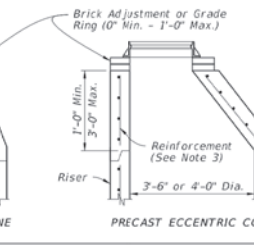
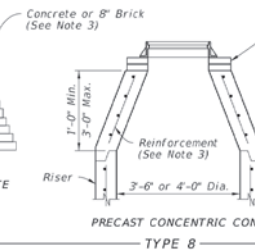
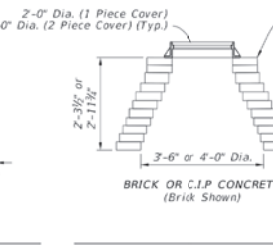
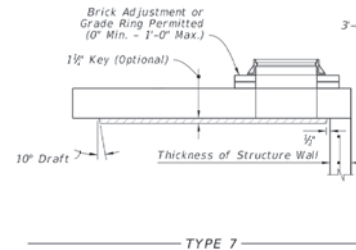
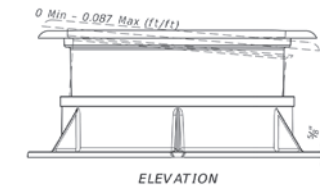
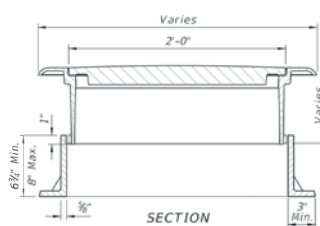
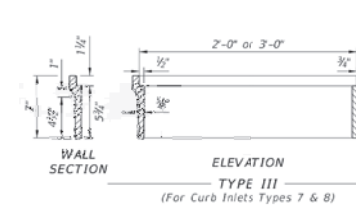
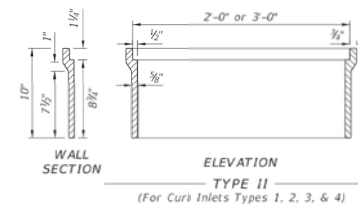
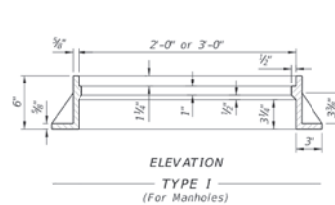
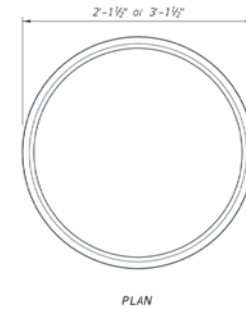
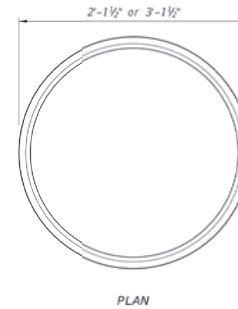
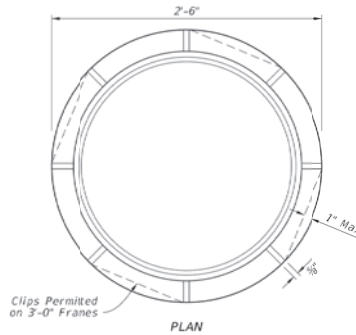


**TABLE 1  
WEIGHT OF CASTINGS (lb)**

Frame Type	2'-0" OPENING			3'-0" OPENING		
	Frame	Cover (Std.)	2-Piece Cover	Frame	Inside	Outside Total
I	155	190	220	190	220	410
II	145	190	255	190	220	410
III	90	190	180	190	220	410

**NOTE:**  
Frame Type I in Table 1, includes Adjustable frames.



- NOTES:**
- Use Class II concrete for Manhole top Type 7 slabs.
  - Manhole top Type 7 slabs may be of cast-in-place or precast construction. The optional key is for precast tops and in lieu of dowels. Omit frame and slab openings when top is used over a junction box.
  - Manhole top Type 8 may be of cast-in-place, precast concrete construction, or brick construction. For concrete construction, use the same concrete and steel reinforcement as the supporting wall unit. An eccentric cone may be used.
  - Use construction joint options, as shown on Sheet 6 to secure manhole tops to structures.
  - Frames may be adjusted to a maximum 12" height with brick or precast ASTM C478 grade rings.
  - Manhole top Type 8 may be substituted for a Type 7, if the minimum dimensions are not reduced.
  - Manhole top Type 7 may be substituted for Type 8, if the minimum thickness (h) above pipe opening cannot be maintained with Type 8.

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FY 2021-22  
STANDARD PLANS

SUPPLEMENTARY DETAILS  
FOR DRAINAGE STRUCTURES

**REVISIONS**

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

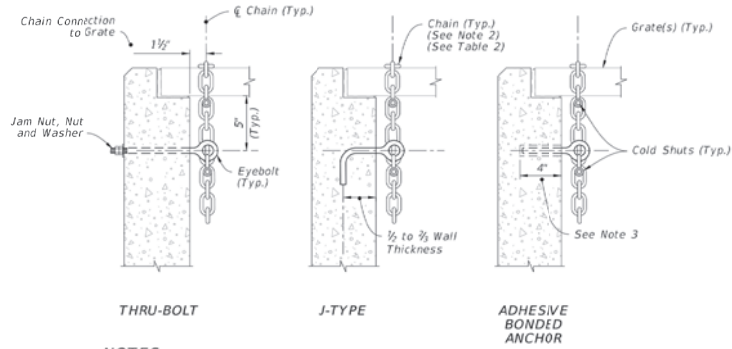
**MARLIN ENGINEERING**  
ANGEL ABRIL FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SU. 113 FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK, COVER  
100 N.W. 25th ST.  
MIAMI, FLORIDA 33135

SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES

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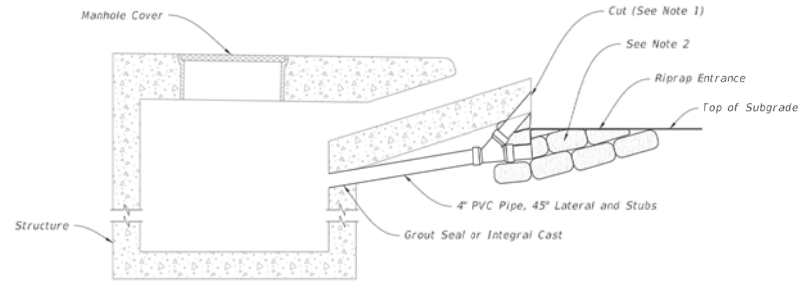


**NOTES:**

1. Install either a 1/2" Ø x 1" Diameter Threaded Straight (Thru-Bolt), a J-Type, or an adhesive Bonded Anchor Eyebolt.
2. Install a 3/16" Chain and 3/16" Cold Shuts. When chaining two grates together provide adequate loop for easy handling.
3. Install adhesive bonded anchor option with a minimum of 4" embedment, and in accordance with Specification 416.

**TABLE 2  
EYEBOLT AND CHAIN REQUIREMENTS**

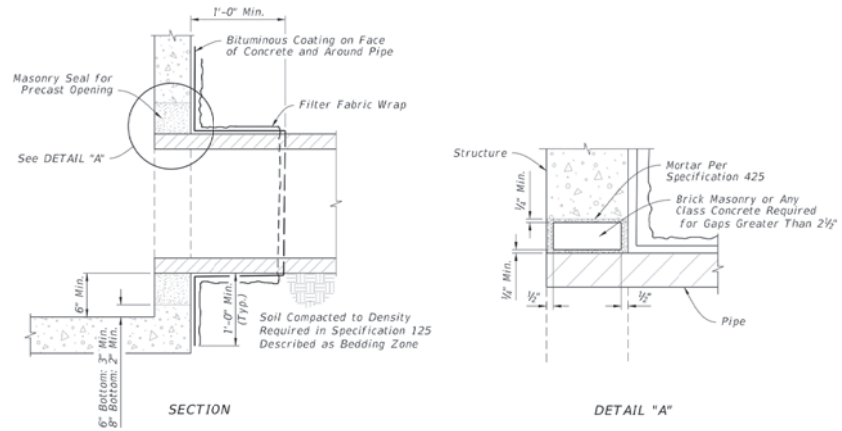
Inex Number	Inlet Type	Eyebolts	Length of Chain	Handling & Remarks
425-030	1	1	4'-0"	Slide & Spin
	2	2	2 @ 4'-0"	Slide & Spin
425-031	N/A	1	3'-8"	Slide or Slide & Spin
425-032	N/A	1	4'-0"	Slide & Spin
425-040	S	1	4'-0"	Slide & Spin
425-041	V	1	4'-0"	Slide & Spin
425-050	A	1	3'-0"	Slide
425-051	B	1	5'-0"	Slide & Spin
	C	1	2'-6"	Slide & Spin
	D	1	2'-6"	Slide & Spin
	E	2	2 @ 2'-6"	Slide & Spin
425-052	H	2	2 @ 2'-6"	Flip Ctr. Grate and Slide & Spin Single Free Grate
			1 or 2 @ 1'-6"	Center Grate(s) Chained to One End Gate
425-053	F	1	3'-6"	Flip or Slide & Spin
	G	1	6'-0"	Slide
			2'-0"	Lifting Loop
425-054	J	1	4'-0"	Slide & Spin



**NOTES:**

1. Bevel cut upper stub to match forming for apron face. Capping or plugging of upper stub is not required. Remove friable base material at stub opening to permit covering of opening with structural course material.
2. Remove riprap, cement PVC cap on lower stub, and place compacted fill in entrance prior to placing base material.

**SUBGRADE AND BASE TEMPORARY DRAINS**



**LOCKING GRATES TO INLETS**

**PIPE TO STRUCTURE FILTER FABRIC WRAP**

**LOCKING GRATES, SUBGRADE AND BASE TEMPORARY DRAINS, AND PIPE TO STRUCTURE FILTER FABRIC WRAP**

LAST REVISION  
11/01/20

REVISION DESCRIPTION



FY 2021-22  
STANDARD PLANS

SUPPLEMENTARY DETAILS  
FOR DRAINAGE STRUCTURES

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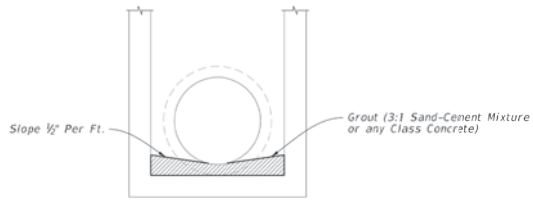
REVISIONS			
DATE	BY	DESCRIPTION	DATE

**MARLIN**  
ENGINEERING  
ANGEL ABRIN FREDA | P.E. No.: 77550  
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NAME	DATE	NAME	DATE
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CHECKED BY: A.F.		DESIGNED BY: A.F.	

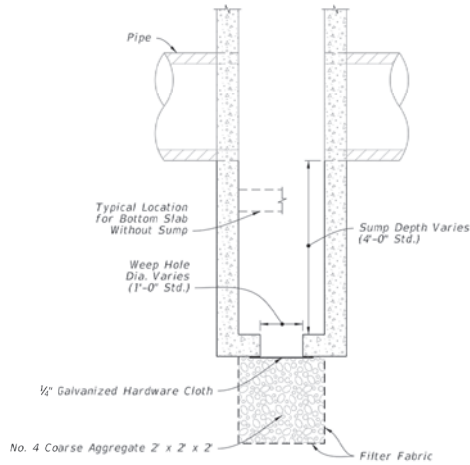
MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK, CENTER  
1600 N.W. 25th ST.  
MIAMI, FLORIDA 33128

SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES



NOTE: For all structures unless excluded by special detail.

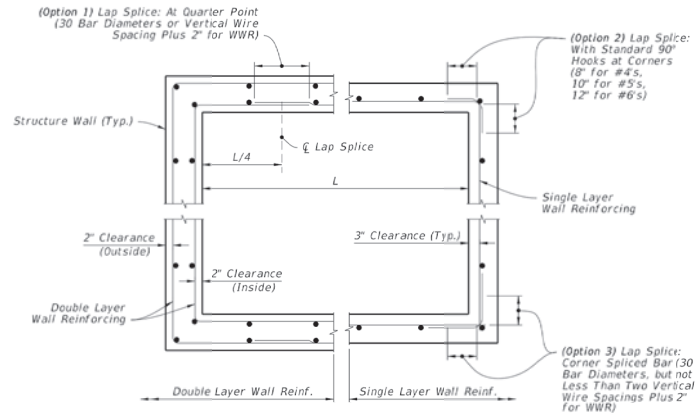
**DRAINAGE STRUCTURE INVERT**



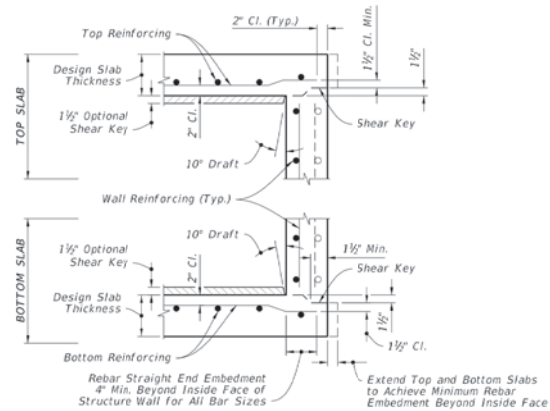
**NOTES:**

1. Construct sumps in inlets and manholes connecting to French Drains unless excluded in the Plans.
2. Construct sumps only where called for in the Plans at all other locations.
3. Construct weep holes in sump bottom only where called for in the Plans.

**SUMP BOTTOM**



**WALL REINFORCING SPLICE DETAILS**



**NOTES:**

1. See Sheet 6 for optional construction joints.
2. Bend bars as required to maintain cover.

**TYPICAL SLAB TO WALL DETAILS  
 (PRECAST STRUCTURE SHOWN)**

**DRAINAGE STRUCTURE INVERT, SUMP BOTTOM, WALL REINFORCING SPLICE DETAILS, AND TYPICAL SLAB TO WALL DETAILS**

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABRIL FREDA | P.E. No.: 77550  
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DESIGNED BY RL	NAME	DATE	DRAWN BY M.P.	NAME	DATE
CHECKED BY A.F.			CHECKED BY A.F.		
SUPERVISED BY:					

MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 100 N.W. 1<sup>ST</sup> AVENUE  
 MIAMI, FLORIDA 33138

SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES

**EXAMPLE TABLE OF EQUIVALENT STEEL AREA**

SCHEDULE	GRADE 60 REINFORCING BAR		EQUIVALENT GRADE 40 REINFORCING BAR		EQUIVALENT 65 KSI SMOOTH WELDED WIRE REINFORCEMENT		EQUIVALENT 70 KSI DEFORMED WELDED WIRE REINFORCEMENT	
	Bar Size & Spacing	Steel Area (in <sup>2</sup> /ft)	Bar Size & Spacing	Steel Area (in <sup>2</sup> /ft)	Style Designation	Steel Area (in <sup>2</sup> /ft)	Style Designation	Steel Area (in <sup>2</sup> /ft)
A	#3 @ 6 1/2" Ctrs. #4 @ 12" Ctrs.	0.20	#3 @ 4 1/2" Ctrs. #4 @ 8" Ctrs. #5 @ 12" Ctrs.	0.30	3"x3"-W4.6xW4.6 4"x4"-W6.2xW6.2 6"x6"-W9.2xW9.2	0.1846	3"x3"-D4.3xD4.3 4"x4"-D5.7xD5.7 6"x6"-D8.6xD8.6	0.1714
B	#3 @ 5 1/2" Ctrs. #4 @ 10" Ctrs.	0.24	#3 @ 3 1/2" Ctrs. #4 @ 6 1/2" Ctrs. #5 @ 10" Ctrs.	0.36	3"x3"-W5.5xW5.5 4"x4"-W7.4xW7.4 6"x6"-W11.1xW11.1	0.2215	3"x3"-D5.1xD5.1 4"x4"-D6.9xD6.9 6"x6"-D10.3xD10.3	0.2057
Special 1	#3 @ 5" Ctrs. #4 @ 9" Ctrs.	0.267	#3 @ 3" Ctrs. #4 @ 6" Ctrs. #5 @ 9" Ctrs.	0.40	3"x3"-W6.2xW6.2 4"x4"-W8.2xW8.2 6"x6"-W12.3xW12.3	0.2465	3"x3"-D5.7xD5.7 4"x4"-D7.6xD7.6 6"x6"-D11.4xD11.4	0.2289
C	#3 @ 3 1/2" Ctrs. #4 @ 6 1/2" Ctrs. #5 @ 10" Ctrs.	0.37	#4 @ 4" Ctrs. #5 @ 6 1/2" Ctrs. #6 @ 9 1/2" Ctrs.	0.555	3"x3"-W8.5xW8.5 4"x4"-W11.4xW11.4 6"x6"-W17.1xW17.1	0.3415	3"x3"-D7.9xD7.9 4"x4"-D10.6xD10.6 6"x6"-D15.9xD15.9	0.3171
D	#4 @ 4 1/2" Ctrs. #5 @ 7" Ctrs. #6 @ 10" Ctrs.	0.53	#4 @ 3" Ctrs. #5 @ 4 1/2" Ctrs. #6 @ 6 1/2" Ctrs.	0.795	3"x3"-W12.2xW12.2 4"x4"-W16.3xW16.3 6"x6"-W24.5xW24.5	0.4892	3"x3"-D11.4xD11.4 4"x4"-D15.1xD15.1 6"x6"-D22.2xD22.2	0.4543
E	#4 @ 3" Ctrs. #5 @ 5" Ctrs. #6 @ 7" Ctrs.	0.73	#5 @ 3 1/2" Ctrs. #6 @ 4 1/2" Ctrs. #7 @ 6 1/2" Ctrs.	1.095	3"x3"-W16.8xW16.8 4"x4"-W22.5xW22.5 6"x6"-W33.7xW33.7	0.6738	3"x3"-D15.6xD15.6 4"x4"-D20.9xD20.9 6"x6"-D31.3xD31.3	0.6257
F	#5 @ 3 1/2" Ctrs. #6 @ 5" Ctrs. #7 @ 7" Ctrs.	1.06	#6 @ 3" Ctrs. #7 @ 4 1/2" Ctrs. #8 @ 6" Ctrs.	1.59	3"x3"-W24.5xW24.5 4"x4"-W32.6xW32.6 6"x6"-W48.9xW48.9	0.9785	3"x3"-D22.7xD22.7 4"x4"-D30.3xD30.3 6"x6"-D45.4xD45.4	0.9086
Special 2	#5 @ 3" Ctrs. #6 @ 4" Ctrs. #7 @ 5 1/2" Ctrs.	1.24	#7 @ 4" Ctrs. #8 @ 5" Ctrs.	1.86	3"x3"-W28.6xW28.6 4"x4"-W38.2xW38.2 6"x6"-W57.2xW57.2	1.1446	3"x3"-D26.6xD26.6 4"x4"-D35.4xD35.4 6"x6"-D53.1xD53.1	1.0629
G	#6 @ 3 1/2" Ctrs. #7 @ 5" Ctrs.	1.46	#7 @ 3" Ctrs. #8 @ 4" Ctrs.	2.19	3"x3"-W33.7xW33.7 4"x4"-W44.9xW44.9	1.3477	3"x3"-D31.3xD31.3 4"x4"-D41.7xD41.7	1.2514

**NOTES:**

- See inlet indexes for optional precast inlet construction details up to depths of 15'.
- Interior dimensions of an Alt. "B" Bottom may be adjusted to reflect these inlet interior dimensions when precast units are used in conjunction with Alt. "B" Structure Bottoms, Index 425-010.
- Use concrete meeting the requirements of ASTM C478 or Class IV for precast structures with 6" wall or slab thickness.
- Reinforcement may be deformed bar reinforcement or welded wire reinforcement. Bar reinforcement other than 60 ksi may be used, however only two grades are recognized: Grade 40 and Grade 60. Smooth welded wire reinforcement will be recognized as having a design strength of 65 ksi and deformed welded wire reinforcement will be recognized as having a design strength of 70 ksi. The area of reinforcement required may be adjusted in accordance with the Equivalent Steel Area Table provided. Use the following equations to determine the steel area and spacing for bars not otherwise specified:
  - Grade 40 Steel Area =  $As_{40} = 60/40 \times As_{60}$
  - Smooth Welded Wire Reinforcement Steel Area =  $As_{65} = 60/65 \times As_{60}$
  - Deformed Welded Wire Reinforcement Steel Area =  $As_{70} = 60/70 \times As_{60}$
 When a reduced area of reinforcement is provided, any maximum bar spacing shown must also be reduced as determined by the following equations, unless otherwise shown:
  - Max. Grade 40 Bar Spacing = Grade 60 Bar Spacing
  - Max. Smooth Welded Wire Spacing = Grade 60 Bar Spacing x 0.86
  - Max. Deformed Welded Wire Spacing = Grade 60 Bar Spacing x 0.74
 When an increased area of reinforcing is provided, the maximum bar spacing may be increased by the squared ratio of increased steel area, but not to exceed 12":
  - Max. Bar Spacing Provided  $\leq$  Max. Bar Spacing Required  $\times \left( \frac{\text{Steel Area Provided}}{\text{Min. Steel Area Required}} \right)^2$
 Use wire no smaller than than W3.1 or D4.0, or larger and with spacing 8" or less. Use bar reinforcement displaying the minimum yield designation grade mark, or either the number 60 or one (1) grade mark line to be acceptable at the higher value. Use maximum bar spacing no greater than two (2) times the slab thickness with a maximum spacing of 12" or three (3) times the wall thickness, with a maximum spacing of 18" for vertical bars and 12" for horizontal bars. Wires smaller than W3.1 or D4.0 may be used in the walls of ASTM C 478 round structure bottoms and round risers.
- Fiber-reinforced concrete may be substituted for conventional steel reinforcement in accordance with the Structures Design Guidelines. Submit shop drawings corresponding to an approved fiber-reinforced concrete mix design for approval to the State Drainage Engineer.

