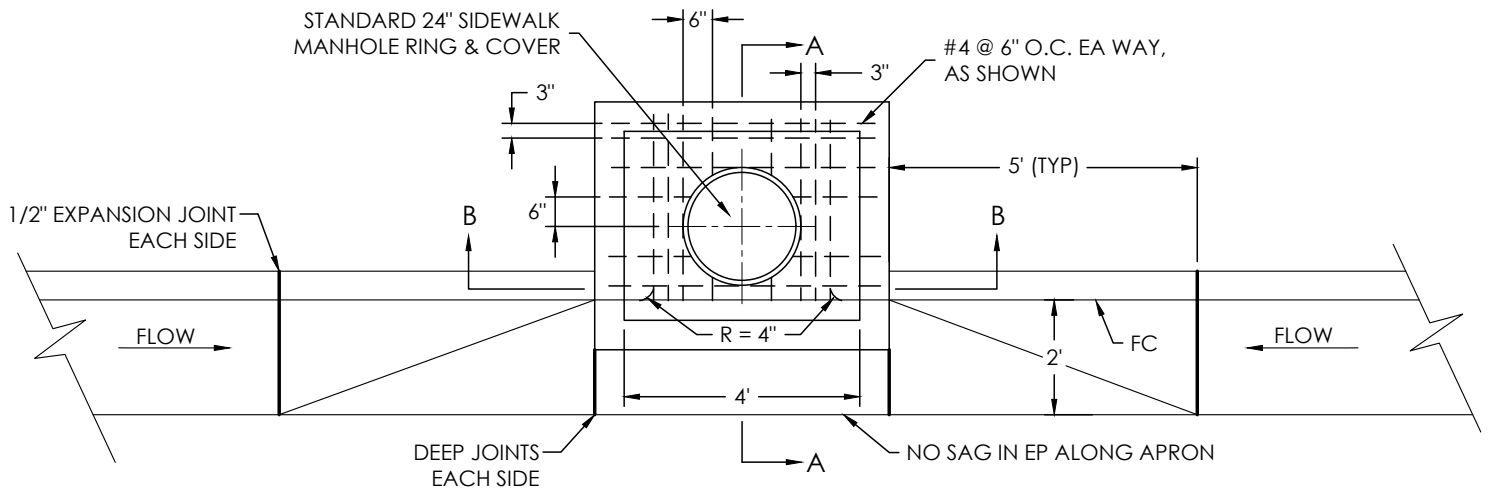
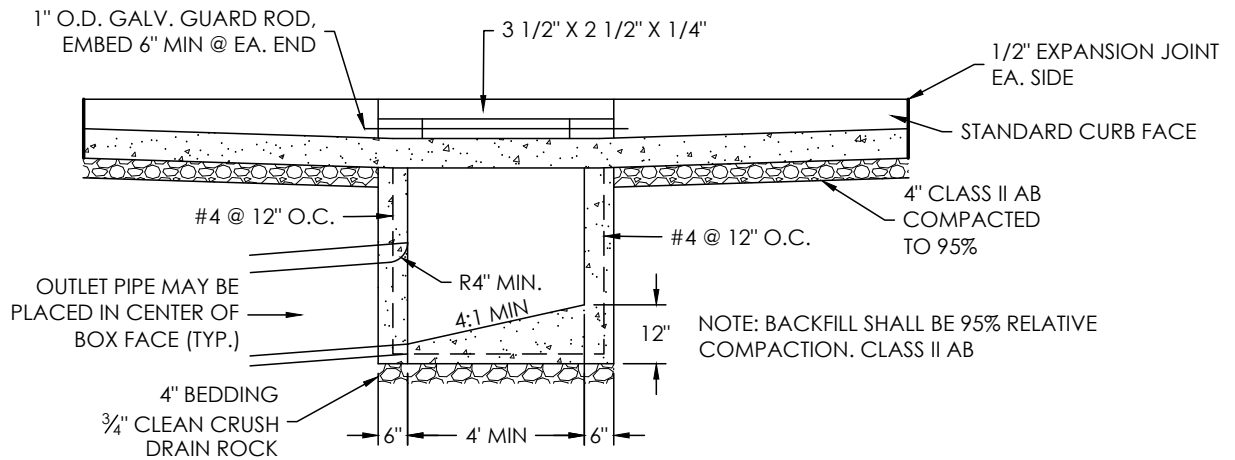


**STANDARD PLANS**  
**DRAINAGE**

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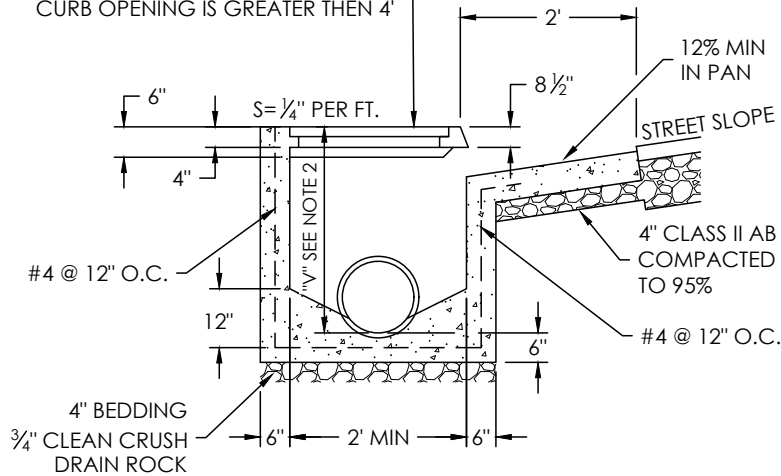


PLAN



SECTION B-B

ROOF TO BE 4" THICK WHEN CURB OPENING IS 4' OR LESS & 6" THICK WHEN CURB OPENING IS GREATER THEN 4'



SECTION A-A

NOTES

- "V"=3'-6" MINIMUM. FOR "V" GREATER THAN 5' INCREASE THICKNESS OF SIDEWALL 1" FOR EACH FOOT OF DEPTH OVER 5'.
- ALL CONCRETE SHALL BE 4000 PSI (6 SACK/CY).
- PRECAST BOXES AND GRADE RINGS MAY BE USED WHEN APPROVED BY THE ENGINEER.
- ALL MATERIALS EXCEPT REINFORCING STEEL SHALL BE SHOP GALVANIZED AFTER FABRICATION.
- PRECAST GALLERIES OR EXTENSIONS WHEN USED SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
- OPTIONAL BASE MAY BE USED WITH D-2 CATCH BASIN WHEN STORM DRAIN IS 36" DIA. OR LARGER.
- NO MORE THAN 2" OF GROUT IS ALLOWED BETWEEN POURED WALLS AND PRECAST TOPS.
- CATCH BASIN SHALL BE CONSTRUCTED TO WITHSTAND H2O LOADING.

