ACT Government
Transport Canberra and City Services

Place Coordination

ENGINEERING ADVISORY NOTE EAN 13

Title: Kerb Ramp Design

Background

Kerb ramp is the Australian Standard term for "pram crossing", the term previously used in the ACT. ACTSD-0515 and 0516 are to replace the current Standard Drawing DS3-02.

Details for "pram ramps", as shown on DS3-02, to be referred to as kerb slots have been updated and are shown on ACTSD-0517.

Summary of Amendments

- **Consideration of development context**

  ACTSD-0515 provides details for kerb ramps to be constructed in areas identified as suburban land use context and ACTSD-0516 for kerb ramps in inner-urban land use context.

  Typically inner-urban refers to Territory Planning areas zoned as RZ3, RZ4, CZ1 to CZ6, and IZ1 & IZ2 or any area where a fully paved verge or path at the back of the kerb is present or likely to for future construction.

  Suburban typically refers to Territory Planning areas zoned as RZ1 and RZ2 but may include inner urban areas where there is no likelihood of a fully paved verge in the future.

- **Why the need for the ACTSDs in addition to AS1428?**

  The ACTSDs provide additional guidance on aspects of kerb ramps that are not well covered in AS1428 to assist in assuring the consistency of constructed assets in meeting the desired intent. The ACTSDs include key design principles and details that clearly define the transition requirements for kerb ramps on a horizontal curve and the grades required between the gutter lip and ramp. Details of other kerb ramp elements relating to use by people with a vision impairment such as the inclusion of Tactile Ground Surface Indicators, the ramp as a single plane and creases (or folds) in concrete surfaces are also shown on the ACTSD.

- **Differences from AS1428**

Suburban kerb ramp: ACTSD-0515 differs from AS 1428.1 as it has reduced splay widths that match the 0.6m splays as used traditionally in Canberra and shown previously for "pram crossings" on DS3-02. It also provides additional detail on the tool joint separating the splays from the ramp and grade requirements in the area between the gutter lip and ramp.

***Inner-urban kerb ramp*:** ACTSD-0516 shows a kerb ramp very similar to AS1428.1, however details are provided on the tool joint separating the splays from the ramp. The details include a sharp transition edge to provide a physical cue on the direction of travel for people with a vision impairment using a cane. The grade requirements in the area between the gutter lip and ramp are also detailed.

- **Why are there two different kerb ramp types (inner-urban and suburban?)**

There are two types of kerb ramps to respond to an evolving urban environment where people with different needs are to be catered for within limited spaces. The choice to use either an inner-urban and suburban kerb ramp is dependent on the current and future verge use guided by the adjacent land use.

The inner-urban kerb ramp allows safer access for people walking along the back of kerb when there is fully paved verges or paths along the back of kerb. As fully paved verges or paths are not normally to be provided immediately behind kerbs in suburban land use context areas, the flatter and larger slope length of the inner urban kerb ramp are not required. This reduces the cost, land take and visual impact of kerb ramps in these areas.

The suburban kerb ramp is similar in size to the previous DS3-02 pram crossing but with updated details to make it more amenable to vision and mobility impaired people.

Example: A suburban kerb ramp should be used in inner-urban areas where there is no future likelihood of the verge becoming fully paved or a path installed at the back of kerb.

Suburban Kerb Ramp – Hall Street, Turner

Example: An inner-urban kerb ramp located where there is future likelihood of the verge becoming fully paved or a path installed at the back of kerb.

Inner-Urban Kerb Ramp – Forbes Street/Condamine Street, Turner

- **What are the major differences between the two types and their context of use?**

  The major difference between the kerb ramps is the width of the kerb ramp splays. The inner urban kerb ramp is to be used in inner urban land use context areas where there is or may be a fully paved verge or if there is a footpath immediately behind the kerb that will connect to the kerb ramp splay. The suburban kerb ramp is a smaller, modest cost ramp that is also suitable for constrained locations in retrofit.

