A1

PRESSURE REDUCING VALVE (PRV) INSTALLATION

GENERAL

G1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE FOLLOWING:

A. SYDNEY WATER TECHNICAL SPECIFICATION – CIVIL.

B. SYDNEY WATER TECHNICAL SPECIFICATION – MECHANICAL.

C. SYDNEY WATER TECHNICAL SPECIFICATION – ELECTRICAL.

D. SYDNEY WATER TECHNICAL SPECIFICATION – COMMISSIONING.

E. SITE SPECIFIC NEEDS SPECIFICATION.

F. PRV ELECTRICAL, CONTROL & INSTRUMENTATION DRAWINGS.

G. WATER AND RECYCLED WATER DISTRIBUTION RELATED INSTRUMENT AND CONTROL STANDARDS TS02.

H. SYDNEY WATER , WATER SYSTEM PLANNING GUIDELINE.

G2. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

G3. ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO CONSTRUCTION.

G4. SETTING OUT DIMENSIONS AND SIZES OF STRUCTURAL MEMBERS NOT TO BE OBTAINED BY SCALING THE DRAWINGS.

G5. THE CONTRACTOR SHALL RECORD LOCATIONS AND LEVELS OF ALL INSTALLED ITEMS. REFER TO TABLE 1 ON DTC-6410 FOR REQUIRED INFORMATION.

G6. WHERE PROPRIETARY PRODUCTS HAVE BEEN SPECIFIED, A SUITABLE EQUIVALENT MAY BE USED WHERE APPROVED BY SYDNEY WATER. PROPRIETARY PRODUCTS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

G7. USE OF STANDARD DESIGNS MAY INTRODUCE UNINTENDED SAFETY RISKS FOR SITE SPECIFIC APPLICATION. THE USER SHALL ADDRESS SAFETY RISKS THROUGH SITE SPECIFIC ASSESSMENT.

G8. THE USER SHALL BE RESPONSIBLE FOR DESIGN OF ANY TEMPORARY WORKS.

DESIGN BASIS

D1. LOADS:

A. LIVE LOAD ON PRV CHAMBER AND AIR VALVE CHAMBER METAL ACCESS COVERS :
- SUBJECT TO VEHICULAR TRAFFIC – CLASS "D" TO AS 3996
- NOT SUBJECT TO VEHICULAR TRAFFIC – CLASS 'B' TO AS 3996

B. SURCHARGE AROUND STRUCTURES = 20 kPa.

C. GROUND WATER AT SURFACE.

D. MAXIMUM DESIGN HEAD FOR PIPEWORK = 120m OF WATER.

E. MAXIMUM TEST HEAD FOR PIPEWORK = 150m OF WATER.

D2. PRV CHAMBER COVER SUPPORT BEAMS WILL BE REMOVED DURING MAJOR MAINTENANCE WORKS TO PROVIDE WORKING HEIGHT AND CLEARANCE.

D3. PRV DESIGN FLOWS (BASED UPON GLOBE TYPE PRVs WITH LOW FLOW CAPABILITY FROM VENDORS ABLE TO SUPPLY GLOBE VALVES TO AS 5081 AND SYDNEY WATER TECHNICAL SPECIFICATION):

PRV SIZE	MIN FLOW (l/s)	MAX FLOW (l/s)
DN200	0.95	140
DN250	2.2	220
DN300	3.2	320

FOUNDATIONS

F1. THE PRV CHAMBER SHALL BE INSTALLED IMMEDIATELY FOLLOWING EXCAVATION TO AVOID FOUNDATION SOFTENING OR DRYING OUT BY EXPOSURE.

F2. THE REQUIRED MINIMUM ALLOWABLE BEARING PRESSURE FOR THE PRV CHAMBER AND AIR VALVE PRECAST CONCRETE SUPPORT BEAMS SHALL BE 100 kPa. FOUNDATION MATERIAL TO BE INSPECTED AND APPROVED BY A SUITABLY QUALIFIED AND EXPERIENCED GEOTECHNICAL ENGINEER PRIOR TO PLACING BEDDING.