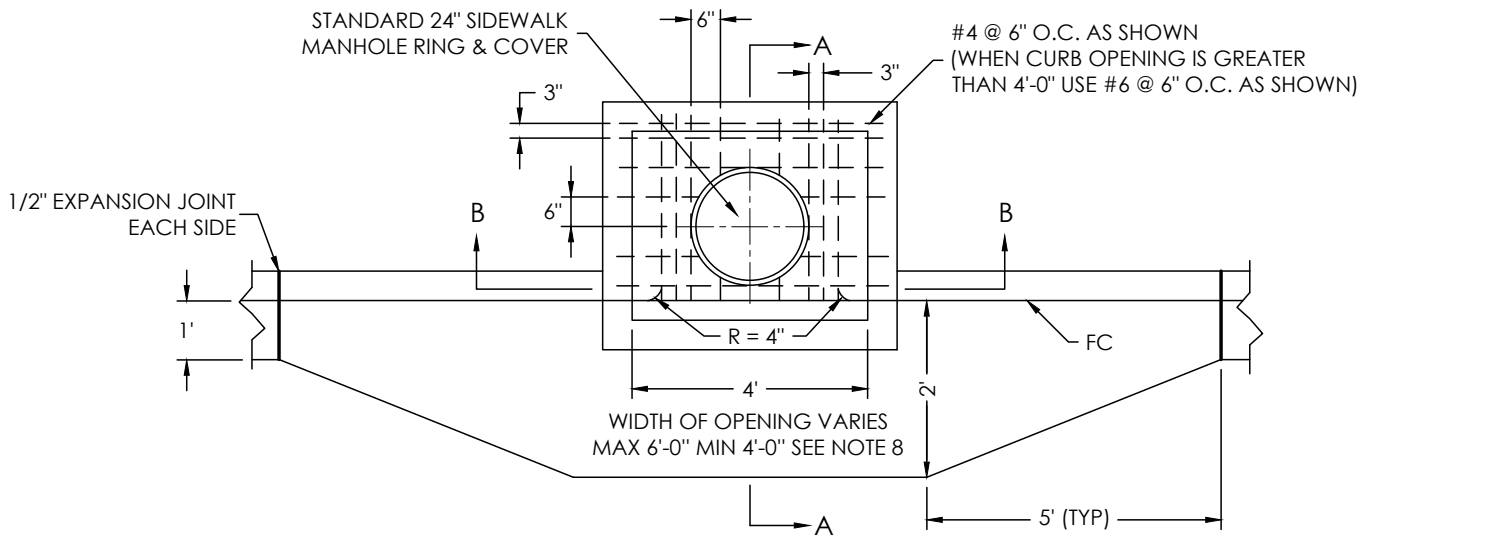
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

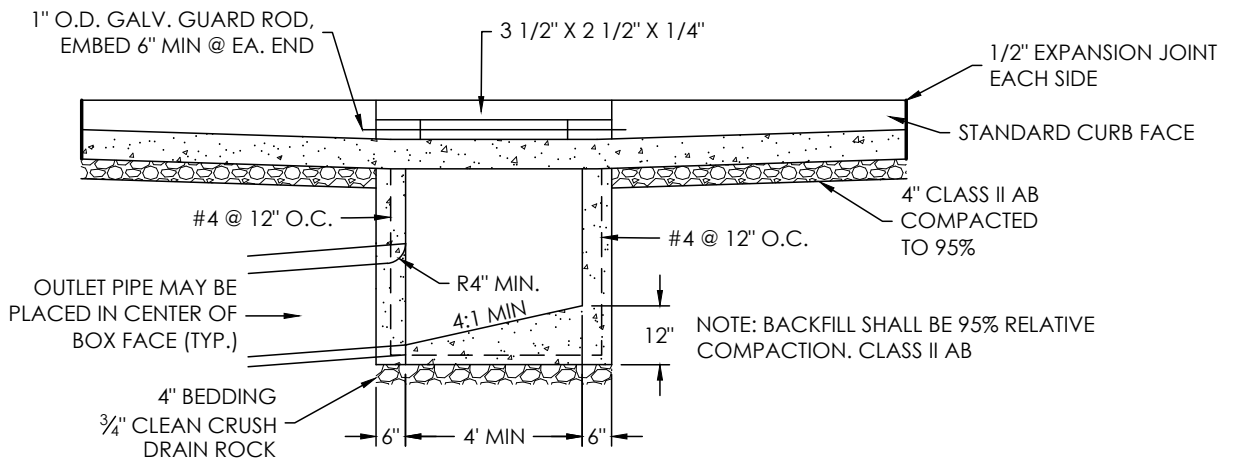
TYPE D-2  
CATCH BASIN

DRAWN BY: LFM  
APPROVAL DATE: 06/2018  
SCALE: NONE  
REVISED DATE:

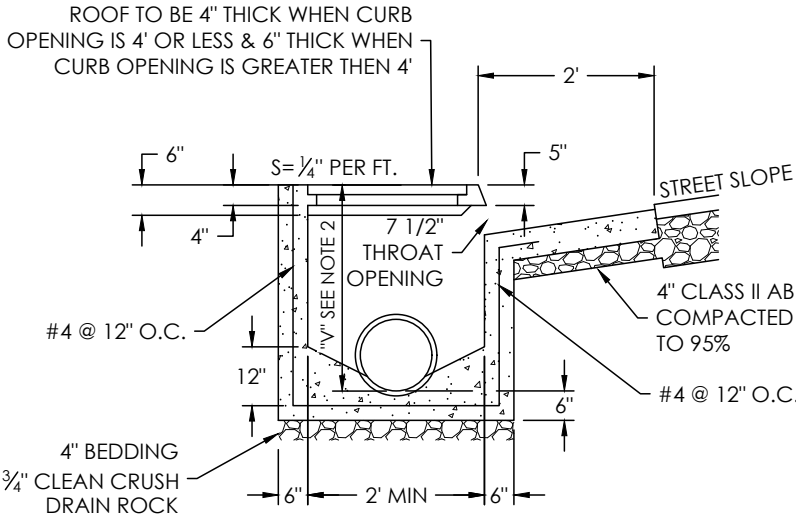
CHECKED BY: IHH  
APPROVED BY: JBL  
DRAWING NO. D-2



PLAN



SECTION B-B



SECTION A-A

NOTES

1. THIS STD. SHALL BE USED WHERE EXISTING GUTTER PAN IS 1'. ALL CATCH BASINS INSTALLED WITH 2' GUTTER PAN SHALL BE PER CITY STD. D-2.
2. "V" = 3'-6" MINIMUM. FOR "V" GREATER THEN 5' INCREASE THICKNESS OF SIDEWALL BY 1" FOR EACH FOOT OF DEPTH OVER 5'.
3. ALL CONCRETE SHALL BE CLASS 'A' (6 SK./CU.YD).
4. PRECAST BOXES AND GRADE RINGS MAY BE USED WHEN APPROVED BY THE CITY ENGINEER.
5. ALL MATERIALS EXCEPT REINFORCING STEEL SHALL BE SHOP GALVANIZED AFTER FABRICATION.
6. PRECAST GALLERIES OR EXTENSIONS WHEN USED SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
7. OPTIONAL BASE MAY BE USED WITH 6-2 CATCH BASIN WHEN STORM DRAIN IS 36" DIA. OR LARGER.
8. SEE D-4 FOR SPECIAL APRONS.
9. NO MORE THAN 2" OF GROUT IS ALLOWED BETWEEN Poured WALLS AND PRECAST TOPS.
10. CATCH BASIN SHALL BE CONSTRUCTED TO WITHSTAND H2O LOADING.

