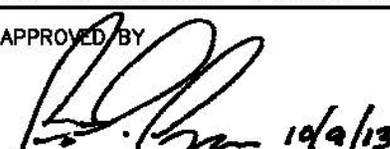


STORM DRAIN IMPROVEMENTS SUBMITTED FOR REVIEW AND APPROVAL SHALL BE IN CONFORMANCE WITH THE FOLLOWING STANDARDS:

1. ALL SUBMITTALS SHALL BE IN DUPLICATE.
2. TOPOGRAPHIC MAPS SHALL HAVE CONTOUR INTERVALS (MAXIMUM INTERVAL 5 FEET), ADEQUATE TO DEFINE BOUNDARIES AND SLOPE OF DRAINAGE BASIN.
3. EACH DRAINAGE BASIN TO BE IDENTIFIED AND CORRELATED TO CALCULATIONS FOR THAT BASIN.
4. ALL DATA AND CALCULATIONS SHALL BE COMPLETE AND SHALL HAVE REASONABLE CLARITY.
5. DIVERSIONS OF ALL TYPES SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE LAWS. TRANS-BASIN DIVERSIONS SHALL NOT BE ALLOWED WITHOUT THE FOLLOWING:
 - A. COMPLETE ANALYSIS OF THE RECEIVING BASIN WATERSHED TO SHOW THAT NO INCREASES IN PEAK FLOWS OCCUR AT ANY LOCATION DOWNSTREAM IN THE 10-, 25-, AND 100-YEAR RETURN PERIOD DESIGN STORM EVENTS.
 - B. ALTERNATIVES ANALYSIS DEMONSTRATING TO THE SATISFACTION OF THE CITY ENGINEER THAT NO REASONABLE ALTERNATIVE IS AVAILABLE.
 - C. A RECORDED RELEASE OF LIABILITY INDEMNIFYING THE CITY OF REDDING AGAINST ANY AND ALL FUTURE FLOODING CLAIMS THAT IDENTIFY THE PROJECT AS A POTENTIAL CAUSE OF FLOODING, INCLUDING LEGAL DEFENSE COSTS.
6. PLACEMENT OF FILLS OF ANY MAGNITUDE ACROSS AN EXISTING DRAINAGE COURSE SHALL INCORPORATE A MEANS BY WHICH 100-YEAR FLOWS NOT HANDLED BY THE DESIGN DRAINAGE SYSTEM CAN FLOW OVERLAND VIA ESSENTIALLY THE SAME COURSE AS PRIOR TO PLACING THE FILL ACROSS THE DRAINAGE COURSE. ANALYSIS OF OVERLAND RELEASE ROUTES SHALL DEMONSTRATE THAT ADJACENT STRUCTURE FLOOR ELEVATIONS HAVE AT LEAST 1.0 FOOT OF ELEVATION ABOVE THE EXPECTED ADJACENT 100-YEAR WATER SURFACE.
7. ENGINEERING CALCULATIONS SHALL BE SUBMITTED VERIFYING THAT APPROPRIATE MEASURES HAVE BEEN ADDRESSED, ENSURING THAT EXIT VELOCITIES ARE NON-ERODING.
8. HYDROLOGY FOR DRAINAGE BASINS SMALLER THAN 10 ACRES SHALL BE CALCULATED USING THE RATIONAL METHOD. RAINFALL INTENSITIES UTILIZED FOR ALL HYDROLOGY ANALYSIS SHALL BE DERIVED FROM THE ANALYSIS OF LOCAL PRECIPITATION RECORDS AS PROVIDED BY THE CITY ENGINEER.
9. HYDROLOGY FOR DRAINAGE BASINS LARGER THAN 10 ACRES SHALL BE CALCULATED USING HEC-1 COMPUTER ANALYSIS. ALL ANALYSIS SHALL EMPLOY THE CITY OF REDDING HEC-1 INTERFACE TOOLS AVAILABLE FROM THE CITY ENGINEERING DIVISION.
10. RECURRENCE INTERVAL (STORM FREQUENCY)
 - A. A 10- YEAR FREQUENCY FOR AREAS LESS THAN FORTY ACRES AND WHERE THE PROPOSED DRAINAGE STRUCTURE WILL NOT BE PLACED IN A NATURAL OR CONSTRUCTED SUMP. CULVERTS UNDER MODERATE FILLS TO PASS A TEN-YEAR STORM WITHOUT STATIC HEAD, AND UNDER HIGH FILLS TO PASS A 25-YEAR STORM WITH HEAD; HOWEVER, NO DAMAGE DUE TO PONDING IS TO OCCUR.
 - B. A 25-YEAR FREQUENCY FOR AREAS LARGER THAN 40 ACRES AND LESS THAN 160 ACRES. CULVERTS UNDER MODERATE FILLS ON COLLECTOR AND LOCAL STREETS ARE TO PASS A 25-YEAR STORM WITHOUT STATIC HEAD, AND UNDER HIGH FILLS TO PASS A 100-YEAR STORM WITH HEAD; HOWEVER, NO DAMAGE DUE TO PONDING IS TO OCCUR.
 - C. A 100-YEAR FREQUENCY FOR AREAS LARGER THAN 160 ACRES, OR WHERE CULVERTS ARE TO BE PLACED UNDER HIGH FILLS; WHERE A SUMP CONDITION EXISTS AND DAMAGE WOULD RESULT DUE TO PONDING AND WHERE MAJOR STREETS OR A FREEWAY ARE TO BE CROSSED. CULVERTS TO PASS 100-YEAR STORM WITH HEAD; HOWEVER, NO DAMAGE DUE TO PONDING IS TO OCCUR.
11. ALL NEWLY CONSTRUCTED OR MODIFIED STORM DRAIN INLETS SHALL BE LABELED PER CITY OF REDDING CONSTRUCTION STANDARD 202.00.
12. REGULATORY AGENCY PERMITS SHALL BE OBTAINED OR CONSULTATION WITH REGULATORY AGENCIES SHALL OCCUR, AS, REQUIRED, PRIOR TO SUBMITTING PLANS FOR APPROVAL.

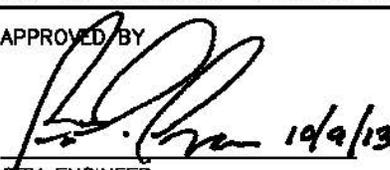
DWG DATE: 9/89		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
4	7/13	REVISE NOTES	APPROVED BY  10/9/13 CITY ENGINEER	DRAINAGE CRITERIA
3	4/06	ADD NOTE		
MARK	DATE	REVISION		

1. A MINIMUM OF 12 FEET FOR COLLECTOR STREETS AND 24 FEET FOR ARTERIAL STREETS SHALL BE CLEAR OF PONDING DURING A STORM OF DESIGN FREQUENCY.
2. MINIMUM SIZE OF PROPOSED CULVERTS OR STORM DRAIN SYSTEMS SHALL BE 15 INCHES IN DIAMETER.
3. ACCEPTABLE MATERIALS:

15 INCH-24 INCH	CAST-IN-PLACE CONCRETE PIPE (CIPCP) NON-REINFORCED CONCRETE PIPE (HWCP) (EXTRA STRENGTH) ASTM C14 REINFORCED CONCRETE PIPE (RCP) ASTM C76 (CLASS II MINIMUM) CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH AN INTEGRALLY FORMED SMOOTH INTERIOR AASHTO M-294
LARGER THAN 24 INCHES	CAST-IN-PLACE CONCRETE PIPE (CIPCP) REINFORCED CONCRETE PIPE (RCP) (CLASS III MINIMUM) REINFORCED CONCRETE BOX CULVERT GALVANIZED STEEL MULTI-PLATE ARCH WITH PCC INVERT CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (HDPE) WITH AN INTEGRALLY FORMED SMOOTH INTERIOR AASHTO M-294
4. ALL BRIDGES OR CULVERTS SPANNING GREATER THAN 10' SHALL BE INDIVIDUALLY DESIGNED AND APPROVED BY THE CITY ENGINEER.
5. ALL STORM DRAIN PIPE SHALL HAVE EITHER A COMPRESSION TYPE JOINT OR A CORRUGATED COUPLING TO MATCH THE PIPE CORRUGATIONS. IN THE CASE OF CONCRETE PIPE, THE JOINTS MAY BE MORTARED UNLESS OTHERWISE SPECIFIED.
6. STORM DRAIN PIPELINES SHALL BE DESIGNED WITH A MINIMUM MANNING'S COEFFICIENT OF:

CONCRETE PIPE	n=0.013-0.015
CORRUGATED HDPE PIPE WITH INTEGRALLY FORMED SMOOTH INTERIOR	n=0.012
SOLID WALL POLYETHYLENE PIPE	n=0.012
NO JOINT CONCRETE PIPE	n=0.013
ALL OTHER STRUCTURES	n=TO BE DETERMINED
7. THE MINIMUM RADIUS OF CURVATURE ALLOWED IN STORM DRAIN SYSTEMS SHALL BE 1.5 TIMES THE MANUFACTURER'S RECOMMENDED MINIMUM AND THE MAXIMUM ANGLE OF DEFLECTION ALLOWED IN STORM DRAIN SYSTEMS SHALL BE 2/3 TIMES THE MANUFACTURER'S MAXIMUM.
8. MINIMUM DEPTH OF COVER: 2.0 FEET OVER MAIN LINE IN STREET FROM FINISH GRADE.
9. MAXIMUM DEPTH OF COVER: 15.0 FEET OVER MAIN LINE IN STREET FROM FINISH GRADE.
10. MANHOLE SPACING:
 - A. LINES 24-INCH TO 48-INCH: 500-1,000 FEET
 - B. LINES 54-INCH AND LARGER: AS APPROVED BY THE CITY ENGINEER
11. THE LOWEST 8 FEET, MEASURED FROM THE OUTFALL INVERT OF THE PIPE AT THE OUTLET OF THE DRAINAGE SYSTEM, AND THE UPPER 8 FEET, MEASURED FROM THE INLET OF THE HEADWALL, SHALL BE RCP, CIPCP, OR GALVANIZED STEEL MULTI-PLATE ARCH WITH PCC INVERT.

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\200\200.10.DWG, 8.5X11.PDF, 10/10/2013 12:08:21 PM, bethel

DWG DATE: 9/89		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION		
			APPROVED BY	HYDRAULIC CRITERIA	
5	7/13	UPDATE	 10/9/13		
4	4/06	EDIT CRITERIA			
MARK	DATE	REVISION	CITY ENGINEER		

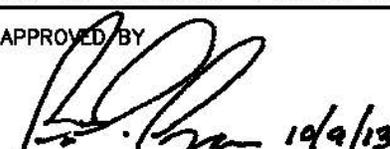
1. STORM DRAIN MAINTENANCE ACCESS ROUTES

ALL STORM DRAIN FACILITIES INCLUDING PIPE INLETS, AREA DRAINS, AND OUTFALL LOCATIONS SHALL HAVE DESIGNATED AND IMPROVED ACCESS ROUTES AS FOLLOWS:

- A. ALL ACCESS ROUTES SHALL BE LOCATED IN DESIGNATED EASEMENTS.
- B. ACCESS ROUTES SHALL BE DESIGNED TO THE FOLLOWING:
 - WIDTH: 12 FEET MINIMUM
 - INSIDE TURNING RADIUS: 30 FEET MINIMUM.
 - SLOPE IN THE DIRECTION OF TRAVEL: 8% MAXIMUM IF UNPAVED, 12% MAXIMUM IF PAVED.
 - CROSS SLOPE: 4% MAXIMUM.
 - TERMINATION: TURNING BULB WITH A MINIMUM RADIUS OF 20 FEET OR A 60 FOOT HAMMER HEAD WITH A MINIMUM WIDTH OF 10 FEET.
 - MATERIAL: 6" MINIMUM DEPTH, 3" - (BALLAST).
- C. ALL ACCESS ROUTES SHALL HAVE AN IMPROVED ENTRANCE PER CITY OF REDDING CONSTRUCTION STANDARD PAGE 630.00 WITH THE FOLLOWING MODIFICATIONS:
 - TYPE: GREEN BELT (NO PUBLIC ACCESS)
 - WIDTH: 12 FEET MINIMUM BETWEEN POST CLEARANCE
 - SIGN: SHALL READ "EMERGENCY/MAINTENANCE ACCESS ONLY"

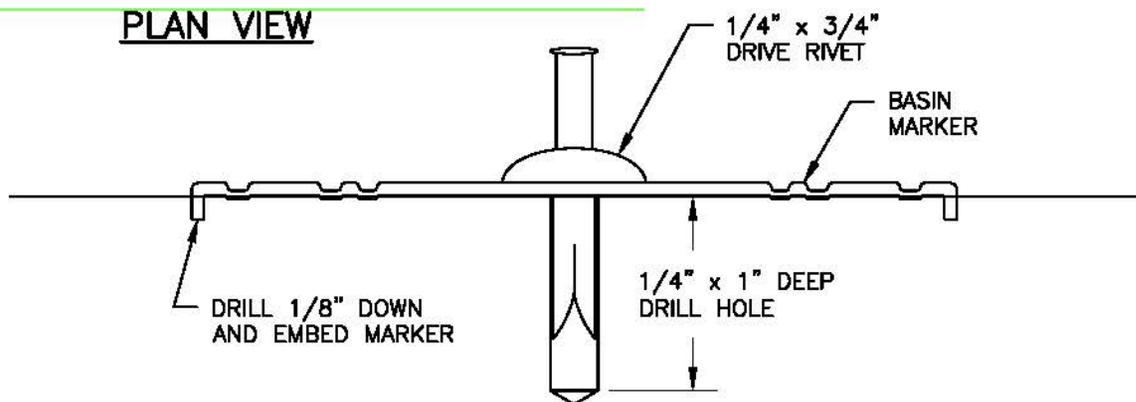
2. DETENTION BASIN ACCESS ROUTES

DETENTION BASINS SHALL HAVE AN ACCESS ROAD TO THE DETENTION POND OVERFLOW AND OUTLET THAT SHALL MEET THE ABOVE REQUIREMENTS FOR STORM DRAIN MAINTENANCE ACCESS ROUTES.

DWG DATE: 4/06		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
1	7/13	REVISE STD	APPROVED BY  10/9/13	ACCESS CRITERIA
MARK	DATE	REVISION	CITY ENGINEER	



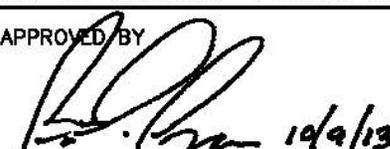
PLAN VIEW

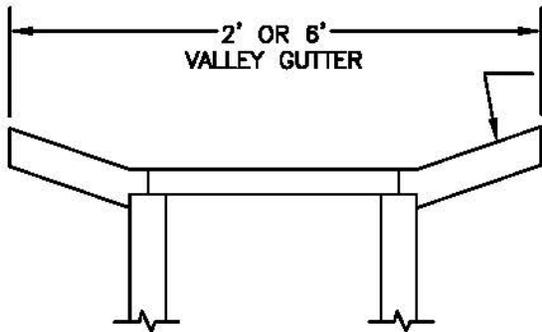


SECTION VIEW

NOTES:

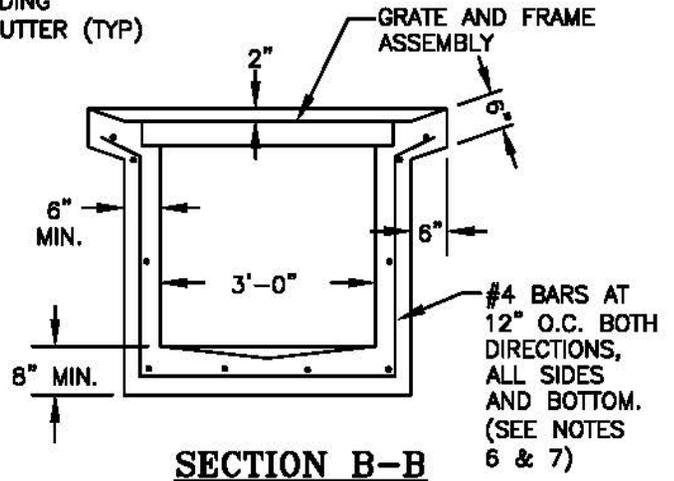
1. BASIN MARKERS SHALL BE INSTALLED ON ALL INLET STRUCTURES, PRIVATE AND PUBLIC, ACCORDING TO THE INDIVIDUAL CITY OF REDDING CONSTRUCTION STANDARD GOVERNING EACH STRUCTURE TYPE.
2. BASIN MARKERS SHALL BE PURCHASED AT THE CITY OF REDDING PERMIT CENTER LOCATED AT CITY HALL, 777 CYPRESS AVENUE.
3. ALL MARKERS SHALL BE INSTALLED BY CITY UTILITY CREWS UNLESS APPROVED BY THE STORM DRAIN UTILITY.
4. MARKERS SHALL BE INSTALLED WITH THE CENTER BEING 4 INCHES FROM FACE OF CURB IN THE LOCATION SHOWN IN CITY OF REDDING CONSTRUCTION STANDARDS. WHERE APPLICABLE, MARKERS SHALL BE INSTALLED FACING THE ROADWAY.
5. ANY AND ALL VARIATIONS SHALL REQUIRE APPROVAL OF THE STORM DRAIN UTILITY.

DWG DATE: 10/11		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
			APPROVED BY	BASIN MARKER
		NEW STD	 10/9/13	
MARK	DATE	REVISION	CITY ENGINEER	

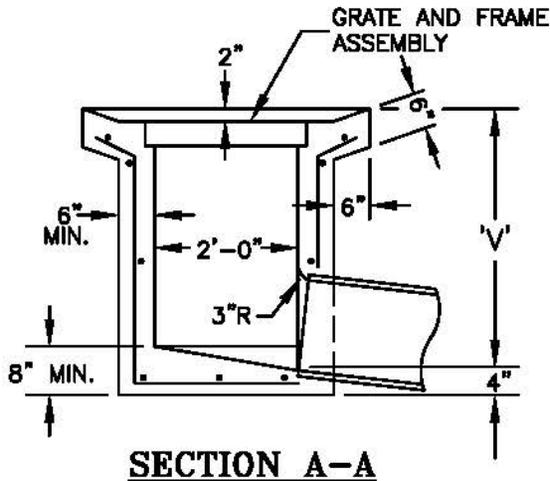


SLOPE TO MATCH SURROUNDING VALLEY GUTTER (TYP)

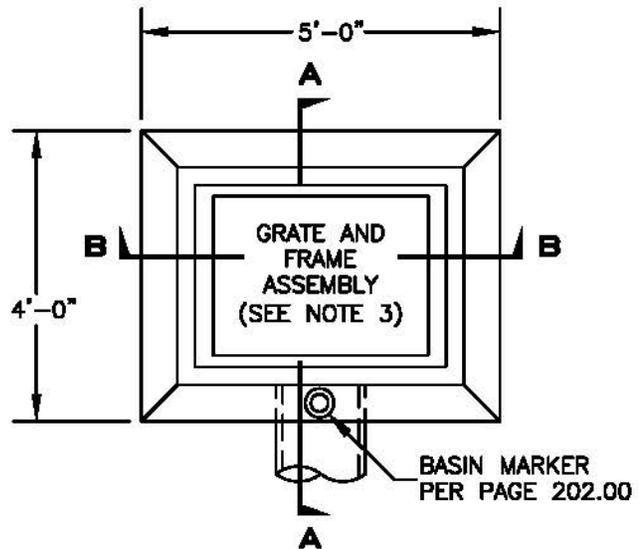
ALTERNATE TOP FOR USE WITH VALLEY GUTTER



SECTION B-B



SECTION A-A



PLAN

NOTES:

1. ALL WORK DONE AND ALL MATERIALS SUPPLIED SHALL CONFORM TO "THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK).
2. ALL CONCRETE TO BE PER PAGE 100.00.
3. FOR GRATE AND FRAME ASSEMBLY, SEE PAGE 210.10.
4. POSITION OF PIPE LEAVING INLET TO BE AS SHOWN ON PLANS, INLET FLOOR TO SLOPE TO PIPE. WHERE TWO OR MORE PIPES ENTER THE INLET BOX, THE FLOOR SHALL HAVE A CHANNEL CONNECTING THE PIPES. FLOOR SHALL BE TROWELED TO A HARD SMOOTH SURFACE.
5. THE 'V' DIMENSION SHALL BE 3'-6" UNLESS APPROVED BY THE CITY ENGINEER.
6. STEEL REINFORCING BARS SHALL BE REQUIRED IN WALLS AND BOTTOM OF BASIN ONLY WHEN THE 'V' DIMENSION EXCEEDS 4'-0".
7. MINIMUM CONCRETE COVER BETWEEN FACE OF CONCRETE AND REINFORCING STEEL SHALL BE 1 1/2". WHERE CONCRETE IS POURED AGAINST EARTH, PROVIDE 3" MINIMUM CONCRETE COVER.
8. LOCATION FOR INSTALLATION SHALL BE APPROVED BY CITY ENGINEER.

DWG DATE: 9/89

SCALE: NTS

CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION

APPROVED BY

[Signature] 10/9/13
CITY ENGINEER

AREA DRAIN

7
6

7/13
2/03

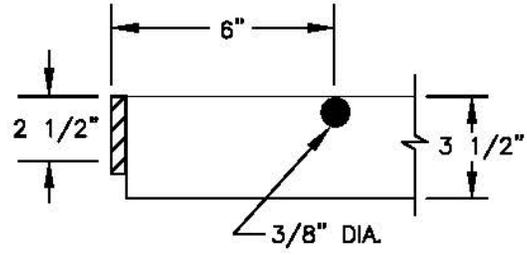
REVISE NOTES
REMOVE NOTE

MARK

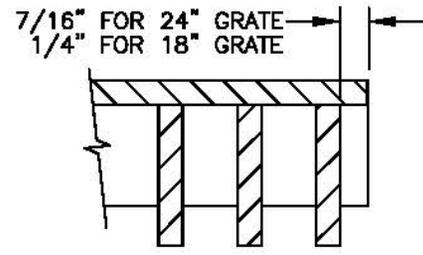
DATE

REVISION

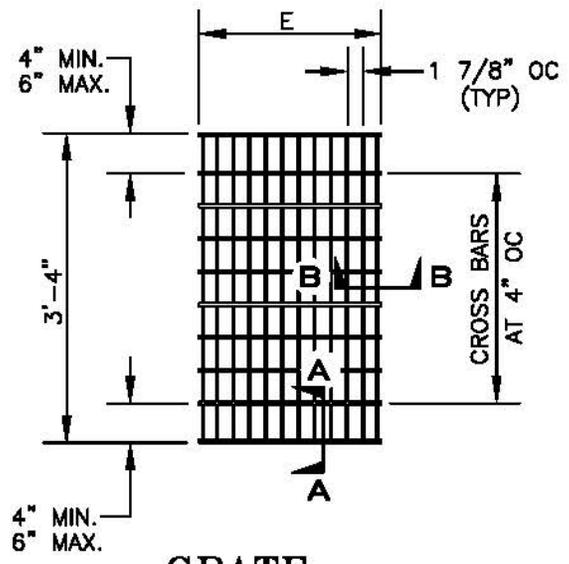
CALTRANS	E	F	G
24-13	23 7/8"	25 1/2"	24"



SECTION A-A

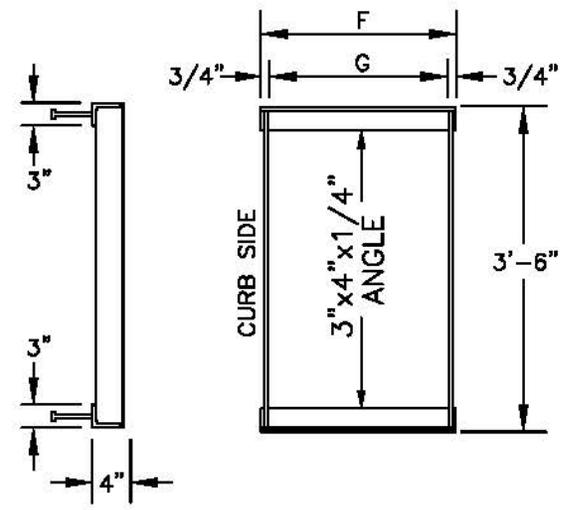


SECTION B-B



GRATE

ESTIMATED WT. 141 lbs.

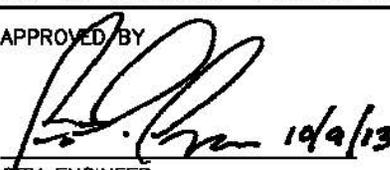


FRAME

ESTIMATED WT. 94 lbs.

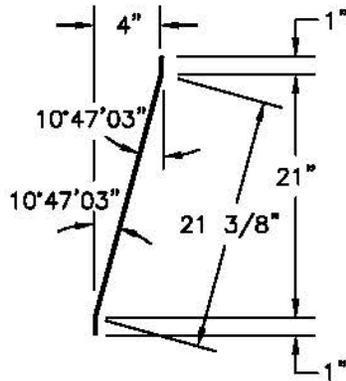
NOTES:

1. GRATE AND FRAME SHALL BE ASSEMBLED AND MADE TO FIT PRIOR TO DELIVERY TO THE JOB SITE.
2. GRATE AND FRAME SHALL BE GALVANIZED AFTER FABRICATION.
3. WHEN GRATE ASSEMBLY IS TO BE INSTALLED ON BASINS WITH A DEPTH OF 6'-0" OR GREATER, ASSEMBLY SHALL HAVE A BOLT DOWN GRATE.
4. THIS GRATE AND FRAME ASSEMBLY IS TO BE USED ON AREA DRAINS (PAGE 210.00) AND NO. 4 CATCH BASINS (PAGE 240.00).

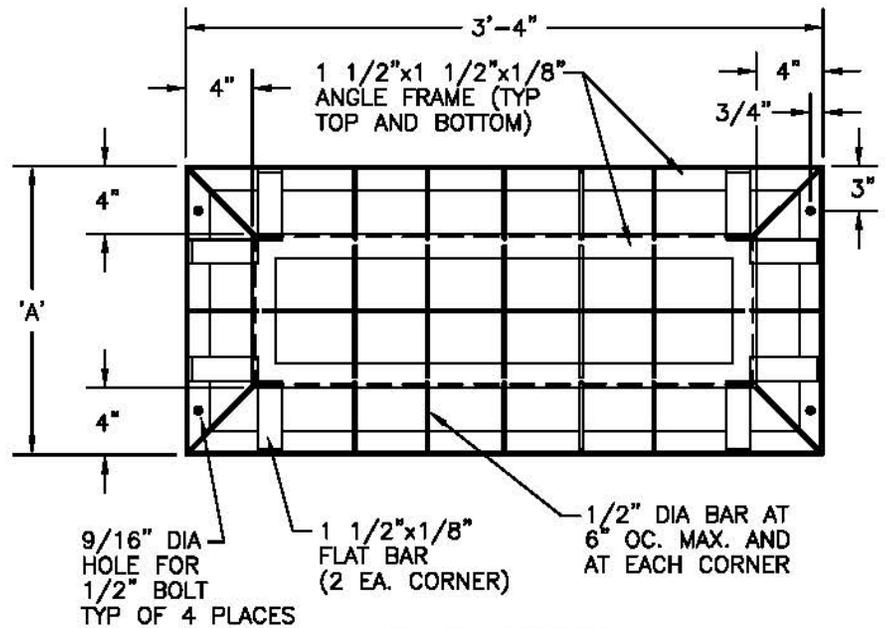
DWG DATE: 10/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
8	7/13	UPDATE	APPROVED BY  10/9/13 CITY ENGINEER	
7	4/06	UPDATE		
MARK	DATE	REVISION	STORM DRAIN GRATE ASSEMBLY DETAIL	

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\20021010.DWG, 8.5X11.PDF, 10/10/2013 12:06:57 PM, bairdel

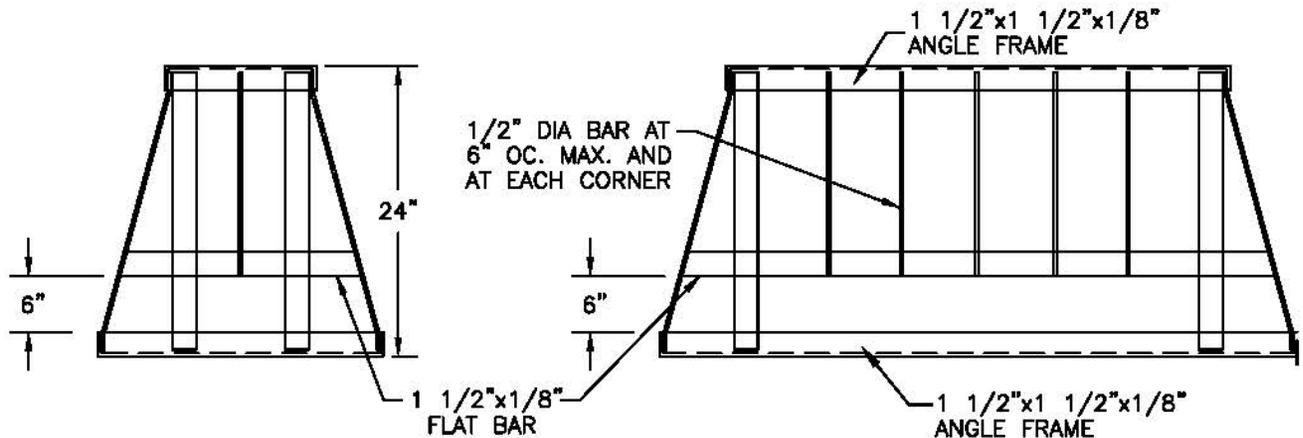
CALTRANS FRAME NO.	'A'
24-13	23 7/8"



**VERTICAL MEMBER
BENDING DETAIL**
CORNER BARS SIMILAR



TOP VIEW

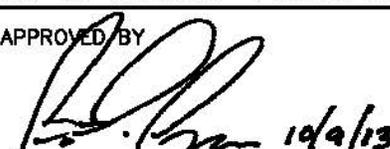


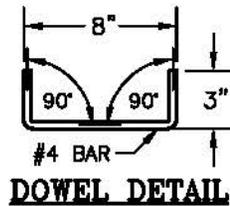
END VIEW

SIDE VIEW

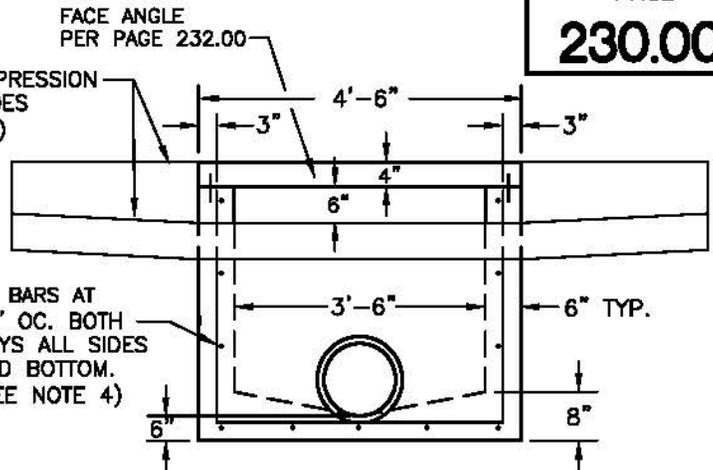
NOTES:

1. GRATE AND FRAME SHALL BE ASSEMBLED AND MADE TO FIT PRIOR TO DELIVERY TO THE JOB SITE.
2. GRATE AND FRAME SHALL BE GALVANIZED AFTER FABRICATION.
3. ALL ASSEMBLIES SHALL HAVE BOLT-DOWN GRATES. WELD 1/2" DIA STUDS TO FRAME ASSEMBLY (PAGE 210.10) TO MATCH LOCATIONS OF HOLES IN GRATE ASSEMBLY.
4. THIS GRATE TO BE USED WITH FRAME ASSEMBLY (PAGE 210.10) AND AREA DRAIN (PAGE 210.00).

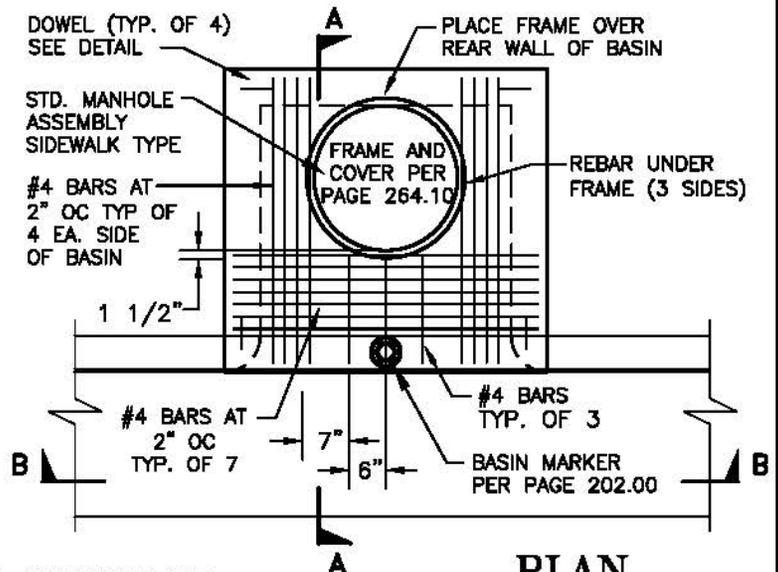
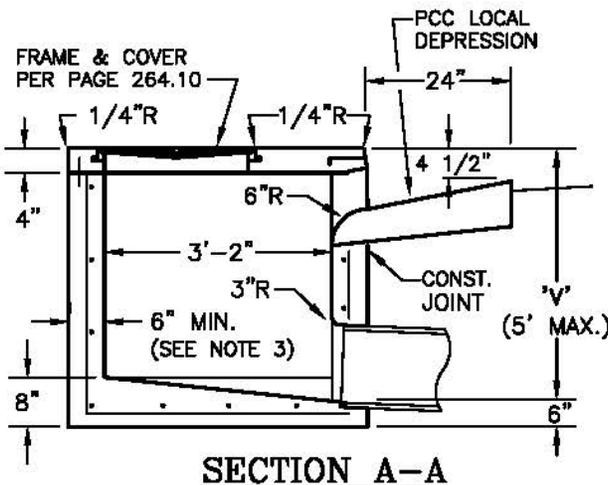
DWG DATE: 8/92		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
4	7/13	UPDATE	APPROVED BY  10/9/13 CITY ENGINEER	
3	4/06	EDIT DETAIL		
MARK	DATE	REVISION	STORM DRAIN GRATE ASSEMBLY FOR UNIMPROVED AREAS	



PCC LOCAL DEPRESSION
TYP. BOTH SIDES
(SEE NOTE 16)



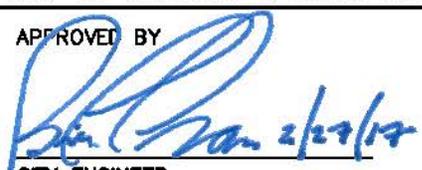
STEEL LIST FOR TOP	
DESCRIPTION	NO. REQ'D
#4 BARS, 4'-4" LONG	7
#4 BARS, 3'-11" LONG	8
#4 BARS, 1'-7" LONG	3
FACE ANGLE, 4'-6" LONG	1
DOWEL (SEE DETAIL)	4
FRAME AND COVER	1
PROTECTION BAR	(NOTE 15)

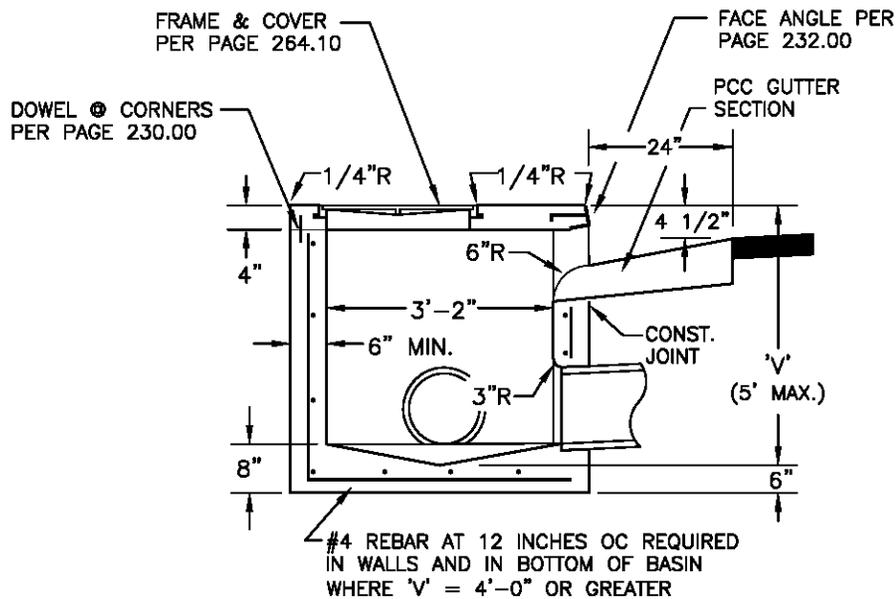


STEEL REINFORCEMENT LAYOUT

NOTES:

- ALL WORK DONE AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE "STANDARDS SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK).
- ALL CONCRETE SHALL BE PER PAGE 100.00.
- WHEN PRECAST CONCRETE BOXES ARE FURNISHED THE WALL THICKNESS MAY BE 4". REINFORCEMENT AND FACE ANGLE MAY BE 3/8" STOCK.
- STEEL REINFORCEMENT BARS SHALL BE REQUIRED IN THE WALLS AND BOTTOM OF BASIN ONLY IF DEPTH 'V' = 4'-0" OR GREATER. STEEL REINFORCEMENT IS REQUIRED IN TOP SLAB AT ALL TIMES.
- MINIMUM CLEAR SPACING BETWEEN FACE OF CONCRETE AND REINFORCING STEEL TO BE 1 1/2", OR 3" WHERE CONCRETE IS POURED AGAINST EARTH.
- FACE ANGLE SHALL BE GALVANIZED AFTER FABRICATION.
- CONNECTION PIPES AND OUTLET PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS.
- CURVATURE OF THE LIP AND INSIDE WALL AT GUTTER OPENING SHALL BE FORMED BY CURVED FORMS.
- FLOOR OF BASIN SHALL BE TROWELED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO THE OUTLET.
- MANHOLE LID SHALL BE PLACED ALONG BACK WALL.
- SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN GRADE, COLOR, FINISH AND SCORING TO CURB, GUTTER AND SIDEWALK ADJACENT TO BASIN.
- NO CONSTRUCTION JOINTS TO BE PLACED OTHER THAN WHERE SHOWN ON PLANS OR AS DIRECTED BY THE CITY ENGINEER.
- WHEN CONSTRUCTED IN AN AREA REQUIRING A 4 FT. WIDE SIDEWALK ADJACENT TO THE CURB, BOX LID SHALL BE EXTENDED TO MEET BACK EDGE OF SIDEWALK.
- OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH PRIOR TO POURING CONCRETE.
- FOR PUBLIC SAFETY, CLEAR CURB OPENING AT INLET SHALL NOT EXCEED SIX (6) INCHES; THEREFORE, WHEN THE CURB FACE IS GREATER THAN TEN (10) INCHES, INSTALL PROTECTION BAR PER PAGE 232.60.
- P.C.C. LOCAL DEPRESSION (CURB & GUTTER SECTION) SHALL EXTEND 5 FT EACH SIDE OF BASIN OPENING. COST OF LOCAL DEPRESSION SHALL BE INCLUDED IN PRICE OF CATCH BASIN.

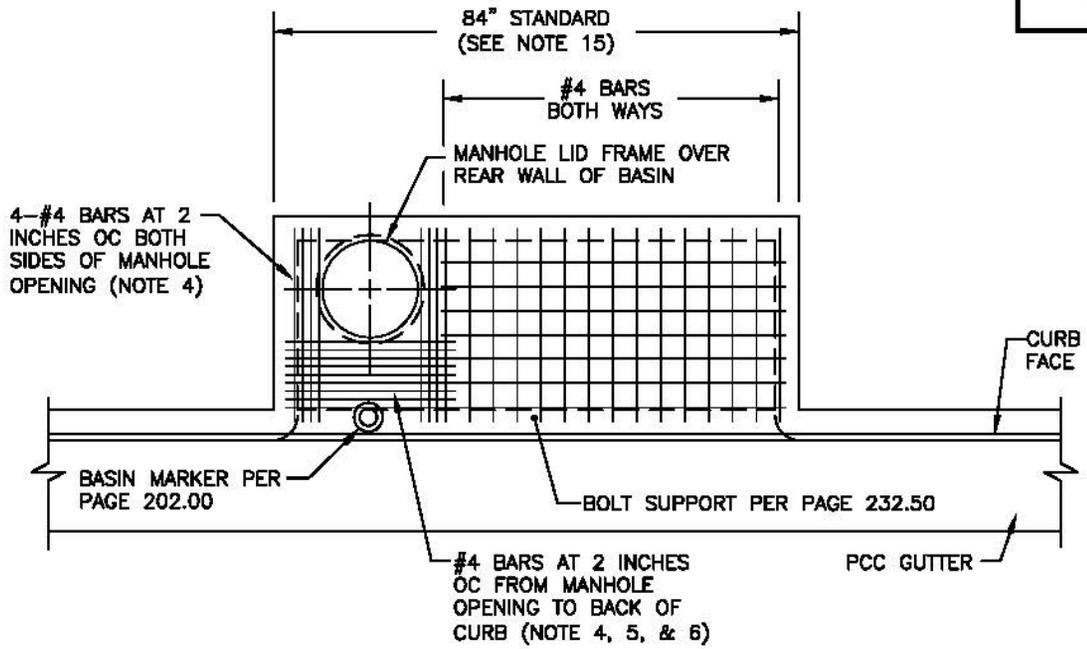
DWG DATE: 4/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
8	8/16	EDIT NOTE	APPROVED BY  CITY ENGINEER	CATCH BASIN NO. 3
7	7/13	UPDATE		
6	3/07	EDIT DEPTH		
MARK	DATE	REVISION		



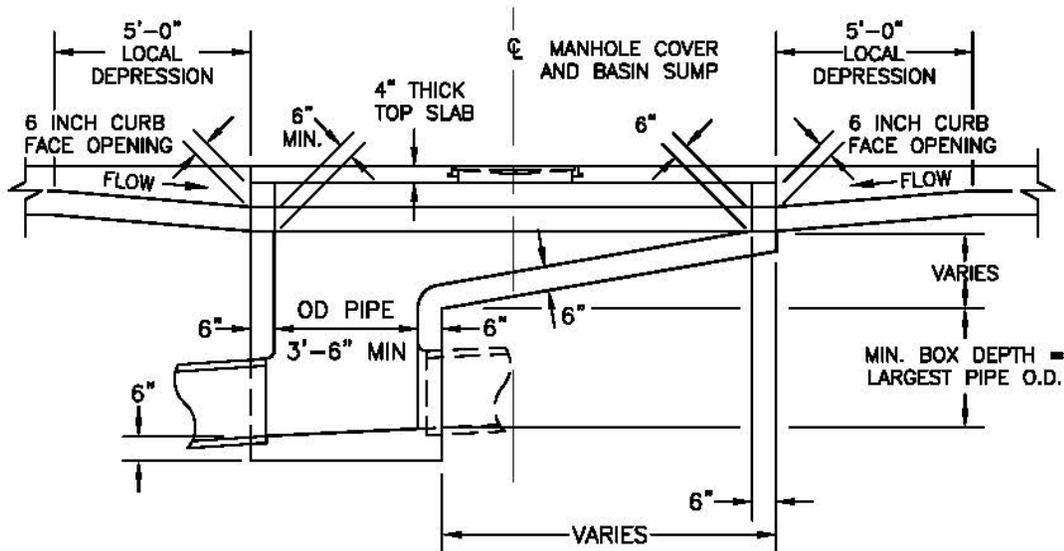
SIDE SECTION

NOTES:

1. ALL WORK PERFORMED AND MATERIALS PROVIDED SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK), OR AS DIRECTED BY THE ENGINEER.
2. ALL CONCRETE SHALL BE PER PAGE 100.00.
3. MANHOLE SHALL BE PLACED ALONG BACK WALL AND CENTERED OVER DEEPEST PART OF BASIN.
4. STEEL REINFORCING BARS ARE REQUIRED IN TOP SLAB AROUND MANHOLE OPENING AS PER STANDARD NO. 3 CATCH BASIN (PAGE 230.00) WITH #4 BARS AT 6" OC BOTH WAYS FOR THE REMAINDER OF TOP SLAB.
5. #4 BARS SHALL BE PLACED 1 1/2" UNDER LIP OF LID CASTING TO INSURE ADEQUATE SUPPORT (TYP. ALL SIDES).
6. MINIMUM CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND STEEL REINFORCING BARS SHALL BE 1 1/2 INCHES, OR 3 INCHES WHERE CONCRETE IS POURED AGAINST EARTH.
7. CONSTRUCTION JOINTS SHALL NOT BE PLACED IN LOCATIONS OTHER THAN THOSE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
8. FACE ANGLE SHALL BE PER PAGE 232.00.
9. FLOOR OF BASIN SHALL BE TROWELED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
10. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH PRIOR TO POURING CONCRETE.
11. SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SHAPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING CURB AND SIDEWALK ADJACENT TO BASIN.
12. CURVATURE OF THE LIP AND SIDE WALL AT GUTTER OPENING SHALL BE FORMED BY CURVED FORMS.
13. FOR PUBLIC SAFETY, CLEAR CURB OPENING AT INLET SHALL NOT EXCEED SIX (6) INCHES; THEREFORE, WHEN THE CURB FACE IS GREATER THAN TEN (10) INCHES, INSTALL PROTECTION BAR PER PAGE 232.60.
14. COST OF LOCAL DEPRESSION SHALL BE INCLUDED IN THE PRICE OF CATCH BASIN.
15. STANDARD WIDTH OF PRECAST LID IS 84 INCHES. WIDTH MAY VARY AS REQUIRED PER DESIGN.

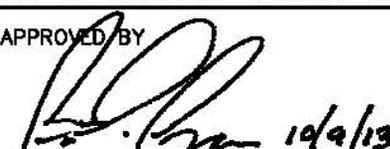


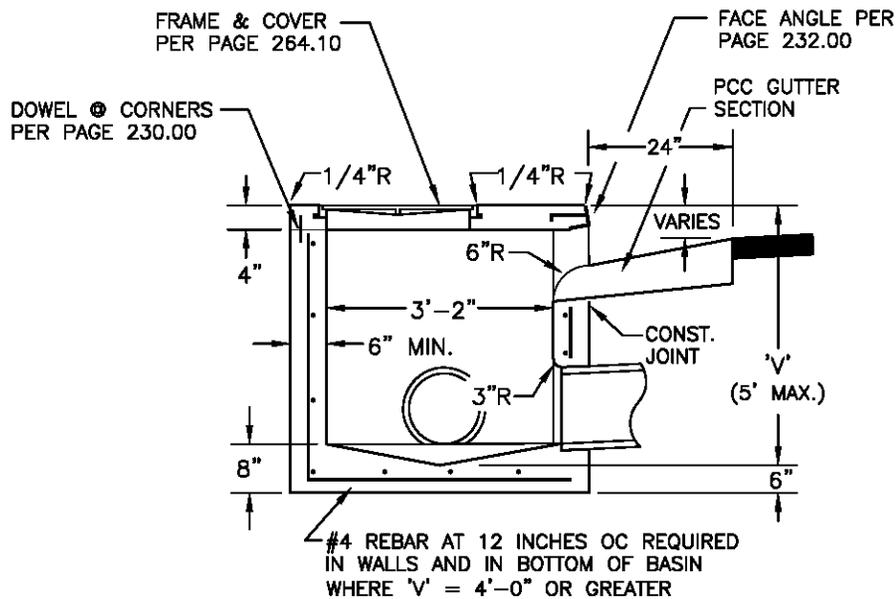
PLAN VIEW
STEEL REINFORCEMENT LAYOUT



FRONT SECTION

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\2009\231.50.DWG, 8.5X11.PDF (1 OF 2), 10/10/2013 12:09:52 PM, bethel

DWG DATE: 10/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
9	7/13	UPDATE PG.2	APPROVED BY  10/9/13 CITY ENGINEER	MODIFIED CATCH BASIN NO.3 OFFSET BOX
8	4/06	EDIT DEPTH		
MARK	DATE	REVISION		

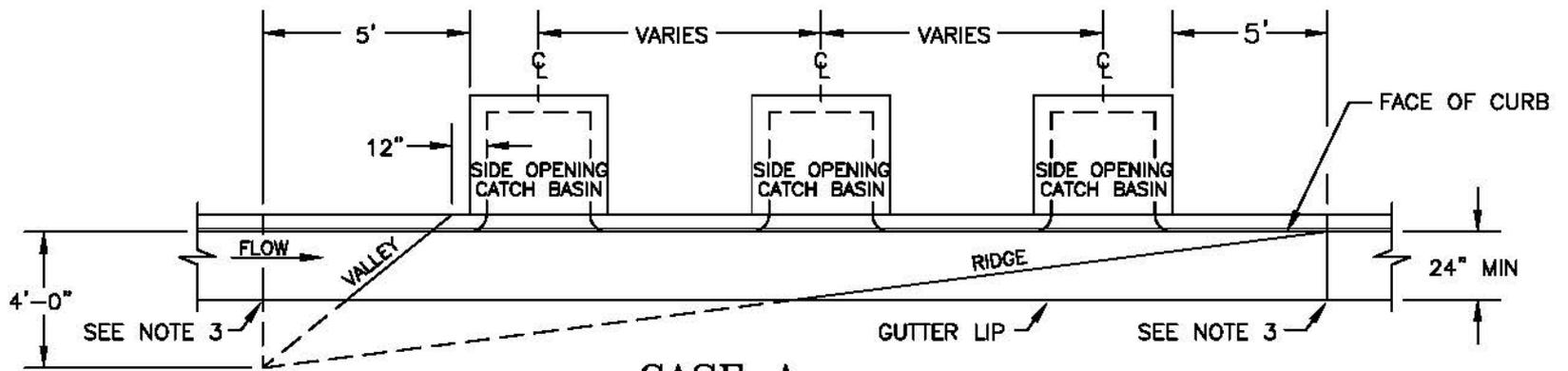


SIDE SECTION

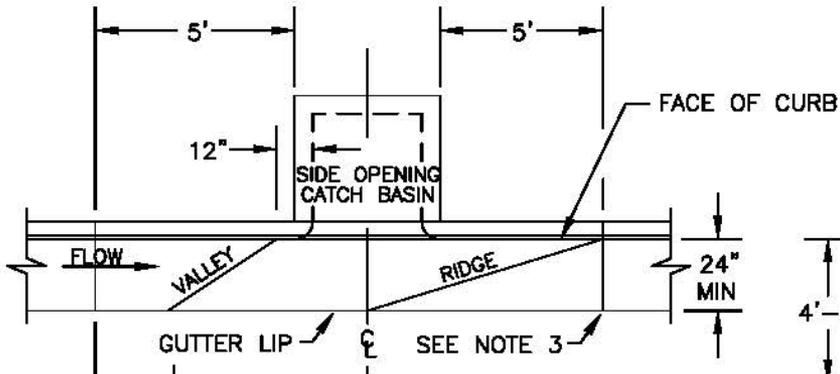
NOTES:

1. ALL WORK PERFORMED AND MATERIALS PROVIDED SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK), OR AS DIRECTED BY THE ENGINEER.
2. ALL CONCRETE SHALL BE PER PAGE 100.00.
3. MANHOLE SHALL BE PLACED ALONG BACK WALL AND CENTERED OVER DEEPEST PART OF BASIN.
4. STEEL REINFORCING BARS ARE REQUIRED AROUND MANHOLE OPENING AS PER STANDARD NO. 3 CATCH BASIN (PAGE 230.00) WITH #4 BARS AT 6" OC BOTH WAYS FOR THE REMAINDER OF TOP SLAB.
5. #4 BARS SHALL BE PLACED 1 1/2" UNDER LIP OF LID CASTING TO INSURE ADEQUATE SUPPORT (TYP. ALL SIDES).
6. MINIMUM CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND STEEL REINFORCING BARS SHALL BE 1 1/2 INCHES, OR 3 INCHES WHERE CONCRETE IS POURED AGAINST EARTH.
7. CONSTRUCTION JOINTS SHALL NOT BE PLACED IN LOCATIONS OTHER THAN THOSE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
8. FACE ANGLE SHALL BE PER PAGE 232.00.
9. FLOOR OF BASIN SHALL BE TROWELED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
10. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH PRIOR TO POURING CONCRETE.
11. SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SHAPE, GRADE, COLOR, FINISH, AND SCORING TO EXISTING CURB AND SIDEWALK ADJACENT TO BASIN.
12. CURVATURE OF THE LIP AND SIDE WALL AT GUTTER OPENING SHALL BE FORMED BY CURVED FORMS.
13. FOR PUBLIC SAFETY, CLEAR CURB OPENING AT INLET SHALL NOT EXCEED SIX (6) INCHES; THEREFORE, WHEN THE CURB FACE IS GREATER THAN TEN (10) INCHES, INSTALL PROTECTION BAR PER PAGE 232.60.
14. COST OF LOCAL DEPRESSION SHALL BE INCLUDED IN THE PRICE OF CATCH BASIN.
15. STANDARD WIDTH OF PRECAST LID IS 84 INCHES. WIDTH MAY VARY AS REQUIRED PER DESIGN.

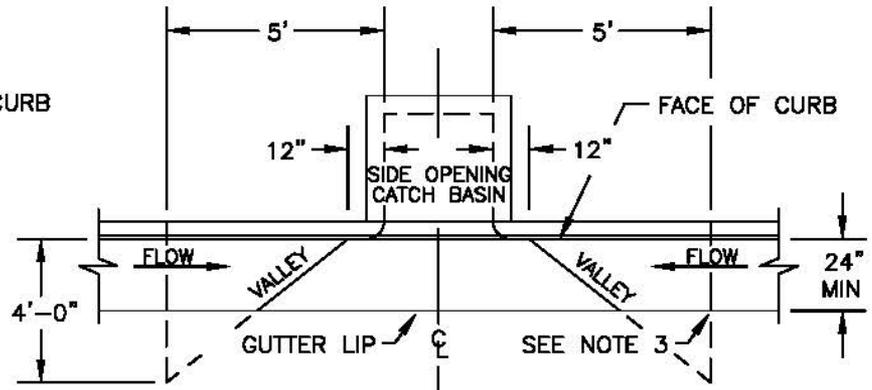
MARK	5	DWG DATE: 10/91	SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION
DATE	7/13 2/03	REVISION	UPDATE EDIT NOTES	APPROVED BY <i>[Signature]</i> 10/9/13
REVISION				



CASE A



CASE B

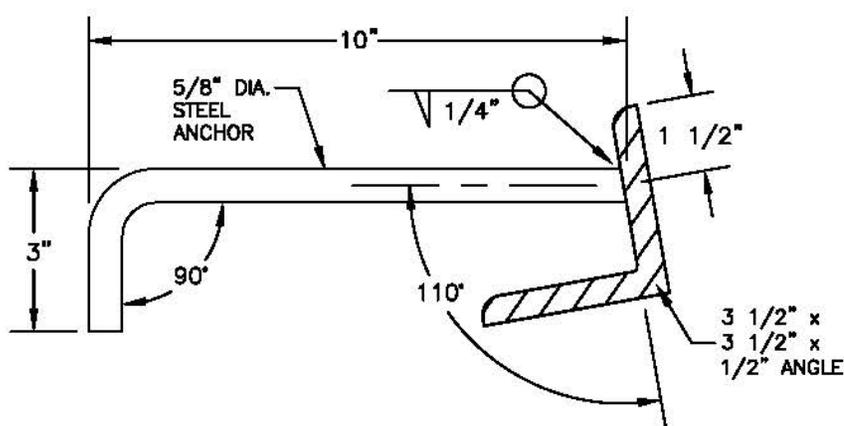


CASE C

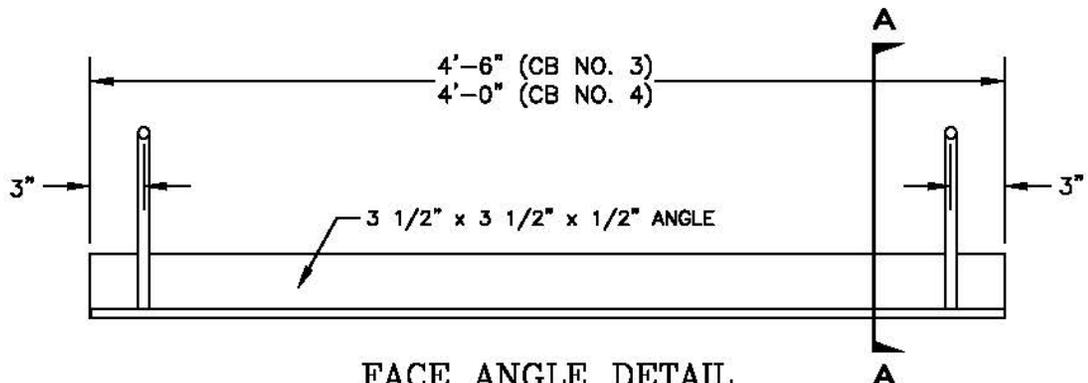
NOTES:

1. ALL WORK TO BE DONE AND MATERIALS SUPPLIED SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK).
2. ALL CONCRETE SHALL BE PER PAGE 100.00.
3. LOCAL DEPRESSION SHALL BE CASE 'C' UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. LOCAL DEPRESSION COST TO BE INCLUDED IN THE CATCH BASIN PRICE.
5. ELEVATION AT OUTER CORNERS TO BE SHOWN ON PLANS. IF NO ELEVATIONS ARE SHOWN, THE OUTER EDGE OF THE LOCAL DEPRESSION SHALL CONFORM TO THE FINISHED STREET SURFACE.
6. INDICATED CURB FACE TO BE SHOWN ON PLANS WHERE NO CURB EXISTS.
7. WHERE NO CURB EXISTS, CURB SHALL BE CONSTRUCTED BETWEEN ENDS OF LOCAL DEPRESSION
8. STAKES SHALL BE SET TO GRADE ALONG THE VALLEY AND ALONG THE RIDGE LINE (OUTER EDGE OF ACTUAL DEPRESSION AREA).

LOCAL DEPRESSION
FOR SIDE OPENING
CATCH BASIN

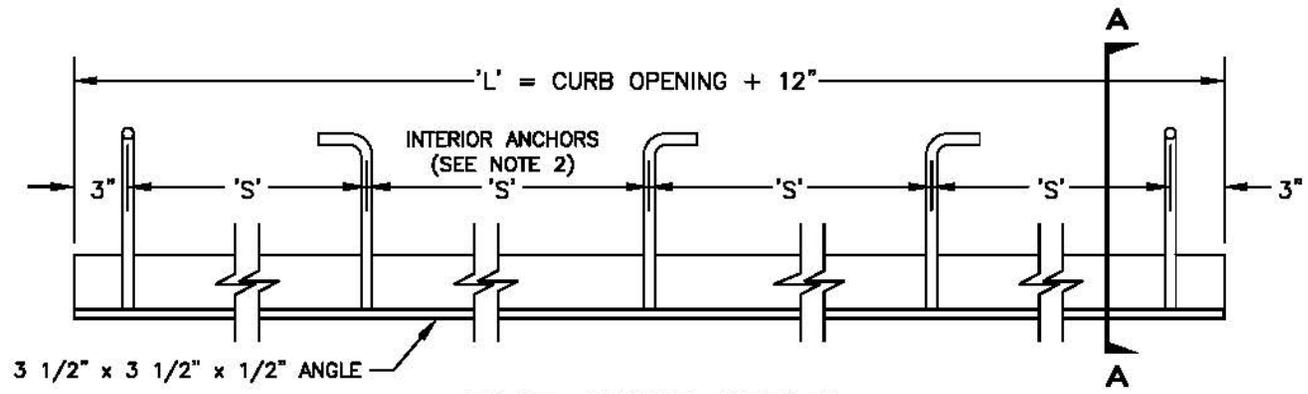


ANCHOR SECTION A-A



FACE ANGLE DETAIL

USED WITH CATCH BASIN NO. 3 (PAGE 230.00)
& CATCH BASIN NO. 4 (PAGE 240.00)

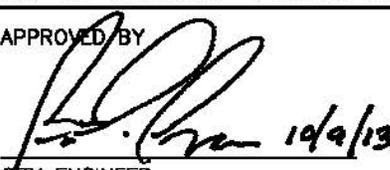


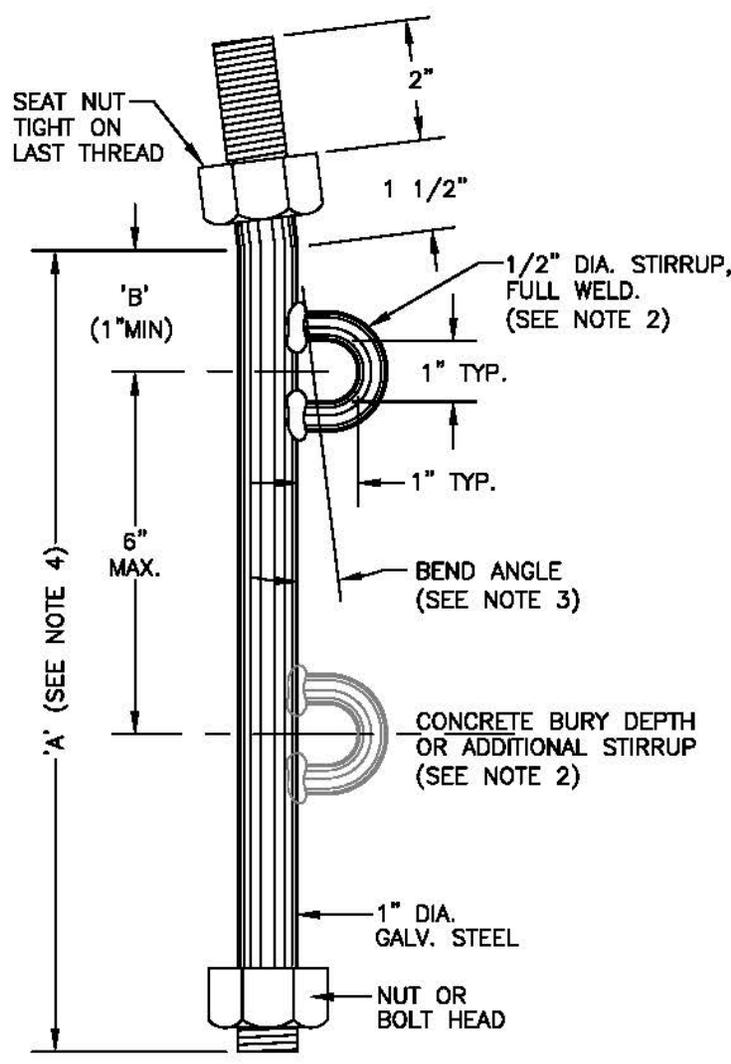
FACE ANGLE DETAIL

USED WITH MODIFIED CATCH BASIN NO. 3
(PAGES 231.00 & 231.50)

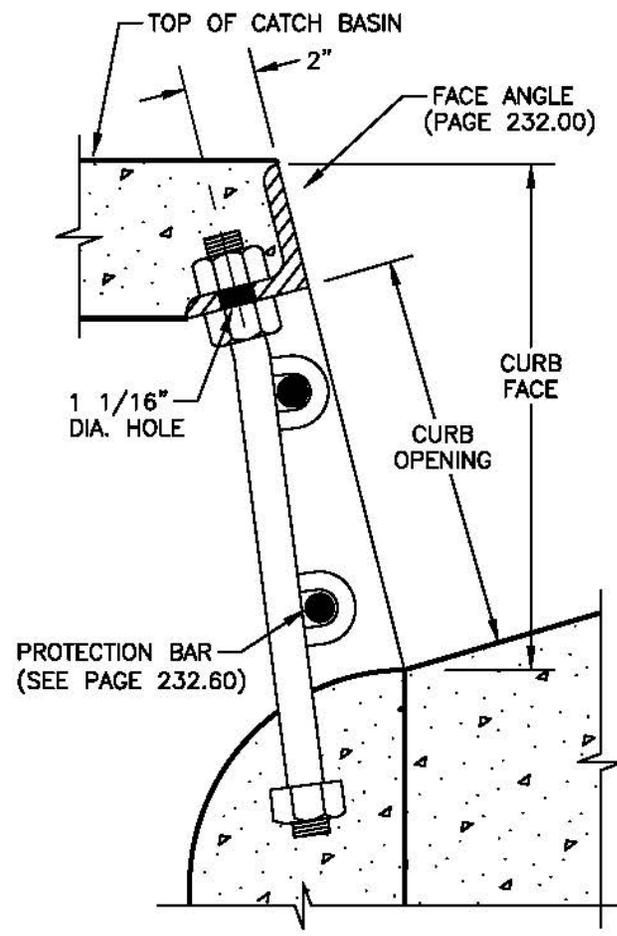
NOTES:

1. ALL ANGLES SHALL BE GALVANIZED AFTER FABRICATION.
2. INTERIOR ANCHORS SHALL BE TURNED 90°.
3. THE DISTANCE 'S' BETWEEN INTERIOR ANCHORS SHALL NOT EXCEED FOUR (4) FEET. ADDITIONAL ANCHORS SHALL BE ADDED AS NECESSARY AND SPACED EQUALLY ALONG FACE ANGLE.

DWG DATE: 10/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
5	7/13	EDIT NOTES & REMOVE TABLE	APPROVED BY  10/9/13 CITY ENGINEER	
4	2/03	EDIT TABLE		
MARK	DATE	REVISION	CATCH BASIN FACE ANGLE DETAILS	



SUPPORT BAR DETAIL



CURB OPENING SECTION

CATCH BASIN OPENING WIDTH	NO. OF BOLT SUPPORTS
5' - 10'	1
10' - 15'	2

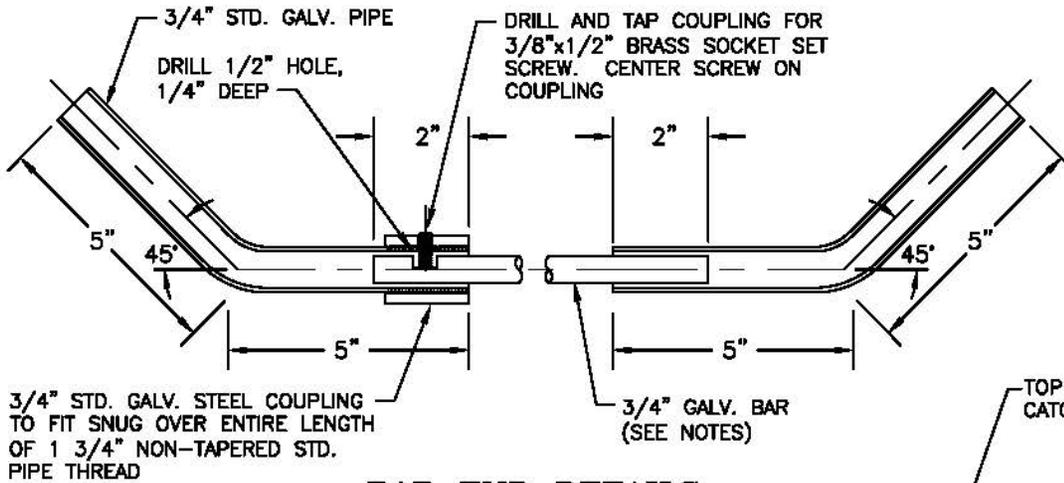
NOTES:

- BOLT SUPPORTS USED WITH PROTECTION BAR (PAGE 232.60).
- FOR PUBLIC SAFETY, CLEAR CURB OPENING AT INLETS SHALL NOT EXCEED SIX (6) INCHES. STIRRUPS SHALL BE WELDED TO SUPPORT BAR AS REQUIRED TO MAINTAIN THIS SAFETY STANDARD. WHEN MORE THAN ONE STIRRUP IS INSTALLED, THE MAXIMUM DISTANCE (CENTER TO CENTER) OF STIRRUPS SHALL NOT EXCEED SIX (6) INCHES.
- BEND ANGLE SHALL BE 7° FOR CURB FACES UP TO 16" AND 4° FOR CURB FACES OVER 16".
- LENGTH 'A' SHALL BE EQUAL TO THE CURB HEIGHT.
- BOLT SUPPORTS SHALL BE EVENLY SPACED ALONG LENGTH OF CATCH BASIN OPENING AS REQUIRED BY THE SPACING TABLE ABOVE.

DWG DATE: 7/92		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
5	7/13	ADD NOTES & REVISE TABLE UPDATE	APPROVED BY	
4	98		<i>[Signature]</i> 10/9/13	
MARK	DATE	REVISION	CITY ENGINEER	

DETAIL OF BOLT SUPPORT FOR CATCH BASIN

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\2002\23250.DWG, 8.5X11.PDF, 10/10/2013 12:10:20 PM, bethel

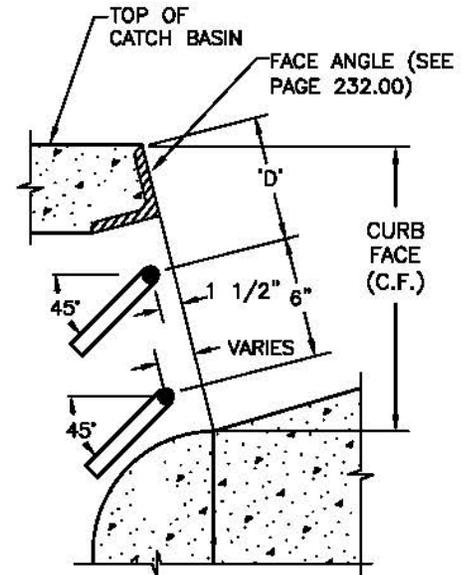


BAR END DETAILS

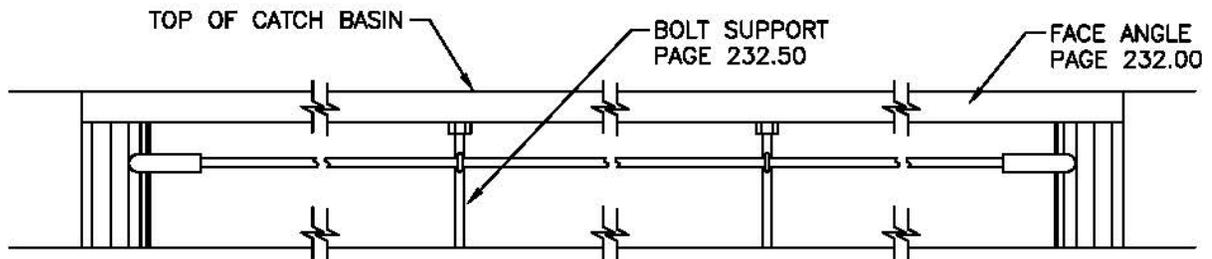
NOTES:

1. ALL BARS SHALL BE 3/4" GALV., HOT ROLLED STEEL PER A.S.T.M. DESIGNATION A-7-50T.
2. BAR LENGTH SHALL NOT EXCEED 21 FT. AND SHALL BE CUT TO FIT IN FIELD.
3. WHEN 'W' IS OVER 21 FT., PROTECTION BAR SHALL CONSIST OF TWO OR MORE SECTIONS DEPENDING UPON LENGTH OF BASIN. LOCATION OF SPECIAL SUPPORT BARS AND ADDITIONAL BRASS SOCKET SET SCREWS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

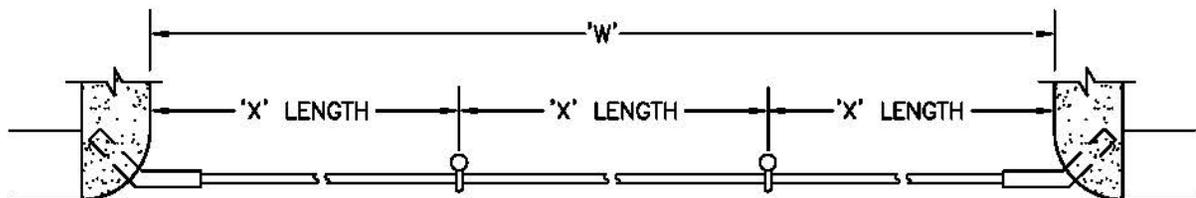
OPENING WIDTH	NO. OF BOLT SUPPORTS	NO. OF 'X' LENGTHS
5'-10'	1"	2
10'-15'	2"	3
15'-20'	3"	4
20'-25'	4"	5
25'-30'	5"	6



SIDE SECTION



ELEVATION VIEW



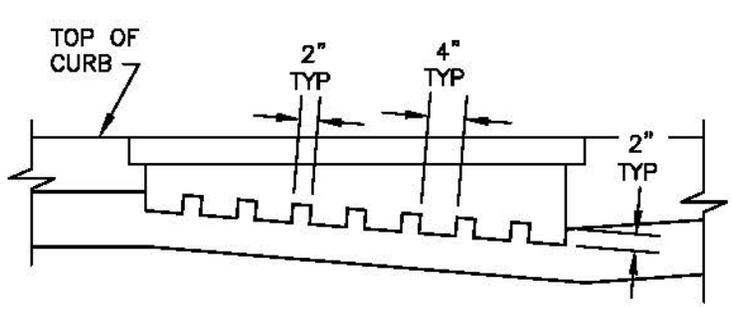
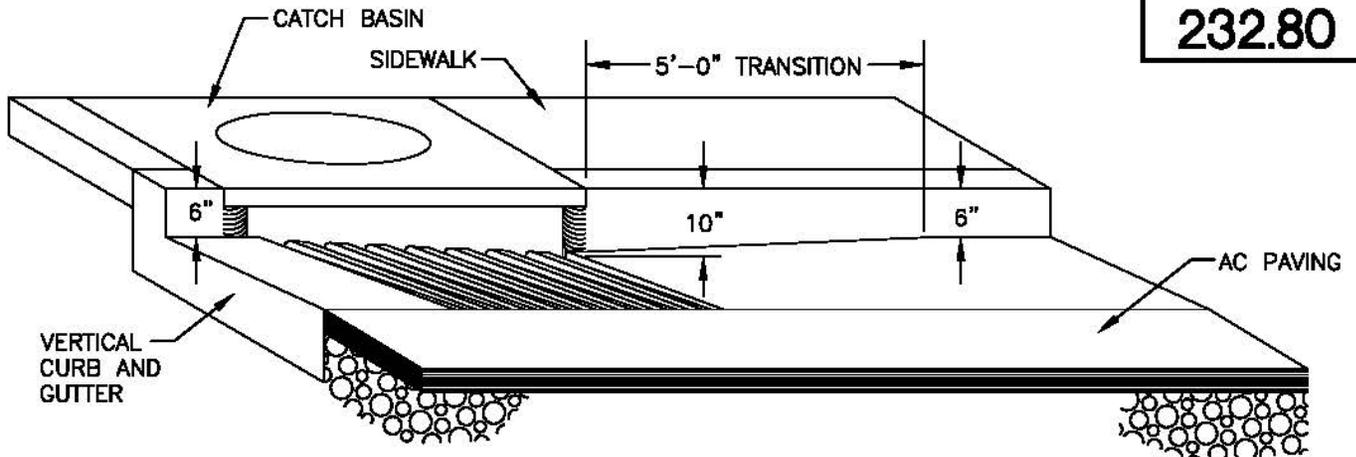
TOP SECTION VIEW

DWG DATE: 7/92 SCALE: NTS CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION

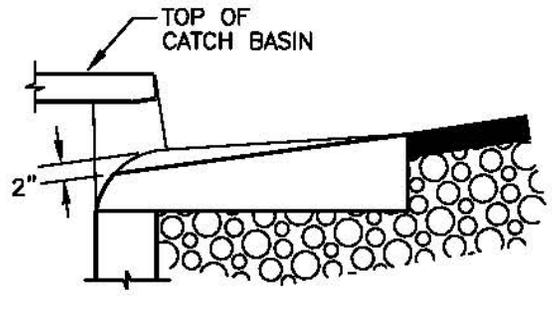
MARK	DATE	REVISION
5	7/13	UPDATE
4	2/03	UPDATE

APPROVED BY
[Signature]
10/9/13
CITY ENGINEER

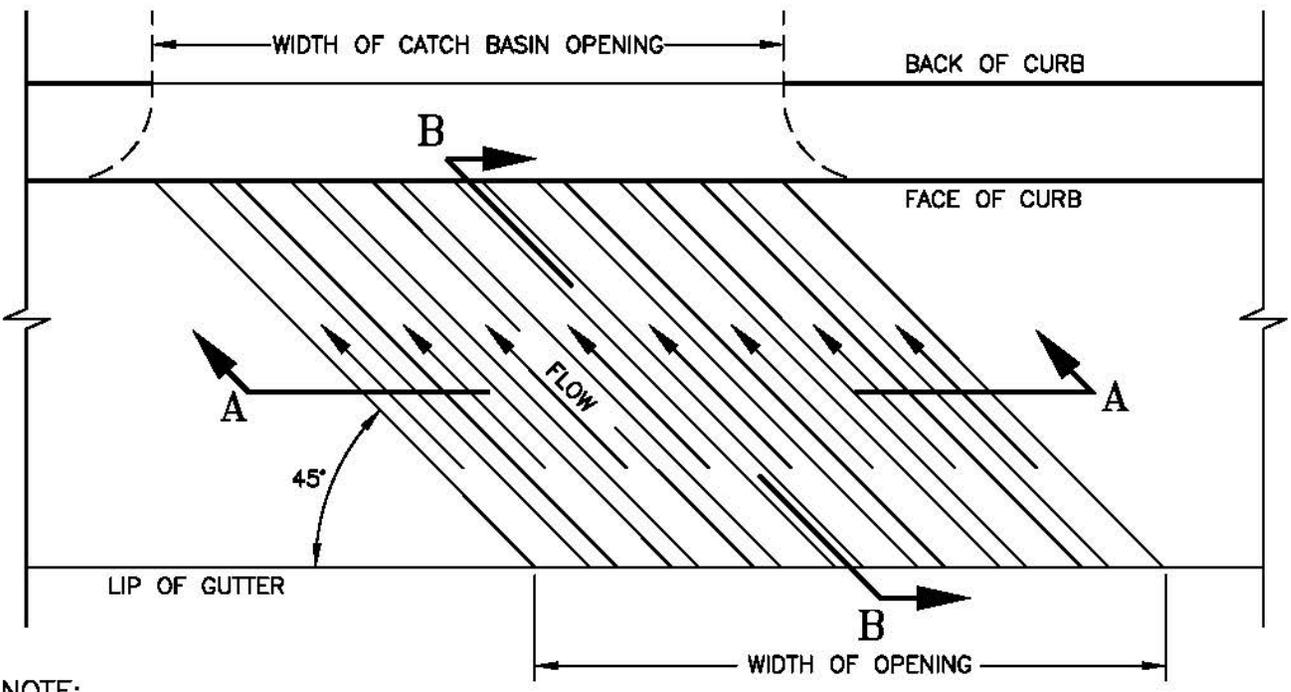
**DETAIL OF REMOVABLE
PROTECTION BAR FOR
CATCH BASIN**



SECTION A-A



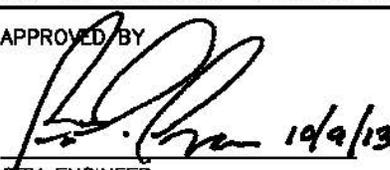
SECTION B-B



PLAN

NOTE:
FOR USE ON STREETS WITH
GRADES IN EXCESS OF 5%

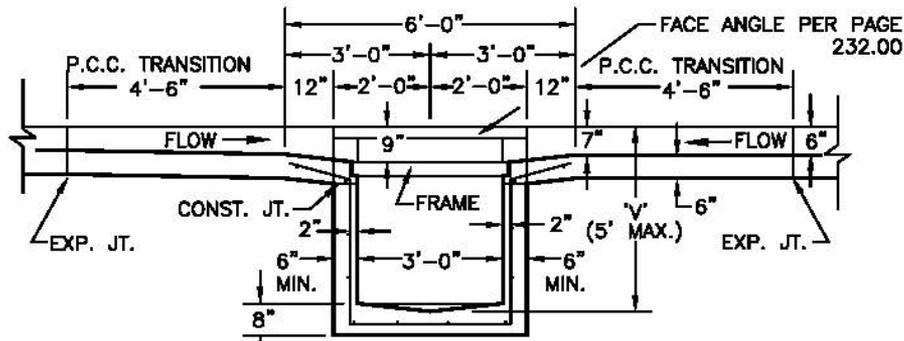
P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\2009\23280.DWG, 8.5X11.PDF, 10/10/2013 12:11:13 PM, bethel

DWG DATE: 12/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
4	7/13	UPDATE	APPROVED BY  10/9/13 CITY ENGINEER	
3	98	UPDATE		
MARK	DATE	REVISION	TYPICAL DEFLECTOR INLET FOR USE WITH STANDARD OR MODIFIED CATCH BASIN NO. 3	

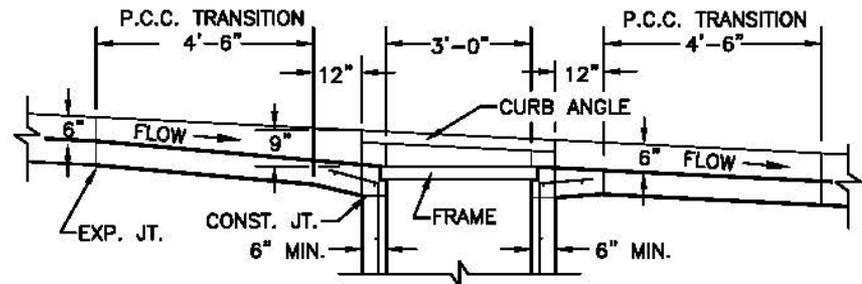
MARK	9	DWG DATE: 7/92
DATE	7/13 3/07	SCALE: NTS
REVISION	REVISION NOTES EDIT DEPTH	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION
APPROVED BY <i>[Signature]</i> CITY ENGINEER		

CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION

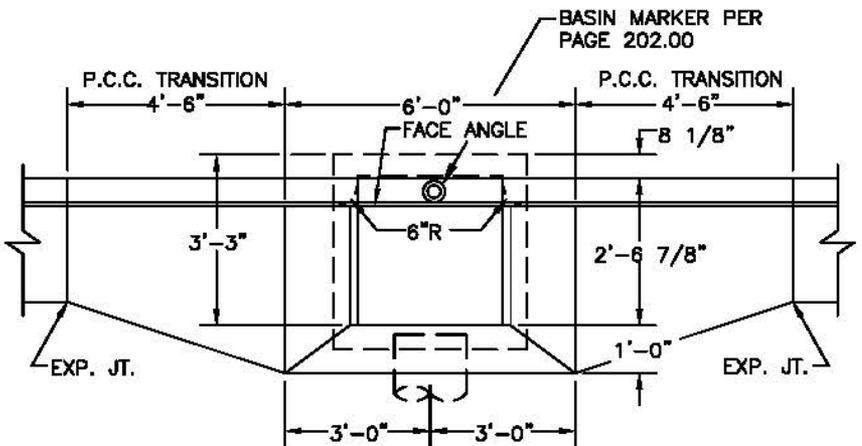
CATCH BASIN
NO. 4



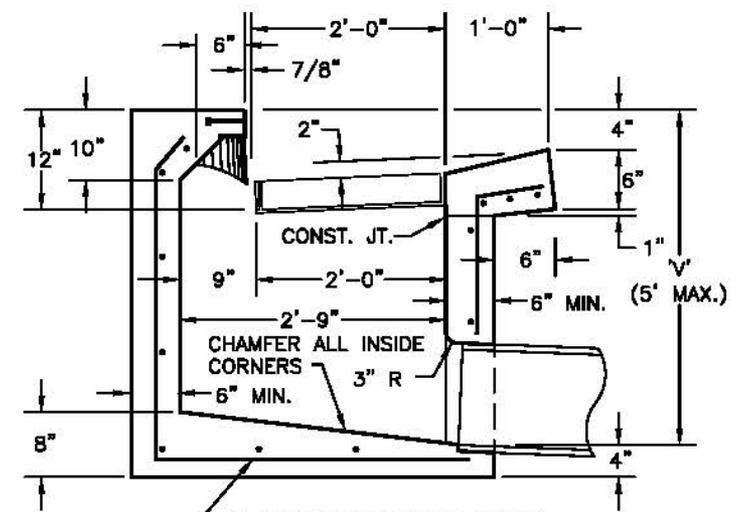
SECTION
CURB GRADES LESS THAN 5%



SECTION
CURB GRADES GREATER THAN 5%



PLAN

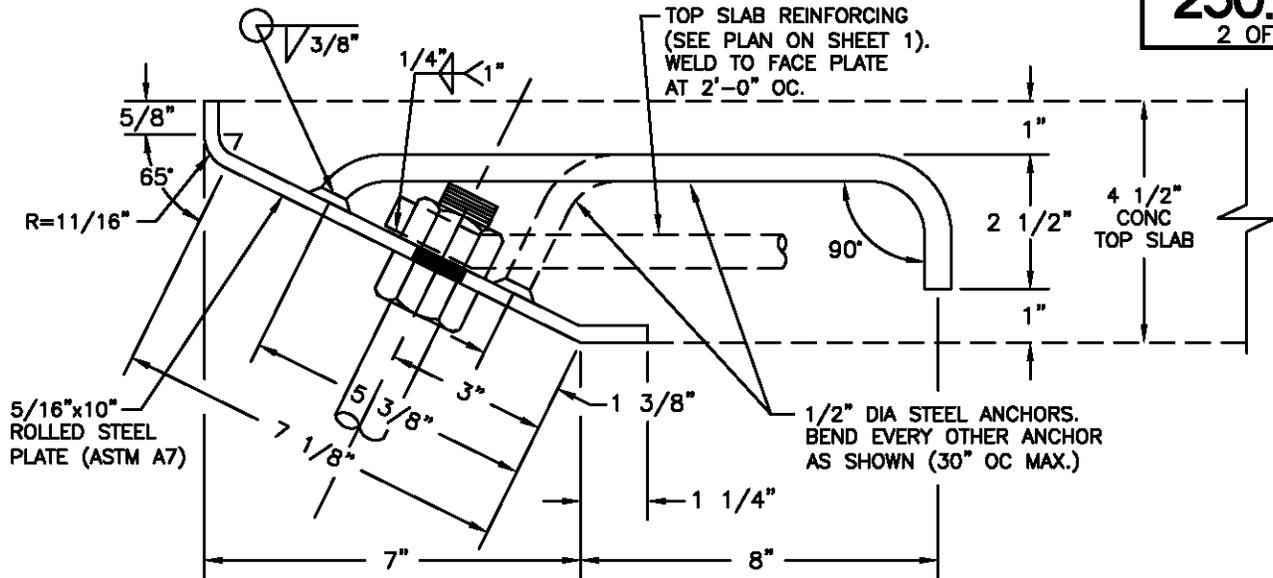


SECTION

#4 REINFORCING BARS AT 12" OC BOTH WAYS REQUIRED IN WALL AND BOTTOM OF BASIN WHEN 'V'=4'-0" OR GREATER

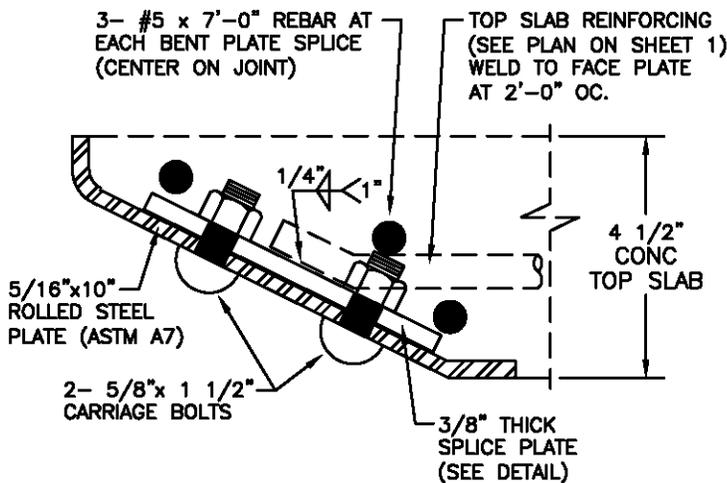
NOTES:

1. ALL WORK PERFORMED AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK).
2. ALL CONCRETE SHALL BE PER PAGE 100.00.
3. FOR GRATE AND FRAME ASSEMBLY, SEE PAGE 210.10.
4. FLOOR OF BASIN SHALL BE TROWELED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO THE OUTLET.
5. FOR PUBLIC SAFETY, CLEAR CURB OPENING AT INLET SHALL NOT EXCEED SIX (6) INCHES; THEREFORE, WHEN THE CURB FACE IS GREATER THAN TEN (10) INCHES, INSTALL PROTECTION BAR PER PAGE 232.60.
6. PRECAST CALTRANS TYPE 'GO' DRAINAGE BOX MAY BE USED ON STREETS WITH LESS THAN 5% LONGITUDINAL GRADE.
7. LOCAL DEPRESSION COST SHALL BE INCLUDED IN THE PRICE OF THE CATCH BASIN.
8. LOCATION FOR INSTALLATION SHALL BE APPROVED BY CITY ENGINEER.

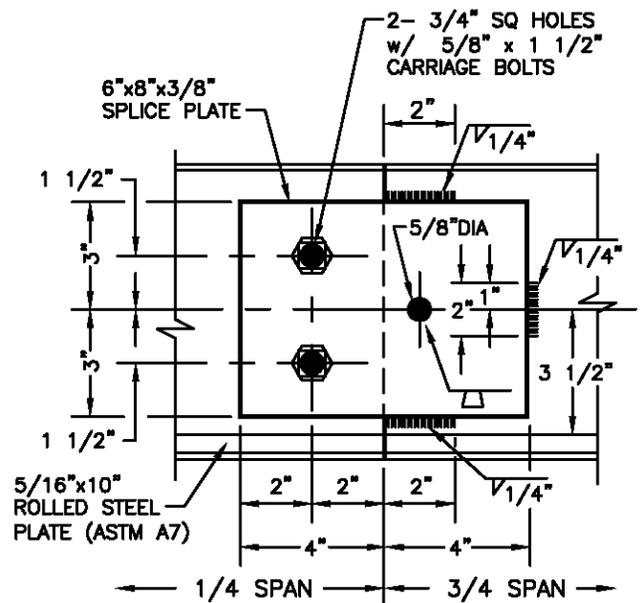


CATCH BASIN OPENING WIDTH	NO. OF BOLT SUPPORTS
5' - 10'	1
10' - 15'	2
15' - 20'	3

FACE PLATE ANCHORAGE DETAIL



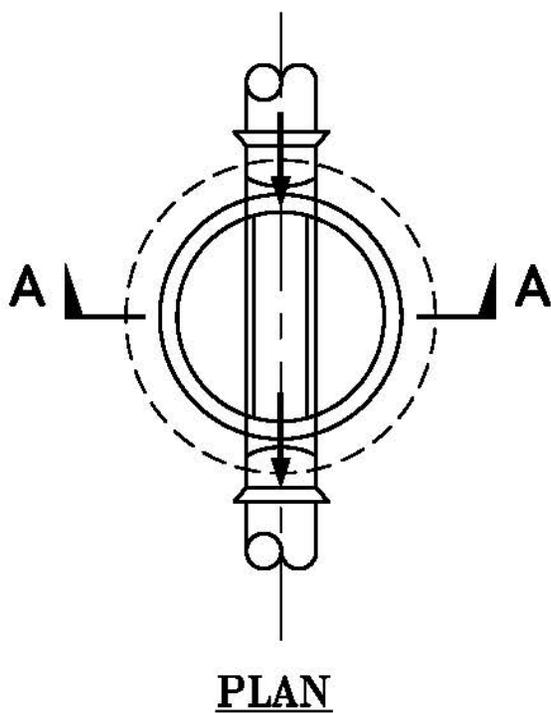
SPLICE PLATE SECTION



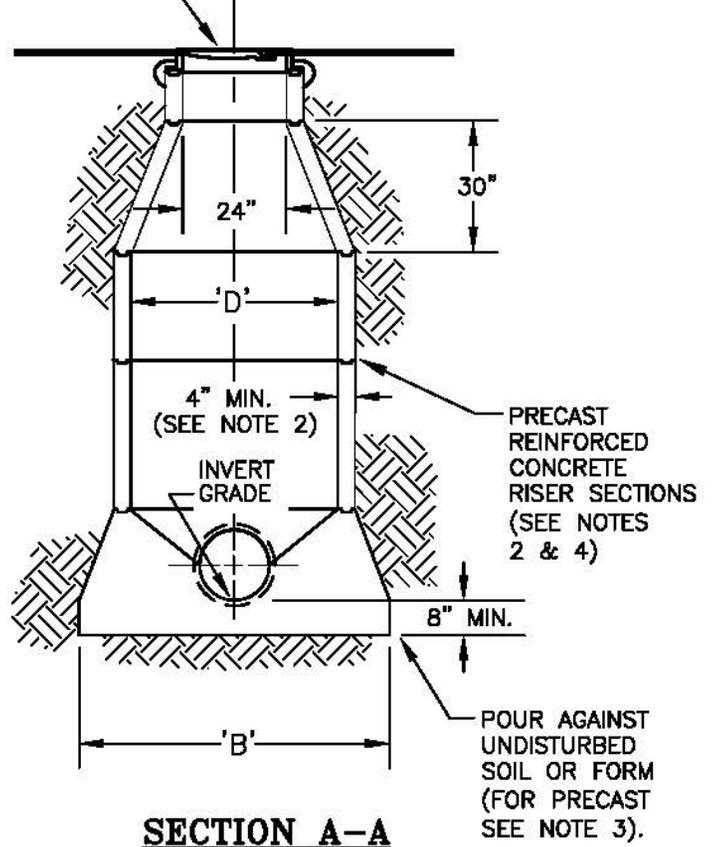
SPLICE PLATE DETAIL

NOTES:

- ALL WORK PERFORMED AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK).
- ALL CONCRETE TO BE PER PAGE 100.00.
- LIP OF MANHOLE FRAME SHALL BE PLACED IN CORNER OF BOX OVER REAR AND SIDE WALLS FOR SUPPORT AS SHOWN.
- DIMENSION 'v' = 3'-0" MIN.
- WHEN 'v' = 4'-0" OR GREATER, #4 REINFORCING BARS AT 12 INCHES OC. ARE REQUIRED IN WALLS AND BOTTOM OF BOX.
- MINIMUM CLEAR SPACING BETWEEN ALL REINFORCING BARS AND FACE OF CONCRETE TO BE 1 1/2 INCHES, AND 3 INCHES WHERE CONCRETE IS POURED AGAINST EARTH.
- NO CONSTRUCTION JOINTS ARE TO BE PLACED IN LOCATIONS OTHER THAN THOSE SHOWN OR AS DIRECTED BY THE CITY ENGINEER.
- FLOOR OF BASIN SHALL BE TROWELED TO A HARD SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO THE OUTLET PIPE.
- OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH PRIOR TO PLACEMENT OF CONCRETE.
- SURFACE OF ALL EXPOSED CONCRETE SHALL CONFORM IN SHAPE, GRADE, COLOR, FINISH AND SCORING TO ADJACENT CURB AND SIDEWALK.
- CURVATURE OF THE LIP AND SIDE WALL AT GUTTER OPENING SHALL BE FORMED BY CURVED FORMS.
- BOLT SUPPORTS SHALL BE EVENLY SPACED ALONG LENGTH OF CATCH BASIN OPENING AS REQUIRED BY THE SPACING TABLE ABOVE. SEE PAGE 232.50 FOR BOLT SUPPORT DETAILS.
- FACE PLATE SHALL BE GALVANIZED AFTER FABRICATION.
- WHEN FACE PLATE LENGTH IS BETWEEN 21 AND 41 FEET IN LENGTH, TWO SECTIONS MAY BE USED. SECTIONS SHALL BE SPLICED AT ONE FOURTH THE DISTANCE BETWEEN SUPPORTS. SEE SPLICE PLATE DETAILS ABOVE.
- LOCAL DEPRESSION COST SHALL BE INCLUDED IN THE PRICE OF CATCH BASIN.



FINISH GRADE ADJUSTMENT
PER PAGE 612.00

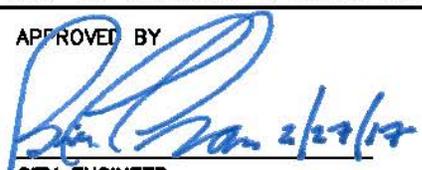


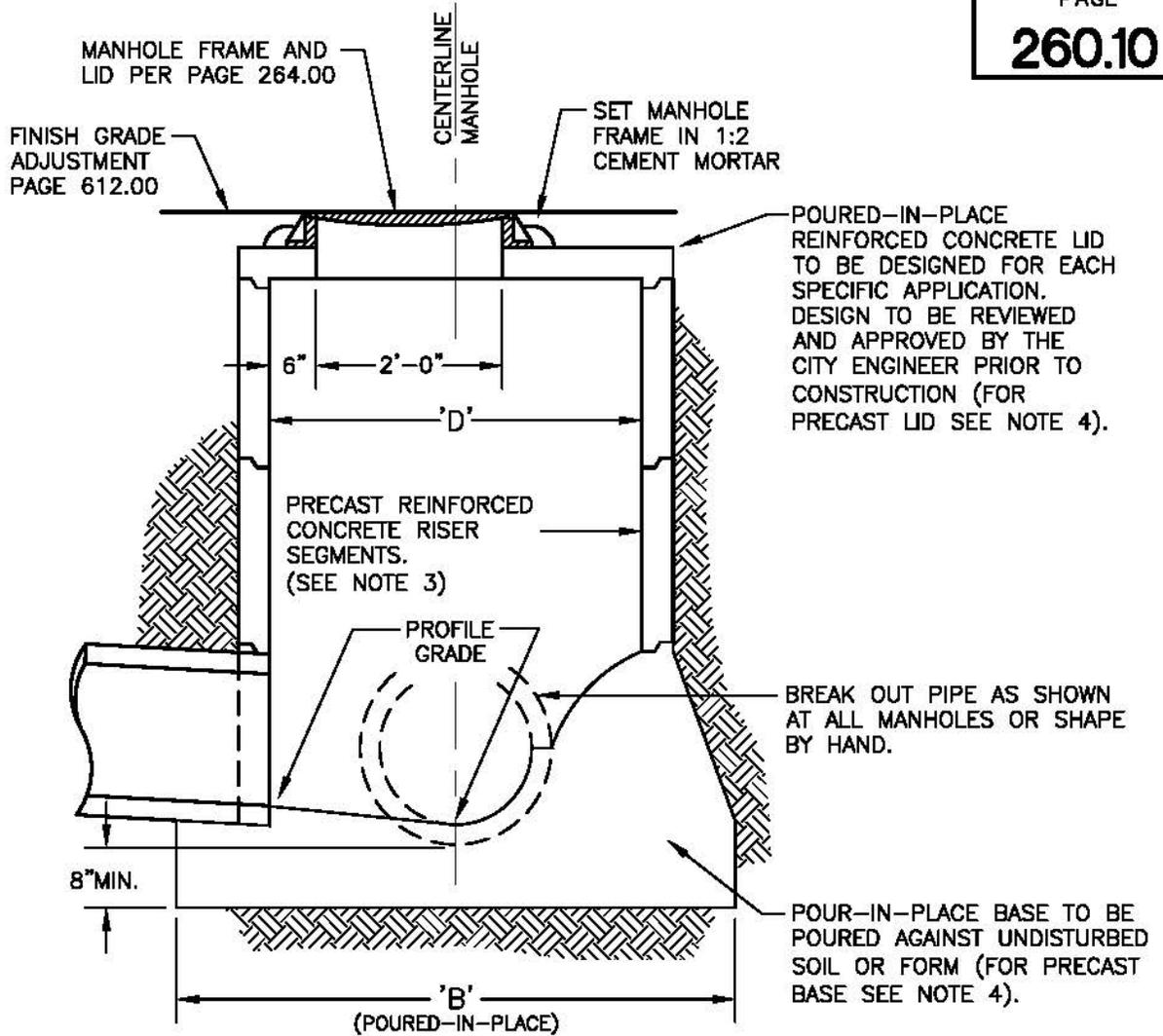
OUTLET DIA.	'D'	'B'
15" - 24"	4'-0"	6'-0"
27" - 42"	5'-0"	7'-0"
48" & LARGER	6'-0"	8'-0"

NOTES:

- ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
- PRECAST REINFORCED CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM DESIGNATION C478-90 (4" MIN. WALL THICKNESS). ALL SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
- PRECAST CONCRETE BASES MANUFACTURED BY COOK CONCRETE PRODUCTS, TEICHERT AGGREGATE, OR EQUAL MAY BE USED IN LIEU OF POURED-IN-PLACE BASES.
- ALL SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT.
 - A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH IN DIAMETER.
 - A SINGLE BEAD SHALL BE USED IF THE SEALANT IS 1 1/4-INCH OR GREATER DIAMETER.
- WHERE MANHOLES ARE NOT LOCATED IN STREETS OR TRAVELED WAY, PLACE TOP OF MANHOLE 12" TO 36" ABOVE EXISTING GROUND UNLESS OTHERWISE SHOWN ON PLANS.
- BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'B' IN ALL OTHER LOCATIONS. COMPACTION REQUIREMENTS PER PAGE 610.00 & PAGE 705.00.



DWG DATE: 7/92		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
7	8/16	EDIT NOTE	APPROVED BY  CITY ENGINEER	
6	7/13	UPDATE		
5	4/06	EDIT NOTES		
4	2/03	NAME CHG		
MARK	DATE	REVISION	TYPE 1 STORM DRAIN MANHOLE	



OUTLET DIA.	'D'	'B'
12" - 24"	4'-0"	6'-0"
27" - 42"	5'-0"	7'-0"
48" & LARGER	6'-0"	8'-0"

NOTES:

1. ALL CONCRETE USED IN MANHOLE SHALL BE PER PAGE 100.00.
2. PIPE MAY BE LAID THROUGH A "LINE" MANHOLE EXCEPT WHERE A GRADE CHANGE OCCURS.
3. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM DESIGNATION C478 (4" MIN. WALL THICKNESS). ALL SECTIONS SHALL HAVE TONGUE AND GROOVE JOINTS.
4. PRECAST LID AND BASE SECTIONS AS MANUFACTURED BY 'COOK CONCRETE PRODUCTS', TEICHERT AGGREGATE, OR EQUAL MAY BE USED IN LIEU OF POURED-IN-PLACE LIDS WITH PRIOR APPROVAL BY THE CITY ENGINEER.
5. ALL MANHOLE SEGMENTS SHALL BE BEDDED IN FLEXIBLE JOINT SEALANT.
 - A DOUBLE BEAD SHALL BE USED IF SEALANT IS 3/4-INCH OR 1-INCH DIAMETER.
 - A SINGLE BEAD IF SEALANT IS 1 1/4-INCH OR GREATER IN DIAMETER.
6. WHERE MANHOLES ARE NOT LOCATED IN STREETS, PLACE TOP OF MANHOLE LID 12" TO 24" ABOVE FINISHED GRADE UNLESS OTHERWISE SHOWN ON PLANS.
7. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'B' IN ALL OTHER LOCATIONS. COMPACTION REQUIREMENTS PER PAGE 610.00 & PAGE 705.00.



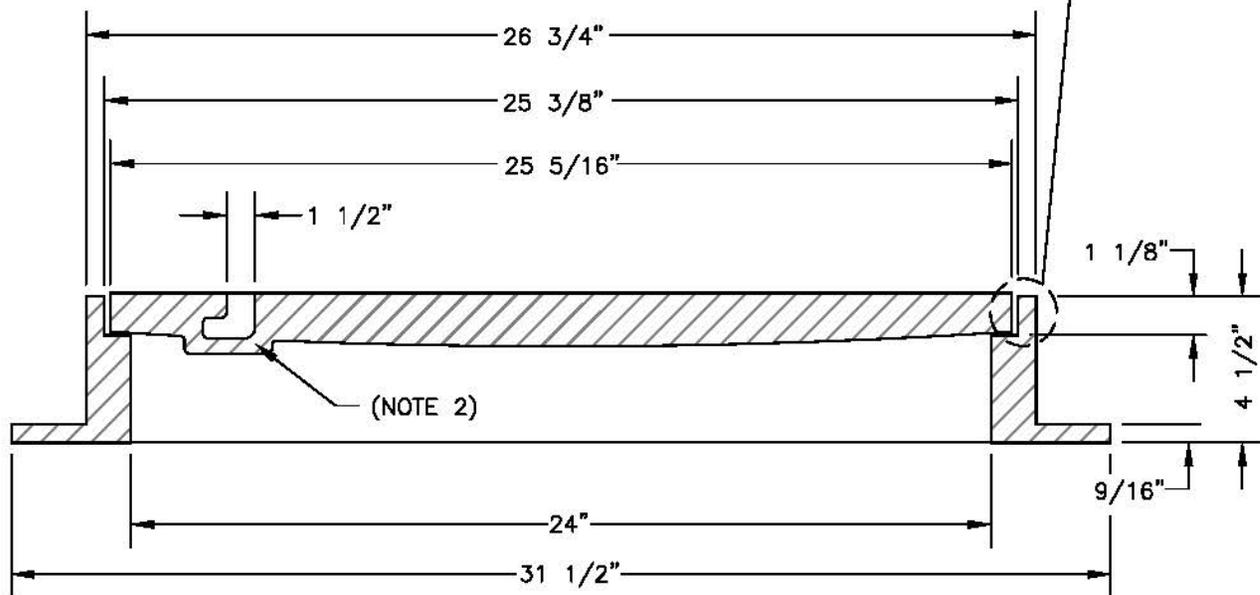
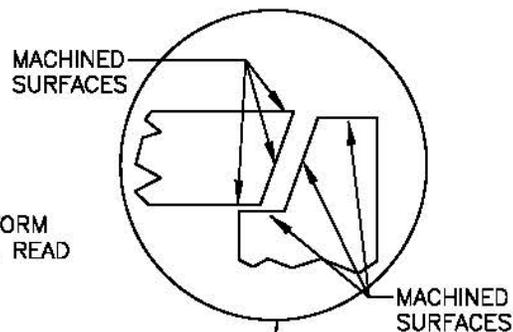
DWG DATE: 12/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
10	8/16	EDIT NOTE	APPROVED BY  CITY ENGINEER	
9	7/13	UPDATE		
8	2/03	NAME CHG		
7	98	COMBINE STD		
MARK	DATE	REVISION	TYPE 2 STORM DRAIN MANHOLE	



ACCEPTABLE MANUFACTURERS
DOMESTIC MANUFACTURER ONLY
CONTACT CITY OF REDDING
(530) 224-6068

TOP OF COVER

MARKINGS ON ALL STORM
DRAIN COVERS SHALL READ
"STORM DRAIN"

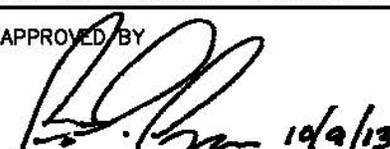


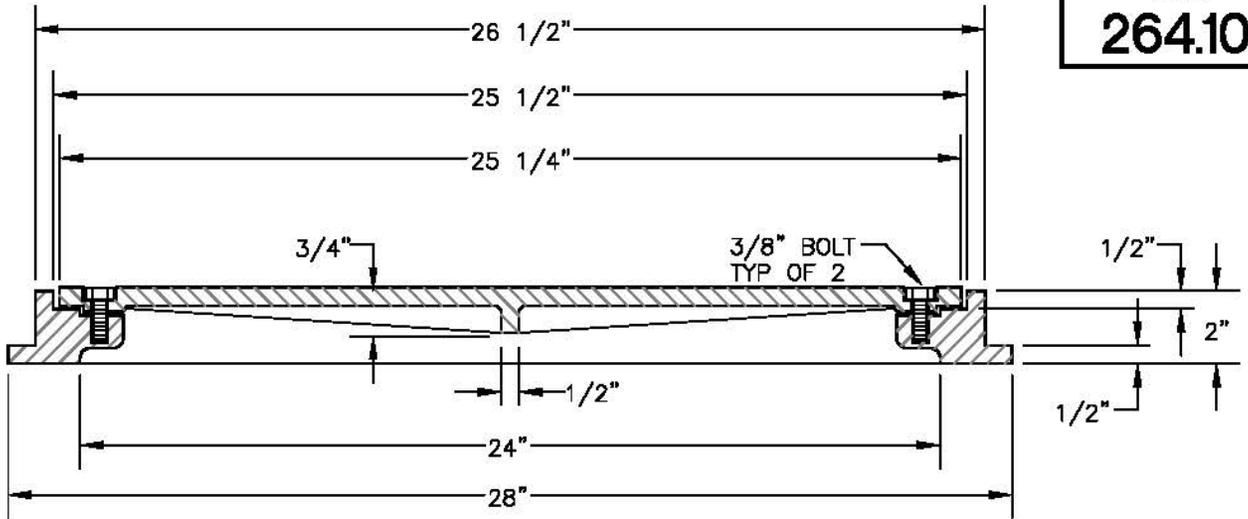
COVER SECTION

NOTES:

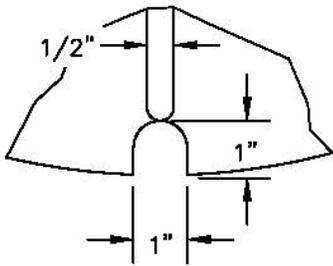
1. FRAME AND COVER FULLY MACHINED ON SURFACES AS SHOWN TO PROVIDE NO-ROCK, NO-STICK FIT.
2. CASTING SHALL BE FURNISHED WITH CLOSED PICKHOLES.
3. ALL PARTS OF ACCEPTABLE ASSEMBLIES SHALL BE INTERCHANGEABLE.

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\2003\264.00.DWG, 8.5X11.PDF, 10/10/2013 12:12:10 PM, bethel

DWG DATE: 98		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
3	7/13	UPDATE	APPROVED BY  10/9/13 CITY ENGINEER	24 INCH STORM DRAIN MANHOLE COVER ASSEMBLY (STREET TYPE)
2	4/06	EDIT NOTES		
1	2/03	DECOR. LID		
MARK	DATE	REVISION		



COVER SECTION

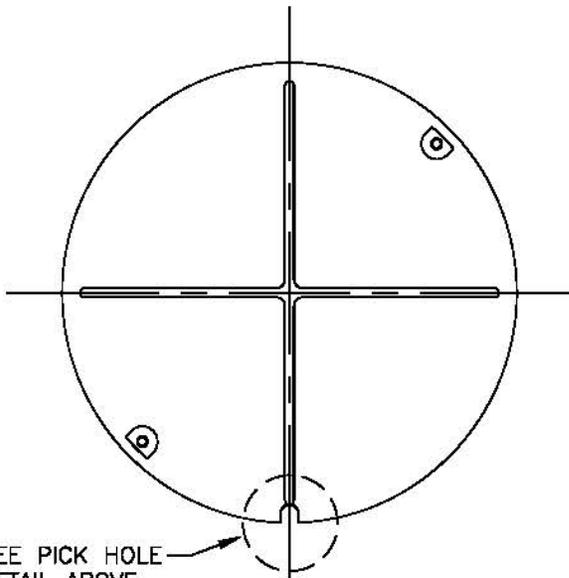


PICK HOLE DETAIL

ACCEPTABLE MANUFACTURERS
DOMESTIC MANUFACTURER ONLY
CONTACT CITY OF REDDING
(530) 224-6068

NOTES:

1. ALL PARTS OF ACCEPTABLE ASSEMBLIES SHALL BE INTERCHANGEABLE.
2. COVER IS NON-TRAFFIC RATED



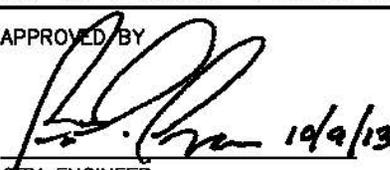
SEE PICK HOLE
DETAIL ABOVE

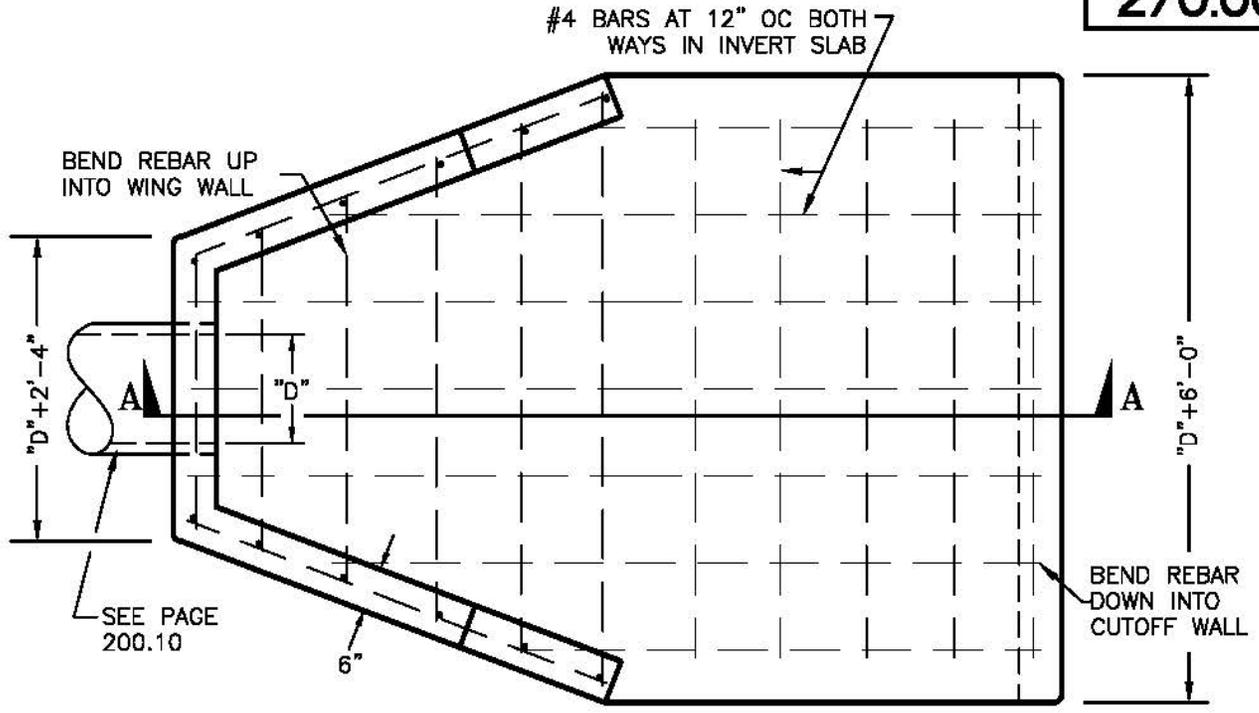
BOTTOM OF COVER



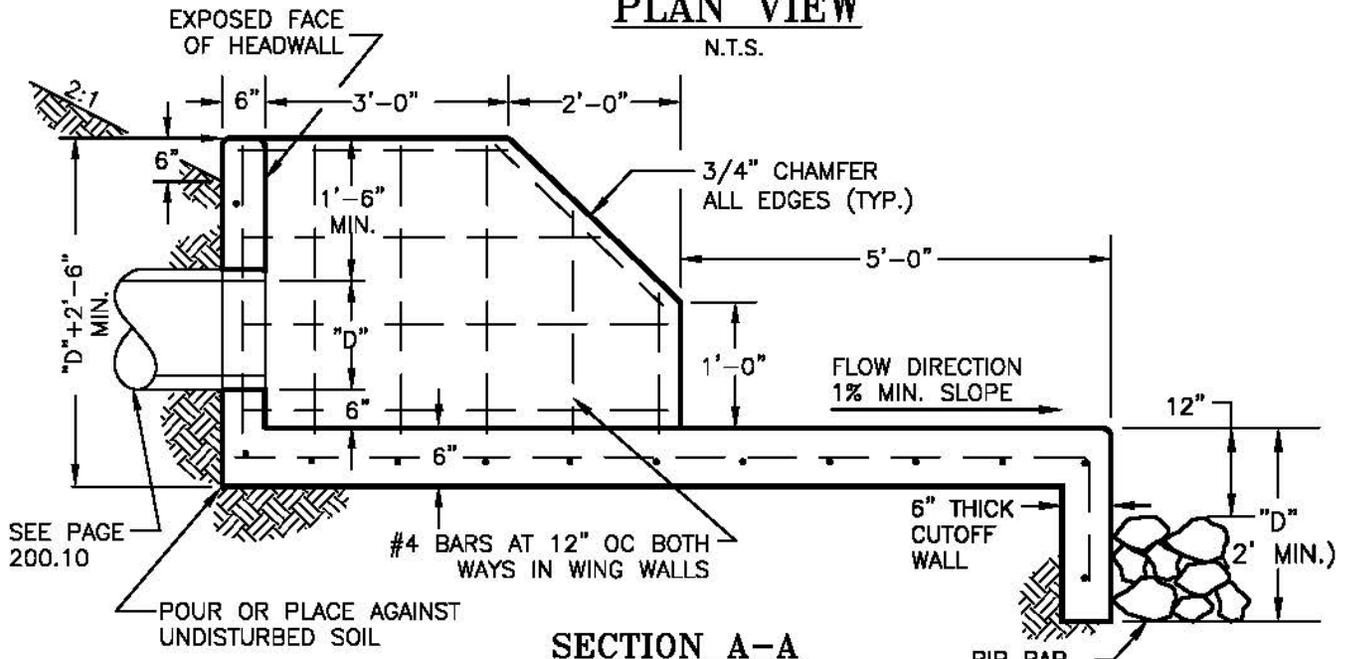
MARKING ON ALL STORM
DRAIN COVERS SHALL
READ-"STORM DRAIN"

TOP OF COVER

DWG DATE: 11/91		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
7	7/13	UPDATE	APPROVED BY  10/9/13 CITY ENGINEER	24 INCH STORM DRAIN MANHOLE COVER ASSEMBLY (SIDEWALK TYPE, NON-TRAFFIC RATED)
6	4/06	EDIT NOTES		
5	2/03	DECOR. LID		
MARK	DATE	REVISION		



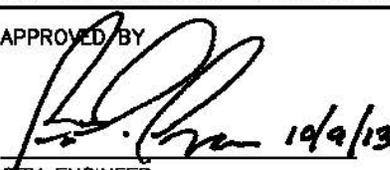
PLAN VIEW
N.T.S.



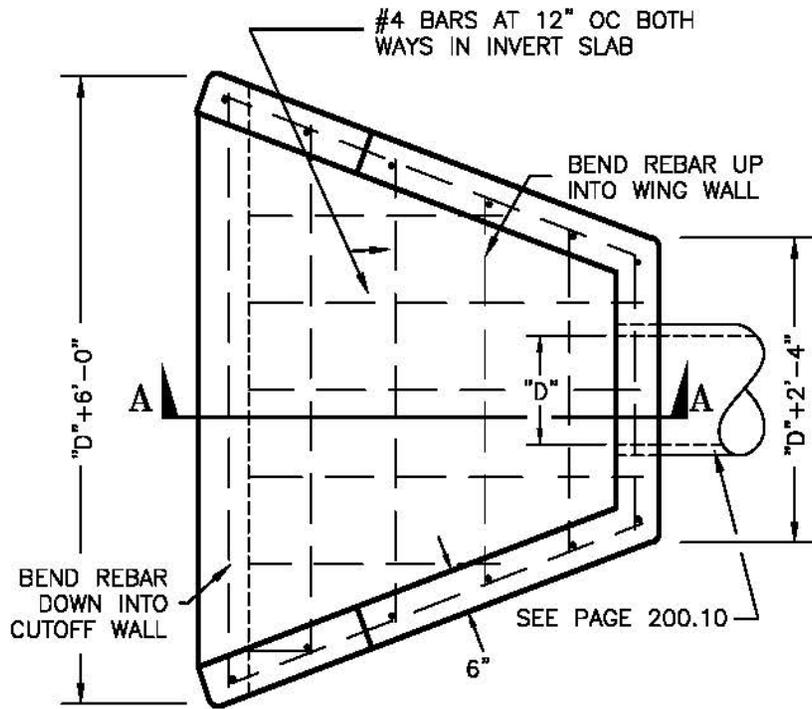
SECTION A-A
N.T.S.

NOTES:

1. "D" EQUALS PIPE DIAMETER.
2. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS. COMPACTION REQUIREMENTS PER STD PAGE 610.00
3. PLACEMENT OF RIP RAP DOWNSTREAM OF THE STRUCTURE IS REQUIRED TO A LENGTH NECESSARY TO ATTENUATE VELOCITY AND PREVENT EROSION.
4. ALL HEADWALLS FOR PIPE LARGER THAN 42" DIAMETER ("D") SHALL BE ENGINEERED.
5. PROVIDE GUARDRAILS/PEDESTRIAN BARRIER PER THE CALIFORNIA BUILDING CODE WHEN NECESSARY.

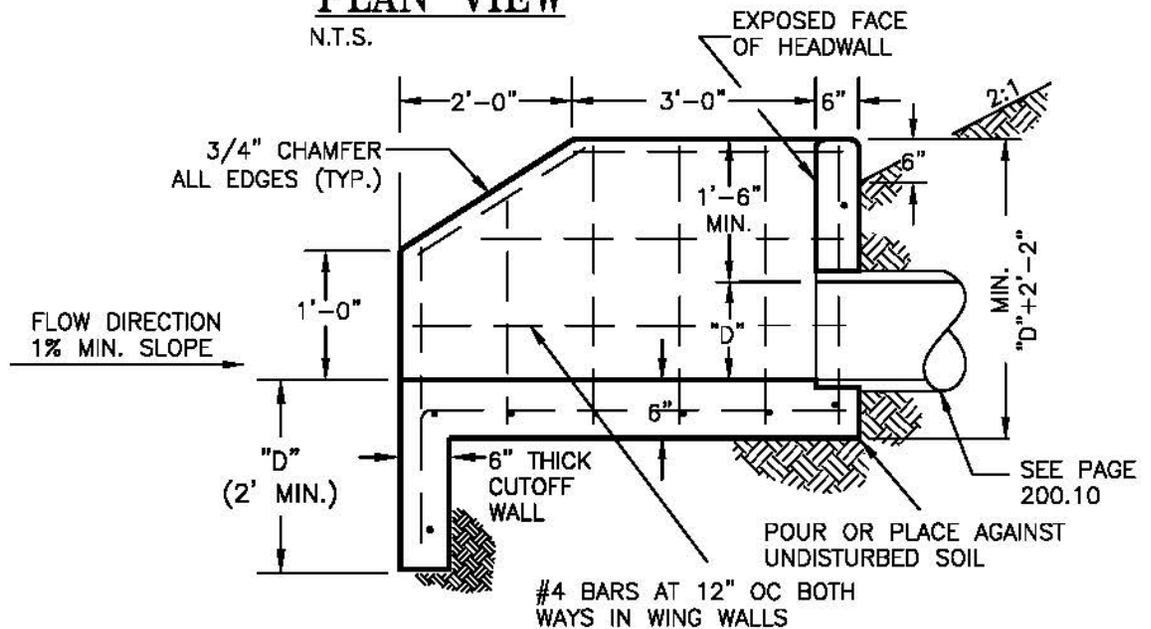
DWG DATE: 10/11		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
6	7/13	REVISED STD	APPROVED BY  10/9/13 CITY ENGINEER	STANDARD OUTLET HEADWALL STRUCTURE
5	4/06	EDIT NOTES		
4	2/03	ADD NOTES		
MARK	DATE	REVISION		

P:\STANDARDS\CONSTRUCTION STANDARDS\DWG\20027000.DWG, 8.5X11.PDF, 10/10/2013 12:12:28 PM, bethel



PLAN VIEW

N.T.S.

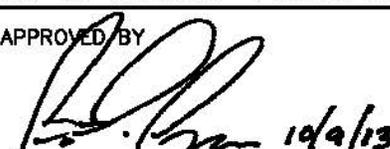


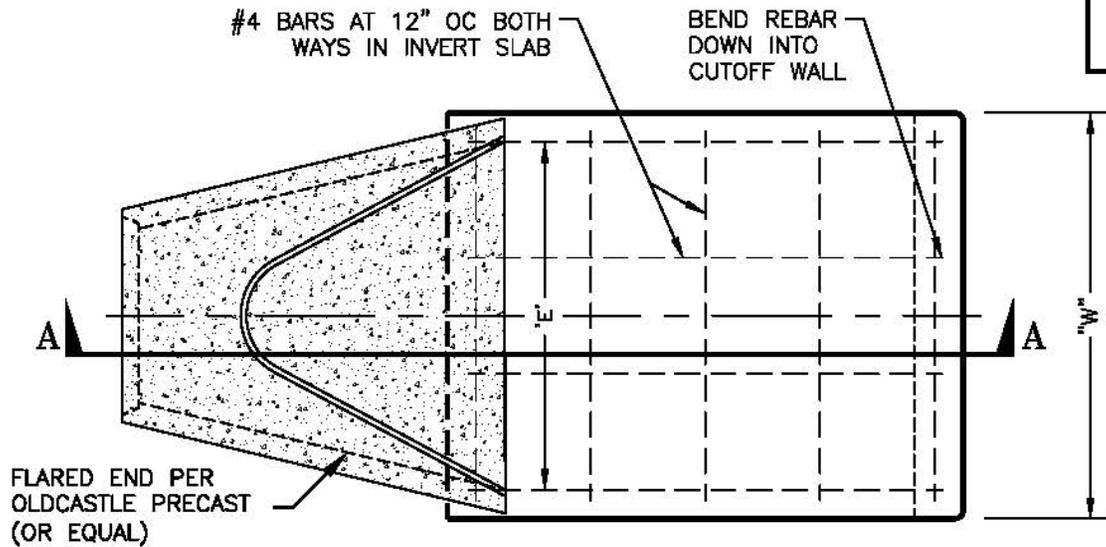
SECTION A-A

N.T.S.

NOTES:

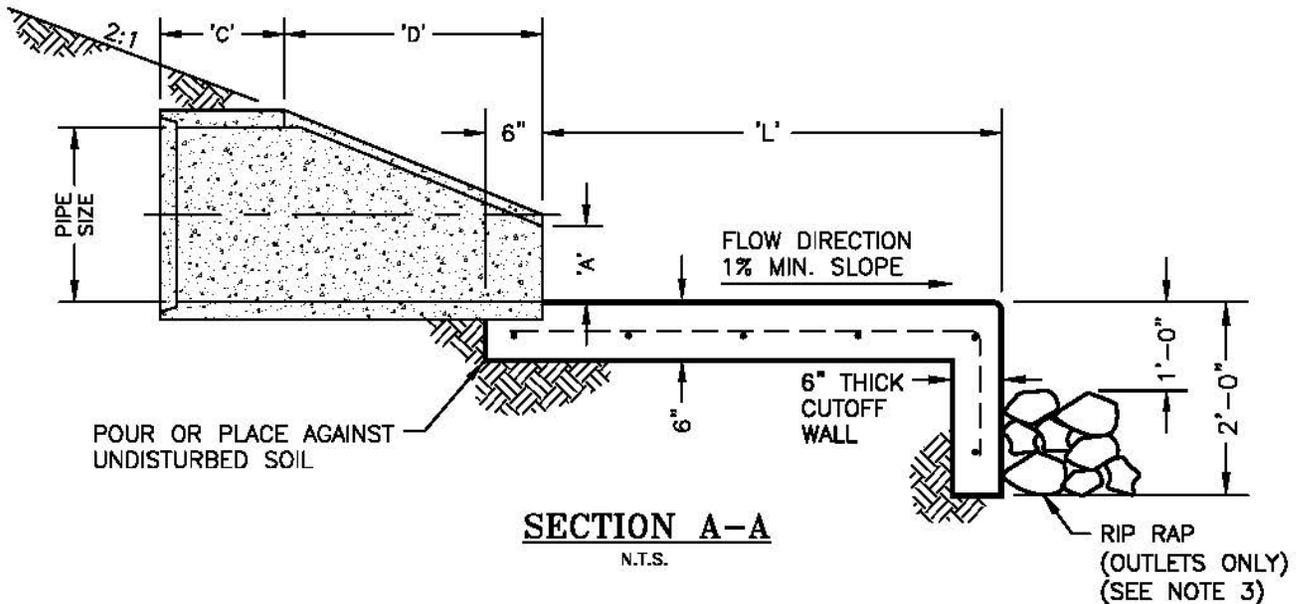
1. "D" EQUALS PIPE DIAMETER.
2. BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS. COMPACTION REQUIREMENTS PER STD PAGE 610.00
3. ALL HEADWALLS FOR PIPE LARGER THAN 42" DIAMETER ("D") SHALL BE ENGINEERED.
4. PROVIDE GUARDRAILS/PEDESTRIAN BARRIER PER THE CALIFORNIA BUILDING CODE WHEN NECESSARY.

DWG DATE: 10/11		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
1	7/13	REVISED STD	APPROVED BY  10/9/13 CITY ENGINEER	
MARK	DATE	REVISION		
			STANDARD INLET HEADWALL STRUCTURE	



PLAN VIEW

N.T.S.



SECTION A-A

N.T.S.

TABLE OF DIMENSIONS							
PIPE SIZE	'A'	'C'	'D'	'E'	WEIGHT	'L'	'W'
15", 18"	9"	13"	27"	36"	900 LBS	4'-0"	3'-6"
24"	9 1/2"	13"	43"	48"	1400 LBS	6'-0"	4'-6"

NOTES:

- ALTHOUGH DEPICTED HERE AS AN OUTLET, FLARED END SECTIONS MAY BE USED AS BOTH INLET AND OUTLET STRUCTURES ON STORM DRAINS NOT TO EXCEED 24" PIPE.
- BACKFILL SHALL BE CLASS 'A' IN STREET R/W AND CLASS 'C' IN ALL OTHER LOCATIONS. COMPACTION REQUIREMENTS PER STD PAGE 610.00
- PLACEMENT OF RIP RAP DOWNSTREAM OF THE OUTLET STRUCTURE IS REQUIRED TO A LENGTH NECESSARY TO ATTENUATE VELOCITY AND PREVENT EROSION.

DWG DATE: 10/11

SCALE: NTS

CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION

APPROVED BY

[Signature]
10/9/13
CITY ENGINEER

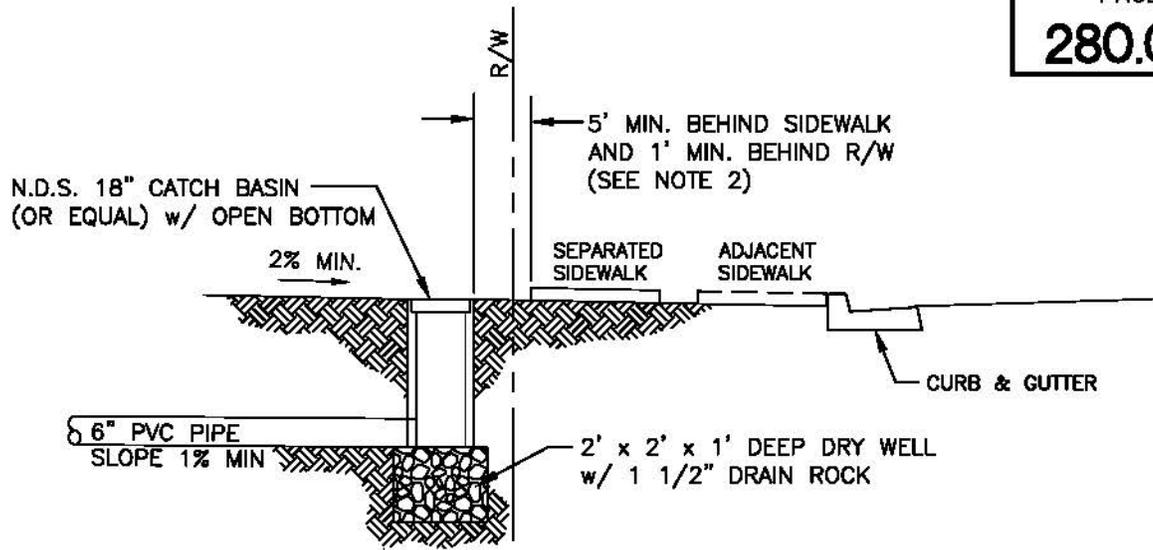
**CONCRETE
FLARED END**

MARK

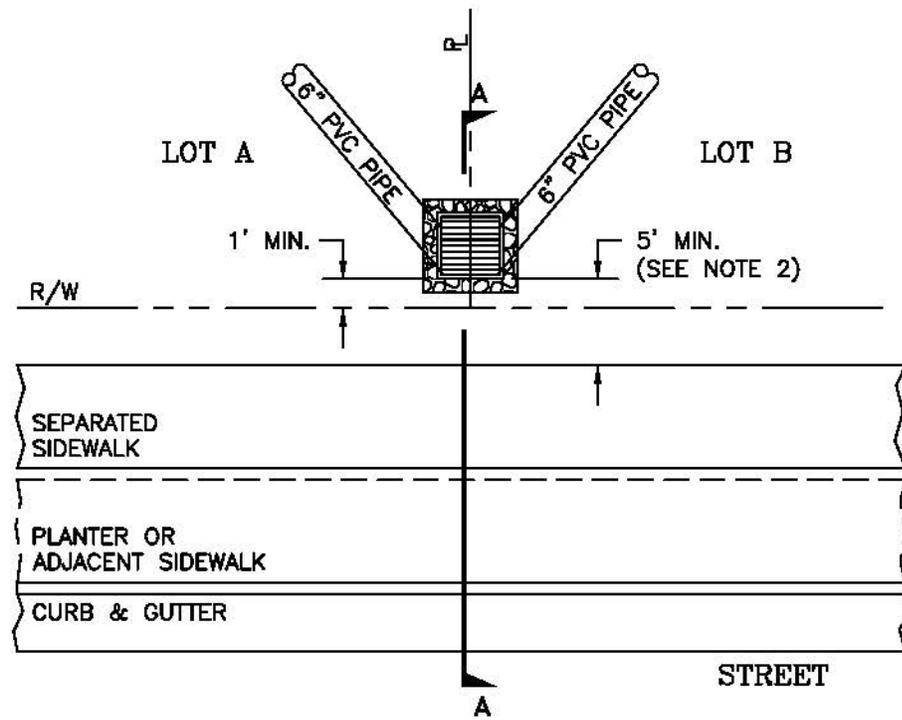
DATE

NEW STD

REVISION



SECTION A-A



PLAN VIEW

NOTES:

1. WHEN THE CATCH BASIN WILL SERVICE MORE THAN ONE PRIVATE, THE BASIN SHALL BE LOCATED ON THE PROPERTY LINE.
2. CATCH BASIN SHALL BE LOCATED A MINIMUM OF ONE (1) FOOT BEHIND THE PUBLIC RIGHT-OF-WAY AND A MINIMUM OF FIVE (5) FEET BEHIND THE BACK EDGE OF THE SIDEWALK.

DWG DATE: 10/11		SCALE: NTS	CITY OF REDDING • PUBLIC WORKS DEPARTMENT • ENGINEERING DIVISION	
		NEW STD	APPROVED BY <i>[Signature]</i> 10/9/13	PRIVATE DRAINAGE SYSTEM DRY WELL
MARK	DATE	REVISION	CITY ENGINEER	