**PRECAST OPTION AND EQUIVALENT REINFORCEMENT SUBSTITUTION**

LAST REVISION 11/01/20	DESCRIPTION:	<b>FY 2021-22 STANDARD PLANS</b>	<b>SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES</b>	INDEX <b>425-001</b>	SHEET <b>5 of 8</b>
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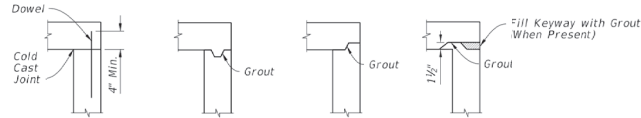
**MARLIN**  
ENGINEERING  
ANGEL ABRIL PREDI | P.E. No.: 77550  
3363 N. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
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DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY	R.L.		CHECKED BY	M.P.	
SUPERVISED BY	A.F.		SUPERVISED BY	A.F.	

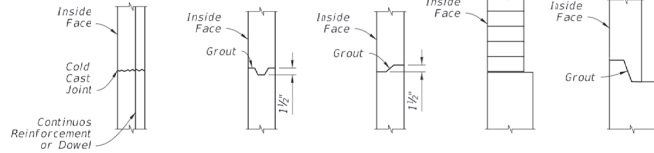
**MIAMI-DADE COUNTY**

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK, CENTER  
MIAMI, FLORIDA 33138

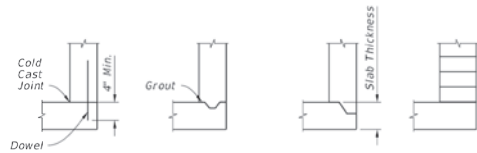
SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES



TOP SLABS TO WALL JOINTS



WALL JOINTS

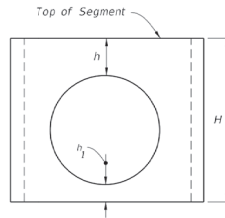


BOTTOM SLAB TO WALL JOINTS

**NOTES:**

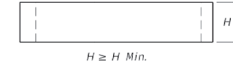
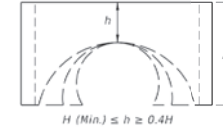
- One or more types of joints may be used in a single structure, except brick wall structure. Brick wall construction is permitted on circular units only.
- All grouted joints are to have a maximum thickness of 1".
- Keyways are to be a minimum of 1 1/2" deep.
- Joint dowels are to be #4 bars, 12" long with a minimum of 6 bars per joint approximately evenly spaced for circular structures or at maximum 12" spacing for rectangular structures. Bars may be either Adhesive Bonded Dowels in accordance with Specification 416, or placed approximately 6" into fresh concrete leaving the remainder to extend into the secondary cast. Welded wire reinforcement may be substituted for the dowel bar in accordance with the equivalent steel area table on Sheet 5.
- Minimum cover on dowel reinforcing bars is 2" to outside face of structure.
- Seal joints between wall segments and between wall segments and top or bottom slabs with preformed plastic gasket material in accordance with Specification 439 or non-shrink grout in accordance with Specification 934.
- Insert products approved by the Engineer may be used in lieu of dowel embedment.

CONSTRUCTION JOINT OPTIONS



When  $6" \leq h < 0.75H$  (Min.)  
 $h_1 \geq 0.75H$  (Min.)

Then (Reqd.)  
 $h \geq 0.4H$   
 $h \geq H$  (Min.)



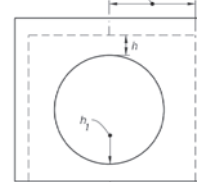
**TABLE 3**  
**Minimum Value for H**

H (min.)	Box or Riser Diameter
1'-0"	3'-6" & 4'-0"
1'-6"	5'-0" & 6'-0"
2'-0"	>6'-0"

- NOTES:**
- Segments may be inverted. Opening for pipe is the pipe OD plus 6" ( $\pm 2"$  tolerance).
  - If h can not be attained, then a top or bottom slab must be attached to the segment as shown below.

RISER SEGMENTS OTHER THAN DOWEL

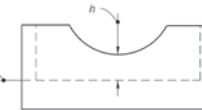
Riser or Inlet Opening (Location Varies)



$h \geq \text{zero}$  and  $h_1 \geq 6"$

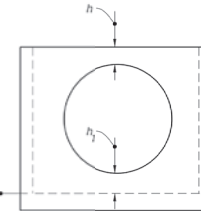
See Note 2

See Note 2



Top or Bottom Segment:  
 $h \geq 2"$

See Note 2



$h_1 \geq 2"$  and  $h \geq 6"$

**NOTES:**

- h may be less than 6" when approved by the Engineer, but not for inlet segments at finish grade elevation.
- Dowel construction joint or monolithic cast only.

SEGMENTS FOR SLAB TO WALL DOWEL CONSTRUCTION JOINTS OR MONOLITHIC CAST

MINIMUM BOX AND RISER SEGMENT DIMENSIONS

CONSTRUCTION JOINT OPTIONS AND MINIMUM BOX AND RISER SEGMENT DIMENSIONS

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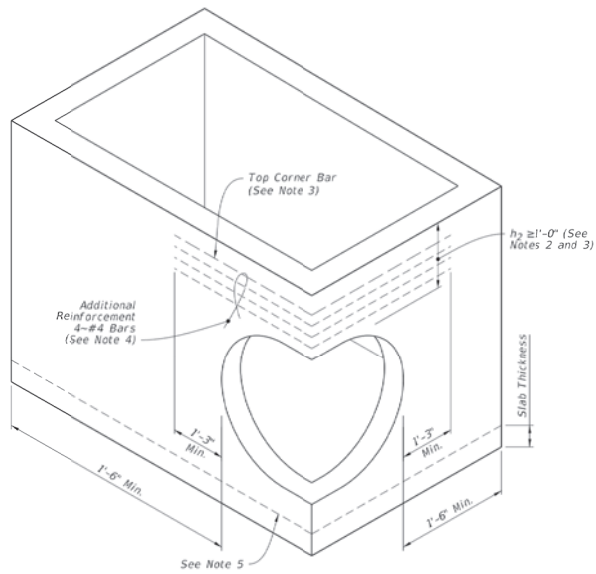
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3363 W. COMMERCIAL BLVD. STE. 115 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

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STEPHEN P. CLARK, CENTER FOR EXCELLENCE  
MIAMI, FLORIDA 33138

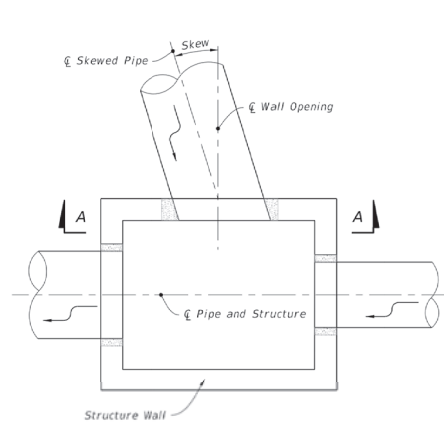
SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES



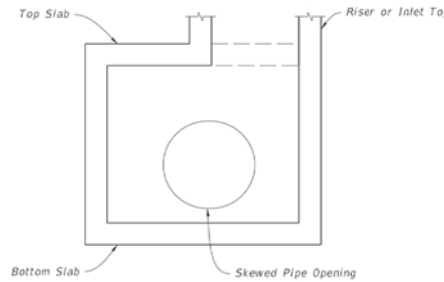
**NOTES:**

1. Submit Shop Drawings of corner openings for approval by the Engineer.
2.  $h_2$  may be less than 1'-0" when a minimum 1'-0" deep segment, 8" slab or curb inlet is provided above the corner opening.
3. For inlet segments at finish grade elevation, substitute a #8 Bar for the top corner bar when 1'-0"  $\leq$   $h_2$  < 2'-0".
4. Install bars continuously around corner and evenly spaced. Tie additional reinforcement to the outside of vertical wall reinforcement.
5. Dowel construction joint or monolithically cast wall and slabs.

PIPE OPENING AT CORNER

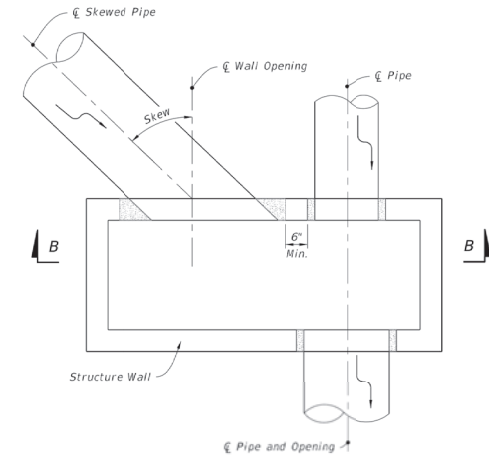


PLAN

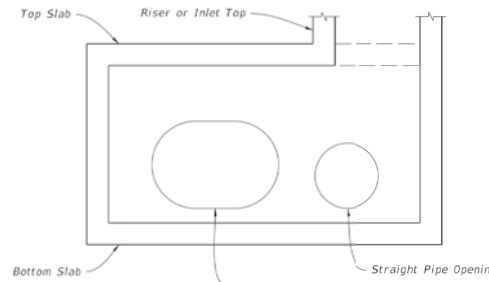


SECTION A-A

SKEWS  $\leq$  45°  
(Not Centered)



PLAN



SECTION B-B

SKEWS > 45°  
(Not Centered)

SKEVED PIPE IN RECTANGULAR STRUCTURES  
(See Table 4 on Sheet 8)

SKEVED PIPE IN RECTANGULAR STRUCTURES

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SUPPLEMENTARY DETAILS  
FOR DRAINAGE STRUCTURES

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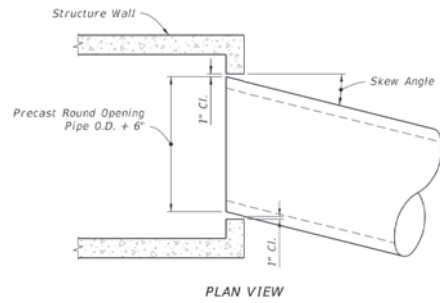
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SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES

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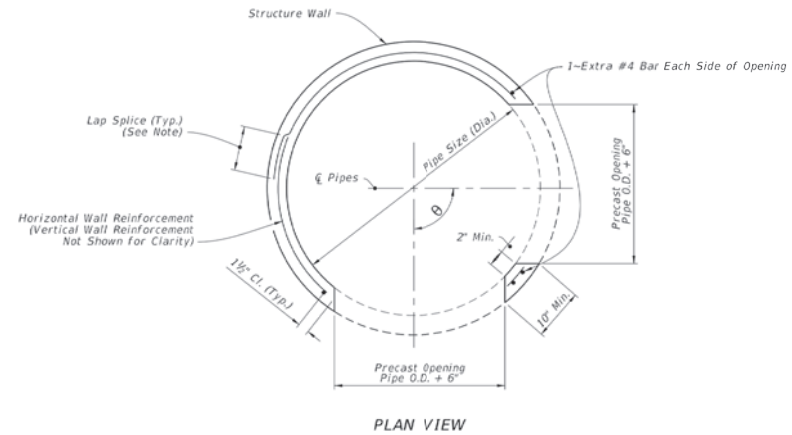


**TABLE 4 - MAXIMUM PIPE SKEW FOR PRECAST ROUND OPENINGS**

WALL THICKNESS	PIPE SIZE												
	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	
MAXIMUM SKEW ANGLE	8°	19°	17°	16°	16°	15°	14°	14°	13°	13°	13°	12°	12°
	6°	21°	20°	18°	17°	17°	16°	15°	15°	14°	14°	13°	13°

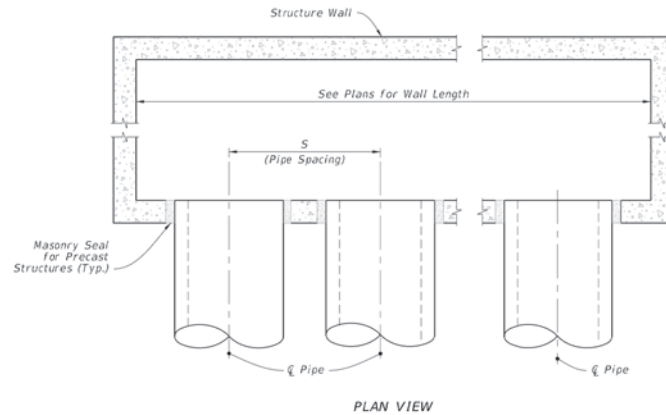
**NOTE:**  
These values are based on 2" clearance for precast structures. Larger skews are possible for Cast-In-Place Structures or elliptical pipe openings when approved by the Engineer.

MAXIMUM PIPE SKEW FOR PRECAST ROUND OPENINGS



**NOTE:**  
Lap splice: 20 bar diameter for deformed wire or bar, but not less than vertical wire spacing plus 2" for WWR or 40 bar diameters for smooth wire.

MULTIPLE PIPE CONNECTIONS - PRECAST ROUND STRUCTURES



MULTIPLE PARALLEL PIPE CONNECTIONS - RECTANGULAR STRUCTURES

**TABLE 5 - MINIMUM SIZES FOR MULTIPLE PARALLEL PIPE CONNECTIONS**

PIPE SIZE	PIPE SPACING (S)
18"	2'-10"
24"	3'-5"
30"	4'-3"
36"	5'-1"
42"	6'-0"
48"	6'-9"
54"	7'-8"
60"	8'-6"
66"	9'-0"
72"	10'-0"
78"	10'-9"
84"	11'-8"

MISCELLANEOUS PIPE CONNECTION DETAILS

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HIGHWAY DIVISION  
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1500 N.W. 25th ST.  
MIAMI, FLORIDA 33125

SUPPLEMENTARY DETAILS FOR DRAINAGE STRUCTURES

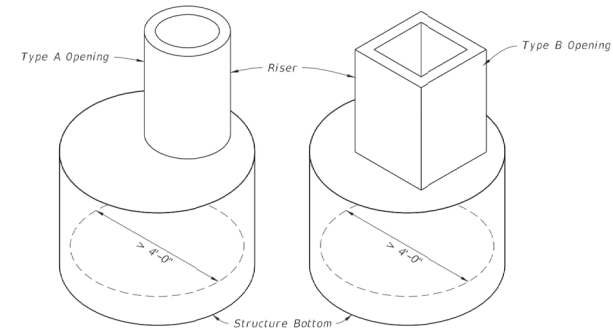
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**GENERAL NOTES:**

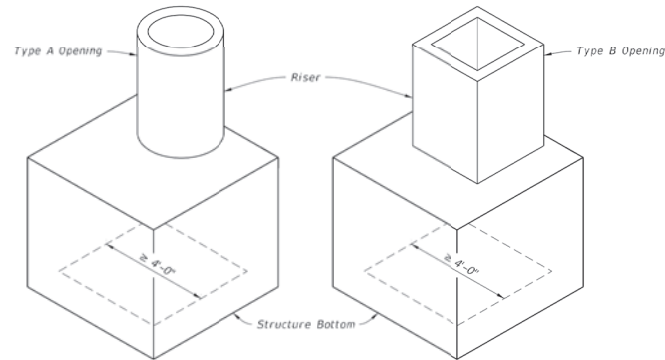
1. Work this Index with Specification 425 and Index 425-001.
2. Type P standard structure bottoms are 4'-0" diameter and smaller (Alt. A) and 3'-6" square (Alt. B). Larger standard structure bottoms are designated Type J. Risers are permitted for all structures.
3. Walls of circular structures (Alt. A) constructed in place may be of brick or reinforced concrete. Construct precast and rectangular structures (Alt. B) with reinforced concrete only.
4. Wall thickness and reinforcement are for either reinforced cast-in-place or precast concrete units except that precast circular units may be furnished with walls in accordance with ASTM C478 (See Table 1).
5. Top and bottom slab thickness and reinforcement are for precast and cast-in-place construction. Use Class II concrete, except when Class IV concrete is shown in the Plans.
6. Alt. A or Alt. B structure bottoms may be used in conjunction with curb inlet tops Types 1, 2, 3, 4, 5, 6, 9, and 10, and any manhole or junction box. Alt. B structure bottoms may be used in conjunction with curb inlet Types 7 & 8, or any ditch bottom inlet.
7. Rectangular structures may be rotated as directed by the Engineer in order to facilitate connections between the structure walls and pipes.
8. Use straight embedment reinforcement in top and bottom slabs, except when ACI hooks are specifically required.
9. Construct corner fillets as shown for rectangular structures used with circular risers and inlet throats, and when used on skew with rectangular risers, inlets, and inlet throats. Construct fillets in the top slab of the Alt. A structure bottoms when used with the Type B risers. Reinforce each fillet with two #5 bars.
10. Units larger than specified standards may be substituted at the contractor's option when these units will not cause or increase the severity of utility conflicts. Furnish such larger units at no additional cost to the Department. Larger Alt. A units cannot replace Alt. B units without approval of the Engineer. This Note applies to this Index only.

**REINFORCEMENT NOTES:**

1. Locate wall reinforcement in rectangular structures as shown in the WALL REINFORCEMENT SPLICE DETAILS in Index 425-001.
2. Provide a minimum 2" clear cover for all reinforcement unless otherwise noted and except for 36" diameter ASTM C478 units.
3. Additional bars used to restrain hole formers for precast structures with grouted pipe connections may be left flush with the hole surface.
4. Cut or bend reinforcement at pipe openings to maintain cover.
5. Remove exposed ends of reinforcing at precast pipe openings and grouted joints to 1" below the concrete surface and seal with a Type F Epoxy meeting the requirements of Specification 926.
6. Equivalent area smooth or deformed welded wire reinforcement may be substituted in accordance with Index 425-001.

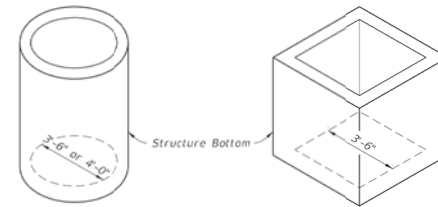


ALTERNATE A

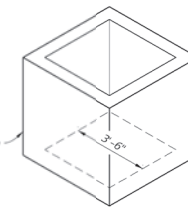


ALTERNATE B

TYPE J



ALTERNATE A



ALTERNATE B

TYPE P

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Sheet	Description
1	General Notes and Contents
2	Dimensional and Reinforcing Details
3	Tables 1, 2, 3, and 4
4	Tables 5 and 6

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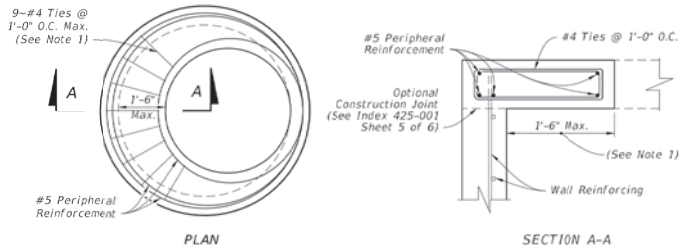
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	RL			M.P.	
	A.F.			A.F.	