- **Should Tactile Ground Surface Indicators (TGSI) be used on kerb ramps?**

  TGSI should only be applied systematically to paths on identified Accessible Pedestrian Routes (APRs). In these circumstances TGSIs shall be installed in accordance with AS.NZS1428.4.4:2009. Directional TGSIs should never be applied on kerb ramps because they can be a slip hazard. Warning TGSI may only be installed within the kerb ramp following TCCS approval. For further detail refer to MIS05 and the associated standard drawings.

- **What if an inner urban kerb ramp cannot be installed due to site constraints?**

  The inner-urban design requires a significant length of kerb and verge (typically around 3m plus the path width) and due to site constraints (sumps, hydrants, trees, driveways etc) it may not be possible to install the required design at the location of an inner-urban path crossing.

  In such instances a designer should consider if the crossing locations is the most desirable, and if possible could the crossing be relocated. If this is not suitable then a suburban kerb ramp may be installed with approval from the Road Authority. Refer to the ACTSDs for guidance on replacement of existing kerb ramps.

Example: An inner-urban kerb ramp where the splay angle has been modified to suit an existing manhole

- **Importance of aligning ramp kerb ramps across the road**

  A vision impaired person with a cane will generally use the edge of paths or other edge features as a "shoreline", the sharp folded edge between the ramp and splay of the kerb ramp provides a cue there is a road crossing. The joint between the ramp and splay also provides a linear indicator on the alignment required to cross the road. It is critical that the direction of the centrelines of kerb ramps align with each other, this includes kerb slots. Smooth curves may be included in the horizontal alignment of kerb slots to account for any change in the crossing alignment required through an island.

- **Importance of not including kerb ramps within curves or skews**

  Kerb ramps should not be located within the kerb return radius or on placed on a skew wherever practicable. This is to avoid the resultant need for special care, both in design and construction, to address the risk of drainage issues in the area between the ramp and the kerb lip.

Attachments

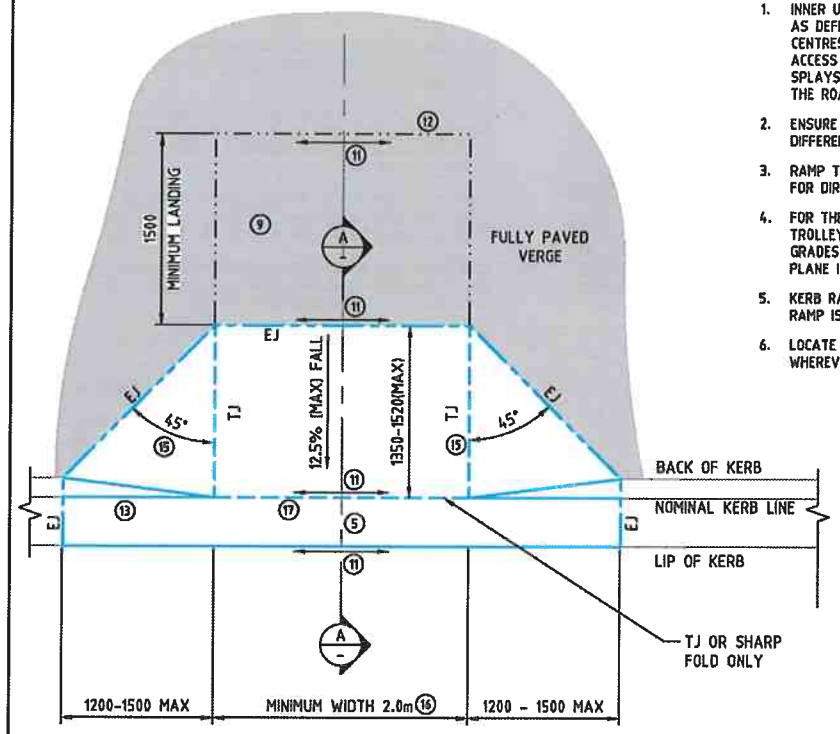
Attachment A - Suburban Kerb Ramps (ACTSD-0515)

Attachment B – Inner Urban Kerb Ramps (ACTSD-0516)

Attachment C – Kerb Ramps in islands and Kerb Slot details (ACTSD-0517)

Administrative Arrangement

This Engineering Advisory Notice takes effect from date of endorsement by the Director below.

