

FIGURE 400-A: INSERTING MAINTENANCE SHAFTS AND CHAMBERS INTO EXISTING SEWERS

NOTES Regarding Inserting Maintenance Shafts and Chambers into Live Mains:

- MSs and MCs with flexible RRJ connectors are recommended where one is to be installed within an existing pipeline.
 - Comply with confined space entry requirements of the Water Agency throughout the works.
1. Submit Work Method Statement if this has been requested by the Water Agency.
 2. Excavate down to and around the pipe where the maintenance shaft / chamber is to be constructed.
 3. Minimise the amount of pipe embedment removed around existing pipe.
 4. Prepare the base in accordance with MRWA-S-305 & 306.
 5. Stop sewer flow from entering the main to be cut.
 6. Place a band around the existing pipe to mark straight cut lines where the pipe is to be cut.
 7. Cut (+/- 3 mm from straight circumferential line) and dry the main.
 8. Place maintenance shaft / chamber with pipe extension and lubricated coupling (if coupling).
 9. Ensure grade of MS or MC base is consistent with existing main. If required, remove and adjust level of foundation to ensure correct grade.
 10. Pull back couplings or place clamps over joints, ensuring fitting is centered over the gap.
 11. Place embedment and backfill as per MRWA-S-201 and 202.

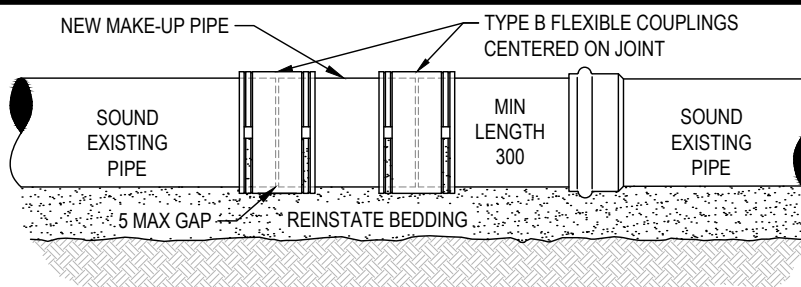


FIGURE 400-B: FLEXIBLE COUPLING JOINTS

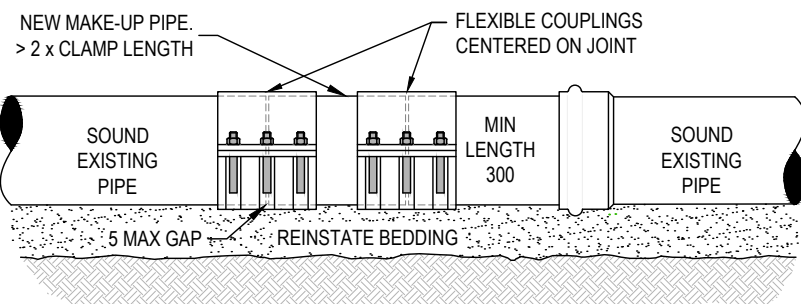


FIGURE 400-C: SLIP COUPLING JOINTS

NOTES Regarding Couplings and Clamps:

- Clamps and couplings shall not be used in the construction of new pipelines.
- Repair clamps and joining clamps for insertion of pipe sections into profiled wall pipe (ie: PP pipe) are available from the relevant manufacturer.
- Ensure clamps overlap existing pipe as per Table 400-A.

TABLE 400-A: CLAMP OVERLAP

PIPE DN	MIN CLAMP LENGTH EITHER SIDE OF GAP
≤DN375	75
≥DN450	125

Pipe Insertion Procedure:

1. Submit Work Method Statement if this has been requested by the Water Agency.
2. Minimise the amount of pipe embedment removed around existing pipe.
3. Stop sewer flow from entering the main to be cut.
4. Place a band around the existing pipe and mark straight cut lines (+/- 3 from straight line).
5. Remove any redundant pipework.
6. Obtain confined space permits and prepare for confined space entry if this has not already been done.
7. Cut the main.
8. Cut an insertion piece, ensuring gaps will be < 5 wide and that the difference in ID is less than 5. Chamfer any internal edge which may protrude into the flow.
9. Clean insertion piece and 400 beyond each existing pipe end and lubricate if RRJ.
10. Place two couplings over insertion piece ends (if couplings being used).
11. Insert pipe piece and pull back couplings or place clamps over joints, ensuring fittings are centered over gaps.
12. Embed and backfill as per MRWA-S-201 and 202.

