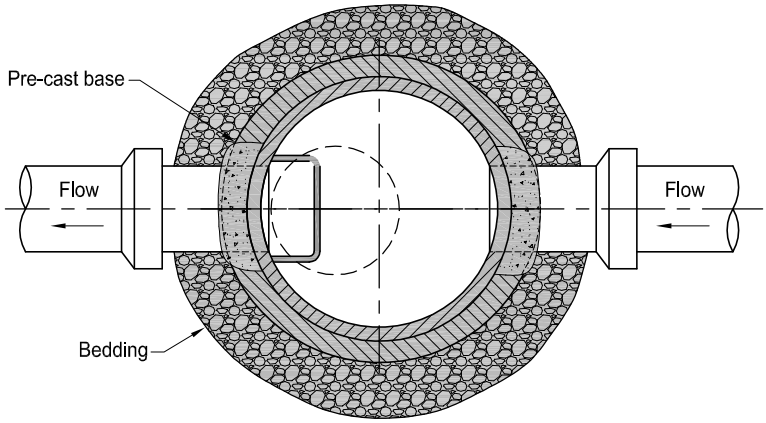
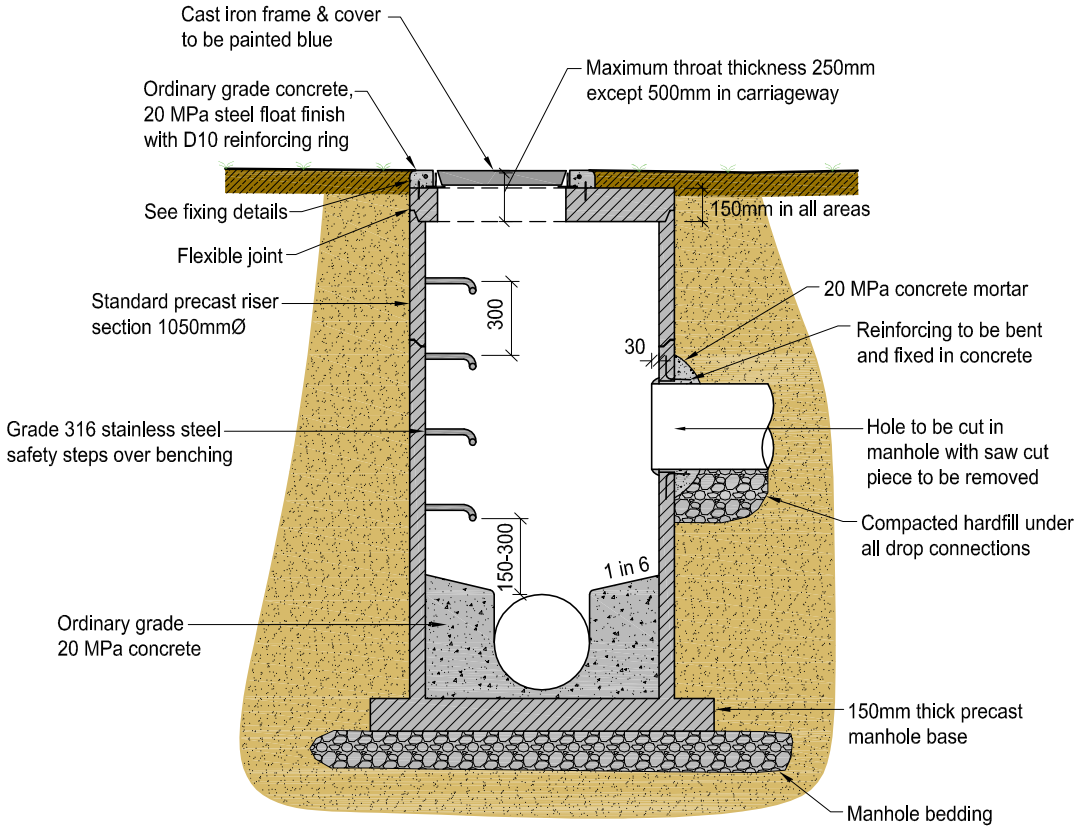
NOTES:

1. Haunching of intersection pipes to provide curved channels to ensure streamline flow.
2. Standard precast manhole components to be used unless approved otherwise.
3. Orientate lid opening and steps to put frame & cover clear of any kerblines.
4. In areas of near surface groundwater levels, manholes shall include a perforated short pipe.

EXAMPLE PHOTO



PLAN



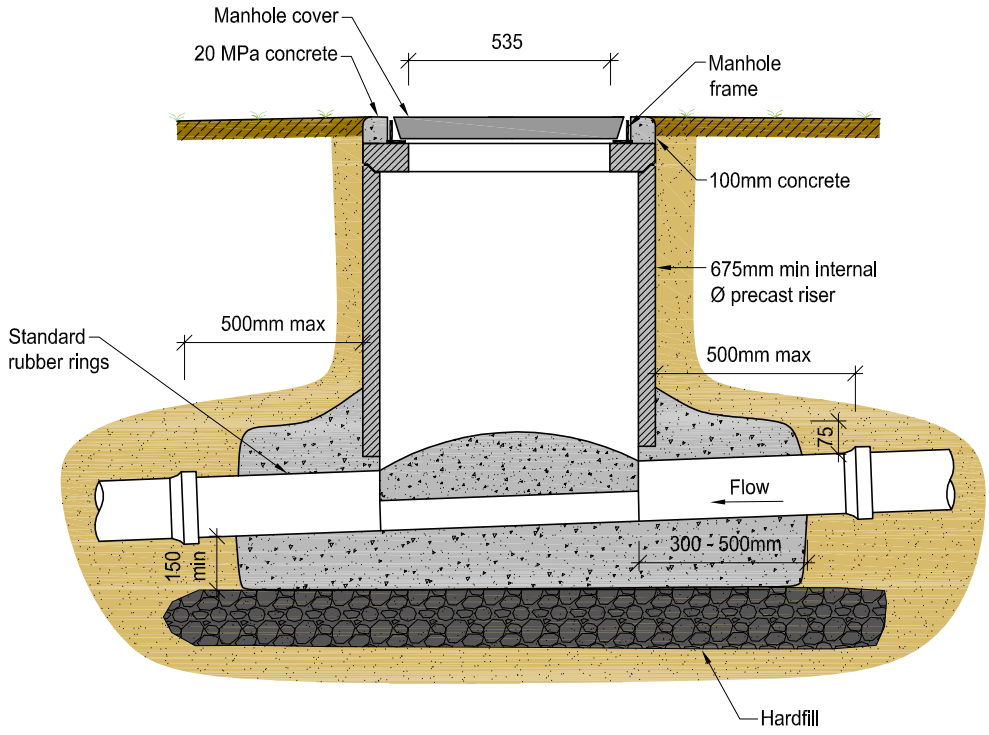
SECTION

STRUCTURE
MANHOLE - STANDARD

W501

NOTES:

1. Depth not to exceed 700mm.
2. Not to be used in road.
3. Maximum pipe size connected 225mmØ.

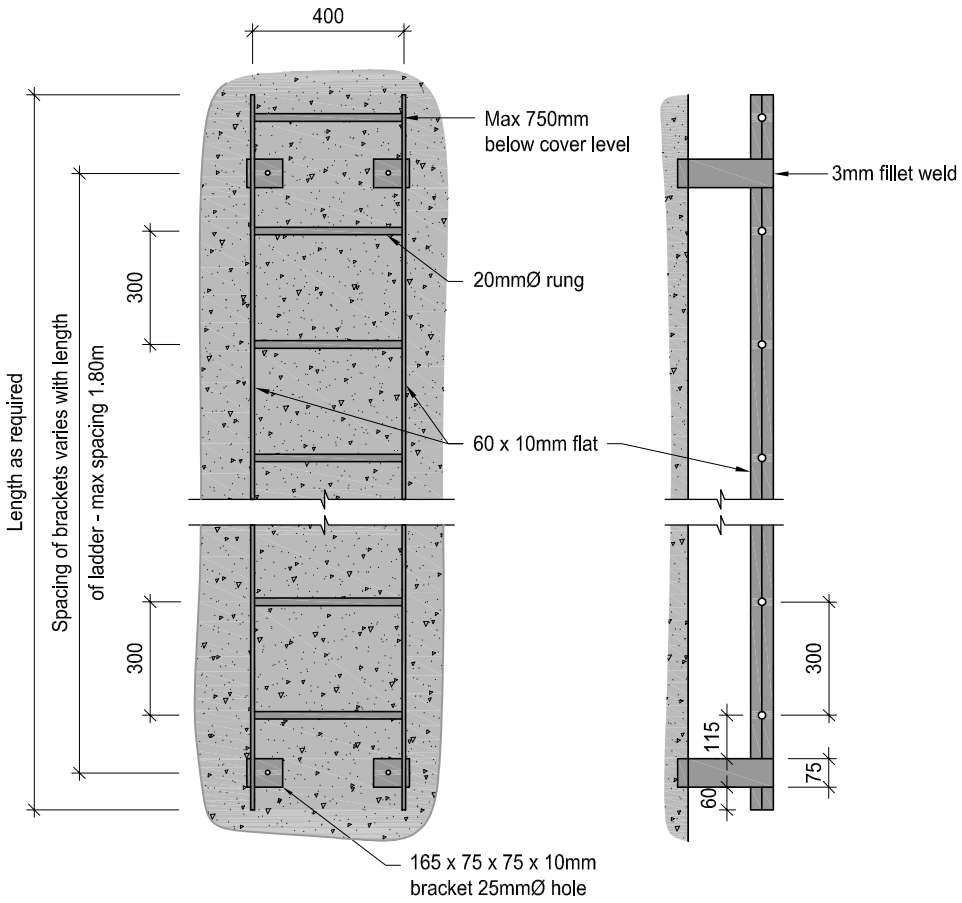


STRUCTURE
MANHOLE - SHALLOW

W502

NOTES:

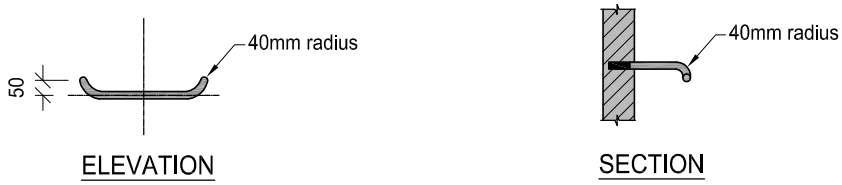
1. Manhole ladder to be hot dip galvanized or to be stainless steel.



