

APPENDIX 7

CHANGEOVER VALVES

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The information in this appendix on changeover valves has been supplied by Christchurch City Council. This is an example of a mechanism for diverting flow to sewer but is not intended as a preferred solution.

CHRISTCHURCH CITY COUNCIL
WASTE MANAGEMENT UNIT
Trade Wastes Section
Contact Colin Johnson/Norm Fitt

MISSION STATEMENT

*To provide a level of service to Industrial and Commercial users
to attain an Environmental Standard acceptable to the Community*

**BUS/TRUCK WASH FACILITY
DESIGN REQUIREMENTS**

**Using a Hydraulically Operated Liquid Separation System
(Wilkinson Valve)**

1. The installation will require the permission of the Christchurch City Council Waste Management Unit, Trade Wastes Section. A Building Consent is also required. These drawings show layouts and plumbing and drainage of a typical installation and may be modified to suit other applications providing the design requirements of these T.W.I.'s and the Building Code are complied with.
2. Other proprietary manufactured valves may be suitable for this purpose but may only be used if they
 - (a) are a recognised 'brand'
 - (b) are noted for reliable operation
 - (c) have a local ready supply of spare parts and service personnel
 - (d) are approved by the Christchurch City Council Trade Wastes Office
3. In order for the Wilkinson hydraulic system to work adequately, an incoming water pressure of 500 kPa is necessary. The wash hose is to be connected at all times and be a minimum of 15 metres in length. An appropriate dedicated backflow preventer is to be fitted with a permanent label wired to it "Hydraulic Valve and Wash".
4. The Hydraulically Operated cylinder with stainless steel shaft, spring and tie rods together with the galvanised mounting bracket and plug can be obtained from Mr Alan Wilkinson. Every effort has been made to manufacture the hydraulically operated valve from corrosion resistant materials, absolutely no responsibility is accepted for problems or damage that may result from corrosion from contact with the various liquids that the valve may encounter. It is the owners or specifiers responsibility to ensure that the liquids encountered within the separation system are compatible with the metals used in the valve construction. However, specify the valves intended use so that it may be supplied with an appropriate seal.
5. The valve must be installed in the sewer petrol/oil interceptor as shown. When installing the valve, withdraw the four bolts securing the bracket legs to the bottom flange. (Note positions of mating arrows and the orientation of the hose connection.) Cement the bottom flange and lugs into the wall of the interceptor.

(Ensure that the top of the flange is kept clean.) When the cement has hardened, carefully re-bolt the bracket legs to the bottom flange, taking care not to bend the valve shaft.

6. When electrically operated washdown equipment is used eg - waterblaster - the electric solenoid valve switching arrangement shown is to be used. The only manually operated valve permitted is the isolation valve shown on the drawing. If the waterblaster (or the like) has an "in built" ON/OFF switch it is preferable that it be by-passed and removed **or** it must be permanently labelled. "LEAVE THIS SWITCH ON". All washing equipment is then fully under the control of the switch labelled "WASH".
7. Finally, the wash system shall not be put in use without first preparing an Environmental Management Plan in conjunction with the Trade Wastes Officer. The Trade Wastes Officer will supply signage free of charge to assist the operation and maintenance of the separation system.
8. Associated Drawings.
Drawing 8000 sheet 113/B
8000 sheet 113/D
8000 sheet 122/1
8000 sheet 122/2
8000 sheet 122/3
8000 sheet 122/4
8000 sheet 122/5

**HYDRAULICALLY OPERATED
LIQUID SEPARATION SYSTEM**

- Patent Applied For -

**Mr Alan Wilkinson
90 Greenhaven Drive
CHRISTCHURCH 9
Phone: (03) 383-1853**

Please make Trade Wastes Enquires to:

Colin Johnson, Trade Wastes Officer, DDI 371-1276
or
Norm Fitt, Trade Wastes Manager, DDI 371-1368
Christchurch City Council
P.O. Box 237
CHRISTCHURCH
Fax: (03) 371-1384