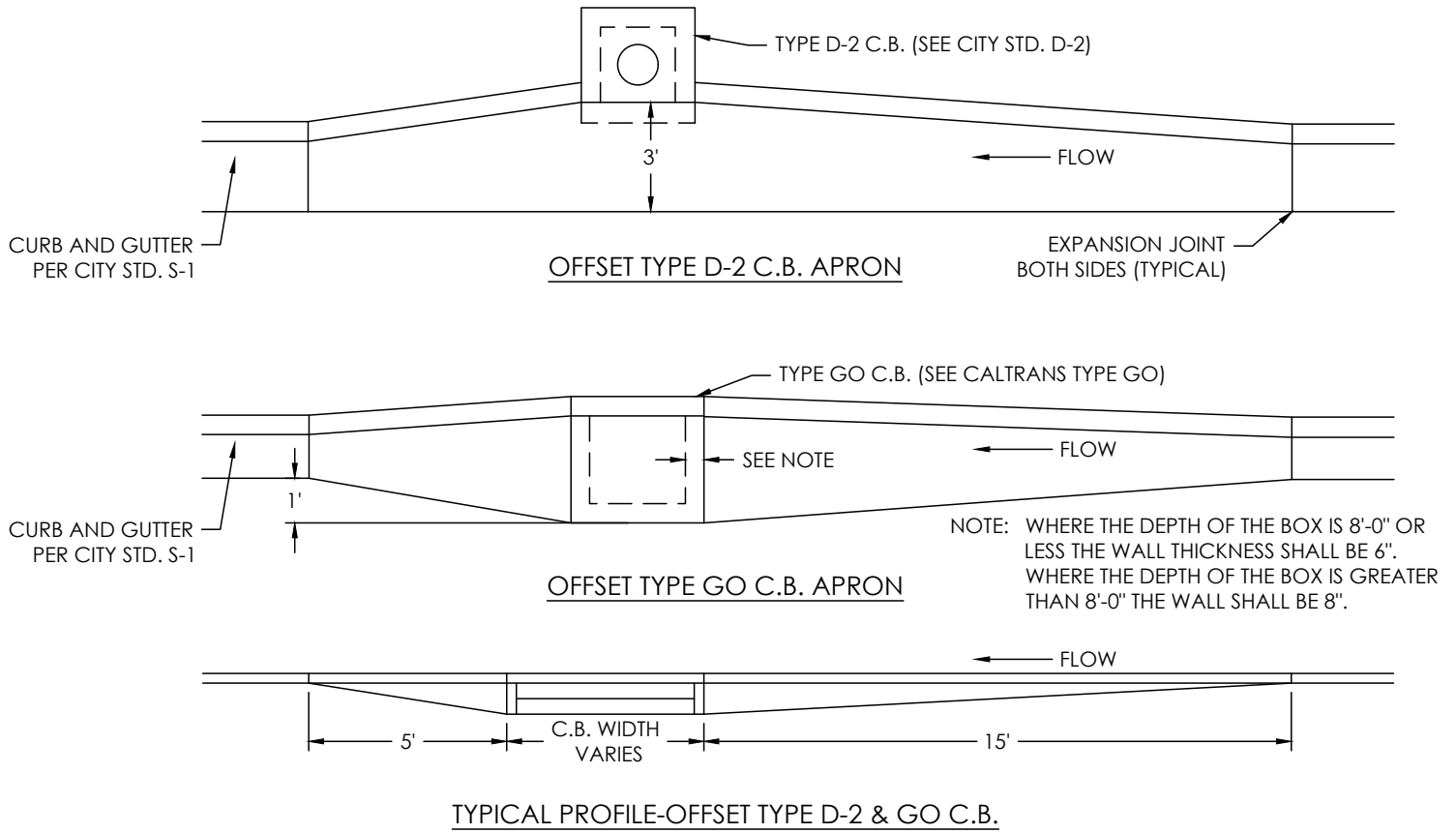
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

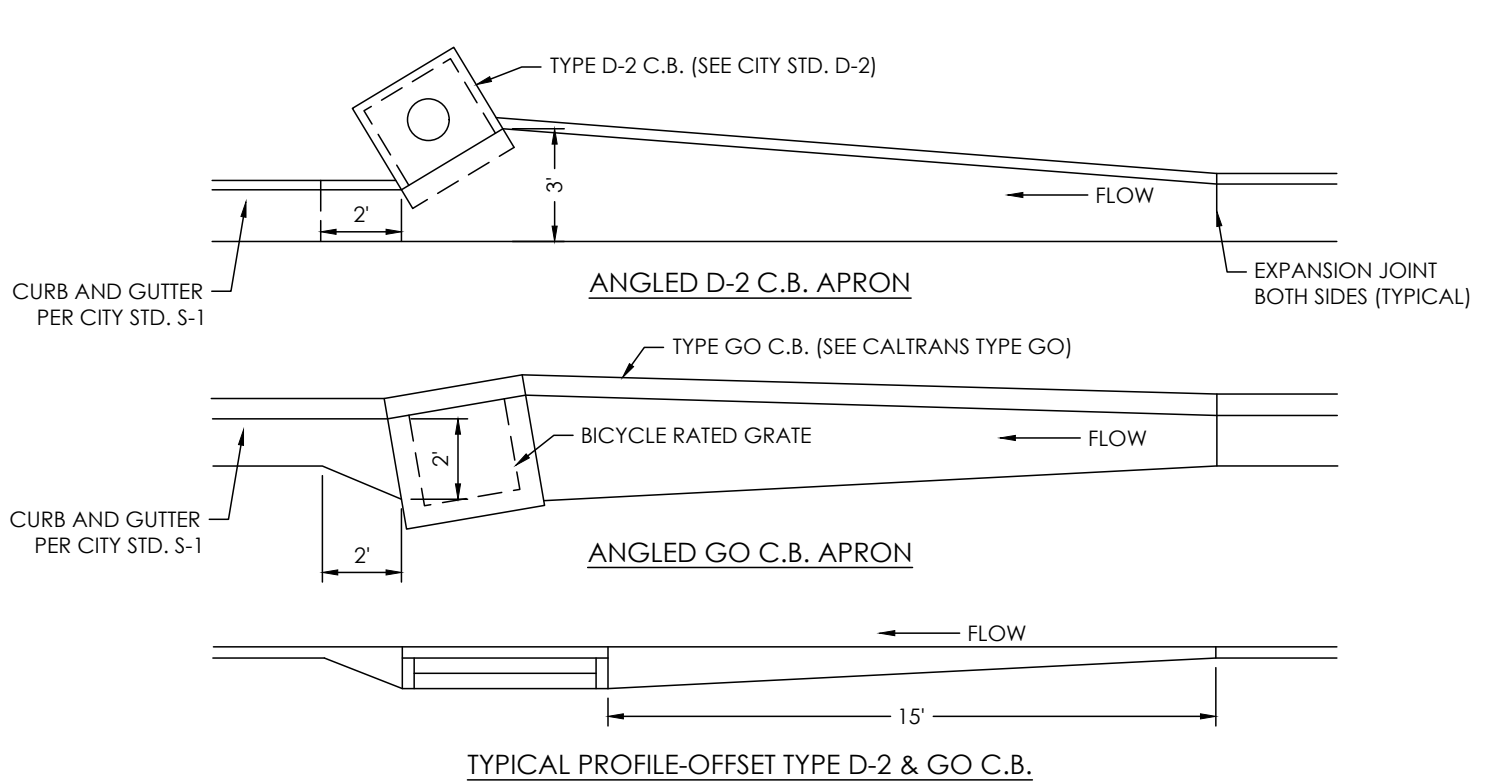
TYPE D-2 CATCH BASIN WITH GUTTER TRANSITION