FRONT ELEVATION

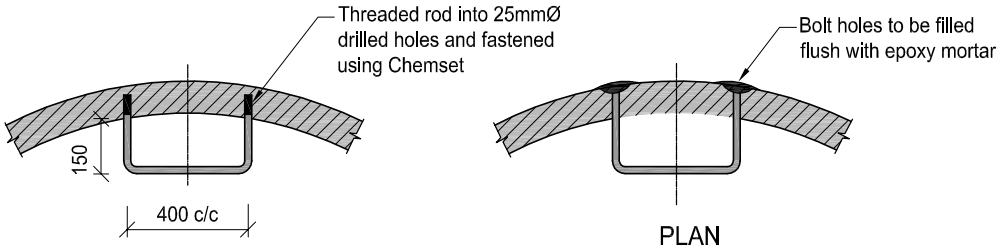
SIDE ELEVATION

MANHOLE LADDER



ELEVATION

SECTION



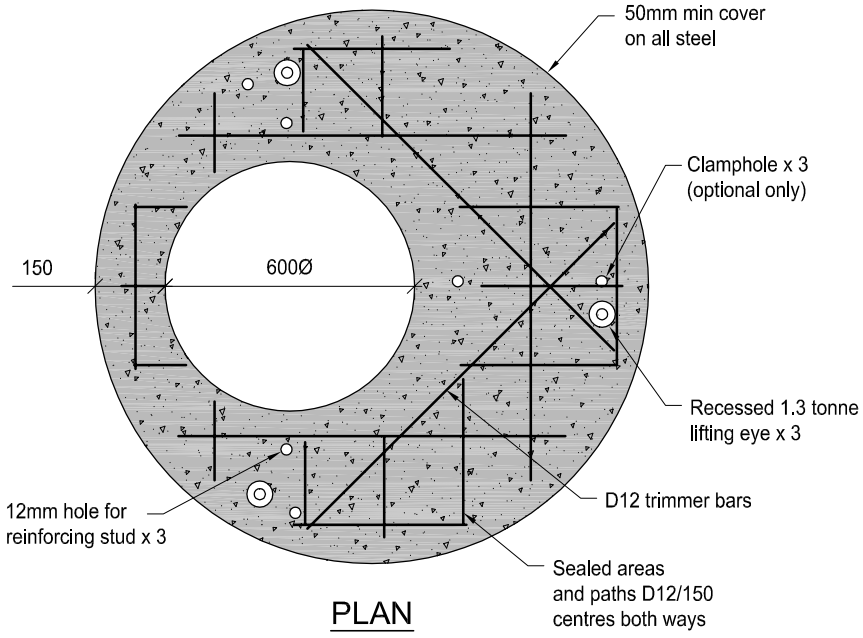
PLAN

PLAN

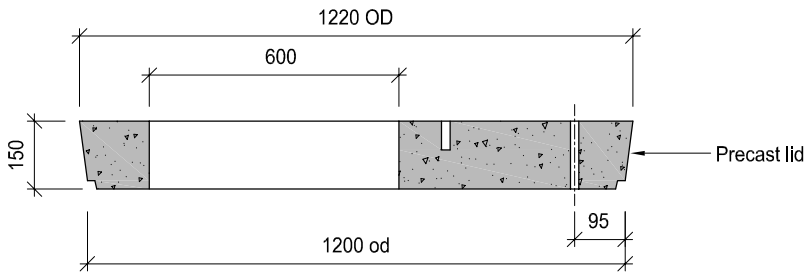
SAFETY STEP IRON DETAILS

NOTES:

1. Standard heavy duty lid 150mm thick except in State Highways (designed for 51kN wheel load).
2. Extra heavy duty for State Highway HN-HN-72.



PLAN



SECTION THROUGH LID

STRUCTURE

MANHOLE - PRECAST 1050mmØ LID

W504

Western Bay of Plenty District Council

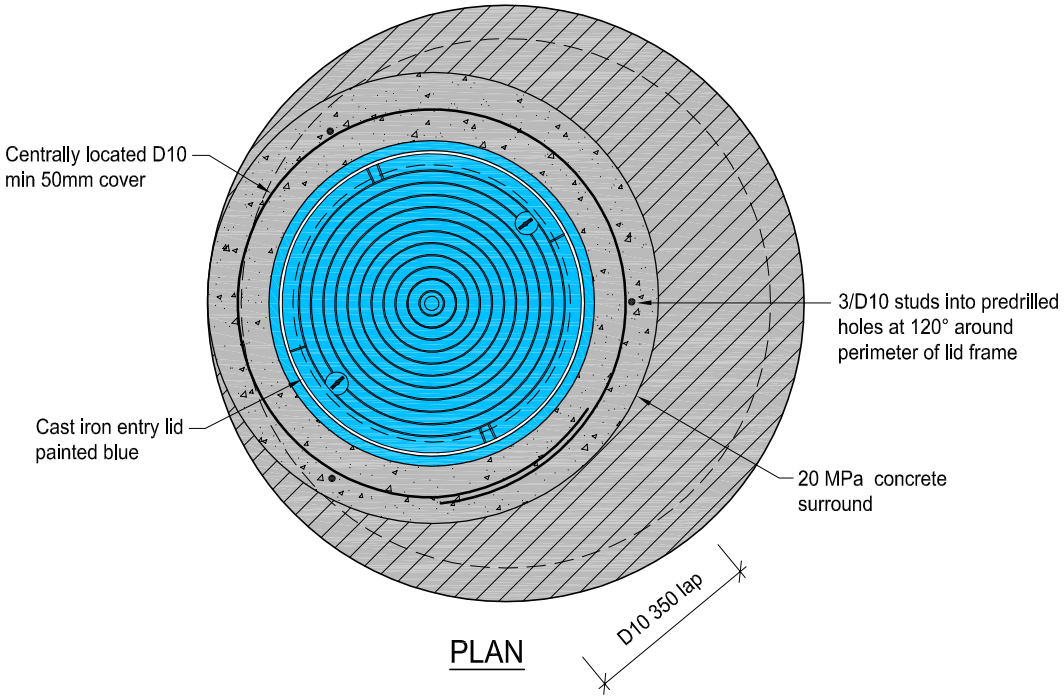
DEVELOPMENT CODE

VERSION 1
AUG 09

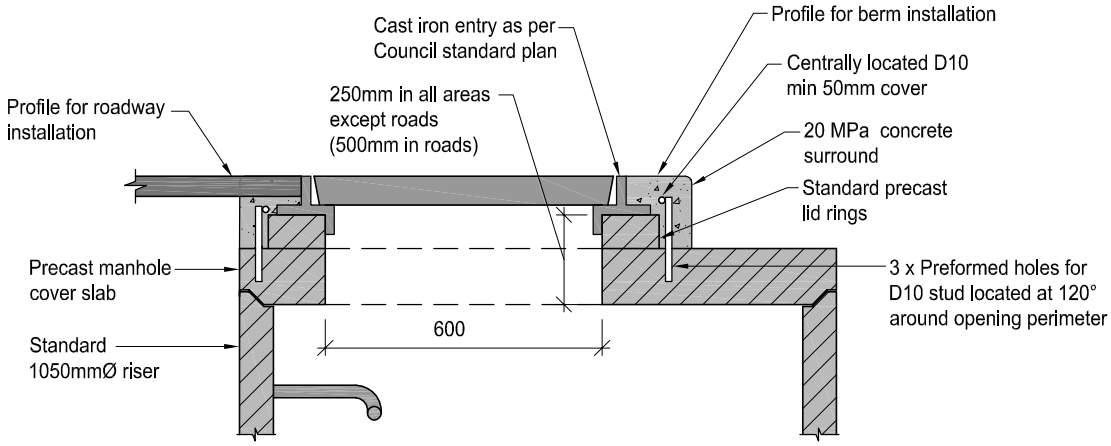
EXAMPLE PHOTO

NOTES:

1. Cast iron entry lid to be constructed to the existing ground contour as appropriate.



PLAN



SECTION

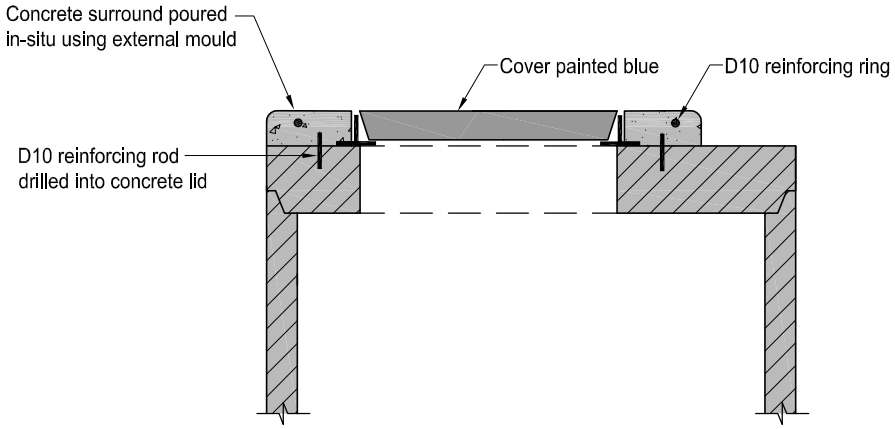
STRUCTURE

MANHOLE - ENTRY FIXING

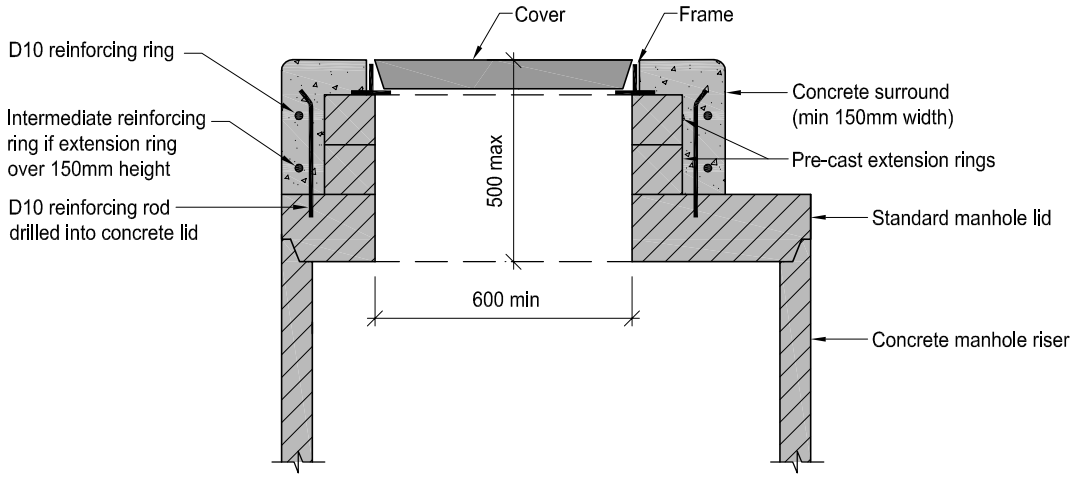
W505

NOTES:

1. Non-rock covers to be used in all road carriageways.
2. Heavy duty covers to be used in all road and recreational reserves, commercial and industrial zoned areas, and residential property driveways.
3. Standard duty covers may only be used on residential properties.

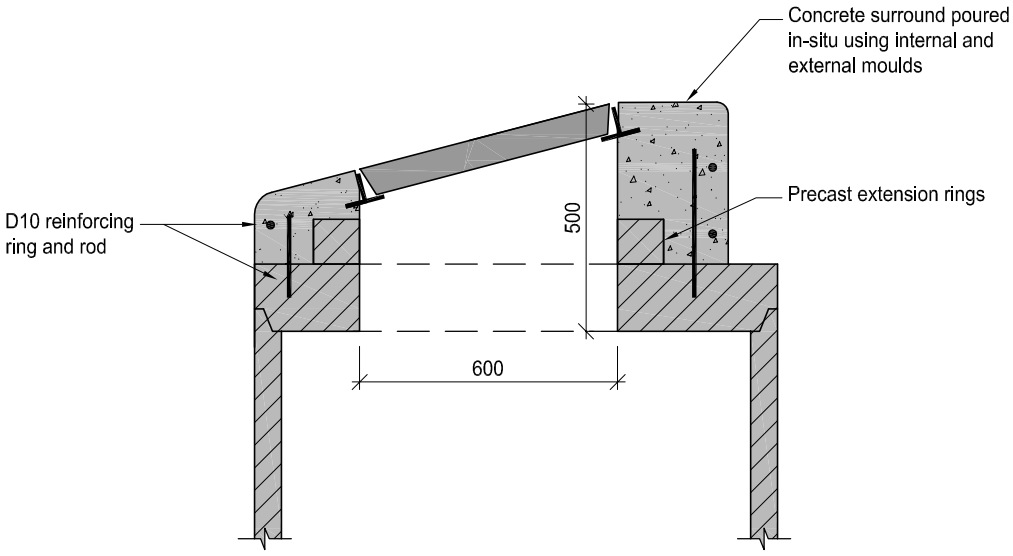


STANDARD ACCESS



RAISED ACCESS

EXAMPLE PHOTO



INCLINED ACCESS

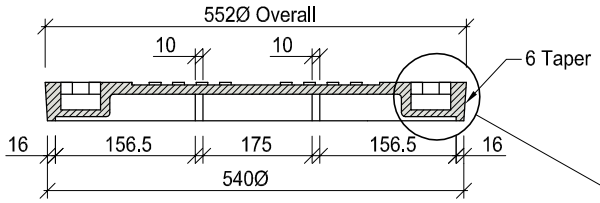
STRUCTURE

MANHOLE - INCLINED ACCESS DETAIL

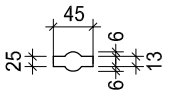
W507

NOTES:

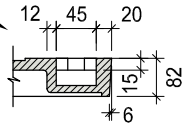
1. All casting to be of best quality grey iron bitumen coated.
2. Paint cover blue with road marking paint.



