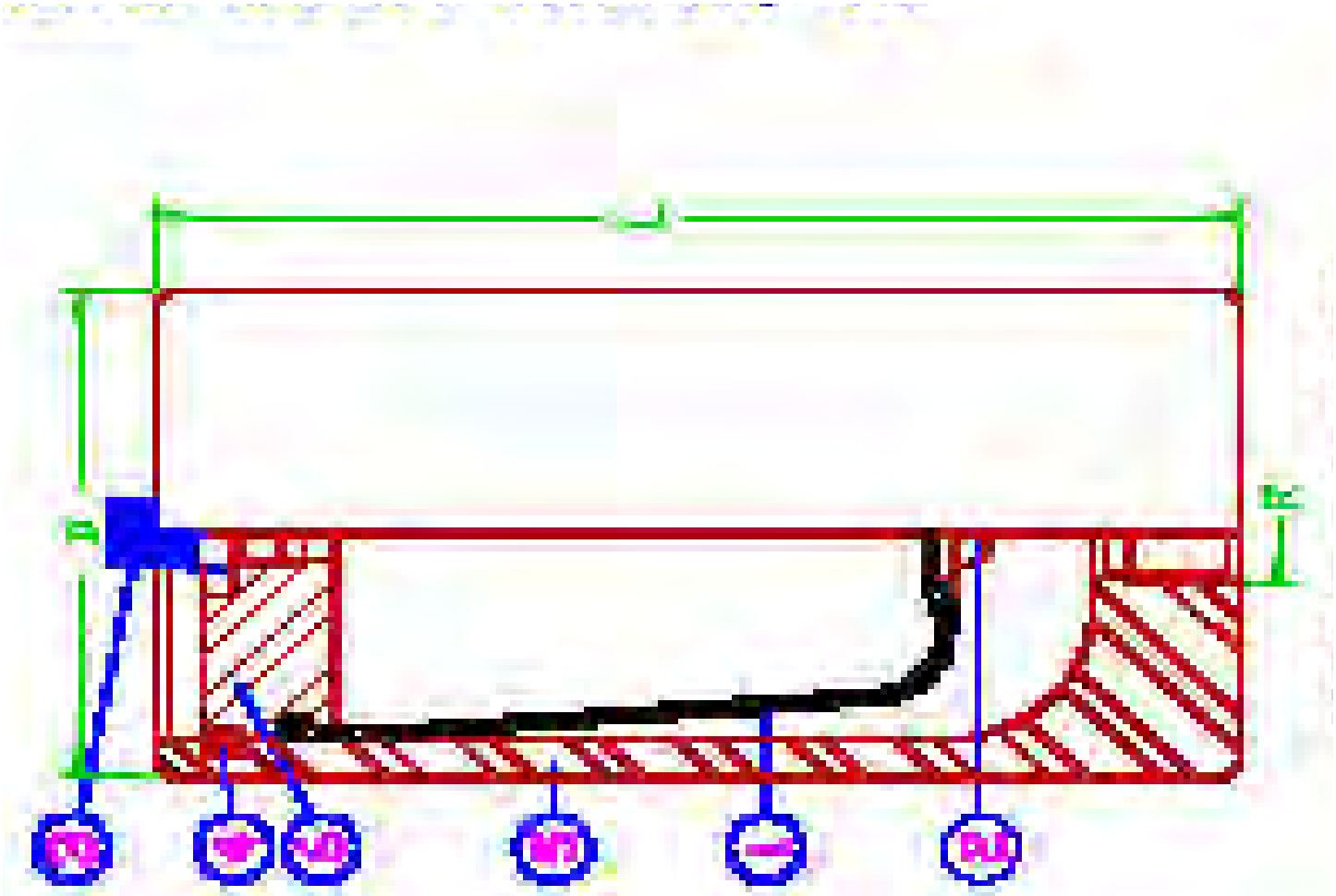
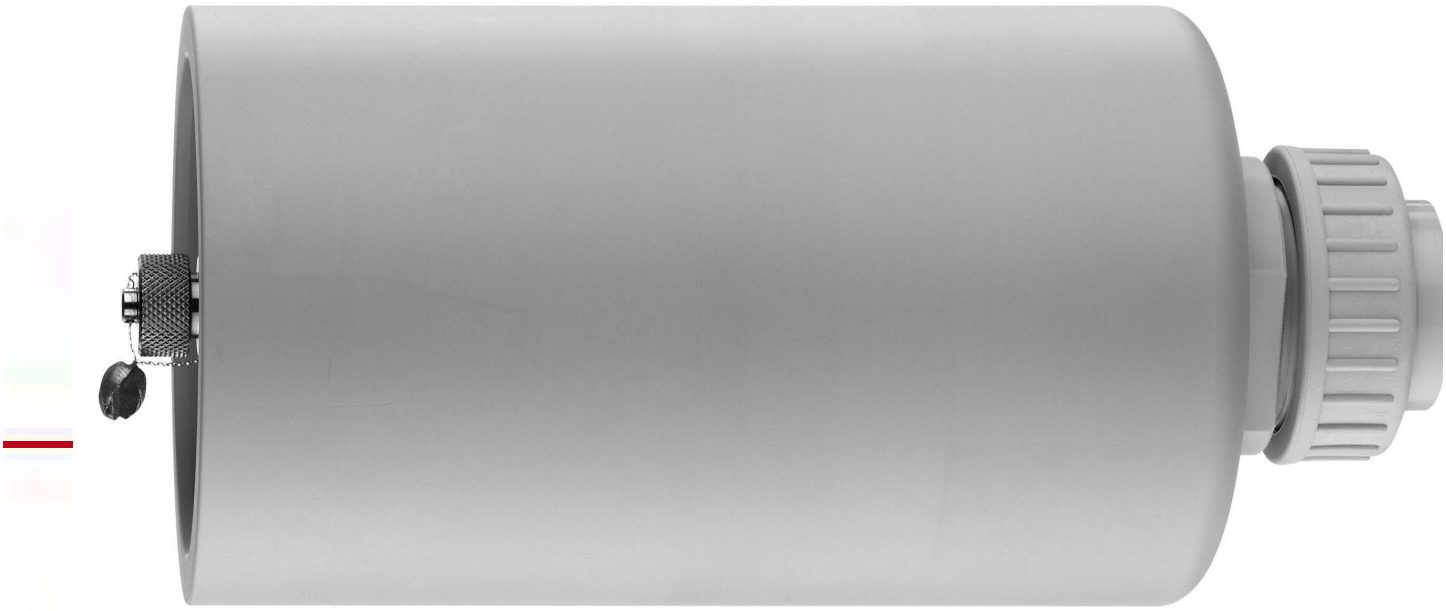
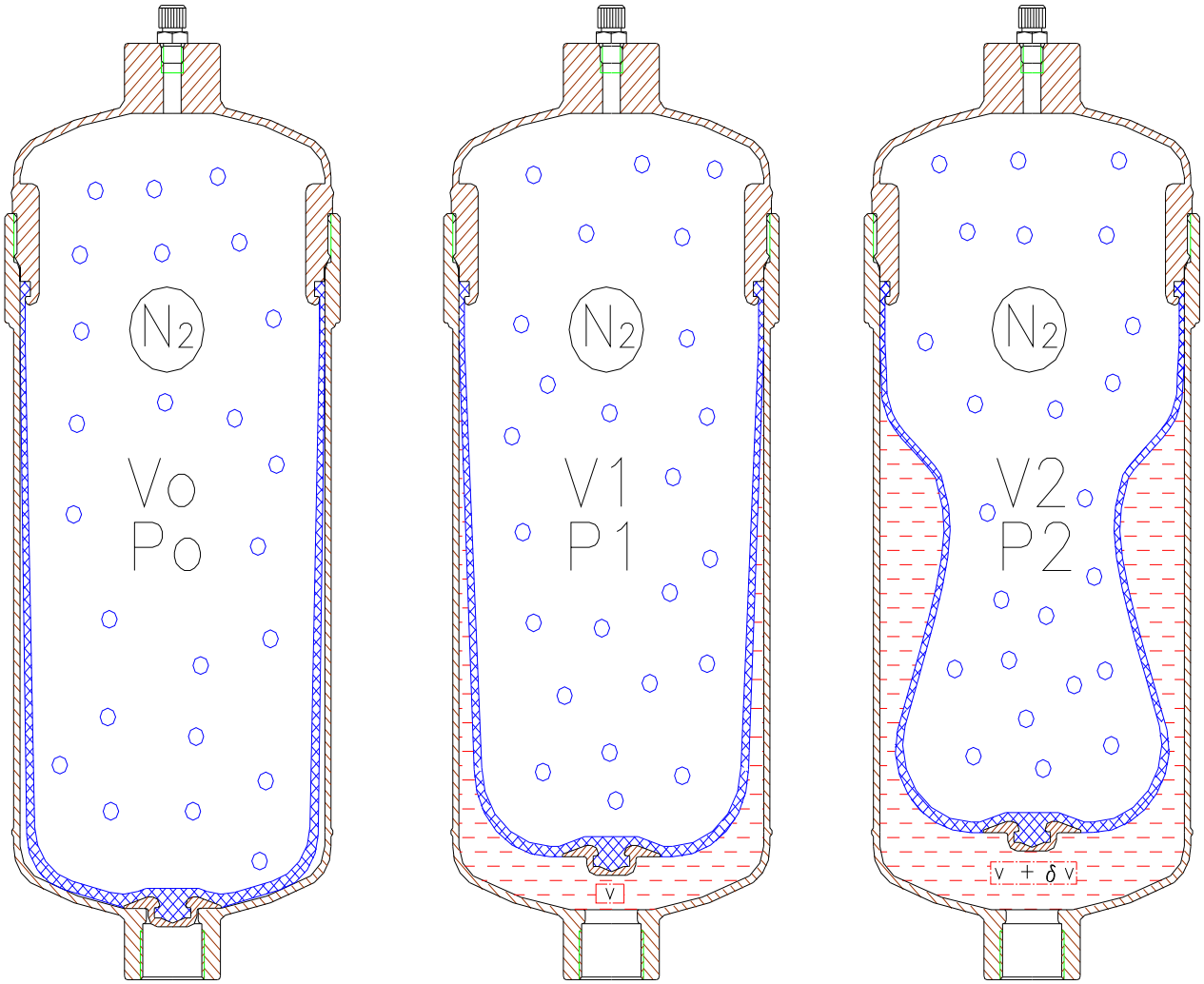
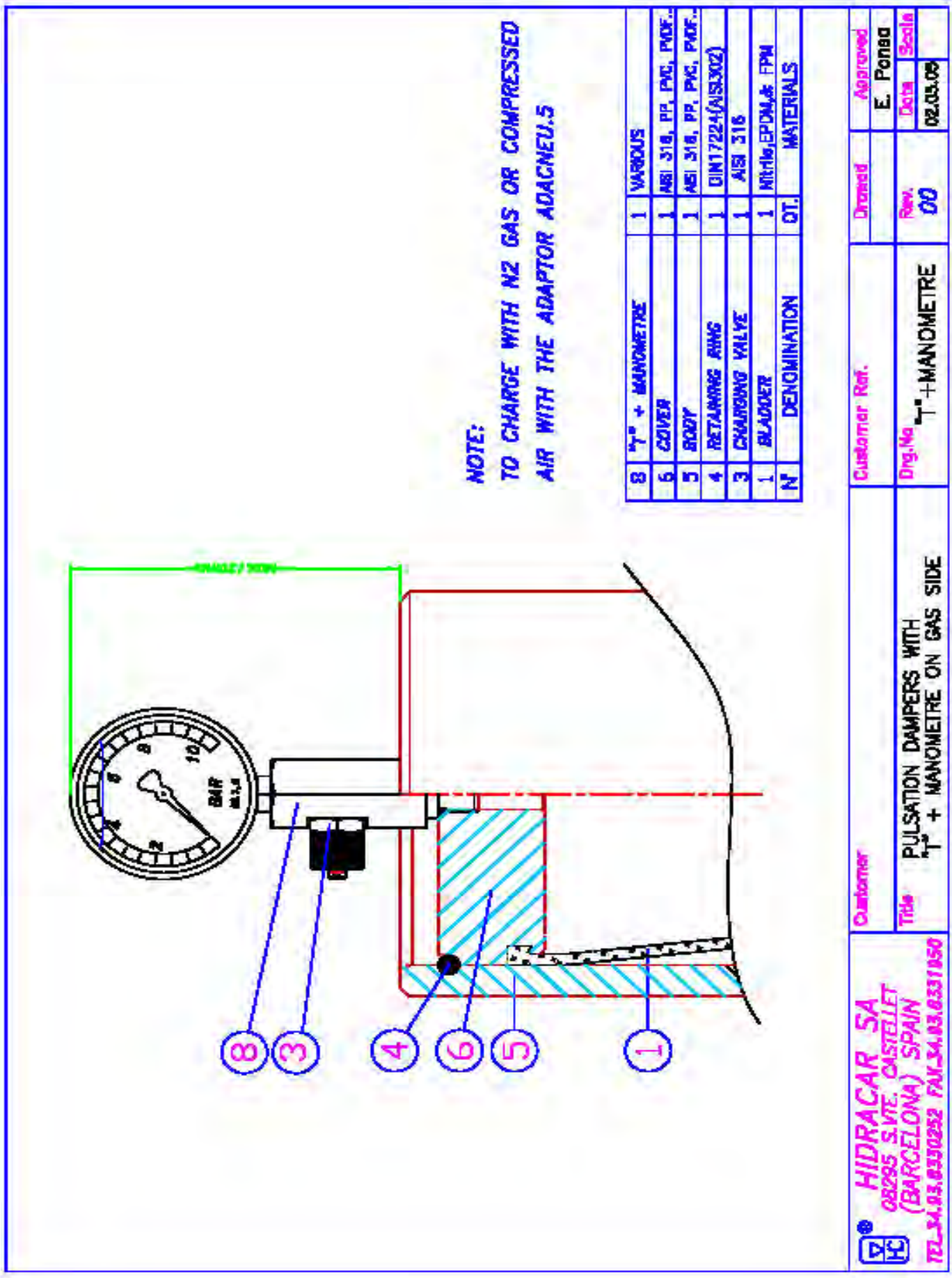
- Reduces the surges caused by the pulsations from a reciprocating diaphragm pump.
- Eliminates the shock loads incurred from pulsations. (Water hammer)
- Smooths out the dosing flow from pulses, to a continuous stream.
- Reduces wear on pump and valve components.
- Reduces stress on pipe and fittings.





Operating principles.




NOTE:
TO CHARGE WITH N2 GAS OR COMPRESSED AIR WITH THE ADAPTOR ADACNEU.5
8 "T" + MANOMETRE 1 VARIOUS
6 COVER 1 AISI 316, PP, PVC, PVDF...
5 BODY 1 AISI 316, PP, PVC, PVDF...
4 RETAINING RING 1 DIN17224(AISI302)
3 CHARGING VALVE 1 AISI 316
1 BLADDER 1 Nitrile,EPDM,ok FPM
Nº DENOMINATION QT. MATERIALS
HIDRACAR SA
08295 S.VTE. CASTELLET (BARCELONA) SPAIN
TEL.34.93.8370252 FAX.34.93.8371850
Customer
Customer Ref.
Drawed
Approved
E. Ponsa
Title PULSATION DAMPERS WITH "T" + MANOMETRE ON GAS SIDE
Dwg.No "T"+MANOMETRE
Rev. 00
Date 02.03.09
Scale
8
3
4
6
5
1

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Kobald Rotameter for dilution water flow indication.

Stainless Steel Ball Valves

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- Two types of ball valve are used in this system.
- 3 pce threaded full bore

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- And 2 pce flanged type

Valves

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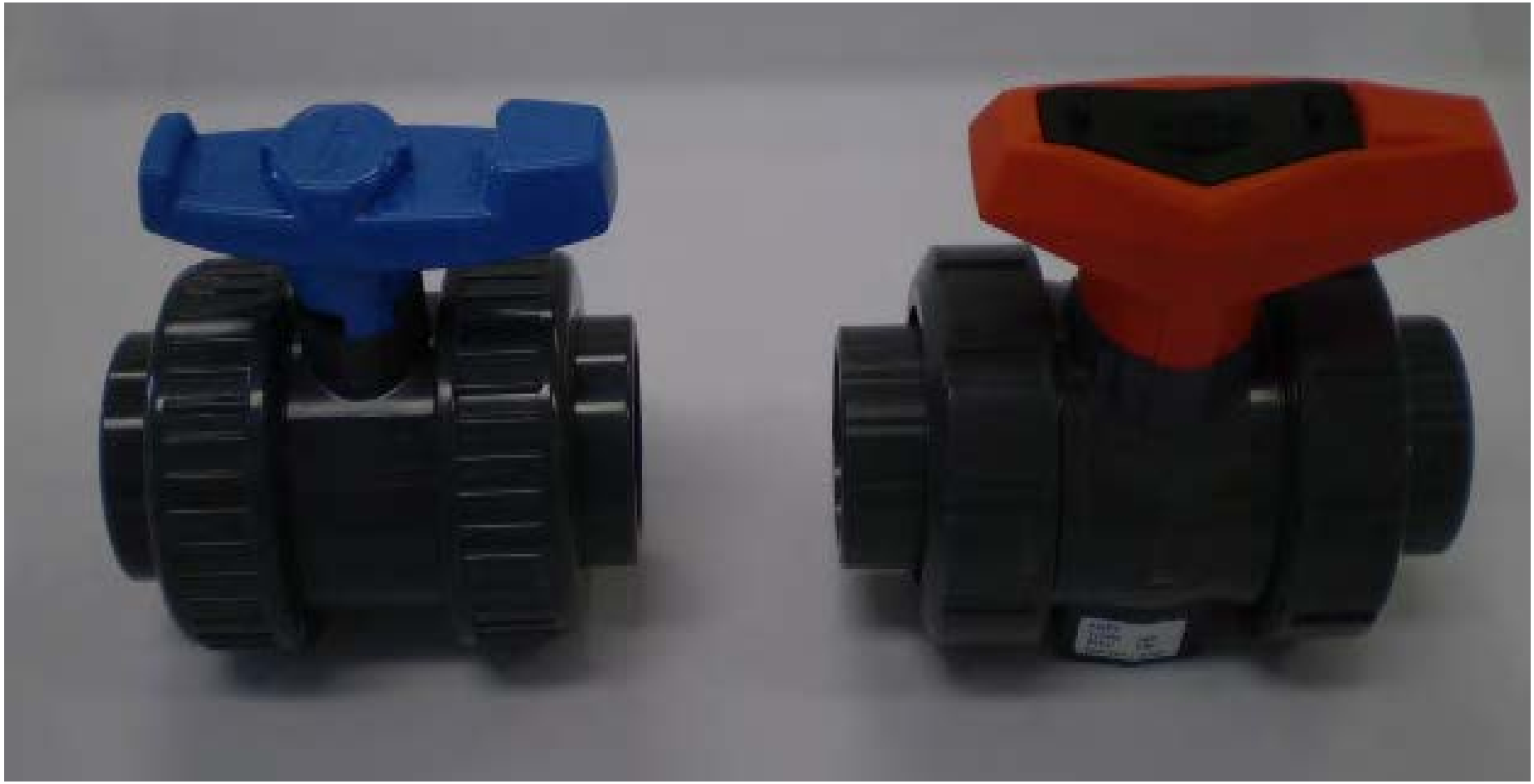

- **Blue handle valve is Georg Fisher Tecno Plastic**
- **Orange handle valve is Georg Fischer Type 546**

Tecno Plastic Valve

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- **Can be disassembled and reassembled without tools.**
- **EPDM seals, UPVC body and PTFE seats.**

Georg Fischer Type 546 Valve

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- **Can be disassembled and reassembled without tools.**
- **Viton seals, UPVC body and PTFE seats.**
- **Beware left hand thread when undoing seat from body.**

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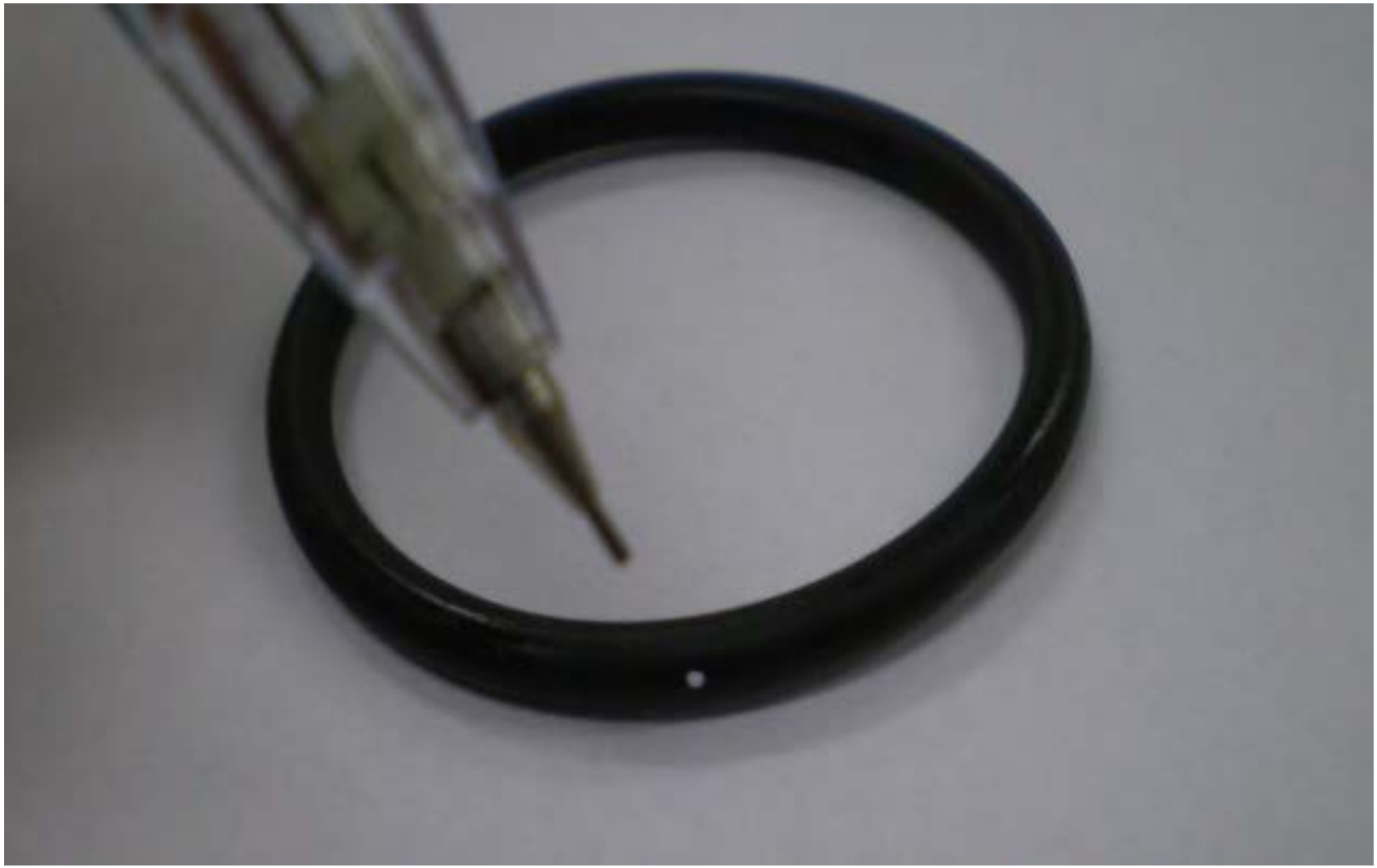
Viton seals on Georg Fischer valves identified by white dot as indicated below



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Many thanks for your time and please do not hesitate to ask questions.

4.2. Section 2 - Commissioning Reports

2 COMMISSIONING REPORTS

GRUNDFOS ALLDOS

MINOR PROJECT – TEST SHEET

PROJECT:- SANDGATE JOB NUMBER :- ACETIC ACID RE

DESCRIPTION :- REWIRE TO CONFORM WITH SPECS' FOR COLOUR CODE

DRAWINGS :- 14636-010-22 TEST DATE:- 25-8-09

WIRING CHECKS		
TEST	RESULT	COMMENTS
Wiring Check	✓	ALL WIRING REQUIRING CHANGE UPDATED
Earth Continuity Check	–	
Insulation Resistance Test	–	
Labels Complete	✓	
Plug and Lead Fitted for Testing	–	
Ready for Testing	YES	

PUMP FUNCTIONAL CHECKS		
TEST	RESULT	COMMENTS
Check 4-20mA signal		
Check Remote Run signal		
Check Remote Fault		
Check Empty signal		
Check Pre-empty signal		
POINT TO POINT COMPLETED		TO MAIN PANEL
		" TRUCK FILL PANEL

Testing Officer CE JAMES Signature CE James Date 25/8/09

Completed Product

Verified by Alldos Don Hamilton (Print Name) Don H. (Signature) Date 25/8/09

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE 25/8/09

Sandgate Acid Dosing Plant

Inspection and Test Procedure Site Acceptance (SAT) Tests

SAT TEST RESULT RECORD SHEETS

Purpose

The purpose of the SAT is to ensure that the site is operating correctly on the new controls under actual site conditions. On completion of the SAT, the operational control of the site is transferred to operations and the site achieves Construction Completion.

This section is to be completed only at the conclusion of the Pre-SAT:

Final Pre-SAT Results	YES	NO	Comments
Electrical ITPs completed	✓		
Minor Defects Generated	✓		
Severe Defects Generated		✓	
SAT Accepted	✓		

Commissioning Engineer Name MARION PRITCHARD **Signature**..... **Date** 27/8/09..

Project Manager/Area Supervisor Name ..... **Signature** ..... **Date** .....

Documentation	From	To	Done
1. Defects	Commissioning Engineer	Site Supervisor and/or Contractor	✓
2. Original of this signoff/summary sheet	Commissioning Engineer	Project Manager	✓

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

Prerequisites
Prerequisites for the SAT are contained in Section A of the SAT record sheets.

Procedure
The SAT includes checking the scope of works; testing of field devices, field wiring and installation; and test operation of instrumentation and ancillary gear.

During SAT, the new system is usually fully tested off-line and will not be dosing Acid into the water system. The performance of the new system can be monitored without failures affecting the quality of the water of the treatment plant.

The Commissioning Engineer may raise Defects. These will indicate that equipment or installation does not conform to the specification. The responsible party will modify and re-test the system. It is up to the Commissioning Engineer to determine whether re-testing can be carried out as part of the current SAT or re-scheduled to another date.

At the conclusion of the SAT and provided there are no severe Defects, the Commissioning Engineer will accept the SAT and the site can then be placed into Automatic operation.

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

Responsibilities associated with SAT

Installation Sub Contractors:

- Ensure site is ready and provide testing assistance resources;
- Provide all up-to-date documentation, such as WAE drawing mark ups, ITP test sheets, relevant records, etc.;
- Assist in carrying out test to a successful completion;
- Rectify defects in a timely manner;
- Ensure testing environment is safe and issue confined space entry permits, where required;
- Ensure spills does not occur and integrity of site is not affected.

Project Manager (or representative):

- Confirm readiness of site for SAT;
- Confirm readiness of installation contractor.
- Check that design documentation is correct and up to date;
- Arrange for site-specific induction for Commissioning Engineers;
- Ensure over dosing does not occur and integrity of site is not affected;

Commissioning Engineer:

- Prepare testing check sheets;
- Perform SAT checks and complete SAT Test Record Sheets;
- Issue Defect Reports for unsatisfactory or incomplete work;
- Ensure over dosing does not occur and integrity of site is not affected;
- Sign SAT Results Record Sheet;

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

A. SAT PREREQUISITES

ITEM	DESCRIPTION	YES	NO	NA	COMMENTS/ACTIONS -
A1	Project Manager and Brisbane Water has given approval to perform SAT	✓			
A2	SAT document has been approved	✓			
A3	All preparation work and notifications are complete	✓			
A4	Review any outstanding defects, eg. from FAT, and incomplete works and evaluate if SAT can continue	✓			
A5	All relevant updated documentation is available:	✓			
	drawings & schedules (site, circuit, cable, switchgear & GA)	✓			
A6	All new equipment has been installed	✓			
A7	Level switches have been installed to specification	✓			
A8	Power is available at the new switchboard. Contractor has removed his lock/tag from the Main Breaker	✓			
A9	Safe working area provided	✓			
A10	All site attendance, induction and permit documentation filled in and signed	✓			
A11	Test equipment calibration is current	✓			
A12	SAT able to proceed ***Hold Point***	✓			

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

Test: **Site Acceptance of Dosing Skid**
Purpose: To prove that the dosing skid is complete and performs as per the functional description
Prerequisites: All new equipment is installed. The Contractor's ITPs have been completed and records made available to the Commissioning Engineer. Tank is full of water and not acid
Procedure: Follow AllDos procedure to Site Test Dosing Skid.