DRAWN BY:	LFM	CHECKED BY:	IHH
APPROVAL DATE:	06/2018	APPROVED BY:	JBL
SCALE:	NONE	DRAWING NO.	D-2A
REVISED DATE:	08/2021		

**STREET SLOPES LESS THAN 2 1/2%**



**STREET SLOPES 2 1/2% OR MORE**

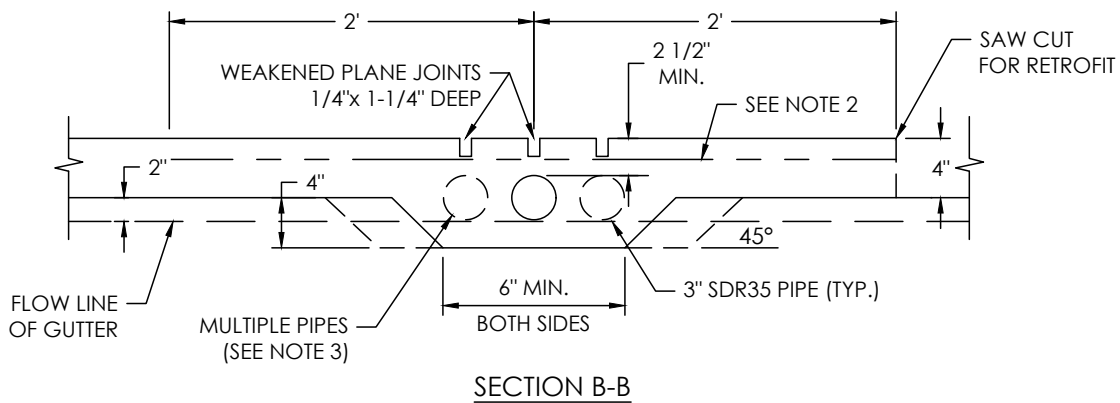
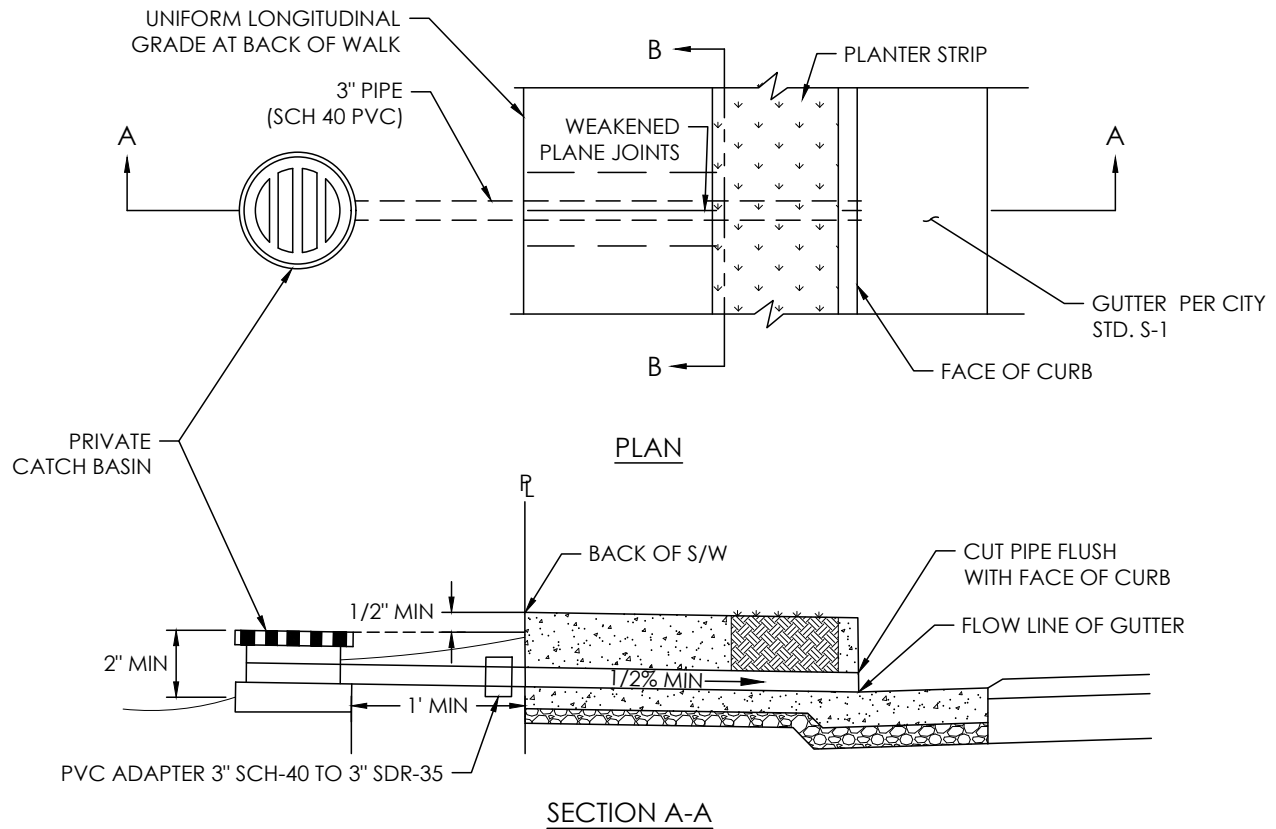


CITY OF NAPA

PUBLIC WORKS DEPARTMENT

**SPECIAL APRONS FOR TYPE D-2 & GO CATCH BASINS**

DRAWN BY:	LFM	CHECKED BY:	IHH
APPROVAL DATE:	06/2018	APPROVED BY:	JBL
SCALE:	NONE	DRAWING NO.	D-4A
REVISED DATE:			



NOTES

1. OWNER SHALL BE RESPONSIBLE FOR CLEANING AND MAINTAINING DRAIN PIPE ON BOTH HIS PROPERTY AND THE PORTION THROUGH THE SIDEWALK.
2. 10-GAUGE WIRE MESH 4" X 4". WIRE MESH SHALL BE FULL WIDTH OF SIDEWALK MINUS 2". LENGTH OF WIRE MESH SHALL AT A MINIMUM EQUAL THE WIDTH AND SHALL BE CENTERED OVER PIPE. WIRE MESH SHALL BE PLACED MID-WAY BETWEEN THE BOTTOM OF THE WEAKENED PLANE JOINTS AND THE TOP OF THE PIPE(S).
3. MULTIPLE PIPES MAY BE USED WHERE NECESSITATED BY THE CONTRIBUTING AREA. IN THIS CASE PIPES SHALL BE SPACED 6" ON CENTER.

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

RESIDENTIAL UNDER  
SIDEWALK DRAIN

DRAWN BY: LFM  
 APPROVAL DATE: 06/2018  
 SCALE: NONE  
 REVISED DATE: 08/2021

CHECKED BY: IHH  
 APPROVED BY: JBL  
 DRAWING NO. D-5A

# RESERVED

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

COMMERCIAL UNDER  
SIDEWALK DRAIN

DRAWN BY:	LFM
APPROVAL DATE:	06/2018
SCALE:	NONE
REVISED DATE:	

CHECKED BY:	IHH
APPROVED BY:	JBL
DRAWING NO.	D-5B

RESERVED

CITY OF NAPA

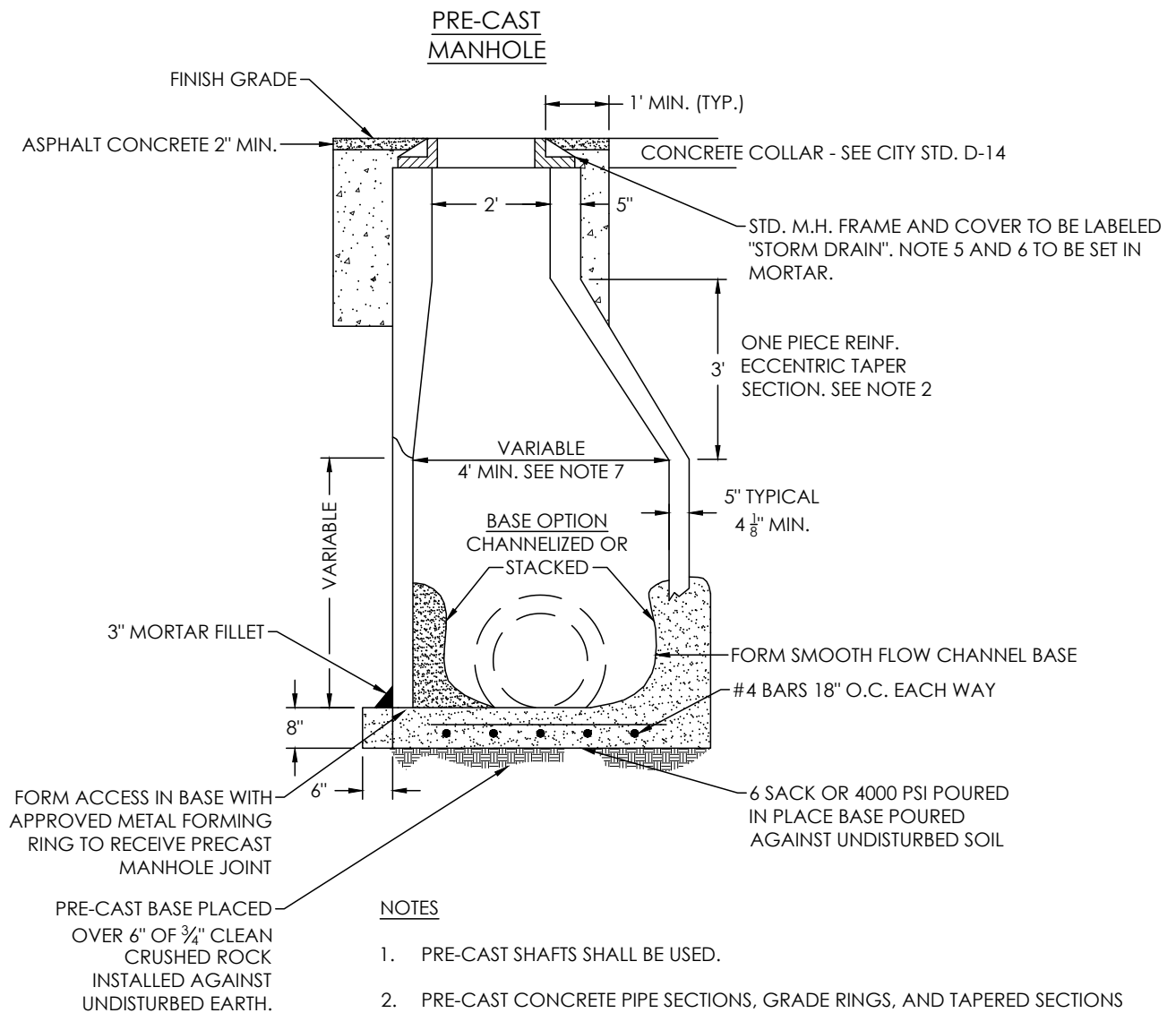
PUBLIC WORKS DEPARTMENT

STORM DRAIN OUTFALL  
ROCK SLOPE PROTECTION

DRAWN BY:	LFM
APPROVAL DATE:	06/2018
SCALE:	NONE
REVISED DATE:	

