

## CONSTRUCTION NOTES AND SPECIFICATION:

- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT DPTI STANDARDS, SPECIFICATIONS AND PAVEMENT DESIGN/CONSTRUCTION REQUIREMENTS.
- ALL WORK TO BE CARRIED OUT BY SUITABLY EXPERIENCED AND QUALIFIED PERSONNEL.
- CONCRETE BASE AND KERB/GUTTER SHALL CONFORM TO AS3600.
- MATERIAL REQUIREMENTS (REFER TO DPTI SPECIFICATION PART CC20)
  - JOINTED REINFORCED CONCRETE PAVEMENT (JRCP) BASE MIX
    - MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 40MPa
    - MINIMUM 28-DAY CONCRETE FLEXURAL STRENGTH OF 4.8MPa
    - CEMENT - TYPE SL TO AS 3972
    - SLUMP - MAXIMUM 80mm, MINIMUM 50mm
    - MAXIMUM AGGREGATE SIZE, 20mm
    - MAXIMUM CONCRETE SHRINKAGE AT 21 DAYS IS 600µm TO AS 1012.13
    - NO ADDITIVES SHALL BE USED IN THE CONCRETE, UNLESS OTHERWISE APPROVED BY THE CLIENT
  - STEEL FIBRE REINFORCED CONCRETE PAVEMENT (SFCP) BASE MIX
    - MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 40MPa
    - MINIMUM 28-DAY CONCRETE FLEXURAL STRENGTH OF 5.5MPa
    - CEMENT - TYPE SL TO AS 3972
    - SLUMP - MAXIMUM 80mm, MINIMUM 50mm
    - MAXIMUM AGGREGATE SIZE, 20mm
    - MAXIMUM CONCRETE SHRINKAGE AT 21 DAYS IS 600µm TO AS 1012.13
    - NO ADDITIVES SHALL BE USED IN THE CONCRETE, UNLESS OTHERWISE APPROVED BY THE CLIENT.
    - STEEL FIBRES MUST COMPLY WITH THE FOLLOWING PROPERTIES IN ACCORDANCE WITH EN 14889-1:
      - ULTIMATE TENSILE STRENGTH EQUAL OR EXCEEDING 750 MPa
      - ASPECT RATIO (A) MUST BE GREATER THAN 30 AND LESS THAN 68
      - HARDNESS (GROUP II FIBRES ONLY) MUST BE GREATER THAN 84 HRB (HARDNESS ROCKWELL: B SCALE)
      - MAXIMUM LENGTH OF FIBRES IS 50mm
    - MINIMUM FIBRE DOSAGE RATE, 55 KG/M3
- REINFORCEMENT, DOWELS AND TIE-BARS (REFER TO DPTI SPECIFICATION PART CC05)
  - SUPPLY AND FIX REINFORCEMENT TO AS/NZS 4671
  - ALL DOWELS TO MEET THE REQUIREMENTS OF AS/NZS 3679.1
  - ALL TIE-BARS TO MEET THE REQUIREMENTS OF AS/NZS 4671
  - ALL BAR CHAIRS USED TO SUPPORT REINFORCEMENT IS TO MEET THE REQUIREMENTS OF AS/NZS 2425
- JOINT SEALANT AND FILLER
  - ONLY HIGHWAY GRADE SILICONE SEALANTS ARE PERMITTED FOR USE IN JOINTS.
  - ALL BACKER ROADS USED ARE TO BE CLOSED-CELL POLYETHYLENE.
  - ALL RELEVANT TEST RESULTS ENDORSED BY AN AS/NZS ISO 9001 CERTIFIED LABORATORY WHOSE QUALITY MANAGEMENT SYSTEM IS CERTIFIED BY A CONFORMITY ASSESSMENT BODY OR BY JAS-ANZ EXCEPT THAT JAS-ANZ CERTIFICATION IS NOT REQUIRED FOR TEST METHODS RMS T1192 AND T1193.
  - PROVIDE A FULL TECHNICAL DESCRIPTION, INCLUDING THE METHOD OF INSTALLATION RECOMMENDED BY THE MANUFACTURE.
  - PROPOSED SEALANT IS TO CONFORM TO THE FOLLOWING REQUIREMENTS.