B. ELECTRICAL AND INSTRUMENTATION VISUAL INSPECTION

ITEM	DESCRIPTION	ACCEPTANCE CRITERIA	Pass	Fail	COMMENTS (if any)
B1	Follow AllDos Factory test and Site Acceptance test.	Work through Factory and Site Acceptance ITPs. Attach ITPs to this completed document.	✓		See Attached
B2	Verify Comms	Verify communications between Dosing Plant PLC and SCADA system	✓		
B3	Reset Alarms	Reset All high alarms	✓		
B4	Test Tank Bund Area	Flood water into bund area and verify high bund alarm. Drain and reset	✓		
B5	Test Emergency Bund Area	Flood water into Emergency Bund Area to test with. Lower high float into water. Verify that the sump pump starts.	✓		
		Verify that the low level indicator is shown on SCADA	✓		
		Verify that after 10 seconds of high level float being made, the high float alarm is shown on the SCADA	✓		
		Remove high level float	✓		
		Verify that the sump pump stops at low float level on that the sump pump is still submerged.	✓		
		Clear Alarms.	✓		
B6	Test Automatic system	Reset all alarms and reset all devices on the SCADA	✓		
		Set dosing system to Manual and enter a setpoint of 20 L/Hr	✓		Slight Zero error. Ipone inform me d.g to do with 4.2mA start point - non linear Control.
		Enable the dosing system on the SCADA	✓		
		Verify that the Dilution valve opens	✓		
		Verify that the duty pump valve opens	✓		

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

		Verify the duty pump starts and pumps at the setpoint rate of 20L/Hr	✓		Zero Error
		Press the Duty Swap and verify that pumps and valves swap over.	✓		
		Induce a fault on the working pump	✓		
		Verify duty changes over and fault is shown	✓		
		Reset fault.	✓		
		Induce a fault on the second pump and verify that duty changes over and fault is shown.	✓		
		Change manual setpoint to 140 L/Hr and verify pump 1 attains the setpoint 138	✓		Span error - Power interference to do with non linearity but should not cause problems
		Swap Duty	✓		
		Verify that Pump 2 attains the 140L/hr 138	✓		
		Change Dosing pumps start Flow SP (Auto) to a figure lower than the Flow Splitter 2 flow and verify that the system shuts down.	✓		
		Verify that the dilution water stays running for the period of time set in the Dilution Valve Shutdown delay.	✓		
		Verify that the level of the tank is the same as the pressure transducer.	✓		
		Enable the Truck Fill Pump Supply on the SCADA system.	✓		
		Verify that the sockets to the delivery motor are alive	✓		
		Remove the high level alarm sensor and place into a cup of water.	✓		
		verify that the supply to the Delivery tanker goes off	✓		
		Verify that the alarm sounds	✓		
		Verify that the high level is shown on the SCADA	✓		
		Press the mute button and verify that the alarm is muted	✓		
		Put the high level switch back into the tank.	✓		
		Reset Alarm on the SCADA system	✓		

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

		Allow Dosing Pump 1 to run long enough to verify that the totalised to counting up and the speed feedback matches what is shown on the dosing pump	✓		
		Allow Dosing Pump 2 to run long enough to verify that the totalised to counting up and the speed feedback matches what is shown on the dosing pump	✓		
		Place the system in automatic and verify that the calculated setpoint speed is transferred to the required Dose rate box and the dosing pump achieves this required setpoint.	✓		
		Disable Dosing System	✓		
		Drain all water from Tank	✓		Tank to be checked for cleanliness
		Close Drain Valve	✓		
B7	Notify plant operators that the Acid Plant is now commissioned	Telephone operators	✓		
B8	Notify site supervisor	Telephone Supervisor that testing has been completed and is now ready to accept acid.	✓		
B9	Handover Documentation	Supply Signed copy of this site acceptance sheet to Brisbane Water.	✓		

Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

Inspection and Test Procedure
Site Acceptance (SAT) Test

Plant Location

C. RECORDING OF SAT RESULTS

Purpose:- To record the results of the SAT, provide approval for a successful SAT and to ensure that defects are recorded.

Conditions:-

- SAT completed and all SAT results recorded on the SAT record sheets
- Dosing System is ready for Acid Delivery.

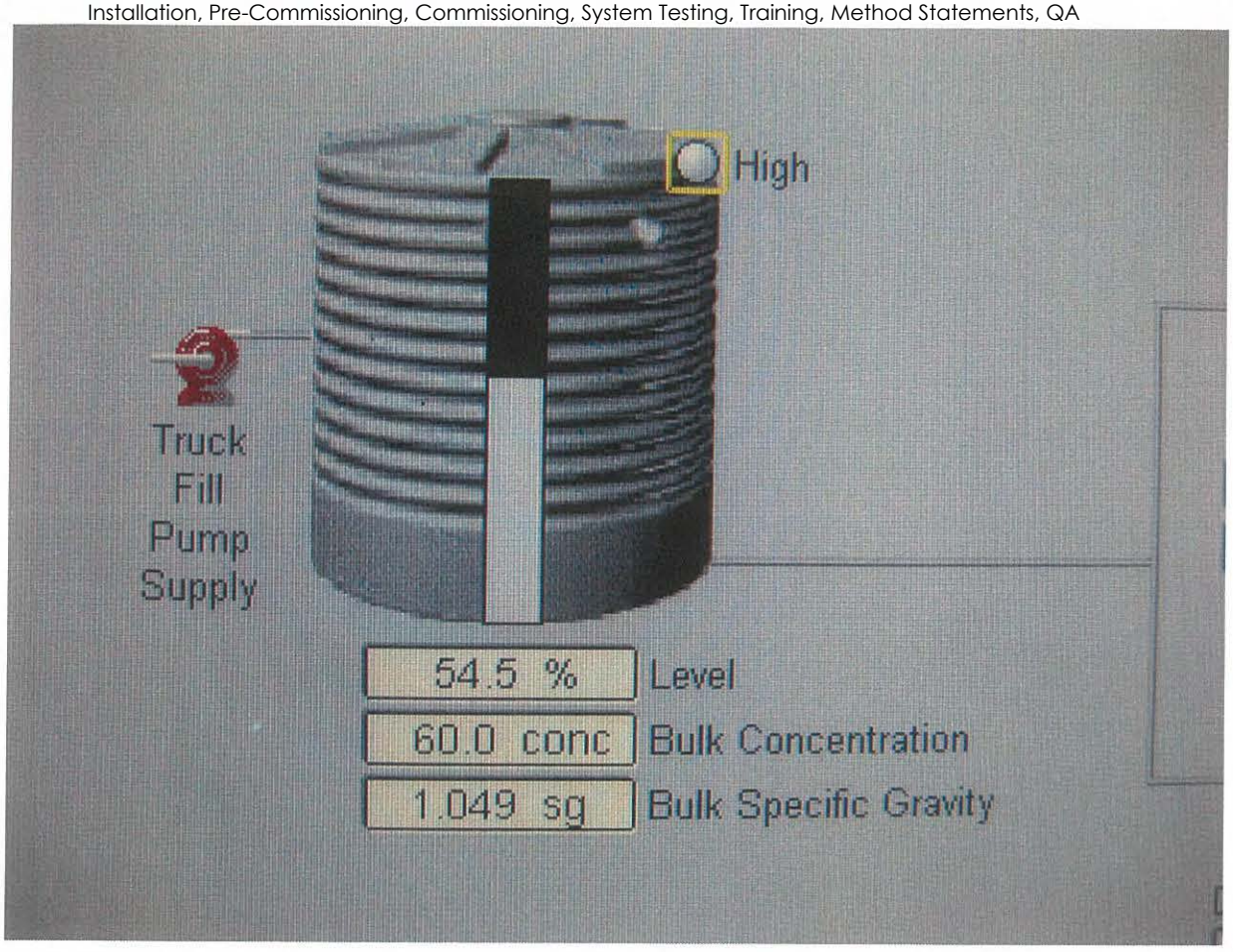
Make a list of defects and incomplete works and assess whether the SAT can be accepted. If possible, discuss the defects with the Site Supervisor and/or the Contractor and agree remedial action.

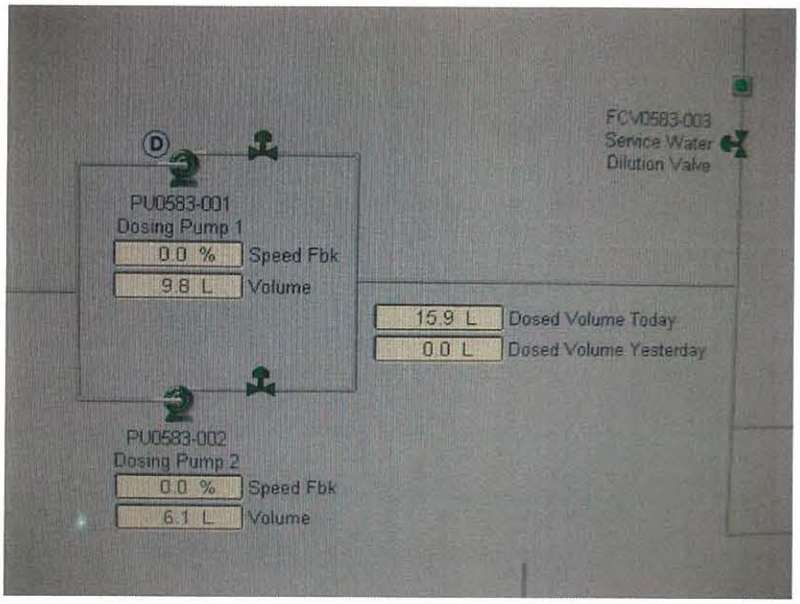
Complete SAT results on Page 1 of these SAT Test Result Record sheets.

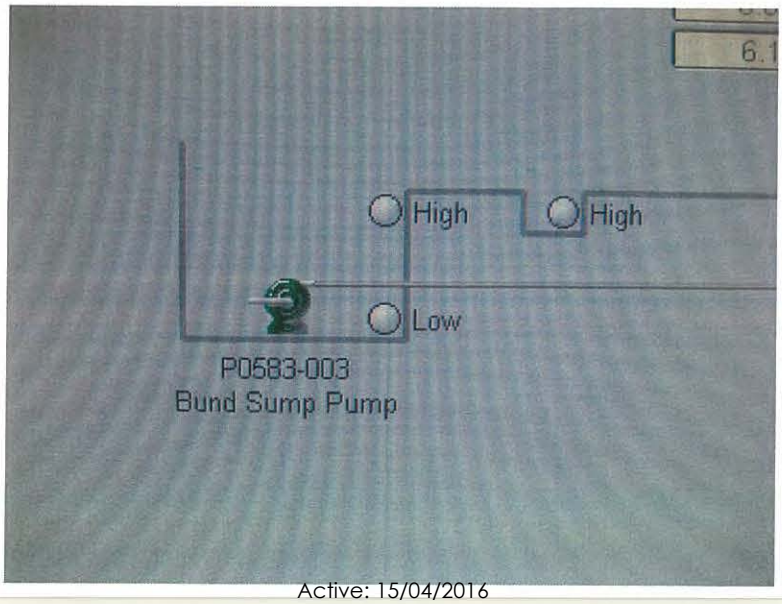
SAT Defects and Incomplete Works which Impact on SAT:

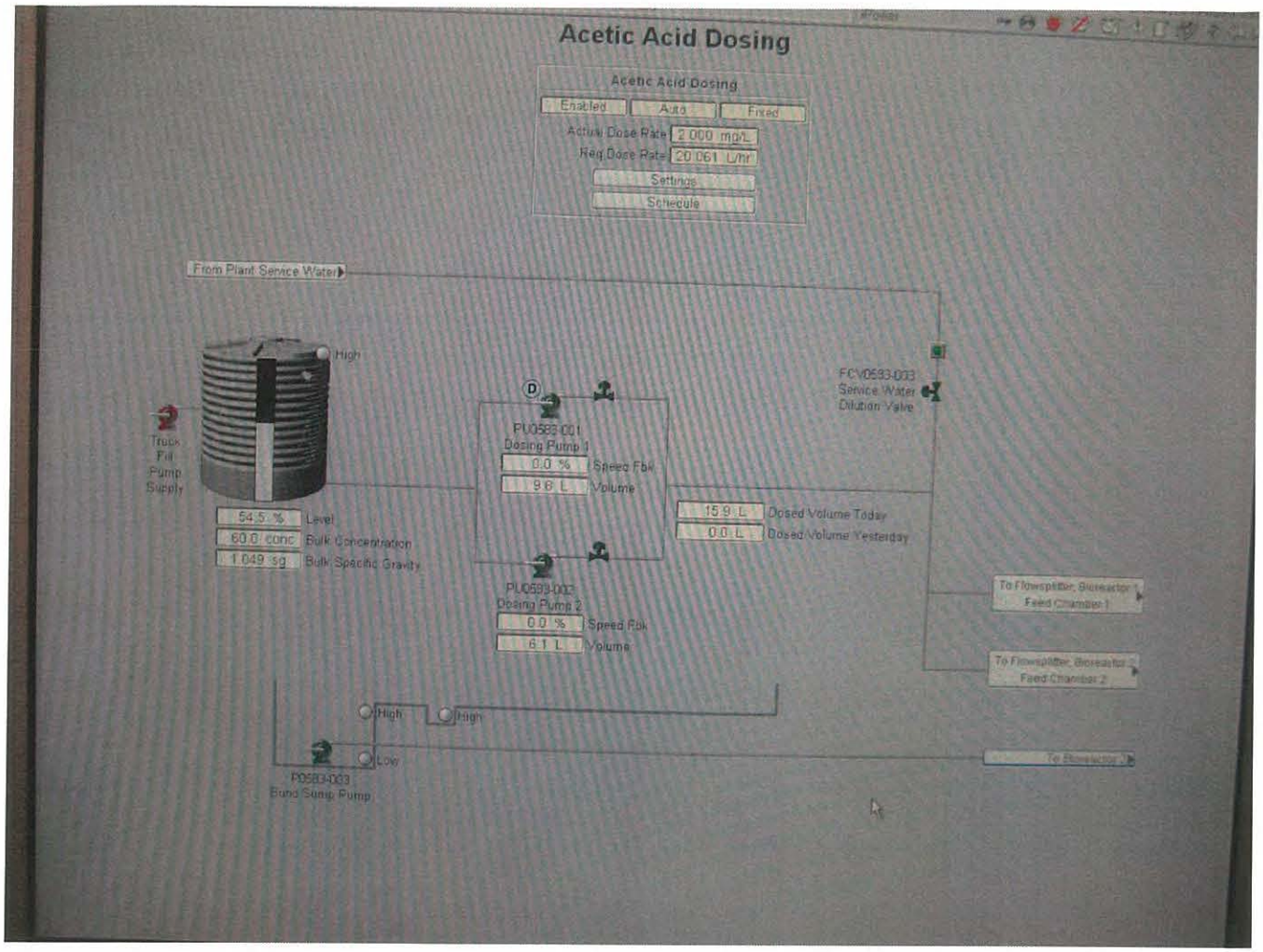
Item	Description	Severe / Minor
Building	Requires to be Earthed.	Minor
Hose Reel.	Maybe requires Splashproofing	Minor
labelling	Unloading Station & lighting needs ~~Traffolite~~ labels Temp ones fitted.	Minor
Tank	Needs to be checked for cleanliness	Minor.

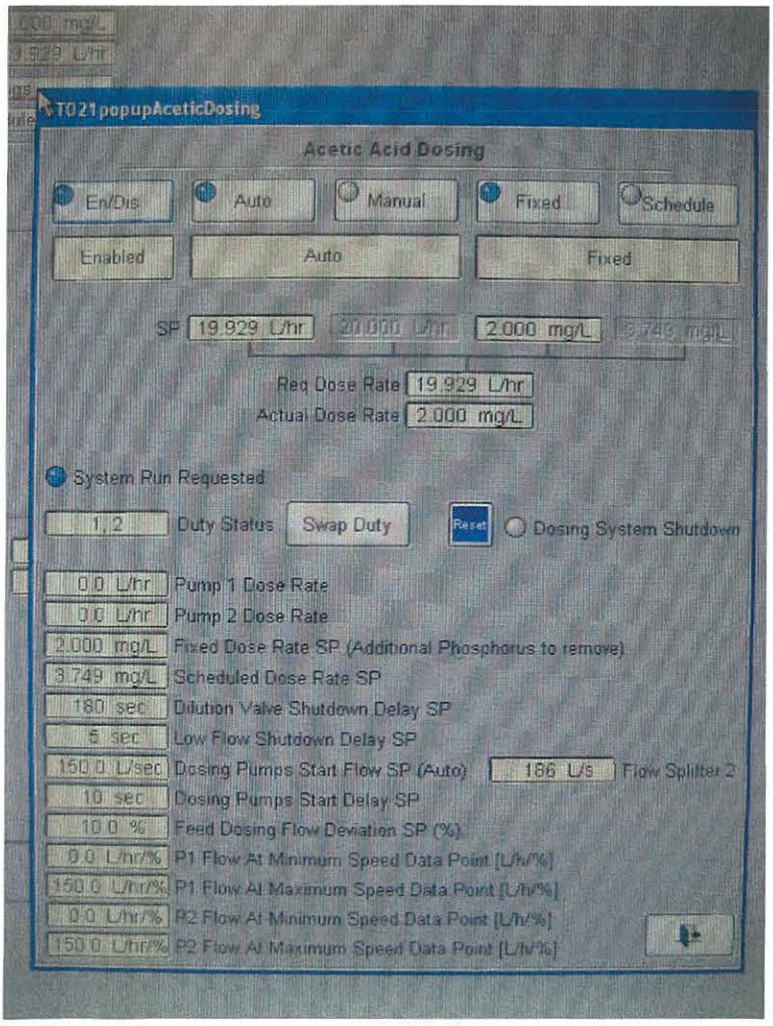
Rev	Description	Date	Prepared	Approved
1.0	For Issue	19/08/09	M.Pritchard	

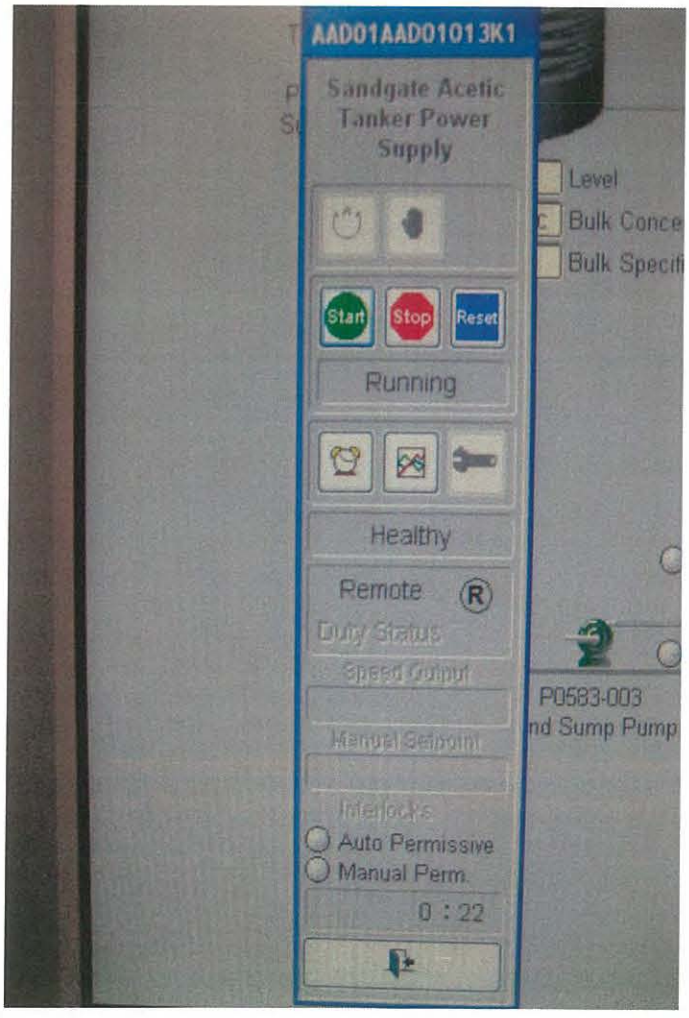

High
Truck
Fill
Pump
Supply
54.5 %
Level
60.0 conc
Bulk Concentration
1.049 sg
Bulk Specific Gravity


FCV0583-003
Service Water
Dilution Valve
PU0583-001
Dosing Pump 1
0.0 %
Speed Fbk
9.8 L
Volume
15.9 L
Dosed Volume Today
0.0 L
Dosed Volume Yesterday
PU0583-002
Dosing Pump 2
0.0 %
Speed Fbk
6.1 L
Volume


High
High
Low
P0583-003
Bund Sump Pump


Acetic Acid Dosing
Acetic Acid Dosing
Enabled
Auto
Fixed
Actual Dose Rate 2.000 mg/L
Req Dose Rate 20.061 L/hr
Settings
Schedule
From Plant Service Water
High
Truck Fill Pump Supply
54.5 % Level
60.0 conc Bulk Concentration
1.049 sg Bulk Specific Gravity
PU0583-001
Dosing Pump 1
0.0 % Speed Fbk
9.6 L Volume
PU0583-002
Dosing Pump 2
0.0 % Speed Fbk
6.1 L Volume
FCV0583-003
Service Water Dilution Valve
15.9 L Dosed Volume Today
0.0 L Dosed Volume Yesterday
To Flowsplitter Bioreactor 1 Feed Chamber 1
To Flowsplitter Bioreactor 1 Feed Chamber 2
High
High
Low
P0583-003
Bund Sump Pump
To Bioreactor 2


T021popupAceticDosing
Acetic Acid Dosing
En/Dis
Auto
Manual
Fixed
Schedule
Enabled
Auto
Fixed
SP 19.929 L/hr 20.000 L/hr 2.000 mg/L 3.749 mg/L
Req Dose Rate 19.929 L/hr
Actual Dose Rate 2.000 mg/L
System Run Requested
1, 2 Duty Status
Swap Duty
Reset
Dosing System Shutdown
0.0 L/hr Pump 1 Dose Rate
0.0 L/hr Pump 2 Dose Rate
2.000 mg/L Fixed Dose Rate SP (Additional Phosphorus to remove)
3.749 mg/L Scheduled Dose Rate SP
180 sec Dilution Valve Shutdown Delay SP
5 sec Low Flow Shutdown Delay SP
150.0 L/sec Dosing Pumps Start Flow SP (Auto)
186 L/s Flow Splitter 2
10 sec Dosing Pumps Start Delay SP
10.0 % Feed Dosing Flow Deviation SP (%)
0.0 L/hr/% P1 Flow At Minimum Speed Data Point [L/h/%]
150.0 L/hr/% P1 Flow At Maximum Speed Data Point [L/h/%]
0.0 L/hr/% P2 Flow At Minimum Speed Data Point [L/h/%]
150.0 L/hr/% P2 Flow At Maximum Speed Data Point [L/h/%]


AAD01AAD01013K1
Sandgate Acetic Tanker Power Supply
Start
Stop
Reset
Running
Healthy
Remote
Duty Status
Speed Output
Manual Setpoint
Interlocks
Auto Permissive
Manual Perm
0 : 22
Level
Bulk Conce
Bulk Specifi
P0583-003
nd Sump Pump

GRUNDFOS ALLDOS

FACTORY ACCEPTANCE TEST SHEET

CLIENT: Tenix	**PROJECT:** Sandgate WWTP Acetic Acid	**FAT NO.** 5131060.1.1 FAT	
		PAGES 4	
CLIENT REF: Quote# TEN3088QTH		**ALLDOS OCEANIA REF:** 5131060.1.1	
PREPARED BY: Ray Verburgt	**DATE:** 29-10-08	**PROJECT ENGINEER:** Ray Verburgt	**DATE:**
NOTES: TESTING DONE ONSITE BY MARLON PRITCHARD 0422 579792. 25& 26th AUGUST 2009.			

NO.	ACTIVITY	ACCEPTANCE CRITERIA	INSPECTION BY		DOCUMENTS (/ NOTES)
			ALLDOS	CLIENT	
1.	Visual Inspection of Dosing Skid	As per approved GA drawing 51310601.1-G01 As per approved P&ID 486/5/5-0051-004 Amend B		✓ ✓ ✓	• Visual inspection of all components to check correct / satisfactory installation • Check flow direction specific equipment- Loading valve, Solenoid valves etc– ensure they are fitted in the correct direction. • Check alignment of all equipment
2.	Operation. Manually check all valves. Ensure Valves are in Correct Position for use.	All isolation valves are free and in correct position.		✓ ✓ ✓ ✓ ✓	• Open and close all valves to ensure there is no binding. • Isolate Calibration Cylinder. • Isolate process Drain Valves. • Open Pump Suction and discharge. • Open process valves.
3.	Prime Pumps • Dosing Pump 1 PU-0583-001 • Dosing Pump 2 PU-0583-002	Remove air from system.			Priming Pump. • Flood Suction of Dosing Pump • Isolate Dosing System. • Slightly Open Drain Valve on discharge. • Run Pump until fluid is discharged to drain. Close drain valves and open system isolation valves.

4.	Hydrostatic Test Pipework.	Check system for leaks As per AS2032:2006 Section 7			Test Procedure. • Fill with water taking care to purge all air from the system. • Hold 4.5 bar pressure for 15 minutes. • Visually check all pipe work to ensure no leakage.
	Calibrate Dilution Water Flow Rate • Dilution Line	Ensure dilution water flow rate is set correctly.			Test Procedure Dilution Line 1 • Manually Open Dilution Water Solenoid Valve – FCV0583-003 • Manually Open Dilution Water Valve – HCV-1030-200 Rotameter – FI 0583-003 • Check flow rates of approx. min 1000 l/hr and max 1500l/hr are achieved.
5.	Pressure Gauge Operation	Check for correct operation			Testing Procedure • Run pumps • Visually check pressure gauge operation.
6.	Check Operation of Pressure Relief Valves • Pressure Relief Valve PRV-0583-001 • Pressure Relief Valve PRV-0583-002	Set PRV to 4bar			Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve

7.	Pressure Loading Valve • PSV-0583-001	Set PLV to 3bar		✓	Test Procedure • Run Dosing Pump PU-0583-001 • Set Loading Valve to operate at approximately 3 bar.
8.	Pump Operation • PU-0583-001 • PU-0583-002	Check for correct operation		✓ ✓	Test Procedure Run pump PU-0583-001 • Adjust dose rate to approx. 150l/ph Run pump PU-0583-002 • Adjust dose rate to approx. 150l/ph
	Pulsation Dampeners • D-0583-001	Check correct operation		Works well ✓	Test Procedure Run dosing pump 1 – PU-0583-001 • Visually / audibly check pulsation dampener and pressure gauge operation.
11.	Skid Operation	Check correct operation		checked on Manual Control all Good ✓	Valve Positions • Isolate Drain valves. • Open pump suction and discharge valves. • Open process valves. • Open Dilution water Isolation Valves. • Run pumps as per standard operation for approximately 30minutes. • Visually and audibly check system.

NOTES:					

Alldos Representative

Signature _____

Name N/A.

Date _____

Client Representative

Signature _____

Name MARION DEITCHARD

Date 25/8/09.

GRUNDFOS ALLDOS

SITE ACCEPTANCE TEST SHEET

CLIENT:	Tenix		**PROJECT:**	Sandgate WWTP Acetic Acid		**FAT NO.**	5131060 SAT
						PAGES	5
CLIENT REF:	Quote# TEN3088QTH			**ALLDOS OCEANIA REF:**	5131060		
PREPARED BY:	Ray Verburgt	**DATE:**	29-10-08	**PROJECT ENGINEER:**	Ray Verburgt	**DATE:**	26/8/09
NOTES:							

NO.	ACTIVITY	ACCEPTANCE CRITERIA	INSPECTION BY		DOCUMENTS (/ NOTES)
			ALLDOS	CLIENT	
1.	Tank	As per approved GA drawings As per P&ID 486/5/5-0051-004 Amend B		✓ ✓ ✓ ✓	• Visual inspection of fitting arrangements • Check hold down bolts - correct installation • Check installation of level switches, pressure transducers • Check fill line installation, pipe supports, valves, alignment • Check for swarf and foreign materials inside tank – remove if necessary
2.	Level Sensors • LSH 0583-001 • LS 0583-002 • LSH 0583-004	Calibration		✓ ✓	• Calibrate level sensors Damping Value – 2 secs Density – 1.025 kg/dm3 100% = 1.8 metres
3.	Truck Fill Operation	Correct Operation Latch Stop Operation Zero leakage from fill line		✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	• Ensure suction line valves are closed • Connect tanker / pump to fill line and power outlet on loading panel • Commence fill operation for 30seconds • Activate latch stop – ensure operation is terminated, (no outlet power) check other loading panels for no power on outlet power • Check fill line for leaks • Re-commence fill operation • Simulate high level – ensure operation is

					terminated (no outlet power) • Re-commence fill operation – ensure approx. 1000lt total in tank and stop operation
4.	Pressure Transducer • LE 0583-001	Calibration		0–1.8 mating =	• Calibrate pressure transducer – approx. 1000lt water
5.	Suction Line	Check for leaks		0–100%	• Check suction line to pumps for leaks
6	Visual Inspection of Dosing Skid	As per approved GA drawing 51310601.1-G01 As per approved P&ID 486/5/5-0051-004 Amend A			• Visual inspection of all components to check correct / satisfactory installation • Check flow direction specific equipment- Loading valve, Solenoid valves etc– ensure they are fitted in the correct direction. • Check alignment of all equipment
7	Operation. Manually check all valves. Ensure Valves are in Correct Position for use.	All isolation valves are free and in correct position.			• Open and close all valves to ensure there is no binding. • Isolate Calibration Cylinder. • Isolate process Drain Valves. • Open Pump Suction and discharge. • Open process valves.
8	Prime Pumps • Dosing Pump 1 PU-0583-001 • Dosing Pump 2 PU-0583-002	Remove air from system.			Priming Pump. • Flood Suction of Dosing Pump • Isolate Dosing System. • Slightly Open Drain Valve on discharge. • Run Pump until fluid is discharged to drain. Close drain valves and open system isolation valves.

9	Hydrostatic Test Pipe work.	Check system for leaks As per AS2032:2006 Section 7			Test Procedure. • Fill with water taking care to purge all air from the system. • Hold 4.5 bar pressure for 15 minutes. • Visually check all pipe work to ensure no leakage.
10	Calibrate Dilution Water Flow Rate • Dilution Line	Ensure dilution water flow rate is set correctly.			Test Procedure Dilution Line 1 • Manually Open Dilution Water Solenoid Valve – FCV0583-003 • Manually Open Dilution Water Valve – HCV-1030-200 Rotameter – FI 0583-003 • Check flow rates of approx. min 1000 l/hr and max 1500l/hr are achieved.
11	Pressure Gauge Operation	Check for correct operation			Testing Procedure • Run pumps • Visually check pressure gauge operation.
12	Check Operation of Pressure Relief Valves • Pressure Relief Valve PRV-0583-001 • Pressure Relief Valve PRV-0583-002	Set PRV to 4bar			Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4bar. • Open Discharge Valve Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve

13	Pressure Loading Valve • PSV-0583-001	Set PLV to 3bar			Test Procedure • Run Dosing Pump PU-0583-001 • Set Loading Valve to operate at approximately 3 bar.
14	Pump Operation • PU-0583-001 • PU-0583-002	Check for correct operation			Test Procedure Run pump PU-0583-001 • Adjust dose rate to approx. 150l/ph (max.) Run pump PU-0583-002 • Adjust dose rate to approx. 150l/ph (max.)
15	Pulsation Dampener • D-0583-001	Check correct operation			Test Procedure Run dosing pump 1 – PU-0583-001 • Visually / audibly check pulsation dampener and pressure gauge operation.
16	Skid Operation	Check correct operation			Valve Positions • Isolate Drain valves. • Open pump suction and discharge valves. • Open process valves. • Open Dilution water Isolation Valves. • Run pumps as per standard operation for approximately 30minutes. • Visually and audibly check system.

GRUNDFOS ALLDOS

NOTES:
(1) Tank still to be cleaned out.
(2) check whether fire reel needs Splash protection
(3) Building requires to be earthed.

Alldos Representative

Signature N/A.

Name

Date

Client Representative

Signature

Name MARION PRITCHARD

Date 26/8/09.