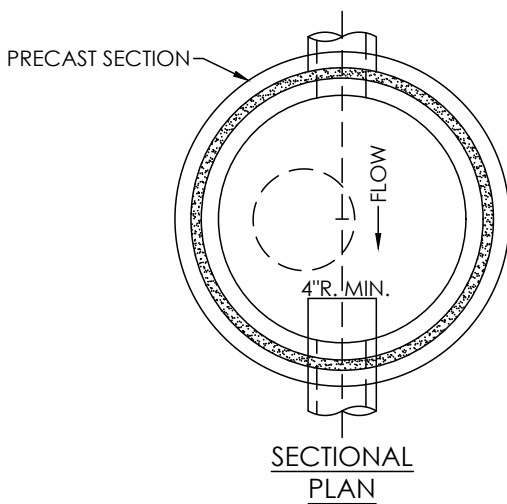
CHECKED BY:	IHH
APPROVED BY:	JBL
DRAWING NO.	D-6





**NOTES**

1. PRE-CAST SHAFTS SHALL BE USED.
2. PRE-CAST CONCRETE PIPE SECTIONS, GRADE RINGS, AND TAPERED SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPEC. C-478.
3. ALL CONCRETE JOINTS SHALL BE CLEANED, WETTED, AND MORTARED PRIOR TO SETTING THE NEXT SECTION, THE JOINTS SHALL BE PACKED, TRAWLED, AND BRUSHED WHILE THE MORTAR IS PLASTIC. RAM-NEK FLEXIBLE MAY ALSO BE USED, UPON APPROVAL FROM THE ENGINEER.
4. FRAME TO BE USED IN STREET AND DRIVEWAY AREAS SHALL BE PHOENIX P-1090, SOUTH BAY FOUNDRY #1900 CFH D&L FOUNDRY A-1024 OR APPROVED EQUAL, AND 2" FRAME SHALL BE USED IN S/W EASEMENT ETC. WHERE NO TRAFFIC IS ALLOWED. ALL M.H. SHALL HAVE 24" MIN. CLEAR OPENING.
5. M.H. THAT ARE SHALLOW MAY BE CONST. CONCENTRIC OR FLAT TOP AND/OR WITH A LARGER DIA. M.H. FRAME TO FACILITATE CONSTRUCTION WITH APPROVAL OF THE ENGINEER, LONGER STEPS MAY BE REQUIRED.
6. RING AND COVER SHALL BE SET TO GRADE AND CROSS SLOPE SUBSEQUENT TO PLACING A.C.
7. 48" DIA. BARREL SHALL BE USED FOR PIPES UP TO 24" IN DIA.; 60" DIA. BARREL SHALL BE USED ON PIPES UP TO 36" DIAMETER. 42" DIAMETER OR LARGER PIPE SHALL CONFORM TO STANDARD D-8 DRAWING.
8. ALL CAST IN PLACE PIPE Poured THOUGH A MANHOLE REQUIRES STANDARD D-8 MANHOLE DETAILS.



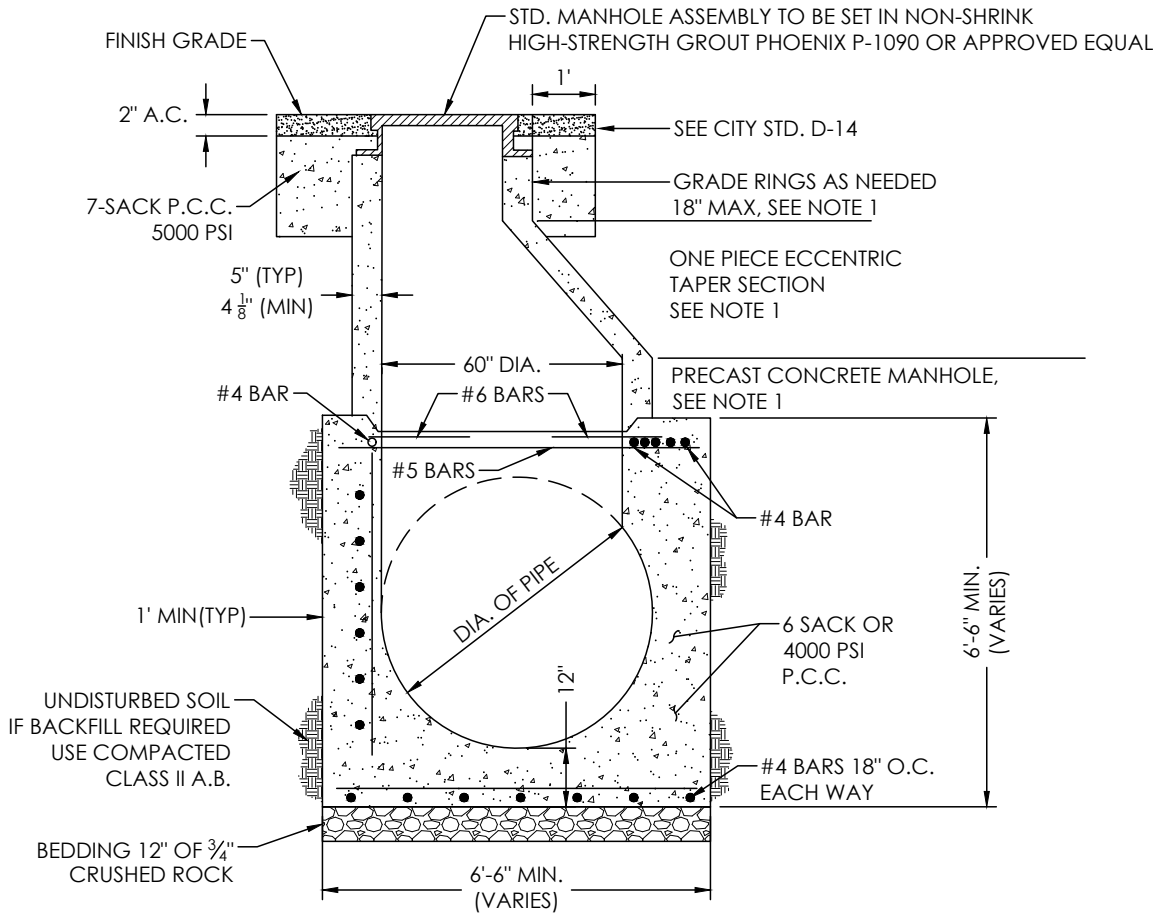
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