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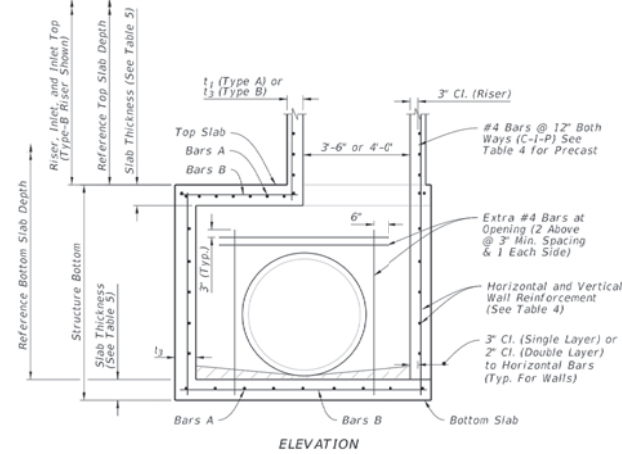
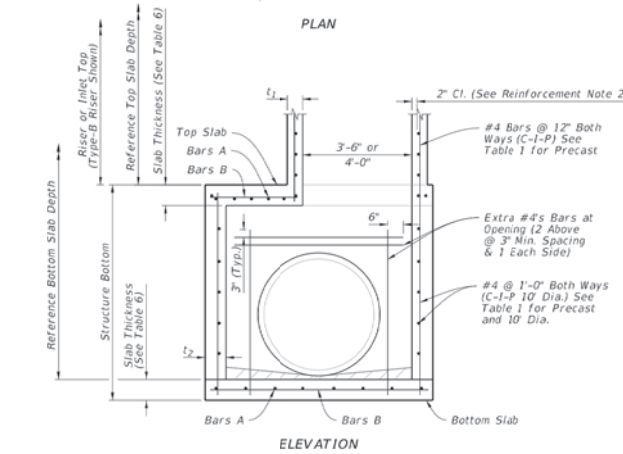
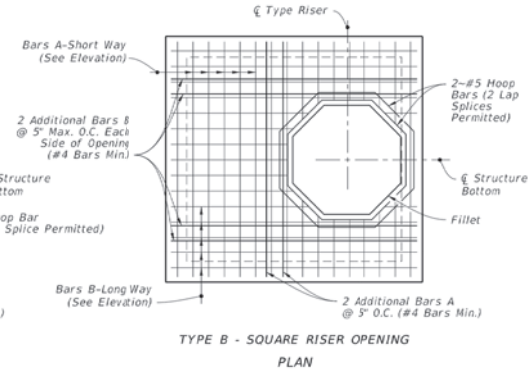
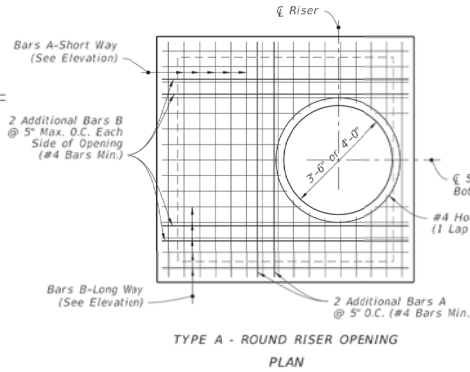
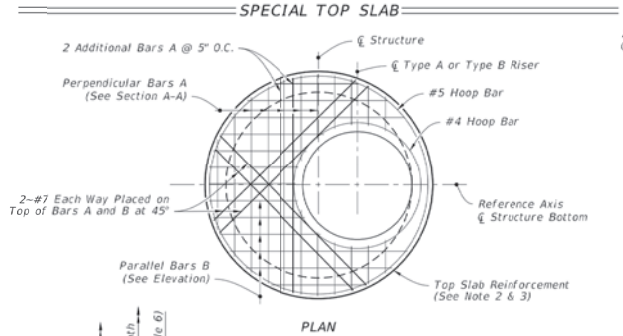
STRUCTURE BOTTOMS TYPE J AND P





**ALTERNATE A NOTES:**

1. Rotate #4 Bars as required to maintain cover.
2. Construct the top or riser of the structure according to the top slab to the "Special Top Slab" details, when the inside diameter of a round structure is not more than 1'-6" larger than the opening in the riser or top slab.
3. Alternate A slab reinforcing not applicable for Type A, B, C, D & E Ditch Bottom Inlets or Type S & V Gutter Inlets. See Indexes 425-040, 425-041, 425-050, 425-051, and 425-052.



**DIMENSIONAL AND REINFORCING DETAILS**

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STRUCTURE BOTTOMS TYPE J AND P

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STEPHEN P. CLARK, CENTER  
1800 N.W. 25th St.  
MIAMI, FLORIDA 33125

STRUCTURE BOTTOMS TYPE J AND P



**TABLE 5 - SLAB DESIGNS - SQUARE AND RECTANGULAR STRUCTURES**  
(ALL SLABS 8" THICK EXCEPT AS NOTED - REINFORCING PARALLEL TO SHORT WAY AND LONG WAY)

SHORT-WAY		LONG-WAY		SHORT-WAY		LONG-WAY		SHORT-WAY		LONG-WAY	
SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)	SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)	SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 3'-6" x UNLIMITED											
≥0.5' < 8'	B10	≥0.5' < 24'	B10	≥0.5' < 13'	C6.5	≥0.5' < 10'	C3.5	≥0.5' < 10'	D7	≥0.5' < 9'	D4.5
8' < 13'	B5.5	24'-40'	B5.5	13' < 23'	D7	10' < 18'	D4.5	10' < 19'	E5	9' < 13'	E5
13' < 31'	C6.5			23'-40'	E5	18' < 27'	E5	19'-30'	F5	13' < 18'	F5
31'-40'	D7					27' < 33'	E3			18' < 23'	F3.5
						33'-40'	F5			23'-40'	G3.5
SIZE: 4' x UNLIMITED											
≥0.5' < 7'	B5.5	≥0.5' < 15'	B10	≥0.5' < 8'	C6.5	≥0.5' < 8'	C6.5	≥0.5' < 8'	D7	≥0.5' < 7'	D7
7' < 19'	C6.5	15' < 29'	B5.5	8' < 16'	D7	8' < 12'	C3.5	8' < 14'	E5	7' < 9'	D4.5
19' < 31'	D7	29'-40'	C6.5	16' < 28'	E5	12' < 21'	D4.5	14' < 23'	F5	9' < 15'	E3
31'-40'	E5			28'-40'	F5	21' < 28'	E5	23'-31'	G3.5	15' < 20'	F5
						28' < 35'	E3			20' < 23'	F3.5
						35'-40'	F5			23'-31'	G3.5
SIZE: 5' x 5'											
≥0.5' < 3'	C6.5	≥0.5' < 3'	C6.5	≥0.5' < 6'	C6.5	≥0.5' < 6'	B5.5	≥0.5' < 8'	D7	≥0.5' < 7'	D4
3' < 7'	B5.5	3' < 13'	C6.5	6' < 13'	D7	6' < 11'	C6.5	8' < 14'	E5	7' < 10'	E5
7' < 22'	C6.5	13' < 22'	D7	13' < 22'	E5	11' < 17'	C3.5	14' < 22'	F5	10' < 17'	F3.5
22' < 29'	D7	22' < 29'	D4.5	22' < 35'	F5	17' < 22'	D4.5			17' < 22'	G3.5
29'-40'	E5	29'-40'	E5	35'-40'	G5	22' < 32'	E5	SIZE: 9' x 9'			
						32'-40'	E3	SIZE: 9'x9'x10' SLAB THICKNESS			
								22' < 36'	F5	22' < 31'	F3.5
								36'-40'	G5	31'-40'	G3.5
SIZE: 5' x 6'											
≥0.5' < 12'	C6.5	≥0.5' < 3'	C6.5	SIZE: 6' x 8'							
12' < 26'	D7	3' < 9'	B5.5	≥0.5' < 8'	D7	≥0.5' < 8'	B5.5	SIZE: 10'x10'x10' SLAB THICKNESS			
26'-40'	E5	9' < 23'	C3.5	8' < 14'	E5	8' < 14'	C6.5	≥0.5' < 7'	C6.5	0.5' < 6'	C6.5
		23' < 35'	D4.5	14' < 24'	F5	14' < 21'	C3.5	7' < 10'	D7	6' < 9'	D4.5
		35'-40'	E5	24'-34'	G5	21' < 25'	D4.5	10' < 18'	E5	9' < 15'	E5
						25'-34'	E5	18' < 27'	F5	15' < 22'	F5
								27'-32'	G5	22'-32'	G3.5
SIZE: 5' x 7'											
≥0.5' < 10'	C6.5	≥0.5' < 10'	B5.5	SIZE: 6' x UNLIMITED							
10' < 20'	D7	10' < 31'	C3.5	≥0.5' < 8'	D7	≥0.5' < 8'	B5.5	SIZE: 7' x 7'			
20' < 34'	E5	31'-40'	D4.5	8' < 14'	E5	8' < 14'	C6.5	≥0.5' < 8'	C6.5	≥0.5' < 4'	C6.5
34'-40'	F5			14' < 24'	F5	14' < 21'	C3.5	8' < 15'	D7	4' < 7'	C3.5
				24'-34'	G5	21' < 25'	D4.5	15' < 26'	E5	7' < 11'	D4.5
						25'-34'	E5	26'-40'	F5	11' < 22'	E3
										22' < 32'	F3.5
										32'-40'	G3.5
SIZE: 5' x 8'											
≥0.5' < 7'	C6.5	≥0.5' < 8'	B10	SIZE: 7' x 8'							
7' < 13'	D7	8' < 17'	B5.5	≥0.5' < 5'	C6.5	≥0.5' < 5'	C6.5	SIZE: 7' x 9'			
13' < 24'	E5	17' < 25'	C6.5	5' < 11'	D7	5' < 8'	C3.5	≥0.5' < 9'	D7	≥0.5' < 7'	C6.5
24'-40'	F5	25'-40'	C3.5	11' < 19'	E5	8' < 13'	D4.5	9' < 15'	E5	7' < 10'	C3.5
				19' < 30'	F5	13' < 22'	E3	15' < 25'	F5	10' < 14'	D4.5
				30'-40'	G5	22' < 30'	F3.5	25' < 34'	G5	14' < 21'	E5
						30'-40'	G3.5			21' < 29'	F5
										29'-34'	F3.5
SIZE: 5' x UNLIMITED											
≥0.5' < 8'	C6.5	≥0.5' < 14'	B10	SIZE: 7' x 8'							
8' < 14'	D7	14' < 24'	B5.5	≥0.5' < 5'	C6.5	≥0.5' < 5'	C6.5	SIZE: 7' x 9'			
14' < 25'	E5	24' < 34'	C6.5	5' < 11'	D7	5' < 8'	C3.5	≥0.5' < 9'	D7	≥0.5' < 7'	C6.5
25'-40'	F5	34'-40'	C3.5	11' < 19'	E5	8' < 13'	D4.5	9' < 15'	E5	7' < 10'	C3.5
				19' < 30'	F5	13' < 22'	E3	15' < 25'	F5	10' < 14'	D4.5
				30'-40'	G5	22' < 30'	F3.5	25' < 34'	G5	14' < 21'	E5
						30'-40'	G3.5			21' < 29'	F5
										29'-34'	F3.5

**TABLE 6 - SLAB DESIGNS ROUND STRUCTURES**

SLAB DEPTH	SLAB THICKNESS	REIN. (2WAY) SCHEDULE
SIZE: 3'-6" DIAMETER		
2'-15'	6" Precast	C6.5
0.5' < 30'	8"	A6
30'-40'	8"	B5.5
SIZE: 4'-0" DIAMETER		
≥0.5' < 19'	8"	A6
19' < 30'	8"	B5.5
30'-40'	8"	C6.5
SIZE: 5'-0" DIAMETER		
≥0.5' < 15'	8"	B5.5
15' < 26'	8"	C6.5
26' < 35'	8"	D7
35'-40'	8"	D4.5
SIZE: 6'-0" DIAMETER		
≥0.5' < 9'	8"	B5.5
9' < 15'	8"	C6.5
15' < 22'	8"	C3.5
22' < 30'	8"	D4.5
30'-40'	8"	E5
SIZE: 7'-0" DIAMETER		
≥0.5' < 8'	8"	C3.5
8' < 16'	8"	D4.5
16' < 23'	8"	E5
23' < 27'	8"	E3
27'-40'	8"	F3.5
SIZE: 8'-0" DIAMETER		
≥0.5' < 10'	8"	D4.5
10' < 16'	8"	E5
16' < 19'	8"	E3
19' < 29'	8"	F3.5
29'-40'	10"	F5
SIZE: 10'-0" DIAMETER		
≥0.5' < 12'	10"	D4.5
12' < 20'	10"	E5
20' < 28'	10"	F5
28'-40'	10"	G3.5
SIZE: 12'-0" DIAMETER		
≥0.5' < 8'	10"	D4.5
8' < 13'	10"	E5
13' < 18'	10"	F5
18' < 26'	10"	G3.5
26'-40'	12"	G3.5

**SLAB AND WALL DESIGN TABLE NOTES**

- Size is the inside dimension(s) of a structure.
- Slab reinforcement is appropriate for top, intermediate, and bottom slabs.
- Bottom Slabs for precast 3'-6" x 3'-6" rectangular structures at 15' depth or less, may be 6" thick.
- Slab depth is measured from finished grade to top of slab.
- Reinforcing schedules with larger areas of steel may be substituted for schedules with smaller bar or wire spacing, except that Schedule B10 may not be substituted for Schedule A6. See Index 425-001 for allowable bar spacing adjustments when larger areas of reinforcing are substituted.

**TABLES 5 AND 6**

LAST REVISION 11/01/20	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	STRUCTURE BOTTOMS TYPE J AND P	INDEX 425-010	SHEET 4 of 4
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**MARLIN ENGINEERING**  
ANGEL ABRN FREDA | P.E. No.: 77550  
3363 N. COMMERCIAL BLVD. SUITE 113 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
STEPHEN P. CLARK, CHIEF ENGINEER  
1500 N.W. 25th St. | MIAMI, FLORIDA 33125

STRUCTURE BOTTOMS TYPE J AND P

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**GENERAL NOTES:**

1. Work this Index with Index 425-001 and Index 425-010.
2. Conform finished grade and slope of the Inlet Tops to the finished cross slope and grade of the adjacent sidewalk and/or border.
3. Provide 1 1/4" minimum cover for steel in the Inlet Top.
4. Construction of Inlet Tops are either precast or cast-in-place.
5. For precast units, the rear wall and apron may be precast as a separate piece from the top slab. Provide a minimum of 7 - #4 dowels, otherwise install in accordance with Index 425-001 "OPTIONAL CONSTRUCTION JOINTS".
6. These inlets are designed for use with standard curb and gutter Type E and Type F.
7. Use only round concrete support posts.

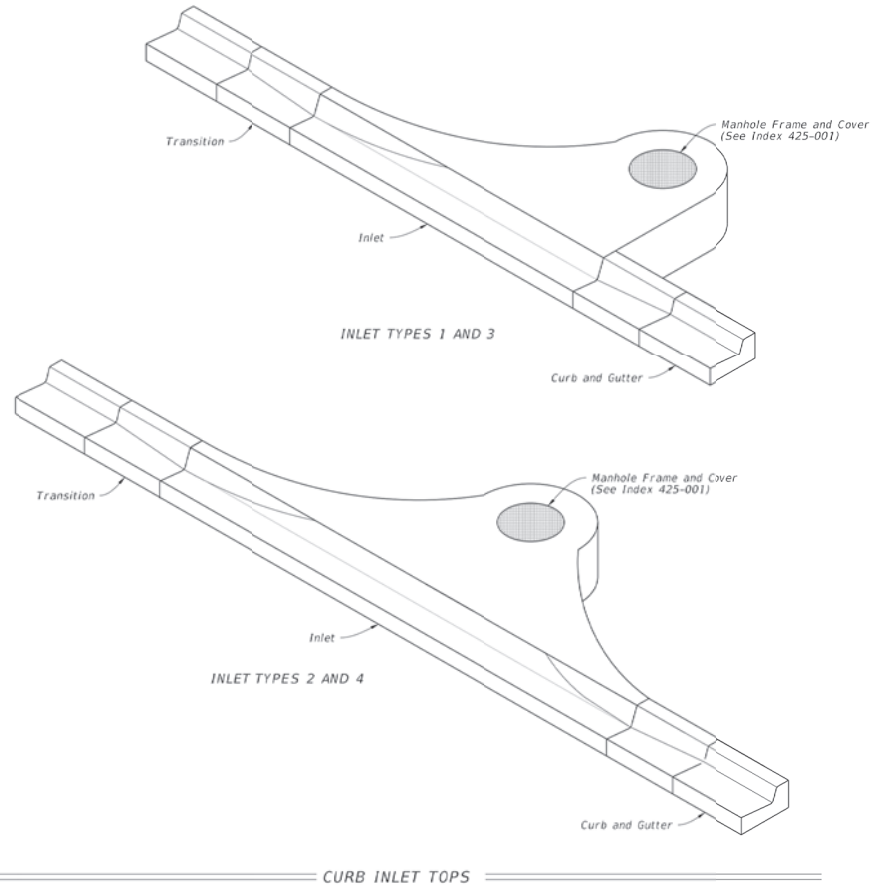


TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Top Dimensional and Reinforcing Details
3	Transverse Dimensional and Reinforcing Details

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LAST REVISION 11/01/20	DESCRIPTION:	<b>FY 2021-22</b> STANDARD PLANS	<b>CURB INLET TOP TYPES 1, 2, 3, AND 4</b>	INDEX 425-020	SHEET 1 of 3
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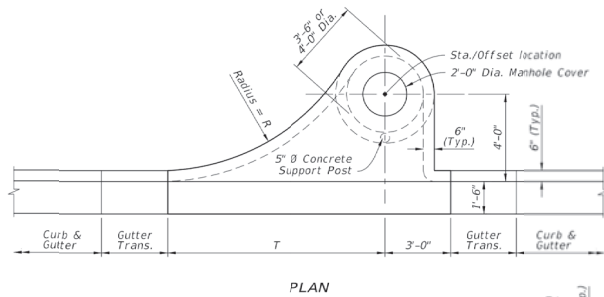
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 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 113 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

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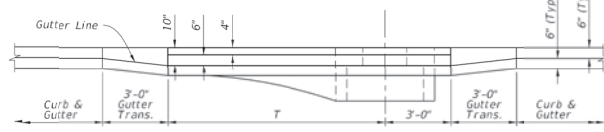
**MIAMI-DADE COUNTY**  
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 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 100 N.W. 11th St.  
 MIAMI, FLORIDA 33138

**CURB INLET TOP TYPES 1, 2, 3 AND 4**

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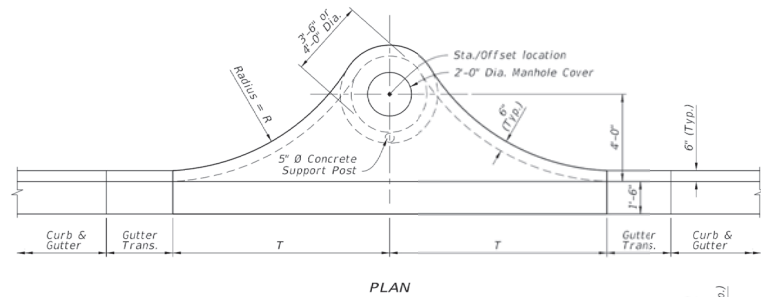
PLAN



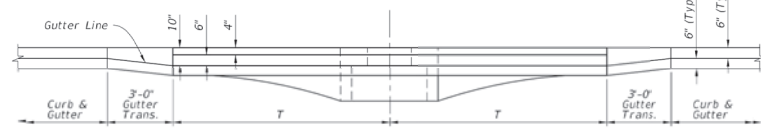
ELEVATION  
 TYPE 1 AND 3

**TABLE 1  
 INLET  
 DIMENSIONS**

Inlet Type	R	T
1	10'-0"	10'-0"
2	10'-0"	10'-0"
3	6'-0"	6'-0"
4	6'-0"	6'-0"

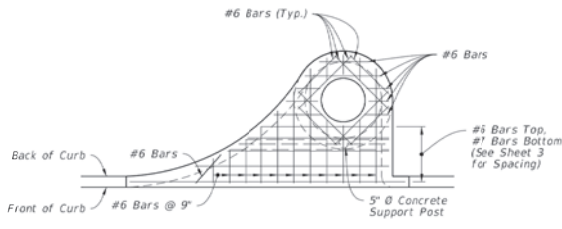


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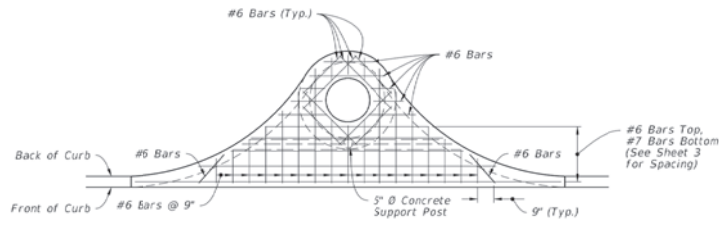
ELEVATION  
 TYPE 2 AND 4

TOP DIMENSIONAL DETAILS



PLAN  
 TYPE 1 AND 3

**NOTE:**  
 For transverse section reinforcement, see Sheet 3.



PLAN  
 TYPE 2 AND 4

TOP REINFORCING DETAILS

TOP DIMENSIONAL AND TOP REINFORCING DETAILS

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	CURB INLET TOP TYPES 1, 2, 3, AND 4	INDEX 425-020	SHEET 2 of 3
REVISION	DESCRIPTION:					

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
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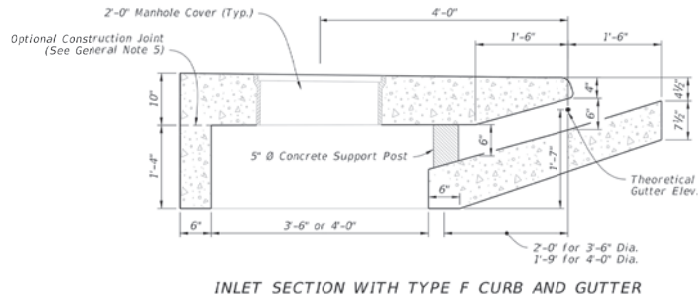
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 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33128