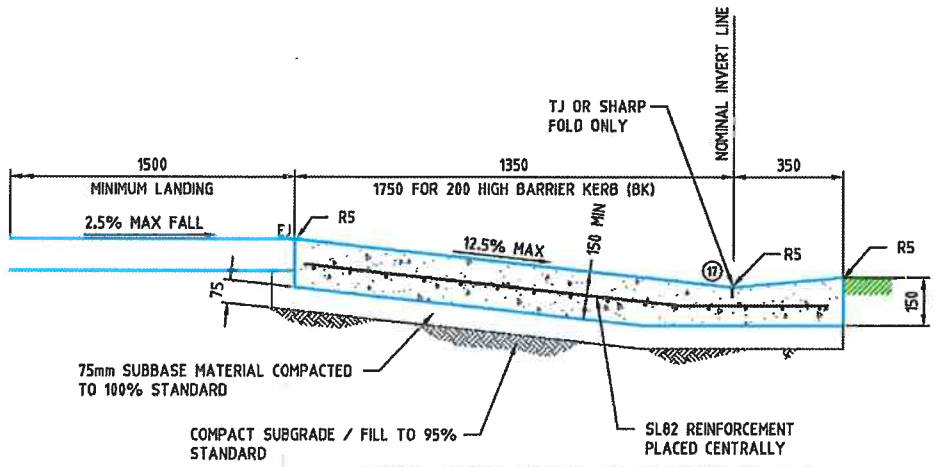


INNER URBAN KERB RAMP ON STRAIGHT

KEY DESIGN PRINCIPLES

1. INNER URBAN KERB RAMPS ARE TO BE USED IN INNER URBAN CONTEXT AREAS AS DEFINED IN MIS05 3.3. THESE AREAS INCLUDE TOWN CENTRES, GROUP CENTRES, OTHER MAJOR RETAIL COMMERCIAL AND INDUSTRIAL AREAS, WHERE ACCESS TO THE CROSSING MAY ALSO BE REQUIRED VIA THE TRIANGULAR SPLAYS IE IN FULLY PAVED VERGES OR WHERE A CONNECTING PATH IS ALONG THE ROAD BEHIND THE KERB
2. ENSURE RAMPS ARE ALIGNED ACROSS ROADS. KERBS RAMPS MAY BE OF A DIFFERENT TYPE ON EACH SIDE OF A ROAD CROSSING
3. RAMP TOOL JOINTS TO BE SHARP FOLDS FOR VISION IMPAIRED PEOPLE TO USE FOR DIRECTIONAL SHORELINE GUIDANCE WITH A CANE
4. FOR THE SAFETY AND COMFORT OF USERS OF WHEEL CHAIRS, PRAMS AND TROLLEYS THE RAMP SECTION IS TO BE A SINGLE RECTANGULAR PLANE WITH GRADES AND CROSSFALL STRICTLY AS SPECIFIED, CROSSFALL OF RECTANGULAR PLANE IS TO MATCH THE LONGITUDINAL FALL OF THE ADJACENT ROAD SURFACE
5. KERB RAMPS MAY BE CONSTRUCTED OF PAVERS. IF CONCRETE THE ENTIRE KERB RAMP IS TO BE FORMED UP AND POURED AS A SINGLE INTEGRAL SLAB
6. LOCATE KERB RAMPS TO AVOID INSTALLATION ON CURVES OR SKEWS WHEREVER POSSIBLE