ALLDOS
Vision for water technology

WORKSHOP TEST PROCEDURE

Job Name: SANDGATE ACETIC ACID C.P.	Job No: 5131060-1-3	Tested By: JOHN DARROCH

TEST	RESULT	COMMENTS
Wiring Check	OK	
Earth Continuity Check	< 0.1 Ω	
Insulation Resistance Test	> 200 MΩ	
Labels Complete		Some Terminal Labels outstanding
Plug and Lead Fitted For Testing	YES	
Ready For Testing	YES	

Draft

ALLDOS
Vision for water technology

Copy 1/2

WORKSHOP TEST PROCEDURE

Job Name:	Job No: 5131060 • 1 . 3	Tested By:

TEST	RESULT	COMMENTS
Wiring Check	OK	POWERED UP TESTED
Earth Continuity Check	OK < .1Ω	CHASSIS TO TERMINALS
Insulation Resistance Test	N.A	24V BOARD
Labels Complete	OK	
Plug and Lead Fitted For Testing	NO	EXTERNALLY SOURCED 24V ONLY
Ready For Testing	COMPLETED	

James

DATE 27-1-09

4.3. Section 3 - Commissioning Procedure - Blank Forms

3 COMMISSIONING PROCEDURE

1. Ensure services are available (Refer Section 10)
2. Visually inspect all plumbing and Electrical Equipment
3. Physically examine all valves, unions etc
4. Complete the Acetic Acid System Site Acceptance Tests, a blank copy of which are here enclosed on the following pages

Note: Re-commissioning procedures after various plant maintenance tasks for the Acetic Acid System is found in Volume 2 Sections 6 & 7

Operators should be aware of updated Site Dosing Specifications and adjust test procedures / values accordingly.

SAT TEST RESULT RECORD SHEETS

Purpose

The purpose of the SAT is to ensure that the site is operating correctly on the new controls under actual site conditions. On completion of the SAT, the operational control of the site is transferred to operations and the site achieves Construction Completion.

This section is to be completed only at the conclusion of the Pre-SAT:

Final Pre-SAT Results	YES	NO	Comments
Electrical ITPs completed			
Minor Defects Generated			
Severe Defects Generated			
SAT Accepted			

Commissioning Engineer Name …… Signature…… Date ……

Project Manager/Area Supervisor Name …… Signature …… Date ……

Documentation	From	To	Done
1. Defects	Commissioning Engineer	Site Supervisor and/or Contractor	
2. Original of this signoff/summary sheet	Commissioning Engineer	Project Manager	

Prerequisites
Prerequisites for the SAT are contained in Section A of the SAT record sheets.

Procedure
The SAT includes checking the scope of works; testing of field devices, field wiring and installation; and test operation of instrumentation and ancillary gear.

During SAT, the new system is usually fully tested off-line and will not be dosing Acid into the water system. The performance of the new system can be monitored without failures affecting the quality of the water of the treatment plant.

The Commissioning Engineer may raise Defects. These will indicate that equipment or installation does not conform to the specification. The responsible party will modify and re-test the system. It is up to the Commissioning Engineer to determine whether re-testing can be carried out as part of the current SAT or re-scheduled to another date.

At the conclusion of the SAT and provided there are no severe Defects, the Commissioning Engineer will accept the SAT and the site can then be placed into Automatic operation.

Responsibilities associated with SAT

Installation Sub Contractors:

- Ensure site is ready and provide testing assistance resources;
- Provide all up-to-date documentation, such as WAE drawing mark ups, ITP test sheets, relevant records, etc.;
- Assist in carrying out test to a successful completion;
- Rectify defects in a timely manner;
- Ensure testing environment is safe and issue confined space entry permits, where required;
- Ensure spills does not occur and integrity of site is not affected.

Project Manager (or representative):

- Confirm readiness of site for SAT;
- Confirm readiness of installation contractor.
- Check that design documentation is correct and up to date;
- Arrange for site-specific induction for Commissioning Engineers;
- Ensure over dosing does not occur and integrity of site is not affected;

Commissioning Engineer:

- Prepare testing check sheets;
- Perform SAT checks and complete SAT Test Record Sheets;
- Issue Defect Reports for unsatisfactory or incomplete work;
- Ensure over dosing does not occur and integrity of site is not affected;
- Sign SAT Results Record Sheet;

A. SAT PREREQUISITES

ITEM	DESCRIPTION	YES	NO	NA	COMMENTS/ACTIONS -
A1	Project Manager and Brisbane Water has given approval to perform SAT				
A2	SAT document has been approved				
A3	All preparation work and notifications are complete				
A4	Review any outstanding defects, eg. from FAT, and incomplete works and evaluate if SAT can continue				
A5	All relevant updated documentation is available:				
	drawings & schedules (site, circuit, cable, switchgear & GA)				
A6	All new equipment has been installed				
A7	Level switches have been installed to specification				
A8	Power is available at the new switchboard. Contractor has removed his lock/tag from the Main Breaker				
A9	Safe working area provided				
A10	All site attendance, induction and permit documentation filled in and signed				
A11	Test equipment calibration is current				
A12	SAT able to proceed ***Hold Point***				

Test: **Site Acceptance of Dosing Skid**
Purpose: To prove that the dosing skid is complete and performs as per the functional description
Prerequisites: All new equipment is installed. The Contractor's ITPs have been completed and records made available to the Commissioning Engineer. Tank is full of water and not acid
Procedure: Follow AllDos procedure to Site Test Dosing Skid.

B. ELECTRICAL AND INSTRUMENTATION VISUAL INSPECTION

ITEM	DESCRIPTION	ACCEPTANCE CRITERIA	Pass	Fail	COMMENTS (if any)
B1	Follow AllDos Factory test and Site Acceptance test.	Work through Factory and Site Acceptance ITPs. Attach ITPs to this completed document.			
B2	Verify Comms	Verify communications between Dosing Plant PLC and SCADA system			
B3	Reset Alarms	Reset All high alarms			
B4	Test Tank Bund Area	Flood water into bund area and verify high bund alarm. Drain and reset			
B5	Test Emergency Bund Area	Flood water into Emergency Bund Area to test with. Lower high float into water. Verify that the sump pump starts.			
		Verify that the low level indicator is shown on SCADA			
		Verify that after 10 seconds of high level float being made, the high float alarm is shown on the SCADA			
		Remove high level float			
		Verify that the sump pump stops at low float level on that the sump pump is still submerged.			
		Clear Alarms.			
B6	Test Automatic system	Reset all alarms and reset all devices on the SCADA			
		Set dosing system to Manual and enter a setpoint of 20 L/Hr			
		Enable the dosing system on the SCADA			
		Verify that the Dilution valve opens			
		Verify that the duty pump valve opens			

		Verify the duty pump starts and pumps at the setpoint rate of 20L/Hr			
		Press the Duty Swap and verify that pumps and valves swap over.			
		Induce a fault on the working pump			
		Verify duty changes over and fault is shown			
		Reset fault.			
		Induce a fault on the second pump and verify that duty changes over and fault is shown.			
		Change manual setpoint to 140 L/Hr and verify pump 1 attains the setpoint			
		Swap Duty			
		Verify that Pump 2 attains the 140L/hr			
		Change Dosing pumps start Flow SP (Auto) to a figure lower than the Flow Splitter 2 flow and verify that the system shuts down.			
		Verify that the dilution water stays running for the period of time set in the Dilution Valve Shutdown delay.			
		Verify that the level of the tank is the same as the pressure transducer.			
		Enable the Truck Fill Pump Supply on the SCADA system.			
		Verify that the sockets to the delivery motor are alive			
		Remove the high level alarm sensor and place into a cup of water.			
		verify that the supply to the Delivery tanker goes off			
		Verify that the alarm sounds			
		Verify that the high level is shown on the SCADA			
		Press the mute button and verify that the alarm is muted			
		Put the high level switch back into the tank.			
		Reset Alarm on the SCADA system			

		Allow Dosing Pump 1 to run long enough to verify that the totalised to counting up and the speed feedback matches what is shown on the dosing pump			
		Allow Dosing Pump 2 to run long enough to verify that the totalised to counting up and the speed feedback matches what is shown on the dosing pump			
		Place the system in automatic and verify that the calculated setpoint speed is transferred to the required Dose rate box and the dosing pump achieves this required setpoint.			
		Disable Dosing System			
		Drain all water from Tank			
		Close Drain Valve			
B7	Notify plant operators that the Acid Plant is now commissioned	Telephone operators			
B8	Notify site supervisor	Telephone Supervisor that testing has been completed and is now ready to accept acid.			
B9	Handover Documentation	Supply Signed copy of this site acceptance sheet to Brisbane Water.			

C. RECORDING OF SAT RESULTS

Purpose:- To record the results of the SAT, provide approval for a successful SAT and to ensure that defects are recorded.

Conditions:-

- SAT completed and all SAT results recorded on the SAT record sheets
- Dosing System is ready for Acid Delivery.

Make a list of defects and incomplete works and assess whether the SAT can be accepted. If possible, discuss the defects with the Site Supervisor and/or the Contractor and agree remedial action.

Complete SAT results on Page 1 of these SAT Test Result Record sheets.

SAT Defects and Incomplete Works which Impact on SAT:

Item	Description	Severe / Minor

SITE ACCEPTANCE TEST SHEET

CLIENT:	Tenix		**PROJECT:**	Sandgate WWTP Acetic Acid		**FAT NO.**	5131060 SAT
						PAGES	5
CLIENT REF:	Quote# TEN3088QTH			**ALLDOS OCEANIA REF:**	5131060		
PREPARED BY:	Ray Verburgt	**DATE:**	29-10-08	**PROJECT ENGINEER:**	Ray Verburgt	**DATE:**	
NOTES:							

NO.	ACTIVITY	ACCEPTANCE CRITERIA	INSPECTION BY		DOCUMENTS (/ NOTES)
			ALLDOS	CLIENT	
1.	Tank	As per approved GA drawings As per P&ID 486/5/5-0051-004 Amend B			• Visual inspection of fitting arrangements • Check hold down bolts - correct installation • Check installation of level switches, pressure transducers • Check fill line installation, pipe supports, valves, alignment • Check for swarf and foreign materials inside tank – remove if necessary
2.	Level Sensors • LSH 0583-001 • LS 0583-002 • LSH 0583-004	Calibration			• Calibrate level sensors
3.	Truck Fill Operation	Correct Operation Latch Stop Operation Zero leakage from fill line			• Ensure suction line valves are closed • Connect tanker / pump to fill line and power outlet on loading panel • Commence fill operation for 30seconds • Activate latch stop – ensure operation is terminated, (no outlet power) check other loading panels for no power on outlet power • Check fill line for leaks • Re-commence fill operation • Simulate high level – ensure operation is

					terminated (no outlet power) • Re-commence fill operation – ensure approx. 1000lt total in tank and stop operation
4.	Pressure Transducer • LE 0583-001	Calibration			• Calibrate pressure transducer – approx. 1000lt water
5.	Suction Line	Check for leaks			• Check suction line to pumps for leaks
6	Visual Inspection of Dosing Skid	As per approved GA drawing 51310601.1-G01 As per approved P&ID 486/5/5-0051-004 Amend A			• Visual inspection of all components to check correct / satisfactory installation • Check flow direction specific equipment- Loading valve, Solenoid valves etc– ensure they are fitted in the correct direction. • Check alignment of all equipment
7	Operation. Manually check all valves. Ensure Valves are in Correct Position for use.	All isolation valves are free and in correct position.			• Open and close all valves to ensure there is no binding. • Isolate Calibration Cylinder. • Isolate process Drain Valves. • Open Pump Suction and discharge. • Open process valves.
8	Prime Pumps • Dosing Pump 1 PU-0583-001 • Dosing Pump 2 PU-0583-002	Remove air from system.			Priming Pump. • Flood Suction of Dosing Pump • Isolate Dosing System. • Slightly Open Drain Valve on discharge. • Run Pump until fluid is discharged to drain. Close drain valves and open system isolation valves.

9	Hydrostatic Test Pipe work.	Check system for leaks As per AS2032:2006 Section 7			Test Procedure. • Fill with water taking care to purge all air from the system. • Hold 4.5 bar pressure for 15 minutes. • Visually check all pipe work to ensure no leakage.
10	Calibrate Dilution Water Flow Rate • Dilution Line	Ensure dilution water flow rate is set correctly.			Test Procedure Dilution Line 1 • Manually Open Dilution Water Solenoid Valve – FCV0583-003 • Manually Open Dilution Water Valve – HCV-1030-200 Rotameter – FI 0583-003 • Check flow rates of approx. min 1000 l/hr and max 1500l/hr are achieved.
11	Pressure Gauge Operation	Check for correct operation			Testing Procedure • Run pumps • Visually check pressure gauge operation.
12	Check Operation of Pressure Relief Valves • Pressure Relief Valve PRV-0583-001 • Pressure Relief Valve PRV-0583-002	Set PRV to 4bar			Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4bar. • Open Discharge Valve Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve

13	Pressure Loading Valve • PSV-0583-001	Set PLV to 3bar			Test Procedure • Run Dosing Pump PU-0583-001 • Set Loading Valve to operate at approximately 3 bar.
14	Pump Operation • PU-0583-001 • PU-0583-002	Check for correct operation			Test Procedure Run pump PU-0583-001 • Adjust dose rate to approx. 150l/ph (max.) Run pump PU-0583-002 • Adjust dose rate to approx. 150l/ph (max.)
15	Pulsation Dampener • D-0583-001	Check correct operation			Test Procedure Run dosing pump 1 – PU-0583-001 • Visually / audibly check pulsation dampener and pressure gauge operation.
16	Skid Operation	Check correct operation			Valve Positions • Isolate Drain valves. • Open pump suction and discharge valves. • Open process valves. • Open Dilution water Isolation Valves. • Run pumps as per standard operation for approximately 30minutes. • Visually and audibly check system.

NOTES:	

Alldos Representative

Signature _____

Name _____

Date _____

Client Representative

Signature _____

Name _____

Date _____

4.4. Section 4 – ITPs

4.4.1. Civil ITPs

4 INSPECTION AND TEST PLANS

4.1 Civil Installation Inspection Test Plans

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Site Preparation

INSPECTION AND TEST PLAN			
Title: Site Preparation and Foundations	**SITE PREPARATION/EARTHWORKS - SANDGATE**		**Subcontractor:** Doval
Location: Sandgate WWTP	**Chainage:**	**Lot No: 1**	**Date: 07/01/2009**
Client: Tenix Alliance	**Prepared by:** Sidney Hart	**Revision: 0**	**Construction Manager: B Marais Approved**

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
					Doval Representative		Tenix Representative		
				Status	Resp	Sign / Date	Resp	Sign / Date	
	Site Set Up								
1	• Verify SWP and EMP reviewed and implemented for operations. • Authorisation to start work check list has been completed.	Tenix SWP and EMP, Tenix Contractor Quality Plan. Tenix Start Work Plan.		H	PE/Sup	14/1	PE/Sup	14/1	
2	Confirm drawings are AFC and current.	Drawings are Rev 0 or later. Check site drawings against the drawing register		W	PE/Sup	14/1	PE/Sup	14/1	
	Existing Services								
3	Ensure all safety and environmental controls are in place. Ensure all underground and above ground services are located and suitable work practices in place.	Project Safety and Environmental documents		H	PE/Sup	14/1	PE/Sup	14/1	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Site Preparation

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
					Doval Representative		Tenix Representative		
				Status	Resp	Sign / Date	Resp	Sign / Date	
	Where underground services are located nearby, potholing shall be undertaken to establish the exact location of the services, before mechanical excavation takes place			W	Sup 15/1		Sup	15/1	UG. LOCATIONS CARRIED PRIOR TO START
	Remove and stockpile Topsoil								
4	Existing topsoil to removed to 100mm deep and stockpiled if required.	BCC Specification S140	Stockpile to be regular shape, not greater than 1.5m high, and lightly compacted to prohibit saturation by water.	W	PM / PE		PM / PE	15/1	GRASS REMOVED TOP SOIL NON EXISTENT
5	Excavated material to be removed and stockpiled.	Environmental Controls	Stockpile to be regular shape, not greater than 1.5m high, and lightly compacted to prohibit saturation by water.	W	PE/Sup 16/1		PE/Sup	16/1	
	Excavation:								
6	Excavate to 1.6m below ground level, or as directed by geotechnical engineer.	BCC City Design Drawings	As per geotechnical advice	W	PE/sup 16/1		PE/sup	16/1	
7	Excavate for foundations to level as per design	BCC Drawing 0051-022		W	PE/sup		PE/sup		
8	After excavation has reached founding level, foundation material to be tested by qualified geotechnical engineer, or proof roll as per	Notes – drawing number 0051-015 BCC Specification S140		H	PE/Sup 19/1		PE/Sup	19/1	Certificate

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Site Preparation

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
					Doval Representative		Tenix Representative		
				Status	Resp	Sign / Date	Resp	Sign / Date	
	Specification.								
	Encroachments:								
9	If encroachments from adjacent structures are encountered, and are not shown on the drawings, give notice and obtain instructions	BCC Specification S140		W	PE/Sup 12/1		PE/Sup	SK 26/3	Left undisturbed and compacted around.
	Backfilling:								
10	Excavated material shall be replaced in layers not exceeding 200mm, to achieve 98% standard compaction.	BCC City Design Drawing 0051-015	**Materials:** Deemed suitable by Tenix Representative. Able to be compacted to required levels	W	PE/Sup 12/1		PE/Sup	SK 26/3	
11	Backfill to design level.			W	Surveyor/SE/Sup	24/3	Surveyor/ SE/Sup	SK 26/3	
12	Backfill against wall to subsoil drainage details	BCC Standard Drawing UMS412		W	SE/Sup	24/3	SE/Sup	SK 26/3	
	Compaction								
13	Method of compaction and compliance testing in accordance with Table 6.1 of BCC Specification S140	BCC Specification S140		W	PE/Sup	8/4	PE/Sup	SK 8/4	LEAD MIX IN ALL ROAD X-SINGS (48970792)

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Site Preparation

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
					Doval Representative		Tenix Representative		
				Status	Resp	Sign / Date	Resp	Sign / Date	
	Final Inspection and review of records								
14	All works completed as specified Verify compliance including close out of any Non Conformance			H	PM / PE		PM / PE	SK 8/4	

Doval Project Engineer

Name: .....

Signature: .....

Date: .....

Tenix Alliance Project Engineer

Company Tenix

Name: S. Kusters

Signature: .....

Date: 8-4-'08

Key:	PM = Project Manager	PE = Project Engineer	SE = Site Engineer	Sup = Supervisor
	H = Hold Sign off required prior to works proceeding. Notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection.	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period.	S = Surveillance General inspection of tasks and works. No advice required to Client.	R = Report Where dockets, test certificates/reports, etc. are not attached to ITP, ensure that suitable cross reference is made

Notes: Brisbane City Council Specifications. This specification makes reference to the following Australian Standards and the Queensland Department of Main Roads Documents: AS1289 Methods of testing Soils for Engineering purposes; AS2187 Explosives – storage, transport and use; AS3798 Guidelines on Earthworks for Commercial and Residential

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Site Preparation

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
					Doval Representative		Tenix Representative		
				Status	Resp	Sign / Date	Resp	Sign / Date	
Developments; QDMR Materials Testing Manual Volumes 1 – 4. Third edition 1978, including Amendment Sheet No 26 June 1996.									

AS PER ATTACHD CHECK SHEETS.

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

INSPECTION AND TEST PLAN			
Title: Structural Concrete -Sandgate	**Structural Concrete – Sandgate**	**Subcontractor:** Doval	
Location: Sandgate	**Area:**	**Lot No: 2**	**Date: 07/01/2009**
Client: Tenix Alliance	**Prepared by:** Sidney Hart	**Revision: 1**	**Construction Manager : B Marais** **Approved:**

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	Site Set up								
1	All underlying lots have been signed off			H	PE		PE	SK 13/4	
2	Requisition concrete pour has been completed and order is correct			H	PE		PE	SK 13/4	Concrete order
	Reinforcement								
3	Reinforcement bar sizing correct as per drawings	BCC City drawings 0051-018, 0051-019		W	PE/Sup		PE/Sup	SK 13/4	
4	Reinforcement Spacing correct as per the design drawings	BCC City drawings 0051-018, 0051-019		W	PE/Sup		PE/Sup	SK 13/4	
5	Reinforcement lap lengths as per table in Concrete Notes C7 and relevant drawings	BCC City drawing 0051-015, 0051-017		W	PE/Sup		PE/Sup	SK 13/4	
6	Splices in reinforcement shall be made only in the positions shown, or	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	as approved by the superintendent								
7	Approval must be gained from the superintendent prior to any bending or welding of reinforcement	BCC City Drawing 0051-015 (Notes)		H	PE/Sup		PE/Sup	SK 13/4	Approval letter NOT NECESSARY
8	All reinforcement shall be securely supported in its correct position by approved bar chairs, spacers or support bars	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
9	Cast in items are set in right position – rag bolts and pipe locations are critical	BCC City Drawings		W	PE/Sup		PE/Sup	SK 13/4	
	Formwork	Formwork shall be designed, constructed and stripped in accordance with AS 3610.							
9	Provide formwork to sides, construction joints, and ends	BCC Specification S150 Roadworks (6.1)		W	PE/Sup		PE/Sup	SK 13/4	
10	Forms clean, free of debris and oiled to give Class 3 surface finish	BCC Specification S150 Roadworks (6.1)		W	PE/Sup		PE/Sup	SK 13/4	
	Concrete Cover	All workmanship and materials shall be in accordance with AS3600	Tolerances as per Section 6.3 of BCC Specification S150 Roadworks						
11	All concrete shall be premixed by an approved supplier	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	Plant Batch Record HANSON MIX
12	Admixtures shall not be used unless	BCC City Drawing 0051-		H	PE/Sup		PE/Sup	SK 13/4	Approval letter NOT NECESSARY

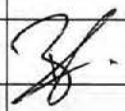
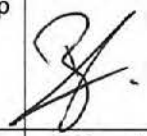
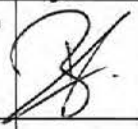
Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	approved in writing by the superintendent	015 (Notes)							
13	Nominal aggregate size – 20mm Maximum slump – 80mm	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
14	Concrete strength and clear concrete cover to reinforcement shall be in accordance with the table identified under point C6 of Concrete Notes, unless noted otherwise. Elements not covered shall be in accordance with AS3600	BCC City Drawing 0051-015 (Notes) AS3600		W	PE/Sup		PE/Sup	SK 13/4	
15	All concrete shall be compacted using a mechanical vibration process	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
16	Tests - Concrete Supply Comprehensive Strength Samples taken & Slump Test • Minimum 3 cylinders per sample The slump of the concrete must be measured and within the acceptable criteria in order to be placed			W	PE/Sup		PE/Sup	SK 13/4	
	Joints								
17	Spacing – space to match service pits and other discontinuity in cross-section	BCC City Drawing		W	PE/Sup		PE/Sup	SK 13/4	
18	Joints – locate at contraction or expansion joints	BCC City Drawing		W	PE/Sup		PE/Sup	SK 13/4	
19	Expansion joints – UNO the maximum spacing is 16m. Provide	BCC City Drawing		W	PE/Sup		PE/Sup	SK 13/4	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	additional expansion joints between the concrete slab and abutting edge restraints. Form joints with full depth 10mm closed cell close linked polyethylene foam 85-150kg/m³, securely taped to the end form. Seal surface of joint with Thioflex 600 or equivalent								
21	Provide slab joints with Sika Flex Tank Joint Sealant	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
	Water Stops								
22	Slabs on grade shall be underlain with a continuous layer of ICI Fortecon (200 micron thickness) or similar approved dampproof membrane lapped and taped to manufacturers specification	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
23	Provide 3 coats of Sikagard-62 protective coating on all concrete slabs, according to manufacturers specification – pre-seal the surface with Sikagard-720 epoxy cement	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
24	Provide waterproofing membrane Sikaproof-150 or similar to all vertical concrete surfaces that are in contact with the ground	BCC City Drawing 0051-015 (Notes)		W	PE/Sup		PE/Sup	SK 13/4	
	Surface Treatments	BCC Specification S150 Roadworks							

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
25	Slip resistance – maintain minimum enduring slip resistance as set out in Table 7.1 of BCC Specification S150 Roadworks	BCC Specification S150 Roadworks Section 7.2		W	PE/Sup		PE/Sup	SK 13/4	SIKA WITH GMT ADDITIVE TO BE APPLIED AS
26	Skid Resistance – requirement as specified in Table 7.2 of BCC Specification S150 Roadworks. Carry out Portable Pendulum Skid Resistance tests on wet surfaces, in accordance with QDMR method Q704 or ASTME 303-69.	BCC Specification S150 Roadworks Section 7.2		W	PE/Sup		PE/Sup	SK 13/4	~~Test Results~~ . 4th COAT DIRECTION BY BCC. AUTHORITY
	Final Inspection and Review of Records								
27	All works completed as specified Verify compliance including close out of any Non Conformance			H	PM/PE		PM/PE	SK 13/4	

Doval Constructions Project Engineer	Tenix Alliance Project Engineer
Name: B. MARAIS	Name: S. Kuskers
Signature:	Signature:

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Structural Concrete

Date: 8/4/09		Date: 13-4-'09	
PM = Project Manager	PE = Project Engineer	SE = Site Engineer	Sup = Supervisor
H = Hold Sign off required prior to works proceeding. Notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection.	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period.	S = Surveillance General inspection of tasks and works. No advice required to Client.	R = Report Where dockets, test certificates/reports, etc. are not attached to ITP, ensure that suitable cross reference is made

NOTE: Australian Standards: This specification makes reference to the following standards and codes. AS/NZS1111 ISO metric hexagon commercial bolts and screws; AS/NZS1112 ISO metric hexagon nuts, including thin nuts, slotted nuts and castle nuts; AS3610 Formwork for Concrete, AS2758 – Aggregates and rock for Engineering purposes, AS1379 – The Specification and Manufacturer of Concrete. AS1141 Methods for sampling and testing aggregates; AS1281 Cement Mortar lining of steel pipes and fittings; AS1289 Methods of testing soils for engineering purposes; AS1302 Steel Reinforcing bars for concrete; AS1304 Welded wire reinforcing fabric for concrete; AS1379 The specification and Manufacture of Concrete; AS1397 Steel sheet and strip – Hot dipped zinc coated or aluminium/ zinc coated; AS1478 Chemical admixtures for concrete; AS1579 Arc welded steel pipes and fittings for water and wastewater: AS1627 Metal finishing – preparation and pre-treatment of surfaces; AS1646 Elastometric seals for waterworks purposes; AS1720 Timber structures; AS/NZS2053 Conduits and fittings for electrical installations; AS/NZS2280 Ductile iron pressure pipes and fittings; AS2331 Methods of test of metallic and related coatings; AS2638 Sluice valves for waterworks purposes; AS2758.1 Concrete Aggregates; AS2837 Wrought alloy steels – stainless steel bars and semi-finished products; AS2865 Safe working in a confined space; AS3578 Cast Iron no return valves for general purpose; AS3582.1 Fly Ash; AS3600 Concrete structures; AS3610 Formwork for concrete; AS/NZS3678 Structural Steel – hot rolled plates, floor plates and slabs; AS/NZS3679 Structural steel – hot rolled bars and sections , Welded I sections; AS3706 Geotextiles – methods of test; AS3894.1 Non destructive coatings – continuity testing – high voltage (brush) method;AS3972 Portland and Blended cements; AS4041 Pressure piping; AS4087 Metallic flanges for waterworks purposes ; AS/NZS4158 Polymeric coating on valves and fittings for water industry purposes; AS4321 Fusion bonded medium density polyethylene coating and lining for pipes and fittings.
Manufacturer's recommendations for Plastic Welding.

Ensure the latest version of Australian Standards is being used.

