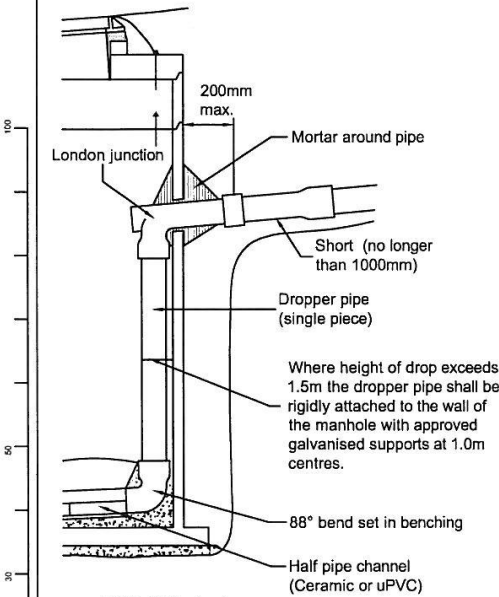
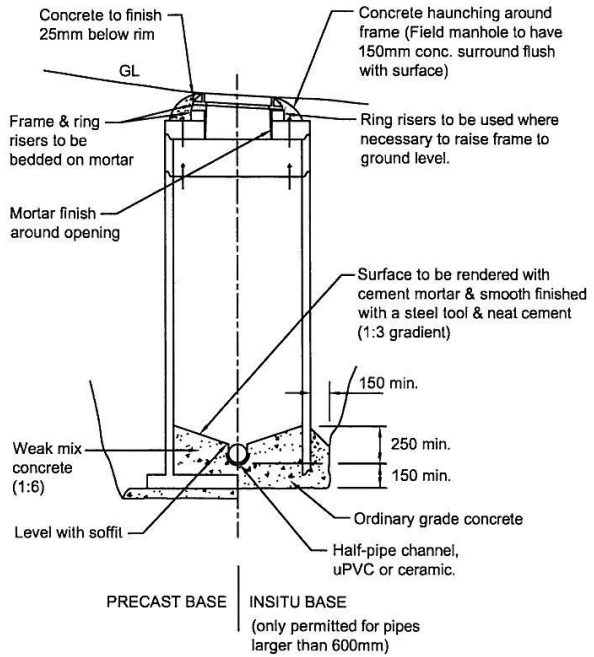
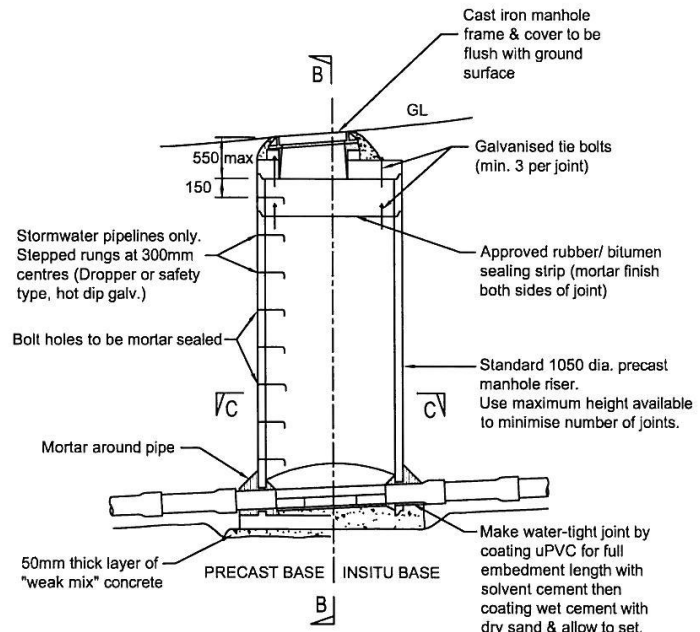


NOTES:

1. This detail is applicable for pipe diameters up to 600mm & for manhole depths up to 5.0m.
2. All steel fittings to be hot dip galvanised. Zinc coatings to be not less than 700g/m.
3. 150mm thick concrete lids with heavy-duty cast iron frames & covers to be used in driveways, carriageways & berms. 100mm thick concrete lids with light-duty cast iron frames & covers may be used elsewhere.
4. Precast manhole bases shall be used in all instances with minimum sized holes cut for pipe entry.
5. No additional thin plastering of benching or invert is permitted.
6. All manhole covers are to be painted blue for stormwater & red for sewer.
7. All concrete to be 20MPa at 28 days unless specified as "weak mix".



(This detail is applicable for pipe diameters up to 250mm & for manhole depths up to 5.0m)



**STANDARD PRECAST MANHOLE
 (SEWER & STORMWATER)**

ORIGINAL SIZE mm
 100
 50
 30
 10
 0

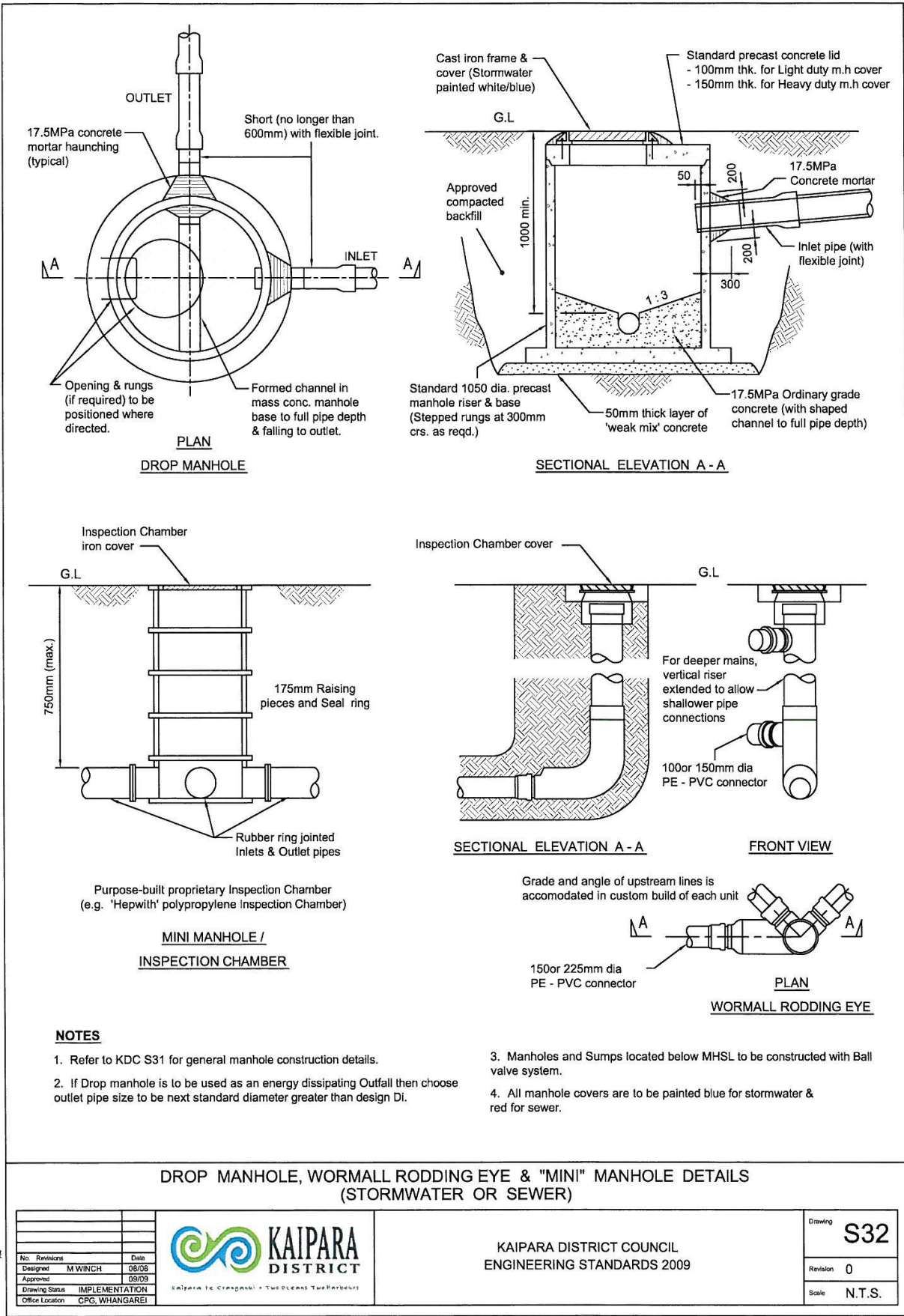
No. Revisions	Date
Designed M WINGCH	08/08
Approved	09/09
Drawing Status	IMPLEMENTATION
Office Location	CPG, WHANGAREI



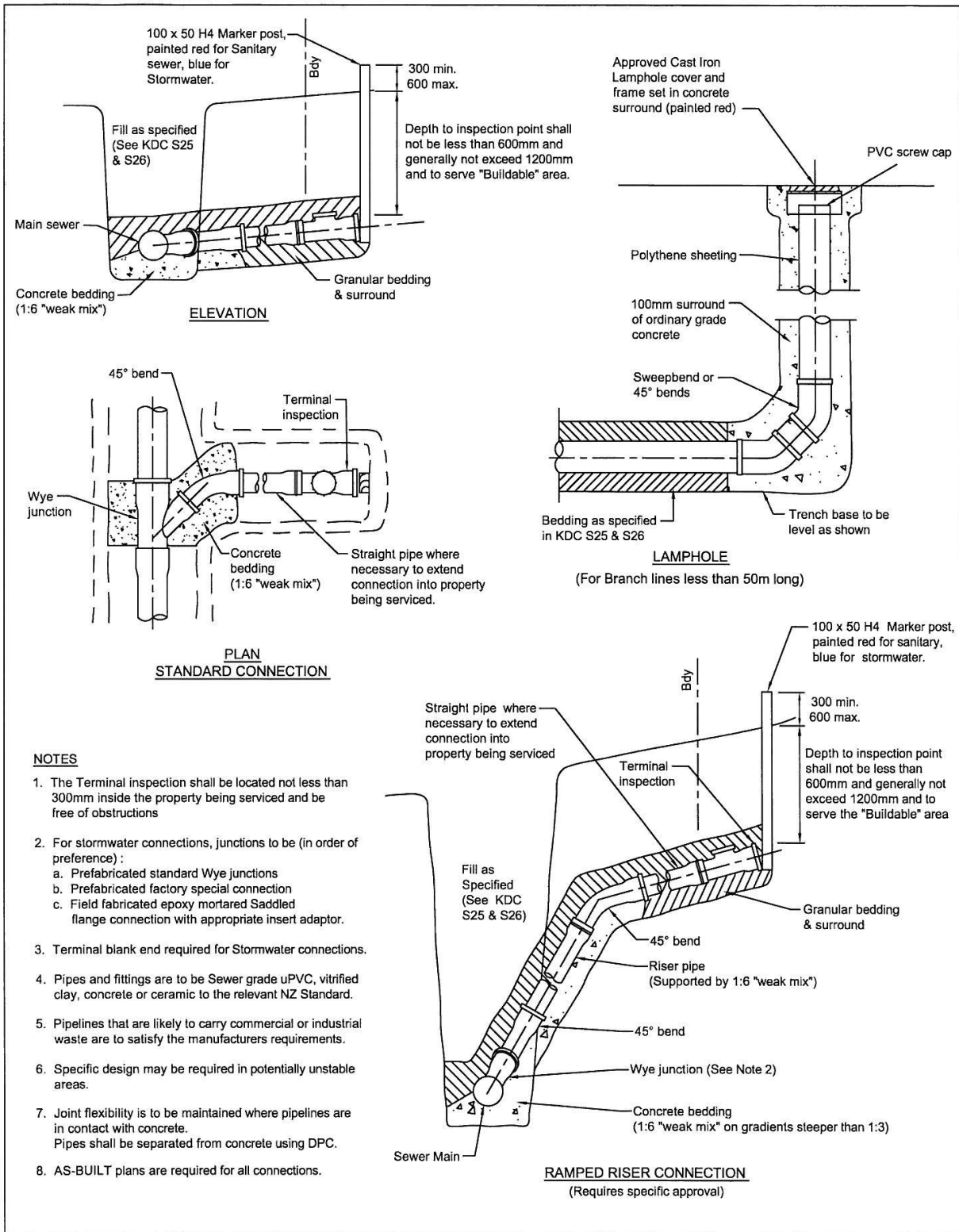
KAIPARA DISTRICT COUNCIL
 ENVIRONMENTAL ENGINEERING STANDARDS 2009

Drawing	S31
Revision	0
Scale	N.T.S.

