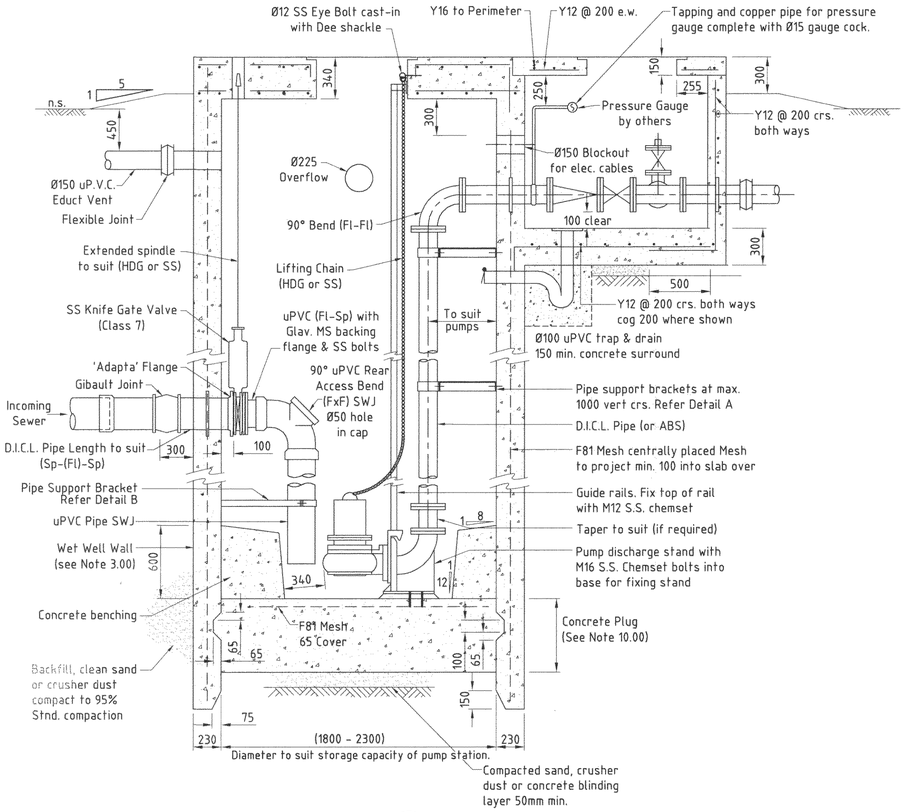
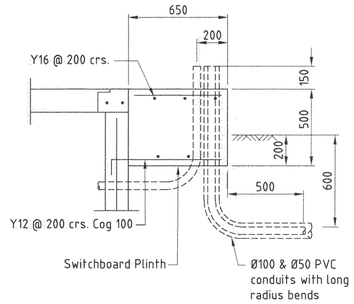
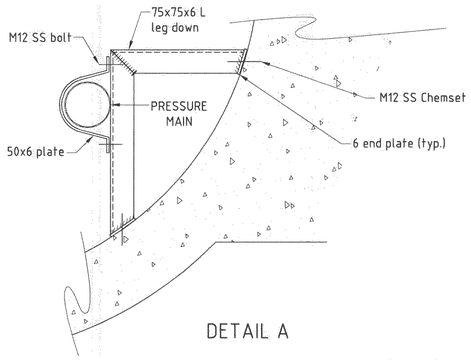