F3. ANY OVER-EXCAVATION OR VOIDS OF FOUNDATION MATERIALS TO BE FILLED WITH NORMAL CLASS N15 MASS CONCRETE.

CONCRETE

C1. MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 50mm UNO.

C2. CONCRETE SHALL BE NORMAL CLASS N32 TO SYDNEY WATER TECHNICAL SPECIFICATION – CIVIL.

C3. CURING OF ALL CONCRETE TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 4 DAYS. POLYETHYLENE SHEETING OR WET HESSIAN MAY BE USED. ALTERNATIVE CURING MAY BE ACHIEVED BY APPLYING 'SIKA ANTISOL WB' CURING COMPOUND OR APPROVED EQUIVALENT TO ALL SURFACES IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR A PERIOD OF 7 DAYS.

C4. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa PRIOR TO LIFTING, BACKFILLING AND TESTING. BACKFILL SHALL BE PLACED AND COMPACTED EVENLY AROUND CHAMBERS IN LAYERS NOT EXCEEDING 300mm LOOSE THICKNESS.

C5. FORMWORK AND CONCRETE FINISHES SHALL BE IN ACCORDANCE WITH AS 3610.
SURFACES EXPOSED TO VIEW – CLASS 2.
SURFACES NOT EXPOSED TO VIEW – CLASS 4.

C6. THE MINIMUM TIME FOR STRIPPING OF FORMWORK SHALL BE 3 DAYS.

C7. ALL EXPOSED EDGES AND RE-ENTRANT CORNERS SHALL BE PROVIDED WITH 25mm FILLETS OR CHAMFERS.

C8. CONCRETE EXPOSURE CLASSIFICATION : B1 AS3600.

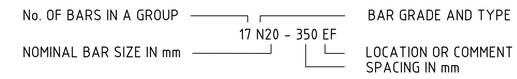
REINFORCEMENT

R1. STEEL REINFORCING MATERIALS SHALL BE TO AS/NZS4671.

STRENGTH GRADE – 500MPa
DUCTILITY CLASS – N

R2. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY; IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

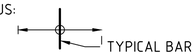
R3. DESIGNATION OF REINFORCEMENT BARS IS AS IN EXAMPLE:



R4. THE FOLLOWING ABBREVIATIONS APPLY TO THE LOCATION OF REINFORCEMENT:

EW – EACH WAY	FF – FAR FACE	CP – CENTRALLY PLACED
EF – EACH FACE	B – BOTTOM	BB – BOTTOM BOTTOM (LAID FIRST)
NF – NEAR FACE	T – TOP	TT – TOP TOP (LAID LAST)

R5. EXTENT OF BARS SHOWN THUS:



R6. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS. LAP LENGTHS TO COMPLY WITH THE FOLLOWING UNLESS NOTED OTHERWISE.

N12 – 400 LAP N16 – 500 LAP

R7. LOAD BEARING WELDED JOINTS FOR THE TRANSMISSION OF LOADS BETWEEN REINFORCEMENT IS NOT PERMITTED.
NON LOAD BEARING WELDED JOINTS (TACK WELDS) TO KEEP REINFORCEMENT IN POSITION DURING FABRICATION, TRANSPORT & CONCRETING, IS PERMITTED WHERE WELDING WILL NOT IMPACT DUCTILITY OF REINFORCEMENT.
WELDING SHALL BE IN ACCORDANCE WITH AS 1554.3.
LAP LENGTHS SHALL NOT BE REDUCED DUE TO WELDING.