EXAMPLE OF INNER URBAN KERB RAMP



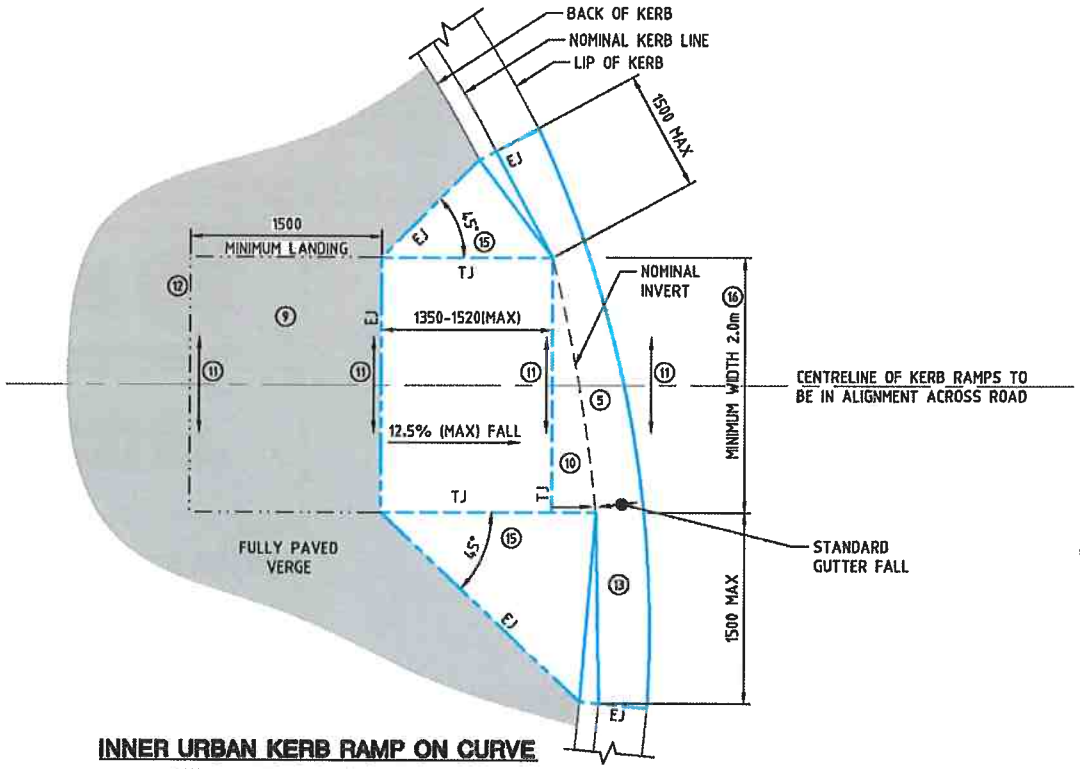
INNER URBAN KERB RAMP SECTION A-A

NOTES

1. ALL CONCRETE TO BE CLASS N32 UNLESS NOTED OTHERWISE. PAVERS ARE TO BE NON SLIP
2. ALL KERBS, GUTTERS, RAMPS AND CROSSINGS TO BE CONSTRUCTED ON COMPACTED SUBBASE MATERIAL OF 75mm MINIMUM THICKNESS OR AS OTHERWISE DETAILED.
3. EXPANSION JOINTS (EJ) TO BE FORMED WITH EXPANDABLE BITUMEN IMPREGNATED FIBREBOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. LOCATE EJs AGAINST ALL CONCRETE AND SEGMENTAL PAVEMENTS
4. RAMP TOOL JOINTS (TJ) TO BE 10mm WIDE TO 1/4 DEPTH, CUT EVERY SECOND BAR. TOOL JOINTS SHALL BE FORMED USING A SUITABLE TOOL THAT PROVIDES A SHARP FOLD ALONG THE JOIN LINE.
5. KERB RAMPS ARE TO BE INSTALLED SUCH THAT RAMP CENTRELINES LINE UP ACROSS THE ROAD INCLUDING WHEN THERE IS DIFFERING PATH WIDTHS EACH SIDE OF A ROAD CROSSING.
6. BROOMED FINISH TO BE APPLIED TO ALL KERB RAMPS AND ISLAND SLOTS.
7. ALL CONCRETE TO BE CURED IN ACCORDANCE WITH THE SPECIFICATION
8. KERB RAMPS SHALL BE FORMED TO PROVIDE SHARP RAMP TOOL JOINTS (TJ) BETWEEN THE RECTANGULAR KERB RAMP PLANE, THE TRIANGULAR SPLAYS, BOTTOM OF THE RAMP AND TOP OF RAMP (EJ). ALL KERB RAMPS INCLUDING SPLAYS SHALL BE REINFORCED WITH A LAYER OF SL82 MESH (CENTRALLY PLACED).
9. TACTILE GROUND SURFACE INDICATORS (TGSIs) TO BE INSTALLED ON ACCESSIBLE PEDESTRIAN ROUTES (APRs) ONLY. TGSIs ARE TO BE IN ACCORDANCE WITH AS/NZS 1428.4.4:2009. REFER MIS05 5.2 FOR TGSI DETAILS. TGSIs SHALL NOT BE INSTALLED WITHIN KERB RAMPS UNLESS APPROVED BY THE ROAD AUTHORITY.