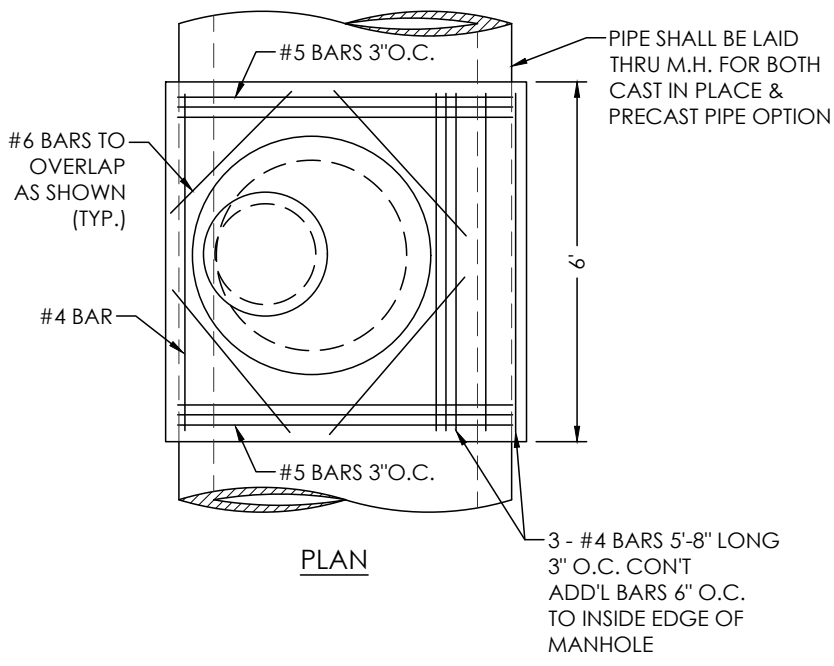
**STANDARD STORM  
DRAIN MANHOLE**

DRAWN BY: LFM  
 APPROVAL DATE: 06/2018  
 SCALE: NONE  
 REVISED DATE: 08/2021

CHECKED BY: IHH  
 APPROVED BY: JBL  
 DRAWING NO. D-7



PROFILE



PLAN

NOTES

1. PRECAST CONCRETE MANHOLE BARREL, GRADE RINGS AND TAPERED SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPEC. C-478.
2. PAVE STREET THEN SET MANHOLE RING AND COVER TO GRADE AND CROSS SLOPE PER CITY STD D-14.

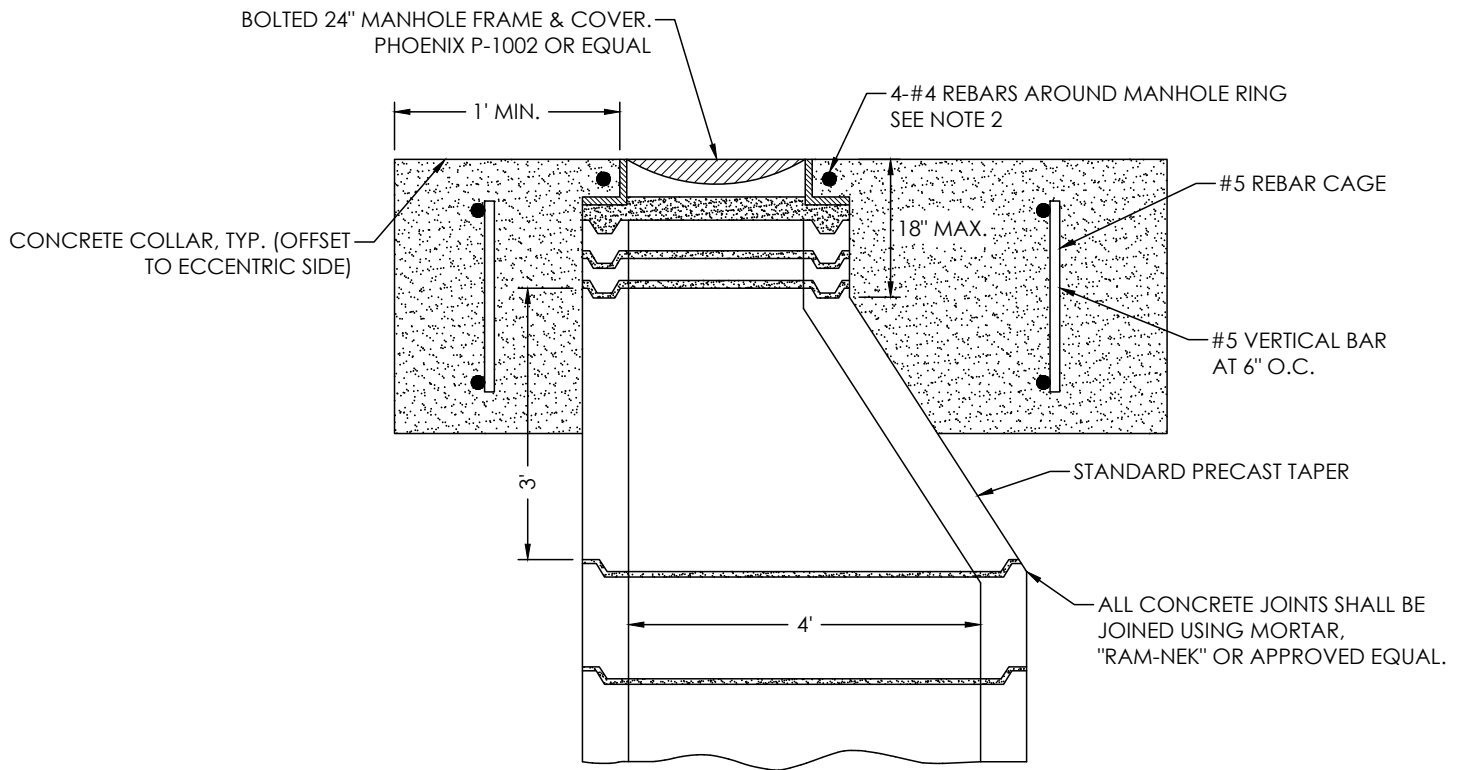
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

STANDARD MANHOLE  
42" DIAMETER OR LARGER PIPE

DRAWN BY:	LFM
APPROVAL DATE:	06/2018
SCALE:	NONE
REVISED DATE:	08/2021

CHECKED BY:	IHH
APPROVED BY:	JBL
DRAWING NO.	D-8



**NOTES**

1. COLLAR MUST EXTEND TO TOP OF MANHOLE FRAME AND OVER BOTTOM FLANGE OF FRAME.
2. PLACE 4-#4 BARS X 4 FT. LONG AROUND MANHOLE IN CROSSING PATTERN.
3. MINIMUM COLLAR VOLUME SHALL BE ONE-HALF CUBIC YARD.
4. THE TABLE SHOWS MINIMUM REQUIREMENTS FOR CONCRETE COLLARS, THE ENGINEER SHALL SIZE FOR DESIGN PRESSURE AND SUBMIT DESIGN CALCULATIONS FOR THE CONCRETE COLOR AND REBAR FOR EACH SPECIFIC CONDITION, FOR APPROVAL BY THE PUBLIC WORKS DIRECTOR.

TABLE		
OUTSIDE COLLAR DIMENSIONS (FT)	CONCRETE COLLAR DEPTH (FT)	APPROX. VOLUME (CY)
4X4	1.5	0.5 MIN
4X5	2.0	1.00
4X5	3.0	1.25
4X5.5	3.5	1.33
4X6	3.0	1.50
4X6.5	3.0	2.00
5X6	3.0	2.25
5X6.5	3.0	2.50
5X6.5	3.5	2.75
5X7	3.5	3.00
5X7	4.0	3.25
5.5X6.5	4.0	3.50
5.5X7	4.0	4.00
6X7	3.5	3.75
6.5X7	3.75	4.50
6.5X7	4.0	5.00

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

**STORM DRAIN PRESSURE  
MANHOLES-CONCRETE COLLARS**

DRAWN BY: LFM  
 APPROVAL DATE: 06/2018  
 SCALE: NONE  
 REVISED DATE: 08/2021

CHECKED BY: IHH  
 APPROVED BY: JBL  
 DRAWING NO. D-9

RESERVED

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

STANDARD CONCRETE LINED  
INTERCEPTOR DITCH

DRAWN BY:	LFM
APPROVAL DATE:	06/2018
SCALE:	NONE
REVISED DATE:	