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T:_020000\020239 KDC\04 Resource Consents\KDC Eng Standards 2009_Final Eng Std 2009\Drawings\S32.dwg , Plotted By Aniversita Pilapil at 2/10/2009 1:14:06 p.m. Scale 1:47 17



LAMPHOLES, STORMWATER AND SEWER CONNECTIONS

ORIGINAL SIZE 100
74
50
30
10
0

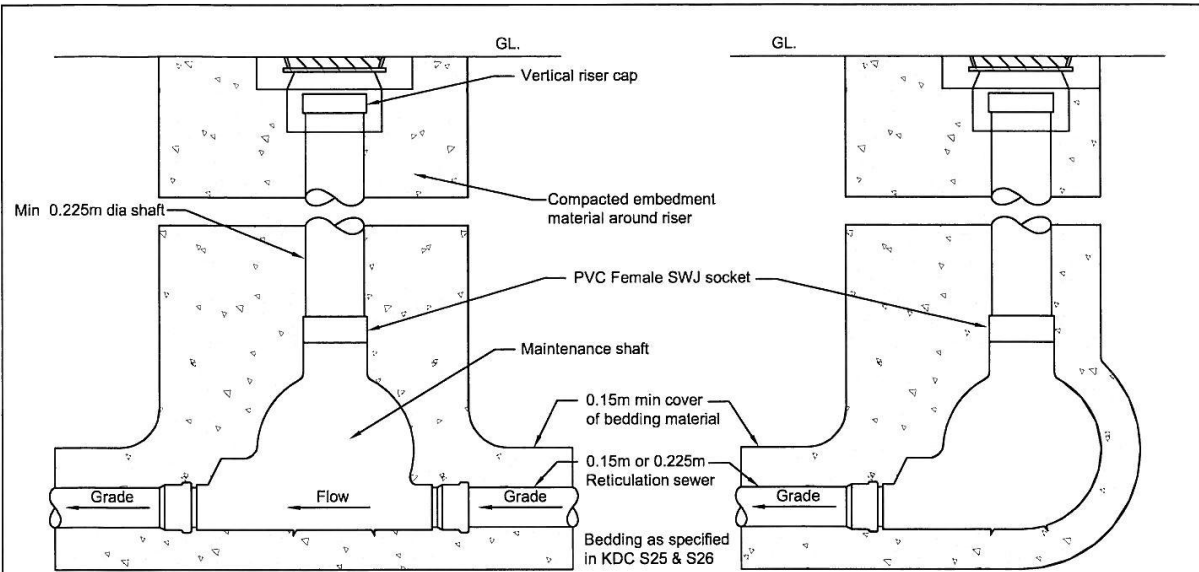
No.	Revisions	Date
1	Designed	M WINCH 08/08
2	Approved	09/08
Drawing Status: IMPLEMENTATION		
Office Location: CPG, WHANGAREI		



KAIPARA DISTRICT COUNCIL
ENGINEERING STANDARDS 2009

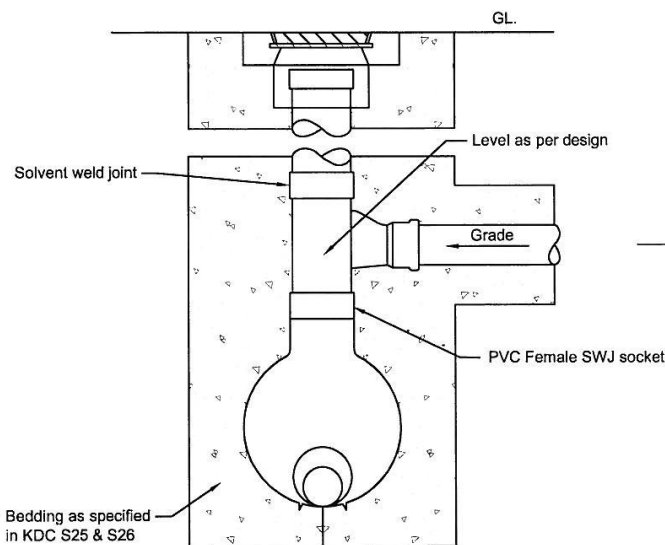
Drawing	S33
Revision	0
Scale	N.T.S.

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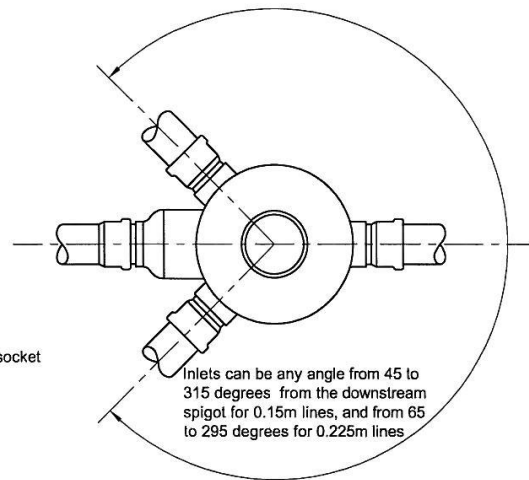