10. SHAPE GUTTER LANDING TO PROVIDE FREE DRAINING SURFACE (2.5 MAXIMUM, 1.0% MINIMUM AND 0.5% IN RETROFIT ONLY).
11. CROSSFALL ON KERB RAMP LOWER EDGE, KERB RAMP TOP EDGE AND BACK OF LANDING MUST BE EQUAL. THEY SHOULD APPROXIMATE THE ROAD CROSSFALL PARALLEL TO THE KERB RAMP EDGE WHEREVER PRACTICABLE. GRADING OF KERB RAMP CROSSFALL SHOULD ENSURE THE GUTTER TRAY IS FREE DRAINING
12. CROSSFALL SHOULD TRANSITION FROM THE BACK OF THE LANDING TO MATCH PAVED AREA AT A RATE OF 1% CHANGE IN CROSSFALL PER METRE
13. WHERE A KERB RAMP ABUTS A CONCRETE ROADWAY / BUS STOP PAVEMENT AND THIS PAVEMENT EXTENDS UNDER THE PROPOSED KERB, ENSURE THERE IS A BLOCK OUT IN THE PAVEMENT SLAB TO ALLOW FOR CONSTRUCTION OF A FULL DEPTH RAMP
14. SUBURBAN KERB RAMPS MAY BE USED IN INNER URBAN AREAS IN LOCATIONS WHERE THERE IS NO POSSIBILITY OF THE INSTALLATION OF A FULLY PAVED VERGE OR PATH AT THE BACK OF THE KERB IN THE FUTURE THAT WOULD REQUIRE ACCESS TO THE CROSSING VIA THE TRIANGULAR SPLAYS
15. INNER URBAN KERB RAMP WING ANGLES SHOULD BE 45° HOWEVER ARE TO BE REDUCED TO ACHIEVE 1500 MAX WIDTH. IN RETROFIT, KERB RAMP WING ANGLES MAY BE ADJUSTED TO SUIT EXISTING INFRASTRUCTURE SUCH AS MANHOLES, LANDSCAPING, SIGNAGE ETC.
16. KERB RAMPS ARE TO BE CONSTRUCTED TO BE MINIMUM 2.0m WIDE AND WIDER DEPENDING ON ROUTE CONTEXT
17. A SHARP FOLD ONLY MAY BE SUBSTITUTED FOR A TJ ON KERB RAMPS THAT ARE PERPENDICULAR TO THE KERB

