### STANDARD ENGINEERING DETAILS

#### Part 1 – Paving & Drainage

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NOTES (TOPS, FRAMES, AND COVER)

1. All steel bars shall have 1 1/4" minimum cover unless otherwise shown and shall be hooked where indicated.
2. Manhole top Type 7 shall be of Class B Concrete. Concrete as specified in ASTM C-478 may be used for precast units; see General Note No. 2.
3. Manhole top Type 7 shall be of Class B Concrete. The optional key is for precast units and in lieu of dowels. Frames and top openings are to be omitted when top is used over a junction box. Frames can be adjusted with from one to six courses of brick.
4. Manhole top Type 8 may be of cast-in-place or precast concrete construction. For concrete construction, the concrete and steel reinforcement shall be the same as for standard construction. For precast construction, the optional key is for precast tops and in lieu of dowels. Frames and top openings are to be omitted when top is used over a junction box. Frames can be adjusted with from one to six courses of brick.
5. Manhole tops shall be secured to structures by optional construction units as shown on Sheet 5 of 6.

PICTORIAL VIEW
OPTIONAL BAR TYPES

LADDER BARS FOR STRUCTURES OVER 10' IN DEPTH

1. PAMREX or similar approved Manhole Cover and Frame
2. Covers and frames shall be manufactured from Ductile Iron in accordance with ISO 1083
3. Covers to be hinged and incorporate a 90° blocking system to prevent accidental closure.
4. Covers shall be one-man operable using standard tools and shall be capable of withstanding an average load of 120,000 lbs.
5. Frames shall be circular and shall incorporate a seating gasket; frame depth shall not exceed 4".
6. The flange shall incorporate: bearing slots and bolt holes.
7. All components shall be black coated.
8. Manhole cover and frame for use in asphalt paved roadways shall be US Foundry 420JT or 120JT.

SUPPLEMENTARY DETAILS FOR MANHOLE AND INLETS

NOT FOR USE IN ASPHALT PAVEMENT AREA
TYPICAL ROADWAY SECTION

N.T.S.

FINAL LAYER THICKNESSES TO BE DETERMINED BY THE ENGINEERS PAVEMENT DESIGN CALCULATIONS.

TYPICAL DIVIDED ROADWAY SECTION

N.T.S.

FINAL LAYER THICKNESSES TO BE DETERMINED BY THE ENGINEERS PAVEMENT DESIGN CALCULATIONS.
MILLING AT INTERSECTIONS

INTERSECTING STREET

STREET TO BE RESURFACED

VALLEY GUTTER

3' TO 5' WIDE MILLING

3' TO 4' WIDE MILLING

ALONG VALLEY GUTTER

6'-0" TO 6'-6" MILLING ALONG CURBS

FACE OF CURB

1" (MIN.)

6'-0" CONC. CURB

45" (MIN.)

6'-0" TO 6'-6"

2' STD. CURB & GUTTER

FACE OF GUTTER

MILLING ALONG CURBS

N.T.S.
CURB RAMP - GENERAL NOTES & DETAILS

1. Public sidewalk curb ramps shall be constructed in the public right of way at locations that will provide continuous unobstructed pedestrian circulation paths to pedestrian areas, elements and facilities in the public right of way and to accessible pedestrian routes on adjacent sites. Curbled facilities with sidewalks and those without sidewalks are to have curb ramps constructed at all street intersections and at turnouts that have curved returns. Portals curb returns shall extend to the limit prescribed by FDOT Index No. 115 to accommodate curb ramps. Ramps constructed at locations without sidewalks shall have a 3' x 3' landing constructed at the top of each ramp.

2. The location of curb ramps shall be shown in the plans, and shall conform to these standard details. All ramps, landings and curbs shall be constructed with minimum 3000 psi, Class A concrete and shall be of minimum thickness of 8 inches. All concrete for pedestrian areas shall have a medium brown finish and standard color, unless specifically required by the plans.

3. Curb ramp running slopes at unrestrained sites shall not be steeper than 1:12 and cross slope shall not be steeper than 2%. Transition slopes shall be not steeper than 1:12.

When altering existing pedestrian facilities where existing site development precludes the accommodation of a ramp slope of 1:12, a running slope between 1:10 and 1:15 is permitted for a rise of 10% maximum and a running slope of between 1:10 and 1:8 is permitted for a rise of 3% maximum. Where compliance with the requirements for cross slope cannot be fully met, the minimum feasible cross slope shall be provided.

4. If a curb ramp is located where pedestrians must walk across the ramp, then the walk shall have transitions with a maximum longitudinal slope of 1:20 and a 2% cross-slope. Ramps with return return values are to be used to provide guidance, avoid an obstacle, or where a W/S limitations prohibit fres. Improvements for direction will be required whenever necessary to guide or re-direct the pedestrian towards the receiving ramp.