NOTES: Sheet 122/1

1. Gradient to be such that the flow velocities will prevent the settlement of solids and grit in the pipeline (Ref. BIA G 14 Para 2.1.3)
2. Piping system to be to the requirements of BIA G13. If invert levels are such that compliance with BIA G13 cannot be achieved then install a pumped system to BIA G14 Para 2.4.3. figure 2(b).
3. Piping system to be to the requirements of BIA E1 except that disposal to a soak pit is not acceptable unless specifically approved.
4. Maximum carry distance to sumps is 6m (ref. BIA G14). See sheet 2 for detail of sump.
5. Draining directions shown thus. Gradient to be 1 in 40 or better ref. BIA G14 Para 2.2 (b).
6. Drainage channel to have easily removable grating maximum hole size 20mm to prevent entry of stones etc. to drainage system. Grating to be resistant to corrosion.
7. Slab to be concrete and of suitable strength to withstand anticipated usage. Surface to have smooth 'float machined' surface to aid drainage. The top of the slab to be higher than the finished level of the surrounding land.
8. If wash overspray is likely to cause nuisance to others or unacceptable pollution levels then provide spray screens each side of wash.
9. It is preferred to position petrol and oil interceptor on sewer as close to wash slab as possible to maximise available gradient and so facilitate drainage of solids to interceptor.

NOTES: Sheet 122/2

1. Grating to have maximum hole size of 20mm to prevent entry of stones etc. to drainage system. Grating to be resistant to corrosion.
2. This is bottom of drainage channel at entry to sump. The 200mm corresponds to 1.40 grade at a travel distance of 5m to the sump for the wash slab shown on sheet 1.
3. Bottom of sump to be haunched as shown to direct silt to sewer petrol oil interceptor.
4. The top of both interceptors and wash slab is to be above surrounding finished ground level to prevent entry of surface water.
5. Pipe size 100 diameter and gradient to be such that the flow velocities will prevent the settlement of solids and grit in the pipeline (Ref. BIA G14 Para 2.1.3)
6. Piping system from here on to be to the requirements of BIA G13. If invert levels are such that compliance with BIA G 13 cannot be achieved then install a pumped system to BIA G 14 Para 2.4.3 figure 2 (b).
7. Piping system from here on to be to requirements of BIA E1 except that disposal to a soak pit is not acceptable unless specifically approved.

NOTES: Sheet 122/3

1. Minimum acceptable size is 1 cu metre working capacity. For Humes type 1050 diameter this corresponds to 1155 cm of depth below the invert level of the sewer outflow pipe. Size interceptor relative to the amount of solids expected in relation to desired frequency of cleaning by authorised Liquid Wastes contractor.
The Trade Wastes Officer reserves the right to require a high liquid level alarm if considered necessary. This alarm may also be required to render the wash inoperative.
2. For water supply see sheet 5. Adequate support is to be provided for the pipe connection to ensure there is no relative movement between the pipe and valve/interceptor.
3. Grating to be easily removable for cleaning purposes and be resistant to corrosion.
4. Top of interceptor to be above surrounding finished ground level.
5. Gully trap may be remote from interceptor.
6. Piping system from here on to be to the requirements of BIA G13. If invert levels are such that compliance with BIA G13 cannot be achieved then install a pumped system to BIA 614 Para 2.4.3 figure 2 (b).