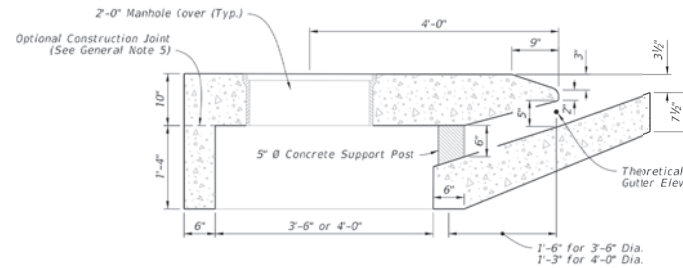
CURB INLET TOP TYPES 1, 2, 3 AND 4

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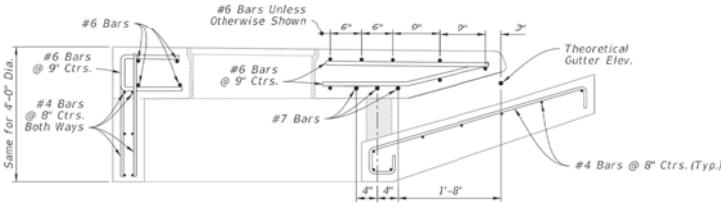


INLET SECTION WITH TYPE F CURB AND GUTTER

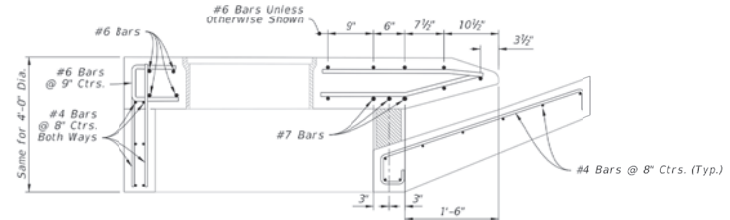


INLET SECTION WITH TYPE E CURB AND GUTTER

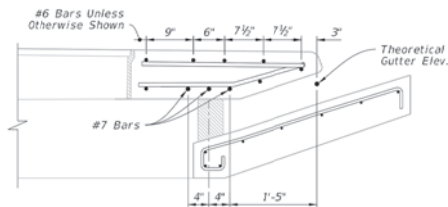
TRANSVERSE DIMENSIONAL DETAILS



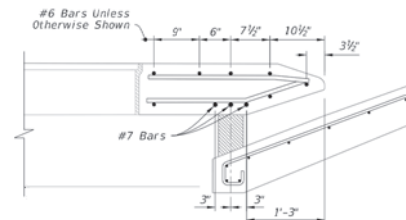
3-6" DIA. STRUCTURE BOTTOM



3-6" DIA. STRUCTURE BOTTOM



4-0" DIA. STRUCTURE BOTTOM



4-0" DIA. STRUCTURE BOTTOM

INLET SECTION WITH TYPE F CURB AND GUTTER

INLET SECTION WITH TYPE E CURB AND GUTTER

TRANSVERSE REINFORCING DETAILS

TRANSVERSE DIMENSIONAL AND REINFORCING DETAILS

LAST REVISION  
11/01/20

REVISION DESCRIPTION

FDOT  
 FY 2021-22  
 STANDARD PLANS

CURB INLET TOP TYPES 1, 2, 3, AND 4

INDEX  
425-020

SHEET  
3 of 3

REVISIONS					
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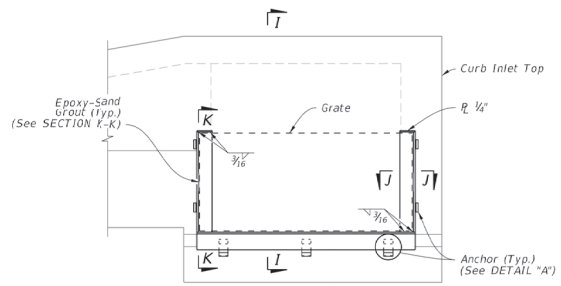
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 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

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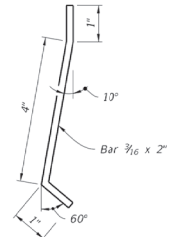
MIAMI-DADE COUNTY  
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 MIAMI, FLORIDA 33138

CURB INLET TOP TYPES 1, 2, 3 AND 4

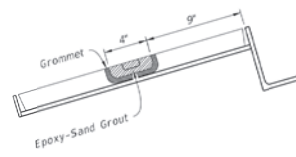
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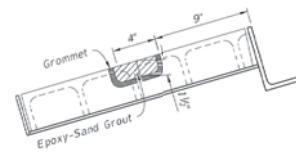
FRAME DETAIL



ANCHOR  
 DETAIL "A"

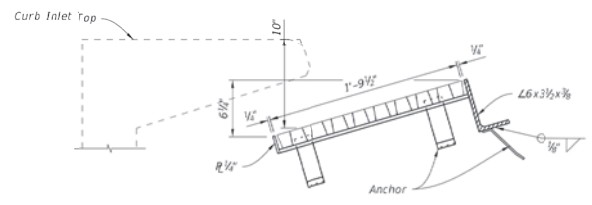


CAST IRON GRATE GROUTING DETAILS

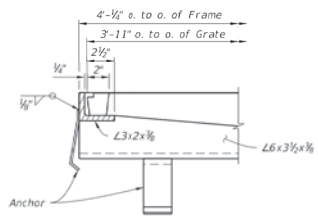


STEEL GRATE GROUTING DETAILS

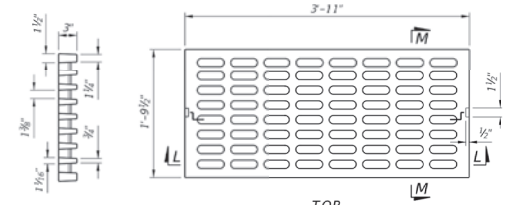
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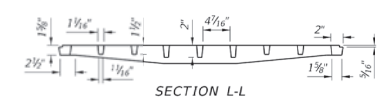
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SECTION J-J

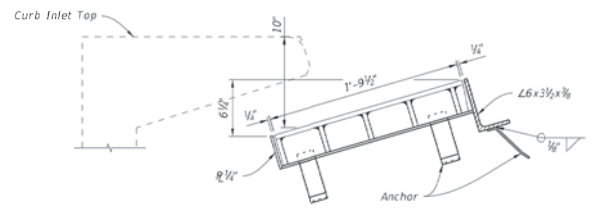


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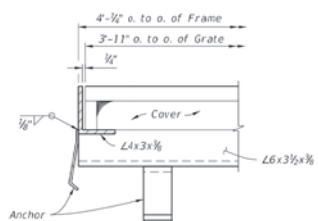


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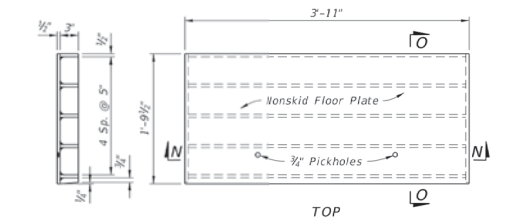
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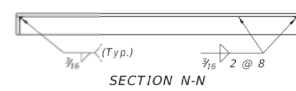
SECTION I-I



SECTION J-J



SECTION O-O



SECTION N-N

STEEL GRATE

GRATE, ANCHOR, AND GROUTING DETAILS

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	MIAMI-DADE COUNTY CURB INLET TOP TYPES 5 AND 6	INDEX 425-021	SHEET 7 of 7
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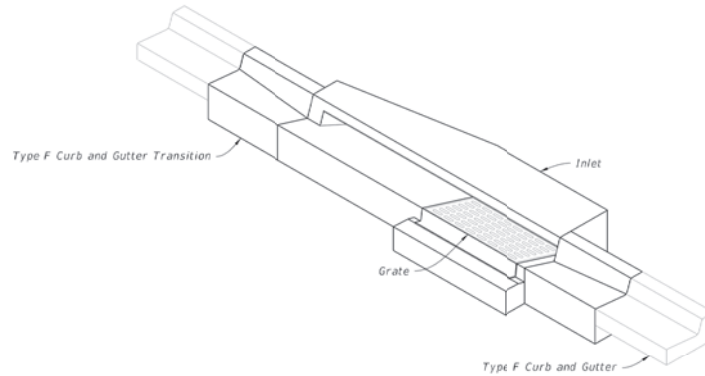
**MARLIN**  
 ENGINEERING  
 ANGEL ABRIN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL Blvd. Ste. 115 | Ft. Lauderdale, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

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SUPERVISED BY:					

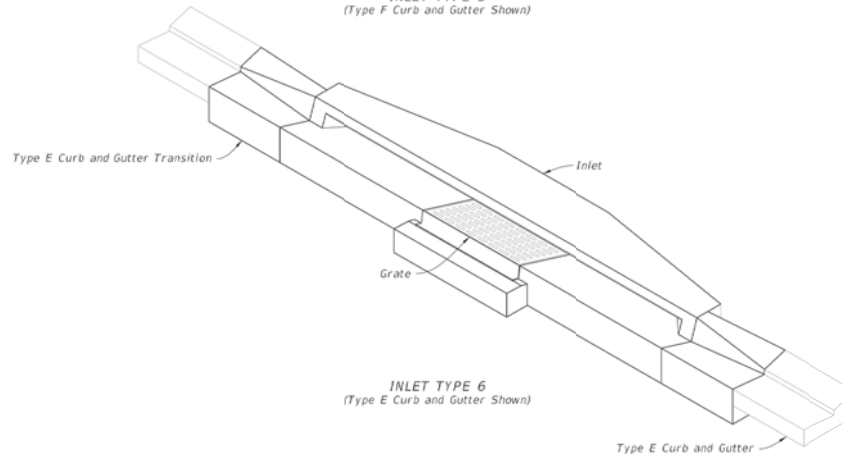
MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1600 N.W. 25th St.  
 MIAMI, FLORIDA 33128

**GENERAL NOTES:**

1. Work this Index with Index 425-001 and Index 425-010.
2. Conform the finished grade and slope of the inlet tops with the finished cross slope and grade of the proposed sidewalk and/or border.
3. For inlets constructed on a curve, refer to the plans to determine the radius. Bend steel when necessary.
4. Use Grade 60 reinforcing bars with 1 1/4" minimum cover unless otherwise shown. See Sheet 6 for equivalent area Welded Wire Reinforcement details.
5. Inlet tops may be either cast-in-place or precast concrete. Conform precast units to the dimensions shown or in accordance with approved shop drawings.
6. Corner fillets are required at inlet opening for precast units or C-I-P units used in conjunction with circular inlet bottoms or skewed rectangular inlet boxes. Finish top of fillets flush with drain throat bottom and match slope.
7. For Type E curb and gutter, transition the shape of the curb over the gutter transition length to match the face of the inlet (Type Ft).
8. Meet the requirements of ASTM A36/A36M with steel used for frames and grates.
9. Use either cast iron grates or steel grates.



**INLET TYPE 5**  
(Type F Curb and Gutter Shown)



**INLET TYPE 6**  
(Type E Curb and Gutter Shown)

————— CURB INLETS TOPS —————

TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Type 5 and 6 Dimensional Details
3	Type 5 and 6 Reinforcing and Bar Bending Details
4	Precast Dimensional and Reinforcing Details
5	Cast-In-Place Dimensional and Reinforcing Details
6	Alternate Welded Wire Reinforcing (WWR) Details
7	Grate, Anchor, and Grouting Details

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LAST REVISION 11/01/20	DESCRIPTION:	<b>FDOT</b> FY 2021-22 STANDARD PLANS	<b>CURB INLET TOP TYPES 5 AND 6</b>	INDEX 425-021	SHEET 1 of 7
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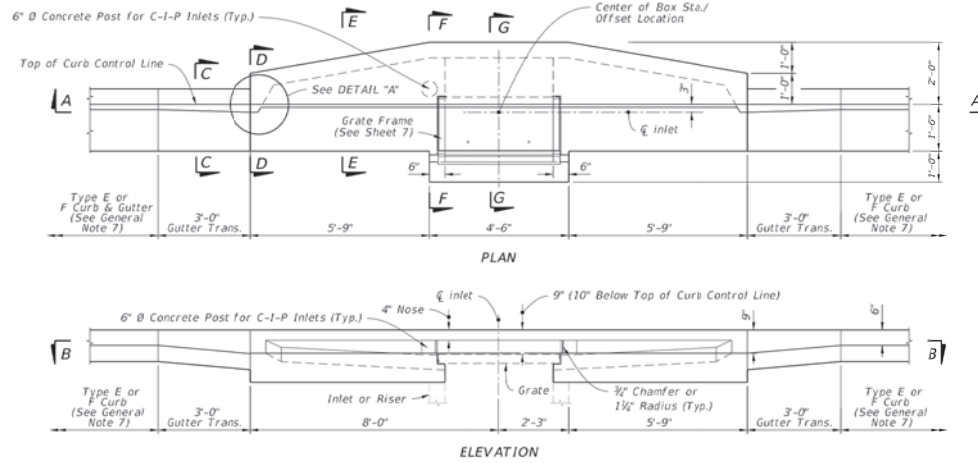
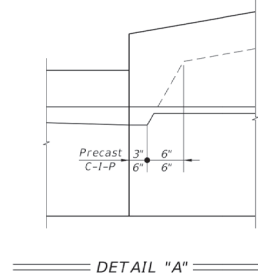
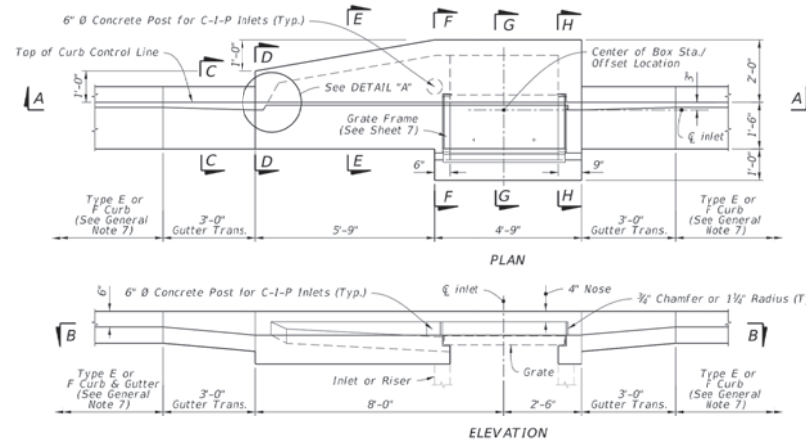
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ANGEL ABRIN FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 113 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

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CHECKED BY	R.L.		CHECKED BY	M.P.	
SUPERVISED BY	A.F.		SUPERVISED BY	A.F.	

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DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
100 W. W. ST.  
MIAMI, FLORIDA 33138

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**TYPE 5 AND 6 DIMENSIONAL DETAILS**

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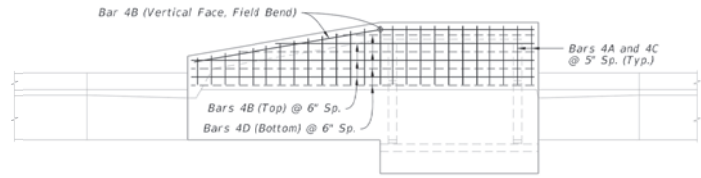
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P: 954.870.5070 | C.A. No. 6104

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	A.F.			A.F.	
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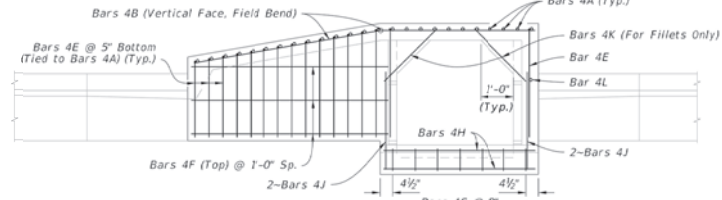
**MIAMI-DADE COUNTY**  
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HIGHWAY DIVISION  
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100 N.W. 1ST  
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CURB INLET TOP TYPES 5 AND 6

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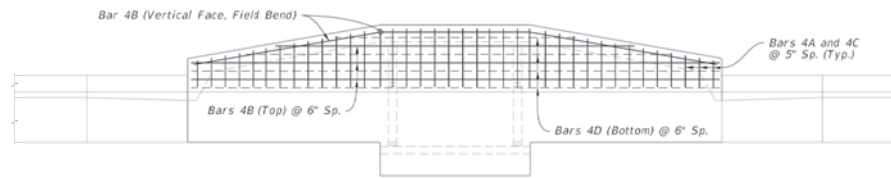


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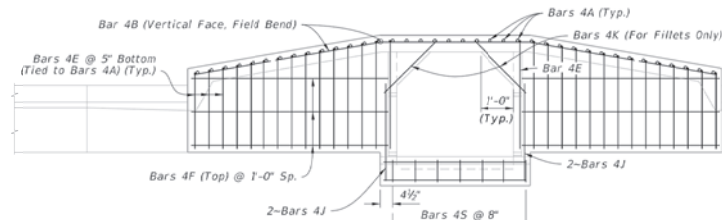


SECTION B-B

TYPE 5 REINFORCING DETAILS

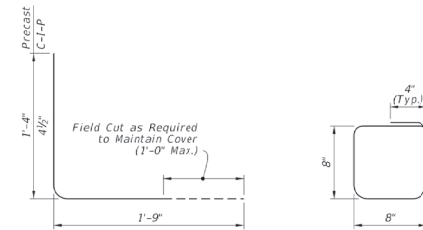


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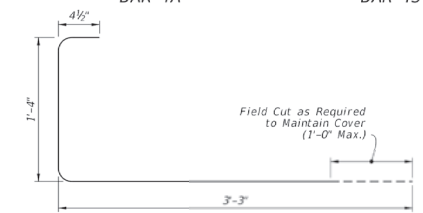
SECTION B-B

TYPE 6 REINFORCING DETAILS



BAR 4A

BAR 4S



BAR 4E

BILL OF REINFORCING STEEL

MARK	SIZE	TYPE 5 INLET		TYPE 6 INLET	
		NO.	LENGTH	NO.	LENGTH
A (Precast)	4	25	3'-1"	38	3'-1"
A (C-I-P)	4	25	2'-1 1/2"	38	2'-1 1/2"
B	4	6	10'-3"	6	15'-9"
C	4	25	11" to 1'-11"	38	11" to 1'-11"
D	4	4	10'-3"	4	15'-9"
E	4	16	4'-11 1/2"	30	4'-11 1/2"
F	4	3	6'-0"	6	6'-0"
H	4	4	4'-6"	4	4'-6"
J	4	4	3'-0"	4	3'-0"
K (Fillet)	4	2	2'-3"	2	2'-3"
L (Precast)	4	1	1'-4"	0	---
L (C-I-P)	4	10	1'-4"	9	1'-4"
S	4	7	3'-2"	7	3'-2"

- NOTES:
- All bar dimensions in the bending diagrams are out to out.
  - Bars 4A and 4E may be combined into a single bar.
  - Welded Wire Reinforcement consists of smooth or deformed wire meeting the requirements of Specification 931.