TEST METHOD	ATTRIBUTE	REQUIREMENTS
ASTM-D792 (METHOD A)	SPECIFIC GRAVITY	1.1 - 1.55
ASTM-C661 (STANDARD CURING)	DUROMETER HARDNESS	MAX 25 AT -29°C, MAX 30 AT +23°C
ASTM-C603	EXTRUSION RATE	90 - 250 G/MINUTE
ASTM-C679	TACK FREE TIME	TACK FREE AT 5 HOURS
ASTM-C793	ACCELERATED WEATHERING	NO SURFACE CRAZING, HARDENING, CHALKING OR BOND LOSS AT 5000 HOURS
ASTM-C794	ADHESION TO CONCRETE	MINIMUM 35 N AVERAGE PEEL STRENGTH
RMS T1193	ACCELERATE AGEING	CONDITION OF SPECIMEN AFTER ONE AGING CYCLE
RMS T1192	ADHESION TO CONCRETE	CONDITION AS PER RMS T1193. EXTENSION TO 70% COMPRESSION TO 50% AFTER 500 CYCLES. NOT MORE THAN 10% FAILURE OVER THE CROSS-SECTIONAL AREA.
	COLOUR	GREY, COMPATIBLE WITH PAVEMENT CONCRETE

- CURING COMPOUNDS (REFER TO DPTI SPECIFICATION PART CC25)
  - CURING COMPOUND IS TO COMPLY WITH THE REQUIREMENTS OF AS 3799.
  - THE CURING COMPOUND MUST NOT CONTAIN ANY PIGMENTS THAT MAY PERMANENTLY CHANGE THE COLOR OF THE CONCRETE SURFACE.
- SURFACE SEALANTS
  - SURFACE SEALANTS ARE TO BE APPLIED AFTER CURING OF THE CONCRETE BASE HAS BEEN COMPLETED AND NOT WITHIN 7 DAYS OF CONCRETE PLACEMENT.
- FORMWORK (REFER TO DPTI ROAD SPECIFICATION PART CC10)
  - FORMWORK IS TO BE OF STEEL OR SUITABLE DRESSED SEASONED TIMBER PLANKS, FREE OF WARPS, BENDS OR KINKS. THE SURFACE ON WHICH THE FORMS ARE TO BE PLACED IS TO BE EVEN, CONTINUOUS AND FIRM, AND NO GAPS ARE ALLOWED UNDER THE FORM BOARDS.
  - FORMS ARE TO BE STAKED WITH NO LESS THAN 3 STAKES AND NOT MORE THAN 1.5m APART TO PREVENT UNSPECIFIED WARPS AND BENDS.
  - FORMS TO BE IN ONE PIECE FOR THE CONCRETE PAVEMENT THICKNESS SPECIFIED.
- PLACING OF CONCRETE (REFER TO DPTI SPECIFICATION PART CC25)
  - CONCRETE IS TO BE DISCHARGED BY CHUTES AS CLOSE AS POSSIBLE TO THE FINAL PLACEMENT OF CONCRETE. CONCRETE PUMPING IS NOT PERMITTED.