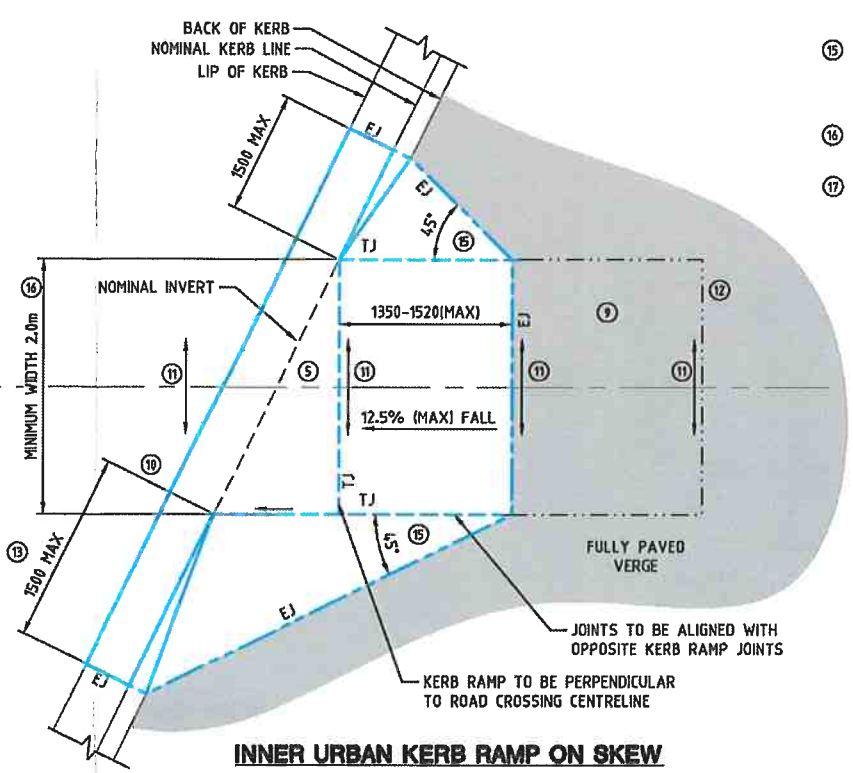
LEGEND

EJ - EXPANSION JOINT - REFER NOTE 3
TJ - RAMP TOOL JOINTS - REFER NOTE 4



INNER URBAN KERB RAMP ON CURVE

LIMITED TO RETROFIT ONLY WHEREVER POSSIBLE



INNER URBAN KERB RAMP ON SKEW

LIMITED TO RETROFIT ONLY WHEREVER POSSIBLE

ACT Government

STANDARD DRAWING

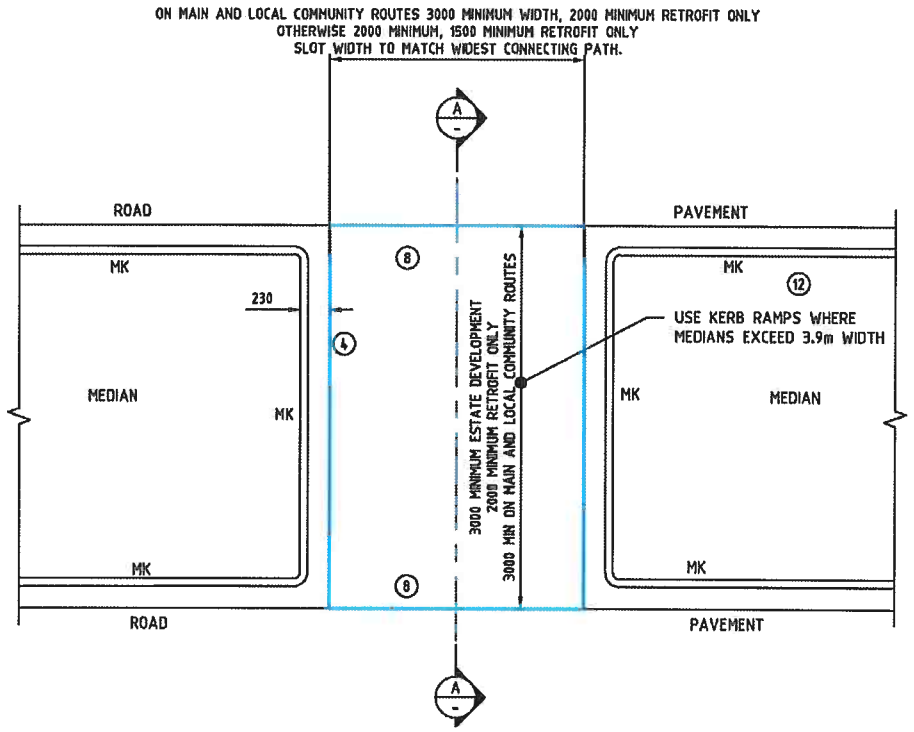
INNER URBAN KERB RAMPS

Authorised:

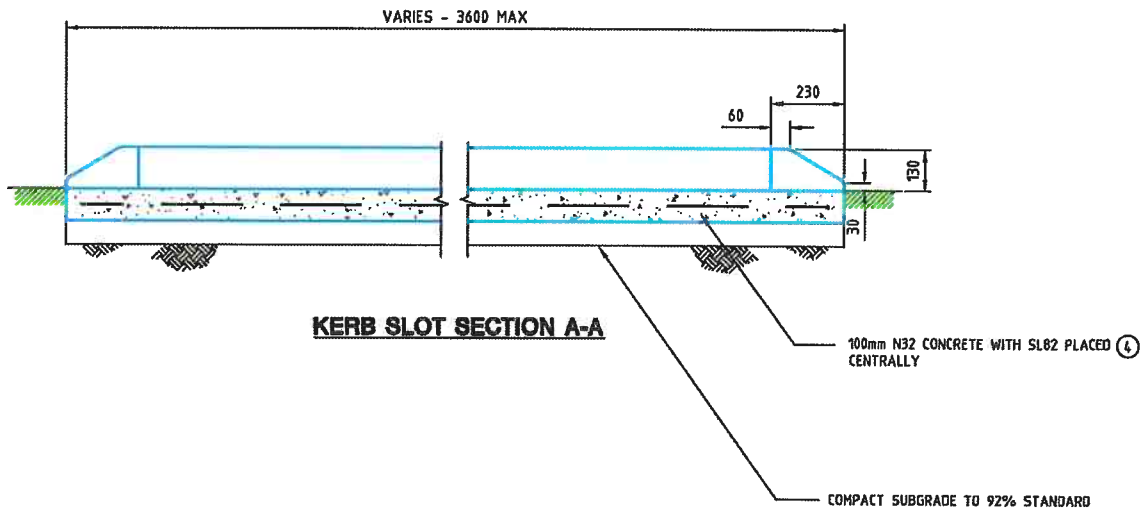
Latest Revision Details

Rev	Amendment	Date
0	BASED ON DRG DS3-02	15/03/18

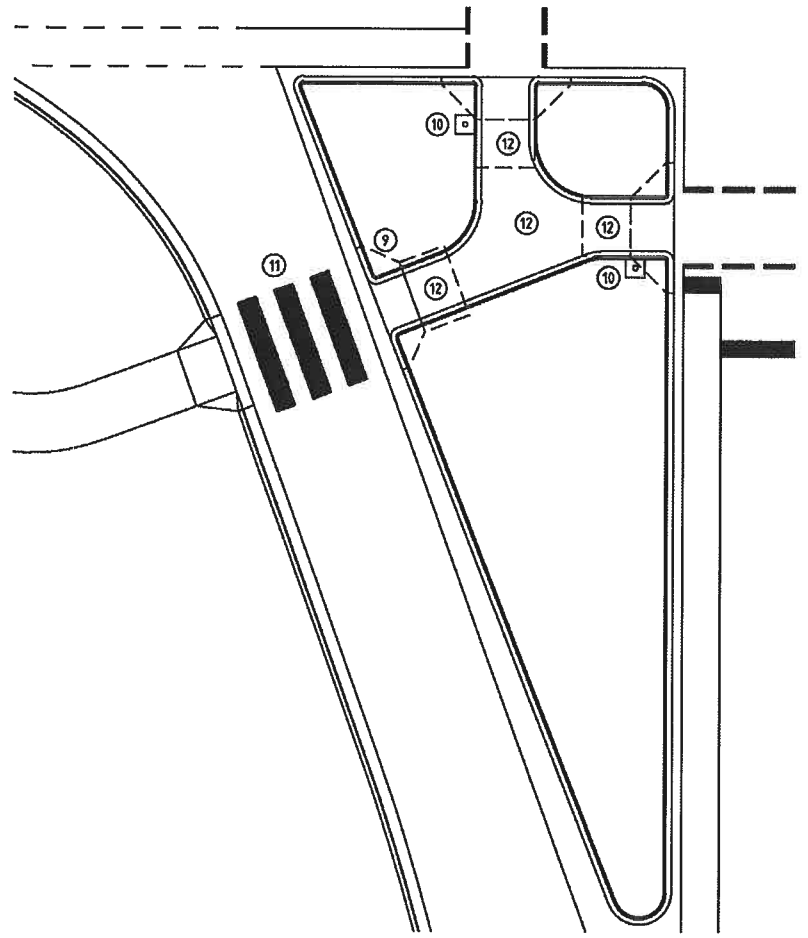
Drawing No. ACTSD-0516 | Revision 0



KERB SLOT



KERB SLOT SECTION A-A



NOTES

1. ALL CONCRETE TO BE CLASS N32 UNLESS NOTED OTHERWISE.
2. ALL KERBS, GUTTERS, INVERTS AND CROSSINGS TO BE CONSTRUCTED ON COMPACTED SUBBASE MATERIAL OF 75mm MINIMUM THICKNESS OR AS OTHERWISE DETAILED.
3. EXPANSION JOINTS (EJ) TO BE SEALED WITH 10mm JOINTEX FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EJ's TO BE LOCATED AT ALL DRAINAGE STRUCTURES (BOTH SIDES), ON TPs OF CURVES LESS THAN 15m RADIUS AND ELSEWHERE AT 15m CENTRES.
4. WEAKENED PLANE JOINTS (WJ) TO BE 3mm WIDE TO 1/4 DEPTH FOR EXTRUDED WORK AND TO THE FULL DEPTH OF FORMED SECTIONS. WJ's TO BE LOCATED AT ALL VCs, PCs AND ELSEWHERE AT 3m CENTRES.
5. FOR KG NOT LAID BY MACHINE, RADIUS AT THE TOP OF KERB FACE TO BE REDUCED TO 10mm.
6. BROOMED FINISH TO BE APPLIED TO ALL. ALL OTHER EXPOSED SURFACES TO HAVE STEEL FLOAT FINISH.
7. ALL CONCRETE TO BE WATER CURED CONTINUOUSLY FOR 3 DAYS OR ALTERNATIVELY COATED WITH AN APPROVED CURING COMPOUND.
8. PROVIDE TGSI'S ON ALL ACCESSIBLE PEDESTRIAN ROUTES (APR'S) IN ACCORDANCE WITH MIS05-5.2 WITH REFERENCE TO AS/NZS 1428.4.4:2009
   TGSI'S SHALL NOT BE INSTALLED WITHIN KERB RAMPS UNLESS APPROVED BY THE ROAD AUTHORITY