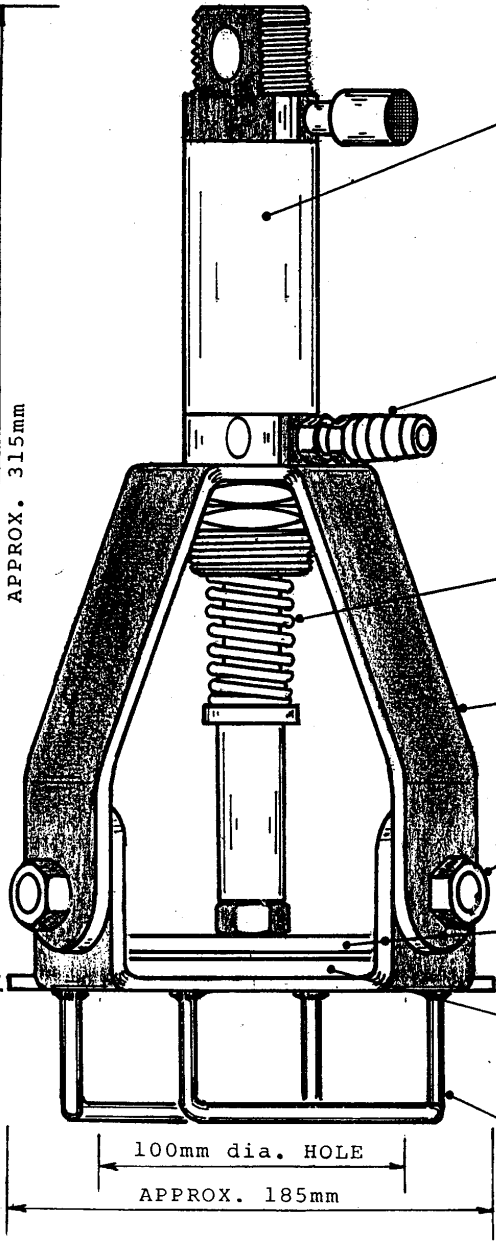
NOTES: Sheet 122/4

1. Cover grating to have maximum hole size 20mm to prevent entry of stones etc. to drainage system. Grating to be easily removable for cleaning purposes and be resistant to corrosion.
2. Top of interceptor to be above surrounding finished ground level. This interceptor is for the BUS/TRUCK WASH facility only.
3. Gully trap not required. Piping system from here on to be to requirements of BIA EI except that disposal to a soak pit is not acceptable unless specifically approved.

NOTES: Sheet 122/5

1. The Wilkinson hydraulic valve requires 500 Kpa to operate satisfactorily. The use of any other valve will only be at the discretion of the Trade Wastes Officer.
2. A wash hose of minimum length 15m is to be connected at all times to ensure satisfactory operation of the hydraulic valve.
3. To be mounted in a position readily accessible to the wash operator. The Trade Wastes Officer will supply a label 'MAIN VALVE' at the time of inspection. Valve and associated pipework to be protected from mechanical damage.
4. Install in a position readily accessible and free from likelihood of mechanical damage.
5. The vent should drain to the wash slab sump or sewer petrol oil interceptor.

APPROX. 315mm



- SCHRADER HYDRAULIC CYLINDER
- 38 mm BORE x 51 mm STROKE
- STAINLESS STEEL PISTON ROD & STAINLESS STEEL TIE RODS
- ALUMINIUM CYLINDER & ALUMINIUM OR BRASS END PLATES
- PLASTIC SILENCER

BRASS HOSE CONNECTION FOR HEAVY DUTY FLEXIBLE HOSE & HOSE CLIPS

STAINLESS STEEL SPRING, SPRING COLLECT AND PIPE SPACER

SUPPORT BRACKET WITH 4 LEGS
(Note: FRONT LEG HAS NOT BEEN SHOWN FOR CLARITY)