  - CONCRETE MUST BE PLACED AND COMPACTED BEFORE STIFFENING TO ACHIEVE SPECIFIED DIMENSIONS AND THE FINISHED SURFACE LEVEL AND PRODUCE A UNIFORM, DENSE, AND HOMOGENEOUS CONCRETE. ALL ENTRAPPED AIR MUST BE EXPELLED AND THE CONCRETE IS TO CLOSELY SURROUND ALL REINFORCEMENT AND EMBEDMENT WITH CONCRETE. THE CONTRACTOR IS TO AVOID SEGREGATION OR LOSS OF MATERIAL DURING PLACEMENT AND COMPACTION.
  - INTERNAL VIBRATORS IS TO BE USED TO COMPACT THE CONCRETE BY REGULAR AND SYSTEMATIC INSERTIONS. VIBRATION NEAR UNSUPPORTED EDGES OF CONCRETE OR WHEN THE CONCRETE IS MOVING IS NOT INCLUDED AS PART OF THE COMPACTION TIME OR EFFORT. THE NUMBER OF VIBRATORS USED FOR THE WORK MUST BE AT LEAST ONE FOR EVERY 10m<sup>3</sup> OR PART THEREOF OF CONCRETE PLACED PER HOUR. THERE MUST BE AT LEAST ONE OPERATIONAL VIBRATOR UNIT ON STAND-BY AT THE SITE.
  - THE CONCRETE MUST FINALLY BE COMPACTED AND FINISHED BY AT LEAST TWO PASSES OF A HAND-GUIDED VIBRATORY SCREED TRAVERSING THE FULL WIDTH OF THE SLAB ON EACH PASS. A SUITABLE VOLUME OF FRESH CONCRETE IS TO BE MAINTAINED IN FRONT OF THE SCREED OVER ITS WHOLE LENGTH TO ENSURE THE UNIFORM TRANSMISSION OF VIBRATION INTO THE CONCRETE.
  - THE SURFACE IS TO BE SCREED OFF TO FALLS AND FINISH WITH A STEEL HAND TROWEL UNLESS NOTED ON THE DRAWINGS.
  - CONCRETE IS NOT TO BE PLACED DURING RAIN OR WHEN RAIN APPEARS IMMINENT OR WHEN THE AIR TEMPERATURE MEASURED OUTDOORS IN THE SHADE IS EITHER LESS THAN 5°C OR GREATER THAN 36°C. THE TEMPERATURE OF THE FRESH CONCRETE IS NOT TO FALL BELOW 5°C WITHIN THE FIRST 24 HOURS AFTER PLACEMENT OR UNTIL THE TIME OF OPENING TO TRAFFIC, WHICHEVER OCCURS FIRST.
  - NO ADDITIONAL WATER IS TO BE ADDED TO THE TRANSIT MIXER BETWEEN LEAVING THE PREMIX CONCRETE SITE AND DISCHARGE. WATER IS NOT PERMITTED TO BE SPRAYED ONTO CONCRETE DISCHARGED ONTO THE GROUND BEFORE OR AFTER VIBRATION HAS COMMENCED.