9. PROVIDE 0.5m MINIMUM LENGTH OF STRAIGHT IN DIRECTION OF TRAVEL TO ASSIST VISUALLY IMPAIRED USERS TO CORRECTLY ALIGN PRIOR TO CROSSING
10. REFER ACTSD-3914 SIGNAL DRAWINGS FOR OFFSETS FOR TRAFFIC SIGNAL HARDWARE
11. ZEBRA CROSSING PAVEMENT MARKING AND SIGNAGE TO BE IN ACCORDANCE WITH ACTSD-3530
12. KERB SLOTS SHOULD ONLY BE USED IN ISLANDS WHEN IT IS NOT PRACTICAL TO PROVIDE KERB RAMPS AND ASSOCIATED LANDINGS. INNER URBAN KERB RAMPS ARE TO BE USED ON ALL ISLANDS WHEN THERE IS NO KERB SLOT. KERB RAMPS MAY BE OF A DIFFERENT TYPE ON EACH SIDE OF A ROAD CROSSING.

ACT Government

STANDARD DRAWING

KERB RAMPS IN ISLANDS AND KERB SLOTS DETAILS

Authorised:

Latest Revision Details

Rev	Amendment	Date
0	BASED ON DRG DS13-01	28/09/18

Drawing No.	Revision
ACTSD-0517	0

Administrative Arrangement

This Technical Direction will take effect from the latest date of endorsement by the Authorised person/s.

Prepared by:

Darwin Zeta

Assistant Director, Capital Works Planning
Transport Canberra City Services
Date: 22/02/19

Checked by:

Gabriel Joseph

Director, Place Co-Ordination
Transport Canberra City Services
Date: 22/02/19

Endorsed by:

Ken Marshall

Executive Branch Manager, Roads ACT
Transport Canberra City Services
Date: 22/3/19

Authorised by:

Ben McHugh

Executive Group Manager, City Operations
Transport Canberra City Services
Date: 27/2/19.