TYPE 5 AND 6 REINFORCING AND BAR BENDING DETAILS

REVISION	DESCRIPTION
LAST REVISION 11/01/20	

**FDOT** FY 2021-22 STANDARD PLANS

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
CURB INLET TOP TYPES 5 AND 6  
INDEX 425-021 SHEET 3 of 7

REVISIONS			
DATE	BY	DESCRIPTION	DATE

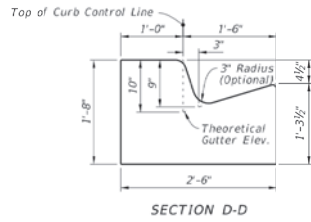
**MARLIN** ENGINEERING  
ANGEL ABRIL PREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

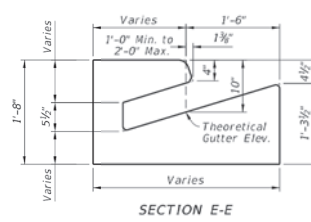
**MIAMI-DADE COUNTY** DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
STEPHEN P. CLARK, CHIEF ENGINEER  
MIAMI, FLORIDA 33138

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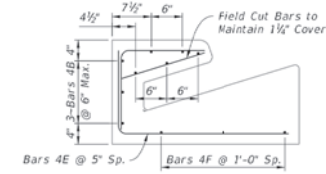
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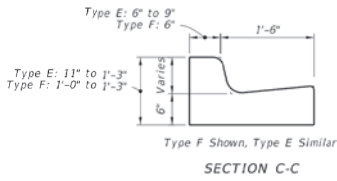
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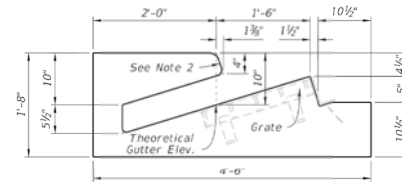
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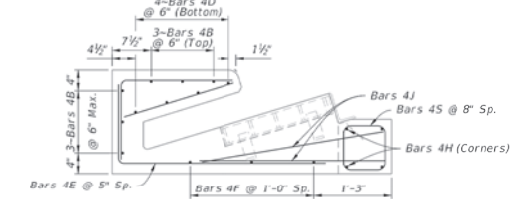
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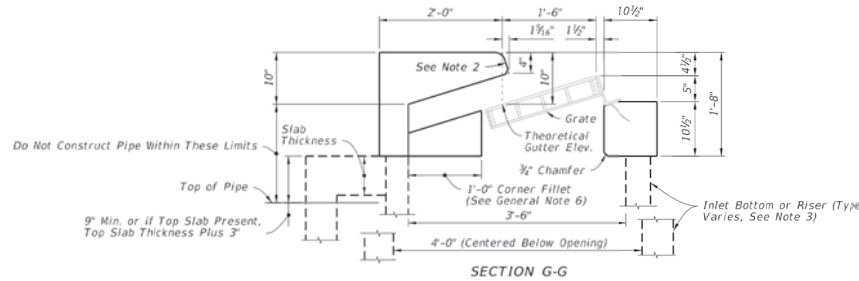
SECTION C-C



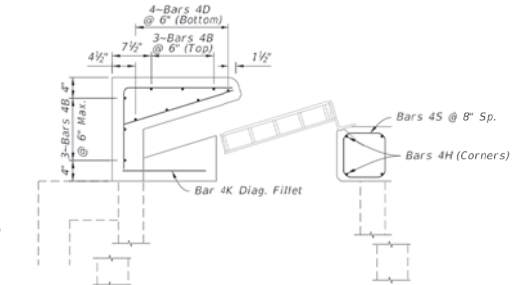
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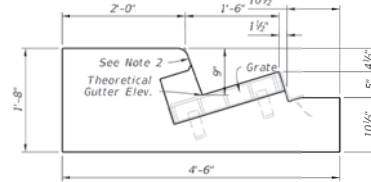
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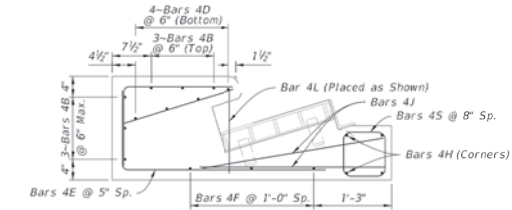
SECTION G-G



SECTION G-G



SECTION H-H



SECTION H-H

- NOTES:**
1. For location of Sections D-D thru H-H see Sheet 2.
  2. Match slope of adjacent curb with 2" top radius and 1/2" bottom chamfer of 1 1/2" radius.
  3. See Plans for bottom and riser type.

10/12/2020 6:44:59 AM

LAST REVISION	DESCRIPTION:
11/01/20	

**FDOT**  
 FY 2021-22  
 STANDARD PLANS

CURB INLET TOP TYPES 5 AND 6

INDEX SHEET  
 425-021 4 of 7

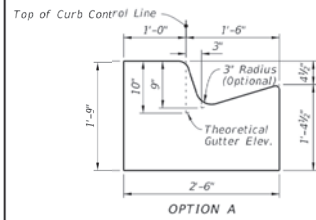
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 113 FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

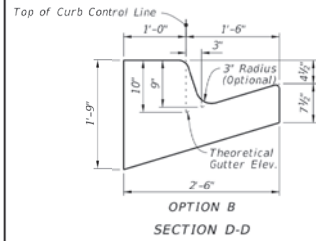
DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEVEN P. CLARK CENTER  
 100 N.W. 25th St.  
 MIAMI, FLORIDA 33128

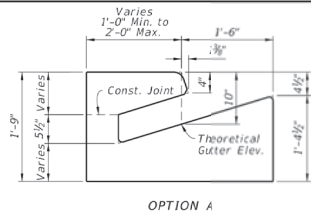
CURB INLET TOP TYPES 5 AND 6



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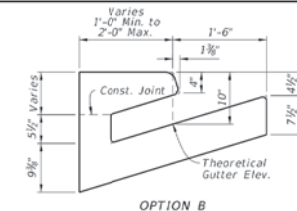


OPTION B  
SECTION D-D

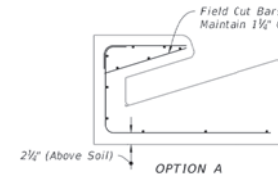


OPTION A

SECTION E-E

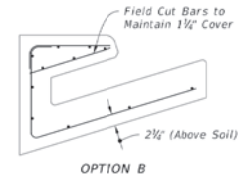


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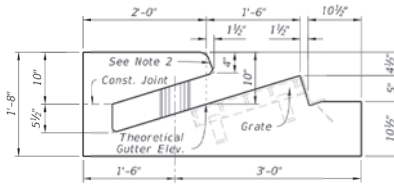


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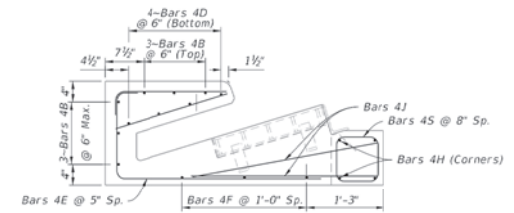
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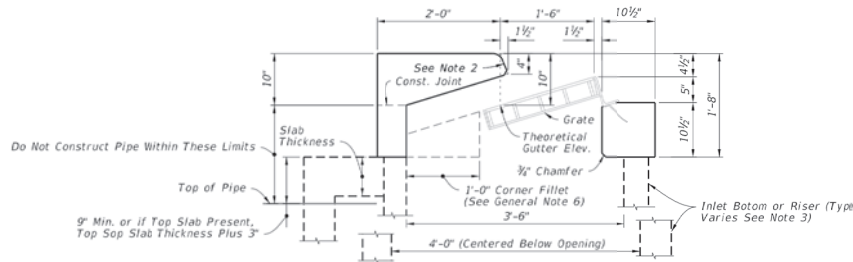
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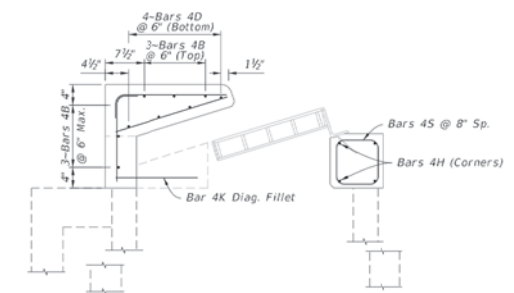
SECTION F-F



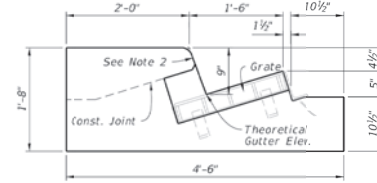
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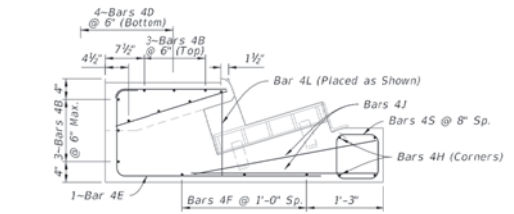
SECTION G-G



SECTION G-G



SECTION H-H



SECTION H-H

- NOTES:**
1. For location of Sections D-D thru H-H see Sheet 2.
  2. Match slope of adjacent curb with 2" top radius and 1/2" bottom chamfer or 1 1/2" radius.
  3. See Plans for bottom and riser type.

10/12/2020 6:44:33 AM

REVISION	DESCRIPTION
LAST REVISION 11/01/20	



FY 2021-22  
STANDARD PLANS

CAST-IN-PLACE DIMENSIONAL DETAILS  
CURB INLET TOP TYPES 5 AND 6

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
ENGINEERING  
ANGEL ABRIL FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 113 FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

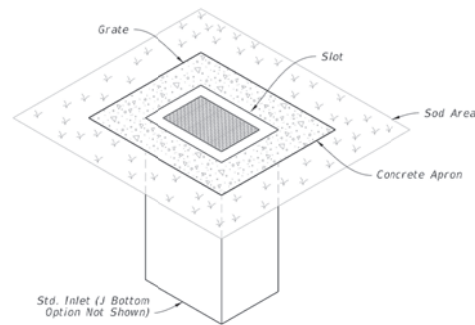
MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1600 N.W. 25th ST.  
MIAMI, FLORIDA 33128

CURB INLET TOP TYPES 5 AND 6

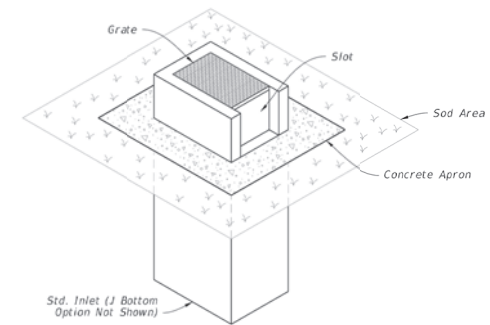


**GENERAL NOTES:**

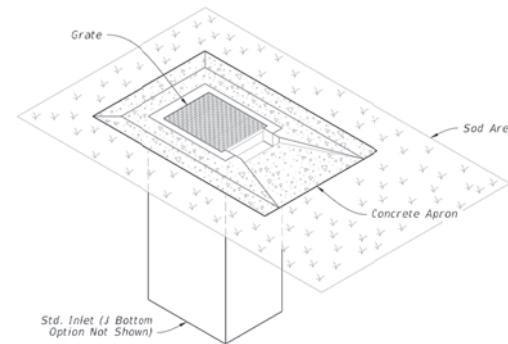
1. Work this Index with Index 425-001 and Index 425-010.
2. Chamfer all exposed edges and corners  $\frac{3}{8}$ " chamfer or tooled to  $\frac{1}{8}$ " radius.
3. All reinforcing is Grade 60 bars with 2" minimum cover unless otherwise noted. Cut or bend bars for 1 1/2" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.
4. Use Concrete Apron on inlets without slots and inlets with non-traversable slots only when called for in the Plans.
5. Quantities are for informational and estimating purposes only.



=====  
DITCH BOTTOM INLET TYPE C  
TRAVERSABLE  
(Without Slot - Type D, E, and H Similar, Pipe Connection Not Shown)



=====  
DITCH BOTTOM INLET TYPE C  
NON-TRAVERSABLE  
(Slot > 7" Shown - Type D, E, and H Similar, Pipe Connection Not Shown)



=====  
DITCH BOTTOM INLET TYPE C  
TRAVERSABLE  
(Single Slot < 7" Shown, Double Slot, Type D, and E Similar, Pipe Connection Not Shown)

**TABLE OF CONTENTS:**

Sheet	Description
1	General Notes and Contents
2	Type C - Dimensional, Reinforcing, and Grate Details
3	Type D - Dimensional, Reinforcing, and Grate Details
4	Type E - Dimensional, Reinforcing, and Grate Details
5	Type H (2 & 3 Grate) - Dimensional, Reinforcing, and Steel Grate Details
6	Type H (4 Grate) - Dimensional, Reinforcing, and Steel Grate Details
7	Cast Iron Grate Details
8	Non-Traversable Inlet Details
9	Traversable Inlet Without Slot Details
10	Traversable Inlet With Slot Details
11	Case 1 - Add Traversable Slots to Existing Inlets
12	Case 2 - Add Traversable Slots (Partial) to Existing Inlets
13	Case 3 - Add Traversable Slots (Partial) to Existing Inlets and Ditch Block
14	Alternate A Structure Bottom - Top Slab Details

10/17/2020 6:52:39 AM

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11/01/20

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FY 2021-22  
STANDARD PLANS

DITCH BOTTOM INLET TYPE C, D, E, AND H

INDEX  
425-052

SHEET  
1 of 14

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

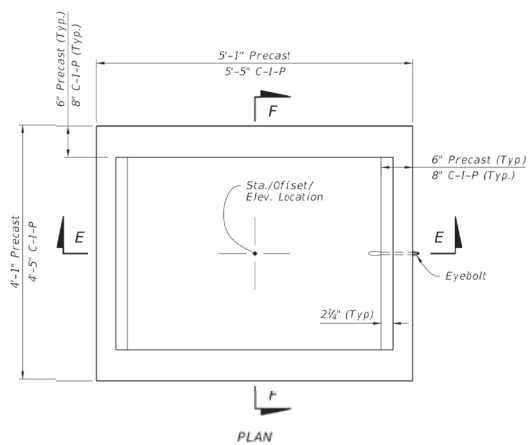
**MARLIN**  
ENGINEERING  
ANGEL ABRN FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

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	R.L.			M.P.	
	A.F.			A.F.	

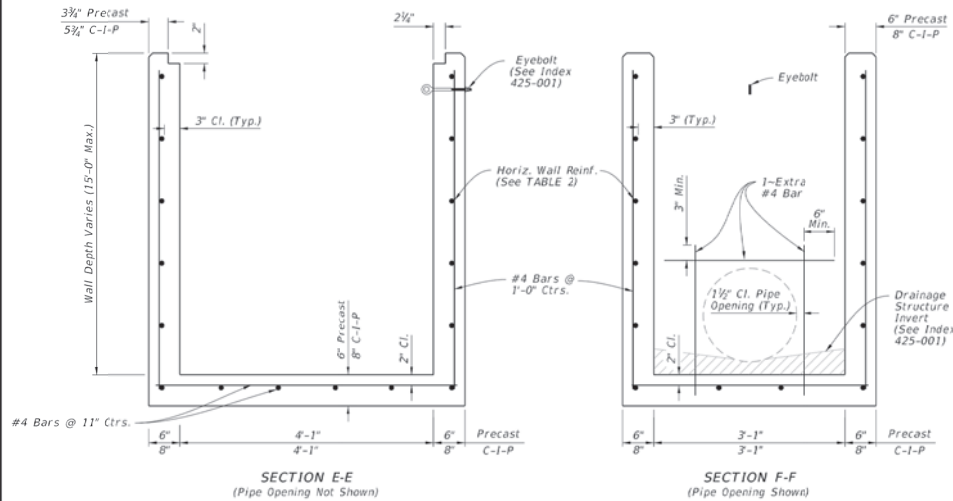
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SUPERVISED BY:

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1000 N.W. 25th ST.  
MIAMI, FLORIDA 33128

DITCH BOTTOM INLET TYPE C, D, E AND H



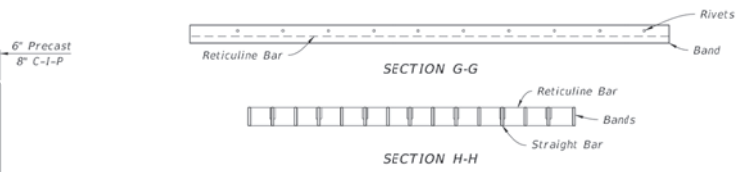
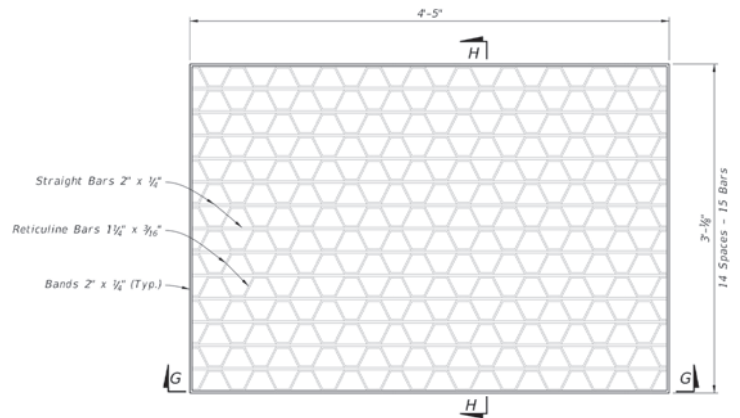
PLAN



SECTION E-E  
(Pipe Opening Not Shown)

SECTION F-F  
(Pipe Opening Shown)

DIMENSIONAL AND REINFORCING DETAILS



STEEL GRATE DETAIL  
(Approx. 190 lbs. - See Sheet 7 For Cast Iron Grates)

**TABLE 2**  
**HORIZONTAL WALL REINFORCING SCHEDULE**

WALL DEPTH	SCHEDULE	AREA (in. <sup>2</sup> /ft.)	MAX. SPACING	
			BAR	WWR
0' - 6'	A12	0.20	12"	8"
6' - 10'	A6	0.20	6"	5"
10' - 13'	A4	0.20	4"	3"
10' - 15'	B5.5	0.24	5 1/2"	5"

- NOTES:**
- Grate, Concrete Apron, and Sod not shown on structure details.
  - See Sheet 8, 9, and 10 for Concrete Apron and Sodded Area details.
  - Cast Iron Grate is not permitted on inlet Type D.

TYPE D - DIMENSIONAL, REINFORCING, AND STEEL GRATE DETAILS

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX 425-052	SHEET 3 of 14
REVISION	DESCRIPTION:					

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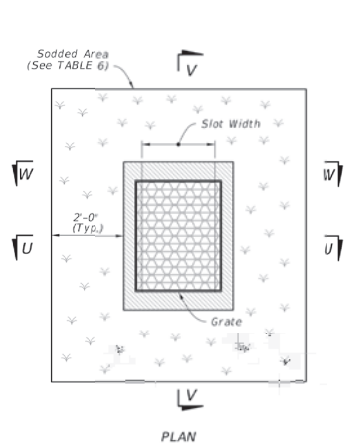
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
ENGINEERING  
ANGEL ABIN PREDI | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. Ste. 113 | Ft. Lauderdale, FL 33309  
P: 954.870.5070 | C.A. No. 6104

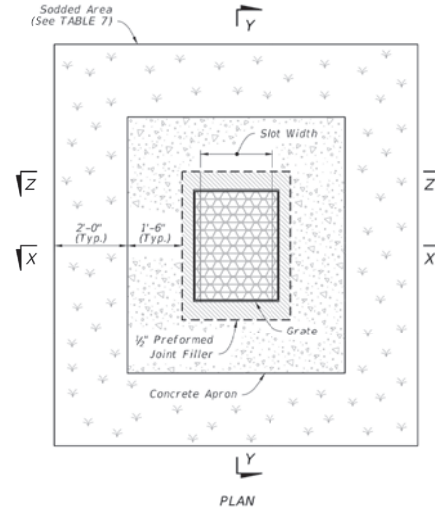
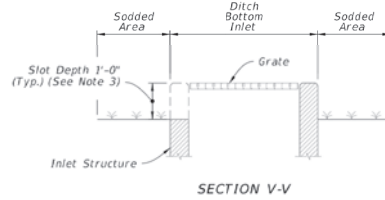
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CHECKED BY A.F.			CHECKED BY A.F.		
SUPERVISED BY:					

MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLAM CENTER  
1500 N.W. 25th ST.  
MIAMI, FLORIDA 33128

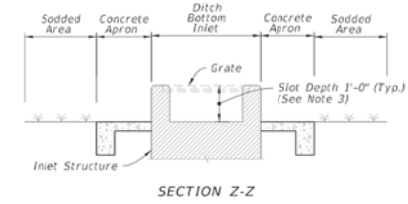
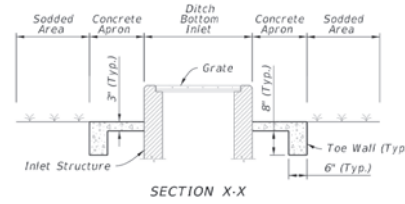
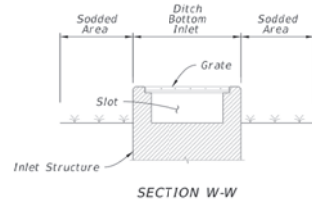
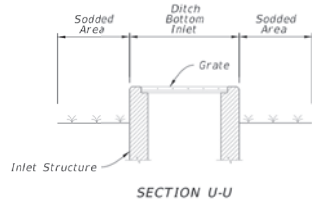
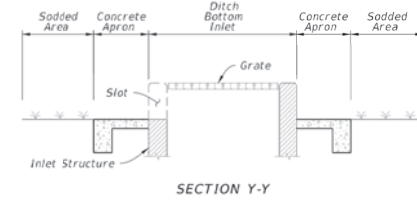
DITCH BOTTOM INLET TYPE C, D, E AND H



Inlet Type	Sod SY
C	6
D	6
E	7
H	8



Inlet Type	Sod SY	Conc. CY
C	8	0.30
D	9	0.36
E	9	0.37
H	11	0.45



**SODDING ONLY**  
(Slot Shown, Non-Slot Similar)

**SODDING AND PAVEMENT**  
(Slot Shown, Non-Slot Similar)

**NOTES:**

1. Concrete Apron installed only where called for in the Plans.
2. Sod always required.
3. Slots are not permitted on sides with grate seats.