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

INSPECTION AND TEST PLAN			
Title: Pipelaying -Sandgate	**Pipelaying – Sandgate**	**Subcontractor:** Doval	
Location: Sandgate WWTP		**Lot No:** 3	**Date:** 19/01/2009
Client: Tenix Alliance	**Prepared by:** Sidney Hart	**Revision:** 1	**Construction Manager : B Marais** **Approved:**

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
1	**Management Plans**								
	Site Safety Management Plan	Contract Specification	Checklist completed, reviewed and approved by Tenix	H	SE/PE	19/1	SE/PE	SK 19/1	
	Environmental Management Plan	Contract Specification	Checklist completed, reviewed and approved by Tenix	H	SE/PE	19/1	SE/PE	SK 19/1	
	Quality Management Plan	Contract Specification	Checklist completed, reviewed and approved by Tenix	H	SE/PE	19/1	SE/PE	SK 19/1	
2	**Preparation**								
	All existing water, sewer, gas, communications, power and any other existing service locations to be identified	Contract Specification	Professional locator engaged. Visual check against DBYD. Hand	H	SE/PE	19/1	SE/PE	SK 19/1	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
			digging/Potholing in the vicinity of underground services required						
	Permits acquired	Contract Specification	Permits including start work authorization, permit to excavate, confined space entry etc	H	SE/PE	19/1	SE/PE	SK 19/1	
3	**Pipe Material**								
	Pipework	AS1477:2006 PVC Pipes and Fittings for Pressure Applications	Install and test all nominated pipe work in accordance with AS1477:2006	W	SE/PE	23/3	SE/PE	SK 23/3	
	Materials	Contract Specification AS1477:2006 AS2032-1977 AS2129-1994	UNO all pipes and fittings shall be as specified in the Project Specification (Product Requirements) and relevant Australian Standards	W	SE/PE	23/3	SE/PE	SK 23/3	
	Dosing Lines	Contract Specification	Dosing lines from the Chemical Dosing Plant to the injection points shall be run in conduits	W	Sup/SE	23/3	Sup/SE	SK 23/3	
4	**Trenching and Bedding**								

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	Dilapidation Survey	Contract Specification	Record existing defects in areas to be worked (prior to work commencing)	W	Sup/SE	23/3	Sup/SE	SK 23/3	
	Trenching: Width / Depth / Length	Contract Specification Project specific Brisbane Water Drawings	Alignment to the required lines, levels and grades. Keep trench widths to the minimum.	W	Sup/SE	23/3	Sup/SE	SK 23/3	
	Obstructions	Contract Specification	Cut back roots to 600mm of services. Remove other obstructions which may interfere with services or bedding	W	Sup/PE	23/3	Sup/PE	SK 23/3	
	Trench Dewatering	Contract Specification	Keep trenches free of water. Place bedding material services and backfilling on firm ground free of surface water	W	Sup/SE	23/3	Sup/SE	SK 23/3	
	Bedding Material/Zone	Contract Specification	As per design / BCC Standard Drawing UMS 311 and drawing 486/5/5/0051-008	W	Sup/SE	23/3	Sup/SE	SK 23/3	
5	**Pipelaying**								
	Pipelayer Qualification	Contract Specification	Prequalified / accredited personnel	W	Sup/SE	23/3	Sup/SE	SK 23/3	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	Pipe and Fitting Materials	Contract Specification	Clean, Undamaged, Cuts square and smooth	W	Sup/SE	23/3	Sup/SE	SK 23/3	
	Pipe Sleeving	Contract Specification	Correct materials, Correct orientation and fixing, Sleeving continuous	W	Sup/SE	23/3	Sup/SE	SK 23/3	
	Pipe Jointing	Contract Specification AS1722.1-1975	Solvent cemented sockets, flanges and shoulder style couplings are permitted. Equipment connections DN50 and less may be threaded. PVC pipe connections to other materials shall not be made by cemented or glued joints	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Manholes Cast Insitu	Contract Specification	Visual inspection, neat finish Concrete correct grade	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Manholes Pre Cast	Contract Specification	Products approved by local council	H	SE/PE	30/3	SE/PE	SK 30/3	
	Pipe Deflection	Contract Specification	Alignment, grade as per design,	W	Sup/SE	30/3	Sup/SE	SK 30/3	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
			Deflection must not exceed manufacturers specifications						
	Thrust Blocks	Contract Specification	Visual, as per standard drawing requirements	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Provisions made for As-Constructed Survey	Contract Specification	Access provided for future survey	W	Sup/SE	30/3	Sup/SE	SK 8/4	
6	**Backfilling**								
	Compact bedding around pipe	Contract Specification	Per specification for each construction/service type	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Backfill Material	Contract Specification	Approved material from on site, or suitable imported material	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Compaction test request	Contract Specification	NATA Accredited Tester. 1 field density test per 2 layers for every 40 linear meters of trench. Not required for isolated patches less than 2m² in size.	W	Sup/PE		Sup/PE	SK 8/4	Test Certificate not submitted
	Backfill Compaction	Contract Specification	Minimum density = 95% (cohesive soils)	W	Sup/SE	30/3	Sup/SE	SK 8/4	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
7	**Pre Commissioning and Testing**								
	Gravity Mains Air Pressure Testing (Where relevant)	Contract Specification	As per specification	H	SE/PE	30/3	SE/PE	SK 30/3	Test Certificate N/A
	Manhole Vacuum Testing (Where relevant)	Contract Specification	Test at 28 kpa for 3 mins. Loss of no more than 5 kpa	H	SE/PE	30/3	SE/PE	SK 30/3	Test Certificate N/A
	Ovality Testing All DN100 to DN300 PVC and GRP Gravity Sewer Mains (Where relevant)	Contract Specification	No sooner than 14 days after backfilling. As per specification	H	SE/PE	30/3	SE/PE	SK 30/3	Test Certificate N/A
	Pressure Mains (Where relevant)	Contract Specification	Test at 900 kpa for 1 Hour	H	SE/PE	30/3	SE/PE	SK 30/3	Test Certificate N/A
8	**Site Restoration**								
	Road pavement, kerb and channel, signs	Contract Specification Delapidation Survey	Visual inspection, as close and practicable to original condition	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Footpath, driveways	Delapidation Survey	Visual inspection, as close and practicable to original condition	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Pavement Marking (incl kerb markings)	Contract Specification Delapidation Survey	Visual inspection, as close and practicable to original condition	W	Sup/SE	8/4	Sup/SE	SK 8/4	NOT NECESSARY
	Vegetated areas	Contract Specification Delapidation Survey	Visual inspection, as close and practicable to original condition	W	Sup/SE	8/4	Sup/SE	SK 8/4	

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Item No.	Activity	Reference Documents (eg AS 3600)	Acceptance Criteria (eg. Min 120mm)	Inspection, Verification or Test by:					Verifying Records
				Status	Doval Representative		Tenix Alliance Representative		
					Resp	Sign/date	Resp.	Sign / Date	
	Valves	Contract Specification Delapidation Survey	Spindles within 150mm of surface, surround aligned with pipe and at surface level	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Marking of valves, fittings, and pressure zones	Contract Specification	As per BCC standard drawings	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Redundant Valves and pipework	Scope of works	Removed, including all associated markers	W	Sup/SE	30/3	Sup/SE	SK 30/3	
	Clean up	Scope of works	Visual inspection, remove all rubbish, as close and practicable to original condition	W	Sup/SE	8/4	Sup/SE	SK 8/4	
	Defects inspection	Scope of works	As assessed by Doval and Tenix for site related issues	H	Sup/SE	8/4	Sup/SE	SK 8/4	
9	**Final Inspection and Review of Records**								
	All works completed as specified Verify compliance including close out of any Non Conformance			H	SE/PE	8/4	SE/PE	SK 8/4	pending: - slip resistant coat - rag bolt - documentation

Inspection and Test Plan

Document Reference: QA/ITP/Sandgate Pipelaying

Doval Constructions Project Engineer		Tenix Alliance Project Engineer	
Name: B. MARAIS Signature: Date: 8/4/09		Name: S. Kusters Signature: Date: 8-4-'09	
PM = Project Manager	PE = Project Engineer	SE = Site Engineer	Sup = Supervisor
H = Hold Sign off required prior to works proceeding. Notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection.	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period.	S = Surveillance General inspection of tasks and works. No advice required to Client.	R = Report Where dockets, test certificates/reports, etc. are not attached to ITP, ensure that suitable cross reference is made

NOTE: Australian Standards: This specification makes reference to the following standards and codes. AS/NZS1111 ISO metric hexagon commercial bolts and screws; AS/NZS1112 ISO metric hexagon nuts, including thin nuts, slotted nuts and castle nuts; AS3610 Formwork for Concrete, AS2758 – Aggregates and rock for Engineering purposes, AS1379 – The Specification and Manufacturer of Concrete. AS1141 Methods for sampling and testing aggregates; AS1281 Cement Mortar lining of steel pipes and fittings; AS1289 Methods of testing soils for engineering purposes; AS1302 Steel Reinforcing bars for concrete; AS1304 Welded wire reinforcing fabric for concrete; AS1379 The specification and Manufacture of Concrete; AS1397 Steel sheet and strip – Hot dipped zinc coated or aluminium/ zinc coated; AS1478 Chemical admixtures for concrete; AS1579 Arc welded steel pipes and fittings for water and wastewater: AS1627 Metal finishing – preparation and pre-treatment of surfaces; AS1646 Elastometric seals for waterworks purposes; AS1720 Timber structures; AS/NZS2053 Conduits and fittings for electrical installations; AS/NZS2280 Ductile iron pressure pipes and fittings; AS2331 Methods of test of metallic and related coatings; AS2638 Sluice valves for waterworks purposes; AS2758.1 Concrete Aggregates; AS2837 Wrought alloy steels – stainless steel bars and semi-finished products; AS2865 Safe working in a confined space; AS3578 Cast Iron no return valves for general purpose; AS3582.1 Fly Ash; AS3600 Concrete structures; AS3610 Formwork for concrete; AS/NZS3678 Structural Steel – hot rolled plates, floor plates and slabs; AS/NZS3679 Structural steel – hot rolled bars and sections , Welded I sections; AS3706 Geotextiles – methods of test; AS3894.1 Non destructive coatings – continuity testing – high voltage (brush) method;AS3972 Portland and Blended cements; AS4041 Pressure piping; AS4087 Metallic flanges for waterworks purposes ; AS/NZS4158 Polymeric coating on valves and fittings for water industry purposes; AS4321 Fusion bonded medium density polyethylene coating and lining for pipes and fittings.
Manufacturer's recommendations for Plastic Welding.
Ensure the latest version of Australian Standards is being used.

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION			
Description of structure:	FOUNDATIONS.	**Date of inspection:**	2-2-09
Name of structure:	+ 600x300 KERB	**Inspected by:**	F.T.
Lot No:	1		

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	✓		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	✓		
	Reinforcement spacing correct as per the design drawings	✓		
	Reinforcement splice lengths as per design N16 650mm	✓		
3	**CONCRETE COVER**			
	65mm	✓		
	Aspros/bar chairs adequately secured.	✓		
	Clean (no tie wire or rubble)	✓		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	✓		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	✓		
	Concrete ordered against correct order number (TW 091688)	✓		
	Concrete tester organised	NO TESTER AVAILABLE		
	Pour size measured and quantity ordered is accurate	✓		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	✓		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	✓		
	Ambiant Air Temperature 28 deg C. Slump and Concrete Condition OK			

TENIX HAS TAKEN CONC DELIVERY NOTES

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	✓		
	Curing commenced soon after pour completion / stripping	✓		
	Curing continued for specified period of forms	✓		
	Surface finish adequate inspected after stripping of forms	✓		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
FORM SHIFTED ON KERB DURING TOUR - TO BE RECTIFIED		
INSPECTION CARRRIED OUT BY:		BMP Alliance
		Contractor
HOLD POINT RELEASE:	2 / 2 / 09 @ 5 ~~AM~~/PM	

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: FOUNDATIONS (2) + REPAIR KERB	**Date of inspection:** 5/2/09.
Name of structure:	**Inspected by:** FT
Lot No: 1	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	✓		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	✓		
	Reinforcement spacing correct as per the design drawings	✓		
	Reinforcement splice lengths as per design N16 650mm	✓		
3	**CONCRETE COVER**			
	65mm	✓		
	Aspros/bar chairs adequately secured.	✓		
	Clean (no tie wire or rubble)	✓		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	✓		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	✓		
	Concrete ordered against correct order number (TW 091688)	✓		
	Concrete tester organised	✓		
	Pour size measured and quantity ordered is accurate	✓		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	✓		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	✓		
	Ambiant Air Temperature 29 deg C. Slump and Concrete Condition OK			

TENIX HAS TAKEN CORE DRILLING NOTES.

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	✓		
	Curing commenced soon after pour completion / stripping	✓		
	Curing continued for specified period of forms	✓		
	Surface finish adequate inspected after stripping of forms	✓		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
POUR SUCCESSFUL – KERB COMPLETE		
INSPECTION CARRRIED OUT BY:		BMP Alliance
		Contractor
HOLD POINT RELEASE:	5 / 5 / 09 @ 4 ~~AM/PM~~	

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Emergency bund slab	**Date of inspection:** 10/2/2009.
Name of structure:	**Inspected by:** ET
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	✓		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	✓		
	Reinforcement spacing correct as per the design drawings	✓		
	Reinforcement splice lengths as per design N16 650mm	✓		
3	**CONCRETE COVER**			
	65mm	✓		
	Aspros/bar chairs adequately secured.	✓		
	Clean (no tie wire or rubble)	✓		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	✓		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	✓		
	Concrete ordered against correct order number (TW 091688)	✓		
	Concrete tester organised	NO ✓		TENIX ACCEPTED
	Pour size measured and quantity ordered is accurate	✓		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	✓		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	✓		
	Ambiant Air Temperature 30 deg C. Slump and Concrete Condition OK			

TENIX HAS TAKEN CONC DELIVERY NOTES.

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	✓		
	Curing commenced soon after pour completion / stripping	✓		
	Curing continued for specified period of forms	✓		
	Surface finish adequate inspected after stripping of forms	✓		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:		BMP Alliance
		Contractor
HOLD POINT RELEASE:	10 / 5 / 09 @ 2 ~~AM~~/PM	

48728443

HANSON CONSTRUCTION MATERIALS PTY LTD

TAX INVOICE

ABN 90 009 679 734

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8875965

Delivery No. 48728443 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
17.02.09	PLC4517	9	10	2355820	3106	410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLAN PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

1425

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No ☐

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		4.0	m³	N 40	20	80MM	4.0	8.0	~~14:29~~	1430		min

Sale Items

PMP 40/20/080 P4020 40 MPa

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

1450 WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT DAVID 0433-926-993 HAN 008 HAUS

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

48728551

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8875967

Delivery No. 48728551 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
17.02.09	PCC4471	9	110 R10	T2555820	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		4.0	M3	N 40	20	80MM	8.0	8.0	14:38	2.45	3.15	

Sale Items

PMP 40/20/080 P4020 40 MPa

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

1500 517 WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT DAVID 0433-926-993 HAN 006 AUS

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Emergency bund wall pour 1	**Date of inspection: 17 Feb 2009**
Name of structure:	**Inspected by: F Tonkin**
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	✓		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	✓		
	Reinforcement spacing correct as per the design drawings	✓		
	Reinforcement splice lengths as per design N16 650mm	✓		
3	**CONCRETE COVER**			
	65mm	✓		
	Aspros/bar chairs adequately secured.	✓		
	Clean (no tie wire or rubble)	✓		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	✓		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	✓		
	Concrete ordered against correct order number (TW 091688)	✓		
	Concrete tester organised	NO ✓		NOT AVALABLE
	Pour size measured and quantity ordered is accurate	✓		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	✓		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	✓		
	Ambiant Air Temperature 29 deg C. Slump and Concrete Condition OK			

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	✓		
	Curing commenced soon after pour completion / stripping	✓		
	Curing continued for specified period of forms	✓		
	Surface finish adequate inspected after stripping of forms			

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:		BMP Alliance
		Contractor
HOLD POINT RELEASE:	7 / 2 / 05 @	AM/PM

48746848

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE

CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876090

Delivery No.		CUSTOMER SERVICE CENTRE		PHONE 132662		Pg: 1
Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
20.02.09	PLC4516	9	110 R10	T2559171	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐

Est.Litres: 15

Est.Final Slump: 100

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.0	M3	N 40	20	80MM	12.4	17.0	06:54	110		

Sale Items
PMP 40/20/080 P4020 40 MPa

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

Concrete Returned m3:Environmental Disposal Fees apply.

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0712 618 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

48746607

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 8876084**

Delivery No. 48746607 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
20.02.09	PLC4618	9	110 R10	T2559171	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

Test. NO 337261

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐
Est.Litres: 30
Est.Final Slump: 110 mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		7.4	M3	N 40	20	80MM	7.4	17.0+	06:38			60

Sale Items
PMP 40/20/080 P4020 40 MPa

Sub Total inc. GST	$	Amt Received	$
Extra Charges inc. GST	$	Driver Signs for Payment	
Carried Fwd inc. GST	$	Plant Signs for Payment	
TOTAL inc. GST	$		

Concrete Returned m3: Environmental Disposal Fees apply.

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME 0653 .... CUSTOMER SIGNATURE .... ABN: 75010007155 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

48748171

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 8876097**

Delivery No. 48748171 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
20.02.09	PCC4664	9	110 R10	T2559171	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site Yes ☐ No ☐
Est.Litres:
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		4.4	M3	N 40	20	80MM	21.4	21.4	08:17	8.50	9.00	

Sale Items
NMP 40/20/080 P4020 40 MPa

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	EFT
$			

Driver Signs for Payment

Plant Signs for Payment

Concrete Returned m3:Environmental Disposal Fees apply.

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME .... CUSTOMER SIGNATURE .... ABN: 75010007155
0829 530 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT HAN 006 AUS

48747135

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 8876094**

Delivery No. 48747135 — CUSTOMER SERVICE CENTRE — PHONE 132662 — Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
20.02.09	PLC4530	9	110 R10	T2559171	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site Yes No
Est.Litres:
Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		4.6	M3	N 40	20	80MM	17.0	17.0	07:14	7:30	7:50	

Sale Items
PMP 40/20/080 P4020 40 MPa

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	EFT
$			

Driver Signs for Payment

Plant Signs for Payment

Concrete Returned m3 Environmental Disposal Fees apply.

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME .... CUSTOMER SIGNATURE .... ABN: 75010007155

0728 516 — MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Main building slab	**Date of inspection:** 19/2/09.
Name of structure:	**Inspected by:** S. Masters
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	SK 19/2		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	SK 19/2		
	Reinforcement spacing correct as per the design drawings	SK 19/2		
	Reinforcement splice lengths as per design N16 650mm	SK 19/2		
3	**CONCRETE COVER**			
	65mm	SK 19/2		
	Aspros/bar chairs adequately secured.	SK 19/2		
	Clean (no tie wire or rubble)	SK 19/2		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK 19/2		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK 19/2		
	Concrete ordered against correct order number (TW 091688)	SK 19/2		
	Concrete tester organised	SK 19/2		
	Pour size measured and quantity ordered is accurate	SK 19/2		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK 19/2		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK 19/2		
	Ambiant Air Temperature 25 deg C. Slump and Concrete Condition OK	SK 19/2		

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	SK 14/7		
	Curing commenced soon after pour completion / stripping	SK 14/7		
	Curing continued for specified period of forms	SK 14/7		
	Surface finish adequate inspected after stripping of forms	SK 14/7		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	C Kuster	BMP Alliance ICDi
		Contractor
HOLD POINT RELEASE:	14 / 7 / 09 @ 7:30	AM/PM

48770398

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE

CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876265

Delivery No.	48770398			CUSTOMER SERVICE CENTRE		PHONE 132662	Pg: 1
Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
24.02.09	PLC4516	9	110 R10	T2562728	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		7.3	M3	N 40	20	80MM	7.3	7.3	11:23			min

Sale Items

PMP 40/20/080 P4020 40 MPa

Access Ramp

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CR
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEA HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

1138 DAVID 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT HAN 00 (AU

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: access slab	**Date of inspection:** 23/2/09.
Name of structure:	**Inspected by:** S Kuskeras
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	SK 23/2		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	SK 23/2		
	Reinforcement spacing correct as per the design drawings	SK 23/2		
	Reinforcement splice lengths as per design N16 650mm	SK 23/2		
3	**CONCRETE COVER**			
	65mm	SK 23/2		
	Aspros/bar chairs adequately secured.	SK 23/2		
	Clean (no tie wire or rubble)	SK 23/2		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK 23/2		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK 23/2		
	Concrete ordered against correct order number (TW 091688)	SK 23/2		
	Concrete tester organised	SK 23/2		
	Pour size measured and quantity ordered is accurate	SK 23/2		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK 23/2		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK 23/2		
	Ambiant Air Temperature 23 deg C. Slump and Concrete Condition OK	SK 23/2		

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	SK 23/2		
	Curing commenced soon after pour completion / stripping	SK 23/2		
	Curing continued for specified period of forms	SK 23/2		
	Surface finish adequate inspected after stripping of forms	SK 23/2		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	S. Kustas	BMP Alliance / CPI
		Contractor
HOLD POINT RELEASE:	23 / 2 / 09 @ 7 00	AM/PM

48798614

HANSON CONSTRUCTION MATERIALS PTY LTD

TAX INVOICE

ABN 90 009 679 734

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876460

Delivery No. 48798614 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
27.02.09	PLC4552	9	110 R10	T2566628	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No ☑

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.0	M3	N 40	20	80MM	10.0	10.0+	11:22	11:35		

Sale Items: PMP 40/20/080 P4020 40 MPa

FINAL POUR (WALLS)

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 009 TAUS

48798383

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876458

Delivery No. 48798383 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
27.02.09	PLC4618	9	110 R10	T2566628	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐

Est.Litres: 25

Est.Final Slump: 95

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.0	M3	N 40	20	80MM	5.0	10.0+	11:06	11:15	11:45	30 min

Sale Items: PMP 40/20/080 P4020 40 MPa

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

Concrete Returned m3:Environmental Disposal Fees apply.

EQUAL PAYMENTS

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

1120

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 001 TAU

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Walls	**Date of inspection:** 27/2/2009
Name of structure:	**Inspected by:** M/T.
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	✓		
				✓
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	✓		
	Reinforcement spacing correct as per the design drawings	✓		
	Reinforcement splice lengths as per design N16 650mm	✓		
3	**CONCRETE COVER**			
	65mm	✓		
	Aspros/bar chairs adequately secured.	✓		
	Clean (no tie wire or rubble)	✓		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	✓		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	✓		
	Concrete ordered against correct order number (TW 091688)	✓		
	Concrete tester organised	✓		NO TESTER AVAILABLE
	Pour size measured and quantity ordered is accurate	✓		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	✓		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	✓		
	Ambiant Air Temperature _____ deg C. Slump and Concrete Condition OK	✓		

3376/1584

Sandgate WRP
Inspection Checklist

	Rag bolts placement checked by surveyor	✓		
7	**FINISHING AND CURING**			
	Top surface finished to texture specified	✓		
	Curing commenced soon after pour completion / stripping	✓		
	Curing continued for specified period of forms	✓		
	Surface finish adequate inspected after stripping of forms	✓		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
Repairs Rqd due to form movement		
INSPECTION CARRRIED OUT BY:	[signature]	~~BMD Alliance~~ Tenix. *Contractor*
HOLD POINT RELEASE:	22 / 2 / 24 @	AM/PM

48843172

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876720

Delivery No. 48843172 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PLC4512	9	110 R10	T2572592	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No ☐

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.0	M3	N 40	20	80MM	36.3	36.3	09:21	9:50	10:30	32 min

Sale Items: SNP 40/20/000 P4020 40 MPa

Access SLAB 1 of 2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0935 530 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

48840628

HANSON CONSTRUCTION MATERIALS PTY LTD
ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE
CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 9051563**

Delivery No. 48840628 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PLC4532	14	110 R10	T2572592	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site: Yes ☑ No ☐ 25
Est.Litres: 95
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		6.0	M3	N 40	20	80MM	19.4	35.0+	7.15	7.55	7.70	1

Sale Items
PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 1/2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CR
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME 0713 618 ....CUSTOMER SIGNATURE MATS ....ABN: 75010007155
MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

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HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876704

Delivery No. 48840414 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PLC4618	9	110 R10	T2572592	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT [illegible] BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐

Est.Litres: 20

Est.Final Slump: 95

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		7.4	M3	N 40	20	80MM	13.4	35.0	06:34	6:50	6:20	min

Sale Items

PMP 40/20/080 P4020 40 MPa

ACCESS SLABS 1 of 2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
To[illegible] inc. GST	$

Amt Received	Cash	Chq	EFT
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0650 530 WHITE 0433-928-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006-AUS

48839977

HANSON CONSTRUCTION MATERIALS PTY LTD

TAX INVOICE

ABN 90 009 679 734

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No.. A 8876699

Delivery No.	48839977			CUSTOMER SERVICE CENTRE		PHONE 132662	Pg: 1
Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PLC4530	9	110 R10	2572592	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

TEST NO: 337291

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No ☐
Est.Litres:
Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		6.0	M3	N 40	20	80MM	6.0	35.0+	06:10+			

Sale Items
PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 1 of 2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0635 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 AUS

48841226

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8876708

Delivery No.		CUSTOMER SERVICE CENTRE		PHONE 132662		Pg: 1
Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PLC4530	9	110 R10	T2572592	3106	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☒ No ☐

Est.Litres: 30

Est.Final Slump: 100

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		6.0	M3	N 40	20	80MM	31.3	35.0+	07:27	7:35	9:00	5 min

Sale Items

PMP 40/20/080 P4020 40 MPa

Access Slip 1/2

Concrete Returned x m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 PAUS

48840900

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 9051565

Delivery No. 48840900 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
06.03.09	PCC4682	14	110 R10	T2572592	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site: Yes ☐ No
Est.Litres: 40
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.9	M3	N 40	20	80MM	25.3	35.0+	710	720	820	30

Sale Items
PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 1 of 2

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CC
$			

Driver Signs for Payment

Plant Signs for Payment

Concrete Returned m3:Environmental Disposal Fees apply.

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME .... CUSTOMER SIGNATURE .... ABN: 75010007155
?729 532 MATT 0433-926-993

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT HAN 006 (A

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Access slab – pour 1	**Date of inspection:** 5/3/2009
Name of structure:	**Inspected by:** SANDER
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	SK 25/3		
2	**REINFORCEMENT**			
	Reinforcement mesh correct as per design drawings	SK 25/3		
	Kerb reinforcing in correct	SK 25/3		
	DOWELS INSTALLED	SK 25/3		
3	**CONCRETE COVER**			
	65mm	SK 25/3		
	Aspros/bar chairs adequately secured.	SK 25/3		
	Clean (no tie wire or rubble)	SK 25/3		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK 25/3		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK 25/3		
	Concrete ordered against correct order number (TW 091688)	SK 25/3		
	Concrete tester organised	SK 25/3		
	Pour size measured and quantity ordered is accurate			
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK 25/3		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK 25/3		
	Ambiant Air Temperature 26 deg C. Slump and Concrete Condition OK	SK 25/3		

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified	SK 25/3		
	Curing commenced soon after pour completion / stripping	SK 25/3		
	Curing continued for specified period of forms	SK 25/3		
	Surface finish adequate inspected after stripping of forms	SK 25/3		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	S. Kusters	BMP Alliance / CDi
		Contractor
HOLD POINT RELEASE:	5 / 3 / 09 @ 7	AM/PM

48888954

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 9051791

Delivery No. 48888954 | CUSTOMER SERVICE CENTRE | PHONE 132662 | Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4533	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No
Est.Litres: 25 + 25
Est.Final Slump: 90 mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		6.0	M3	N 40	20	80MM	29.8	29.8+		7-00	7-50	20

Sale Items
PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 2/2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CR
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME: R/ [signature] CUSTOMER SIGNATURE: [signature] ABN: 75010007155

0718 519

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 006 AUS

48888883

HANSON CONSTRUCTION MATERIALS PTY LTD
ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 9051789**

Delivery No. 48888883 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4519	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site Yes ☐ No ☐ 40
Est.Litres:
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		6.0	M3	N 40	20	80MM	23.8	30.0+		650	720	

Sale Items
PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 2/2

Concrete Returned m3: Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CR
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME .... CUSTOMER SIGNATURE .... ABN: 75010007155
0703 514

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 006 AUS

48888782

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 9051788

Delivery No. 48888782 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4514	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐

Est.Litres: 50

Est.Final Slump: 100+ mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.9	M3	N 40	20	80MM	17.8	30.0+		6.40	7.0	

Sale Items

PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 2/2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0649 513

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 004AUS

48888630

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard. Serial No. A 9051786

Delivery No. 48888630 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4512	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

ST CROSS RD: PAPERBARK DR

Test no. 335855

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☑ No ☐ Pump

Est.Litres: 40

Est.Final Slump: 120 mm

Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
	6.0	M3	N 40	20	80MM	6.0	30.0		6.05		Min

S /20/080 P4020 40 MPa

ACCESS SLAB 2/2

ncrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	
$			

Driver Signs for Payment

Plant Signs for Payment

NED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. AVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

INT NAME ..... CUSTOMER SIGNATURE ..... Pump ABN: 75010007155

0615

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 006 (AUS)

48888719

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE

CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 9051787

Delivery No. 48888719 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4513	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site — Yes ☐ No ☐

Est.Litres:

Est.Final Slump: 80

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		5.9	M3	N 40	20	80MM	11.9	30.0+	605	620	645	

Sale Items

PMP 40/20/080 P4020 40 MPa

ACCESS SLAB 2/2

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... x Pump. ABN: 75010007155

0633 512

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 00 AUS

48889760

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE

CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 9051793

Delivery No.		CUSTOMER SERVICE CENTRE		PHONE 132662		Pg: 1
Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
14.03.09	PLC4513	14	110 R10	T2579828	3113	118410	TW091668

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐

Est.Litres:

Est.Final Slump: 80

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		4.0	M3	N 40	20	80MM	33.6	33.8	8.05	8:20	8:40	min

Sale Items

PMP 40/20/080 P4020 40 MPa

Accept slump 2/2 MTR RETURN

Concrete Returned m3:Environmental Disposal fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0831 533

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT MATT 0433-626-993

HAN 003 AUS

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Access slab – pour 2	**Date of inspection:** 13/3/2009.
Name of structure:	**Inspected by:** Sander
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	SK 25/3		
2	**REINFORCEMENT**			
	Reinforcement mesh correct as per design drawings	SK 25/3		
	Kerb reinforcing in correct	SK 25/3		
	Dowel bars greased and capped	SK 25/3		
	Ableflex installed	SK 25/3		
3	**CONCRETE COVER**			
	65mm	SK 25/3		
	Aspros/bar chairs adequately secured.	SK 25/3		
	Clean (no tie wire or rubble)	SK 25/3		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK 25/3		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK 25/3		
	Concrete ordered against correct order number (TW 091688)	SK 25/3		
	Concrete tester organised	SK 25/3		
	Pour size measured and quantity ordered is accurate	SK 25/3		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK 25/3		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK 25/3		
	Ambiant Air Temperature 25 deg C. Slump and Concrete Condition OK	SK 25/3		

Sandgate WRP
Inspection Checklist

7	FINISHING AND CURING			
	Top surface finished to texture specified	SK 25/3		
	Curing commenced soon after pour completion / stripping	SK 25/3		
	Curing continued for specified period of forms	SK 25/3		
	Surface finish adequate inspected after stripping of forms	SK 25/3		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	S. Kusters	BMP Alliance / CDi
		Contractor
HOLD POINT RELEASE:	13/2/09. @	AM/PM

48924183

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
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For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 9051942**

Delivery No.	48924183	CUSTOMER SERVICE CENTRE	PHONE 132662	Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
19.03.09	PLC4514	14	110 R10	T2585640	3113	118410	TW091688

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR
PLS CALL KEVIN 0430-181-556 WHEN YOU ARRIVE AT THE GATE

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site Yes ☐ No ☐
Est.Litres:
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		4.5	M3	N 40	20	80MM	4.5	9.0		12.20	1.05	15

Sale Items
PMP 40/20/080 P4020 40 MPa

FOOTPATH & KERB.

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	EFT
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF
HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME 1230 .... CUSTOMER SIGNATURE .... ABN: 75010007155

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT KEVIN 0430-181-556

HAN 006 AUS

48924468

HANSON CONSTRUCTION MATERIALS PTY LTD
ABN 90 009 679 734

Hanson

TAX INVOICE

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 9051943**

Delivery No.	48924468	CUSTOMER SERVICE CENTRE	PHONE 132662	Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
1?.03.09	PLC4519	14	110 R10	T2585640	3113	118410	TW091688

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT
Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034
NEAREST CROSS RD: PAPERBARK DR
PLS CALL KEVIN 0430-181-556 WHEN YOU ARRIVE AT THE GATE

WARNING: Addition of water or additives may void product guarantee.
Water Added on Site: Yes ☐ No ☐
Est.Litres:
Est.Final Slump: mm

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time min
		4.5	M3	N 40	20	80MM	9.0	9.0	1230	1250	140	20

Sale Items
PMP 40/20/080 P4020 40 MPa

FOOTPATH + KERB.

Concrete Returned m3: Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq	CR
$			

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME .... CUSTOMER SIGNATURE .... ABN: 75010007155
1256 514
KEVIN 0430-181-556

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT

HAN 006 (AUS)

Sandgate WRP
Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Footpath and kerb	**Date of inspection: 19 March 2009**
Name of structure:	**Inspected by:** Sander
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION**			
	RL correct for base of foundation	SK		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	SK		
	Reinforcement spacing correct as per the design drawings	SK		
3	**CONCRETE COVER**			
	65mm with slab thickness from 0 to 150mm	SK		
	Aspros/bar chairs adequately secured.	SK		
	Clean (no tie wire or rubble)	SK		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK '9/3		
	Concrete ordered against correct order number (TW 091688)	SK '9/3		
	Concrete tester organised	SK		
	Pour size measured and quantity ordered is accurate	SK '9/3		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK '9/3		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK '9/3		
	Ambiant Air Temperature 22 deg C. Slump and Concrete Condition OK	SK		

Sandgate WRP
Inspection Checklist

7	**FINISHING AND CURING**			
	Top surface finished to texture specified with bull nose to exposed edges	SK 20/3		
	Curing commenced soon after pour completion / stripping	SK 20/3		
	Curing continued for specified period of forms	SK 20/3		
	Surface finish adequate inspected after stripping of forms	SK 20/3		
	Water pipe laid and located correctly and changed to 32mm dia by Tenix	SK		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	S. Kusters	EDI BMP Alliance *Contractor*
HOLD POINT RELEASE:	19 / 3 / 09 @	AM/PM

48958914

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. A 8877521

Delivery No. 48958914 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
25.03.09	PLC4626	9	110 R10	T2590997	3106	118410	TW091688

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

??/288

slump 90.

