

**ARIZONA DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING GROUP
OFFICE MEMO**

April 24, 1997

TO: All Users of Construction Standards

FROM: *THO* Terry H. Otterness, Design Program Manager, Roadway Engineering Group

RE: Revisions to Construction Standards - Metric Version

Several changes are being made to Construction Standard Drawings and the Construction Standards Index.

These revisions result from a Value Engineering Study on catch basins and affect Standards C-15.10 through C-15.81; Std. C-15.60 is deleted and Std. C-15.75 remains unchanged.

The Catch Basin Standards reflect significant changes including using only one type (EF) and size of grate and frame, placing the grate against the pavement edge to increase the amount of grate opening without encroaching into the pavement, changing the nose angle to a bent plate for curb opening catch basins to decrease and simplify forming, changing the access cover to the round cover used by the City of Phoenix, clarifying the use of catch basins with wide gutters, clarifying notes, and changing depth of wing walls to simplify forming. Revisions are indicated on each specific drawing.

Std. C-10.67 is a new standard for Concrete Median Barrier, Tall Type 'F', Cast in Place.

May, 1997

TO: ALL USERS OF THE CONSTRUCTION STANDARD DRAWINGS
FROM: THOMAS H. SCHECK, STANDARDS ENGINEER *T.H.O.*
RE: ERRATA SHEET - METRIC

ERRATA

The following revisions should be made to the Construction Standards dated June, 1995 (Metric). These revisions will remain in effect until new Standard Sheets are revised and distributed.

REVISED DRAWING

REVISION

- | | |
|--------------------|--|
| C-05.20
Sheet 1 | Only one expansion joint is required on each side of the driveway as shown on "DRIVEWAY WITH SIDEWALK ADJACENT TO CURB" these are the exterior joints, only. When the driveway is concrete, another expansion joint is needed along the backside of the sidewalk between the sidewalk and the driveway in all cases where the sidewalk crosses the driveway. |
| C-05.50 | All references to "Class 2 AB" should be changed to read "Cement-Treated Slurry" on "SECTION B-B". |
| C-07.01
Sheet 1 | Delete drawing "TRANSVERSE CONSTRUCTION JOINT, TC Joint Non-Skewed Joint". The drawing "TRANSVERSE CONSTRUCTION JOINT, TC Skewed Joint" shall apply to both skewed and non-skewed joints. |
| C-07.04 | Under "GENERAL NOTES" change the "Minimum" to "Maximum" at "varies - 5.4 Minimum". |
| C-07.05 | Under "GENERAL NOTES" change the "Minimum" to "Maximum" at "varies - 5.4 Minimum". |
| C-07.10 | As shown on "CROSSROAD AT RAMP TERMINAL" delete the note "Expansion Joint Spacing (18 Max) (Typical)". |

REVISED
DRAWING

REVISION

C-10.31
Sheet 2 and 3

As shown on "Guard Rail Transition (Timber Post)/(Steel Post) under "ELEVATION" delete the notes about "Rectangular Plate Washers". This type washer should not be used on these two large posts.

C-10.44

Under "SOIL PLATE DETAIL" the reference to "19 mm Hole" change this to read "21 mm Hole". Also change the reference to "130" to "152".

C-10.45

Under "GENERAL NOTES" add this note as 5. - Bearing plate shall conform to ARTBA Standard F-41-79 except that the dimension from the bottom of the plate to the center of the hole shall be 57mm.

C-10.66

Under "GENERAL NOTES" in note 1. change "Half" to "Median".

C-13.25

Do not use "TYPE 1, RIVITED OR BOLTED CONNECTIONS" or "TYPE 5, SLIP SEAM CONNECTIONS". This standard applies to both round or arch pipes, however only the round are shown. This drawing is still applicable for "L" on end sections.

C-13.30

Under "GENERAL NOTES" in note 7. change "Std. C-14.20" to "Std. B-11.12".

C-13.60

All references to "AB Class 2" should be changed to read "Cement-Treated Slurry" on "TYPE D & G CURB AND GUTTER WITH SLOTTED DRAIN" and "TYPE B OR C CURB AND GUTTER WITH SLOTTED DRAIN".



CONSTRUCTION STANDARD - INDEX

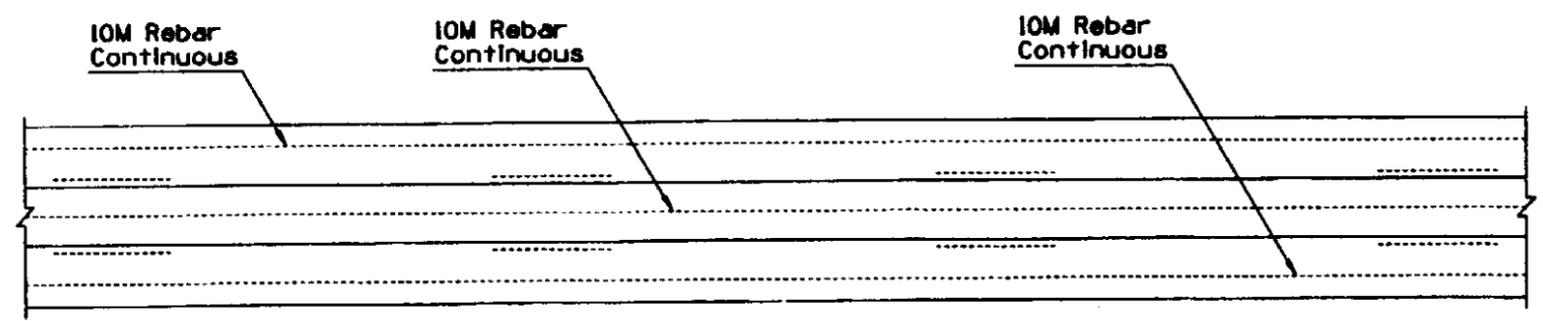
DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-01.10	SYMBOL LEGEND	C-10.01	TYPE A GUARD RAIL INSTALLATION, REFLECTOR TAB
C-01.11	SYMBOL LEGEND	C-10.02	TYPE B GUARD RAIL INSTALLATION, REFLECTOR TAB
C-01.12	SYMBOL LEGEND	C-10.03	MEASUREMENT LIMITS FOR W BEAM AND THRIE BEAM SYSTEM (2 SHEETS)
C-01.13	SYMBOL LEGEND	C-10.06	HALF BARRIER TERMINAL W/TYPE B OR C CURB & GUTTER
C-01.30	GENERAL ABBREVIATIONS	C-10.15	BARRIER DETAILS AT PIERS
C-01.31	GENERAL ABBREVIATIONS	C-10.20	G4(1W) AND G4(2W) BLOCKED OUT W BEAM (TIMBER POST)
C-01.32	GENERAL ABBREVIATIONS	C-10.21	G4(1S) AND G4(2S) BLOCKED OUT W BEAM (STEEL POST)
C-02.10	SLOPES, INTERSTATE	C-10.22	G4(MODIFIED) BLOCKED OUT W BEAM WITH SPECIAL CURB AND GUTTER (2 SHEETS)
C-02.20	SLOPES, PRIMARY ROADWAYS	C-10.23	G9(A) AND G9(B) BLOCKED OUT THRIE BEAM (STEEL POST)
C-02.30	SLOPES, SECONDARY/MISC ROADWAYS	C-10.24	G9(C) BLOCKED OUT THRIE BEAM (STEEL POST)
C-02.50	SUPERELEVATION DISTRIBUTION	C-10.28	NESTED STEEL W BEAM (2 SHEETS)
C-03.10	DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS)	C-10.29	BOLTED ANCHOR GUARD RAIL (2 SHEETS)
C-04.10	SPILLWAY, EMBANKMENT	C-10.30	GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (APPROACH) (3 SHEETS)
C-04.20	DOWNDRAIN, EMBANKMENT	C-10.31	GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (APPROACH) (WITH CURB) (3 SHEETS)
C-04.30	SPILLWAY LENGTH TABLE	C-10.32	GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (DEPARTURE) (3 SHEETS)
C-04.40	DOWNDRAIN LENGTH TABLE	C-10.39	HARDWARE FOR W BEAM TRANSITION TO CONCRETE BARRIER
C-04.50	DOWNDRAIN ENERGY DISSIPATOR	C-10.40	GUARD RAIL EXTRUDER TERMINAL, GET-1 (2 SHEETS)
C-05.10	SINGLE CURB, CURB & GUTTER EMBANKMENT CURB	C-10.41	GUARD RAIL EXTRUDER TERMINAL, GET-2 (2 SHEETS)
C-05.11	RAMP CURB & GUTTER LAYOUT (2 SHEETS)	C-10.44	HARDWARE FOR GUARD RAIL EXTRUDER TERMINAL (3 SHEETS)
C-05.12	CURB & GUTTER TRANSITIONS (3 SHEETS)	C-10.45	GUARD RAIL ANCHOR ASSEMBLY STEEL TERMINAL POST
C-05.20	CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS)	C-10.60	HALF BARRIER, CAST IN PLACE, SLIP FORM & FIXED FORM
C-05.30	SIDEWALK RAMP (4 SHEETS)	C-10.61	HALF BARRIER, PRECAST
C-05.40	MEDIAN PAVING AND NOSE TRANSITION	C-10.62	CONCRETE HALF BARRIER WITH GUTTER
C-05.50	CONCRETE BUS BAY	C-10.64	HALF BARRIER (AT PIERS) (2 SHEETS)
C-06.10	DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS)	C-10.65	HALF BARRIER WITH SIDEWALK
C-07.01	PCCP JOINTS (2 SHEETS)	C-10.66	MEDIAN BARRIER, CAST IN PLACE, SLIP FORM & FIXED FORM
C-07.02	LOAD TRANSFER DOWEL ASSEMBLY	C-10.67	CONCRETE MEDIAN BARRIER, TALL TYPE 'F', CAST IN PLACE
C-07.03	MAINLINE PCCP JOINT LOCATIONS (8 SHEETS)	C-10.68	MEDIAN BARRIER, PRECAST
C-07.04	ENTRANCE RAMP PCCP JOINTS	C-10.70	CONCRETE HALF BARRIER TRANSITION (4 SHEETS)
C-07.05	EXIT RAMP PCCP JOINTS	C-10.71	CONCRETE HALF BARRIER TRANSITION (3 SHEETS)
C-07.06	TRENCH BACKFILL AND PAVEMENT REPLACEMENT	C-10.74	HARDWARE FOR CONCRETE BARRIER TRANSITIONS
C-07.10	CROSSROAD PCCP JOINTS	C-10.75	BARRIER TRANSITION-TANGENT-DEPARTURE TYPES 1, 2, AND 3 (3 SHEETS)
C-08.10	RAMP GEOMETRICS-SINGLE LANE RAMPS	C-10.76	BARRIER TRANSITION-CURVE
C-08.20	PAVED GORE AREA	C-10.80	RUB RAIL (2 SHEETS)
C-09.10	GROOVING FOR BITUMINOUS SHOULDERS	C-10.83	HARDWARE FOR RUB RAIL
		C-10.97	GLARE SCREEN, CONCRETE MEDIAN BARRIER (3 SHEETS)
		C-11.10	ROADWAY CATTLE GUARD (3 SHEETS)
		C-11.20	CATTLE GUARD, DRAINAGE
		C-11.30	CATTLE GUARD, RAILROAD
		C-12.10	FENCE, WOVEN AND BARBED WIRE WITH GATES (5 SHEETS)
		C-12.20	FENCE, CHAIN LINK TYPES 1 AND 2 WITH GATES (3 SHEETS)
		C-12.30	CHAIN LINK CABLE BARRIER (3 SHEETS)



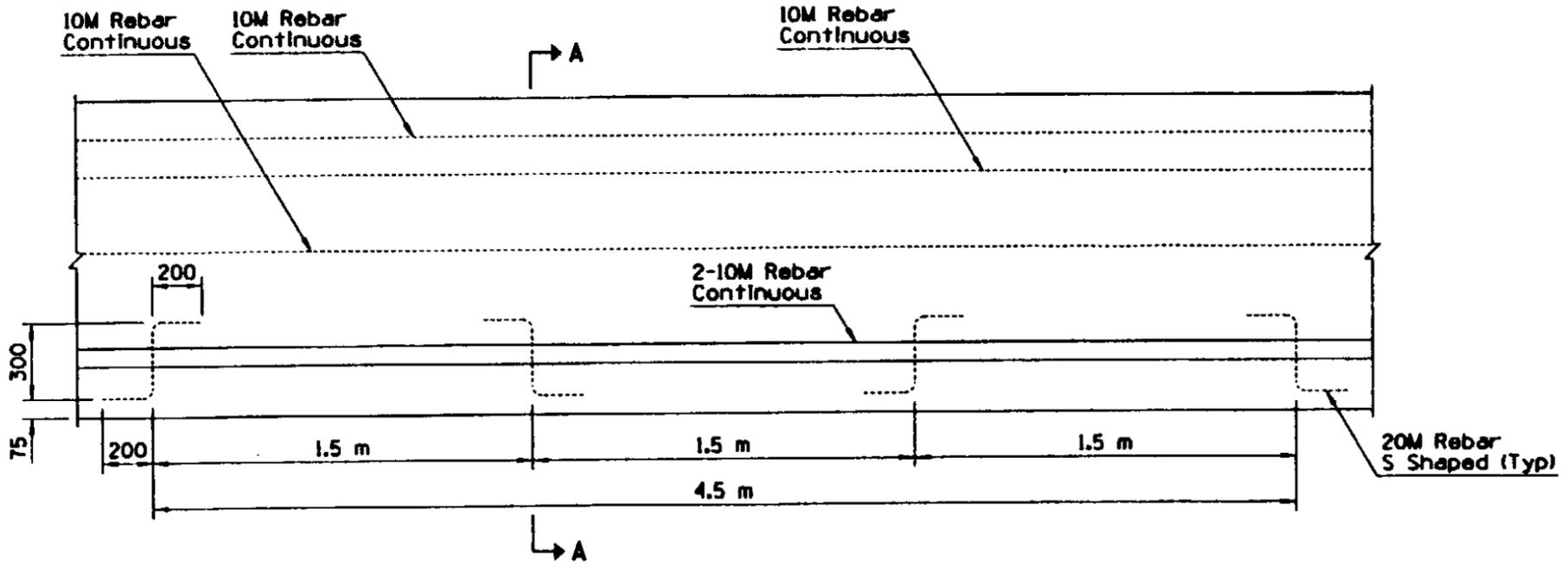
CONSTRUCTION STANDARD - INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-13.10	PIPE CULVERT INSTALLATION (2 SHEETS)	C-18.10	MANHOLE DETAILS
C-13.15	TYPICAL PIPE INSTALLATION	C-18.20	MANHOLE FRAME & COVER DETAILS
C-13.20	PIPE, REINFORCED CONCRETE END SECTION	C-18.30	MISCELLANEOUS MANHOLE DETAILS
C-13.25	PIPE, CORRUGATED METAL, END SECTION	C-18.40	MANHOLE RISER DETAILS
C-13.30	PIPE & PIPE ARCH, CORRUGATED METAL CONCRETE INVERT PAVING		
C-13.55	PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT	C-19.10	FORD - CONCRETE WALLS
C-13.60	SLOTTED DRAIN DETAILS	C-19.20	FORDS - TYPES 1 & 2
C-13.65	SLOTTED DRAIN INSTALLATION DETAILS		
C-13.70	STORM DRAIN CONNECTION DETAILS	C-21.10	SURVEY MONUMENT, FRAME AND COVER, RIGHT OF WAY MARKER
C-13.75	STORM DRAIN OUTLET DETAILS (2 SHEETS)	C-21.20	STANDARD MARKER
C-13.80	PIPE COLLAR DETAILS		
		C-22.10	UTILITY LINE, PROTECTIVE CONCRETE SLAB
C-15.10	CATCH BASIN, TYPE 1	C-22.15	SANITARY SEWER ENCASEMENT
C-15.20	CATCH BASIN, TYPE 3 (2 SHEETS)	C-22.20	PIPE SUPPORT ACROSS TRENCHES (3 SHEETS)
C-15.30	CATCH BASIN, TYPE 4	C-22.25	PRECAST SANITARY SEWER MANHOLES
C-15.40	CATCH BASIN, TYPE 5 (2 SHEETS)	C-22.30	STUB OUT AND PLUG
C-15.50	CATCH BASIN, GRATES	C-22.35	DROP SEWER CONNECTIONS
C-15.60	DELETED	C-22.40	SEWER CLEANOUT
C-15.65	CATCH BASIN ACCESS, FRAME AND COVER DETAILS		
C-15.70	CATCH BASIN MISC. DETAILS (2 SHEETS)	C-23.10	THRUST BLOCKS FOR WATER LINES
C-15.75	CATCH BASIN, DROP INLET	C-23.15	BLOCKING FOR WATER VALVES GATE AND BUTTERFLY
C-15.80	CATCH BASIN, MEDIAN FLUSH	C-23.20	ANCHOR BLOCK FOR VERTICAL BENDS
C-15.81	CATCH BASIN, MEDIAN, SIDE SLOPE	C-23.25	VERTICAL REALIGNMENT FOR WATER MAINS
C-15.90	CATCH BASIN, MEDIAN DIKE, PRECAST	C-23.30	VALVE BOX INSTALLATION (2 SHEETS)
C-15.91	FREEWAY CATCH BASIN DETAILS (2 SHEETS)	C-23.35	TAPPING SLEEVE AND VALVE INSTALLATION
C-15.92	SPECIAL CATCH BASIN WITH HALF BARRIER	C-23.40	JOINT RESTRAINT WITH TIE RODS
		C-23.45	CONCRETE WATER METER BOX
C-16.10	IRRIGATION HEADWALLS 460 TO 1520 mm DIAMETER PIPES	C-23.50	STEEL COVER FOR WATER METER BOX
C-16.20	IRRIGATION STANDPIPES	C-23.55	WATERLINE-CUT AND PLUG 300 mm DIA. MAIN AND SMALLER
C-16.30	IRRIGATION VALVE AND GATE	C-23.60	HYDRANT INSTALLATION
C-16.40	IRRIGATION SLEEVES	C-23.65	FIRE HYDRANT LOCATIONS
C-17.10	BANK PROTECTION, RAIL TYPES 1, 2 & 3		
C-17.20	BANK PROTECTION, RAIL TYPES 4, 5 & 6		

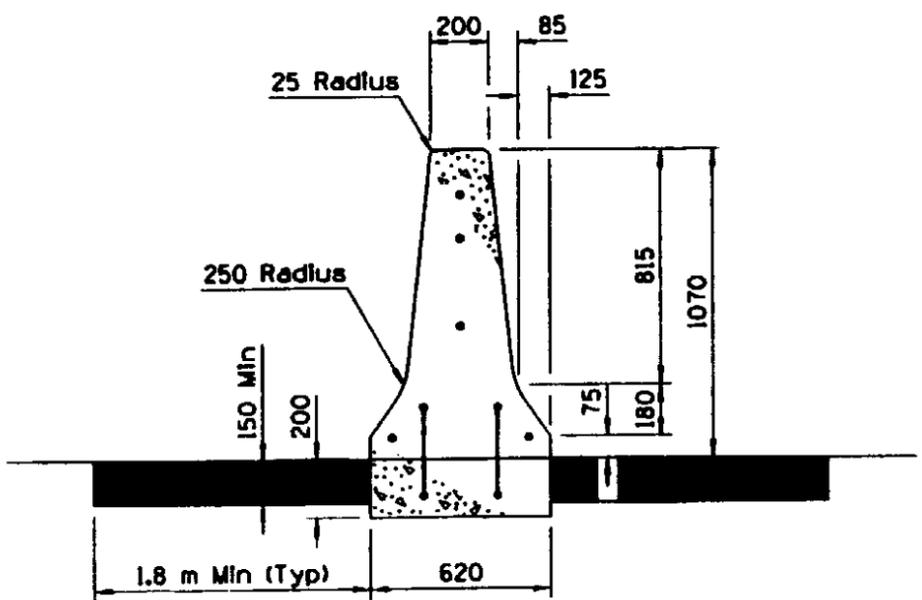
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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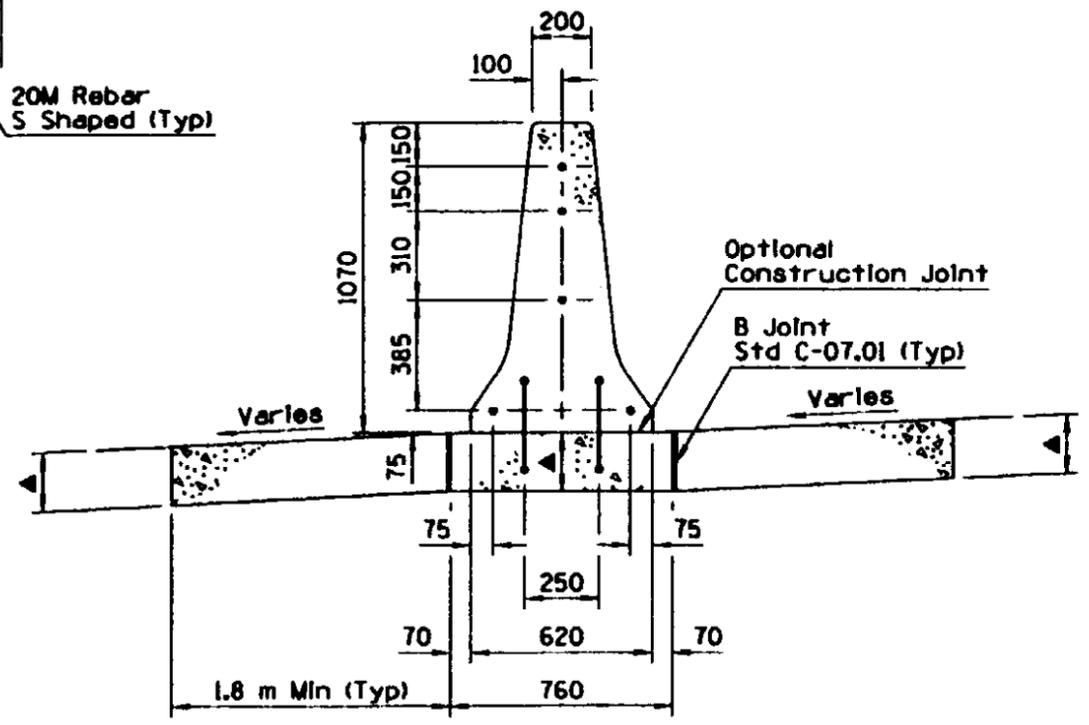
PLAN



ELEVATION



WITH AC PAVEMENT SECTION A-A



WITH PCC PAVEMENT SECTION A-A

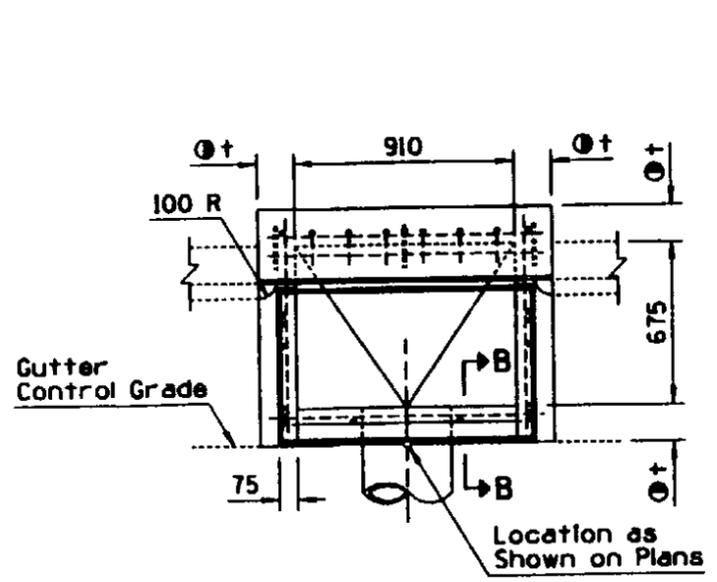
GENERAL NOTES

1. Median Barrier shall be constructed by the slip form or by the formed Cast-In-Place method.
 2. When obstacles are encountered which prevent the use of slip form equipment, the closure shall be accomplished by the use of stationary forms.
 3. Concrete shall be Class S, design strength $f'_c=20$ MPa.
 4. If the footing and barrier are cast monolithically, 10M S shaped rebars will not be required.
 5. In no case shall the width of barrier exceed the width of the barrier footing or overhang the adjacent pavement.
 6. 10M Rebar shall extend 300 mm past the construction joint at the completion of the day's pour.
- ▲ Depth to match adjacent PCCP thickness (200 mm Min).
- Unless otherwise noted, all dimensions are in millimeters.

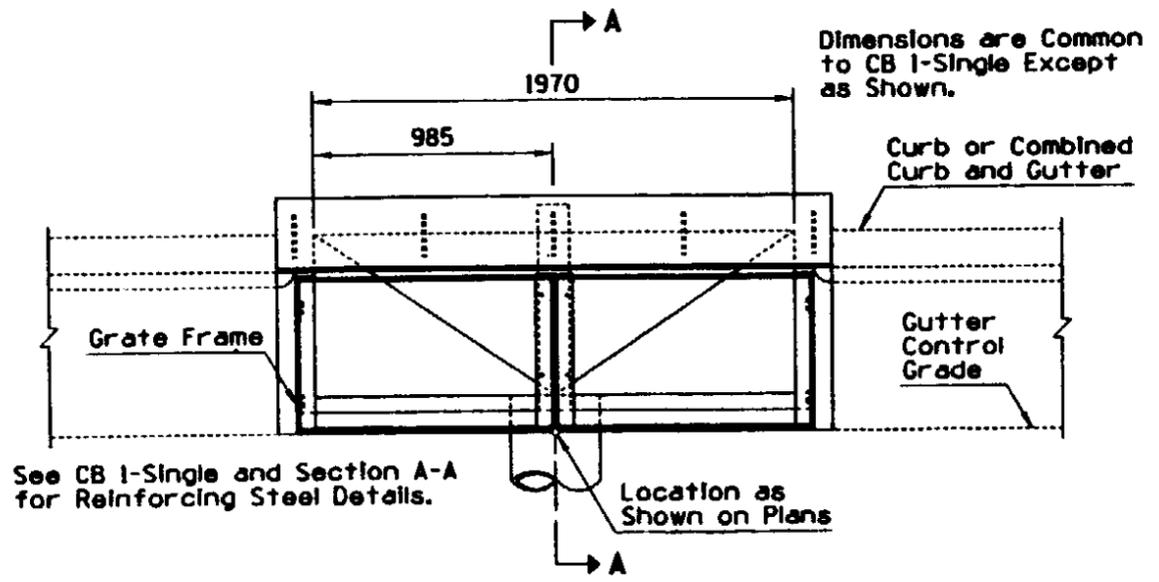
DESIGN APPROVED <i>James H. Otterson</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	ISSUE 5/97
OFFICE FOR THE COMMISSIONER <i>Ronald Williams</i>	CONCRETE MEDIAN BARRIER TALL TYPE 'F' CAST IN PLACE	DRAWING NO. C-10.67



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STD FOR NEW FRAME AND NOSE PLATE	PMB	5/97
2	REVISED DETAIL	PMB	5/97
3	REVISED FLOOR FOR POURING AFTER WALLS	PMB	5/97
4	ADDED DETAIL OR NOTE	PMB	5/97



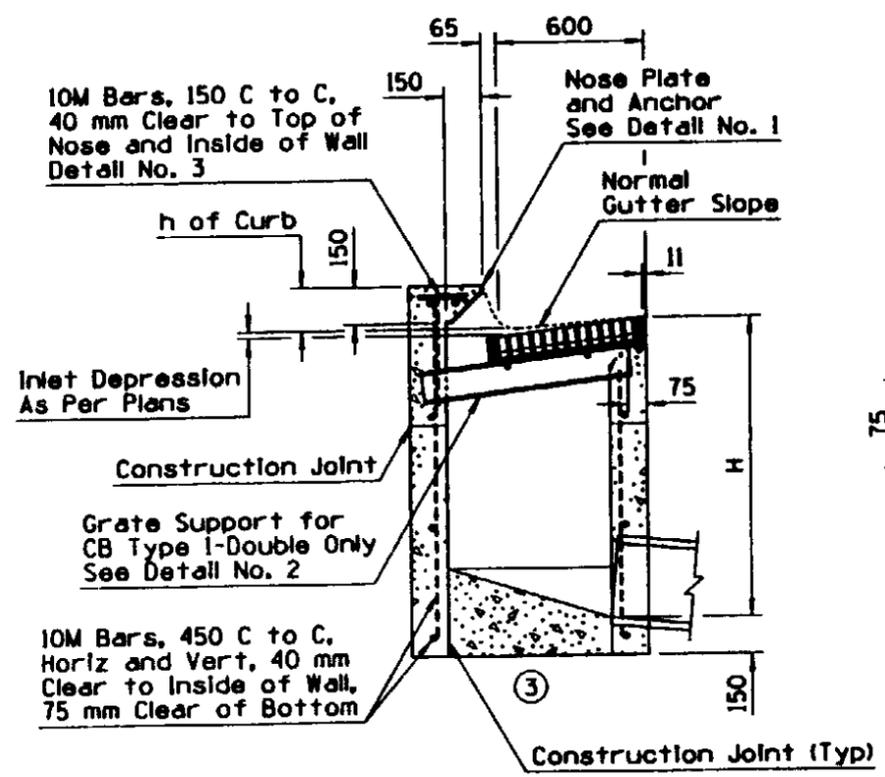
PLAN - CATCH BASIN TYPE 1 - SINGLE



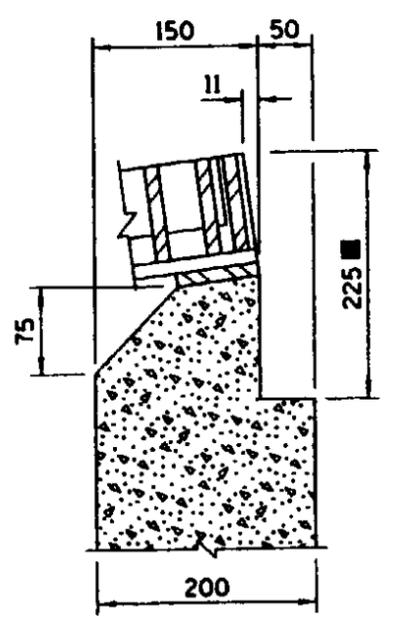
PLAN - CATCH BASIN TYPE 1 - DOUBLE

See CB 1-Single and Section A-A for Reinforcing Steel Details.

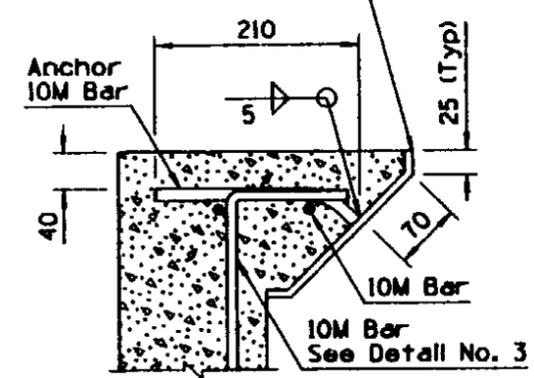
Nose Plate
200x7.9 Bent Plate
Lengths: 910 + 2t for CB 1-Single
1970 + 2t for CB 1-Double



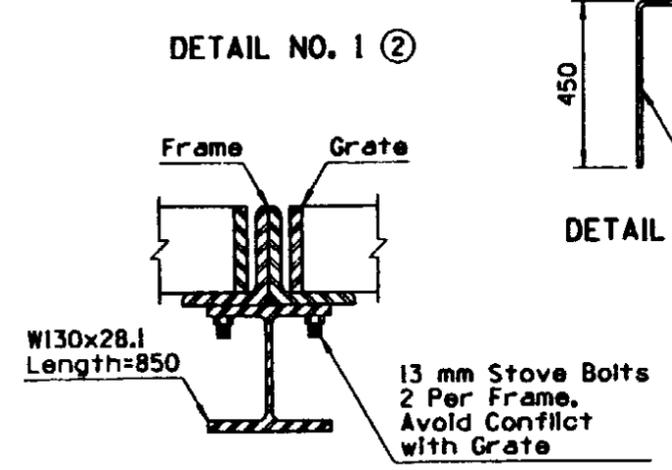
SECTION A-A



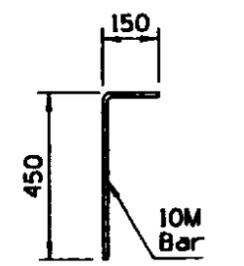
SECTION B-B
USE THIS SECTION WHEN t=200 mm



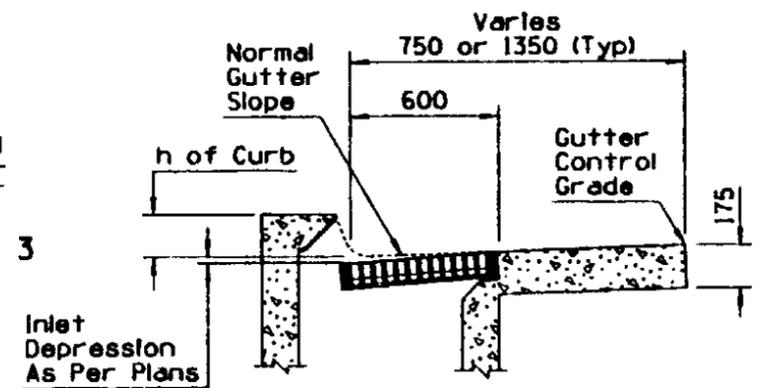
DETAIL NO. 1



DETAIL NO. 2



DETAIL NO. 3



DETAIL NO. 4

- GENERAL NOTES
1. Catch basin used at roadway sag only.
 2. Pipes can be placed in any wall.
 3. Sump Floor shall have a wood trowel finish and a minimum 1:4 slope in all directions to outlet.
 4. All structural steel shall be ASTM A 36/A 36M.
 5. Welding shall be in accordance with Standard Welding Specifications.
 6. Grate, frame, beam and nose angle shall be given one shop coat of No. 1 paint.
 7. All concrete shall be Class B.
 8. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
 9. Any specified inlet depression shall be warped to opening according to Std C-15.70.
 10. Silicone sealant shall be placed between the grate frame and PCCP, recessed 6 mm from the pavement surface.
 11. Curb opening areas, sq. m, for type 1-single and type 1-double equal 0.023 and 0.049, respectively, for each 25 mm of 'h' + Inlet depression - 60 mm. See Std C-15.70.
 12. See Std C-15.50 for grate and frame details and grate opening areas.
 13. t - 150 mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m. See Section B-B.
■ = 225 mm when pavement is AC.
Match pavement thickness when pavement is PCCP.

 Drawing for 	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	5/97
① CATCH BASIN, TYPE 1	C-15.10	

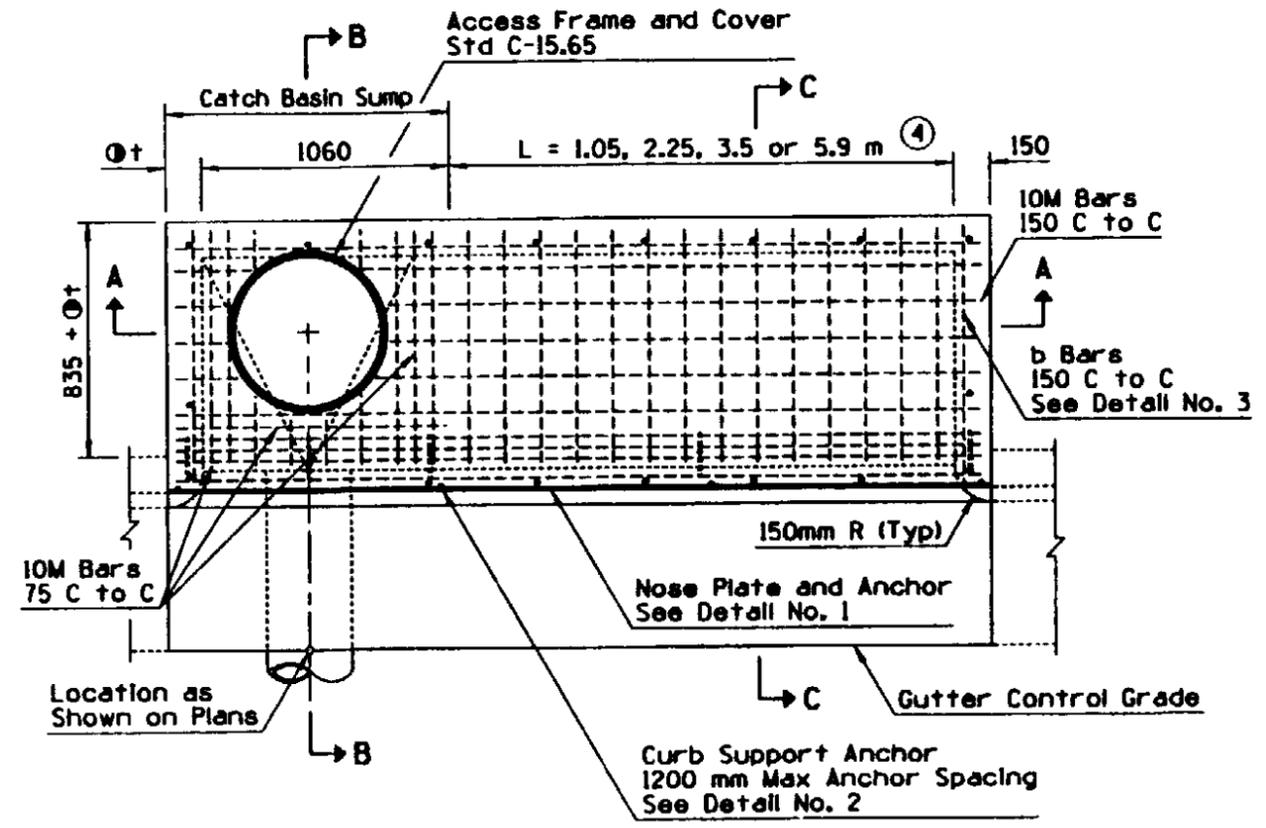


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE	NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STD FOR NEW ACCESS FRAME AND COVER	PNB	5/97	5	ADDED SECTION	PNB	5/97
2	ADDED SHEETS FOR REVISED DETAILS	PNB	5/97	6	CONSOLIDATED NOTES	PNB	5/97
3	REVISED SECTION	PNB	5/97	7	ADDED NOTE	PNB	5/97
4	REVISED LENGTHS OF WINGS	PNB	5/97	8			

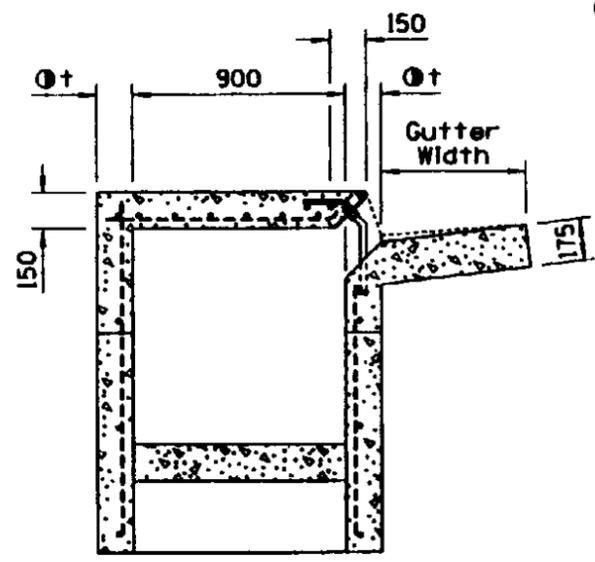


GENERAL NOTES

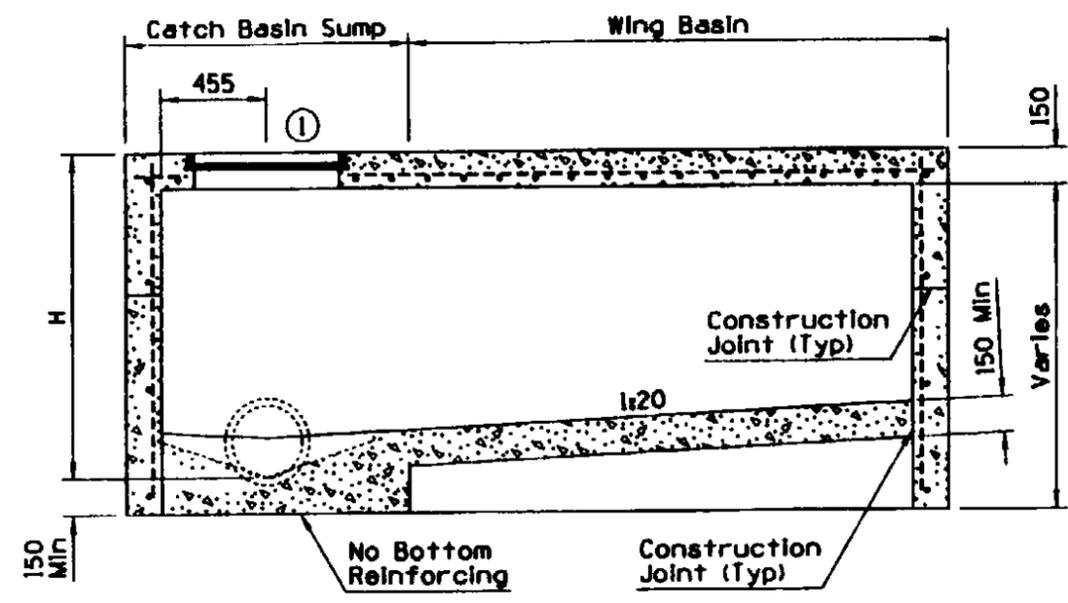
- ⑦ 1. Catch basin can be used on grade or at roadway sag.
- ⑥ 2. Catch basin has three configurations:
Sump Only-Sump portion at catch basin (See Detail No. 4).
Single Wing (Illustrated)-Sump with wing basin upstream.
Double Wing-Sump with symmetrical wing basins each side.
3. Pipes can be placed in any wall except wall adjacent to wing basin.
4. Floor shall have a wood trowel finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 1:4.
5. Any specified inlet depression shall be warped to opening according to Std C-15.70.
6. All structural steel shall be ASTM A 36/A 36M.
7. Nose plate, access frame and cover shall be given one shop coat of No. 1 paint.
8. All concrete shall be class B.
9. All reinforcing bars shall be 10M, 450 mm C to C both ways and 40 mm clear to inside of walls and outside of wing basin floor except as shown.
10. Curb opening area (m²) per 25 mm of curb "h" + Inlet depression = curb opening length (m) x 0.040.
11. Welding shall be in accordance with Standard Welding Specifications.
12. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
13. ϕt = 150 mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m.



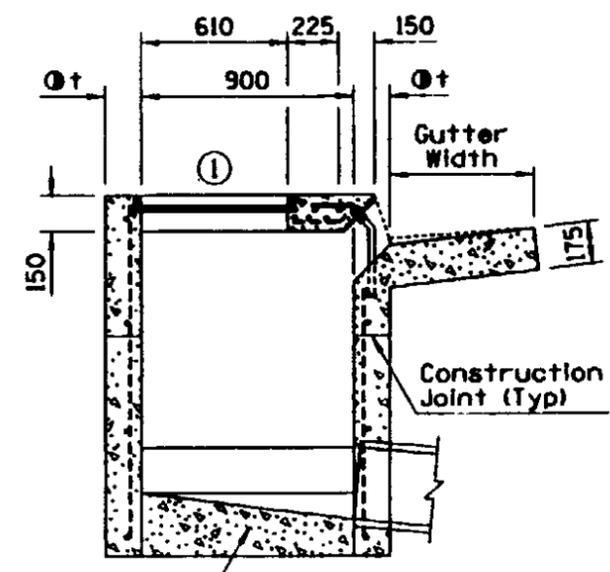
PLAN



SECTION C-C ⑤



SECTION A-A
USE THIS SECTION WHEN H=1.5m OR LESS ③

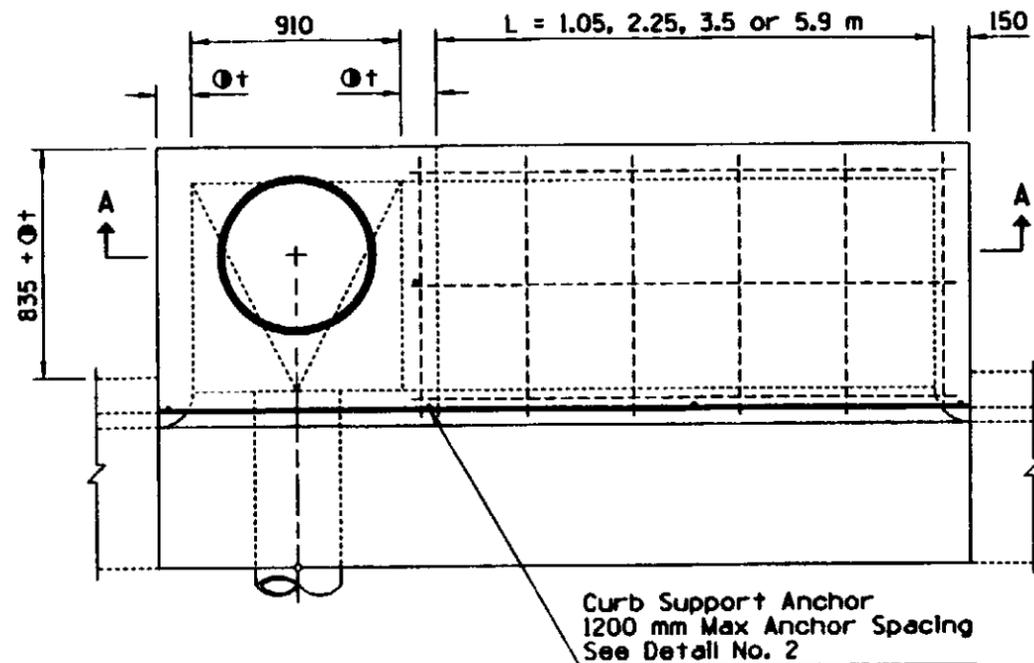


SECTION B-B ③

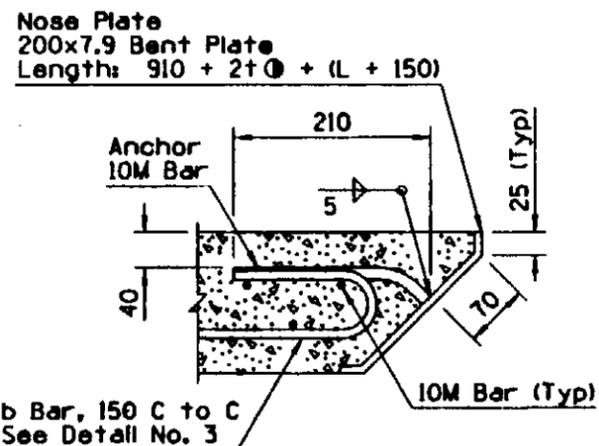
DESIGN APPROVED <i>Joseph H. Ottensmeyer</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	REV. 5/97
APPROVED FOR CONSTRUCTION <i>Ronald Williams</i>	① ② CATCH BASIN, TYPE 3	C-15.20 Sheet 1 of 2



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
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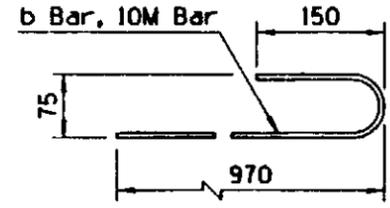


PLAN

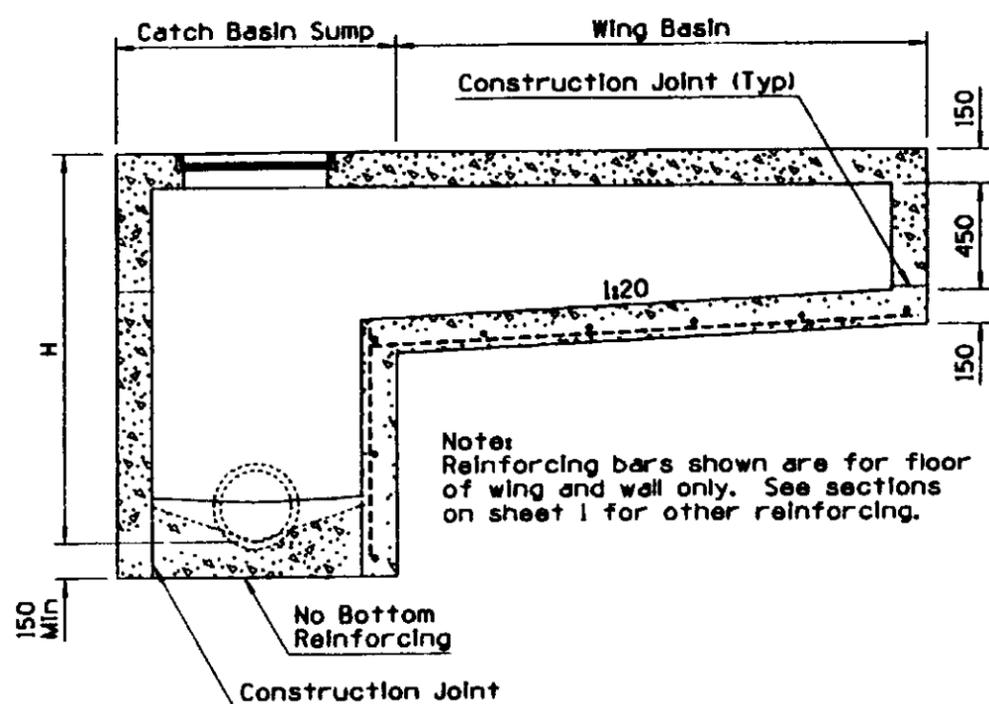


DETAIL NO. 1

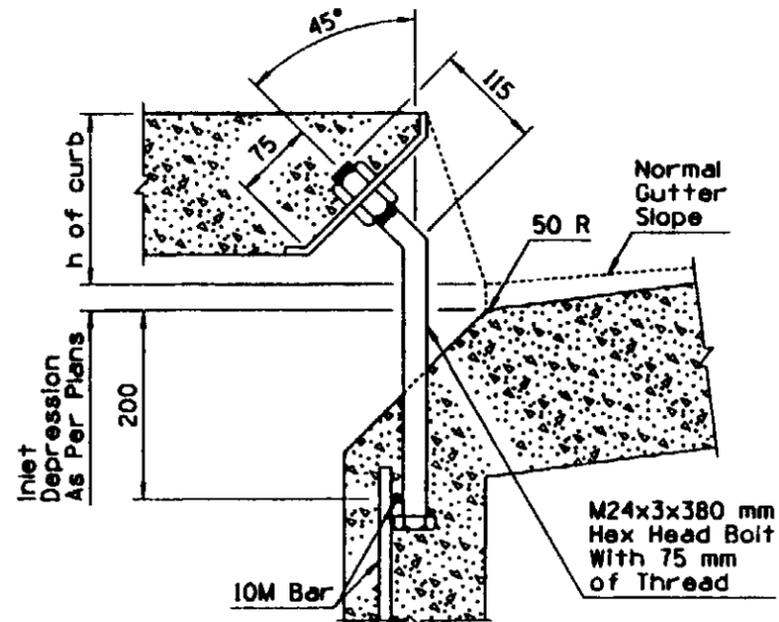
- GENERAL NOTES**
- See sheet 1 of 2 for other dimensions, notes and reinforcing steel.
 - $t = 150$ mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m.



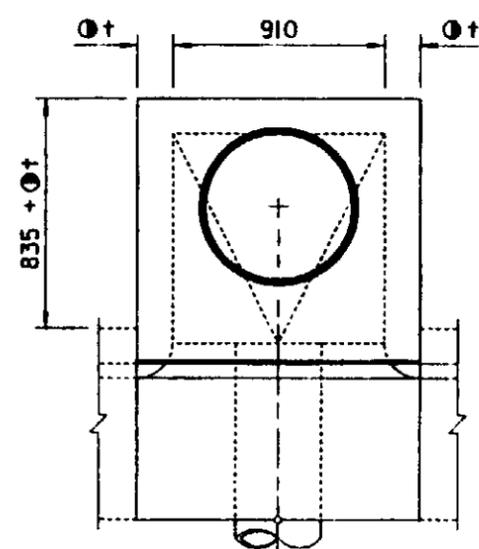
DETAIL NO. 3



SECTION A-A
USE THIS SECTION WHEN H IS GREATER THAN 1.5m



DETAIL NO. 2
CURB SUPPORT ANCHOR



DETAIL NO. 4

DESIGN APPROVED <i>Greg H. Ott</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	DATE 5/97
APPROVED FOR CONSTRUCTION <i>Russell</i>	CATCH BASIN, TYPE 3	DRAWING NO. C-15.20 Sheet 2 of 2



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE	NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STD FOR NEW FRAME	PNB	5/97	5	REVISED NOTE	PNB	5/97
2	REVISED DETAIL	PNB	5/97	6	ADDED NOTE	PNB	5/97
3	REVISED FLOOR FOR POURING AFTER WALLS	PNB	5/97	7			
4	ADDED SECTION OR DETAIL	PNB	5/97	8			

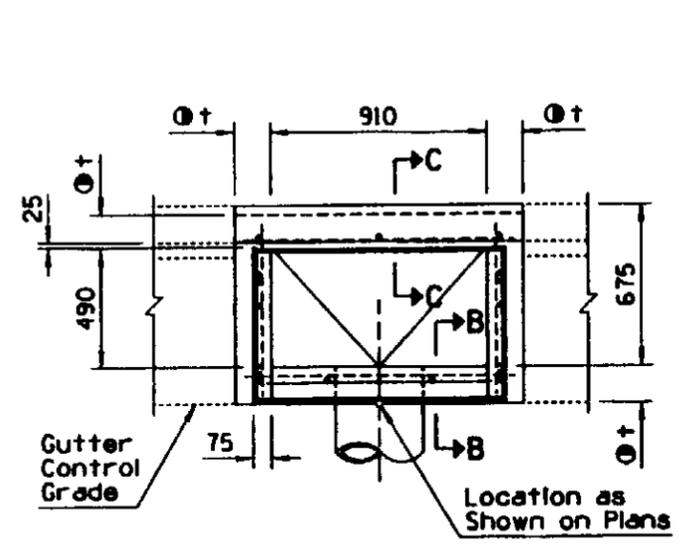


GENERAL NOTES

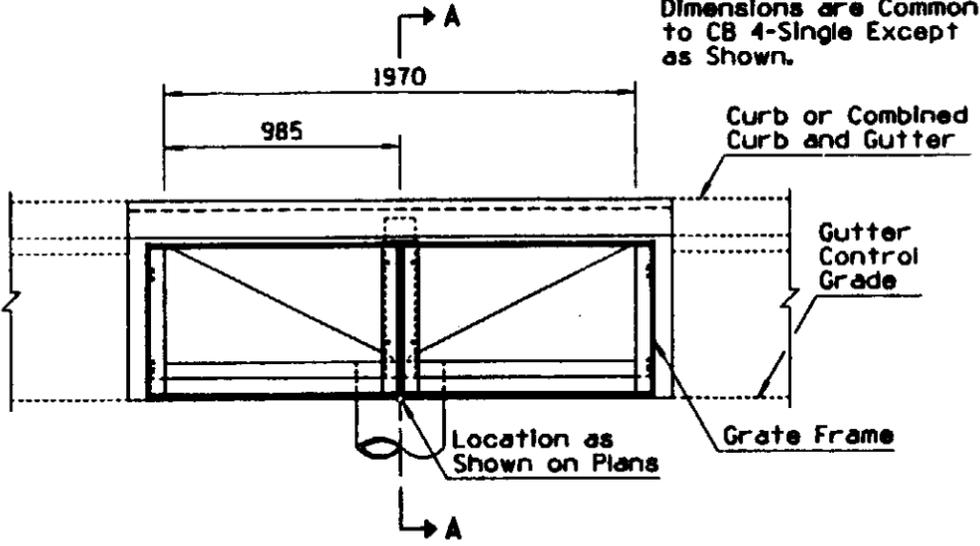
- ① 1. Catch basin can be used on grade or at roadway sag. For on-roadway use only.
 2. Pipes can be placed in any wall.
 - ⑤ 3. Floor shall have a wood trowel finish and a minimum 1:4 slope along the axis of the pipe toward the pipe.
 4. Curb over catch basin shall not be constructed until catch basin concrete has set for a minimum of 24 hours.
 - ⑥ 5. Catch basin can be used with curb and gutter (as shown) or without.
 6. See Stds C-15.50 for grate and frame details and opening areas.
 7. Any specified Inlet depression shall be warped to opening according to Std C-15.70.
 8. All structural steel shall be ASTM A 36/A 36M.
 9. Grate, frame and beam shall be given one shop coat of No. 1 paint.
 10. All concrete shall be Class B.
 11. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
 - ⑥ 12. Silicone sealant shall be placed between the grate frame and PCCP, recessed 6 mm from the pavement surface.
 - ⑥ 13. See Detail No. 2 for catch basin with wide gutter.
 14. ϕt - 150 mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m.
See Section B-B.
- = 225 mm when pavement is AC.
Match pavement thickness when pavement is PCCP.

See CB 4-Single and Section A-A for Reinforcing Steel Details.

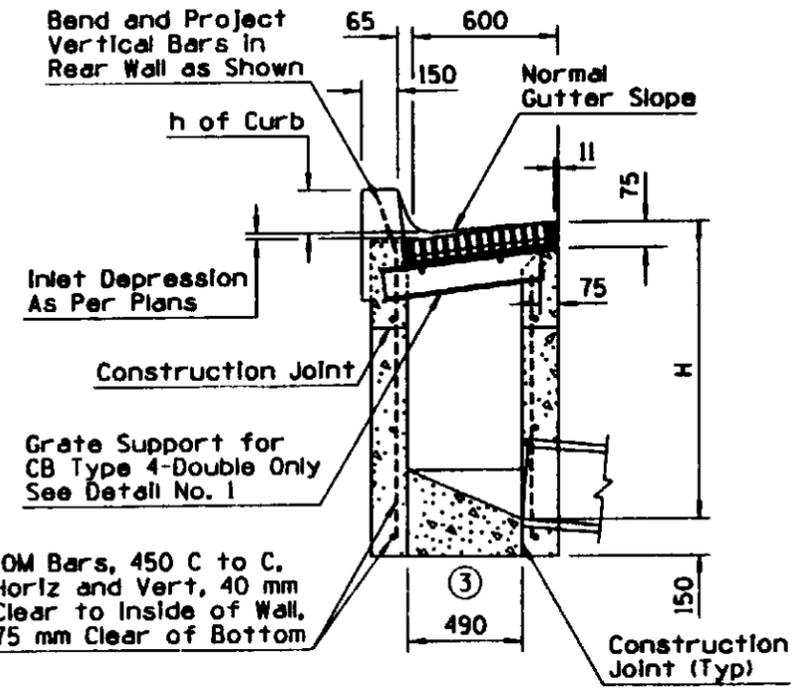
Dimensions are Common to CB 4-Single Except as Shown.



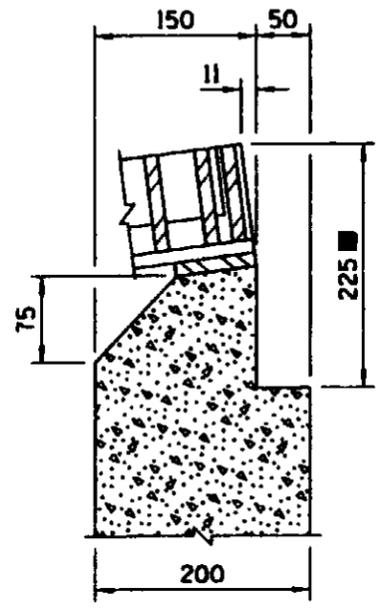
PLAN - CATCH BASIN TYPE 4 - SINGLE



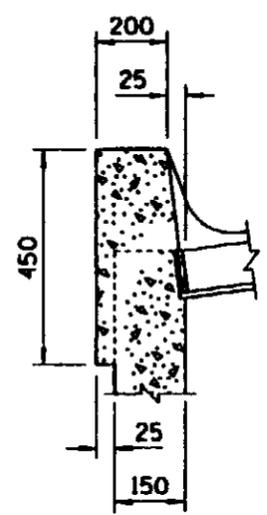
PLAN - CATCH BASIN TYPE 4 - DOUBLE



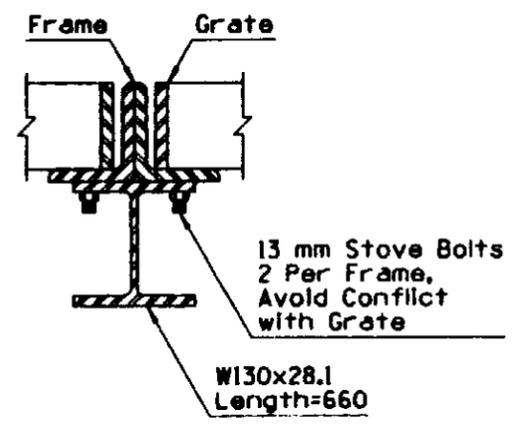
SECTION A-A



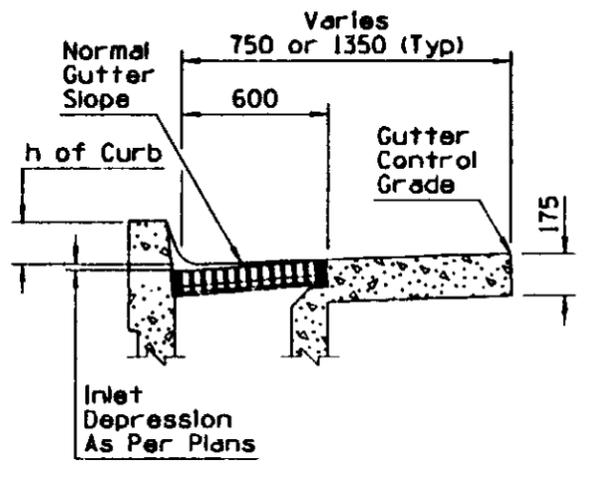
SECTION B-B
USE THIS SECTION WHEN $t=200$ mm ②



SECTION C-C ④



DETAIL NO. 1

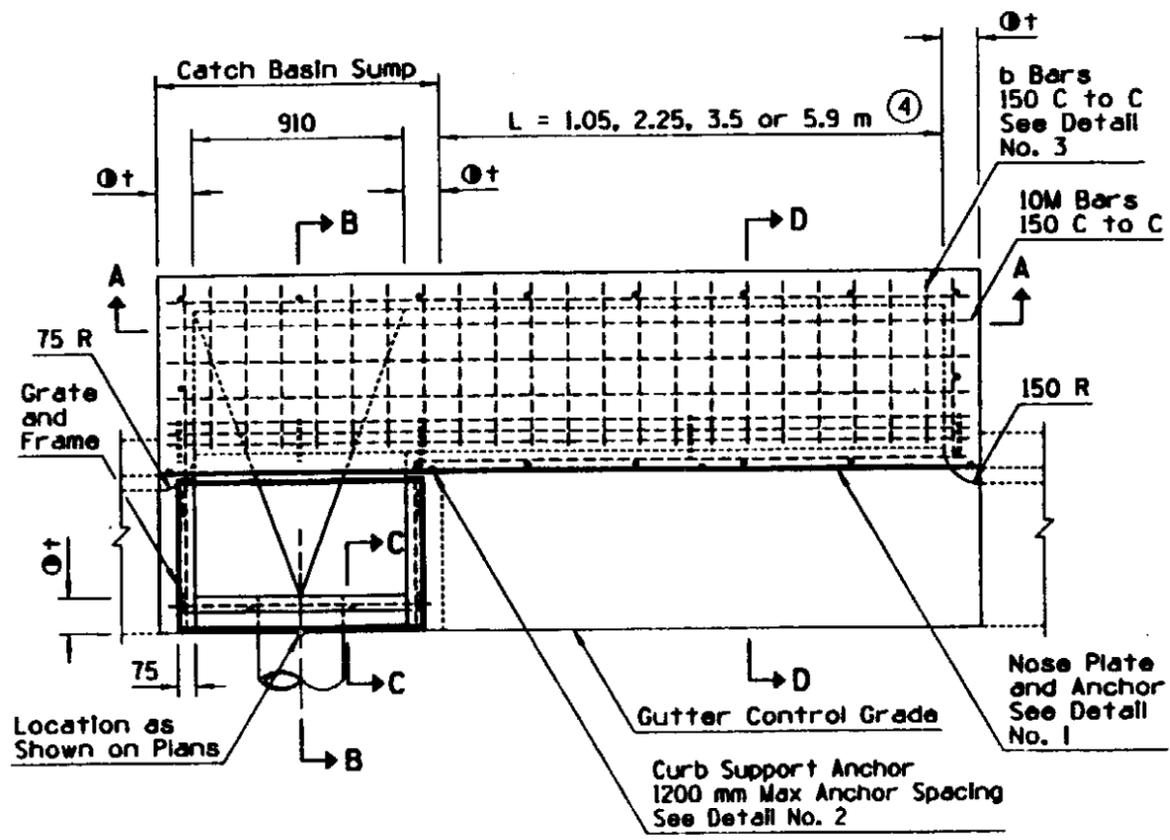


DETAIL NO. 2 ④

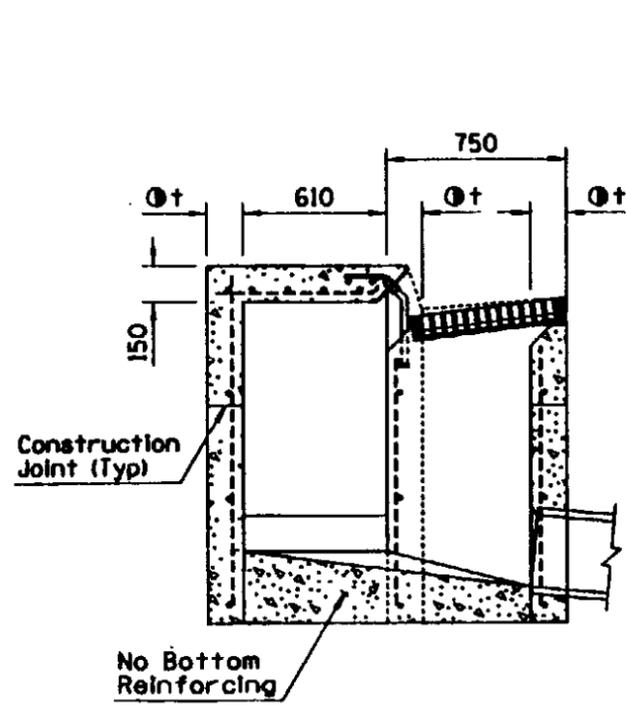
 APPROVED FOR DISTRIBUTION 	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	5/97
① CATCH BASIN, TYPE 4	C-15.30	



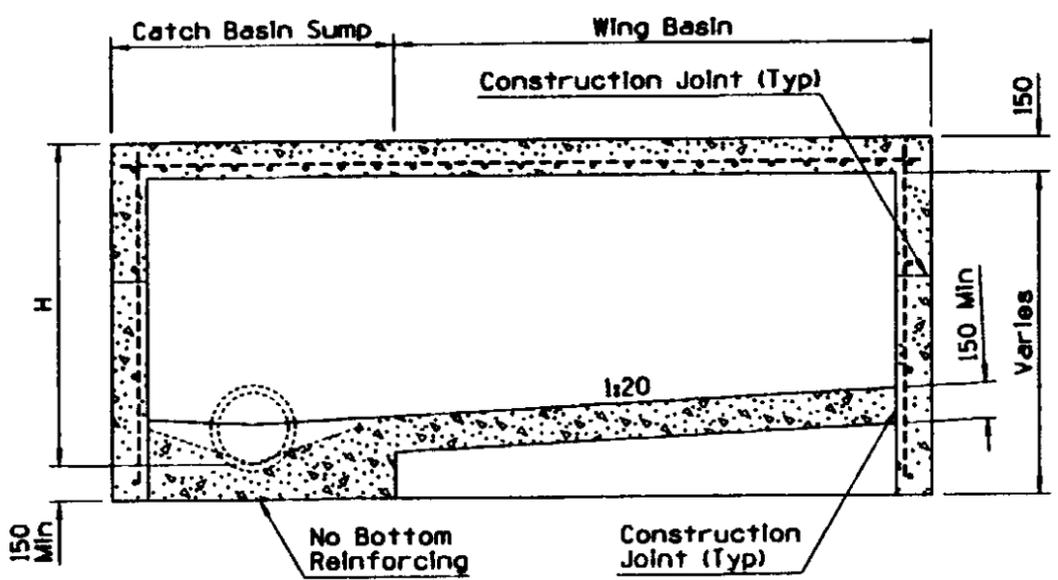
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE	NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	MODIFIED STD FOR NEW FRAME AND NOSE PLATE	PNB	5/97	5	ADDED SECTION	PNB	5/97
2	ADDED SHEET 2 FOR REVISED DETAILS	PNB	5/97	6	REVISED NOTE	PNB	5/97
3	REVISED SECTION	PNB	5/97	7	CONSOLIDATED NOTES	PNB	5/97
4	REVISED LENGTHS OF WINGS	PNB	5/97	8	ADDED NOTE	PNB	5/97



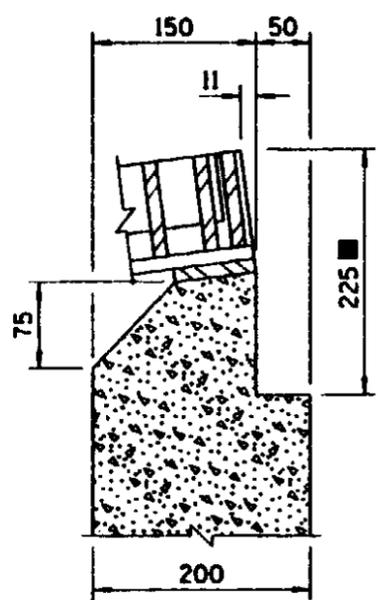
PLAN



SECTION B-B ③



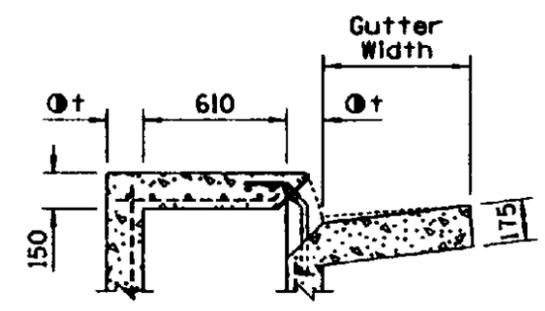
SECTION A-A
USE THIS SECTION WHEN H=1.5m OR LESS ③



SECTION C-C
USE THIS SECTION WHEN t=200 mm ③

GENERAL NOTES

- ⑧ 1. Catch basin can be used on grade or at roadway sag.
- ⑦ 2. Catch basin has three configurations:
Sump Only-Sump portion of catch basin.
Single Wing (Illustrated)-Sump with wing basin upstream.
Double Wing-Sump with symmetrical wing basins each side.
3. Pipes can be placed in any wall except wall adjacent to a wing basin.
- ⑥ 4. Floor shall have a wood trowel finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 1:4.
5. Any specified inlet depression shall be warped to opening according to Std C-15.70.
6. All structural steel shall be ASTM A 36/A 36M.
7. Nose plate shall be given one shop coat of No. 1 paint.
8. All concrete shall be class B.
9. All reinforcing bars shall be 10M, 450 mm C to C both ways and 40 mm clear to inside of walls and outside of wing basin floor except as shown.
10. Curb opening area (m²) per 25 mm of curb "h" + inlet depression = curb opening length (m) x 0.040.
11. Welding shall be in accordance with Standard Welding Specifications.
12. See Std C-15.50 for grate and frame details and opening areas.
13. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
- ⑥ 14. Silicone sealant shall be placed between the grate frame and PCCP, recessed 6 mm from the pavement surface.
15. ⓪t - 150 mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m.
See Section B-B.
16. ■ = 225 mm when pavement is AC.
Match pavement thickness when pavement is PCCP.

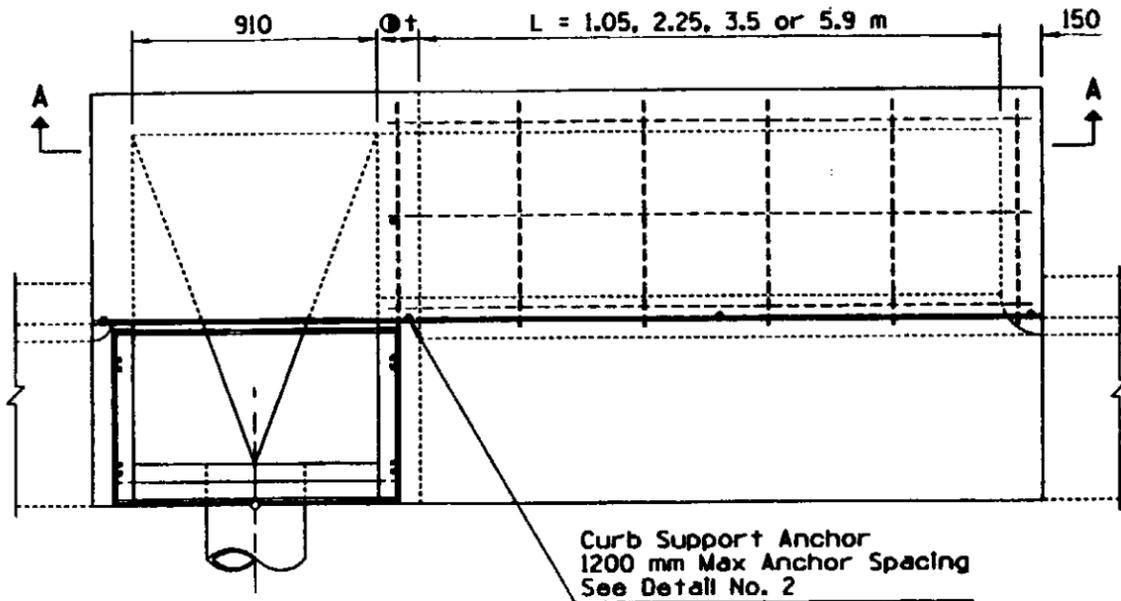


SECTION D-D ⑤

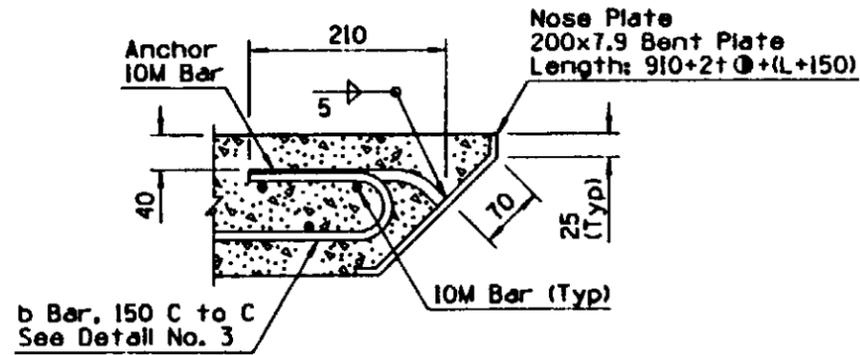
 PROJECT MANAGER DESIGNER	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	5/97
① ② CATCH BASIN, TYPE 5		C-15.40 Sheet 1 of 2



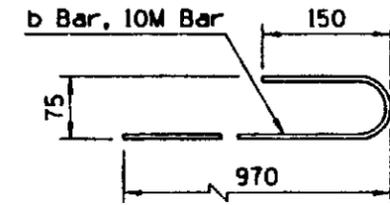
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			



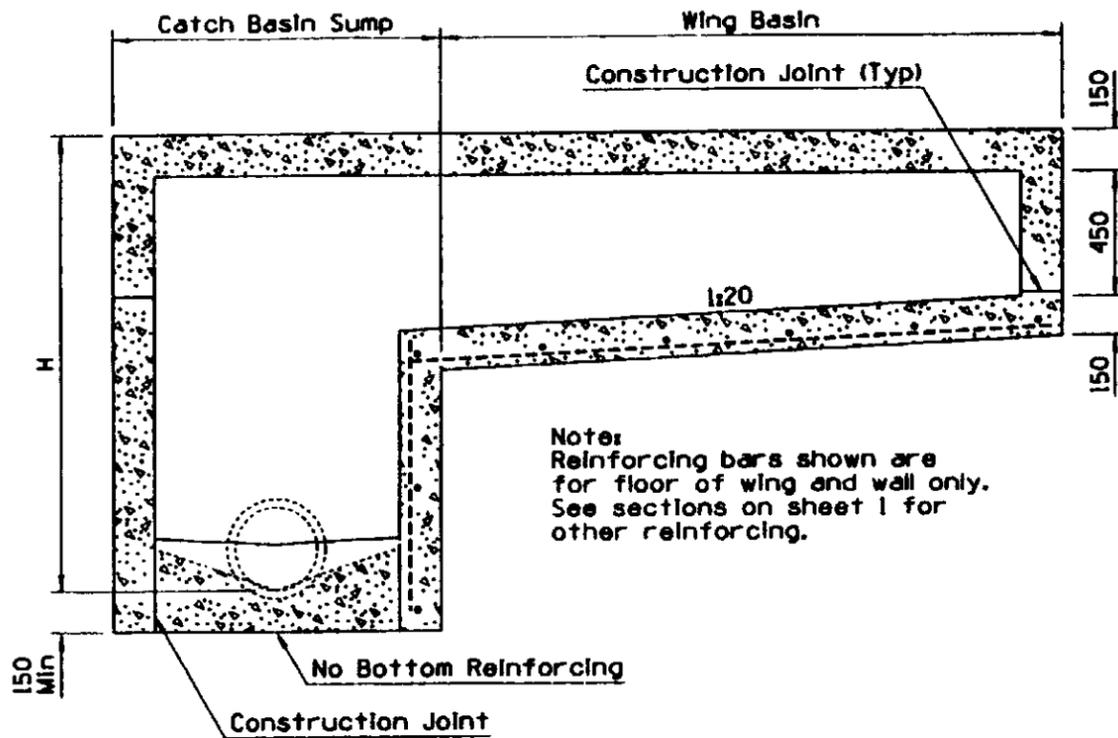
PLAN



DETAIL NO. 1



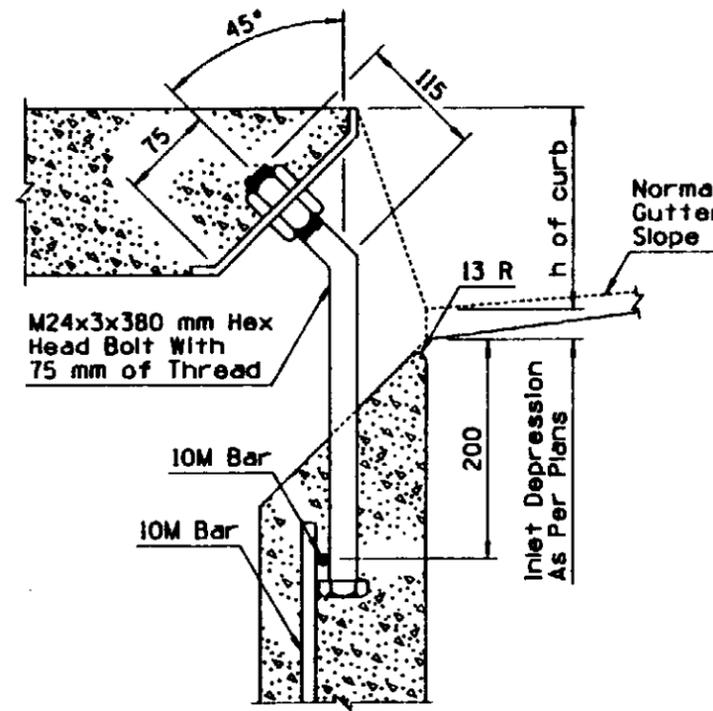
DETAIL NO. 3



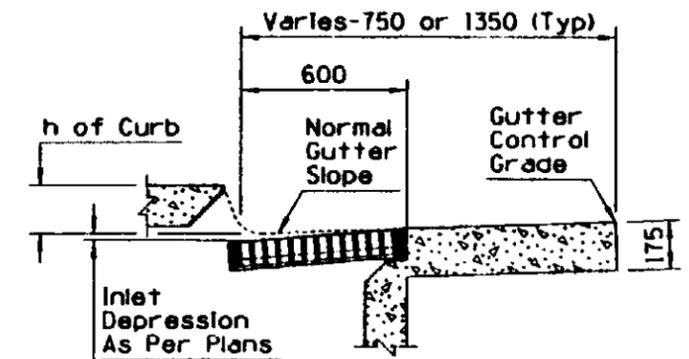
Notes:
Reinforcing bars shown are
for floor of wing and wall only.
See sections on sheet 1 for
other reinforcing.

SECTION A-A

USE THIS SECTION WHEN H IS GREATER THAN 1.5 m



DETAIL NO. 2
CURB SUPPORT ANCHOR



DETAIL NO. 4

- GENERAL NOTES**
- See sheet 1 of 2 for other dimensions, notes and reinforcing steel.
 - $\odot t = 150$ mm when H is 2.5 m or less.
200 mm when H is greater than 2.5 m.

APPROVED <i>Tony H. Ottman</i> PROJECT ENGINEER <i>Ronald W. ...</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	DATE 5/97
	CATCH BASIN, TYPE 5	DRAWING NO. C-15.40 Sheet 2 of 2

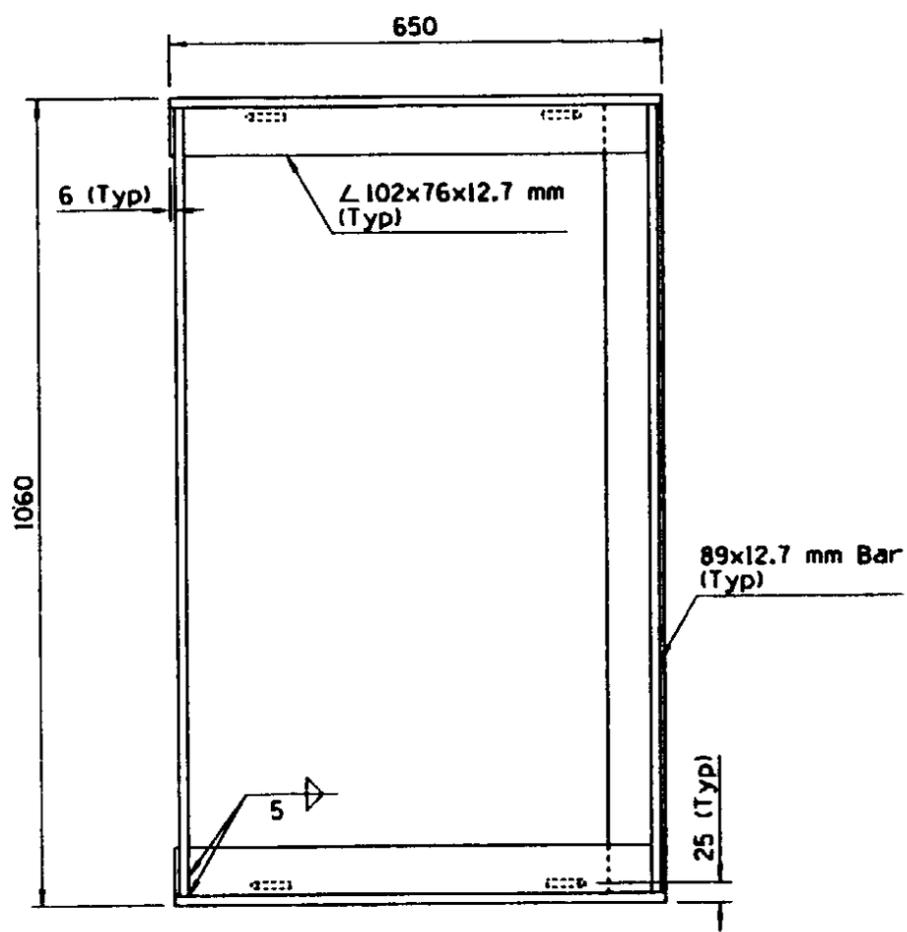


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	DELETED ALL GRATES EXCEPT WIDE EF-1	PNB	5/97
2	DELETED NARROW FRAME	PNB	5/97
3	DELETED THREE GENERAL NOTES	PNB	5/97
4	ADDED GENERAL NOTE	PNB	5/97



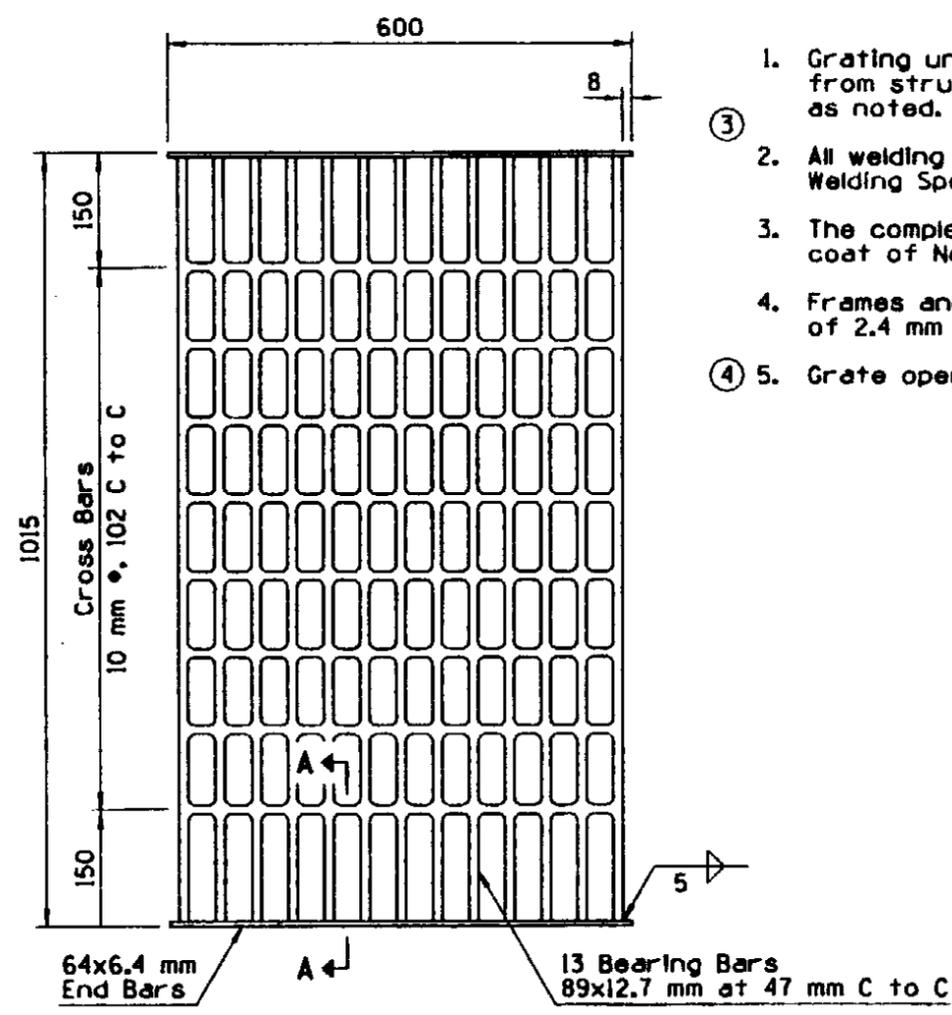
GENERAL NOTES

1. Grating units and frames shall be fabricated from structural steel ASTM A 36/A 36M except as noted.
2. All welding shall be in accordance with Standard Welding Specifications.
3. The completed assembly shall be given one shop coat of No. 1 paint.
4. Frames and grates shall fit to a maximum rock of 2.4 mm at any point.
5. Grate opening is 0.369 Sq m.



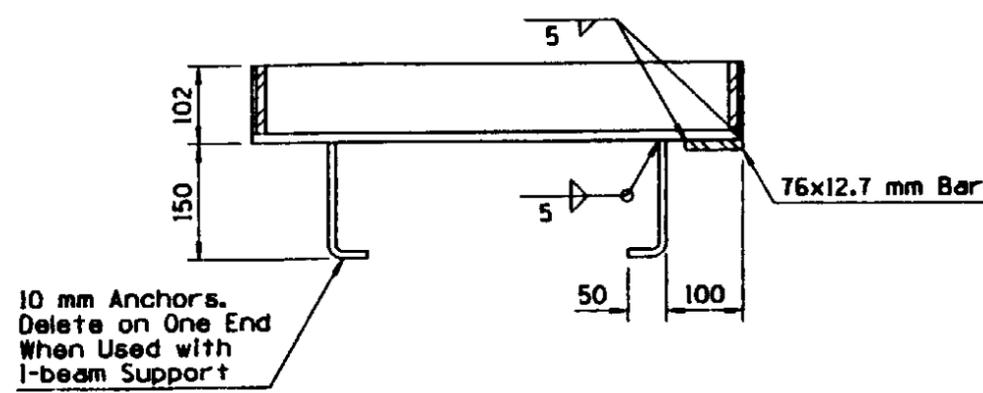
PLAN

FRAME ②

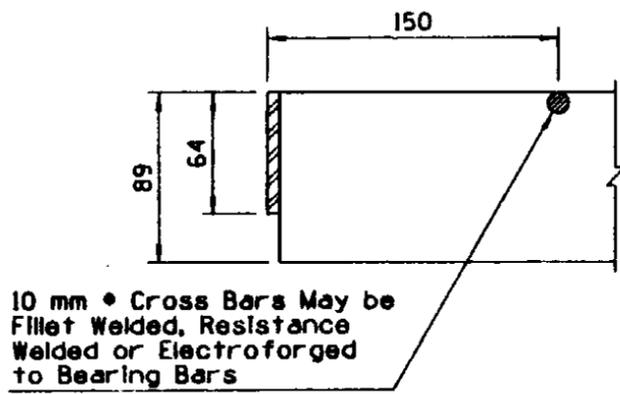


PLAN

GRATE ①



SECTION



SECTION A-A

DESIGN APPROVED <i>Lucy H. Ottman</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	REV. 5/97
APPROVED FOR CONSTRUCTION <i>Ronald Williams</i>	CATCH BASIN, GRATES	DRAWING NO. C-15.50

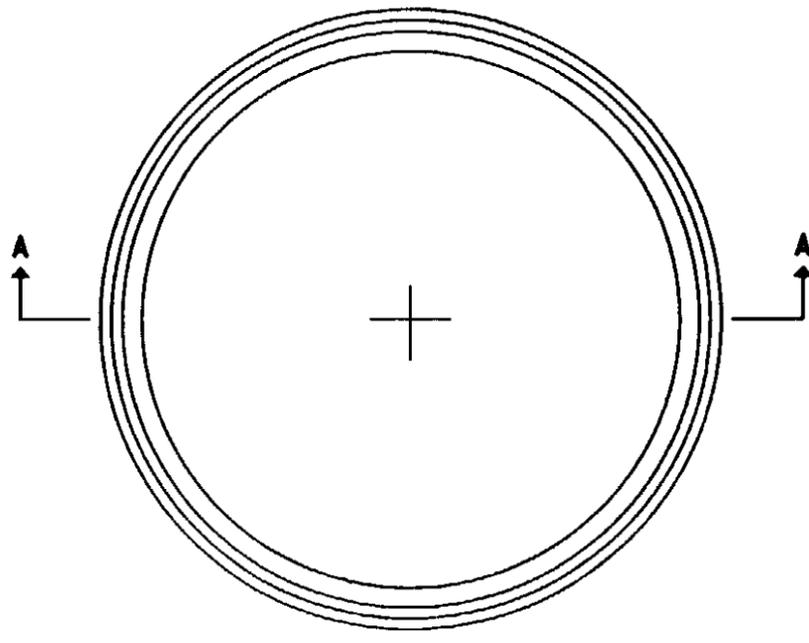


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			

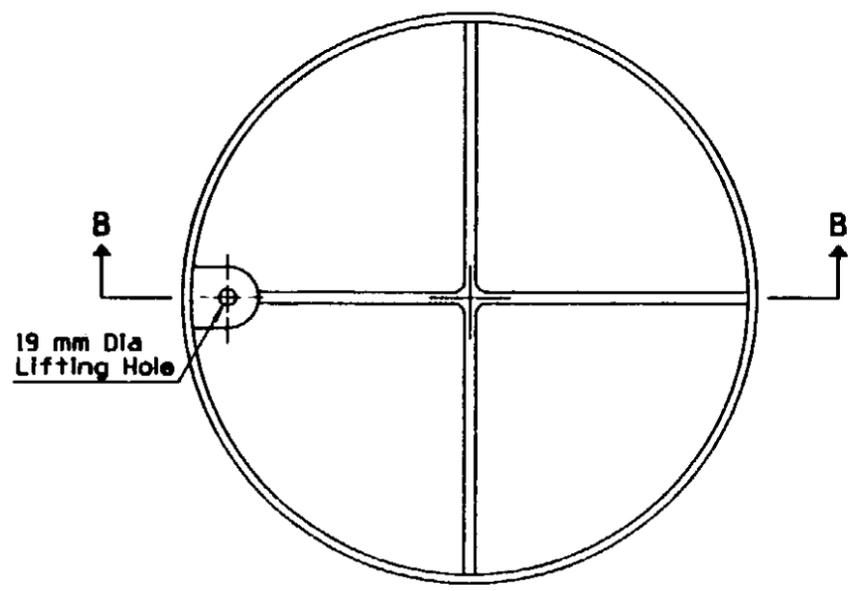


GENERAL NOTES

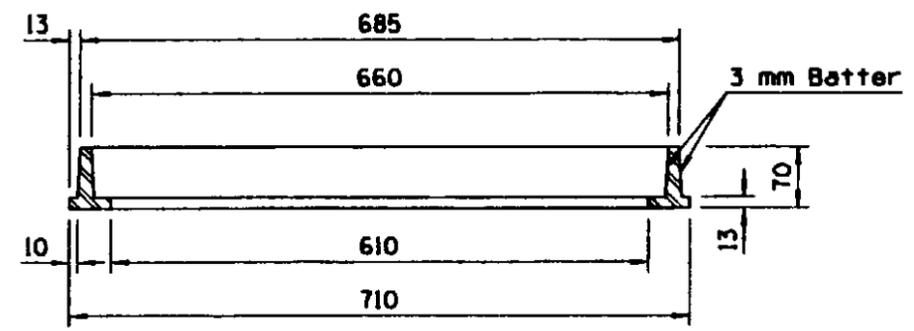
1. Cover shall be non-locking.
2. Frame and cover shall be cast iron or structural steel.
3. Catch basin access frame and cover is for use in sidewalk area only.
4. Cover shall be filled with concrete and broom finished.



PLAN

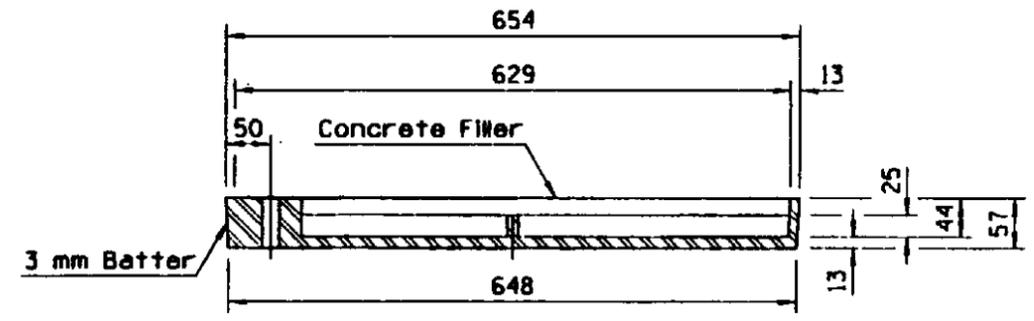


PLAN



SECTION A-A

FRAME



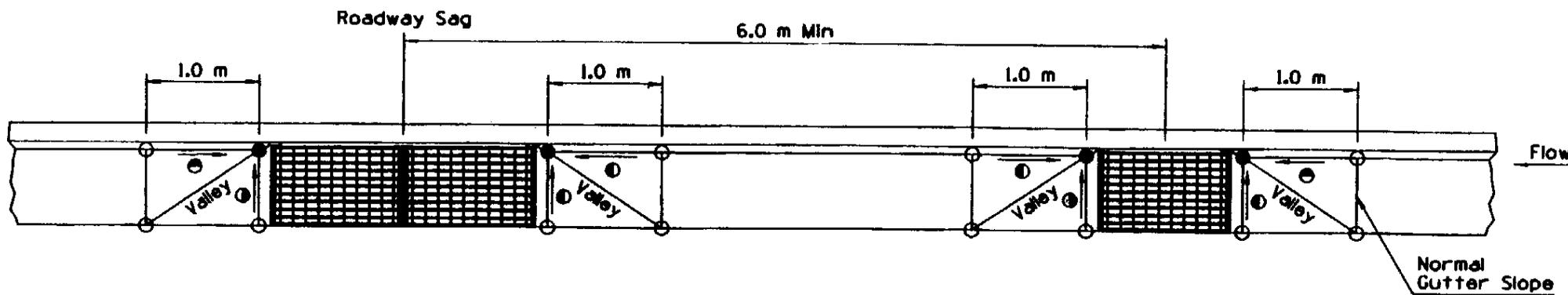
SECTION B-B

COVER

DESIGN APPROVED <i>Joseph Ottman</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	ISSUE 5/97
APPROVED FOR DISTRIBUTION <i>Ronald Wilson</i>	CATCH BASIN ACCESS FRAME AND COVER DETAILS	DRAWING NO. C-15.65



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	REVISED STD FOR NEW FRAME	PNB	5/97
2	ADDED DETAIL TO SHOW WIDE GUTTER	PNB	5/97
3	REVISED NOTE	PNB	5/97
4			



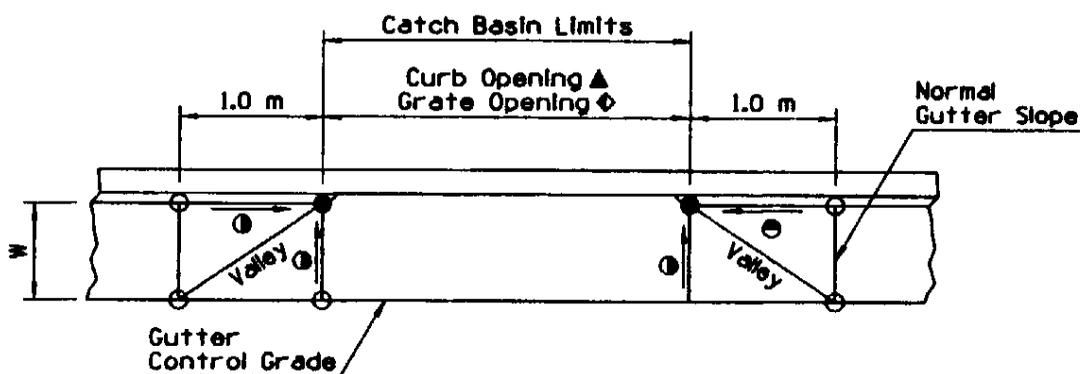
CATCH BASIN SPACING AT ROADWAY SAG CONDITION

GENERAL NOTES

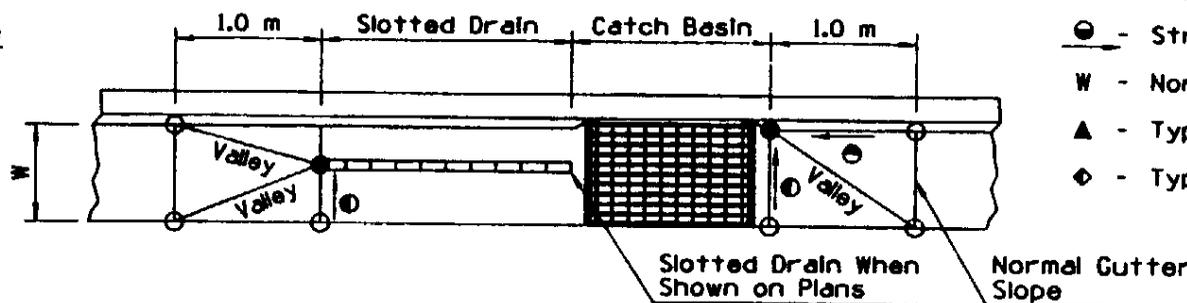
1. No inlet depression shall extend into a traffic lane.
2. Maximum combined gutter and inlet depression is 75 mm. See Detail No. 1.
3. Maximum distance along curb between catch basins where full gutter depression is used is 3.0 m.
4. See Std. C-15.80 for aprons used with C-15.80 Catch Basin.
5. See Detail No. 2 for grate type catch basins with wide gutter.

LEGEND

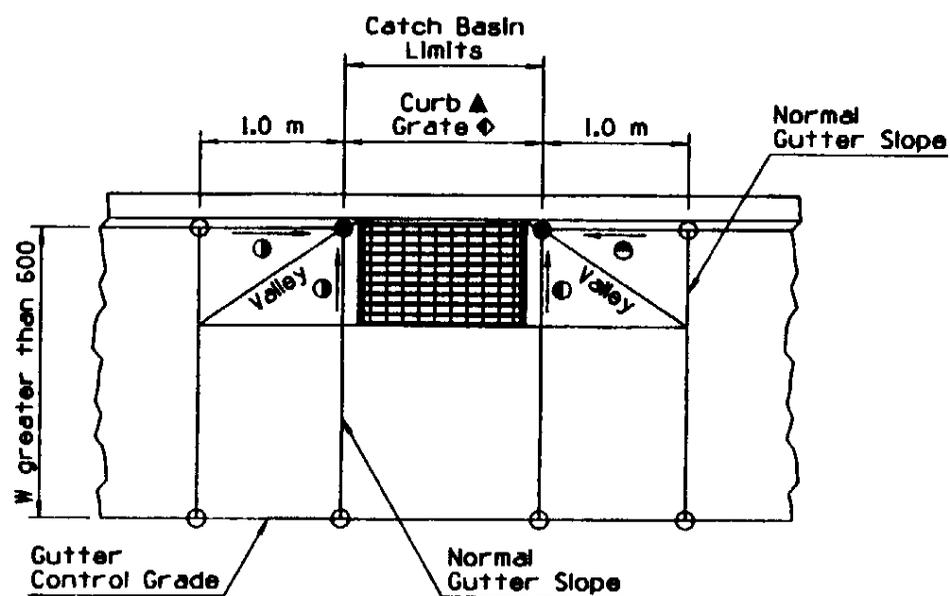
- - Normal pavement or gutter flow line elevation.
- - Depressed elevation.
- ◉ - Straight grade with downward slope.
- W - Normal gutter width per Std. C-05.10.
- ▲ - Types 1, 3, & 5.
- ◊ - Type 4 & C-15.91.



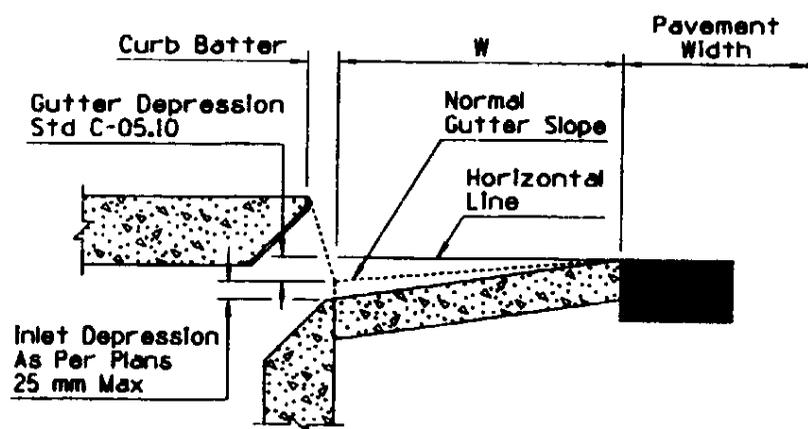
INLET DEPRESSION



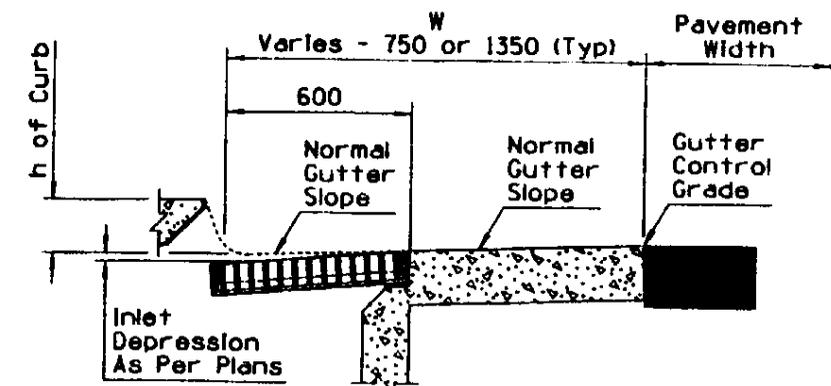
INLET DEPRESSION
CATCH BASIN WITH SLOTTED DRAIN



INLET DEPRESSION
CATCH BASIN WITH WIDE GUTTER ②



DETAIL NO. 1



DETAIL NO. 2 ②

DESIGN APPROVED <i>Terry H. Ottens</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	REV. 5/97
DESIGNED FOR <i>Frank Williams</i>	① CATCH BASIN MISC. DETAILS	DRAWING NO. C-15.70 Sheet 1 of 2



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1			
2			
3			
4			

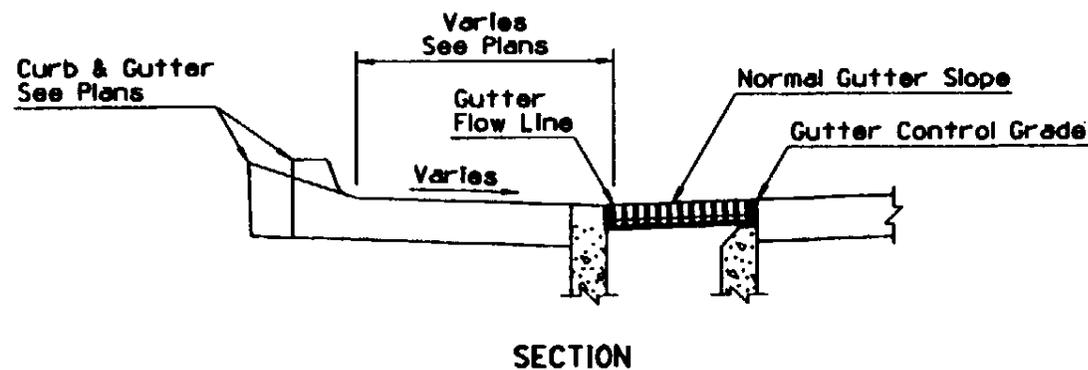


GENERAL NOTES

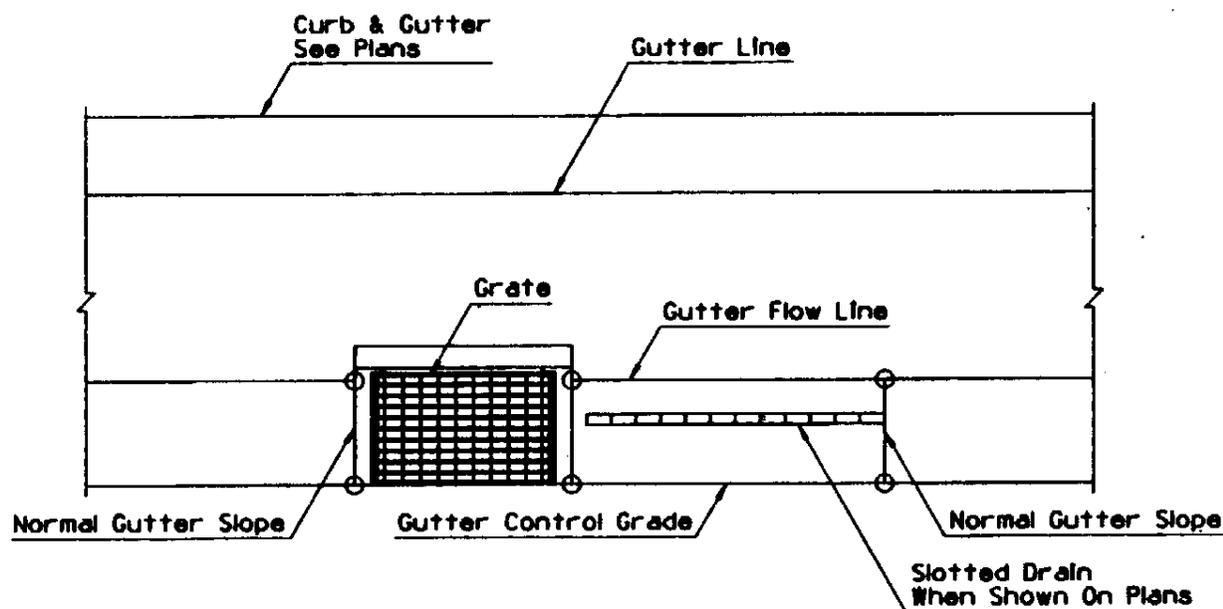
- Construction drain may be deleted at the option of the Engineer.

LEGEND

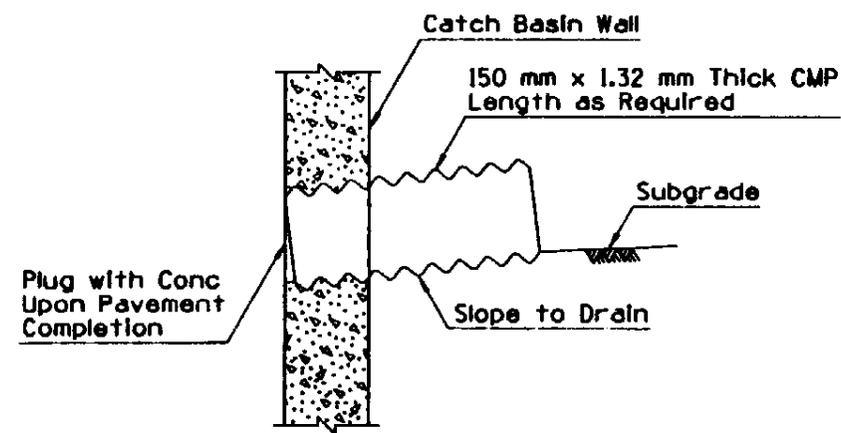
O - Normal pavement or gutter flow line elevation.



SECTION



TYPE 4 CATCH BASIN WITHOUT CURB

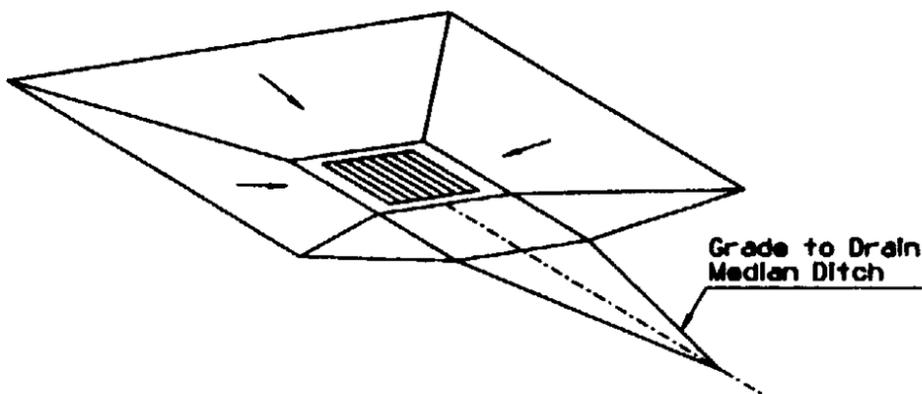


CATCH BASIN CONSTRUCTION DRAIN

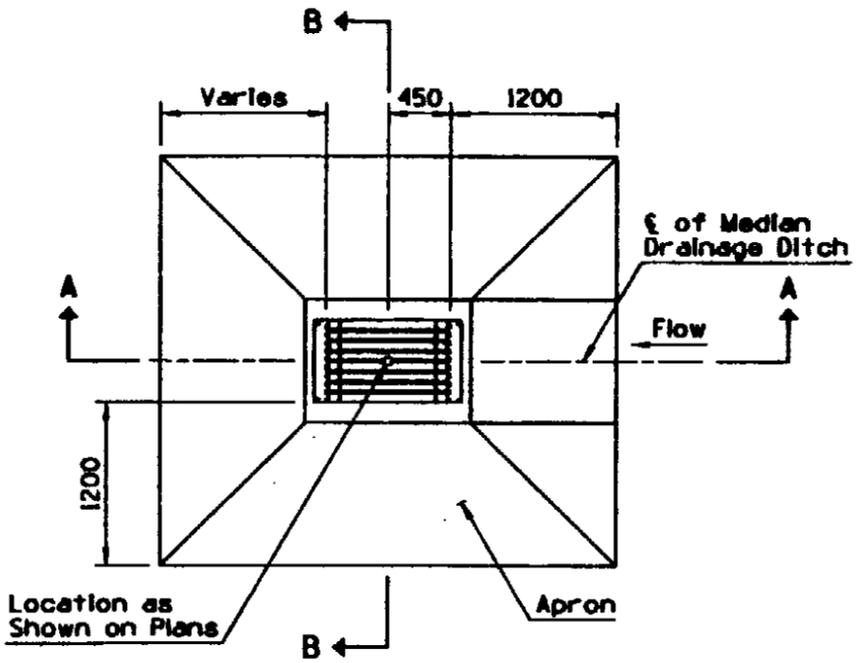
DESIGN APPROVED <i>Joseph H. Ottman</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	DATE 5/97
APPROVED FOR DISTRIBUTION <i>R. M. D. L.</i>	① CATCH BASIN MISC. DETAILS	DRAWING NO. C-15.70 Sheet 2 of 2



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	CHANGED APRON TO PORTLAND CEMENT CONCRETE ONLY	PMB	5/97
2	REVISED SLOPE	PMB	5/97
3			
4			



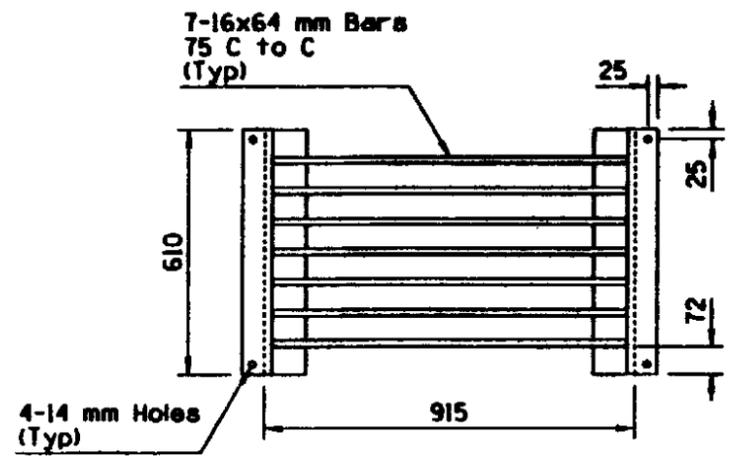
PERSPECTIVE



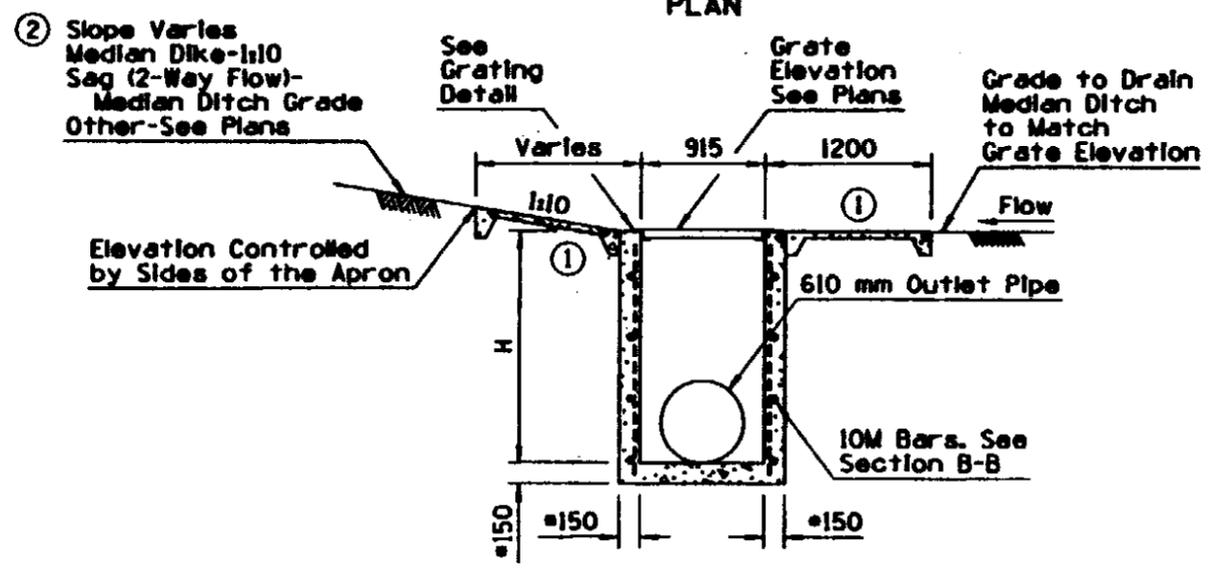
PLAN

GENERAL NOTES

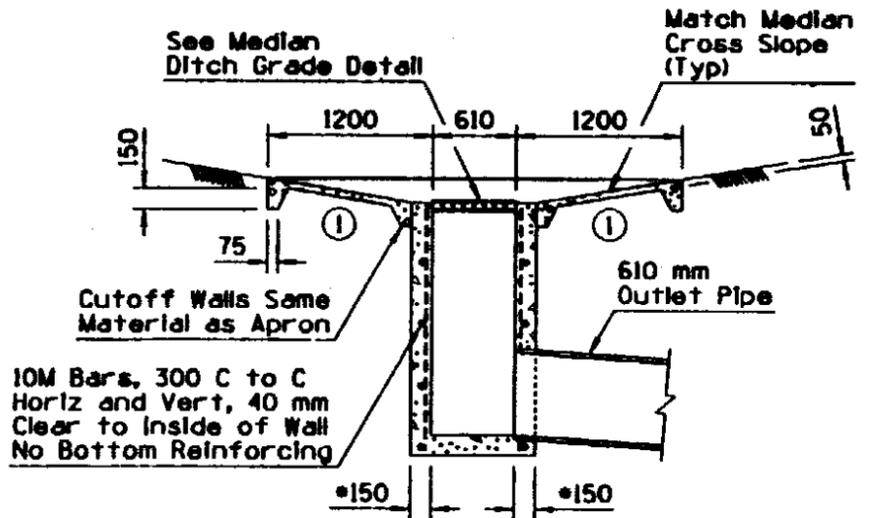
- ① 1. Apron shall be portland cement concrete.
 2. All concrete shall be Class B.
 3. Grating shall be fabricated of structural steel.
 4. Structural steel shall be in accordance with ASTM A 36/A 36M.
 5. Welding shall be in accordance with Standard Welding Specifications.
 6. Grating assembly shall be given one shop coat of No. 1 paint.
 7. 'H' Indicated on plans.
- - 200 mm When Wall Height Exceeds 2.5 m.



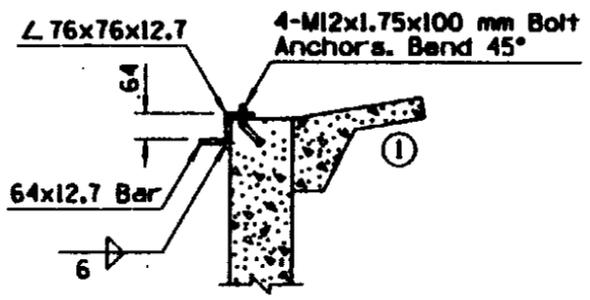
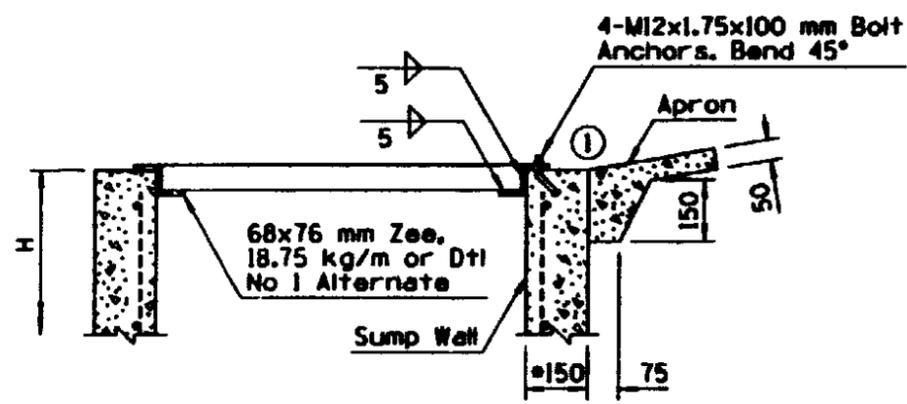
GRATING DETAIL



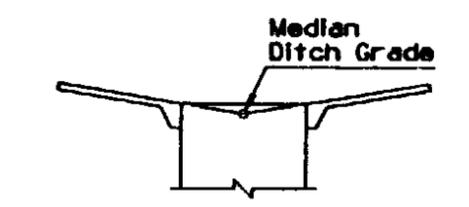
SECTION A-A



SECTION B-B



DETAIL NO. 1



MEDIAN DITCH GRADE DETAIL

DESIGNER <i>Joseph H. Ottman</i> CHECKED BY <i>Paul W. ...</i>	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION STANDARD DRAWINGS	5/97
	CATCH BASIN, MEDIAN FLUSH	C-15.80



