

FIGURE 510-A: PLAN VIEW

**Concrete Embedment (Figures 510-B, C, E & F):**

1. Drill a pilot hole through concrete embedment / encasement to confirm thickness and condition of embedment.
2. Ensure concrete is able to withstand dowel insertion and scabbling without fracturing. Remove all weak material or if most concrete is weak, remove all concrete embedment. Concrete removal method shall take into account the condition of the existing pipe and the degree to which it can withstand vibration and impact.
3. Scabble all existing concrete surfaces which will bond with new concrete until aggregate exposed.
4. Place dowels as shown at 200 spacing for the length of the new MH, ensuring that all dowels will have > 75 clear cover once concreted in place as per Figure 510-B1 and dowels > 75 from the pipe.  
Dowel thickness as per Table 310-B. Insert into the existing concrete with adhesive capsule chemical anchors. Keep dowels >75 clear of any new lateral channel connection.  
If concrete thickness is less than half pipe  $\varnothing$ , reduce the penetration of the dowels to ensure they have adequate clear cover underneath.
5. Where the concrete is in good condition, shallow and structurally sound enough to safely excavate underneath the embedment, prepare as per Figure 510-C1.  
5.1. Support pipe against deflection due to weight of concrete where required (ie: if flexible pipe).  
5.2. Place base N16 x 200 reinforcement bars at 45° and 135° to the sewer as much as practical.
6. Place foam blockout at lateral connection if channel required for shaft connection with drop pipe, as per Figure 510-E1.
7. Place foam blockout and stub pipe at lateral connection if channel required for a base connection, as per Figure 510-F1.
8. Prepare concrete surface and place materials as per Figures 510-B, C, E and F and MRWA-S-500 and 508.
9. Remove blockout and pipe crown as per Figure 508-D3 and E3, ensuring no material falls into the live channel.
10. Trim all edges and smooth rough edges with Compo as per Figures 508-D4 and E4.

**Concrete Encasement (Figures 510-D & G):**

- Connection to a concrete encased sewer requires Water Agency approval and shall only be undertaken where there is no practical alternative. Approval will depend on the contractor having a sound methodology to prevent debris entering the sewer.
- A. Excavate down to string line of the encasement and drill a dowel hole to confirm condition of concrete.
  - B. Ensure concrete able to withstand dowel insertion and scabbling without fracturing.
  - C. Remove all weak material or if most concrete is weak, remove all concrete encasement. Concrete removal method shall take into account the condition of the existing pipe and the degree to which it can withstand vibration and impact.
  - D. Remove concrete encasement for lateral connection as per Figure 510-G1.  
Refrain from removing concrete from the haunch of the pipe, even if that means elevating the lateral inflow channel.
  - E. Scabble all existing concrete surfaces which will bond with new concrete until aggregate exposed.
  - F. Place dowels as shown at 200 spacing for the length of the new MH, ensuring that all dowels will have > 75 clear cover once concreted in place and are > 75 from the pipe as per Figure 510-D1. Dowel thickness as per Table 310-B.  
Insert into the existing concrete with adhesive capsule chemical anchors. Keep dowels >75 clear of any new lateral channel connection. Dowels are shown in the below figures as horizontal, but may be angled upwards to as much as 45 deg from horizontal.
  - G. Place foam blockout at lateral connection if channel required for shaft connection with drop pipe.
  - H. Place foam blockout and stub pipe at lateral connection if channel required for a base connection.
  - I. Prepare concrete surface and place materials as per Figures 510-D & G and MRWA-S-500 and 508.
  - J. Remove blockout and pipe crown as per Figure 508-D3 and E3, ensuring no material falls into the live channel.
  - K. Trim all edges and smooth rough edges with Compo as per Figures 508-D4 and E4.