**NON-TRAVERSABLE INLET DETAILS**

LAST REVISION	DESCRIPTION:
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**FDOT** FY 2021-22  
STANDARD PLANS

DITCH BOTTOM INLET TYPE C, D, E, AND H

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425-052	8 of 14

REVISIONS			
DATE	BY	DESCRIPTION	DATE

**MARLIN**  
ENGINEERING  
ANGEL ABRIL PREDI | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. STE. 113 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

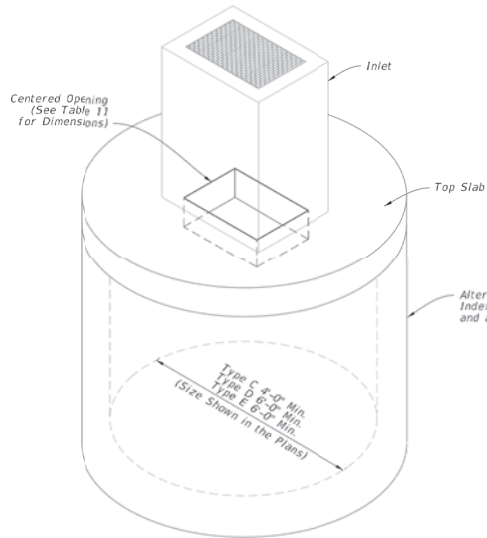
MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1600 N.W. 25th St.  
MIAMI, FLORIDA 33128

DITCH BOTTOM INLET TYPE C, D, E AND H

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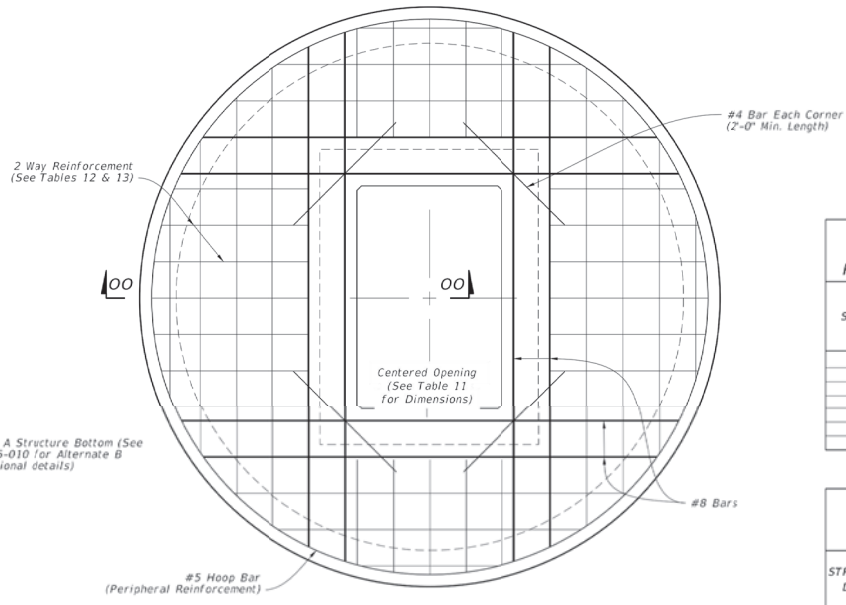




**TABLE II  
TOP SLAB OPENINGS**

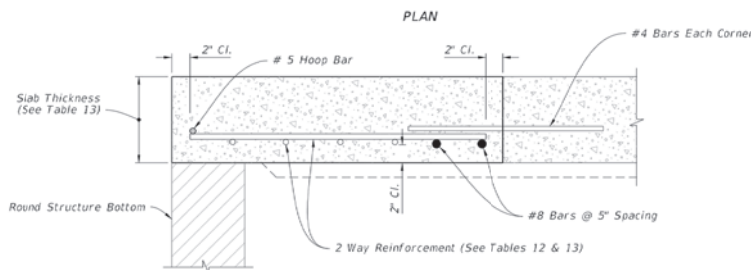
DIAMETER	OPENING SIZE	
	Min.	Max.
4'-0"	2'-0" x 3'-1"	2'-0" x 3'-1"
5'-0"	2'-0" x 3'-1"	3'-1" x 4'-1"
6'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"
8'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"

ISOMETRIC VIEW



**TABLE 12  
TOP SLAB  
REINFORCING SCHEDULE**

SCHEDULE	GRADE 60 (BAR) OR 65 KSI & 70 KSI (WIRE REINFORCING) In. <sup>2</sup> /ft.
A	0.20
B	0.24
C	0.37
D	0.53
E	0.73
F	1.06
G	1.45



SECTION OO-OO

**TABLE 13  
TOP SLAB WITH  
CENTERED OPENING**

STRUCTURE DEPTH	SLAB THICKNESS	REINFORCING (2 WAY) SCHEDULE
SIZE: 4'-0"		
≥0.5' < 4'	9 1/2"	B
SIZE: 5'-0"		
≥0.5' < 3'	9 1/2"	C
3'-0" - 4'	9 1/2"	D
SIZE: 6'-0"		
≥0.5' < 8'	11 1/2"	B
8' < 18'	11 1/2"	C
18' < 30'	11 1/2"	D
30' < 37'	11 1/2"	E
37' < 40'	11 1/2"	G
SIZE: 8'-0"		
≥0.5' < 9'	11 1/2"	C
9' < 15'	11 1/2"	D
15' < 23'	11 1/2"	E
23' < 33'	11 1/2"	E
33' < 40'	11 1/2"	G

TOP SLAB REINFORCEMENT DETAILS

ALTERNATE A STRUCTURE BOTTOM - TOP SLAB DETAILS

LAST REVISION 11/01/20	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX 425-052	SHEET 14 of 14
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**MARLIN**  
ENGINEERING  
ANGEL ABRIL FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
	RL			M.P.	
	A.F.			A.F.	

CHECKED BY: SUPERVISED BY:

MIAMI-DADE COUNTY  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK, CHIEF ENGINEER  
1500 N.W. 25th St.  
MIAMI, FLORIDA 33128

DITCH BOTTOM INLET TYPE C, D, E AND H

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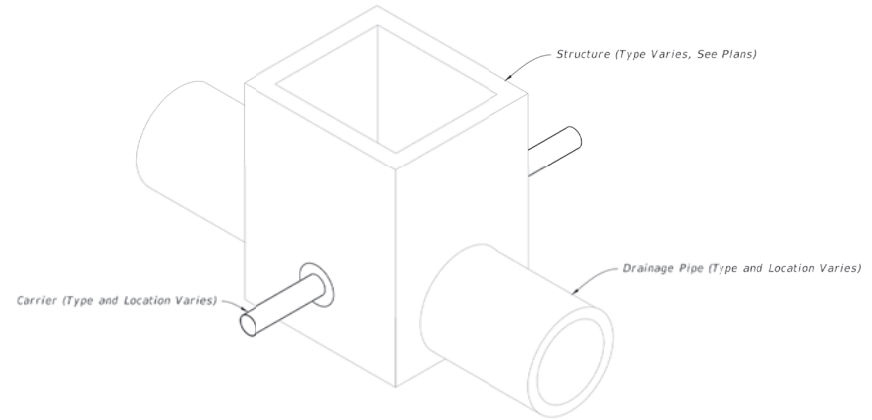
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**GENERAL NOTES:**

1. Work with Index 425-001 and Index 423-010.
2. Use Class II Concrete.
3. Maximum opening for pipe shall be the pipe OD plus 6". Mortar used to seal the pipe into the opening will be of such mix that shrinkage will not cause leakage into or out of the structure.
4. If a conflict with a potable water supply line is discovered during construction, submit the following to Florida Department of Environmental Protection (FDEP) District Administrator For Drinking Water prior to constructing conflict structure:
  - a. Plans Revision(s)
  - b. Justification describing inordinate cost and practical avoidance
  - c. Upon request, Utility Agency Owner (UAO) supporting documentation for cost of relocation or adjustment

Potable water supply lines passing through a drainage structure must be in compliance with Chapter 62-555.314(3) F.A.C. This index and rule citation provide accepted methods for addressing conflicts when they cannot be reasonably avoided.

Website for District FDEP Drinking Water Contacts:  
<https://floridadep.gov/water/source-drinking-water/content/organization-drinking-water-program>



**UTILITY CONFLICT**  
(Condition I Shown, Condition II Similar)

TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Utility Conflict Condition I and II Details

10/17/2020 7:03:23 AM

LAST REVISION 11/01/20	DESCRIPTION:	<b>FY 2021-22 STANDARD PLANS</b>	<b>UTILITY CONFLICT THRU DRAINAGE STRUCTURES</b>	INDEX 425-080	SHEET 1 of 2
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

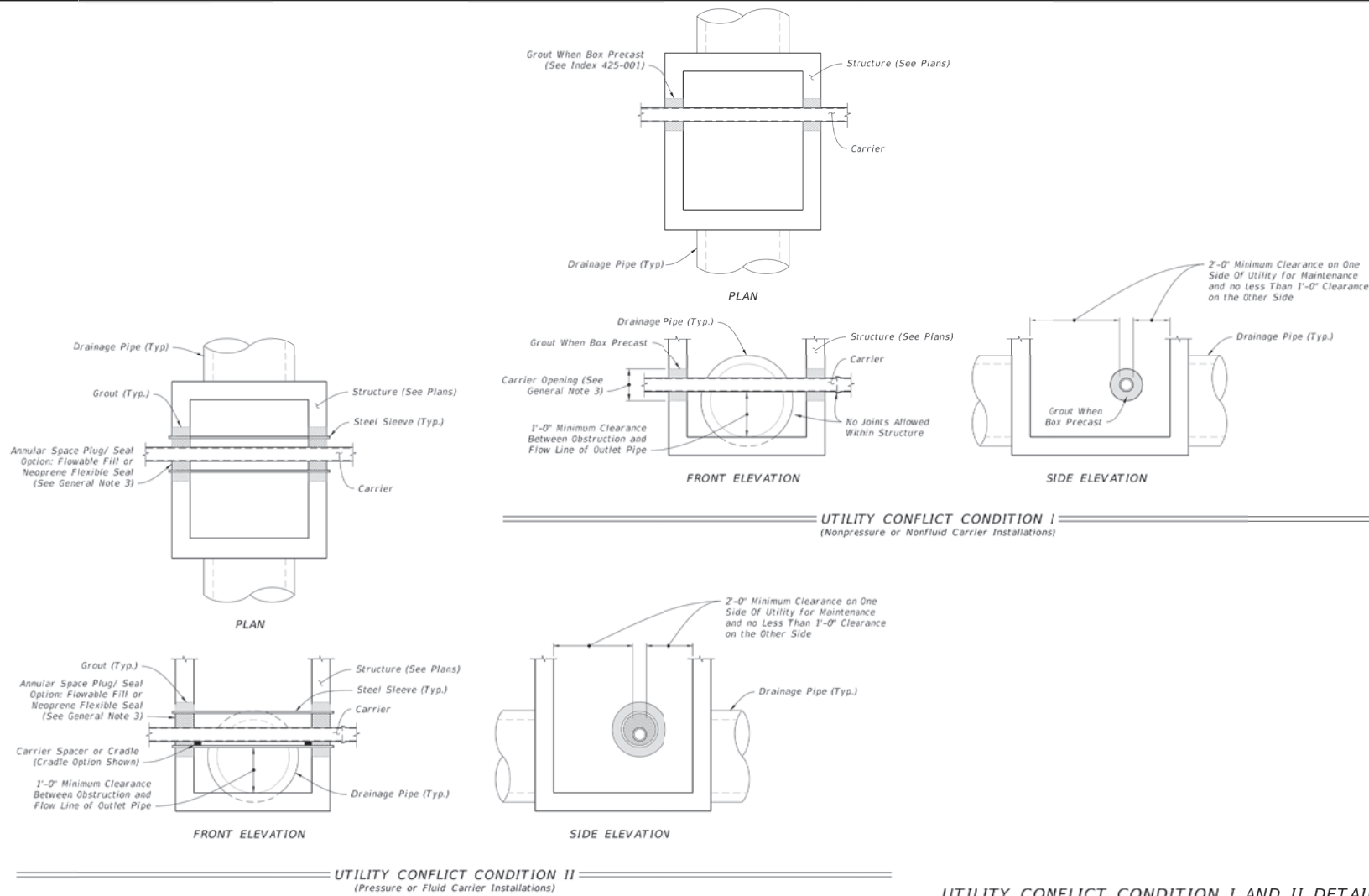
**MARLIN**  
ENGINEERING  
ANGEL ABIN FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 113 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY R.L.	NAME	DATE	DRAWN BY M.P.	NAME	DATE
CHECKED BY A.F.			CHECKED BY A.F.		
SUPERVISED BY:					

**MIAMI-DADE COUNTY**  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1000 N.W. 25th St.  
MIAMI, FLORIDA 33138

**UTILITY CONFLICT THRU DRAINAGE STRUCTURES**

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LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	UTILITY CONFLICT THRU DRAINAGE STRUCTURES	INDEX 425-080	SHEET 2 of 2
REVISION						

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

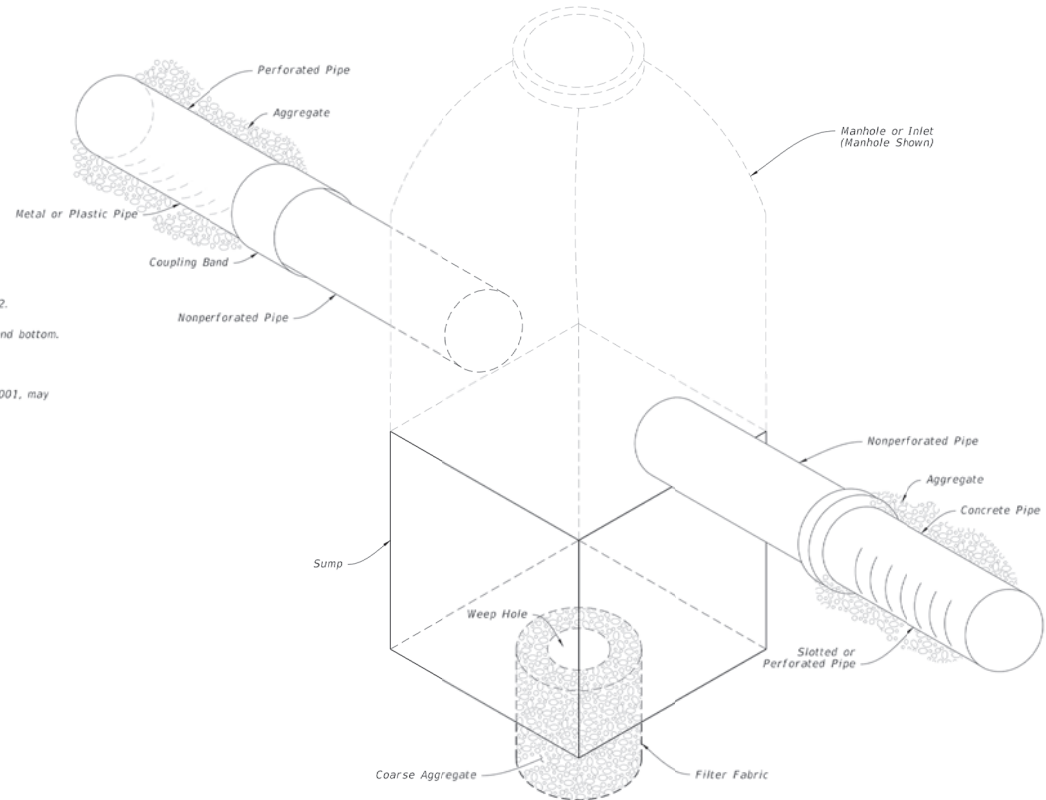
**MARLIN**  
 ENGINEERING  
 ANGEL ABRIN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY	R.L.		CHECKED BY	M.P.	
SUPERVISED BY	A.F.			A.F.	

MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33128

UTILITY CONFLICT THRU DRAINAGE STRUCTURES

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**GENERAL NOTES:**

1. Install light duty cast iron cover and frame in accordance with Specifications 962.
2. Use Class 1 concrete. Use No. 3 bars (Grade 60) on 8" centers both ways, sides and bottom.
3. Furnish covers with pick holes. Do not use fitted lifts or handles.
4. Manhole Type P Alternate A, Index 425-010, Type 1 Frame and Cover, Index 425-001, may be used in lieu of the box detailed in this Index.

**TABLE OF CONTENTS:**

Sheet	Description
1	General Notes and Contents
2	Typical Inspection Box Installation
3	Typical Urban, Slope, and Top Adjustment Installations

10/12/2020 7:21:27 AM

LAST REVISION 11/01/19	DESCRIPTION:		FY 2021-22 STANDARD PLANS	FRENCH DRAIN	INDEX 443-001	SHEET 1 of 3
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABIN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY	R.L.		CHECKED BY	M.P.	
	A.F.			A.F.	
SUPERVISED BY:					

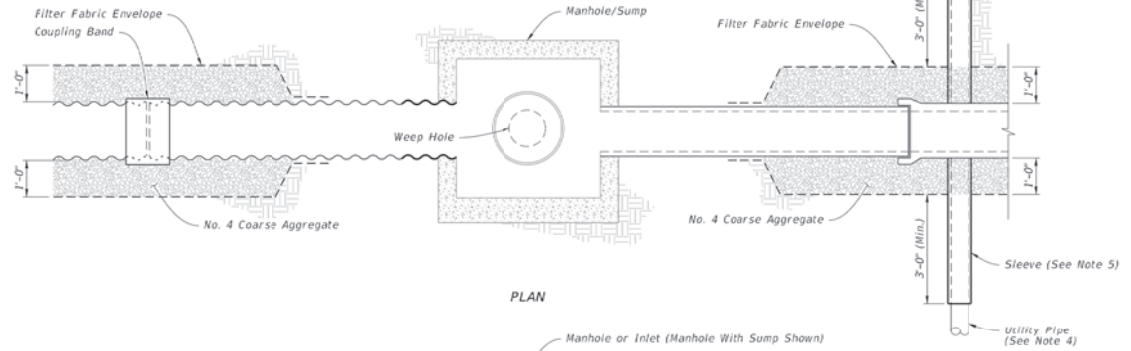
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33138

FRENCH DRAIN

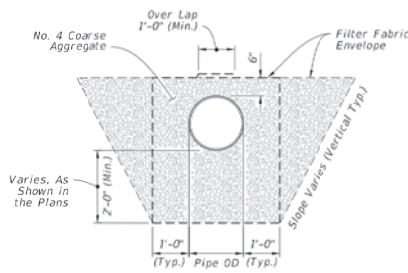
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**NOTES:**

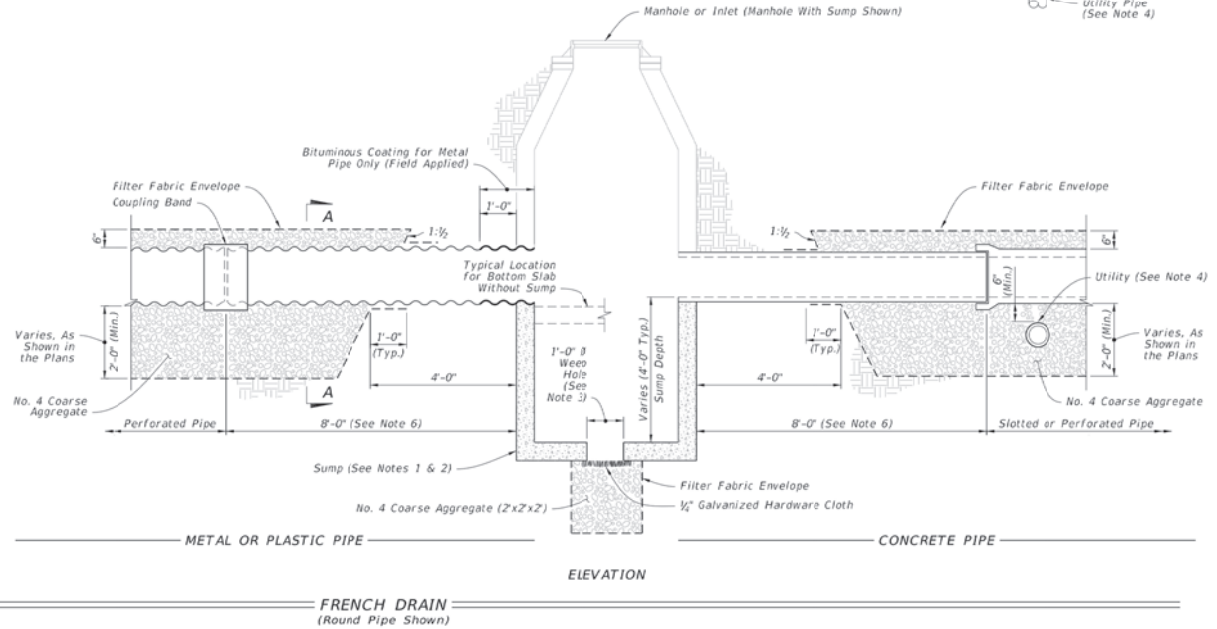
1. Construct sumps unless excluded in the Plans.
2. For additional sump bottom information see Index 425-001.
3. Construct weep holes only where called for in the Plans.
4. Only cast and ductile iron sanitary sewer, or cast iron, ductile and steel water mains will be allowed to pass directly through French drain (without sleeve).
5. Use only steel, cast or ductile iron sleeves.
6. No slots or perforations.



