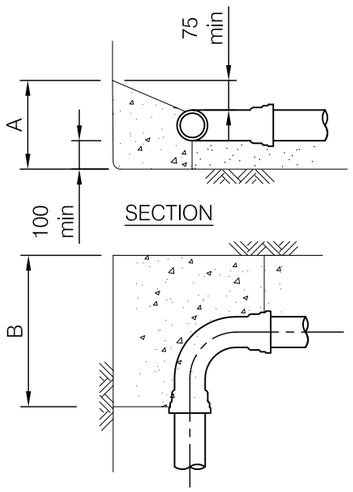
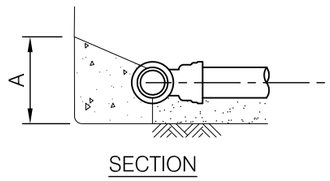
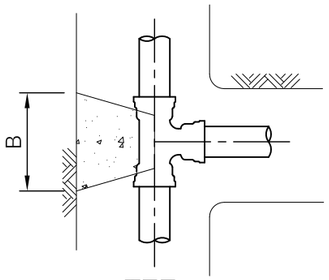
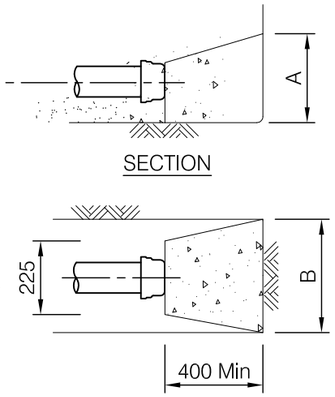




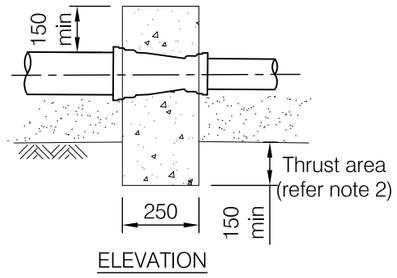
BENDS
PLAN



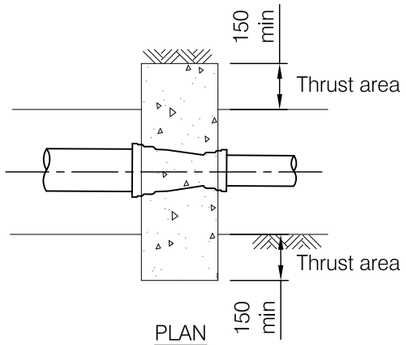
TEE
PLAN



DEAD ENDS
PLAN

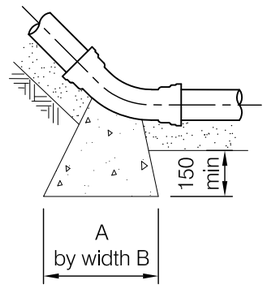


ELEVATION



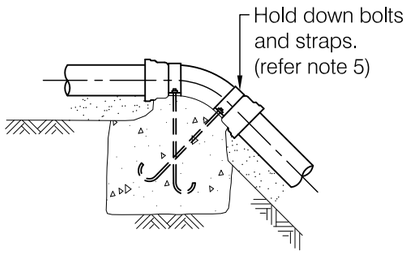
PLAN

REDUCER



ELEVATION

VERTICAL BENDS, SAG



ELEVATION

CONCRETE VOLUMES TO COUNTER THRUST
(m^3 PER 1200KPa TEST PRESSURE)

DIA	90°	45°	22½°	11¼°
100	0.85	0.45	0.25	0.10
150	1.75	0.95	0.50	0.25
225	3.75	2.00	1.05	0.50

VERTICAL BENDS, CREST

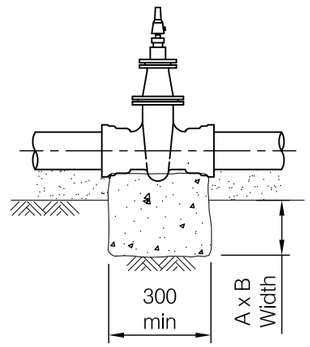
MINIMUM THRUST AREA (A x B) IN m^2 FOR 1200 KPa TEST PRESSURE

