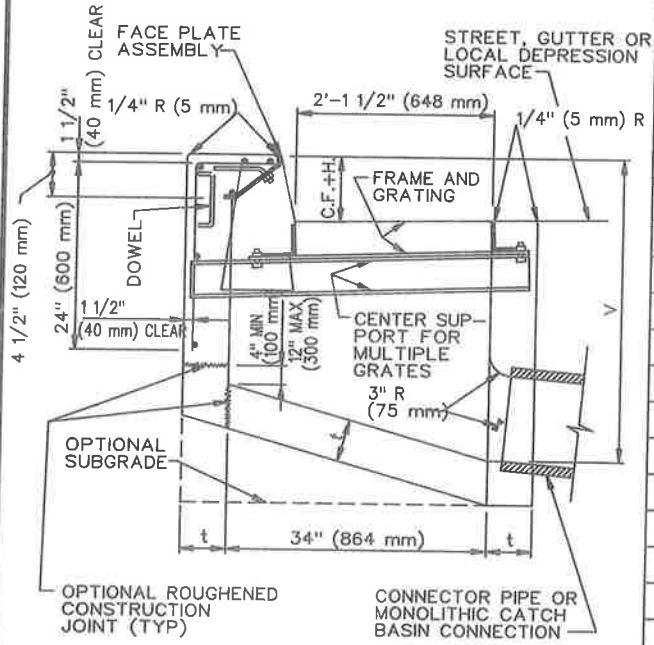


DOWEL DETAIL

PLAN



SECTION A-A

STRUCTURAL DATA			
WALL AND SLAB DIMENSIONS AND REINFORCEMENT REQUIREMENTS			
NO. OF GRATES	MAXIMUM V	t	REINFORCEMENT FOR WALLS AND SLABS
1-2	4' (1.2 m)	6" (150 mm)	NOT REQUIRED
1-2	8' (2.4 m)	8" (200 mm)	
1-2	10' (3.0 m)	10" (250 mm)	
1-2	12' (3.5 m)	10" (250 mm)	REQUIRED
3-4	4' (1.2 m)	6" (150 mm)	NOT REQUIRED
3-4	7' (2.0 m)	8" (200 mm)	
3-4	8' (2.4 m)	8" (200 mm)	
3-4	12' (3.5 m)	10" (250 mm)	REQUIRED
5-6	4' (1.2 m)	6" (150 mm)	NOT REQUIRED
5-6	6' (1.8 m)	8" (200 mm)	
5-6	8' (2.4 m)	8" (200 mm)	
5-6	12' (3.5 m)	10" (250 mm)	REQUIRED
> 6	4' (1.2 m)	6" (150 mm)	REQUIRED
> 6	8' (2.4 m)	8" (200 mm)	
> 6	12' (3.5 m)	10" (250 mm)	

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

CURB OPENING CATCH BASIN WITH GRATING(S)

STANDARD PLAN

302-4

SHEET 1 OF 2

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1992, 1996, 2009, 2021

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

NOTES:

1. WHERE THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF EXISTING OR PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH SIDEWALK, THE TOP SLAB OF THE BASIN MAY BE POURED EITHER MONOLITHIC WITH THE SIDEWALK OR SEPARATELY, USING THE SAME CLASS OF CONCRETE AS IN THE BASIN. WHEN POURED MONOLITHICALLY, THE SIDEWALK SHALL BE PROVIDED WITH A WEAKENED PLANE OR A 1" (25 mm) DEEP SAWCUT CONTINUOUSLY AROUND THE EXTERNAL PERIMETER OF THE CATCH BASIN WALLS, INCLUDING ACROSS THE FULL WIDTH OF THE SIDEWALK. SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SLOPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING OR PROPOSED CURB AND WALK ADJACENT TO THE BASIN.
2. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.
3. ONE GRATING IS REQUIRED UNLESS OTHERWISE SHOWN ON THE PROJECT PLAN.
4. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH AND SHALL HAVE A LONGITUDINAL AND LATERAL SLOPE OF 1V:12H MINIMUM AND 1V:3H MAXIMUM, EXCEPT WHERE THE GUTTER GRADE EXCEEDS 8%, IN WHICH CASE THE LONGITUDINAL SLOPE OF THE FLOOR SHALL BE THE SAME AS THE GUTTER GRADE. SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.
5. DIMENSIONS:
 - V = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE CATCH BASIN AT THE OUTLET = 4.5' (1.35 m).
 - V_u = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT AT THE UPSTREAM END OF THE BASIN, AND SHALL BE DETERMINED BY THE REQUIREMENTS OF NOTE 4, BUT SHALL NOT BE LESS THAN CURB FACE PLUS 12" (300 mm).
 - V_i = THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE INLET, NOTED ON THE PLANS.
 - H = NOTED ON THE PROJECT PLANS.
 - W_g = 2'-11 3/8" (900 mm) FOR ONE GRATING; ADD 3'-5 3/8" (1051 mm) FOR EACH ADDITIONAL GRATING.
 - A = THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.
6. PLACE CONNECTOR PIPES AS INDICATED ON THE PLANS. UNLESS OTHERWISE SPECIFIED, THE CONNECTOR PIPE SHALL BE LOCATED AT THE DOWNSTREAM END OF THE BASIN. WHERE THE CONNECTOR PIPE IS SHOWN AT A CORNER, THE CENTERLINE OF THE PIPE SHALL INTERSECT THE INSIDE CORNER OF THE BASIN. THE PIPE MAY BE CUT AND TRIMMED AT A SKEW NECESSARY TO ENSURE MINIMUM 3" (75 mm) PIPE EMBEDMENT, ALL AROUND, WITHIN THE CATCH BASIN WALL, AND 3" (75 mm) RADIUS OF ROUNDING OF STRUCTURE CONCRETE, ALL AROUND, ADJACENT TO PIPE ENDS, A MONOLITHIC CATCH BASIN CONNECTION SHALL BE USED TO JOIN THE CONNECTOR PIPE TO THE CATCH BASIN WHENEVER ANGLE "A" IS LESS THAN 70° OR GREATER THAN 110°, OR WHENEVER THE CONNECTOR PIPE IS LOCATED IN A CORNER. THE OPTIONAL USE OF A MONOLITHIC CATCH BASIN CONNECTION IN ANY CASE IS PERMITTED. MONOLITHIC CATCH BASIN CONNECTIONS MAY BE CONSTRUCTED TO AVOID CUTTING STANDARD LENGTHS OF PIPE.
7. STEPS SHALL BE LOCATED AS SHOWN. IF THE CONNECTOR PIPE INTERFERES WITH THE STEPS, THEY SHALL BE LOCATED ON THE FRONT WALL AT THE CENTERLINE OF THE DOWNSTREAM GRATING. STEPS SHALL BE SPACED 12" (300 mm) APART. THE TOP STEP SHALL BE 7" (175 mm) BELOW THE TOP OF THE GRATING AND PROJECT 2 1/2" (65 mm). ALL OTHER STEPS SHALL PROJECT 5" (130 mm).
8. DOWELS ARE REQUIRED AT EACH CORNER AND AT 7' (2.0 m) ON CENTER (MAXIMUM) ALONG THE BACKWALL.
9. THE FOLLOWING SPPWC ARE INCORPORATED HEREIN:
 - 308 MONOLITHIC CATCH BASIN CONNECTION
 - 309 CATCH BASIN REINFORCEMENT
 - 310 CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR
 - 311 FRAME AND GRATING FOR CATCH BASINS
 - 635 STEEL STEP
 - 636 POLYPROPYLENE PLASTIC STEP

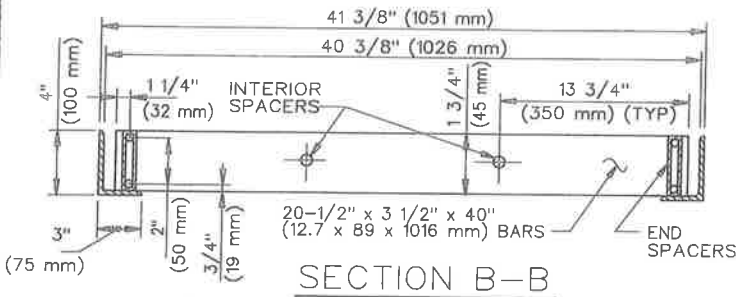
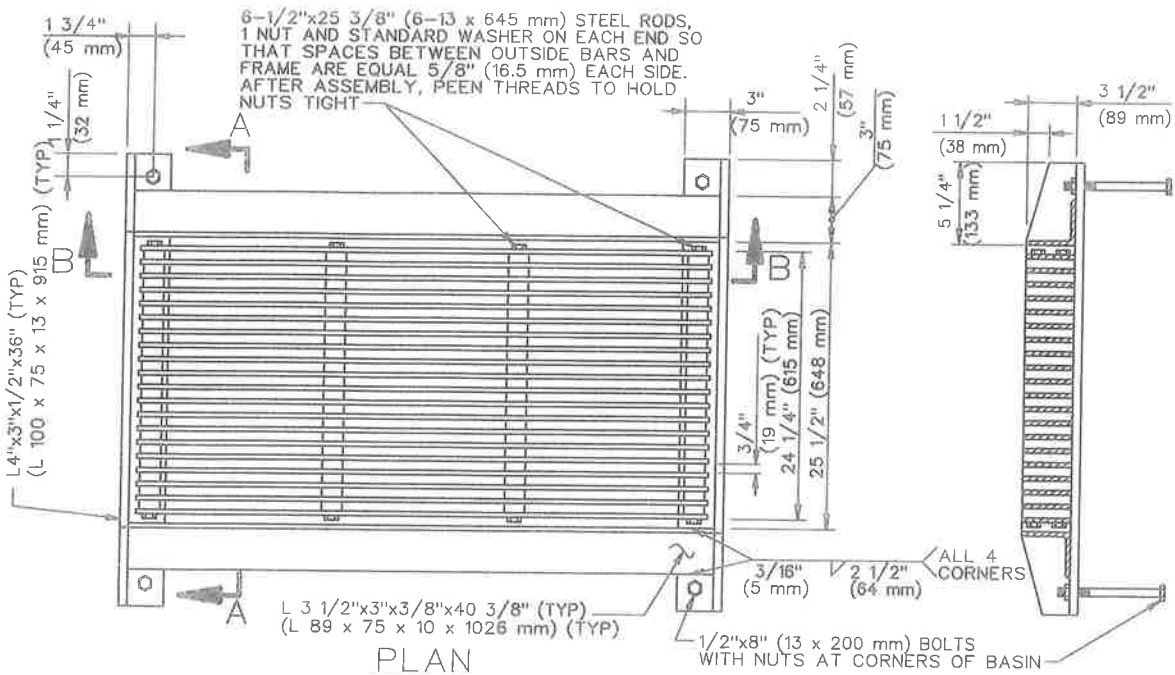
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

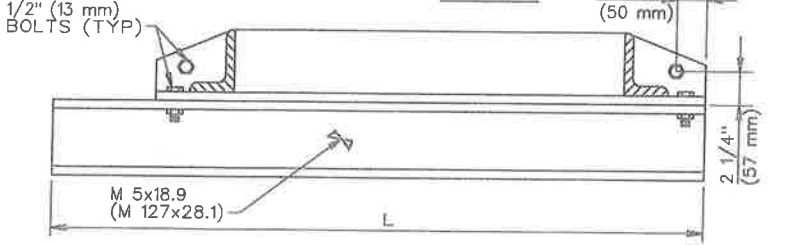
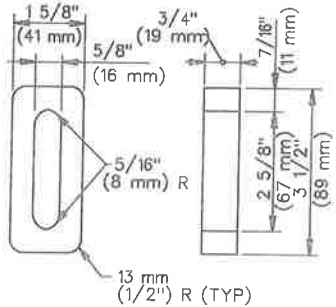
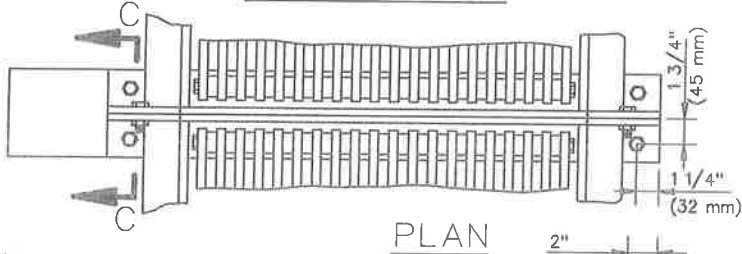
CURB OPENING CATCH BASIN WITH GRATING(S)

302-4

SHEET 2 OF 2



STANDARD 1/2" (13 mm) PIPE INTERIOR SPACERS



END SPACERS



CENTER SUPPORT ASSEMBLY

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1993, 1996, 2009, 2021

FRAME AND GRATING FOR CATCH BASINS

STANDARD PLAN

311-4

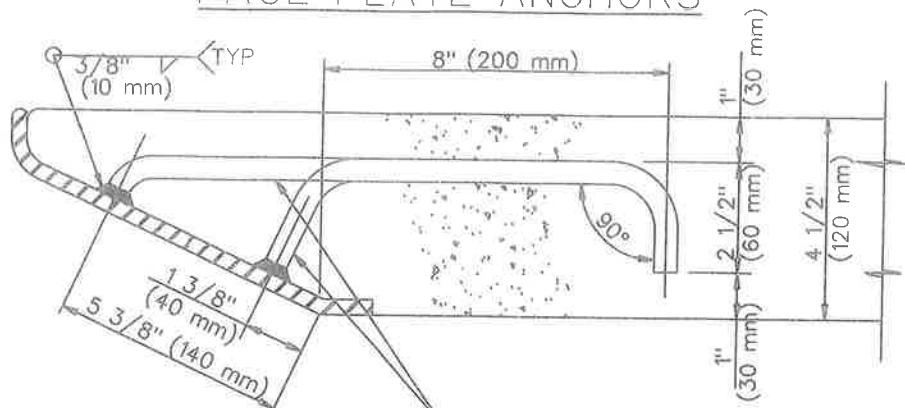
USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 2

NOTES:

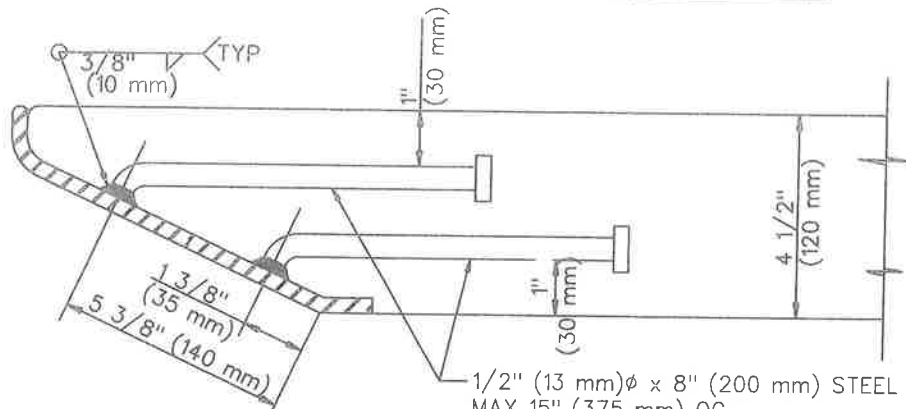
1. ALL PARTS SHALL BE STEEL, EXCEPT THAT END SPACERS MAY BE CAST IRON.
2. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION, EXCEPT THAT GRATINGS SHALL BE ASSEMBLED AFTER COMPONENT PARTS ARE GALVANIZED.
3. ALL DIMENSIONS ARE FINISHED DIMENSIONS AND INCLUDE GALVANIZING.
4. ALL BOLT HOLES SHALL BE 16 mm (5/8") DIAMETER.
5. ALL THREADS SHALL BE NATIONAL COARSE SERIES (NC).
6. CENTER SUPPORT ASSEMBLY REQUIRED WHEN TWO OR MORE GRATINGS ARE SPECIFIED ON PLANS.
 - L = 64" (1626 mm) FOR CURB OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER (SPPWC 301).
 - L = 44" (1118 mm) FOR CURB OPENING CATCH BASIN WITH GRATING(S) (SPPWC 302.)
 - L = 36" (914 mm) FOR CURBSIDE GRATING CATCH BASIN (SPPWC 303).
 - L = 36" (914 mm) FOR GRATING CATCH BASIN-ALLEY (LONGITUDINAL) (SPPWC 304).

FACE PLATE ANCHORS



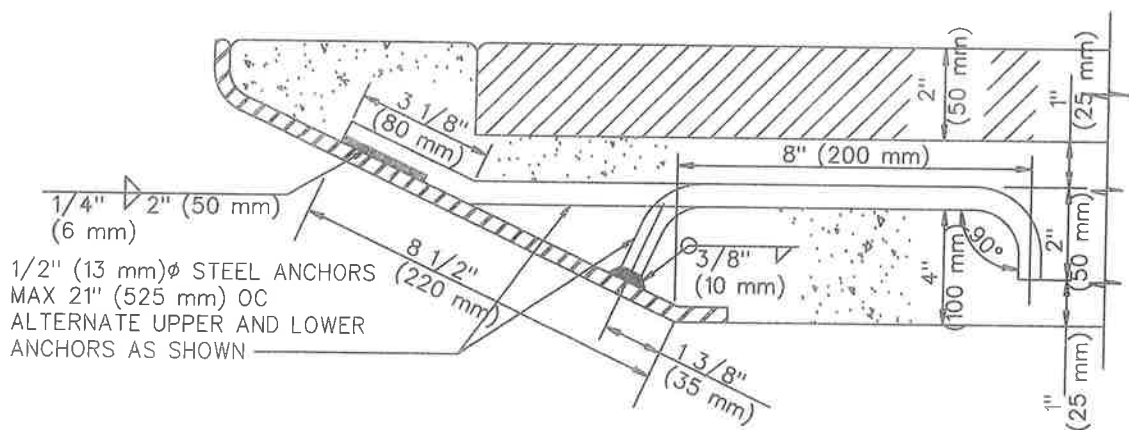
1/2" (13 mm) ϕ STEEL ANCHORS,
MAX 21" (525 mm) OC
ALTERNATE UPPER AND LOWER ANCHORS AS SHOWN

HOOK ANCHOR - 4 1/2" (120 mm) TOP SLAB



1/2" (13 mm) ϕ x 8" (200 mm) STEEL ANCHORS
MAX 15" (375 mm) OC
ALTERNATE UPPER AND LOWER ANCHORS AS SHOWN

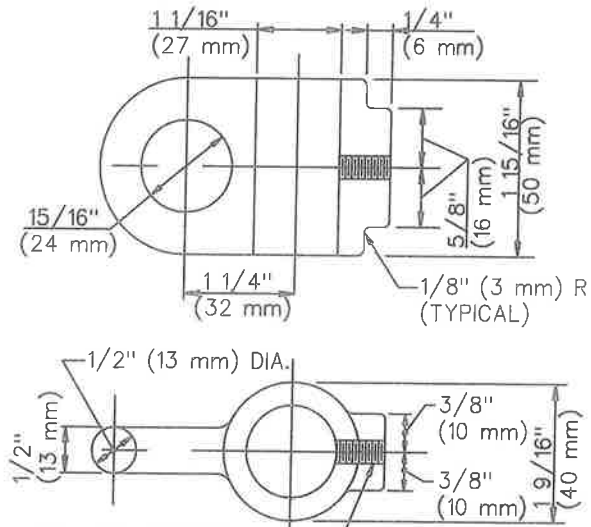
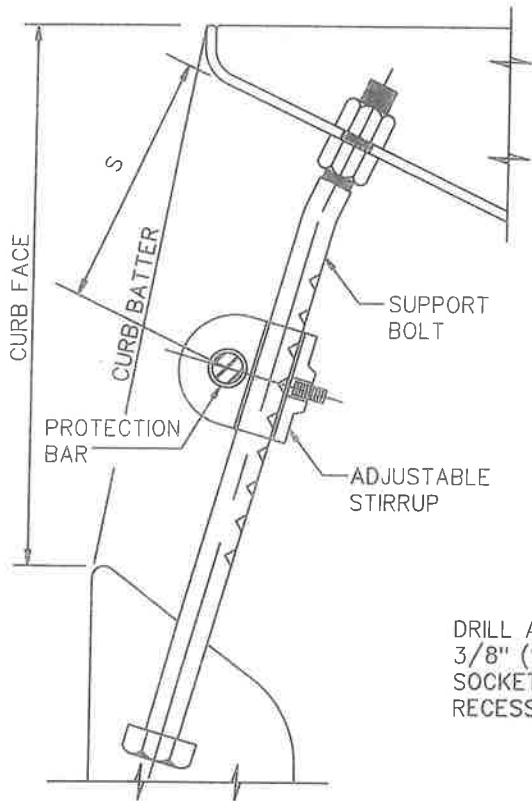
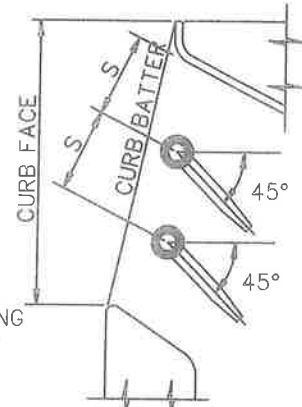
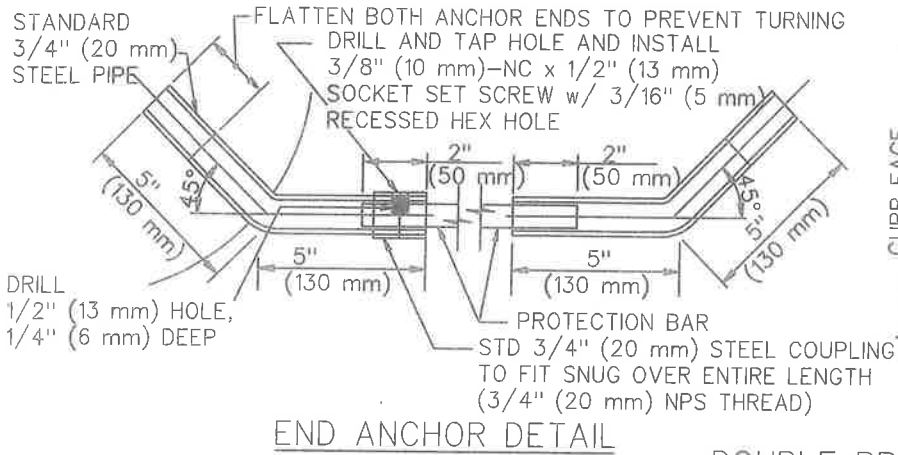
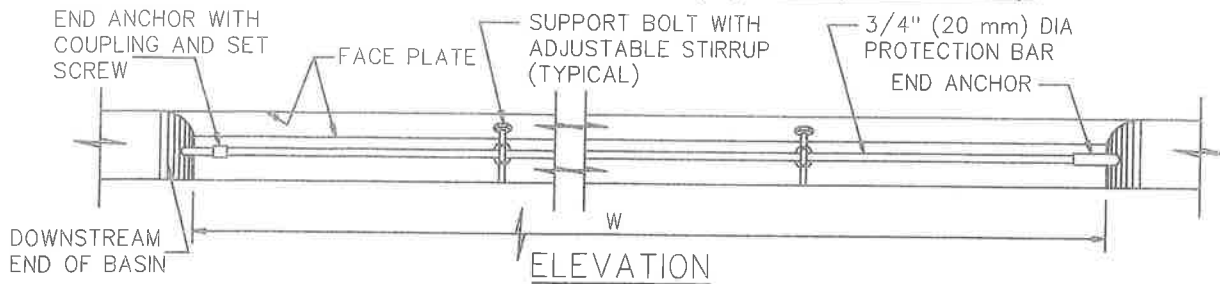
ROUND HEAD ANCHOR - 4 1/2" (120 mm) TOP SLAB



1/2" (13 mm) ϕ STEEL ANCHORS
MAX 21" (525 mm) OC
ALTERNATE UPPER AND LOWER
ANCHORS AS SHOWN

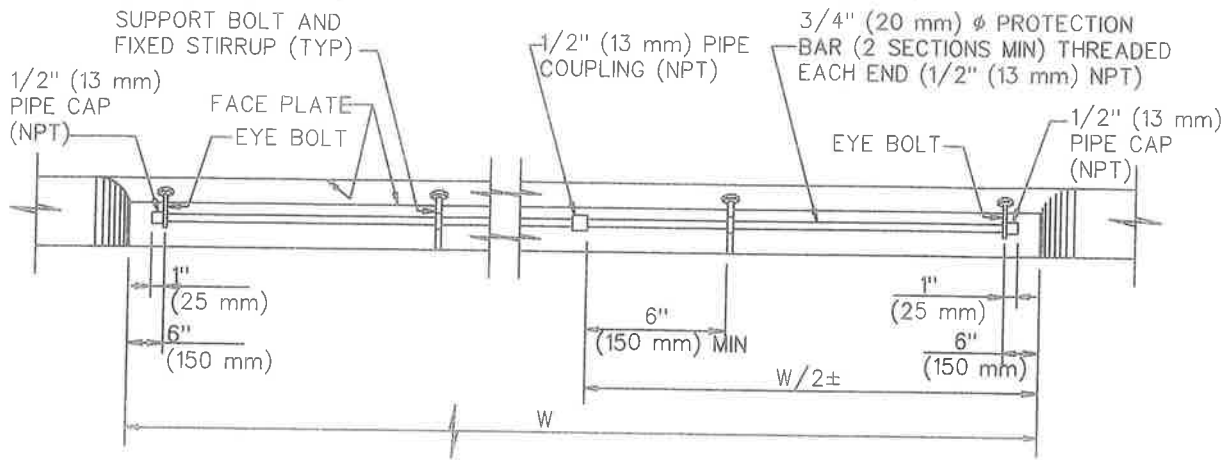
HOOK ANCHOR - 6" (150 mm) TOP SLAB

PROTECTION BAR AND SUPPORT BOLT(S) WITH ADJUSTABLE STIRRUP(S) - (TYPE A)

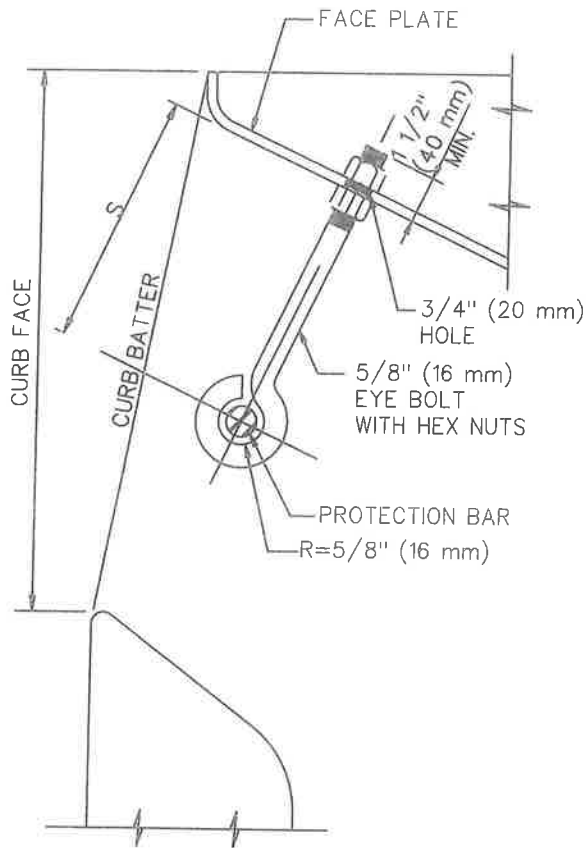


DRILL AND TAP HOLE AND INSTALL
3/8" (10 mm)-NC x 1/2" (13 mm)
SOCKET SET SCREW WITH 3/16" (5 mm)
RECESSED HEX HOLE

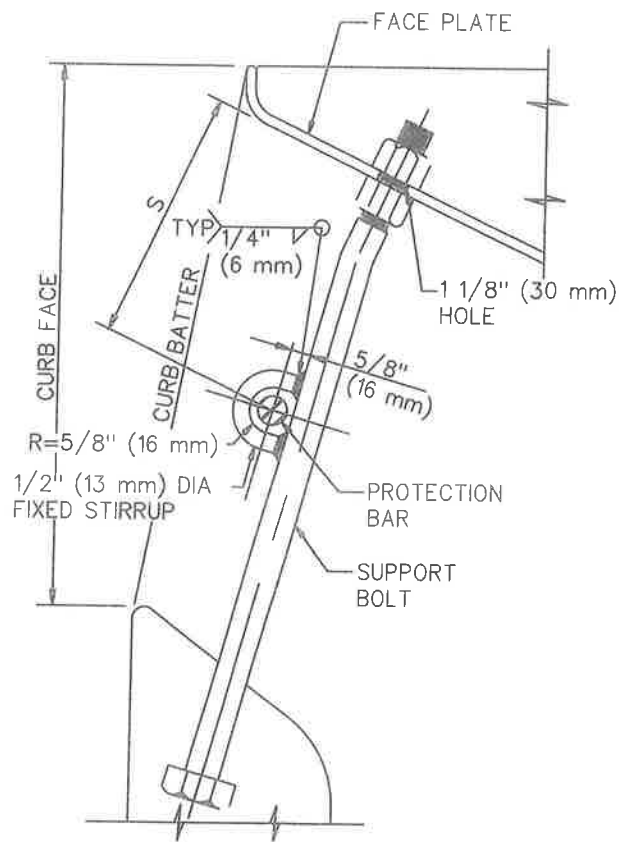
PROTECTION BAR AND SUPPORT BOLT(S) WITH FIXED STIRRUP(S) - (TYPE B)



ELEVATION



EYE BOLT DETAIL



STIRRUP DETAIL

NOTES:

GENERAL

1. ALL PARTS SHALL BE STEEL, EXCEPT SET SCREWS, WHICH SHALL BE STAINLESS STEEL OR BRASS.
2. EXCLUDING SET SCREWS, ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
3. CURB FACE SHALL BE AS NOTED ON THE PLANS.
4. CURB BATTER SHALL BE 3:12 UNLESS OTHERWISE SPECIFIED.

FACE PLATE

5. FACE PLATE LENGTHS SHALL BE CATCH BASIN W PLUS 12" (300 mm) EXCEPT AS MODIFIED FOR A "CURB OPENING CATCH BASIN AT DRIVEWAY".
6. WHEN THE LENGTH OF THE FACE PLATE IS BETWEEN 22' (6.5 m) AND 43' (13 m), TWO SECTIONS MAY BE USED. WHEN THE LENGTH EXCEEDS 43' (13 m), THREE SECTIONS MAY BE USED. SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL. SPLICE SHALL BE PLACED 1' (300 mm) FROM A SUPPORT BOLT.
7. WHERE CATCH BASINS ARE TO BE CONSTRUCTED ON CURVES, THE MAXIMUM CHORD LENGTH FOR THE FACE PLATE SHALL BE SUCH THAT THE MAXIMUM PERPENDICULAR DISTANCE TO THE TRUE CURVE SHALL NOT EXCEED 1" (25 mm). WHERE MORE THAN ONE CHORD IS REQUIRED, CHORD LENGTHS SHALL BE EQUAL. CHORD SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL (MODIFIED TO FIT THE CHORD DEFLECTION) AND A SUPPORT BOLT SHALL BE PLACED 1' (300 mm) FROM THE SPLICE.
8. ROUND HEAD ANCHORS FOR THE FACE PLATE SHALL BE NELSON H-4F SHEAR CONNECTOR, KSN WELDING SYSTEMS DIVISION SHEAR CONNECTOR OR EQUAL.

SUPPORT BOLT

9. SUPPORT BOLTS ARE REQUIRED WHEN THE LENGTH OF THE CATCH BASIN OPENING IS 7' (2 m) OR GREATER, AND SHALL BE EVENLY SPACED ACROSS THE OPENING. SPACING SHALL NOT BE LESS THAN 3'-6" (1 m) ON CENTER NOR GREATER THAN 5' (1.5 m) ON CENTER.

STIRRUP

10. FOR TYPE A, MATERIAL SHALL BE CAST STEEL.

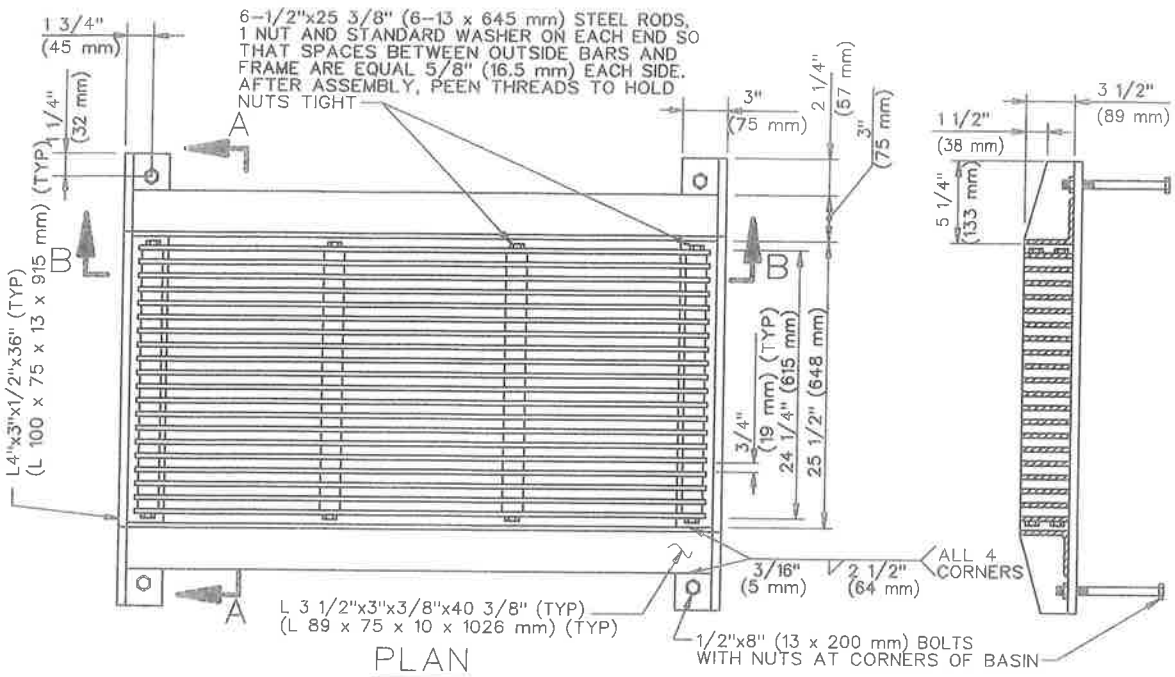
PROTECTION BAR

11. TYPE A SHALL BE USED UNLESS OTHERWISE SPECIFIED.
12. FOR TYPE A, THE BAR SHALL BE CUT TO FIT IN THE FIELD. WHEN "W" IS OVER 21' (6 m), THE PROTECTION BAR SHALL CONSIST OF 2 OR MORE SECTIONS. A SPECIAL CONNECTOR BETWEEN THE PROTECTION BAR PIECES SHALL CONSIST OF A 5" (125 mm) LENGTH OF STANDARD 3/4" (20 mm) PIPE WITH STANDARD COUPLINGS FULLY THREADED ONTO EACH END DRILLED AND TAPPED FOR A SOCKET SET SCREW AS DETAILED FOR THE DOWNSTREAM END ANCHOR.
13. FOR TYPE B, THE BAR SHALL BE TWO PIECES. TWO EYE BOLTS AND A WELDED STIRRUP ON EACH SUPPORT BOLT ARE REQUIRED.
14. NUMBER OF PROTECTION BARS AND LOCATIONS ARE AS FOLLOWS:

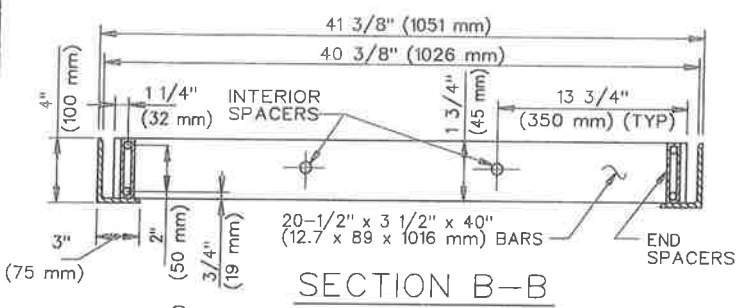
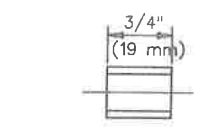
		MAXIMUM CURB FACE, INCHES (mm)												S DIMENSION	
		6" (150)	7" (175)	8" (200)	9" (225)	10" (250)	11" (275)	12" (300)	13" (325)	14" (350)	15" (375)	16" (400)	17" (425)		18" (450)
CURB BATTER	0:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	
	1:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	
	2:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	5.5" (140)	
	3:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	5.5" (140)	4.5" (115)	
	4:12	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	4.5" (115)	4.5" (115)	
		0	1					2*				3*			
		NUMBER OF PROTECTION BARS													

FOR OTHER CURB FACE OR BATTER SEE PLANS

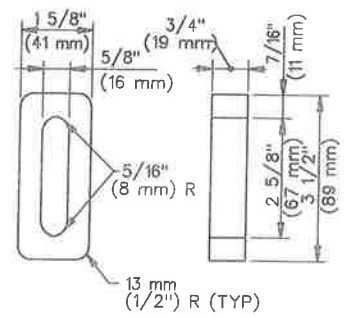
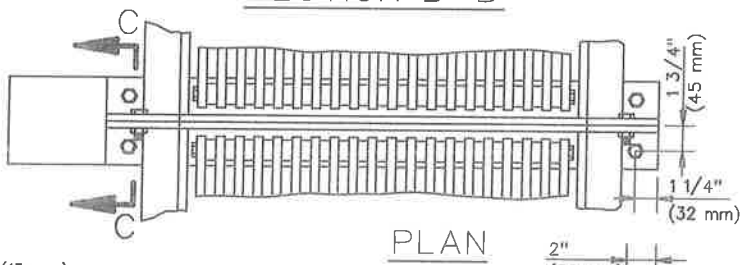
* TYPE A PROTECTION BAR ONLY



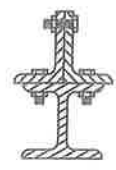
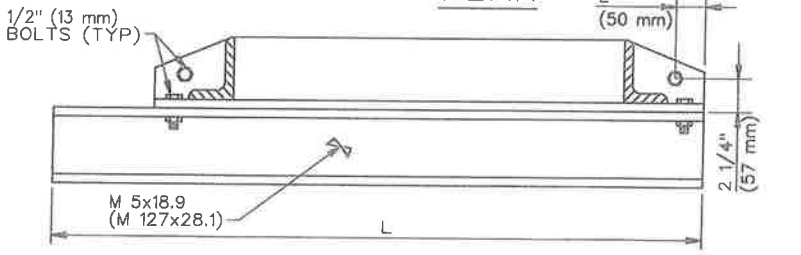
SECTION A-A



STANDARD 1/2" (13 mm) PIPE INTERIOR SPACERS



END SPACERS



SECTION C-C

CENTER SUPPORT ASSEMBLY

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE PUBLIC WORKS STANDARDS INC. GREENBOOK COMMITTEE 1984 REV. 1993, 1996, 2009, 2021

FRAME AND GRATING FOR CATCH BASINS

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

311-4

SHEET 1 OF 2

NOTES:

1. ALL PARTS SHALL BE STEEL, EXCEPT THAT END SPACERS MAY BE CAST IRON.
2. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION, EXCEPT THAT GRATINGS SHALL BE ASSEMBLED AFTER COMPONENT PARTS ARE GALVANIZED.
3. ALL DIMENSIONS ARE FINISHED DIMENSIONS AND INCLUDE GALVANIZING.
4. ALL BOLT HOLES SHALL BE 16 mm (5/8") DIAMETER.
5. ALL THREADS SHALL BE NATIONAL COARSE SERIES (NC).
6. CENTER SUPPORT ASSEMBLY REQUIRED WHEN TWO OR MORE GRATINGS ARE SPECIFIED ON PLANS.
 - L = 64" (1626 mm) FOR CURB OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER (SPPWC 301).
 - L = 44" (1118 mm) FOR CURB OPENING CATCH BASIN WITH GRATING(S) (SPPWC 302.)
 - L = 36" (914 mm) FOR CURBSIDE GRATING CATCH BASIN (SPPWC 303).
 - L = 36" (914 mm) FOR GRATING CATCH BASIN-ALLEY (LONGITUDINAL) (SPPWC 304).

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

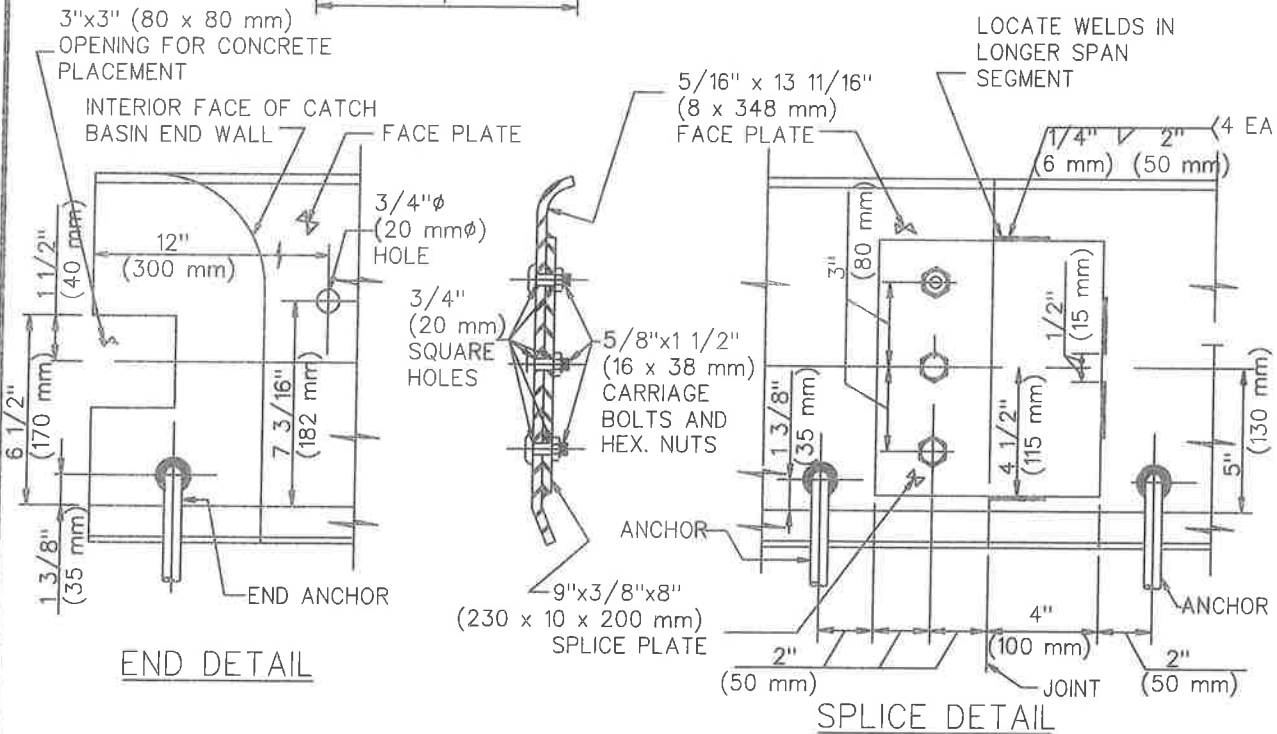
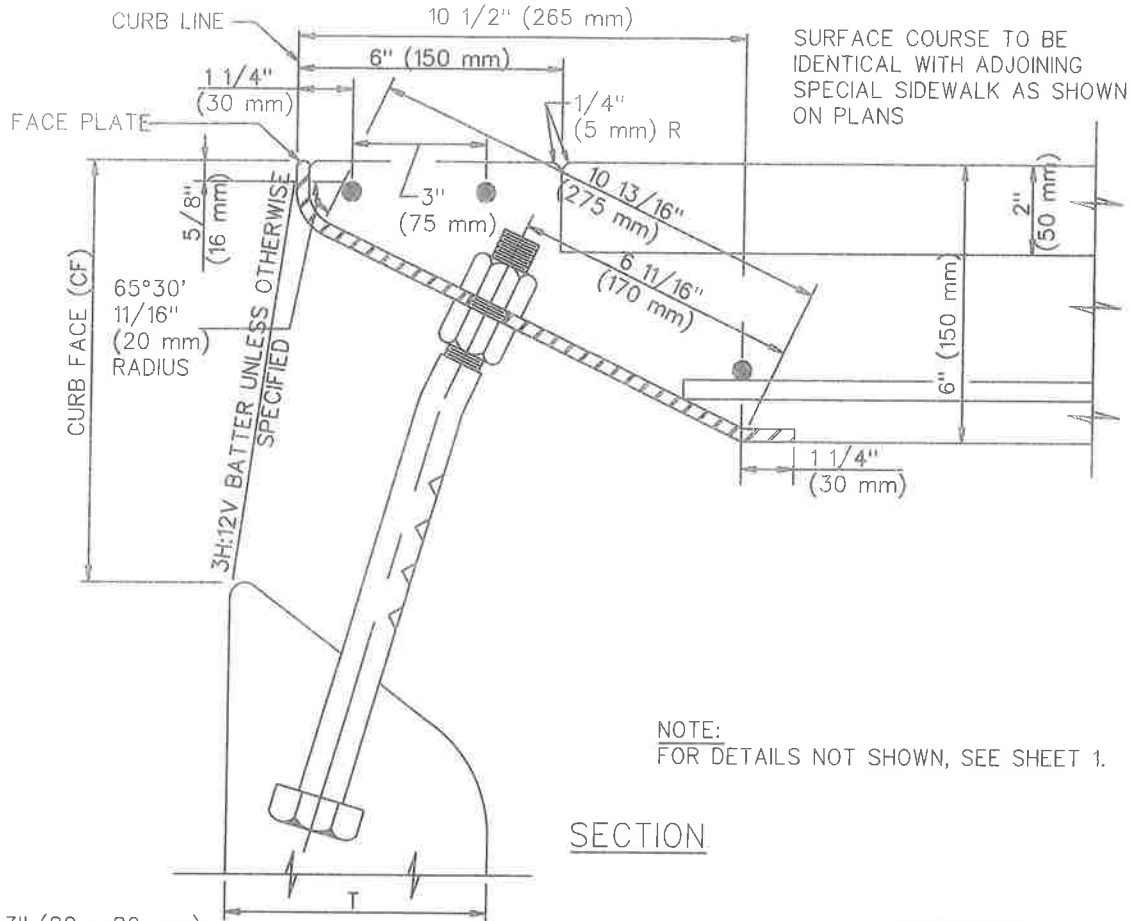
FRAME AND GRATING FOR CATCH BASINS

STANDARD PLAN

311-4

SHEET 2 OF 2

SUPPORT BOLT AND FACE PLATE 150 mm (6") TOP SLAB



STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

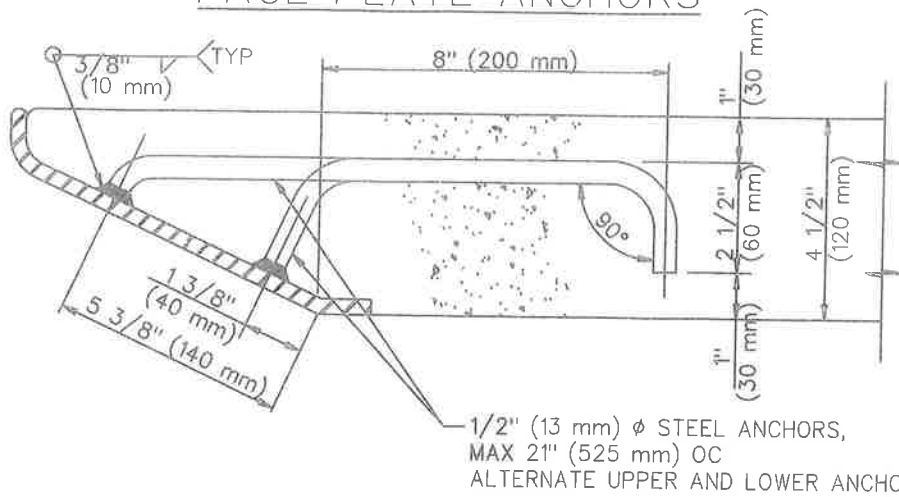
STANDARD PLAN

CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

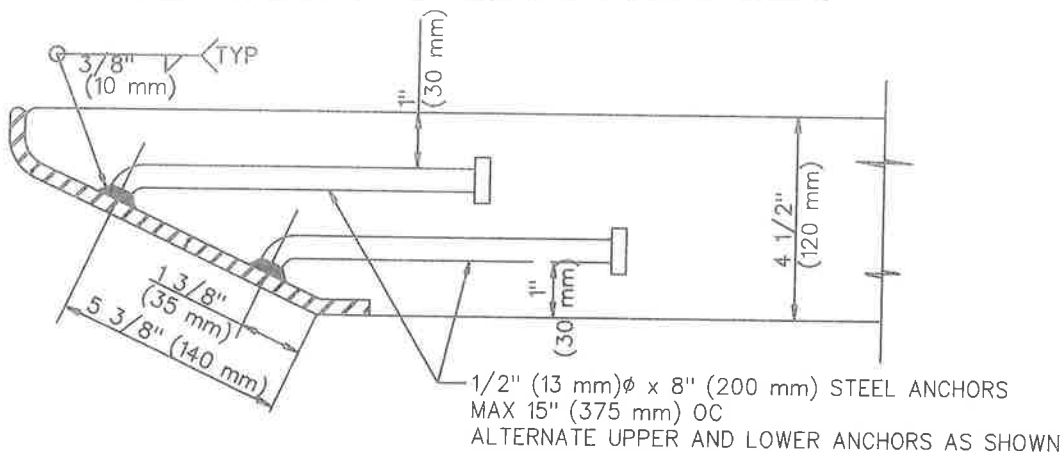
310-4

SHEET 2 OF 6

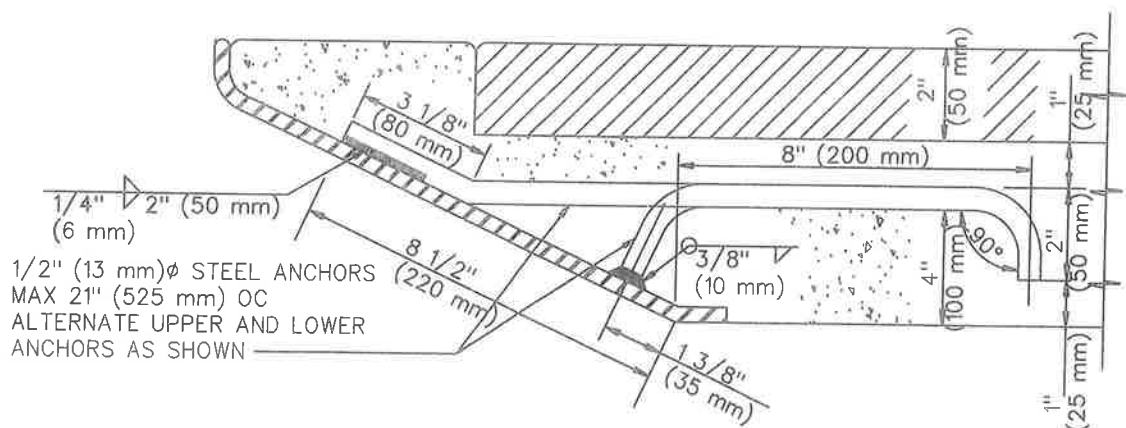
FACE PLATE ANCHORS



HOOK ANCHOR - 4 1/2" (120 mm) TOP SLAB

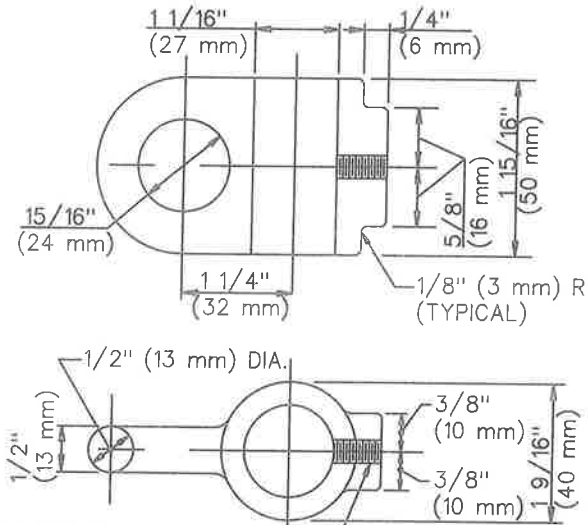
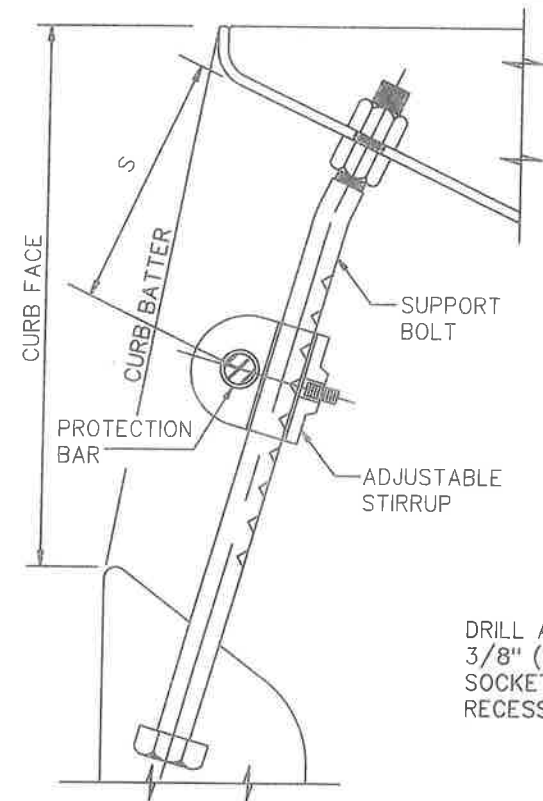
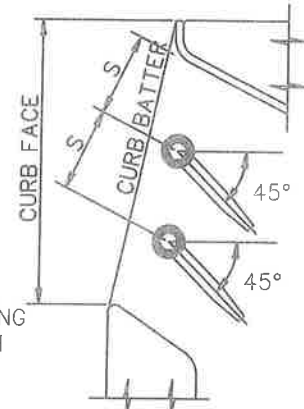
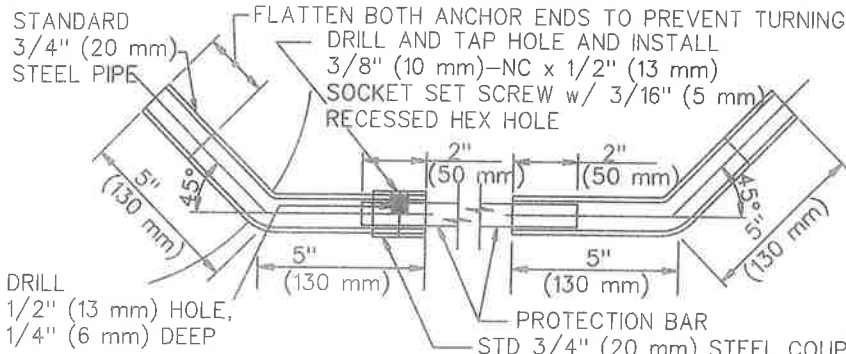
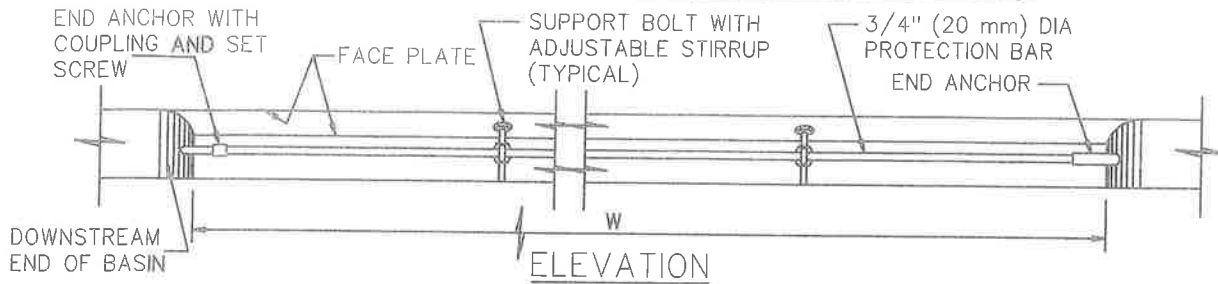


ROUND HEAD ANCHOR - 4 1/2" (120 mm) TOP SLAB



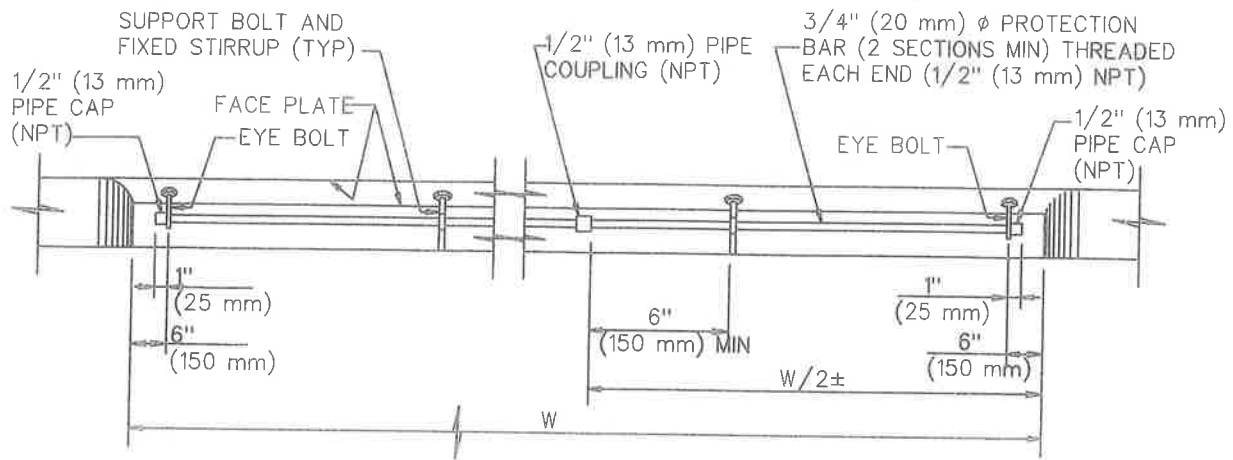
HOOK ANCHOR - 6" (150 mm) TOP SLAB

PROTECTION BAR AND SUPPORT BOLT(S) WITH ADJUSTABLE STIRRUP(S) - (TYPE A)

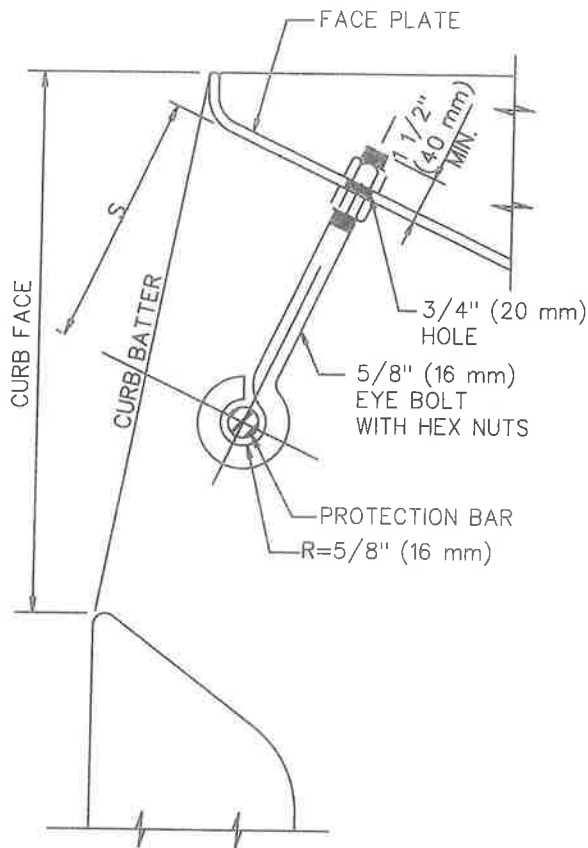


DRILL AND TAP HOLE AND INSTALL
3/8" (10 mm)-NC x 1/2" (13 mm)
SOCKET SET SCREW WITH 3/16" (5 mm)
RECESSED HEX HOLE

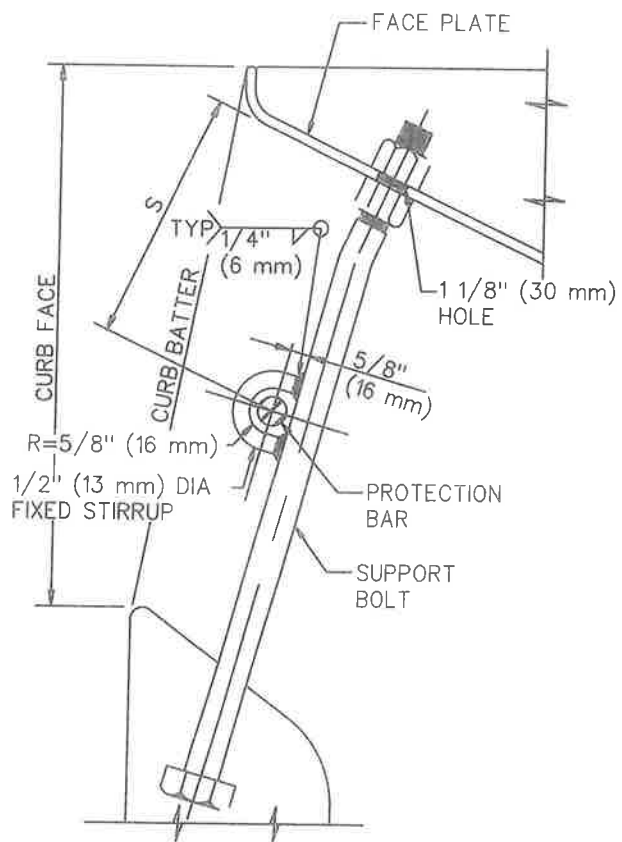
PROTECTION BAR AND SUPPORT BOLT(S) WITH FIXED STIRRUP(S) - (TYPE B)



ELEVATION



EYE BOLT DETAIL



STIRRUP DETAIL

NOTES:

GENERAL

1. ALL PARTS SHALL BE STEEL, EXCEPT SET SCREWS, WHICH SHALL BE STAINLESS STEEL OR BRASS.
2. EXCLUDING SET SCREWS, ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
3. CURB FACE SHALL BE AS NOTED ON THE PLANS.
4. CURB BATTER SHALL BE 3:12 UNLESS OTHERWISE SPECIFIED.

FACE PLATE

5. FACE PLATE LENGTHS SHALL BE CATCH BASIN W PLUS 12" (300 mm) EXCEPT AS MODIFIED FOR A "CURB OPENING CATCH BASIN AT DRIVEWAY".
6. WHEN THE LENGTH OF THE FACE PLATE IS BETWEEN 22' (6.5 m) AND 43' (13 m), TWO SECTIONS MAY BE USED. WHEN THE LENGTH EXCEEDS 43' (13 m), THREE SECTIONS MAY BE USED. SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL. SPLICE SHALL BE PLACED 1' (300 mm) FROM A SUPPORT BOLT.
7. WHERE CATCH BASINS ARE TO BE CONSTRUCTED ON CURVES, THE MAXIMUM CHORD LENGTH FOR THE FACE PLATE SHALL BE SUCH THAT THE MAXIMUM PERPENDICULAR DISTANCE TO THE TRUE CURVE SHALL NOT EXCEED 1" (25 mm). WHERE MORE THAN ONE CHORD IS REQUIRED, CHORD LENGTHS SHALL BE EQUAL. CHORD SECTIONS SHALL BE SPLICED ACCORDING TO THE APPLICABLE SPLICE DETAIL (MODIFIED TO FIT THE CHORD DEFLECTION) AND A SUPPORT BOLT SHALL BE PLACED 1' (300 mm) FROM THE SPLICE.
8. ROUND HEAD ANCHORS FOR THE FACE PLATE SHALL BE NELSON H-4F SHEAR CONNECTOR, KSN WELDING SYSTEMS DIVISION SHEAR CONNECTOR OR EQUAL.

SUPPORT BOLT

9. SUPPORT BOLTS ARE REQUIRED WHEN THE LENGTH OF THE CATCH BASIN OPENING IS 7' (2 m) OR GREATER, AND SHALL BE EVENLY SPACED ACROSS THE OPENING. SPACING SHALL NOT BE LESS THAN 3'-6" (1 m) ON CENTER NOR GREATER THAN 5' (1.5 m) ON CENTER.

STIRRUP

10. FOR TYPE A, MATERIAL SHALL BE CAST STEEL.

PROTECTION BAR

11. TYPE A SHALL BE USED UNLESS OTHERWISE SPECIFIED.
12. FOR TYPE A, THE BAR SHALL BE CUT TO FIT IN THE FIELD. WHEN "W" IS OVER 21' (6 m), THE PROTECTION BAR SHALL CONSIST OF 2 OR MORE SECTIONS. A SPECIAL CONNECTOR BETWEEN THE PROTECTION BAR PIECES SHALL CONSIST OF A 5" (125 mm) LENGTH OF STANDARD 3/4" (20 mm) PIPE WITH STANDARD COUPLINGS FULLY THREADED ONTO EACH END DRILLED AND TAPPED FOR A SOCKET SET SCREW AS DETAILED FOR THE DOWNSTREAM END ANCHOR.
13. FOR TYPE B, THE BAR SHALL BE TWO PIECES. TWO EYE BOLTS AND A WELDED STIRRUP ON EACH SUPPORT BOLT ARE REQUIRED.
14. NUMBER OF PROTECTION BARS AND LOCATIONS ARE AS FOLLOWS:

		MAXIMUM CURB FACE, INCHES (mm)													
		6" (150)	7" (175)	8" (200)	9" (225)	10" (250)	11" (275)	12" (300)	13" (325)	14" (350)	15" (375)	16" (400)	17" (425)	18" (450)	
CURB BATTER	0:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	
	1:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	
	2:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	5.5" (140)	
	3:12	0	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	5.5" (140)	4.5" (115)	
	4:12	0	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	3.5" (90)	3.5" (90)	4.5" (115)	4.5" (115)	5.5" (140)	4.5" (115)	4.5" (115)	
		0	1				2*				3*				
		NUMBER OF PROTECTION BARS													

FOR OTHER CURB FACE OR BATTER SEE PLANS

* TYPE A PROTECTION BAR ONLY