PIPEWORK

P1. HYDROSTATIC TEST PRESSURES FOR ALL PRESSURE PIPING SHALL BE COMPLIANT WITH SWC TECHNICAL SPECIFICATION – COMMISSIONING. ALL DRAINS AND OVERFLOW PIPING SHALL BE SUBJECTED TO A STANDING LEAK TEST DURING COMMISSIONING PRIOR TO BEING PLACED INTO SERVICE WHERE PRACTICAL.

P2. ALL PIPING, VALVES, FITTINGS AND ANCILLARY ITEMS SHALL BE SPECIFIED, PROCURED, FABRICATED, INSTALLED AND TESTED IN ACCORDANCE WITH SYDNEY WATER TECHNICAL SPECIFICATION – MECHANICAL AND SYDNEY WATER TECHNICAL SPECIFICATION – CIVIL.

P3. ALL PRVs TO BE SUPPORTED BY REINFORCED CONCRETE PEDESTALS. U.N.O. NEOPRENE RUBBER TO BE FITTED BETWEEN PRVs AND CONCRETE SUPPORTS.

P4. FLANGES AND FASTENERS SHALL BE CLASS 16 TO AS 4087. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316 WITH A NICKEL BASED ANTI-SEIZE COATING ON ALL THREADED CONNECTIONS. 3mm THICK ELASTOMERIC GASKETS TO WSA 109 SHALL BE PROVIDED BETWEEN FLANGES. INSULATING SLEEVES AND SOCKETS SHALL BE USED.

P5. PIPE LENGTHS CALCULATED ASSUMING 3mm THICK GASKET AFTER INSTALLATION. ALL LENGTHS TO BE CONFIRMED ON SITE PRIOR TO FABRICATION.

P6. ALL PIPES AND FITTINGS TO BE PROTECTED IN ACCORDANCE WITH WSA201 AND SYDNEY WATER'S SUPPLEMENT TO WSA201.

P7. PUDDLE FLANGES TO BE INSTALLED ON ALL PIPEWORK PENETRATIONS THROUGH ALL STRUCTURES. PUDDLE FLANGES TO BE THRUST TYPE. ALL DI PUDDLE FLANGES TO BE FACTORY FITTED AND MACHINED GROOVED TO AS/NZ 2280.

P8. THERE SHALL BE NO DEFLECTION OF PIPEWORK WITHIN THE PRV CHAMBER.

P9. DUCTILE IRON PIPES AND FITTINGS SHALL COMPLY WITH REQUIREMENTS OF EPS 500. SP AND SO DI PIPEWORK SHALL BE PN35

P10. ALL PILOT VALVES SHALL BE FITTED WITH FILTERS.

REFERENCE DRAWINGS

NOT USED	DTC – 6401
NOT USED	DTC – 6402
NOT USED	DTC – 6403
NOT USED	DTC – 6404
NOT USED	DTC – 6405
NOT USED	DTC – 6406
CONCRETE & MISCELLANEOUS DETAILS – SHEET 1 OF 3	DTC – 6407
CONCRETE & MISCELLANEOUS DETAILS – SHEET 2 OF 3	DTC – 6408
CONCRETE & MISCELLANEOUS DETAILS – SHEET 2 OF 3	DTC – 6409
TYPICAL PRV ARRANGEMENT – EXTERNAL BYPASS	DTC – 6410
SUMP PUMP – ARRANGEMENT & DETAILS	DTC – 6411
DN200 – DN300 GLOBE VALVE – GENERAL ARRANGEMENT	DTC – 6412
PRESSURE REDUCING VALVE – RUNG LADDER DETAILS	DTC – 6413

Sydney WATER

APPROVED

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LETTER	DETAILS OF ISSUE / AMENDMENT	APP'D	DATE
B	UPDATED TO GLOBE TYPE PRVs	N.S.	30.04.21
A	ORIGINAL ISSUE	K.W.	18.03.15

DEEMED TO COMPLY DRAWINGS

PRESSURE REDUCING VALVE COVER SHEET NOTES & REFERENCE DRAWINGS

DTC

6400

ISSUE	DATE
B	30.04.21