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No

Est.Litres:

Est.Final Slump: 90

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		3.6	M3	N 40	20	80MM	3.6	3.6	08:01	8.15	9.10	25 min

Sale Items

PMP 40/20/000 P4020 40 MPa

2nd Kerb + GUTSIDR SLAB POUR.

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0820

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT KEVIN 0413-866-650

HAN 002 (AU)

40960807

HANSON CONSTRUCTION MATERIALS PTY LTD

ABN 90 009 679 734

TAX INVOICE

Hanson

SAFETY ADVICE CAUTION

1. Wet concrete can be harmful to skin and eyes. Avoid contact by using proper clothing or personal protective equipment which complies with Australian standards. Wash exposed skin areas thoroughly with cool water for ten minutes.
2. Silica dust may be released when working with quarry products or when quarry or concrete products are cut, drilled, sawn, routed, broken up or ground. Repeated or continuous long term exposure may lead to lung disease. Always use adequate dust prevention and extraction methods, protective clothing and dust masks that conform to Australian standards.

For more information contact Hanson for a Material Safety Data Sheet and refer to the relevant Australian Standard.

Serial No. **A 8877525**

Delivery No. 48960807 CUSTOMER SERVICE CENTRE PHONE 132662 Pg: 1

Date	Truck	Distance	Map Ref	Job/Order No.	Plant	Customer No.	Customer Purchase O/N.
25.03.09	PCC4663	9	110 R10	T2590997	3106	118410	TW091688

Customer Name: DOVAL CONSTRUCTIONS QLD PTY LT

Delivery Address: TREATMENT PLANT PAPERBARK DR BOONDALL QLD 4034

NEAREST CROSS RD: PAPERBARK DR

WARNING: Addition of water or additives may void product guarantee.

Water Added on Site: Yes ☐ No ☐

Est.Litres:

Est.Final Slump:

Tare	Gross	Net/Load	UoM	Class/MPa.	Agg	Nominal Slump	Prog Total	Total Order	Ex-Plant	Arrive	Finished	W/Time
		0.6	M3	N 40,	20	80MM	4.2	4.2	09:26	9350		min

Sale Items

PMP 40/20/080 P4020 40 MPa

2nd Kerb & GUTSIDE SLAB POUR

Concrete Returned m3:Environmental Disposal Fees apply.

Sub Total inc. GST	$
Extra Charges inc. GST	$
Carried Fwd inc. GST	$
TOTAL inc. GST	$

Amt Received	Cash	Chq
$		

Driver Signs for Payment

Plant Signs for Payment

SIGNED BY OR ON BEHALF OF THE CUSTOMER ACCEPTING THE PRODUCTS, SERVICES AND CHARGES DETAILED ABOVE AND THE TERMS AND CONDITIONS OF SALE OVERLEAF. I HAVE READ AND UNDERSTOOD THE SAFETY ADVICE CAUTION ABOVE.

PRINT NAME ..... CUSTOMER SIGNATURE ..... ABN: 75010007155

0941 626

WHITE:HEAD OFFICE BLUE:CUSTOMER PINK:DRIVER YELLOW:PLANT KEVIN 0413-866-650

HAN 002 AUS

Sandgate WRP

Inspection Checklist

PRE-POUR INSPECTION	
Description of structure: Lightpoles bases, slab and conduits	**Date of inspection:** 24/3/09.
Name of structure:	**Inspected by:** S. Kusters
Lot No:	

ITEM NO.	REQUIREMENT	ACCEPTED	REJECTED	CAR
1	**EXCAVATION and CONDUITS**			
	RL correct for base of foundation and dimensions are correct	SK 24/3		
	Light pole base correct depth, dia, orientation and level	SK 24/3		
	Conduits all placed as per drawings and backfilled correctly	SK 24/3		
	CTB used in all road crossings to underside of asphalt	SK 24/3		
2	**REINFORCEMENT**			
	Reinforcement bar sizing correct as per design drawings	SK 24/3		
	Reinforcement spacing correct as per the design drawings	SK 24/3		
3	**CONCRETE COVER**			
	65mm with slab thickness from 0 to 150mm	SK 24/3		
	Aspros/bar chairs adequately secured.	SK 24/3		
	Clean (no tie wire or rubble)	SK 24/3		
4	**CONSTRUCTION ODERING**			
	Notification to pour given to Tenix supervisors 24hrs prior to pour	SK 24/3		
	CORRECT MIX ORDERED 40/20 mix Hanson – 132662	SK 24/3		
	Concrete ordered against correct order number (TW 091688)	SK 24/3		
	Concrete tester organised	SK 24/3		
	Pour size measured and quantity ordered is accurate	SK 24/3		
6	**CONCRETE PLACEMENT**			
	Concrete placed and compacted within specified time	SK 24/3		
	Operations proceeded continuously without interruption Placed without segregation or damage to reinforcement	SK 24/3		

Sandgate WRP
Inspection Checklist

	Ambiant Air Temperature 26 deg C. Slump and Concrete Condition OK	SK 24/3		
7	**FINISHING AND CURING**			
	Top surface finished to texture specified with bull nose to exposed edges	SK 24/3		
	Curing commenced soon after pour completion / stripping	SK 24/3		
	Curing continued for specified period of forms	SK 24/3		
	Surface finish adequate inspected after stripping of forms	SK 24/3		
	Water pipe laid and located correctly and changed to 32mm dia by Tenix	SK 24/3		

COMMENTS		
Concrete placed in accordance to drawings and AS3600, AS3610.		
INSPECTION CARRRIED OUT BY:	S Kusters	BMP Alliance / CDi
		Contractor
HOLD POINT RELEASE:	24 / 3 / 09 @ 7 AM/PM	

4.4.2. Mechanical ITPs

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

4.2 Mechanical Installation Inspection Test Plans

GRUNDFOS ALLDOS

MANUFACTURING INSPECTION AND TEST PLAN

CLIENT: Tenix	**PROJECT:** Sandgate Acetic Acid	**ITP NO.** 5131060.1.1 ITP	
		PAGES 3	
CLIENT REF: Quote# TEN3088QTH		**ALLDOS OCEANIA REF:** 5131060.1.1	
PREPARED BY: Ray Verburgt	**DATE:** 29-10-08	**PROJECT ENGINEER:** Ray Verburgt	**DATE:** 13-11-08
NOTES: Acetic Acid Dosing Skid			

NO.	ACTIVITY	ACCEPTANCE CRITERIA	INSPECTION BY ALLDOS	INSPECTION BY CLIENT	ACTIONS
1.	Skid Frame Construction	As per approved GA frame drawing. [5131060.1.1- F01] As per AS1554.6	29/1/09 CS		• Cut 316S/S RHS to correct lengths. • Deburr cut edges • Tack framework together • Check frame measurements • Check for squareness • Fully weld frame • Allow to cool before Passivation • Apply pickling paste to welds • Leave for 10-45mins • Rinse with water and polish with scouring pad to remove any excess paste

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE 29 / 2 / 09

2.	Skid Assembly	• As per approved P&ID Issued for construction.
		• As per approved GA drawing. [5131060.1.1- G01]
		• As per MSDS and instruction on container of adhesive.
			CSMC	• Mount PVC backing board onto frame using m5 c/s screws
				• Mount pumps to skid
				• Connect pipework
				  ○ Using PVC-U pipe adhesive
				• Connect componentry
				  ○ Using PVC-U pipe adhesive

3.	Factory Acceptance Test Sheets	• As per F.A.T.S.	CSMC	Ensure all components of the F.A.T.S. have been carried out in accordance with the set requirements, filled out and signed off.
4.	Release to Customer	• As per approved P&ID Issued for construction. 486/5/5-0051-004 Amend A As per approved GA drawing. [5131060.1.1- G01]	CSMC	Prior to Shipping, ensure skid is built to Client requirements.
10.	Packaging and Shipping		CSMC	• Ensure skid is adequately packed for transport and storage. • Ensure skid is adequately labelled. • Ensure the correct address is attached • O & M Manuals have been sent. • Ensure pump tags are fastened to skid. • Loose items are adequately packaged.

NOTES:

Alldos Representative

Signature 

Name Chris McCann

Date 29/1/09

Client Representative

Signature

Name RAY VERBURG

Date 29/1/09

Tenix Alliance Pty Ltd

Inspection and Test Plan

Document Reference: TA/SQE/F/040

Tenix

Project: SANDGATE WRP PHOSPHORUS REDUCTION	Prepared by: G. Piela	Approved by:R Mayers	Authorised by: S. Kusters
Client:			
Construction Site:	Signed: *G. Piela*	Signed:*R Mayers*	Signed:
ITP No. 001 **Revision: 0**	Date: 27-4-09	Date:28-04-09	Date: 28-4-'09

Item No.	Inspection Activity	Reference: Specification / Standard	Acceptance Criteria	Inspection, Verification or Test by:							Verifying Records
				Subcontractor		Tenix Alliance			Client		
				Status	Sign / Date	Status	Resp	Sign / Date	Status	Sign / Date	
1.0	**Tank Installation**										
1.1	Verify Plinth position, Dimension & Level	Construction Drawing	Client Specifications		SK 17/3	W	SS	17/3/09			ITP
1.2	Verify Tank Location	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
1.3	Verify Tank Orientation & Level	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
1.4	Verify Nozzle levels relative to plant Datum	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
2.0	**Erection of Skid**										
2.1	Verify Skid Levels	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
2.2	Verify Skid Orientation	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
2.3	Verify Nozzle levels relative to plant Datum	Construction Drawing	Client Specifications			W	SS	17/3/09			ITP
3.0	**Pipework Connections & Instrumentation**										
3.1	Verify pipework & Instrumentation is connected as per Drawings	Construction Drawing	Client Specifications		SK 1/4	W	SS	1/4/09			ITP
3.2	Verify Dosing line, Air Line & service water line are connected to the skid.	Construction Drawing	Client Specifications		SK 1/4	W	SS	1/4/09			ITP
	Carry out leak testing of all joints	Construction Drawing	Client Specifications		SK 1/4	W	SS	1/4/09			ITP

Key:				
	PM = Project Manager	SM = Site Manager	QA = Quality Assurance Manager	WS = Welding Supervisor	SS = Site Supervisor
	H = Hold Sign off required prior to works proceeding. 48 hour notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period	S = Surveillance General inspection of tasks and works. No advice required to Client	R = Report Where dockets, test certificates/reports, etc. are not attached ITP, ensure that suitable cross reference is made	

Tenix Alliance Pty Ltd

Inspection and Test Plan

Document Reference: TA/SQE/F/040

Tenix

Project: SANDGATE WRP PHOSPHORUS REDUCTION	Prepared by: G. Piela	Approved by:	Authorised by:
Client:			
Construction Site:	Signed: *G. Piela*	Signed:	Signed:
ITP No. **Revision:**	Date: 27-4-09	Date:	Date:

Item No.	Inspection Activity	Reference: Specification / Standard	Acceptance Criteria	Inspection, Verification or Test by:							Verifying Records
				Subcontractor		Tenix Alliance			Client		
				Status	Sign / Date	Status	Resp	Sign / Date	Status	Sign / Date	
4.0	**Installation of Ancillary Equipment**										
4.1	Install SS Ramp Covers	Construction Drawing	Client Specifications		SK 1/4	W	SS	1/4/09			**ITP**
4.2	Verify Switch board is mounted & Terminated as per Drawings	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.3	Verify Fire Hose Cock & Reel are installed & connected to service water	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.4	Verify location & install Davit Arm, winch & associated Equipment	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.5	Verify Operation of Arm & Winch	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.6	Verify Installation of Sump Pump & connecting Pipework including valves to discharge Hoses	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.7	Verify Installation of Knife gate Valves & associated Equipment	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**
4.8	Verify installation of Safety Showers & connection to potable water	Construction Drawing	Client Specifications			W	SS	1/4/09			**ITP**

Key:				
	PM = Project Manager	SM = Site Manager	QA = Quality Assurance Manager	WS = Welding Supervisor	SS = Site Supervisor
	H = Hold Sign off required prior to works proceeding. 48 hour notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period	S = Surveillance General inspection of tasks and works. No advice required to Client	R = Report Where dockets, test certificates/reports, etc are not attached t ITP, ensure that suitable cross reference is made	

Tenix Alliance Pty Ltd

Inspection and Test Plan

Document Reference: TA/SQE/F/040

Tenix

Project: SANDGATE WRP PHOSPHORUS REDUCTION	Prepared by: G. Piela	Approved by:	Authorised by:
Client:			
Construction Site:	Signed: *G. Piela*	Signed:	Signed:
ITP No. 001 **Revision: 0**	Date: 27-4-09	Date:	Date:

Item No.	Inspection Activity	Reference: Specification / Standard	Acceptance Criteria	Inspection, Verification or Test by:							Verifying Records
				Subcontractor		Tenix Alliance			Client		
				Status	Sign / Date	Status	Resp	Sign / Date	Status	Sign / Date	
5.0	**Final Inspection**										
	Carry Out Final Inspection of Installed Equipment	Construction Drawing	Client Specifications		SK 1/4	H	SS	9/4/09			**ITP**

Key:				
	PM = Project Manager	SM = Site Manager	QA = Quality Assurance Manager	WS = Welding Supervisor	SS = Site Supervisor
	H = Hold Sign off required prior to works proceeding. 48 hour notice required for Client Hold Points. After this period has elapsed, Client automatically forfeits their right to halt the works without prior inspection.	W = Witness Client is to be informed of the works but works can continue without Client representation after notice period	S = Surveillance General inspection of tasks and works. No advice required to Client	R = Report Where dockets, test certificates/reports, etc are not attached to ITP, ensure that suitable cross reference is made	

4.4.3. Electrical ITPs

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

4.3 Electrical Installation Inspection Test Plans

LOW VOLTAGE CABLES (240V, 415V up to 3.6kV)
INSTALLATION CHECK SHEET

				DOCUMENT NO.	508-CHK
PROJECT LOCATION:	SANDGATE	May-09			
CONTRACT NAME:	ACID DOSE	CLIENT REPRESENTATIVE:		Sander Kuster	
CONTRACT NUMBER:	S4911	CONTRACTOR:		TENIX ALLIANCE	
BAY NAME:		ASSOCIATED DOCUMENTS:		1) N/A 2) N/A	
DRAWING REFERENCE NUMBER:	Cable Schedule	REVISION NUMBER:		DATED:	May-09

LOW VOLTAGE CABLE INSTALLATION PROCESS AND CHECKS

CABLE ID	ORIGIN	SCREEN EARTHED (Y/N)	DESTINATION	SCREEN EARTHED (Y/N)	CHECKED BY	DATE

INSTALLER:		LICENCE NUMBER	

ITEM	DESCRIPTION	Y	N	N/A	NAME (PRINT)	SIGNATURE	DATE
1	All works to be carried out with "FOR CONSTRUCTION" drawings and connection schedules. Confirmed latest version with Tenix Alliance drawing register.	Y			CLINT SUTER	CS	May-09
2	Cable correctly identified and correct cable markers attached.						
3	Screens earthed in approved method as nominated on the connection schedules. Each cable end earthing status recorded on check sheets.	NA			CLINT SUTER	CS	May-09
4	All cleats installed correctly and cable supported properly	Y			CLINT SUTER	CS	May-09
5	Correct cable size used and terminations checked and are according to reference drawings,	Y			CLINT SUTER	CS	May-09
6	Crimps and lugs checked with terminations checked for correctness and tightness.	Y			CLINT SUTER	CS	May-09
7	Spare cores are as per the connection schedule and bridging completed where required.	NA			CLINT SUTER	CS	May-09
8	Insulation resistance tests completed.	Y			CLINT SUTER	CS	May-09
9	Connection schedule has been green lined	Y			CLINT SUTER	CS	May-09
10	Supervisor has inspected the works for full compliance to drawings and manuals	Y			PAUL BEACH	PB	May-09
11	CLIENT representative has inspected all connections, joints,labels, check and test results.	Y			S. Kusters	SK	June 09

Comments:

LOW VOLTAGE CABLES (240V, 415V up to 3.6 kV)
TEST RESULTS

				DOCUMENT NO.	508-TL1
PROJECT LOCATION:	SANDGATE	DATE:		1-May-09	
CONTRACT NAME:	CDI	CLIENT REPRESENTATIVE:		Sander Kuster	
CONTRACT NUMBER:		MAIN CONTRACTOR:		Tenix	
BAY NAME:	ACID DOSING	ASSOCIATED DOCUMENTS:	1) LOW VOLTAGE CABLES ITP 2) LOW VOLTAGE CABLES CHECKS		
DRAWING NUMBER REFERENCE:	Cable Schedule	REVISION NO:	DATED:		

INSULATION RESISTANCE TEST INSTRUMENT DETAILS

MAKE	MODEL	SERIAL NO.
CALIBRATION DATE	CALIBRATION DUE DATE	CERTIFICATE OF TRACEABILITY NO.

LOW VOLTAGE CABLE SITE DETAILS

LV CABLE ID	ORIGIN	GIN CONNECTION SCHEDULE/SCHEMA	DESTINATION	DESTINATION CONNECTION SCHEDULE/SCHEMATIC
1	MCC		SKID1	

DESIGN CABLE LENGTH (GLAND TO GLAND)	175	m	ACTUAL CABLE LENGTH (GLAND TO GLAND)	153m

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO.	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω 'S TO CORES	M Ω 'S TO EARTH
1	A					
2	B	MCC BD	CONTROL PANEL	Y	>1M ohm	>2M ohm
3	C					
4	N					
5	E					
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Comments:					
Tenix Alliance Name:	clint suter	Signature:	cs	Date:	May-09
Client Name:		Signature:		Date:	

LOW VOLTAGE CABLE SITE DETAILS

LV CABLE ID	ORIGIN	GIN CONNECTION SCHEDULE/SCHEMA	DESTINATION	DESTINATION CONNECTION SCHEDULE/SCHEMATIC
2	MCC UPS		SKID 1	

DESIGN CABLE LENGTH (GLAND TO GLAND)	175	m	ACTUAL CABLE LENGTH (GLAND TO GLAND)	153

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO.	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω 'S TO CORES	M Ω 'S TO EARTH
1	A					
2	N	MCC UPS DB	CONTROL PANEL	Y	>1M ohm	>2M ohm
3	E					
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Comments:					
Tenix Alliance Name:	clint suter	Signature:	cs	Date:	May-09
Client Name:		Signature:		Date:	

LOW VOLTAGE CABLE SITE DETAILS				
LV CABLE ID	ORIGIN	GIN CONNECTION SCHEDULE/SCHEMA	DESTINATION	DESTINATION CONNECTION SCHEDULE/SCHEMATIC
3	MCC DATA		Skid 1	

DESIGN CABLE LENGTH (GLAND TO GLAND)	175 m	ACTUAL CABLE LENGTH (GLAND TO GLAND)	160m

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO	M Ω 'S TO CORES	M Ω 'S TO EARTH
1	fibre	MCC cabinet	control panel	y	na	na
2						
3						
4						
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Comments:					
Tenix Alliance Name:	clint suter	Signature:	cs	Date:	May-09
Client Name:		Signature:		Date:	

CONTROL CABLES (PROTECTION, METERING, INSTRUMENTATION AND ALARMS)
INSTALLATION CHECK SHEET

		DOCUMENT NO.	509-CHK
PROJECT LOCATION:	SANDGATE	DATE:	1-May-09
CONTRACT NAME:	CDI	CLIENT/CLIENT REPRESENTATIVE	Sander Kuster
CONTRACT NUMBER:	S4911	MAIN CONTRACTOR:	Tenix
CONTROL CABLE CHECK BATCH NUMBER:		ASSOCIATED DOCUMENTS:	1) CONTROL CABLES ITP 2) CONTROL CABLES TESTS

THIS CHECK SHEET APPLIES TO A BATCH OF TWENTY CONTROL CABLES AS IDENTIFIED ON THE CHECK SHEETS THAT FOLLOW

INSTALLER:	CLINT SUTER	LICENCE NUMBER	103672
INSTALLER:	MATT HOHENHAUS	LICENCE NUMBER	107143
INSTALLER:	DOUG CANE	LICENCE NUMBER	109673
INSTALLER:		LICENCE NUMBER	
INSTALLER:		LICENCE NUMBER	
INSTALLER:		LICENCE NUMBER	

CONTROL CABLE CHECK BATCH NUMBER: 0

CONTROL CABLE INSTALLATION PROCESS AND CHECKS

CABLE ID	SOURCE	SCREEN EARTHED	DESTINATION	SCREEN EARTHED	CHECKED BY	DATE
1	MCC BD	N	BD1	N	CS	May-09
2	MCC UPS	N	BD1	N	CS	May-09
3	MCC FIBRE	N	BD1	N	CS	May-09
	DB1		GPO	N	CS	May-09
	DB1		DOSE PUMP #1	N	CS	May-09
	DB1		DOSE PUMP #2	N	CS	May-09
	DB1		3 PHASE UNLOAD PANEL	N	CS	May-09
	DB1		GRENN SAFETY LIGHT	N	CS	May-09
	EXISTING STREET LIGHT		#1 NEW STREET LIGHT	N	CS	May-09
	#1 NEW STREET LIGHT		#2 STREETLIGHT	N	CS	May-09

CONTROL CABLE CHECK BATCH NUMBER:	0						
ITEM	DESCRIPTION	Y	N	N/A	SC INITIAL	MC INITIAL	DATE
1	All works to be carried out with "FOR CONSTRUCTION" drawings and connection schedules. Confirmed latest version with Tenix Alliance drawing register.	Y			CS		May-09
2	Cable correctly identified and correct cable markers attached.	Y			CS		May-09
3	Screens earthed in approved method as nominated on the connection schedules. Each cable end earthing status recorded on check sheets.	NA					
4	All cleats installed correctly and cable supported properly	Y			CS		May-09
5	Correct cable size used and terminations checked and are according to reference drawings.	Y			CS		May-09
6	Crimps and lugs checked with terminations checked for correctness and tightness.	Y			CS		May-09
7	Spare cores are as per the connection schedule and bridging completed where required.	NA					
8	Insulation resistance tests completed.	Y			CS		May-09
9	Connection schedule has been green lined	Y			CS		May-09
10	Supervisor has inspected the works for full compliance to drawings and manuals	Y				PB	May-09
11	CLIENT representative has inspected all connections, joints,labels, check and test results.	Y				SK	June 09
Comments:							

CONTROL CABLE CHECK BATCH NUMBER:	0						
ITEM	DESCRIPTION				NAME (PRINT)	MC INITIAL	DATE
12	Inspected and checked by the Sub Contractor				PAUL BEACH	PB	May-09
13	Checked and approved by the Main Contractor				S. Kusters	SK	June 09
14	Verified by the Client						
	FINAL SIGN OFF AFTER CONTROL CABLE INSTALLATION AND CHECKS						
ITEM	DESCRIPTION	Y	N	N/A	C SIGNATURE	MC SIGNATURE	DATE
1	Superintendent is satisfied with all checks performed on the control cables.	Y				PB	May-09
2	CLIENT representative is satisfied with all checks performed on the control cables.	Y				SK	June 09
Comments:							

16mm² 4C+E S/C 3Ø SUPPLY TO DB

153m

CONTROL CABLE TEST BATCH NUMBER:	1	CONTROL CABLE ID NUMBER:	D2

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M.O.'S TO CORES	M.O.'S TO EARTH
1	RED	CB 40	2 - MAIN ISOLATOR	✓	>100MΩ	>100MΩ
2	WHITE	CB 41	4 - "	✓	>100MΩ	>100MΩ
3	BLUE	CB 42	6 - "	✓	>100MΩ	>100MΩ
4	BLACK	N-LINK (MCC2)	N-LINK	✓	>100MΩ	>100MΩ
5	GREEN/YELLOW	E-BAR (MCC2)	E-BAR	✓		
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Comments:					
Tenix Alliance Name:		Signature:		Date:	
Client Name:		Signature:		Date:	

10mm² 2C+E O/C (UPS SUPPLY)

153m

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES / M Ω'S TO EARTH
1	RED	CB 14	7- MAIN ISOLATOR	✓	>100MΩ / >100MΩ
2	BLACK	N-LINK	UPS N-TERMINAL	✓	>100MΩ / >100MΩ
3	GREEN/YELLOW	E-BAR	E-BAR.	✓	
4					
5					
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10					
11					
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16					
17					
18					
19					
20					
Comments:					
Tenix Alliance Name:		Signature:		Date:	
Client Name:		Signature:		Date:	

2.5mm 2CTE SUMP PUMP

21m

CONTROL CABLE TEST MATCH NUMBER:			CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	RED	013 - K2	012 - x1	✓	>100MΩ	>100MΩ
2	BLACK	012 - Q3	012 - x1	✓	>100MΩ	>100MΩ
3	GREEN	E - BAR	012 x 1	✓		
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16						
17						
18						
19						
20						
Comments						
Tenix Alliance Name		Signature		Date:		
Client Name		Signature		Date		

2.5mm² 2CYE C/C ACID DOSING PUMP #1

5m

CONTROL CABLE TEST BATCH NUMBER:		CONTROL CABLE ID NUMBER:		DP		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	RED	013 - K3	012 - X2	✓	>100MΩ	>100MΩ
2	BLACK	012 - Q4	012 - X2	✓	>100MΩ	>100MΩ
3	GREEN	E - BAR	012 - X2	✓		
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25						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

2.5mm² 2CxE C/C ACID DOSING PUMP #2

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω's TO CORES / M Ω's TO EARTH
1	RED	013 - K3	012 - X3	✓	>100MΩ / >100MΩ
2	BLACK	012 - Q5	012 - X3	✓	>100MΩ / >100MΩ
3	GREEN	E-BAR	012 - X3	✓	
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18					
19					
20					
Comments:					
Tenix Alliance Name:		Signature		Date:	
Client Name:		Signature		Date	

LOADING PANEL

14m

CONTROL CABLE TEST BATCH NUMBER: | CONTROL CABLE ID NUMBER:

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M.O.'S TO CORES	M.O.'S TO EARTH
1	RED	O13-K1	L1	✓	>100MΩ	>100MΩ
2	WHITE	O13-K1	L2	✓	>100MΩ	>100MΩ
3	BLUE	O13-K1	L3	✓	>100MΩ	>100MΩ
4	BLACK	N-LINK	N-TERMINAL	✓	>100MΩ	>100MΩ
5	GREEN	E-BAR	E-TERMINAL	✓		
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19						
20						

Comments:					
Tenix Alliance Name:		Signature:		Date:	
Client Name:		Signature:		Date:	

4mm² 2C+E PS STREET LIGHTS

51m (EXISTING TO FIRST LIGHT)

CONTROL CABLE TEST BATCH NUMBER:		CONTROL CABLE ID NUMBER:	C2		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω S TO CORES	M Ω S TO EARTH
1	RED	ACTIVE TERMINAL	ACTIVE TERMINAL	✓	7100MΩ	7100MΩ
2	BLACK	N-TERMINAL	N-TERMINAL	✓	7100MΩ	7100MΩ
3	GREEN	E-TERMINAL	E-TERMINAL	✓		
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Comments:						
Tenix Alliance Name:		Signature		Date:		
Client Name		Signature		Date		

4mm² 2CPE PPS STREET LIGHTS

48m (FIRST TO SECOND LIGHT)

CONTROL CABLE TEST BATCH NUMBER:	1	CONTROL CABLE ID NUMBER:	02

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	L/N'S TO CORES	L/N'S TO EARTH
1	RED	ACTIVE TERMINAL	ACTIVE TERMINAL	✓	>100MΩ	>100MΩ
2	BLACK	N - TERMINAL	N - TERMINAL	✓	>100MΩ	>100MΩ
3	GREEN	E - TERMINAL	E - TERMINAL	✓		
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18						
19						
20						

Comments:					
Tenix Alliance Name		Signature		Date	
Client Name		Signature		Date	

1·5mm² 1 PAIR DEKORON

≥ 10

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	1W		FSH 1020-200			
2	1B		FSH 1020-200			
3	SH					
4						
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Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

~~BOOSTER PUMP No 1~~

PU 0583-001 5m

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω S TO CORES	M Ω S TO EARTH
0583001-C01 1	Bk	X13-4	SOCKET 2			
2	G/Y	X13-5	SOCKET 2			
3						
0583001-C02 4	WH	X14-1	SOCKET 4			
5	BR	X14-3	SOCKET 4			
6	BL	X10-3	SOCKET 4			
7						
8						
0583001-C03 9	BR	X11-16	SOCKET 3			
10	BK	X11-17	SOCKET 3			
11	WH	X11-14	SOCKET 3			
12	BL	X11-15	SOCKET 3			
13						
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Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

FCV 0583 003 - P01

1.5mm² 2C+E o/c. 6m

CONTROL CABLE TEST SHEET NUMBER

CONTROL CABLE ID NUMBER

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω TO CORES	M Ω TO EARTH
1	BROWN	X7-15	FCV 0583 003			
2	BLUE	X7-10	FCV 0583-003			
3	GREEN/YELLOW	EARTH BAR	PE			
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19						
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Comments					
Tenix Alliance Name		Signature		Date	
Client Name		Signature		Date	

FCV 0583002 - PO1

1.5mm² 2C+E O/C 6m

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE No.	CORE PERIPHERY	TERMINAL NO(RS)	TERMINAL DESTINATION	CORE TO CORE	CORE TO CORES	CORE TO EARTH
1	BROWN	X7-14	FCV 0583-002			
2	BLUE	X7-9	FCV 0583-002			
3	GREEN/YELLOW	EARTH BAR	PE			
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Comments						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

FCV 0583001 - P01

1.5mm² 2C+E O/C 5m

CONTROL CABLE TEST BATCH NUMBER:

CONTROL CABLE ID NUMBER:

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE REFERENCE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	I.R. TO CORES	I.R. TO EARTH
1	BROWN	X7-13	FCV 0583-001			
2	BLUE	X7-E	FCV 0583-001			
3	GREEN/YELLOW	EARTH BAR	PE			
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Comments:					
Tenix Alliance Name		Signature		Date	
Client Name		Signature		Date	

DILUTION WATER FLOW FEED SENSOR (FE)

FSL 0583003 - SO1

1.5mm² & 1 PAIR DEKORUN. 6m.