TABLE 1: JOINT TYPE NUMBERS AND DESCRIPTIONS

TYPE	DESCRIPTION
J7	TRANSVERSE CONSTRUCTION: FORMED AND TIED
J7d	TRANSVERSE CONSTRUCTION: FORMED AND DRILL-TIED
J9	TRANSVERSE CONTRACTION: SAWN AND DOWELLED
J10	TRANSVERSE CONTRACTION: FORMED AND DOWELLED
J10d	TRANSVERSE CONTRACTION: FORMED AND DRILL-DOWELLED
J11	TRANSVERSE CONTRACTION: KNIFED (UNDOWELLED)

TABLE 2: SYMBOLS

SYMBOL	DESCRIPTION
	JOINT TYPE: 'J9'
	TIEBAR SPACING BETWEEN JOINTS IN mm.

TABLE 3: JRCP SLAB DIMENSIONAL LIMITS

MIN CORNER ANGLES	84°	
SLAB LENGTH L (a) (METRES)	L MAX	6.0
	L MIN	3.5

- CURING (REFER TO DPTI SPECIFICATION PART CC25)
  - ALL CONCRETE SHALL BE KEPT CONTINUOUSLY DAMP FOR AT LEAST 7 DAYS OR UNTIL THOROUGHLY CURED. IN HOT, DRY OR WINDY CONDITIONS, THE EXPOSED CONCRETE SHALL BE COVERED AND SEALED WITH A PVC MEMBRANE OR SIMILAR APPROVED MATERIAL, SUCH THAT ADEQUATE MOISTURE IS RETAINED FOR PROPER CURING.
  - EVAPORATION RETARDERS ARE NOT PERMITTED FOR USE BEFORE AND AFTER COMPACTION OF THE CONCRETE IN THE FORMS.
  - THE CURING COMPOUND IS TO BE APPLIED AFTER THE SURFACE APPLICATION HAS BEEN COMPLETED.
  - APPLY THE CURING COMPOUND IN TWO APPLICATIONS TO FORM A CONTINUOUS AND UNBROKEN FILM IN ACCORDANCE WITH THE FOLLOWING CONDITIONS:
    - THE FIRST APPLICATION WITHIN 15 MINUTES OF THE SURFACE REACHING THE LOW-SHEEN BLEED WATER CONDITION;
    - THE SECOND APPLICATION BETWEEN 10 MINUTES AND 30 MINUTES LATER OR AS RECOMMENDED BY THE MANUFACTURE;
    - THE CURING COMPOUND IS TO BE APPLIED AFTER THE SURFACE APPLICATION HAS BEEN COMPLETED.
    - APPLY THE CURING COMPOUND IN TWO APPLICATIONS TO FORM A CONTINUOUS AND UNBROKEN FILM IN ACCORDANCE WITH THE FOLLOWING CONDITIONS:
      - THE FIRST APPLICATION WITHIN 30 MINUTES OF STRIPPING OF FORMS AND THE SECOND BETWEEN 10 MINUTES TO 30 MINUTES AFTER THE FIRST APPLICATION. AT THE TIME OF THE FIRST APPLICATION, THE CONCRETE MUST BE IN A DAMP CONDITION.
  - WET CURING WHERE THE CONCRETE SURFACE IS MAINTAINED IN A WET CONDITION IS NOT PERMITTED.
  - THE CURING METHOD MUST BE EITHER A POLYETHYLENE SHEETING OR APPROVED SPRAYED CURING COMPOUND APPLIED USING A HAND LANCE WITH TWO APPLICATIONS AS DESCRIBED ABOVE.
- FINISH (REFER TO DPTI SPECIFICATION PART CC25)
  - ALL CONCRETE SURFACES SHALL BE FINISHED SMOOTH, DENSE WITH NO CRACKING VISIBLE. ALL CRACKED AND/OR HONEYCOMBED PORTIONS SHALL BE CUT OUT AND REPLACED TO THE SATISFACTION OF THE CLIENT IMMEDIATELY AFTER THE FORM WORK HAS BEEN STRUCK.
- SURFACE APPLICATION
  - SURFACE SEALANT IS TO BE APPLIED AFTER CURING AND TEXTURING OF THE CONCRETE HAS BEEN COMPLETED AND NOT WITHIN 7 DAYS OF CONCRETE PLACEMENT.
- CONSTRUCTION OF JOINTS
  - SAW-CUTTING IS TO BE COMPLETED USING A WET SAWING METHOD. DRY OR EARLY ENTRY SAWING IS NOT PERMITTED.