ZINC COATED BOLTS NUTS & WASHERS

GALVANISED MILD STEEL PLUG, BOTTOM FLANGE AND SUPPORT BRACKET

NATURAL RUBBER SEAL GLUED IN TO RECESS IN PLUG

6 mm LUGS WELDED TO BOTTOM FLANGE

100mm dia. HOLE

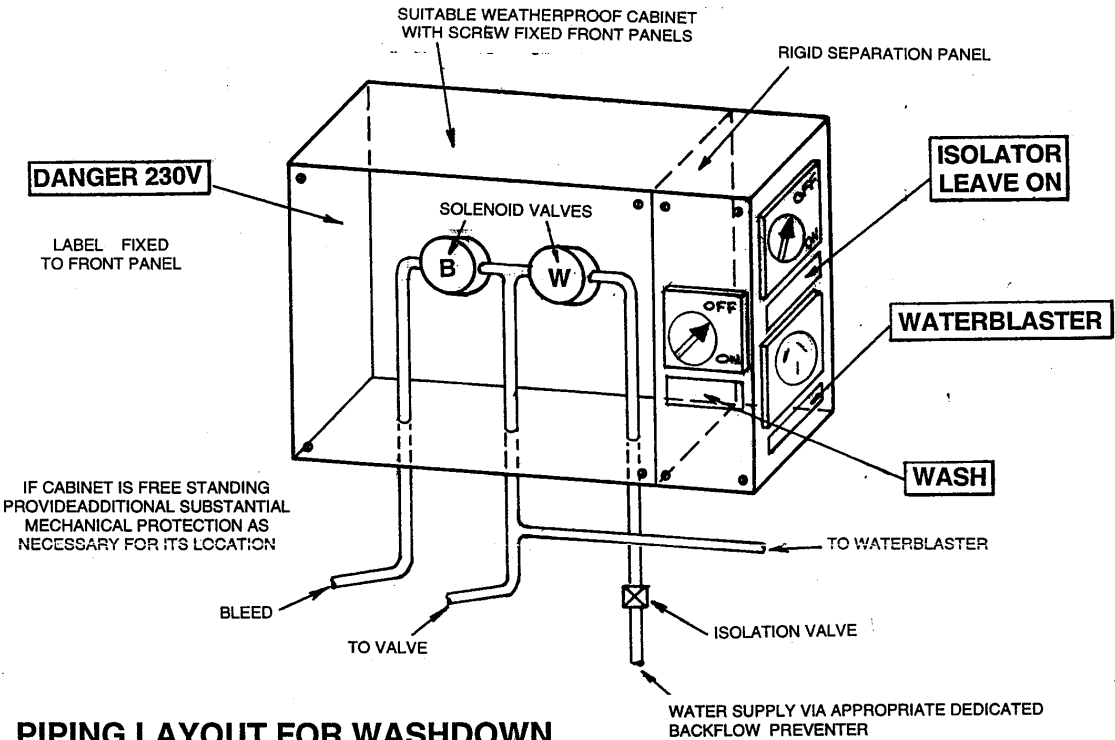
APPROX. 185mm

VALVE & MOUNTING BRACKET

DRAWN BY
KEN SIBLY
UTILITY MAPPING

HYDRAULICALLY OPERATED LIQUID SEPARATION SYSTEM

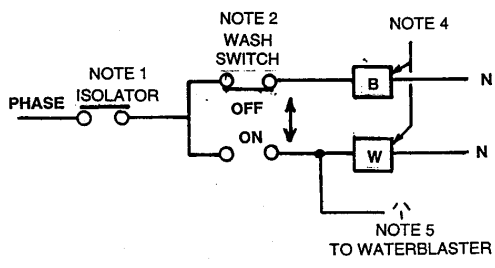
8000



PIPING LAYOUT FOR WASHDOWN HOSE USING ELECTRICALLY OPERATED EQUIPMENT (NOT STEAM CLEANERS)

NOTES:

- 1 ISOLATOR TO BE LABELLED **ISOLATOR LEAVE ON**
- 2 WASH SWITCH TO BE LABELLED (SHOWN IN THE "OFF" POSITION) **WASH**
- 3 THE INBUILT ON/OFF SWITCH ON THE WATERBLASTER IS TO BE PERMANENTLY LABELLED "LEAVE THIS SWITCH ON" OR BYPASSED AND REMOVED
- 4 "B" AND "W" 230V COIL SOLENOID VALVES ENERGISE TO OPEN
- 5 LABEL SUPPLY **WATERBLASTER**
- 6 USE SUITABLE HOSEPROOF/WEATHERPROOF SWITCHES AND SOCKET OUTLETS
- 7 SEE OTHER SHEETS FOR DETAIL OF SEPARATION VALVE WASHDOWN SUMP