PLAN



SECTION A-A



ELEVATION

FRENCH DRAIN  
(Round Pipe Shown)

FRENCH DRAIN SYSTEM

REVISION	DESCRIPTION
LAST REVISION 11/01/19	

FDOT  
 FY 2021-22  
 STANDARD PLANS

FRENCH DRAIN

INDEX	SHEET
443-001	2 of 3

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**MARLIN**  
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 P: 954.870.5070 | C.A. No. 6104

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 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33128

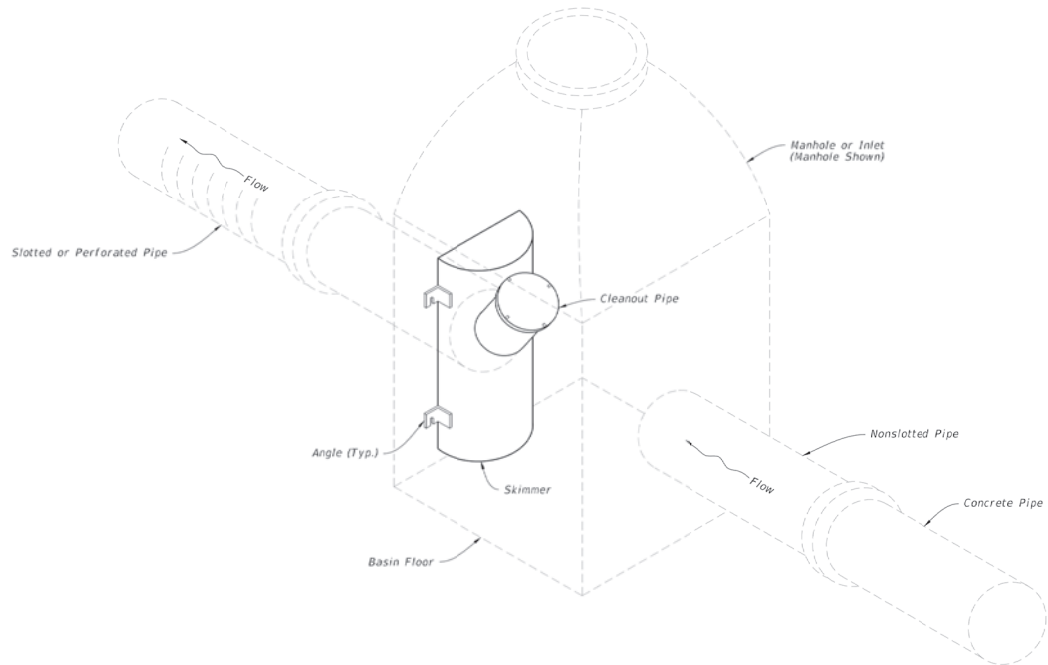
FRENCH DRAIN

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 10/12/2020 7:23:29 AM



**GENERAL NOTES:**

1. The French Drain Skimmer is a hooded cover, mounted over an outlet in a catchbasin, that prevents oil and floating debris from exiting the basin.
2. Place neoprene gasket material between the skimmer and the catchbasin at all points of contact. Trim the gasket to extend 1/2 inch beyond the joint on all sides.
3. Provide skimmer baffle, cleanout pipe and angles constructed of either galvanized steel, aluminum, polyvinyl chloride, polyethylene, fiberglass or acrylonitrile butadiene styrene. Provide hot-dip galvanized steel components, unless stainless.
4. Use mounting hardware, hinges and latches made of stainless steel. Loss prevention device can use either stainless steel chain or riveted nylon strap.
5. Provide skimmer bodies (baffles) and cleanout pipe meeting Specification 943 for steel, 945 for aluminum or 948 for plastics.
6. Work this Index in accordance with Specification 425.



SKIMMER FOR FRENCH DRAIN OUTLETS ASSEMBLY

TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Type I Skimmers
3	Type II Skimmers

10/12/2020 7:23:35 AM

LAST REVISION 11/01/19	DESCRIPTION:	FY 2021-22 STANDARD PLANS	SKIMMERS FOR FRENCH DRAIN OUTLETS	INDEX 443-002	SHEET 1 of 3
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
ENGINEERING  
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3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
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DESIGNED BY R.L.	NAME	DATE	DRAWN BY M.P.	NAME	DATE
CHECKED BY A.F.			CHECKED BY A.F.		
SUPERVISED BY:					

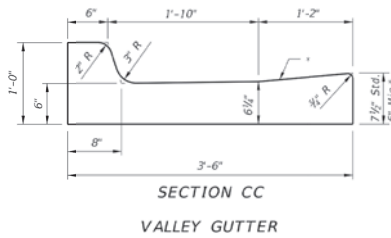
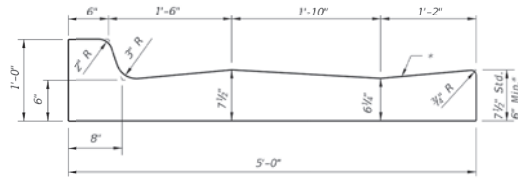
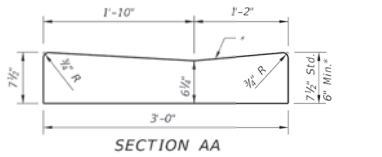
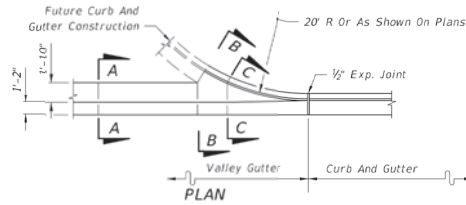
**MIAMI-DADE COUNTY**  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1600 S.W. 152 ST.  
MIAMI, FLORIDA 33138

SKIMMERS FOR FRENCH DRAIN OUTLETS

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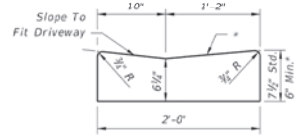
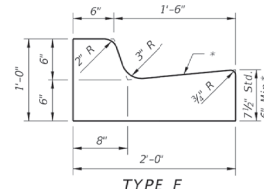
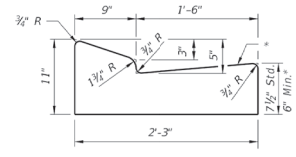




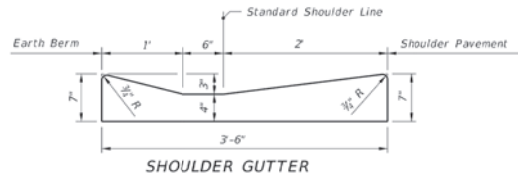
\* When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

▣ Rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.

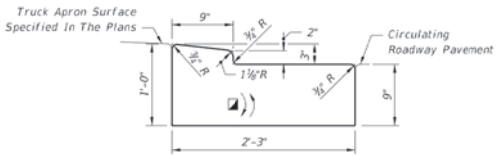
For use adjacent to concrete or flexible pavement. For details depicting usage adjacent to flexible pavement, see Sheet 2. Expansion joint, preformed joint filler and joint seal are required between curb & gutter and concrete pavement only, see Sheet 2.



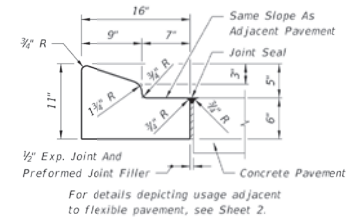
Note: To be paid for as parent curb.



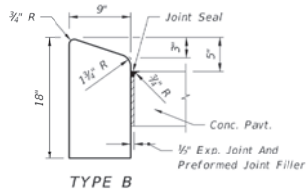
SHOULDER GUTTER



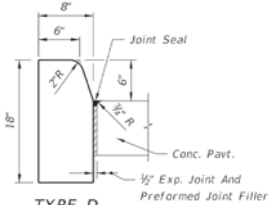
TRAFFIC BEARING SECTION FOR USE IN ROUNDABOUT CENTRAL ISLAND CONSTRUCTION TYPE RA



TYPE A

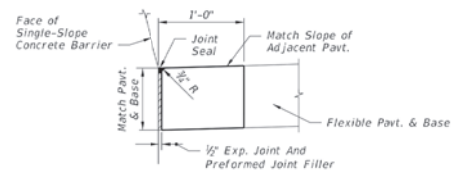


TYPE B



TYPE D

Note: For use adjacent to concrete or flexible pavement, concrete shown. Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only, see Sheet 2.



TOLL HEADER CURB

(See the toll site details for conduit requirements)

CONCRETE CURB AND GUTTER

REVISION	DESCRIPTION
LAST REVISION 11/01/20	

FDOT FY 2021-22 STANDARD PLANS

CURB AND GUTTER

INDEX	SHEET
520-001	1 of 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
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ANGEL ABIN FREDA | P.E. No.: 77550  
3363 N. COMMERCIAL BLVD. SUITE 113 FT. LAUDERDALE, FL 33309  
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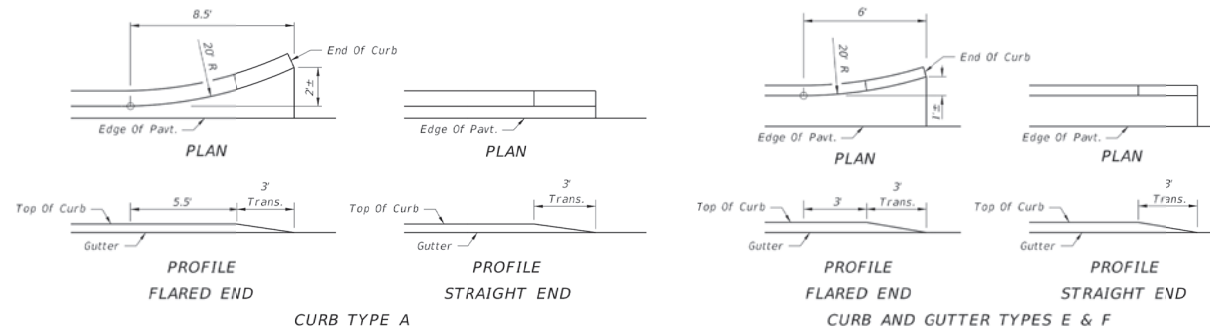
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MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS HIGHWAY DIVISION  
STEPHEN P. CLARK, CENTER  
MIAMI, FLORIDA 33138

CURB AND GUTTER

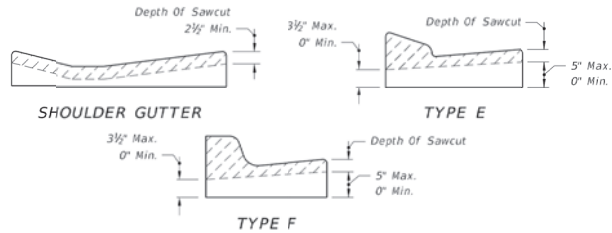
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10/12/2020 7:31:45 AM



CURB TYPE A

CURB AND GUTTER ENDINGS

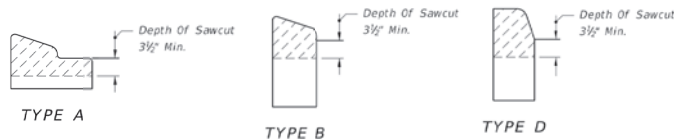


SHOULDER GUTTER

TYPE E

TYPE F

Sawcuts should be avoided within valley gutter and within curb and gutter endings.  
**CONTRACTION JOINT IN CURB AND GUTTER**

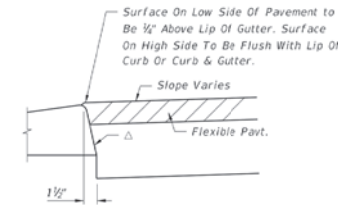


TYPE A

TYPE B

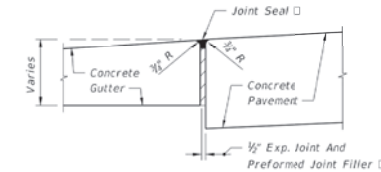
TYPE D

CONTRACTION JOINT IN CURB



△ Applies to both high and low sides of pavement, low side shown.  
 Applies to shoulder gutter only where adjoining traffic lanes.

CURB AND GUTTER AND TYPE A CURB  
 ADJACENT TO FLEXIBLE PAVEMENT

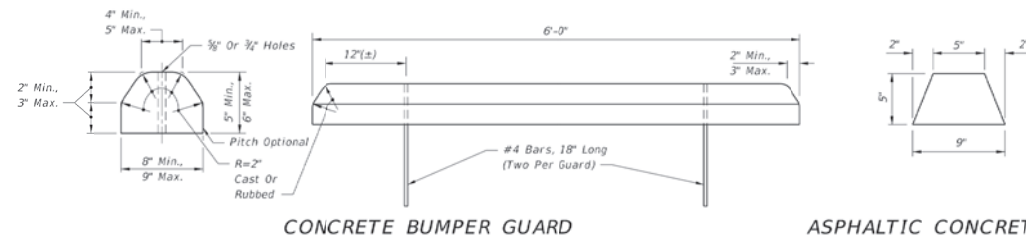


□ Applies to both high and low sides of pavement, low side shown.

EXPANSION JOINT BETWEEN GUTTER  
 AND CONCRETE PAVEMENT

GENERAL NOTES

- For curb, gutter and curb & gutter provide 1/2" - 1/2" contraction joints at 10' centers (max.). Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints not to exceed 10' centers. Curb, gutter and curb & gutter expansion joints shall be located in accordance with Specification 520.
- Ends of Curbs Types B and D shall transition from full to zero heights in 3'.



CONCRETE BUMPER GUARD

ASPHALTIC CONCRETE CURB

LAST REVISION 11/01/17	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	CURB AND GUTTER	INDEX 520-001	SHEET 2 of 2
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. Ste. 113 FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

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SUPERVISED BY:					

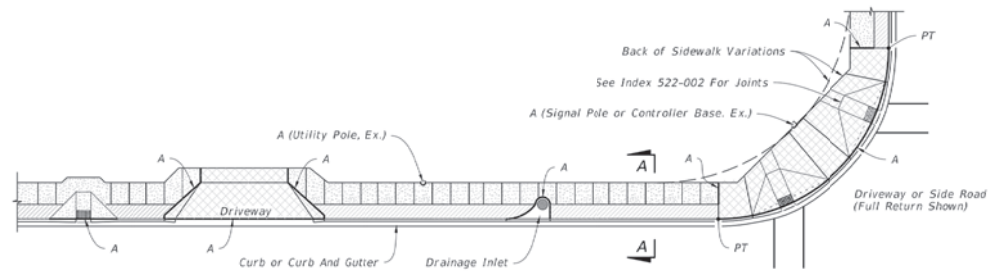
MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33128

CURB AND GUTTER

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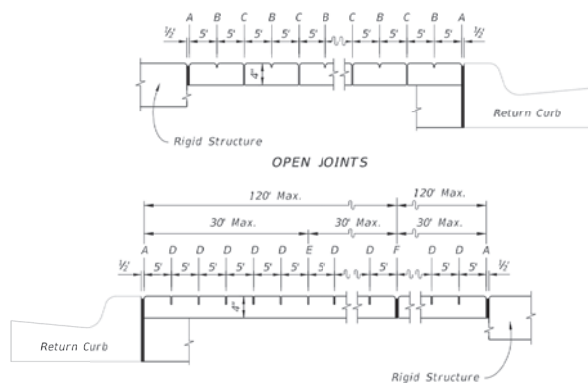
**GENERAL NOTES:**

1. Construct sidewalks in accordance with Specification 522. Use 6" concrete for Sidewalks and Curb Ramps Located within Curb Returns (See Plan View). Install all other concrete with thickness as shown, unless otherwise detailed in the Plans.
2. Include detectable warnings on sidewalk curb ramps in accordance with Index 522-002.
3. For Driveways see Index 522-003.
4. Bond breaker material can be any impermeable coated or sheet membrane or preformed material having a thickness of not less than 6 mils and not more than 1/2".
5. Construct sidewalks with Edge Beam through the limits of any surface mounted Pedestrian/Bicycle Railing or Pipe Guiderail shown in the plans. (See RAILING DETAIL)



SIDEWALK WITH UTILITY STRIP

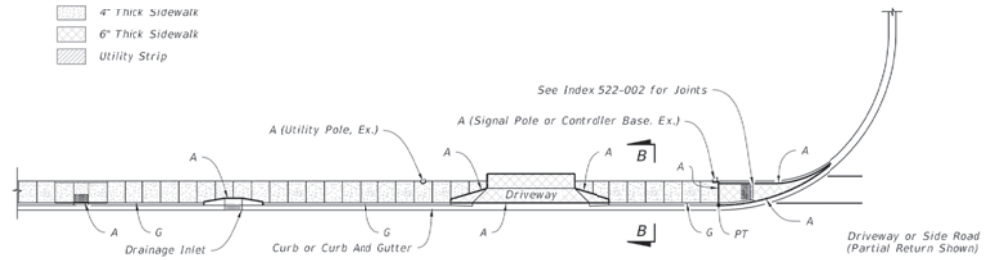
- LEGEND:**
- 4" Thick Sidewalk
  - 6" Thick Sidewalk
  - Utility Strip



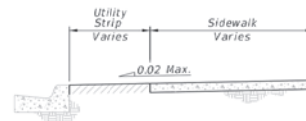
SIDEWALK JOINTS

**LEGEND:**

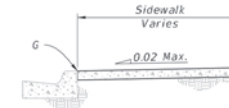
- A- 1/2" Expansion Joints (Preformed Joint Filler) between the sidewalk and; driveways, sidewalk-intersections, and all other fixed objects (e.g. drainage inlets and utility poles).
- B- 1/2" Dummy Joints, Tooled
- C- 1/2" Formed Open Joints
- D- 3/8" Saw Cut Joints, 1 1/2" Deep (within 96 hours) Max. 5' Centers
- E- 3/8" Saw Cut Joints, 1 1/2" Deep (within 12 hours) Max. 30' Centers Joint(s) Required When Length Exceeds 30'
- F- 1/2" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.
- G- Cold Joint With Bond Breaker, Tooled



SIDEWALK WITHOUT UTILITY STRIP

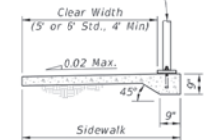


SECTION A-A



SECTION B-B

Railing (See Index 515-052, 515-062, 515-070 or 515-080)



Varies Based on Railing Used

RAILING DETAIL

GENERAL NOTES AND CONCRETE SIDEWALK ON CURBED ROADWAYS

LAST REVISION 11/01/18	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CONCRETE SIDEWALK	INDEX 522-001	SHEET 1 of 2
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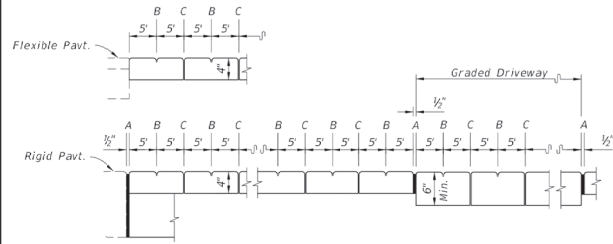
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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 ANSEL ABRN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL Blvd. Ste. 113 | Ft. Lauderdale, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

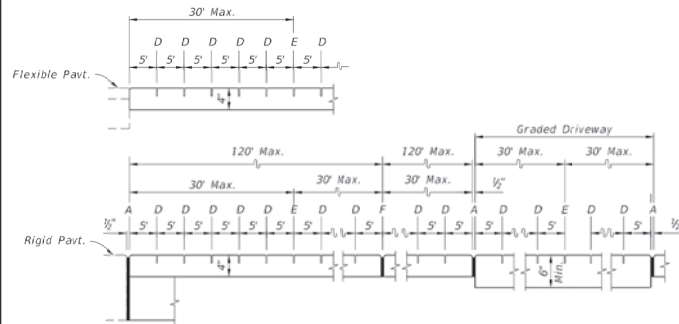
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SUPERVISED BY:					

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CONCRETE SIDEWALK



OPEN JOINTS

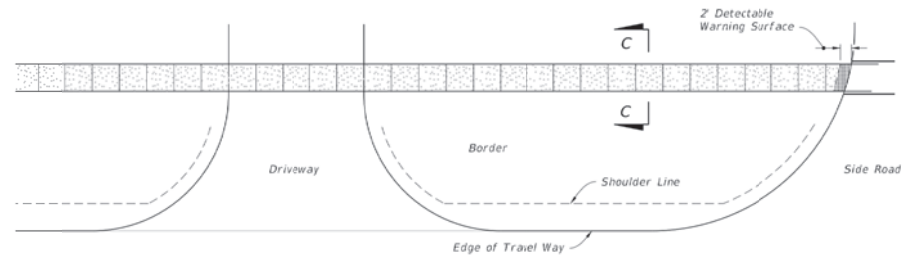


LONGITUDINAL SECTION

LEGEND:

- A- 1/2" Expansion Joints (Preformed Joint Filler) between the sidewalk and driveways, sidewalk-intersections, and all other fixed objects (e.g. drainage inlets and utility poles).
- B- 1/2" Dummy Joints, Tooled
- C- 1/8" Formed Open Joints
- D- 3/16" Saw Cut Joints, 1 1/2" Deep (within 96 hours) Max. 5' Centers
- E- 3/16" Saw Cut Joints, 1 1/2" Deep (within 12 hours) Max. 30' Centers Joint(s) Required When Length Exceeds 30'
- F- 1/2" Expansion Joint When Run Of Sidewalk Exceeds 120'. Intermediate locations when called for in the plans or at locations as directed by the Engineer.