**CONSTRUCTION DETAILS, SECTION A OPTIONS (AWAY FROM LATERAL CONNECTION)**

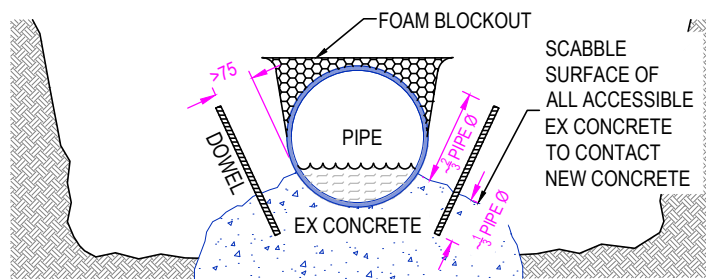


FIGURE 510-B1: PREPARATION, DEEP CONCRETE EMBEDMENT

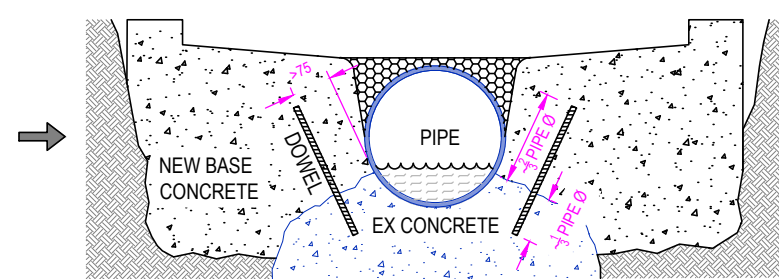


FIGURE 510-B2: BASE CONCRETE IN PLACE

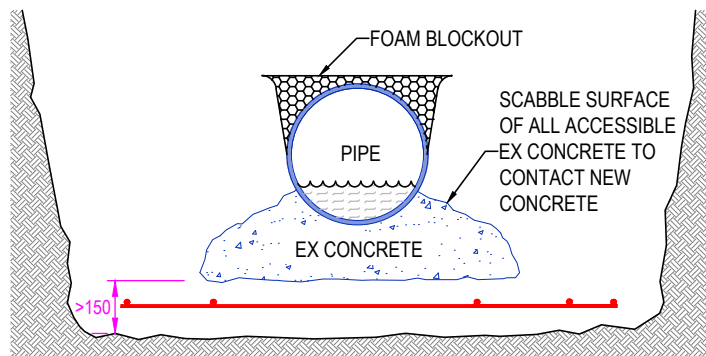


FIGURE 510-C1: PREPARATION, EXPOSED CONCRETE EMBEDMENT

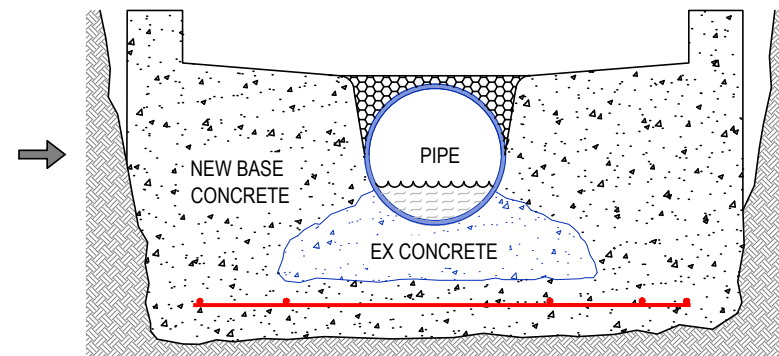


FIGURE 510-C2: BASE CONCRETE IN PLACE

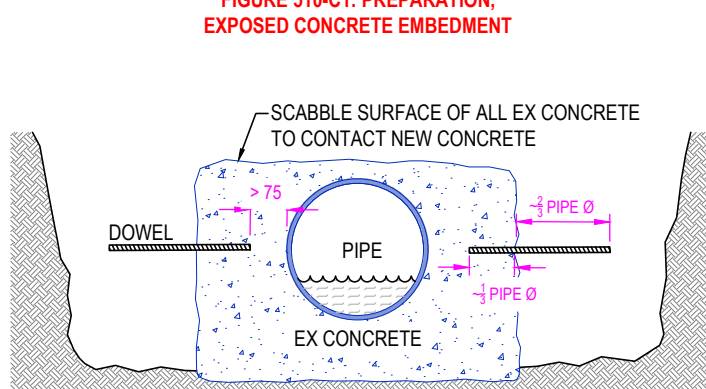


FIGURE 510-D1: PREPARATION, CONCRETE ENCASEMENT

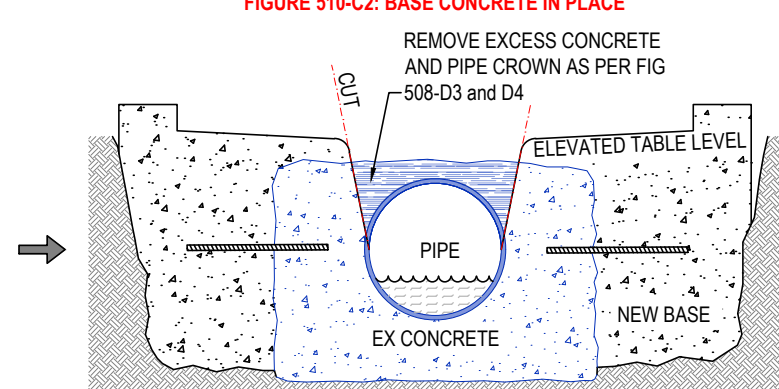