CHECKED BY:	IHH
APPROVED BY:	JBL
DRAWING NO.	D-10

RESERVED

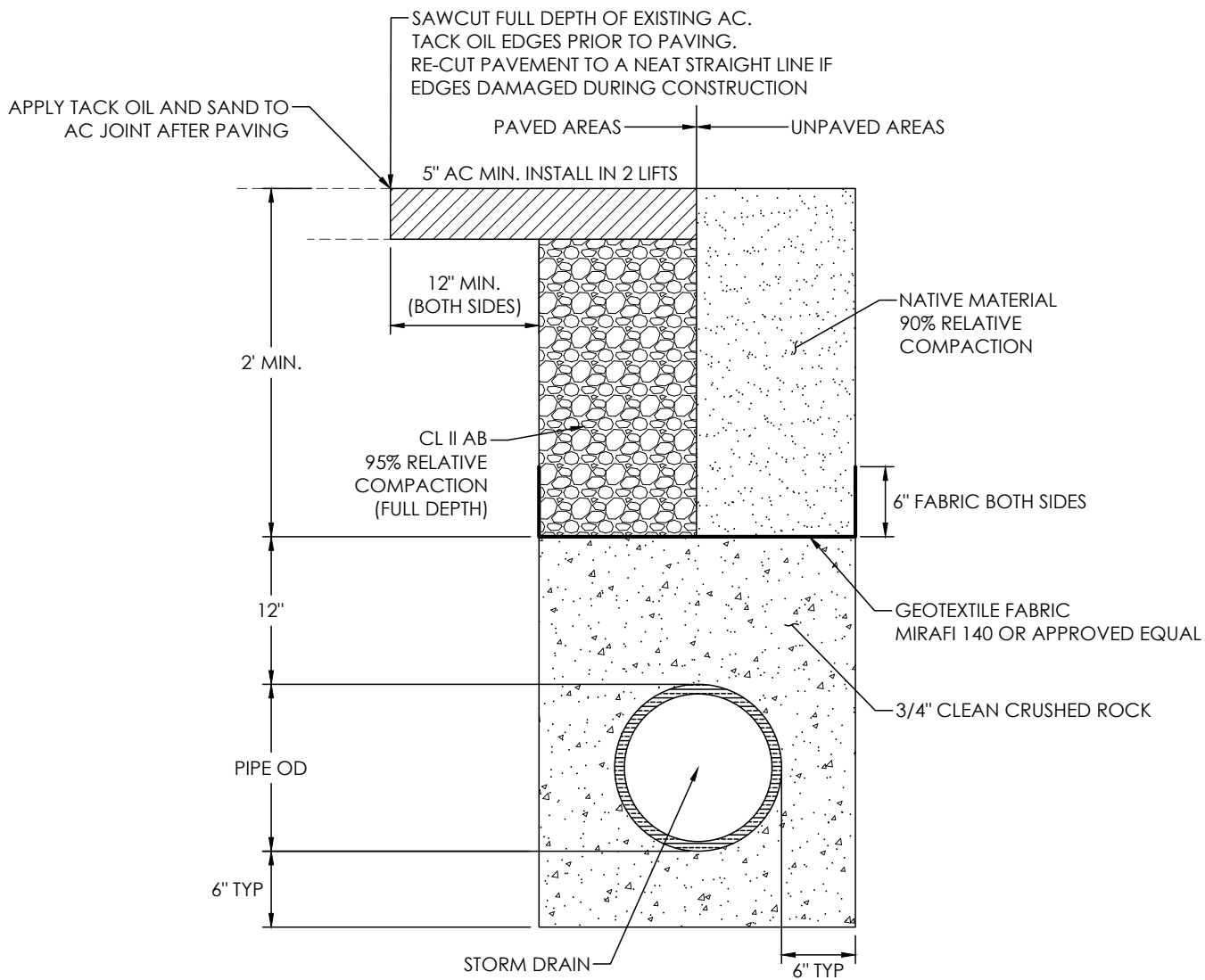
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

DRAINAGE FLAP  
GATE DETAIL

DRAWN BY:	LFM
APPROVAL DATE:	06/2018
SCALE:	NONE
REVISED DATE:	

CHECKED BY:	IHH
APPROVED BY:	JBL
DRAWING NO.	D-11



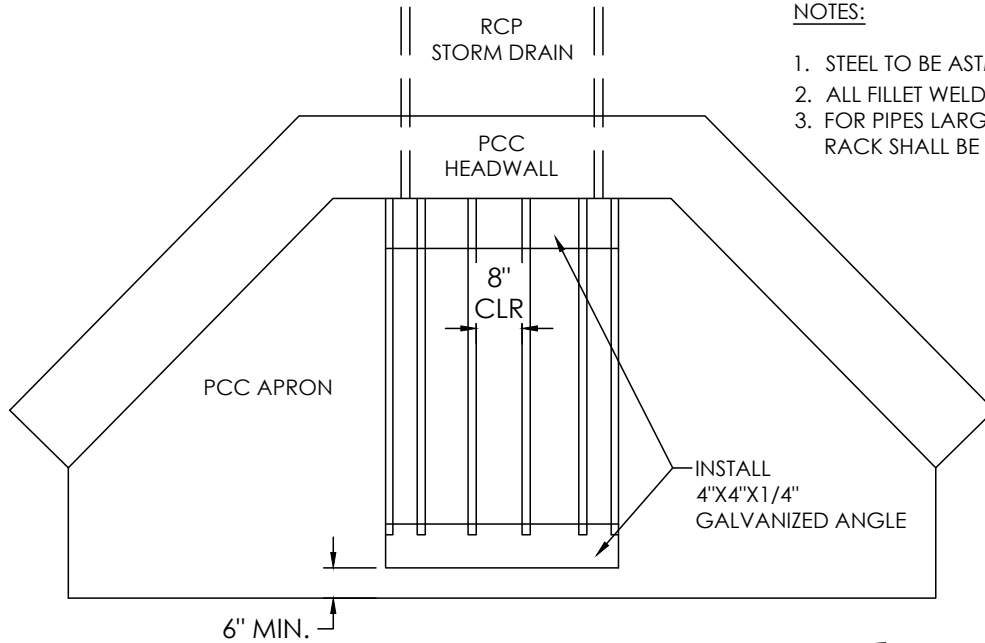
NOTES

1. WHERE THE TRENCH PARALLELS CURB AND THE NEAREST TRENCH LINE IS LESS THAN 3 FEET FROM THE GUTTER LIP, ALL EXISTING ASPHALT CONCRETE SHALL BE REPLACED TO THE GUTTER LIP.
2. 3 SACK SLURRY PCC BACKFILL COMPLYING WITH LATEST CALTRANS STANDARD SPECIFICATION IS REQUIRED FOR SHALLOW TRENCHES AND HIGH TRAFFIC AREAS.
3. REFER TO CITY STD. S-12 FOR ADDITIONAL REQUIREMENTS.