  - JOINT SEALANTS MAY ONLY BE APPLIED IF THE JOINT IS CLEAN AND DRY, AND NOT WITHIN 7 DAYS OF CONCRETE PLACEMENT.
  - PROVIDE A 10mm ISOLATION JOINT IN PAVING AT FIXED EDGES INCLUDING, STRUCTURAL ELEMENTS, SERVICE LIDS, DRAINAGE PITS, ROAD FURNITURE AND FITTINGS. REFER TO DETAIL ON DRAWING 95271 SHEET 3 FOR JOINT DETAIL.
- TESTING AND CONFORMANCE OF CONCRETE BASE: (REFER TO DPTI SPECIFICATION PART CC20)
  - ALL TESTING ASSOCIATED WITH SURVEILLANCE AND AUDITS WILL BE CONDUCTED BY A LABORATORY WITH NATA ACCREDITATION FOR THE TEST METHODS SPECIFIED. THE RESULTS OF SUCH TESTING WILL BE RECORDED ON NATA ENDORSED TEST REPORTS. IF NATA HAS NOT ACCREDITED A LABORATORY FOR A TEST, THE TEST MUST BE CARRIED OUT AT A LABORATORY APPROVED BY THE CLIENT.
  - CONCRETE SLUMP - TESTING TO BE CARRIED OUT IN ACCORDANCE WITH AS 1012.3 AND SLUMP MUST NOT EXCEED 80mm.
  - CONCRETE STRENGTH - SAMPLING AND TESTING IS TO BE CARRIED OUT IN ACCORDANCE WITH AS 1379 TO PRODUCTION ASSESSMENT.
  - BASE THICKNESS - 20mm, 5mm. THE ASSESSMENT OF THICKNESS IS TO BE UNDERTAKEN ON A GRID PATTERN BASED ON BUS BAY GEOMETRY, BY CONDUCTING A SURVEY ON THE TOP OF THE SUBBASE AND CONCRETE. IF MORE THAN TWO READING WITHIN A SLAB ARE OUTSIDE OF THICKNESS TOLERANCE, THE WHOLE SLAB WILL BE REPLACED WITH NEW WORK.
  - ALL TEST RESULTS TO BE SUBMITTED WITHIN 7 DAYS OF TESTING BEING CONDUCTED.
  - CONCRETE CORING MAY BE REQUIRED IF THE CYLINDER STRENGTHS OR THICKNESS IS NON-COMFORMING.
  - CRACKING: DRYING AND PLASTIC SHRINKAGE CRACKING IS NOT PERMITTED IN THE CONCRETE BASE.
- KERBS
  - JOINTS IN KERBS (ETC) MUST BE LOCATED TO COINCIDE WITH JOINTS IN THE ADJOINING BASE.
  - WHERE THE KERB IS PLACED ON TOP OF OR INTEGRAL WITH BASE PAVEMENT, THE KERB JOINT MUST BE ALIGNED WITH THE BASE JOINT. OTHERWISE KERB JOINTS MUST BE ALIGNED AT 90°±2° TO THE KERB LINE.
  - UNLESS OTHERWISE ALLOWED, KERB MUST HAVE A CONCRETE STRENGTH GRADE OF MINIMUM 32MPa AND MUST NOT BE EXTRUDED.
- SERVICES
  - ANY INTRUSIVE SERVICES WHICH ARE LOCATED WITHIN THE RIGID PAVEMENT AREA ARE TO BE LINED UP TO MATCH WITH TRANSVERSE JOINT LOCATIONS AND ISOLATED AROUND ALL EDGES, WITH A MINIMUM OF 1.5m OF CONCRETE COVER TO THE NEAREST JOINT. PROJECT SPECIFIC DETAILS ARE TO BE DESIGNED AND SUBMITTED FOR REVIEW/APPROVAL PRIOR TO CONSTRUCTION. REFER TO DETAILS D1 AND D2 ON DRAWING 95271 SHEET 2 FOR EXAMPLE.
- TYPICAL RIGID PAVEMENT BUS BAY DESIGN JOINTED REINFORCED CONCRETE PAVEMENT (JRCP)
  - LENGTH IS THE LARGEST EDGE MEASURE BETWEEN TRANSVERSE CONTRACTION JOINTS, OR THE LONGEST CHORD ON CURVED SLABS.
  - WIDTH IS THE LARGEST SQUARE MEASURE BETWEEN LONGITUDINAL EDGES OR JOINTS, OR THE LARGEST RADIAL MEASURE ON CURVED SLABS.

