

DO NOT SCALE

MAXIMUM SPACING OF COMPACTION TESTS		
ZONE	ROAD RESERVE	NON ROAD RESERVE
F	NA	NA
E	100m	NA
D	100m	500m
C	100m	500m*
B*	100m	100m
A*	500m	500m

NOTE: MINIMUM OF ONE TEST SHALL BE TAKEN WHERE A TRENCH CROSSES A ROAD RESERVE

* ALTERNATIVE COMPACTION TRIALS AT COMMENCEMENT OF PIPE LAYING WITH SATISFACTORY TEST RESULTS AND APPROVAL OF CONTRACT ADMINISTRATOR MAY NEGATE REQUIREMENT FOR ONGOING ZONE A AND B TESTING AND EXTEND ZONE C TESTING TO 500m SPACING

MINIMUM COVER REQUIREMENTS	
RESIDENTIAL OR RURAL	MINIMUM COVER (mm) *
FOOTWAY	750
CARRIAGEWAY (CROSSING)	850
CARRIAGEWAY (LONGITUDINAL)	850
PIPE TRACK / OPEN GROUND	850

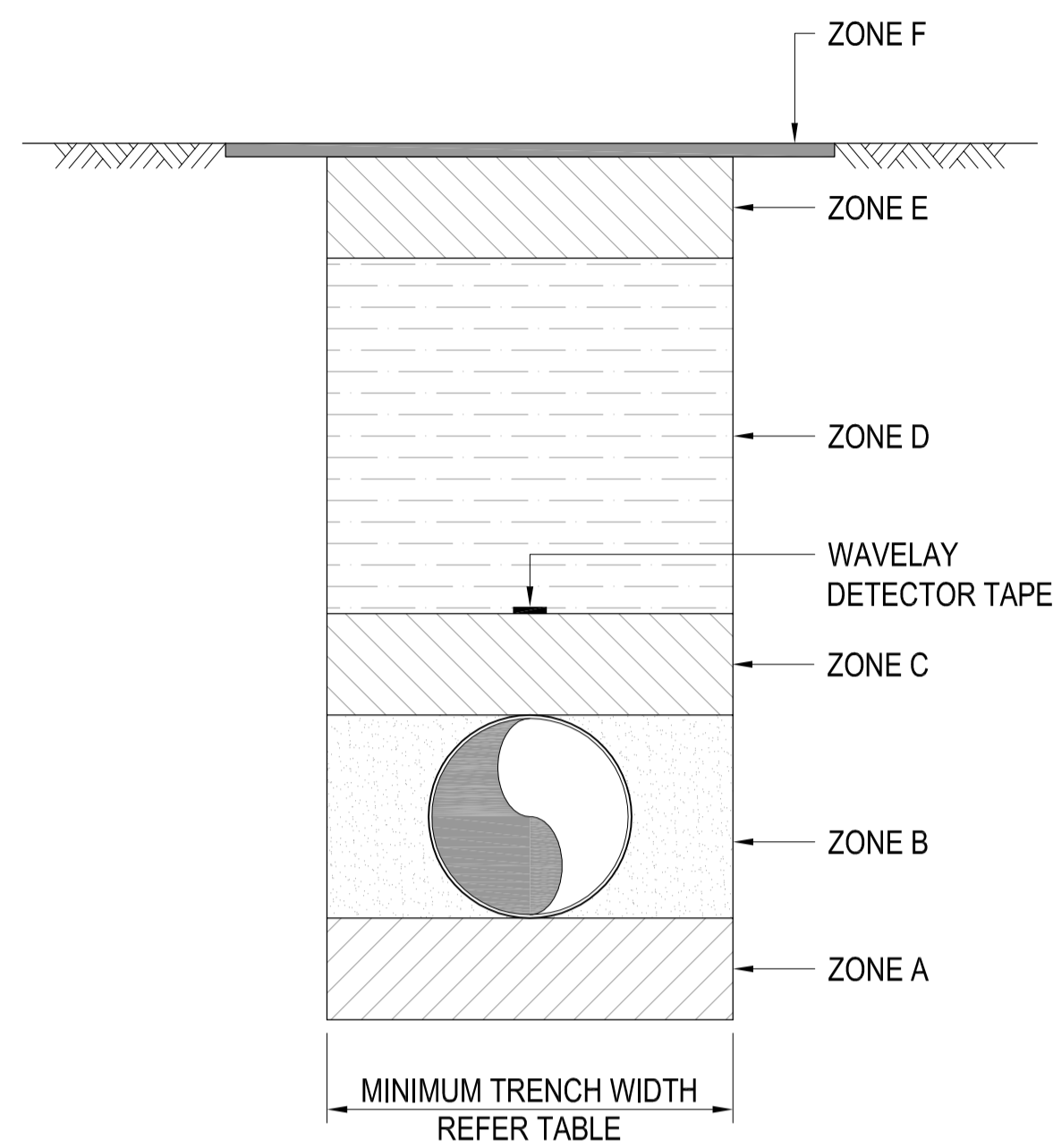
* NOTE: FOR WATERMANS \geq DN300 AND FOR WATERMANS CONSTRUCTED IN UNMADE ROADS, MINIMUM COVER IS TO BE INCREASED TO 1000mm.

