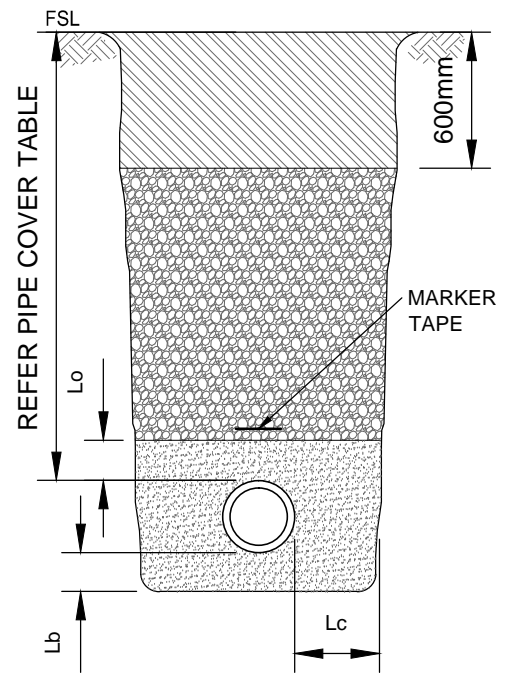


TRAFFICABLE AREAS					
TRENCH ZONE	PREFERRED MATERIALS	PRODUCT SPEC. No.	METHOD OF PLACEMENT	COMPACTION REQUIRED	FREQUENCY & LOCATION OF COMPACTION TESTING
PAVEMENT ZONE	REFER TO ROAD OWNERS SPECIFICATION			98% R _D TOP 100mm	FOR EVERY 50m LENGTH OF TRENCH (OR PART THEREOF) THREE TESTS SHALL BE TAKEN: a. WITHIN THE TOP 100mm (IE WITHIN THE BASE COURSE) OF AN EXISTING ROAD; b. IN THE DEPTH RANGE 100mm TO 300mm DEPTH (i.e. WITHIN THE PAVEMENT SUB-BASE).
SUB-BASE ZONE	REFER TO ROAD OWNERS SPECIFICATION				
BACKFILL ZONE	REFER TO ROAD OWNERS SPECIFICATION, OTHERWISE: COMPLY WITH MRWA BACKFILL SPEC - MRWA SPEC 04-03: a. FOR TRENCHES <1.5 METRES DEEP (OTHER THAN FOOTPATHS): THE BACKFILL SHALL BE 20mm CLASS 2 PLANT WET MIXED CRUSHED ROCK, FOR THE FULL DEPTH. b. FOR TRENCHES > 1.5 METRES (OTHER THAN FOOTPATHS): • 20mm CLASS 2 PLANT WET MIXED CRUSHED ROCK FOR THE TOP 600mm. • 20mm CLASS 4 (OR BETTER) CRUSHED ROCK FOR THE REMAINDER. c. FOR TRENCHES UNDER FOOTPATHS: • THE BACK FILL SHALL BE 20mm CLASS 4 (OR BETTER) CRUSHED ROCK.	VIC ROADS SPEC 812	SELECTED MATERIALS SHALL BE WORKED AROUND THE PIPE TO ENSURE ALL VOIDS AT HAUNCHES ARE FILLED AND THE PIPE IS PROVIDED WITH GOOD SUPPORT ALONG ITS ENTIRE LENGTH. WHERE COMPACTION IS REQUIRED, USE HAND TAMPERS, SURFACE PLATE VIBRATORS, VIBRATING ROLLERS OR INTERNAL VIBRATORS TO ACHIEVE REQUIRED COMPACTION. THE BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS, AND SHALL BE MOISTURE CONDITIONED AS REQUIRED TO FACILITATE COMPACTION TO THE REQUIRED DENSITY.	95% R _D	FOR EVERY 40m LENGTH OF TRENCH (OR PART THEREOF) ONE TEST SHALL BE TAKEN PER TWO LAYERS OF BACKFILL MATERIAL. LAYERS TO BE TESTED SHALL BE SELECTED RANDOMLY. THE POSITION OF THE LAYER TO BE TESTED, AND THE LOCATION OF THE TEST, SHALL VARY FROM TEST TO TEST. ADJACENT LAYERS SHALL NOT BE SELECTED FOR TESTING.
EMBEDMENT ZONE	PREFERRED: a. EMBEDMENT SAND b. 5mm MINUS CRUSHED ROCK SUBJECT TO WATER AUTHORITY APPROVAL - SPECIAL CONDITIONS c. SINGLE SIZED AGGREGATE (10mm, 14mm, 20mm) • REQUIRES THE USE OF GEOTEXTILE FABRIC WRAPPING d. SCORIA (NOT APPROVED BY CITY WEST WATER)	WSA-PS-360 WSA-PS-361 WSA-PS-351 WSA-PS-361 WSA-PS-362	WHERE HAND HELD OR WALK BEHIND COMPACTION EQUIPMENT IS USED ON THE BACKFILL ZONE, AVOID COMPACTION WITHIN 200mm FROM THE TOP OF PIPE. WHERE HEAVIER COMPACTION IS USED ON THE BACKFILL ZONE, AVOID COMPACTION WITHIN 500mm FROM THE TOP OF PIPE.	70% I _D	TESTING TYPICALLY NOT REQUIRED PROVIDED PREFERRED GRANULAR EMBEDMENT IS INSTALLED IN ACCORDANCE WITH RECOMMENDED PLACEMENT AND COMPACTION METHODS. REFER AS2566.2 FOR FURTHER INFORMATION.