ELECTRICAL

DRAWN BY
KEN SIBLY
UTILITY MAPPING
12/2/1996

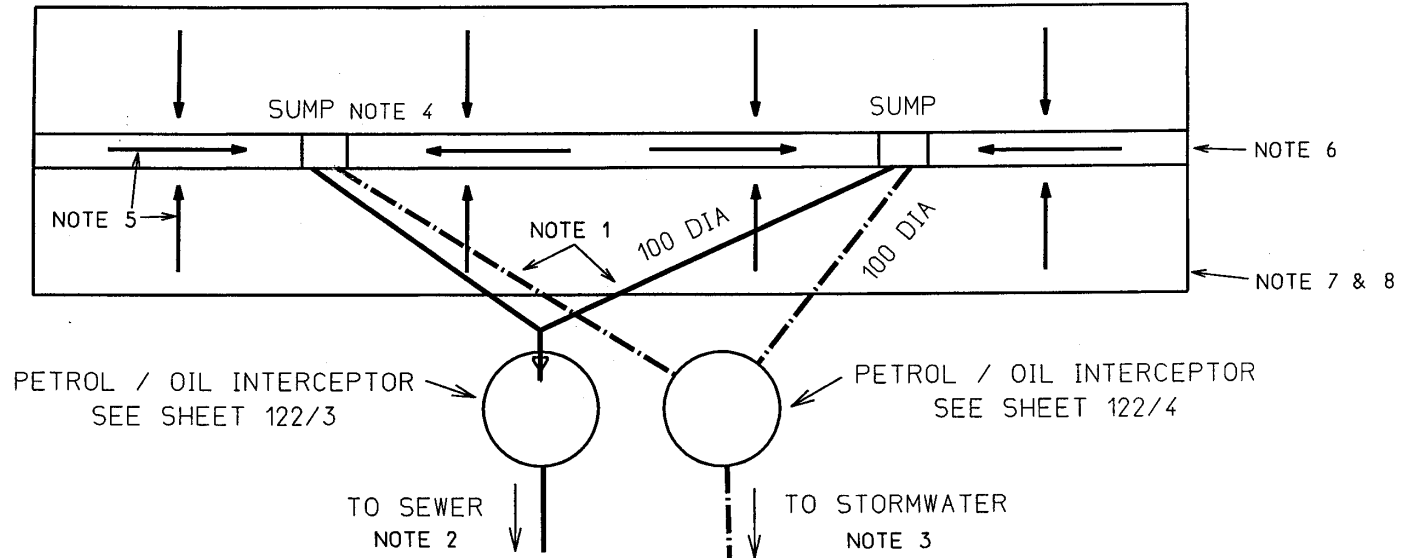
HYDRAULICALLY OPERATED LIQUID SEPARATION SYSTEM

CHRISTCHURCH CITY COUNCIL -- WASTE MANAGEMENT UNIT

8000

SHEET 113D

SLAB SIZE 20M X 5M APPROX OR TO SUIT



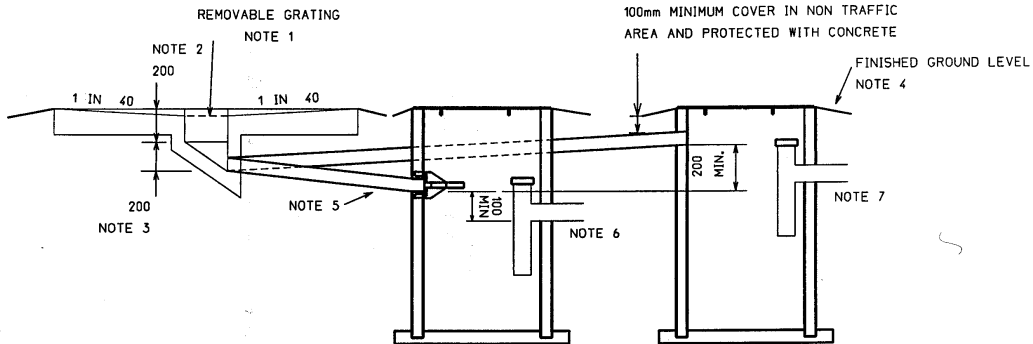
WASH SLAB AND POSITIONING OF INTERCEPTORS NOTE 9

NOTES:
SEE REVERSE OF THIS SHEET FOR ASSOCIATED NOTES

BUS / TRUCK WASH FACILITY DESIGN REQUIREMENTS	8000
	SHEET 122/1
DESIGNED C.C.C. TRADE WASTE	

SECTIONAL VIEW

(ONLY ONE SUMP SHOWN FOR CLARITY)

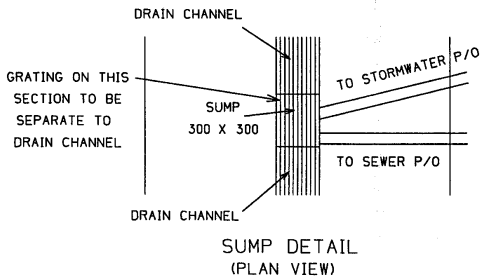


SEWER PETROL/OIL INTERCEPTOR

SEE SHEET 3 FOR DETAIL

STORMWATER PETROL/OIL INTERCEPTOR

SEE SHEET 4 FOR DETAIL



SUMP DETAIL
(PLAN VIEW)

NOTE:

SEE REVERSE SIDE OF THIS SHEET FOR ASSOCIATED NOTES.