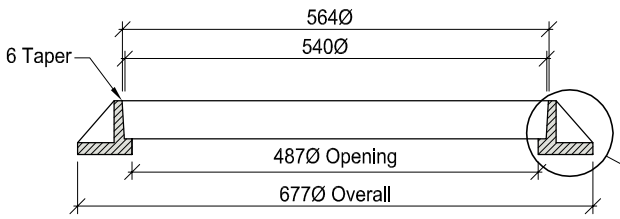
SECTION THRU COVER



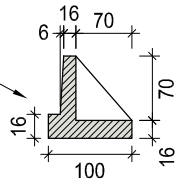
PLAN OF KEYHOLE

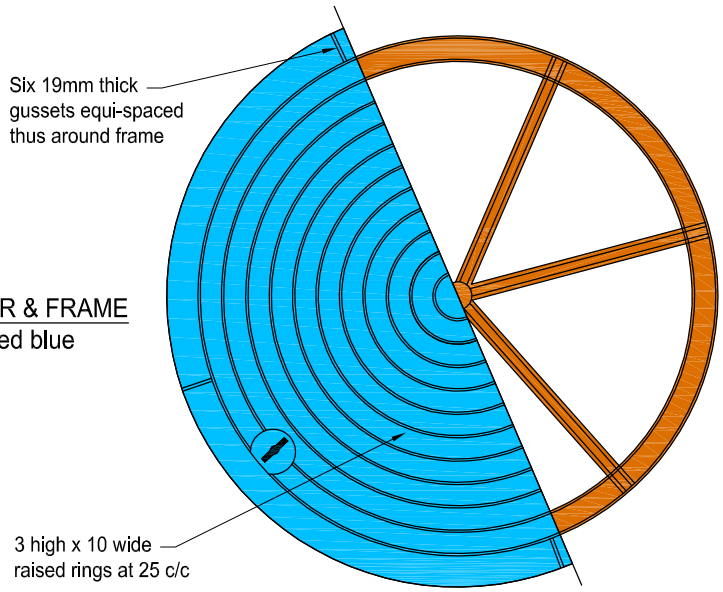


SECTION OF KEYHOLE



SECTION THRU FRAME





PLAN

COVER & FRAME
- painted blue

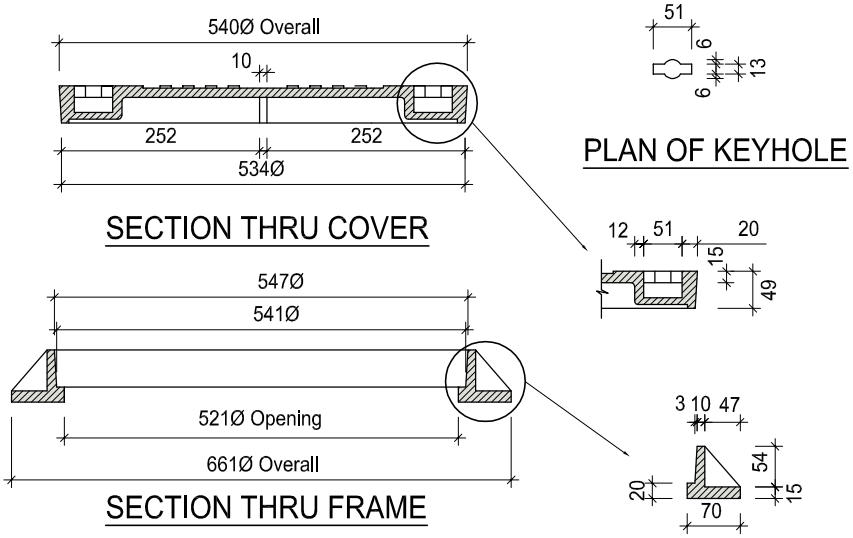
UNDERSIDE OF COVER

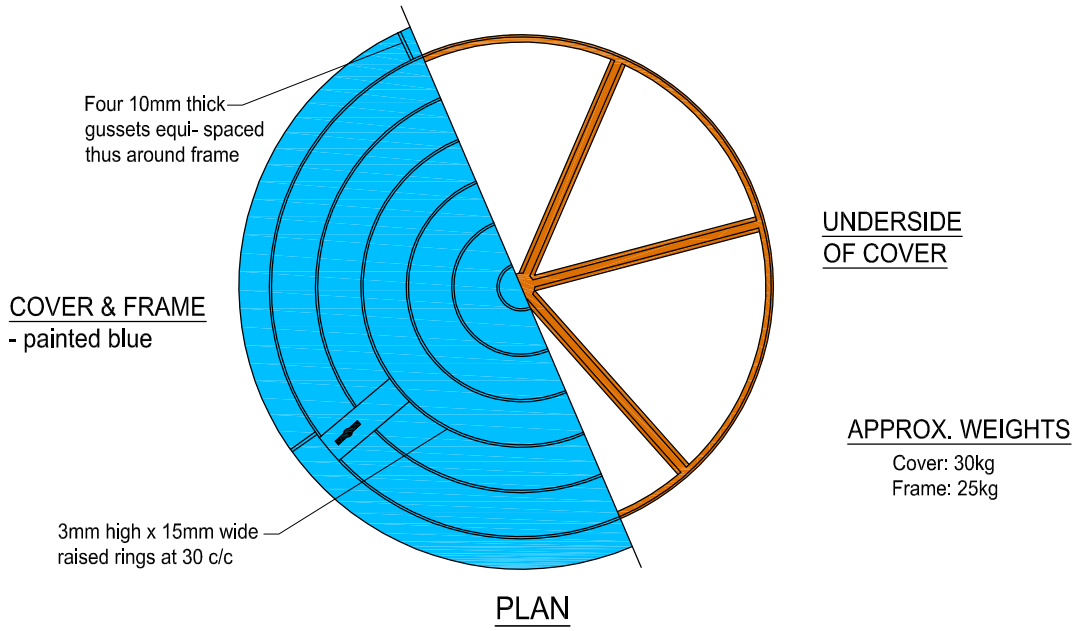
APPROX. WEIGHTS

Cover: 54kg
Frame: 52kg

NOTES:

1. All casting to be of best quality grey iron bitumen coated.
2. Paint cover blue with road marking paint.
3. Light duty covers to be used only in special circumstances with the approval of the Council.