CONTROL CABLE TEST BATCH NUMBER: | CONTROL CABLE ID NUMBER:

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	C.S.A TO CCPRS	W.C.S TO EARTH
1	W1	X11-12	FSL 0583-003			
2	B1	X11-13	FSL 0583-003			
3	SH	EARTH BAR				
4						
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20						

Comments:					
Tenix Alliance Name:		Signature:		Date:	
Client Name:		Signature:		Date:	

2.5mm² 2C+E c/c

10m

CONTROL CABLE TEST RECORD NUMBER			CONTROL CABLE ID NUMBER		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	I/O S TO COPES	I/O S TO EARTH
1	RED		ACTIVE TERMINAL			
2	BLACK		Neutral Terminal			
3	GREEN/YELLOW	EARTH BAR	Earth Terminal			
4						
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Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

10
ABLE #

15mm² 2C+E O/C 14m.

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω S TO CORES	M Ω S TO EARTH
1	BROWN	X7-1	X1-1			
2	BLUE	X7-2	X1-2			
3	GREEN/YELLOW	EARTH BAR	EARTH BAR			
4						
5						
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20						
Comments:						
Tenix Alliance Name		Signature:		Date		
Client Name		Signature:		Date		

VALVE POSITION FEEDBACK SWITCHES. 1.5mm² 2 PAIR DEKORON

5m

CONTROL CABLE TEST BATCH NUMBER

CONTROL CABLE ID NUMBER

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	CORE TO CORE	CORE TO EARTH
1	1W	X11-27	FCV 0583-001 OPEN		
2	1B	X11-28	FCV 0583-001 OPEN		
3	2W	X11-29	FCV 0583-001 CLOSED		
4	2B	X11-30	FCV 0583-001 CLOSED		
5	SH	EARTH BAR			
6					
7					
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20					

Comments					
Tenix Alliance Name		Signature		Date	
Client Name		Signature		Date	

VALVE POSITION FEEDBACK SWITCHES FCV 0583 002 - SO1

1.5mm² 2 PAIR DEKORON 5m

CONTROL CABLE TEST RECORD SHEET

CONTROL CABLE TO NUMBER

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	CORE FERRULE	TERMINAL ORIGIN	TERMINAL DESTINATION	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	1W	X11-31	FCV 0583-002 OPEN			
2	2W	X11-32	FCV 0583-002 OPEN			
3	1B	X11-33	FCV 0583-002 CLOSED			
4	2B	X11-34	FCV 0583-002 CLOSED			
5	SH	EARTH BAR				
6						
7						
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20						

Comments:					
Tenix Alliance Name:		Signature		Date	
Client Name		Signature		Date	

VALVE POSITION FEEDBACK SWITCHES. FCV 0583-003-SC1

1.5mm 2 PAIR DEKORON

6m

CONTROL CABLE TEST BATCH NUMBER: CONTROL CABLE ID NUMBER:

TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS

CORE NO	WIRE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M.O.T TO CORES	M.O.T TO EARTH
1	1W	X11-35	FCV 0583-003 OPEN			
2	1B	X11-36	FCV 0583-003 OPEN			
3	2W	X11-37	FCV 0583-003 CLOSED			
4	2B	X11-38	FCV 0583-003 CLOSED			
5	SH	EARTH BAR				
6						
7						
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19						
20						

Comments					
Tenix Alliance Name		Signature		Date	
Client Name		Signature		Date	

PU 0583-002.

6m.

CONTROL CABLE TEST BATCH NUMBER			CONTROL CABLE ID NUMBER			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M.Ω TO CORES	M.Ω TO EARTH
1	BK	X13-7	SOCKET 2.			
2	G/Y	X13-8	SOCKET 2			
3						
4	WH	X14-4	SOCKET 4			
5	BR	X14-6	SOCKET 4			
6	BL	X10-8	SOCKET 4			
7						
8	BR	X11-20	SOCKET 3			
9	BK	X11-21	SOCKET 3			
10	WH	X11-18	SOCKET 3			
11	BL	X11-19	SOCKET 3			
12						
13						
14						
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16						
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19						
20						
Comments						
Tenix Alliance Name		Signature		Date		
Client Name		Signature		Date		

0583002-C01

0583002-C02

0583002-C03

to cable #

1mm² 8 PAIR DEKORON. 14m.

CONTROL CABLE TEST BATCH NUMBER:		CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	1W	X10-7	X3-1			
2	2W	X11-4	X3-5			
3	3W	X11-6	X3-7			
4	4W	X11-8	X3-11			
5	1B					
6	2B	X11-5	X3-6			
7	3B	X11-7	X3-10			
8	4B	X11-9.	X3-12			
9	SH		EARTH BAR			
10						
11						
12						
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20						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

No
able

1.5mm² 2C+E O/C 14m

CONTROL CABLE TEST DATA NUMBER:		CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	BROWN	X5-3	X2-1			
2	BLUE	X5-4	X2-4			
3	GREEN/YELLOW	EARTH BAR	EARTH BAR			
4						
5						
6						
7						
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Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

LIT 0583001-502

1·5mm² 1 PAIR DEKORON 14m.

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:			
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS						
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω TO CORES	M Ω TO EARTH
1	W1	X13-1	X4-5			
2	B1	X13-2	X4-6			
3	SH	X13-3	X4-7			
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

Level Probes x3

1.5mm² 1 PAIR DEKORON 16m.

CONTROL CABLE TEST BENCH NUMBER:			CONTROL CABLE ID NUMBER:		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω 'S TO CORES	M Ω 'S TO EARTH
1	W1	X8-5	X9-1			
2	B1	—	X9-2			
3	1SH	X8-6	X9-3			
4						
5	W1	X8-1	X9-4			
6	B1	—	X9-5			
7	1SH	X8-2	X9-6			
8						
9	W1	X8-4	X9-7			
10	B1	—	X9-8			
11	1SH	X8-3	X9-9			
12						
13						
14						
15						
16						
17						
18						
19						
20						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

SH 0583-004
1 pair -SC1
5mm²

H 0583-003
1 pair -SC1
5mm²

L 0583-003
1 pair -SC1
5mm²

FISCA BOX → Level Probes.

CONTROL CABLE TEST BATCH NUMBER:		CONTROL CABLE ID NUMBER:		D2
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS				
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	LSH 0583 -004-S01	x9-1	PROBE 1			
2						
3						
4	LSH 0583 -003-S01	x9-4	PROBE 2			
5						
6						
7	LSL 0583 -003-S01	x9-7	PROBE 3			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

Tank Level Pressure Sensor

1.5mm² 2 Pair Dekoron 8m

LIT 0583-001-501

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:		
TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS					
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	1W	X4-2	SIG+			
2	2W					
3	1B	X4-3	SIG-			
4	2B					
5	SH	X4-4	PE			
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Comments:						
Tenix Alliance Name		Signature:		Date:		
Client Name		Signature:		Date:		

Tank High Level Switch

1·5mm² 2 PAIR DEKORON 8m

LSH 0583001 - 501

CONTROL CABLE TEST BATCH NUMBER:			CONTROL CABLE ID NUMBER:			
		TEST RESULTS WITH INSULATION RESISTANCE TESTER VOLTAGE SET TO 500 VOLTS				
CORE NO	CORE FERRULE	TERMINAL (ORIGIN)	TERMINAL (DESTINATION)	POINT TO POINT	M Ω'S TO CORES	M Ω'S TO EARTH
1	1W	X3-2	1			
2	2W	X3-3	S16			
3	1B	X3-4	M			
4	2B					
5	SH	EARTH BAR				
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Comments:						
Tenix Alliance Name:		Signature:		Date:		
Client Name:		Signature:		Date:		

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

5 PRE-COMMISSIONING PROCEDURE

Pre-commissioning procedure for the Dosing System is as per the Mechanical and Electrical Inspection Test Plans contained in Section 4.2 and 4.3 respectively.

Complete relevant sections of the ITP's as required prior to the commissioning of the system

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

6 SITE ACCEPTANCE

To be supplied by Council

7 INSTALLATION PROCEDURE

1. Ensure the site civil works have been completed and all services are available.
2. Identify and hazards or safety issues before installation proceeds by completing site relative workplace risk assessment and job safety analysis sheets.
3. Mark out site to ensure correct location and orientation as per site requirements and design.
4. Ensure all plant components have arrived to site ready for the installation.
5. Lay bitumen matting on top of the storage tank plinth and using a crane lower the storage tank into the final position.
6. Trim excess matting and fix the tank to the footings with chemical anchors.
7. Cut, weld and fit the vent assembly, overflow/drain, and truck fill lines to the storage tank.
8. Carefully unpack all crates and lift the dosing skid, control and unloading panels into the correct position ensuring the inlet and outlet of the dosing skid are correct to the desired layout.
9. Fix the dosing skid, control and unloading panels into position using chemical anchors, making sure it is level and plumb before final lockdown.
10. Mark out the route for the suction line from the storage tank to the inlet of the dosing skid then cut, weld and fix the stainless steel pipework into final position.
11. Mark out and fit dilution water from the service water line to the dilution water circuit inlet.
12. Mark out and install the calibration and safety relief return lines from skid to tank making sure the return pipework has a fall for complete line drainage back to the storage tank.
13. Connect the outlet of the dosing skid to the dosing point carrier lines
14. Connect services and complete all wiring to the dosing system and conduct all testing before commissioning.

4.5. Section 8 - Factory Acceptance

8 FACTORY ACCEPTANCE

8.1 Dosing Skid Factory Acceptance Test

GRUNDFOS ALLDOS

GRUNDFOS ALLDOS
ALLDOS CONTROLLER
SIGNATURE
DATE 26/2/09

FACTORY ACCEPTANCE TEST SHEET

CLIENT: Tenix		**PROJECT:**	Sandgate WWTP Acetic Acid	**FAT NO.**	5131060.1.1 FAT
				PAGES	4
CLIENT REF:	Quote# TEN3088QTH		**ALLDOS OCEANIA REF:**	5131060.1.1	
PREPARED BY:	Ray Verburgt	**DATE:** 29-10-08	**PROJECT ENGINEER:**	Ray Verburgt	**DATE:**
NOTES:					

NO.	ACTIVITY	ACCEPTANCE CRITERIA	INSPECTION BY		DOCUMENTS (/ NOTES)
			ALLDOS	CLIENT	
1.	Visual Inspection of Dosing Skid	As per approved GA drawing 51310601.1-G01 As per approved P&ID 486/5/5-0051-004 Amend B	CS		• Visual inspection of all components to check correct / satisfactory installation • Check flow direction specific equipment- Loading valve, Solenoid valves etc– ensure they are fitted in the correct direction. • Check alignment of all equipment
2.	Operation. Manually check all valves. Ensure Valves are in Correct Position for use.	All isolation valves are free and in correct position.	CS		• Open and close all valves to ensure there is no binding. • Isolate Calibration Cylinder. • Isolate process Drain Valves. • Open Pump Suction and discharge. • Open process valves.
3.	Prime Pumps • Dosing Pump 1 PU-0583-001 • Dosing Pump 2 PU-0583-002	Remove air from system.	CS		Priming Pump. • Flood Suction of Dosing Pump • Isolate Dosing System. • Slightly Open Drain Valve on discharge. • Run Pump until fluid is discharged to drain. Close drain valves and open system isolation valves.

4.	Hydrostatic Test Pipework.	Check system for leaks As per AS2032:2006 Section 7	CS		Test Procedure. • Fill with water taking care to purge all air from the system. • Hold 4.5 bar pressure for 15 minutes. • Visually check all pipe work to ensure no leakage.
	Calibrate Dilution Water Flow Rate • Dilution Line	Ensure dilution water flow rate is set correctly.	CS		Test Procedure Dilution Line 1 • Manually Open Dilution Water Solenoid Valve – FCV0583-003 • Manually Open Dilution Water Valve – HCV-1030-200 Rotameter – FI 0583-003 • Check flow rates of approx. min 1000 l/hr and max 1500l/hr are achieved.
5.	Pressure Gauge Operation	Check for correct operation	CS		Testing Procedure • Run pumps • Visually check pressure gauge operation.
6.	Check Operation of Pressure Relief Valves • Pressure Relief Valve PRV-0583-001 • Pressure Relief Valve PRV-0583-002	Set PRV to 4bar	CS		Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve Pressure Relief Valve PRV-0583-001 • Run Dosing Pump • Close Discharge Valve • Set Relief Valve to operate at approximately 4 bar. • Open Discharge Valve

GRUNDFOS ALLDOS

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE 26/2/09

7.	Pressure Loading Valve • PSV-0583-001	Set PLV to 3bar			Test Procedure • Run Dosing Pump PU-0583-001 • Set Loading Valve to operate at approximately 3 bar.
8.	Pump Operation • PU-0583-001 • PU-0583-002	Check for correct operation			Test Procedure Run pump PU-0583-001 • Adjust dose rate to approx. 150l/ph Run pump PU-0583-002 • Adjust dose rate to approx. 150l/ph
	Pulsation Dampeners • D-0583-001	Check correct operation			Test Procedure Run dosing pump 1 – PU-0583-001 • Visually / audibly check pulsation dampener and pressure gauge operation.
11.	Skid Operation	Check correct operation			Valve Positions • Isolate Drain valves. • Open pump suction and discharge valves. • Open process valves. • Open Dilution water Isolation Valves. • Run pumps as per standard operation for approximately 30minutes. • Visually and audibly check system.

GRUNDFOS ALLDOS

NOTES:

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE 26, 2, 09.

Alldos Representative

Signature _____

Name chris mccolm

Date 5/2/09

Client Representative

Signature _____

Name _____

Date _____

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

8.2 Static Mixer Factory Acceptance Test

Factory Acceptance Test Sheet

Project:	**Sandgate Acetic Acid**	**Project Number:**	**5131060**
System:	**Static Mixer**	**Client:**	**Tenix**
Date:	25/01/09	**Tested By:**	RAY VERBURG

ITEM	PASS	FAIL	COMMENTS / RESULTS
1. Check and record Dilution Water flow rates with no back-pressure (Full Flow)			
Set inlet pressure and record results			
Output at 100kPa	✓		900 L/h
Output at 200kPa	✓		1300 L/h
Output at 500kPa	✓		2000 L/h
2. Check and record Dilution Water flow rates with back-pressure (Restricted Flow)			
Output at 200kPa inlet 200kPa back-pressure	✓		2500 L/h
Output at 500kPa inlet 200kPa back-pressure	✓		1500 L/h
Output at 500kPa inlet 500kPa back-pressure	✓		1700 L/h

ALLDOS REPRESENTATIVE

Signature .....

Name RAY VERBURG

Title PROJECT ENGINEER

Date 25/01/09

8.3 Electrical Factory Acceptance Test

ALLDOS
Vision for water technology

COPY 1 of 2

WORKSHOP TEST PROCEDURE

Job Name: SANDGATE	Job No: 5131060.1.8	Tested By: C JAMES C3839

ODI 221500-10383

TEST	RESULT Pump1	RESULT Pump2	COMMENTS P1 SNo 09 20972 P2 SNo 09 20971
Wiring Check	✓	✓	
Earth Continuity Check	<.1 Ω	<.1 Ω	LEAD & PLUGS ONLY
Insulation Resistance Test	∞ Ω	∞ Ω	
Labels Complete	N/A	N/A	
Plug and Lead Fitted For Testing	✓	✓	
Ready For Testing	TEST OK		

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE 20/1/09

C James

DATE 27-1-09

8.4 Control Panel Factory Acceptance Test

ALLDOS
Vision for water technology

WORKSHOP TEST PROCEDURE

Job Name: SANDGATE ACETIC ACID C.P.	Job No: 5131060-1-3	Tested By: JOHN DARROCH

TEST	RESULT	COMMENTS
Wiring Check	OK.	
Earth Continuity Check	< 0·1 Ω	
Insulation Resistance Test	> 200 MΩ	
Labels Complete		Some Terminal Labels outstanding
Plug and Lead Fitted For Testing	YES	
Ready For Testing	YES	

SIGNED [signature] DATE 22/1/09

8.5 PLC Factory Acceptance Test

IQ IO - TABLE 1
IQ CHECK - digital inputs

Location: Alldos workshop
Project: Acetic Acid Dosing

PLC SIEMENS S7 315-2DP								Input Check		Results				
	Software	Hardware												
No.	Signal Name	Address	Type	Rack	Mod	Module Type	Description	"0"	"1"	Pass/Fail	Connection	Comment	Date	Signiture
1	AAD01013K1diUnloadingKON	I 4.0	DI	0	5	6ES7 321-1BL00-0AA0	Unloading Panel Truck Pump Outlets Contactor Closed	Open	Closed	P	✓	/	21/1/2009	
2	AAD0101013K2diSumpPmpKON	I 4.1	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-003 Sump Pump Contactor Closed	Open	Closed	P	✓	/	21/1/2009	
3	AAD0101013K3diDosePmpKON	I 4.2	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-001/002 Acetic Acid Dosing Pumps Contactor Closed	Open	Closed	P	✓	/	21/1/2009	
4	AAD0101LSH0583-001diSTHL	I 4.3	DI	0	5	6ES7 321-1BL00-0AA0	Unloading Panel LSH0583-001Acetic Acid Storage Tank High Level Alarm	OK	High Level	P	✓	ON TERMINA LS X11-9,5	21/1/2009	
5	AAD0101010SxdiUnloadEMS	I 4.4	DI	0	5	6ES7 321-1BL00-0AA0	Unloading Panel E-Stop Button Activated	E-Stop Active	OK	P	✓	TESTED ON TERM X11-9	21/1/2009	
6	AAD0101011K1diUnloadAAc	I 4.5	DI	0	5	6ES7 321-1BL00-0AA0	Unloading Panel TK0583-001 High Level Alarm Acknowledged	No High Lvl or Not Ackn.	High Level Acknowledged	P	✓	TESTED ON TERMINALS X11 8,9	21/1/2009	
7	AAD0101LSL0583-003diESLL	I 4.6	DI	0	5	6ES7 321-1BL00-0AA0	LSL0583-003 Emergency Storage Bund Low Level	Not Low Level	Low Level	P		TESTED WITH SIGNAL ON MTPA	21/1/2009	
8	AAD0101LSH0583-003diESHL	I 4.7	DI	0	5	6ES7 321-1BL00-0AA0	LSH0583-003 Emergency Storage Bund High Level	Not High Level	High Level	P		MTPA CONTACT SHORTED	21/1/2009	
9	AAD0101LSH0583-004diSDHL	I 5.0	DI	0	5	6ES7 321-1BL00-0AA0	LSH0583-004 Storage/Dosing Bund High Level	Not High Level	High Level	P		MTP CONTACT SHORTED	21/1/2009	
10	AAD0101FSL0583-003diH2OF	I 5.1	DI	0	5	6ES7 321-1BL00-0AA0	FAL0583-003 Dilution Water Flow Detect	No Flow	Flow OK	P		TESTED ON TERMINA	21/1/2009	
11	AAD0101PU0583-001diPU1SC	I 5.2	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-001 Acetic Acid Dosing Pump No.1 Stroke Complete	/	Stroke Complete	P		TOT	21/1/2009	
12	AAD0101PU0583-001diPU1Er	I 5.3	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-001 Acetic Acid Dosing Pump No.1 Error/Fault	No Error	Error	P		TOT	21/1/2009	
13	AAD0101PU0583-002diPU2SC	I 5.4	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-002 Acetic Acid Dosing Pump No.2 Stroke Complete	/	Stroke Complete	P		TOT	21/1/2009	
14	AAD0101PU0583-002diPU2Er	I 5.5	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-002 Acetic Acid Dosing Pump No.2 Error/Fault	No Error	Error	P		TOT	21/1/2009	
15	AAD0101013SxdiDoseCtrEMS	I 5.6	DI	0	5	6ES7 321-1BL00-0AA0	Dosing Control Panel E-Stop Button Activated / Valve Solenoid Power	E-Stop Active	OK	P		X9-11,12 TOT	21/1/2009	
16	AAD0101PU0583-003diUDet	I 5.7	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-003 Sump Pump Running / Current Detect	No Current	Current Detected	P	✓		21/1/2009	

Comments:

TOT - Tested on terminals

Tester
i.Power Solutions Pty Ltd

Customer Control
Alldos Oceania Pty Ltd

IQ IO - TABLE 1
IQ CHECK - digital inputs

Location: Alldos workshop
Project: Acetic Acid Dosing

PLC SIEMENS S7 315-2DP								Input Check		Results				
	Software	Hardware												
No.	Signal Name	Address	Type	Rack	Mod	Module Type	Description	"0"	"1"	Pass/Fail	Connection	Comment	Date	Signiture
17	AAD0101ZSO0583-001diV1O	I 6.0	DI	0	5	6ES7 321-1BL00-0AA0	ZSO0583-001 FCV0583-001 Dosing Valve No.1 Open	Valve Not Open	Valve Open	P		TOT X11-27,28	21/1/2009	
18	AAD0101ZSC0583-001diV1C	I 6.1	DI	0	5	6ES7 321-1BL00-0AA0	ZSC0583-001 FCV0583-001 Dosing Valve No.1 Closed	Valve Not Closed	Valve Closed	P		TOT X11-29,30	21/1/2009	
19	AAD0101ZSO0583-002diV2O	I 6.2	DI	0	5	6ES7 321-1BL00-0AA0	ZSO0583-002 FCV0583-002 Dosing Valve No.2 Open	Valve Not Open	Valve Open	P		TOT X11-31,32	21/1/2009	
20	AAD0101ZSC0583-002diV2C	I 6.3	DI	0	5	6ES7 321-1BL00-0AA0	ZSC0583-002 FCV0583-002 Dosing Valve No.2 Closed	Valve Not Closed	Valve Closed	P		TOT X11-33,34	21/1/2009	
21	AAD0101ZSO0583-003diDVO	I 6.4	DI	0	5	6ES7 321-1BL00-0AA0	ZSO0583-003 FCV0583-003 Dilution Valve Open	Valve Not Open	Valve Open	P		TOT X11-35,36	21/1/2009	
22	AAD0101ZSC0583-003diDVC	I 6.5	DI	0	5	6ES7 321-1BL00-0AA0	ZSC0583-003 FCV0583-003 Dilution Valve Closed	Valve Not Closed	Valve Closed	P		TOT X11-37,38	21/1/2009	
23	AAD0101FSH1020-200diAct	I 6.6	DI	0	5	6ES7 321-1BL00-0AA0	FSH1020-200 Safety Shower Activated	hower Not Activat	Shower Activated	P		TOT X11-39,40	21/1/2009	
24	I6.7	I 6.7	DI	0	5	6ES7 321-1BL00-0AA0	Spare			P	√		21/1/2009	
25	I7.0	I 7.0	DI	0	5	6ES7 321-1BL00-0AA0	Spare			P	√		21/1/2009	
26	I7.1	I 7.1	DI	0	5	6ES7 321-1BL00-0AA0	Spare			P	√		21/1/2009	
27	AAD0101PU0583-001diRem	I 7.2	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-001 Acetic Acid Dosing Pump No.1 Auto Mode	Not Remote / Auto	Remote / Auto	P	√		21/1/2009	
28	AAD0101PU0583-001diLocal	I 7.3	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-001 Acetic Acid Dosing Pump No.1 Manual Mode	Not Local / Manual	Local / Manual	P	√		21/1/2009	
29	AAD0101PU0583-002diRem	I 7.4	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-002 Acetic Acid Dosing Pump No.2 Auto Mode	Not Remote / Auto	Remote / Auto	P	√		21/1/2009	
30	AAD0101PU0583-002diLocal	I 7.5	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-002 Acetic Acid Dosing Pump No.2 Manual Mode	Not Local / Manual	Local / Manual	P	√		21/1/2009	
31	AAD0101PU0583-003diRem	I 7.6	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-003 Acetic Acid Dosing Pump No.3 Auto Mode	Not Remote / Auto	Remote / Auto	P	√		21/1/2009	
32	AAD0101PU0583-003diLocal	I 7.7	DI	0	5	6ES7 321-1BL00-0AA0	PU0583-003 Acetic Acid Dosing Pump No.3 Manual Mode	Not Local / Manual	Local / Manual	P	√		21/1/2009	

Comments:

Tester
i.Power Solutions Pty Ltd

Customer Control
Alldos Oceania Pty Ltd

IQ IO - TABLE 2

IQ CHECK - digital outputs

Location: Alldos workshop

Project: Acetic Acid Dosing

PLC SIEMENS S7 315-2DP								Action Check		Results				
	Software	Hardware												
No.	Signal Name	Address	Type	Rack	Mod	Module Type	Function	"0"	"1"	Pass/Fail	Connection	Comment	Date	Signiture
1	AAD0101020K1doUnloPanEn	Q 8.0	DO	0	6	6ES7 322-1HH01-0AA0	Unloading Panel Truck Pump Contactor Power Enable	020-K1 Not Energised	020-K1 Energised	P	✓	1	21/1/2009	
2	AAD0101PU0583-003doRCmd	Q 8.1	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-003 Sump Pump Auto Run Relay Command	020-K2 Not Energised	020-K2 Energised	P	✓	1	21/1/2009	
3	AAD0101PU0583-001doRCmd	Q 8.2	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-001 Acetic Acid Dosing Pump No.1 Auto Run Relay Com	020-K3 Not Energised	020-K3 Energised	P	✓	1	21/1/2009	
4	AAD0101PU0583-002doRCmd	Q 8.3	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-002 Acetic Acid Dosing Pump No.2 Auto Run Relay Com	020-K4 Not Energised	020-K4 Energised	P	✓	1	21/1/2009	
5	AAD0101FCV0583-001doOpn	Q 8.4	DO	0	6	6ES7 322-1HH01-0AA0	FCV0583-001 Acetic Acid Dosing Valve No.1 Open Command	020-K5 Not Energised	020-K5 Energised	P	✓	1	21/1/2009	
6	AAD0101FCV0583-002doOpn	Q 8.5	DO	0	6	6ES7 322-1HH01-0AA0	FCV0583-002 Acetic Acid Dosing Valve No.2 Open Command	020-K6 Not Energised	020-K6 Energised	P	✓	1	21/1/2009	
7	AAD0101FCV0583-003doOpn	Q 8.6	DO	0	6	6ES7 322-1HH01-0AA0	FCV0583-003 Dilution Water Valve Open Command	020-K7 Not Energised	020-K7 Energised	P	✓	1	21/1/2009	
8	Q8.7	Q 8.7	DO	0	6	6ES7 322-1HH01-0AA0	Spare			P	✓		21/1/2009	
9	AAD0101PU0583-001doRunIn	Q 9.0	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-001 Dosing Pump No.1 Run Indicator	020-H1 Off	020-H1 On	P	✓		21/1/2009	
10	AAD0101PU0583-001doFltIn	Q 9.1	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-001 Dosing Pump No.1 Fault Indicator	020-H2 Off	020-H2 On	P	✓		21/1/2009	
11	AAD0101PU0583-002doRunIn	Q 9.2	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-002 Dosing Pump No.2 Run Indicator	020-H3 Off	020-H3 On	P	✓		21/1/2009	
12	AAD0101PU0583-002doFltIn	Q 9.3	DO	0	6	6ES7 322-1HH01-0AA0	PU0583-002 Dosing Pump No.2 Fault Indicator	020-H4 Off	020-H4 On	P	✓		21/1/2009	
13	Q9.4	Q 9.4	DO	0	6	6ES7 322-1HH01-0AA0	Spare			P	✓		21/1/2009	
14	Q9.5	Q 9.5	DO	0	6	6ES7 322-1HH01-0AA0	Spare			P	✓		21/1/2009	
15	Q9.6	Q 9.6	DO	0	6	6ES7 322-1HH01-0AA0	Spare			P	✓		21/1/2009	
16	Q9.7	Q 9.7	DO	0	6	6ES7 322-1HH01-0AA0	Spare			P	✓		21/1/2009	

Comments: 1) Interak connections ok, actuators not connected to terminals

Tester
i.Power Solutions Pty Ltd

Customer Control
Alldos Oceania Pty Ltd

IQ IO - TABLE 3
IQ CHECK - analog inputs

Location: Alldos work shop
Project: Acetic Acid Dosing

PLC SIEMENS S7 315-2DP											Scaling Check		Results			
	Software	Hardware					Description	Range	Units	Signal	Input Signal	Scaled Value	Connection	Comment	Date	Signiture
No.	Signal Name	Address	Type	Rack	Mod	Module Type										
1	AAD0101LIT0583-001aiTK1L	PIW 304	AI	0	7	6ES7 331-7HF01-0AB0	TK0583-001 Acetic Acid Storage Tank Level Monitor	0 - 100	%	4-20mA	4 mA 12 mA 20 mA	508 5037 10066	√	TOT x13-1, 2	21/1/2009	Bulma
2	AAD0101PU0583-001aiDosR	PIW 306	AI	0	7	6ES7 331-7HF01-0AB0	PU0583-001 Acetic Acid Dosing Pump No.1 Monitor Dosing Rate	0 -100	%	4-20mA	4 mA 12 mA 20 mA	-1,18 51,3 103,93	√	TOT x13-4,5	21/1/2009	Bulma
3	AAD0101PU0583-002aiDosR	PIW 308	AI	0	7	6ES7 331-7HF01-0AB0	PU0583-002 Acetic Acid Dosing Pump No.2 Monitor Dosing Rate	0 - 100	%	4-20mA	4 mA 12 mA 20 mA	-1,17 51,54 104,05	√	TOT x13-7,8	21/1/2009	Bulma
4	PIW310	PIW 310	AI	0	7	6ES7 331-7HF01-0AB0	Spare			4-20mA	4 mA 12 mA 20 mA	24 13940 27800	√	x13-10, 11	21/1/2009	Bulma
5	PIW312	PIW 312	AI	0	7	6ES7 331-7HF01-0AB0	Spare			4-20mA	4 mA 12 mA 20 mA	24 13960 27824	√	1	21/1/2009	Bulma
6	PIW314	PIW 314	AI	0	7	6ES7 331-7HF01-0AB0	Spare			4-20mA	4 mA 12 mA 20 mA	44 13952 27844	√	1	21/1/2009	Bulma
7	PIW316	PIW 316	AI	0	7	6ES7 331-7HF01-0AB0	Spare			4-20mA	4 mA 12 mA 20 mA	40 13940 27808	√	1	21/1/2009	Bulma
8	PIW318	PIW 318	AI	0	7	6ES7 331-7HF01-0AB0	Spare			4-20mA	4 mA 12 mA 20 mA	44 13944 27832	√	1	21/1/2009	Bulma

Comments: 1/ There is no scaled values or raw values are in the table.