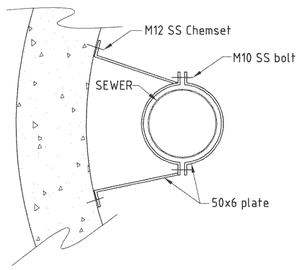
SECTION 1
Scale 1:25



SECTION 2
Scale 1:20

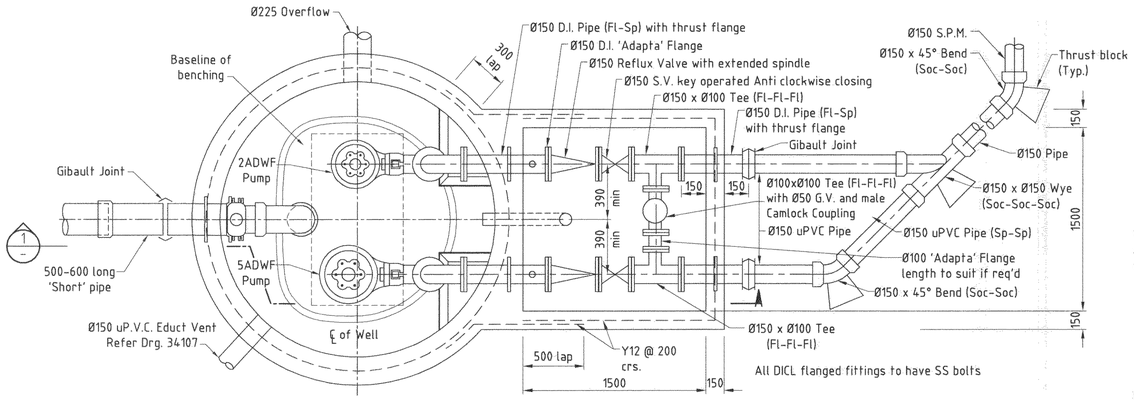


DETAIL A



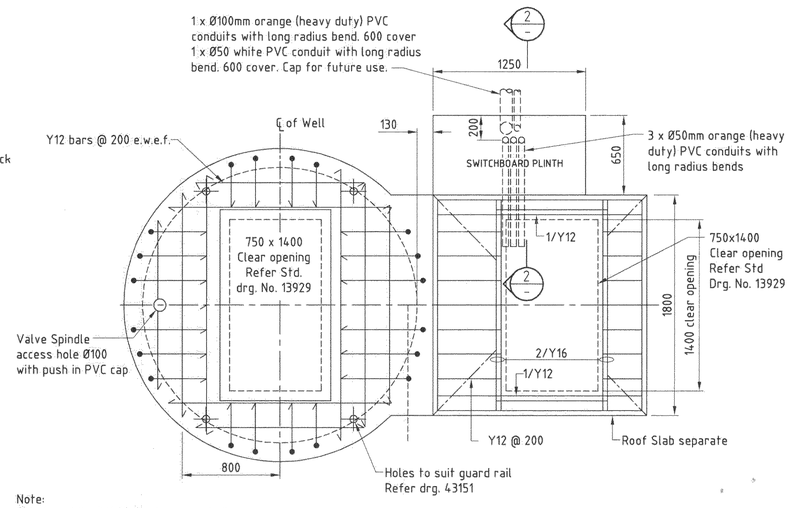
DETAIL B

PIPE SUPPORT BRACKETS
Scale 1:10



SECTIONAL PLAN
Scale 1:25

Note:
Pipe layout and diameter is shown typical only.
Actual layout may vary to suit site specific conditions.



PLAN - TOP SLABS
Scale 1:25

Note:
This top slab cast insitu, however designer may choose to precast/lift into place.
Submit design to Citiwater for approval.

NOTES

1.00 GENERAL
1.01 Read this drawing as a guide only for a typical submersible pump/motor set type pump station to suit up to a maximum of 1200 Equivalent Person (EP) ie. 18 L/s pump discharge.
1.02 For Pump Stations smaller than 250 EP (3.8 L/s) or larger than 1200 EP, requirements are to be discussed with Citiwater - Technical Services Engineer as station will need to be design specific.
1.03 Read this drawing in conjunction with TCC Standard Specification & other standard drawings.
1.04 The information contained on this drawing is for guidance only and it's purpose is to provide developers/consultants with a minimum standard that Citiwater requires.
1.05 Although every attempt has been made to provide this information as applicable to the latest, current Australian Standards, Department of Natural Resources (QWRC) Guidelines, Standard Sewerage Law and Sewerage and Water Supply Act, it does not relieve the designer of a particular sewerage pump station to provide other/specified information/details & data as applicable and appropriate.

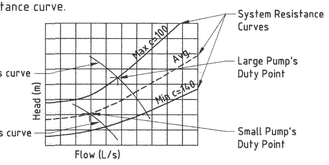
2.00 MATERIALS
2.01 Concrete
Concrete shall be N40 to AS3735, 80 mm Slump, 20mm max aggregate.
Minimum reinforcement cover 50mm
Thrust Blocks - Refer Std. Drg. No. 13433 for thrust block details
Thrust Blocks to be N20 (minimum) concrete
Thrust Blocks to be cast against undisturbed soil.
2.02 Metalwork
All metalwork to be Stainless Steel U.O.N.
Welding to be 6 c.f.w.