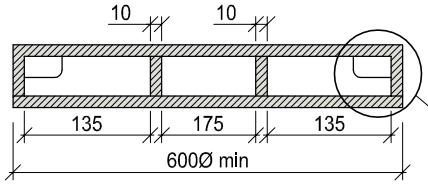
STRUCTURE

MANHOLE - LIGHT COVER AND FRAME

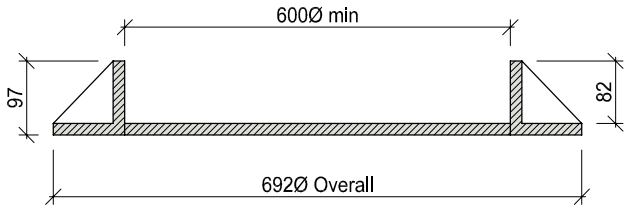
W515

NOTES:

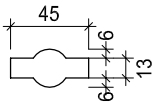
1. All casting to be of best quality grey iron bitumen coated.
2. Paint cover blue with road marking paint.



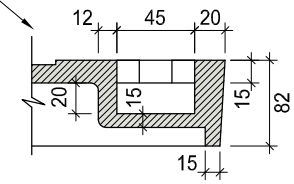
SECTION THRU COVER



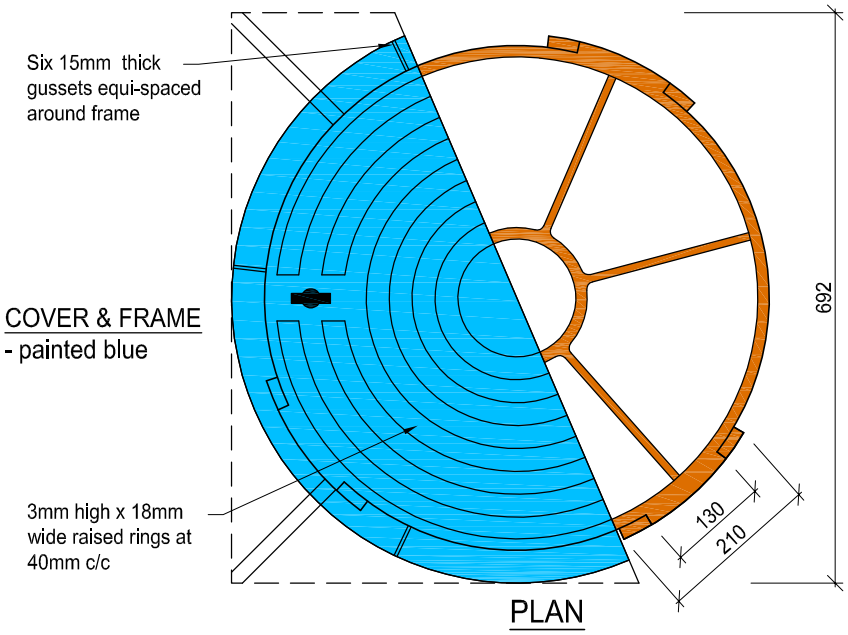
SECTION THRU FRAME



PLAN OF KEYHOLE



SECTION OF KEYHOLE



PLAN

UNDERSIDE OF COVER

APPROX. WEIGHTS

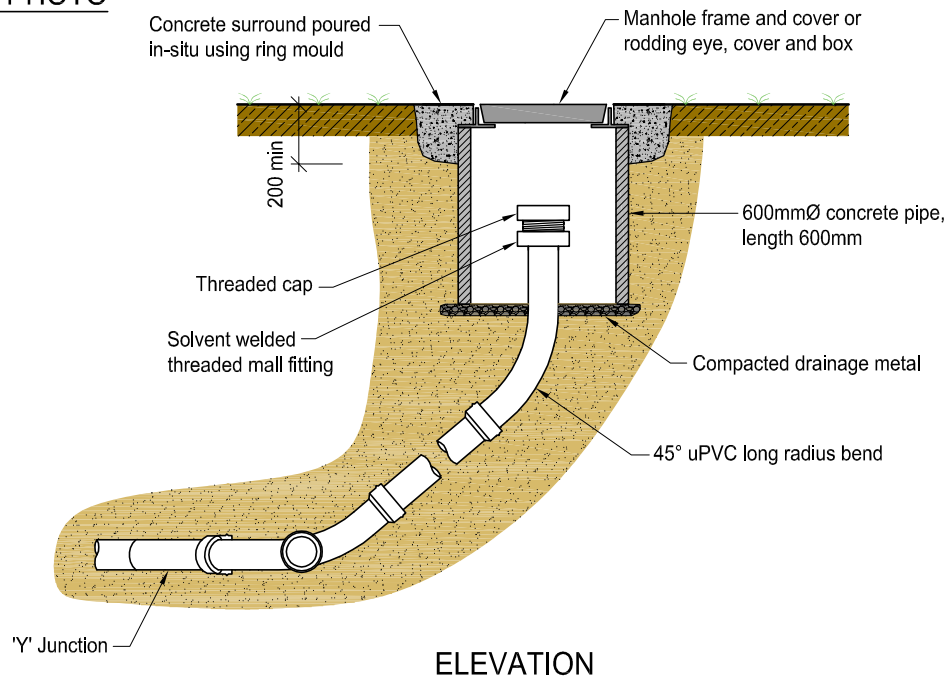
Cover: 51kg
Frame: 37kg

STRUCTURE

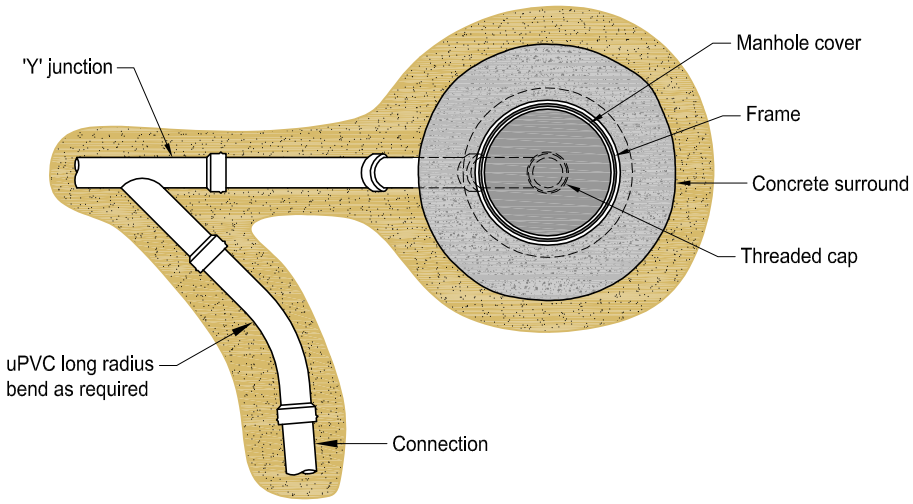
MANHOLE - HEAVY DUTY NON-ROCK TYPE COVER AND FRAME