NON TRAFFICABLE AREAS					
TRENCH ZONE	PREFERRED MATERIALS	PRODUCT SPEC. No.	METHOD OF PLACEMENT	COMPACTION REQUIRED	FREQUENCY & LOCATION OF COMPACTION TESTING
BACKFILL ZONE	REFER TO MRWA BACKFILL SPEC - MRWA SPEC 04-03 a. SELECTED FILL MATERIAL THAT IS FREE FROM ORGANIC OR OTHER DELETERIOUS MATERIAL, OBTAINED FROM EXCAVATION OR IMPORTED, WITH A PARTICLE SIZE OF ROCK NOT GREATER THAN 20mm, OR FOR OTHER THAN ROCK NOT GREATER THAN 75mm (REFER AS2566.2-2002) REFER TO MRWA BACKFILL SPEC - MRWA SPEC 04-03 a. SELECTED FILL AS PER TOP 600mm OF BACKFILL b. ORDINARY FILL MATERIAL OBTAINED FROM EXCAVATION OR IMPORTED THAT CONTAINS NOT MORE THAN 20% BY MASS OF ROCK FRAGMENTS WITH SIZE BETWEEN 75mm AND 150mm, WITH NO ROCK OR CLAY FRAGMENTS GREATER THAN 150mm (REFER AS2566.2-2002)		WHERE COMPACTION IS REQUIRED, USE HAND TAMPERS, SURFACE PLATE VIBRATORS, VIBRATING ROLLERS OR INTERNAL VIBRATORS. THE BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 200mm LOOSE THICKNESS, AND SHALL BE MOISTURE CONDITIONED AS REQUIRED TO FACILITATE COMPACTION TO THE REQUIRED DENSITY. WHERE HEAVIER MECHANICAL COMPACTION IS USED, A TRIAL COMPACTION TEST IS REQUIRED TO CONFIRM THE MAXIMUM LIFT THICKNESS. WHERE HAND HELD OR WALK BEHIND COMPACTION EQUIPMENT IS USED ON THE BACKFILL ZONE, AVOID COMPACTION WITHIN 200mm FROM THE TOP OF PIPE. WHERE HEAVIER COMPACTION IS USED ON THE BACKFILL ZONE, AVOID COMPACTION WITHIN 500mm FROM THE TOP OF PIPE.	95% R _D TOP 600mm 90% R _D	1 TEST PER 2 LAYERS PER 40m LENGTH. 1 TEST PER 2 LAYERS PER 100m LENGTH.
EMBEDMENT ZONE	AS PER TRAFFICABLE EMBEDMENT ZONE			60% I _D	TESTING TYPICALLY NOT REQUIRED PROVIDED PREFERRED GRANULAR EMBEDMENT IS INSTALLED IN ACCORDANCE WITH RECOMMENDED PLACEMENT AND COMPACTION METHODS. REFER AS2566.2 FOR FURTHER INFORMATION.