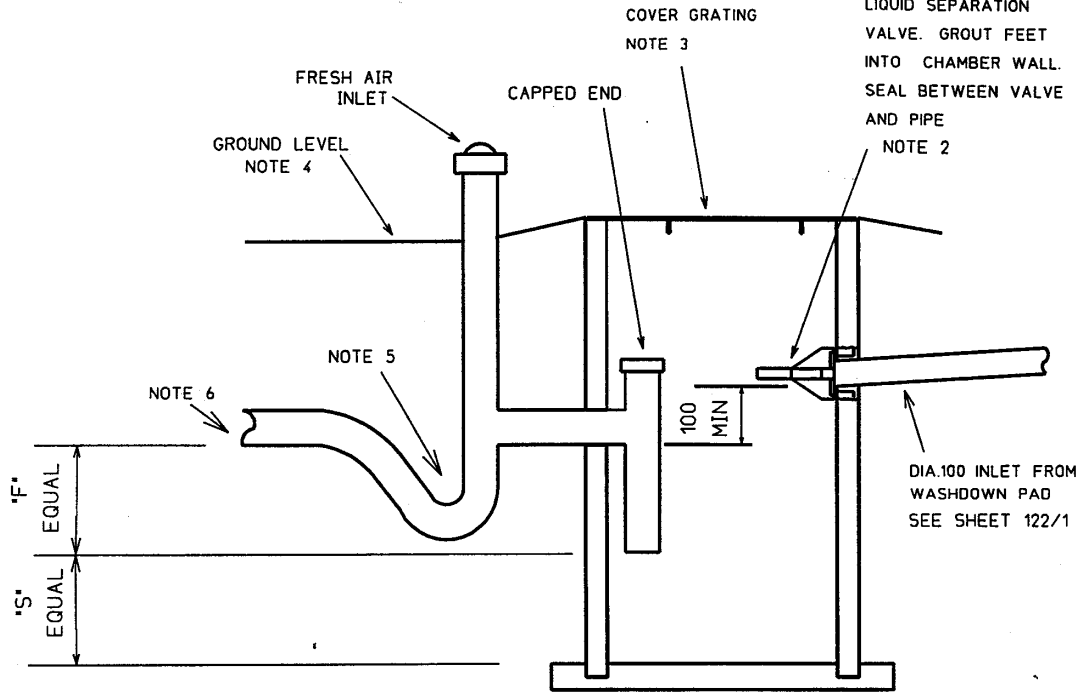
BUS / TRUCK WASH FACILITY DESIGN REQUIREMENTS DESIGNED C.C.C. TRADE WASTE	8000
	SHEET 122/2

PRODUCED BY UTILITY MAPPING
WASTE MANAGEMENT
JUNE 1998

NOT TO SCALE

PETROL/OIL.WT.DWG

WILKINSON TYPE
HYDRAULICALLY OPERATED
LIQUID SEPARATION
VALVE. GROUT FEET
INTO CHAMBER WALL.
SEAL BETWEEN VALVE
AND PIPE
NOTE 2



"S" = MAXIMUM TRAPPING
CAPACITY OF SOLIDS/SILT

"F" = MAXIMUM TRAPPING
CAPACITY OF FLOATABLES.
E.G. PETROL/OIL ETC.