W516

EXAMPLE PHOTO



ELEVATION



PLAN

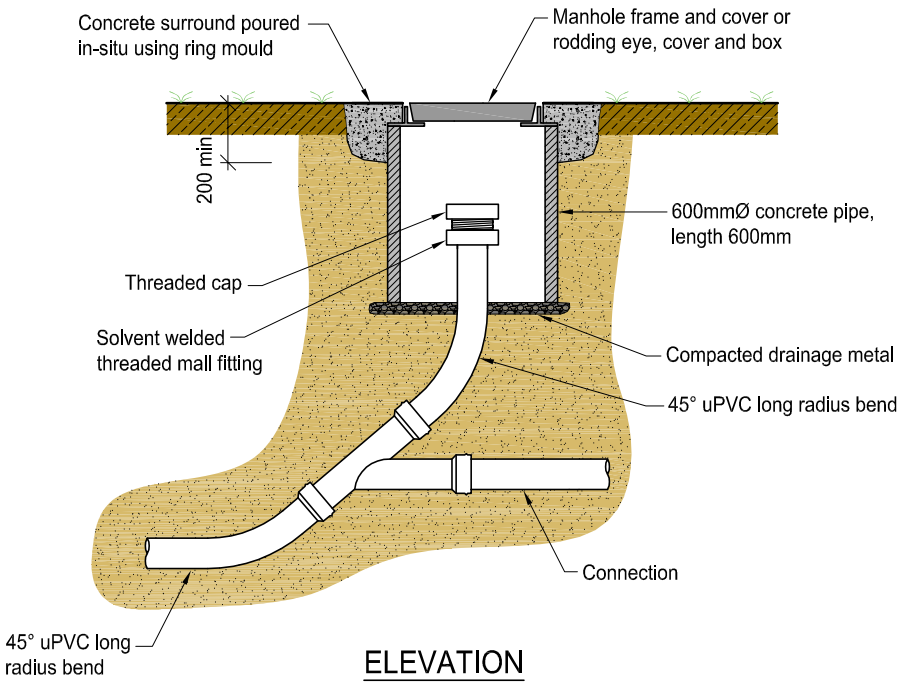
STRUCTURE

RODDING EYE - SHALLOW < 2.5m

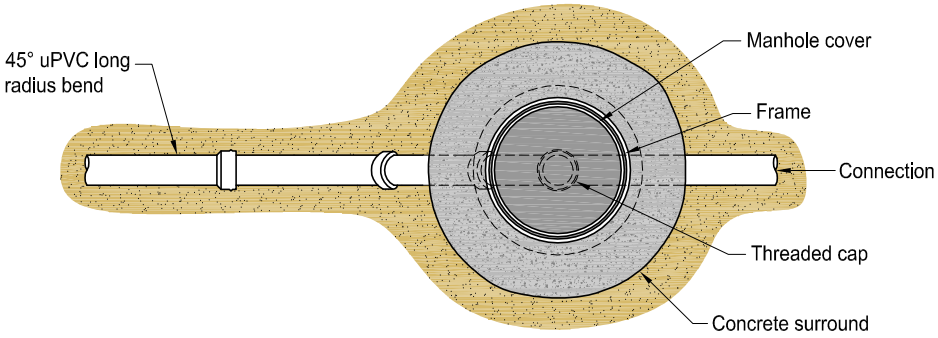
W521

NOTES:

1. Rodding eye to be same diameter as original pipe size.



ELEVATION



PLAN

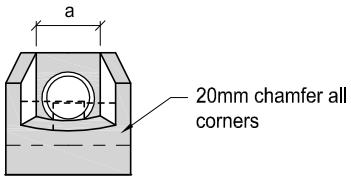
STRUCTURE

RODDING EYE - DEEP > 2.5m

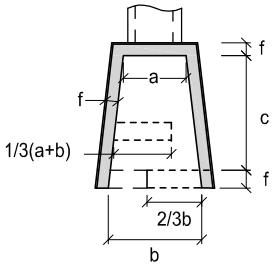
W522

NOTES:

1. Reinforce floor & walls with:
   150-375 665 mesh
   450-600 663 mesh or 10mmØ rods @ 250 crs.
   675-900 12mmØ rods @ 250 crs.
   1050-1350 12mmØ rods @ 150 crs.
2. All reinforcement shall be placed centrally in walls and floor, and shall be continuous between walls and floor.
3. Laps in structural grade bars to be 300mm min.
4. There shall be at least two bars - whether mesh or M.S. - over the top of the pipe.
5. Concrete is to be ordinary grade (20 MPa) in accordance with N.Z.S. 1900 chapter 9.3A.
6. Baffles are to be constructed as shown when outlet velocities and soil conditions dictate. In extreme cases specific design may be required by the engineer.
7. Inlet structures shall have reverse apron fall and no baffles.
8. Local conditions, both climatic and geological, vary extensively and consequently the Manager of City Development should be consulted prior to the design so that local conditions can be allowed for.
9. Rip rap may be required at outfall to prevent erosion/scour
10. Precast alternatives are acceptable.

