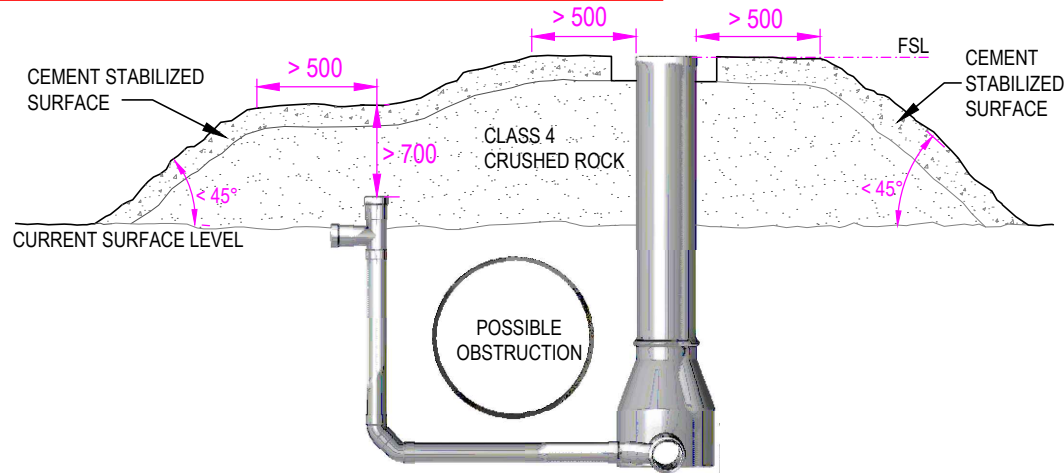


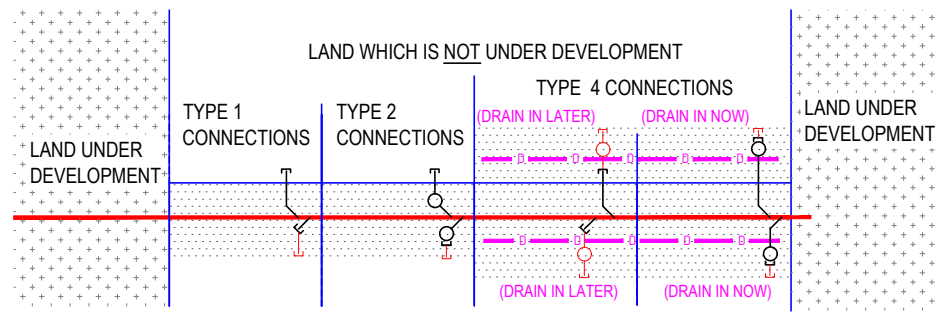
# SEWERAGE MAINS IN AREAS NOT UNDER DEVELOPMENT



**FIGURE 111-A: PROTECTIVE EMBANKMENT WHERE PLACEMENT OF FILL IS DELAYED (non trafficable area)**

### NOTES Regarding Figure 111-A:

- A. Maintenance shafts constructed prior to fill being placed shall be constructed to the final surface level.
- B. Sewerage components shall then be protected with an embankment which:
  - B.A. Fully surrounds any maintenance structures to a minimum 500 around the top of the shaft.
  - B.B. Grades down to the existing ground level at no more than 45° angle from the 500 radius bench.
  - B.C. Provides a minimum 700 cover over all sewerage components.
  - B.D. Is Cement Stabilised. Use premixed material or sprinkle and then fork cement through the top 300 layer, using 2kg cement per m<sup>2</sup> of surface.



**FIGURE 111-B: PROPERTY CONNECTIONS FOR FUTURE DEVELOPMENT**

### TABLE 111-A: PROPERTY CONNECTION INITIAL AND FINAL CONSTRUCTION STEPS

TYPE	CONNECTION SIDE	INITIAL CONSTRUCTION (BLACK)	FINAL CONSTRUCTION (RED) <sup>c</sup>
TYPE 1	SEWER SIDE	O.B JUNCTION + CAP	EXTEND TO EASEMENT BOUNDARY + CAP
TYPE 1	OTHER SIDE	EXTEND 300 PAST PROPERTY BOUNDARY + CAP	CCTV ONLY
TYPE 2	SEWER SIDE	INSTALL JUMP UP + CAP (NO RUN IN)	EXTEND TO EASEMENT BOUNDARY + CAP
TYPE 2	OTHER SIDE	EXTEND 300 PAST PROPERTY BOUNDARY + CAP	CCTV ONLY
TYPE 4 (DRAIN IN LATER)	SEWER SIDE	O.B JUNCTION + CAP	EXTEND PAST DRAIN + INSTALL JUMP UP + EXTEND TO EASEMENT BOUNDARY + CAP
TYPE 4 (DRAIN IN LATER)	OTHER SIDE	EXTEND TO PROPERTY BOUNDARY + CAP	EXTEND PAST DRAIN + INSTALL JUMP UP + EXTEND TO EASEMENT BOUNDARY + CAP
TYPE 4 (DRAIN IN NOW)	SEWER SIDE	INSTALL JUMP UP + CAP (NO RUN IN)	EXTEND TO EASEMENT BOUNDARY + CAP
TYPE 4 (DRAIN IN NOW)	OTHER SIDE	INSTALL JUMP UP + CAP (NO RUN IN)	EXTEND TO EASEMENT BOUNDARY + CAP