SIDEWALK JOINTS

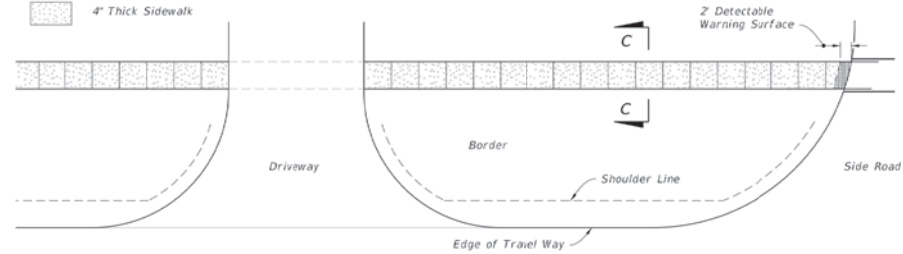


PLAN

CONTINUOUS SIDEWALK

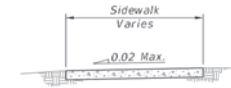
LEGEND:

4" Thick Sidewalk



PLAN

DISCONTINUOUS SIDEWALK



SECTION C-C

CONCRETE SIDEWALK ON FLUSH SHOULDER ROADWAYS

LAST REVISION	DESCRIPTION:
11/01/18	

FDOT FY 2021-22 STANDARD PLANS

CONCRETE SIDEWALK

INDEX SHEET  
522-001 2 of 2

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

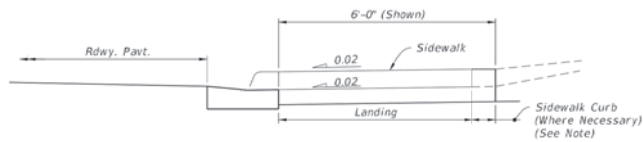
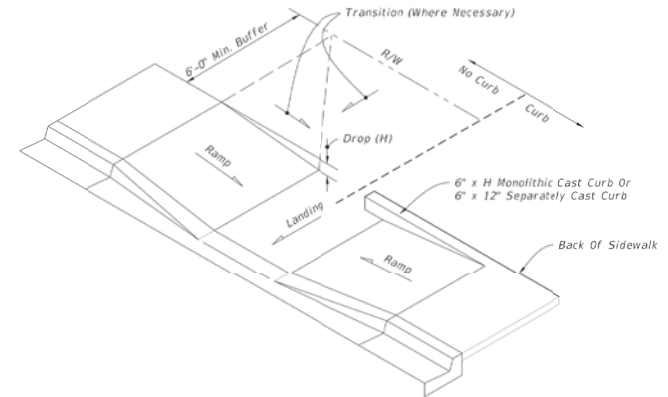
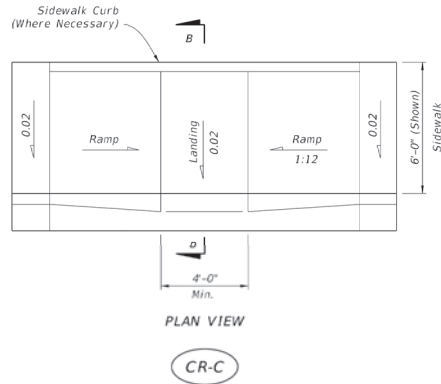
**MARLIN**  
 ENGINEERING  
 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 N. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

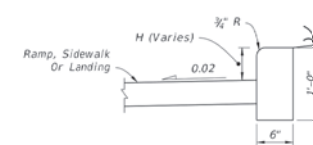
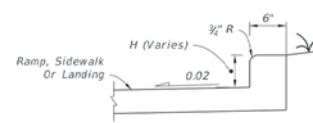
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 STEPHEN P. CLARK CENTER  
 1000 N. W. 10th St.  
 MIAMI, FLORIDA 33138

CONCRETE SIDEWALK





NOTE: For additional information on sidewalk curb construction, see SIDEWALK CURB OPTIONS details.



MONOLITHIC CAST CURB

SEPARATELY CAST CURB

CONSTRUCTION OF SIDEWALK CURB IN CUT SECTIONS

SIDEWALK CURB RAMPS CR-C AND SIDEWALK CURB

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX 522-002	SHEET 3 of 7
REVISION	DESCRIPTION:					

10/12/2020 7:58:36 AM

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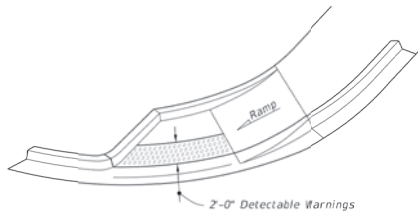
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
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 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL Blvd. Ste. 113 | Ft. Lauderdale, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

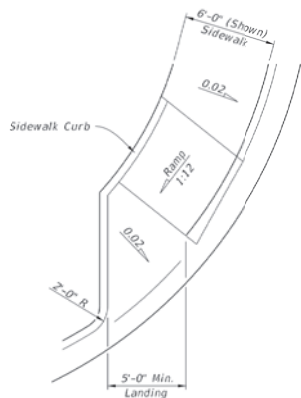
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SUPERVISED BY:					

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 STEPHEN P. CLARK CENTER  
 100 N.W. 1  
 MIAMI, FLORIDA 33128

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

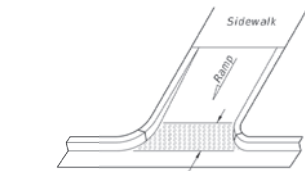


ISOMETRIC VIEW

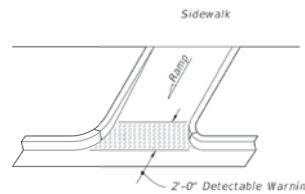


PLAN VIEW

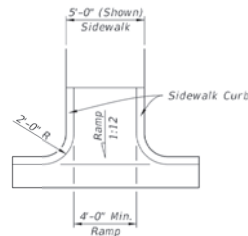
CR-D



OPTION A  
ISOMETRIC VIEW

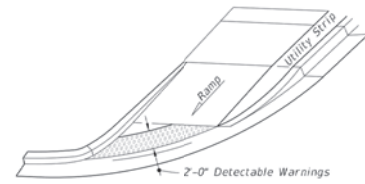


OPTION B  
ISOMETRIC VIEW

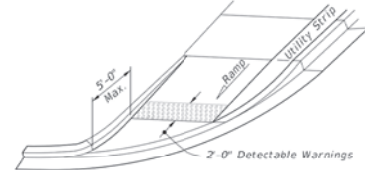


PLAN VIEW

CR-E

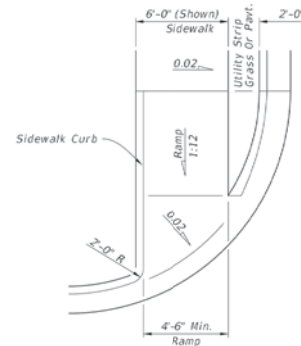


OPTION A



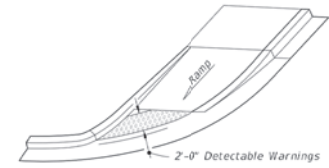
OPTION B

ISOMETRIC VIEW

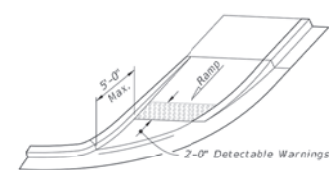


PLAN VIEW

CR-F

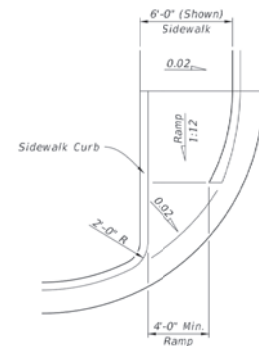


OPTION A



OPTION B

ISOMETRIC VIEW



PLAN VIEW

CR-G

SIDEWALK CURB RAMPS CR-D, CR-E, CR-F & CR-G

LAST REVISION	DESCRIPTION:
11/01/20	

FDOT  
 FY 2021-22  
 STANDARD PLANS

DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

INDEX SHEET  
 522-002 4 of 7

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABRN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 113 FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY	NAME	DATE	IN CHARGE BY	NAME	DATE

MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1600 N.W. 25th ST.  
 MIAMI, FLORIDA 33128

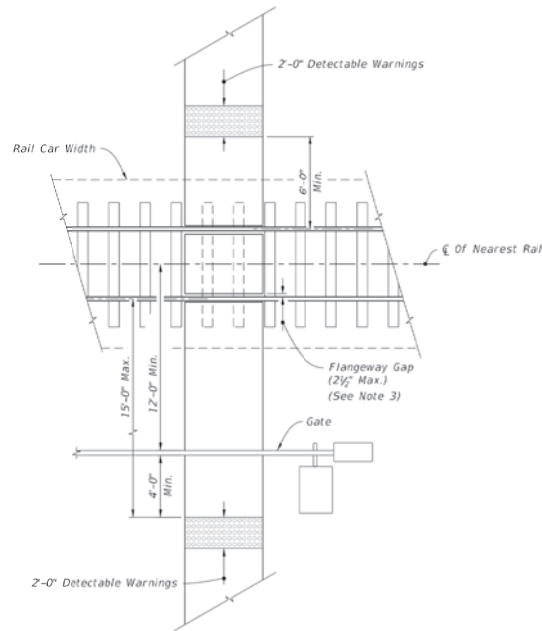
DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

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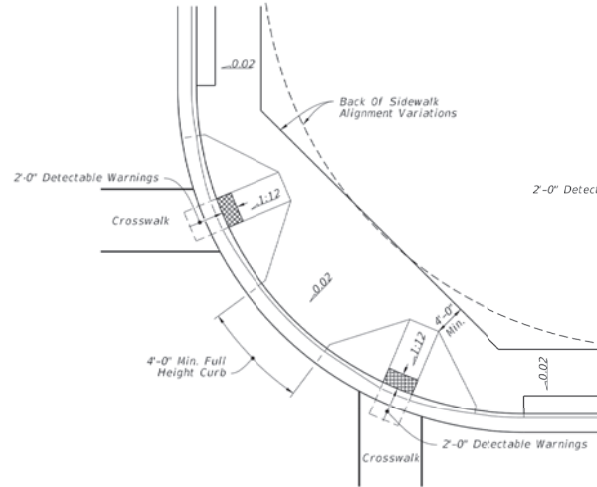
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**NOTES:**

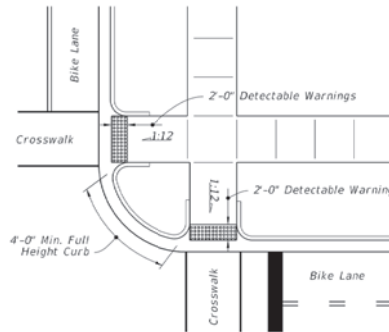
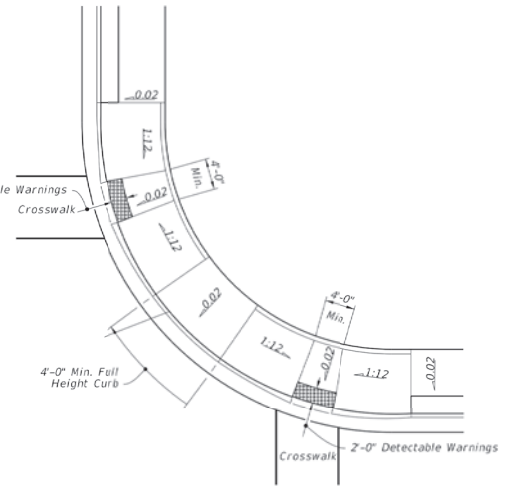
- Where crosswalk markings are used, ramps must fall within the crosswalk limits. A clear space of 48" minimum is required at the bottom of the ramp within a marked crosswalk. If crosswalk markings are not present, a clear space of 48" minimum is required at the bottom of the ramp outside of active travel lanes.
- Crosswalk widths and configurations vary; must conform to Index 711-001.
- Flangeway Gap may be up to 3" for Freight-only Railways.



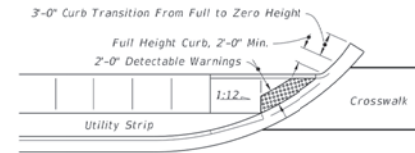
RAILROAD CROSSING



CURB RAMPS WITHIN RADIAL RETURN



CURB RAMPS OUTSIDE RADIAL RETURN



LINEAR SIDEWALK RAMPS

PLACEMENT OF SIDEWALK CURB RAMPS AT CURBED RETURNS (TYP.)

RAILROAD CROSSING AND CURB RAMPS AT CURBED RETURNS

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX	SHEET
REVISION			522-002		7 of 7	

10/12/2020 7:58:42 AM

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABRIL FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
	RL			M.P.	
CHECKED BY	NAME	DATE	CHECKED BY	NAME	DATE
	A.F.			A.F.	
SUPERVISED BY:					

MIAMI-DADE COUNTY  
 DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  
 STEPHEN P. CLARK CENTER  
 1000 N.W. 25th St.  
 MIAMI, FLORIDA 33128





DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS

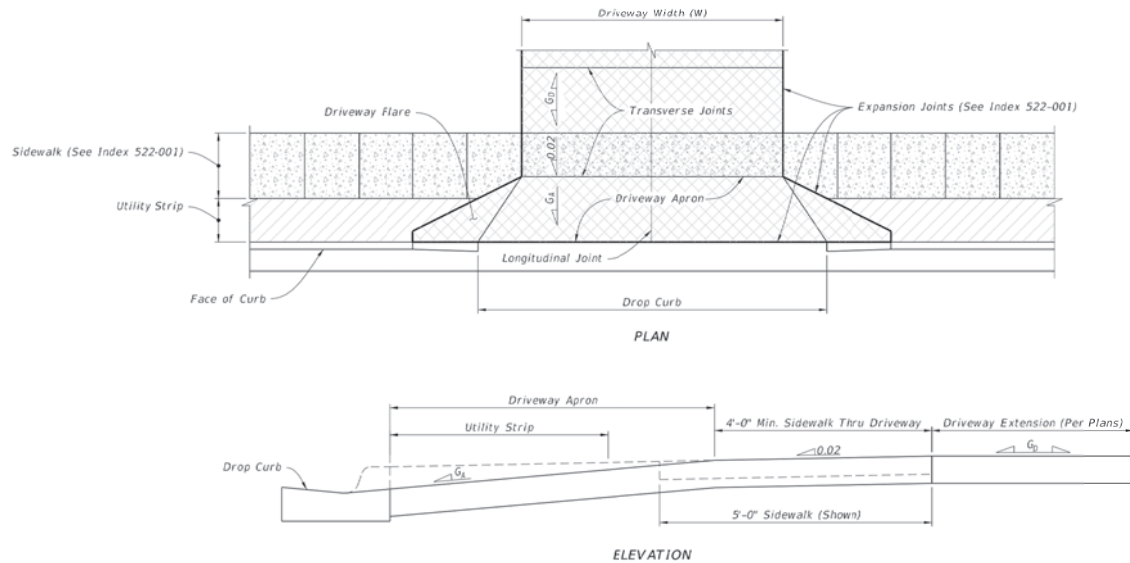


**GENERAL NOTES:**

1. Work this Index with Specification 522.
2. Refer to Index 520-001 for drop curb details and Index 522-001 for joints between driveway, sidewalks, and curb.
3. Existing Curb and Gutter:  
Remove existing curb and gutter to either the nearest joint beyond the flared point or to where no remaining section is less than 5 feet long.
4. Grades and cross slopes shown are maximums.
5. Longitudinal Joints:  
Construct  $\frac{1}{8}$ " open joints placed at equal (20' max.) intervals for driveways over 20' wide. Match joints in curb and gutter to match joints in driveways.
6. Transverse Joints:  
Construct  $\frac{1}{8}$ " open joints @ 10' Centers and  $\frac{1}{2}$ " expansion joints with preformed joint filler every 5th joint.
7. Construct driveways (6" thick concrete) to a uniform width (W) to the R/W line or the extent shown in the Plans.
8. Width of Sidewalk Thru Driveway is 4'-0" minimum. Match sidewalk width when shown in Plans or when utility strip width is equal to or greater than the depth of the Driveway Apron.
9. Alpha-Numeric Identification:  
Concrete Flared Driveway Alpha-Numeric Identifications (e.g. G4) are provided for reference purposes in the Plans.

**LEGEND:**

-  Sidewalk
-  Flared Driveway (6" Thick Concrete)
-  Sidewalk Thru Driveway (6" Thick Concrete)
-  Utility Strip
- G<sub>A</sub> Grade of Apron
- G<sub>0</sub> Grade of Driveway (Per Plans)



CONCRETE FLARED DRIVEWAY NOMENCLATURE

10/12/2020 7:59:01 AM

LAST REVISION 11/01/18	DESCRIPTION:	 <b>FY 2021-22 STANDARD PLANS</b>	<b>CONCRETE FLARED DRIVEWAYS</b>	INDEX 522-003	SHEET 1 of 4
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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

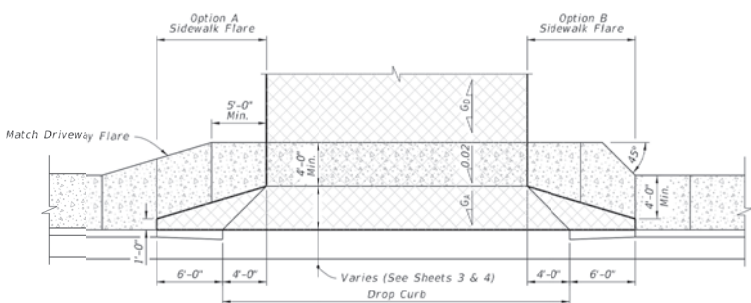
**MARLIN**  
ENGINEERING  
ANGEL ABIN FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. SUITE 115 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

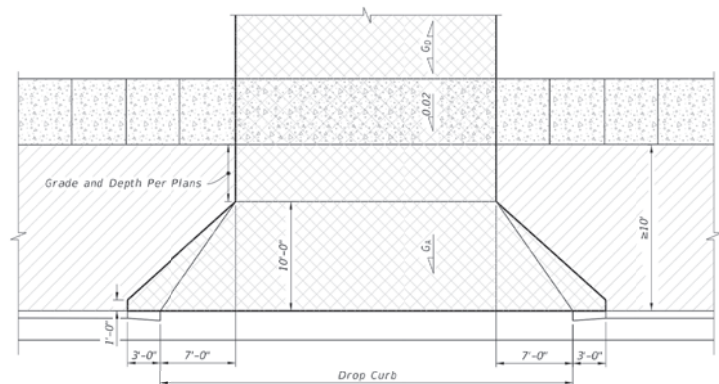
**MIAMI-DADE COUNTY**  
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK CENTER  
1000 N.W. 25th St.  
MIAMI, FLORIDA 33138

CONCRETE FLARED DRIVEWAYS

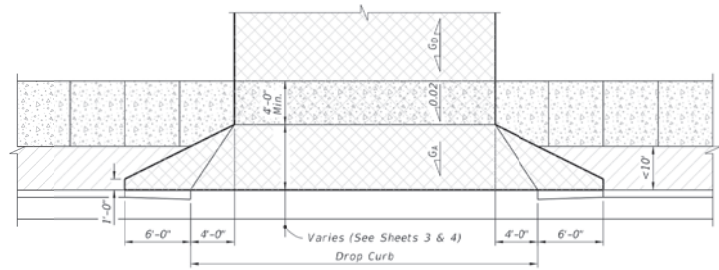
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SIDEWALK WITHOUT UTILITY STRIP



WITHOUT SIDEWALK OR UTILITY STRIP ≥ 10' WIDE



UTILITY STRIP < 10' WIDE

LEGEND:

- Sidewalk
- Flared Driveway (6" Thick Concrete)
- Sidewalk Thru Driveway (6" Thick Concrete)
- Utility Strip

10/12/2020 7:59:06 AM

DATE	BY	DESCRIPTION
11/01/18		LAST REVISION

**FDOT** FY 2021-22  
STANDARD PLANS

CONCRETE FLARED DRIVEWAYS

INDEX	SHEET
522-003	2 of 4

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
ENGINEERING  
ANGEL ABRIL FREDA | P.E. No.: 77550  
3363 W. COMMERCIAL BLVD. STE. 113 | FT. LAUDERDALE, FL 33309  
P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE

MIAMI-DADE COUNTY DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
HIGHWAY DIVISION  
STEPHEN P. CLARK, CENTER  
1500 N.W. 25<sup>TH</sup> ST.  
MIAMI, FLORIDA 33125

CONCRETE FLARED DRIVEWAYS

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NOTE:  
 5' sidewalks shown.

DRIVEWAY SECTIONS ON CURBED FACILITIES WITH SIDEWALKS

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**MARLIN**  
 ENGINEERING  
 ANGEL ABIN FREDA | P.E. No.: 77550  
 3363 W. COMMERCIAL BLVD. Ste. 113 FT. LAUDERDALE, FL 33309  
 P: 954.870.5070 | C.A. No. 6104

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
CHECKED BY	R.L.		CHECKED BY	M.P.	
SUPERVISED BY	A.F.			A.F.	

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS  
 HIGHWAY DIVISION  

 STEPHEN P. CLARK, CENTER  
 1000 N.W. 23RD ST.  
 MIAMI, FLORIDA 33138

CONCRETE FLARED DRIVEWAYS

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