ELEVATION
INLINE (180 deg) MAINTENANCE SHAFT

ELEVATION
TERMINAL MAINTENANCE SHAFT



END ELEVATION
INCLUDING DROP JUNCTION



PLAN
STANDARD CONNECTION

NOTES

1. Bedding material shall comply with KDC standard specifications
2. All pipe joints shall conform with KDC standard specifications and the manufacturers recommendations
3. Poo-Pits are bedded into embedment material, no concrete cradle is required
4. Each product is made to order when specifying requirements, the upstream spigot can accommodate angle, grade and height from invert. The standard fall is 20mm but 10mm can be accommodated if required
5. Inlets can be any angle from 45 degrees from the downstream spigot for 0.15m lines, and 65 degrees for 0.225m lines
6. Drop junctions can be supplied either attached or as a separate item
7. Vertical riser caps use a standard "Tee" key for locking and unlocking and comply with AS/NZS 1260
8. Connections can be supplied as spigots or sockets for PVC, or a length of Polyethylene pipe can be used when specified

WORMALL POO-PIT

ORIGINAL SIZE mm A4

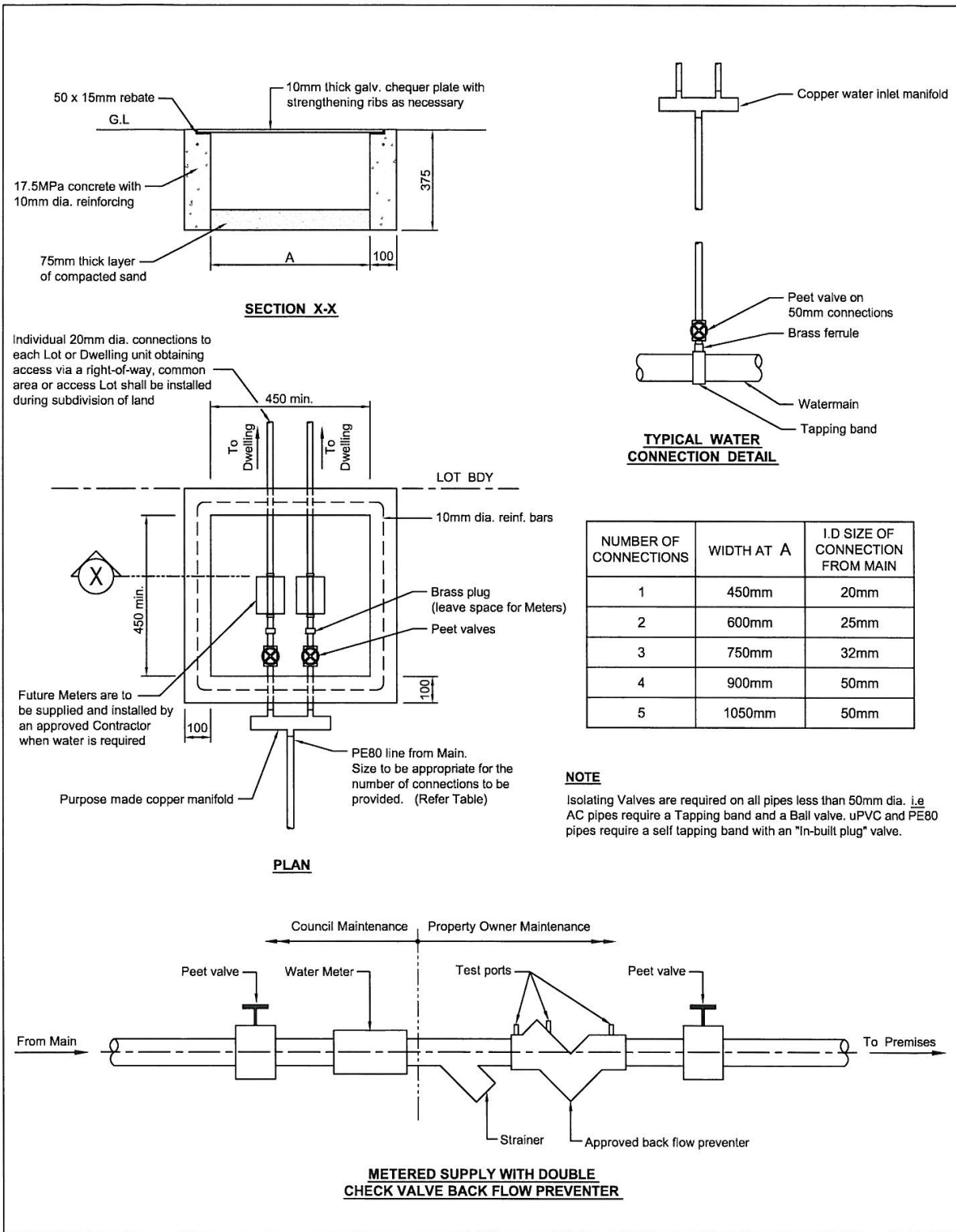
No. Revisions	Date
Designed M WINCH	08/08
Approved	09/09
Drawing Status	IMPLEMENTATION
Office Location	CPG, WHANGAREI



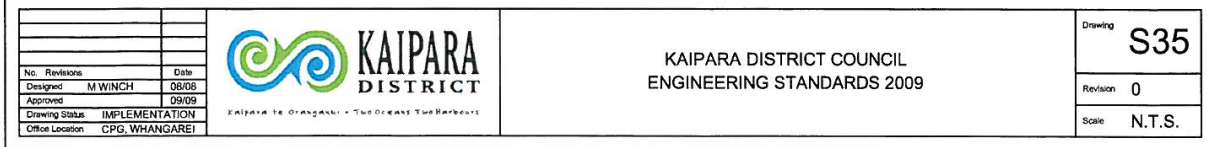
KAIPARA DISTRICT COUNCIL
 ENGINEERING STANDARDS 2009

Drawing	S34
Revision	0
Scale	N.T.S.