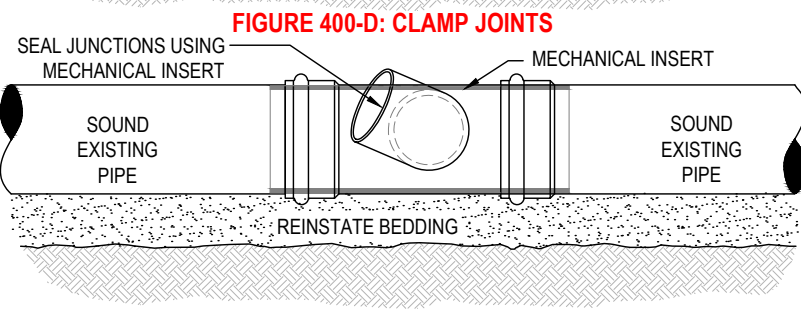


FIGURE 400-D: CLAMP JOINTS

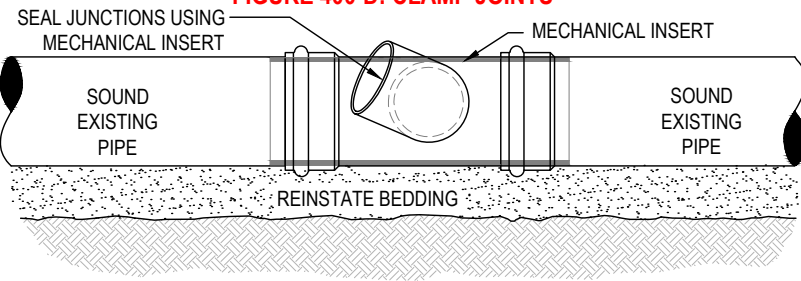


FIGURE 400-E: MECHANICAL INSERT

NOTES Regarding Repair of Damaged Pipe:

- Approved mechanical inserts may be used to repair small defects (ie: defects < 1/2 length of insert). For larger defects, instead replace a section(s) of the pipe as per Figures 400-B to D.
- All protrusions into the bore of the pipe shall be removed. CCTV all repaired pipe to verify hydraulic integrity.

Maintenance Hole Construction Over Existing Sewers:

- The pipe should not be broken until the MH is virtually fully constructed.
 - While it remains unbroken, the excavation may or not be a confined space depending on the likelihood of sewage or gases escaping the pipe. This will depend on the age, type and condition of the pipe.
 - Comply with confined space entry requirements of the Water Agency throughout the works.
1. Submit Work Method Statement if this has been requested by the Water Agency.
 2. Excavate down to and around the pipe where the maintenance hole is to be constructed, ensuring that the main is stable.
 3. Prepare the base in accordance with MRWA-S-310.
 - 3.2. Prepare the pipe which is to be encased in concrete by thoroughly cleaning the pipe and then;
 - 3.2.1. If PVC DWV- priming the pipe before applying solvent cement around the full circumference of the pipe. Sprinkle builders sand liberally to the solvent cement. Allow to harden before concreting.
 - 3.2.2. If PP- applying a circular hydrophilic rubber bandage on both sides to the outer diameter of a rib 75 back from where the pipe will be cut.
 - 3.2.3. If GRP- sanding the pipe with coarse sand paper. Then apply polyester resin to the abraded surface and then sprinkle builders sand liberally to resin. Allow to harden before concreting.
 - 3.3. Place polystyrene blockout above the existing pipe and for any new chase / channel (for new sewer connections) as per Figure 400-G.
 - 3.4. Install formwork as required in preparation for placement of concrete for the base.
 4. Pour the in situ cast base including nib wall and starter bars.
 5. Pour the wall segments, top and set cover and frame as per MRWA-S-300 series drawings.
 6. Fix ladder / step irons / landings / drop pipe as necessary.
 7. Remove the polystyrene blockout from the base.
 8. Cut out the top of the pipe as per Figure 400-I or cut and remove all of pipe within the MH channel.
 9. Cut out the side of the existing pipe to allow the new channel to enter the existing main.
 10. "compo" (render) the top edges of the cut pipe and any gap between pipe and base with epoxy mortar (refer WSA-201- selection and application of protective coatings) in accordance with Figure 400-J
 11. "compo" (render) the junction of the new channel where it junctions with the existing main.
 12. Once the maintenance hole walls have set sufficiently, backfill in accordance with the MRWA backfill specification MRWA-04-03.