Bulma AC
Tester
i.Power Solutions Pty Ltd

Customer Control
Alldos Oceania Pty Ltd

IQ IO - TABLE 4
IQ CHECK - analog outputs

Location: Alldos workshop
Project: Acetic Acid Dosing

PLC SIEMENS S7 315-2DP										Output check		Results			
	Software	Hardware					Funcion	Range	Unit	Signal	Out. Signal Value (mA)	Aktuator Response (mA)			
No.	Signal Name	Address	Type	Rack	Mod	Module Type							Connection	Comment	Date	Signature
1	AAD01PU0583-001aoSetDR	PQW 320	AO	0	8	6ES7 332-5HF00-0AB0	PU0583-001 Acetic Acid Dosing Pump No.1 Set Dosing Rate	0 - 100	%	4-20mA	0 4 % 50 12 % 100 20 %	4,0 11,96 19,93	✓	TOT X14-1,3	21/1/2009	
2	AAD01PU0583-002aoSetDR	PQW 322	AO	0	8	6ES7 332-5HF00-0AB0	PU0583-002 Acetic Acid Dosing Pump No.2 Set Dosing Rate	0 - 100	%	4-20mA	0 4 % 50 12 % 100 20 %	3,98 11,96 19,93	✓	TOT X14-4,6	21/1/2009	
3	PQW324	PQW 324	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	0 4 a 13824 12 b 20 c	3,99 11,95 19,94	✓	TOT X14-7,9	21/1/2009	
4	PQW326	PQW 326	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	4 a 12 b 20 c	3,98 11,96 19,99		TOT X14-10,12	21/1/2009	
5	PQW328	PQW 328	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	4 a 12 b 20 c	3,98 11,97 19,95		TOT X14-13,15	21/1/2009	
6	PQW330	PQW 330	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	4 a 12 b 20 c	3,99 11,97 19,94		TOT X14-16,18	21/1/2009	
7	PQW332	PQW 332	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	4 a 12 b 20 c	3,99 11,97 19,95		TOT X14-19,21	21/1/2009	
8	PQW334	PQW 334	AO	0	8	6ES7 332-5HF00-0AB0	Spare			4-20mA	4 a 12 b 20 c	3,98 11,97 19,94		TOT X14-22,24	21/1/2009	

Comments: a - 0 ; b - 13824 ; c - 27648

Tester
i.Power Solutions Pty Ltd

Customer Control
Alldos Oceania Pty Ltd

4.6. Section 9 - Manufacturer's Test Data and Certificates

9 MANUFACTURERS TEST DATA AND CERTIFICATES

9.1 Georg Fischer Piping Systems Certificate of Compliance

+GF+ GEORG FISCHER PIPING SYSTEMS

R&D

George Fischer Sloane, Inc.
7777 Sloane Drive
Little Rock, Arkansas 72206
USA
Phone +1 (501) 490-7777
Toll free (800) 423-2686

Jim Gilchrist
Phone +1 (501) 490 7247
Fax +1 (501) 490 7272
Mobile +1 (501) 658 6431
jim.gilchrist@georgfischer.com

Little Rock, January 16, 2008

CERTIFICATE OF COMPLIANCE
PVC Schedule 80 Pipe & Fittings

Dear Valued Customer:

This letter is to certify that the pipe and fittings of PVC, Type I material as made by George Fischer Sloane, Inc. conform to the requirements of ASTM D1784-03, “Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds,” with cell classification 12454. The material receives this cell classification by passing multiple tests including ASTM D635, with average extent of burning of <25 mm and average time of burning of <10 s. The material meets the requirements of ASTM D3915 with cell classification of 124544.

PVC Schedule 80 plastic fittings meet the requirements of ASTM D2467-05, “Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.” PVC Schedule 80 pipe meets the requirements of ASTM D1785-05, “Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.” Belled pipe meets ASTM D2672-96a.

The pipe and fittings are listed by NSF International as meeting the requirements of NSF/ANSI 14 and NSF/ANSI 61 for handling potable water. The pipe is certified by NSF as meeting the Uniform Plumbing Code and CSA B137.3, where applicable.

Yours sincerely,

George Fischer Sloane, Inc.

James L. Gilchrist

James Gilchrist
R&D Manager

Endress + Hauser India Autom.Instrum.
ENDRESS+HAUSER (INDIA)
Automation Instrumentation Pvt. Ltd.
Factory : M-192, M.I.D.C.
Waluj Industrial Estate,
Aurangabad - 431 136

Final Inspection Report
Endprüfprotokoll

The manufacturer confirms that all measuring equipment used to assure the quality of the products has been calibrated and is traceable to national and international standards.

Der Hersteller bestätigt, dass die zu Qualitätsprüfungen des Erzeugnisses eingesetzten Messmittel gültig kalibriert waren und auf nationale bzw. internationale Normale rückführbar sind.

Cerabar S

TAG number	Messstellen-Nummer	
Device type	Gerätetyp	PMP71-ABA1F31RAAAA
Serial number	Seriennummer	AC000D2109C
Sensor limits	Sensor-Messgrenzen	-4...4 mH2O
Adjusted measuring range	Eingestellter Messbereich	0...4 mH2O
Maximum linearity error	Maximal zulässiger Linearitätsfehler	± 0.15 %
Electronic type	Elektronik-Typ	4...20 mA, HART
Software version	Softwareversion	02.10.40

Endress + Hauser PTY. LTD. Unit 8

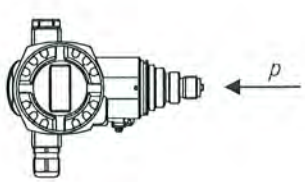
Customer number	Kundennummer	
Customer order number	Auftragsnummer des Kunden	63/52717433/36317923
Sales order number	Kommissionsnummer	55000334 000010

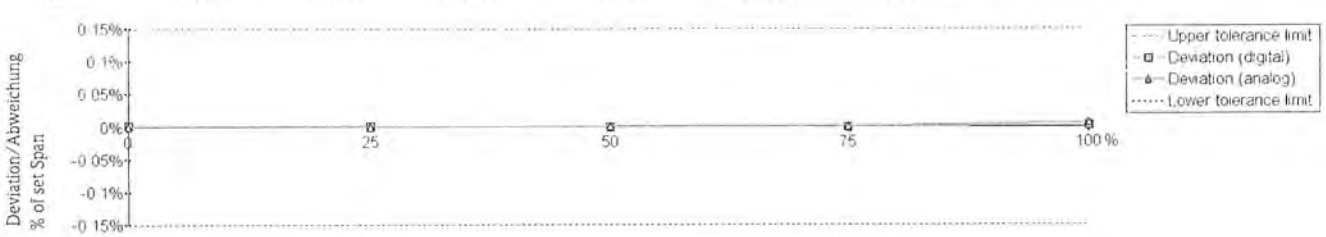
Ambient temperature	Umgebungs-Temperatur	26.7 °C (± 1 °C)
Ambient humidity	Umgebungs-Luftfeuchte	43.5 %rel.F (± 10 %rel.F)
Ambient pressure	Umgebungs-Luftdruck	952.3 mbar (± 0.2 mbar)
Inspection according to fix point method IEC 60770.	Prüfung nach Grenzpunktmethode gemäß IEC 60770.	

Measuring results — Messergebnisse

Measuring point / Messpunkt	Reference pressure ($p_{Ref.}$) / Druck des Vergleichs-normales ($p_{Ref.}$)	Device output (digital readout) / Messwert des Prüflings (Digitalwert)	Deviation (digital) / Abweichung (digital)	Current nominal value (I_{Out} calculated) / Sollwert Stromausgang (I_{Out} berechnet)	Current output (analog) / Istwert Stromausgang (analog)	Deviation current output (analog) / Abweichung Stromausgang (analog)
%	mH2O	mH2O	% of Span	mA	mA	%
0	0.00002	0.00010	0.00196	4.0001	4.0003	0.0014
25	1.02370	1.02373	0.00064	8.0948	8.0948	-0.0002
50	2.05254	2.05254	-0.00006	12.210	12.210	0.0003
75	2.95022	2.95020	-0.00054	15.801	15.801	0.0010
100	4.00902	4.00911	0.00217	20.036	20.037	0.0069

Test orientation
Prüflage





Measuring point in % of adjusted measuring range/
Messpunkt in % vom eingestellten Messbereich

At the time of verification, the measuring points of the device indicated above were within tolerance and in compliance to the published specification of the referenced Operating Instructions (BA ...).

Das Gerät entsprach zum Zeitpunkt der Prüfung unter den angegebenen Bedingungen an den aufgeführten Messpunkten den Vorgaben der genannten Betriebsanleitung (BA ...).

Kein Eintrag z
Kein Eintrag zu ZPos!

Geprüft durch/Operator	210006
Prüfdatum/Date of inspection	15. Dec 2008

Endress+Hauser
People for Process Automation

SD180P/00/a2/11.04
52023441

-End of document-

10 REQUIRED SERVICES

The following services are required for the operation of the Acetic Acid Dosing System:

- Electricity
- Instrument Air
- Service Water
- Potable Water

A description of each services function is detailed below;

- Electricity: Required for powering of the electric dosing pumps, drainage pump, control equipment including unloading panel and power supply to the truck mounted unloading pump and local lighting. Electricity is required for all operations of the Dosing Skid
- Instrument Air: Required for the operation of the dosing pump isolation valves FCV-0583-001 & FCV-0583-002 and the dilution water isolation valve FCV-0583-003. The isolation valves are shut when de-energised, hence instrument air is required for the operation of the dosing system.
- Service Water: Service water is used as the dilution / carrier water for the chemical. The service water is mixed with the chemical pumped by the dosing pumps at the final stage of the dosing skid. Service water is required for the operation of the dosing system.
- Potable Water: Potable water is used to supply the safety shower and eye wash station. It also supplies the hose cock and hose reel used for washdown of the area, dilution of spilt chemical, flushing of the dosing system and as a fire fighting tool in the event of an emergency. A potable water supply is required for whenever chemical is being kept within the facility.

4.7. Section 11 - Construction and Work Method Statements

11 CONSTRUCTION AND WORK METHOD STATEMENTS

W.M.S. NO	2	Version No.:	1

Project: SANDGATE W.R.P PHOSPHORUS REDUCTION			
Job Details:	REMOVAL OF GRID MESH ON TANK.	**Developed By Date:-**	JOHN SMITH
Reviewed By Date:	S. Kusters	**Approved By Date;**	S. Kusters
Equipment Required:	P.P.E. Hard Hat, Safety Glasses Hand & Hearing protection Hand & Hearing protection, long sleeve Hi Vis shirt and Long pants.		
Relevant Legislation/Standards/Codes	Queensland WH&S Act 1995 TENIX PROCEDURES AUSTRALIAN STANDARDS		
Qualifications / Competencies / Training Required	30215 QLD Induction (Blue) Card or Equivalent Interstate Card, Prescribed Occupations Tickets= SANDGATE W.R.P SITE INDUCTION.		

			Consequences				
		Image / Reputation	Slight impact	Limited impact	Local area impact	State wide impact	National Impact
		Environment	Slight effect	Minor on-site contamination	Major on-site contamination with potential for off-site contamination	Minor off - Site contamination	Major off-site contamination
		Plant / Equipment	Slight Damage (< $2K)	Component level replacement /repair ($2K - $8K)	Equipment level replacement /repair ($8K - $12K)	Multiple equipment replacements ($12K - $20K)	Massive widespread equipment damage ($20K +)
		People	First Aid Injury	Medical Treatment Injury	Lost Time Injury	Fatality	Multiple Fatalities
			Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Likelihood	Common, occurs frequently	**Almost certain**	H	H	E	E	E
	It is known to occur. It has happened	**Likely**	M	H	H	E	E
	Could occur or have heard of it occurring	**Moderate**	L	M	H	E	E
	Not likely to occur	**Unlikely**	L	L	M	H	E
	Practically impossible	**Rare**	L	L	M	H	H

Level of Risk
E Extreme Risk – *Do not undertake Operation – re-evaluate proposed work methods*
H High Risk – Significant risk control measures to be implemented before works commence
M Moderate Risk – Corrective action other than administrative controls may needed
L Low Risk – Managed routine Procedures and W Practices

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)
1	**Pre start and Hazards review Meeting with crew members. All to sign document after Review**	Persons unaware of inherent hazards and control measures	**Physical injury, Property damage Project disruption**	**M**	**Supervisor to ensure all members of the specific crew are present. And to advise and discuss the hazards and control measure. Hot work task tasks to be discussed and hazards identified Review W.M.S and permit where required. W.M.S. to be signed off by crew members**	4
2	WORK AREA INSPECTED BEFORE COMMENCING WORK	UNTIDY WORK AREA	FALL, SPRAINS, STRAINS	L	WORK AREA TO BE KEPT IN TIDY MANNER. HOUSE KEEPING	3
3	REMOVAL OF GRID MESH & WORKING OVER OPEN PENATRATION	FALLING DROWNING EQUIPMENT DAMAGE	PHYSICAL INJURY DEATH LOST TOOLS	M	SAFETY HARNESS TO BE WORN WHEN GRID MESH IS REMOVED WORK CREWS TO WORK IN PAIRS BARRICADES + SIGNS TO BE PLACED ON ACCESS STAIRS	3+4
4	FITTING OF PIPE WORK.	MANUAL HANDLING	STRAINS + SPRAINS	M	WORK CREW TO HAVE READ + SIGNED W.M.S #1	4
5	REFITTING GRID MESH	FALLING DROWNING	PHYSICAL INJURY DEATH.	M	SAFETY HARNESS TO BE WORN CREWS TO WORK IN PAIRS	3+4
6	SITE CLEAN	MANUAL HANDLING	PHYSICAL INJURY SLIPS TRIPS + FALL	L	CORRECT MANUAL HANDLING PRACTICES CORRECT P.P.E TO BE WORN.	3+5

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
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Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)

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1	Elimination	Elimination
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Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

W.M.S. Read & Signed by <u>All Employees</u> involved in Project:

Name	Signature	Date
Philip Birch	Philip Birch	17-3-09
Mark Tarbert	M. Tarbert	18/3/09

W.M.S. NO	1	Version No.:	1

Project: Sandgate W.R.P. Phosphorous Reduction			
Job Details:	Installation of Acid Tank,Pump Skid & associated Pipe Work	**Developed By Date:-**	JOHN SMITH 6/03/2009
Reviewed By Date:	RHOD MAHERS 6-3-09	**Approved By Date;**	6-3-09 R.MAHERS
Equipment Required:	P.P.E. Hard Hat, Safety Glasses Hand & Hearing protection Hand & Hearing protection. long sleeve Hi Vis shirt and Long pants. GLOVES Mandatory		
Relevant Legislation/Standards/Codes	Queensland WH&S Act 1995 Tenix Procedures Australian Standards AS 2550 Cranes		
Qualifications / Competencies / Training Required	30215 QLD Induction (Blue) Card or Equivalent Interstate Card, Prescribed Occupations Tickets Sandgate W.R.P Site Induction		

			Consequences				
		Image / Reputation	Slight impact	Limited impact	Local area impact	State wide impact	National Impact
		Environment	Slight effect	Minor on-site contamination	Major on-site contamination with potential for off-site contamination	Minor off - Site contamination	Major off-site contamination
		Plant / Equipment	Slight Damage ($2K)	Component level replacement /repair ($2K - $8K)	Equipment level replacement /repair ($8K - $12K)	Multiple equipment replacements ($12K - $20K)	Massive widespread equipment damage ($20K +)
		People	First Aid Injury	Medical Treatment Injury	Lost Time Injury	Fatality	Multiple Fatalities
			Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Likelihood	Common, occurs frequently	Almost certain	H	H	E	E	E
	It is known to occur. It has happened	Likely	M	H	H	E	E
	Could occur or have heard of it occurring	Moderate	L	M	H	E	E
	Not likely to occur	Unlikely	L	L	M	H	E
	Practically impossible	Rare	L	L	M	H	H

Level of Risk
E Extreme Risk – *Do not undertake Operation – re-evaluate the proposed work methods*
H High Risk - Significant risk control measures to be implemented before works commence
M Moderate Risk – Corrective action other than administrative controls may needed
L Low Risk - Managed routine Procedures and W Practices

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall Prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)
1	**Pre start and Hazards review Meeting with crew members. All to sign document after Review**	Persons unaware of inherent hazards and control measures	**Physical injury, Property damage Project disruption**	**M**	**Supervisor to ensure all members of the specific crew are present. And to advise and discuss the hazards and control measure. Hot work task tasks to be discussed and hazards identified Review W.M.S and permit where required. W.M.S. to be signed off by crew members**	4
2	Work area inspected before commencing work	**Untidy work area**	Falls , Sprain , Strains	**L**	**Work area to be kept in a tidy manner HOUSE KEEPING**	3
3	Use of electrical equipment	**Electrocution**	Physical injury Death Equipment damage	**M**	**All electrical leads tested & tagged All leads to be run through a R.C.D device Leads to be hung in air on plastic hooks not run along ground**	3&4

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarchy of control (1 to 6)
4	Lifting Tank & Skid into position	**Load shifting or swinging Dropping load Mobile plant**	Physical injury Equipment damage	**M**	**Lifts to be controlled by crane crew All lifting equipment to be inspected , tagged & in good working order Tag lines to be used Spotters & barricades to be used**	3
5	Connection of S/S pipe work	**Manual handling Use of hand tools**	Physical injury Slips & strains	**L**	**Correct manual handling techniques to be used Competent & qualified personal to be used for job Correct hand tools to be used Correct PPE to be worn**	3&5
6	Connection of PVC pipe work	**Manual handling Use of hand tools Use of Solvents & Glues**	Physical injury Slips & strains Skin irritation & respiratory problems	**M**	**Correct manual handling techniques to be used Competent & qualified personal to be used for job MSDS to be read , understood & followed Correct PPE to be worn**	3&5
7	Site clean	**Manual handling**	Physical injury Slips , trips & falls	**L**	**Correct manual handling practices Correct PPE to be worn**	3&5

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

Item No.	Activity Description	Hazards / Aspects	Risks / Impacts	Level of Risk (E H M L)	Control Measures	Hierarch of contro (1 to 6)

Number Allocated	General Control Hierarchy	Prevention of Falls Control Hierarchy
1	Elimination	Elimination
2	Substitution	Passive Fall prevention
3	Engineering	Work Positioning System
4	Administrative	Fall Injury Prevention System
5	Personal Protective Equipment	Ladders
6		Administrative

W.M.S. Read & Signed by <u>All Employees</u> involved in Project:

Name	Signature	Date
MARK BEALE	MF Beale	10/3/09
Philip Birch	Philip Birch	10/3/09
WARREN WEEKS	W Weeks	17-3-09
Mark Talbert	M. Talbert	18/3/2009
BRIGHTON DICKFOS	B Dickfos	18/3/2009

4.8. Section 12 - Quality Assurance

12 QUALITY ASSURANCE RECORDS

12.1 Switchboard Certification

GRUNDFOS ALLDOS

Certificate of compliance with AS3000

Purchaser: *Tenix*

Order No.: *Supply Agreement 7109*

Project: *Acetic Acid Storage and Dosing FAcility*

We hereby certify that the above mentioned equipment has been supplied in the version, quality and quantity as specified in our order confirmation an in accordance with your purchase order and complying to AS/NZS 3000-2000

Country of origin: Australia

8/9/2009	Don Hamilton	
Date	*Tester*	*Signature*

12.2 Electrical Installation Certification

Date: 03/09/09

Tenix Alliance Pty Ltd
ABN 65 075 194 857
QLD Projects Group
37 Access Avenue
Yatala Qld 4207

Telephone: +61 3804 9800
Facsimile: +61 7 3804 5099
www.tenix.com

Matthew Sharland

Subject
AS3000 certification of the electrical installation

To Matthew Sharland

Tenix certifies that the works have been constructed in accordance with the AS 3000 standards, test results have been completed and submitted to the Tenix Group project manager.

Yours faithfully,

Brian Gilmour

Brian Gilmour
Project Manager
37 Access Avenue
Yalata 4207 Qld

07 3804 9821
0409852539

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

12.3 Dosing Skid Hydrostatic Test Certificate

GRUNDFOS ALLDOS

Certificate of compliance with order 2.1 acc. EN 10204

Purchaser: *BCC Water Distribution and Tenix Alliance*

Order No.: *Supply Agreement 7109-01*

Project: *Sandgate W WTP Acetic Acid Dosing as per quote TEN3088QTH*

We hereby certify that the above mentioned equipment has been supplied in the version, quality and quantity as specified in our order confirmation an in accordance with your purchase order.

Country of origin: Australia

25-8-09 — *Date*

RAY VERBURGT — *Name & Title* PROJECT ENGINEER

Signature

GRUNDFOS ALLDOS

Warranty Statement

Purchaser: *BCC Water Distribution and Tenix Alliance*

Order No.: *Supply Agreement 7109-01*

Project: *Sandgate W WTP Acetic Acid Dosing as per quote TEN3088QTH*

Except for any warranty expressly given by Grundfos, all other conditions and warranties whatsoever whether statutory or otherwise are hereby excluded insofar as the same may be lawfully excluded by agreement between the parties to the contract.

In the case of any sale of any goods made pursuant to these terms being a sale to which the provision of the Trade Practices Act 1974, or any equivalent State legislation, then the liability of Grundfos is limited to:

(i) the repair of the goods,
(ii) the replacement of the goods, or
(iii) the payment of the costs of having the goods repaired.

Grundfos reserves the right to refuse to repair products polluted by poisonous media or other liquids injurious to the environment.

Warranty is offered on a return to Grundfos basis. Freight and insurance for all goods returned to Grundfos for warranty assessment must be pre-paid. Grundfos will not accept liability for the costs of site disassembly, return freight, reassembly and installations.

The Grundfos warranty is a manufacturer's warranty, which covers the product and materials from manufacturing defects and does not cover wear and tear. The installation must be in accordance with Grundfos printed installation and operating instructions.

Warranty is granted to the original user only and the warranty period varies product to product as set out in the current published Grundfos Dosing Product Price List. Summarily two years on DME, DMS, DMI, DDI, DMX and DMH model pumps listed. One year on all other products. (This may be subject to change year by year). The warranty is the lesser of the stated warranty period from the time of purchase OR the stated warranty period plus six month from the date of manufacturer.

Any site condition or specification not known or advised to Grundfos at the time of offering or ordering, which affects the operation of the supplied goods, will be the responsibility of the customer. (It is the sole responsibility of the end user to determine the chemical compatibility of the supplied goods with the chemical products intended to be used in them.) Warranty will be void under these conditions and all costs related to repairs will be the customer's responsibility.

Warranty is void if the goods supplied are operated at a duty point other than that specified and quoted.

Warranty is void if goods supplied by Grundfos are stored for a period of time before installation and operation, which is not in accordance with the Operation and Installation Manual for that product.

Warranty is void if protection devices recommended in the Operating and Instruction Manual or supplied are not used or monitored. Damage to the supplied goods due to lack of maintenance or chemical leakage and spillage that is not attended to immediately is not warranty.

Warranty is void if the customer attempts to repair the goods and they subsequently fail.

Notice of all warranty related issues must be given in writing to Grundfos before returning the goods. A copy of proof of purchase, (e.g. invoice, delivery note etc) must accompany the goods along with full end user contact details of the person operating the equipment.

Interpretation.

(a) 'Grundfos' means Grundfos Pumps Pty Ltd (CAN 007 920 765, ABN 90 007 920 765) or Alldos Oceania Pty Ltd (a Grundfos company) (ACN 106 582 665, ABN 53 106 582 665)
(b) 'customer' means the person(s) or body(ies) corporate to whom these terms and conditions are directed.
(c) 'goods' meals all goods ordered from Grundfos by the customer.
(d) 'terms' means the terms and conditions of sale.
(e) 'claim' means any claim, action, proceeding, loss, damage, cost, expense or liability whatsoever incurred or suffered by or brought or made or recovered against any person and however arising (whether or not presently ascertained, immediate, future or contingent). Nothing in these conditions shall be read or applied so as to exclude, restrict or modify or have the effect of excluding, restricting or modifying and condition, warranty, guarantee right or remedy implied by law (including the Trade Practices ct 1974) and which by law cannot be excluded, restricted or modified.

Grundfos Pumps Pty Ltd
515 South Road
Regency Park SA 5010

Alldos Oceania Pty Ltd
3/74 Murdoch Circuit
Acacia Ridge QLD 4110

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

12.4 Dosing Tank Hydrostatic Test Certificate

Gebel CHEMQUIP

CERTIFICATE OF CONFORMANCE

DATE:	**29TH January 2009**
CLIENT:	**ALLDOS OCEANIA**
JOB NO.:	**208 / 9462**
ORDER NO.:	**45000 76002**
TANK SIZE:	**4000mm dia x 2140mm Wall Height**
LIQUID STORED:	**Acetic Acid**
APPLICABLE TESTING:	**Hydrostatic**

I HEREBY CERTIFY THAT THIS PRODUCT IS IN ACCORDANCE WITH AS2634-1983 AND BS4994-1987, ALSO GEBEL Chemquip's TOTAL QUALITY MANAGEMENT SYSTEM.

INSPECTOR: **Jeremy Pridham**

SIGNATURE: 

DOCUMENT NO.: QSF-Man-008 ISSUE DATE: 02.01.2008 REVIEW STATUS: "A"

CERTIFICATE OF CONFORMANCE

DATE:	**29TH January 2009**
CLIENT:	**ALLDOS OCEANIA**
JOB NO.:	**208 / 9462**
ORDER NO.:	**45000 76002**
TANK SIZE:	**4000mm dia x 2140mm Wall Height**
LIQUID STORED:	**Acetic Acid**
APPLICABLE TESTING:	**Hydrostatic**

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INSPECTOR: **Jeremy Pridham**

SIGNATURE: _____

DOCUMENT NO.: QSF-Man-008 ISSUE DATE: 02.01.2008 REVIEW STATUS: "A"

GEBEL Chemquip

QUALITY MANAGEMENT CERTIFICATE

FOR

ALLDOS OCEANIA

TANK DESCRIPTION:

25kl ACETIC ACID STORAGE TANK

TANK NUMBER:

208 / 9462

DOCUMENT NO.. QSF-Man-008 ISSUE DATE: 02.01.2008 REVIEW STATUS. "A"

Gebel CHEMQUIP

INDEX

Gebel CHEMQUIP

QUALITY POLICY STATEMENT

It is the policy of this company at all times to provide goods and services of the highest Standard of Quality, to the Standard of Quality stated in our formal proposal, whether it be relevant Australian Standard ISO9001:2000, AS2634-1983, Client Specification or our own proposal specification.

Total Quality Management and Quality Assurance are not only the interest and responsibility of the Quality Manager, but each and every operative member of the company organisation, from the Managing Director to the Hand Laminator and finishing technician as well as testing and inspecting personnel. Total Quality Management and Quality Assurance commence at the design and development stage, and proceeds right through to the despatch of the final product.

It is the declared policy of GEBEL Chemquip to provide a quality functional product promptly, economically, and efficiently. To do this will need constant review of all elements of ISO9001:2000, to be undertaken to reflect customer demand and expectations.

Any problems in the various areas of manufacture are to be identified, rectified and corrective action taken place in a prompt, economic and efficient manner. To achieve this, production personnel are to develop inherent self-testing capacities. The company eligible training program is designed to provide training with this objective.

The above is an outline of the principles which guide GEBEL Chemquip in its efforts to assure product quality, and every employee is committed to its implementation.

Signed: _____
Quality Manager

Document No: QSF-Man-008 ISSUE DATE: 02.10.2008 REVIEW STATUS: "A"

INSPECTION & TEST PLAN

Document No: QSP-Man-002

Component / Item:	Applicable Code: ISO9001:2000	Issue Date: 2.1.08	KEY:
Identification No:	I.T.P.NO.:	Review Status: "A"	1 - CLIENT 3 - GEBEL
S - Surveillance Point	CLIENT:	CONTRACT NO:	2 - 3RD PARTY 4 - 4TH PARTY
H - Hold Point	REFERENCE:	DRAWING NO:	
W - Witness Inspection			

MANUFACTURING SEQUENCE	TEST AND / OR INSPECTION	STANDARDS	CRITERIA	ACTIVITY TYPE				ACTIVITY VERIFICATION			
				1	2	3	4	1	2	3	4
	Drawing			S							
	Validate Material Certificates					S					
Components											
1. Form Ends	Check Component thickness	AS2634/BS4994				S					
2. Form Nozzles & Manholes	Check Component thickness	AS2634/BS4994				S					
		AS2129				S					
Manufacture											
1. Form shell & laminate seams	Review fabrication of shell	AS2634/BS4994				S					
	Check dimensions / tolerances	AS2634/BS4994				S					
2. Laminate Nozzles into tank	Check fabrication of nozzles	AS2634/BS4994				S					
	Check dimensions / tolerances	AS2634/BS4994				S					
3. Manufacture HDL's and	Check fabrication of HDL's	AS2634/BS4994				S					
laminate onto tank	Check dimensions / tolerances	AS2634/BS4994				S					
4. Internal Finish	Review internal laminates	AS2634/BS4994				S					
5. External Finish	Flowcoat as per Specification	AS2634/BS4994				H					
6. Non-Destructive Testing	Water Testing for leakage	AS2634				W					
7. Final Inspection	Full and Complete Inspection	----------				H					
8. Packaging & Despatch	Cleaning component and loading	----------				S					

fiber glass international

CERTIFICATE OF ANALYSIS

FGI VINYL ESTER SPV6008
Product Code:

Send to Email/Fax:

Attention:

Customer:

Purchase Order No.:

Date Shipped:

Quantity:

TEST DESCRIPTION	RESULTS	TEST METHOD	SPECIFICATION
Batch Number:	NV812090S		
Date Made:	10 Dec 2008		
Appearance:	Conforms		Violet Liquid
Viscosity °C Brookfield RVT 3/50	634	NTM51.1	500 to 800 mPa.s
Gel Time °C Thin film (3mm/25g) 1.00% **Norox MEKP-925H**	30	NTM53.1	25 to 35 minutes

Date: 12/12/08

Certified by: N.Morgan

This Certificate of Analysis is valid only for the Batch Numbers, which appear above.

Brisbane: • 07 3271 3944 Fax: 07 3271 3603
Gold Coast: • 07 5563 7771 Fax: 07 5563 7888
Cairns: • 07 4035 2126 Fax: 07 4035 2125
Townsville: • 07 4728 3085 Fax: 07 4779 3968
Sydney: • 03 9550 5656 Fax: 03 9550 5651
Melbourne: • 08 8234 9499 Fax: 08 8182 0499
Adelaide: • 08 9455 1972 Fax: 08 9455 1012
Perth: • 02 9938 7222 Fax: 02 9938 5826

CERTIFICATE OF ANALYSIS

1. SAP PO# : 4570022746
2. GRADE : SE1200 2400 TEX
3. PRODUCT : FIBERGLASS DIRECT ROVING
4. CONTAINER : KLTU1253062-343952
5. DATE : 2007
6. FILE NO. : 1870002354
7. QUANTITY. : 7,598 KG (10 PALLETS)

8. TEST RESULTS

DESCRIPTION		TEX (g/1000m)	MOISTURE CONTENT(%)	SOLID (%)	LOI (%)	FUZZ (g/YIELD)	PALLET NO.
SPEC	LSL	2215	-	0.45	0.45	-	-
	USL	2610	0.04	0.75	0.79	0.015	-
07-04-25		2345	0.01	0.58	0.59	0.0005	1
07-05-01		2356	0.01	0.59	0.60	0.0003	4
07-05-22		2351	0.01	0.61	0.61	0.0006	5

* MAKER'S SPEC

TEL : 82-54-439-5774
FAX: 82-54-433-7730

OWENS CORNING KOREA CORP.
TECHNICAL TEAM

LO-F-323(A)

HUNTSMAN CHEMICAL COY AUSTRALIA PTY LIMITED ACN 004 146 33
SOMERVILLE ROAD, WEST FOOTSCRAY VIC 3012
P.O. BOX 62, WEST FOOTSCRAY VIC 3012
PHONE (03) 9316 3333 FAX (03) 9314 2170

CERTIFICATE OF ANALYSIS

DATE:	NOVEMBER 11, 2008	**PRODUCT DESC.:**	HETRON 922 PAS
CERTIFICATE NO.:	053846003	**BATCH NUMBER:**	053846003

This is to certify that the above material has been sampled and tested in accordance with the HUNTSMAN quality assurance procedures and has passed the quality assurance requirements of finished product specification 53324 rev 011 unless otherwise specified.

			SPECIFICATION	
PROPERTY	**RESULT**	**P/F**	**MINIMUM**	**MAXIMUM**
DATE TESTED:	07-11-08	P		
CONE & PLATE VISCOSITY (POISE) @25C.	4.0	P	3.5	4.0
BROOKFIELD VISCOSITY @25 C (SPINDLE 2/3 RPM) (POISE).	19	P	10	20
SCREEN TEST: NO GEL LUMPS*	PASS	P	PASS	
SOLIDS CONTENT (%) (FOIL METHOD)	51	P	48	52
WATER CONTENT (%)	0.10	P	0	0.15
TECAM GEL TIME (MIN) @25C (1.25% CUROX M100)	32	P	30	40
EXOTHERM TIME TO PEAK (MIN) @25C (1.25% MEKP-SR).	54	P	45	65
EXOTHERM PEAK TEMPERATURE @25C (1.25% CUROX M100)	134	P	120	150

The information supplied is subject to HUNTSMAN'S standard terms and conditions of sale.
The results supplied are at the time of manufacture. Some properties may drift with time.
Above P/F heading indicates test outcome: P=Passes specs, F=Fails specs

MARCEL CISTERNAS - QA

HUNTSMAN CHEMICAL CO. AUSTRALIA

Page 1 of 1

21/01/2009 08:52 0393991741 SAINT GOBAIN PF WIL PAGE 01/02
21/01/2009 08:17 0393991741 SAINT GOBAIN PF PL PAGE 01/02

OCV Reinforcements

Certificate of Analysis (CONTROL REPORT)

控制报告

OCV Reinforcements (Hangzhou) Co.,Ltd
343 Shengban Road
Hangzhou Zhejiang 310022 CHINA
TEL: 0086 571 88130808
FAX: 0086 571 88124474

目的地 / Destination:
OCV Distribution ANZ Pty. Ltd.
12 Bushells plc,wetherill Park NSW
Sydney
Australia

FILE COPY

公司 / Company: OCV Reinforcements (Hangzhou) Co.,Ltd 工厂 / Plant: Hangzhou	客户 / Customer: OCV Distribution ANZ Pty. Ltd. Contact: Eli Wiltshire/Steve Brenna 635 QUEENSBERRY STREET 3051 NORTH MELBOURNE Australia

确认号 / Confirmation No.: 40140899
客户订单号 / Customer order No.: 118897
发运编号 / Shipping No.: 80920207

订单日期 / Order date: 13.03.2008
确认日期 / Confirmation date: 13.03.2008
发货日期 / Shipping date: 09.05.2008

商品描述 / Commercial Description:
ROVING 2400 P209
S 3X16
物料号 / Material Number: RA6060HE2

净重 / Net weight: 18,828.00 KG - 数量 / Quantity: 18,828.00 KG
标准 / Specification:

兹证明我方提供之产品完全按照有关标准、图纸、规范及合同要求进行生产，所有检验测试均已完全，并依照下述检测结果判定该批产品符合质量标准要求。

We certify that,subject to exceptions or concessions listed hereafter, the supply detailed here were manufactured in accordance with our specifications and the customer contract ones and that, all inspection operations and tests having been completed, the supplies comply in every respectwith these specifications, drawing and relevant standards and regulation in force.

特性 Characteristics		TEX号数 Linear Density	烧失量LOI Loss on Ignition	含水率MOI Moisture content
		ISO1889	ISO1887	ISO3344
单位 / Units		TEX	%	%
标准 Specifications	UP	2,520	1.20	0.15
	V	2,400	1.10	-
	LT	2,280	1.00	-
检测结果 Testing results	X	2,432	1.12	0.03
	SD	31.3	0.042	0.012

托盘号 / Pallet number			
J08087A039	27.03.2008	2,422	1.13	0.03
J08087A044	28.03.2008	2,440	1.13	0.04
J08087A060	28.03.2008	2,440	1.13	0.04
J08088A005	28.03.2008	2,440	1.13	0.04
J08088A011	28.03.2008	2,440	1.13	0.04
J08110A029	19.04.2008	2,444	1.13	0.03
J08110A041	19.04.2008	2,444	1.13	0.03
J08110A056	20.04.2008	2,424	1.11	0.03
J08110A066	20.04.2008	2,424	1.11	0.03
J08111A005	20.04.2008	2,424	1.11	0.03
J08111A010	20.04.2008	2,424	1.11	0.03

UP = Upper tolerance　V = Target value　LT = Lower tolerance
X = Batch Averages　SD = Standard Deviation

质量经理 / Quality Manager: ZHOU JUAN

Date: 09/05/2008

此由计算机自动生成不加签名！
This document was generated by computer and carries no signature.

OCV REINFORCEMENTS (HANGZHOU) CO.

页码 / Page 1 / 2

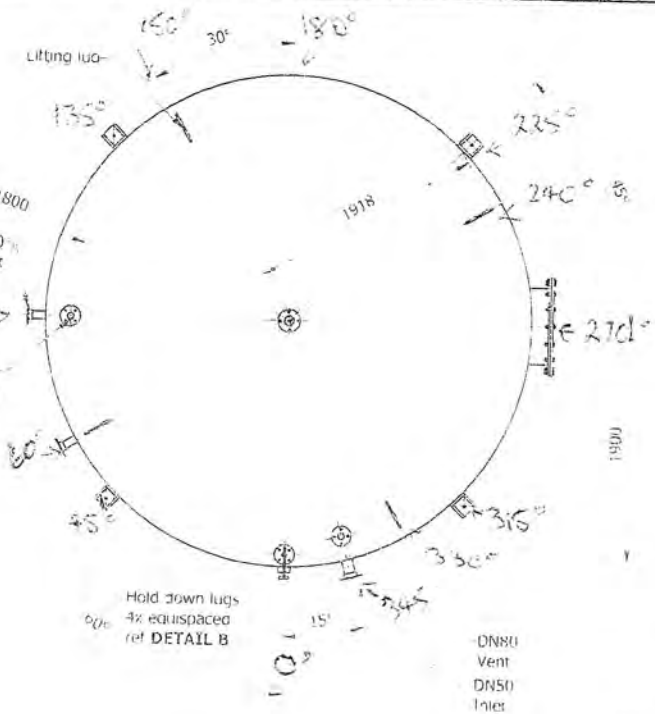
Q-Pulse Id: TMS1592　Active: 15/04/2016　Page 244 of 258

NOTES:

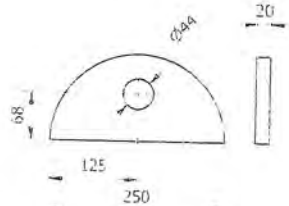
1. Tank model: 4000-25000 (Gebet)
2. Tank volume: 25,000L
3. Tank weight: approx. 1200 kg
4. Material:FRP
   colour: **WHITE**
5. Thickness: 10mm for base&cone
   7mm for wall
6. All seals & Gaskets: EPDM
7. Hinged manhole (Ø600mm)
   with gasketted bolted-on cover
8. All flange hole pattern to be
   as per table D, except level sw. which
   is ANSI 150# patterned.
9. All flanges: 150mm btw face of flange
   and tank shell; **all flanges gusseted.**
   (4 triangular shape gussets for
   each flange)

ALLDOS APPROVED
PROJECT MANAGER
DATE
PROJECT ENGINEER
DATE
DESIGN CHECKED
DATE

GRUNDFOS ALLDOS
ALLDOS CONTROLLED
SIGNATURE
DATE



DETAIL A
4x required



DETAIL B
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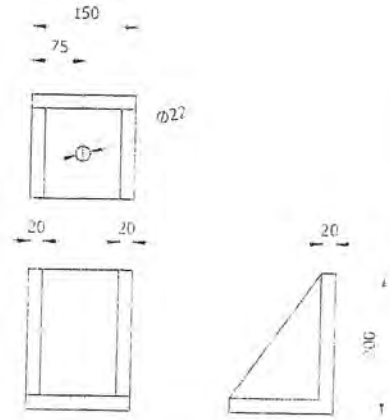
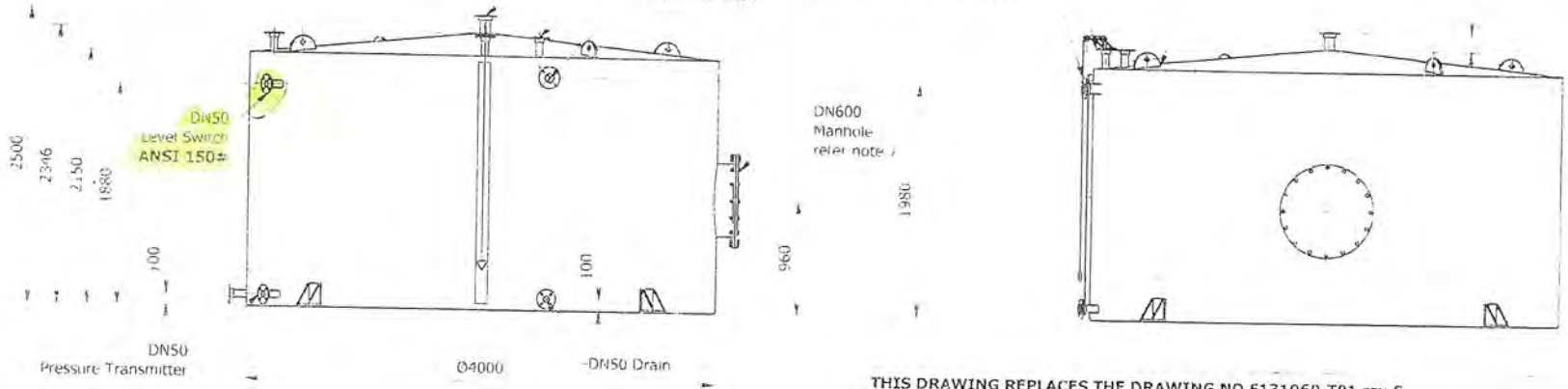




THIS DRAWING REPLACES THE DRAWING NO 5131060-T01 rev C

REVISION HISTORY

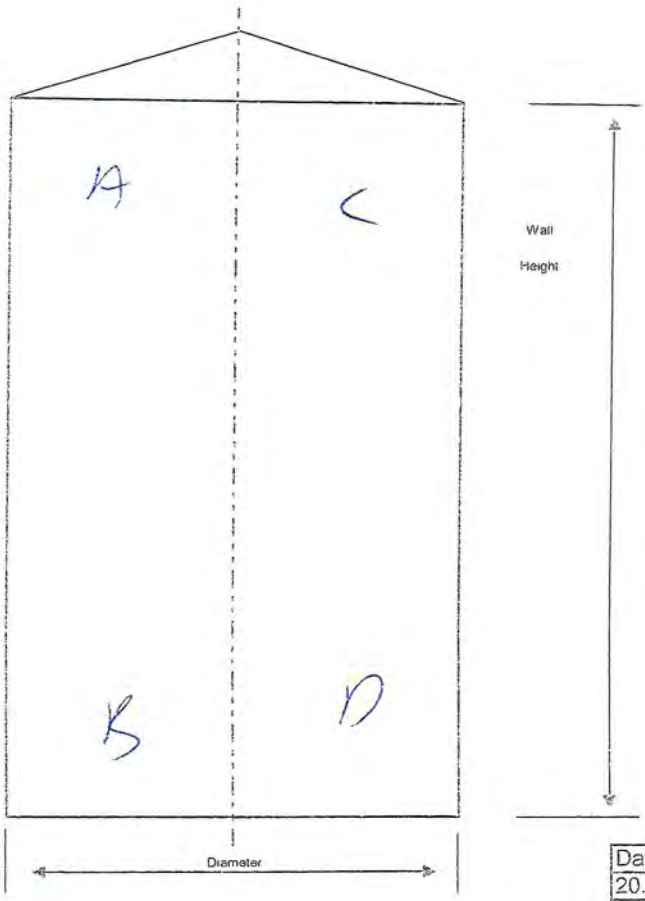
REV	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
A	Original Issue	20/10/2008	V. Crisan	K. Kumaresan	R. Verburgt
B	Inlet, Overflow& drain nozzle location modified as requested	22/10/2008	V. Crisan	K. Kumaresan	R. Verburgt
C	Tank top changed from dome to cone style	23/10/2008	V. Crisan	K. Kumaresan	R. Verburgt
D	DN50 Level sw lowered, DN50 pres sw added; colour changed, notes added	11/11/2008	V. Crisan	K. Kumaresan	R. Verburgt

DO NOT SCALE	DIMENSIONS IN MILLIMETERS		3RD ANGLE PROJECTION	
Designed by: V.Crisan	Checked by: K. Kumaresan	Approved by: R. Verburgt Date: 20/10/2008	Date: 20/10/2008	Format A3 Scale NTS

GRUNDFOS ALLDOS
Alldos Oceania Pty Ltd
2/4 Murdoch Cct
Acacia Ridge, 4110
Tel 07 3712 6888
Fax 07 3272 5188

Sandgate Acetic Acid. Tank Drawing (25 000 L)

5131060.1.2-T01 | drawn: D | Sheet: 1 / 1



ULTRASONIC THICKNESS TEST RESULTS			
Tank Diameter			
Wall Height			
Customer			
Job Number			
Test Area		Design Thickness	Actual Thickness
A		9mm	10.86
B		9mm	9.90
C		9mm	10.84
D		9mm	9.77
E			
F			
G			
H			
I			
Date: 4/1/08		Signature:	

Date:	Revision:	By:	Gebel	Contact Moulded & Filament Wound Fibreglass Tanks, Pipes & Process Equipment
20.5.08	"A"	JJP	19-21 Clarke St, PARKES	
			ULTRASONIC THICKNESS TEST SHEET - BARREL -	
			DRAWN / CHECKED / SCALE	DRAWING NO: QSF-Man-007

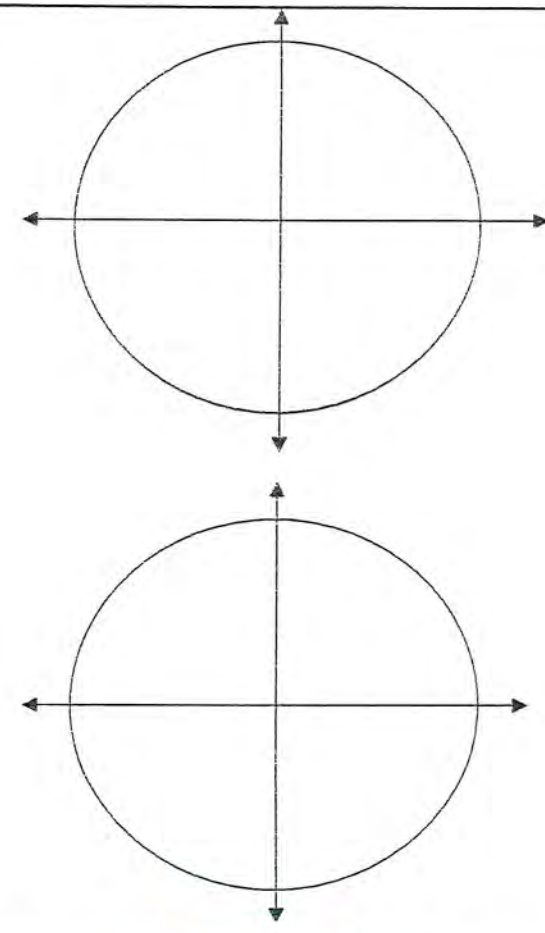
ULTRASONIC THICKNESS TEST RESULTS

Tank Diameter	4m ϕ
Wall Height	2140mm
Customer	Aldoss
Job Number	9462

TEST AREA	DESIGN THICKNESS	ACTUAL THICKNESS
1	8mm	9.58mm
2	8mm	10.01mm
3	8mm	9.68mm
4	8mm	9.98mm
5	8mm	9.43mm
6	8mm	11.11mm
7	8mm	9.89mm
8	8mm	9.64mm
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Date: 5/1/08 Signature:

BASE



ROOF	
Domed	
Coned	✓
Flat	

Date:	Revision:	By:
20.5.08	"A"	JJP

Gebel CHEMQUIP — Contact Moulded & Filament Wound Fibreglass Tanks, Pipes & Process Equipment
19-21 Clarke St, PARKES

ULTRASONIC THICKNESS TEST SHEET
BASE & ROOF

DRAWN	CHECKED	SCALE	DRAWING NO.
			QSF-Man-007

FINAL INSPECTION AND TEST CERTIFICATE

Date: 16.1.09

Job No.: 208 / 9462

Client's Name: Alldos Oceania

Test to be Undertaken: Final Inspection

FINAL INSPECTION (IN ACCORDANCE WITH GEBEL Chemquip's INSPECTION AND TEST PLAN

COMPONENTS	INSPECTOR	COMMENTS
COMPONENT THICKNESS	JERRY PRIDHAM	Approved
MANUFACTURE		
SHELL FABRICATION	JERRY PRIDHAM	Approved
DIMENSIONS & TOLERANCES	JERRY PRIDHAM	Approved
NOZZLE / FITTING FABRICATION	JERRY PRIDHAM	Approved
STRUCTURAL ATTACHMENTS	JERRY PRIDHAM	Approved
EXTERNAL FINISH		
FLOW COATING / GELCOAT	JERRY PRIDHAM	Approved
INTERNAL FINISH		
INTERNAL LAMINATES	JERRY PRIDHAM	Approved
GENERAL CLEANLINESS	JERRY PRIDHAM	Approved

LEAK TEST

	SIGNATURE	COMMENTS
WATER (Hydrostatic)		Approved

HYGENE / FDA COMPLIANCE PROCEDURES AND PACKAGING SIGN OFF

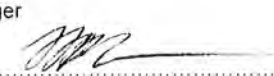
TANK CLEANED OF DUST AND DIRT	Approved
POST CURED, WASHED AND SEALED APPROPRIATELY	Approved

DECLARATION:

I HEREBY CERTIFY THAT I HAVE CHECKED AND AM SATISFIED THAT THE TEST REQUIREMENTS AND FINAL INSPECTION REQUIREMENTS HAVE BEEN MET IN ACCORDANCE WITH GEBEL Chemquip's TOTAL QUALITY MANAGEMENT SYSTEM

PERSON TESTING: Jeremy J Pridham

POSITION: Quality Manager

SIGNATURE: 

Document No:	QSF-Man-001
Issue Date:	02.01.2008
Revision Status:	"A"

Gebel CHEMQUIP

JOB NO: 208 / 9462

TOTAL QUALITY MANAGEMENT SYSTEM ISO9001:2000

1. CUSTOMER:	Alldos	DATE COMPLETED:	16.1.09
2. ORDER NO:	45000 76002	DATE DESPATCHED:	16.1.09
3. DELIVERY INSTRUCTIONS:	Sandgate, QLD	TARGET DATE:	

4. ORDER DETAILS:

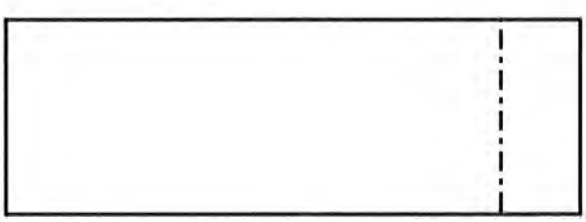
Material Stored: Acetic Acid Glacial

Dimensions: 4000mm dia x 2140mm Wall Height

Other Details:

Checklist	Tick off
Parts	✓
Fittings	✓
Labels	✓
Flowcoat	✓
Plant	✓
Specialised Components	✓

5. BARREL LENGTH:



____mm Wall Thickness

____mm Rib Overlay

6. INTERNAL LINING / CATALYST SYSTEM:	Derakane 470; "C" Veil; MEKP
7. FILAMENT WINDING:	Derakane 470; "C" Veil; MEKP
8. EXTERNAL FINISH:	WHITE

Prepared by: Jeremy J Pridham

Reviewed by: Nelson E Pridham

Document No: QSF-Man-004
Issue Date: 02.01.2008
Revision Status: "A"

Gebel CHEMQUIP

SPRAY UP

Job No.: **208/9462**

PART DESCRIPTION	4m dia Base		4m dia Circle		4m dia Coned Roof	
OPERATOR	Wayne		Wayne		Wayne	
DATE	17.12.08		17.12.08		17.12.08	
TEMP. AFTER LAMINATING	23°		25°		18°	
RESIN TYPE	SPV6008		SPV6008		PAS922	SPV6008
MANUFACTURER	FGI		FGI		HUNTSMAN	FGI
BATCH NO.	NV812090S		NV812090S		53846003	NV812090S
RESIN WEIGHT / VOLUME	-		-		-	-
CATALYST SYSTEM	MEKP		MEKP		MEKP	
CATALYST LEVEL / WEIGHT	-		-		-	
GLASS TYPE	EC2400		EC2400		EC2400	
MANUFACTURER	OCV		OCV		OCV	
BATCH NO.	J08087A060		J08087A060		J08087A060	
GLASS WEIGHT	-		-		-	
SURFACE REINFORCEMENT	Tissue		Tissue		Tissue	
DESIGN THICKNESS	10mm		6mm		total 10mm	
TOTAL THICKNESS						

THICKNESSES MUST BE CHECKED AND RECORDED

FILAMENT WINDING

Operator (s): Michael S / Greg N

Date:

Temp. After Laminating .....DEGREES CELSIUS

CHOP HOOP WOUND: ✓ **HELICAL WOUND:** **(WIND ANGLE:** **DEGREES)**

	CORROSION BARRIER	STRUCTURAL LAMINATE
RESIN TYPE	Derakane 470 - SPV6008	Derakane 470 - SPV6008
MANUFACTURER	FGI	FGI
BATCH NO.	NV812090S	NV812090S
RESIN WEIGHT / VOLUME	-	-
CATALYST SYSTEM	MEKP	MEKP
CATALYST LEVEL / weight	-	-
GLASS TYPE	EC2400	E1200
MANUFACTURER	OVC	OCV
BATCH NO.	J08087A060	1870002354
GLASS WEIGHT	20kg	60kg
SURFACE REINFORCEMENT	"C" Veil	"C" Veil
DESIGN THICKNESS		
WET THICKNESS		
ACTUAL TOTAL THICKNESS		See Ultrasonic Test Sheet for results

THICKNESSES MUST BE CHECKED AND RECORDED

Document No: QSF-Man-002
Issue Date: 02.01.2008
Revision Status: "A"

BRISBANE CITY COUNCIL BCC Contract No. BW.70146-3
Brisbane Water
Sandgate Water Reclamation Plant/Phosphorus Reduction Project

12.5 Concrete Test Certificates

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030563
Sample Date : 10-02-09
Page 1 of 1
FINAL REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030563

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm) (8)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3099	N40MPa	48689199	13:49	85	7.2.1	33373201A	17/02/09	99.9	197	2380	G	22	6	7D	39.5	N
PLC4562	20.0 mm	T2549616	14:20	-	E	33373201B	10/03/09	100.3	199	2380	G	22	27	28D	45.0	N
	80 mm					33373201C	10/03/09	100.2	199	2380	G	22	27	28D	46.0	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/080
Location : FOOTING

REPORT REMARKS	Failure Mode	Condition Prior
	N = Normal	

* NON STD INITIAL CURING	
* REASON	

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Form Number CER002.0 | Version 3.0 : 05/06

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64028805
Sample Date : 05-02-09
Page 1 of 1
FINAL REPORT

PROJECT WATER TREATMENT PLANT {PAPERBARK DR
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64028805

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3106	N40MPa	48661373	14:16	90	7.2.1	33747001A	12/02/09	99.9	199	2360	G	21	6	7D	32.0	N
PLC4515	20.0 mm	T2545255	14:50	-	E	33747001B	05/03/09	100.1	198	2400	G	21	27	28D	43.0	N
	80 mm					33747001C	05/03/09	100.3	199	2360	G	21	27	28D	45.0	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/080
Location : FOOTINGS

REPORT REMARKS **Failure Mode** N = Normal **Condition Prior**

*** NON STD INITIAL CURING**
*** REASON**

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030566
Sample Date : 06-03-09
Page 1 of 1
FINAL REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030566

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3106	N40MPa	48839977	06:10	85	7.2.1	33729101A	13/03/09	100.1	196	2400	G	30	6	7D	33.0	N
PLC4530	20.0 mm	T2572592	06:30	-	E	33729101B	03/04/09	100.0	198	2420	G	30	27	28D	43.0	N
	80 mm					33729101C	03/04/09	100.0	195	2420	G	30	27	28D	43.5	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/080
Location : ACCESS RAMP SLAB

REPORT REMARKS — Failure Mode: N = Normal — Condition Prior

* NON STD INITIAL CURING
* REASON

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030564
Sample Date : 20-02-09
Page 1 of 1
FINAL REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030564

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm) (8)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3106	N40MPa	48746607	06:38	90	7.2.1	33726101A	27/02/09	100.3	196	2400	G	29	6	7D	31.5	N
PLC4618	20.0 mm	T2559171	07:00	-	E	33726101B	20/03/09	100.4	196	2400	G	29	27	28D	44.0	N
	80 mm					33726101C	20/03/09	100.3	196	2400	G	29	27	28D	44.5	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/080
Location : BASE SLAB 1

REPORT REMARKS — Failure Mode: N = Normal — Condition Prior

* NON STD INITIAL CURING
* REASON

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030567
Sample Date : 14-03-09
Page 1 of 1
FINAL REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030567

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm) (8)	Hght (mm)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3113	N40MPa	48888630	05:40	85	7.2.1	33585501A	21/03/09	100.1	197	2400	G	54*	5	7D	34.0	N
PLC4512	20.0 mm	T2579826	06:20	-	E	33585501B	11/04/09	99.6	197	2420	G	54*	28	28D	46.0	N
	80 mm					33585501C	11/04/09	100.3	196	2420	G	54*	28	28D	44.5	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/060
Location : ACCESS RAMP SLAB

REPORT REMARKS	Failure Mode	Condition Prior
	N = Normal	

* NON STD INITIAL CURING	Min Amb Temp: 20C Max Amb Temp: 29C
* REASON	Cylinders left on site over weekend

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Version 3.0 : 05/06

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030568
Sample Date : 19-03-09
Page 1 of 1
FINAL REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030568

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm) (8)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3113	N40MPa	48924468	12:20	90	7.2.1	33123501A	26/03/09	100.2	197	2440	G	25	6	7D	33.0	N
PLC4519	20.0 mm	T2585640	13:00	-	E	33123501B	16/04/09	100.1	196	2420	G	25	27	28D	42.0	N
	80 mm					33123501C	16/04/09	100.2	197	2420	G	25	27	28D	43.0	N

Casting Authority :
Sample Remarks :

Product Description : PMP 40/20/080
Location : FOOTPATH & KERB

REPORT REMARKS **Failure Mode** N = Normal **Condition Prior**

*** NON STD INITIAL CURING**
*** REASON**

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
Note 6 Compaction code H = Hand Rodding, I = Int. Vibration, E = Ext, Vibration, R = Ramming.
Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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Hanson
HEIDELBERGCEMENT Group

CLIENT TENIX ALLIANCE PTY LTD
LEVEL 7 600 ST KILDA ROAD
MELBOURNE, VIC 3004

Report No. 64030569
Sample Date : 25-03-09
Page 1 of 1
INTERIM REPORT

PROJECT TREATMENT PLANT {PAPERBARK DR}
PAPERBARK DR
Cross Street: PAPERBARK DR
BOONDALL, QLD 4034

This report replaces all previous issues of Report Number : 64030569

CONCRETE CYLINDER COMPRESSIVE STRENGTH REPORT (1)
AS1012.9

Batch Details						Specimen Details									
Plant Truck	F'c MAS Slump	Delivery Docket	Batch Time Sample Time	Actual Slump 2nd Slump (2)	Sample Method Comp (3,4,5,6)	Sample No.	Date Tested	Dimensions Avg Dia. (mm)	Hght (mm) (8)	Mass per Unit Vol (Kg/m3) (7,8)	Cap (9)	Initial Curing (hrs)	Std Curing (days) (10)	Age Days or Hrs	Strength (MPa)	Mark
3106 PLC4626	N40MPa 20.0 mm 80 mm	48958914 T2590997	08:01 08:31	90 -	7.2.1 E	33128801A	01/04/09	100.3	196	2400	G	27	6	7D	33.5	N
Casting Authority : Sample Remarks :						Product Description : PMP 40/20/080 Location : SLAB										

REPORT REMARKS	Failure Mode	Condition Prior
	N = Normal	
* NON STD INITIAL CURING		
* REASON		

Note 1 All tests carried out to relevant parts of AS1012 unless noted otherwise.
Note 2 Slump tests to AS1012.3.1.
Note 3 The clause shown indicates the sample method from AS1012.1.
Note 4 Compaction method to AS1012.8.1 Clause 7.
Note 5 The prefix no. gives the no. of strokes, blows per layer or time (sec) of vibration per layer.
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Note 7 Density of hardened concrete reported to AS1012.12.1.
Note 8 Specimens uncapped and saturated surface dry.
Note 9 Cap Type R = Rubber, S = Sulphur, D = Double Rubber, U = Double Sulphur, G = End Ground, N = No Capping.
Note 10 Curing to AS1012.8.1 Clause 9.1(b) Tropical Zone
Note 11 Air Content (if reported) to AS1012.4.2.

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