Safe Bearing Load	90° & 60° BENDS				45° & 30° BENDS				22½°BENDS				11¼°BENDS				DEAD ENDS/TEES			
	25 KPa	50 KPa	75 KPa	100 KPa	25 KPa	50 KPa	75 KPa	100 KPa	25 KPa	50 KPa	75 KPa	100 KPa	25 KPa	50 KPa	75 KPa	100 KPa	25 KPa	50 KPa	75 KPa	100 KPa
Dia. of branch or Tee branch																				
100	0.82	0.41	0.27	0.20	0.44	0.21	0.14	0.11	0.24	0.12	0.08	N	0.10	N	N	N	0.58	0.29	0.19	0.15
150	1.68	0.84	0.56	0.42	0.91	0.46	0.30	0.23	0.48	0.24	0.16	0.12	0.24	0.12	0.08	N	1.20	0.60	0.40	0.30
225	2.55	1.27	0.85	0.64	1.92	0.96	0.64	0.48	1.00	0.50	0.34	0.25	0.48	0.24	0.16	0.12	2.54	1.27	0.85	0.64

N - Denotes Nominal Thrust Area. Refer to Note 10.

NOTES

1. Concrete for thrust blocks to be N20 in accordance with AS 3179 and AS 3600 and shall be poured against undisturbed soil.
2. Reducers to have a minimum area for anchors equal to the difference in corresponding area for dead ends of each reducer.
3. For vertical bends in sag, the safe bearing loads of the various soils may be taken as twice those for horizontal thrust.
4. Unless noted otherwise thrust blocks are required for valves > Ø200mm and shall have a thrust area equal to that for a dead end. Also when in soft clay all valves shall have thrust blocks equal to that for a dead end.
5. Hold down bolts to be M12 galvanised, minimum embedment length 300mm with 75 hook, cog of 50 x 50 x 6 washer, straps 40 x 6 M.S. galvanised plate bent to suit.
6. Thrust block for materials with safe bearing load < 25 KPa are to be engineer designed and detailed.
7. For pipes > Ø225mm the thrust blocks shall be engineer designed and detailed.
8. All fittings shall be provided with thrust blocks formed against solid ground to transfer unbalanced forces from fitting to solid ground.
9. Nominal thrust area 'N' shall be effected by class N20 concrete over full length of fitting, and extending in depth from the bottom of the of the trench to at least 75mm above the top of the fitting.
10. Tabulated 'minimum thrust area for anchorage' apply for test pressure of 1200 kPa. Areas shall be adjusted prorata for other specified test pressures except that nominal thrust areas 'N' shall have to be calculated for test pressure over 1200 kPa.
11. Shape and dimensions of concrete blocks shown are diagrammatic only.
12. When placing the concrete on a uPVC pipe, care shall be taken to avoid encasing the pipe completely. The maximum encasement shall be 180°.
13. When placing a uPVC pipe in concrete a membrane of polythene, PVC or felt shall surround the pipe and fitting to permit pipe movement in that concrete.
14. All mains to be laid with location wire. (Copper insulated wire terminated in valve box).
15. All dimensions in millimetres.

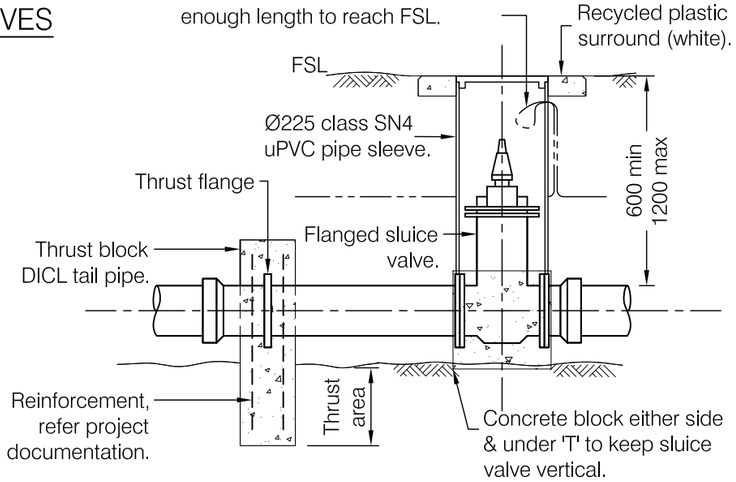


VALVES

Material	Safe Bearing Load (kPa)
Soft clay	25
Medium clay, Sandy loam	50
Sand & gravel, Hard clay	75
Sand & Gravel cemented with clay	100
Shale	240

For horizontal thrust blocks in trenches where the cover to pipe is > 450mm

SAFE BEARING LOADS (KPa)



SLUICE VALVE (Ø200 OR MORE - SOFT CLAY)

(Refer note 4)

A ORIGNAL ISSUE	03/10/17
REVISIONS	DATE

Mareeba SHIRE COUNCIL

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THRUST BLOCK DETAILS

Standard Drawing
S2015
A