### NOTES Regarding Marker Posts Requirements:

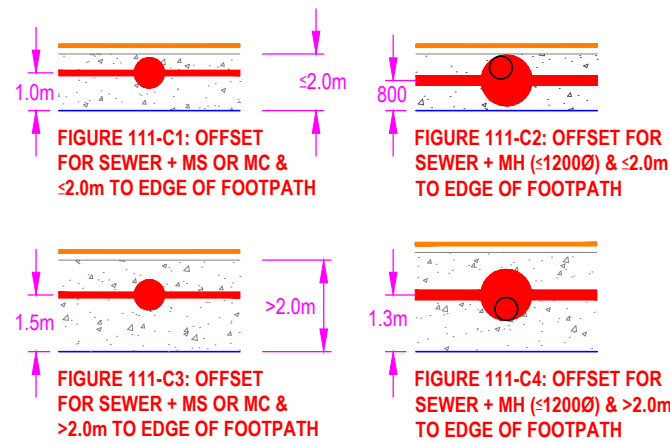
- Install marker posts adjacent to all maintenance structures and at the upstream ends of horizontal bends in undeveloped land.
- Refer figure 403-c for details.

### NOTES Re Future Property Connections:

- A. If there is no plan or draft plan of subdivision- do not include property connections in undeveloped land.
- B. If there is a plan or draft plan of subdivision, designate lot control levels and property connection types for the lots to be developed at a later stage.
- C. When final construction of property connections has been completed, CCTV the entire length of all property connections. Correct any damage found and re-CCTV. Provide final CCTV footage to the Water Agency as part of the As Constructed records.

### TABLE 111-B: FRONT BOUNDARY MIN OFFSETS

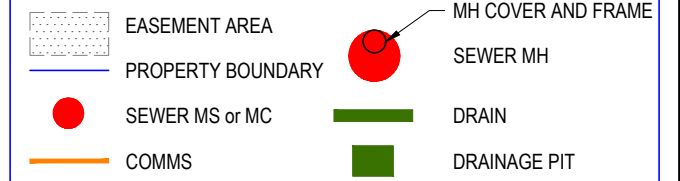
SEWERAGE ASSETS	≤2.0m TO EDGE OF FOOTPATH	>2.0m TO EDGE OF FOOTPATH
SEWER + IS, MS or MC	1.0m	1.5m
SEWER + M.H	800mm	1.3m



### NOTES Regarding Offsets in the Road Reserve:

1. The provided offsets are relevant where MHs are ≤1200Ø. Where a MH is larger, inc offsets by half the increase in Ø above 1200.
2. Communications conduits will require an increased offset where MHs > 1200Ø are required.
3. Locate cover and frame within footpath and on the side of the MH indicated.
4. These offsets shall apply whether there is a retaining wall near the front boundary or not.
5. These offsets take precedence over minimum clearance requirements.