FIGURE 510-D2: BASE CONCRETE IN PLACE

**CONSTRUCTION DETAILS, SECTION B (DROP OR BASE LATERAL CONNECTION)**

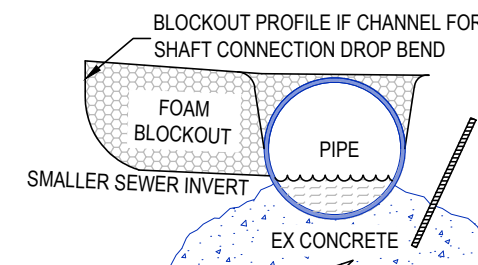


FIGURE 510-E1: PREPARATION, DEEP CONCRETE EMBEDMENT AND SMALLER LATERAL CONNECTION (INTERNAL DROP CONNECTION AND SHALLOW CHANNEL SHOWN)

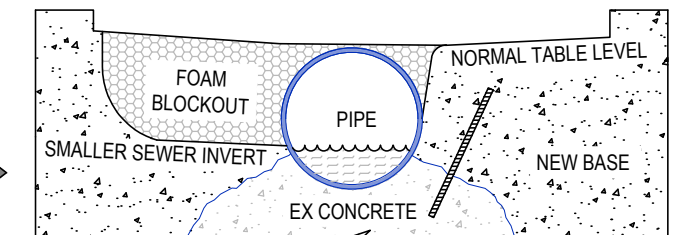


FIGURE 510-E2: BASE CONCRETE IN PLACE

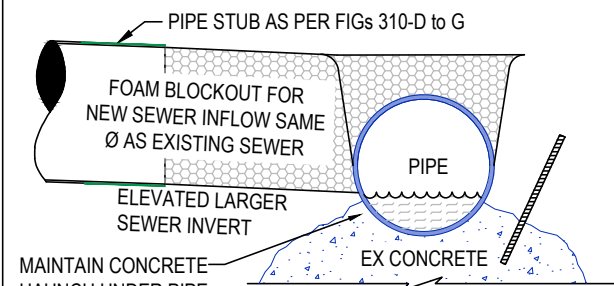


FIGURE 510-F1: PREPARATION, DEEP CONCRETE EMBEDMENT AND LARGER LATERAL CONNECTION (BASE CONNECTION AND DEEP CHANNEL SHOWN)