3.00 WET WELL
Concrete either cast in situ or precast is acceptable however Citiwater may approve of alternative materials e.g.. Glass Reinforced Plastic (GRP)

4.00 PUMPS
System resistance curves.
The designer shall develop system resistance curves. For single pressure main discharge to a gravity sewer manhole, the minimum resistance is the minimum static lift (ie. top water level in the wet well to the outlet pressure main) plus pipe & fitting friction heads using Hazen-William's c=140. The maximum resistance is the maximum static lift (ie. bottom of wet well to the outlet pressure main or highest point in the line) plus pipe & fitting friction heads using Hazen-William's c=100.

5.00 PUMP DUTY
Two pumps are required; a large (5ADWF) pump and a smaller (2ADWF) pump. The 5ADWF (5 times Average Dry Weather Flow) duty is the resultant of the EP times 1313 L/EP/Day (or 0.0152 L/EP/s)
The 2ADWF duty is 2/5 of the 5ADWF duty.

6.00 PUMP CURVE
The large (5ADWF) pump's curve must pass through the duty point on the maximum system resistance curve and pass through or touch the minimum system resistance curve. The small (2ADWF) pump's curve must pass through the duty point on the average curve and touch the minimum system resistance curve.
Example:



7.00 PRESSURE MAIN
Diameter of pressure main shall be based on Hazen William C=100 and minimum velocity of 0.75m/s at pump duty with 80 I.D. minimum.

8.00 INCOMING SEWER
Diameter: 150 minimum to 225 maximum

9.00 CONTROLLING LEVELS
Incoming sewer: generally a maximum of 6 metres deep, however, Citiwater may approve of a deeper sewer or request a lift station to be installed in the catchment draining to the pump station.
Alarm level 150 below I.L. of incoming sewer
Standby start: 300 below I.L. of incoming sewer
Duty Start: 600 below I.L. of incoming sewer
Duty Stop: Calculate the storage capacity as follows:-
Vol (m^3) = 0.075 x Pump Rate (L/sec) and, calculate the depth between start & stop
Bottom of wet well: 450 below pump stop level

10.00 CONCRETE PLUG THICKNESS
Plug thickness as follows:-

Well Depth (m)	Plug Thickness (mm)
3.0	300
4.0	400
5.0	500
6.0	600
7.0	700

11.00 PAINTING
All internal surfaces of concrete shall be etch primed and painted with two (2) coats of epoxy. Materials to be equivalent to the following.
Primer: 'Epigen' etching solution No. 1
Coat: 'Epigen' 1311 enamel, DFT of 0.25mm per coat, white colour

ZONE	REF.	REVISIONS	BY	CKD.	DATE
	D	UPDATED AND REDRAWN	A.J.C		

Hard or digital copies of this drawing is available through Citiwater - Technical Services

These associated drawings apply:-

No.	Title
13433	Anchorage Details for Valve, Hydrants and Pipe Specials
13929	Aluminium machinery access covers type for submersible pump station
34107	Overflow manhole arrangements and ventilation shaft details
43151	Transportable guard rail & gate set to suit wet well access

TOWNSVILLE CITY

ASSOCIATED DRAWINGS		
13433, 13929, 34107, 43151,		
LEVEL DATUM		CAD INDEX NO.
-		621
ERGON	TELSTRA	D.O. FILE NO.
-	-	-

CITIWATER TOWNSVILLE

APPROVED	DES.	DO'B PCT
RPEQ 3992	DRN.	A.J.C.
MANAGER - WATER BUSINESS UNIT	SD.	
ENGINEER - TECHNICAL SERVICES	S/ENG.	

SEWERAGE - STANDARDS SUBMERSIBLE PUMP STATION TYPE 1 (250 - 1200 EP STATION)

DATE	M/FILM	SCALE	DRAWING NO.	
2/7/99		As Shown	14084D	A1