CITY OF NAPA PUBLIC WORKS DEPARTMENT

STORM DRAIN TRENCH

DRAWN BY:	LFM	CHECKED BY:	IHH
APPROVAL DATE:	05/2019	APPROVED BY:	JBL
SCALE:	NONE	DRAWING NO.	D-12
REVISED DATE:	08/2021		



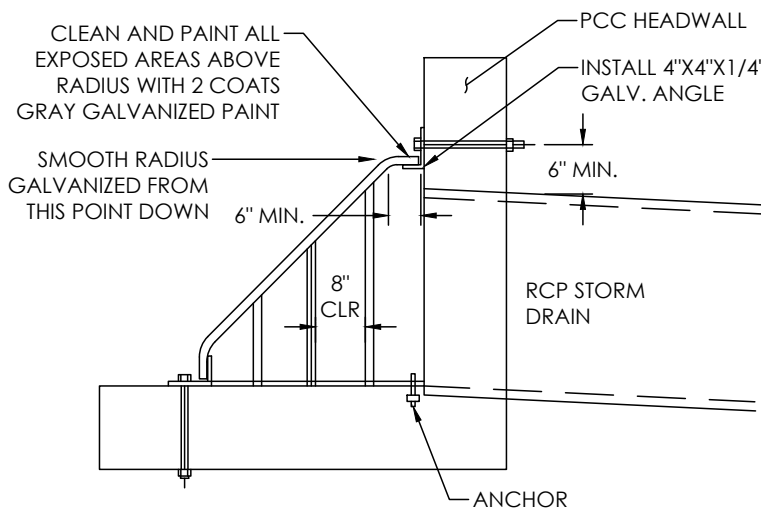
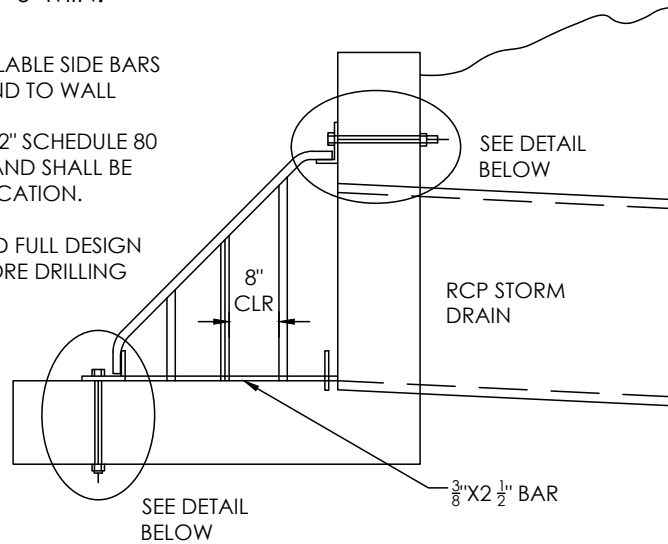
**NOTES:**

1. STEEL TO BE ASTM DESIGNATION A-36
2. ALL FILLET WELDS TO BE  $\frac{1}{4}$ "
3. FOR PIPES LARGER THAN 60"Ø, TRASH RACK SHALL BE ENGINEERED

IF PERPENDICULAR WINGWALL IS AVAILABLE SIDE BARS MAY BE DELETED IF CENTER BARS EXTEND TO WALL

TRASH RACK SHALL BE WELDED USING 2" SCHEDULE 80 PIPE, BARS, AND ANGLES AS SHOWN, AND SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.

ENSURE THAT CONCRETE HAS REACHED FULL DESIGN STRENGTH (28 DAYS MIN. CURED) BEFORE DRILLING HOLES OR INSTALLING ANCHORS



6" MIN. BETWEEN BOLT AND TOP OF WALL

3/4" DIA. BOLT WITH 1 1/2" DIA. WASHER EACH SIDE, 12" O.C.

USE NYLOCK FASTENERS, APPROVED CONCRETE ANCHOR OR APPROVED EQUAL

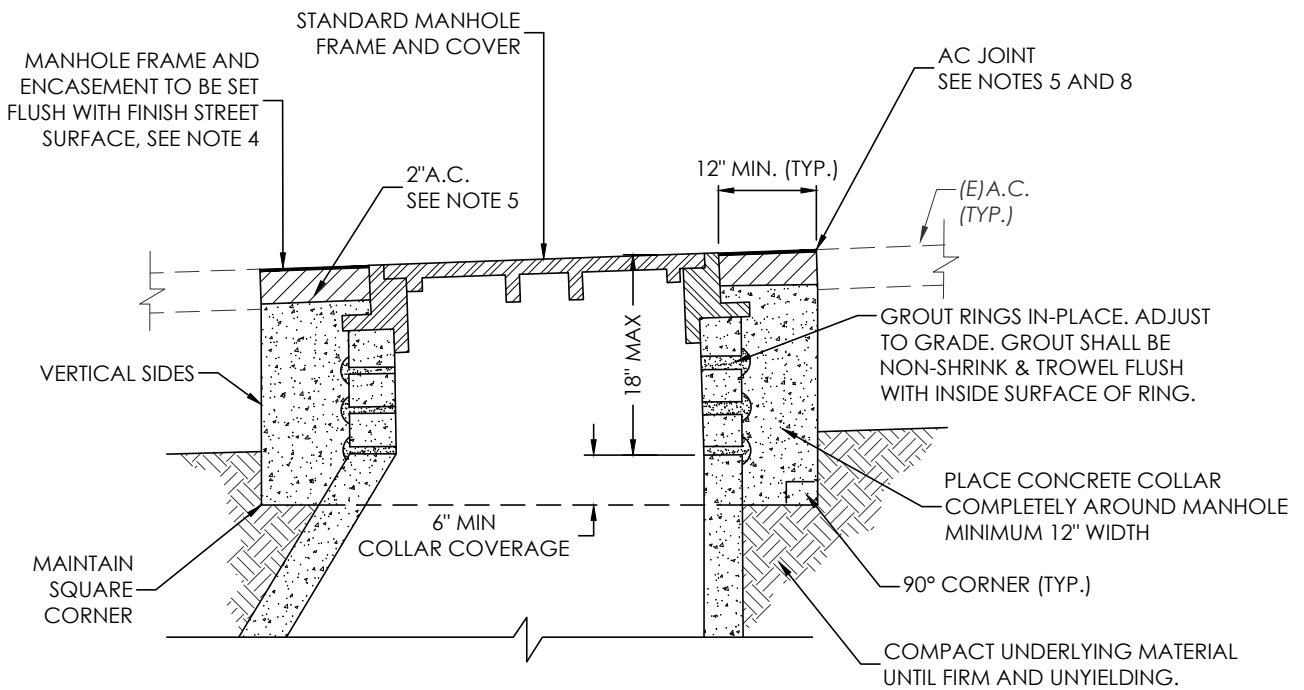
CITY OF NAPA

PUBLIC WORKS DEPARTMENT

**STORM DRAIN INLET  
TRASH RACK**

DRAWN BY: LFM  
 APPROVAL DATE: 06/2018  
 SCALE: NONE  
 REVISED DATE: 08/2021

CHECKED BY: IHH  
 APPROVED BY: JBL  
 DRAWING NO. D-13



**NOTES**

1. RIMS SHALL BE ADJUSTED TO FINAL GRADE AND CROSS-SLOPE AFTER PLACEMENT OF FINAL PAVING. SAW CUT A CIRCULAR HOLE AROUND THE APPURTENANCE USING A METHOD THAT PROVIDES A SMOOTH EDGE, AS APPROVED BY THE ENGINEER AND REMOVE PAVEMENT AS SHOWN.
2. PROTECT FROM TRAFFIC LOADING (BY STEEL PLATE OR OTHER METHOD APPROVED BY THE ENGINEER) AT ALL TIMES.
3. ALL ENCASEMENTS SHALL BE SET FLUSH WITH STREET SURFACE.
4. CONTRACTOR SHALL ARRANGE FOR CITY INSPECTION BEFORE PCC IS PLACED. MANHOLE SHALL BE EXCAVATED AND BACKFILL COMPACTED, PRIOR TO CITY INSPECTION.
5. CONCRETE SHALL BE TACK COATED PRIOR TO AC PLACEMENT.
6. LIGHT BROOM FINISH ON PCC.
7. CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN A STEEL PLATE OVER EACH CONCRETE COLLAR PLACED AROUND EACH FRAME OR BOX UNTIL THE ASPHALT CONCRETE PLACED TO FINISH GRADE.
8. CONCRETE COLLAR SHALL BE SEVEN (7) SACK, 5000 PSI.
9. USE OF GRADE RING IS LIMITED BY 18" MAXIMUM MANHOLE THROAT LENGTH.
10. INSTALL MANHOLE BARREL RISERS, AS NECESSARY, TO RAISE THE CONE AS HIGH AS POSSIBLE BELOW THE MANHOLE RING AND COVER TO KEEP THE MANHOLE THROAT AS SHORT AS POSSIBLE (18" MAX).

CITY OF NAPA

PUBLIC WORKS DEPARTMENT

**STANDARD MANHOLE ADJUSTMENT**

DRAWN BY:	LFM	CHECKED BY:	IHH
APPROVAL DATE:	06/2018	APPROVED BY:	JBL
SCALE:	NONE	DRAWING NO.	D-14
REVISED DATE:	05/2022		