5. All curb ramps shall have detectable warning surfaces that extend the full width of the ramp and the curb 24" from the back of curb in the direction of travel. Detectable warning surfaces shall be constructed by texturing a truncated dome pattern in conformance with U.S. Department of Justice A.D.A. Standards For Accessible Design, A.D.A. Accessibility Guidelines, Section 4.9.2.1. (Detail shown above left). Transition slopes are not to have detectable warning. Dome pattern shall be inline with direction of travel. Use Armor Tile cast-in-place detectable warning tiles, or approved equal.

6. The height requirement for detectable warning surfaces is a dark on light visual contrast between the detectable warning surface and the adjacent walking surface. Where adjacent walking surfaces are dark colored and constructed with materials other than standard Class (Portland Cement Concrete in accordance with the Standard Specifications, the Contractor shall provide a detectable warning surface color that provides the necessary contrast, with the adjacent concrete. The standard color is dark red brick colored detectable warning tile with standard concrete unless otherwise noted.

7. Where a curb ramp is constructed without existing curb, curbs or sidewalk, the existing concrete shall be removed to the nearest joint beyond the transition slope so that no remaining section of concrete is less than 5 long. The existing sidewalk shall be removed to the nearest joint beyond the transition slope. If the ramp must extend into the sidewalk.

8. Expansion joints shall be placed at quarter points edges abutting concrete, but no joints shall be made in the ramp itself.

9. Public sidewalk curb ramps are to be paid for as follows: Ramps, landings, curb transitions, bases, ramp and sidewalk curbs are to be paid for under the contract unit price for Concrete Curb Ramps, 6" Thick. Reconstructed curbs beyond the ramp are to be paid for under the contract unit price for concrete curb.

When a separate pay item for the removal and disposal of existing curb, curbs and gutter, and/or sidewalk is not provided in the Bid Form, the cost of removal and disposal shall be included under demolition, clearing/grubbing, or in the contract unit price for new curb, curb and gutter or sidewalk, respectively.

10. If curbs are not present on both sides of the walkway, then the concrete is not considered a curb ramp and is therefore may be paid for as 6" concrete sidewalk or driveway.

11. Drop and transition curbs may be formed at the time of curb construction or may be monolithic with the sidewalk but is included with the pay item for the ramp.

12. Two ramp design may be required at certain large radius, signalized, offset or angled intersections. Flare and curb transitions may be replaced with ramp curbs if site conditions warrant.
Note: If necessary due to existing grade differences or less than 10' distance from back of curb to R/W corner, ramp length may be less than 7'; as long as slope doesn't exceed 1/12 and approaching walk ramp down to R/W corner at 1/12 maximum slope. A sidewalk curb or retaining wall may be necessary along the R/W line approaching the corner, if lowering the grade of the R/W corner is not an option.

3' Flare and Curb Transition (typ.)

CR-1

2' Min. Full Height Curb

Back Of Sidewalk Alignment Variations

CR-2

3' Min. (Typical)

When crosswalk markings are required, (signalized intersections) ramp must be centered within crosswalk limits and parallel with the projected crosswalk alignment.

Crosswalk widths and configuration may vary but must conform to FDOT index No. 17344 and 17346.

TWO RAMP CONFIGURATION FOR USE IN LARGE RADIUS, SIGNALIZED, OFFSET OR ANGLED INTERSECTION LOCATIONS
TRaverse curb ramp options for use in locations where adequate raw or easements exist.

Straight curb ramps for linear pedestrian traffic.

Note: These straight ramps should only be used if future sidewalks and crosswalks will not be needed perpendicular to traverse the proposed walkway.

SECTION THROUGH RAMP WITH LANDING AT NORMAL SIDEWALK ELEVATION
(Typical CR-1 to CR-B)

Varies (10' Min.)
Ramp - 7' Min.
3' Min. Landing
2' 2' Detectable Warming Surface on abrupt ramps
See Sheet 1 for details

3' 6' typ.
Construct sidewalk curb when inadequate R/W and easement buffer exist, when unable to lower the abutting grade, or when called for in the plan.

**SIDEWALK CURB OR BUFFER TRANSITION**

**PLAN**

A 5' x 5' landing/ refuge with maximum slope of 2% must be provided when slopes of 5% or flatter are not available on the median crosswalk. The refuge can be constructed at any location within the median crosswalk or a 5' x 5' concrete landing with maximum slope of 2% can be constructed adjacent to the median crosswalk.

**MONOLITHIC CAST CURB**

**SEPARATELY CAST CURB**

**RAMP AND SIDEWALK CURB OPTIONS**

**SECTION C-C**

**MEDIAN CROSSWALKS**
FENCE SHALL BE CHAIN LINK WITH RIBBON SLEEVE OR WOODEN PRIVACY. GATES SHALL BE LOCKABLE WITH 120° - 180° SWING. TO BE PLACED OUTSIDE OF THE PAD.

GATE REQUIRES POSITIVE STOP TO HOLD GATE OPEN AND CLOSED.

ANGLE OF PAD WITH DRIVING LANE SHALL ALLOW FOR A STRAIGHT-LINE MANEUVERING DISTANCE OF 50 FT.

ANGLE OF PAD WITH DRIVING LANE SHALL ALLOW FOR A STRAIGHT-LINE MANEUVERING DISTANCE OF 50 FT.