COMMERCIAL AND INDUSTRIAL	MINIMUM COVER (mm) *
FOOTWAY	900
CARRIAGEWAY	900

VICROADS	1200
----------	------

MINIMUM TRENCH WIDTH	
PIPE O.D.	TRENCH WIDTH
< 450mm	OD + 400mm
>450mm - <900mm	OD + 600mm
>900mm - <1500mm	OD + 700mm
>1500mm	OD + 0.5 x ODmm

NOTE: TRENCH WIDTHS BASED ON AS2566.1. TRENCH WIDTHS MAY BE AMENDED / REDUCED SUBJECT TO THE APPROVAL OF A COMPACTION METHODOLOGY BY THE CONTRACT ADMINISTRATOR.



TYPICAL TRENCH DETAIL

N.T.S.

NOTES:

- PIPE BEDDING AND EMBEDMENT MATERIAL SHALL BE IN ACCORDANCE WITH THE THE CURRENT STANDARD SPECIFICATION FOR BEDDING MATERIAL.
- CONDUCT TESTING TO DETERMINE THE DRY DENSITY RATIO IN ACCORDANCE WITH THE STANDARD COMPACTION TESTS DESCRIBED IN AUSTRALIAN STANDARD AS 1289, "METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES". MODIFIED COMPACTION AS1289.5.2 TO BE USED FOR NON-COHESIVE GRANULAR MATERIAL EG. CRUSHED ROCK AND BEDDING SAND.
- ANY MATERIAL PLACED IN THE TRENCH WHICH FAILS TO ACHIEVE THE DRY DENSITY RATIO AS PRESCRIBED ON THIS DRAWING OR BY THE RELEVANT ROAD AUTHORITY SHALL BE REMOVED, REPLACED AND RECOMPACTED.
- COMPACTION TARGETS FOR CRUSHED ROCK FOR BACKFILL LAYERS AND ROAD BASE LAYERS SHALL BE ACHIEVED WITH A MOISTURE CONTENT RANGE OF -2% TO +1% OF OPTIMUM MOISTURE CONTENT.
- UNLESS OTHERWISE SPECIFIED BY THE RELEVANT ROAD AUTHORITY, PAVEMENTS SHALL BE REINSTATED TO MATCH EXISTING MATERIALS. THE REQUIREMENTS OF THE RELEVANT ROAD AUTHORITY SHALL TAKE PRECEDENCE OVER THE REQUIREMENTS OF THIS DRAWING.
- UNLESS OTHERWISE SPECIFIED, THE CONSTRUCTION OF ROAD PAVEMENTS AND WEARING COURSES SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS AND STANDARD SPECIFICATIONS OF THE RELEVANT AUTHORITY.
- THE EXTENT OF WEARING COURSE REINSTATEMENT SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND DRAWINGS. UNLESS OTHERWISE SPECIFIED, SAW CUT EXISTING PAVEMENTS AND KEY-IN REINSTATED WEARING COURSE ABOVE TRENCH 300mm INTO EXISTING MATERIAL.
- COMPACTION OF PIPE EMBEDMENT SHALL BE BY MECHANICAL COMPACTION UNLESS OTHERWISE SPECIFIED. COMPACTION BY WATER JETTING METHODS SHALL NOT BE APPLIED UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR.
- THE METHOD OF COMPACTION OF TRENCH REFILL AND PIPE EMBEDMENT SHALL ONLY BE APPROVED IF IT IS DEMONSTRATED TO ACHIEVE THE SPECIFIED COMPACTION TARGETS TO THE CONTRACT ADMINISTRATOR.