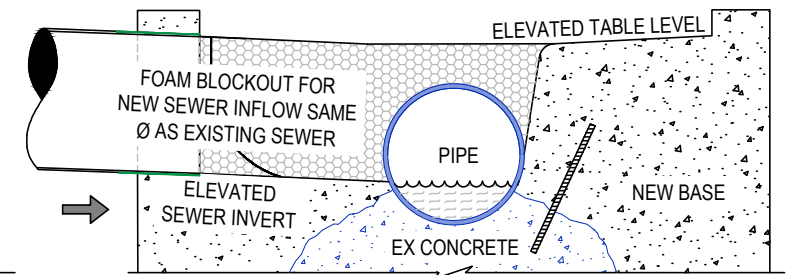


FIGURE 510-F2: BASE CONCRETE IN PLACE, CONCRETE EMBEDMENT AT LATERAL CONNECTION

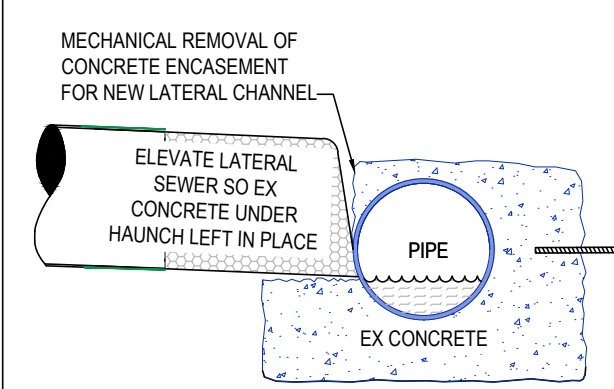


FIGURE 510-G1: PREPARATION, CONCRETE ENCASEMENT, AWAY FROM LATERAL

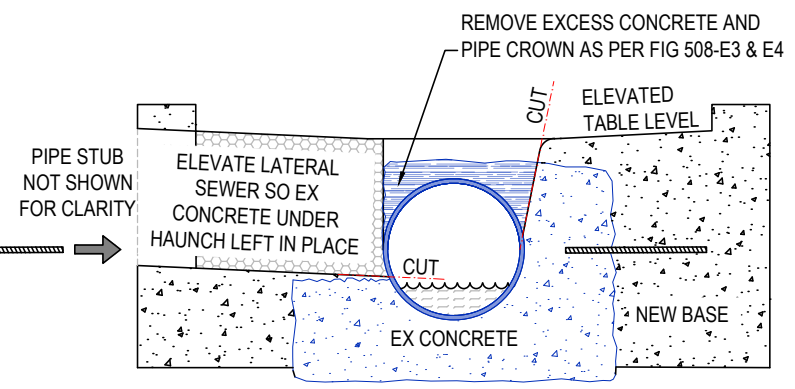


FIGURE 510-G2: PREPARATION, CONCRETE ENCASEMENT, AWAY FROM LATERAL

ALL DIMENSIONS IN mm UNLESS STATED OTHERWISE

REV	DESCRIPTION	DATE	APPROVED
2	PUBLISHED FIRST ISSUE	SEP 20	CP / GA / RL
1	PRE-PUBLISHED DRAFT	JUN 20	CP / GA / NG

DESIGNED: R. JAGGER DATE: JUNE 2020

DRAWN: R. JAGGER DATE: JUNE 2020

CHECKED:	NAME	DATE	APPROVED:	NAME	DATE
<input checked="" type="checkbox"/>	CWW	G. ANTHONSEN	<input checked="" type="checkbox"/>	CWW	S. TRIKHA
<input checked="" type="checkbox"/>	SEW	C. PAXMAN	<input checked="" type="checkbox"/>	SEW	D. STEWART
<input checked="" type="checkbox"/>	YVW	N. GERHARD	<input checked="" type="checkbox"/>	YVW	R. LEON

ISSUED 2020 VERSION 1

MELBOURNE RETAIL WATER AGENCIES



MRWA SEWERAGE STANDARDS

LIVE SEWER CONCRETE MH CONSTRUCTION, CONCRETE ENCASED

NOT TO SCALE

MRWA-S-510

Planning	Design	Construction
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