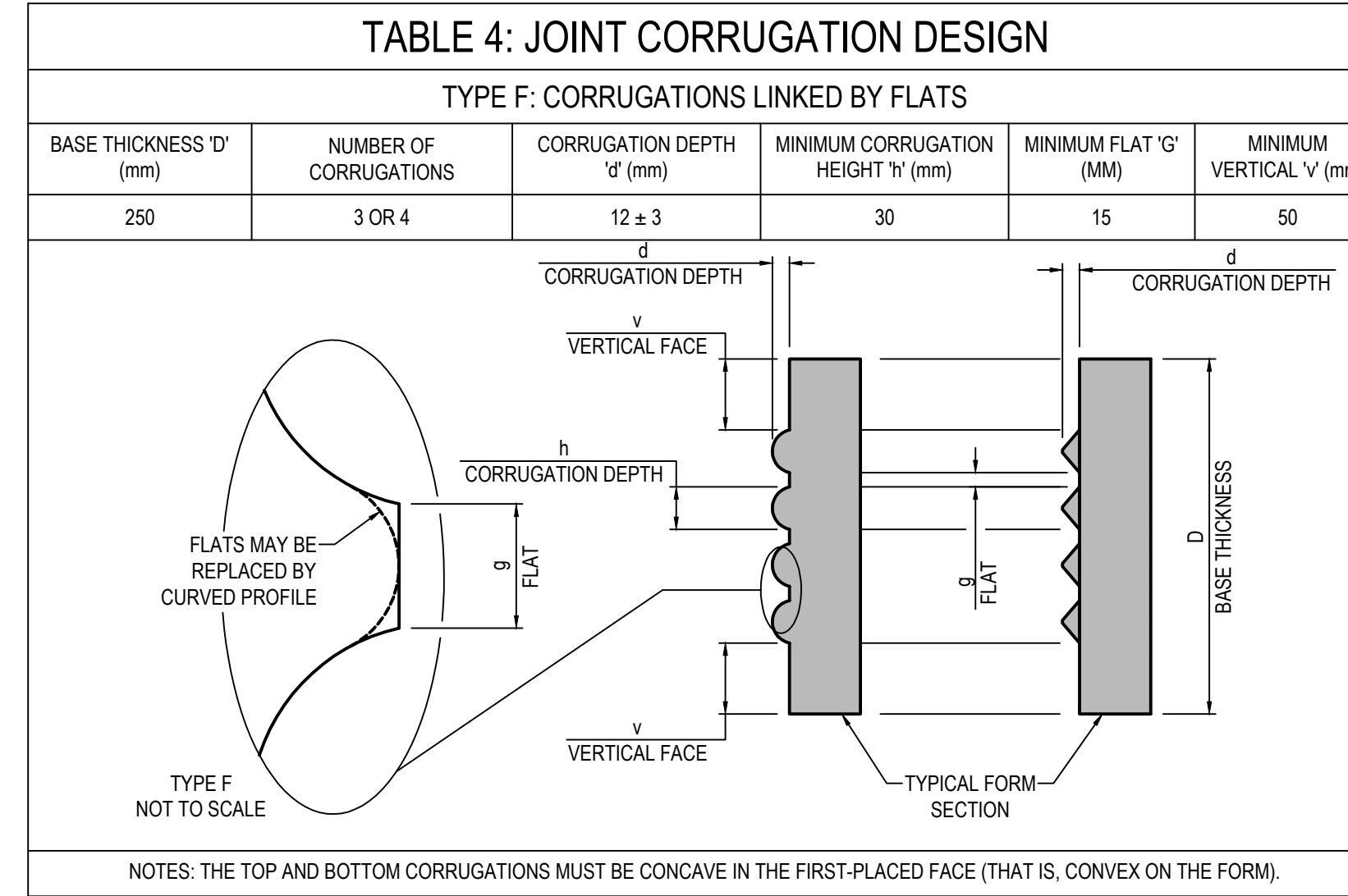


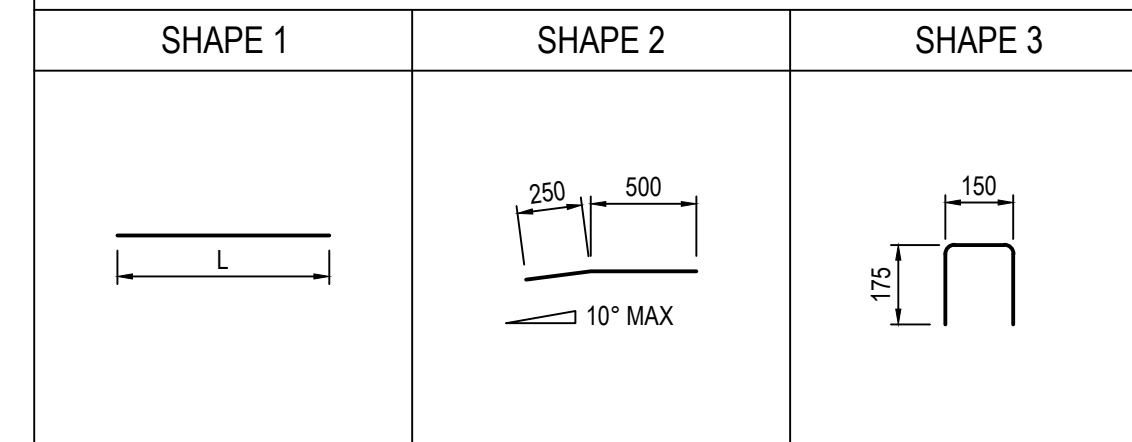
TABLE 7: REINFORCEMENT NOTATION

	BAR	MESH	DOWELS
SHAPE	DEFORMED	ROUND OR DEFORMED	ROUND
STRENGTH (MPa)	500	500	250
DUCTILITY CLASS	NORMAL	LOW	NORMAL
NOTATION USED IN DRAWINGS	N12	SL82	R32

TABLE 8: REINFORCEMENT SCHEDULE AND BAR SPACING

MARK	DIA	SHAPE	LOCATION / DESCRIPTION	LENGTH (mm)	SPACING (mm)
E1	N12	1	TIEBARS IN J7 JOINTS	1000	500
E2	N12	1 OR 2	DRILLED-TIES IN J7D JOINTS, DISH DRAIN (DD) JOINT, STANDARD KERB AND GUTTER (SKG) JOINT	750	500 (J7D, DD) 1000 (SKG)
J3	N12	3	KERB ONLY	500	500 MAX
M1	SL82	-	JRCP GENERAL (SL82)	TO SUIT SLAB DIMENSION	-

TABLE 9: BAR REINFORCEMENT SHAPES



PAVEMENT WORK SCHEDULE FOR : RP1 (TYPICAL JRCP OR SFCP BUS BAY DESIGN)

JOINTED REINFORCED CONCRETE PAVEMENT (JRCP) - WITH DOWELLED TRANSVERSE CONTRACTION JOINTS; OR STEEL FIBRE REINFORCED CONCRETE PAVEMENT (SFCP) - WITH DOWELLED TRANSVERSE CONTRACTION JOINTS					
DESIGN LEVEL OF UPPER SURFACE OF COURSE IN RELATION TO FINISHED DESIGN LEVELS (mm)	TOP OF LAYER LEVEL TOLERANCE (mm)	NOMINAL COMPACTED THICKNESS (mm)	LAYER	MATERIAL	APPLICATION RATES AND ADDITIONAL REQUIREMENTS TO MASTER SPECIFICATION - DIVISION 2 ROADWORKS