TRENCH AND BACKFILL DETAILS									
ZONE TRENCH REFILL	ZONE DESCRIPTION	ZONE DEPTH	PIPE LOCATION	MAJOR ROADS / FREEWAYS		MINOR ROADS		PIPE TRACK / OPEN GROUND	COMMENTS
				CARRIAGEWAY	NON CARRIAGE WAY	CARRIAGEWAY	NON CARRIAGE WAY		
F	SURFACE COURSE (WHERE REQUIRED)	VARIES	COMPACTION TARGET	100%	LIGHTLY COMPACTED	100%	LIGHTLY COMPACTED	LIGHTLY COMPACTED	SURFACE COURSE REQUIREMENTS AND EXTENTS MAY VARY, REFER SPECIFIC REQUIREMENTS INCLUDED IN SPECIFICATION
			MATERIAL	TO BE SPECIFIED BY RELEVANT AUTHORITY	REINSTATE TO MATCH EXISTING SURFACE	MIN 40mm, SIZE '10' TYPE 'N' ASPHALT UNLESS OTHERWISE SPECIFIED BY RELEVANT AUTHORITY	REINSTATE TO MATCH EXISTING SURFACE	TOP SOIL CLEARED AND STOCKPILED ON SITE	
E	PAVEMENT BASED LAYERS (WHERE REQUIRED)	VARIES. 250mm MIN	COMPACTION TARGET	100%	NA	98%	NA	NA	SUBGRADE DEPTH AND REQUIREMENTS MAY VARY, REFER SPECIFIC REQUIREMENTS INCLUDED IN SPECIFICATION
			MATERIAL	TO BE SPECIFIED BY RELEVANT AUTHORITY	NA	SIZE 20mm CLASS '2' CRUSHED ROCK	NA	NA	
D	TRENCH BACKFILL	VARIES	COMPACTION TARGET	100%	100%	97%	98%	95%	COMPACT IN 150mm LAYERS (LOOSE)
			MATERIAL	SIZE 20mm CLASS '2' CRUSHED ROCK	SIZE 20mm CLASS '3' CRUSHED ROCK	SIZE 20mm CLASS '2' CRUSHED ROCK	SELECTED EXCAVATED MATERIAL 150mm MAX	SELECTED EXCAVATED MATERIAL 150mm MAX	
C	PIPE OVERLAY	150mm MIN	COMPACTION TARGET	95%		95%	95%	90%	COMPACTION TARGETS TO BE ACHIEVED BY APPROVED METHODS (REFER NOTES)
			MATERIAL	BEDDING SAND - REFER TO STANDARD SPECIFICATION					
B	PIPE SUPPORT	PIPE DIAMETER	COMPACTION TARGET	95%	95%	95%	95%	90%	COMPACTION TARGETS TO BE ACHIEVED BY APPROVED METHODS (REFER NOTES)
			MATERIAL	BEDDING SAND - REFER TO STANDARD SPECIFICATION					
A	PIPE BEDDING	150mm MIN	COMPACTION TARGET	90%	90%	90%	90%	90%	COMPACTION TARGETS TO BE ACHIEVED BY APPROVED METHODS (REFER NOTES)
			MATERIAL	BEDDING SAND - REFER TO STANDARD SPECIFICATION					

STANDARD DRAWING

REFERENCES		REVISIONS								DRAWING INFORMATION				SCALE	
DRAWING	TITLE	No.	REVISION DESCRIPTION	OPS	OPS DATE	DRAWN	CHECKED	APPROVED	DATE	DRG No.	DRAWING DISCIPLINE:	SHEET NO.	APPROVED	SCALE:	
		0	ISSUED FOR USE (FROM BWA-SD-W001)	-	-	-	-	PT*	11.09.14	BW-SD-W001	CIVIL	1 of 1	P.THOMAS*	Scale for A1 sheet	
										BARWON WATER - STANDARD DRAWING PIPELINES TRENCH AND BACKFILL - TYPICAL DETAILS		FILE No.			
		DRAWN R.MARRIOTT 17.11.09		DESIGNED A.MICALLEF 17.11.09		APPROVED P.THOMAS* 11.09.14		SCALE: PLAN SECTION HORIZ. VERT. Scale for A1 sheet						A1	
		DRAFTING CHECK L.BERON* 24.06.10		DESIGN CHECK M.WOODS* 24.06.10											