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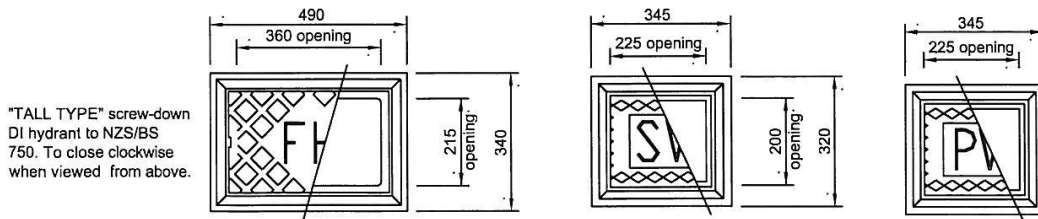


METERED SUPPLY WITH DOUBLE CHECK VALVE BACK FLOW PREVENTER



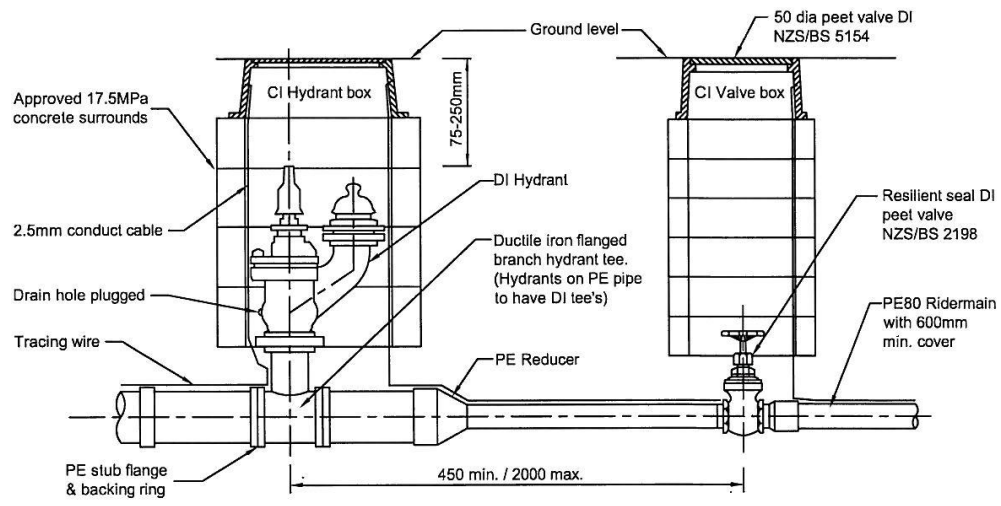
MULTIPLE WATER CONNECTIONS & BACKFLOW PREVENTERS

ORIGINAL SIZE mm A4		KAIPARA DISTRICT COUNCIL ENGINEERING STANDARDS 2009	Drawing S35
	No. Revisions: _____ Date: _____ Designed: M WINCH 08/08 Approved: 09/09 Drawing Status: IMPLEMENTATION Office Location: CPG, WHANGAREI		Revision 0
			Scale N.T.S.
	T:_020000\020239 KDC\04 Resource Consents\KDC Eng Standards 2009_Final Eng Std 2009\Drawings\S35.dwg , Plotted By Anniversita Pilapil at 29/09/2009 9:55:21 a.m. Scale 1:1		



PLAN - CAST IRON HYDRANT BOX

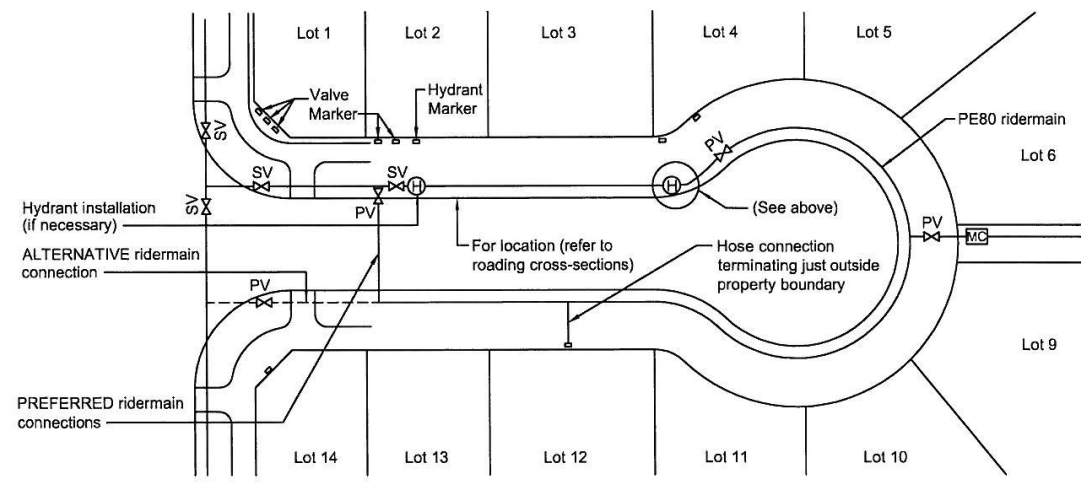
PLAN - CAST IRON VALVE BOX



ELEVATION

- Notes
1. Deflection of joints is not to exceed the Manufacturers recommendation.
 2. Where there are more than 15 connections from a rider main, an isolating peet valve should be provided in the middle of the rider main.
 3. All underground bolts to be stainless steel and wrapped with denso tape, mastic and polytape.
 4. Service connections to terminate just outside from boundary with an approved manifold, meter box (including base) and diaphragm valve including dual check valve.
 5. Dimensions to be supplied with As-Builts.

100
50
30
10
0
ORIGINAL SIZE mm
74



WATER PIPELINE DETAILS

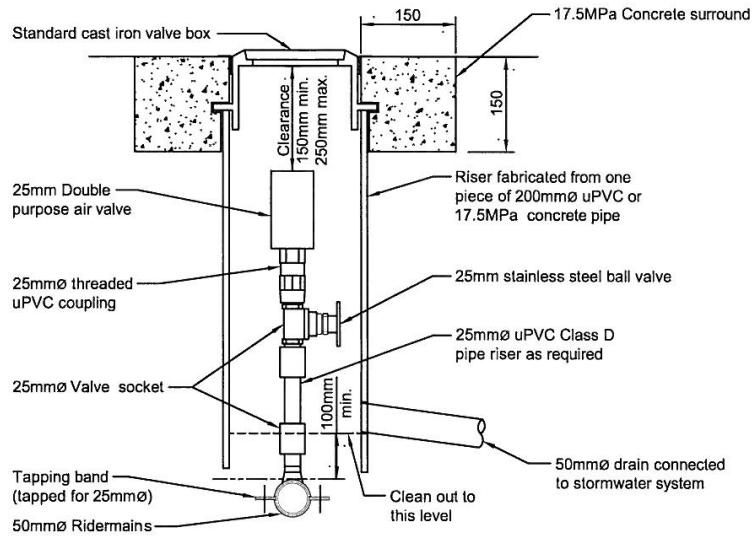
No. Revisions	Date
Designed M WINCH	08/08
Approved	09/09
Drawing Status	IMPLEMENTATION
Office Location	CPG, WHANGAREI



KAIPARA DISTRICT COUNCIL
ENGINEERING STANDARDS 2009

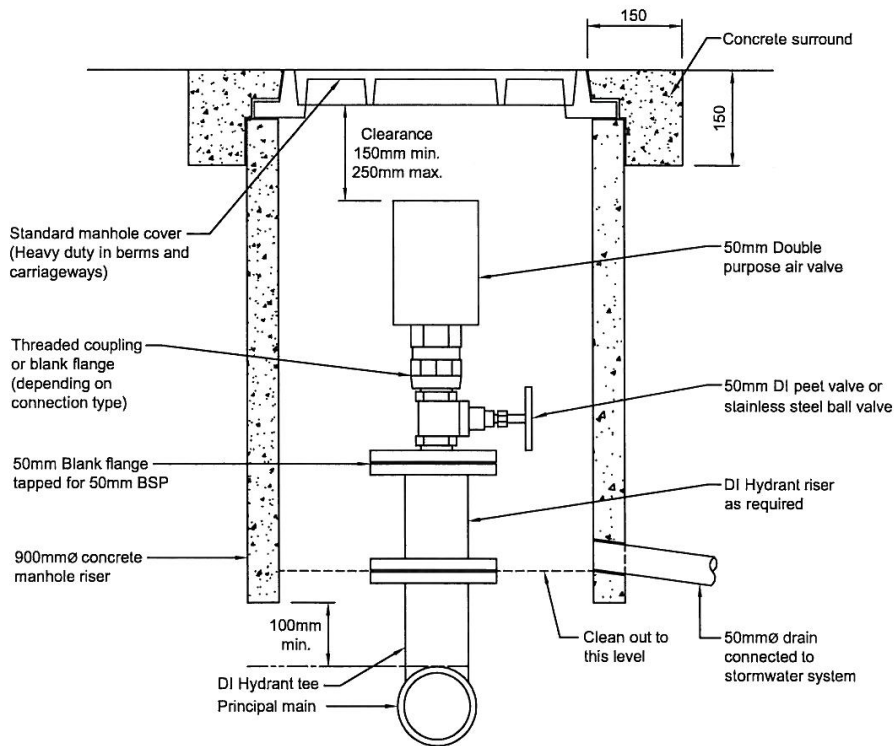
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Revision	0
Scale	N.T.S.

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STANDARD AIR VALVE DETAIL FOR 50mmØ RIDER MAINS

NB: Underground bolts to be wrapped with DENSO tape



STANDARD AIR VALVE DETAIL FOR PRINCIPAL MAINS

NB: Underground bolts to be wrapped with DENSO tape

AIR VALVE DETAILS

ORIGINAL SIZE mm A4

No.	Revisions	Date
1	Designed	M WINCH 08/08
2	Approved	09/09
Drawing Status IMPLEMENTATION		
Office Location CPG, WHANGAREI		



KAIPARA DISTRICT COUNCIL
ENGINEERING STANDARDS 2009

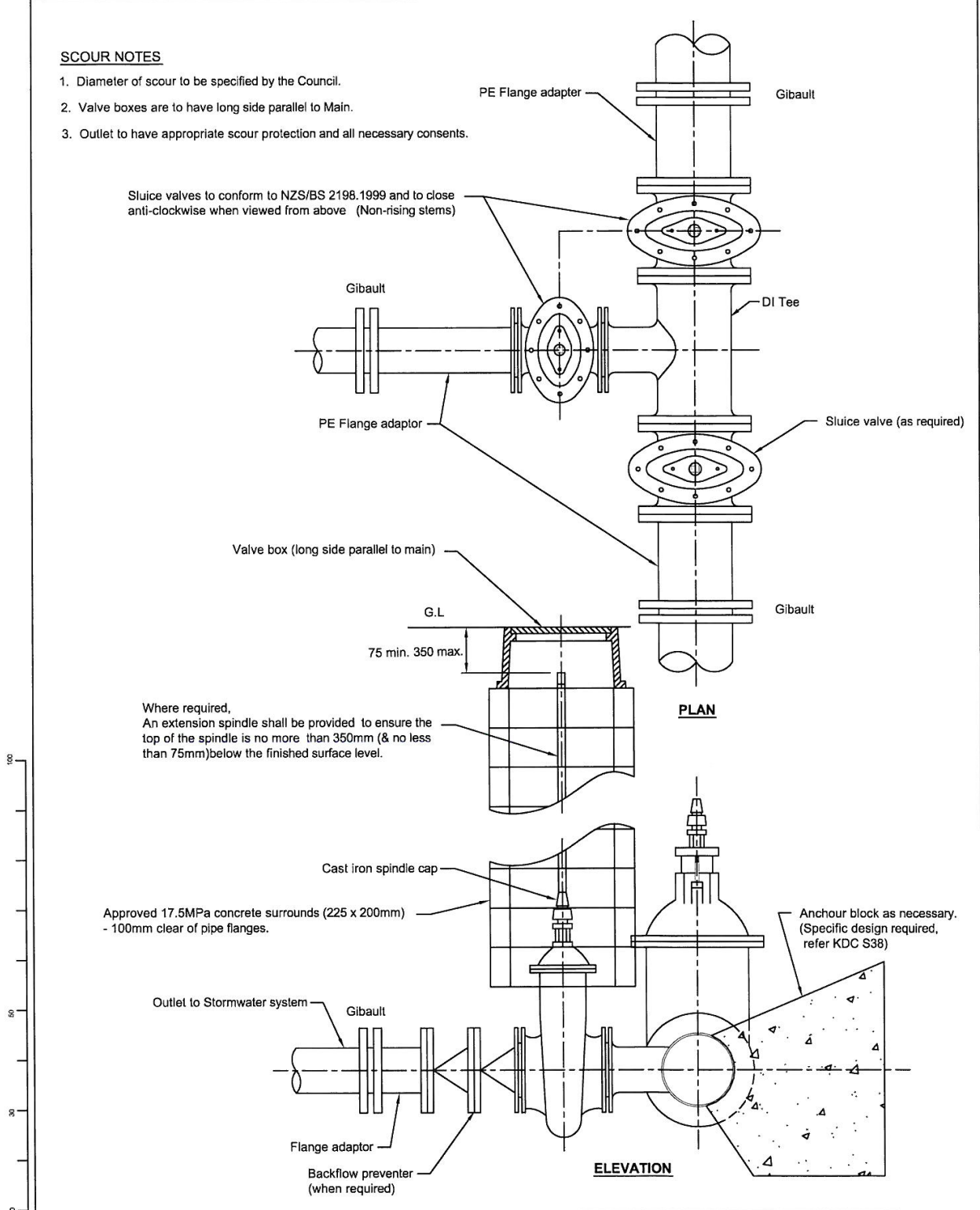
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Revision	0
Scale	N.T.S.

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SCOUR NOTES

1. Diameter of scour to be specified by the Council.
2. Valve boxes are to have long side parallel to Main.
3. Outlet to have appropriate scour protection and all necessary consents.

Sluice valves to conform to NZS/BS 2198.1999 and to close anti-clockwise when viewed from above (Non-rising stems)



**GENERAL SCOUR VALVE
 INSTALLATION DETAILS**

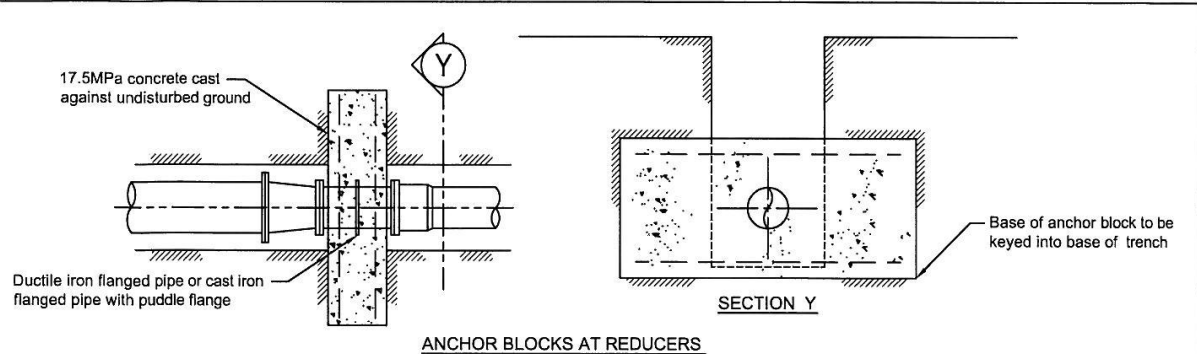
No.	Revisions	Date
Designed	M WINCH	06/08
Approved		09/09
Drawing Status IMPLEMENTATION		
Office Location CPG, WHANGAREI		



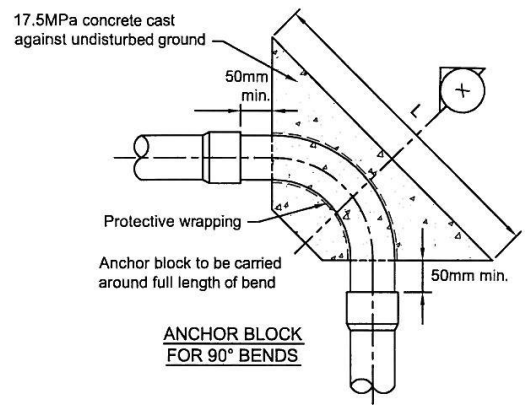
KAIPARA DISTRICT COUNCIL
 ENGINEERING STANDARDS 2009

Drawing	S38
Revision	0
Scale	N.T.S.

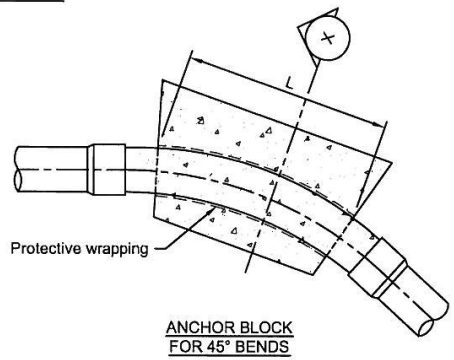
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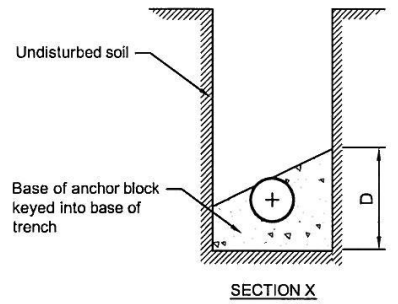
ANCHOR BLOCKS AT REDUCERS



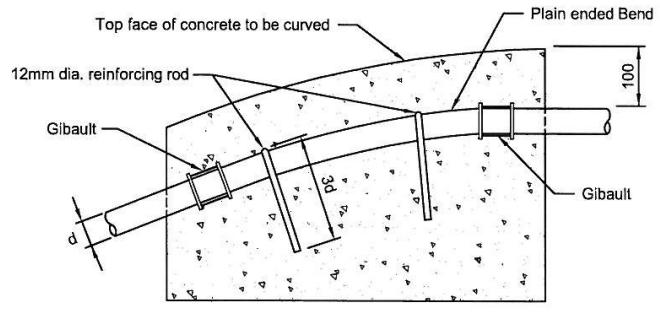
ANCHOR BLOCK FOR 90° BENDS



ANCHOR BLOCK FOR 45° BENDS



SECTION X



ANCHOR BLOCKS AT BENDS IN VERTICAL PLANE

Nom. Pipe Diameter	90° Bend		45° Bend		Tee or Closed End		22.5° Bend		11.25° Bend	
	L	D	L	D	L	D	L	D	L	D
100	740	400	500	320	520	400	300	300	300	300
150	1340	460	700	470	870	500	500	340	300	300
200	1610	660	960	600	1150	650	740	400	490	300
250	2000	800	1250	700	1420	800	890	500	640	350
300	2330	1000	1560	800	1650	1000	1080	600	810	400

NOTES

- Anchor block dimensions for firm soil conditions.
- The dimensions to be increased or decreased for variation in soil conditions.
- Allowable bearing stress used - 100kPa.
- Internal pipe test pressure up to 1800kPa (18 Bar).
- All underground bolts to be wrapped with denso tape.
- Protective membrane to be bitumised paper, thin roofing felt or polythene film applied to a thickness of 2.5mm.
- If an anchor block is to be supported by engineered fill material, it shall be specifically designed, taking into account all design actions, including the weight of the concrete, with allowance for safety factors.
- Calculations for anchor blocks at reducers and vertical curves must be shown with Engineering drawings.

ANCHOR BLOCK AND INSTALLATION DETAILS

No.	Revisions	Date
1	Designed	08/08
2	Approved	09/09
Drawing Status: IMPLEMENTATION		
Office Location: CPG, WHANGAREI		



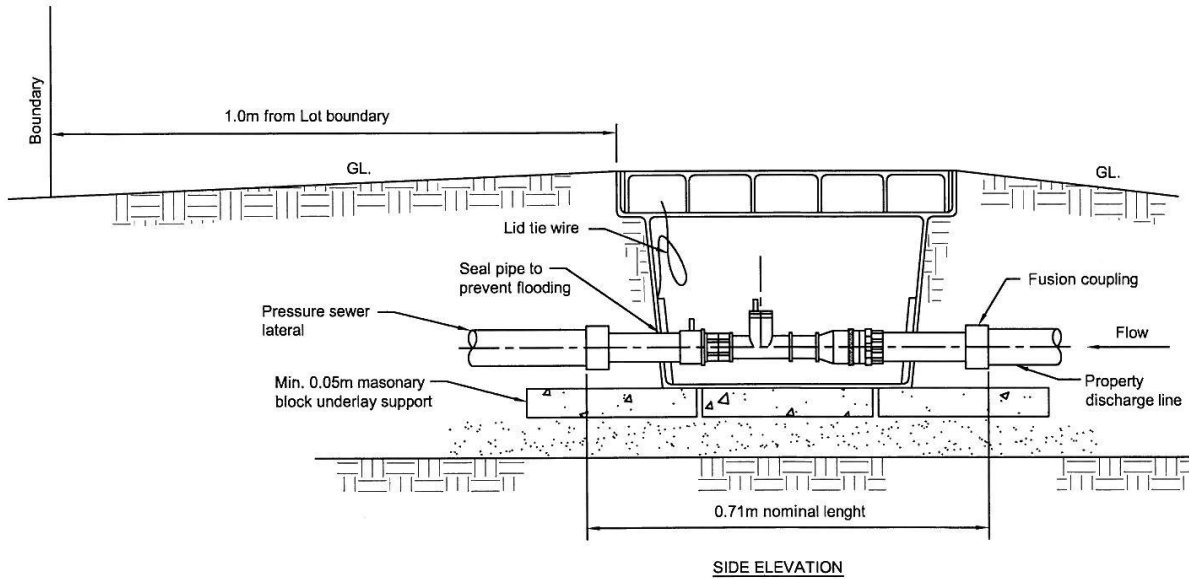
KAIPARA DISTRICT COUNCIL
ENGINEERING STANDARDS 2009

Drawing	S39
Revision	0
Scale	N.T.S.

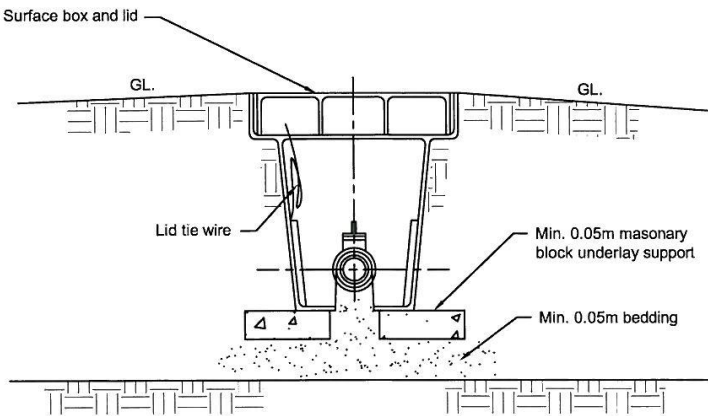
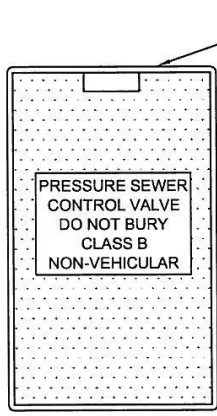
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NOTES:

1. All dimensions in meters unless otherwise specified
2. Use only approved components
3. Ensure that the lid of surface box is marked as shown. Where the warning/name plate is not cast or moulded into the lid, affix an engraved SS name plate using SS fasteners
4. Prepare bedding metal under box to specification
5. Install surface box slightly proud of surface so the GL. can be graded away from the lid
6. Test assembly and connecting pressure sewers hydrostatically after installation in accordance with the KDC code
7. All pressure pipework items to be PN 16



ORIGINAL SIZE mm A4
100
50
30
10
0



BOUNDARY CONNECTION KIT

No.	Revisions	Date
Designed	M WINCH	08/08
Approved		09/09
Drawing Status	IMPLEMENTATION	
Office Location	CPG, WHANGAREI	



KAIPARA DISTRICT COUNCIL
ENGINEERING STANDARDS 2009

Drawing	S40
Revision	0
Scale	N.T.S.

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