EMBEDMENT ZONE DIMENSIONS			
NOMINAL PIPE SIZE (DN)	Lc	Lb	Lo
≤ 110	75	75	100
> 110, ≤ 140	100	75	100
> 140, ≤ 315	150	100	150
> 315	200	100	150

PIPE COVER		
LOCATION	MINIMUM COVER	MAXIMUM COVER
PRIVATE PROPERTY NON TRAFFICABLE	450	1500
PUBLIC PROPERTY NON TRAFFICABLE	900	
TRAFFICABLE AREAS	1200	

NOTES:

- FOR THE PURPOSES OF BACKFILL, TRAFFICABLE AREAS ARE DEFINED AS:
 - THE FULL WIDTH OF ANY EXISTING OR PROPOSED ROAD CARRIAGEWAY PLUS SHOULDERS, KERB AND TO A DISTANCE BEHIND THE KERB EQUAL TO THE SEWER MAIN COVER, TO A MAXIMUM OF 1m.
 - THE PART OF THE NATURE STRIP NEXT TO THE BACK OF KERB EQUAL IN WIDTH TO SEWER MAIN COVER, TO A MAXIMUM OF 1 METRE.
 - THE FULL WIDTH OF ANY PROPERTY ACCESS DRIVEWAY OR PARKING AREA AND EXTENDING ONE METRE EITHER SIDE.
 - THE FULL LENGTH OF ANY CONSTRUCTED FOOTPATH (INCLUDING, BUT NOT LIMITED TO CONCRETE, ASPHALT AND CRUSHED ROCK FOOTPATHS).
 - THE FULL WIDTH OF ANY MEDIAN STRIP.
 - ANY OTHER AREAS THAT ARE USED AS TRAFFIC AREAS (e.g. CARPARKS, ACCESS TRACKS).
 - ANY OTHER AREAS WHERE CONTROLLED COMPACTION IS REQUIRED TO MINIMISE POTENTIAL SUBSIDENCE (e.g. WITHIN 400mm OF SURFACE FITTINGS).
- SPECIFIC BEDDING & BACKFILL REQUIREMENTS DIFFERENT TO THAT DESCRIBED HERE MUST BE SPECIFIED IN THE DESIGN. SPECIAL BEDDING SHALL BE SPECIFIED TO SUIT THE CONDITIONS OF THE TRENCH FLOOR WHERE THERE IS:
 - IRREGULAR OUTCROPS OF ROCK.
 - ALLOWABLE HORIZONTAL BEARING PRESSURE (AHBP) OF < 50 kPa.
 - UNCONTROLLED GROUND WATER.
- SIDES OF EXCAVATION TO BE KEPT VERTICAL TO AT LEAST 150 ABOVE THE PIPE.
- ALL ROCK INTRUSIONS OUT OF TRENCH WALL MUST BE REMOVED PRIOR TO ANY PIPE LAYING OPERATIONS.
- DETECTABLE MARKER TAPE INDICATING "CAUTION - SEWER MAIN BURIED BELOW" IS TO BE PLACED ON TOP OF THE EMBEDMENT MATERIAL FOR ALL OPEN TRENCH PIPE.
- WHERE SQUEEZE-OFF TECHNIQUES ARE USED TO ISOLATE SECTIONS OF PIPEWORK DURING CONSTRUCTION, AN ELECTROFUSION COUPLER IS TO BE WELDED TO ENSURE NO FURTHER SQUEEZING OPERATIONS CAN BE UNDERTAKEN AT THE SAME LOCATION.
- THE MAXIMUM COVER OVER THE MAIN IS TO BE 1.5m, UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION DRAWINGS OR APPROVAL IS OBTAINED FROM THE PROJECT SUPERINTENDENT.

4	PUBLISHED FIRST ISSUE	11/10/12	C PAXMAN	DESIGNED: S. FRENCH	DATE: JAN 2009
3	SEW AMENDMENTS	7/08/12		DRAWN: D.T.	DATE: 09/11/09
2	GENERAL AMENDMENTS	10/03/11		CHECKED: INITIALS DATE	APPROVED: INITIALS DATE
1	GENERAL AMENDMENTS	14/04/10		☑ CWW D.M. 22/08/12	☑ CWW R.J. 22/08/12
0	ISSUED AS STANDARD	09/11/09		☑ SEW S.S. 7/08/12	☑ SEW C.P. 10/08/12
REV	DESCRIPTION	DATE	APP'D	☑ YVWL K.D. 9/10/12	☑ YVWL A.C. 9/10/12

MELBOURNE RETAIL WATER AGENCIES					
City West Water		Yarra Valley Water		South East Water	

<p>PRESSURE SEWER SYSTEM TRENCH DETAILS DIMENSIONS AND MATERIALS</p>		SCALE: N.T.S	@A3
		SHEET: 1 OF 1	
DRAWING No.:		PSS-1013-M	REV
			4