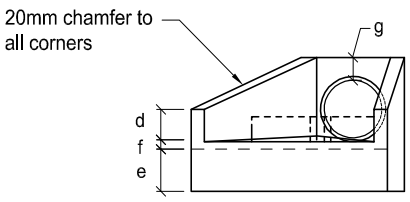


END ELEVATION

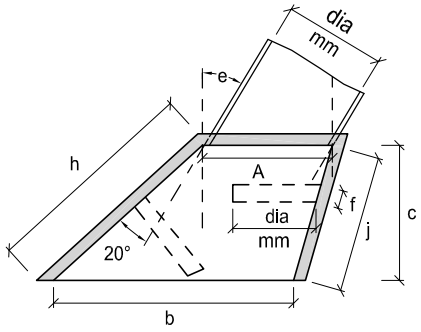


PLAN

NORMAL STRUCTURE

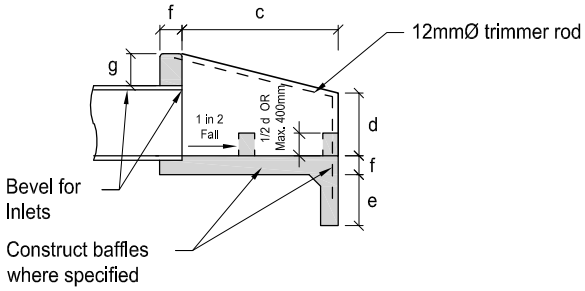


END ELEVATION



PLAN

SKEWED STRUCTURE



SECTION

PRINCIPAL DIMENSIONS (mm)

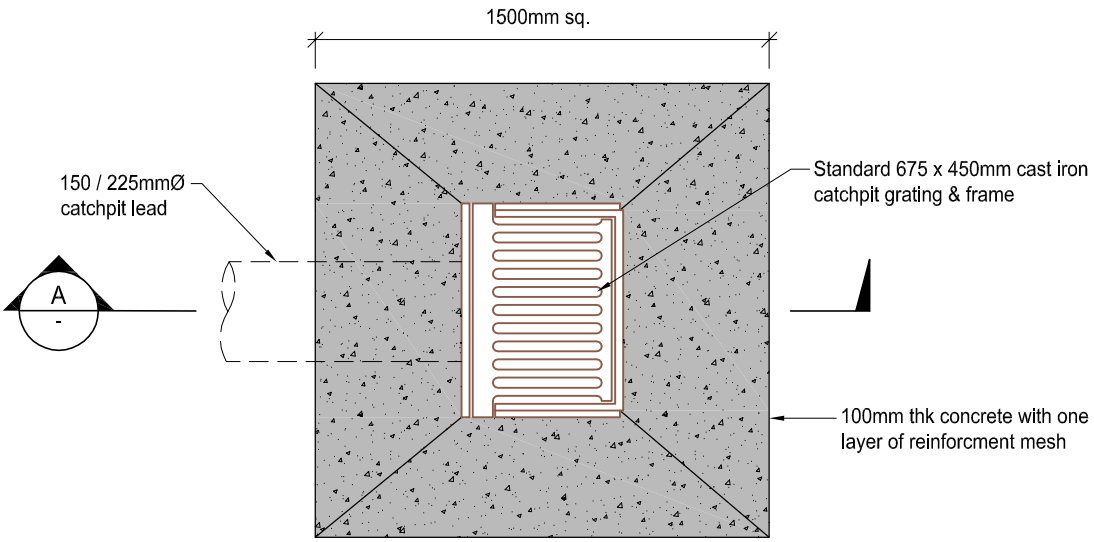
Dia. of pipe	a	b	c	d	e	f	g
150	300	450	600	200	150	100	150
230	380	600	700	250	200	100	150
300	450	750	750	300	200	100	150
375	550	900	850	350	200	100	150
450	630	1100	900	400	230	150	230
525	700	1200	1000	450	230	150	230
600	800	1400	1100	550	230	150	230
750	1000	1700	1200	600	300	150	300
900	1170	2000	1450	650	300	150	300
1050	1380	2300	1700	750	450	150	300
1200	1520	2600	2100	750	450	150	450
1350	1680	2800	2400	750	450	150	450

PRINCIPAL DIMENSIONS

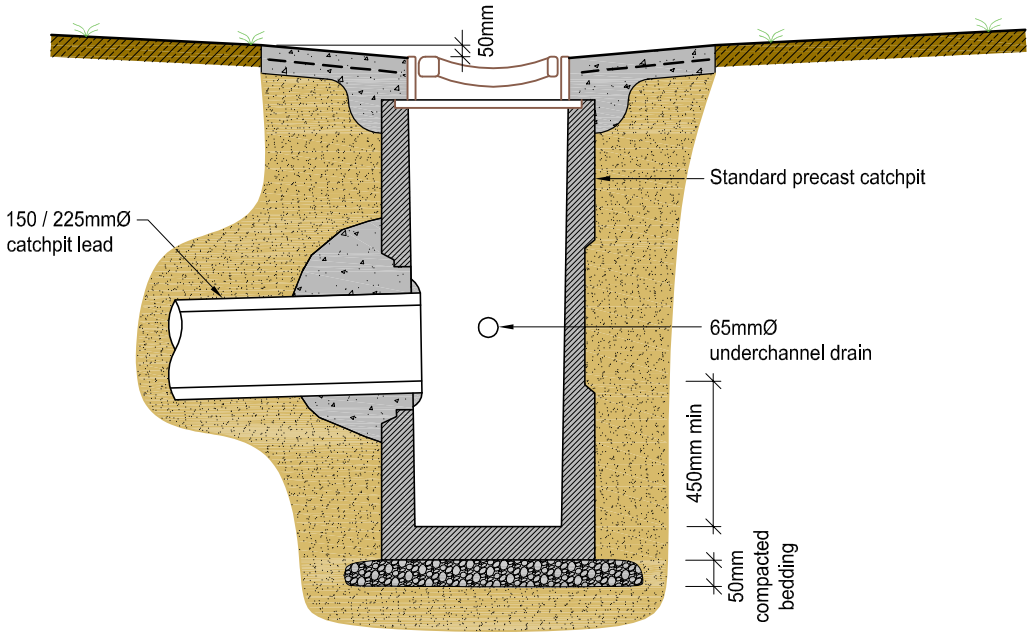
a. Sec e x (a) in the table above
b. c tan (e+20°) + (a-ctan(e-20°))
c. See (c) table above.
d. See (d) table above.
e. See (e) table above.
f. See (f) table above. g.
g. See (g) table above.
h. c x sec (e+20°).
j. c x sec (e-20°).

NOTES:

1. All concrete to be ordinary grade 20 MPa at 28 days.
2. All pipes to be finished flush with inside wall of sump.



PLAN



SECTION A-A

STRUCTURE
YARD SUMP

W526