### LEGEND



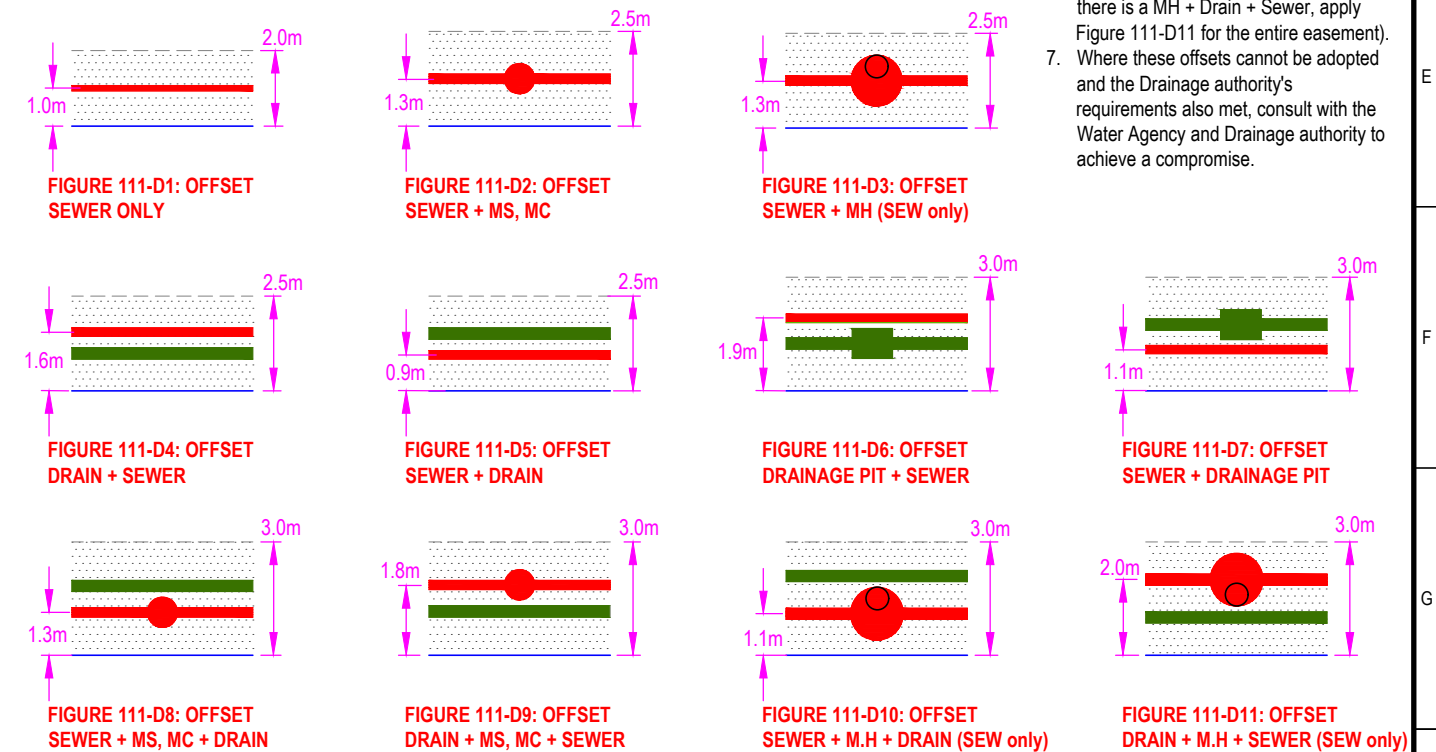
### TABLE 111-C: REAR BOUNDARY EASEMENTS & OFFSETS

EASEMENT ASSETS	EASEMENT WIDTH	SEWER OFFSET
SEWER + IS	2.0m	1.0m
SEWER + MS, MC, MH*	2.5m	1.3m
<b>IF SEWER CLOSER TO PROPERTY BOUNDARY</b>		
SEWER + IS + DRAIN	2.5m	0.9m
SEWER + IS + DRAINAGE PIT	3.0m	1.1m
SEWER + MS, MC + DRAIN	3.0m	1.3m
SEWER + MH* + DRAIN	3.0m	1.1m
<b>IF DRAIN CLOSER TO PROPERTY BOUNDARY</b>		
SEWER + IS + DRAIN	2.5m	1.6m
SEWER + DRAINAGE PIT	3.0m	1.9m
SEWER + MS, MC + DRAIN	3.0m	1.8m
SEWER + MH* + DRAIN	3.0m	2.0m

\* MHs in Private Property are not allowed for CWW and YVW.

### NOTES Regarding All Offsets:

1. The key priorities used to determine the offsets are as follows:
  - 1.1. Maintain minimum clearance between drains and sewers (300 between pipes, 150 between a structure and pipe).
  - 1.2. Locate assets centrally in the easement.
2. Drainage pits and sewer maintenance structures shall have a minimum longitudinal clearance of 500.
3. The provided offsets are relevant where Sewers ≤DN225 and Drains ≤DN300. Where either pipe is larger than this, the offsets should be evenly adjusted while ensuring that minimum clearance between pipes / structures is maintained.
4. These offsets take precedence over property boundary and retaining wall minimum clearance requirements.
5. The nominated rear offsets are valid when there is a retaining wall at the rear boundary, provided the sewer is constructed prior to construction of the retaining wall.
6. Apply the "worst case" easement and offsets for the entire easement (eg: if there is a MH + Drain + Sewer, apply Figure 111-D11 for the entire easement).
7. Where these offsets cannot be adopted and the Drainage authority's requirements also met, consult with the Water Agency and Drainage authority to achieve a compromise.



ALL DIMENSIONS IN mm UNLESS STATED OTHERWISE				DESIGNED: R. JAGGER DATE: 1 JULY 2015	
				DRAWN: R. JAGGER DATE: 1 JULY 2015	
CHECKED:		NAME		APPROVED: NAME DATE	
☑ CWW		D. MOORE		☑ CWW R. CARRUTHERS 01/09/15	
☑ SEW		C. PAXMAN		☑ SEW D. O'DONOVAN 01/09/15	
☑ YVW		K. DAWSON		☑ YVW J. TOMASI 01/09/15	
ISSUED 2015			VERSION 1		

MELBOURNE RETAIL WATER AGENCIES

MRWA SEWERAGE STANDARDS

SEWERS IN UNDEVELOPED PROPERTY AND EASEMENTS AND OFFSETS

NOT TO SCALE

MRWA-S-111

Planning	Design	Construction
✓	✓	✓