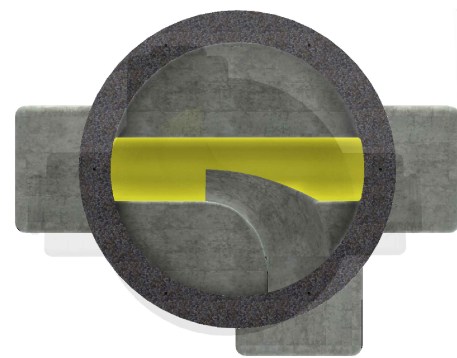


FIGURE 400-F: FINISHED MAINTENANCE HOLE CONNECTION TO AN EXISTING SEWER

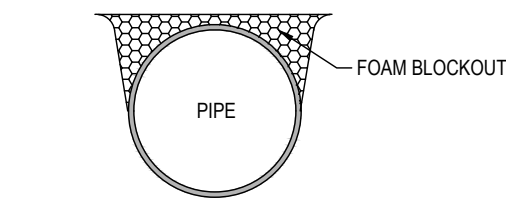


FIGURE 400-G: EXCAVATE AROUND MAIN & ATTACH BLOCKOUT

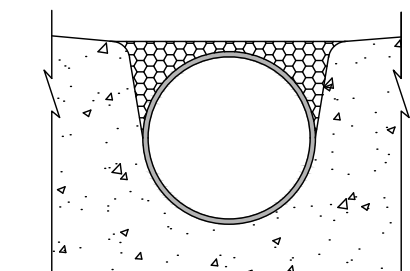


FIGURE 400-H: PLACE FORMWORK AND THEN CONCRETE

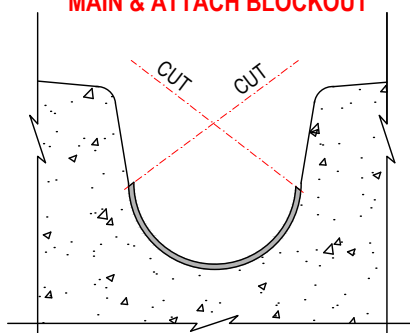


FIGURE 400-I: CUT OUT EXPOSED PIPE

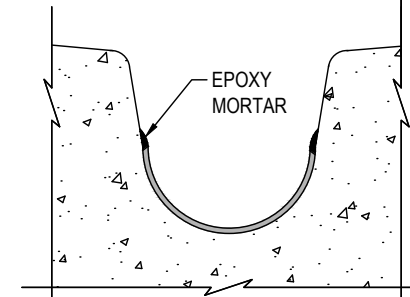


FIGURE 400-J: RENDER TOP EDGE OF PIPE

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	
2	PUBLISHED FIRST ISSUE	01/10/15	CP / JT / KD / RJ	<input checked="" type="checkbox"/> CWW	D. MOORE 01/09/15
1	PRE-PUBLISHED DRAFT	01/03/15	CP / JT / KD / RJ	<input checked="" type="checkbox"/> SEW	C. PAXMAN 01/09/15
				<input checked="" type="checkbox"/> YVW	K. DAWSON 01/09/15
REV	DESCRIPTION	DATE	APPROVED	ISSUED 2015 VERSION 1	



MRWA SEWERAGE STANDARDS

INSERTION INTO LIVE SEWERS, and REDUNDANT PROPERTY CONNECTIONS

NOT TO SCALE

MRWA-S-400

Planning	Design	Construction
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