00	+5, -0	-	BASE SURFACE TREATMENT	TRANSVERSE BROOM FINISH (SURFACE TEXTURE RANGE BETWEEN 0.3 TO 0.5mm)	AS PER DPTI TECHNICAL NOTE 25, ROAD SURFACE TEXTURE MEASUREMENT RECOMMENDED INVESTIGATORY LEVELS
-250	±15	250	BASE COURSE	40 MPa JOINTED REINFORCED CONCRETE PAVEMENT (JRCP) BASE WITH SL82 REINFORCEMENT MESH; OR 40 MPa STEEL FIBRE REINFORCED CONCRETE PAVEMENT (SFCP) BASE	REFER TO NOTE 3.1 MATERIAL REQUIREMENTS  REFER TO NOTE 3.2 MATERIAL REQUIREMENTS
-450	+0, -40	200	SUBBASE	CURING TREATMENT PLANT MIXED CEMENT STABILISED PM2/20 SPM2/20C4; OR PM1/20 (CLASS 1 QR)	AS PER DPTI SPECIFICATION PART R15 AND R22 TARGET BINDER 4% TYPE GB CEMENT COMPACTED TO 98% MMDD AS PER DPTI SPECIFICATION R15 AND R21 COMPACTED TO 98% MMDD
			SUBGRADE		AS PER DPTI SPECIFICATION R10 AS PER TABLE 2.4, TYPICAL MINIMUM SUPPORT REQUIREMENTS FOR HEAVY DUTY PAVEMENTS, DPTI SUPPLEMENT TO THE AUSTRROADS GUIDE TO PAVEMENT TECHNOLOGY PART 2: PAVEMENT STRUCTURAL DESIGN (AS REQUIRED)