NOTES:
SEE REVERSE OF THIS SHEET
FOR ASSOCIATED NOTES

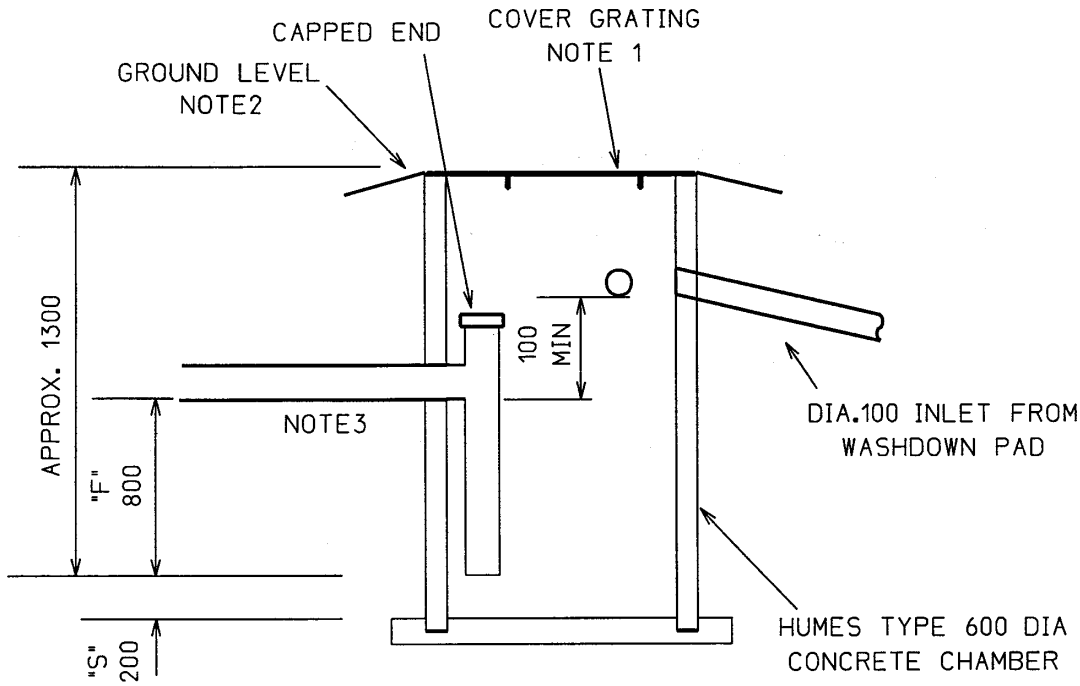
SEWER
PETROL & OIL INTERCEPTOR
INCORPORATING WILKINSON VALVE

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	SHEET 122/3

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PETROL/OIL.INT.DGN



'S' = MAXIMUM TRAPPING
CAPACITY OF SOLIDS/SILT

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E.G. PETROL/OIL ETC.

NOTES:
SEE REVERSE OF THIS SHEET
FOR ASSOCIATED NOTES

STORMWATER PETROL & OIL INTERCEPTOR

BUS / TRUCK WASH FACILITY DESIGN REQUIREMENTS	8000
	SHEET 122/4
DESIGNED C.C.C. TRADE WASTE	

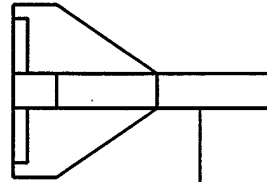
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PETROL/OIL INT DGN

WILKINSON TYPE
HYDRAULIC VALVE
IN PETROL/OIL
INTERCEPTOR

NOTE 1 SEE SHEET 122/3



WATER SUPPLY TO
WASHING EQUIPMENT

NOTE 2

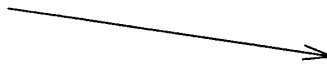


KLINGER VALVE

TYPE 3V - L

(MAIN VALVE)

NOTE 3



WATER METER

NOTE 4



REDUCED PRESSURE
BACKFLOW PREVENTER
INSTALLED AS PER
BUILDING CODE G12



WATER IN



BLEED FOR
VALVE

NOTE 5

DETAIL OF WATER SUPPLY

NOTES:

SEE REVERSE OF THIS SHEET
FOR ASSOCIATED NOTES

NOT TO SCALE

PRODUCED BY UTILITY MAPPING
WASTE MANAGEMENT
APRIL 1998

PETROL/OIL INT DGN

BUS / TRUCK
WASH FACILITY

DESIGN REQUIREMENTS

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SHEET 122/5