TABLE 5: MESH REINFORCEMENT

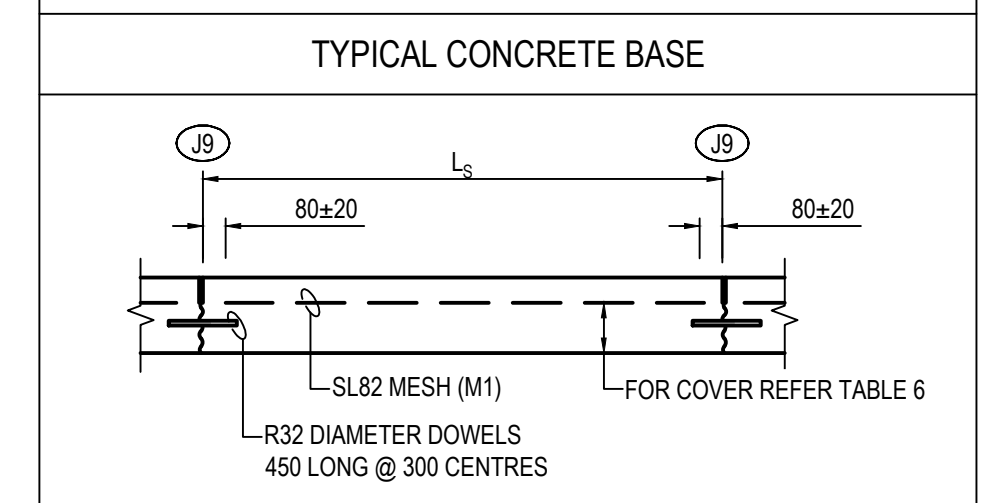


TABLE 6: COVER TO MESH M1 & TIEBARS

BASE DEPTH D (mm)	MINIMUM COVERS (mm)			
	MESH		TIEBARS	
	TOP COVER MT	BOTTOM COVER MB	TOP COVER TT	BOTTOM COVER TB
250	80	120	90	110

NOTES: MESH M1 CAN BE PLACED WITH LONGITUDINAL BARS EITHER ABOVE OR BELOW THE TRANSVERSE BARS, UNLESS THE ROTATION IS DICTATED BY OTHER FACTORS SUCH AS LAPPING REQUIREMENTS.

INDEX SHEET REFERENCE: N/A SHEET N/A



PROJECT No.: FILE No.:  
DESIGN No.: SURVEY No.:  
PROJECT START ROAD RUNNING DISTANCE:  
PROJECT END ROAD RUNNING DISTANCE:  
SCALES:  
NOT TO SCALE

STANDARD DRAWING  
RIGID PAVEMENTS  
INDENTED BUS BAYS  
TYPICAL NOTES & TABLES  
SHEET 4 OF 4

DESIGNED: PAS	DRAFTED: GE	ACCEPTED FOR USE: COSTA TSEMTSIDIS	ACCEPTANCE FORM KNET No.:	DRAWING No.:	SHEET No.:	AMEND No.:
CHECKED: PAS	CHECKED: PAS	DATE: 9/10/2019	14058151	95271	4	1
			IN ACCORDANCE WITH DP013 SHEET LATITUDE		SHEET LONGITUDE	

1	NOTE AMENDED	GE	PAS	ECHO CUI	16.03.20
No.	AMENDMENT DESCRIPTION	BY	CHECK	ACCEPTANCE	DATE

UNCONTROLLED COPY WHEN PRINTED ◀ 100 MILLIMETRES ON ORIGINAL DRAWING ▶ ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE